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Project Integration

Technical Memorandum
August 18, 2006

Integrated Regional Water Management Plan For the Greater Los Angeles County Region

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Technical Memorandum for the Integrated Regional Water Management Plan for the Greater Los Angeles County Region prepared in partnership with:

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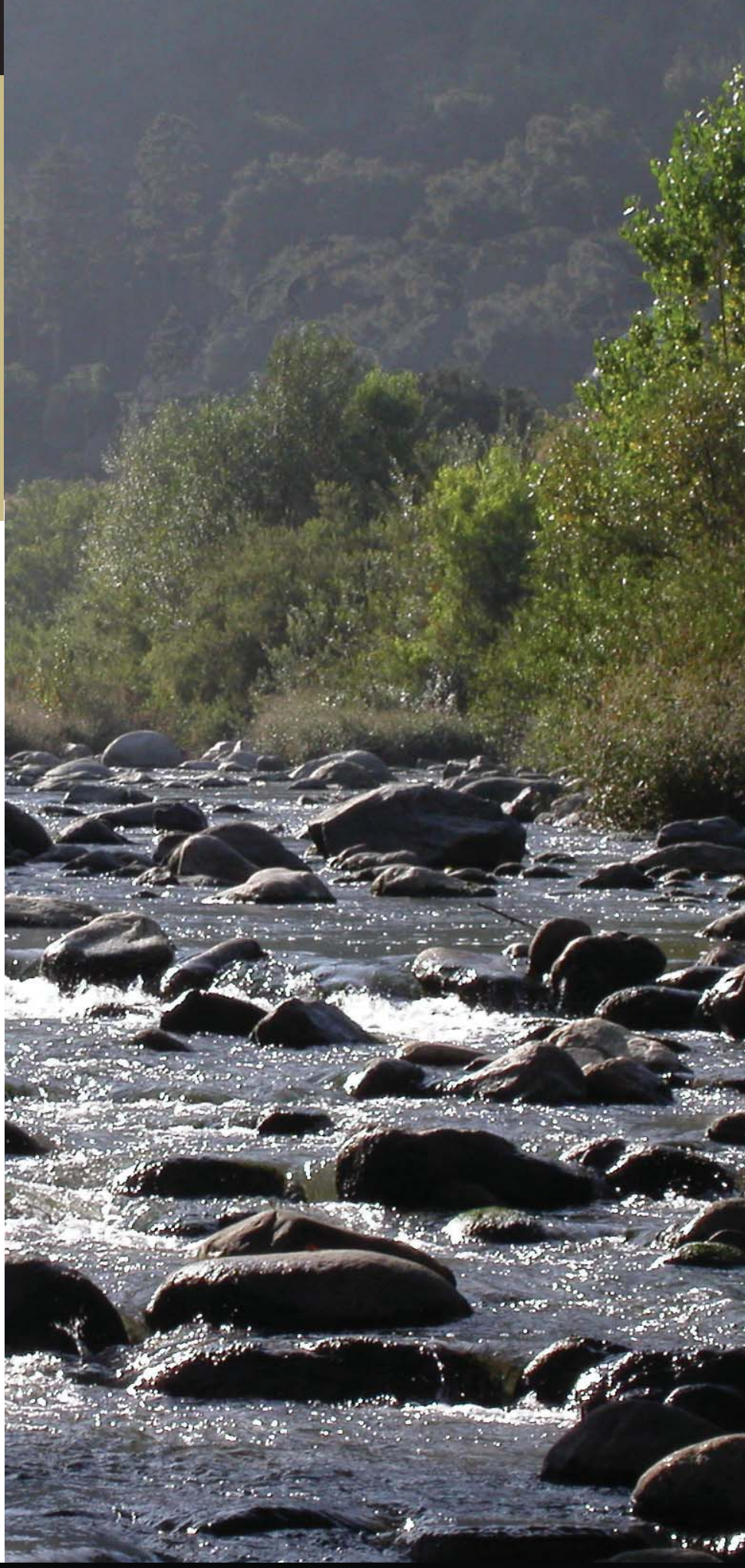

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August 18, 2006

Mr. Don Wolfe
Chair
IRWMP Leadership Committee
Los Angeles County Flood Control District
900 South Fremont Avenue, 12th Floor
Alhambra, CA 91803

Subject: Greater Los Angeles Integrated Regional Water Management Plan - Project Integration Technical Memoranda and the Benefits and Costs Assessment Technical Memoranda

Dear Mr. Wolfe:

We have uploaded today for your review and distribution the Project Integration Technical Memoranda and the Benefits and Costs Assessment Technical Memoranda (TM) to our FTP site in a folder titled: "LAIRWMP". You have access to the FTP site through the following link: ftp://bc:bcftp@ftp.brwncald.com, Username: bc, and Password: bcftp. Thank you very much for the opportunity to provide these documents, as a part of our ongoing scope of work for the LA IRWMP project. These documents are two important steps in our Region's efforts to develop our IRWMP.

The Project Integration TM:

1. Documents our current progress towards developing regional quantitative targets for water supply, water quality, and open space,
2. Provides a comprehensive summary assessment of the projects that stakeholders have identified in their Subregions, and the Region, to make progress towards these targets as of June 1, 2006; and
3. Provides regional planning tools to assist the Subregions with beginning to define a vision for filling the gap to achieve the quantitative targets.

This document will serve as a very useful tool at the Subregional and Regional levels as they continue to identify appropriate projects for various funding sources, including the upcoming Prop 50, Round 2 funding opportunity.

The Benefits and Costs Assessment TM:

1. Presents a summary of the benefits and costs provided by stakeholders for projects submitted in the Step 2 Application as of June 2006, and
2. Presents a summary of the benefits and order-of-magnitude cost estimates of three distinct approaches for accomplishing the regional quantitative targets established by the Leadership Committee for water supply, water quality and open space.

This document will also assist the Subregions with beginning to define a vision for filling the gap to achieve the quantitative targets.

These documents are intended to be "snapshots" in time which document the progress being made by members of the Leadership Committee, Steering Committees, and stakeholders to develop a comprehensive IRWMP which will be technically, economically, and politically sound. The documents are intended to stimulate discussion and feedback, and all comments will be used to help improve the final draft IRWMP that will be circulated at the end of September. We encourage review and feedback from the Steering Committees over the next several weeks, and it is our understanding that several of them may be scheduling conference calls in the next week to begin to discuss the documents before their regularly scheduled meeting in September. Please contact me if you have any questions.

Very truly yours,

BROWN AND CALDWELL

Michael Drennan
Vice President

PROJECT INTEGRATION
TECHNICAL MEMORANDUM

Prepared for

Leadership Committee of Greater Los Angeles
County Integrated Regional Water Management Plan

August 2006

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LIST OF ACRONYMS

AFY	Acre Feet per Year
BMP	Best Management Practice
cfs	Cubic Feet per Second
DAC	Disadvantaged Community
IRWMP	Integrated Regional Water Management Plan
MGD	Million Gallons per Day
MWD	Municipal Water District
Region	Greater Los Angeles County Region
RWQCB	Regional Water Quality Control Board
TM	Technical Memorandum
TMDL	Total Maximum Daily Load
USC	University of Southern California

1. INTRODUCTION

1.1 Purpose

The purpose of the Project Integration Technical Memorandum (TM) is to present:

1. Regional quantitative targets for water supply, water quality, and open space;
2. A summary assessment of the projects that stakeholders have identified to make progress towards these targets; and
3. Regional planning tools for integrating water management strategies and filling the gap to achieve the quantitative targets. This information will support the Benefit Assessment and Implementation Plan deliverables.

This TM provides information for the Region as a whole, including preliminary information on the benefits, costs and number of local projects. Detailed information for each of the five Subregions is provided as Appendix A through E. The Benefit Assessment TM, developed in parallel with this TM, quantifies the benefits and cost of the regional planning tools.

1.2 Background

With over 25 percent of the California's population, the Greater Los Angeles County Region (Region) is very densely populated. This degree of urbanization has lead to conflicting impacts and needs related to water resources. On one hand the development of open land over time decreased the environment's ability to provide clean water and habitat. However, it also increases the uses of those resources for things like recreation and water supply. Early on in Los Angeles' history, this situation lead to the creation of a highly complex water management system, designed to provide for these complex water resource needs on a grand scale. The Integrated Regional Water Management Plan (IRWMP or Plan) is a significant step in the Region's continuing efforts to collaborate on the specific issues of providing sustainable water supply, protecting and improving water quality, and ensuring environmental stewardship. The IRWMP acknowledges that for the Region to meet its future resource needs, water supply planning and development must be integrated with other water resource management issues, such as urban stormwater runoff management, wastewater quality improvements, flood protection, and other environmental needs including habitat, parks and open space. This can occur through the integration of multiple purposes and water management strategies into the Region's water resource projects, as well as through coordinated planning across all projects.

