GLAC-IRWMP
Water Supply Objective & Targets

Introduction

The 2006 Greater Los Angeles County (GLAC) Regional Water Management (IRWM) Plan put forth a number of goals related to expanding the use of local supplies in the GLAC Region. The 2012 update to the IRWM Plan maintains the same objective to "Optimize local water resources to reduce the Region's reliance on imported water," but refines the targets which were created in 2006 in order to better track the GLAC Region's progress towards meeting these goals. To do this, targets were created for each Subregion, and focus on the following local supply areas: water use efficiency, groundwater, non-potable use of recycled water, indirect potable reuse of recycled water, ocean water desalination, stormwater recharge, and stormwater capture and use.

Objective

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

Current Supplies and Demands

The Region's various water supply agencies typically prepare Urban Water Management Plans (UWMPs) every five years in order to project and assess their water supplies and demands. To determine baseline supply and demand levels for the GLAC Region, the supplies and demands for each subregion were compiled from a set of representative agencies' UWMPs. The current supply and demand levels use actual measurements from 2010 for both direct use and replenishment. For the purposes of this process, direct use is defined as above ground water use, and replenishment is defined as water used for groundwater recharge.

Current direct use supplies and demands for each Subregion are shown in Table 1, while replenishment supplies are shown in Table 2. The categories of supply listed in the tables are defined below.

TABLE 1: Direct Use Supplies

- **Water Use Efficiency:** The amount of potable water considered to be "conserved" instead used to meet the same level of demand as would be expected without conservation programs. This water represents a more efficient use of water and decreases the amount of potable water used, but is captured as a form of "Supply" in order to compare against other supplies. This water is potable water offset and does not include recycled or other non-potable supplies.
- **Groundwater:** The supply made available from the natural and engineered recharge of supply into groundwater aquifers and the subsequent pumping and treatment (if

necessary) for potable and non-potable use. This supply includes any groundwater supplies made available from desalination/demineralization and other contaminant treatment. The current recharge of supplies identified in Table 2 that are necessary to meet these current ground water pumping volumes, are an overlap since the same unit of water is being counted as both recharge supply and groundwater supply. The groundwater targets presented in Tables 9 - 13, however, do not have the same overlap issue as calculated separately.

- **Stormwater Capture and Direct Use:** The supply made available through the capture of local stormwater and run-off flows for local non-potable use prior to reaching rivers or other water bodies.

- **Surface Water Diversions:** The supply made available from the diverting of supply flows from local streams/rivers/channels into local treatment for potable use.

- **Recycled Water - Non-Potable Reuse (NPR):** The supply made available from the treatment of wastewater effluent for non-potable use. This does not include recycled water supplies for indirect potable reuse supply which is presented in Table 2 as a form of groundwater recharge.

- **Ocean Water Desalination:** The supply made available from the treatment of ocean desalination for potable use. This does not include brackish groundwater desalination.

- **Imported Water:** The supply made available by importing water from outside the GLAC Region and treated locally for direct potable use. Does not include imported supplies used for groundwater recharge (which are included in Table 2) nor supplies that are transferred between agencies within the Region.

TABLE 2: Groundwater Recharge Supplies

- **Stormwater Recharge:** The supply made available through the diversion of local supply from surface water bodies and recharging of those supplies into groundwater aquifers for future potable use. Does not include groundwater supplies that would be made available through naturally occurring recharge and subsequent pumping and treatment.

- **Recycled Water - Indirect Potable Reuse (IPR):** The supply made available from the treatment of wastewater effluent and recharging of that supply into groundwater aquifers for future potable use. Does not include non-potable direct recycled water use nor groundwater supplies that would be made available through naturally occurring recharge and subsequent pumping and treatment.

- **Imported Water Recharge:** The supply made available by importing water from outside the GLAC Region and recharged into groundwater aquifers for future potable use. Does not include imported supplies used directly (in Table 1) nor supplies that are transferred between agencies within the Region.

