

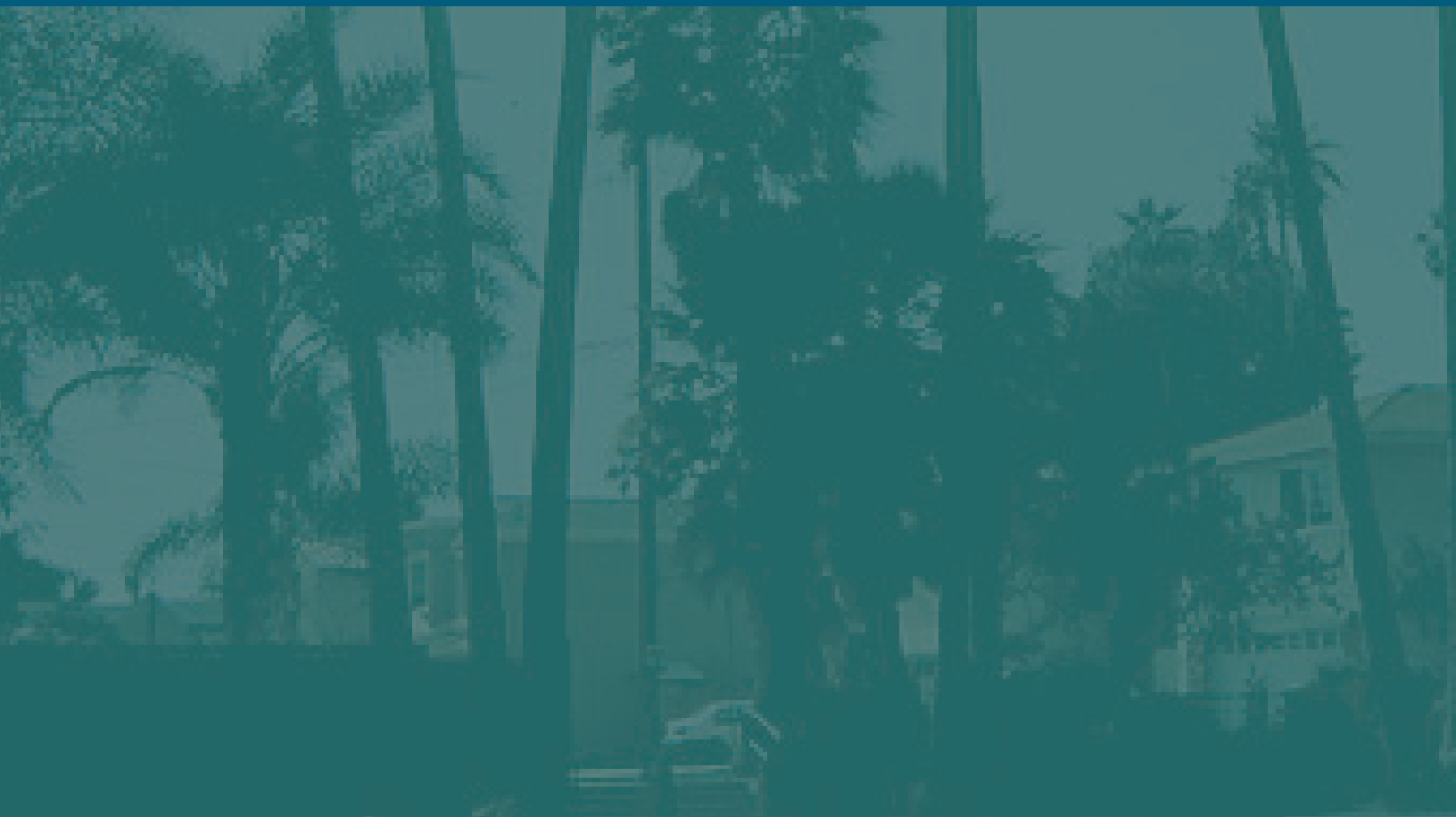


FINAL

June 2013

# Gateway Integrated Regional Water Management Plan

Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority



**Final**

**Gateway Integrated Regional  
Water Management Plan**

Los Angeles Gateway Region Integrated Regional  
Water Management Authority

June 2013

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# Abbreviations and Acronyms

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afy	acre-foot per year
BMPs	Best Management Practices
BMWS	Bellflower Municipal Water System
CADFW	California Department of Fish and Wildlife (also DFG)
CALFED	CALFED Bay-Delta Program
Cal Water	California Water Service Company
CARROT	Climate Action Registry Reporting Online Tool
CBMWD	Central Basin Municipal Water District
CCAR	California Climate Action Registry
CDBG	Community Development Block Grants
CDD	Cooling Degree Days
CDPH	California Department of Public Health
CMIP3	Coupled Model Inter-comparison Project Phase 3
COOP	Cooperative Observer Program
CO-OPs	Center for Operational Oceanographic Products and Services
CPP	Community Partnering Program
CRA	Colorado River Aqueduct
CRN	Climate Reference Network
CRWA	California Rural Water Association
DACs	Disadvantaged Communities
DBPs	Disinfection by-products
DFG	California Department of Fish and Game
DMMs	Demand Management Measures
DRIP	Desalination Research and Innovation Partnership
DWR	California Department of Water Resources
EDA	Economic Development Administration
EJ	Environmental Justice
ETo	Evapotranspiration

FPGP	Facilities Planning Grant Program
GCM	Global Climate Model
GFDL	Geophysical Fluid Dynamics Laboratory
GHG	Greenhouse gas
GLAC	Greater Los Angeles County Region
GWMA	Gateway Water Management Authority
HDD	Heating Degree Days
HUD	USDA Housing and Urban Development
IPCC	Intergovernmental Panel on Climate Change
IRWMP	Integrated Regional Water Management Plan
JPA	Joint Powers Authorities
LACDPW	Los Angeles County Department of Public Works
LACSD	Los Angeles County Sanitation Districts
LARWMP	Los Angeles River Watershed Monitoring Program
LARWQCB	Los Angeles Regional Water Quality Control Board
LBWD	Long Beach Water Department
LID	Low Impact Development
LLNL	Lawrence Livermore National Labs
LSPC	Loading Simulation Program C++
MARS	Member Agency Response System
MCL	Maximum Contaminant Levels
MS4	Municipal Separate Storm Sewer Systems
MWD	Metropolitan Water District of Southern California
NCDC	National Climate Data Center
NDMA	N-nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
NTU	Nephelometric Turbidity Units
PCE	Tetrachloroethylene
PCM	Parallel Climate Model
POTW <sub>s</sub>	Publically owned Treatment Works

PRWA	Pico Rivera Water Authority
RGWMR	Regional Groundwater Monitoring Report
RCAC	Rural Community Assistance Corporation
RMC	Rivers and Mountains Conservancy
RMS	Resource Management Strategies
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
SAWPA	Santa Ana Watershed Project Authority
SCAG	Southern California Association of Governments
SCCWRRS	Southern California Comprehensive Water Reclamation and Reuse Study
SCWG	Small Community Wastewater Grant
SEWC	Southeast Water Coalition
SGRRMP	San Gabriel River Regional Monitoring Program
SGVPA	San Gabriel Valley Protective Association
SNMP	Salt/Nutrient Management Plan
SRF	State Revolving Fund
SWFM	Storm water and Flood Management
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWS	Small Water System
TAR	Third Assessment Report
TBA	Tert-Butyl-Alcohol
TCE	Trichloroethylene
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TMF	Technical, Managerial, and Financial
TON	Threshold Odor Number
TSS	Total Suspended Solids
UCD	University of California, Davis
UCMR	Unregulated Contaminant Monitoring Rule
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UWMP	Urban Water Management Plan
WAS	Water Augmentation Study
WCRP	World Climate Research Programme
WERF	Water Environmental Research Foundation
WMMS	Watershed Management Modeling System
WQFI	Water Quality Funding Initiative
WRD	Water Replenishment District of Southern California
WRG	Water Recycling Grants
WRFP	Water Recycling Funding Program
WRLP	Water Recycling Loan Program
WSIP	Water System Improvement Program
WWD	Water and Waste Disposal

# Executive Summary

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The cities of the Los Angeles Gateway Region (Gateway Region), water agencies, and interested parties are developing an Integrated Regional Water Management Plan (IRWMP). These cities share water resources, have common water quality, water supply, and storm runoff problems and issues, and are demographically similar. These common traits provide a unique opportunity to jointly find integrated and coordinated solutions for the region's water-related issues through the IRWMP process. The Gateway Region formed a joint powers authority (JPA) under California law to steer its planning efforts and provide solid governance for plan development and implementation.

There are currently 25 signatories to the JPA, and they are actively engaging in both stakeholder and public outreach programs and expanding JPA membership. Figure 3-7 displays the boundary of the Region and current cities that are participating in the JPA as well as those expected to join as the IRWMP development process progresses. The JPA is now officially known as the Gateway Water Management Authority (GWMA).

This Plan is being produced and sponsored by GWMA, funded in part through a Proposition 84 IRWMP Planning Grant from the California Department of Water Resources (DWR). The development program is being administered by GWMA Executive Officer, Grace Kast. The Plan Consultant Team is led by GEI Consultants, Inc. Additional information and a full copy of the Gateway IRWMP Public Review Draft are available at [www.gatewayIRWMP.org](http://www.gatewayIRWMP.org).

## IRWMP Process

Integrated Regional Water Management (IRWM) is a **collaborative effort to manage** all aspects of **water resources in a region**. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to **address the issues** and differing perspectives of all the entities involved **through mutually beneficial solutions**. The Gateway IRWMP development process began in early 2012.

The Gateway IRWMP development process has the following major steps:

1. Gather information on the Region's water management
2. Define the Region's water problems
3. Suggest strategies that will help alleviate those issues
4. Brainstorm projects that will implement those strategies
5. Filter the projects to make sure the projects are feasible, integrated so that they are both compatible with and complementary of other suggested or existing projects, do not adversely affect certain populations, and meet other requirements
6. Prioritize filtered projects for implementation
7. Develop a procedure to implement projects collectively

8. Determine methods and tools to monitor implementation of the projects within the IRWMP as well as the overall plan
9. Complete a written Plan
10. Adoption of the Plan by GWMA and member agencies

Decisions for the GWMA are made by GWMA member agency representatives. Each member agency is allowed one representative on the governing board with one vote. A diverse Stakeholder Group has been formed to provide recommendations to the GWMA on important decisions and to help guide the IRWMP process. GWMA members also participate directly in stakeholder meetings. Stakeholders include cities, water districts, water companies, water wholesalers and groundwater suppliers, wastewater agencies, watershed-based environmental advocates, watershed organizations, and State and federal agencies.

GWMA has continuously conducted outreach to Stakeholders since its formation so that they can be included in the IRWMP process. This includes individual invitations, public notices, public meetings, and open monthly and special GWMA meetings. An Outreach Plan for the Gateway IRWMP was developed and adopted by the GWMA Board in May 2012 which included finalizing IRWMP messaging, developing a basic flyer in English and Spanish, creating an editable design piece, and creating a newsletter, among other steps. Special emphasis and techniques were employed in the outreach plan to provide disadvantaged communities (DACs) with the opportunity to participate as stakeholders or individually as members of the public even though they may already be represented by a city representative to the GWMA. While the Region has no tribal reservations or facilities, tribal representatives were included in all meeting correspondence to stakeholders. Communication efforts were active, current, dependable, and provided an opportunity for a two-way dialog for all participants.

Stakeholders compiled and finalized the Goals and Objectives of the IRWMP by consensus and then advanced the list to GWMA for final review and unanimous adoption on April 12, 2012.

## **Gateway Region IRWM Plan Goals and Objectives**

- Identify and address the water-dependent natural resources needs of the Gateway Region watershed.
- Protect and enhance water quality
  - Objective: Attain required TMDL levels in accordance with their individual schedules
  - Objective: Effectively reduce major sources of pollutants and environmental stressors in the region
- Optimize and ensure water supply reliability
  - Objective: Continue and enhance water use efficiency measures to meet 20 x 2020 per capita water use targets
  - Objective: Expand regional water recycling facilities and recycled water distribution to help provide reliable water sources
  - Objective: Systematically upgrade aging water infrastructure in the Region
- Coordinate and integrate water resource management

- Provide stewardship of the Region’s water dependent natural resources through enhancement of amenities and infrastructure
  - Objective: Create habitat, open space, and water-based recreational opportunities in the Region
- Manage flood and storm waters to reduce flood risk and water quality impacts
  - Objective: Install or optimize water monitoring to effectively manage storm water in the Region. Obtain, manage, and assess water resources data and information

### ***Studies***

To inform stakeholders of possible issues, the Consulting Team performed technical studies on groundwater and water quality, storm water and flooding, and water supply and demand for the Region. Those studies identified the location and extent of groundwater and flooding issues, suggested additional monitoring, recommended Best Management Practices (BMPs) for storm water issues and confirmed the Region’s water supply was generally adequate through 2030.

The effect of climate change on the Region’s water resources was analyzed. Climate may alter the water demand in the region, raise sea levels, or affect the imported water supply. The analysis also looked at the vulnerability of water supply, ecology, water-energy relationships, and Greenhouse Gas (GHG) emission. Projects suggested for inclusion of the IRWMP were each reviewed for climate change issues and vulnerabilities.

### ***Strategies and Projects***

An important and necessary step in the IRWMP process is to formulate strategies that are effective in addressing critical water needs and issues for the region. Stakeholders recommended twenty-three Water Management Strategies be considered, including flood management, conjunctive use, ecosystem restoration, groundwater management, storm water capture and management, water recycling, watershed planning and water conservation.

Stakeholders were asked to suggest projects for the IRWMP that would apply the water management strategies and meet the IRWMP goals. Projects were solicited beginning in late June 2012 and continuing until September. The full list of projects is included in Appendix C of the IRWMP. Seventy-three (73) projects were collected, reviewed, and ranked by a Technical Review Team of eight individuals; each assigned various scores based on their expertise. The GWMA adopted the Project Review Criteria used to evaluate and rank projects as required by the DWR IRWMP Guidelines. The ranking criteria included project feasibility, environmental justice, climate change, DAC effects, and integration. Reviews also evaluated how well the project addressed goals of the plan, state preferences and State priorities, cost effectiveness, and regional benefits.

Fifteen of the 25 members of GWMA submitted project ideas for the IRWMP. The projects generally span the geographical extent of the Gateway Region and project types were generally well distributed, but the predominate project type was water quality. The final project ranking can be found in Appendix C of the IRWMP.

Projects were also evaluated by the Technical Team in an “integration” step to make sure that:

1. Projects do not adversely impact one another, or current water management systems
2. Projects complement each other and improve the benefits beyond those developed from individual projects
3. Single benefit and similar projects are appropriately bundled into more comprehensive and collective regional program alternatives to save effort and cost in administration, permitting, planning, and design-construction and generally make them ready for funding opportunities
4. The plan considers merging or adding parts or components of projects that would further increase additional benefits

Several program “Alternatives” resulted from bundling complementing projects, including Systems Interties, Well Rehabilitation, Recycling and Conservation, Outfall Monitoring, Improving Catch Basins, Infrastructure Replacement, Groundwater Treatment, and Treatment of Low Flow Drainage. These programs were further advanced as regional projects and analyzed for benefits and impacts. The integration step also looked at compatibility and impacts of projects to neighboring IRWMP regions on Gateway projects.

Coordination between other water planning and non-water related planning efforts is considered in the Plan. The IRWMP must align with land use and water planning within the Region, Water planning in neighboring regions, and planning with various State, federal, and local agencies.

The IRWMP includes a discussion of potential impacts and benefits of IRWMP implementation, including both impacts and benefits within the IRWM Region, between regions, and those directly affecting DACs and Environmental Justice related concerns. It also includes discussion of how the effects of individual projects are to be addressed by project proponents and the compliance and approach to meeting California Environmental Quality Act requirements.

Implementation of the IRWMP will require money. Funding alternatives and opportunities are discussed in the Plan, both in the local government level and in the form of grants and loans from federal and State sources. A chart of past and current funding programs is provided.

### ***Data Management***

Data for the IRWMP is managed with a web-enabled, Geographical Information System (GIS) database tool. The tool’s map viewer is linked to a database that allows storage and display of layers of information, such as groundwater levels, project sites, demographic information, city/county/district boundaries as well as geo-referenced reports, texts, memoranda, and other documents. This information can be easily retrieved for use and analyzed to help manipulate project impacts on water resources in the Region. The Plan contains a user manual and examples of common data retrieval. The tool can be found at <http://arccgis02.geiconsultants.com/gateway2/gis/>.

The IRWMP standards require that Plans include performance measures and monitoring to document progress toward meeting plan objectives. The Gateway IRWMP includes a Plan Performance and Monitoring strategy to document how the IRWMP objectives are to be measured, how the program alternatives are being implemented to meet the objectives; and



that the anticipated IRWMP benefits are being delivered. As a living document, the IRWMP also includes general procedures for major or minor updates to the plan.

### **IRWMP Conclusions include:**

- GWMA has led an open, participatory, collaborative public process for the development of the Gateway IRWMP. A stakeholder group was formed to make recommendations to the GWMA and guide the process.
- Stakeholders formulated a list of Goals and Objectives that were adopted by the GWMA to address the major water management issues in the Region, including water quality protection and enhancement, water supply reliability, flooding, storm water management, and environmental stewardship.
- The IRWMP process included studies on groundwater supply, groundwater quality and monitoring, storm water and flooding, and water supply and demand; the effect of climate change.
- A wide range of projects were suggested and incorporated in the plan to carry out water management strategies addressing IRWMP Goals and Objectives. Project Alternatives provide regional solutions for regional problems.
- Coordination with other planning efforts, effective communications, and plan performance monitoring are important continuing steps for GWMA in the ongoing management of the Gateway Region's water resources.

### **IRWMP Recommendations include:**

- GWMA should continue to coordinate regional water management efforts and be active in implementing solutions to water management issues.
- Update Projects list as necessary and as grant opportunities are identified.
- Address Municipal Separate Storm Sewer Systems (MS4) Permit/Order Watershed Monitoring and Reporting Program.
- Define Funding and a Finance plan for taking actions to cost effectively implement actions and best management practices to comply with orders and requirements.
- The GWMA should continue to provide leadership to influence local water planning and develop unified positions to other regional water management entities to ensure economic justice and the fair distribution of grants, program funding, and projects.

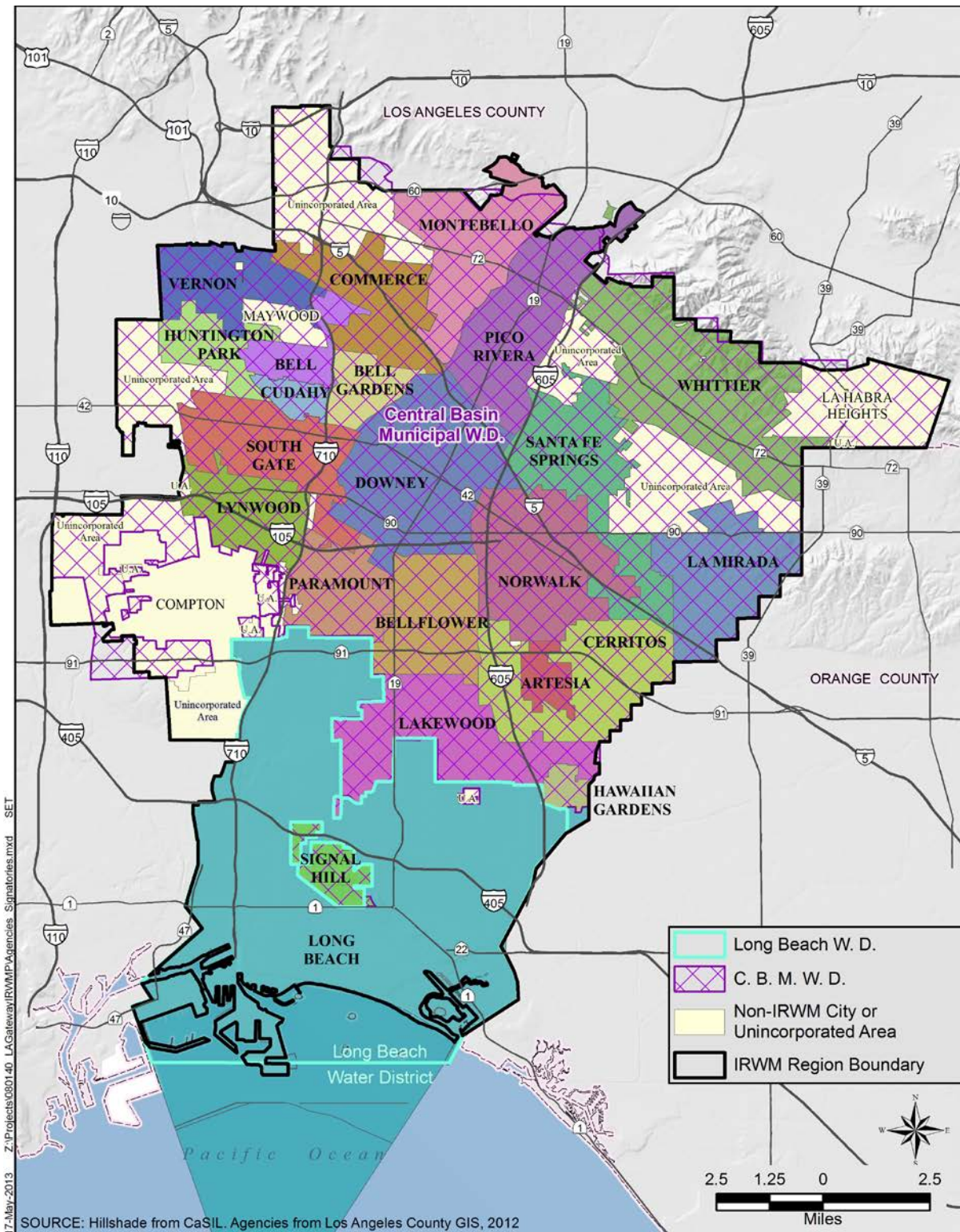


Figure ES-1. Agencies Signatories

## 2 Introduction

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### 2.1 Purpose

The cities of the Los Angeles Gateway Region (Gateway Region), water agencies, and interested parties are developing this integrated regional water management plan (IRWMP). These cities share water resources; they have common water quality, water supply, and storm runoff problems and issues, and they are demographically similar. These common traits provide a unique opportunity to jointly find common, integrated, and coordinated solutions for the region's water-related issues through the IRWMP process. The Gateway Region formed a joint powers authority (JPA) under California law to steer their planning efforts and provide solid governance for plan development and implementation.

There are currently 25 signatories to the JPA, and they are actively engaging in both stakeholder and public outreach programs and expanding JPA membership. Figure 2-1 shows the location of the region. Figure 2-2 displays the current cities that are participating in the JPA as well as those expected to join as the IRWMP development process progresses. The JPA is now officially known as the Gateway Water Management Authority (GWMA).

The Los Angeles Gateway Region IRWMP:

- Organizes and coordinates water management activities on a sub-watershed level
- Receives distinct input from local stakeholders and provide meaningful, applicable comments to better serve those communities
- Provides local “buy-in” for local and regional actions
- Provides strong, accountable leadership and governance based on the JPA's structure
- Allows the Region access to State funding avenues

The GWMA will:

- Provide a stable regional organization to conduct Regional water-related projects that meet the goals and objectives of the Gateway Region
- Compile this comprehensive plan
- Coordinate and carry out this plan in the future
- Coordinate with neighboring IRWMP regions to effectively integrate water-related planning efforts for Southern California
- Provide a common voice for water planning, legislative, and regulatory issues
- Help constituents, Gateway members, and disadvantaged communities (DAC) in the Region solve water issues

GWMA plans to effectively integrate with neighboring IRWMPs by actively collaborating with other regions on projects and issues and by attending meetings, providing agendas, reports, and minutes to other organizations. GWMA has already met with the Santa Ana Watershed Project

Authority (SAWPA), which borders its eastern boundary, to discuss potential interregional projects. Representatives of the Greater Los Angeles County Region (GLAC), its northwestern neighbor, also attend GWMA monthly meetings to liaison and share information. The Gateway Consultant Team has attended various sub-region and leadership committee meetings of GLAC to maintain coordination in plan development. In addition, GWMA keeps in touch with many other regions through the Roundtable of Regions and Basecamp.

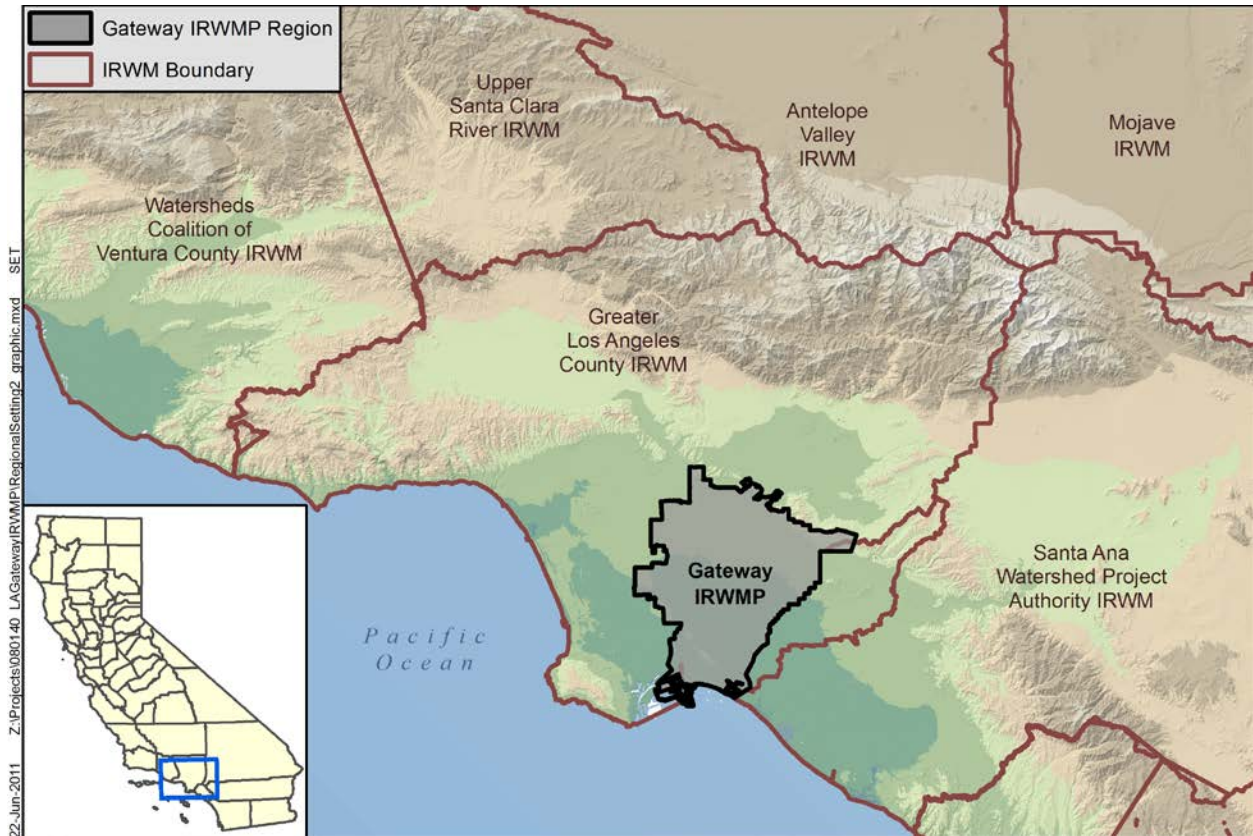
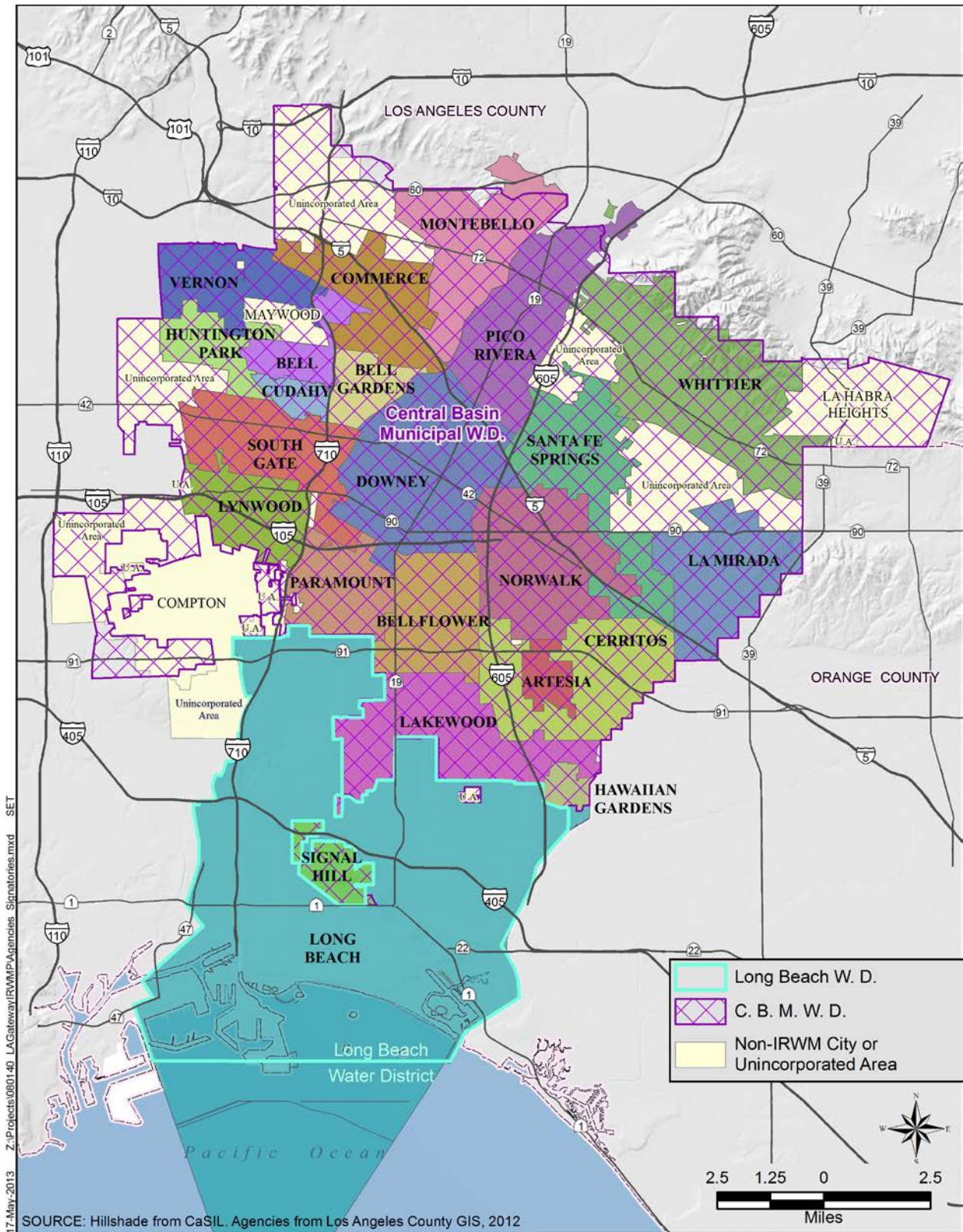


Figure 2-1. Gateway IRWMP Region Location





**Figure 2-2. Cities and Agencies Participating in the Gateway Region IRWM JPA**

## 2.2 IRWMP Sponsorship and Adoption

This Plan is being produced and sponsored by GWMA, funded in part through a Proposition 84 IRWMP Planning Grant from the California Department of Water Resources (DWR). The development program is being administered by GWMA Executive Officer, Grace Kast. The Plan Consultant Team is led by GEI Consultants, Inc. Additional information is available at [www.gatewayIRWMP.org](http://www.gatewayIRWMP.org).

### 2.2.1 Point of Contact

Questions and comments on this IRWMP can be directed:

Gateway Water Management Authority  
16401 Paramount Blvd  
Paramount, CA 90723  
Phone: (562) 663-6850  
Email: [gracekast@gmail.com](mailto:gracekast@gmail.com)

### 2.2.2 Adoption

The GWMA adopted this IRWMP by a resolution of the GWMA Board of Directors on June 13, 2013. A copy of the resolution can be found in Appendix A.

Each individual participating member of the regional water management group (in the Gateway's region, this would be the GWMA) is required by the IRWMP Guidelines to also adopt the plan to receive state funding. Currently, there are 23 members to the GWMA; most are participating as project sponsors and intend to adopt this plan. For details on which entities have also adopted the plan, contact GWMA at the address provided previously.

The IRWMP was published as a draft document for public review. It was duly noticed in accordance with §6066 of the Government Code in the local media. The public was provided the opportunity to comment both in writing and during a public meeting and regular GWMA meeting. GWMA members were responsible for taking the document back to their respective groups for review and comment, consolidating comments and bringing the information back to the GWMA. Public comments were reviewed and reconciled by the GWMA and a final IRWMP was produced for adoption by resolution. Once the GWMA adopted the IRWMP, the final document was again taken back to the respective organizations for adoption of the plan by resolution.

## 2.3 What is an IRWMP?

Integrated Regional Water Management (IRWM) is a **collaborative effort to manage** all aspects of **water resources in a region**. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to **address the issues** and differing perspectives of all the entities involved **through mutually beneficial solutions**.

An IRWMP is a significant document that:

- Describes the region and its water management
- Reviews the Region's water issues
- Puts forward strategies to deal with those issues
- Suggests actions and projects that carry out those strategies
- Prioritizes and integrates those projects
- Measures the potential benefits and impacts of the plan
- Provides a path to carry out those projects
- Monitors the progress of its actions

In short, it is a plan for future water management in a region that includes a list of integrated water projects.

The current general process, procedures, and requirements of an IRWMP are defined in the California Department of Water Resources Integrated Regional Water management (IRWM) Grant Program Guidelines (2012 Guidelines). The document establishes what DWR will use to implement the IRWM Implementation Grant Program authorized under Proposition 84 (the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006) and the related Storm Water Flood Management (SWFM) Grant Program funded under Proposition 1E (The Disaster Preparedness and Flood Prevention Act of 2006). The Guidelines outline the standards that a plan should attain.

While IRWMPs were governed by earlier Proposition 50 statutes for general items more recent Proposition 84 requirements had to address the following special items:

- Climate change
- Flood and storm water management
- Outreach to disadvantaged communities
- Integration with land use planning

Table 2-1 lists the elements a plan must address, per the most recent 2012 Guidelines.

**Table 2-1. IRWMP Standards**

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| • Governance                      | • Data Management                     |
| • Region Description              | • Finance                             |
| • Objectives                      | • Technical Analysis                  |
| • Resource Management Strategies  | • Relation to Local Water Planning    |
| • Integration                     | • Relation to Local Land Use Planning |
| • Project Review Process          | • Stakeholder Involvement             |
| • Impact and Benefit              | • Coordination                        |
| • Plan Performance and Monitoring | • Climate Change                      |

Table 2-2 provides a listing or key to where each of these elements can be found for this IRWMP. Locations are indicated by both chapter and section where these elements are treated.

## 2.4 Why an IRWMP?

Water agencies, as well as cities in the Gateway Region have been planning successfully for their futures for some time. The Gateway Region generally provides its citizens with affordable and adequate water supplies and they have addressed other water issues, like flooding and storm water, as the need arose. Why should the Gateway Region compile an Integrated Regional Water Management Plan? What advantages are there for this tool over other planning methods?

An IRWMP provides a number of benefits for the Region and its participants. An IRWMP:

- Provides a superior grasp of regional problems
- Helps focus resources on priority goals
- Makes a concerted and documented effort to include the entire community, including disadvantaged communities in water planning
- Provides opportunities to formulate integrated programs and projects that provide multiple benefits for the Region
- Allows the Region to apply for and accept state funding to solve water issues; makes the Region participants eligible for planning and implementation grants.
- Provides a consolidated and inclusive planning process
- Aligns participants to support projects that benefit the region as a whole
- Presents a more economic approach to tackle regional problems by combining administrative and planning costs of several agencies for some regional issues
- Is the foundation for “good” regional planning

**Table 2-2. Locations of IRWMP Standards in this Plan**

<b>IRWMP Standard</b>	<b>Location in This Plan</b>
Governance	Chapter 4
Region Description	Chapter 3
Objectives	Chapter 6
Resource Management Strategies	Chapter 10
Integration	Chapter 13
Project Review Process	Chapter 12
Impact and Benefit	Chapter 15
Plan Performance Monitoring	Chapter 18
Data Management	Chapter 17
Finance	Chapter 16
Technical Analysis	Chapters 7, 8, 9
Relation to Local Water Planning	Chapter 14



Relation to Local Land Use Planning	Chapter 14
Stakeholder Involvement	Chapter 4, Section 4.3, Chapter 5
Coordination	Chapter 14
Climate Change	Chapter 11

## 2.5 IRWMP Development

The intent of the IRWMP development process is to develop a plan that will encompass strategies for solving the specific issues of the Gateway Region and fulfill the requirements of the Proposition 84 and Proposition 1E Integrated Regional Water Management Guidelines provided by the California Department of Water Resources (DWR).

The IRWMP development specifically included the following:

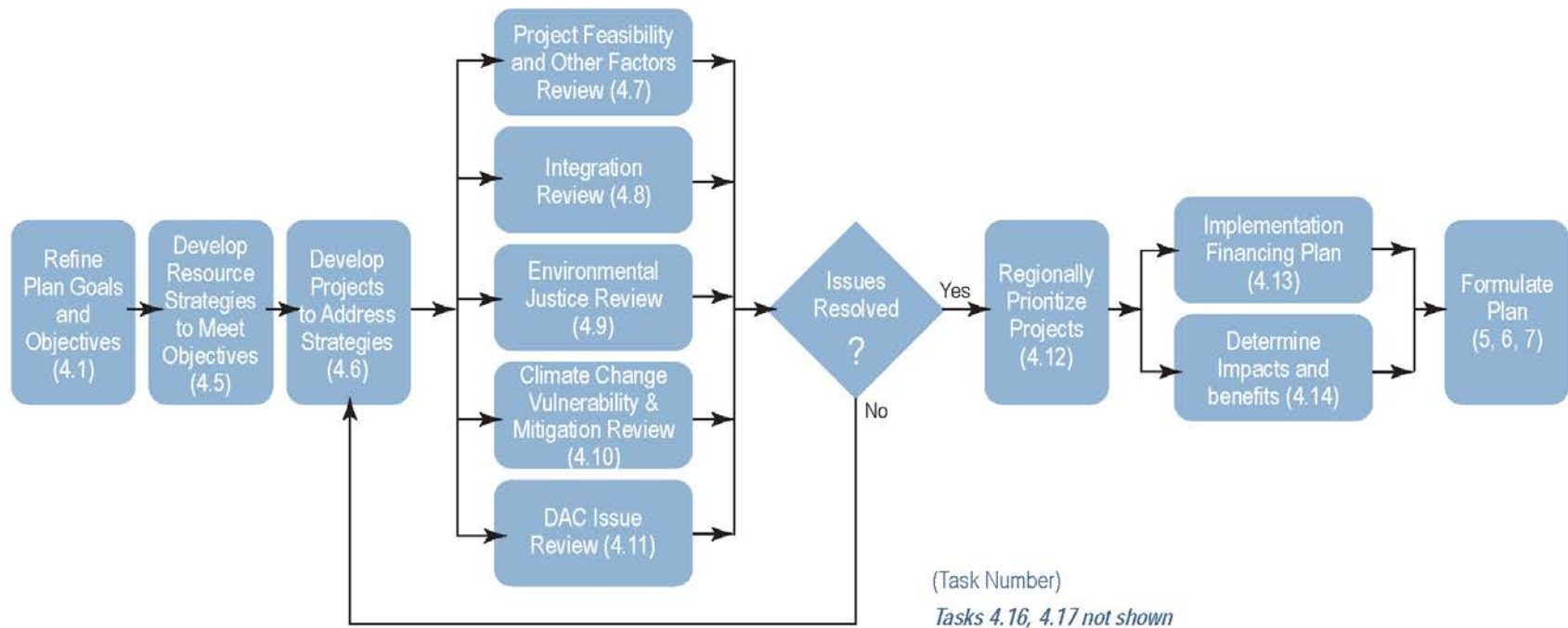
- Regional Projects – Projects that benefit multiple jurisdictions and communities are a priority for the plan and for implementation.
- Water Conservation and Water Use Efficiency – Water use efficiency has great potential in urban environments like the Gateway Region. Projects focusing on demand management will improve water reliability for the region and the State by reducing the need for imports from other parts of California, and especially the Sacramento-San Joaquin Delta. Landscape water reduction has good potential for reducing demand and the use of storm water runoff locally within the region is an element of efficiency that must be included along with expanded water conservation programs. These strategies are among the statewide priorities for water use efficiency and water supply reliability that are also included in the CALFED Bay-Delta Program (CALFED) Water Supply Reliability Program Objectives.
- Environmental and Habitat Protection and Improvement Projects – The IRWMP development process will look for projects to improve the limited ecosystem currently in the Region. Flood control projects have reduced river environment to mostly concrete channels and there are potential opportunities to expand the environmental stewardship in the Region. This supports the state’s priority in this area.
- Protect and Improve Surface and Groundwater Quality – These are key issues for the Gateway Region and support a statewide priority to Protect Surface and Groundwater Quality to safeguard public and environmental health.

## 2.6 IRWMP Development Process

The Gateway stakeholders have followed a systematic process for developing project-level elements for inclusion in the plan. Figure 2-3 outlines the process. At a high level, the process can be simplified as:

1. Define the Region’s water problems/goals/objectives (Task 4.1)
2. Suggest strategies that will help alleviate those issues (Task 4.5)

3. Brainstorm projects that will implement those strategies (Task 4.6)
4. Filter the projects to make sure the projects are feasible, integrated so that they are both compatible and complementary of other suggested or existing projects, do not adversely affect certain populations, and meet other requirements (Tasks 4.7 through 4.11)
5. Prioritize filtered projects for implementation (Task 4.12)
6. Develop a procedure to implement projects collectively (Tasks 4.13 and 4.14)
7. Determine methods and tools to monitor implementation of the projects within the IRWMP as well as the overall plan (Task 4.17)
8. Complete a written Plan (Tasks 5, 6, 7)



**Figure 2-3. IRWMP Development Process**

## 2.6.1 Steps in the Development Process

Table 2-3 lists the development tasks. Task descriptions follow for major tasks.

**Table 2-3. IRWMP Development Step Task Numbers**

TASK NUMBER	IRWMP DEVELOPMENT TASK	CHAPTER
<b>Task 4 - Prepare Draft IRWMP</b>		
4.1	Refine and Enhance Planning Objectives for IRWMP	6
4.2	Develop Water Budget	9
4.3	Compile and Analyze Storm Water Runoff Information	8
4.4	Compile Existing Water Quality Information	7
4.5	Develop Integrated Management Strategies for Region	10
4.6	Develop Projects to Address Strategies	12
4.7	Project Feasibility and Other Factors Review	12
4.8	Integration Review	13
4.9	Environmental Justice Review	12
4.10	Climate Change Vulnerability and Mitigation Review	11,12
4.11	DAC Issues Review	12
4.12	Conduct Project Prioritization and Review Process	12
4.13	Develop IRWMP Implementation Component and Financial Plan	16
4.14	Determine Impacts and Benefits	15
4.15	Review Groundwater Monitoring Program	7
4.16	Develop Data Management Methods	17
4.17	Develop Plan Monitoring	18
<b>Task 5 - Administrative Draft</b>		
5.1	Prepare Administrative Draft IRWMP	—
5.2	Review of Administrative Draft by Participating Agencies in the GWMA	—
5.3	GWMA Review and Approval of Administrative Draft IRWMP	—
5.4	Approval by GWMA for Public Release of IRWMP	—
<b>Task 6 - Public Review</b>		
6.1	Prepare Public Draft of IRWMP	—
6.2	Review and Incorporate Public Comments into IRWMP	—
<b>Task 7 - Prepare Final IRWMP</b>		
7.1	Consultant Prepare Final IRWMP	—
7.2	Adoption of IRWMP by Participating Agencies Governing Boards	—
7.3	Final IRWMP submitted to DWR	—

### 2.6.1.1 Objectives

The GWMA adopted a series of IRWMP objectives in February 2008 in their vision, mission, goals and objectives statement. This statement essentially defined the problems and priorities that the IRWMP should be addressing. They cover the significant issues of the region from the perspective of the GWMA at that time. Now, with the IRWMP, the Stakeholders and GWMA reaffirmed their problem statement in a new, formally-adopted list of goals and objectives.

### 2.6.1.2 Water Management Strategies

Stakeholders helped formulate strategies that will effectively address the plan's adopted goals and objectives (Task 4.5) by reviewing previously identified strategies and suggesting others. DWR has provided a general list of more than 27 strategies in their IRWMP guidelines and the State Water Plan. Stakeholders concentrated some effort on water conservation and water use efficiency, environmental and habitat protection, integrating flood management and protection and improvement of groundwater quality. Strategies that related to these items were highlighted and encouraged in the process.

Information on water supply and demand, water quality, and storm water gathered in Tasks 4.2 through 4.4 will help in determining some strategies or combination of strategies that will be effective for some issues.

### 2.6.1.3 Projects

The next step in the IRWMP development process was to identify potential projects that will implement the strategies that the GWMA and stakeholders have identified.

Prior to the creation of GWMA, many GWMA members and stakeholders participated in the Greater Los Angeles IRWMP process in 2006-7. Projects and strategies developed and refined under the earlier GLAC planning effort for the Lower San Gabriel and Lower Los Angeles River sub-region are relevant for this current IRWMP process. The Consultant Team provided the earlier GLAC project list to the Stakeholders for project ideas.

While it is convenient if projects are well defined, with sound cost estimates, documented feasibility and, perhaps, current environmental documentation, the process did not eliminate projects if they lacked these. Some promising project concepts may just need some additional high-level estimating and analysis to be "plan" ready. A primary goal of this IRWMP is to develop projects and their documentation so they qualify and are prepared for the next stage—implementation funding. The Gateway Region must compete with neighboring regions within the Los Angeles Funding Area for Proposition 84 funds and will potentially face statewide competition in other funding arenas. Regional projects that resolve critical needs of the region and also target statewide water management goals are more likely to capture funding in this competition; however, other projects may also be a priority.

### 2.6.1.4 Project Review and Screening

Once projects and project information were submitted for consideration, the Consulting Team made a concurrent review of projects for Tasks 4.7 through 4.11. Referring back to the process diagram, Figure 2-3, Project Feasibility, Integration, Environmental Justice, Climate Change, and DAC issue reviews were all be made at the same time eliminating the time needed for sequential evaluation. These reviews occurred in October/November 2012. Results of reviews for each identified project were documented. Given the large number of possible projects, only a reconnaissance-level review was warranted using available information.

Task 4.7 (Chapter 12) reviewed projects for their feasibility and other factors. Is the project generally feasible and cost effective? Is it technically feasible as well as financially and economically feasible? What are the risks associated with the project? Land use planning was considered in this task. Will the project be affected by future land use planning decisions? Will some land uses benefit the project and its effectiveness?

Projects and strategies must be compatible with existing water management plans, such as the Regional Water Quality Control Board's Basin Plan or watershed plans. This step reviewed those existing plans to make sure projects complement those ongoing efforts.

Task 4.8 reviewed and evaluated potential projects for "integration." In this context, "integration" refers to a few different situations or relationships, but basically how does the project fit with other aspects of the water planning effort? First, does the project interfere or reduce the effectiveness of other proposed projects, or existing programs or projects in the region? Second, does the project complement other projects or strategies in the region? Third, are there opportunities to combine projects or modify them so that they will improve the results and benefits of the separately configured projects? Fourth, does the project complement or run counter to projects outside the region, in neighboring IRWM regions, or statewide initiatives or regional plans? Can projects be multi-purpose? Integration of projects in water management planning is the obvious thrust within the State's IRWMP process.

The Consultant Team carefully analyzed how each project would fit in relation to the other proposed and existing projects and how projects could be sized or expanded to provide multiple benefits to the region and neighboring regions.

Task 4.9 looks at Environmental Justice aspects of each proposed project. Environmental Justice (EJ) is "the fair treatment and meaningful involvement of all people regardless of race, color, sex, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." A project may affect stakeholders differently. This review looks for any unfair distributions of environmental burdens to some stakeholders and their communities. The Consulting Team members conducted and documented a brief review of each project's impact and benefits on the region and its stakeholder populations.

In Task 4.10 (Chapter 11) each project was assessed on their vulnerability to the effects of climate change. Each project was also evaluated to determine their potential contribution to greenhouse gases (GHG) emissions and what mitigations might be available to reduce their GHG impacts.

Disadvantaged Communities (DACs) make up a significant portion of the Gateway Region. DAC water issues are important for the region and they were included as a special step within the project development process. Task 4.11 (Chapter 12) in the work plan provided an opportunity to make sure that the water-related needs of the various DACs in the region were considered and that mitigations were in place if projects hindered or adversely impacted DACs. The process included a representative of GWMA to participate with select consultants in conducting DAC issues review assessment. The participation by a subcommittee group gives a balanced perspective to the review.

As depicted in the workflow diagram, Figure 4-2, projects that have unresolved issues in the screening and review phase can be modified. These modified project ideas could then be re-screened or evaluated through the review process as necessary.

#### 2.6.1.5 Project Prioritization Process

So far the IRWMP development process has collected information, outlined objectives of the plan, identified strategies to reach those objectives, identified projects to carry out those strategies and then, evaluated those projects against a series of important principles or measures. The next task, Task 4.12 (Chapter 12), was to rank or prioritize potential projects. Not all projects can be endorsed, funded, or implemented at the same time. Which projects should be looked at first? Which projects are the most important to the region? Which projects are critical to protecting the health and safety of Gateway residents?

Like the project development process that proceeded, the prioritizing projects for inclusion in the plan were an open, collaborative, and transparent exercise. Stakeholders and the public could follow, observe, understand, and comment on the process. Rankings should be logical and be able to be explained and documented.

The Consultant Team suggested a series of criteria for the Stakeholder consideration for prioritizing projects. The final criteria were adopted by the Stakeholders before project ranking began. Project technical ranking was based on a number of areas: urgency of the project, consistency with objectives, amount of benefit to the region, acceptable levels of cost and impact, potential to protect health and safety, range of benefits and impacts to individual communities (especially for DACs), amount of protection and enhancement of water supply and water quality, opportunity for funding, readiness for implementation, balance of projects over the region, level of feasibility, climate change impacts, degree of meeting statewide water management priorities, and other factors.

Since the County of Los Angeles is considering a countywide initiative to establish a parcel tax to fund regional storm water quality projects and programs Water Quality Funding Initiative (WQFI), Gateway should also include ranking criteria that will help qualify projects for future funding from that source. While details are not yet available, projects will need to be consistent with general goals such as reduction and prevention of pollution, sustaining long term water quality benefits, identifying nonpoint sources of pollution, providing a baseline water quality, coordinating with other water planning and IRWMP efforts, emphasizing regional efforts, maximizing storm water quality benefits, being economically viable, and considering stakeholder feedback, flexibility, and adaptive management.

It is important to note that a low project ranking does not necessarily mean that a project is not ready to implement or fund, nor does a high rank mean a project should be funded or built. Ranking is a requirement of the IRWMP Guidelines. It is intended to help the agencies determine a general priority of actions to meet the goals and objectives of the IRWMP. The state only requires that a project be included in the plan to receive grant or loan funding, not that it receive a high priority ranking.