The Project Integration TM is one in a series of deliverables that will inform project participants of the analysis and Plan formulation process in an ongoing manner, leading up to the creation of the IRWMP. TMs and other deliverables being completed in support of the IRWMP include the following:

- Water Supply (submitted May 31, 2006);
- Water Quality (submitted May 31, 2006);
- Beneficial Use (submitted May 31, 2006);
- Integrated Water Management Strategy (submitted May 31, 2006);

- Project Integration (one Regional and five Subregional);
- Benefit Assessment (one Regional and five Subregional);
- Prioritization lists and preferred set of projects (one Regional and five Subregional); and
- Implementation Plans (one Regional and five Subregional).

Although plan formulation efforts and deliverables will result in a single consolidated IRWMP, given the size and complexity of the Region and the number of stakeholders and agencies participating in the process, the Region has been divided into five Subregions through the analysis and plan formulation process. These are:

- Lower San Gabriel and Los Angeles Watersheds;
- North Santa Monica Bay Watersheds;
- South Bay Watersheds;
- Upper Los Angeles River Watershed; and
- Upper San Gabriel River and Rio Hondo Watersheds.

Figure 1. The Greater Los Angeles County Region and the five associated Subregions

1.3 Project Integration Concept

Water resource management projects developed in past decades typically focused on meeting a singular need, while avoiding or minimizing impacts to other water resource interests. The most significant examples of this have been flood control, water supply and water treatment projects. However, local sponsors and stakeholders are increasingly recognizing the value of addressing the interrelationships and interdependencies of water resource management. This continuing evolution in the approach to water management has resulted

in an interest in project design that addresses multiple needs in order to obtain a broad range of benefits from each project.

The process of developing the IRWMP is intended to facilitate an ongoing, iterative collaboration. This TM serves as a snapshot in time regarding the initial steps of the iterative process, and it has facilitated the exploration of possible interrelationships between existing and new project ideas. This TM documents and summarizes the projects that local stakeholders have submitted for inclusion in this planning process. Collecting information on these projects provides the opportunity to evaluate them as a whole, identify additional opportunities for integration and synergy among them, and collaborate on implementation.

In addition, because the needs for water supply, water quality improvement and open space are so great, benefits of the projects submitted by stakeholders as a whole will still not accomplish the Region's goals and targets for these functions. There will be a benefit "gap" that remains to be met. Therefore, three types of regional planning tools are also being presented in this TM to generate discussion on various methods that can be used to fill the benefit gap and meet the Region's targets. Figure 2 illustrates this approach.

The regional planning tools have been developed based upon input and ideas provided by stakeholder workshops and suggest potential frameworks to integrate water management strategies and types of projects across the Region. These planning tools are intended to complement and integrate with the stakeholder projects already under consideration to form an integrated and complete solution for the Region's water resource needs over the 20 year planning horizon of this Plan.

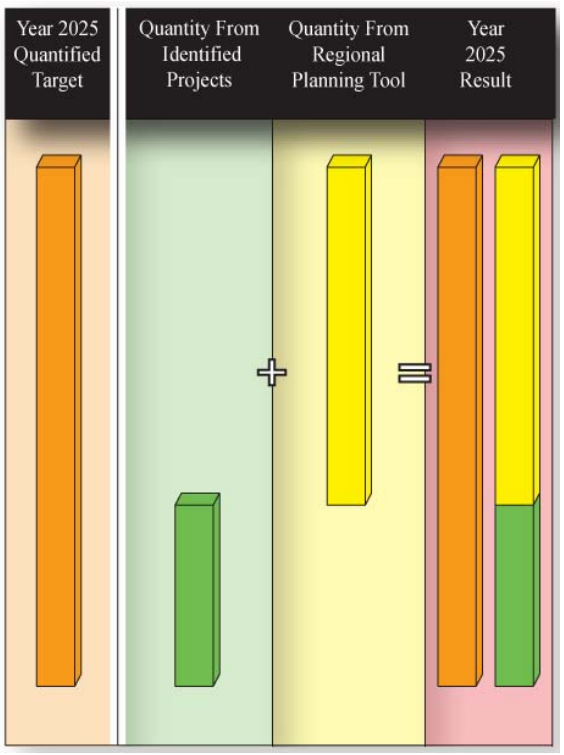


Figure 2. Example of Approach to Meet Targets

2. IRWMP TARGETS

The IRWMP includes broad planning objectives as well as specific quantitative planning targets to meet these objectives. The Leadership Committee of the IRWMP has defined these specific and quantitative targets to provide clear goals to hold themselves accountable to measurable results over the next 20 years, to allow for comparison of specific proposed projects and their relative benefits to these targets, and to allow for tracking progress on a regular basis.

The purpose of this section is to present the quantifiable targets established for the Region, and the rationale for each. Input from the Leadership Committee, Subregional Steering Committees, and stakeholders have shaped the targets. Table 1 presents the Plan objectives, targets, technical assumptions, and target rationale for the purpose of this preliminary evaluation. Planning targets that include a range of values have been simplified to a representative planning target for use in technical analyses, such as those presented in the Benefit Assessment TM.

The planning targets were developed based on the following water resource considerations:

Water Supply

- Projected population growth will expand demand for water resources in the Region over the next 20 years. Expansion of demand management activities (e.g., conservation) will decrease the need for new supplies and reduce demand for imported water.

Reuse

- Recycled water is the single most available source of water in the Region because existing capacity to recycle water exceeds demand. To the extent that opportunities to utilize recycled water can be created, this will displace the need to import, pump and/or treat "new" water and improve water supply reliability.

Infiltration

- Extensive urban and suburban development in the region has significantly increased impervious surfaces and decreased the amount of water percolating to groundwater. Due to the contaminants in runoff and the presence of a stormwater management system that moves this water quickly to the ocean, this local resource, that could augment local groundwater supplies, has long been under-utilized. Reducing impervious surfaces and promoting infiltration BMPs (e.g. swales and berms) can enhance natural recharge.

Dry Weather Urban Runoff

- Urban runoff typically contains moderate levels of contaminants which limit the potential to utilize this resource to augment local water supplies. To reduce adverse impacts to beneficial uses in the creeks and rivers, the volume of urban runoff could be reduced (with, for example, more efficient landscape irrigation). Alternatively, this runoff could be captured, treated, infiltrated, or reused for other purposes, which would require the development of infrastructure for detention, treatment and infiltration.