Table 1: Current (2010) Direct Use Supplies (AFY)

	South Bay	North Santa Monica Bay	Upper San Gabriel and Rio Hondo	Upper Los Angeles River	Lower LA and San Gabriel River	TOTAL
Water Use Efficiency	23,000	0	23,000	5,000	0	**51,000**
Groundwater	40,000	0	199,000	69,000	261,000	**569,000**
Stormwater Capture and Direct Use	0	0	0	0	0	**0**
Surface Water Diversions	0	0	13,000	1,000	0	**14,000**
Recycled Water – Non-Potable Reuse	22,000	6,000	9,000	8,000	30,000	**75,000**
Ocean Desalination	2,000	0	0	0	0	**2,000**
Imported Water	352,000	39,000	101,000	317,000	125,000	**934,000**
Total Supply	**439,000**	**45,000**	**345,000**	**400,000**	**416,000**	**1,645,000**

Table 2: Current (2010) Groundwater Replenishment Supplies (AFY)

	South Bay[1]	North Santa Monica Bay	Upper San Gabriel and Rio Hondo[2]	Upper Los Angeles River[3]	Lower LA and San Gabriel River[2]	TOTAL
Stormwater Recharge	0	0	110,000	26,000	52,000	188,000
Recycled Water – Indirect Potable Reuse	8,000	0	0	0	41,000	49,000
Imported Water	15,000	0	38,000	0	23,000	76,000
Total Supply	**23,000**	**0**	**148,000**	**26,000**	**116,000**	**313,000**

1. 2010 values obtained from the West Basin MWD 2010 Regional UWMP.
2. 2010 values for Upper San Gabriel and Rio Hondo, and Lower LA and San Gabriel River Subregions based on ten-year average recharge as reported in Los Angeles County Flood Control District Hydrologic Reports. Assumed 60% of seawater barrier recharge goes towards supply.
3. 2010 values obtained from the City of Los Angeles 2010 UWMP.

Targets

The Region's water supply objectives and targets from the 2006 IRWM Plan were revised using a combination of water supply planning and reporting documents, and stakeholder involvement. The 2013 Plan Update preliminary water supply targets were developed using existing documents which focus on current and projected water supply use to determine the potential for expansion of local water supplies and water use efficiency to offset imported water use and meet projected demand. Due to the large number of water suppliers in the GLAC Region, it was necessary to use a variety of documents including: 2010 UWMPs, groundwater adjudication and planning documents, annual watermaster reports, and recycled water master plans.

The initial water supply targets for each Subregion were presented for comment to each Subregional Steering Committee during their regular September 2011 meetings. The targets were refined over the next several months, and presented monthly for each Subregional Steering Committee as changes were made. Following this process, a water supply working group was

created to provide further comment on the water supply targets at a regional level, and began meeting in November 2011. This working group is made up of water suppliers from each Subregion in order to:

- Advise on development on regional water supply objectives and targets for the GLAC IRWM Plan
- Report on current water supply related developments within the Region; advise on if/how to incorporate into the GLAC IRWM Plan Update
- Advise on opportunities for integration of water supply with other water management areas (e.g. water quality/flood, habitat and open space)

This group reviewed the process used to create each subregion's water supply targets, and provided comments to further refine the water supply targets which included revised water supply projections and additional documents to be reviewed. Finally, supply targets were presented to the working group for recommended inclusion in the GLAC IRWM Plan.

Water Supply Target Methodology

The numeric targets for each subregion were developed through a build-up method that looked at planning and reporting documents from a number of water suppliers, and calculating the projected increased use of supplies compared to supplies used in 2010. Water from suppliers that deliver to more than one subregion is apportioned according to the percentage of service area within each subregion. The supply targets resulting from this process are shown in Table 3, and are intended to be added to current supplies shown in Table 1 and Table 2. The remainder of this TM includes descriptions of how each supply target was developed.

Table 3: Summary Table of Water Supply Targets by Subregion

Target	South Bay	North Santa Monica Bay	Upper San Gabriel and Rio Hondo	Upper Los Angeles River	Lower LA and San Gabriel River	TOTAL
Direct Use Supplies (AFY)						
Water Use Efficiency	38,000 (Table 4)	6,000 (Table 5)	17,000 (Table 6)	37,000 (Table 7)	19,000 (Table 8)	**117,000**
Groundwater	35,000 (Table 9)	0 (Table 10)	14,000 (Table 11)	31,000 (Table 12)	17,000 (Table 13)	**97,000**
Stormwater Capture and Direct Use	6,000 (Table 14)	1,000 (Table 15)	6,000 (Table 16)	7,000 (Table 17)	7,000 (Table 18)	**27,000**
Recycled Water – Non-Potable Reuse	36,000 (Table 19)	4,000 (Table 20)	12,000 (Table 21)	13,000 (Table 22)	18,000 (Table 23)	**83,000**
Ocean Water Desalination	21,000 (Table 24)	0 (Table 25)	0 (Table 26)	0 (Table 27)	5,000 (Table 28)	**26,000**
Groundwater Replenishment Supplies (AFY)						
Stormwater Recharge	0 (Table 29)	0 (Table 30)	17,000 (Table 31)	37,000 (Table 32)	21,000 (Table 33)	**75,000**
Recycled Water – Indirect Potable Reuse	13,000 (Table 34)	0 (Table 35)	13,000 (Table 36)	30,000 (Table 37)	24,000 (Table 38)	**80,000**