#### 2.6.1.6 Other Plan Development Steps

There are other tasks and steps that are needed to complete elements of the IRWMP. What is the plan's schedule? What are the implementation and financing strategies to be used to execute the plan? What are the impacts and benefits of the overall plan? What environmental regulatory documentation will be needed to execute the plan? How will we know if the plan is being followed?

For Task 4.13 (Chapter 16), the Consulting Team suggested funding strategies for financing and implementing the projects prioritized earlier. It is dependent upon the costs of the projects on the priority list and the upcoming anticipated federal and state funding opportunities. The Consulting Team thoroughly researched existing state, federal, and private funding avenues beyond Proposition 84 IRWMP implementation funding provided them to stakeholders and included those sources in possible funding scenarios.

Task 4.17 (Chapter 18) called for the development system to monitor the implementation of the IRWMP. The system will include the process, protocols, and metrics needed to check the plan's progress and success. The GEI Team developed performance measures for consideration that will measure the plan's performance going forward. The following aspects of the plan will need to be measured:

- Meeting IRWMP objectives
- Stakeholder and DAC outreach and involvement
- Systems that monitor the collection of performance data
- Mechanisms to change and adapt the implementation based on the information collected.

#### 2.6.1.7 Data Management

The information collected during the IRWMP development process is shared with stakeholders and the public, as well as DWR with a web-enabled system. Information from various sources is consolidated on one site and provided to participants so they can help make decisions about the plan and the plan's implementation in the future. The Consulting Team has provided a web-based GIS enabled application as an interactive data storage tool for the IRWMP process. Data management system is an essential component in IRWMP to manage, store, organize, and analyze background and project information.

#### 2.6.1.8 Plan Formulation

The final step in the IRWMP development process is to compile the information into a plan which can be adopted by the GWMA and its member agencies. Tasks are broken into compiling the administrative draft plan, the public review draft and the final IRWMP.

## 2.7 Plan Organization

The information in this Plan has been organized to generally follow the elements of the IRWMP development process. Additional chapters have been introduced where specific IRWMP standards were addressed. The Plan outline is provided on Table 2-4.



**Table 2-4. Gateway IRWMP Chapter Outline**

<b>Gateway IRWMP Chapter Outline</b>	
<b>Chapter Number</b>	<b>Chapters</b>
ES	Executive Summary
2	Introduction
3	Region Description
4	Governance and Coordination
5	Outreach: Public and Stakeholder Involvement Processes
6	IRWMP Goals and Objectives
7	Groundwater and Water Quality Issues
8	Storm water and Flooding Issues
9	Water Supply and Demand: Today and in the Future
10	Water Management Strategies
11	Climate Change
12	Project Solicitation and Prioritization
13	Project Integration – Project Alternatives
14	Other Planning Coordination
15	Plan Impacts and Benefits
16	Financing Strategies
17	Data Management
18	Plan Performance and Monitoring
19	Plan Amendments
20	Recommendations and Conclusions
21	References

## **2.8 Technical Analysis**

There was a wide range of existing technical analysis that were compiled and/or provided by GWMA stakeholders. The technical analyses were used to define problems and issues in the region and support the GWMA when establishing objectives and formulating projects concepts and alternatives.

As part of the IRWMP development, the Consulting Team conducted three technical studies. This includes the evaluation of groundwater quality issues (Chapter 7) and of current monitoring, the storm water and runoff water quality evaluation (Chapter 8) and supply and demand analysis (Chapter 9).

Each of the projects proponents prepared separate projects justifications and provided or at minimum, referenced the engineering feasibility, design, planning economic analysis,

environmental review and/or rate studies that were used to document their projects and support the GWMA in prioritizing projects to meet the IRWMP goals and objectives.

There are ongoing technical investigations related to the projects or identified programs that are to be implemented. For example, there will be additional technical evaluation to help the GWMP decide how to support members in developing the regional storm water quality and compliance monitoring program to improve water quality as part of the Municipal Separate Storm Sewer Systems (MS4s) compliance program.

Chapter 21 provides a list of references for the technical studies referenced throughout the IRWMP.

## 3 Region Description

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The Gateway IRWM Region (Gateway Region) is located in Southeast Los Angeles County, in an area that includes a large expanse of flat land located around the lower reaches of the Los Angeles River and San Gabriel River watersheds (Figure 3-1). The geography of the Gateway Region includes coastal plains, inland valleys surrounded by foothills, and two mountain ranges, the Santa Monica and the San Gabriel Mountains, which are a part of the Traverse Ranges. To the north, the San Gabriel Mountains separate the Los Angeles Basin from the Mojave Desert and the Santa Monica Mountains separate the Los Angeles Basin from the Ventura Basin to the west. Elevations in the Gateway Region range from sea level to a few hundred feet. Alluvial deposits of sand, gravel, clay, and silt are present in the coastal plain due to erosion of the mountains. The Gateway Region is also situated on and near extensive fault systems, generally trending northwest to southeast. Large nearby faults include the San Andreas and the Sierra Madre-Cucamonga Faults.

### 3.1 Hydrology Setting

The Gateway Region generally enjoys a Mediterranean climate, characterized by mild temperatures that incorporate wet winters with dry summers. Most precipitation falls between November and March with annual rainfall averaging around 12 inches. The Gateway Region drains into San Pedro Bay by the Los Angeles and San Gabriel Rivers. These two watersheds are connected by the Rio Hondo, which transfers water from the San Gabriel to the Los Angeles River during significant storm events. Rivers, major creeks, and tributaries are channelized due to extensive urbanization of the Region.

#### 3.1.1 Waterways

Rivers and water features are shown in Figure 3-2. The Los Angeles River watershed covers 834 square miles of land area, and is shaped by the path of the Los Angeles River. There are eight major tributaries, 22 lakes, and multiple spreading grounds in the watershed. The Los Angeles River enters the Gateway Region near the city of Vernon and flows southward to San Pedro Bay near Long Beach. The majority of the Los Angeles River watershed in the area upstream and in the Gateway Region is highly developed with commercial, industrial, and residential uses, which are the leading causes of water quality impairment in the river. The Los Angeles River is lined with concrete reinforcement on 47.9 miles of the total 51 miles of its length. South of Willow Street in Long Beach is one of the three stretches not lined with concrete. The majority of flow in the river, about 80 percent, is effluent originating from dischargers. The remaining 20 percent comes from storm drain runoff and groundwater reaching the surface.

The Rio Hondo (“Deep River”) river is a major tributary of the Los Angeles River, which originates in the Angeles National Forest and joins the Los Angeles River within the City of South Gate. The Rio Hondo River is mostly concrete-lined outside of the Angeles National Forest, and has a total sub-watershed area of 142 square miles. The Rio Hondo watershed

encompasses 21 cities, including Bell Gardens, Commerce, Downey, Montebello, Pico Rivera, and South Gate.

#### *San Gabriel River*

The San Gabriel River is hydraulically connected to the Los Angeles River via the Whittier Narrows Dam, located on the Rio Hondo River between Montebello and Pico Rivera. The San Gabriel River watershed is located east of the Los Angeles River watershed and covers about 640 square miles of land. The San Gabriel River enters the Gateway Region between Pico Rivera and Whittier and flows south to its outlet at San Pedro Bay near Long Beach. There are four major tributaries (Coyote Creek, Walnut Creek, Puente Creek, and San Jose Creek), four spreading grounds, and multiple rubber dams on the San Gabriel River. The San Gabriel River channel is concrete-lined from below the Whittier Narrows to past Coyote Creek, about ten miles.

#### *Los Cerritos Channel and Wetlands*

The Los Cerritos Channel is a concrete-lined freshwater conduit that runs through the cities of Long Beach, Lakewood, Bellflower, Paramount, Downey, Signal Hill, and Cerritos. It was designed to convey storm water through its watershed, which consists mainly of urban development. The Los Cerritos Wetlands are located just before the channel's terminus in the City of Long Beach, and along with the connecting portion of the channel, it provides an overwintering site for up to 50 species of birds.

### **3.1.2 Water Bodies**

#### *Alamitos Bay and Colorado Lagoon*

Alamitos Bay is located at the outfall of the Los Cerritos Channel in the City of Long Beach and consists of about 43 acres of remnant salt marsh. The Colorado Lagoon is approximately half land area and half open salt-water area. Without the tide gates that were installed in 1929, the Colorado Lagoon would open to the northwest end of Alamito Bay.

#### *El Dorado Lakes and Wetlands*

The El Dorado Lakes is made up of six small lakes within El Dorado Regional Park: Coyote, Alamo, Large, Horseshoe, Nature Center North, and Nature Center South. The lakes were created on the former San Gabriel River floodplain but are not hydraulically connected to the river.

#### *Port of Long Beach*

The Port of Long Beach is operated by the City of Long Beach within San Pedro Bay, adjacent to the Port of Los Angeles. It is the second-busiest seaport in the United States, with an annual trade value moving through of over \$140 billion. Water from storm drains enters the harbor, in addition to the runoff from the 3,200 acres of port land, which is mostly paved.

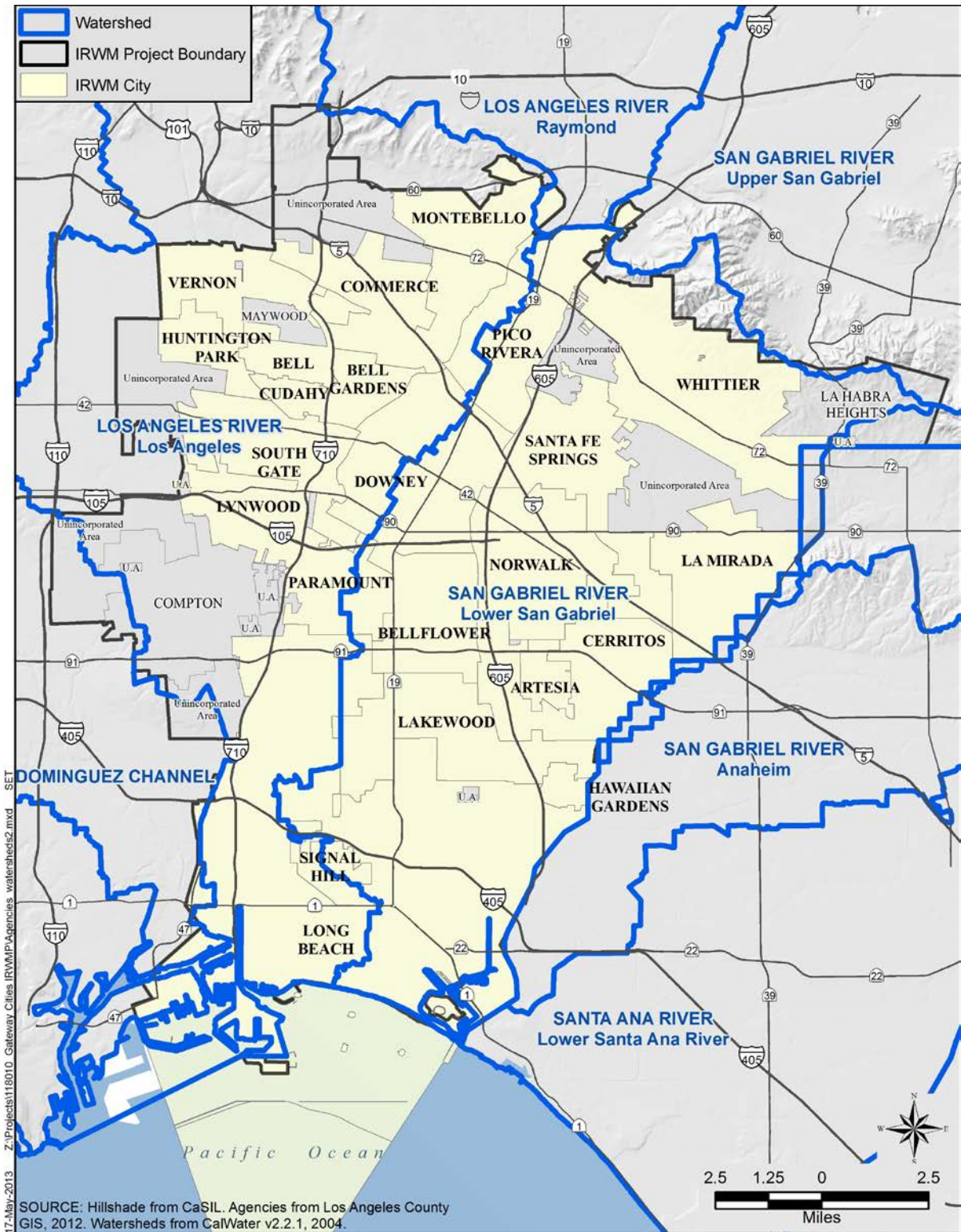


Figure 3-1. Gateway Region Watershed Map





Figure 3-2. River and Water Features in the Region

The Los Angeles River and the San Gabriel River are hydraulically connected via the Whittier Narrows Dam, located on the Rio Hondo River between Montebello and Pico Rivera. The San Gabriel River watershed is located east of the Los Angeles River watershed and covers about 640 square miles of land. The San Gabriel River enters the Gateway Region between Pico Rivera and Whittier and flows south to its outlet at San Pedro Bay near Long Beach. There are four major tributaries, four spreading grounds, and multiple rubber dams on the San Gabriel River. The San Gabriel River channel is concrete-lined from below the Whittier Narrows to past Coyote Creek, about ten miles.

### **3.1.3 Floodplain**

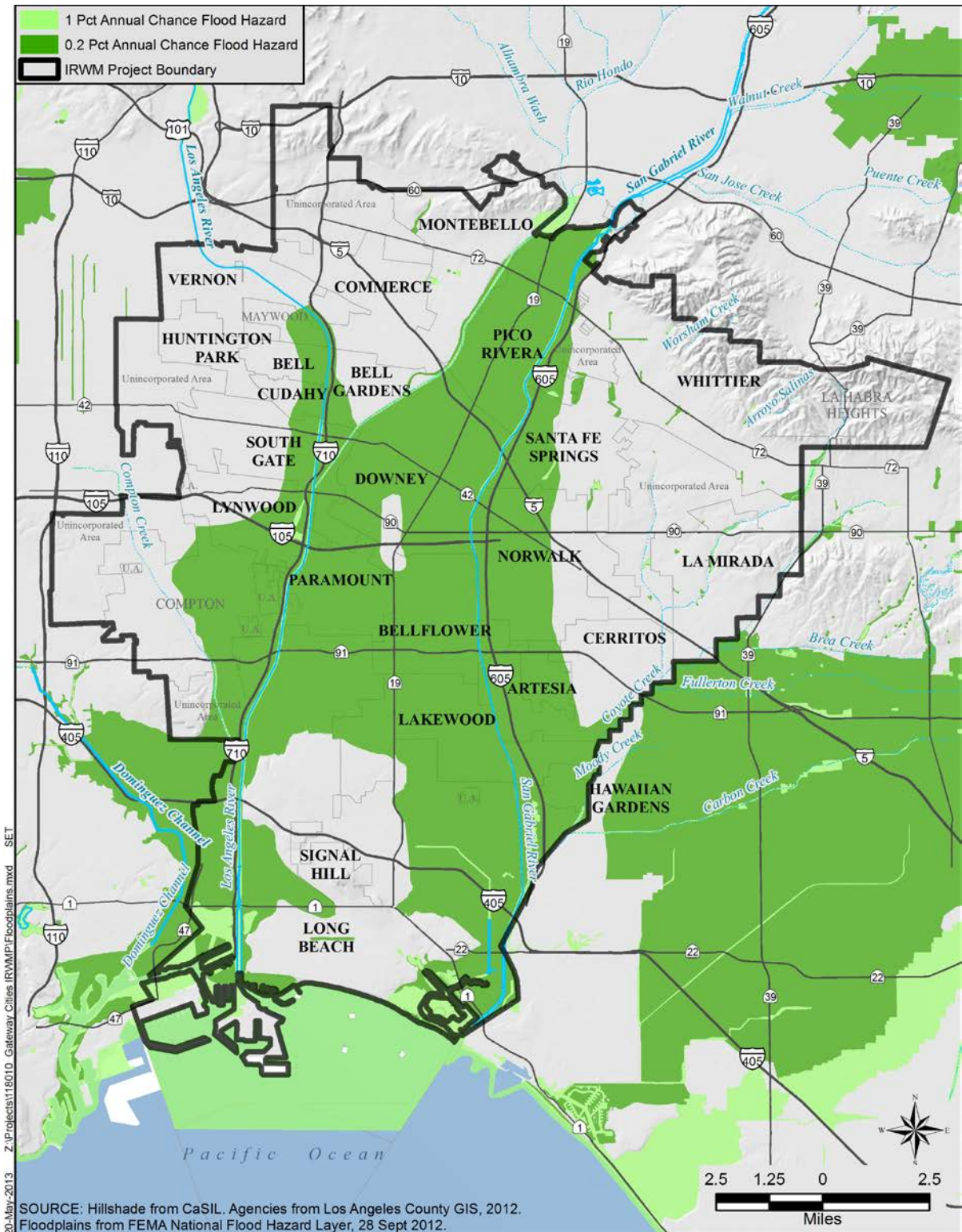
The Gateway Cities are located at the bottom of both the Los Angeles and San Gabriel River watershed. This floodplain experienced a number of catastrophic floods until the channelization of the lower reaches of the rivers after the 1938 flood. Figure 3-3 shows the 100-year and 500-year FEMA floodplain map and the major flood infrastructure in the Gateway Region.

### **3.1.4 Seawater Barriers**

In the 1950s, freshwater injection wells were used to block seawater intrusion into the Central and West Coast Groundwater Basins. Los Angeles County Department of Public Works (LACDPW) owns and operates three seawater barriers (Alamitos, Dominguez Gap, and West Coast Basin Barriers) along the Los Angeles County Coastal Plain. The Water Replenishment District (WRD) is the agency responsible for purchasing the fresh water to replenish the groundwater basin, with the exception of about 2500 afy purchased by the Orange County Water District. The Alamitos Barrier is located in the Gateway Region on the Los Angeles and Orange County Line. The majority of the Dominguez Gap Barrier Project is located immediately west of the Gateway Region; a small portion of it is in Long Beach. The injection wells dually function to recharge the groundwater basin. The WRD uses advanced treatment recycled water and purchased potable water to recharge the groundwater basin.

### **3.1.5 Whittier Narrows Dam and Conservation Pond**

The Whittier Narrows Dam is located near the northern boundary of the Gateway Region near Pico Rivera and Montebello. The Whittier Narrows Dam provides flood control, recreation, and water conservation for the area. The dam is operated and maintained by the U.S. Army Corps of Engineers (USACE); flood control and water conservation are coordinated with the LACDPW. Storm water flows are captured at the Whittier Narrows Dam and later released and conserved in the Rio Hondo and San Gabriel River spreading grounds.



**Figure 3-3. 100-Year and 500-Year FEMA Floodplain**



### **3.1.6 Spreading Grounds**

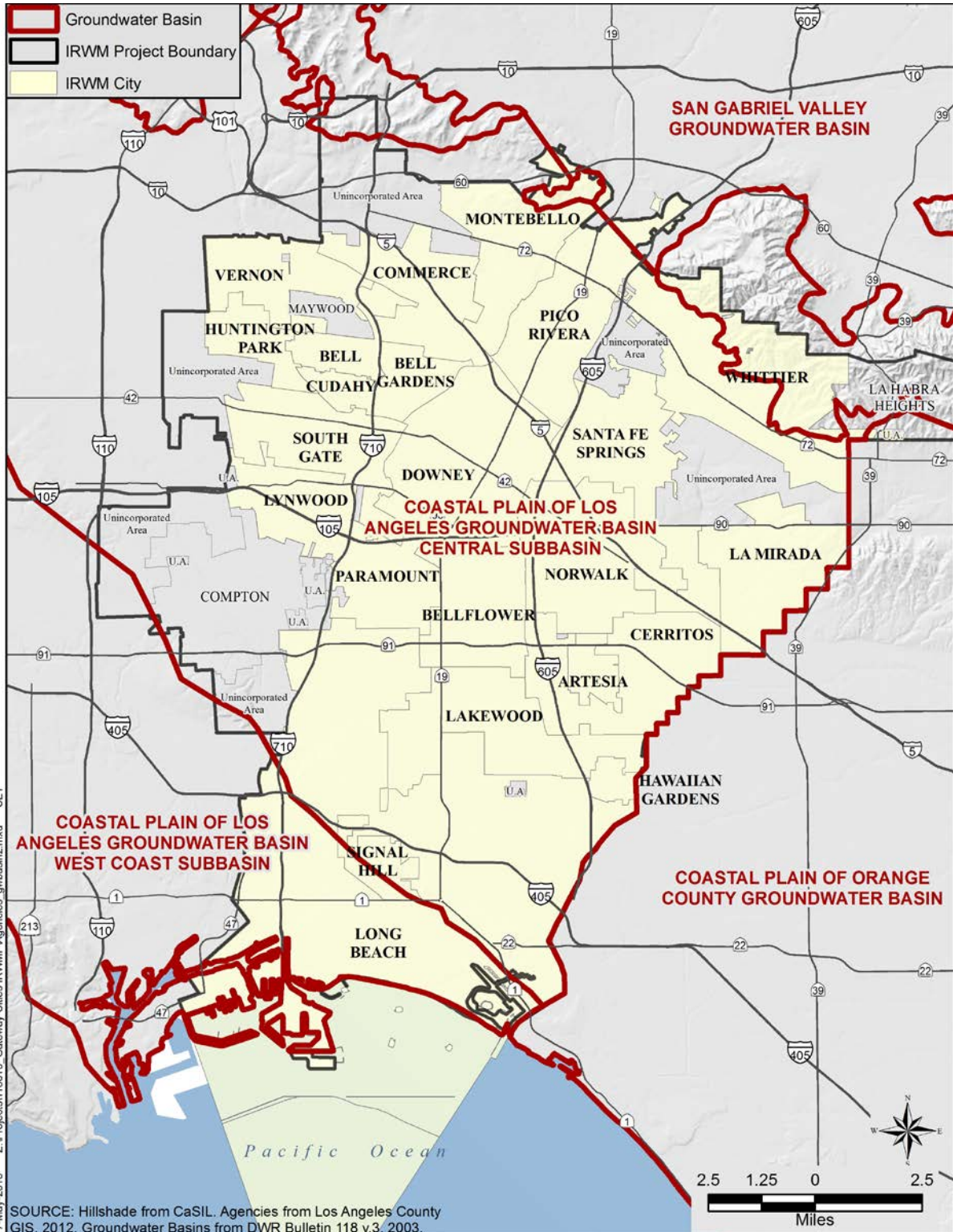
The LACDPW operates and maintains the Rio Hondo and the San Gabriel Coastal Spreading Grounds, located in the Gateway Cities of Montebello and Pico Rivera. These are large holding ponds used to collect local storm water runoff, imported water, and highly treated recycled water, and they are situated over a geologic uplift in the Central Basin to percolate into the aquifers below.

## **3.2 Water Supply Resources**

Groundwater is the primary source of supply for the Gateway Region. Groundwater supplies are supplemented by surface water imported from wholesalers and recycled water purveyors.

### **3.2.1 Groundwater**

The majority of the Gateway Region overlies Central Sub-Basin of the Coastal Plain of Los Angeles Groundwater Basin. The Central Sub-Basin (Central Basin) occupies a large portion of the southeastern part of the Los Angeles Coastal Plain (see Figure 3-4), bounded on the north by the LaBrea High and on the northeast and east by less permeable tertiary rocks. The Southeast boundary is formed by the Newport-Inglewood fault system and associated formations (DWR Bulletin 118). Throughout the Central Basin, groundwater occurs in Holocene and Pleistocene age sediments at relatively shallow depths.



**Figure 3-4. Gateway Region Groundwater Basins**

The Central Basin is historically divided into forebay and pressure areas. Recharge to the sub-basin is accomplished through both natural and artificial recharge. The Watermaster reported natural recharge for the sub-basin to be 38,982 acre-feet and artificial recharge to be 80,234 acre-feet for 2010 (DWR 2010). Additionally, the sub-basin receives 27,000 acre-feet of water per year through the Whittier Narrows from the San Gabriel Valley Basin in the form of subsurface flow (SWRB 1952). Urban extractions for the sub-basin were 196,758 acre-feet in 2010.

This groundwater basin, which had flowing artesian wells in the early 1900s, is now troubled with issues such as declining water levels, drying wells, and seawater intrusion due to overdraft. Efforts of water agencies, political entities, and the judicial courts implemented three measures to address these problems, still in effect today:

1. Installation of Sea Water Barrier Injection Wells

1950s – Over the past 50 years, nearly 300 freshwater injection wells have been installed along 16 miles of coastline to help stop seawater from intruding into the fresh groundwater basins. The WRD is currently the agency responsible for manning the wells and replenishing groundwater.

2. The Formation of the WRD

1959 – WRD was formed through a special election in LA County. The WRD manages artificial replenishment and groundwater quality protection efforts in the Central and West Coast Basins.

3. Groundwater Adjudication

1961 – West Coast Basin adjudication took effect and limited groundwater extractions to 64,468 acre-ft per year (afy).

1965 (later amended in 1991) – Central Basin adjudication took effect and limited groundwater extractions to 217,367 afy, still greater than the natural safe yield of the 1962 DWR determination of 173,000 afy.

### 3.2.1.1 Groundwater Suppliers

The Central Basin is the primary source of water supply to the region. Most retailers employ production wells to provide at least a portion of their municipal supply, if not the majority of their supply.

### 3.2.1.2 Groundwater Quality

Protecting groundwater quality from contamination is especially important to the Gateway Region, particularly in light of its historical role as a center of manufacturing and technology. Efforts to improve groundwater quality are ongoing, including recent efforts to clean up a waste solvent and hydrocarbon plume under the cities of Whittier, Santa Fe Springs and Norwalk.

Groundwater supplies are generally of acceptable quality. Total dissolved solids (TDS) content in the Central Basin ranges from 250 to 750 mg/l according to 2010 data from 293 public supply wells. The average for these 293 wells is 453 mg/l. Chapter 7 discusses groundwater quality in further detail.

### **3.2.2 Surface Water**

Imported and local surface water is mainly provided by the Metropolitan Water District of Southern California (MWD) to the Central Basin Municipal Water District (CBMWD) or other wholesale agencies, which in turn provide water to cities, retail water districts, and water companies for distribution to the consumer. There are many interties between individual retailers, including the Los Angeles Department of Water and Power, which receives much of its water from the Los Angeles Aqueduct and the Owens Valley system, as well as local capture of storm runoff.

### **3.2.3 Recycled Water**

Recycled water in the Gateway Region is produced by the Los Angeles County Sanitation Districts (LACSD) and distributed by various purveyors. This recycled water is provided to most cities in the Gateway Region by CBMWD. The CBMWD recycled water system is shown in Figure 3-5. This water is primarily used for landscape irrigation.

In response to increasing demands for water, limitations on imported water supplies and the threat of drought, CBMWD developed a regional water recycling program, comprised of two distribution systems - the E. Thornton Ibbetson Century Water Recycling Project and the Esteban Torres Rio Hondo Water Recycling Project - as well as three pumping stations and a reservoir. The Ibbetson Project and Torres Project are interconnected by an intricate 50-mile distribution system and operate as one recycled water supply system. The combined projects are referred to as the "Central Basin Water Recycling Project".

In constructing the 50-mile pipeline system, CBMWD is able to distribute treated recycled water obtained through LACSD. The Central Basin Water Recycling Project delivers approximately 3,100 acre-feet of recycled water annually to more than 210 industrial, commercial and landscape irrigation sites.

Recycled water produced by LACSD is also provided to the Gateway Region by other purveyors including the cities of Bellflower, Cerritos, and Long Beach, and the San Gabriel Valley Water Company.

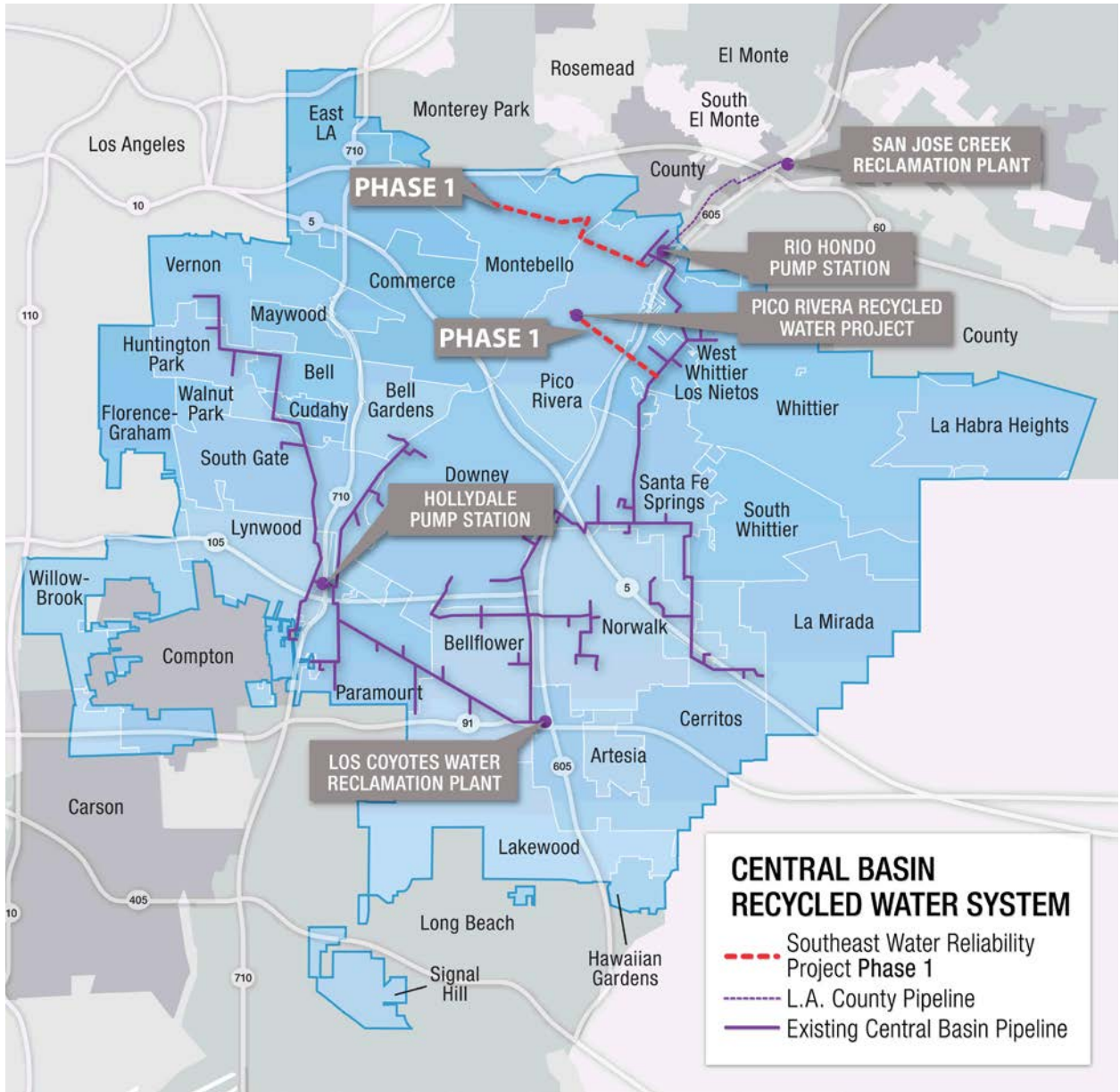


Figure 3-5. CBMWD Recycled Water System

### 3.3 Water Rights in the Central Basin

The rights to water in the Central Basin are in two categories, surface water and groundwater. Both of these waters are controlled and regulated by court judgments of long standing.

#### 3.3.1 Surface Water Rights

The use of surface water in the Central Basin is for groundwater recharge. Beginning in the 1800s surface water was diverted in the Whittier Narrows for irrigation use. This use ceased however as water use increased in the San Gabriel Valley decreasing the flow at Whittier Narrows and as the use of water in the Central Basin changed to urban use. Other than some



early established surface rights to water in the San Gabriel Canyon above Foothill Blvd, the surface water rights are held by the San Gabriel Valley Protective Association (SGVPA). These rights are held for the purpose of groundwater recharge on behalf of all of the groundwater pumpers in the San Gabriel Valley and the lower area below Whittier Narrows. The rights are in the form of a license granted to the SGVPW by the State of California, Division of Water Rights. That Division has also declared the San Gabriel River System a fully appropriated River System.

The operation of the surface water spreading is by the LADPW. A portion of the local storm water is captured in three reservoirs located in the San Gabriel Mountains. A Distribution Committee of the SGVPA meets with the LADPW as needed to determine the distribution of the stored local storm water for groundwater recharge.

An equitable division of the local waters between the area above and the area below Whittier Narrows has been accomplished through the San Gabriel River adjudication, sometimes referred to as the Long Beach case. The lower area filed suit in 1959 against the groundwater pumpers in the San Gabriel Valley. Five person negotiating committees were formed by each area and a statement of principals' was developed. The principals were crafted into a stipulated judgment which became effective October 1, 1963. The basic provision is that the area below Whittier Narrow is entitled to an average flow of 98,415 acre-feet of water per year over a period of average rainfall. The Judgment is administered by a three person Watermaster, one appointed by the upper area, one by the lower area and a joint appointee. The Watermaster issues an annual report in which there is a determination of the prior years flow and if there is a credit or debit in the water received. If a debit exists, the upper area must make-up the deficit.

### **3.3.2 Groundwater Rights**

Groundwater use in Central Basin developed in the early 1900s as it provided a well distributed source of clean water. Initially groundwater levels were above sea level and in many areas wells were artesian. With the increase use of groundwater, the groundwater levels declined and dropped to as much as 100 feet below sea level, especially at those areas more distant from the forebay area of the Whittier Narrows. The decline of water levels was caused by two factors. One was the removal of more water than was naturally supplied. The other factor was the loss of pressure caused by friction as the water moved from the source of supply towards the more distant wells.

General agreement by a large number of pumpers was reached in 1961 that some action needed to be taken to alleviate the continued lowering of water levels. To facilitate the action, the WRD filed a suit on January 2, 1962, to quit title to the use of groundwater, secure a judicial determination of rights and to protect the water supply from deterioration. The parties and their attorneys crafted a stipulated judgment and on October 11, 1965 a final judgment was signed to be effective October 1, 1966. The Allowed Pumping Allocation of each party was determined based on the theory of prescription and adverse use of each party against each other party as developed in the prior adjudications of the Raymond Basin and the West Coast Basin. This pumping right was developed from a history of pumping of at least five years prior to filing of the suite. The Allowed Pumping Allocation of each party

was computed to be eighty percent of the historic five year pumping. This reduction from the historic five year history of pumping was necessary to bring the total pumping to a quantity that could be sustained from a combination of natural local inflow and artificial recharge with imported and recycled water purchased by the WRD.

The judgment and reduction in pumping could be accomplished because imported water was available from the MWD. Since all ground water producers did not have connections to Metropolitan the judgment provided for an exchange pool whereby those with connections would decrease pumping allowing those without connections to pump more water. Funds were exchanged through the exchange pool to equalize the costs. In recent years the exchange pool has not been used because lease arrangements between parties were developed.

The Central Basin Adjudication selected the State Department of Water Resources as the Watermaster for the Central Basin. The Watermaster collects pumping, tests water meters, administers the judgment, and provides an annual report.

As of 2012, there were 67 active pumpers with an allowed pumping allocation of 217,367 Acre-feet. The pumping in the basin was 185,914 Acre-feet and an additional 128,465 af was imported for direct use. It is noted that the native yield of the Central Basin is on the order of 140,000 Acre-feet per year. To provide for the pumping which can reach 217,367 Acre-feet per year the WRD has taken on an obligation of providing about 77,000 Acre feet per year of artificial recharge. This water is provided by spreading of imported and recycled water in the Montebello Forebay and injection of water along the coast.

### **3.4 The Gateway IRWM Region Boundary**

The Gateway Region is a defined area comprised of the 26 mainland Gateway Cities in Southeastern Los Angeles County, and several adjoining unincorporated communities. The IRWM boundary for the Gateway Region is shown on Figure 3-6. The figure shows the current GWMA member cities and the potential member cities. The Gateway Cities Council of Governments boundary coincides with the IRWM boundary for the Gateway Region.

The Region boundary is based upon and coincident to both natural and political boundaries including:

- Contiguous regional cities with very similar water, economic, and social issues
- The common groundwater basin (Central Sub-Basin)
- The common wholesale provider (CBMWD)
- Area of natural topography and watershed

CBMWD service boundary includes all of the Gateway Cities, with the exception of portions of the City of Compton and the City of Long Beach. This boundary, combined with the San Gabriel Valley Groundwater Basin and the Central Sub-basin boundary guide the determination of the Gateway Region boundary to the north. The Upper San Gabriel MWD is located along the northern Gateway Cities boundary from the northeastern portion of Montebello to the northwestern portion of La Habra Heights, and submitted an IRWMP

Planning Grant in 2005. The City of Monterey Park lies just north of Montebello between the City of Los Angeles and the Upper San Gabriel MWD. A large area of unincorporated land lies north and east of Whittier and La Habra Heights along the northeastern Gateway Region Boundary and is encompassed by the Greater LA IRWM Region.

The GLAC governance structure has a tiered organization with 11 voting members at the top representing a population of about 10 million. The Gateway Region hosts a population of about 2 million. In this structure, the issues specific to the Gateway Region were under-represented, and in 2006, the Gateway Cities Council of Governments recommended the formation of an Integrated Regional Water Management and Planning group specifically for the Gateway Region.

Following consultation with DWR, representatives from Gateway Cities established the GWMA in 2007. The GWMA would lead the integrated regional water management needs of all 26 mainland Gateway Cities and replace their participation in the GLAC. In the ensuing period, DWR's Region Acceptance Process (RAP) established the GWMA IRWMP Region, acknowledging and establishing the area in the Lower San Gabriel and Lower Los Angeles watersheds with a population of two million people, as a separate entity. The GWMA provides solid governance for the IRWMP development and implementation. Figure 3-7 shows a map of the cities currently participating in the GWMA. The GWMA is the "Regional Agency" and was created to develop integrated plans for managing water supply, equitable resource protection, storm water runoff, sanitation, water quality, and habitat restoration efforts in the Gateway Region.

The Gateway Cities formed a distinct region within the Greater Los Angeles and South Coast area, sharing common traits and issues that differ from other South Coast communities, including:

- Use of the same groundwater basin
- Primary water issues of water quality and storm water runoff
- A relative economic disadvantage within the South Coast and Los Angeles County (While not all Gateway communities meet the strict DWR definition of a disadvantaged community, most are relatively disadvantaged with lower family incomes and relatively higher housing costs when compared to other areas of Los Angeles.)
- Future growth projections
- Common geography
- Generally similar demographics
- Other regional issues, like transportation and air quality, that these cities are already solving jointly

The unified nature of the Gateway Cities and the comparatively diverse scope of the GLAC inspired the formation of the GWMA, and the goal of providing a detailed and focused integrated water plan specifically for the Gateway Cities and the Gateway Region. The GWMA effort would complement the neighboring Greater Los Angeles IRWMP by providing focused planning specifically for the Gateway Region.



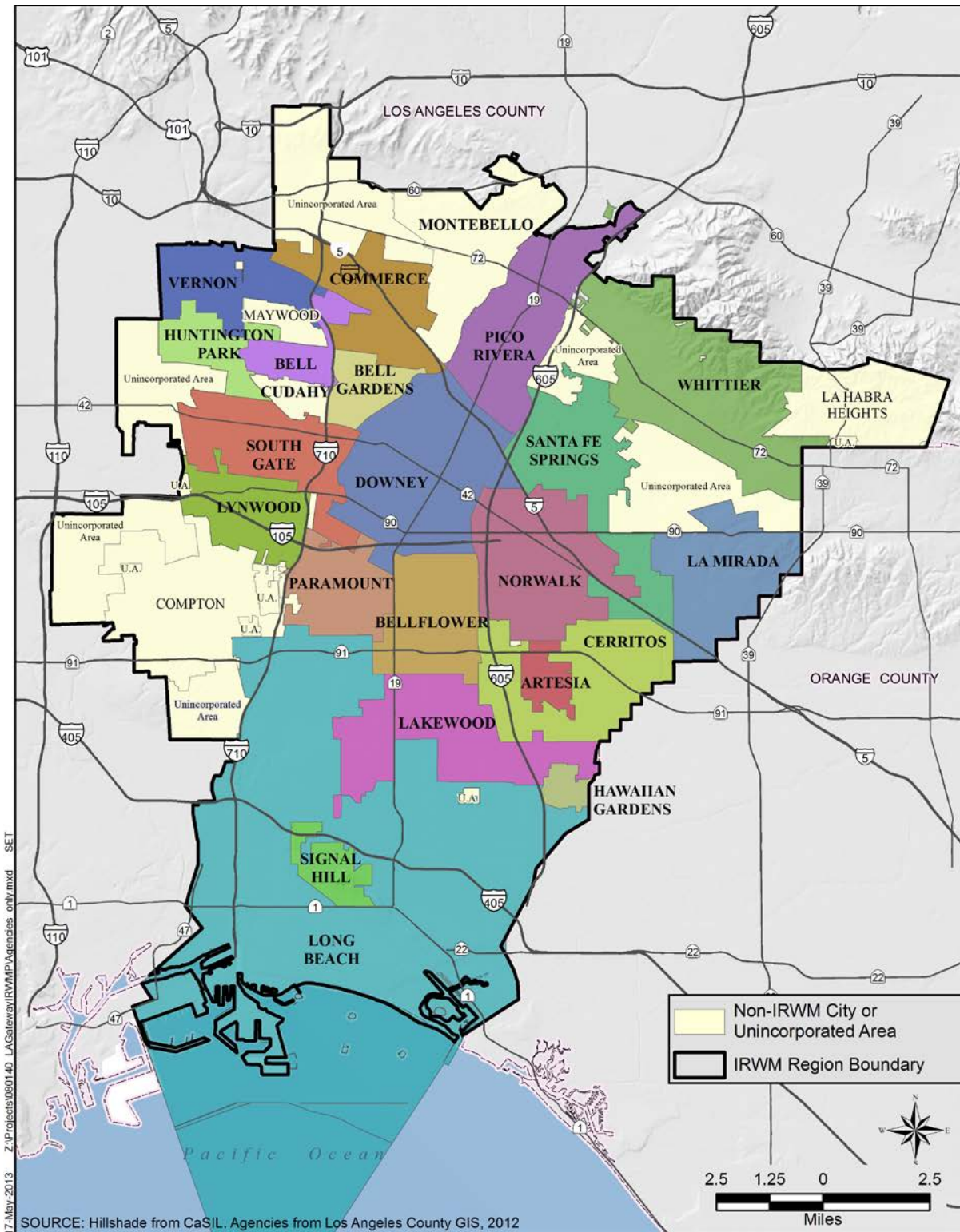
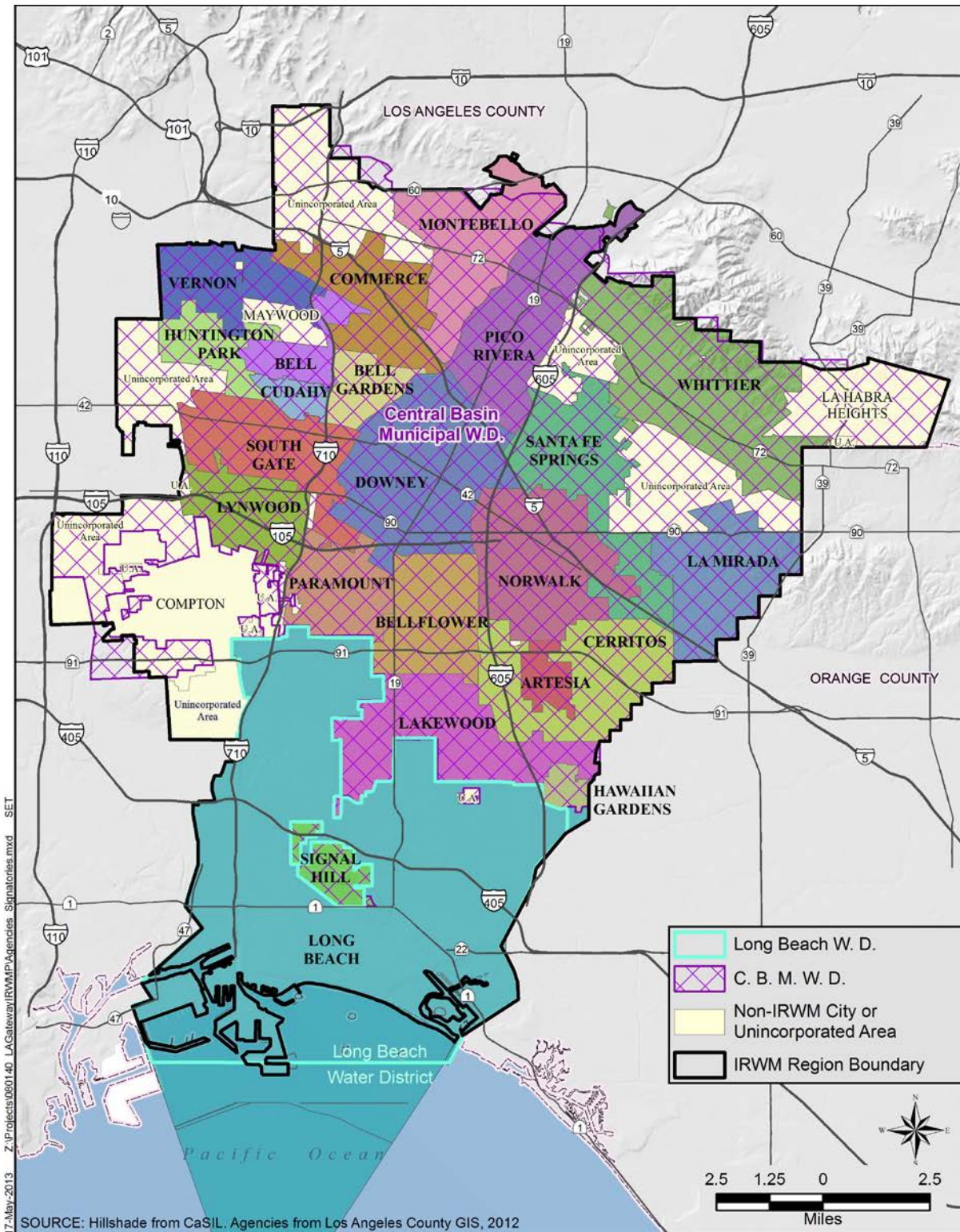


Figure 3-6. Gateway IRWM Region Boundary



**Figure 3-7. Cities and Agencies Participating in the Gateway Region GWMA**



### **3.4.1 Advantages of the Region Boundary**

The Gateway Region boundary encompasses the service areas of multiple local agencies, as shown in Figure 3-7, and maximizes the opportunities to integrate water management activities related to natural and man-made water systems, including water supply reliability, water quality, environmental stewardship, and flood management for the reasons below:

- The Gateway Cities have experience working together successfully in the Gateway Cities Council of Governments to address complex issues.
- The GWMA is currently tackling regional water quality issues, seeking funding for the regional approach to TMDL mandates – Gateway IRWM Storm Drain Catch Basin Retrofit Projects tributary to the Los Angeles and San Gabriel rivers.
- The Gateway Region faces flood control issues given its location in the lower reaches of two major watersheds, and the region boundary maximizes the Gateway Region’s potential to develop solutions that address issues specific to the lower reaches of the system and obtain the funding to carry out the projects.
- The Gateway Region overlies the Central groundwater sub-basin. By sharing that resource they are collectively united in its protection and enhancement.
- There are many opportunities for wetlands restoration in the estuaries of the San Gabriel and Los Angeles Rivers and without coordinated efforts supported by the proposed region boundary, restoration efforts may not be feasible.
- The Region is sized to focus on a reasonable number of problems to solve.

## **3.5 Cities and Water Suppliers**

### **3.5.1 Cities**

#### **3.5.1.1 City of Artesia**

The majority of the land area within the City is developed with single-family homes built between the 1960s and 1980s. Apartments, townhomes and condominiums can also be found throughout the City. Commercial development is mainly located along Pioneer Boulevard, Artesia Boulevard and South Street, along with smaller neighborhood-serving retail centers scattered within residential areas. The City of Artesia is home to about 16,500 residents according to 2010 US Census estimates.

Three companies provide water services in the City of Artesia: Golden State Water Company, County Water Company and Park Water Company. Approximately 87 percent of the City is served by the Southern California Water Company. The SCWC water system in Artesia receives water from the MWD and three active wells, two of which are located in Artesia. County Water Company provides water to approximately 10 percent of the City located in the northern and southeastern portions of the City. The source of water is a water connection with the City of Norwalk and a water connection to the SCWC system. Park Water Company provides water services to approximately 3 percent of the City. The source of water is from groundwater wells with the Company’s Norwalk Water System.

### 3.5.1.2 City of Bell

The City of Bell is served by the California Water Company, Golden State Water Company, Maywood Mutual Water Company, Tract 349 Water Company, and Tract 180 Water Company. According to the 2010 US Census, the City of Bell boasts a population of 35,000 residents, an average household size of 4.05 and a median household income of approximately \$39,109 in 2010 dollars.

### 3.5.1.3 City of Bellflower

Bellflower operates the City of Bellflower Municipal Water System (BMWS). The City itself is located north of Lakewood and its land area is primarily residential, being home to over 75,000 residents.

Historically, the City's residents and businesses have been served by several independent water purveyors. As many as six water purveyors have simultaneously been in operation of separate distribution systems with the City. Recently several system consolidations have occurred reducing the number of water purveyors to three, including the Bellflower Somerset Mutual Water Company, the Park Water Company, and the BMWS.

The BMWS consists of 1,812 service connections to eight sub-systems within the city area. Water supply is served through the operation of City wells or through service interconnections with Bellflower Somerset Mutual and Park Water Companies. Recycled water is also served to the City through both a connection to the CBMWD distribution system and a connection directly from LACSD.

### 3.5.1.4 City of Bell Gardens

The City of Bell Gardens is 2.4 square miles in area and has a population of about 42,072 according to the 2010 US Census. The City of Bell Gardens is served by the Golden State Water Company and the Southwest Water Company. Recycled water is also served to the City through a connection to the CBMWD distribution system.

### 3.5.1.5 City of Cerritos

The City of Cerritos is located on 9 square miles northeast of Lakewood. It serves a population of 51,488 through 15,710 connections, with over 90 percent of those connections serving residential customers. As a built-out city, significant population growth is not expected for the next 25 years.

The City retails water to its customers from both groundwater and imported water indirectly from MWD through CBMWD, while helping to meet non-potable demands with recycled water obtained directly from LACSD. It also wholesales potable water to the Golden State Water Company and the City of Norwalk. Most of the City's water supply is from groundwater pumped through three wells from the Central Groundwater Basin.

#### 3.5.1.6 City of Commerce

Cudahy is primarily residential and has a total population of 12,823 with an average household size of 3.81. Residential, commercial and industrial water services are provided by California Water Service Company throughout 90 percent of the City.

