GLAC-IRWMP
Water Supply Objectives & Targets

Introduction

The 2006 GLAC 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 and Projected 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 was compiled from a set of representative agencies' UWMPs. The current supply and demand levels use actual measurements from 2010, while projected levels use the year 2035. In addition, projections can be divided into direct use and replenishment.

Direct use supplies and demands for each Subregion are shown in Table 1, while replenishment supplies are shown in Table 2. The direct use projections in Table 1 show that in general, water agencies in each Subregion are planning to greatly increase the use of local supplies to meet increasing demands, but will still include imported water as an integral part of their water supply portfolios. It should be noted that many suppliers included water use efficiency within their demand projections, and therefore won't be reflected as a supply under water use efficiency in Table 1. The replenishment projections in Table 2 show that recycled water use for replenishment will increase and replace a portion of imported water currently used to replenish groundwater basins.

Table 1: Current and Projected Direct Use Supply and Demand

Target	Year	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 (AFY)	2010	23,000	0	23,000	5,000	0	**51,000**
	2035	50,000	0	30,000	40,000	3,000	**123,000**
Groundwater (AFY)	2010	40,000	0	199,000	69,000	261,000	**569,000**
	2035	64,000	0	223,000	91,000	266,000	**644,000**
Stormwater Capture and Direct Use (AFY)	2010	0	0	0	0	0	**0**
	2035	4,000	0	6,000	0	0	**10,000**
Surface Water Diversions (AFY)	2010	0	0	13,000	1,000	0	**14,000**
	2035	0	0	18,000	1,000	0	**19,000**
Recycled Water - NPR (AFY)	2010	22,000	6,000	9,000	8,000	30,000	**75,000**
	2035	49,000	10,000	21,000	18,000	39,000	**137,000**
Ocean Desalination (AFY)	2010	2,000	0	0	0	0	**2,000**
	2035	24,000	0	0	0	5,000	**29,000**
Imported Water (AFY)	2010	352,000	39,000	101,000	317,000	125,000	**934,000**
	2035	359,000	49,000	121,000	305,000	114,000	**948,000**
Transfers (AFY)	2010	0	0	0	0	0	**0**
	2035	0	0	0	23,000	2,000	**25,000**
Total Supply (AFY)	**2010**	**439,000**	**45,000**	**345,000**	**400,000**	**416,000**	**1,645,000**
	2035	**550,000**	**59,000**	**419,000**	**478,000**	**429,000**	**1,935,000**
Total Demand (AFY)	**2010**	**430,000**	**45,000**	**202,000**	**397,000**	**348,000**	**1,422,000**
	2035	**500,000**	**47,000**	**243,000**	**478,000**	**398,000**	**1,686,000**

Table 2: Current and Projected Groundwater Replenishment Supplies

Target	Year	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
Surface Water Diversions (AFY)	2010	0	0	110,000	26,000	52,000	188,000
	2035	0	0	110,000	41,000	52,000	203,000
Recycled Water - IPR (AFY)	2010	8,000	0	0	0	41,000	49,000
	2035	20,000	0	0	30,000	41,000	91,000
Imported Water (AFY)	2010	15,000	0	38,000	0	23,000	76,000
	2035	0	0	38,000	0	23,000	61,000
Total Supply (AFY)	**2010**	**23,000**	**0**	**148,000**	**26,000**	**116,000**	**313,000**
	2035	**20,000**	**0**	**148,000**	**71,000**	**116,000**	**355,000**

1. 2010 and 2035 values obtained from the West Basin MWD 2010 Regional Urban Water Management Plan.
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 no change by 2035. Includes 100% of groundwater basin recharge, and 60% of seawater barrier recharge.
3. 2010 and 2035 values obtained from the City of Los Angeles 2010 Urban Water Management Plan.