Water Use Efficiency

The water use efficiency target was developed based on the conservation or demand reduction projections reported in the 2010 UWMPs developed by major water suppliers in each subregion. Suppliers reported their projections in one of two ways:

1. As a supply through conservation
2. As a demand reduction through a calculation of gallons per capita per day to meet 20x2020 goals

For those suppliers that reported conservation as a supply, the projection could be used directly in the build-up of a subregional goal. For those suppliers that only calculated a demand reduction in terms of gallons per capita per day, it was necessary to calculate the volume of water to be conserved using the 2035 population as reported in the 2010 UWMPs, and if possible, subtracting the projected increase in recycled water use. The subtraction of recycled water use was necessary as it's possible for water suppliers to use both water use efficiency measures and recycled water to meet 20x2020 goals.

The following tables provide a breakdown the documents and calculations used to estimate the water use efficiency target for each subregion.

Table 4: South Bay Subregion, Water Use Efficiency Target Development

Water Supplier and Document	Calculation
Santa Monica 2010 UWMP	148 GPCD (2010) – 141 GPCD (20x2020 goal) = 7 GPCD * 92,124 (2035 population) = 700 AFY
West Basin 2010 RUWMP	Conservation projection: 23,632 (2035) – 14,000 (2010) = 9,600 AFY
Torrance 2010 UWMP	172 GPCD (2010) – 141 GPCD (20x2020 goal) = 31 GPCD * 116,804 (2035 population) = 4,100 AFY
City of Los Angeles 2010 UWMP (broken down based on area of City of Los Angeles within the subregion)	Conservation projection: 64,368 AFY (2035)-8,178 AFY (2010) * 38% area = 21,400
Beverly Hills 2010 UWMP	277 GPCD (2010) – 228 GPCD (20x2020 goal) = 49 GPCD * 47,587 (2035 population) = 2,600 AFY
Total South Bay Water Use Efficiency Target	**38,000 AFY**

Table 5: North Santa Monica Bay Subregion, Water Use Efficiency Target Development

Water Supplier and Document	Calculation
County of Los Angeles Department of Public Works Waterworks District No. 29 2010 UWMP	267 GPCD (2010)-257 GPCD (20x2020 goal)= 10 GPCD*25,611 population= 300 AFY (Marina Del Rey population excluded)
Las Virgenes MWD 2010 UWMP	307 GPCD (2010) – 246 GPCD (20x2020 goal)= 61 GPCD *87,811 population = 6,000 AFY * 87% service area in NSMB Subregion = 5,220 AFY
Total North Santa Monica Bay Water Use Efficiency Target	**6,000 AFY**

Table 6: Upper San Gabriel and Rio Hondo Subregion, Water Use Efficiency Target Development

Water Supplier and Document	Calculation
Pasadena 2010 UWMP (60% area in Subregion)	4,122 AFY (2035) – 0 AFY (2010) = 4,122 AFY
Foothill MWD 2010 UWMP (Las Flores WC, Rubio Canon Land-Water Assoc, Kinneloa ID)	Does not include conservation in the UWMP.
South Pasadena 2010 UWMP	Conservation included in demand projections 182 GPCD (2010) – 146 GPDC (20x2020 goal)= 36 GPCD* 26,410 (2035 population) = 1,065 AFY- 0 (Recycled water volume counted as part of conservation = 1,065 AFY.
Alhambra 2010 UWMP	Conservation target already met. (20x2020 goal is 122 gpcd, and 2010 use is 109 gpcd)
California American Water Co. 2010 UWMP (not including Baldwin Hills)	Conservation target already met. (20x2020 goal is 187 gpcd, and 2010 use is 176 gpcd)
San Gabriel County WD 2010 UWMP	Conservation target already met. (20x2020 goal is 142 gpcd, and 2010 use is 133 gpcd)
San Gabriel Valley Water Co. 2010 UWMP	Conservation target already met. (20x2020 goal is 142 gpcd, and 2010 use is 116 gpcd)
Arcadia 2010 UWMP	259 GPCD (2010) – 236 GPDC (20x2020 goal)= 23 GPCD* 59,514 (2035 population) = 1,533 AFY- 644 AFY (Recycled water volume counted as part of conservation = 889 AFY.
Azusa Light and Water 2010 UWMP	179 GPCD (2010) – 168 GPDC (20x2020 goal)= 11 GPCD* 135,000 (2035 population) = 1,663 AFY- 0 AFY (Recycled water volume counted as part of conservation = 1,663 AFY.
Three Valleys MWD 2010 UWMP	27,326 AFY (2035) – 19,199 AFY (2010) = 8,127 AFY
Suburban Water Systems 2010 UWMP (San Jose Hills)	810 AFY (2035) – 0 AFY (2010) = 810 AFY
Sierra Madre 2010 UWMP	255 GPCD (2010) – 210 GPDC (20x2020 goal) = 45 GPCD* 11,099 (2030 population) = 560 AFY- 0 (Recycled water volume counted as part of conservation = 560 AFY.