Table 1. Plan Objectives, Targets, and Assumptions			
Objective	Planning Target	Analysis Assumptions	Rationale
Improve Water Quality			
To comply with water quality standards by improving the quality of urban runoff, stormwater and wastewater	Dry Weather: Reduce, capture, infiltrate and/or treat the 40th to 90th percentile dry weather urban runoff flow, approximately 210 to 450 cubic feet per second (cfs), or 150,000 to 320,000 acre feet per year (AFY).	Reduce, capture, infiltrate and/or treat the 90th percentile dry weather urban runoff flow, approximately 320,000 AFY.	Reduces, recycles and/or treats 90 percent of dry and wet weather runoff to implement TMDLs.
	Wet Weather: Reduce, infiltrate or recycle 40 percent to 90 percent of the annual stormwater runoff from developed areas, approximately 218,000 to 490,000 AFY.	Reduce, infiltrate or recycle approximately 40 percent of the total stormwater runoff, or 100 percent of annual stormwater runoff from single-family residences, which is approximately 190,000 AFY.	
	Wet Weather: Capture and treat 40 percent to 90 percent of the annual stormwater runoff from developed areas, approximately 218,000 to 490,000 AFY.	Capture and treat approximately 50 percent of the annual stormwater runoff from developed areas, approximately 300,000 AFY.	
To protect and improve groundwater and drinking water quality	None		
Improve Water Supply			
To optimize local water resources to reduce the region's reliance on imported water	Increase water supply reliability and quality by providing between 580,000 and 1,870,000 AFY of additional water supply or demand reduction through conservation.	Increase water supply and/or reduce demand by 800,000 AFY	Based on Metropolitan Water Districts IRP targets with buffer against supply loss.
	Reuse or infiltrate between 120,000 and 250,000 AFY of reclaimed water.	Reuse or infiltrate 250,000 AFY of reclaimed water (130,000 increase).	Doubles current utilization to enhance water supply reliability.
Enhance Open Space, Recreation, and Habitat			
To increase watershed friendly recreation and open space for all communities	Develop and protect 30,000 acres of multiuse parkland and open space, focusing in under-served communities.	Develop 30,000 acres of multiuse parkland and open space.	Based on estimated population growth and 6.25 acres per 1,000 residents.
To protect, restore, and enhance natural processes and habitats	Restore 100 linear miles of riparian habitat and associated buffer habitat.	Restore 100 linear miles of riparian habitat and associated buffer habitat.	Would target restoration across entire region.
	Restore 1,400 acres of wetland habitat.	Restore 1,400 acres of wetland habitat.	Based on Coastal Conservancy estimate.
Sustain Local Communities and the Greater Los Angeles County Region			
To maintain and enhance flood protection	Repair and replace 40 percent of the aging infrastructure for flood protection.	Repair and replace 40 percent of flood protection infrastructure.	Repair or replace approximately 2 percent per year, or 40 percent over 20 years.
To maintain and enhance public infrastructure related to water resources and water quality	Repair and replace 40 percent of the aging infrastructure for water supply.	Repair and replace 40 percent of water supply infrastructure.	
	Repair and replace 40 percent of the aging infrastructure for wastewater.	Repair and replace 40 percent of wastewater infrastructure.	

Wet Weather Stormwater Runoff

- Extensive urban and suburban development in the Region has significantly increased impervious surfaces and increased runoff to the creeks and rivers. Due to sudden large volumes and the presence of contaminants in stormwater, this local resource has not been fully utilized to augment local supplies. If stormwater can be captured before urban contaminants are introduced, or if it can be captured and treated, it can be used for recharge or some other direct reuse. This will require a new approach to flood control infrastructure that looks at runoff as an asset that should be captured, treated and reused, rather than as a liability that should be sent to the ocean.

Infrastructure

- Various elements of the flood protection system, including debris basins, dams, reservoirs, pump stations, underground storm drains, and concrete-lined channels, have exceeded their design life span. As a result, many have signs of structural strains, or are showing deterioration or other aging effects. There is a need for an evaluation of the systematic repair and replacement of this aging infrastructure, including an evaluation of opportunities to replace traditional single purpose infrastructure (e.g., storm drains) with multipurpose infrastructure such as integrated regional facilities that could potentially provide stormwater retention, treatment, recharge, and possibly creek or habitat improvements.

Habitat

- Remaining riparian habitat in the Region is mostly within the San Gabriel and Santa Monica Mountains. Riparian habitat in the rest of the Region has been subject to modification. Historically, the streams that supported this habitat in coastal areas also supported native populations of Steelhead trout. To help restore the population of species associated with these stream corridors, preservation and restoration of riparian habitat and associated habitat buffer and water quality improvements in those streams will be required. Projects that provide other progress towards other targets described above (including water supply, infiltration, and runoff management) may also be designed in such a way to provide progress towards a habitat target as well.

Open Space

- To address existing deficiencies in access to parkland and open space, and to meet additional demand associated with projected population growth, additional parkland and open space will be required. As many disadvantaged communities lack sufficient park space, development of new parkland and open space should be focused in those communities. Watershed-friendly recreation and open space uses native vegetation that creates habitat, provides passive recreational activities, and contributes to stormwater detention, treatment, and groundwater recharge. Although the IRWMP is not intended to completely address the open space deficit, the inclusion of this planning target is intended to determine to what extent implementation of the Plan can assist in meeting the Regional need for additional parkland and open space.

Water supply planning targets are developed to a greater degree of detail in Table 2 than what is presented in Table 1. The water supply planning target used in technical analyses is calculated as the difference between forecasted 2025 supply and current supply required to meet demand in a single dry year. The difference represents the targeted additional supply, or conservation, required to meet future demand. The IRWMP mid-range water supply planning target is an additional 800,000 acre-feet per year (AFY) by 2025. Current dry-year water demand within the Region is satisfied by approximately 2,550,000 AFY of supply, as compared to the estimated 2025 dry-year demand of 3,350,000 AFY.

Table 2. Water Supply, Year 2025, and Gap			
	Region's Current Supplies	Region's Year 2025 Water Supply	Region's Water Supply Gap (Year 2025 less current)
Type of Supply	Current	Year 2025	Year 2025
Conservation	410,000	520,000	110,000
Local Production (groundwater, surface water, Los Angeles Aqueduct) *	800,000	900,000	100,000
Local Projects (recycled water, groundwater recovery, desalination)	130,000	350,000	220,000
MWD Imported Water	1,210,000	1,580,000	370,000
Dry-Weather Runoff	- -	- -	- -
Urban Stormwater Runoff	- -	- -	- -
Total	2,550,000	3,350,000	800,000

Table 2 also summarizes the supply sources as identified in the Metropolitan Water District (Metropolitan) Integrated Resources Plan (IRP). The IRWMP includes the Metropolitan IRP supply mix, but it also focuses on a greater utilization of local dry and wet weather runoff as supply sources, while simultaneously addressing water quality concerns, in an integrated fashion.

The water quality target that requires the largest volume of treatment capacity is 490,000 AFY. However, it is important to note that this is a total annual flow and water treatment facilities are not designed around annual flows. They are designed for the days that have the maximum flow rates, so that they will be able to handle those situations as they occur. This is an important design issue in this Region because Southern California experiences most of it's annual rain fall in about 20 or so large rain events, not evenly spread out over 365 days. This means that a treatment facility must be designed for peak storm flows, not for the total annual runoff volume. In order to obtain this information, water quality project benefit information was collected in the form of million gallons per day (MGD).

The following two sections (Summary of Stakeholder Projects and Regional Planning Tools) present the preliminary iteration of solutions that allow the Region to make progress and ultimately achieve its objectives and quantified targets. It is anticipated that the process of determining the ultimate solution for each Subregion and the Region will take place over several iterations over the next few years at the five Steering Committees and the Leadership Committee.

3. SUMMARY OF STAKEHOLDER PROJECTS

The purpose of this section is to present a preliminary summary of benefits of projects proposed by stakeholders relative to the Region's targets. In recent years, dozens of water supply, watershed management, water quality compliance and other water management planning documents have been prepared in the Region. The projects included in this Plan are a compilation derived from these ongoing planning efforts as well as from a "Call for Projects" that was made to the stakeholders during Tasks 1 and 2 of the IRWMP process in early 2006. The Call for Projects was an invitation to stakeholders to submit projects for inclusion in the IRWMP, either on-line or via a project information form known as the "short form". These efforts yielded a list of 1072 projects from across the Region as of June 1, 2006. The purpose of this effort was to develop an inventory of projects proposed by stakeholders, to evaluate these projects relative to quantitative targets established by the IRWMP Leadership Committee, and begin to provide tools (such as this TM) to facilitate a dialog about the possible integration of existing projects, and/or development of new project concepts to fill the gap between the proposed projects and the targets.

The list of projects identified for consideration in the IRWMP is organized by Subregion. Project integration assessments have been developed for each of the five Subregions and are attached to this document as Appendix A through E. The Subregional appendices provide information specific to projects submitted within each Subregion and are included as follows:

- Appendix A: Lower San Gabriel and Los Angeles Watersheds;
- Appendix B: North Santa Monica Bay Watersheds;
- Appendix C: South Bay Watersheds;
- Appendix D: Upper Los Angeles River Watershed; and
- Appendix E: Upper San Gabriel River and Rio Hondo Watersheds.

Information received from the individual Subregions has been consolidated into this TM as a Regional summary. The summation of Subregional information allows for the comparison of benefits from submitted projects with regional objectives and quantitative targets, and also allows for the comparison of project types and degree of project integration across the geographically diverse region.

Appendix F includes a matrix of every project submitted across the region. The projects are categorized by their Subregion. There were many projects that fell within multiple Subregions, applied to all of the Subregions, or did not have any Subregional information provided. All of these projects are included as Regional Projects and are listed separately in the matrix. The matrix includes individual project information such as: project name, project sponsor, contact information, project description, location, benefits, costs, status, and year of implementation. Additionally, Appendix G includes Subregion maps depicting project location and project benefit information. There is no map for the Regional projects, as these projects typically either had multiple locations or no location at all.