#### 3.5.1.7 City of Cudahy

The City of Cudahy has a total population of 23,854 with an average household size of 4.26 people. Two water utilities, Tract 180 Water Co. and Tract 349 Water Co., which purchase water from CBMWD, serve the City.

#### 3.5.1.8 City of Downey

The City of Downey provides potable water to 96 percent of its city area with the Central Groundwater Basin serving as the principal source of water. The remaining part of the city is served by the City of Santa Fe Springs and the Golden State Water Company. Until recently, the City purchased water from the CBMWD to meet its potable needs. Today it primarily uses groundwater to meet its water demands and only imports potable water from the CBMWD on rare occasions. The City purchases recycled water from CBMWD and keeps emergency interconnections with the cities of Santa Fe Springs and South Gate.

Downey meets the water demands of a population of over 110,000 through 22,545 connections.

#### 3.5.1.9 City of Hawaiian Gardens

The City of Hawaiian Gardens is a general law city, and was incorporated in April 1964. The City encompasses 0.9 square miles, bound by the City of Long Beach to the west and south, the City of Lakewood to the north, and the City of Cypress to the east.

Water service in Hawaiian Gardens is provided by the Golden State Water Company (formerly the Southern California Water Company) Region II Central District – Central Basin East Artesia System. The Central District – Central Basin East Artesia System serves approximately 19,600 customers in the communities of Artesia, Norwalk, Hawaiian Gardens, and portions of Cerritos, South Gate, and Lakewood. The City of Hawaiian Gardens lies within the Golden State Water Company Artesia System and Customer Service Area (Artesia CSA).

#### 3.5.1.10 City of Huntington Park

The City of Huntington Park's Water System currently serves approximately 64,000 people within its service area. With the City being almost completely built-out, significant growth or increase in water demands are not anticipated in future years.

The City of Huntington Park's water system consists of five (5) active wells, two (2) elevated storage tanks and eight (8) ground storage tanks for a total of ten (10) storage reservoirs throughout the City. Potable water is delivered through a pressurized distribution system.

#### 3.5.1.11 City of La Mirada

La Mirada includes two areas north of Imperial Highway: the first bounded by Telegraph Road, Imperial Highway, and Valley View Avenue; and the second bounded by Leffingwell Avenue, La Mirada's eastern city limit, and the western boundary of La Habra. The entire area encompasses 4,611 acres, with approximately 3,841 acres within the City's corporate limits and an additional 770 acres within the sphere of influence.

Suburban Water Systems (SWS) provides potable water supplies in the City. The source of domestic water is both well water and imported water that SWS purchases from MWD. With the addition of two planned water tanks to the SWS system to serve properties in La Mirada, water facilities will be adequate to serve future residents. The City supports water conservation efforts through education, use of drought-tolerant landscaping, application of new technologies, and best management practices. According to 2010 US Census estimates, the City of La Mirada serves a population of approximately 80,000 residents.

#### 3.5.1.12 City of Lakewood

The City of Lakewood Department of Water Resources is a municipal water utility whose operating expenses rely on its potable and recycled water revenues and other water-related funding sources. The utility serves approximately two-thirds of its residents and businesses located west of the San Gabriel River, a population of 66,000, through 20,589 connections while the Golden State Water Company serves the remaining third that lies east of the river. The City utilizes groundwater and recycled water to meet annual water demands. Recycled water is served to the City through a connection to the Cerritos distribution system. Emergency interconnections with other water retailers allow the City to exchange water with its neighbors in emergency situations.

The City expects steady, increasing population growth for the next 25 to 30 years resulting in only minimal changes in water demand.

#### 3.5.1.13 City of Long Beach (Long Beach Water Department)

The Long Beach Water Department (LBWD) has used economically and environmentally desirable means for providing quality water to the City of Long Beach. The LBWD is also a member of the MWD.

LBWD serves a population of 490,100 with an average household size of 2.84 through approximately 90,000 connections. Fifty percent of the water served is purchased wholesale from the MWD while much of the remaining supply is met through groundwater sources or recycled water obtained directly from LACSD. Although the population of Long Beach has increased by 25 percent since the mid-1980s, its dependence on imported water has decreased by 10 percent. This was accomplished through increased use of recycled water, aggressive water conservation practices, and greater reliance on local groundwater supplies. The LBWD has also collaborated with WRD to annually inject 4,200 acre-feet of highly treated recycled water into the seawater barrier instead of using imported drinking water.

The LBWD plans to continue its service to the community, while meeting the demands of a rising population, through increased water reuse and water conservation efforts, conjunctive

use and groundwater storage, and exploration of other environmentally desirable means. The LBWD, along with the U.S. Bureau of Reclamation and the Los Angeles Department of Water and Power, operates the country's largest seawater desalination research facility for exploring the feasibility of the "Long Beach Method" of seawater desalination which could reduce desalination energy requirements by 20 to 30 percent.

#### 3.5.1.14 City of Lynwood

The City of Lynwood is bounded by the cities of South Gate, Paramount, Compton and Los Angeles along with some unincorporated area. The City relies on groundwater, supplemented by imported water and recycled water. The City provides water service to a majority of the city; the Park Water Company serves the area east of Atlantic Avenue and South of Lavinia Avenue. Recycled water is served to the City through a connection to the CBMWD distribution system.

#### 3.5.1.15 City of Montebello

The City of Montebello is comprised primarily of residential land use, with about 8 percent commercial, 16 percent industrial, 5 percent institutional, and 12 percent open space. The population of Montebello is about 62,416 with an average household size of 3.26 people. The residents and businesses of Montebello are served by California Water Service, Montebello Land and Water Company, San Gabriel Valley Water Company, and South Montebello Irrigation District.

#### 3.5.1.16 City of Norwalk

The City of Norwalk operates a retail water agency, the Norwalk Municipal Water System, which receives its water supply from groundwater and imported water from the CBMWD and two other local cities, Cerritos and Santa Fe Springs. Recycled water is also served to the City through a connection to the CBMWD distribution system. The City only serves five noncontiguous service sectors throughout Norwalk, while the remainder is served by Park Water Company, Golden State Water Company, and the cities of Santa Fe Springs and Cerritos through NMWS.

The community is primarily residential with 92 percent of the 4,497 NMWS connections being to residential customers. The remaining 8 percent is comprised of commercial, institutional, and industrial water users. The City serves a population of 21,200 and has experienced moderately slow population growth. This trend is expected to continue through the year 2030.

Over the past 15 years the City has reduced its use of groundwater due to the closure of two wells because of water quality concerns. This has resulted in increased reliance on imported water. This heavy dependence on outside sources could cause several problems for the City in the event of severe water shortages. Consequently, Norwalk has taken steps towards increasing self-sufficiency. It has a comprehensive Water System Improvement Program (WSIP) dedicated to water infrastructure projects, whose highest priority is the Norwalk Park Reservoir Project, which includes a new well and additional water storage to increase overall

water system reliability. In addition, the City would also like to increase its use of recycled water.

#### 3.5.1.17 City of Paramount

The City of Paramount is located north of Long Beach, between the Los Angeles and San Gabriel Rivers. Incorporated in 1957, it comprises 4.8 square miles and serves a balanced combination of 58,087 residential, commercial, and industrial through 7,700 connections. The City's water demand has grown 23 percent over the past 20 years due to population increases and land use development, economic growth, and climate variation. Since the city is nearly built-out, Paramount anticipates smaller increases in population growth for the next 25 years.

The City relies on three water sources including groundwater, imported surface water, and recycled water. The City has interconnections with the LBWD. Groundwater is pumped from the Central Groundwater Basin through two wells and meets about half of the City's water needs. Imported surface water is acquired from the CBMWD. Recycled water is served to the City through a connection to the CBMWD distribution system. The City provides incentives to customers connecting to the recycled water system. The City's interconnections with LBWD serve as an alternate water source in the event of an emergency or during maintenance and repair of the other CBMWD connections.

#### 3.5.1.18 City of Pico Rivera

The City of Pico Rivera lies between the Rio Hondo and San Gabriel Rivers. In May 1999, the Pico Rivera Water Authority (PRWA) was formed as successor to the City's Water Department. The City is served by two water purveyors, PRWA (70 percent) and the Pico Water District (30 percent). The City is dependent on groundwater as its source of supply. Recycled water is also served to one irrigation site in the City through a connection to the CBMWD distribution system.

#### 3.5.1.19 City of Santa Fe Springs

The City of Santa Fe Springs encompasses 9 square miles located northeast of Norwalk and it serves a population of 17,700 through 5,877 connections. Approximately 90 percent of the land area is zoned for commercial and industrial use, which causes high daytime and low nighttime demands. The remaining 10 percent is dedicated to residential area which is virtually fully developed.

The City's potable water system is supplied by two wells, two MWD connections, and two 4MG reservoirs. It pumps 100 percent of its Central Basin groundwater rights and its irrigation needs are met using recycled water in many locations. Recycled water is served to the City through a connection to the CBMWD distribution system. Although the City does not anticipate significant increases in water use, it is committed to water conservation and recycling programs and has implemented several Demand Management Measures (DMMs) in the service area such as water survey programs, residential plumbing retrofit, and public information programs.



#### 3.5.1.20 City of Signal Hill

The City of Signal Hill has an average household size of 2.56. The Water Division of the City's Public Works Department serves a population of 11,089 through 2,902 connections. Recycled water is also served to the City through a connection to the LBWD distribution system.

#### 3.5.1.21 City of South Gate

The City of South Gate primarily relies on groundwater pumping of the Central Groundwater Basin to serve a population of over 101,000 at an average household size of 4.15 through 23,000 connections. Hollydale, a small section in the northern portion of the city, is served by the Golden State Water Company. Although it is a member of the CBMWD, the City does not purchase imported water from it. Recycled water is also served to the City through a connection to the CBMWD distribution system. Water shortages are not anticipated for South Gate, but the City is considering conjunctive water use to help in meeting future water needs.

The City also participates in the Member Agency Response System (MARS) which was developed by the MWD to improve emergency response and expedite mutual aid to participating agencies.

#### 3.5.1.22 City of Vernon

The City of Vernon has three water sources: groundwater, recycled, and imported water. Recycled water and imported water are purchased through the CBMWD. The City has very few permanent residents and its service area is primarily comprised of commercial and industrial users, taking up 94 percent of the supply and 97 percent of the 1,400 connections.

The City's service area is completely built-out and no substantial population or service connection increases are anticipated. In fact, new water demands have been decreasing 1-2 percent per year since 2000 partially due to more efficient commercial and industrial usage, overall conservation efforts, and a general slow-down in the region's economy. As a part of their efforts towards local sustainability and water conservation, the City has begun purchasing 1,438 AFY of recycled water from the CBMWD and has constructed 10,000 linear feet of pipeline in anticipation of purchasing more recycled water in the near future.

#### 3.5.1.23 City of Whittier

The City of Whittier delivers water to about 60 percent of the City's population through 11,576 connections serving 48,000. The remaining 40 percent is served by Suburban Water Systems, the California Domestic Water Company, and the San Gabriel Valley Water Company.

Whittier's main water resource is groundwater from the Main San Gabriel and Central Basins. Recycled water is also served to the City through a connection to the CBMWD distribution system. The City has not needed to import water due to a primary use of groundwater and recycled water, and the implementation of conservation and future water supply programs.

### **3.5.2 Water Companies**

In addition to the many cities that are water retailers, there are a number of water companies among the water suppliers in the region. The following entities serve portions of the Gateway Region:

- Bellflower-Somerset Mutual Water Company
- Bellflower Home Gardens Water Company
- Golden State Water Company
- San Gabriel Valley Water Company
- California Water Service Company
- Suburban Water System
- Park Water Company

#### **3.5.2.1 Bellflower-Somerset Mutual Water Company**

The Bellflower-Somerset Mutual Water Company provides domestic water service to approximately half of the City of Bellflower and is a member agency of Central Basin Municipal Water District and Metropolitan Water District.

#### **3.5.2.2 Bellflower Home Gardens Water Company**

The Bellflower Home Gardens Water Company serves about 4 percent of the City of Bellflower.

#### **3.5.2.3 Golden State Water Company**

The Golden State Water Company service area extends throughout California via 21 different service areas. The Central Basin West service area serves approximately 20,000 customers in the cities of Bell, Bell Gardens, Cudahy, Hollydale, Huntington Park, Paramount, South Gate, Vernon, Willowbrook and adjacent unincorporated area. The Central Basin East service area serves approximately 20,000 customers in the cities of Artesia, Downey, Hawaiian Gardens, La Mirada, Lakewood, Long Beach, Norwalk, Santa Fe Springs, and adjacent unincorporated area.

#### **3.5.2.4 San Gabriel Valley Water Company**

The company provides water utility service to a population of over 481,000 in the company's Los Angeles County and Fontana Water division service areas. Gateway cities within the San Gabriel Valley Water Company service area include all or portions of Montebello, Pico Rivera, and Santa Fe Springs.

#### **3.5.2.5 California Water Service Company**

California Water Service Company (Cal Water) is an investor-owned public utility supplying water service to 1.7 million Californians through 435,000 connections. Its 24 separate water systems serve 63 communities from Chico in the North to the Palos Verdes Peninsula in Southern California.

The service area encompasses a large section of unincorporated Los Angeles County known as East Los Angeles, and portions of the cities of Montebello (20 percent), Commerce (85 percent), and Vernon (10 percent). The system is bounded on the west and north by the City of Los Angeles, on the north by the city of Monterey Park, on the east by the city of Montebello, and on the south by the cities of Commerce, Bell, and Vernon. The Los Angeles River is a portion of the District's southern boundary.

#### 3.5.2.6 Suburban Water System

Suburban is a retail water company (Investor-owned Utility) that currently serves approximately 293,000 people within its service area. Suburban is located in Southern California, approximately 20 miles east of the City of Los Angeles. Most of Suburban's service area is located within Los Angeles County, with the exception of small areas located in unincorporated portions of Orange County.

Suburban has the legal right to pump groundwater from both the Main Basin and Central Basin and can purchase treated surface and groundwater from CIC, treated groundwater from CDWC and imported surface water from MWD through its member agencies, Upper District, CBMWD and TVMWD. Suburban serves the cities of Glendora, Covina, West Covina, La Puente, Industry, Walnut, Whittier, La Mirada, La Habra, and Buena Park, as well as sections of unincorporated Los Angeles County (including Valinda and Hacienda Heights) and Orange County. The Suburban service area is currently divided into two main service areas: the San Jose Hills Service Area and the Whittier/La Mirada Service Area, which includes cities in the Gateway Region.

The Whittier/La Mirada Service Area is the successor of the former Whittier Water Company, La Mirada Water Company, and the Murphy Ranch Mutual Water Company. The Service Area has approximately 33,000 service connections within the cities of Whittier, La Mirada, La Habra, and Buena Park, and unincorporated areas of Los Angeles County and Orange County.

#### 3.5.2.7 Park Water Company

Park Water Company, originally named the Los Nietos Water Company, was formed in the post-Great Depression era for the purpose of providing water to the residents east of the Los Angeles River, north and south of Rosecrans. In 1937, this water company became incorporated as Park Water Company. Over the years, Park's service area continued to grow, and by the 1960s, Park had over 42,000 service connections. Today Park has approximately 27,000 service connections, and owns two additional water companies with an additional 44,200 service connections.

Park's service area is divided into three non-contiguous water systems including the Compton/Willowbrook Water System, the Lynwood/Rancho Dominguez Water System and the Bellflower/Norwalk Water System.

### **3.5.3 Water Wholesalers and Groundwater Suppliers**

Most cities and water purveyors within the Gateway Region get a portion of their raw water supply from water wholesalers. Wholesalers, in turn, buy water from other wholesalers, obtain water from the California State Water Project, or import water from the Colorado River. Wholesale agencies have the option to join the GWMA as members, or they may choose only to participate in the open process. Almost all retailers use groundwater, which requires involvement of the groundwater management agencies. The following water agencies are stakeholders in the Gateway IRWMP:

- Metropolitan Water District of Southern California (MWD)
- Water Replenishment District of Southern California (WRD)
- Central Basin Municipal Water District (CBMWD)

#### **3.5.3.1 Metropolitan Water District of California (MWD)**

The Metropolitan Water District was formed in 1927 and incorporated in 1928 as a wholesale water agency serving a population of nearly 18 million in Southern California. The Gateway Region is in Los Angeles County, which is one of six counties serviced by the MWD. MWD has 26 member agencies, two of which are Gateway Cities; the City of Long Beach and the City of Compton, which have been members since 1931. Water sources for MWD include the State Water Project and the Colorado River. MWD built, owns, and maintains the Colorado River Aqueduct (CRA), which began operation in 1941.

#### **3.5.3.2 Water Replenishment District of Southern California (WRD)**

The WRD, formed in 1959, is the groundwater management agency for 43 cities in the southern Los Angeles County region. The WRD manages artificial replenishment and groundwater quality protection efforts in the Central and West Coast Basins including groundwater monitoring, quality, and replenishment programs. They are also responsible for purchasing the water for the injection wells for the seawater barrier projects and water for spreading at the Rio Hondo and the San Gabriel Coastal spreading grounds.

#### **3.5.3.3 Central Basin Municipal Water District (CBMWD)**

CBMWD, which services the Gateway Cities, has been a member of the MWD since 1954. CBMWD is a public agency that purchases imported water from MWD and recycled water from LACSD and wholesales that water to cities, mutual water companies, investor-owned utilities, and private companies. CBMWD is one of the largest member agencies of the MWD and also provides the region with recycled water for municipal, commercial, and industrial use. There are 24 cities in CBMWD's service area (see Figure 3-7). CBMWD's service area uses approximately 315,000 acre-feet of water annually. CBMWD provides operational flexibility and reliability for the region.

### **3.5.4 Wastewater Agencies**

The Los Angeles County Sanitation Districts has statutory responsibility to provide wastewater collection and treatment in the region.

## 3.6 Ecological Resources

The Gateway Region is primarily build-out urban environmental with limited remaining areas that are natural habitat or which would be defined as a significant ecological resource. Sensitive plant and animal areas are presented in Figure 3.8. Most of the river corridor was lined long ago for flood control purposes and has limited but important remaining ecological value. What limited area remains is being managed and protected through the land use planning process under the Cities and County General Plans and related planning efforts (See Chapter 14 and Section 18.5). Even with limited ecological resources, the Gateway IRWMP seeks to preserve and maintain the value of the resources that remain.

Figure 3.9 is a map of Significant Ecological Area (SEA). The SEA Program is a component of the Los Angeles County General Plan Conservation/Open Space Element. SEAs are ecologically important land and water systems that support valuable habitat for plants and animals, often integral to the preservation of rare, threatened or endangered species and the conservation of biological diversity in the County. While SEAs are not preserves, they are areas where the County deems it important to facilitate a balance between development and resource conservation. Development activities in the SEAs are reviewed closely in order to conserve fragile resources such as streams, oak woodlands and threatened or endangered species and their habitat. The County maintains an inventory of biotic resources and identifies important areas of biological diversity. Today, the primary mechanism used by the County to conserve biological diversity is a planning overlay called Significant Ecological Areas (SEAs) designated in the County's General Plan<sup>1</sup>. Together the General Plan overlay and the SEA conditional use permit process are referred to as the SEA Program.

Proposed SEAs are depicted within cities to show the extent of biological resources within an ecological system. However, the County has no land use jurisdiction within cities, therefore the SEA designations do not apply within city boundaries, nor do County regulations. Cities have their own General Plans and environmental preservation programs unrelated to the County. It is up to each individual city to decide how they will conserve the natural resources within their boundaries.

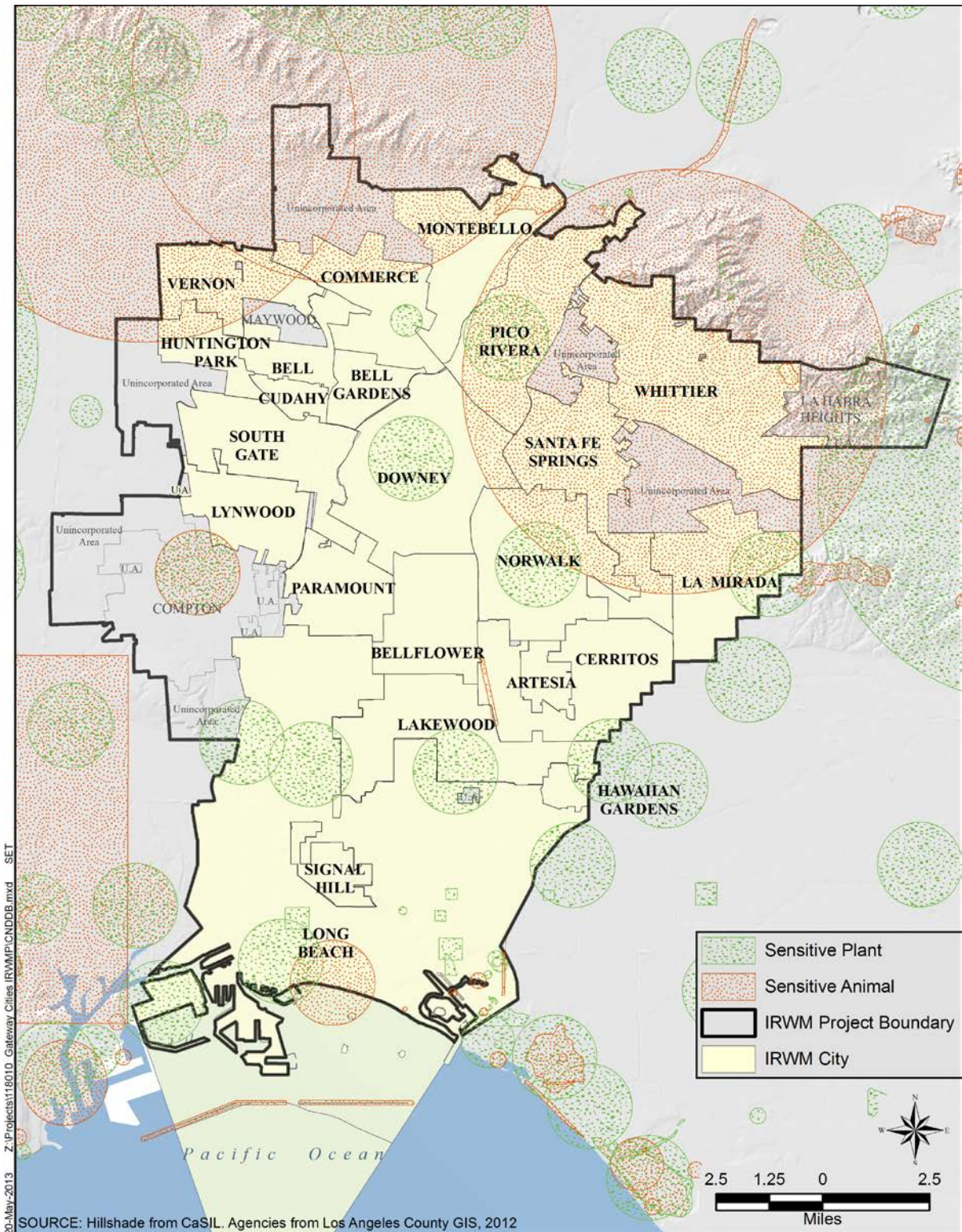
### 3.6.1 Puente Hills SEA

Located in the eastern part of the Gateway Region, Puente Hills SEA is an important ecological resource. The Puente Hills separate the San Gabriel Valley to the north and the coastal plain to the south. The hills stretch from the San Gabriel River on the west approximately to the San Bernardino-Los Angeles County line to the east, where they transition into the Chino Hills.

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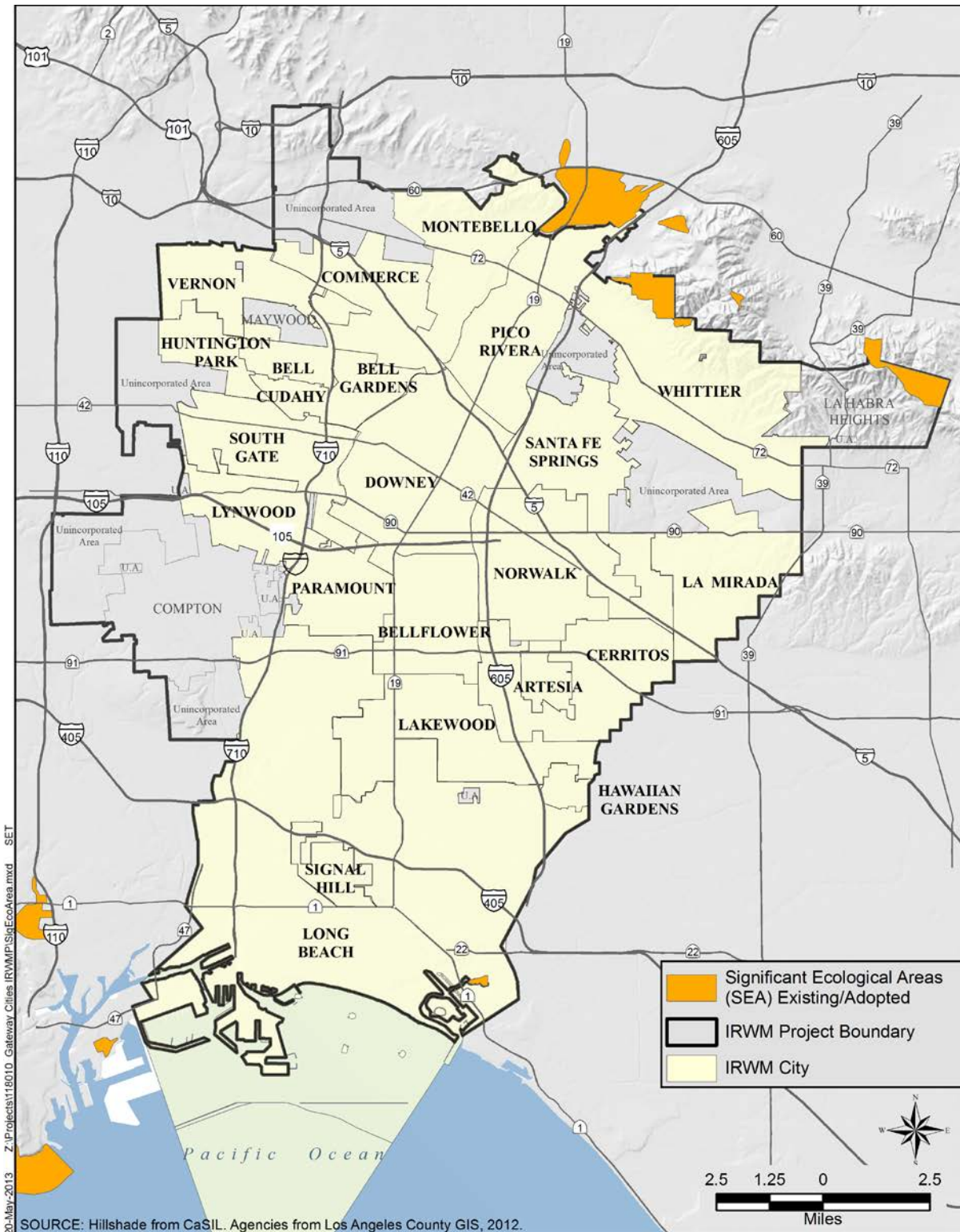
<sup>1</sup> See Appendix E of the draft L.A. County General Plan. <http://planning.lacounty.gov/sea>. The full text of the most recent draft General Plan (Spring 2012) is available at <http://planning.lacounty.gov/generalplan/draft2012>. Portions of this document are reproduced or summaries here.





**Figure 3-8. Sensitive Plant and Animal Areas**





**Figure 3-9. Sensitive Ecological Areas**



The SEA includes portions of the Whittier Narrows Dam Recreation Area and Flood Control Basin, and much of the undeveloped land throughout the Puente Hills. Nearly the entire SEA is designated as the Puente-Chino Hills State Important Bird Area (IBA). The main area hosts migrating and resident birds that use the extensive mosaic of lowland terrestrial habitats, and notable extensive areas of grassland and oak and walnut woodlands. This IBA extends well beyond the SEA into Orange and San Bernardino counties, and in general, goes beyond the SEA boundaries in most places. The northwestern area is part of the Los Angeles Flood Control Basin IBA that hosts many resident and migrating birds that use the wetlands. This IBA extends beyond the SEA on both the Rio Hondo and a long distance upstream along the San Gabriel River. This area is part of critical habitat for the gnatcatcher.

The SEA has a finger that extends from the Montebello Hills section over San Gabriel Boulevard to the oak woodland (among oil field structures) that borders the Rio Hondo Channel. The SEA finger continues upstream along the natural riparian course of the Rio Hondo to a point where the Rio Hondo is encased as a concrete flood control channel. This area of the Rio Hondo usually has water and is on the migration route for migrating and wintering waterfowl.

#### *3.6.1.1 Vegetation*

A number of areas contain relatively undisturbed examples of woodland, shrubland, grassland and wetland communities that once existed throughout the inland hills complex of the Los Angeles Basin. Included among these habitats are excellent examples of oak woodland, oak riparian forest, southern willow scrub and walnut woodland. Intermixed with these are stands of mixed chaparral, coastal sage scrub and grasslands, which taken as a whole, form a valuable wildlife habitat unit of regional importance.

Good examples of the variety of riparian habitat are found near the Whittier Narrows Nature Center, including lowland riparian and freshwater marsh habitat, rich soils deposited from flood waters, and impressive streamside vegetation of willows, sycamores, cottonwoods, and mulefat.

The SEA supports several habitat types considered sensitive by resource agencies. These are inventoried by California Department of Fish and Game (CDFG) in the California Natural Diversity Database (CNDDDB) [2011]. The CNDDDB includes state and federally-listed endangered, threatened, and rare vascular plants, as well as several sensitive vertebrate species. These communities include Engelmann oak woodland, Southern California black walnut groves, chamise-white sage chaparral, holly leaf cherry chaparral, California brittle bush scrub, bush penstemon scrub, white sage scrub, Wright's buckwheat patches, sawtooth golden bush scrub, and pickleweed mats.

#### *3.6.1.2 Wildlife*

Wildlife within the SEA has been frequently documented to be very diverse and abundant due to the large acreage of natural open space, the diversity of habitat types, and regional connectivity. While a few wildlife species are entirely dependent on a single vegetative community, the entire mosaic of all the vegetation communities within the SEA and

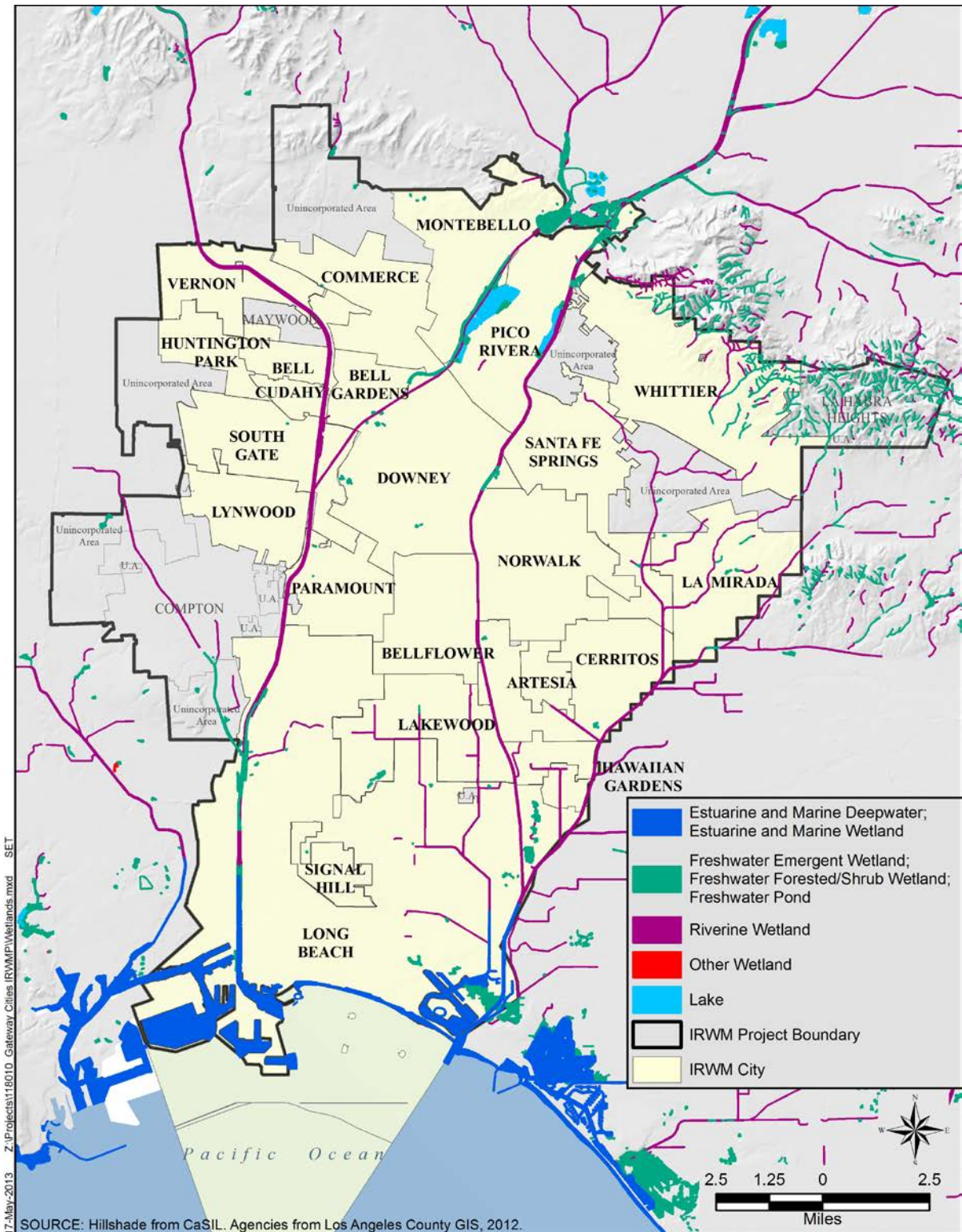
connected areas constitutes a functional ecosystem for a wide variety of wildlife species. This includes areas within the SEA as well as the regional ecosystem.

Analysis of invertebrates on any given site generally is limited by a lack of specific data; however, the size of the SEA and diversity of habitats present is considered sufficient to encompass healthy populations of a large number of invertebrate species. Amphibian populations are generally restricted in semi-arid and arid habitats, but may be particularly abundant where riparian areas occur. The SEA is likely to support a variety of amphibians in abundance within wetland areas along the major canyon bottoms and the moister oak woodland areas. The scrubland, woodland, riparian, and grassland habitats in the SEA provide foraging and cover habitat for year-round residents, seasonal residents, and migrating song birds. Unlike many other inland hills within the Los Angeles Basin, this SEA is large enough to support relatively stable large mammal populations despite the urban surroundings. There are a number of sensitive animal species that do or could occupy the Puente Hills SEA.

### **3.6.2 Wetlands and Riparian Habitat**

Due to the extensive development in the watersheds there is limited wetland and riparian resources remaining (Figure 3.10). There has been a considerable amount of work that has been underway for a number of years to preserve remaining wetlands, including the Los Cerritos and Colorado Lagoon. Additionally, the Southern California Wetlands Recovery Project ([www.scwrp.org](http://www.scwrp.org)) has supported acquisition of sites along the Los Angeles River for future wetlands restoration. The goal of the Southern California Wetlands Recovery Project is to accelerate the pace, the extent, and the effectiveness of coastal wetland restoration through developing and implementing a regional prioritization plan for the acquisition, restoration, and enhancement of Southern California's coastal wetlands and watersheds. The Los Angeles County Task Force is a subgroup of the Southern California Wetlands Recovery Project, serves as a forum to share information and promote community-based participation in protection and restoration of coastal wetlands and watersheds in Los Angeles County. Consistent with the approach and goals of the GWMA, the Los Angeles County Task Force priorities include:

- Project Review and Technical Support
- Wetlands Recovery Project Support and Input
- Information and Resource Sharing
- Communication and Collaboration Building
- Local Policy Support
- Training and Education



**Figure 3-10. Wetland, Riparian and Related Resources**

### **3.6.3 Marine Resources**

The Gateway Region watershed drains to the Pacific Ocean via the Long Beach Marina and can therefore affect ocean and marine resources. The City of Long Beach owns and operates two large marinas and one smaller marina which constitutes the largest municipally owned marina operation in the nation. The Long Beach Marina includes Alamitos Bay Marina, Long Beach Shoreline Marina (Downtown Marina), and Rainbow Harbor/Rainbow Marina. Currently the downtown Rainbow Marina has 86 boat slips, the downtown Shoreline Marina has 1,744 slips and the Alamitos Bay Marina has 1,967 slips. Long Beach also has five public boat launches: Davies, Claremont, Granada, Marine Stadium and South Shore. Everything from powerboats and jet skis, sailboats, windsurfers, skulls, catamarans and kayaks can be launched from Long Beach shores.

The Alamitos Bay water area encompasses 258.25 acres and includes Los Cerritos Channel (24.31 acres), Naples Canals (7 acres), the entrance channel (31.43 acres), and Basins 1,2,3,4,6 and 7 Marinas 6 (30.3 acres). A total of 8.18 acres house businesses and organizations such as the Pacific Coast Sailing Center, Alamitos Bay Yacht Club, Long Beach Yacht Club, Marina Maintenance Yard, Crab Addison/LB Pelican site, Crab Pot Restaurant and Little Ships Fleet. The Sea Scouts have facilities on 1.58 acres of Alamitos Bay land.

Rainbow Harbor is located next to the Aquarium of the Pacific, and has 87 slips for commercial vessels, (16) 30-foot slips and a 200-foot long dock for day guests. All guest mooring is first come, first serve. Rainbow Harbor has (12) 150-foot docks for commercial vessels. Shoreline Village, and soon a large shopping complex, which will be built by Oliver Macmillan DDR developers, surrounds Rainbow Harbor. Roller blades, bikes and walkers share a path that runs along the beach from the Downtown Marina to the Alamitos Bay peninsula.

### **Beaches**

Located between the Los Angeles and San Gabriel rivers, Long Beach has approximately 247 acres of beaches and 11 miles of shoreline. Although the beach property is owned by the State, the City retains responsibility for maintaining the beach and beach facilities. Currently it is estimated that the annual visitation rate to these beaches is 7.5 million visitors. The water is relatively calm as a result of the extensive federal breakwater along the City's coastline. But beach conditions and water quality are challenged when storms occur in the Los Angeles basin and polluted urban runoff flows down the Los Angeles and San Gabriel rivers and washes up on our shores.

## **3.7 Demographics**

The Gateway IRWM has the most densely developed commercial and industrial land use along with the least amount of open space in the L.A. area, which creates unique water quality challenges due to its own extensive urbanization. It is also located downstream from a large metropolitan area.

### **3.7.1 Population, Housing, and Income**

Based on year 2010 Census estimates, the Gateway Cities are home to more than two million people over a land area of just over 200 square miles. The per capita income is about \$19,000. The area is nearly built-out with a household annual growth rate of less than 2 percent and a median household income of about \$53,000. Additionally, the Gateway Cities include several disadvantaged communities and unemployment for the region is relatively high.

Table 3-1 summarizes basic demographic information for the participating Gateway cities. Data is based on 2010 American Community Survey Data, available from American Fact Finder at <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

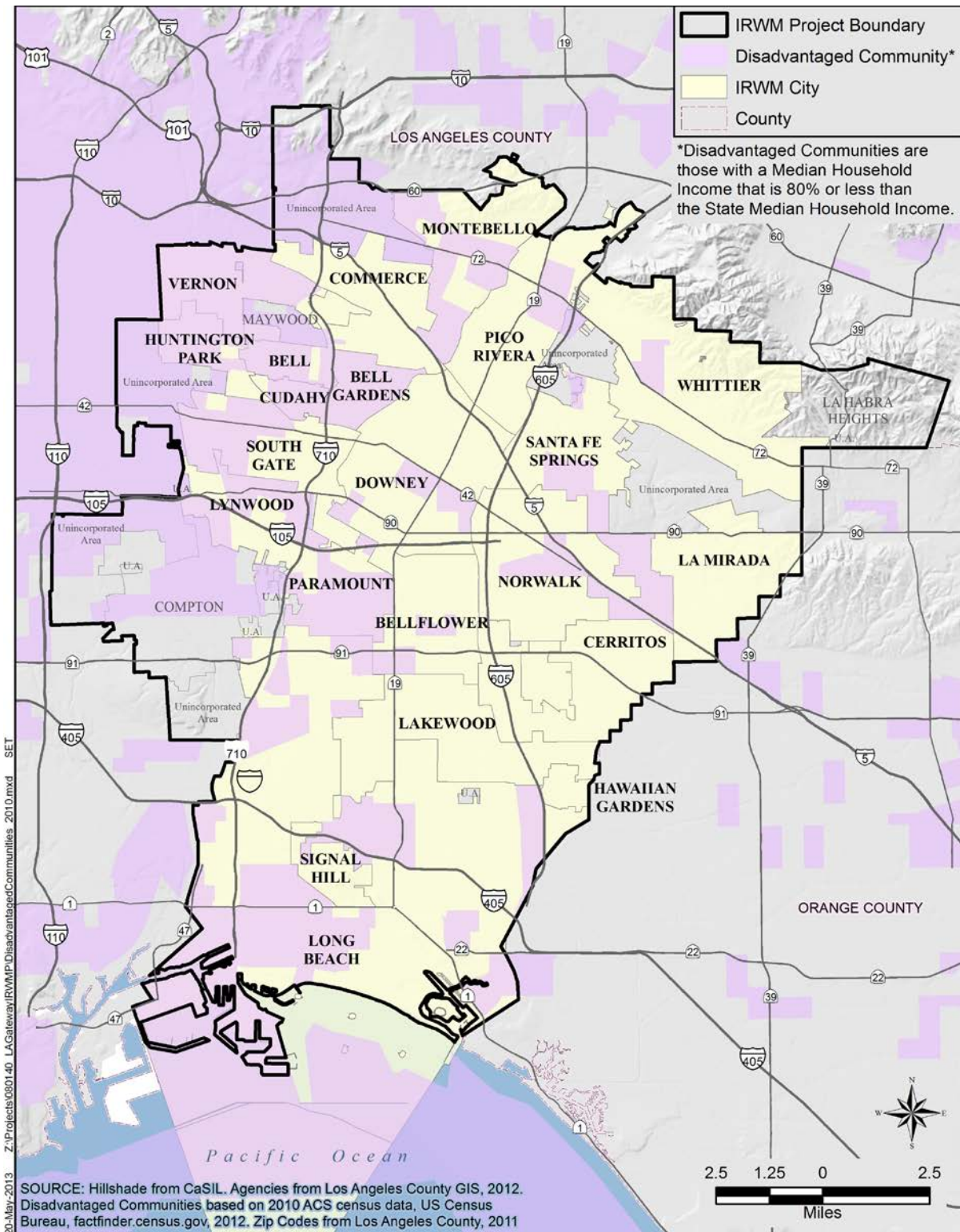
Approximately 47 percent of the households within the larger Gateway regional boundary are considered disadvantaged (Figure 3-11).

**Table 3-1. Gateway Cities Region Demographics**

City	Ave. Household Size	Median Household Income	Per Capita Income	Individuals Below Poverty Level	Families Below Poverty Level	Population 16 & Over	Unemployment Rate <sup>3</sup>
Artesia	3.44	\$56,777	\$21,032	15.80%	8.10%	77.40%	8.10%
Bell <sup>1</sup>	3.82	\$38,473	\$12,671	39.70%	20.50%	66.30%	10.50%
Bellflower <sup>1</sup>	3.13	\$50,565	\$20,345	21.50%	10.50%	70.20%	7.30%
Bell Gardens <sup>1</sup>	4.18	\$39,167	\$12,146	29.60%	22.00%	64.60%	8.10%
Cerritos	3.3	\$88,743	\$32,778	19.40%	5.80%	76.60%	7.00%
Commerce	3.89	\$50,667	\$15,773	34.90%	13.40%	66.60%	9.00%
Compton <sup>1</sup>	4.06	\$43,201	\$13,542	35.40%	20.10%	64.40%	13.00%
Cudahy <sup>1</sup>	4.26	\$41,805	\$12,084	32.50%	24.20%	63.40%	10.10%
Downey <sup>1</sup>	3.28	\$59,674	\$22,731	22.00%	7.90%	71.40%	9.70%
Hawaiian Gardens	3.86	\$52,034	\$15,515	20.80%	13.80%	72.50%	7.00%
Huntington Park <sup>1</sup>	4.03	\$37,224	\$12,563	39.60%	22.80%	68.30%	8.10%
La Habra Heights	3.05	\$121,380	\$53,711	15.70%	1.00%	75.70%	5.60%
La Mirada	3.19	\$79,347	\$28,367	23.10%	3.90%	76.60%	7.20%
Lakewood	3.09	\$77,380	\$28,764	13.70%	3.00%	74.80%	6.40%
Long Beach <sup>1</sup>	2.8	\$51,173	\$25,929	24.70%	15.40%	73.50%	10.10%
Lynwood <sup>1</sup>	4.22	\$43,654	\$12,674	30.70%	18.40%	68.10%	10.50%
Maywood <sup>1</sup>	4.15	\$38,740	\$12,164	36.70%	21.20%	65.80%	12.10%
Montebello <sup>1</sup>	3.26	\$50,881	\$20,373	24.90%	12.50%	72.90%	8.40%
Norwalk <sup>1</sup>	3.73	\$60,488	\$19,302	28.00%	9.10%	72.60%	9.80%
Paramount <sup>1</sup>	3.72	\$41,333	\$13,936	27.30%	18.00%	66.60%	10.20%
Pico Rivera <sup>1</sup>	3.8	\$57,594	\$18,118	18.30%	10.10%	73.70%	6.90%
Santa Fe Springs <sup>1</sup>	3.45	\$54,252	\$18,466	24.70%	5.60%	73.30%	10.00%
Signal Hill	2.5	\$70,286	\$36,509	20.10%	2.30%	79.20%	11.50%
South Gate <sup>1</sup>	3.97	\$53,268	\$13,913	33.50%	17.80%	68.70%	11.00%
Vernon <sup>1</sup>	3.46	\$38,625	\$14,898	85.70%	0.00%	71.10%	5.40%
Whittier <sup>1</sup>	3.03	\$65,308	\$26,943	21.90%	7.00%	73.80%	7.70%

1. City or community with disadvantaged areas.
2. Source: 2010 American Community Survey Data 5-year Estimates





**Figure 3-11. Disadvantaged Communities within the Gateway Region**



### 3.7.2 Land Use

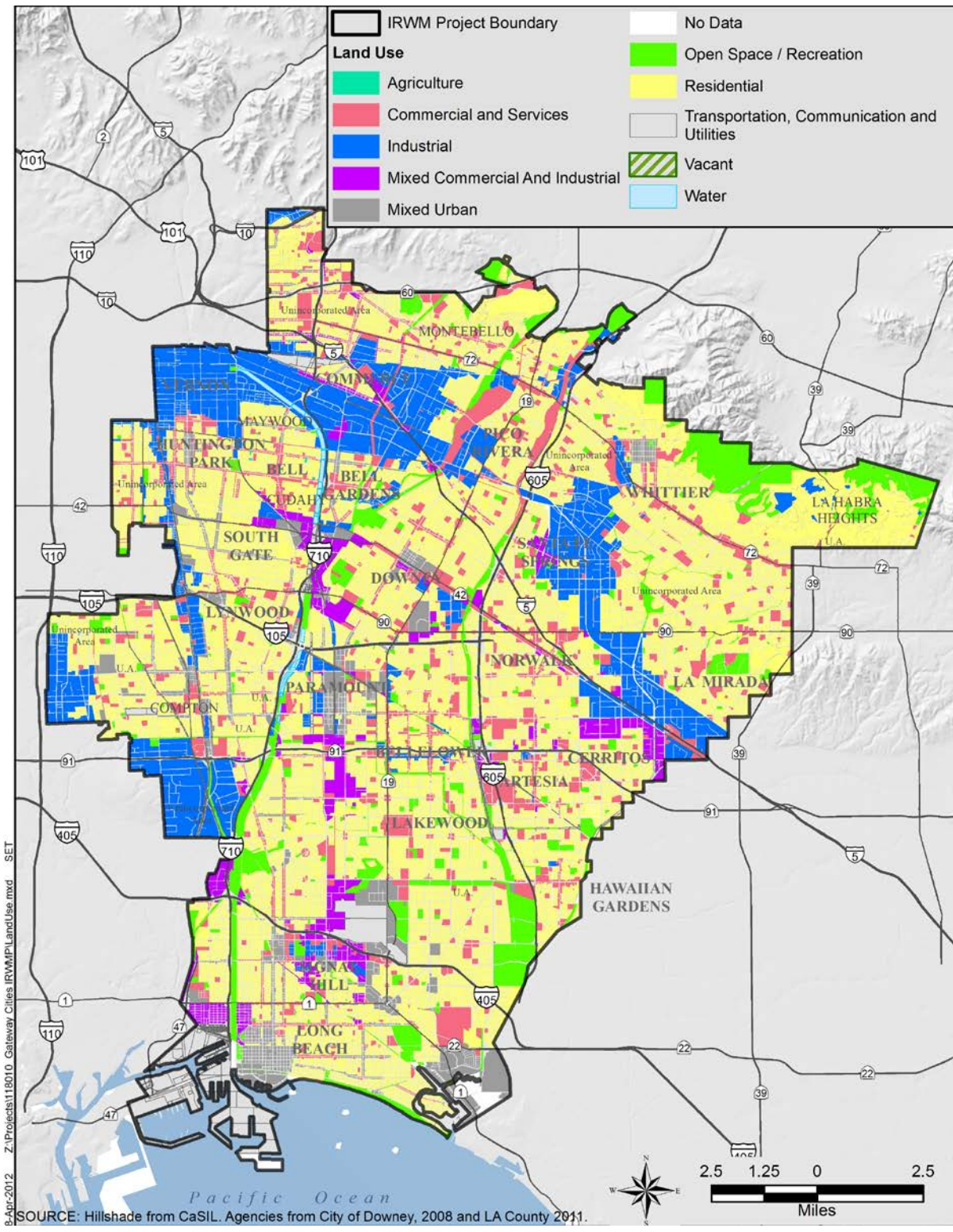
Most of the Gateway cities are built-out and growth would come from infill and redevelopment (see Table 3-2, Figure 3.12). Redevelopment that replaces a former manufacturing use is not expected to result in increased water demand as manufacturing processes generally require significantly more water than residential or commercial demand. However, changes in densities from single family to multi-family residential may have a greater effect.