Monrovia 2010 UWMP	Conservation included in demand projections 165 GPCD (2010) – 162 GPDC (20x2020 goal) = 3 GPCD* 40,000 (2035 population) = 134 AFY- 0 AFY (Recycled water volume counted as part of conservation = 134 AFY.
Valley County WD 2010 UWMP	Conservation target already met. (20x2020 goal is 118 gpcd, and 2010 use is 110 gpcd)
Total Upper San Gabriel and Rio Hondo Water Use Efficiency Target	**17,000 AFY**

Table 7: Upper Los Angeles River Subregion, Water Use Efficiency Target Development

Water Supplier and Document	Calculation
City of Los Angeles 2010 UWMP (broken down based on area within the subregion)	Conservation projection: 64,368 AFY (2035)-8,178 AFY (2010) * 58% area = 32,600 AFY
Burbank 2010 UWMP	Currently water use is below their 20x2020 goal (156 GPCD) at 147 GPCD and therefore plan to sustain this level of water use through 2035 = 0 AFY
Glendale 2010 UWMP	Currently water use is below their 20x2020 goal (137 GPCD) at 116 GPCD and therefore plan to sustain this level of water use through 2035 = 0 AFY
Pasadena 2010 UWMP	210 GPCD (2010) – 168 GPDC (20x2020 goal)= 42 GPCD*199,562 (2035 population) = 9,400 AFY-1,600 AFY (Recycled water volume counted as part of conservation = 7,800 AFY. 40% of area in ULAR region = 3,100 AFY
Las Virgenes MWD 2010 UWMP	307 GPCD (2010) – 246 GPCD (20x2020 goal)= 61 GPCD *87,811 population = 6,000 AFY * 13% service area in NSMB Subregion = 800 AFY
Total Upper Los Angeles Water Use Efficiency Target	**37,000 AFY**

Table 8: Lower San Gabriel and Los Angeles Rivers Subregion, Water Use Efficiency Target Development

Water Supplier and Document	Calculation
City of Los Angeles 2010 UWMP (broken down based on area within the subregion)	Conservation projection: 64,368 AFY (2035)-8,178 AFY (2035) * 4% area= 2,200 AFY
Long Beach 2010 UWMP	110 GPCD (2010) - 100 GPCD (20x2020 goal)= 10 GPCD * 508,233 population (2035 population) = 5,700 AFY
Fullerton 2010 UWMP	180 GPCD (2010) - 177.7 GPCD (20x2020 goal)= 2 GPCD * 153,613 (2035) population= 400 AFY
Central Basin 2010 RUWMP	Conservation projection: 39,562 AFY (2035) – 17,063 AFY (2010) = 22,500 AFY -11,300 AFY (Recycled Water-NPR) = 11,200 AFY
Total Lower San Gabriel and Los Angeles Water Use Efficiency Target	**19,000 AFY**

Groundwater Target

The groundwater target is meant to capture the additional amount that can be supplied from groundwater basins by pumping up to the adjudicated limit by increasing the treatment and/or pumping of groundwater supplies previously considered to be inaccessible or unusable with existing facilities. This target does not include additional pumping that can be made available by additional groundwater recharge above 2010 levels. These groundwater recharge supply targets are described separately by the source of supply in Tables 29 - 38 so as to avoid double counting of supply as pumped groundwater.

The groundwater targets were developed based on projections provided in Groundwater Basin Master Plans, adjudicated pumping limits in the groundwater basins located in the GLAC Region, 2010 UWMPs, the Metropolitan Water District's Integrated Regional Plan, and capacity of planned groundwater quality projects. The groundwater targets for each subregion were calculated in one of three ways:

1. Difference between average pumping and adjudicated limit or allowable pumping limit (APA)
2. Projected increase in pumping between 2010 and 2035 for each water supplier according to 2010 UWMPs
3. Projected additional pumping that could be made possible through construction of groundwater quality treatment facilities

The following tables provide a breakdown the documents and calculations used to estimate the groundwater target for each subregion.