The completeness of submitted project information varies significantly. In general, project submittals with more comprehensive information indicated a more advanced level of planning, and readiness for implementation. Conversely, projects at the conceptual level of development are typically represented in less detail. The regional summary of project information that follows reflects information submitted by project proponents. While much of the data is incomplete or inconclusive, the main objective of the exercise to collect project data was not to obtain exact results for project that are still in all stages of the planning process. Instead, it was to provide the mechanism for beginning to get stakeholders engaged in sharing their information, and discussing the planning issues related to individual projects as a group. The information

provided here represents what came out of the first steps in this process of bringing individual project planning activities into collaborative forums. It provides a rough gage of the information that was readily available, and gives the stakeholder groups something to work from and refine as the Region moves forward together.

For the most part, stakeholders submitted project information on handwritten forms. This input was entered into spreadsheets by the consultant team. The information was consolidated, and many of the fields that listed information in different ways and formats were standardized using specific assumptions. The project information was then provided to the County where certain assumptions were made in order to enter the data into the designated fields within their project database. In order to ensure consistency between this TM and the information in the County's database, the data was then extracted out of the database and used to perform the analysis. However, assumptions were made with these data as well in order to derive and present summary information. Listed below are the primary assumptions made throughout this process for the purposes of generating the analysis in this document.

- Benefit values were often submitted by stakeholders in different formats and units. This information was standardized and converted to common units for analysis purposes. Only projects that had information that could be converted to a common numerical value were considered to have quantifiable benefit information. The Water Supply unit used is AFY; the Water Quality unit used is MGD; and the Open Space unit used is acres.
- When a range was listed for a category that required a single value, the average value was used.
- Water Supply, Water Quality, and Open Space Benefits were not included in the analysis if the stakeholder input did not include a quantifiable benefit value.
- The analysis of the 'Other' Benefits included both qualitative and quantitative benefit information.
- A single cost provided on the short form was assumed to be the maximum cost unless otherwise noted on the short form.
- Projects that listed multiple locations were divided to create an individual project for each location. The benefits and costs of those projects were equally divided among each individual location.
- Projects were sorted into Subregions using the information provided by stakeholders.
- Projects were listed as a Regional project if the stakeholder identified them as Regional project, if no Subregional information was provided, or if projects were included in multiple Subregions.

It is recommended that stakeholders now go to the www.LAwaterplan.org website to verify that the information for their projects is consistent with their intentions. If any changes need to be made, stakeholders can make those changes directly through this website. Any changes made before September 1 will be incorporated into the final IRWMP document. Any changes after that date will be used for future analysis and planning activities. It should be emphasized again that the process of project integration is intended to be an iterative and ongoing process, and this TM represents the first iteration of that process. It should also be noted that a more thorough refinement and analysis of benefit data is recommended prior to any future use of these data for project ranking purposes.

The following discussion of IRWMP projects is based on information that was collected as of the end of July 2006, and includes an analysis of:

- Project Benefits;
- Project Distribution;
- Project Integration;
- Project Costs;

- Project Implementation Schedule; and
- Comparison to Regional Targets.

3.1 Project Benefits

Project benefits were identified for 377 of the 1072 projects submitted by the stakeholders, or 35 percent of the projects submitted. Stakeholders did not identify benefits for the remainder of the projects submitted. Therefore 65 percent of the projects submitted are not included in the following benefits analysis at this time and the resulting analysis does not portray the full range of benefits that are possible from all of the projects submitted. The analysis only characterizes the benefit information provided. It is anticipated that this summary will be improved significantly over the next year with outreach to the stakeholder community. Stakeholders were asked to submit information about four possible benefit categories:

- Water supply;
- Water quality;
- Open space, public access, habitat, and recreation; and
- Other benefits (including flood control).

Table 3 summarizes the benefit types identified by stakeholders. Because many projects include more than one benefit; these projects were listed in each benefit category that they provide. Therefore, the total number of projects in Table 3 is greater than the total number of projects submitted by stakeholders.

Water supply was the most frequent benefit identified across the Region. However, in Upper Los Angeles River Subregion open space was the most frequent benefit, and in the Lower San Gabriel and LA River Subregion "other" benefits were most frequent. The "other" benefits category was the second most frequent benefit category across the Region. This is partly because flood control is included in this category and most projects that retain water in any way provide some level of flood control benefit. (Further analysis is needed to determine if any of these projects would provide benefit to the design storm events used by Los Angeles County and the U.S. Army Corps of Engineers.) However, a wide range of benefits are also rolled into this category. Projects may also have been included in this category if people weren't sure how to quantify the benefit information for the other categories. Water quality was the least common benefit for projects in every Subregion.

Table 3. Summary of the Number of Projects in Benefit Categories

	Number of Projects by Benefit Category			
Subregion	Water Supply	Water Quality	Open Space(1)	Other benefits(2)
North Santa Monica Bay Watersheds	14	2	5	16
Upper Los Angeles River Watershed	25	4	34	21
Upper San Gabriel River and Rio Hondo Watersheds	57	0	9	6
Lower San Gabriel and Los Angeles Watersheds	49	0	4	64
South Bay Watersheds	29	16	23	41
Regional Projects	29	2	2	5
TOTAL	203	24	77	153

(1) Includes public access, open space, habitat, and recreation benefit types.

(2) Flood control is included in this benefit type.

Quantification of the known project benefits is summarized in Table 4. For each benefit category, submitted information was requested in a format that allows for representation of benefits. The benefit total and average benefit information reflects the known benefits that could be provided by implementation of the submitted projects. The average benefit represents the average benefit of only the projects that listed a benefit.

Table 4. Summary of Quantified Benefits

Subregion	Water Supply (AFY)		Water Quality (MGD)		Open Space(1) (acres)	
	Benefit Quantity Total	Benefit Quantity Average	Benefit Quantity Total	Benefit Quantity Average	Benefit Quantity Total	Benefit Quantity Average
North Santa Monica Bay Watersheds	1,877	134	13	6.5	149	30
Upper Los Angeles River Watershed	41,270	1,651	7	1.75	2,748	81
Upper San Gabriel River and Rio Hondo Watersheds	48,815	856	No Projects	No Projects	89	10
Lower San Gabriel and Los Angeles Watersheds	36,398	743	No Projects	No Projects	164	41
South Bay Watersheds	86,088	2,969	312	19.5	681	30
Regional Projects	55,114	1,901	16	8	2	1
TOTAL	269,561	1,327	348	14.5	3832	50

(1) Includes public access, open space, habitat, and recreation benefits.

The South Bay Subregion's projects had the largest total and average water supply benefits, as well as the largest total and average water quality benefits. The Upper Los Angeles River Subregion had the largest average open space benefits per project. The Upper San Gabriel and Rio Hondo Subregion and the Lower San Gabriel and Los Angeles River Subregion had no projects with water quality benefits. Regional projects included very little open space benefit in comparison to the Subregional projects.

3.2 Project Integration

The number of benefits provided by a project is a general indication of the integrated nature of an individual project. Multiple strategies can be integrated in one project regardless of how many benefit types it provides. However, a multipurpose project provides more than one benefit, and therefore provides a higher level of integration in terms of addressing the multiple water resource needs of the regional stakeholders.

Individual projects that included benefit information were sorted to identify how many benefits were provided per project. This provides a rough indication of the level of integration provided by the stakeholder's projects at this stage. Table 5 includes the number of projects within each type of possible benefit combination. Each project is only represented once in the group that describes its benefits. For example, a project submitted with water supply and water quality benefits is only represented once as a water supply/water quality project.

Table 5. Benefit Combination Groups					
Benefit Type	Number of Projects	Benefit Type	Number of Projects	Benefit Type	Number of Projects
WS	149	WS/WQ	7	WS/WQ/OS	0
WQ	5	WS/OS	3	WS/WQ/OB	3
OS	54	WS/OB	40	WS/OS/OB	1
OB	94	WQ/OS	6	WQ/OS/OB	1
		WQ/OB	2	WS/WQ/OS/OB	0
		OS/OB	12		
TOTAL	302		70		5

WS = water supply
WQ = water quality
OS = open space, public access, habitat, or recreation
OB = other benefit (such as flood management)

Single-purpose water supply projects were the largest project type by a significant margin. There were only five projects across the entire region, out of all of the projects that included benefit information, with three benefits--and of those, none of them combined water supply, water quality and open space benefits. Only 20 percent of the projects with benefit information included two or more benefits per project. This would indicate a relatively low level of functional integration within individual stakeholder projects, and a proportionally high number of single-purpose projects.

