



3. OBJECTIVES AND PRIORITIES

Ballona Creek

Broad consensus on quantitative Regional targets for the next 25 years provides clear direction for projects and accountability for success.

3.1 Purpose

This chapter identifies the objectives for the Plan, establishes quantified planning targets for the 25 year planning horizon (2010 through 2035) that can be used to gauge success in meeting the objectives, and identifies short- and long-term priorities for the Region.

3.2 Objectives

This Plan is intended to improve water supply and water quality, enhance open space, recreation and habitat, and improve flood management in the GLAC Region. To meet those broad goals, the five regional objectives outlined in the 2006 Plan were refined and updated to better reflect the needs of the Region and its stakeholders. Each of these objectives is supported by specific and measurable planning targets. Instead of setting regional metrics first, the new regional 2013 Plan objectives and targets described in this chapter were generally developed as a summation of individual subregional targets developed through two processes.

1. **Technical Input:** To provide oversight and technical vetting of the methods used to develop the objectives and targets, the LC established three Water Management Subcommittees: 1) Water Supply, 2) Water Quality and Flood Management, and 3) Habitat and Open Space. These Subcommittees met to develop the format and calculation methods used to determine targets in each of the objective areas.
2. **Stakeholder Input:** The Subregional SCs also conducted meetings to engage stakeholders in the development of subregional targets by commenting on the methods and formats being finalized by the Subcommittees, providing information and data from existing planning efforts and reviewing/revising draft target calculations developed. Because all subregional steering committees were not completely satisfied with habitat and open space targets at the subregional level, it was agreed that targets for this category would only be expressed at the regional level.

The input and decisions made by the stakeholder SC and technical Subcommittee meetings resulted in draft targets listed as part of the Subregional Plans and Water Management Objective and Targets TMs. The TMs were made available for review and finalized based upon comments received. These documents are attached as appendices to this Plan Update. The documents and data provided by stakeholders in development of the objectives and targets included in the TMs were drawn from water resource management plans, habitat and open space inventories, FEMA flood management and the County Sediment Management Plan, municipal general plans, and water quality impairment listings.

The LC did not choose to prioritize the regional objectives or targets 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. The Region may choose, however, to prioritize these objectives relative to grant requirements to enhance project prioritization and selection. In those cases, the type of funding program will dictate which target should be emphasized. The six regional objectives and their affiliated planning targets are listed in Table 3-1 and described in the following sections.

Objectives	Planning Targets for 2035
 <p>Improve Water Supply Optimize local water resources to reduce the Region's reliance on imported water.</p>	<ul style="list-style-type: none"> • Conserve 117,000 AFY of water through water use efficiency and conservation measures. • Create additional ability to pump 106,000 AFY using a combination of treatment, recharge, and storage access. • Increase indirect potable reuse by 80,000 AFY. • Increase non-potable reuse of recycled water by 83,000 AFY. • Increase capture and use of stormwater runoff by 26,000 AFY currently lost to the ocean. • Increase both centralized and distributed stormwater infiltration by 75,000 AFY. • Develop 26,000 AFY of ocean water desalination.
 <p>Improve Surface Water Quality Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater and wastewater.</p>	<p>Develop¹ 54,000 AF of new stormwater capture capacity (or equivalent) spatially dispersed to reduce region-wide pollutant loads, emphasizing higher priority areas².</p>
 <p>Enhance Habitat Protect, restore, and enhance natural processes and habitats.</p>	<ul style="list-style-type: none"> • Preserve or protect 2,000 acres of aquatic habitat. • Enhance 6,000 acres of aquatic habitat. • Restore or create 4,000 acres of aquatic habitat.
 <p>Enhance Open Space and Recreation Increase watershed friendly recreational space for all communities.</p>	<ul style="list-style-type: none"> • Create 38,000 acres of open space. • Create 25,000 acres of urban parks.
 <p>Reduce Flood Risk Reduce flood risk in flood prone areas by either increasing protection or decreasing needs using integrated flood management approaches.</p>	<ul style="list-style-type: none"> • Reduce flood risk in 11,400 acres of flood prone areas by either increasing protection or decreasing needs using integrated flood management approaches. • Remove 68 million cubic yards of sediment from debris basins and reservoirs.
 <p>Address Climate Change Adapt to and mitigate against climate change vulnerabilities.</p>	<ul style="list-style-type: none"> • Increase local supplies by an additional 7-10% (beyond water supply target) by 2050. • Implement "no regret" adaptation strategies • Implement mitigation strategies that decrease emissions of GHGs