Targets

While the water supply objective remained the same as in the 2006 IRWM Plan, the targets revised and developed using a combination of water supply planning and reporting documents, and stakeholder involvement. 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 water supplies. Due to the large number of water suppliers in the GLAC Region, it was necessary to use a variety of documents including: 2010 Urban Water Management Plans, groundwater adjudication 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 a number of 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 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. The supply targets resulting from this process are shown in Table 3. As previously discussed, the large number of water suppliers and varied water supplies in the GLAC Region required a number of different types of documents be reviewed in order to develop the water supply targets. The following is a description 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
Water Use Efficiency (AFY)	38,000 (Table 4)	6,000 (Table 5)	49,000 (Table 6)	38,000 (Table 7)	15,000 (Table 8)	**146,000**
Groundwater (AFY)	35,000 (Table 9)	0 (Table 10)	36,000 (Table 11)	31,000 (Table 12)	17,000 (Table 13)	**119,000**
Recycled Water – Indirect Potable Reuse (AFY)[1]	13,000 (Table 14)	0 (Table 15)	15,000 (Table 16)	30,000 (Table 17)	24,000 (Table 18)	**82,000**
Groundwater Quality Improvement (AFY)[1]	5,000 (Table 19)	0 (Table 20)	70,000 (Table 21)	0 (Table 22)	0 (Table 23)	**75,000**
Stormwater Recharge (AFY)[1]	0 (Table 24)	0 (Table 25)	17,000 (Table 26)	37,000 (Table 27)	21,000 (Table 28)	**75,000**
Stormwater Capture and Direct Use (AFY)	6,000 (Table 29)	2,000 (Table 30)	6,000 (Table 31)	7,000 (Table 32)	7,000 (Table 33)	**28,000**
Recycled Water – Non-Potable Reuse (AFY)	36,000 (Table 34)	5,000 (Table 35)	12,000 (Table 36)	12,000 (Table 37)	18,000 (Table 38)	**83,000**
Ocean Desalination (AFY)	21,000 (Table 39)	0 (Table 40)	0 (Table 41)	0 (Table 42)	5,000 (Table 43)	**26,000**
Total (AFY)	**136,000**	**13,000**	**103,000**	**88,000**	**62,000**	**402,000**

1. Indirect potable reuse, groundwater quality improvement, and stormwater recharge are not included in subregional totals as they are assumed to support the overall groundwater target.

Water Use Efficiency

The water use efficiency target was developed based on the conservation or demand reduction projections reported in the 2010 Urban Water Management Plans 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 Urban Water Management Plans, 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 = 5,800 AFY 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	210 GPCD (2010) – 168 GPDC (2035) = 42 GPCD*199,562 (2035 population) = 9,400 AFY-1,600 AFY (Recycled water volume counted as part of conservation) = 7,800 AFY. 60% of area in USGRH region = 4,700 AFY
Three Valleys 2010 RUWMP	Conservation projection: 27,300 AFY (2035) – 19,000 AFY (2010)= 8,300 AFY
USGVMWD 2010 UWMP	179.2 GPCD (2010) * 20% (20x2020 goal)= 36 GPCD* 903,000 (2035 population)= 36,200 AFY
Total Upper San Gabriel and Rio Hondo Water Use Efficiency Target	**49,000 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 (2035) * 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
Total Upper Los Angeles Water Use Efficiency Target	**36,000 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= 2,300 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)= 3 GPCD * 153,613 (2035) population= 500 AFY
Central Basin 2010 RUWMP	Conservation projection: 244,393 AFY (2010-Demands) - 262,000 AFY (2035- Demands(includes conservation)) = 18,000 AFY -11,500 AFY (Recycled Water-NPR) = 6,500
Total Lower San Gabriel and Los Angeles Water Use Efficiency Target	**15,000 AFY**

Groundwater Target

The groundwater target was developed based on Groundwater Basin Master Plans, adjudicated pumping limits in the groundwater basins located in the GLAC Region, 2010 Urban Water Management Plans, and the Metropolitan Water District's . 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 possible through recharge projects

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 2010 UWMP	7,500 AFY (estimated safe yield) – 2,062 AFY (2010 pumping) = 6,400 AFY
West Basin 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
Pasadena 2010 UWMP	Projected decrease in groundwater production by 2,000 AFY from Raymond Basin and 1,000 in USGRH region.
Three Valleys MWD 2010 RUWMP	Projects the current volume (45,000 AFY) of groundwater production to remain the same through 2035 = no increase.
Main San Gabriel Basin	Projected increase in groundwater demands between 2010-11 and 2015-16 from the Main San Gabriel Basin Watermaster Five-Year Water Quality and Supply Plan: 246,800 AF (2015-16) – 213,500 AF (2010-11) = 33,300 AF
Puente Basin Water Agency Regional Groundwater Project	3,000 AFY from Six Basins through the leasing of unused Six Basins groundwater rights
Total Upper San Gabriel and Rio Hondo Groundwater Target	**36,000 AFY**