The majority of projects submitted did not include benefit information at all. However, because these projects are largely still in the planning stages, opportunities exist to develop these projects further to integrate multiple purposes into them. There are also opportunities to look at the projects that do have benefit information provided to evaluate possibilities for connecting and integrating their functions across multiple projects, rather than only focusing on integration within a single project. This process has already begun in the Subregional workshops, and can continue under the direction and leadership of each Subregion's Steering Committee. The Stakeholder Workshop Input Maps in Appendix H includes the stakeholder input that has been collected so far for further integration and collaboration opportunities among the known projects.

3.3 Project Distribution

Project location maps have been developed by Subregion for each project submittal that contained location information. These maps are provided in Appendix G. These maps allow local decision-makers to identify projects located in proximity to each other in order to consider design and implementation as a group, rather than as a number of unrelated projects. This allows any opportunity for integration that is not apparent now to be identified during subsequent phases of project planning in the Region. Only projects submitted with coordinate information could be represented on the maps. Projects that did not have location coordinates are not shown in the maps; however, they are included in the appropriate Subregional project list within the matrix.

Stakeholder projects or programs that cover more than one Subregion, or had multiple locations and applications, are considered to be regional. These projects were not included on maps because they did not

have one location. However, they are provided as a Regional project list in the matrix in Appendix F, and should be considered by each Subregion.

In general, most of the projects are located outside of the Disadvantaged Community (DAC) areas. The areas with the greatest number of projects in DACs were the Upper Los Angeles Subregion and the Lower Los Angeles and San Gabriel River Subregion. The North Santa Monica Bay has no DACs located within this Subregion. In the Upper San Gabriel and Rio Hondo Subregion the projects located within DACs are clustered around the Whittier Narrows Flood Control Basin, around what is being called the Emerald Necklace.

3.4 Project Costs

Estimated capital costs for submitted projects are summarized in Table 6. Projects have been divided into benefit combination groups, as was done in Table 5 above. Exact project cost estimates are not known because stakeholders were asked to select one of four fairly broad cost ranges for this stage of the planning process. The largest numbers of projects are within the 1 to 10 million dollar range, with 127 projects out of 378 that included cost information falling into that category.

Table 6. Project Capital Costs ($)

Benefit Type	Number of Projects	< 100k	100K-1M	1M-10M	>10M	UDR
WS	149	15	32	55	26	21
WQ	6	0	0	3	2	0
OS	54	0	16	15	23	0
OB	94	20	23	21	10	20
WS/WQ	7	0	0	0	7	0
WS/OS	3	0	0	3	0	0
WS/OB	40	7	8	18	7	0
WQ/OS	6	0	1	5	0	0
WQ/OB	2	0	0	1	1	0
OS/OB	12	1	8	3	0	0
WS/WQ/OS	0	0	0	0	0	0
WS/WQ/OB	3	0	1	1	1	0
WS/OS/OB	1	0	0	1	0	0
WQ/OS/OB	1	0	1	0	0	0
WS/WQ/OS/OB	0	0	0	0	0	0
TOTAL	377	43	90	126	77	41

WS = water supply
WQ = water quality
OS = open space, public access, habitat, or recreation
OB = other benefit (such as flood management)
UDR = Updated Data Required

3.5 Project Implementation Schedule

Table 7 summarizes the implementation schedule for the projects that included that information. The implementation schedule is represented by various ranges; which include 2006-2008, 2009-2016, 2013-2017, and 2018-2026 time frames. Projects are divided by benefit groups, consistent with Table 5 and Table 6

above. All of the 220 projects that included sufficient information can begin implementation within the first 11 years. The largest number of projects that could begin implementation within the first 6 years are single-purpose water supply projects, followed by single-purpose projects that had 'other' benefits. These were followed by single-purpose open space projects, and then by projects that had both water supply and open space benefits together. This indicates a more advanced stage of planning for these project groups.

Table 7. Project Implementation Schedule

Project Benefit Type	Year of Implementation				
	2006 – 2008	2009 – 2012	2013 – 2017	2018 – 2026	UDR
	0-2 Years	3-6 Years	7-11 Years	12-20 Years	
WS	52	13	2	0	82
WQ	3	1	0	0	1
OS	30	5	0	0	19
OB	53	6	1	0	34
WS/WQ	1	4	2	0	0
WS/OS	1	1	0	0	1
WS/OB	17	5	1	0	17
WQ/OS	4	1	0	0	1
WQ/OB	2	0	0	0	0
OS/OB	7	2	0	0	3
WS/WQ/OS	0	0	0	0	0
WS/WQ/OB	1	2	0	0	0
WS/OS/OB	1	0	0	0	0
WQ/OS/OB	1	0	0	0	0
WS/WQ/OS/OB	0	0	0	0	0
TOTAL	173	40	6	0	158

WS = water supply
WQ = water quality
OS = open space, public access, habitat, or recreation
OB = other benefit (such as flood management)
UDR = Updated Data Required

3.6 Comparison to Regional Targets

As was mentioned previously, the project data at this stage of the Regional collaborative process has a high degree of inaccuracy and incompleteness. The results presented in this TM are intended to provide an overview of the data as it exists now, rather than provide definitive information about the outcome of the stakeholder projects. The following section compares the Regional targets to the existing data and identifies issues for further investigation in order to more comprehensively facilitate the project planning and integration process in the future.

The total benefits that were reported for water supply are 269,561 AFY. The increased water supply that would be created by these projects is about a third of the Region's water supply target of 800,000 AFY. Therefore, although water supply was the most frequent benefit submitted, the benefits identified thus far in the stakeholder projects do not provide enough benefits to reach the Regional target.

This Plan proposes that the daily treatment capacity required to meet the Region's water quality targets is 8,400 MGD, representing the volume associated with 0.75 inches of rainfall over a 24 hour period. The total benefits that were reported for water quality by stakeholders is 348 MGD of runoff treatment capacity. The South Bay Subregion has the greatest quantity of water quality benefits at 312 MGD of treatment capacity. While this is a substantial increase it still provides only a fraction of the treatment capacity the subregion would need to meet its share of the 8,400 MGD goal.

The following are a variety of considerations that should be taken into account as future efforts to refine the water quality data are made. The Call for Projects requested that water quality treatment information be provided in MGD. However, many stakeholders submitted information in a variety of other ways. Some entered AFY, some provided MGD, some gave the acreage of land that would be drained and treated by their project, and some provided two or more of these measures. On rare occasions multiple and contradictory values were provided precluding the inclusion of that project's benefits in this summary.

In order to complete the benefit analysis values submitted in AFY were converted into MGD. However, there is a great deal of error that is possible in making these conversions because of the assumptions involved. For example, if AFY was given that number was converted into the average daily value over the entire year, rather than the peak flow MGD, because there was not enough information provided to determine the peak flows. Even if stakeholders submitted their benefit information in MGD, they may have given an annual estimate for the total volume, and converted that annual value to a daily average in order to provide the information in MGD. Also, it was not clear whether stakeholders submitted an average, maximum or total volume to be treated per day.

To clarify these uncertainties related to the benefits of the projects that have been submitted so far, the following information should be collected in the on-going project planning processes:

- How much volume (AFY) is estimated to flow onto or be precipitated onto the site per year?
- How much of this annual volume (AFY) will be captured?
- What is the maximum daily flow (MGD) expected to flow or precipitate onto the site?
- What is the maximum daily flow (MGD) that would be captured?
- Have you used peak flows, or average flows, in your MGD value?

Without knowing the answers to these questions, the contributions that the stakeholder's projects would make towards reaching the Regional targets cannot reliably be determined at this time. However the information provided does at least indicate which projects do have water quality benefits incorporated into their purpose.