¹ Stormwater capture capacity assumes (1) providing storage volume equivalent to runoff from the 0.75", 24-hour design storm event, (2) designing BMPs to retain the captured volume to the maximum extent practicable via infiltration, evapotranspiration, or harvest and use, and (3) designing BMPs to provide effective treatment to address pollutants of concern for the remaining portion of the captured volume that is not retained. Projects deviating from these specifications may be demonstrated to be equivalent based on comparison of average annual volume captured and/or average annual pollutant load reduction for pollutants of concern. Pollutants of concern are defined as those pollutants expected to be generated from the land uses within the subwatershed and for which the downstream water bodies are impaired (TMDL, 303(d) listed)

² High priority areas will be determined based on project-specific characteristics such as project area land use, precipitation, imperviousness and downstream impairments.



Improve Water Supply

Optimize local water resources to reduce the Region's reliance on imported water

Most years, the San Gabriel Mountains receive substantial rainfall and existing dams and natural storage slowly release runoff, providing an important source of high-quality and low-cost water that can be treated for direct use or recharged into groundwater basins for later use. At several locations, recharge is limited by the capacity of existing recharge facilities. Rehabilitation and expansion of recharge facilities, modified operation of existing storage facilities, rehabilitation and enlargement of upstream storage capacity, and optimization of operational practices could improve the utilization of this local water source.

Direct reuse of runoff from urbanized areas is generally limited by concerns about the presence of contaminants. To increase the utilization of this local resource, runoff capture and infiltration could be expanded (where appropriate), the quality of surface runoff improved, and projects implemented to capture, treat, and utilize stormwater for either non-potable direct use or recharge.

The widespread implementation of water use efficiency projects and conservation programs has resulted in significant reductions in demand throughout the Region. Aggressive adoption of additional measures, such as public outreach and education on water use, ultra low-flush toilets, and evapotranspiration-based irrigation controllers will be needed to continue progress. Since there is very little agriculture in the Region, no specific agricultural water use efficiency objective was developed. Additional progress could be made with agency and industry partnerships working to improve water use efficiency standards.

Although local wastewater treatment plants produce substantial amounts of recycled water, due to insufficient and/or seasonal demand and infrastructure limitations, not all of this production is currently utilized to augment water supply, resulting in the discharge of excess supplies to the rivers and creeks. Expansion of distribution systems and the creation of new storage facilities could facilitate increased

production and expand the utilization of this local resource for direct non-potable reuse (e.g., landscape irrigation) and groundwater recharge.

Ocean water desalination is being considered by some coastal agencies to improve supply reliability and reduce dependence on imported water. Seawater desalination has become more economical in recent years due to improvements in membrane technology, plant siting strategies, and increased costs for traditional water treatment. Additional research and supporting studies will be needed to optimize treatment technology, develop pretreatment alternatives, resolve brine disposal management issues, and identify appropriate mitigation for any adverse environmental impacts.

The Region's concern about water shortages has increased the local interest in graywater reuse as a source of non-potable water supply. The California Plumbing Code was amended in August 2009 when Chapter 16A was adopted to allow the use of graywater from clothes washers without a permit from local government subject to some environmental protection conditions. Local governments are reviewing options for expanding the graywater reuse opportunities for more fixtures while addressing potential impacts on a case-by-case basis. Total graywater within a residence may account for as much as 60 percent of the total indoor water consumption. The LADWP estimates that the residential graywater reuse capacity may range from 50 to 165 million gallons per day.