Table 9: South Bay Subregion, Groundwater Target Development

Water Supplier and Document	Calculation
Santa Monica Basin: City of Santa Monica 2010 UWMP	7,500 AFY (estimated safe yield) – 2,062 AFY (2010 pumping) = 5,400 AFY
West Basin: West Basin MWD 2010 RUWMP (includes all West Basin pumpers)	64,500 AFY (adjudicated rights) – 35,320 AFY (2010 pumping) = 29,200 AFY
Total South Bay Groundwater Target	**35,000 AFY**

Table 10: North Santa Monica Bay Subregion, Groundwater Target Development

Water Supplier and Document	Calculation
County of Los Angeles Department of Public Works Waterworks District No. 29 2010 UWMP	Does not pump groundwater
Las Virgenes MWD 2010 UWMP	No additional pumping projected.
Total North Santa Monica Bay Groundwater Target	**0 AFY**

Table 11: Upper San Gabriel and Rio Hondo Subregion, Groundwater Target Development

Water Supplier and Document	Calculation
Raymond Basin: Raymond Basin Management Board Annual Report, 2009-2010, Table 7	Raymond Basin is fully adjudicated, and extractions typically meet or exceed the safe yield.
Main San Gabriel Basin: Main San Gabriel Basin Watermaster Five-Year Water Quality and Supply Plan	232,797 AF (2016-2017) – 218,796 AF (2011-12) = 14,000 AF of additional pumping
Six Basins: Six Basins Watermaster Annual Report, 2010, Page 3-25	Six Basins if fully adjudicated, though over the last four years, pumping was on average 700 AFY below adjudicated amount due to low demand and poor water quality.
Total Upper San Gabriel and Rio Hondo Groundwater Target	**14,000 AFY**

Table 12: Upper Los Angeles River Subregion, Groundwater Target Development

Water Supplier and Document	Calculation
Upper Los Angeles River Area Watermaster Annual Report, 2010 (includes San Fernando Basin, Verdugo Basin, Sylmar Basin, Eagle Rock Basin)	41,484 AFY of groundwater treatment projects are projected out to 2016
Raymond Basin: Pasadena 2010 UWMP	Projected decrease in groundwater production by -1,000 AFY from Raymond Basin.
Total Upper Los Angeles River Groundwater Target	**31,000 AFY**

Table 13: Lower San Gabriel and Los Angeles Rivers Subregion, Groundwater Target Development

Water Supplier and Document	Calculation
Central Basin: Groundwater Basins Master Plan, 2012.	Historic pumping in the Central Basin is at approximately 200,000 AFY. Groundwater pumping plans to increase up to APA (217,000 AFY) = 17,000 AFY
Total Lower San Gabriel and Los Angeles Groundwater Target	**17,000 AFY**

Stormwater Capture and Direct Use Target

The stormwater capture and direct use target was developed to identify the potential for capturing wet-weather runoff for direct non-potable uses to offset potable water supply use. These targets were developed based on the City of Los Angeles' stormwater capture and direct use estimates provided in the City's 2010 UWMP. The target was used to create an AFY per square mile estimate that was then applied to the area of each subregion. The City of Los Angeles estimates that by 2035, projects will be in place to capture and directly use 10,000 AFY, which is equivalent to 21 AFY per square mile (where the area of the City of Los Angeles is 469 square miles). The 21 AFY per square mile was then applied to the area of each subregion (less open space areas).

The following tables provide a breakdown the documents and calculations used to estimate the stormwater capture and direct use target for each subregion.

Table 14: South Bay Subregion, Stormwater Capture and Direct Use Target Development

Water Supplier and Document	Calculation
Subregion-wide	328 sq mi (total South Bay area) – 32 sq mi (South Bay open space area) = 296 sq mi 296 sq mi * 21 AFY/sq mi = 6,216 AFY
South Bay Stormwater Capture and Direct Use Target	**6,000 AFY**

Table 15: North Santa Monica Bay Subregion, Stormwater Capture and Direct Use Target Development

Water Supplier and Document	Calculation
Subregion-wide	203 sq mi (total North Santa Monica Bay area) – 181 sq mi (North Santa Monica Bay open space area) = 22 sq mi 22 sq mi * 21 AFY/sq mi = 462 AFY
Total North Santa Monica Bay Stormwater Capture and Direct Use Target	**500 AFY**