**Table 3-2. Summary of Land Use in the Gateway Region**

City/Community	Land Use Estimates (acres) <sup>1</sup>						Total
	Residential	Commercial / Services	Industrial	Commercial / Industrial	Open Space/ Recreation	Other <sup>2</sup>	
Artesia	743	283	21	0	16	7	1,070
Bell	599	217	401	0	0	0	1,217
Bell Gardens	963	226	163	0	140	97	1,589
Bellflower	3,234	675	180	0	219	2	4,310
Cerritos	3,499	936	0	734	248	347	5,764
Commerce	356	322	2,335	275	0	290	3,578
Compton	2,888	648	982	0	181	1,108	5,807
Cudahy	586	143	0	73	0	0	802
Downey	6,597	1,291	659	383	547	393	9,870
Hawaiian Gardens	1,428	171	14	0	2	33	1,648
Huntington Park	1,308	357	225	0	40	395	2,325
La Habra Heights	2,571	29	194	0	880	0	3,674
La Mirada	8,807	567	696	0	321	13	10,404
Lakewood	6,520	425	0	178	818	0	7,941
Long Beach	26,170	2,460	0	1,607	3,396	28,890	62,523
Lynwood	1,450	379	214	0	50	137	2,230
Maywood	432	37	46	0	13	54	582
Montebello	6,678	630	797	0	1,394	35	9,534
Norwalk	6,080	944	147	161	114	43	7,489
Paramount	4,619	259	243	42	37	1,698	6,898
Pico Rivera	3,003	1,533	816	0	297	0	5,649
Santa Fe Springs	706	287	3,624	152	139	226	5,134
Signal Hill	3,101	196	294	297	28	86	4,002
South Gate	2,340	42	148	516	14	774	3,834
Vernon	0	0	2,816	0	0	2	2,818
Whittier	6,139	1,048	266	0	1,857	190	9,500
Unincorporated Area	11,155	2,118	2,894	94	587	273	17,121
<b>Total</b>	<b>111,972</b>	<b>16,223</b>	<b>18,175</b>	<b>4,512</b>	<b>11,338</b>	<b>35,093</b>	<b>197,313</b>

1: Agricultural land use is not included in this table. The only agricultural land use in the Gateway Region is in the City of Bell, totaling about 11 acres.

2: Includes parcels designated by the Los County Department of Regional Planning as Mixed Urban; Transportation, Communication and Utilities; and No Data



**Figure 3-12. Land Use**

### **3.7.3 Parks and Open Space**

Parks and recreational facilities are used for various purposes by a wide range of users. Because the needs of park users are diverse, no individual park or recreational facility can meet the needs of all users. Therefore, a diverse and comprehensive system of facilities is needed to provide a wide range of recreational opportunities.

The local park system consists of parks of varying sizes that meet local needs and offer opportunities for daily recreation. This includes the regional park system and smaller network of community parks, neighborhood parks, pocket parks, and park nodes. The regional park system is intended to meet the park and recreation needs of residents and visitors throughout the County. This system consists of community regional parks, regional parks, and special use facilities and regional parks are typically 20 to 100 acres, and have a service radius of 20 miles. Figure 3.13 presents the parks and open space areas within the Gateway Region.

The Gateway Region communities are underserved in terms of access to parks and open space. There are large areas of the County that are underserved by parks and recreational facilities. Nearly two out of three children in the County do not live within walking distance (one quarter mile) of a park, playground, or open space. The LA County Department of Parks and Recreation conducted a preliminary gap analysis to determine the County's need for additional parks and to identify park poor areas. The Gap Analysis Study shows that the County faces significant deficits in local and regional parkland: 3,578 acres for local parkland and 32,096 acres for regional parkland. Based on population projections, these deficits will increase to 5,945 acres in local parkland and 47,216 acres in regional parkland by the year 2035 if no new parks are created. According to the report, *Park and Recreation Trends in California 2005*, changes in the size and composition of State's population will drive the impacts on the delivery of parks and recreation services in the future. A more in-depth gap analysis will be conducted as part of the County's future Parks and Recreation Master Plan. This analysis will involve a detailed review of demographic, geographic, land use, and transportation data for each Planning Area to determine its park deficiencies in terms of acreage, accessibility, and suitability (LA County General Plan Update 2035).



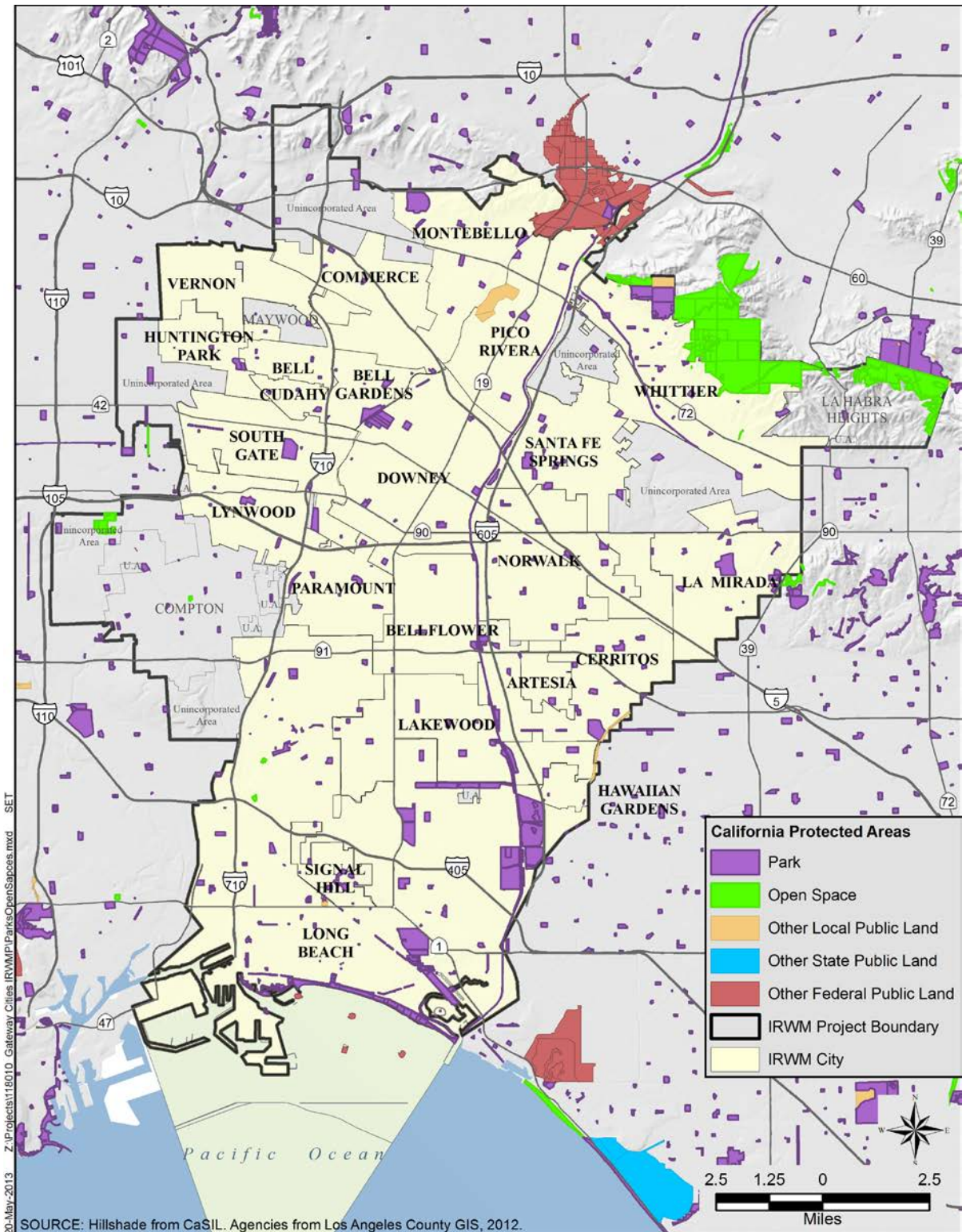


Figure 3-13. Parks and Open Space

### **3.8 Water Management Challenges**

Most of the Gateway Cities share a common groundwater basin. This means members are concerned about having an adequate groundwater supply of acceptable water quality. The Gateway Region's cities are faced with storm water runoff and other water quality issues not common to others in the larger watershed because they are located downstream of a major metropolitan area. It also faces flood control issues given its location in the lower reaches of two major watersheds. However, the area has great opportunities for conjunctive, recycled, and reclaimed water use and has the greatest water recharge capacity with its recharge basins at Whittier Narrows. There are also opportunities for wetlands restoration in the estuaries of the San Gabriel and Los Angeles Rivers.

There are many water management issues that have been specifically identified by the Los Angeles Gateway Region GWMA participants. They include:

- Water Quality
- Groundwater Protection
- Surface Water Protection
- Storm water Runoff
- Supply Reliability
- Aging Infrastructure and Need for Water System Infrastructure Improvements
- Flood Protection and Response
- Equitable Resource Protection
- Coastal Area Protection
- Wetlands Restoration
- Water Conservation
- Climate Change
- Reliance on imported water

The most pressing issues to be addressed in the IRWMP were also identified and are briefly discussed below.

#### **3.8.1 Water Quality**

Along with water supply issues, water quality has become a growing concern in the region. Storm water and urban runoff carrying oil, metals, pesticides, and other toxic chemicals and disease-causing pathogens are major contributors to pollution in creeks and rivers that will eventually lead to the ocean. Sanitary sewer overflows, ocean outfalls, and shipping and boating activities also contribute to questionable coastal water quality. Such conditions raise concerns over increased health risks and the potential impacts on wildlife. The Los Angeles Regional Water Quality Control Board (LARWQCB) is responsible for the Water Quality Control Plan (Basin Plan) that covers the Gateway Region. The Basin Plan defines beneficial use of the surface and groundwater in the Gateway Region, establishes numerical or narrative water quality objectives that must be met, identifies areas where the beneficial uses are impaired and includes plans or actions to bring the impaired waters into compliance. There are number of beneficial uses that are impaired and the LARWQCB is taking action to

require members of the GWMA to take corrective actions to protect water quality and habitats.

The results from existing ambient monitoring and compliance monitoring programs have been used by the LARWQCB to document where beneficial uses are impaired. The LARWQCB uses the available water quality monitoring data to document where water quality objectives are exceeded for the designated beneficial use. If water quality objectives are exceeded the water body is classified as impaired. The impaired water bodies are placed on the 303(d) List of Water Quality Limited Segments. The list is to be updated every two years. The LARWQCB also develops Total Maximum Daily Loads (TMDLs) for the pollutant(s) that are causing standards impairment. Once a water body is placed on the 303(d) List of Water Quality Limited Segments, it remains on the list until a TMDL is adopted and the water quality standards are attained or there are sufficient data to demonstrate that water quality standards have been met and delisting should take place. The LARWQCB should be consulted for the most current beneficial use designations and the list or map of impaired water bodies for the Gateway Region (LARWQCB, 2009).

Storm water and non-storm water discharges consist of surface runoff generated from municipalities in the Gateway Region which are conveyed via the municipal storm sewer system that ultimately discharge into the LA and San Gabriel Rivers. Discharges of storm water and non-storm water from the Municipal Separate Storm Sewer Systems (MS4s) are regulated by the LARWQCB. In general, the primary pollutants of concern in these discharges are bacteria, total aluminum, copper, lead, zinc, diazinon, and cyanide. Aquatic toxicity, particularly during wet weather, is also a concern. Storm water and non-storm water discharges of debris and trash are also a pervasive water quality problem in the Gateway Region though significant strides have been made by a number of GWMA members in addressing this problem through the implementation of control measures to achieve waste load allocations established in trash Total Maximum Daily Load (TMDLs) regulation. The IRWMP seeks to be consistent with the Basin Plan and support GWMA and members to manage and protect water quality.

Existing monitoring programs are described in Section 14.5.5.

#### 3.8.1.1 Recent San Gabriel River Monitoring Results

San Gabriel River Regional Monitoring Program (SGRRMP) 2010 State of the Watershed Report (CHW, 2010) provides a snapshot of the most recent monitoring. SGRRMP program document describes the monitoring the concentration of chemical contaminants and toxicity upstream and downstream of point source discharges and to determine if they exceed water quality objectives. This includes using the Los Angeles County Sanitation Districts receiving water data is evaluated against regulatory thresholds for five Publically owned Treatment Works (POTWs) that discharge to the San Gabriel River. A summary of the recent monitoring results indicate that:

- The concentrations of bacteria and chemical constituents in receiving waters below major discharges in the San Gabriel River were, for the most part, below Federal and State Water quality objectives during the period from 2005 to 2009.

- *E. coli* concentrations were lower below the effluent discharges compared to upstream where concentrations were routinely greater than recreational water quality standards. This is presumably the result of dilution of upstream water with disinfected, *E. coli* free effluents.
- Ammonia concentrations were lower upstream of the discharges and did not exceed California Toxic Rule acute or chronic thresholds in 2010. All other nutrients were below these thresholds during the period.
- Dissolved metals concentrations were low during the period and were below concentrations protective of aquatic life on nearly all occasions.
- Organic constituents were below concentrations detrimental to aquatic life uses during the period except for Diazinon which exceeded the acute and chronic California Toxic Rule threshold on numerous occasions. Trihalomethanes were below the EPA water quality objective threshold at all sites and samples during the period.

#### 3.8.1.2 Recent Los Angeles River Watershed-wide Monitoring Program (LARWMP)

Los Angeles River Watershed Monitoring Program 2010 Annual Report (CWH, 2010) provides detailed analysis results. The cities of Los Angeles and Burbank POTW's monitor receiving waters downstream of their discharges. Aquatic chemistry and toxicity values were below the described water quality objectives (WQOs) with a number of exceptions specific to each facility. The following patterns were shown to be consistent upstream and downstream at all facilities. In summary,

- None of the sampling sites (10) showed acute toxicity, though some (7 of 10) showed chronic toxicity to the indicator species but no reason for the chronic toxicity was apparent.
- Bacteria concentrations (*E. coli* and Fecal coliform) were greater upstream of the discharge point compared to downstream and typically exceeded water quality objectives.
- Concentrations of nitrogenous compounds were typically higher below the discharges.
- Trihalomethanes were typically present below the discharges and lower or below detection upstream. In all cases, concentrations were below the WQO.
- Bacteria concentrations in the Los Angeles River Estuary routinely exceeded recreational water quality (REC1) standards for total coliforms and rarely exceeded the REC-1 standards for *E. coli* and *Enterococcus* during the dry-weather monitoring period.

#### 3.8.1.3 LARWQCB MS4 and TMDL Permit Actions

On March 4, 2008, the LARWQCB sent violation notices to 20 area cities and Los Angeles County threatening to implement fines of up to \$10,000 a day if their beaches continued to fail federal clean-water standards. This unprecedented move to clean up Santa Monica Bay also allows LARWQCB to ask the state attorney general to seek civil liabilities in court of up to \$25,000 each day a violation occurs. The Los Angeles River Trash Total Maximum Daily Load (TMDL) requires every city tributary to the Los Angeles River to eliminate all trash in the river by 2016. Long Beach, whose shores are at the mouth of the Los Angeles River, bears the burden of trash cleanup on its shoreline after every single rainstorm. Furthermore, Long Beach also bears the brunt of the trash's adverse impacts on water quality. Because virtually none of the cities upstream from Long Beach had eliminated trash in the river



according to the 10 percent per year goals in the Water Quality Control Plan, Long Beach was being forced into an adversarial position in the watershed. Through the GWMA, Long Beach and upstream cities were able to cooperate and fifteen cities are now collaborators in a watershed-wide water quality improvement project (the Catch Basin Insert Project) instead of allowing themselves to become mired in finger-pointing, lawsuits and counter-suits.

Groundwater supplies are also susceptible to contamination. Groundwater quality is continually threatened by drinking water disinfection by-products (DBPs), perchlorate, and industrial solvents, among others. These pollutants can also affect surface water supplies such as water imported from the Colorado River, where there is concern for contamination due to inactive ammonium perchlorate manufacturing facilities in Nevada.

Chapter 7 discusses groundwater and water quality issues for the Gateway Region in further detail.

### **3.8.2 Aging Infrastructure**

An aging water infrastructure system and the assurance of long-term transmission and distribution reliability have become growing concerns for the Gateway Region. As an area with several DACs and high household poverty rates, many of the cities have and continue to experience severe funding shortages for water infrastructure upgrading, maintenance, and repair.

### **3.8.3 Urbanization**

Urbanization of the area also had long-term effects on the natural hydrology of the Los Angeles and San Gabriel Rivers. Water control structures, diversions for groundwater recharge, and urban pollution have all contributed to hydrological changes. As a result, wildlife and wildlife habitats have been compromised.

In light of the many pressing water issues of the Gateway Region, steps are being taken to find solutions to these problems. Ocean water desalination, interstate groundwater banking, water augmentation studies, alternative scenarios for climate change, and evaluation of water supply benefits of flood control reservoirs are just a few of the measures being studied.

### **3.8.4 Floods**

As pointed out earlier, two of the three major rivers in the Los Angeles Basin, the Los Angeles River and the San Gabriel River, traverse the Gateway Region. The Los Angeles Basin has a history of catastrophic floods and flood control challenges. Following a catastrophic flood in 1914, the State legislature enacted a statute in 1915, which formed the Los Angeles County Flood Control District. The responsibilities and authority of the Los Angeles County Flood Control District were transferred to the LACDPW in 1985.

The first comprehensive flood control plan for Los Angeles County was developed in 1930 by E.C. Eaton, chief engineer of the Los Angeles County Flood Control District, funding for which was denied in 1933 at the federal level and in 1934 at the local level. In 1935, the United States government took over flood control in the Los Angeles Basin when \$13.9

million was allocated by President Roosevelt in Works Progress Administration WPA funds. Fourteen projects in Eaton's plan were financed, and most of the funds went to improving channels and constructing debris basins at the openings of San Gabriel canyons.

The Flood Control Act of 1936 allocated \$70 million for Los Angeles County flood control projects. As a result, the flood control plan was re-drafted and focused on projects to control the Los Angeles River including the construction of debris basins, large flood control basins, and deepening and lining the stream channel with reinforced concrete to transport floodwaters to the ocean as quickly as possible.

The Flood Control Act of 1941 was approved by Congress as a result of the 1938 flood event, the most catastrophic flood in Los Angeles history, and a new comprehensive flood control plan was developed for the Los Angeles Basin to expand the projects of the Flood Control Act of 1936.

The Los Angeles Basin has a challenging hydrology and through continuous efforts to control nature, it has been re-shaped in attempts to avoid catastrophes such as the 1934 and 1938 floods. The Gateway Cities lay at the downstream reaches of the Los Angeles and San Gabriel Rivers, and the flood management issues in the region result from multiple factors including a large metropolitan development upstream, urban development in the Gateway Region, and the need to both control floods and conserve water, all of which unite this region in addressing these unique flood management issues.

Chapter 8 discusses storm water and flooding issues in greater detail.

## 4 Governance and Coordination

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### 4.1 Governance of the IRWMP

In 2007, the Gateway Cities formed the GWMA, a joint powers authority (JPA) under California law to steer their planning efforts and provide solid governance for the IRWMP development and implementation. The GWMA is the “Regional Agency” or Regional Water Management Group (RWMG) for the Gateway Region. It was created to develop integrated plans for managing water supply, equitable resource protection, storm water runoff, sanitation, water quality, and habitat restoration efforts in the Gateway Region. The JPA is now officially known as the Gateway Water Management Authority (GWMA).

The JPA format as provided by Government Code Section 6500 et. seq. allows the GWMA to have administrative and legal powers common to its members. With this trait, the GWMA can administer or conduct projects for its members. The GWMA allows the Gateway Cities to develop an integrated plan specific to the Gateway Region’s unique area.

Decisions for the GWMA are made by GWMA member agency representatives. Each member agency is allowed one representative on the governing board with one vote each. An alternate is authorized to vote if the appointed representative is absent. Representatives serve two-year terms and are appointed by an agency’s legislative body, but are not required to be a member of that legislative body. A three-fourths vote of the entire board is necessary to approve contracts over \$100,000. As a public agency, the GWMA must adhere to the Brown Act and the open and public process it requires for decision-making. All decisions require opportunity for public hearing.

Figure 4-1 shows the general information flow and decision-making process for formulating the IRWMP. While the GWMA makes final decisions on all major IRWMP matters, a diverse Stakeholder Group has been formed to provide recommendations to the GWMA on important decisions and to help guide the IRWMP process. Stakeholders are interested parties, non-profits, water companies, government agencies, and organizations, as well as cities and public districts that are not yet members of the GWMA. GWMA members are also encouraged to send representatives to participate directly in stakeholder meetings and in discussions on pending decisions. In that way, members have had the opportunity to be familiar with issues and concerns from fellow stakeholders, and have helped mold recommendations before they are sent to the GWMA Board for final decisions.

The general public is encouraged to participate in both Stakeholder and GWMA meetings as both are open to the public. Special Public Meetings were also scheduled during the IRWMP development process to include public comments in the open and transparent IRWMP process.

# Information and Decision Making

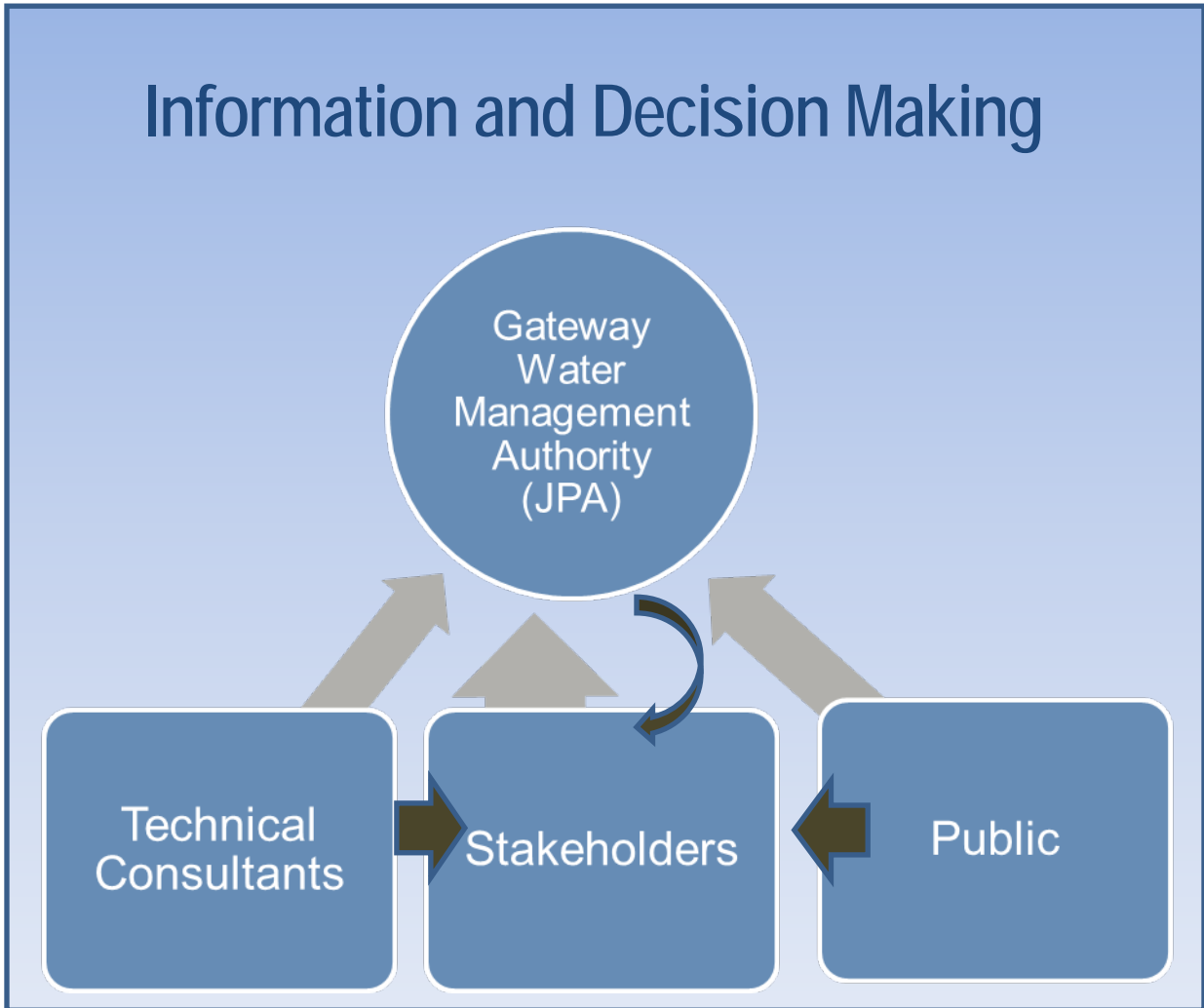


Figure 4-1. IRWMP Decision Process

## 4.2 LA Gateway IRWM GWMA Composition

The Gateway Region is a defined area comprised of the 26 mainland Gateway Cities in Southeastern Los Angeles County, and several adjoining unincorporated communities. The original signatory GWMA members were the Southeast Water Coalition (SEWC), the Long Beach Water Department (a charter department with its own governing body), and the Cities of Cerritos, Cudahy, Downey, Lakewood, Long Beach, Montebello, Norwalk, Paramount, Pico Rivera, Santa Fe Springs, Signal Hill, South Gate, Vernon, and Whittier. Since then, Central Basin Municipal Water District (CBMWD) and the cities of Artesia, Bell, Bellflower, Bell Gardens, Commerce, La Mirada, Lynwood, and Huntington Park have joined. Hawaiian Gardens is currently an ex-officio participant. The SEWC has withdrawn from the GWMA membership as its mission has been usurped by GWMA. Figure 4-2 shows the GWMA member agencies and the Gateway Region Boundary.

Each member agency of GWMA participates officially by resolution of its governing body. These governing bodies are committed to an integrated management of the shared water-related issues– issues that can be effectively communicated to its local citizens. GWMA is proactively engaged in outreach efforts. Other participants are expected to join the GWMA and expand the Region’s current geographic area as the Region’s IRWMP implementation continues. The following potential participants that have been invited to join in the governing body:

- City of Compton
- City of La Habra Heights
- City of Maywood
- Los Angeles County
- Los Angeles County Flood Control
- Los Angeles County Sanitation Districts
- Water Replenishment District
- Metropolitan Water District of Southern California

The City of Maywood, the Los Angeles County Sanitation Districts and the Water Replenishment District do actively participate in the Stakeholder meetings for the IRWMP, and are therefore, part of the current decision making process. It is important to note that California law allows only government agencies to be members of a GWMA; governmental agencies are not required to join in order to participate; and non-governmental agencies are welcomed and encouraged to participate. Non-signatory agencies have regularly appeared on the agenda for presentations and input at the meetings of the governing board.

Over the course of several decades, member agencies have developed strong relationships through integrated planning and a variety of projects that have improved communities in the Gateway Region. Because of their communities’ uniform level of urban development, similar geographic features and economic characteristics, the Gateway Cities have challenges and opportunities that differentiate the Gateway Region from the other cities in the County and across the state.

#### ***4.2.1 Summary of Participating Agencies***

Table 4-1 lists the GWMA members and tabulates each member’s role in the regional water management process, regional water management responsibilities, level of participation, and plans to adopt the IRWMP. Members with statutory authority over water supply or water management are also indicated. Each GWMA member is responsible for facilitating and actively participating in the IRWMP and implementation process. The list below represents diverse interests and promotes a collaborative effort in developing an IRWMP for the Gateway Region.

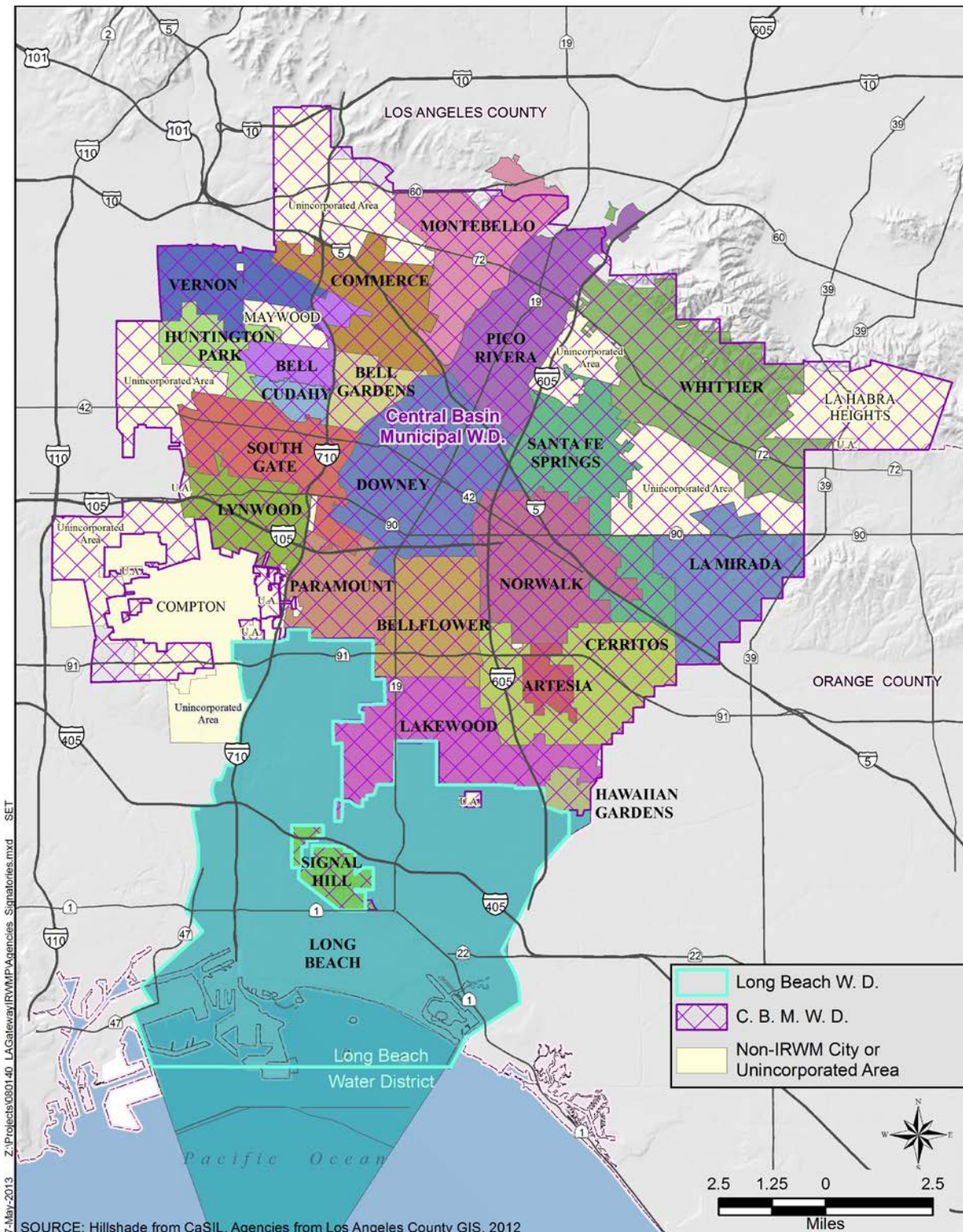


Figure 4-2. Agencies Currently Signatories of the Gateway Region IRWMP GWMA

**Table 4-1. LA Gateway IRWM GWMA Board Composition (GWMA or Gateway Authority (GA))**

Member	Role	RWM Responsibilities	Level of Participation	Plans to Adopt IRWMP
City of Artesia	GA Member	The City of Artesia is primarily characterized by residential with some commercial and industrial land use. It is served by Golden State Water Company, Norwalk Water, and Park Water Company.	New Member	Plans to Adopt
City of Bell	GA Member	The City of Bell is primarily a residential area with some commercial and industrial land use. The City of Bell is served by the California Water Company, Golden State Water Company, Maywood Mutual Water Company, Tract 349 Water Company, and Tract 180 Water Company.	New Member	Plans to Adopt
City of Bellflower	GA Member	Bellflower is primarily a residential area and home to over 75,000 residents. It is served by the Bellflower Somerset Mutual Water Company, the Park Water Company, and the Bellflower Municipal Water System (BMWS), which is operated by the City. Water supply is served through the operation of City wells or through service interconnections with Bellflower Somerset Mutual and Park Water Companies. Recycled water purchased from CBMWD is also served in the City.	Actively Engaged	Plans to Adopt
City of Bell Gardens	GA Member	Bell Gardens has a population of about 45,000 people. The city contracts with Golden State Water Company to operate the water services and uses about 1,200 acre-ft annually. Recycled water purchased from CBMWD is also served in the City.	New Member	Plans to Adopt
*City of Cerritos	GA Member	The City retails water to its customers, using imported water from the CRA and SWP and mostly groundwater from the Central Groundwater Basin for potable water supplies. It also meets non-potable demands with recycled water. The City also wholesales potable water to the Golden State Water Company and the City of Norwalk.	Actively Engaged	Plans to Adopt
City of Commerce	GA Member	Residential, commercial, and industrial water services are provided by California Water Service Company throughout 90% of the City. Cal Water provides utility services to the area using a combination of local groundwater and purchased water from MWD/CBWMD.	Actively Engaged	Plans to Adopt



City of Cudahy	GA Member	The City of Cudahy is primarily residential and is served by Tract 180 Water Co. and Tract 349 Water Co., both of which are customers of CBMWD.	New Member	Plans to Adopt
*City of Downey	GA Member	The City provides potable water to 96% of the City area with groundwater. The remaining part of the City is served by the City of Santa Fe Springs and the Golden State Water Company. It only imports water from CBWMD on rare occasions but is still a sub-agency. The City purchases recycled water from CBMWD and maintains emergency interconnections with the cities of Santa Fe Springs and South Gate.	Actively Engaged	Plans to Adopt
City of Hawaiian Gardens	Ex-Officio Participant	The City of Hawaiian Gardens is primarily residential and is served by Golden State Water Company.	Actively Engaged	Plans to Adopt
City of Huntington Park	GA Member	The City of Huntington Park's Water System currently serves approximately 64,000 people within its service area, which is about 3 square miles. The City of Huntington Park receives potable water from two sources; imported water, purchased through the Central Basin Municipal Water District (CBMWD), and groundwater, extracted via a series of wells.	New Member	Plans to Adopt
City of La Mirada	GA Member	The City of La Mirada is primarily residential with some commercial and industrial land uses. La Mirada is served by Golden State Water Company and Suburban Water Systems.	New Member	Plans to Adopt
*City of Lakewood	GA Member	Lakewood retails water to customers west of the San Gabriel River using groundwater. Recycled water is also served in the City through a connection to the Cerritos system. The City Department of Water Resources operates as a municipal water utility. The customers on the east are serviced by the Golden State Water Company. The City maintains three emergency inter-connections with the City of Cerritos, City of Long Beach, and the Golden State Water Company.	Actively Engaged	Plans to Adopt

*City of Long Beach	GA Member	The City of Long Beach and the Long Beach Water Department are both represented on the GWMA. The LBWD retails water to its customers. LBWD supplies include recycled water, ground-water, MWD wholesale supplies, and potentially desalinated seawater. The LBWD purchases about 50% of its water wholesale from the MWD.	Actively Engaged	Plans to Adopt
City of Lynwood	GA Member	The City of Lynwood maintains 7 active water wells and a 3 million gallon reservoir. The City pumps 5,000 acre-feet of ground-water per year, and purchases another 2,000 acre-feet per year for about 9,000 customers. Recycled water purchased from CBMWD is also served in the City.	New Member	Plans to Adopt
City of Montebello	GA Member	The City of Montebello is primarily residential with some commercial, industrial, institutional, and open space land uses. Montebello is served by California Water Service via the City water service, Montebello Land & Water Company, San Gabriel Valley Water Company, and South Montebello Irrigation District.	New Member	Plans to Adopt
*City of Norwalk	GA Member (Vice-Chair)	The City operates a water agency, the Norwalk Municipal Water System (NMWS), and serves small portions of Norwalk and the City of Artesia. The rest of the City is served by Park Water Company, Golden State Water Company, and the cities of Santa Fe Springs and Cerritos through NMWS. NMWS includes 5 distinct, non-contiguous service sectors throughout Norwalk. Recycled water purchased from CBMWD is also served in the City.	Actively Engaged	Plans to Adopt
*City of Paramount	GA Member (Chair)	The City of Paramount's Department of Public Works is responsible for the water supply. The City utilizes groundwater, imported water, and recycled water and also has three interconnections with LBWD. Two northern portions are serviced by the Golden State Water Company. The recycled water served in the City is purchased from CBMWD.	Actively Engaged	Plans to Adopt
*City of Pico Rivera	GA Member	The City of Pico Rivera is served by two water districts, the City of Pico Rivera Water Authority (PRWA) and the Pico Water District (PWD). PRWA provides drinking water to approximately 9,200 customers. The City distributes and treats drinking water. Groundwater is the major water supply for the city. Recycled water purchased	Actively Engaged	Plans to Adopt

		from CBMWD is also served in the City.		
*City of Santa Fe Springs	GA Member	The City's potable water system is supplied by two water wells, two MWD connections, and two 4MG reservoirs. Additionally, irrigation needs are met using recycled water in many locations. The recycled water served in the City is purchased from CBMWD.	Actively Engaged	Plans to Adopt
*City of Signal Hill	GA Member	The City of Signal Hill Public Works Department oversees the Water Department, which is responsible for water service. Recycled water purchased from CBMWD is also served in the City.	Actively Engaged	Plans to Adopt
*City of South Gate	GA Member	The City of South Gate is a member city of the CBMWD, but it does not presently purchase imported water through it and instead meets water demand with groundwater pumping through 14 wells. Recycled water purchased from CBMWD is also served in the City.	Actively Engaged	Plans to Adopt
*City of Vernon	GA Member	The City of Vernon's Water Division retails water to approximately 1075 customers. The City of Vernon uses 7 groundwater, recycled, and purchased water through the CBMWD. The City's service area is primarily comprised of commercial and industrial users, taking up about 97% of the accounts.	Actively Engaged	Plans to Adopt
*City of Whittier	GA Member	The City of Whittier provides water service, sewer maintenance and repair, and storm water and runoff pollution control. The City's main water resource is groundwater. The City has not needed to import water due to a primary use of groundwater and recycled water and the implementation of conservation and future water supply programs. The recycled water served in the City is purchased from CBMWD.	Actively Engaged	Plans to Adopt
*CBMWD	GA Member	CBMWD is a public agency that purchases imported water from MWD and recycled water from LACSD wholesales that water to 24 cities, mutual water companies, investor-owned utilities, and private companies.	Actively Engaged	Plans to Adopt

\*- indicates statutory authority over water supply and water management.

### 4.3 Stakeholder Involvement

GWMA has conducted public outreach and targeted outreach to the stakeholders in the region. Identified stakeholders were to participate. These outreach efforts have ensured that there is potential for all areas of the region to be actively involved.

**Other Gateway Cities** The Gateway Region includes 26 cities that share water concerns and challenges. While many cities are current members of the GWMA governing board, not all of the cities in the Gateway Region have yet become governing board members primarily because limited financial resources prevent them from participating in any means of planning which have matching fund requirements. Regardless of whether or not they choose to participate on the Board of Directors, the following cities are important stakeholders and will be participants in the IRWMP development process:

- Compton
- La Habra Heights
- Maywood

#### **Water Companies**

In addition to the many cities that are water retailers, there are a number of water companies among the water suppliers in the region. These purveyors are certainly stakeholders on water supply and quality issues in the region. They were invited and encouraged to actively participate as stakeholder and participate in the IRWMP process. Since they are private companies they cannot become GWMA members, but they can participate actively in the open process. The following entities serve portions of the Gateway Region:

- Golden State Water Company
- San Gabriel Valley Water Company
- California Domestic Water Company
- Suburban Water System
- Park Water Company
- Bellflower-Somerset Mutual Water Company
- Maywood Mutual #1, #2, #3
- Pico Water District
- Orchard Dale Water District
- Bellflower Home Garden Water Company
- California Water Service Company
- County Water Company
- Lynwood Park Mutual Water Company
- Midland Park Water Trust
- Montebello Land and Water Company.
- Orchard Dale Water District
- Sativa-L.A County Water District
- South Montebello Irrigation District
- Tract 180 Mutual Water Company

- Tract 349 Mutual Water Company
- Walnut Park Mutual Water Company

### **Water Wholesalers and Groundwater Suppliers**

Most cities and water purveyors within the Gateway Region get a portion of their raw water supply from water wholesalers. Wholesalers, in turn, buy water from other wholesalers, obtain water from the California State Water Project, or import water from the Colorado River. Wholesale agencies have the option to join the GWMA as members, or they may choose only to participate in the open process. Almost all retailers use groundwater as a source of supply and this requires involvement of the groundwater management agencies. The following water agencies are stakeholders in an integrated regional plan:

- Metropolitan Water District of Southern California (MWD)
- Water Replenishment District of Southern California (WRD)
- Central Basin Municipal Water District (CBMWD) –(current member)

### **Wastewater Agencies**

The Los Angeles County Sanitation Districts has statutory responsibility to provide wastewater collection and treatment in the region. As a government agency, it can participate as a stakeholder in the IRWMP process or join the GWMA.

### **Watershed-based Organizations**

Government agencies may join the JPA. Watershed-based stakeholders will be encouraged to participate actively as stakeholder in the IRWMP process.

- Environmental advocates
  - Amigos de Los Rios
  - Heal the Bay
  - Sierra Club
  - Friends of the Los Angeles River
  - Friends of the San Gabriel River
  - The Audubon Society
- Watershed organizations
  - National Water Resources Association
  - Council for Watershed Health
  - Urban Water Institute
  - Southern California Water Committee
  - Center for Watershed Protection
  - Southern California Association of Governments (SCAG)
  - Los Angeles County Flood Control District
  - Santa Fe Springs Community Development Commission
  - Port of Long Beach
  - County of Los Angeles
  - Southern California Edison (SCE)

- Industry Council
- Watershed Conservation Authority
- Los Cerritos Wetland Authority
- Los Cerritos Wetlands Stewards, Inc.
- Friends of the Colorado Lagoon
- Puente Hills Landfill Native Habitat Preservation Authority
- Businesses (Chambers of Commerce and Workforce Investment Boards)
- Industry (including the Port of Long Beach, a department within the City of Long Beach)

### **State/Federal**

State and federal representatives can participate as stakeholders in the IRWMP process; however, their regulatory or grant funding activities often limit further statutory or formal membership within the GWMA.

- California Department of Water Resources (DWR)
- Los Angeles Regional Water Quality Control Board (LARWQCB)
- San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC)
- California Department of Fish and Wildlife (DFW)
- U.S. Fish and Wildlife Service (USFWS)
- California Department of Transportation - CalTrans
- U.S. Army Corps of Engineers (USACE)
- U.S. Bureau of Reclamation (USBR)
- California State Coastal Conservancy
- California Coastal Commission
- California State University, Long Beach
- California Department of Public Health

### **Tribal**

While there are no tribal lands located within the Region, there may be tribal interests in the IRWMP and subsequent projects in the area.

- Gabrieleno/Tongva Tribe

### **Stakeholder List**

This list was used to invite participants to the IRWMP process and may represent a final roster of organizations or individuals interested in formulating the regional plan. The outreach efforts described in the next chapter may expand the potential stakeholders and it will certainly work to encourage continued participation by all stakeholders.

# 5 Outreach: Public and Stakeholder Involvement Processes

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## 5.1 Stakeholder Outreach and Involvement

Stakeholder outreach was significant as the formal planning process began for the IRWMP. Outreach continued through the adoption of the Gateway Plan and will, at a reduced effort, continue as part of the daily business practice of GWMA as the Region's work continues. GWMA recognized that to provide fair representation for the Gateway Cities, it was imperative to implement a collaborative, multi-stakeholder process. The stakeholder outreach process included a comprehensive effort to engage stakeholders, including DAC's representatives, in the IRWMP process.

GWMA used several avenues in their stakeholder outreach efforts to publicize the IRWMP process, including the internet, newspaper, brochures, and, most importantly, individual invitations. GWMA retained a public relations team specifically for the IRWMP process. In addition, GWMA held monthly and special meetings throughout the IRWMP process and this will continue into the future.

GWMA's outreach emphasized that the IRWMP will include all aspects of water, wastewater, and watershed issues. The IRWMP process looks for integrated, multi-benefit, regional solutions to these water issues including projects related to environmental stewardship.

### 5.1.1 *Disadvantaged Community (DAC) Outreach*

GWMA has specifically identified DACs within the Gateway Region and included them in planned outreach efforts. Approximately 47 percent of the households within the larger Gateway Region are considered disadvantaged.

GWMA encourages DAC participation in the IRWMP development process. Disadvantaged communities are represented by cities with full membership in the GWMA. This participation ensures that DAC water supply and water quality are identified.

However, GWMA considers waiver of membership contributions on a case-by-case basis based on hardship for cities and other agencies wanting to be members of the GWMA. Participation in the collaborative stakeholder group is allowed and encouraged regardless of the ability to contribute financially to the Plan or the GWMA. The regular GWMA meeting location is central to the Region.



## 5.2 Public Outreach and Involvement

GWMA incorporated a substantial public outreach program into the IRWMP development efforts to fairly and comprehensively represent the range of interests of the Gateway Region. The people of the Gateway Region are ultimately the beneficiaries of the IRWMP and their input is imperative to the process. Integrated with the stakeholder outreach process outlined in the previous section, GWMA engaged the public, including individuals and groups in DACs, and encouraged their involvement throughout the IRWMP process.

The Consultant Team included S. Groner Associates (SGA), a leader in Southern California water public outreach. They were tasked with compiling an outreach plan for the IRWMP, with special emphasis on DACs. While focused on informing the public about the gateway IRWMP, the outreach plan also served to enhance the outreach process for stakeholders as well.

SGA's initial work began early in February 2012 to provide information to the community on the initial public meeting for the IRWMP. As the draft outreach plan became available in March, a summary was presented to the Stakeholder Group. The Stakeholders endorsed the plan and with some minor additions, the Outreach Plan for the Gateway IRWMP was adopted by the GWMA Board in May 2012. A copy is included in Appendix B.

The outreach plan includes the following elements:

- Finalizing IRWMP messaging
- Developing a basic flyer in English and Spanish
- Creating an editable design piece (text)
- Creating a newsletter
- Updating website
- Public meetings
- Public comment opportunities
- Media (with focused DAC opportunities)

Special emphasis and techniques are being employed in the outreach plan to provide DACs with the opportunity to participate as stakeholders or individually as members of the public. Appendix F, Gateway IRWMP Outreach Report, details special outreach activities conducted to include DACs and the public in the IRWMP review and finalization.

While public "DAC" response to this effort has been limited, it does not mean their issues are not being considered. Most Gateway Cities represent a portion of regional DAC communities, and a number are considered DAC in their entirety. City representatives for the stakeholders group and GWMA have avidly support DAC needs and have capably represented their DAC constituents.

The outreach plan utilizes a variety of media to publicize the IRWM process and encourage public participation, including the internet, newspaper, radio, written announcements, and brochures.

The Gateway website is [www.GatewayIRWMP.org](http://www.GatewayIRWMP.org). A link will be provided on individual GWMA member sites and on the Gateway Cities COG website. IRWMP contact information is posted on the website, with directions on who the public may contact with comments, questions, and concerns. IRWMP information, publications, and reports are also posted on the website. GWMA uses the website to post meeting notices, agendas, and meeting minutes. Meeting agendas are posted no less than 72 hours before the meeting. Meetings will be held on a regular schedule and at a consistent location. Notices are available one week prior to meetings and the meeting minutes are posted as soon after they are approved by the Board at the following meeting.

Public meeting agendas are posted on individual GWMA member websites, at the meeting location, and in public locations such as city libraries and city buildings.

### **5.3 Outreach Elements**

The outreach process for the development of the IRWMP included the following items and activities. They apply to stakeholders, potential JPA members, and the public.

#### ***5.3.1 Develop Stakeholder List and Involvement***

GWMA developed a working list of stakeholders in the region in 2007 and through its outreach efforts GWMA has expanded the existing list substantially. Current stakeholders in Chapter 4 provide a full and diverse range of water management interests including water supply reliability, water quality, groundwater quality, flood management, storm water, wastewater, environmental stewardship, economic development, and land use planning. The stakeholder process allows additional stakeholders to be identified and included during IRWMP development. During the first two stakeholder meetings in the IRWMP development process as well as the initial public meeting, participants were asked to suggest additional stakeholders that may be needed. Several names were added in response to the repeated question of, “Who’s missing?” Suggested names were directly invited by letter or email to join the stakeholder process, or suggest others that would be interested. Because meetings were regularly scheduled throughout the IRWMP process, interested stakeholders had many opportunities to provide input during the development of the IRWMP.

The potential stakeholders are listed in several categories as shown previously in Chapter 4.

#### ***5.3.2 Initial Public Meeting***

GWMA held a public meeting to solicit input from the community regarding the preparation of an IRWMP. GWMA publically announced the meeting in local newspapers and on their website, inviting all members of the public and stakeholders to attend. GWMA specifically contacted currently identified stakeholders to ensure they receive the notice. Notice timing exceeded the requirements of CWC Section 10543.

The purpose of the meeting was to present the public with information about the proposed IRWMP planning process and receive comments from interested parties. The presentation described the region encompassed by the IRWMP. GWMA members were present at the

meeting to answer questions, solicit input, and increase public awareness of the proposed IRWMP.

### **5.3.3 Public Meeting on Draft IRWMP**

Within two weeks after the draft IRWMP is made available on April 15, 2013, a hearing was held for the general public, stakeholders, and water interests in the Region (May 1, 2013) to address concerns and provide their comments on the IRWMP. Members of GWMA and the consultant answered questions and facilitated public involvement. Appendix F provides a report on outreach activities during the IRWMP development and includes a summary of the public meeting on the draft IRWMP.

### **5.3.4 Monthly and Special GWMA Meetings**

GWMA meets on a monthly basis. These meetings are open to the public and stakeholders. IRWMP stakeholders are welcome to attend and participate. GWMA (the GWMA) meeting agendas always include an item that reviews and presents the status of the IRWMP development. Stakeholders can address concerns or questions in this forum, as with any public meeting. Special meetings for plan actions and workshops can be held as necessary. These meetings are governed by the Brown Act and agendas must be publically available at least 72 hours prior to meetings.

### **5.3.5 Monthly and Special Stakeholder Meetings**

IRWMP Stakeholders met on a monthly basis throughout the preparation of the IRWMP. Special meetings for project reviews and workshops were held as necessary. All meetings are open to the public.

### **5.3.6 E-mail and Website Outreach**

Once stakeholders were identified and they confirmed an interest in the IRWMP process by attending a stakeholder meeting or public meeting, or confirmed their interest by e-mail or other means, stakeholders were kept permanently on the e-mail communications list. All agendas for stakeholder meetings as well as presentations, handouts, and exercises from monthly or special meetings were automatically and regularly sent to that list. In that way, all stakeholders could follow the plan development process closely even though they might not attend stakeholder meetings regularly. The current e-mail contacts number approximately 125 for the Gateway stakeholders. This total includes alternates for most cities and water districts.

Participants could contact the Project Consultant for questions using information from the direct e-mails on meetings, the generic [GatewayIRWMP@geiconsultants.com](mailto:GatewayIRWMP@geiconsultants.com) address or by using the contact information provided at the IRWMP website.

### **5.3.7 Tribes**

Government Code requires local governments to consult with California Native American Tribes identified by the Native American Heritage Commission (NAHC) for the purpose of

protecting, and/or mitigating impacts to cultural places. GWMA has contacted NAHC and has received a list of representatives for the Gabrieleno-Tongva Tribe. These contacts were notified of all meetings and activities and invited to participate as a stakeholder during and after the IRWMP development. There are no tribal reservations or facilities within the Gateway Region.