Improve Surface Water Quality

Comply with water quality regulations (including TMDLs) by improving the quality of urban runoff, stormwater and wastewater

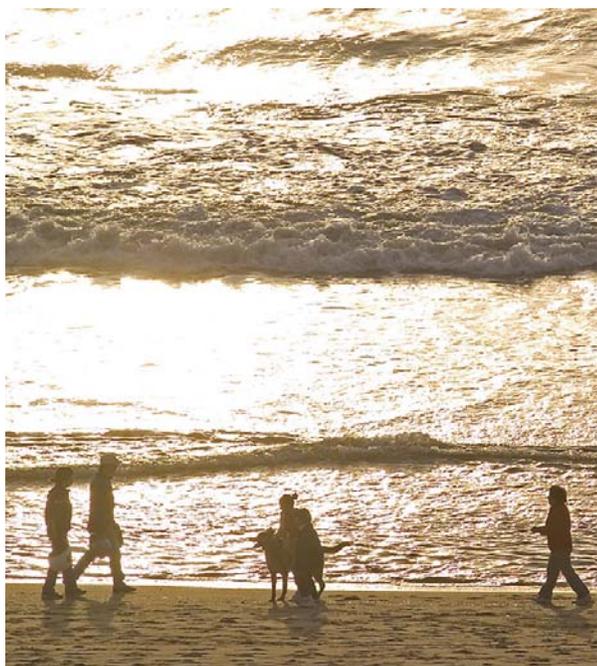
Increasing the capture of stormwater either using it on site or infiltrating it, will have a beneficial impact on the quality of urban and stormwater runoff and will help reduce impairment of the designated beneficial uses of rivers, creeks, beaches, and other bodies of water in the Region. Due in part to the degree of development in the GLAC Region, stormwater quality in the Region is heavily impacted by the constituents often associated with urban runoff. Because of this, the LARWQCB identified

storm water and urban runoff as one of the leading sources of pollutants to surface waters in Southern California (LARWQCB 2002).

A number of common urban runoff-associated pollutants, (for instance bacteria, metals and nutrients) have been found to directly impact human and/or ecosystem health. These impacts may lead to significant economic costs in terms of health care, loss of productivity, tourism and will impact DACs disproportionately. Tourism is particularly important for the GLAC Region which is well known and visited for the recreational opportunities afforded by its wealth of natural resources. In addition, and no less significant is the negative impact urban runoff can have on the availability of the already limited usable water supply in the Region.

Water quality benefits can also be attained through changes in water use. Residential and commercial irrigation can be modified to reduce or eliminate dry weather runoff.

In addition, wastewater agencies must ensure continued compliance of discharge permit limits. As such, as TMDLs are implemented, and wastewater agencies design and implement projects to meet the new permit limits, effluent water quality improves.



IRWMP targets for water quality are based on the desire to protect our ocean and tributary rivers.



Enhance Habitat

Protect, restore, and enhance natural processes and habitats

Urban and suburban growth in the Region has displaced extensive areas of native habitat, including wetlands, riparian, and upland habitats, which has adversely affected local watersheds and water resources. The protection of existing habitats along the coast and interior valleys and upland habitats in the foothills and mountains will preserve areas that contribute to the natural recharge of precipitation. Many of these existing habitats have been adversely affected by land use practices and the introduction of invasive and nonnative species and thus are in need of preservation and restoration to enhance their value as native habitat. Functional linkages between the remaining areas of native habitat are needed to preserve long-term species diversity.

The loss of functional native habitat and the extensive modification of natural channels in urbanized areas have also reduced the extent to which natural processes can remove or sequester contaminants in urban and stormwater runoff, cycle nutrients through watersheds, and provide functional habitat for aquatic and terrestrial species that inhabit or depend on these areas. The protection, restoration and enhancement of native functional riparian habitats should also restore natural ecosystem processes to the extent feasible given the equally important need to preserve or enhance existing flood protection levels.



The Open Space Continuum from Uplands to the Coast and from Regional Land to Urban Parks.



Enhance Open Space and Recreation

Increase watershed friendly recreational space for all communities

The amount of undeveloped open space and habitat in the upper portions of many watersheds has been decreasing as urbanization continues. To maintain the water supply, water quality, habitat and recreational benefits that these areas provide, the undeveloped portions of the upper watersheds not currently included within protected areas (i.e., national forests or parks) need to be identified, quantified, and protected where feasible. Analysis of the benefits of restoring natural processes may be useful to demonstrate the value of this practice.