Table 16: Upper San Gabriel and Rio Hondo Subregion, Stormwater Capture and Direct Use Target Development

Water Supplier and Document	Calculation
Subregion-wide	570 sq mi (total Upper San Gabriel and Rio Hondo area) – 301 sq mi (Upper San Gabriel and Rio Hondo open space area) = 269 sq mi 269 sq mi * 21 AFY/sq mi = 5,649 AFY
Total Upper San Gabriel and Rio Hondo Stormwater Capture and Direct Use Target	**6,000 AFY**

Table 17: Upper Los Angeles River Subregion, Stormwater Capture and Direct Use Target Development

Water Supplier and Document	Calculation
Subregion-wide	582 sq mi (total Upper Los Angeles River area) – 232 sq mi (Upper Los Angeles River open space area) = 350 sq mi 350 sq mi * 21 AFY/sq mi = 7,350 AFY
Total Upper Los Angeles River Stormwater Recharge Target	**7,000 AFY**

Table 18: Lower San Gabriel and Los Angeles Rivers Subregion, Stormwater Capture and Direct Use Target Development

Water Supplier and Document	Calculation
Subregion-wide	360 sq mi (total Lower San Gabriel and Los Angeles Rivers area) – 8 sq mi (Lower San Gabriel and Los Angeles Rivers open space area) = 352 sq mi 352 sq mi * 21 AFY/sq mi = 7,392 AFY
Total Lower San Gabriel and Los Angeles Capture and Direct Use Target	**7,000 AFY**

Recycled Water: Non-Potable Reuse

The non-potable reuse with recycled water target was developed based on current and projected recycled water use as presented in 2010 UWMPs and Recycled Water Master Plans (RWMP). The non-potable reuse targets for each subregion were calculated in one of three ways:

1. Projected additional recycled water indirect potable reuse between 2010 and 2035 for each water supplier according to 2010 UWMPs
2. Projection additional recycled water indirect potable reuse between 2010 and 2035 according to RWMPs
3. Projected non-potable reuse use from other recycled water planning documents

The following tables provide a breakdown the documents and calculations used to estimate the indirect potable reuse target for each subregion.

Table 19: South Bay Subregion, Non-Potable Reuse Target Development

Water Supplier and Document	Calculation
West Basin 2010 RUWMP	37,382 AFY (2035) - 14,182 AFY (2010) = 23,200 AFY (West Basin RUWMP, Table 3-3). Note: Does not include sales to Los Angeles or Long Beach
LADWP staff	13,000 AFY
South Bay Non-Potable Reuse Target	**36,000 AFY**

Table 20: North Santa Monica Bay Subregion, Non-Potable Reuse Target Development

Water Supplier and Document	Calculation
County of Los Angeles Department of Public Works Waterworks District No. 29 2010 UWMP	Does not produce/use recycled water, and does not intend to use recycled water in the basin.
Las Virgenes MWD 2010 UWMP	Projecting increasing in recycled water (NPR) demands from 4,522 AFY (2010) to 9,062 AFY (2035) = 4,540 AFY * 87% area in NSMB = 3,950 AFY
Total North Santa Monica Bay Non-Potable Reuse Target	**4,000 AFY**

Table 21: Upper San Gabriel and Rio Hondo Subregion, Non-Potable Reuse Target Development

Water Supplier and Document	Calculation
Pasadena 2010 UWMP	An increase of 1,130 AFY of non-potable recycled water
Upper San Gabriel Valley 2010 RUWMP	Goal to provide the same average volume of non-potable recycled water = no increase.
San Gabriel Valley Water Company 2010 UWMP	An increase of 4,985 AFY of non-potable recycled water
Three Valleys 2010 RUWMP	An increase of 4,975 AFY of non-potable recycled water
Arcadia 2010 UWMP	An increase of 644 AFY of non-potable recycled water
Total Upper San Gabriel and Rio Hondo Non-Potable Reuse Target	**12,000 AFY**

Table 22: Upper Los Angeles River Subregion, Non-Potable Reuse Target Development

Water Supplier and Document	Calculation
Glendale 2010 UWMP	Plans to sustain current recycled water use volume (1,662 AFY) through 2035 = no increase in non potable recycle water production
Burbank 2010 UWMP	5,160 AFY (2035) - 2,000 AFY (2010)= 3,160 AFY
LADWP staff	9,297 AFY
Las Virgenes MWD 2010 UWMP	Projecting increasing in recycled water (NPR) demands from 4,522 AFY (2010) to 9,062 AFY (2035) = 4,540 AFY * 13% area in NSMB = 590 AFY
Total Upper Los Angeles River Non-Potable Reuse Target	**13,000 AFY**