## 5.4 Communications

Establishing a robust system of communications was important to keep GWMA members, other stakeholders and the public informed and engaged in the plan's development and eventually supportive of the Authority's implementation of the finished plan. Open communications ensures they are all partners in the plan. Communication efforts were active, current, dependable, and provided an opportunity for a two-way dialog. Elements of this communications included:

- Regular, open public meetings during plan development with adequate time and attention for public comment
- Online information highlighting plan activities
- Links on GWMA member web pages to the Authority's website
- A closely managed website with up-to-date information and agendas of meetings and events
- A share-file system to support information and document sharing between participants
- Data sharing platform (<http://arcgis02.geiconsultants.com/gateway2/gis/>)

## 6 IRWMP Goals and Objectives

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### 6.1 Overview

The Gateway Water Management Authority (GWMA) adopted a series of IRWMP objectives in February 2008 in their vision, mission, goals and objectives statement. This statement essentially defined the problems and priorities that the IRWMP should be addressing. They covered the significant issues of the region from the perspective of the GWMA at that time.

Once the IRWMP development process started, GWMA and the IRWMP stakeholders reaffirmed their “problem statement” and included new input from stakeholders and the public.

In March 2012, the IRWMP development process invited and engaged GWMA members, stakeholders, and the public in a review of the existing goals and objectives and solicited any additional items that should be included in that list using an open brainstorming session. The process looked for broad and extensive stakeholder involvement. New ideas were refined and included in a subsequent new list of goals and objectives.

After additional opportunities for stakeholders and the public to comment, the GWMA Board was asked to formally adopt a revised goals and objectives statement in a subsequent GWMA meeting. Once adopted, the new statement serves to guide the process and selection of projects developed in the plan.

### 6.2 Initial Goals

Through initial outreach efforts and collaborative meetings during its formation, GWMA formulated initial IRWMP Goals and Objectives for the Gateway Region and formally adopted them in a regular GWMA meeting on February 14, 2008.

#### **Gateway Region IRWMP Goals**

- Protect and enhance water quality.
- Optimize water supply reliability.
- Coordinate and integrate water resource management.
- Identify and address the water-related and natural resources needs of the Gateway Region watershed.
- Provide stewardship of our natural resources.

#### **Gateway IRWMP Objectives**

- Effectively reduce sources of pollutants and environmental stressors.
- Reduce the negative effects on waterways and watershed health caused by hydro-modification and flooding.
- Construct, operate, and maintain habitat and open space.

- Optimize open space and water-based recreational opportunities.
- Further the scientific and technical foundation of water management.
- Effectively obtain, manage, and assess water resources data and information.
- Maximize stakeholder and community involvement and stewardship.

The adopted plan objectives also state that specific goals, objectives, and implementing strategies will be developed in the IRWMP process with broad and extensive stakeholder involvement.

Additional considerations expressed by participants to embark on an integrated planning process include:

- To be involved in achieving better planning efforts that address regional water needs unique to the Gateway Region and ensuring those needs are adequately identified and prioritized.
- To coordinate water management between regional agencies and work together to find economically and environmentally responsible solutions to regional needs.
- To ensure equitable resource protection.
- To ensure appropriate consideration for federal and state funding.
- The ability to integrate specific funding through a sub-regional approach.

These initial goals, objectives, and considerations provided a good starting point for establishing the goals for the IRWMP with stakeholder and public input.

### **6.3 IRWMP Issues: Have we covered the important issues?**

As a first step to revise the goals and objectives, stakeholders were asked in an exercise to provide up to three of the most important and pressing water issues that they felt affected the Region at both their first February 2012 meeting and at the Public Meeting on February 29, 2012. Answers varied but the results show that the original goals set forth by GWMA had identified the most important issues facing the Region. Figure 6-1 shows the water issues identified by stakeholders and Figure 6-2 shows the issues from both the stakeholder's meeting and the public meeting.

TMDL requirements, groundwater quality, supply reliability, and storm water quality were the issues most cited by stakeholders. These ideas were further vetted and reviewed in the March 2013 Stakeholder meeting. Recognizing common issues leads to goals that will help address those issues.





Figure 6-1. Gateway Issues from Stakeholder Meeting Exercise

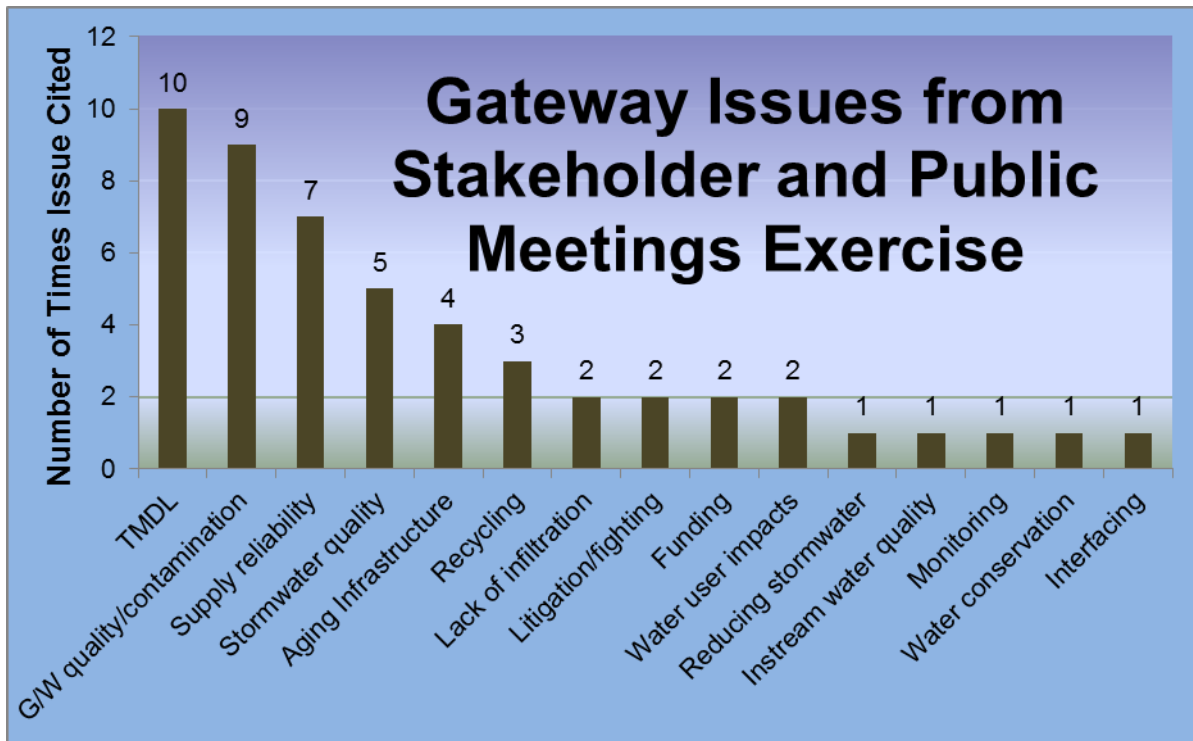


Figure 6-2. Gateway Issues from Stakeholder and Public Meetings Exercise

## 6.4 IRWMP Developed Goals and Related Objectives

Over the course of two stakeholder meetings, participants modified the original goals to make the list shown on Figure 6-3. Stakeholders finalized this list by consensus and then advanced the list to the GWMA for final review and adoption.

At the GWMA meeting on April 12, 2012, the GWMA Board unanimously adopted the goals (Figure 6-3) for the Region.

Stakeholders realized the importance of having a sound set of goals to guide the plan. They wanted goals to be broad and have **flexibility** for a range of strategies and projects. **Projects will be ranked** by their ability to meet the goals of the IRWMP. They also want to have a **thorough coverage** of the Regions water management needs and to eventually emphasize projects with **multiple benefits**.

## 6.5 Measureable Objectives

Stakeholders debated applying additional targets and metrics for meeting objectives, but most like TMDL have their own metrics and timetable. Not all goals have objectives. Because funding to accomplish objectives is so questionable, stakeholders were reluctant to support target metrics and schedules that they had no guaranteed resources to accomplish.

Table 6-1. Comments on Measuring Objectives

Measuring Objectives		
	Objective	Comment
1	Attain required TMDL levels in accordance with their individual schedules.	<i>TMDL requirements vary by watershed and constituent; each TMDL has distinct timeframe and objective.</i>
2	Effectively reduce major sources of pollutants and environmental stressors in the region.	<i>Contaminants vary over the Region as do their measurement and urgency for clean-up. Each site has a timetable and objective.</i>
3	Continue and enhance water use efficiency measures to meet 20X2020 per capita water use targets.	<i>Targets provided in 20X2020 submittal by the GWMA led Alliance.</i>
4	Expand regional water recycling facilities and recycled water distribution to help provide reliable water sources.	<i>Dependent on funding; No specific target available.</i>
5	Systematically upgrade aging water infrastructure in the Region.	<i>No specific target available as it is dependent on funding</i>
6	Create habitat, open space, and water-based recreational opportunities in the Region.	
7	Install or optimize water monitoring to effectively manage storm water in the Region. Obtain, manage, and assess water resources data and information.	<i>Time frame dependent on funding; Effective monitoring can vary by type, location, and future studies and information. Each TMDL has a timeframe and metric.</i>

**Gateway Region IRWM Plan Goals and Objectives:**

- Identify and address the water dependent natural resources needs of the Gateway Region Watersheds.
- Protect and enhance water quality.
  - *Objective:* Attain required TMDL levels in accordance with their individual schedules.
  - *Objective:* Effectively reduce major sources of pollutants and environmental stressors in the region.
- Optimize and ensure water supply reliability.
  - *Objective:* Continue and enhance water use efficiency measures to meet 20X2020 per capita water use targets.
  - *Objective:* Expand regional water recycling facilities and recycled water distribution to help provide reliable water sources.
  - *Objective:* Systematically upgrade aging water infrastructure in the Region.
- Coordinate and integrate water resource management.
- Provide stewardship of the Region's water dependent natural resources through enhancement of amenities and infrastructure.
  - *Objective:* Create habitat, open space, and water-based recreational opportunities in the Region.
- Manage flood and storm waters to reduce flood risk and water quality impacts.
  - *Objective:* Install or optimize water monitoring to effectively manage storm water in the Region. Obtain, manage, and assess water resources data and information.

**Figure 6-3. Gateway Region IRWMP Goals and Objectives**

## **6.6 Why not prioritize Goals?**

The Gateway Stakeholders did not prioritize one goal over another. Based on their discussions, they intended to balance the IRWMP efforts between all Regional issues. The main issues for the Region were included within the six goals presented in Figure 6-3. For the most part, these goals were considered of equal importance to the Region, so there was not a need for these goals to be prioritized in relation to one another. Stakeholders recognized that activities or projects that have multiple benefits or address multiple goals will naturally rank higher than single-purpose, single-goal ones.

## **6.7 State Water Management Priorities**

Table 6-2 shows how the IRWMP Goals address or cover State Water Management Priorities. Each Gateway IRWMP Goal encompasses or applies to two to four of the state priorities with all state priorities being covered by at least one of the Gateway Goals. Therefore, meeting the Gateway Goals will generally support the state's priorities in water management.

**Table 6-2. Gateway Goals and State Priorities**

		California Statewide Priorities							
		Reduce conflicts/Resolve Water Rights Disputes	Implement TMDL	Implement Watershed Management Initiatives	Implement NPS Plan	Assist in meeting Delta Water Quality Objectives	Implement Various State Plans	Address EJ Concerns	Assist in Achieving CALFED Goals
<b>Gateway IRWMP Goals</b>	Identify and address the water dependent natural resources needs of the Gateway Region Watersheds.		✓			✓	✓		
	Protect and enhance water quality		✓	✓					
	Optimize and ensure water supply reliability	✓			✓			✓	
	Coordinate and integrate water resource management	✓					✓		
	Provide stewardship of the Region's water dependent natural resources through enhancement of amenities and infrastructure		✓				✓	✓	
	Manage flood and storm waters to reduce flood risk and water quality impacts		✓	✓	✓			✓	

# 7 Groundwater and Water Quality Issues

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## 7.1 Water Quality Issues

The Los Angeles Gateway Region suffers from a variety of groundwater quality issues, including natural groundwater contaminants, and contamination from industrial activities, past agricultural activities, and seawater intrusion. As such, protection and improvement of water supply and quality within the plan area has been identified as a particularly important objective of the Gateway Region. The objective of this task is to provide a water quality baseline that can be utilized to make informed management decisions and develop strategies that will preserve and improve the quality of future supplies. The scope of work to accomplish this task included:

- Outreach to inform Gateway Region stakeholders of the IRWMP process and to gain permission to compile locations and construction details for groundwater supply wells within the region.
- Acquisition and compilation of groundwater quality data and well construction details from stakeholders and existing groundwater monitoring programs.
- Analysis of groundwater quality data and preparation of a summary of constituents exceeding regulatory limits.
- Preparation of a series of maps showing concentrations of constituents of concern.
- Preparation of a map showing the location of sites of environmental concern.

### 7.1.1 Methodology

Groundwater quality data within the Los Angeles Gateway Region were compiled into a relational database to provide an overall assessment of regional groundwater quality conditions and to establish a baseline from which strategies and projects that protect and improve groundwater quality could be developed. Additionally, the database provides information from which existing groundwater quality monitoring networks can be evaluated in terms of adequacy for spatial and temporal monitoring and from which data gaps can be identified.

Groundwater quality data and information were queried from readily available and publicly accessible databases and compiled into a relational format using Microsoft Excel<sup>®</sup>. This includes the California Department of Public Health (CDPH) and Water Replenishment District of Southern California (WRD) groundwater quality databases and active and inactive municipal, irrigation, and monitoring well sites. Upon being provided with approvals from each water supply agency, WRD provided locational data and construction details for municipal water supply and irrigation wells within the Los Angeles Gateway Region. As required by law, and to protect the privacy of well owners, the locations of these wells have been randomly shifted and do not represent exact locations. Locational data and construction details for WRD monitoring wells are public record and were provided by WRD. The period of record for CDPH water

quality data ranges from 1974 to 2012. The period of record for WRD monitoring well water quality data ranges from 1998 to 2011.

In an effort to identify areas within the Los Angeles Gateway Region that are impacted by contaminants in excess of regulatory limits, historical groundwater quality data over the relatively recent past (i.e., from 2002 to 2012) were queried for constituents in excess of the following minimum regulatory levels, regardless of the aquifer(s) screened by the well.

- Primary Maximum Contaminant Levels (MCLs)
- Secondary MCLs

In addition, historical groundwater quality data over the relatively recent past (i.e., from 2002 to 2012) were queried for constituents in excess of the following advisory levels, regardless of the aquifer(s) screened by the well.

- Notification Levels (previously referred to as Action Levels)
- Archived Advisory Levels

Those constituents in excess of these regulatory and/or advisory levels at 10 or greater locations were considered areas of significant groundwater quality impairment and selected for mapping. The following 14 constituents (in no particular order) were found to be in excess of minimum regulatory and/or advisory levels at 10 or greater locations and were mapped as points of varying diameter according to concentration level (see Figures 7-1 through 7-18):

- Color
- Odor
- pH
- Turbidity
- Specific Conductance
- Total Dissolved Solids (TDS)
- Iron
- Manganese
- Sulfate
- Aluminum
- Arsenic
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- 1,4-Dioxane



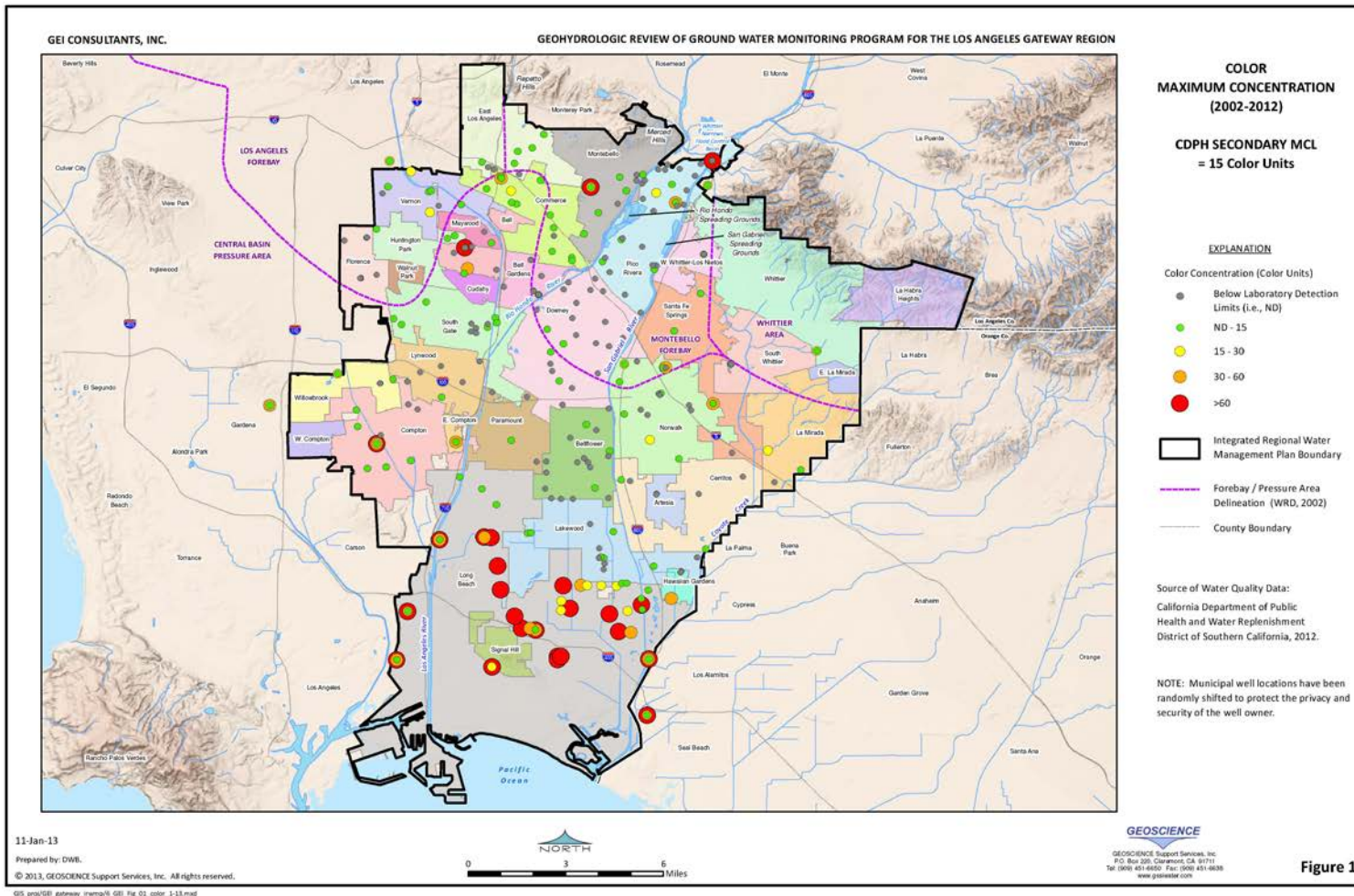


Figure 7-1. Color Maximum Concentration (2002-2012)

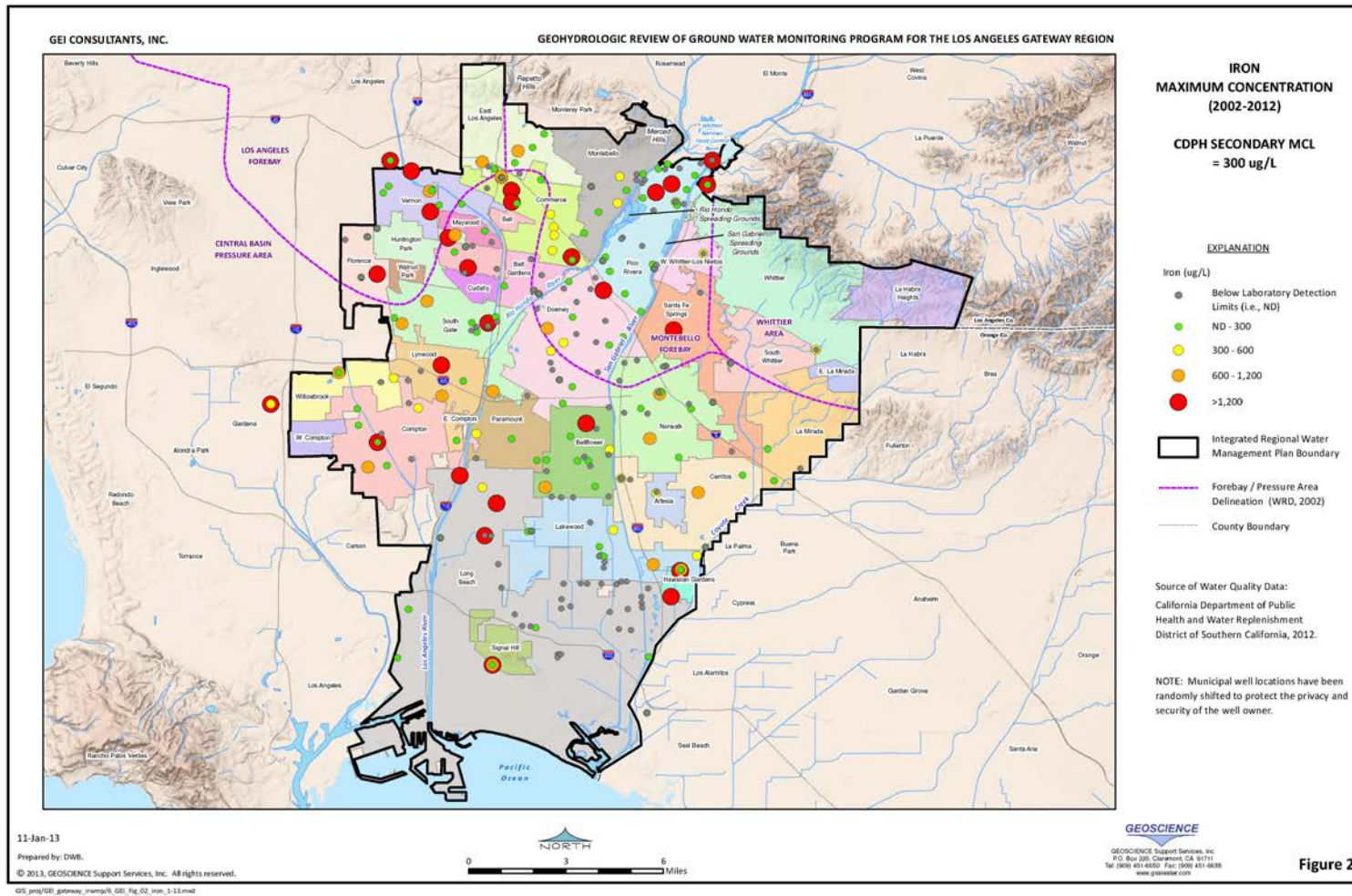


Figure 7-2. Iron Maximum Concentration (2002-2012)



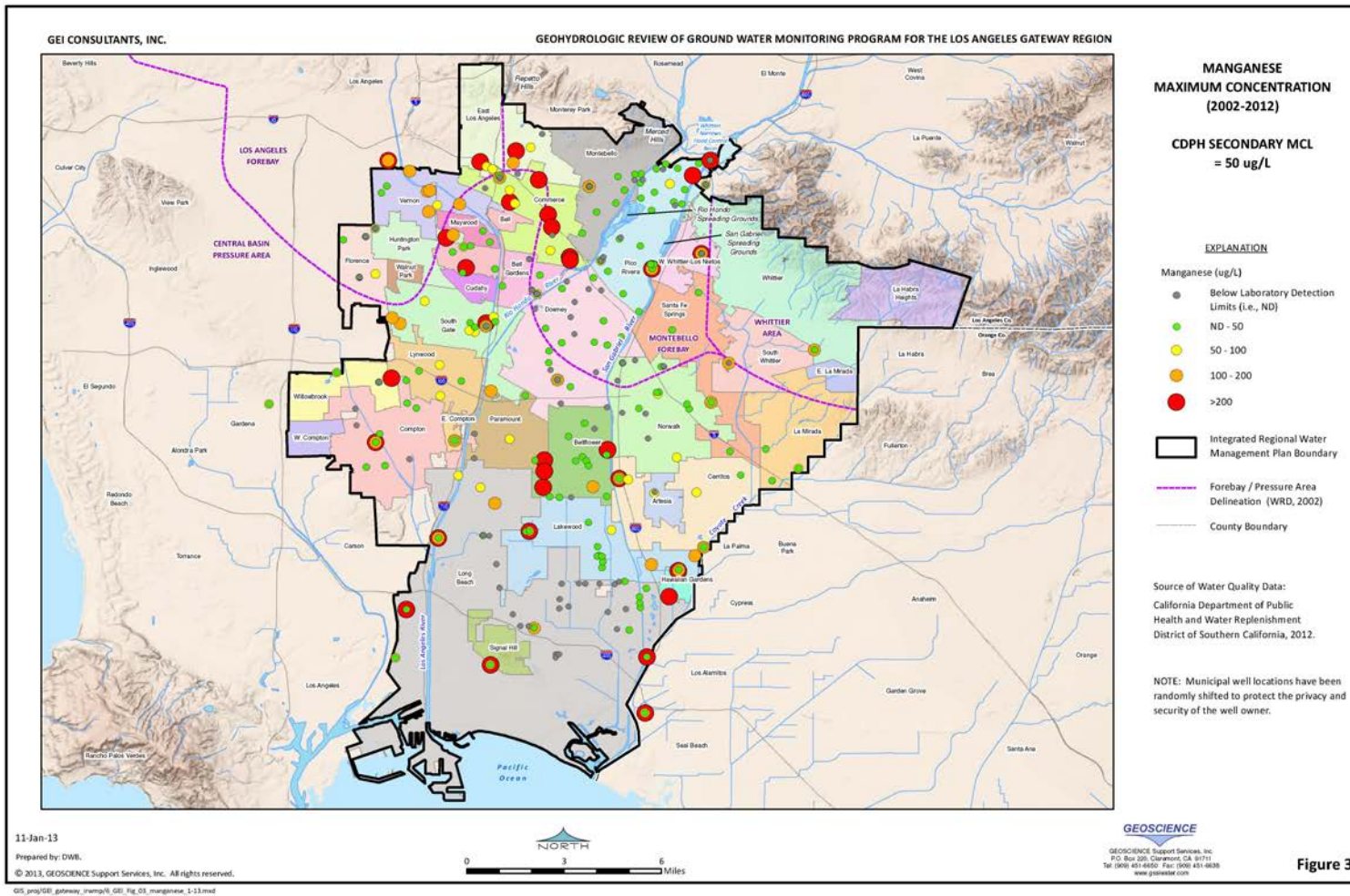


Figure 7-3. Manganese Maximum Concentration (2002-2012)

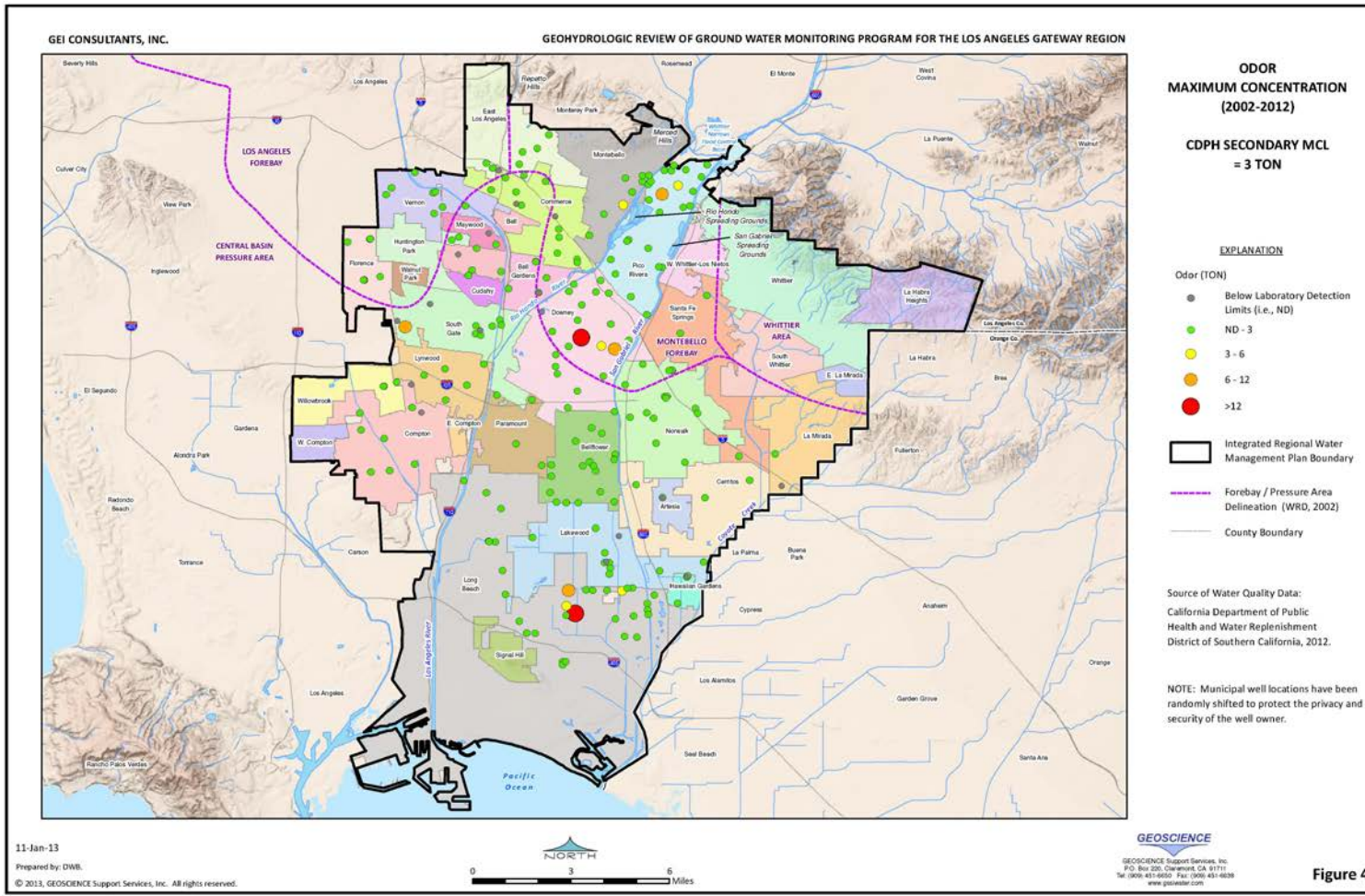


Figure 7-4. Odor Maximum Concentration (2002-2012)



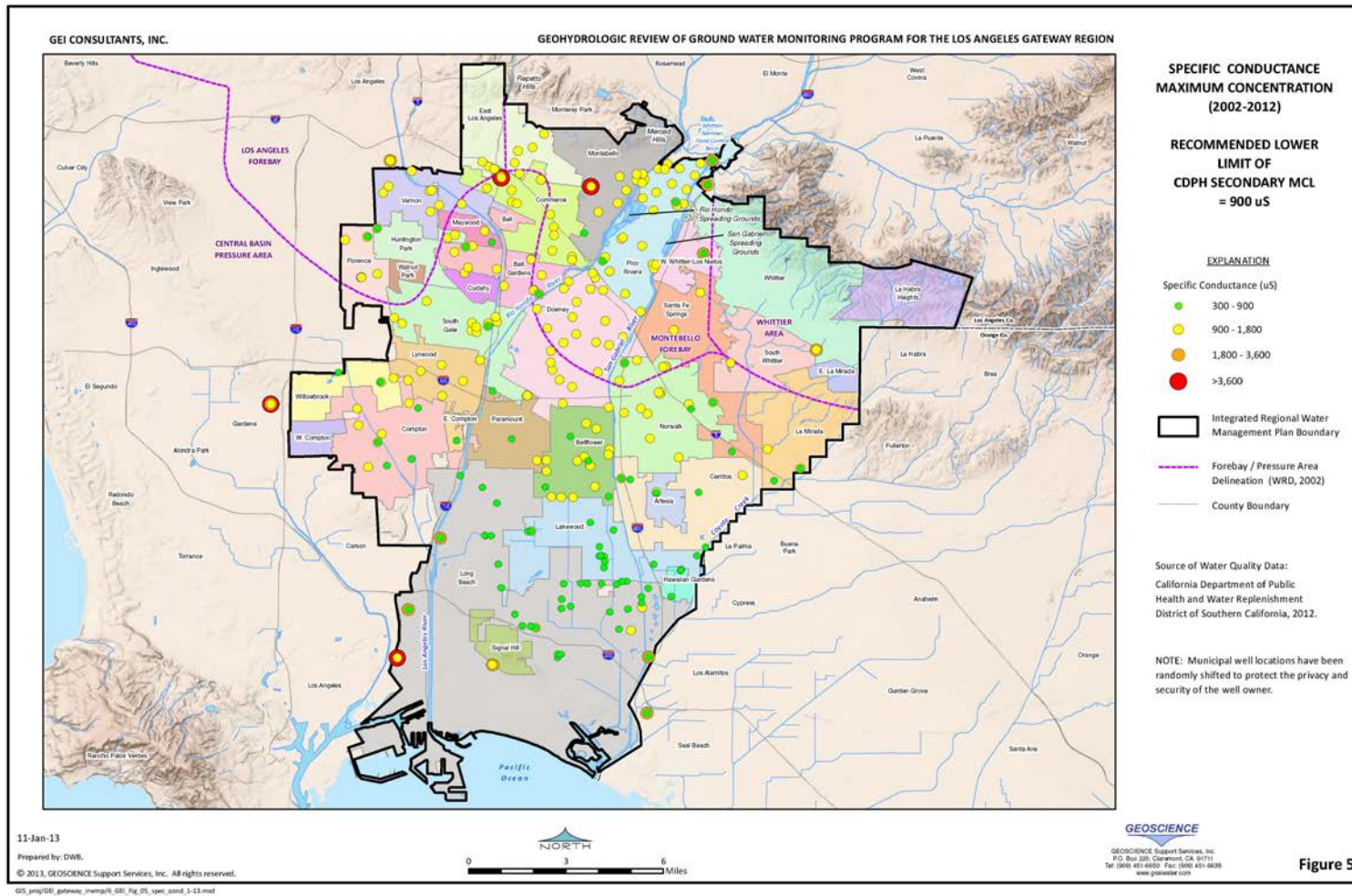


Figure 7-5. Specific Conductance Maximum Concentration (2002-2012)

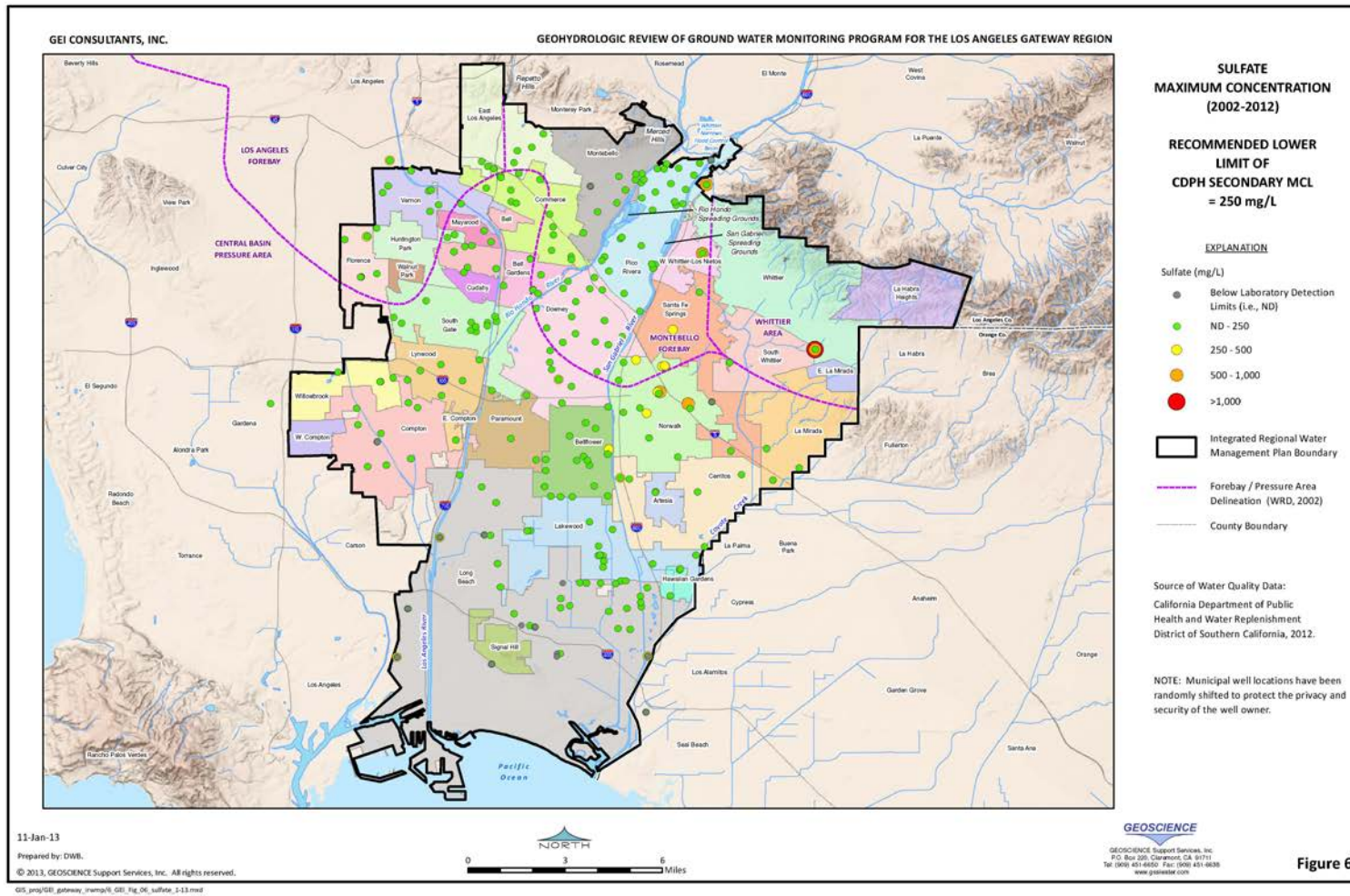


Figure 7-6. Sulfate Maximum Concentration (2002-2012)



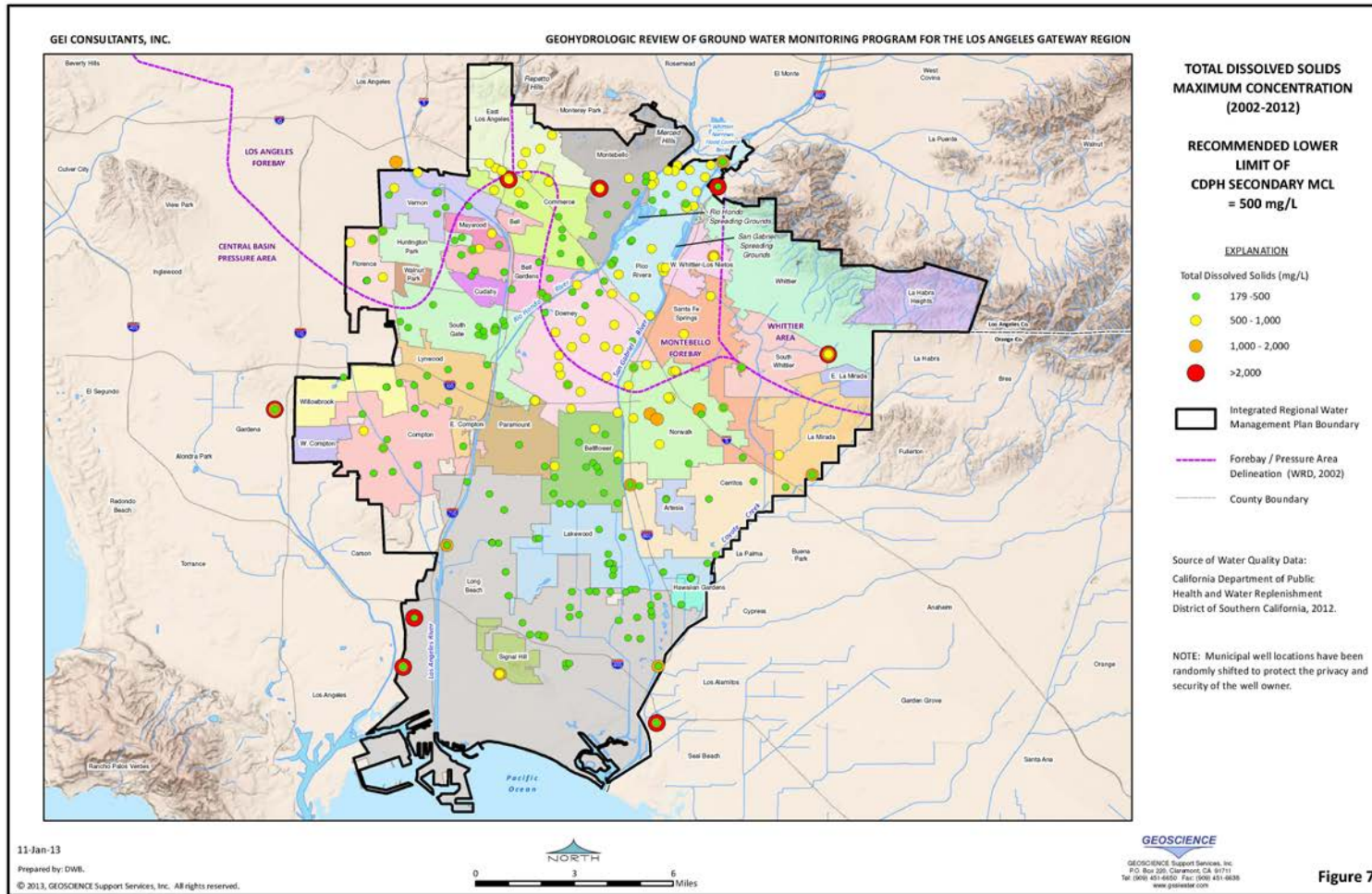


Figure 7-7. Total Dissolved Solids Maximum Concentration (2002-2012)



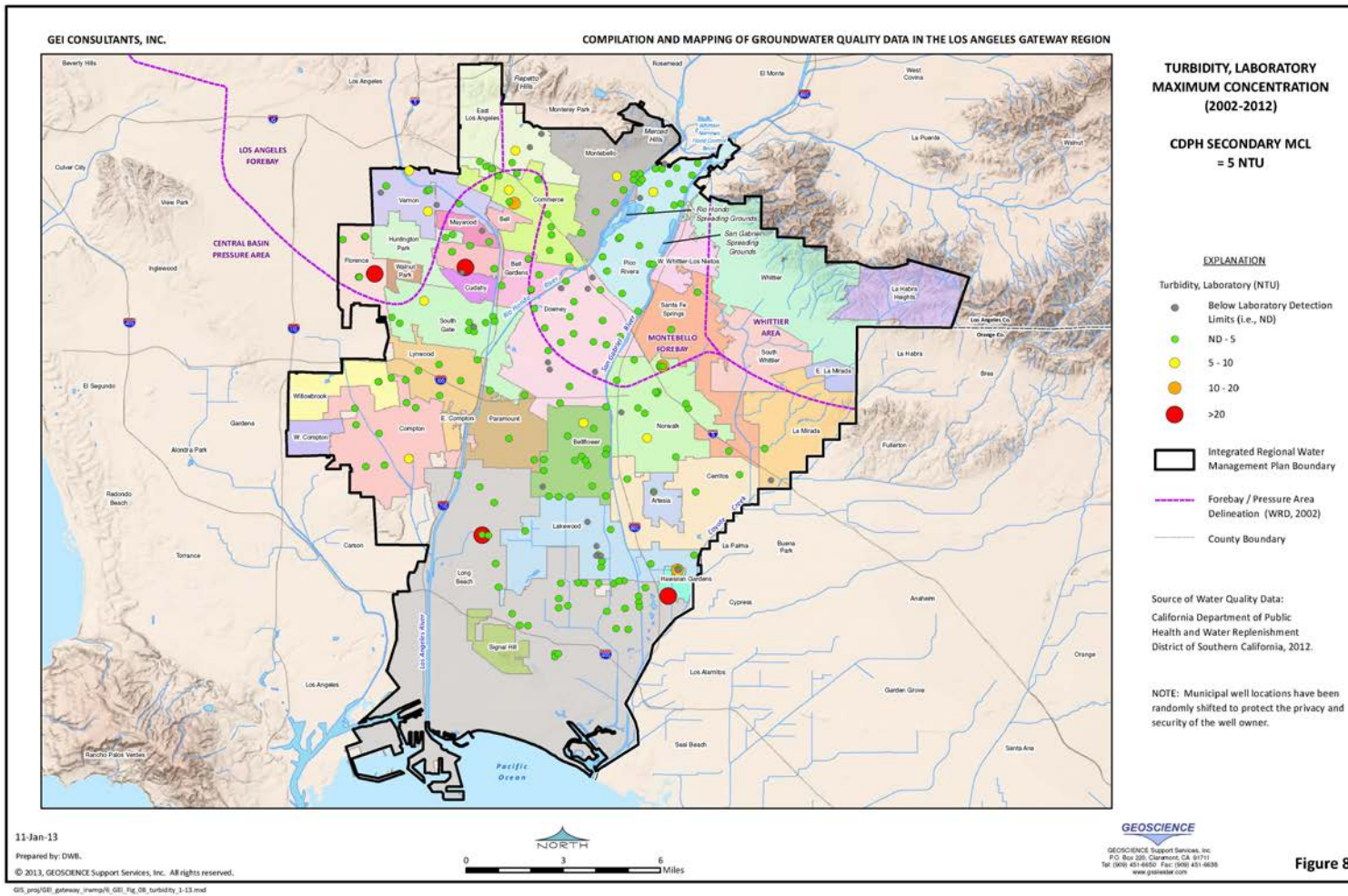


Figure 7-8. Turbidity, Laboratory Maximum Concentration (2002-2012)

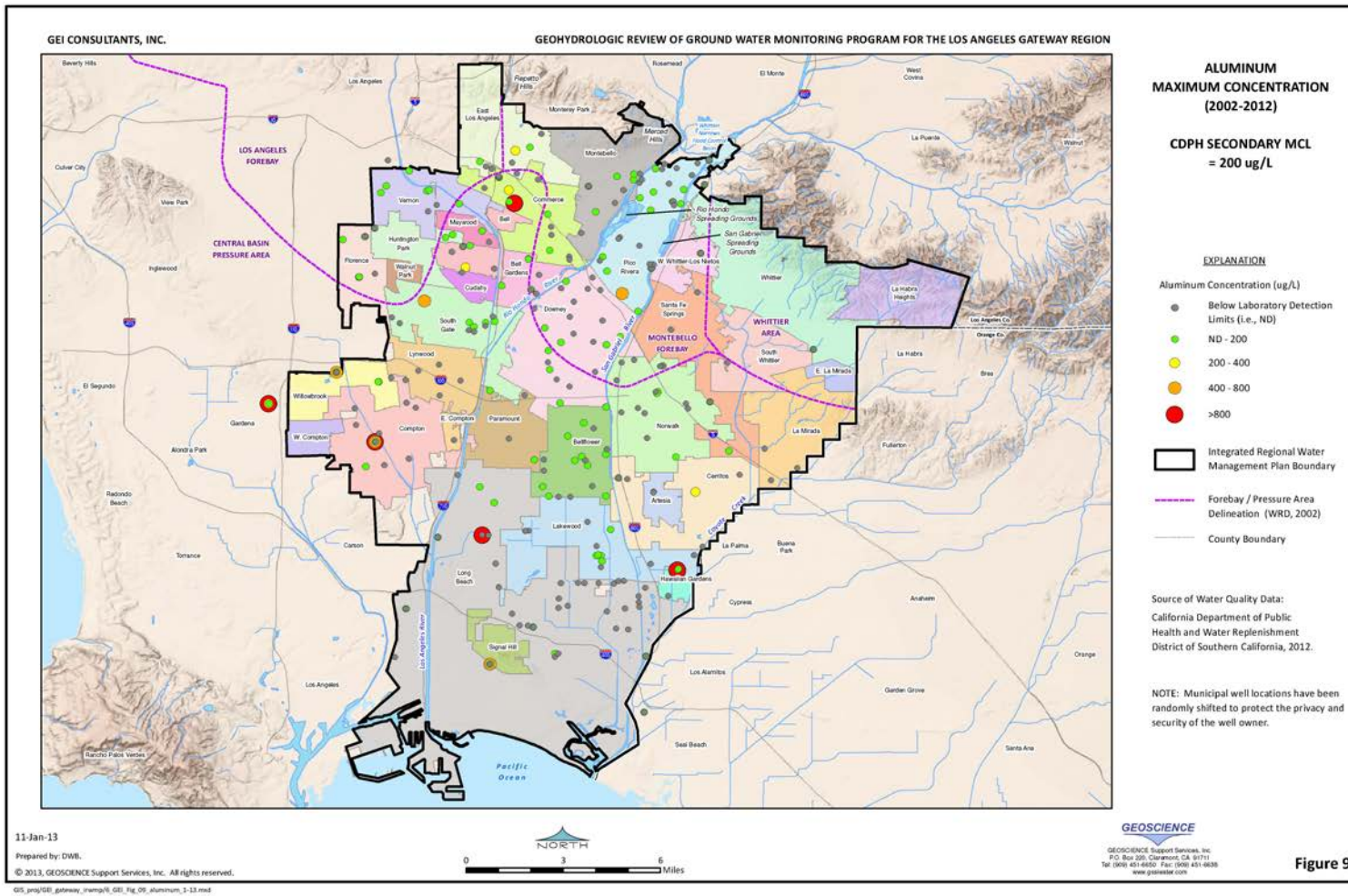


Figure 7-9. Aluminum Maximum Concentration (2002-2012)