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

Water Supplier and Document	Calculation
City of Los Angeles staff	30,000 AFY
Burbank 2010 UWMP:	11,000 AFY (2035) – 9,917 AFY (2010)= 1,000 AFY
Glendale 2010 UWMP	12,000 AFY (2035) – 10,000 AFY (2010)= 2,000 AFY
Pasadena 2010 UWMP	Projected decrease in groundwater production by -2,000 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 Basin Master Plan	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**

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 Recycled Water Master Plans. 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 Recycled Water Master Plans (RWMPs)
3. Projected indirect 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 14: 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 15: North Santa Monica Bay Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
No target identified as there is little groundwater pumping within the subregion.	

Table 16: Upper San Gabriel and Rio Hondo Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
Pasadena 2010 UWMP	An increase of 900 AFY (900 AFY (2035)- 0 AFY (2010)) of recycled water to augment groundwater in the basin
Upper San Gabriel Valley MWD 2010 RUWMP	An increase of 10,000 AFY of recycled water to augment groundwater in the basin
Three Valleys MWD 2010 RUWMP	Service area does not use recycled water for indirect potable reuse.
Total Upper San Gabriel and Rio Hondo IPR Target	**11,000 AFY**

Table 17: 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 groundwater in the basin
Burbank 2010 UWMP	No intention to use recycled water to augment groundwater in the basin
City of Los Angeles 2010 UWMP	Increase IPR recycled water by 30,000 AFY by 2035 to augment groundwater in the basin
Total Upper Los Angeles River IPR Target	**30,000 AFY**

Table 18: Lower San Gabriel and Los Angeles Rivers Subregion, Recycled Water IPR Target Development

Water Supplier and Document	Calculation
Approximate volume of imported water recharged in Central Basin spreading basins	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**

Groundwater Quality Target

The groundwater quality target was developed in order to capture groundwater supply that is currently unusable due to contamination. This target was developed through the compilation of planned groundwater clean-up efforts that would result in additional groundwater supplies in the future that have been listed in 2010 UWMPs, Watermaster Reports and the Metropolitan Water District IRP. The groundwater quality target was calculated in one of two ways:

1. Projected additional groundwater pumping as a result of the use of cleanup technologies as reported in 2010 Urban Water Management Plans
2. Projected increase in treatment of groundwater as reported in Watermaster and Water Quality Authority reports

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

Table 19: South Bay Subregion, Groundwater Quality Target Development

Water Supplier and Document	Calculation
Santa Monica 2010 UWMP	Additional groundwater pumping available due to installation of groundwater treatment plant within the Santa Monica Groundwater Basin: 5,000 AFY
West Basin MWD 2010 RUWMP	No additional groundwater quality improvement projects planned for the West Coast Basin
Beverly Hills 2010 UWMP	No additional groundwater quality improvement projects planned for the Hollywood Basin
Total South Bay Groundwater Quality Target	**5,000 AFY**

Table 20: North Santa Monica Bay Subregion, Groundwater Quality Target Development

Water Supplier and Document	Calculation
No target identified as there is little groundwater pumping within the subregion.	

Table 21: Upper San Gabriel and Rio Hondo Subregion, Groundwater Quality Target Development

Water Supplier and Document	Calculation
San Gabriel Basin Water Quality Authority, 2012 Groundwater Management and Remediation Plan Main San Gabriel Basin Watermaster Five-Year Water Quality and Supply Plan	According to Table 4 – Additional Existing and Potential Projects Basinwide, the total capacity of treatment projects not included in major cleanup efforts total 74,810 gpm. According to Appendix E of the Main San Gabriel Basin Watermaster's Five-Year Water Quality and Supply Plan, 4,340 gpm of projects are existing. Assuming an efficiency rate of 70%, this would yield approximately 70,500 AFY of groundwater treatment.
Total Upper San Gabriel and Rio Hondo Groundwater Quality Target	**70,000 AFY**