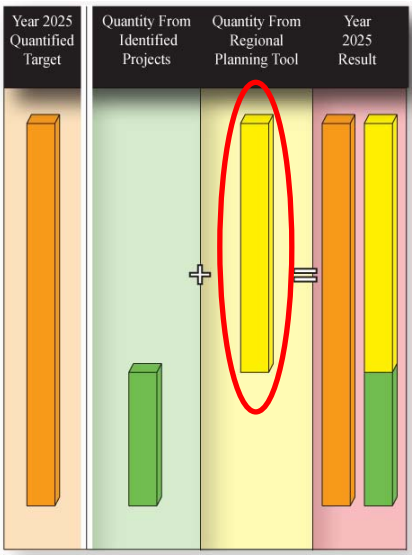
The Regional target for open space is 30,000 acres. However, the open space benefits identified for the stakeholder projects are only 3,832 acres. Therefore, 26,168 additional acres of open space projects need to be identified either through continued development and integration of the existing stakeholder projects, and/or through the regional planning tools described in further detail in the following section.

The benefit information as it was collected did not provide any information about whether the open space was riparian habitat, or whether any of the projects replaced flood control, water supply or wastewater infrastructure. In addition, the water quality related information that was collected did not include reduction, infiltration or reuse benefit information. So the benefits that the stakeholder projects would provide to all of these targets cannot be identified at this time.

4. REGIONAL PLANNING TOOLS

Projects identified through the Call for Projects process, and represented in the previous section, may not provide the level of benefit needed to accomplish the Region's quantified targets. Nor do they fully address the Region's goal of accomplishing these targets in an integrated fashion. There is still a benefit gap that needs to be met in order to reach these targets. The Region's desire to continue to explore new and existing integrated water management practices has led to the development of three regional planning tools:

- Planning Tool 1: Site Scale
- Planning Tool 2: Neighborhood Scale
- Planning Tool 3: Regional Scale



Regional Planning Tools can provide benefits, that when combined with identified project benefits, meet IRWMP targets.

These Planning Tools have been developed at the direction of the Leadership Committee, to assist stakeholders, and members of the Steering Committees and Leadership Committee by providing information on the benefits and costs of three distinct approaches for achieving the quantifiable targets described previously. It should be emphasized that none of these tools should be interpreted to be the answer for the Region, or any Subregion—the information is provided to help decision-makers develop more informed choices about appropriate solutions for their particular Subregion given their particular set of opportunities and constraints. It is likely that the final solution for each Subregion will be a hybrid of all three of solutions presented in the following Planning Tools.

The following three tools essentially provide a unique suite of water supply, water quality and open space projects to allow decision makers to have information on the benefits and costs of each. The benefits and costs of each are provided in the companion Benefit Assessment TM, following this Project Integration TM. Table 8 provides a summary of the components of each Regional Planning Tool, and the following text provides a description of each.

Table 8. Regional Planning Tool Management Strategy Elements

	Analytical Target	Planning Tool 1 Site Scale	Planning Tool 2 Neighborhood Scale	Planning Tool 3 Regional Scale
Water Supply[1]	800,000		*Acre Feet/Year*	
Water Conservation / Demand Reduction		110,000	110,000	110,000
Expanded Local Water Production		100,000	100,000	100,000
Other Projects (desalination & groundwater recovery)		90,000	90,000	90,000
Additional Recycled Water		130,000	130,000	130,000
Additional Imported Water		370,000	240,000	120,000
Urban (Dry Weather) Runoff		0	130,000	130,000
Stormwater Runoff (from Urban Areas)		0	0	120,000
Total Water Supply		800,000	800,000	800,000
Surface Water Quality				
Urban (Dry Weather) Runoff	320,000			
Reduction of Runoff Volumes				
On-Site Residential BMPs[2]		124,000	0	0
Treatment[3]				
Traditional (Mechanical/Chemical)		196,000		
Natural (Treatment Wetlands)			320,000	320,000
Use of Treated Water				
Non-Potable Reuse[4]		0	130,000	130,000
Discharge to Creeks and Rivers		196,000	190,000	190,000
Total Urban (Dry Weather) Runoff Treated		320,000	320,000	320,000
Stormwater Runoff (from Urban Areas)	490,000			
Reduction of Runoff Volumes				
On-Site Residential BMPs[2]		190,000	0	0
Short-Term Detention		300,125	490,000	490,000
Treatment				
Traditional (Tertiary)		300,125	0	0
Natural (Treatment Wetlands)				
Secondary Treatment[5]				120,000
Tertiary Treatment			490,000	370,000
Total Urban Stormwater Runoff Treated		490,000	490,000	490,000
Use of Treated Water				
Recharge via Groundwater Basins		0	0	120,000
Discharge to Creeks and Rivers		300,125	490,000	370,000
Open Space & Habitat				
Wetland restoration/creation (from water quality facilities) (acres)	1,400		4500 acres	8000 acres
Riparian habitat restoration (from water quality facilities) (miles)	100			100 miles
Parks and Open Space creation (from water quality facilities) (acres)	30,000	1550 acres	3500 acres	
Parks and Open Space creation (additional) (acres)		6450 acres		
Total Open Space and Habitat		8,000 acres	8,000 acres	8,000 acres
Infrastructure Repair & Replacement				
Flood Management	40%	40%	40%	40%
Water Supply	40%	40%	40%	40%
Wastewater	40%	40%	40%	40%

1: Estimated increase in water supply and/or demand reduction above current supplies/conservation
2: Equals approximately 39% of runoff, as that portion of urbanized area is single family homes
3: Assumes tertiary treatment, unless otherwise noted
4: Local distribution of treated urban runoff for irrigation and other uses (similar to reclaimed water)
5: Assumes secondary treatment for subsequent groundwater recharge via spreading basins

Water Supply Relationships
- Residential BMPs would reduce water demand (amount TBD)
- Non-potable reuse of treated Urban Runoff
- Recharge of treated stormwater runoff

4.1 Planning Tool 1: Site Scale

Public agencies throughout the Region have a variety of projects and programs to address water supply, improve surface water quality, and expand parkland and open space. However, as most public agencies have single-purpose missions and mandates, most of these projects and programs are single-purpose. Thus, one option to fill the identified gap would be to continue to implement individual projects and programs as needed at the site level for specific single purposes.

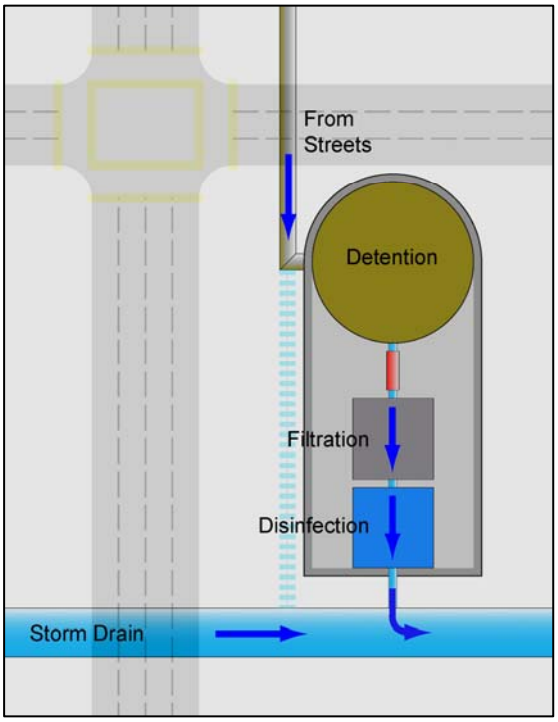


Figure 3. Site Scale Planning Tool Project Diagram

For water supply, various projects and programs have been identified to improve local water supplies and improve water supply reliability, which include: expanded groundwater recharge (e.g., by expanding capacity at existing recharge facilities); groundwater basin optimization (including remediation of existing contamination); expansion of water conservation; expanded utilization of recycled water, ocean water desalination, and surface storage (e.g., using flood control facilities to retain additional runoff).

Example BMP: Tree well infiltration pits provide storage, treatment, and infiltration of residential runoff.

For surface water quality, various projects and programs have been identified to treat stormwater contaminants (trash, bacteria, metals, and organic chemicals), and it is assumed that several treatment technologies will be required to treat specific contaminants (e.g., on-site best management practices, catch basin filters, continuous deflection separators, oil and grease separators, disinfection systems, or ultraviolet light systems). Given the volume of stormwater that must be treated, it is assumed that projects would need to be located within existing residential street verges or right-of-ways, small catchments, or at the point where individual storm drains meet the river or major creek channels. The specific mix of treatment technologies that would be needed for individual storm drains would depend on an assessment of which contaminants are present in individual storm drains. The capacity requirements for these technologies would be reduced over time as more and more residences begin to capture and infiltrate their stormwater runoff on-site.