Table 23: Lower San Gabriel and Los Angeles Rivers Subregion, Non-Potable Reuse Target Development

Water Supplier and Document	Calculation
Central Basin 2010 RWMP	NPR projections in Central Basin MWD (In CB's Service Area): 17,900 AFY (2035)-6,600 AFY (2010)= 11,300 AFY of NPR water
Long Beach 2010 UWMP	NPR projections for Long Beach: 11,000 AFY (2035) – 4,658 AFY (2010) = 6,342 AFY
City of Los Angeles staff	0 AFY
Total Lower San Gabriel and Los Angeles Non-Potable Reuse Target	**18,000 AFY**

Ocean Water Desalination Target

Desalinated ocean water is not currently utilized on a large scale within the GLAC Region; however, two agencies have plans for use of desalinated ocean water as a source of supply according to their 2010 UWMPs. The following tables provide a breakdown of these projections.

Table 24: South Bay Subregion, Ocean Water Desalination Target Development

Water Supplier and Document	Calculation
West Basin MWD 2010 RUWMP	Increase in desalination: 21,500 AFY (2020) - 500 AFY (2010)= 21, 000 AFY (18.7 MGD)
Total South Bay Ocean Water Desalination Target	**21,000 AFY**

Table 25: North Santa Monica Bay Subregion, Ocean Desalination Target Development

Water Supplier and Document	Calculation
No target identified	

Table 26: Upper San Gabriel and Rio Hondo Subregion, Ocean Water Desalination Target Development

Water Supplier and Document	Calculation
No target identified	

Table 27: Upper Los Angeles River Subregion, Ocean Water Desalination Target Development

Water Supplier and Document	Calculation
No target identified	

Table 28: Lower San Gabriel and Los Angeles Rivers Subregion, Ocean Water Desalination Target Development

Water Supplier and Document	Calculation
Long Beach 2010 UWMP:	The desalination plant "will produce from 5,000 to 10,000 AF of potable water per year."
Total Lower San Gabriel and Los Angeles Ocean Water Desalination Target	**5,000 AFY**

Stormwater Recharge Target

The stormwater recharge target was developed to identify the potential for capturing wet-weather runoff for use as groundwater recharge. These targets were developed using water supply planning documents, stormwater management documents, and through meetings and contact with water suppliers. The stormwater recharge targets for each subregion were calculated in one of four ways:

1. Estimated as a percentage of runoff that can be captured and recharged according to the average precipitation falling over the subregion

2. Projection of stormwater that can be captured and recharged from centralized stormwater capture projects according to other planning documents
3. Totaling of potential recharge basin projects provided in the Metropolitan Water District IRP
4. Numbers directly provided by water agency staff

Three dam improvement projects in planning by the Army Corps of Engineers were suggested for inclusion in the stormwater target including as they would increase the ability to store water for later use as recharge:

- Hansen Dam (3,400 AF)
- Santa Fe Dam (2,400 AF)
- Whittier Narrows Dam (1,100 AF)

However, it is assumed that these dam improvements will provide supply to the spreading ground improvement projects used to calculate the stormwater recharge targets. To add the dam improvements to the targets would result in double counting.

The following tables provide a breakdown the documents and calculations used to estimate the stormwater recharge target for each subregion.

Table 29: South Bay Subregion, Stormwater Recharge Target Development

Water Supplier and Document	Calculation
No target identified as there is limited recharge potential in the West Coast Basin.	

Table 30: North Santa Monica Bay Subregion, Stormwater Recharge Target Development

Water Supplier and Document	Calculation
No target identified as groundwater quantity and quality is limited in the subregion.	

Table 31: Upper San Gabriel and Rio Hondo Subregion, Stormwater Recharge Target Development

Description	Water Supplier and Document	Calculation
Centralized Stormwater Recharge	Metropolitan Water District IRP	Total of stormwater project volumes reported within the subregion = 2,900 AFY
Decentralized Stormwater Recharge	Surface Water Quality Targets (low priority)	Low priority capture capacity volumes (levels 1, 2): 4,100 AF + 2,500 AF = 6,600 AF per 0.75-in, 24-hour storm event Assuming 3 storm events per year: 6,600 AF/storm * 3 storms/year = 19,800 AFY Subtract out stormwater capture and direct use (Table 26): 19,800 AFY – 5,649 AFY = 14,151 AFY
	Total Upper San Gabriel and Rio Hondo Stormwater Recharge Target	17,000 AFY