Open space and parkland has the potential to enhance groundwater resources (by preserving or expanding the area available for natural groundwater recharge), improve water quality (to the extent that these open spaces filter, retain, or detain stormwater runoff), and provide opportunities to reuse treated runoff or recycled water for irrigation (thereby reducing the demand for potable water). The amount of existing parkland in the urbanized portions of the Region does not always meet the state standards of per capita parkland access, particularly in disadvantaged communities. Additional watershed-friendly recreational space is needed and these spaces should provide native vegetation to create habitat, passive recreational opportunities, and where feasible, contribute to stormwater detention and treatment and natural groundwater recharge.



Reduce Flood Risk

Reduce flood risk in flood prone areas by either increasing protection or decreasing needs using integrated flood management approaches

Although, abundant sunshine is one of the Region’s main attractions, occasional storm events have the potential to generate substantial amounts of runoff which can create significant flood risks. The Region’s extensive flood management system must be operated, maintained, and enhanced where needed to protect lives and property. As elements

of the flood protection system warrant significant repair or replacement, consideration should be given to the implementation of more integrated flood management systems. Projects that propose to: 1) reduce runoff via onsite best management practices (BMPs); 2) capture and treat urban and storm water runoff for treatment; 3) expand groundwater recharge; or 4) restore habitat, must also preserve or enhance existing flood protection levels.



Address Climate Change

Adapt to and mitigate against climate change vulnerabilities

The potential effects, impacts and vulnerabilities of climate change impacts on the GLAC Region were assessed as part of the 2013 Plan Update and described in Chapter 2. In general, the Region can expect to have significant temperature increases, and precipitation decreases (by 2010) that will impact local water demands, supplies, water quality and habitat. Sea level rise and more intense storm events are also expected to impact the Region causing flooding, water quality and other water management and land use issues. With the three major imported water supplies feeding the Region are also anticipating delivery decreases as a result of climate change, the Region recognizes that it must be ready to adapt to these impacts.



Improvement of flood control channels is being considered to achieve IRWMP objectives.

In addition to adaptation, the Region also recognizes the importance of trying to mitigate against further climate change increases, avoiding conflicts with existing environmental justice issues that will inevitably disproportionately impact DACs, and by working to reduce energy consumption thereby decreasing GHG emissions. As a result, the Region has developed a climate change objective that addresses both adaptation and mitigation needs.

3.3 Planning Targets

Planning targets were developed to provide a measurable means to gauge the Region's progress toward meeting the first five objectives over a 25-year time horizon (2010 through 2035). The Climate Change Objective, however, uses a longer 40-year time horizon to be in-keeping with the current science of climate change time scales and impact estimates that use the year 2050. The planning targets described in this section also further define the objectives relative to stakeholder needs and requirements as documented in other planning efforts throughout the Region. The vetting of these targets and the quantities used was completed by multiple reviews from both the Water Management Area and Climate Change Subcommittees of the LC and through stakeholder participation facilitated at Subregional SC meetings. These targets, summarized in Table 3-1, will help the Region to define projects that will help it to address its water-related issues, and are described in detail below.



Improve Water Supply

Conserve 117,000 AFY of water through water use efficiency and conservation measures

Water use efficiency measures aim to reduce water demand and free up supply for other uses. Retail water suppliers within the Region, as with the rest of the State, are required to report and meet water conservation targets in compliance with regulations set forth in the Water Conservation Act of 2009, also known as 20x2020. 20x2020 seeks a reduction in State-wide daily per person potable water use of 20 percent by the year 2020 and uses UWMPs as the compliance reporting vehicle. The first UWMPs completed with 20x2020 requirements were due

to DWR in 2011. Each retail water supplier was required to include a calculation of the demand reduction target to meet 20x2020 as part of its 2010 UWMP.

The GLAC regional target of 117,000 AFY was developed through the compilation of subregional targets generated by the review of individual and regional UWMP targets. The target reflects what can be achieved if the Region's municipal water providers are able to meet the targets identified for 20 x 2020 as well as those conservation targets for subsequent years through 2035 (the UWMP Planning horizon).