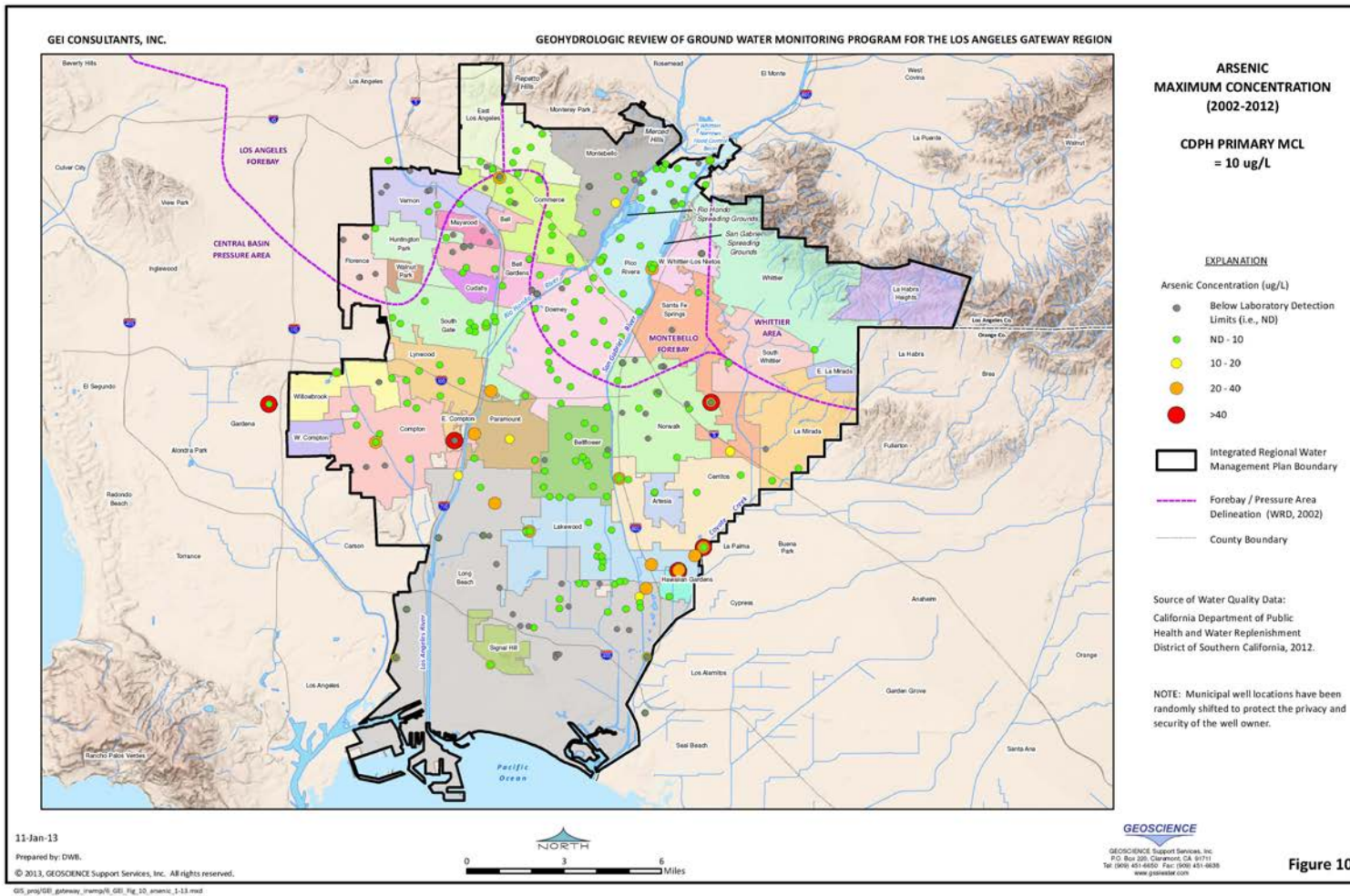


Figure 7-10. Arsenic Maximum Concentration (2002-2012)

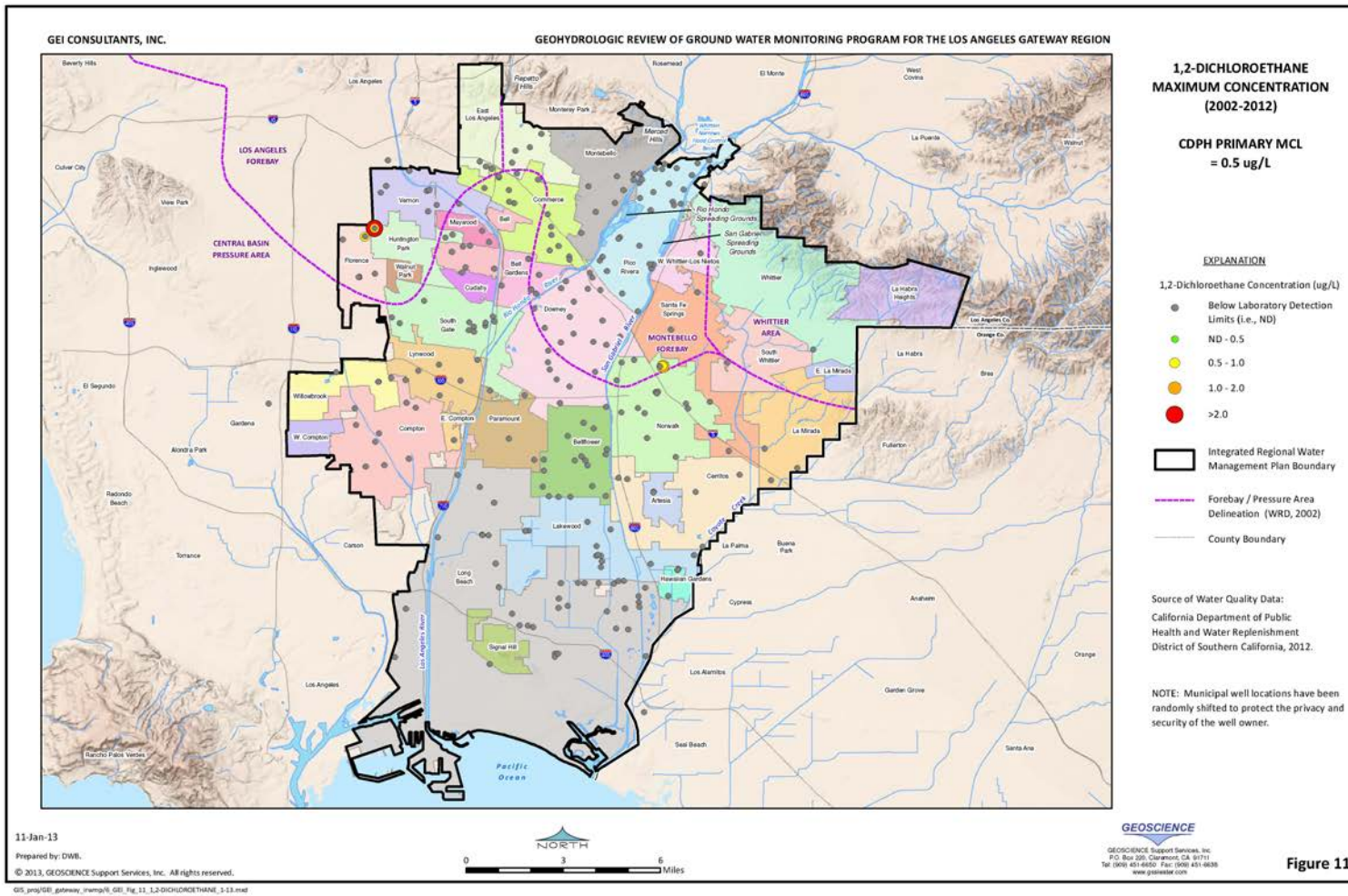


Figure 7-11. 1,2-Dichloroethane Maximum Concentration (2002-2012)



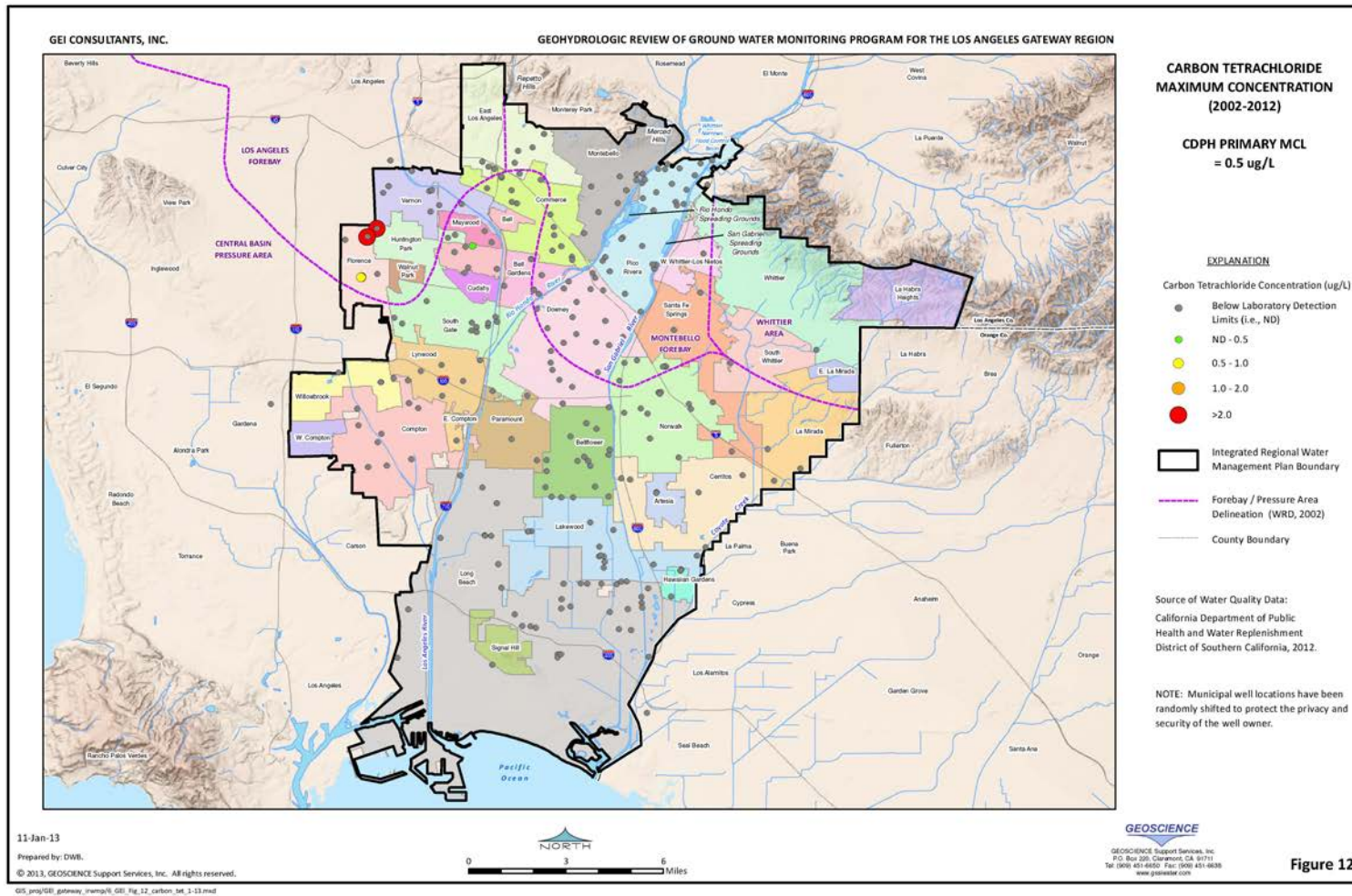


Figure 7-12. Carbon Tetrachloride Maximum Concentration (2002-2012)

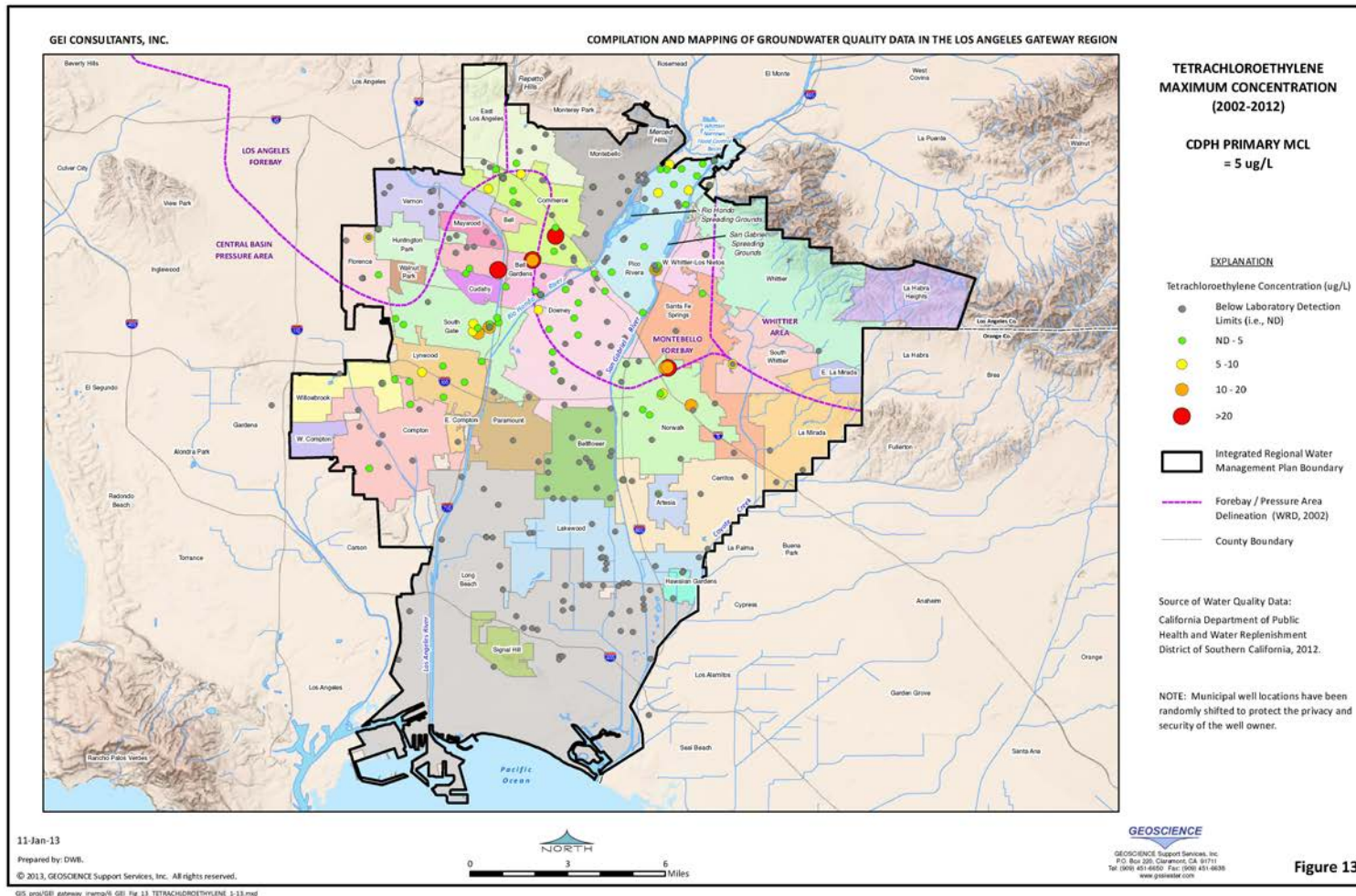


Figure 7-13. Tetrachloroethylene Maximum Concentration (2002-2012)



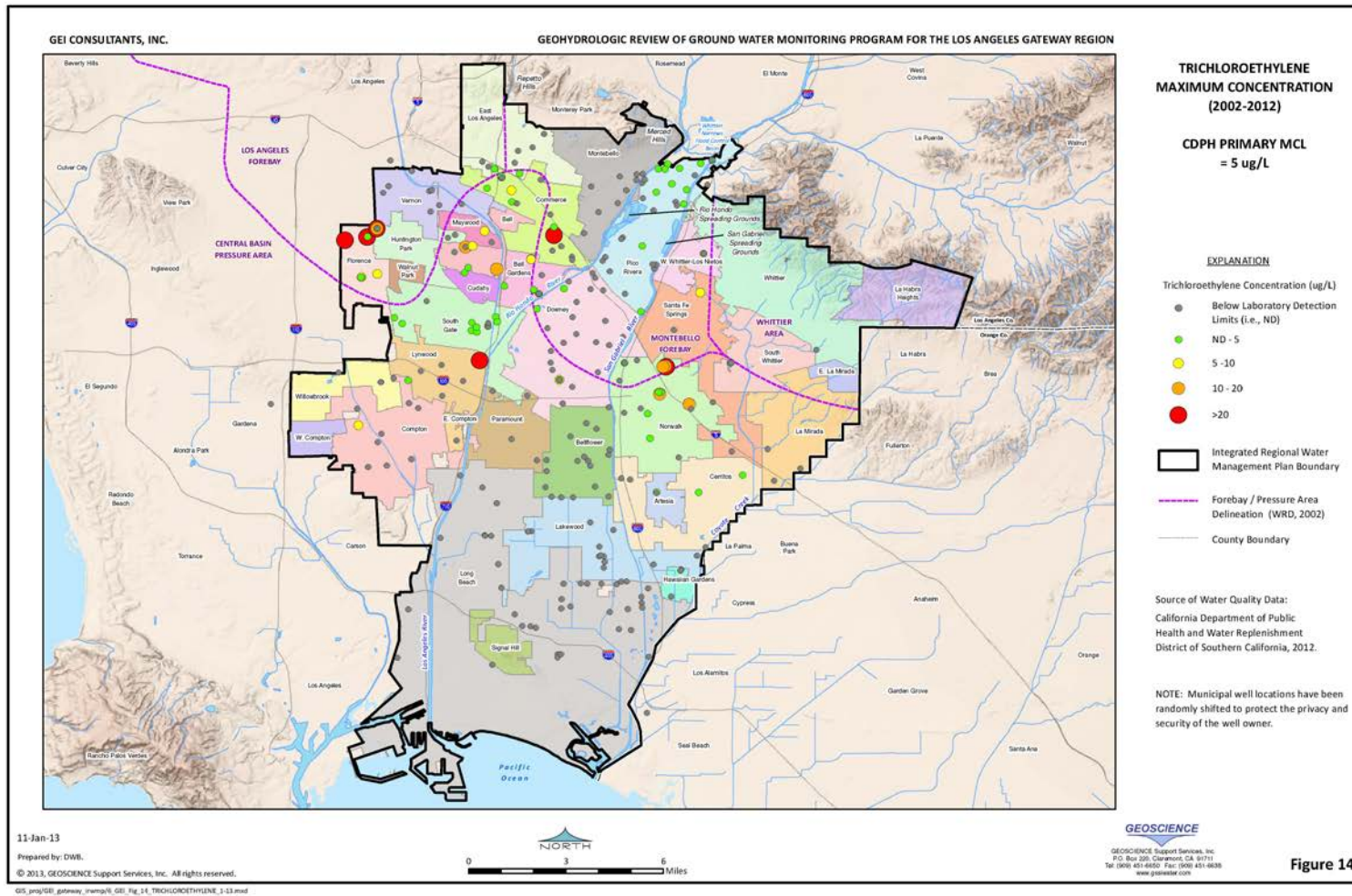


Figure 7-14. Trichloroethylene Maximum Concentration (2002-2012)

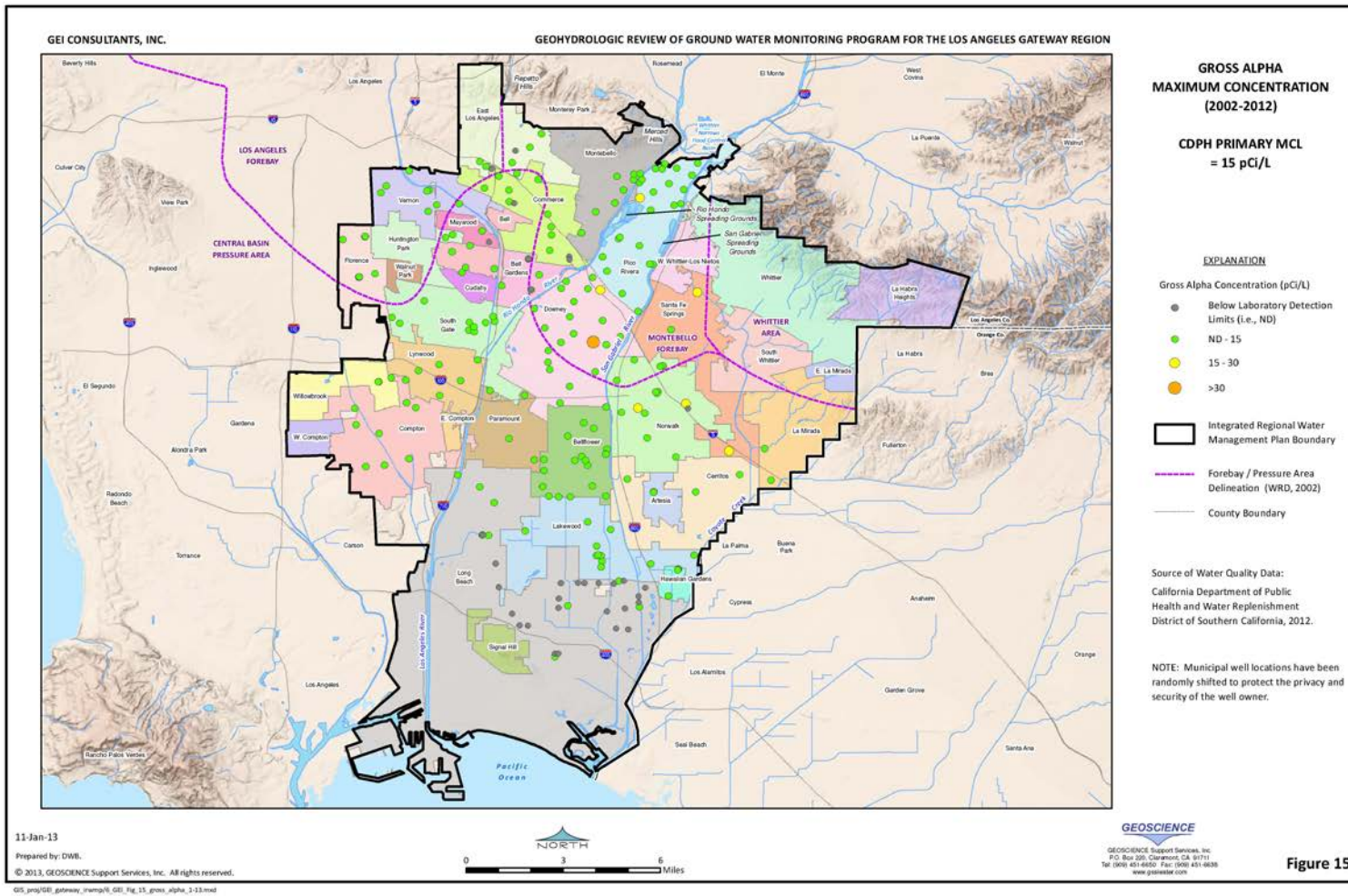


Figure 7-15. Gross Alpha Maximum Concentration (2002-2012)



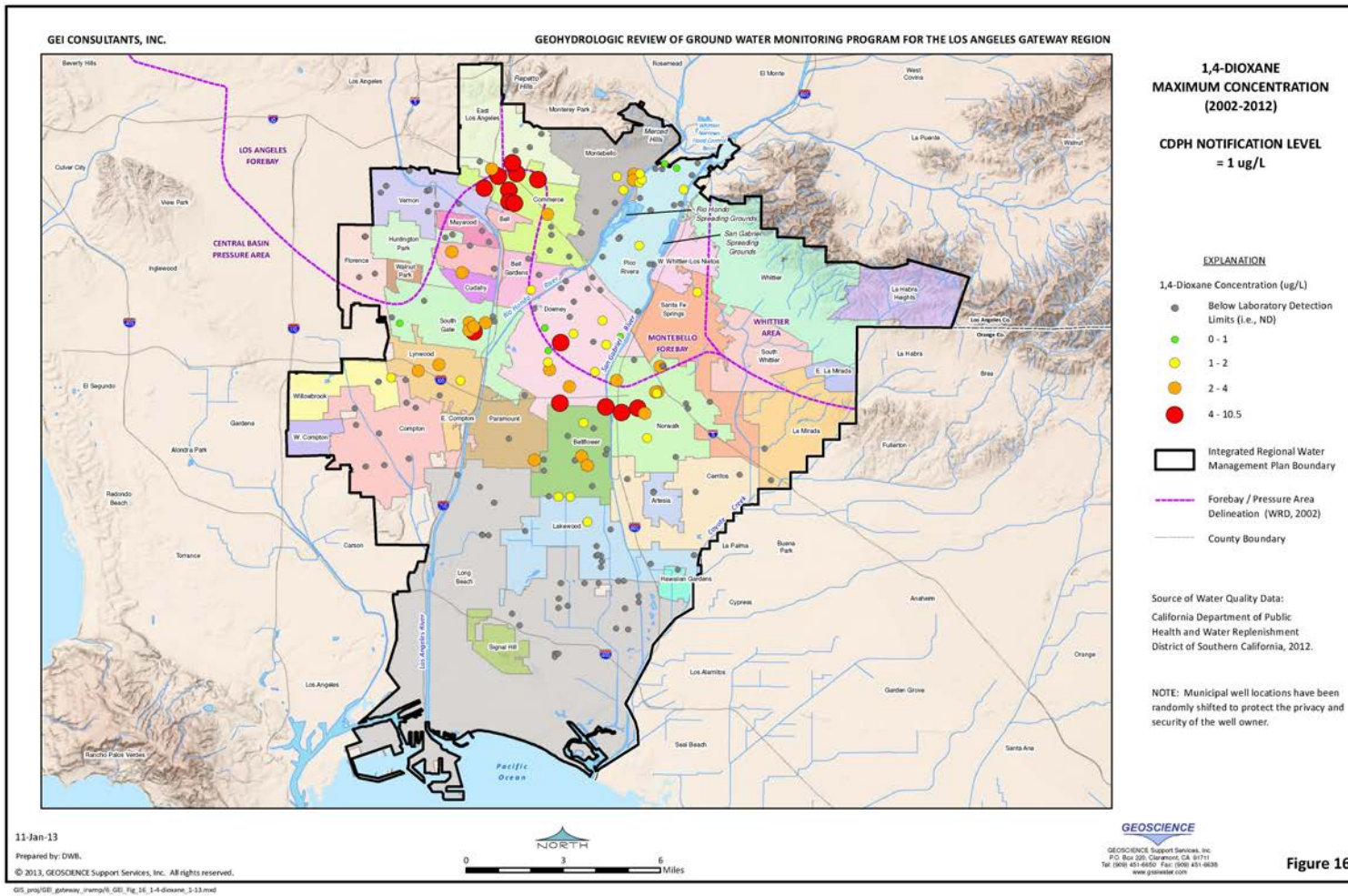


Figure 7-16. 1,4-Dioxane Maximum Concentration (2002-2012)

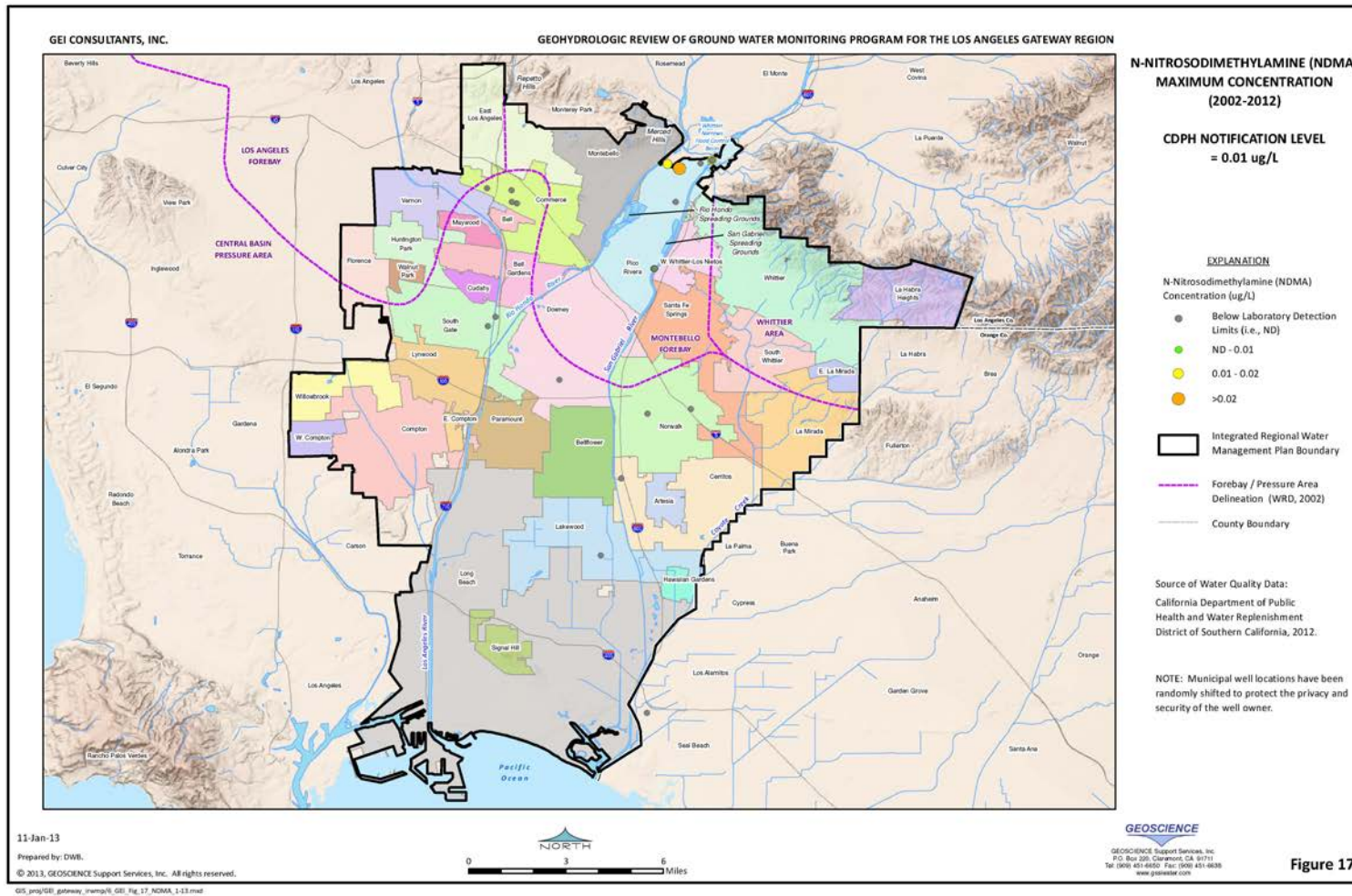


Figure 7-17. N-Nitrosodimethylamine (NDMA) Maximum Concentration (2002-2012)



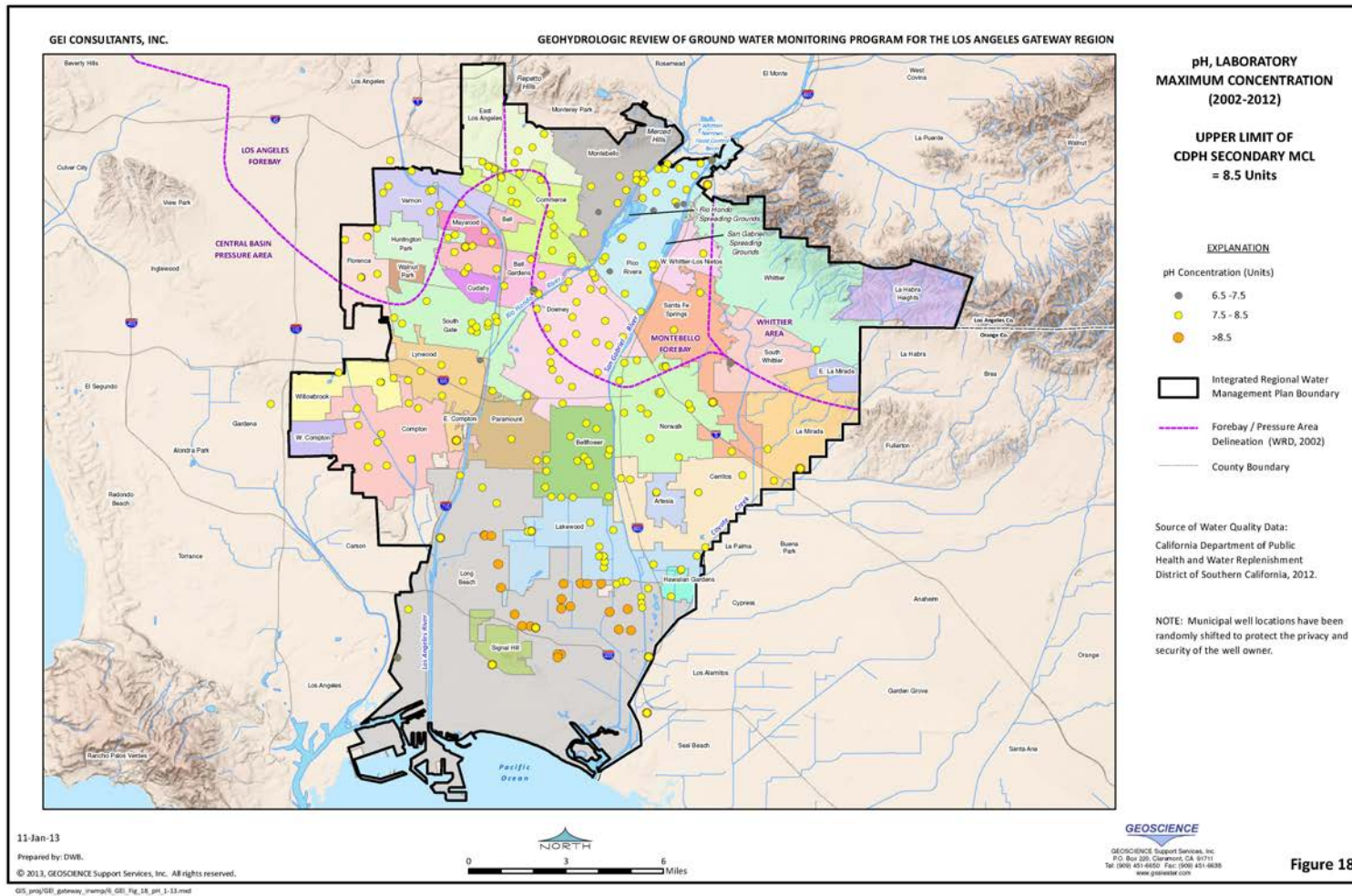


Figure 7-18. pH, Laboratory Maximum Concentration (2002-2012)

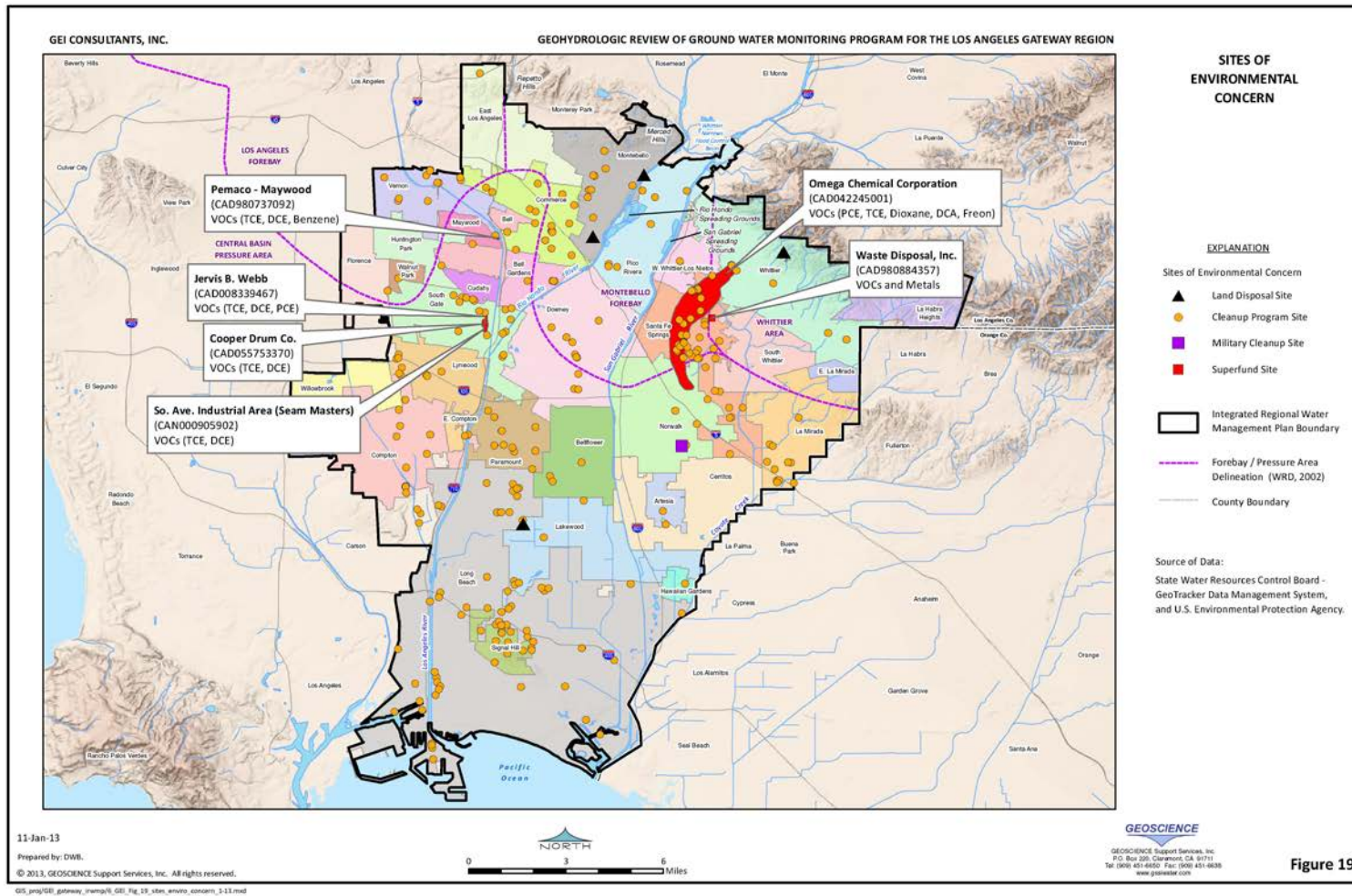


Figure 7-19. Sites of Environmental Concern



Sites of environmental concern were identified based on data provided by the United States Environmental Protection Agency (USEPA) and California State Water Resources Control Board (SWRCB) Geotracker websites, and include land disposal sites, cleanup program sites, military cleanup sites, and National Priorities List Superfund cleanup sites. Contaminant plumes associated with Superfund sites were digitized from recent monitoring reports and represent the maximum delineated lateral extent of groundwater contamination. Sites of environmental concern, including plume delineations, are shown on Figure 7-19.

## **7.1.2 Groundwater Quality in the Los Angeles Gateway Region**

### **7.1.2.1 Color**

Colored groundwater is found to occur naturally within the deeper coastal aquifers of the Los Angeles and Orange County Coastal Plain Groundwater Basins. While not considered hazardous to public health, colored groundwater is regulated with a secondary MCL of 15 Color Units for purely aesthetic reasons. Figure 7-1 shows the distribution of color within the Los Angeles Gateway Region, confirming that the coastal areas are most impacted by color in excess of the MCL (i.e., the City of Long Beach). Some scattered occurrences of color in excess of MCL are located throughout other areas of the Region.

### **7.1.2.2 Iron**

Iron in groundwater is primarily naturally occurring but can be leached from steel well casing. It is regulated under a CDPH secondary MCL of 300 micrograms per liter ( $\mu\text{g/L}$ ) and is generally not considered a significant health risk. Figure 7-2 shows that iron in excess of the MCL is fairly evenly distributed throughout the Region north of the City of Long Beach.

### **7.1.2.3 Manganese**

Manganese in groundwater is naturally occurring and is regulated under a CDPH secondary MCL of 50  $\mu\text{g/L}$  for aesthetic reasons as it can result in black staining. Figure 7-3 shows that manganese in excess of the MCL is fairly evenly distributed throughout the Gateway Region.

### **7.1.2.4 Odor**

Odor is commonly associated with colored water and is regulated with a CDPH secondary MCL of 3 Threshold Odor Number (TON) for aesthetic reasons. Figure 7-4 shows that odor is not a widespread water quality problem within the Los Angeles Gateway Region and that its occurrence is limited to scattered areas.

### **7.1.2.5 Specific Conductance**

Specific conductance is a measure of how well water will conduct electricity and is a function of the concentration of ions within the water. As such, it is an indirect measure of the concentration of dissolved solids. It is regulated under a CDPH secondary MCL recommended limit of 900 microsiemens per centimeter ( $\mu\text{S/cm}$ ), an upper limit of 1,600  $\mu\text{S/cm}$ , and a short-term maximum of 2,200  $\mu\text{S/cm}$ . Figure 7-5 shows that there are a large number of wells exceeding the recommended lower limit, particularly within the area north of Long Beach and Lakewood.

#### 7.1.2.6 Sulfate

Sulfate is a naturally occurring component of groundwater and is a major anion associated with total dissolved solids (TDS). It does not pose a risk to public health and is regulated under a CDPH secondary MCL for aesthetic reasons. There is a CDPH recommended limit of 250 milligrams per liter (mg/L), an upper limit of 500 mg/L, and a short-term maximum of 600 mg/L. Figure 7-6 shows that there are few wells exceeding the recommended lower limit, and that those that do are primarily located east of and sub parallel to the San Gabriel River.

#### 7.1.2.7 Total Dissolved Solids (TDS)

TDS is a measure of the concentration solids dissolved within water. It is regulated under a CDPH secondary MCL recommended limit of 500 mg/L, an upper limit of 1,000 mg/L, and a short-term maximum of 1,500 mg/L. Figure 7-7 shows that there are a large number of wells exceeding the recommended lower limit, particularly within the areas directly down gradient of the Los Angeles and Montebello Forebays. Those wells with the highest concentrations of TDS are primarily located in the Forebay areas, and in the southern portion of the Long Beach (presumably due to seawater intrusion).

#### 7.1.2.8 Turbidity

The origin of turbidity within groundwater can be from mobilization of fine formation materials such as silt and clay, from drilling fluid additives utilized during well drilling, and decomposition of well casing and or piping materials. It poses no risk to public health and is regulated for aesthetic reasons with a CDPH secondary MCL of 5 nephelometric turbidity units (NTU). Figure 7-8 shows that turbidity is not a widespread water quality problem within the Los Angeles Gateway Region and that its occurrence is limited to scattered areas.

#### 7.1.2.9 Aluminum

Aluminum is a naturally occurring metal found in groundwater that is regulated under a CDPH secondary MCL of 200 µg/L and is generally not considered a significant health risk. Figure 7-9 shows that there are few wells with aluminum in excess of the MCL sporadically distributed throughout the Region.

#### 7.1.2.10 Arsenic

Arsenic in groundwater is naturally occurring and is regulated under a CDPH primary MCL of 10 µg/L. It is considered a health risk and is known to result in cancer of the skin and bladder, and effects such as high blood pressure and diabetes. Figure 7-10 shows that arsenic in excess of MCL primarily occurs within the pressure zone of the Central Basin, with some scattered occurrences in the forebay areas.

#### 7.1.2.11 1,2-Dichloroethane

1,2-dichloroethane is a synthetic chemical primarily used in the manufacture of other chemicals. It is known to cause potential central nervous system disorders, and adverse lung, kidney, liver, and gastrointestinal effects. It is regulated under a CDPH primary MCL of 0.5 µg/L. Figure 7-11 shows that 1,2-dichloroethane in excess of MCL primarily occurs in very few scattered

locations within the Los Angeles Gateway Region, near Norwalk, Huntington Park, and Florence.

#### 7.1.2.12 Carbon Tetrachloride

Carbon tetrachloride is a synthetic chemical primarily used in the manufacture of chlorofluorocarbon propellants and refrigerants, and has been used as a dry cleaning agent and fire extinguisher. It is known to be a potential carcinogen and can result in liver problems. It is regulated under a CDPH primary MCL of 0.5 µg/L. Figure 7-12 shows that carbon tetrachloride in excess of MCL primarily occurs in the northwestern portion of the Los Angeles Gateway Region, in Huntington Park and Florence.

#### 7.1.2.13 Tetrachloroethylene (PCE)

PCE is a synthetic chemical solvent used as a dry-cleaning agent, metal degreaser, and in the textile industry. It is known to be a potential carcinogen and can result in liver problems. It is regulated under a CDPH primary MCL of 5 µg/L. Figure 7-13 shows that PCE in excess of the MCL primarily occurs within and immediately down gradient of the forebay areas, particularly in the Cities of Commerce, Bell Gardens, South Gate, and Norwalk.

#### 7.1.2.14 Trichloroethylene (TCE)

TCE is a synthetic chemical primarily used as a dry-cleaning agent and in the textile industry. It is known to be a potential carcinogen and can result in liver problems. It is regulated under a CDPH primary MCL of 5 µg/L. Figure 7-14 shows that TCE in excess of the MCL occurs primarily within and immediately down gradient of the forebay areas, particularly in the cities of Florence, Maywood, Commerce, Bell Gardens, Lynwood, and Norwalk.

#### 7.1.2.15 Gross Alpha

A radionuclide is an atom with an unstable nucleus which emits energy in the form of rays or high speed particles. This type of radiation can create “ions” by displacing electrons in the human body and disrupting the function of DNA. The three major types of ionizing radiation include alpha particles, beta particles and gamma rays. Alpha emitting radionuclides can be found naturally in groundwater from dissolved nuclides and are a known carcinogen. Gross alpha is regulated under a CDPH primary MCL of 15 picocuries per liter (pCi/L). Figure 7-15 shows that there are few wells with gross alpha in excess of MCL and that those are primarily located within and immediately down gradient of the Montebello Forebay.

#### 7.1.2.16 1,4-Dioxane

1,4-dioxane is a highly soluble synthetic chemical utilized as a stabilizer and solvent, and as a component in cosmetics and detergents. It is classified by the United States Environmental Protection Agency (USEPA) as a possible human carcinogen but does not have an established MCL. It is regulated under a CDPH Notification Level (NL) of 1 µg/L. Figure 7-16 shows that the occurrence of 1,4-dioxane in excess of the NL is widespread within and down gradient of the forebay areas, particularly in the Cities of Commerce, South Gate, Downey, and Norwalk.

#### 7.1.2.17 N-Nitrosodimethylamine (NDMA)

NDMA is a highly soluble synthetic chemical utilized in the manufacture of other chemicals, liquid rocket fuel, and a variety of products. It is also formed as a byproduct of disinfection during wastewater treatment. It is classified by CDPH and the USEPA as a human carcinogen and is regulated under a CDPH NL of 0.01 µg/L. Limited groundwater quality data is available for NDMA in the Gateway Region. Figure 7-17 shows that NDMA has been detected in the farthest upgradient portions of the Montebello Forebay where the San Gabriel and Rio Hondo Rivers enter the Central Basin. The source of these occurrences may be the discharge of disinfected wastewater from upgradient wastewater treatment plants. NDMA in this area may also be part of the contaminant plume associated with the Baldwin Park Operable Unit which has migrated down from the San Gabriel Basin.

Due to the formation of NDMA during wastewater treatment, LACSD has been aggressively working to investigate NDMA and reduce concentrations for over eight years. Key efforts include implementation of a modified chlorination procedure at the treatment plants that has significantly reduced effluent NDMA concentrations, as well as implementation of ultraviolet disinfection at one of the treatment plants. Additional actions taken include modifications to operations, implementation of source control measures, and numerous research projects on NDMA formation and attenuation.

LACSD has additionally completed a thorough study of attenuation and dilution of NDMA in the Montebello Forebay area. During the study, extensive monitoring was conducted of groundwater wells in the Montebello Forebay area and a model was developed to predict subsurface NDMA concentrations. Both the sampling and the modeling indicated that there are no production wells exceeding or predicted to exceed the NL for NDMA.

#### 7.1.2.18 pH, Laboratory

The pH of water is a measure of the hydrogen-ion concentration within it. The scale ranges from 0 to 14, with a pH of 7 indicating neutral water. A pH greater than 7 indicates that the water is basic and a pH of less than 7 indicates that the water is acidic. pH is regulated under a CDPH secondary MCL and must be maintained between 6.5 and 8.5 pH Units. Figure 7-18 shows that pH is above the upper limit of the MCL of 8.5 in a few scattered wells within the basin, and for most of the wells in the southernmost portion of the Los Angeles Gateway Region, within the City of Long Beach.

#### 7.1.2.19 Point Sources of Contamination

Figure 7-19 shows the location of various point sources of contamination and sites with the potential for contamination, including, Superfund sites, land disposal sites, military cleanup sites, and cleanup program sites. Other sites of a more local concern, underground storage tanks (leaking or otherwise), are not shown on the map as they are too numerous to depict. From a regional perspective, the six (6) Superfund sites shown on Figure 7-19 present the greatest concern for the protection of groundwater resources as they represent significant areas of contamination. They include the following sites and general types of contamination:

- Pemaco – Maywood: VOCs (TCE, 1,1-Dichloroethylene [DCE], and Benzene)
- Jervis B. Webb: VOCs (TCE, DCE, and PCE)
- Cooper Drum Company: VOCs (TCE and DCE)
- So. Avenue Industrial Area (Seam Masters): VOCs (TCE and DCE)
- Omega Chemical Corporation: VOCs (PCE, TCE, 1,4-Dioxane, DCA, and Freon)
- Waste Disposal, Inc.: VOCs and Metals

Of particular concern is the Omega Chemical Corporation site which has resulted in a contaminant plume measuring approximately four (4) miles in length and spanning several City boundaries.

## **7.2 Review of Groundwater Monitoring**

This section presents a review of existing groundwater monitoring programs within the Los Angeles Gateway Region, identifies data gaps, and provides recommendations for improvement. Ground and surface water issues within the Los Angeles Gateway Region are regional in nature and affect multiple consumers throughout a number of communities and cities. Therefore, basin management, monitoring, and improvement projects must be a collaborative effort among purveyors, stakeholders, and government entities. A comprehensive regional groundwater monitoring network that records water level and water quality data is essential for evaluating existing conditions and determining problem areas.

### **7.2.1 Purpose and Scope**

The purpose of this section is to review existing groundwater monitoring programs within the Los Angeles Gateway Region and to identify data gaps and areas where monitoring could be improved.

The scope of work to achieve these objectives includes:

- Description of existing monitoring networks and sources of data.
- Review of existing and proposed monitoring features and methodology.
- Review of measurement and reporting frequency.
- Identification of data gaps and potential improvements to the existing monitoring network.

### **7.2.2 Location of Project Area**

Figure 7-20 shows the Gateway Cities and WRD monitoring well locations.