This option would also need to identify specific projects and programs to restore riparian habitat and associated buffer areas. This may include removal of barriers to fish migration in the Santa Monica Mountains, invasive species removal, land acquisition, and measures to improve water quality in contributing areas.

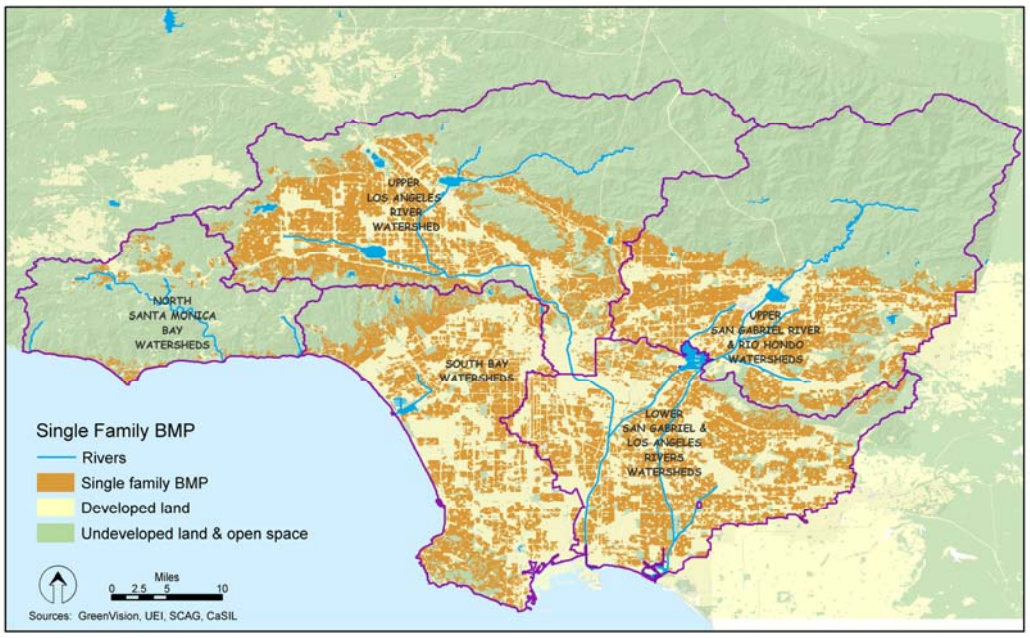


Figure 4. Potential Single Family Residence BMP Coverage Using the Site Scale Planning Tool

4.2 Planning Tool 2: Neighborhood Scale

This planning tool includes an emphasis on installation of neighborhood scale treatment facilities for dry and wet weather runoff. It also reflects a strategic shift away from a single-purpose approach with the inclusion of 130,000 acre-feet of the water supply development through dry weather flow capture, treatment and reuse to meet both water quality requirements and water supply needs. Consistent with the theme of integrated water resource management, this planning tool consists of multi-purpose projects and programs implemented at the neighborhood scale, all across the Region. They would be designed for each specific neighborhood's needs and conditions. This approach would require individual agencies and jurisdictions to work collaboratively with other agencies, jurisdictions, and/or organizations to implement an extensive number of multipurpose projects and programs.

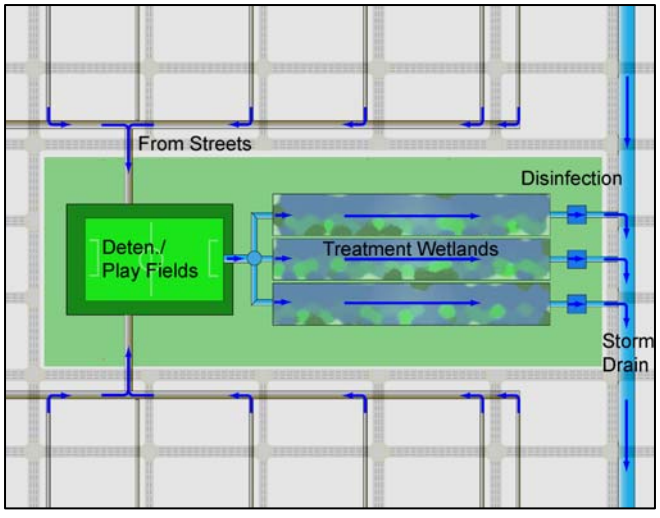


Figure 5. Neighborhood Scale Planning Tool Project Diagram

This option assumes that some of the water supply projects and programs would proceed, such as: expanded groundwater recharge

(e.g., by expanding capacity at existing recharge facilities); groundwater basin optimization (including remediation of existing contamination); expansion of water conservation; ocean water desalination; surface storage (e.g., using flood control facilities to retain additional runoff); and expanded utilization of recycled water (recycled dry weather runoff) through development of a localized distribution system at facilities where water users are within a one-mile radius. However, to the extent that stormwater improvement projects and programs make supplies available for direct reuse or recharge, the need for "traditional" water supply projects may be reduced.

The implementation of traditional runoff treatment technologies generally only produces single-purpose benefits (e.g., improved water quality). Therefore, in order to achieve the multiple benefits required at the neighborhood scale, it is assumed that natural treatment systems would use detention basins in order to capture, detain and equalize the flow generated from a ¾-inch storm event, and treatment wetlands to receive the equalized flow effluent from the detention basin. These facilities would be designed to enable the integration of additional purposes into the design of subsequent facilities, such as passive and active recreation. It is assumed that the facilities would be designed to drain the detention basin in 72 hours in anticipation of the next storm event. These systems would be located throughout the Region, within individual catchments and on smaller storm drains to create a patchwork of small open spaces within individual neighborhoods for both recreation and habitat purposes.

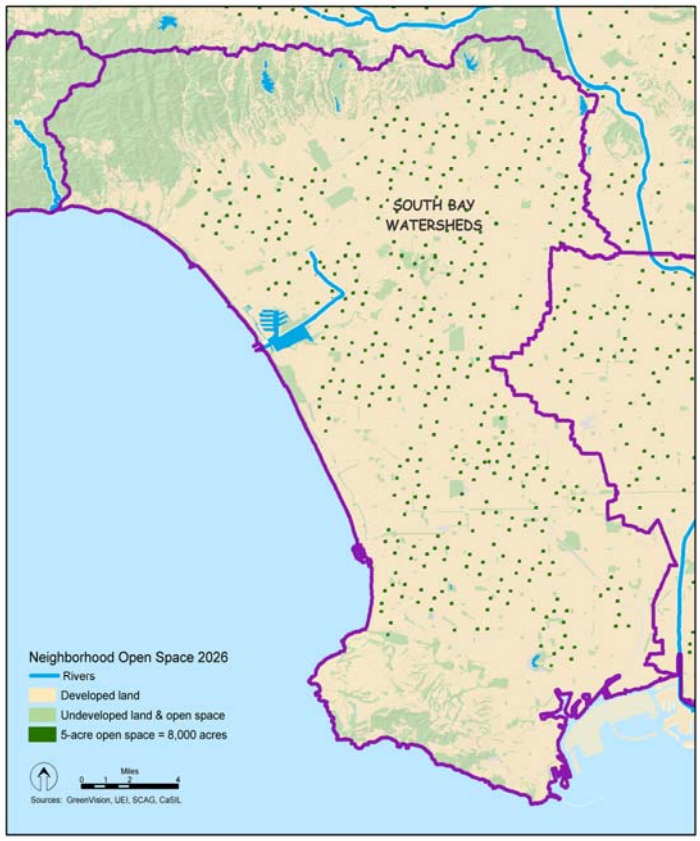


Figure 6. Example Distribution of the Neighborhood Scale Planning Tool

For this option, to the extent that these distributed runoff treatment projects result in quantifiable water supply benefits, either in terms of the direct reuse of treated stormwater (e.g., for landscape irrigation or other recycled water uses) or groundwater recharge, then the extent of single-purpose water supply projects identified for this Planning Tool in Table 9 could be reduced by an equivalent amount.