Create additional ability to pump 106,000 AFY using a combination of treatment, recharge, and storage access

The Region's groundwater resources have primarily been adjudicated through court orders, and are managed to maintain safe yield levels through pumping rights and recharge. Typically, groundwater basins are pumped to the safe yield level on an annual basis, though at times pumping is limited due to groundwater quality issues or a lack of groundwater wells. Given the urbanized nature of the majority of the Region, many of the groundwater basins within the GLAC Region are recharged through projects that capture and spread local stormwater, imported water and recycled water supplies. This groundwater objective is, however, limited to accessing groundwater pumping allocations that could not be met due to issues within the groundwater basin and not relative to the amount of available recharge supply. Any plans to increase or change recharge supplies are identified as indirect potable water reuse (recycled water recharge) and stormwater targets.

It has been estimated that the Region's groundwater resources could provide an additional 106,000 AFY through groundwater treatment or through the construction or improvement of additional wells. This target was determined by looking at goals and future project needs articulated in groundwater management plans, watermaster annual reports, integrated water resources plans and UWMPs.



Increase indirect potable reuse of recycled water by 80,000 AFY

Groundwater recharge with recycled water, or indirect potable reuse, is a practice which has increased in recent years given its ability to help meet both water supply and water quality goals. Recycled water can be used for the recharge of groundwater in place of imported water supplies as well as to supplement existing recharge requirements. Recycled water can enter the groundwater basins through spreading grounds or injection wells, though it should be noted that some amount of blending with imported or local surface water is required to meet State regulations.

The 80,000 AFY target was developed by reviewing recycled water master plans and UWMPs for major water suppliers in the Region which provide projections for increases in indirect potable reuse for each of the Region’s groundwater basins.



Increase non-potable reuse of recycled water by 83,000 AFY

Water suppliers in the Region also are interested in expanding non-potable use of recycled water supplies to offset potable supply sources. Non-potable use of recycled water exemplifies the idea of matching quality of water to use as water demands such as irrigation, toilet flushing, and certain industrial uses do not require

potable water. Though the Region has already constructed several water reclamation facilities and distribution systems, there are still opportunities to increase the use of existing recycled water supplies through non-potable distribution projects and potential user outreach. There are also opportunities to further treat additional existing water effluent to non-potable standards for beneficial uses such as irrigation, groundwater recharge, industrial use or environmental uses.

The Region’s target of increasing non-potable reuse by 83,000 AFY was developed based on an examination of recycled water master plans and UWMPs for major water agencies in the Region.



Increase capture and direct use of stormwater runoff by 26,000 AFY

Stormwater runoff is a largely underutilized resource within the Region.

The Region’s highly urbanized areas generate a large amount of runoff during winter storms that is only partially captured for direct use or to recharge local aquifers. However, this supply is very seasonal and so it is often infeasible to construct and operate facilities to store larger amounts of surface water supplies, so much of the winter storm flows are lost to the ocean. It is possible to capture urban runoff for direct use through the implementation of both small, decentralized projects as well as storage reservoirs.



Replacement of water-thirsty landscapes with native plants offers significant opportunities for additional conservation in the Region as well as reduction of dry weather urban runoff.

While the capture and direct use of local stormwater is considered a desirable objective by most of the Region's stakeholders, few agencies have yet to quantify the potential supply targets. The City of Los Angeles has, however, developed a stormwater management plan that projects that the City will be able to capture and directly use 10,000 AFY of stormwater. This estimation was then extrapolated to the entire Region's area by assuming that 21 AFY of stormwater could be captured and used per acre, which yields the 26,000 AFY for capture and direct use of stormwater runoff for the entire Region.



Increase stormwater infiltration by 75,000 AFY

In parallel with the above discussed stormwater capture and direct use target, the Region has developed a target to increase stormwater infiltration. The Region has a large groundwater recharge system in place that utilizes local surface water in addition to imported water and recycled water supplies. Imported water supplies have become less reliable, and therefore more expensive, to meet replenishment needs. Stormwater provides a much less expensive alternative supply, however is only readily available during part of the year. Therefore, increasing the ability to maximize stormwater recharge for storage in groundwater basins during the wet season for use in the dry season is a desirable solution.