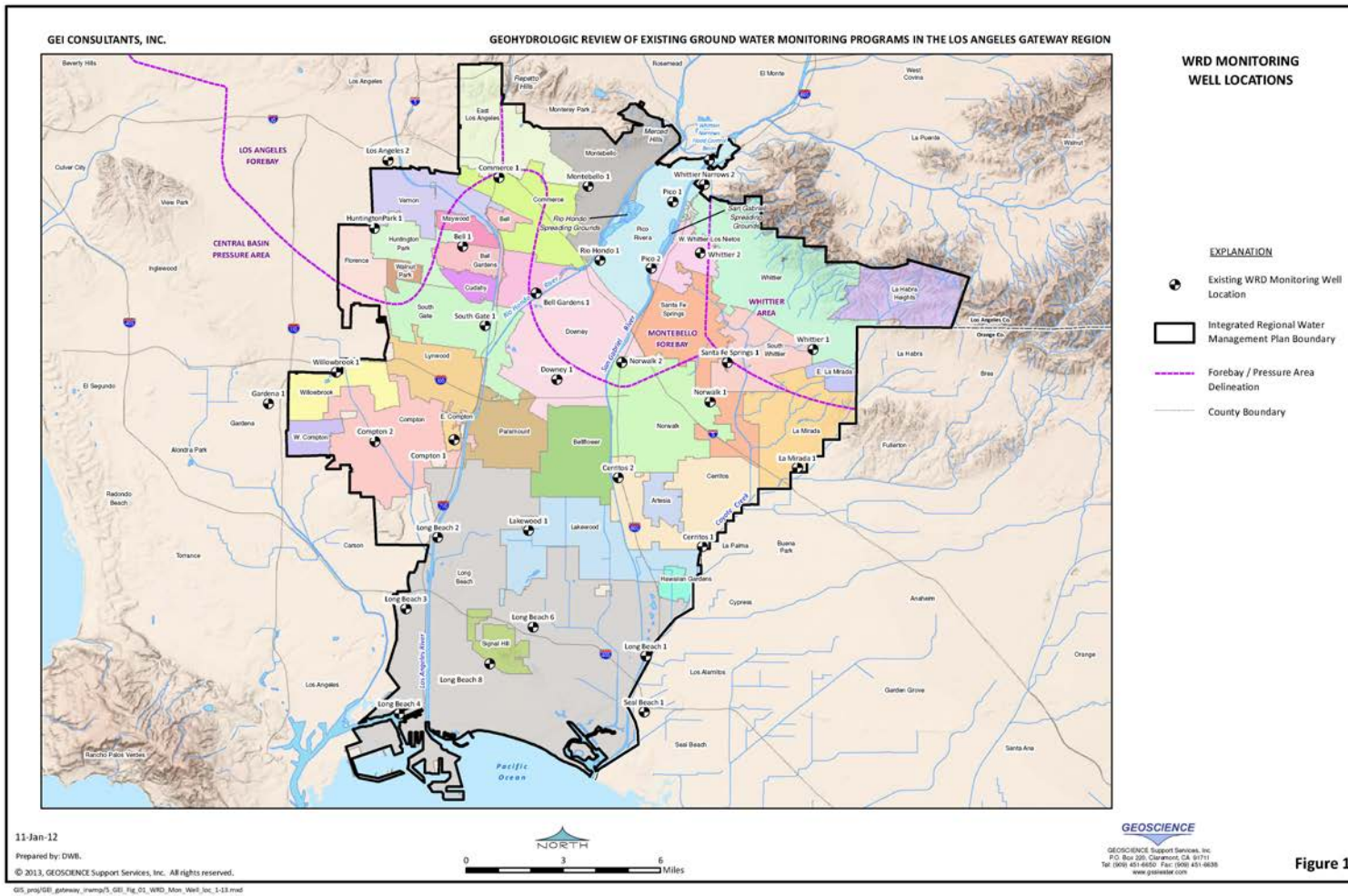


Figure 7-20. WRD Monitoring Well Locations

### **7.2.3 Sources of Data**

Data used for this analysis were obtained from multiple sources. The primary sources and types of data are summarized as follows:

- Water Replenishment District of Southern California (2012): Well locations, depth-specific groundwater quality and groundwater elevations.
- California Department of Public Health (2012): Historical groundwater quality data.
- California Department of Water Resources (1961 and 2004): Basin descriptions and geology.
- California State Water Resources Control Board Geotracker Website (2012): Point sources of contamination or potential contamination.
- U.S. Environmental Protection Agency (2009-2012): Superfund site locations and details.

### **7.2.4 Geohydrology of the Los Angeles Gateway Region**

#### **7.2.4.1 Regional Geohydrologic Setting**

The Los Angeles Gateway Region is located primarily within the Central Basin, a structural trough located within the Southgate Santa Ana Depression, which is composed of the Paramount Syncline, the Los Alamitos Fault, and the Norwalk Syncline. The Central Basin is separated to the north by a surface divide, the La Brea high, and on the northeast and east by Tertiary rocks of the Elysian, Repetto, Merced and Puente Hills. Coyote Creek, a regional drainage, forms the southeastern boundary, while the Newport Inglewood fault system and the associated uplift forms the southwestern boundary (DWR, 2004 and 1961).

The sediments that fill the Central Basin are derived from surrounding mountains. Where these sediments are saturated in the subsurface, they form the basin's aquifers. Subsurface alluvial sediments consist of alternating layers of sand, gravel, silt, and clay in varying proportions. As with any alluvial groundwater basin, many different interconnected water-bearing zones make up the aquifer system.

The Central Basin Pressure and Non-Pressure Areas (see Figure 7-20) are hydraulically downgradient from the Montebello Forebay (the most significant area of recharge within the basin), the Los Angeles Forebay, and the Whittier Area. The pressure area comprises the portion of the Central Basin that is generally deeper and contains thick and/or multiple fine-grained (i.e., silt and clay) layers that tend to confine or pressurize the groundwater beneath them. In contrast to the Central Basin Pressure Area is the forebay, which is considered the area of the groundwater basin where groundwater flow is less impeded by aquitards allowing deeper aquifers of the basin to be in more direct hydraulic continuity with shallow aquifers and surface deposits. Thus, the aquifers of the basin are replenished (recharged) primarily from the percolation of surface water.

The southern portion of the Los Angeles Gateway Region is located within the West Coast Basin. The West Coast Basin is bounded on the east by the Newport-Inglewood fault zone, which acts as a partial barrier to groundwater movement in the area (DWR, 2004). Seawater intrusion has occurred in aquifers nearest to the coast, and is currently addressed with a protective line of injection wells. Recharge to the West Coast Basin comes primarily from

underflow from the Central Basin through and over the fault zone. Minor recharge to the upper aquifers results from infiltration of surface water from the Los Angeles and San Gabriel Rivers.

## **7.2.5 Stratigraphic Units**

### **7.2.5.1 Bedrock**

Bedrock surrounding the Central Basin consists of low permeability Tertiary sedimentary units of the Pico and Repetto Formations. These formations consist primarily of siltstones, interbedded with sandstones and conglomerates of marine origin. These units are found below the maximum depth of most of the area's water supply wells and data related to their ability to produce appreciable quantities of water is not certain—however, oil well data indicates that the quality of water produced from these units is unsuitable for potable use (DWR, 1961).

### **7.2.5.2 Alluvium**

Saturated and unsaturated sediments in the Central and West Coast Basins consist of Tertiary and Quaternary marine and non-marine alluvial materials. Generally, these deposits consist of alternating layers of sand, gravel, silt, and clay in varying proportions. Where these sediments are saturated in the subsurface, they form the basin's aquifers. The two main water bearing formations are the San Pedro and Lakewood Formations, each of which consists of numerous aquifers of Quaternary age.

## **7.2.6 Groundwater**

### **7.2.6.1 Aquifer Systems**

In the Central Basin, the San Pedro and Lakewood Formations have been generally subdivided in to the following principal aquifers:

1. Gaspur
2. Exposition
3. Gardena/Gage
4. Hollydale
5. Jefferson
6. Lynwood
7. Silverado
8. Sunnyside

The shallowest aquifers in the Central Basin are comprised of the Gaspur/Exposition aquifer system. These two aquifers are hydraulically connected in the Montebello Forebay and are not easily distinguishable. The sediments that form the Gaspur aquifer are river channel deposits consisting primarily of coarse sand and gravel. Sediments of the Exposition aquifer are similar but were deposited by the ancestral Los Angeles River and are located primarily to the west of the Whittier Narrows area (DWR, 1961). Below the Gaspur and Exposition aquifers are deposits of the Gage/Gardena aquifer system, which typically consists of fine- to coarse-grained sand and gravel which merges with the overlying Gaspur aquifer in the Whittier Narrows area. The deeper aquifers beneath the Gage aquifer include (in order of increasing depth below the ground surface) the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers. The Lynwood and Silverado aquifers are the primary sources of municipal groundwater supply, and most of the wells within the Central Basin are screened,

to some degree, within these aquifers. Groundwater production from the Sunnyside aquifer is limited to very deep municipal and industrial supply wells.

Major aquifers found in the West Coast Basin include:

1. Gaspur
2. Gardena
3. Gage
4. Lynwood
5. Silverado
6. Sunnyside

The shallowest aquifer in the West Coast Basin, the Gaspur aquifer, occurs only in the Dominguez Gap area and has been heavily intruded by seawater. The Gardena aquifer, consisting of varying proportions of sand and gravel with minor amounts of silt and clay, is known to produce relatively high quantities of water to wells. The Gage aquifer (or “200-ft sand”) consists primarily of sand, is not present within the Long Beach Plain, and is of relatively low permeability. The deeper aquifers of the San Pedro Formation include (in order of increasing depth below the ground surface) the Lynwood and Silverado aquifers. The Lynwood aquifer (or “400-ft gravel”) consists of sand and gravel with minor amounts of silt and clay, is relatively permeable, and provides groundwater to wells located primarily in the Torrance and Inglewood areas of the West Coast Basin. The Silverado aquifer, consisting of fine- to coarse-grained sand and gravel, is the primary source of municipal groundwater supply in the West Coast Basin and supplies 80 to 90 percent of extracted supply (DWR, 2004). The Sunnyside or undifferentiated Lower San Pedro aquifer occurs beneath the Silverado in some portions of the West Coast Basin and is known to yield only minor amounts of water to wells.

#### 7.2.6.2 Groundwater Occurrence and Movement

Groundwater within the Gateway Region generally flows in a south and southwesterly direction from areas of recharge (i.e., the forebays) towards the Pacific Ocean under a hydraulic gradient averaging approximately 20 ft/mile.

#### 7.2.6.3 Historical Groundwater Elevations

Historically, groundwater levels in the Central Basin were declining in the first half of the 20th century as a result of agricultural pumping. This decline continued through the 1950s when groundwater levels began to rise, corresponding with reduced pumping, and artificial recharge of imported water in the Whittier Narrows area. With few exceptions, groundwater levels have generally increased since the mid-1950s and early 1960s as artificial recharge has increased and pumping for agricultural use has decreased. Groundwater levels in many wells have returned to their pre-1940s levels.

#### 7.2.6.4 Groundwater Quality

Naturally occurring constituents of primary concern within groundwater of the Central and West Coast Basins include, but are not limited to, total dissolved solids (TDS), color, arsenic,

manganese, and iron. Groundwater is also impacted by contamination from local industry and from organic contaminants moving through Whittier Narrows from the San Gabriel Basin. Synthetic contaminants of concern include trichloroethylene (TCE), tetrachloroethylene (PCE), and 1,4-dioxane.

### **7.2.7 Existing Monitoring Network**

Groundwater quality and levels within the Central and West Coast Basins are formally monitored by the WRD in cooperation with the United States Geological Survey (USGS) and 43 cities in southern Los Angeles County. WRD's Regional Groundwater Monitoring Program currently consists of a network of 300 nested monitoring wells at over 50 locations (multiple wells per location having perforations at varying depths). In addition to collecting and reporting data from its monitoring well network, WRD compiles and evaluates data from the California Department of Public Health (CDPH) database, a publicly available database of purveyor and individual production well water quality data for wells within California. WRD regularly compiles and analyzes this data and publishes the findings in an annual Regional Groundwater Monitoring Report (RGWMR).

#### **7.2.7.1 Monitoring Features**

##### ***Monitoring Wells***

Within WRD's current network of 300 monitoring wells, 161 are located within the Los Angeles Gateway Region at 31 separate locations (see Figure 7-20). These nested monitoring wells are screened in specific aquifers to allow for a more detailed assessment chemical occurrence and migration, and the health of the groundwater basin. Nearly 500 groundwater samples and over 100 individual water quality constituents are collected and analyzed annually from individual aquifers. In addition to groundwater quality, the WRD monitoring wells are utilized to monitor groundwater levels.

Maintaining historical groundwater level records is essential for the management of any groundwater basin. Lowering of groundwater levels below the perforated intervals or near the pump bowls of production wells can result in costly mitigation measures (e.g. lowering of pump bowls). In extreme cases, lowered groundwater levels can result in adverse environmental impacts. Thus, representative groundwater level measurements are a key component upon which basin management decisions are made. Dedicated groundwater monitoring wells (wells that are not pumped), are essential to obtaining representative groundwater level measurements (i.e., "static" groundwater levels that are not directly influenced by pumping). Groundwater levels measured in production wells that are frequently pumped often do not represent static conditions because the pump in the well cannot be turned off long enough for the water level to completely return to static (pre-pumping) conditions in the well.

##### ***Production Wells***

The Los Angeles Gateway Region includes more than 50 water purveyors supplying water to 35 cities. Production wells in the Central and West Coast Basins are perforated at varying depths and often span multiple aquifer systems and restrictive boundaries. Water from these supply wells may be considered a blend of water quality from multiple aquifer zones and can

produce a wide range of water quality results. Figure 7-21 shows the approximate locations of production wells, both municipal and irrigation, within the Los Angeles Gateway Region<sup>2</sup>.

## **7.2.8 Measurement Frequency**

### 7.2.8.1 Groundwater Levels

Groundwater levels in the monitoring network are currently being measured by WRD at a minimum of every three months. However, some monitoring wells contain automatic data loggers which are capable of measuring and recording water levels on a daily basis. Levels are recorded to the nearest 0.01 foot. Hydrographs presenting this data can be found in WRD's RGWMR (WRD, 2012).

### 7.2.8.2 Groundwater Quality

Groundwater samples are collected from WRD's monitoring wells on a semiannual basis (i.e., twice per year). The results of the water quality laboratory analyses are presented annually in tabular and map forms along with selected water quality data from local production wells as provided by CDPH. Ten (10) constituents have been selected by WRD as being most representative of overall groundwater quality:

- Total Dissolved Solids (TDS)
- Iron
- Manganese
- Nitrate
- Chloride
- chromium
- Trichloroethylene (TCE)
- Tetrachloroethylene (PCE)
- Arsenic
- Perchlorate
- Hexavalent

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<sup>2</sup> The locations of these wells as shown on Figure7-21 have been randomly shifted to protect the privacy and security of the well owner and do not represent exact locations.



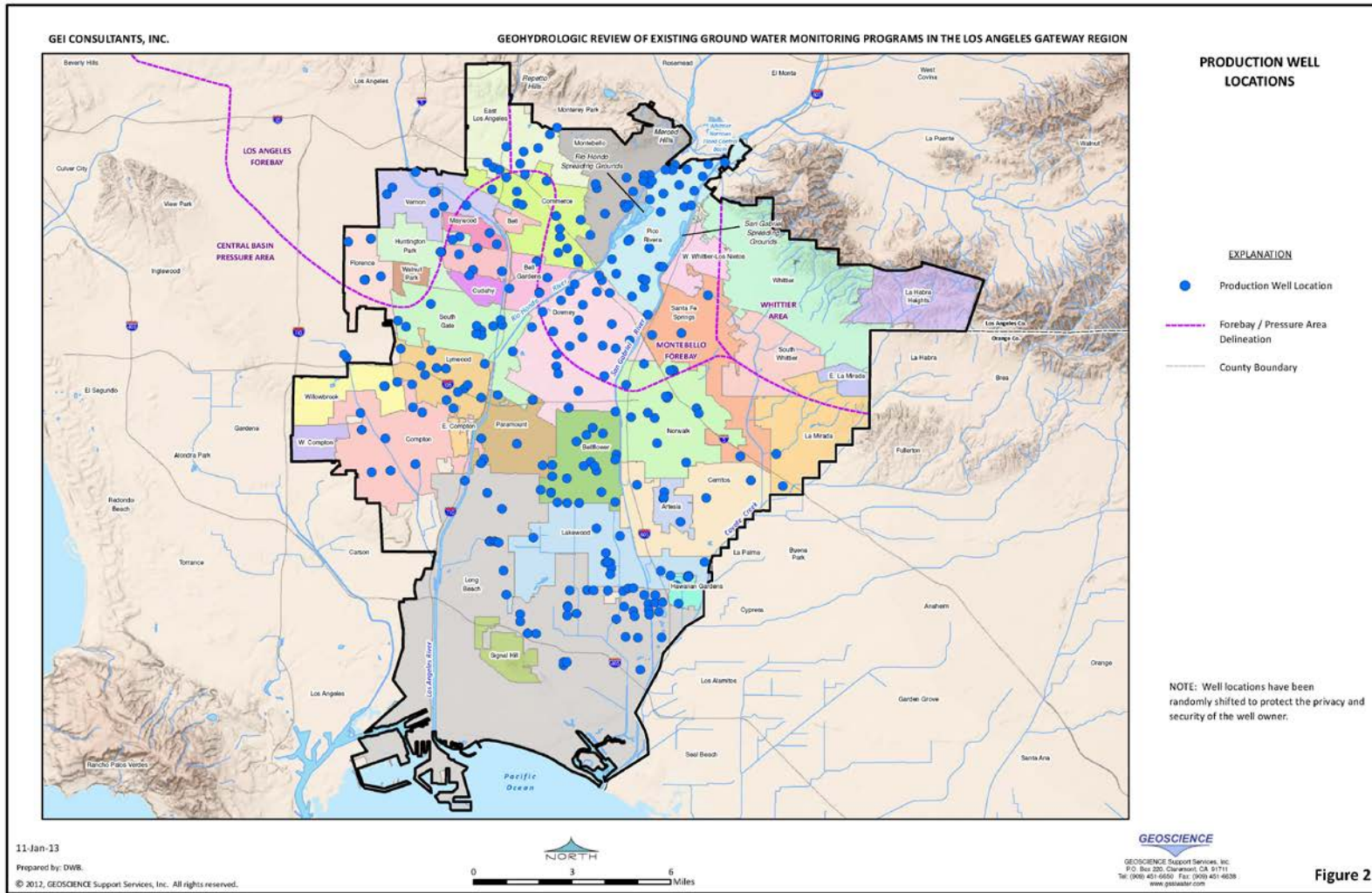


Figure 7-21. Production Well Locations

### **7.2.9 Data Management**

Groundwater level and water quality data is collected and reported by WRD in cooperation with the USGS. Results can be found on WRD's website where the data is presented using an interactive map interface along with customizable search options. Monitoring well construction details, including well specifications and screen depths, are provided in a tabular format. Production volumes, water levels, and water quality data are provided by local purveyors for the majority of the active and inactive production wells in the West Coast and Central Basins.

As mentioned previously, data compiled and reviewed by WRD is published annually in the RGWMR. The RGWMR presents groundwater level and water quality data from the previous water year which runs from October 1 through September 30.

### **7.2.10 Identification of Data Gaps**

The monitoring program currently being implemented by WRD was evaluated for the purposes of improving monitoring and reporting of groundwater levels and water quality within the Los Angeles Gateway Region. A thorough understanding of basin conditions is critical to maintaining clean groundwater sources for municipal supply, identifying potential areas of concern, preventing overdraft, and combating sea water intrusion. Although WRD's monitoring network is very thorough, several locations in the Central and West Coast Basins were identified for potential improvement. Since WRD intelligently designs and constructs monitoring wells to be representative of individual aquifer systems, it is assumed that the vertical distribution of data is adequate wherever an existing nested monitoring well is present.

#### **7.2.10.1 Groundwater Levels**

##### ***Spatial Distribution***

WRD's extensive network of nested monitoring wells is located throughout the Los Angeles Gateway Region; however, some areas have been identified where spatial data gaps exist. Data gaps were identified by applying a 1.5-mile buffer zone surrounding each of the existing monitoring wells. In this way, areas with greater than three miles between monitoring wells were identified. These areas are shown on Figure 7-22 as gaps between the 1.5-mile buffers and include the following major locations:

- Bellflower/Paramount
- Long Beach
- Cerritos
- Whittier
- South Gate
- Lynwood
- Lakewood

WRD has indicated that it is planning to install six (6) additional nested monitoring wells, three (3) of which are located within the areas identified as data gaps (i.e., South Gate, Lynwood, and Lakewood). The locations of these WRD proposed monitoring wells are shown as asterisks on Figure 7-23.

#### *Frequency of Monitoring*

Groundwater levels are currently monitored by WRD at minimum every 3 months (i.e., quarterly). There are also several monitoring wells that are equipped with pressure transducers and data-logging equipment that measure and record water levels on a daily basis. Quarterly monitoring of water levels is an acceptable frequency which can be effectively used to identify seasonal variations.

#### 7.2.10.2 Groundwater Quality

Groundwater quality in the Los Angeles Gateway Region is monitored on a regular basis by production well purveyors, CDPH, WRD, and others in order to identify and mitigate negative impacts to underlying aquifers and to protect public health. Possible negative impacts may include contamination from chemicals used in industry, illegal discharges, past agricultural activities, leaking fuel tanks, disposal sites, and seawater intrusion from over pumping of groundwater wells near the coast. Occurrence and concentrations of these chemicals can vary depending on pumping conditions and aquifer recharge, and as such, regular monitoring is required to detect changes.

#### *Spatial Distribution*

Characterizing specific aquifer properties is critical to proper well design, and the ability to track the vertical and horizontal migration of contaminant plumes is critical to mitigation efforts. The seven locations identified in Section 4.1.1 (i.e., Bellflower/Paramount, Long Beach, Cerritos, Whittier, South Gate, Lynwood, and Lakewood) also apply as sites where additional water quality monitoring would be beneficial. Monitoring of sea water intrusion along the coast near Long Beach is one such site where focused efforts should continue. Other sites of environmental concern can be found in Figure 7-24, and include Superfund sites, land disposal sites, military cleanup sites, and cleanup program sites. Monitoring of existing wells or installation of additional wells in these locations should continue to be a top priority.

#### *Frequency of Monitoring*

Groundwater is sampled from monitoring wells within WRD's network and submitted to State-certified laboratories on a semiannual basis during both the wet and dry periods of the year (i.e., spring/winter and summer/fall) so that seasonal variations in groundwater quality can be documented. Groundwater quality results from municipal production wells are submitted to CDPH at a minimum of every three (3) years by individual purveyors in order to comply with the State of California Title 22 rule. The semiannual monitoring frequency implemented by WRD, in addition to the 3-year production well sampling frequency for CDPH compliance, is considered adequate.

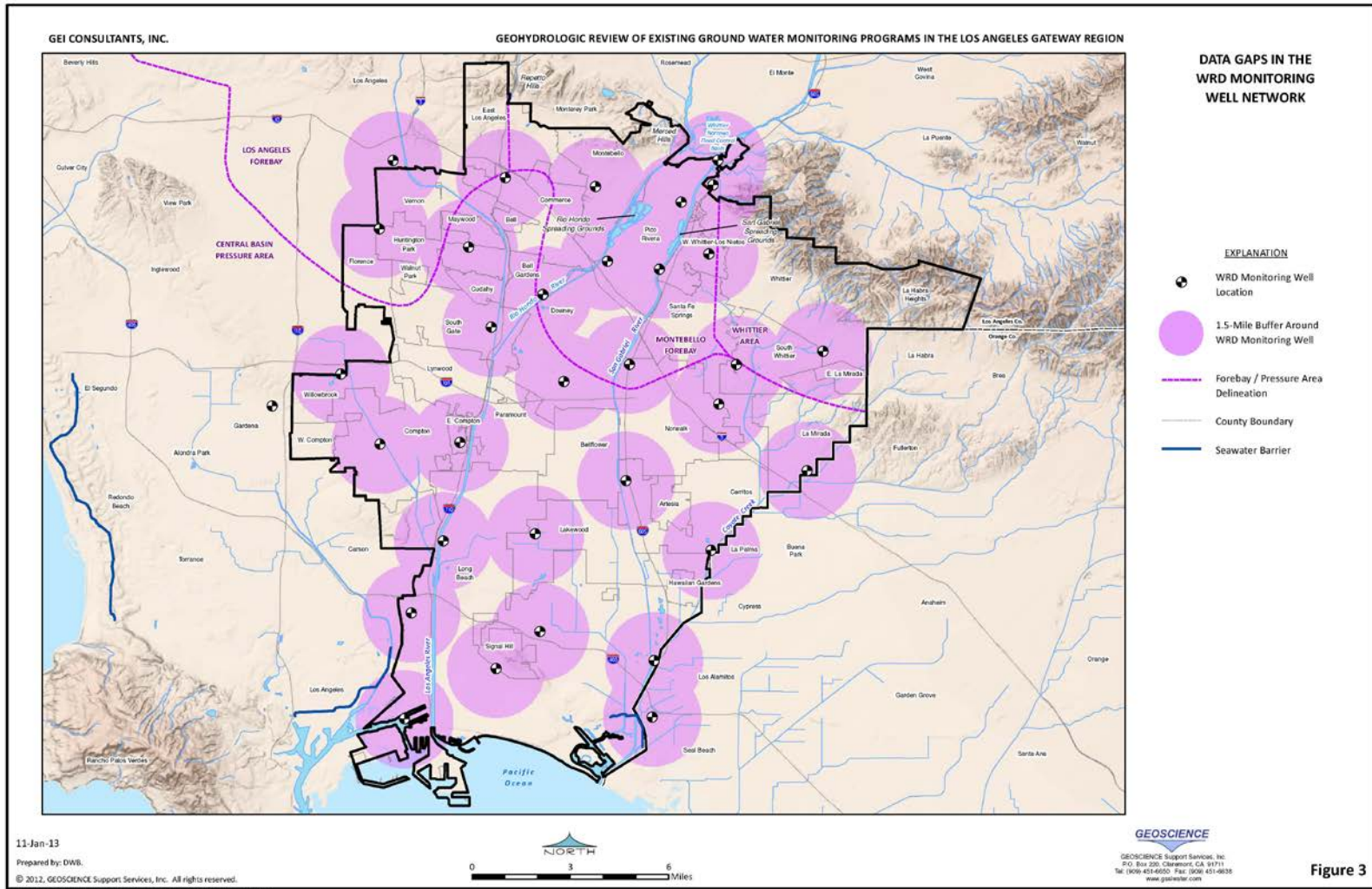


Figure 7-22. Data Gaps in the WRD Monitoring Well Network



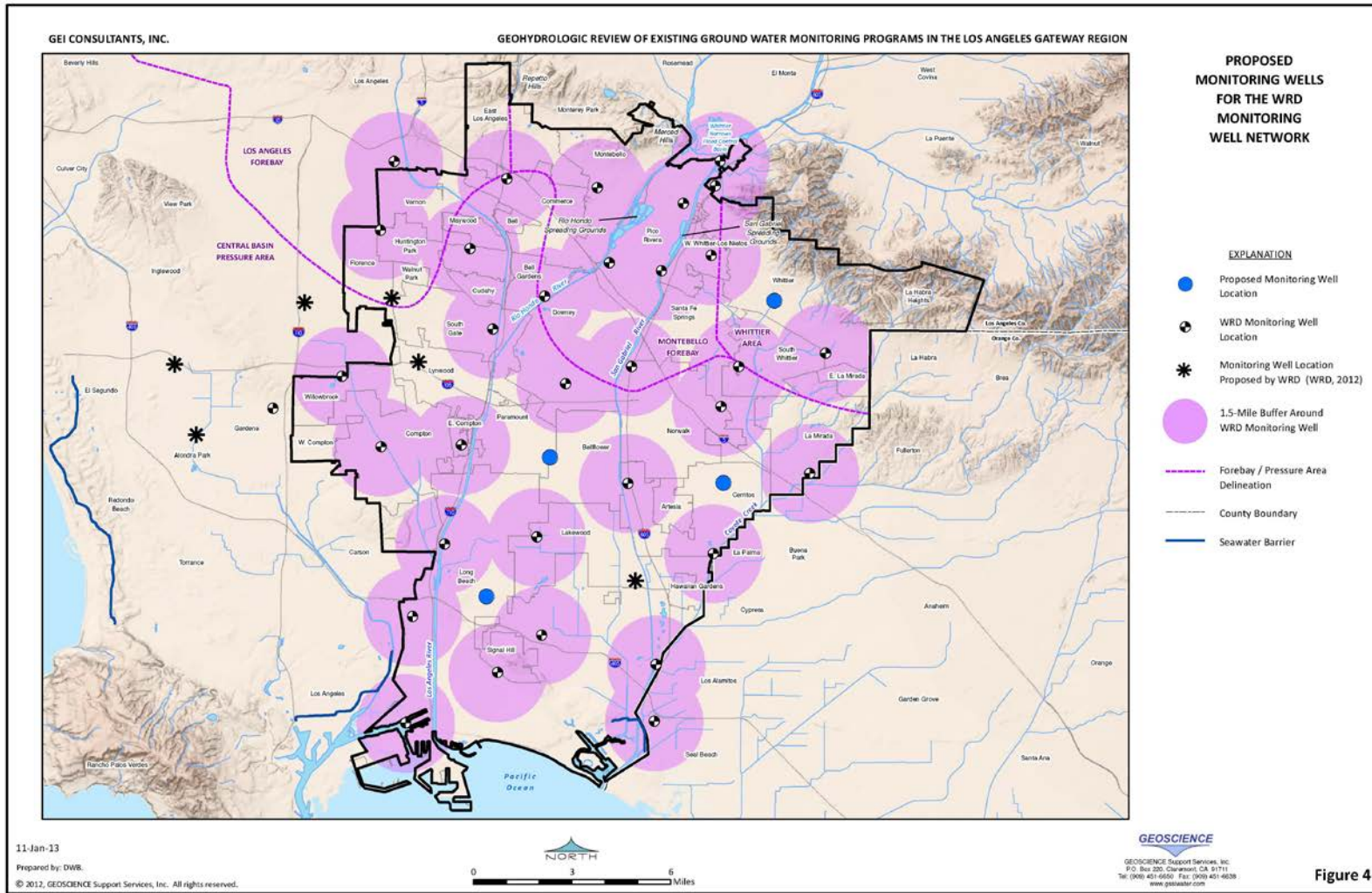


Figure 7-23. Proposed Monitoring Wells for the WRD Monitoring Well Network

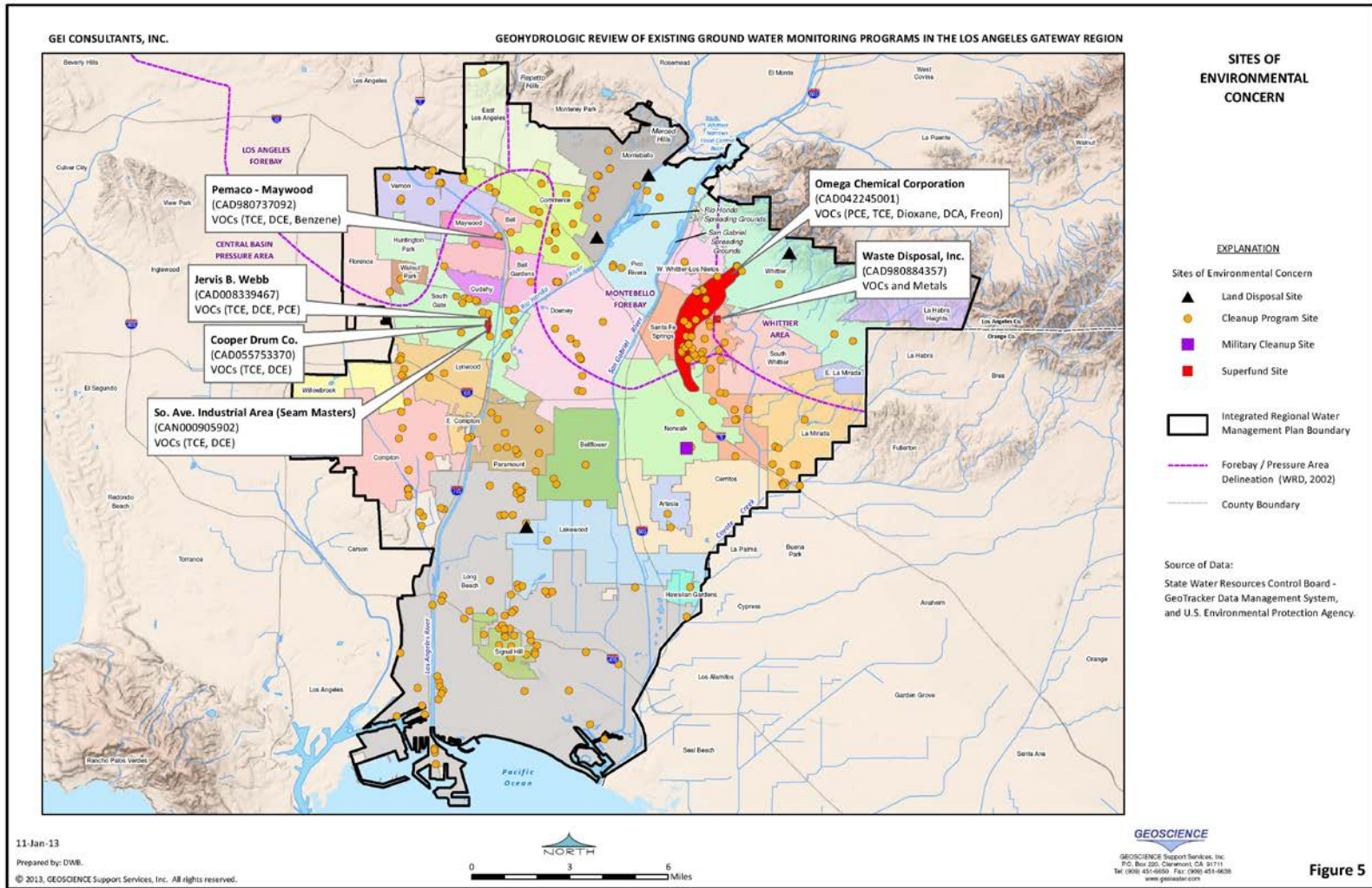


Figure 7-24. Sites of Environmental Concern



### **7.2.11 Water Quality Constituents**

WRD currently reports results for 68 water quality constituents from samples collected from their nested monitoring well network. Chemical constituents include general mineral and physical properties, inorganics, metals, and volatile organic compounds. These constituents are sufficient for general monitoring; however, monitoring of additional constituents may be beneficial. Water quality data for monitoring, municipal, and irrigation wells within the Los Angeles Gateway Region were obtained from WRD and CDPH water quality databases. In an effort to identify areas within the Gateway Region that are impacted by contaminants in excess of regulatory limits, historical groundwater quality data over the period of record from 2002 to 2012 were queried for constituents in excess of the following minimum regulatory levels, regardless of the aquifer(s) screened by the well.

- Primary Maximum Contaminant Levels (MCLs)
- Secondary MCLs

In addition, historical groundwater quality data over the relatively recent past (i.e., from 2002 to 2012) were queried for constituents in excess of the following advisory levels, regardless of the aquifer(s) screened by the well.

- Notification Levels (previously referred to as Action Levels)
- Archived Advisory Levels

Those constituents in excess of these regulatory and/or advisory levels at 10 or greater locations were considered areas of significant regional groundwater quality impairment and selected for mapping. The following 14 constituents were found to be in excess of minimum regulatory and/or advisory levels at 10 or greater locations and were mapped as points of varying diameter according to concentration level (GEOSCIENCE, 2013):

- Color
- Odor
- pH
- Turbidity
- Specific Conductance
- Total Dissolved Solids (TDS)
- Iron
- Manganese
- Sulfate
- Aluminum
- Arsenic
- Tetrachloroethylene (PCE)
- Trichloroethylene (TCE)
- 1,4-dioxane

One of these 14 constituents impacting groundwater in the Los Angeles Gateway Region has not been included in WRD's annual RGWMR.

- 1,4-dioxane

1,4-dioxane, an industrial solvent stabilizer, has notification levels (i.e., a CDPH health based advisory level), but have not been assigned an MCL. This constituent has been identified by CDPH and the USEPA as being a contaminant of emerging concern. Other emerging contaminants or groups of contaminants not reported in the RGWMR include:

- 1,2,3-trichloropropane
- NDMA
- Tert-Butyl-Alcohol (TBA)
- Pharmaceuticals
- Personal Care Products
- Gross alpha

Special attention should be paid to these constituents of emerging concern as they may have an impact on human health regardless of whether an MCL has currently been assigned. It would be beneficial for future WRD groundwater monitoring reports to include these chemicals for reference, several of which have been included in the USEPA's Unregulated Contaminant Monitoring Rule 3 (UCMR 3), a monitoring requirement of specific public water systems, which is currently in effect through 2015.

### **7.2.12 Findings**

Based on this evaluation of existing groundwater monitoring practices and groundwater quality within the Los Angeles Gateway Region, the following findings have been identified:

- There are seven (7) major areas within the Los Angeles Gateway Region that have been identified as spatial (vertical and lateral) data gaps within the WRD monitoring network:
  - Bellflower/Paramount
  - Long Beach
  - Cerritos
  - Whittier
  - South Gate
  - Lynwood
  - Lakewood
- Current semiannual groundwater quality sampling of monitoring wells as implemented by WRD is adequate and allows for monitoring of seasonal variations in groundwater quality.
- The current quarterly monitoring frequency for groundwater levels as implemented by WRD is adequate and allows for reporting of seasonal fluctuations in groundwater levels.
- Current groundwater quality monitoring and reporting frequencies for local production wells are considered adequate for effective monitoring of blended groundwater quality. UCMR 3 groundwater quality monitoring as required by USEPA is a proactive approach to monitoring and early identification of emerging contaminants of concern.
- CDPH and the USEPA identify 1,4-dioxane as an emerging contaminants of concern. GEOSCIENCE (2013) found 1,4-dioxane to be a constituents of concern within the Gateway Region , though it was not currently reported within WRD's annual RGWMR.

- The following constituents or chemical groups have been identified by CDPH and the USEPA as emerging contaminants of concern and are not currently reported within WRD's annual RGWMR:
  - 1,2,3-trichloropropane
  - TBA
  - Pharmaceuticals
  - Personal Care Products
  - NDMA
  - Gross Alpha

### **7.2.13 Recommendations**

The following recommendations include suggested changes to existing monitoring and reporting programs within the Los Angeles Gateway Region that may improve spatial and temporal coverage of the data being collected.

- In addition to WRD's planned construction of nested monitoring wells in South Gate, Lynwood, and Lakewood, four additional monitoring wells located in Bellflower/Paramount, Long Beach, Cerritos, and Whittier would help to provide more aquifer-specific groundwater level and water quality data in areas that are currently lacking dedicated monitoring wells.
- The following groundwater quality constituents and chemical groups identified by the CDPH and USEPA as being chemicals of emerging concern and may be considered as an addition to future WRD Regional Groundwater Monitoring Reports.
  - 1,2,3-trichloropropane
  - TBA
  - Pharmaceuticals
  - Personal Care Products
- Gross Alpha was found by GEOSCIENCE (2013) to be a constituent of concern within the Los Angeles Gateway Region. It should also be noted that 1,4-dioxane was found to be in excess of its respective notification level in over ten wells within the LA Gateway Region for the period of record from 2002 to 2012 (GEOSCIENCE, 2013). It is recommended that these two constituents, at a minimum, be included within WRD's sampling and reporting protocol.
  - 1,4-dioxane
  - Gross alpha

## 8 Storm Water and Flooding Issues

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### 8.1 Flooding Problem Areas

In order to assess and catalog existing problem areas for flooding in the Gateway IRWMP Region, Tetra Tech created an online survey. The survey was intended to be a simple vehicle to collect flooding information from stakeholders who have extensive experience in their respective communities. The survey was created using [www.surveymonkey.com](http://www.surveymonkey.com) and was provided in the following format:

1. Name
2. Affiliation/Organization
3. Title
4. Email Address
5. Describe the flooding issues at Location #1, including address or cross streets. [a] How severe is the flooding at this location? (e.g., mild, moderate, severe). [b] What size storms cause flooding at this location? (e.g., only large storms?)
6. Additional questions for Locations #2, #3, #4, and #5

As shown above, the stakeholders were generally asked to describe the locations, frequency and severity of known flooding problems. The location of flooding problems was described by address and/or cross street. The severities of flooding were ranked as mild, moderate, or severe. Flooding frequency is related to the size storm event that causes the flooding (i.e., flooding during small storms means more frequent flooding). Areas that should be considered most problematic are those which exhibit severe flooding from small storms. It is acknowledged that the relative ranking of severity and frequency is not precisely defined and is subjective; follow-up work could be performed to quantify the flooding depths and frequency at identified locations.

Each of the surveys was compiled into an electronic database and is included in Appendix E. In total, there were responses from 17 agencies and 70 locations were reported. Responses to the survey indicate that there are several locations within the Gateway IRWMP Region that experience severe flooding and many more that experience mild to moderate flooding. Figure 8-1 highlights the results of the survey geographically with graphics that are color-coded to identify flooding severity and storm frequency. A general summary of the survey results includes the following:

- **Severe flooding:** Nine areas in Huntington Park, sections of Downey, and one location in Bellflower were reported to have severe flooding from small storms. The second most susceptible areas were described as exhibiting severe flooding from medium storms. Two locations in Montebello and one location in Santa Fe Springs were reported to have severe flooding from moderate storms. The third most susceptible areas were described as exhibiting severe flooding from large storms. Several locations in Cudahy, South Gate, and Lynwood were reported to have severe flooding from large storms.

- **Moderate flooding:** Many locations throughout the Gateway IRWMP Region were identified as having moderate flooding. Only one location in Santa Fe Springs was identified as susceptible to moderate flooding from small storms. Several locations in Montebello, Commerce, Downey, and Santa Fe Springs were reported as susceptible to moderate flooding from medium storms. And many locations in Vernon, Paramount, Bellflower, Lakewood, and Norwalk were reported as susceptible to moderate flooding from large storms.
- **Mild flooding:** Mild flooding associated with medium storms was reported in Bell Gardens and mild flooding associated with large storms was reported in Bell Gardens and Montebello.

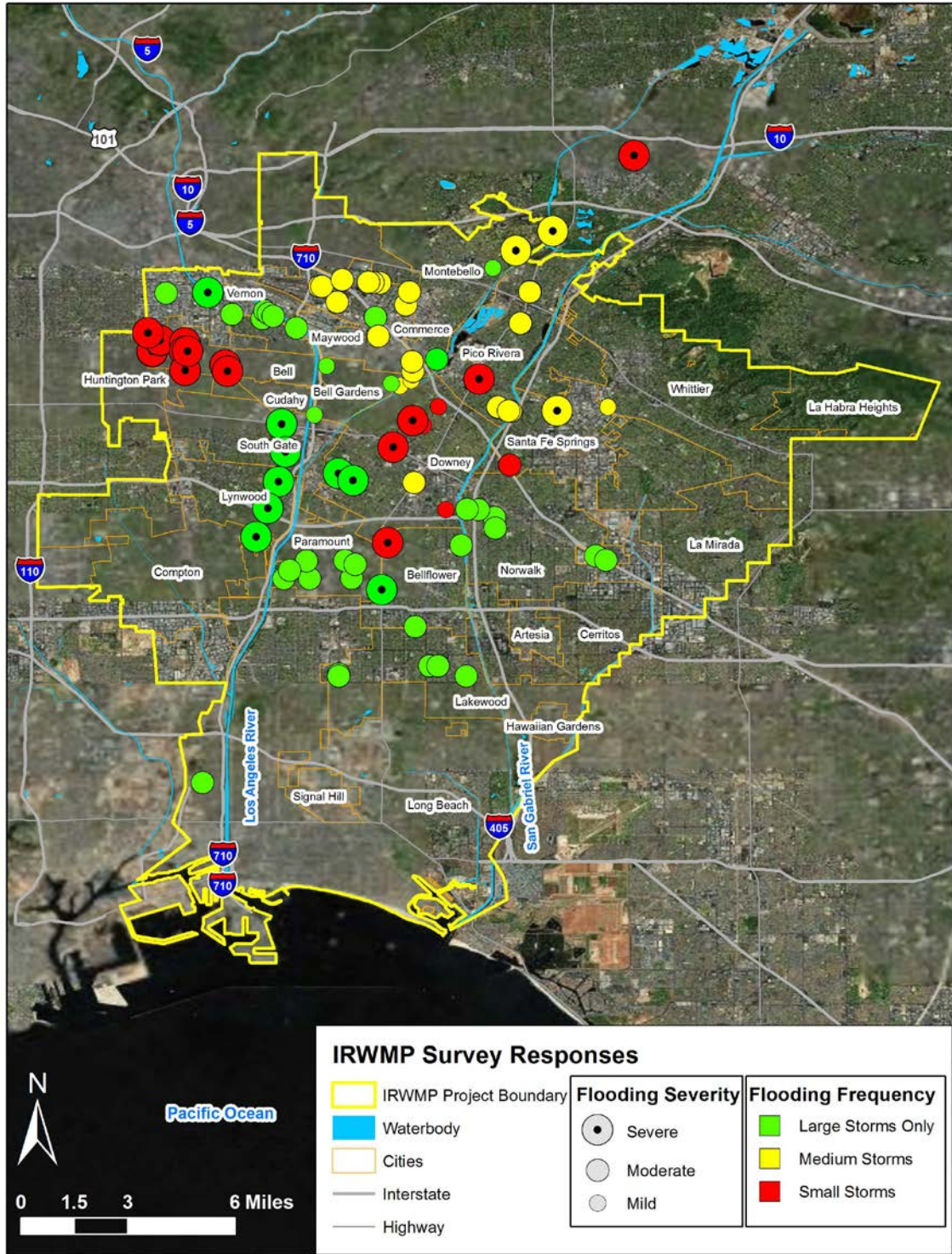


Figure 8-1. IRWMP Survey Responses for Flooding



## 8.2 Storm Water Quality Problem Areas

Storm water quality problem areas in the Gateway Region were assessed using a hydrodynamic water quality model. The approach used the water quality model to identify areas within the region that have the potential to *generate* storm water pollutants. The Watershed Management Modeling System (WMMS) developed by Los Angeles County Flood Control District (Tetra Tech 2010a; Tetra Tech 2010b) was used to evaluate current water quality conditions within the Gateway IRWMP Region. The watershed model component of the WMMS is the Loading Simulation Program C++ (LSPC). LSPC is a comprehensive data management and modeling system that is capable of representing loading, both flow and water quality, from non-point and point sources and simulating in-stream processes. LSPC as configured for the WMMS simulates the Gateway IRWMP Region as a series of hydrologically connected sub-watersheds. The LSPC model in WMMS is calibrated to existing conditions in the Gateway IRWMP Region for runoff, total nitrogen (TN), total phosphorus (TP), copper (Cu), lead (Pb), zinc (Zn), total suspended solids (TSS), and fecal coliform.

The LSPC model was run over the period of 1998 to 2006, and the relative annual average yield of pollutants (e.g., pounds per acre per year) from each subwatershed within the Gateway Region was calculated. Results of the LSPC model are shown in Figures 8-1 through 8-8 to highlight “Hot Spot” contribution areas for each of the calibrated constituents. The figures are color coded to show the relative generation of storm water runoff and pollutants. A “loading factor” was applied to each of the maps to facilitate a color-coded rendering of the storm water runoff and pollutant generation within the Gateway IRWMP Region. To determine the range of average annual pollutant and/or runoff contributions by watershed, match the color on the map with the color in the loading key. Then, multiply the range of values in the loading key by the “baseline” shown at the top of the loading key. The resulting range of values is the average annual pollutant loads/runoff volume for the area of interest. Section 3.8.1 listed the designated beneficial uses for surface waters in the Gateway Region and identified which stream reaches are impaired.

The results shown in Figures 8-1 through 8-9 are the first step in identifying where storm water best management practices (BMPs) could provide the greatest benefits. To refine the analyses for storm water/total maximum daily load planning, additional analyses should be performed including the following:

1. **Assess the relative *impact* of the pollutant-generating areas on receiving water quality.** For example, areas that are very close to receiving waters can have a higher impact on receiving water quality even if the pollutant load generated from those areas is lower compared to upstream areas (due to attenuation/decay during downstream travel).
2. **Consider the cost-effectiveness of available BMPs.** Wide arrays of BMPs are available to storm water agencies to reduce flows and pollutants. Each type of BMP will have its own cost effectiveness depending on location, performance, capital cost, and operation/maintenance. Approaches to BMP selection should be compared, including using distributed BMPs across the watershed versus using centralized BMPs that capture and/or treat large drainage areas. The types of available BMPs are discussed in the next section.

These analyses can be performed within LSPC and the other components of the WMMS. The SUSTAIN component of WMMS is designed as a decision support system used to develop,

evaluate, and select optimal BMP combinations at various watershed scales based on cost and effectiveness. SUSTAIN could help the Gateway Authority partnership determine which BMP alternatives (types, locations, and sizes) provide the greatest benefit for achieving management objectives while balancing costs.

Also, it should be noted that the results below are most useful for considering *wet weather* impacts. Dry weather impacts are often highly dependent on localized sources (e.g., leaking sewer lines or birds for bacteria loading).