4.3 Planning Tool 3: Regional Scale

The third option also consists of the development of multi-purpose projects. However, the projects would be located along the rivers, creeks, and major tributary channels in order to create multi-purpose riparian corridors that connect the entire Region. For this option, a series of detention basins and constructed wetlands could be developed along major channels, to treat runoff from individual storm drains before they empty into the channel. Over time, as additional facilities are constructed and become contiguously linked, existing river channels could potentially be reconfigured to incorporate these facilities into a more naturalized channel to function more like a riparian ecosystem. This option is consistent with the planning tool of "river parkways" proposed in the 2001 California Resources Agency document *Common Ground: From the Mountains to*

Table 9. Water Supply Mix for Regional Planning Tools			
	Planning Tool 1	Planning Tool 2	Planning Tool 3
Water Conservation	110,000	110,000	110,000
Local Water Production (groundwater, surface water runoff and LA Aqueduct)	100,000	100,000	100,000
Local Water Projects (recycled water, desalination, and additional groundwater recovery)	90,000	90,000	90,000
Recycled Water	130,000	130,000	130,000
Imported Water	370,000	240,000	120,000
Dry Weather Urban Runoff	0	130,000	130,000
Stormwater Runoff from Urban Areas	0	0	120,000
Total Supply/Demand Reduction	800,000	800,000	800,000

the Sea, which proposes the creation of green spaces along the Los Angeles and San Gabriel Rivers and major tributaries. The specific width of the parkways would vary, depending on volume of runoff that would need to be treated from specific storm drains or tributary channels.

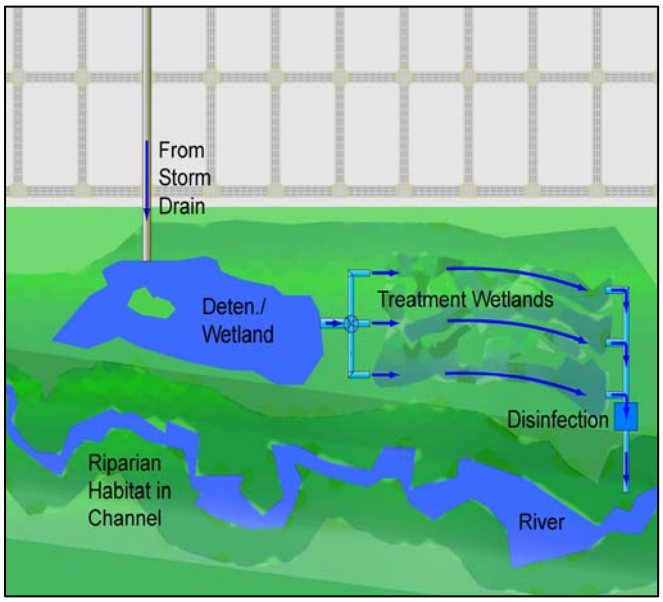


Figure 7. Regional Scale Planning Tool Project Diagram

For this option, some of the various projects and programs that have been identified to improve local water supplies would proceed, as described in Table 9 below. To the extent that stormwater improvement projects and programs provide quantifiable water supply benefits via direct reuse or recharge, then the need for "traditional" water supply projects would be reduced by an equivalent amount. A river corridor design is also the most beneficial for the purpose of increasing the habitat value of the Region because a string of connected habitats will have a higher ecological value than the same amount of habitat area segmented into islands isolated from each other by urbanization. In addition, the U.S. Army Corps of Engineers has encouraged this approach because of their ability to participate in the funding of solutions that provide habitat restoration to existing channels.

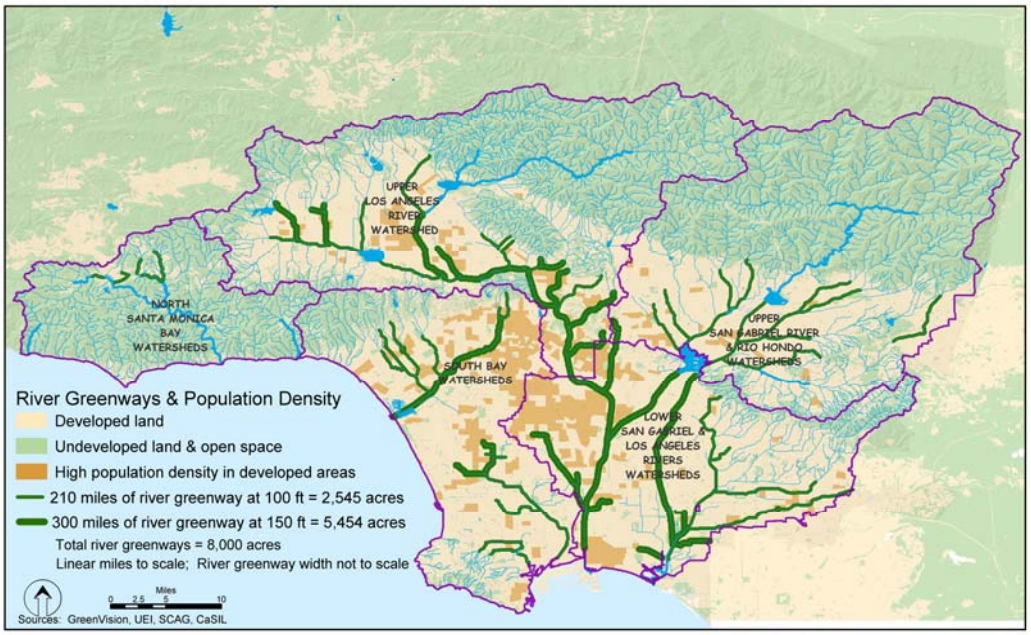


Figure 8. Possible Regional Scale Planning Tool Project Map

4.4 Water Supply and the Regional Planning Tools

In an effort to assess the viability and value of the three regional planning tools described above, the Region has completed a benefit assessment of the three planning tools. The three regional planning tools have been designed to meet the full quantitative targets identified in Table 1 because time constraints required analysis of the regional planning tools to proceed concurrently with the collection and tabulation of the benefit data from projects submitted by stakeholders. The assumed target values for use in technical analysis have been used to create the planning tools. Central to development of the regional planning tools is providing solutions to multiple needs, as described in the planning tool descriptions, while meeting water supply targets. Table 9 represents the varying water supply mixes that would be pursued under each planning tool.

The methodology and results of the benefit assessment for each of the three regional planning tools is included in the Benefit Assessment TM. The TM considers the cost and associated benefit of each planning tool.

5. PROJECT INTEGRATION SUMMARY/CONCLUSIONS

This Plan identifies projects and regional planning tools that can be implemented in an integrated fashion to meet Plan objectives, and associated quantitative targets, within the next 20 years.

1. Initial quantifiable targets have been established and their supporting rationale fully vetted by the Leadership Committee, Steering Committees, and Subregional stakeholders;
2. Over 1,000 projects have been developed and initial benefits have been quantified
3. This TM provides the first iteration and summary of these projects, benefits information, and gaps, and provides a basis for discussion in each of the five Subregions on how stakeholders may begin to contribute progress towards quantifiable targets.
4. Further information gathering will be important to refine initial estimates regarding the benefits of proposed projects
5. Further vetting of projects will be important in each of the five Subregions to understand their reliability to deliver the promised benefits
6. Regional planning tools have been created to help Subregions conceive how they want to proceed with implementing projects given the constraints of each Subregion.
7. Further analysis regarding the appropriate mix of projects as well as the appropriate vision for each Subregion, based on the regional planning tools will be needed.

A project integration dialog has already begun at the Subregional level in the stakeholder Workshops and Steering Committees that have been held throughout the IWRMP development process. However, there is much that remains to be done to continue to integrate and enhance the benefits of the projects that the stakeholders have submitted. The Steering Committees for the Subregions have acknowledged that the Subregion is a good scale to consider further project integration opportunities because it allows participants to look more closely at the site-level considerations that may not be apparent from the Regional scale. However, it would also be beneficial to continue to look at the work developed in these Subregional forums at the Regional scale in order to identify any opportunities for integration and partnership that may exist at that level as well. The next steps these groups could focus on include:

- Evaluate opportunities to improve individual projects to integrate functions and/or increase benefits.
- Evaluate opportunities to integrate or merge individual projects that are located in the same approximate geographic area.
- Evaluate opportunities to replace individual single -purpose projects with multipurpose regional projects that provide additional benefits with similar or reduced costs.
- Evaluate which projects may be appropriate for upcoming outside funding opportunities such as Round 2 of Proposition 50, or Proposition 84 (if it passes in November 2006).