As with stormwater capture and direct use, stormwater infiltration projects can vary in scale from small, onsite projects to large, centralized projects. Small, onsite projects are typically those associated with BMPs that capture stormwater and infiltrate stormwater runoff onsite. Large, centralized stormwater infiltration projects will either develop or enhance existing spreading ground facilities.

The Region's target to increase stormwater infiltration by 75,000 AFY was calculated by looking at both potential centralized stormwater recharge and decentralized stormwater recharge. Centralized stormwater recharge estimates were developed by looking at the MWD's 2010 Integrated Regional Plan (MWD IRP) which contains a listing of

groundwater recharge projects that agencies would like to implement, as well as groundwater basin master plans.

The decentralized portion of the stormwater infiltration target was calculated by utilizing the water quality targets in AFY described below. The water quality targets were calculated by prioritizing catchments ranging from low to high priority. The decentralized portion of the stormwater infiltration supply uses the area of the low priority catchments (assuming that supply uses will require higher quality runoff), and assumes capture of three 0.75-inch storm events per year. The stormwater capture and direct use target is then subtracted to prevent double counting of stormwater use. Only those subregions with groundwater basins that are capable of percolation were included as part of this target. For example, groundwater basins in the South Bay Subregion generally do not have the appropriate hydrogeology for percolation to take place.



Develop 26,000 AFY of ocean water desalination

Ocean water desalination is being explored by water suppliers near the coast. The desalination of ocean water has historically been an expensive supply, but improvements in treatment technology have begun to make it a more affordable option. West Basin MWD and the City of Long Beach are planning on developing 26,000 AFY of ocean water desalination in the future to diversify their water supplies.



Improve Surface Water Quality

Develop³ 54,000 AF of new stormwater capture capacity (or equivalent) spatially dispersed to reduce region-wide pollutant loads, emphasizing higher priority areas⁴

Stormwater capture for direct use and infiltration also has great benefits to water quality. The current regional flood management system has been designed to efficiently carry stormwater runoff, not captured for supply use, to the Santa Monica

3 Stormwater capture capacity assumes (1) providing storage volume equivalent to runoff from the 0.75", 24-hour design storm event, (2) designing BMPs to retain the captured volume to the maximum extent practicable via infiltration, evapotranspiration, or harvest and use, and (3) designing BMPs to provide effective treatment to address pollutants of concern for the remaining portion of the captured volume that is not retained. Projects deviating from these specifications may be demonstrated to be equivalent based on comparison of average annual volume captured and/or average annual pollutant load reduction for pollutants of concern. Pollutants of concern are defined as those pollutants expected to be generated from the land uses within the subwatershed and for which the downstream water bodies are impaired (TMDL, 303(d) listed)

4 High priority areas will be determined based on project-specific characteristics such as project area land use, precipitation, imperviousness and downstream impairments.



BMPs such as vegetated swales and tree well infiltration pits offer stormwater capture benefits as well as pollutant reduction and groundwater recharge benefits.

and San Pedro Bays. Due to the presence of trash, bacteria, metals, nutrients and organic chemicals in those stormwater flows that aren't captured for treatment or use, the Region's water quality is impacted. The Region has over 60 impaired water bodies for a variety of constituents. These impairments form the basis for many of the Region's stakeholders water quality related TMDLs and permits. In urbanized areas, stormwater runoff volumes can be reduced through onsite measures (by reducing impervious surfaces, or utilizing swales, berms and other onsite BMPs to capture and infiltrate runoff). These BMP's can also have the potential to augment local supplies through natural recharge offsetting potable use when pervious soils are present. However, water quality requirements and goals attained through these methods will require regional partnerships and significant funding.

The regional water quality target developed was the result of many in-depth stakeholder discussions, data reviews and new techniques and analysis developed specifically through the IRWM process. These processes are detailed further with the Water Quality Objectives and Targets TM in Appendix F. The process began by dividing each subregion into multiple catchments. These catchments were then prioritized based upon the number of receiving waters that are impaired within the catch-

ment as well as downstream of those catchment coupled with their potential for impacting more environmentally sensitive or significant areas. This prioritization will be helpful in determining project location priorities but was not seen as a method for determining an overall regional target since progress toward water quality targets would not be measured through progress in only high priority areas.