Table 22: Upper Los Angeles River Subregion, Groundwater Quality Target Development

Water Supplier and Document	Calculation
Upper Los Angeles River Area (ULARA) Groundwater Pumping and Spreading Plan, 2011	According to Table 4-2 of the ULARA Pumping and Spreading Plan, the projected groundwater treatment volume is expected to decrease from 43,339 AFY to 38,615 AFY, therefore the groundwater quality target = 0 AFY
Pasadena 2010 UWMP	In the Raymond Basin, the Sunset Treatment Plan would construct a 1,200 gpm ion exchange system for the treatment of Perchlorate. At an efficiency rate of 70%, this would yield approximately 1,400 AFY.
Total Upper Los Angeles River Groundwater Quality Target	**1,000 AFY**

Table 23: Lower San Gabriel and Los Angeles Rivers Subregion, Groundwater Quality Target Development

Water Supplier and Document	Calculation
An estimate of planned or potential groundwater quality improvement projects was unavailable at the time this Technical Memorandum was prepared.	
Total Lower San Gabriel and Los Angeles Groundwater Quality Target	**0 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 indirect potable reuse target for each subregion.

Table 24: 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 25: North Santa Monica Bay Subregion, Stormwater Recharge Target Development

Water Supplier and Document	Calculation
No target identified as there is little groundwater pumping within the subregion.	

Table 26: 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-ing, 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: 19,800 AFY – 5,649 AFY = 14,151 AFY
	Total Upper San Gabriel and Rio Hondo Stormwater Recharge Target	17,000 AFY

Table 27: 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-ing, 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: 18,900 AFY – 7,350 AFY = 11,550 AFY
	Total Upper Los Angeles River Stormwater Recharge Target	37,000 AFY

Table 28: 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-ing, 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: 23,400 AFY – 7,392 AFY = 16,008 AFY
	Total Lower San Gabriel and Los Angeles Stormwater Recharge Target	**21,000 AFY**

Stormwater Capture and Direct Use Target

The stormwater capture and use target was developed to identify the potential for capturing wet-weather runoff for direct use in place of potable water. 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 area).

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

Table 29: 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 30: 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) – 89 sq mi (North Santa Monica Bay open space area) = 114 sq mi 114 sq mi * 21 AFY/sq mi = 2,394 AFY
Total North Santa Monica Bay Stormwater Capture and Direct Use Target	**2,000 AFY**

Table 31: 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 32: 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 33: 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. 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 Recycled Water Master Plans (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 34: 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 35: 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
Las Virgenes MWD 2010 UMWP	Projecting increasing in recycled water (NPR) demands from 4,522 AFY (2010) to 9,062 AFY (2035) = 5,007 AFY
Total North Santa Monica Bay Non-Potable Reuse Target	**5,000 AFY**

Table 36: 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 37: 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)= 3,000 AFY
LADWP staff	9,297 AFY
Total Upper Los Angeles River Non-Potable Reuse Target	**12,000 AFY**

Table 38: Lower San Gabriel and Los Angeles Rivers Subregion, Non-Potable Reuse Target Development

Water Supplier and Document	Calculation
Central Basin 2010 RWMP	Recycled water production 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) = 6,315 AFY

City of Los Angeles staff	0 AFY
Total Lower San Gabriel and Los Angeles Non-Potable Reuse Target	**18,000 AFY**

Desalinated Ocean Water 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 39: South Bay Subregion, Ocean Desalination Target Development

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

Table 40: North Santa Monica Bay Subregion, Ocean Desalination Target Development

Water Supplier and Document	Calculation
No target identified	

Table 41: Upper San Gabriel and Rio Hondo Subregion, Ocean Desalination Target Development

Water Supplier and Document	Calculation
No target identified	

Table 42: Upper Los Angeles River Subregion, Ocean Desalination Target Development

Water Supplier and Document	Calculation
No target identified	

Table 43: Lower San Gabriel and Los Angeles Rivers Subregion, Ocean 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 Desalinated Ocean Water Target	**5,000 AFY**