Table 32: Upper Los Angeles River Subregion, Stormwater Recharge Target Development

Description	Water Supplier and Document	Calculation
Centralized Stormwater Recharge	Los Angeles Department of Water and Power staff	15,000 AFY planned stormwater recharge
	Metropolitan Water District IRP (not including LADWP)	10,000 AFY planned stormwater recharge
		Subtotal: 15,000 AF + 10,000 AFY = 25,000 AFY
Decentralized Stormwater Recharge	Surface Water Quality Targets (low priority)	Low priority capture capacity volumes (levels 1, 2): 3,400 AF + 2,900 AF = 6,300 AF per 0.75-in, 24-hour storm event Assuming 3 storm events per year: 6,300 AF/storm * 3 storms/year = 18,900 AFY Subtract out stormwater capture and direct use (Table 27): 18,900 AFY – 7,350 AFY = 11,550 AFY
	Total Upper Los Angeles River Stormwater Recharge Target	37,000 AFY

Table 33: Lower San Gabriel and Los Angeles Rivers Subregion, Stormwater Recharge Target Development

Description	Water Supplier and Document	Calculation
Centralized Stormwater Recharge	Draft Groundwater Basins Master Plan, prepared for WRD	Planned rubber dam projects: Additional 3,600 AFY stormwater capture Spreading ground interconnection pipeline: 1,300 AFY Subtotal: 3,600 AF + 1,300 AFY = 4,900 AFY
Decentralized Stormwater Recharge	Surface Water Quality Targets (low priority)	Low priority capture capacity volumes (levels 1, 2): 4,600 AF + 3,200 AF = 7,800 AF per 0.75-in, 24-hour storm event Assuming 3 storm events per year: 7,800 AF/storm * 3 storms/year = 23,400 AFY Subtract out stormwater capture and direct use (Table 28): 23,400 AFY – 7,392 AFY = 16,008 AFY
	Total Lower San Gabriel and Los Angeles Stormwater Recharge Target	**21,000 AFY**

Recycled Water – Indirect Potable Reuse (IPR) Target

The recycled water IPR target was developed based on current and projected recycled water use as presented in 2010 UWMPs and RWMPs. The IPR targets for each subregion were calculated in one of three ways:

1. Projected additional recycled water indirect potable reuse between 2010 and 2035 for each water supplier according to 2010 UWMPs
2. Projection additional recycled water indirect potable reuse between 2010 and 2035 according to RWMPs
3. Projected indirect potable reuse use from other recycled water planning documents

The following tables provide a breakdown of the documents and calculations used to estimate the indirect potable reuse target for each subregion.

Table 34: South Bay Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
West Basin 2010 RUWMP	Increase in IPR= 20,480 AFY (2035) – 7,797 AFY (2010)= 12,700 AFY of recycled water to augment groundwater in the basin
Total South Bay IPR Target	**13,000 AFY**

Table 35: North Santa Monica Bay Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
No target is identified as groundwater quality and quantity are limited within the subregion.	

Table 36: Upper San Gabriel and Rio Hondo Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
Raymond Basin: Pasadena 2010 RWMP, Table 3-8	New groundwater recharge with recycled water projects of up to 2,640 AFY were identified.
Upper San Gabriel Valley MWD planning	An increase of 10,000 AFY (2045) - 0 AFY (2010) of recycled water to be used for groundwater recharge.
Six Basins: No plans found	Service area does not use recycled water for recharge, and does has no intention to use recycled water to augment groundwater in the basin.
Total Upper San Gabriel and Rio Hondo IPR Target	**13,000 AFY**

Table 37: Upper Los Angeles River Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
Glendale 2010 UWMP	No intention to use recycled water to augment the groundwater basin.
Burbank 2010 UWMP	No intention to use recycled water to augment the groundwater basin.
City of Los Angeles 2010 UWMP	An increase of 30,000 AFY (2035) – 0 AFY (2010) to augment groundwater in the basin
Total Upper Los Angeles River IPR Target	**30,000 AFY**

Table 38: Lower San Gabriel and Los Angeles Rivers Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
Approximate volume of imported water currently recharged in spreading basins which recharge the Central Basin.	An increase in 21,000 AFY of recycled water to augment groundwater in the basin
Long Beach 2010 UWMP	An additional 5,000 AFY of recycled water will be produced by Long Beach WD to inject into the sea water barrier. Estimated that 60% contributes to groundwater basin volume = 3,000 AFY
Total Lower San Gabriel and Los Angeles IPR Target	**24,000 AFY**