The regional target of 54,000 AFY assumes the detention of stormwater runoff (from rainfall events with approximately $\frac{3}{4}$ inch of precipitation) for three storms per year over the entire Region over all catchments (except for those at least 98 percent vacant or classified as having at most 1 percent impervious surface). When this method is applied to the NSMB Subregion with scattered development throughout many subwatersheds, it used results in an overestimated value. A simpler method of multiplying developed area by $\frac{3}{4}$ inch was used for the catchments in the NSMB Subregion: the total amount of rain that would fall on the 11percent developed area in a $\frac{3}{4}$ inch storm. This target also acknowledges that large storm events produce runoff volumes which are too large to feasibly capture and treat.

Although measures to reduce runoff from urbanized sites (per the above target) would reduce the volume of stormwater discharged to storm drains,

creeks and rivers, most of the remaining runoff that is discharged will need to be captured and treated in order to meet applicable water quality standards. Although some situations may warrant single-purpose stormwater treatment solutions, preference should be given to multi-purpose solutions that provide functional native habitat, create recreational opportunities, and utilize treated runoff to augment water supplies, either via direct non-potable reuse or groundwater recharge



Enhance Habitat

Preserve or protect 2,000 acres of terrestrial aquatic habitat

Enhance 6,000 acres of terrestrial aquatic habitat

Restore or create 4,000 acres of terrestrial aquatic habitat

Aquatic habitat is of interest to the Region since habitat has a direct relationship to the management of water resources. Therefore, the Region’s IRWM targets were developed relative to aquatic habitat since they should be viewed in concert with other water management targets. Existing aquatic habitat in the Region is mostly confined to the San Gabriel and Santa Monica Mountains, and isolated areas along the coast. Although much of this habitat in the San Gabriel Mountains is protected within the Angeles National Forest, and much in the Santa Monica Mountains is protected in State and National Parks, the majority of the remaining habitat has been subject to modification since it is located in urbanized areas. Natural habitat has the ability to support other water management needs by cleansing polluted waters, preventing or mitigating floods, protecting shorelines and channel banks, and recharging groundwater aquifers. Additionally, these habitats provide unique and critical environments for large numbers of flora and fauna. The preservation, enhancement or restoration of these areas has the potential to improve water quality, improve flood protection, restore habitat, and enhance groundwater recharge.

The Region’s habitat enhancement targets were developed as part of the OSHARTM effort conducted as part of the 2013 Plan Update. The OSHARTM process used a regional, instead of subregional,

approach toward target development. Subregional targets could be defined in a later planning effort that would allow for stakeholder outreach and coordination to further detail habitat opportunities and targets relative to local individual planning efforts.

The regional target to preserve or protect 2,000 acres is equivalent 20 percent of all privately held existing habitat. The regional target to enhance 6,000 acres is equivalent to 25 percent of existing habitat. The regional target to restore or create 4,000 acres is equivalent to 10 percent of the land area considered to be lost habitat and 10 percent of land converted to a different kind of habitat into an aquatic habitat. Detailed information on development of these targets may be found in the OSHARTM (Appendix H).



Enhance Open Space, Recreation

Create 38,000 acres of open space

Create 25,000 acres of urban parks

Given the urbanized nature of the GLAC Region, the development of new open space and parks can be challenging. Although the Angeles National Forest does provide the Region a great deal of open space, it lies on the northern border and is greatly inaccessible to the Region’s population. To address existing deficiencies in access to parkland and open space in urbanized areas, and meet additional demand associated with projected population growth, additional recreational open space is needed. As many disadvantaged communities lack sufficient park space, development of new recreational open spaces can provide benefits that integrate well with water management targets. Watershed-friendly recreational open space includes native vegetation for habitat, provides passive recreational activities, and where feasible, contributes to stormwater detention and treatment and groundwater recharge.

The Region’s open space and urban parks targets were generated from existing land-use planning goals. Local general plans cite an average goal of four acres of urban parkland per 1,000 people, while for passive recreation, the Los Angeles County General Plan cites a standard ratio of six

acres of open space per 1,000 people. It is therefore estimated that approximately 25,000 acres of urban parks should be targeted as well as 38,000 acres of additional open space.

The inclusion of a planning target for recreational open space is intended to gauge to what extent the implementation of the IRWMP can contribute towards meeting the Regional need for additional recreational space through the inclusion of watershed-friendly recreational or open space features in water quality and water supply projects. It is not meant to serve in-lieu of targets and goals developed through a formal local or regional land use planning process.



Reduce Flood Risk

Reduce flood risk in 11,400 acres of flood prone areas by either increasing protection or decreasing needs using integrated flood management approaches

Despite the extensive flood control system in place in the Region, a number of areas may still be prone to flooding. To identify a community's flood risk, FEMA conducts a Flood Insurance Study using statistical data for river flow, storm tides, hydrologic/hydraulic analyses, and rainfall and topographic surveys. Using this data, FEMA creates flood hazard maps that outline different flood risk areas.

The 11,400 acre regional flood risk reduction target was developed by first calculating the acres of land that overlay the areas designated by FEMA as having flooding risk and then eliminating parcels without structures that would be impacted by flooding (some of these areas are intended to be flooded).



Remove 68 million cubic yards of sediment from debris basins and reservoirs

Debris basins and reservoirs in the Region serve the purpose of preventing debris flows from travelling downstream and increasing flood risks in urban areas. Over time, these debris basins and reservoirs fill up with sediment, reducing their effectiveness and increasing flooding downstream. Additionally, reservoirs that have significant sediment build-up have a reduced

water conservation benefit. Recent upland fires and subsequent storm events have increased the immediacy and visibility of how important sediment management is in order to preserve flood management facilities. Sediment management also helps to increase the infiltration capacity of surface flows into groundwater aquifers.

The LACFCD is responsible for regional flood management and operates and maintains regional flood control and associated spreading facilities. The regional target of 68 million cubic yards for sediment removal was taken from the LACFCD's recently completed Sediment Management Plan based on historical sediment build-up at existing facilities.



Address Climate Change

Increase local supplies by an additional 7% to 10% (beyond the local supply target) by 2050 to reduce reliance on imported water

The potential decreases to both imported and local water supplies was identified as the greatest vulnerability facing the Region as a result of climate change. The water supply targets previously stated are necessary to meet the water supply objective of offsetting imported supply through local resource development and demand management. However, climate change impacts are expected to further stress imported and local water supplies – coupled with potential increases in demand, the Region has set a target to further develop local supplies by an additional 7-10 percent to adapt to climate change impact by 2050.



Implement "no regret" adaptation strategies

Given that the majority of projected climate change impacts exceed the planning horizon of this document, there are no numeric targets developed. However, the Region recognizes that climate change impacts are progressive and have already begun, therefore "no regret" solutions should be implemented immediately, in addition to measures that seek to reduce GHGs. "No regret" strategies provide benefits today under current climate conditions, while also reducing vulnerability to future climate change impacts (e.g. water use efficiency measures). As local water

supply projects are being developed it is encouraged that the capacities of facilities are engineered to adapt to the potential for climate change impacts instead of relying on historical hydrologies for future planning. Longer-range planning may also incorporate “low-regrets” or “climate-justified” strategies that may cost more and may not provide current benefit, but are expected to provide benefits with expected future climate change.

Progress toward meeting the climate change targets described above can be measured through the reporting of local supply development in agency UWMPs, the documentation of implementation of projects that implement “no regret” adaptation strategies, and reduced GHGs.



Implement mitigation strategies that decrease emissions of GHGs

Decreasing the amount of energy required to produce water supply

is one of the greatest ways that the Region can mitigate against further climate change impacts. By optimizing facilities and using less energy intensive water resource strategies to meet needs, the Region and its stakeholders can reduce GHG emissions and contribute to lessening the future climate impacts. Some “no regret” strategies, like water use efficiency, will directly reduce GHG emissions by not requiring water to be produced to meet the same need. The GLAC Region is supportive of strategies that both help adapt to mitigate against climate change. The strategies that can be used to meet these targets are provided in Chapter 4.