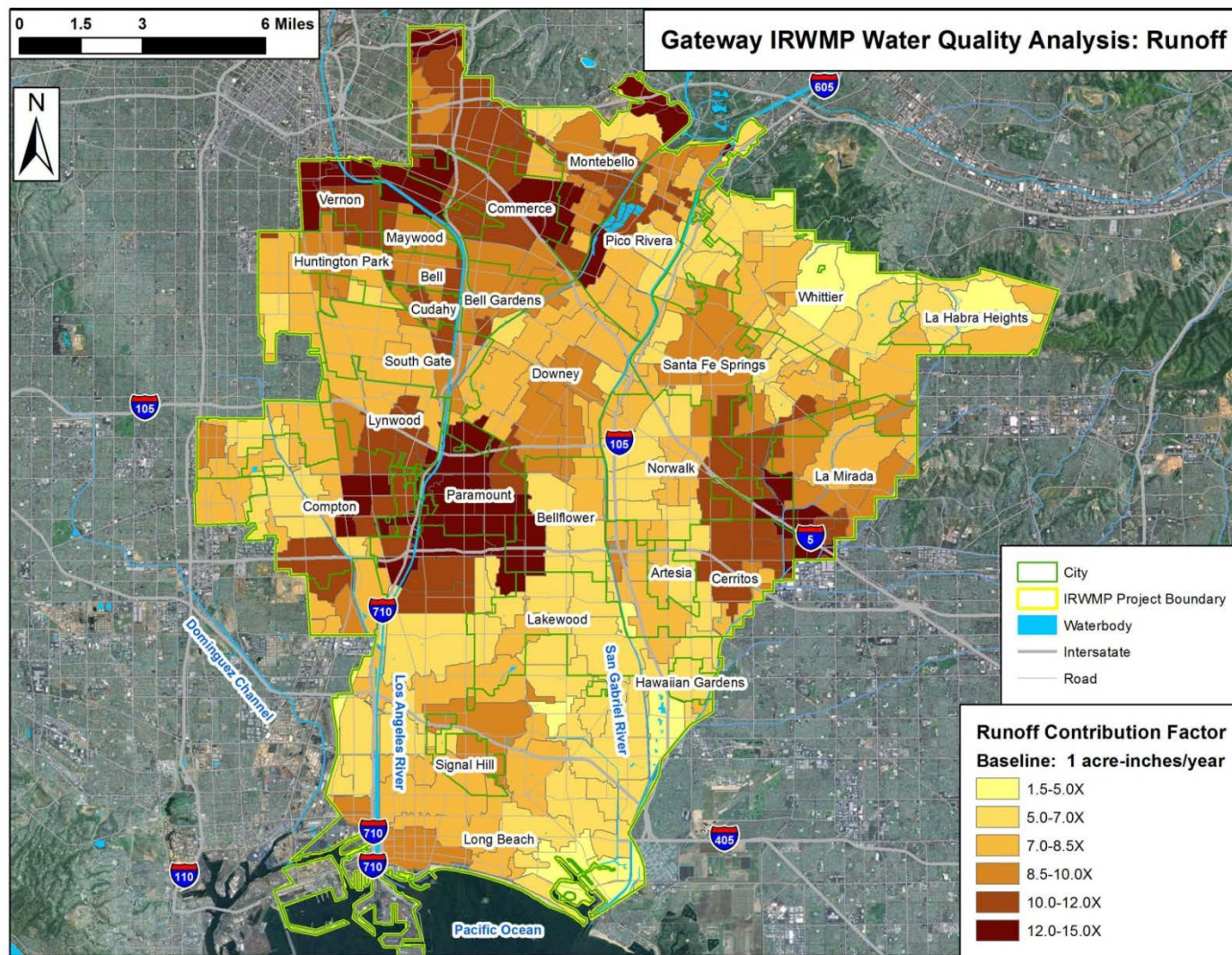


Figure 8-2. L SPC Modeling Results (1998-2006) – Runoff



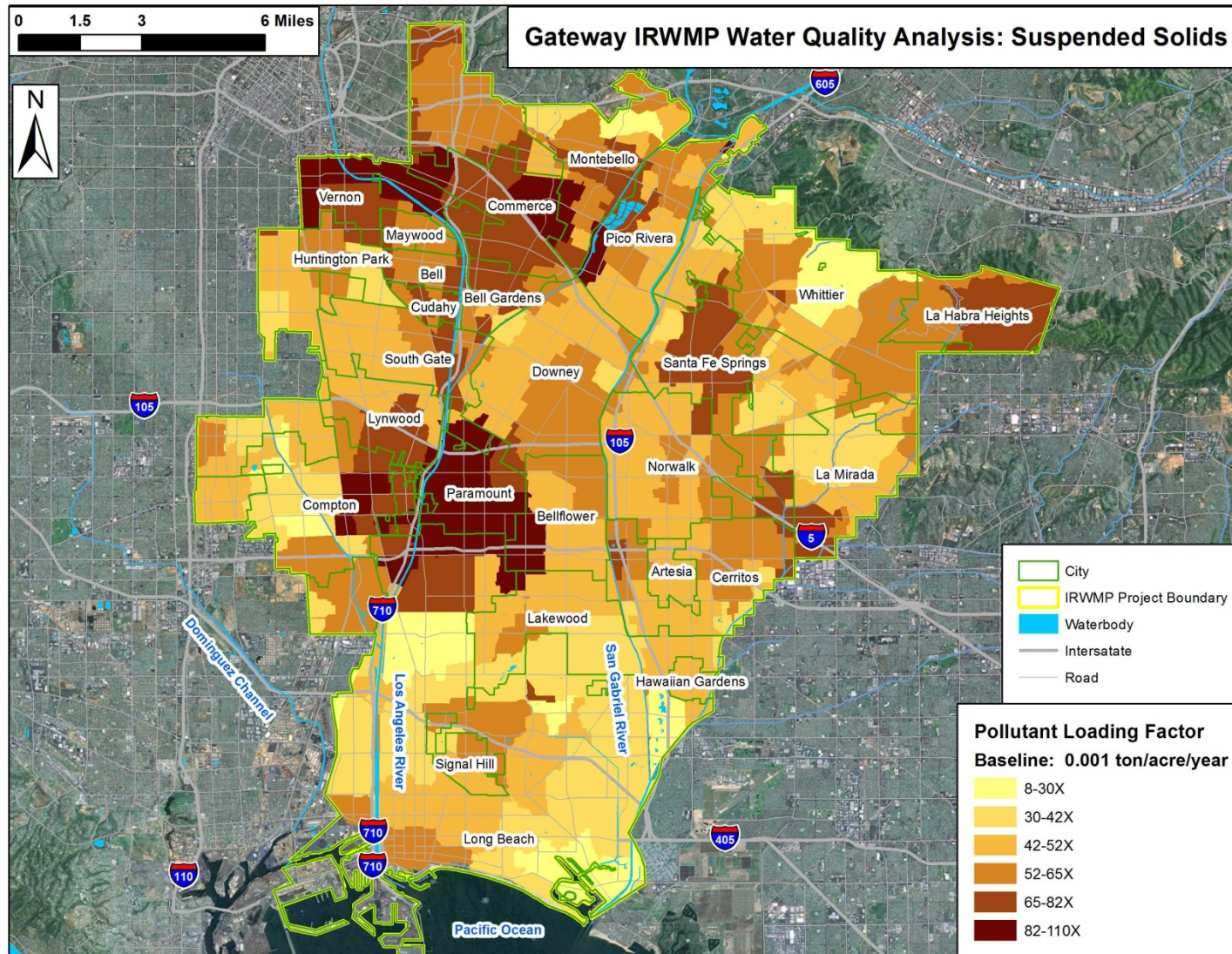


Figure 8-3. LSPC Modeling Results (1996 – 2008) – Total Suspended Solids



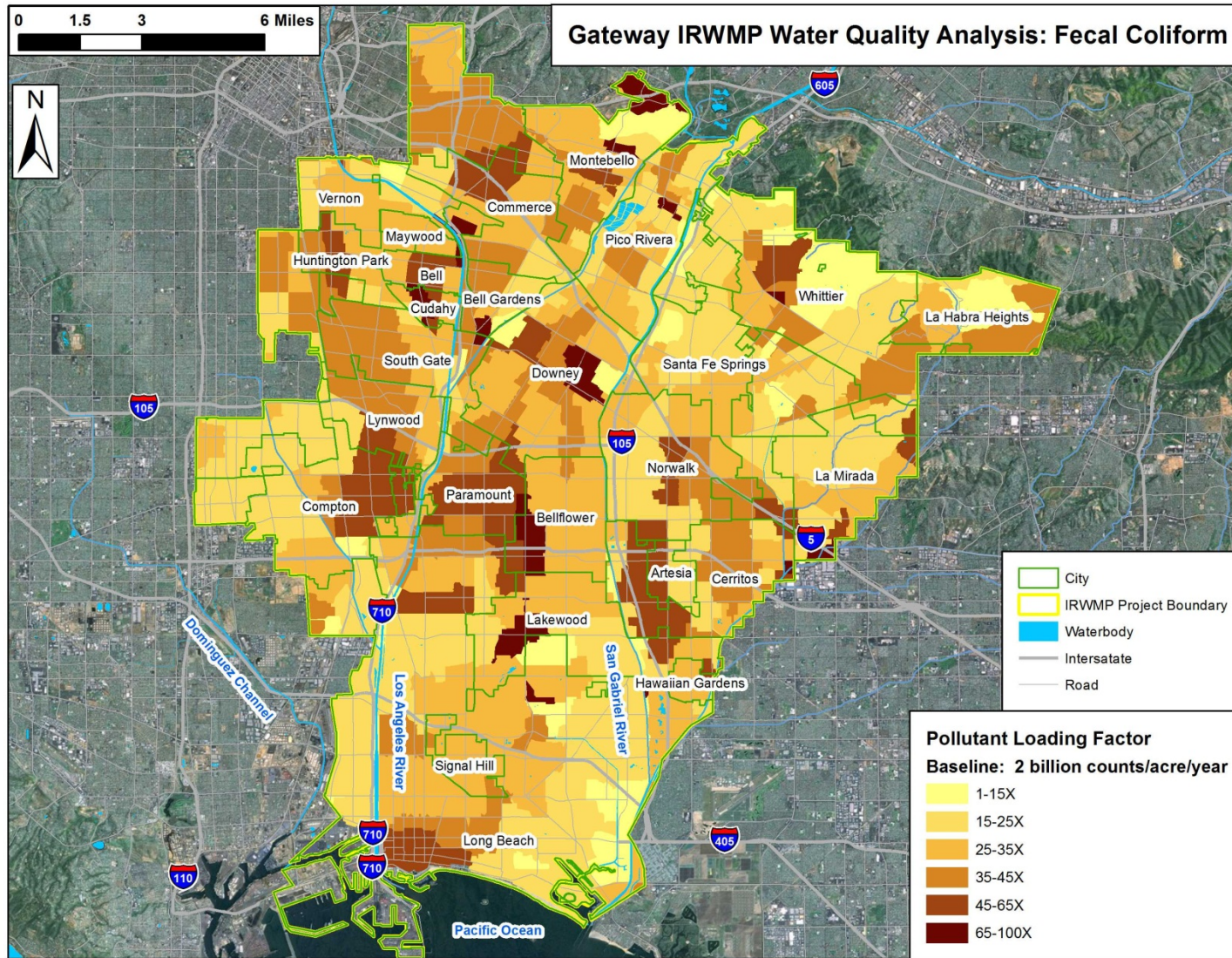


Figure 8-4. LSPC Modeling Results (1996 – 2008) – Fecal Coliform



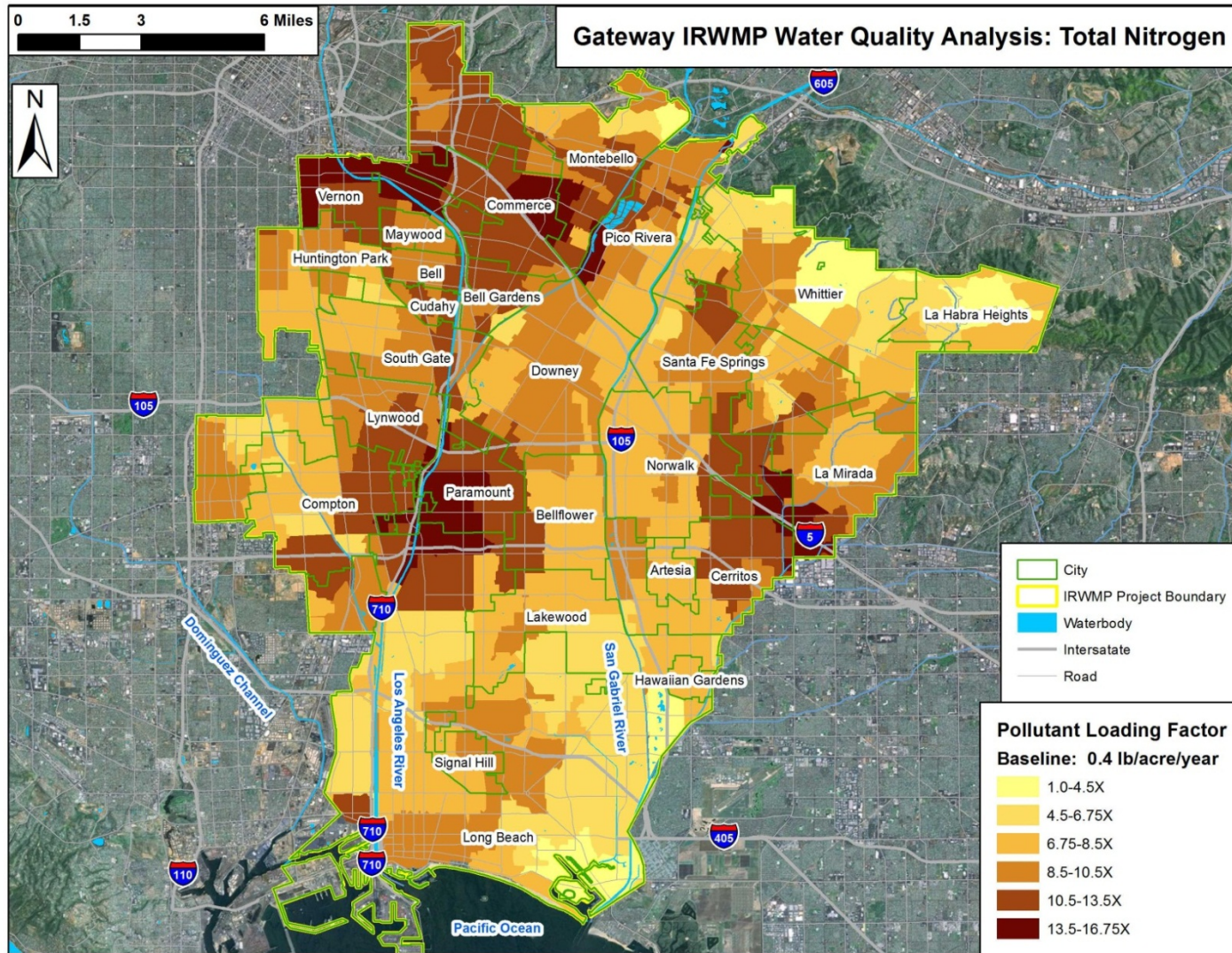


Figure 8-5. LSPC Modeling Results (1998 – 2006) – Total Nitrogen



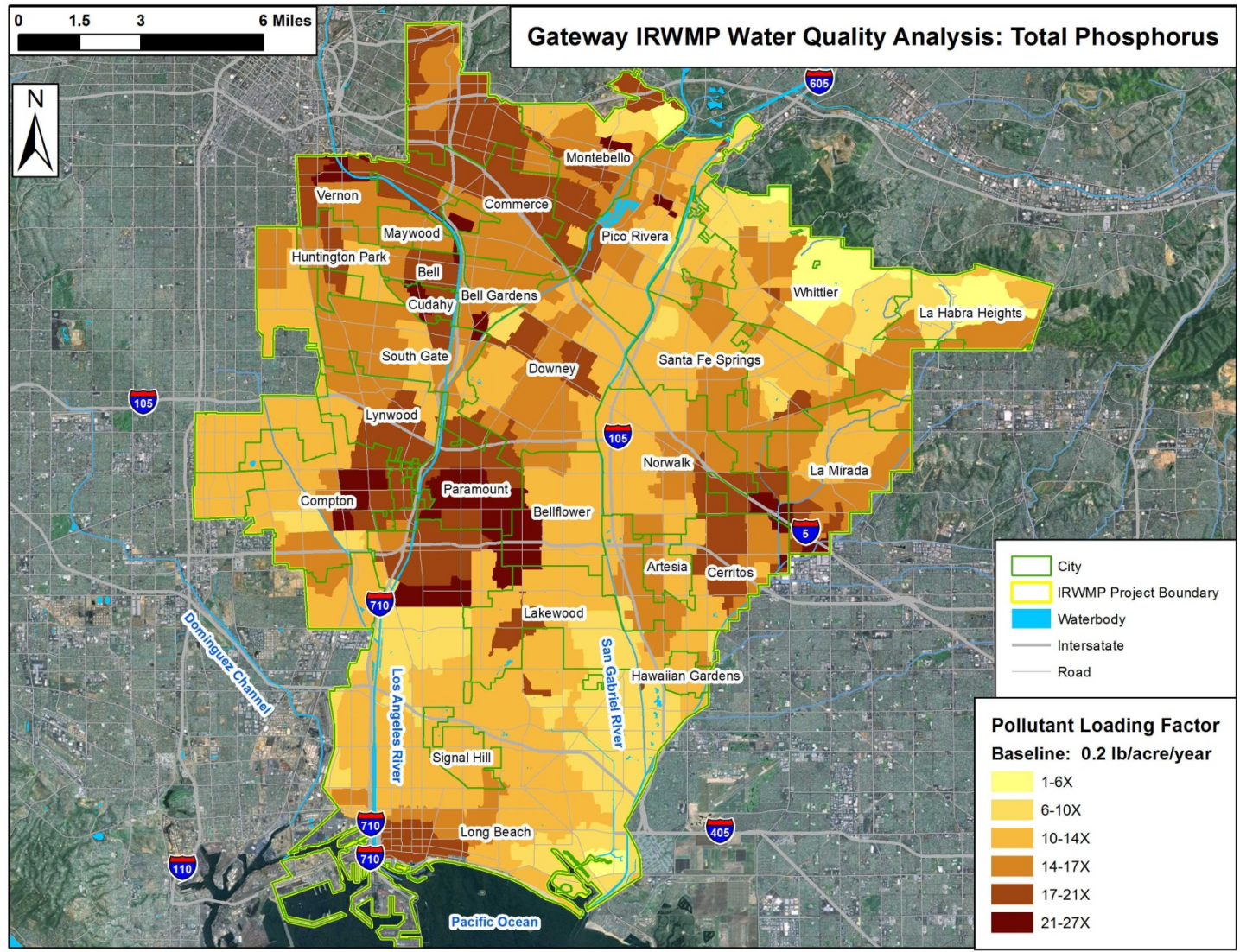


Figure 8-6. LSPC Modeling Results (1998 – 2006) – Total Phosphorus



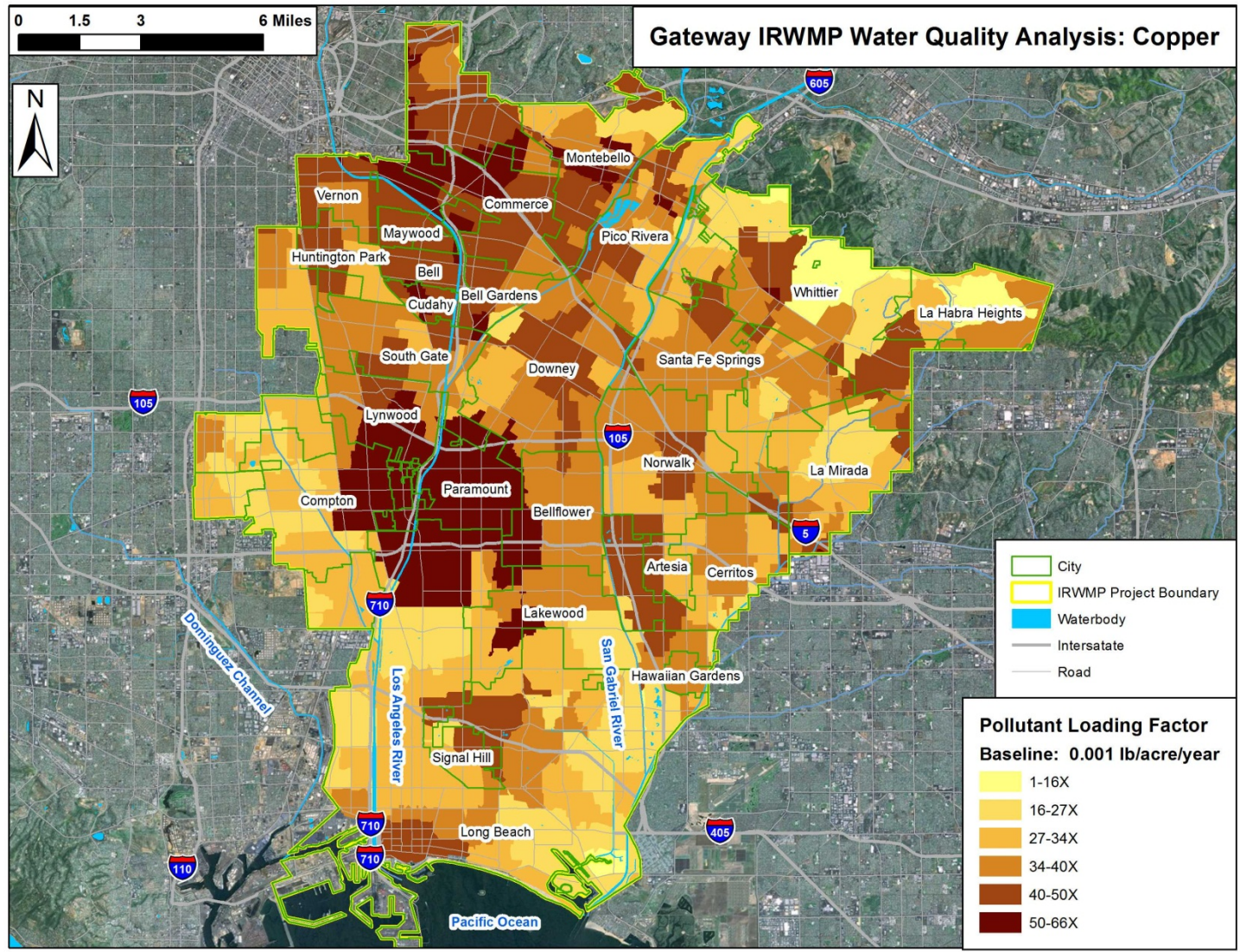


Figure 8-7. LSPC Modeling Results (1998 – 2006) - Copper



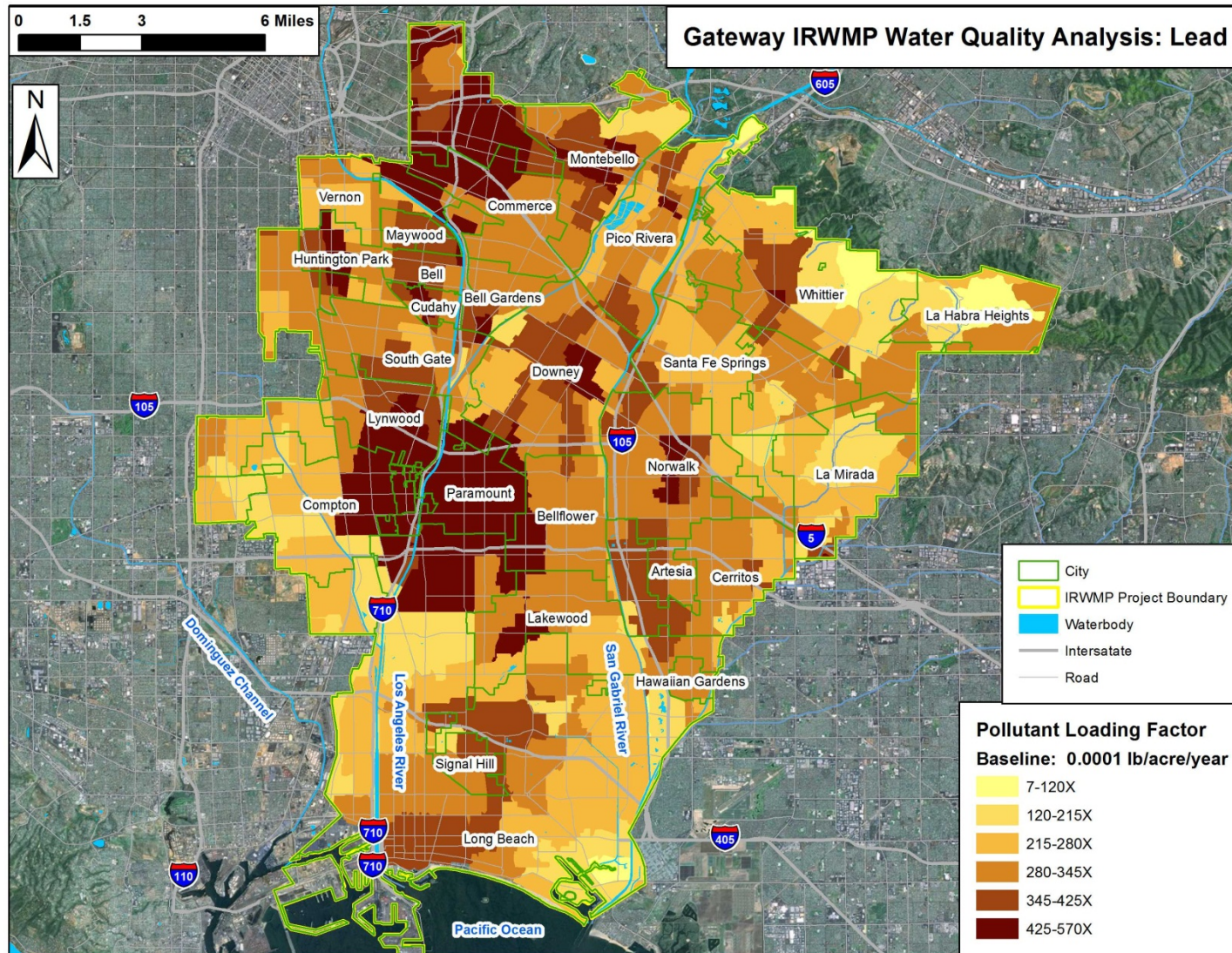


Figure 8-8. LSPC Modeling Results (1996 – 2008) - Lead



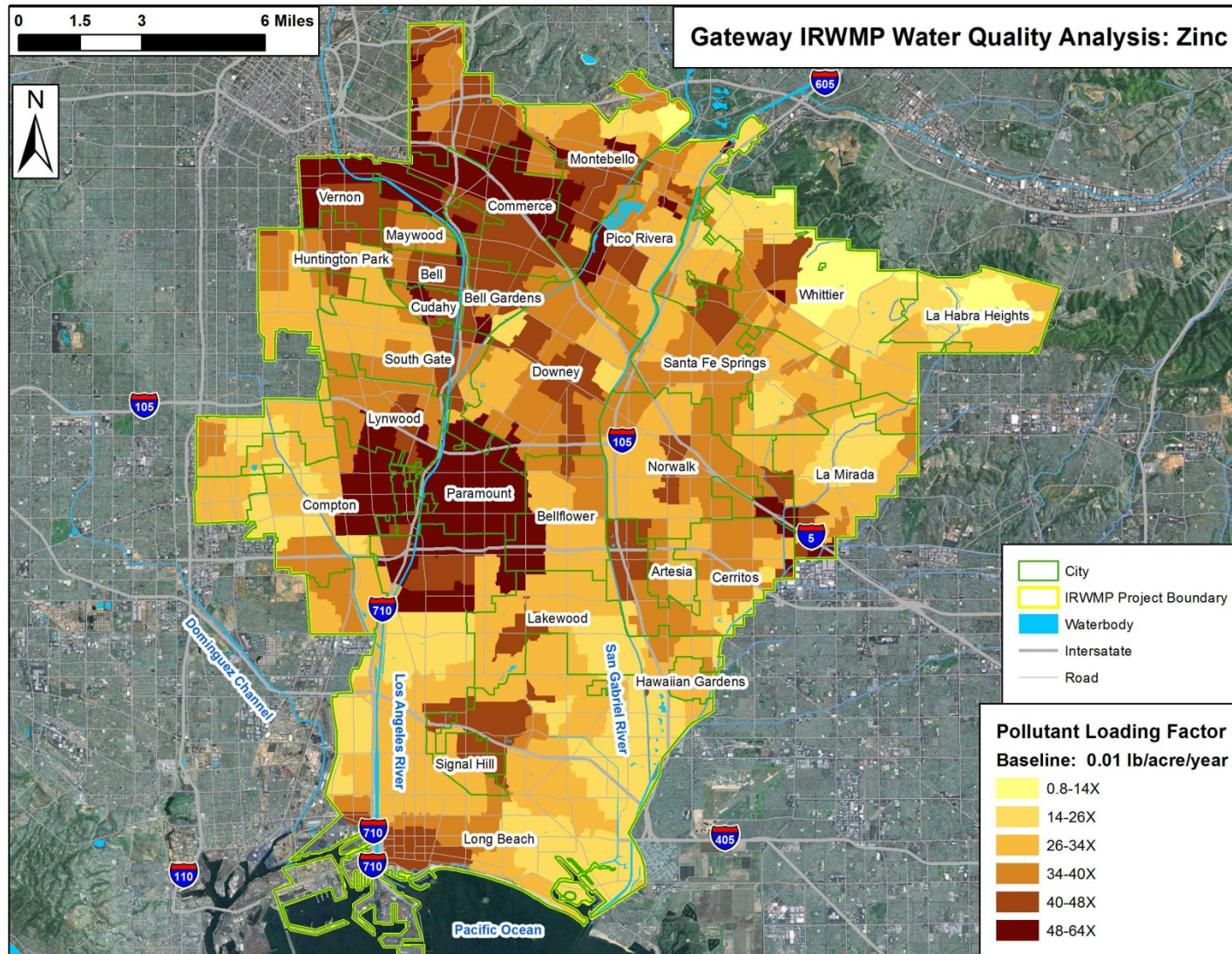


Figure 8-9. LSPC Modeling Results (1996 – 2008) - Zinc

### 8.3 Best Management Practices

Given the multiple contaminant sources that contribute to storm water impacts and diverse urban land uses in the Gateway IRWMP Region, the Gateway Authority faces multiple challenges when selecting storm water BMPs, including their locations, types, sizes, and quantifying their performance. Most of the structural BMPs that are appropriate for the Gateway Region fall into two main categories:

1. **Centralized BMPs:** practices that treat relatively large drainage areas including extended dry detention basins and water quality wet ponds.
2. **Distributed BMPs:** practices that treat local runoff including swales, bioretention, rain barrels, cisterns, parking lot retrofits, permeable pavement, and downspout disconnection.

In many areas, centralized BMPs provide an economy-of-scale over distributed practices because they are able to capture/treat a larger drainage area; however, the cost and availability of land in the Gateway Region could greatly increase the cost of centralized BMPs. Nevertheless, centralized BMPs would still be considered for flow reduction/ water quality treatment in at least two cases: (1) where publicly-owned land is available, and (2) for total maximum daily loads (TMDLs) with large pollutant reduction requirements, meaning centralized BMPs might be necessary to meet flow and/or water quality objectives (despite their high cost).

When distributed BMPs are correctly implemented and maintained, significant storm water flow and water quality improvements can be realized, and could be more cost-effective than centralized facilities. It should be noted that it is often difficult to ensure that distributed BMPs are being maintained to perform as designed. For example, rain barrels are only effective if they are emptied regularly for irrigation. Permeable pavement is only effective when it is free of sediment and other clogging debris. The large and/or varied type of distributed BMPs often makes it difficult to implement a regular maintenance program. On the other hand, distributed BMPs may provide additional multi-use benefits when compared to centralized BMPs including improved neighborhood aesthetics.

Some pollutant sources – like metals, fertilizers and pet waste – cannot be addressed by a limited number of structural BMPs; therefore, non-structural BMPs including public policies, education, and outreach may be necessary to support pollutant load reduction efforts. Potential non-structural BMPs include water conservation, true source control (e.g., eliminating copper from brake pads or banning pesticide use), citizen education, illicit discharge elimination, and channel restoration. Also, there are dry weather-specific BMPs that could be considered including low flow diversions which are not discussed herein.

The following descriptions outline the general characteristics of centralized and distributed BMPs.



### **8.3.1 Centralized BMPs (draining/treating larger areas)**

#### **8.3.1.1 Dry Extended Detention**

These devices store storm water runoff and reduce storm water peak flow rates. Storm water enters the device through an inlet, which may be a grass-lined channel or storm water pipe. An embankment detains storm water, and an outlet riser controls the downstream release rate of the impounded water. Storm water is detained for a longer period of time than in conventional dry detention ponds; the longer detention time allows for more removal of Total Suspended Solids (TSS) and nutrients from the storm water.



#### **8.3.1.2 Water quality (wet) ponds**

A wet pond maintains a permanent pool of water. This device stores storm water runoff and reduces storm water flow. The ponding of storm water allows excess sediment to settle out of the water and encourages bacteria to use excess nutrients. Portions of other pollutants may also be removed. Storm water first enters a forebay, which is a small depression lined with rocks that slows the incoming storm water flow and settles out larger particles. The outlet structure and emergency spillway control the rate of water draining out of the pond.



### **8.3.2 Distributed BMPs (draining/treating smaller areas)**

#### **8.3.2.1 Bioretention**

Bioretention areas are depressions filled with 2 to 4 feet of sandy soil and planted with drought and flood tolerant plants. Storm water drains into the surface of the bioretention area and, as the water infiltrates through the sandy soil, the soil and plants remove a portion of pollutants. In areas with sandy loam or other highly permeable soils, the water treated by the bioretention cell will infiltrate into the native soil. In areas that have soils with low permeability (typically clay-dominated soils), a gravel layer and underdrain pipe are placed below the sandy soil layer. Once the storm water infiltrates through the treatment cell's sandy soil, it is drained out of the device through the underdrain pipe. Most bioretention areas are designed so that up to a foot of water can pond in the cell during a rain event. A weir is included in the bioretention area to bypass excess water above the ponding



depth. Since bioretention areas use mulch and a variety of shrubs and small trees, they can be easily incorporated into existing landscaping.

#### 8.3.2.2 Swales

A grass swale is a grass-lined channel with sloped banks. Culverts are used to pass storm water under driveways and streets. Unlike water quality swales, grass swales do not have a sandy soil layer or gravel underdrains. Grass swales are used to convey storm water runoff and slow storm water flow. They are an alternative to storm sewer pipes, which produce higher storm water flows than grass swales, especially for smaller storm events. Grass swales also remove some sediment if the storm water flow is controlled.



#### 8.3.2.3 Rainwater harvesting

Rainwater harvesting reduces runoff during a storm event by retaining a portion of the runoff for future use. This can be accomplished by using storage tanks called cisterns or rain barrels. Cisterns are tanks that hold rainwater for irrigation and other uses. The cistern pictured to the right can hold over 200 cubic feet of water. These can be pre-manufactured or constructed onsite. They also can be incorporated inconspicuously into the side of a building. Rain barrels typically hold less water than cisterns, about 8 cubic feet per rain barrel. If these devices are designed properly and if water is reused frequently, they can be used to control storm water runoff, reduce storm water flow, and remove some pollutants.



#### 8.3.2.4 Retrofit of parking area to disconnect impervious surfaces

This strategy involves the re-design of a parking lot so that runoff is captured and treated in distributed storm water BMPs like bioretention. Grass swales may be employed as a conveyance to the bioretention, providing additional pollutant removal.

#### 8.3.2.5 Disconnect downspouts

This practice involves reducing the amount of concentrated storm water runoff leaving a site by disconnecting roof downspouts from drainage systems. Some houses or other buildings may not be directly connected to the municipal storm sewer system, but still may have an onsite drainage system or diffused runoff that could be disconnected. The roof runoff is diffused and directed into natural areas, gardens, bioretention cells, etc.

### 8.3.2.6 Permeable pavement

Permeable pavement differs from conventional asphalt and concrete in that it allows for infiltration of water during a rainfall event. Permeable pavement types include porous asphalt, porous concrete (shown to the right), and paving stones interspersed with sandy soil or other porous fill. These types of pavement vary in vehicular traffic capacity. Grass parking lots, reinforced with plastic rings, are typically used for overflow parking, while some permeable pavement can be designed to handle more frequent traffic.



## 8.4 Summary of Storm Water Problem Areas

The flooding survey and LSPC water quality model generated a multitude of maps with areas that could potentially be targeted by storm water management strategies. These maps were combined into two figures that compose a *screening level* assessment to assist with prioritization management needs within the Gateway IRWMP Region, as follows:

- Figure 8-10 shows prioritized focus areas for flood mitigation measures based on results from the flooding survey. The map is not intended to be an exhaustive list of flood prone areas; rather, it is intended to be a *starting point* when developing a more rigorous plan for addressing flooding issues. The potential prioritization in terms of flooding severity/frequency is expressed in order from 1 (red) to 4 (green). Note that these are *areas in which flooding issues occur*; it may be necessary or cost-effective to capture storm water in other/upstream areas to reduce the frequency/severity of flooding in these highlighted areas.
- Figure 8-11 shows primary and secondary focus areas for runoff and water quality management needs for the entire Gateway IRWMP Region. Like the flooding maps, the runoff and water quality maps and discussion below are solely intended to be a *starting point* when developing more rigorous water quality improvement plans (TMDL implementation plans). The potential prioritization for efforts to reduce storm water runoff/pollutants is shown as high priority (purple) and secondary priority (green). As described in Section 8.2, these highlighted areas are based on wet weather pollutant *generation*; efforts to quantify the relative *impact* of these areas on receiving water quality and *cost-effectiveness* of BMPs in these areas are important next steps.

The identified storm water problem areas provide another “layer” of information for the Gateway stakeholders to develop projects that meet the overall goals and objectives of the IRWMP. The storm water information herein should be combined with water supply and water quality information to identify, rank, and implement projects that provide multiple uses and benefits for the Gateway Region.



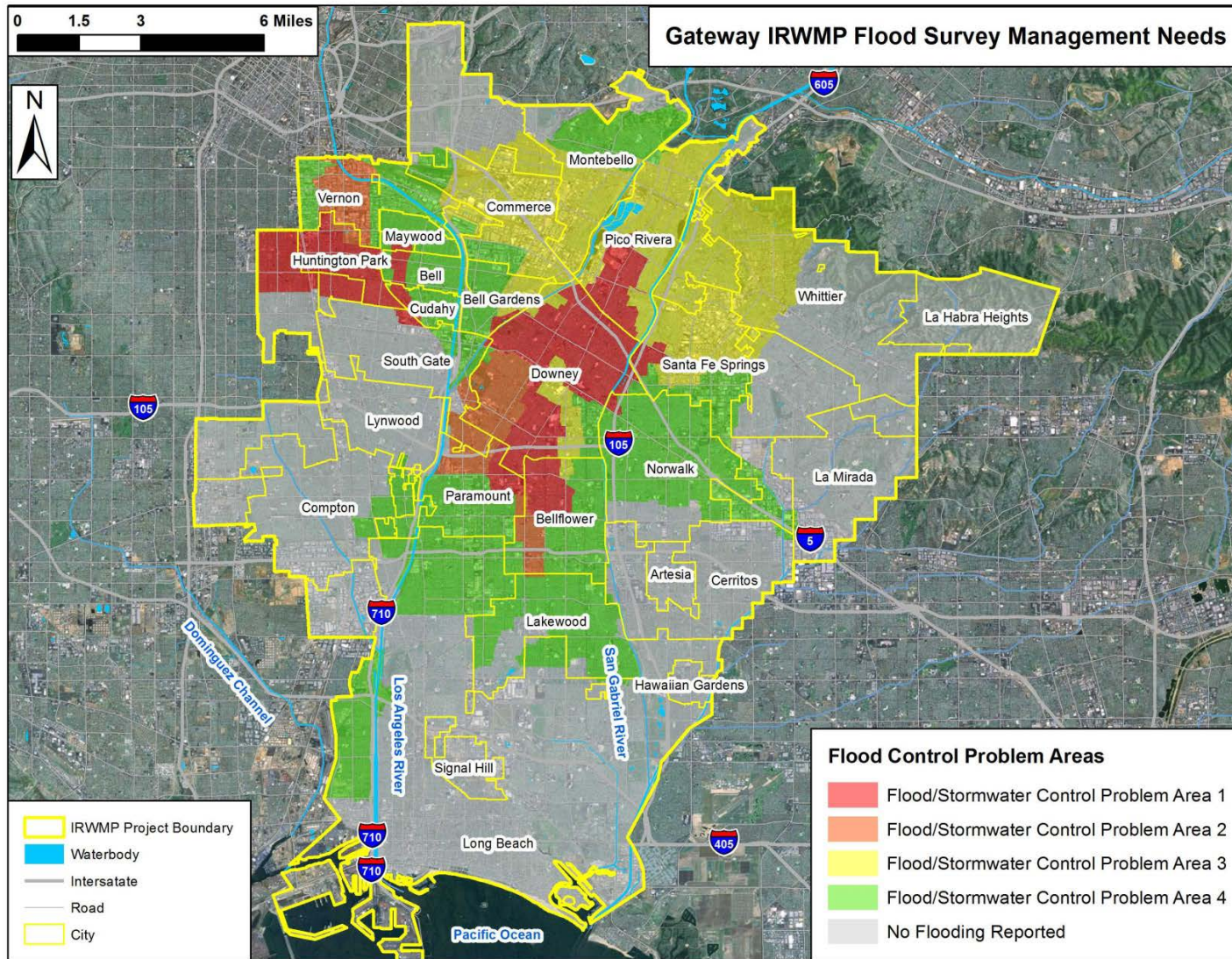


Figure 8-10. Prioritized Problem Areas for Flood Mitigation Measures



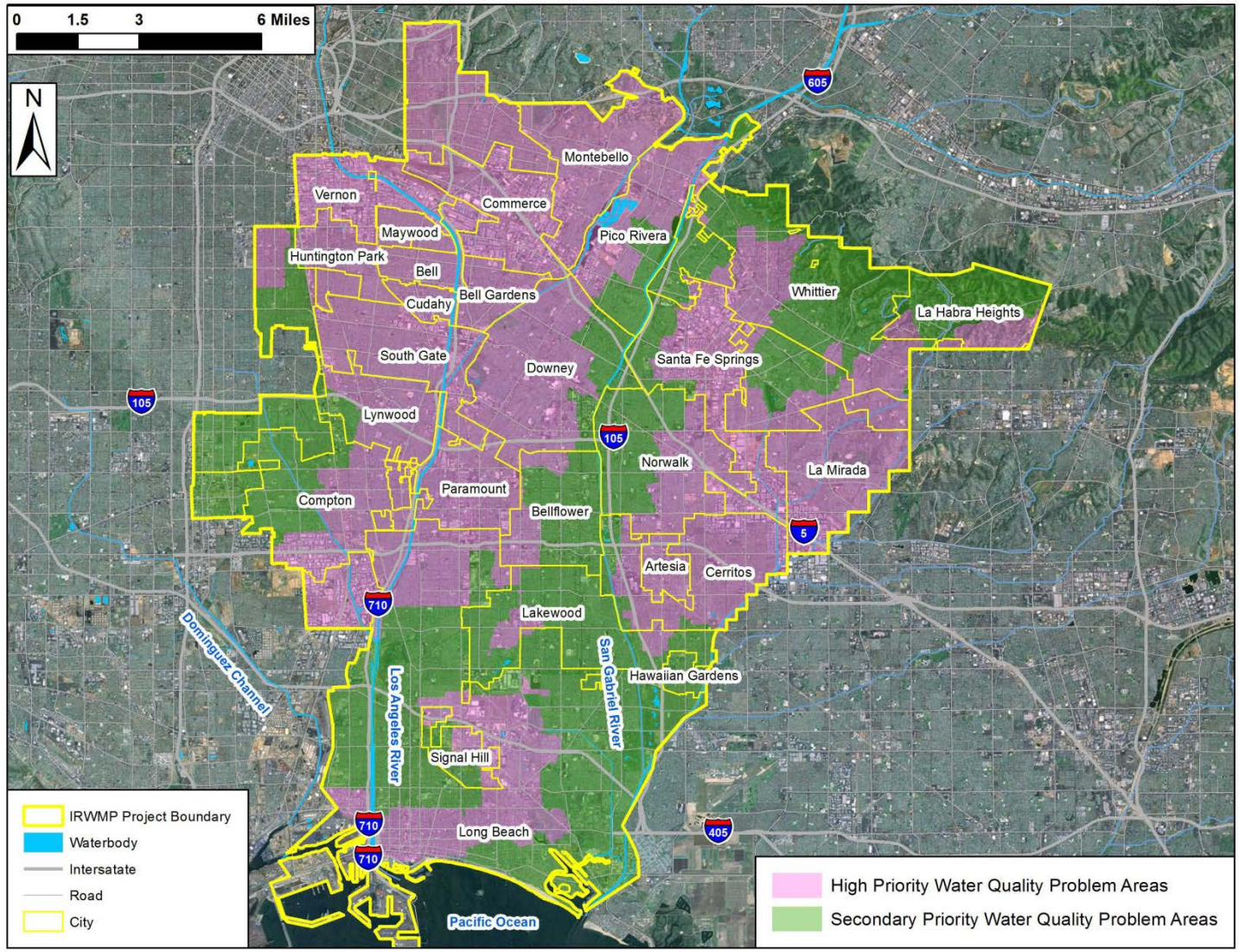


Figure 8-11. Primary and Secondary Problem Areas for Storm water Quality Improvement Efforts



## **9 Water Supply and Demand: Today and in the Future**

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This chapter presents the current and future water supply and demand conditions for the Gateway Region. This was done in the form of a water balance by determining how much water is expected to be available or coming into the Gateway Region (supply), how much water is expected to be used in the Region (demand), and the difference in how much water is expected to be available and how much water is expected to be used (surplus or deficit). In this way a general picture can be formed of the Gateway Region's water needs as a whole for the present and into the future. In addition, the conditions of the water supplies and demands were analyzed for each water supplier within the Gateway Region, allowing for the identification of those water suppliers within the Gateway Region that may be expecting a shortage in future supply and those water suppliers that are in the position to assist when there is a water shortage, thus balancing the entire Gateway Region's water supply and demand volumes.

This chapter will discuss how the water balance was developed, the results of the water balance, and recommendations for balancing the Gateway Region's water. The Gateway Region's water balance analyzes future water supply and demand for both average water year conditions and drought year conditions.

### **9.1 Sources**

The 2010 Urban Water Management Plans (UWMPs) for the water suppliers in the Gateway Region provided the primary sources of information used to develop the Gateway Region water balance. According to the Urban Water Management Planning Act (California Water Code §10610 et seq.), a UWMP is required to be prepared every five years by urban water suppliers who have either 3,000 or more connections or provide 3,000 acre-feet or more of water per year to their customers.

For the areas within the Gateway Region not included in an UWMP, information was provided by water suppliers via email or telephone correspondence or gathered from plans and reports produced by water suppliers, including infrastructure annual reports and groundwater replenishment reports. A list of sources is provided in Table 9-1.

**Table 9-1. Gateway Region Water Balance Sources**

2010 Urban Water Management Plans	
<ul style="list-style-type: none"> <li>• Bellflower-Somerset Mutual Water Company</li> <li>• California Water Service Company – East Los Angeles District</li> <li>• Central Basin Municipal Water District</li> <li>• City of Cerritos</li> <li>• City of Compton</li> <li>• City of Downey</li> <li>• City of Huntington Park</li> <li>• City of Lakewood</li> <li>• City of Lynwood</li> <li>• City of Monterey Park</li> <li>• City of Paramount</li> <li>• City of Santa Fe Springs</li> <li>• City of South Gate</li> <li>• City of Vernon</li> </ul>	<ul style="list-style-type: none"> <li>• City of Whittier</li> <li>• Golden State Water Company – Artesia</li> <li>• Golden State Water Company – Bell/Bell Gardens</li> <li>• Golden State Water Company – Florence-Graham</li> <li>• Golden State Water Company – Norwalk</li> <li>• Golden State Water Company – Southwest</li> <li>• Long Beach Water Department</li> <li>• Montebello Land and Water Company</li> <li>• Orchard Dale Water District</li> <li>• Park Water Company</li> <li>• Pico Rivera Water Authority</li> <li>• Pico Water District</li> <li>• Suburban Water District</li> </ul>
Other Documents	
<ul style="list-style-type: none"> <li>• City of Bellflower Municipal Water System 2011 Annual Report</li> <li>• Adopted 2012 RTP Growth Forecast, Southern California Association of Governments (SCAG)</li> <li>• Water Replenishment District of Southern California Monthly Production Summary (Acre-feet) for 2004-2010</li> <li>• Gateway Regional Water Conservation Alliance Report, Los Angeles Gateway Region Integrated Regional Water Management Authority, June 2011 (Gateway Alliance Report)</li> </ul>	
Water Suppliers Contacted	
<ul style="list-style-type: none"> <li>• Bellflower-Somerset Mutual Water Company</li> <li>• City of Bellflower</li> <li>• City of Compton</li> <li>• City of Downey</li> <li>• City of Huntington Park</li> <li>• City of La Habra Heights</li> <li>• City of Lakewood</li> <li>• City of Maywood</li> <li>• City of Paramount</li> </ul>	<ul style="list-style-type: none"> <li>• City of Santa Fe Springs</li> <li>• City of Signal Hill</li> <li>• City of South Gate</li> <li>• City of Vernon</li> <li>• City of Whittier</li> <li>• Long Beach Water Department</li> <li>• Orchard Dale Water District</li> <li>• Pico Rivera Water Authority</li> <li>• City of Norwalk</li> </ul>

## 9.2 Background

There are a number of factors that influence water supply and demand in the Gateway Region, primarily climate and population. The Gateway Region lies in the Southern California Coastal Plain where the climate can be characterized as Mediterranean with cool, wet winters and warm, dry summers. The average maximum and minimum temperatures are 56.6°F and 77.6°F, respectively, and the average rainfall is about 14.5 inches per year. This combination of mild temperatures and low rainfall makes the area ideal for residential uses.

The Gateway Region is also susceptible to droughts due to the low annual rainfall and the relatively high evapotranspiration (ET<sub>o</sub>) rate. Evapotranspiration is the water lost to the atmosphere by evaporation and transpiration and can occur on rivers and lakes, soil, snow, and plants. The average evapotranspiration for the Gateway Region is about 47.2 inches per year.

Table 9-2 shows the average annual temperatures, rainfall totals, and evapotranspiration totals collected from the 2010 UWMPs for the water suppliers within the Gateway Region.

**Table 9-2. Average Annual Climate Information for the Gateway Region**

<b>Water Supplier</b>	<b>ETo Inches</b>	<b>Rainfall Inches</b>	<b>Minimum Temperature °F</b>	<b>Maximum Temperature °F</b>
Bellflower-Somerset MWC	46.3	16.02	55.7	79.1
CWSC - East Los Angeles	49.7	14.8	55.8	74
Central Basin MWD	46.62	15.38	55.7	79.1
City of Cerritos	46.3	12.14	54.8	74.2
City of Compton	46.3	14.86	55.8	74
City of Downey	46.3	14.28	55.7	79.1
City of Huntington Park	51.8	14.86	55.8	74
City of Lakewood	46.3	13.73	54.7	74.3
City of Long Beach	Not Given	Not Given	Not Given	Not Given
City of Lynwood	49.7	14	55.9	71.8
City of Montebello	Not Given	Not Given	Not Given	Not Given
City of Norwalk	46.3	15.4	69.4	89.7
City of Orchard Dale	Not Given	13	Not Given	Not Given
City of Paramount	46.3	12.15	54.7	74.2
City of Santa Fe Springs	46.3	15.4	69.4	89.7
City of South Gate	46.3	14.34	54.5	83.1
City of Vernon	-	15.1	48.3	84.8
City of Whittier	55.1	17.8	54	77
GSWC - Artesia	41.2	11.89	54.8	74.2
GSWC - Bell/Bell Gardens	44.3	14.55	55.7	79.1
GSWC - Florence-Graham	44.2	14.77	55.8	74
GSWC - Norwalk	41.2	14.55	55.7	79.1
GSWC - Southwest	41.2	11.98	55.3	70.2
Park Water	46.3	12.1	Not Given	74
Pico Rivera Water Authority	49.7	14.78	58.6	77.5
Pico Water District	49.7	14.78	58.6	77.5
Suburban Water Systems	57.06	14.47	Not Given	79.3
<b>Gateway Region Average</b>	<b>47.2</b>	<b>14.29</b>	<b>56.6</b>	<b>77.6</b>
Notes:				
1. Climate values were collected from each water supplier's 2010 UWMP.				
2. MWC: Mutual Water Company				
3. CWSC: California Water Service Company				
4. MWD: Metropolitan Water District				
5. GSWC: Golden State Water Company				

The Gateway Region is mostly built out and is not expected to experience significant further growth in population. Between the years 2000 and 2010, the Gateway Region grew about 0.4 percent, as seen in Table 9-3. Population forecasts reported in the UWMPs indicate a growth of about five percent over the next 20 years ending in 2030 (Table 9-4).

**Table 9-3. Historical Population for Cities in the Gateway Region**

<b>City</b>	<b>2000</b>	<b>2010</b>	<b>Change</b>	<b>Change, %</b>
Artesia	16,380	16,522	142	0.9
Bell	36,664	35,477	-1,187	-3.2
Bellflower	72,878	76,616	3,738	5.1
Bell Gardens	44,054	42,072	-1,982	-4.5
Cerritos	51,488	49,041	-2,447	-4.8
Commerce	12,568	12,823	255	2.0
Compton	93,493	96,455	2,962	3.2
Cudahy	24,208	23,805	-403	-1.7
Downey	107,323	111,772	4,449	4.1
Hawaiian Gardens	14,779	14,254	-525	-3.6
Huntington Park	61,348	58,114	-3,234	-5.3
La Habra Heights	5,712	5,325	-387	-6.8
Lakewood	79,345	80,048	703	0.9
La Mirada	46,783	48,527	1,744	3.7
Long Beach	461,522	462,257	735	0.2
Lynwood	69,845	69,772	-73	-0.1
Maywood	28,083	27,395	-688	-2.4
Montebello	62,150	62,500	350	0.6
Norwalk	104,323	105,549	1,226	1.2
Orchard Dale	18,857	19,894	1,037	5.5
Paramount	55,266	54,098	-1,168	-2.1
Pico Rivera	63,428	62,942	-486	-0.8
Santa Fe Springs	17,438	18,199	761	4.4
Signal Hill	9,333	11,016	1,683	18.0
South Gate	96,375	94,396	-1,979	-2.1
Vernon	91	112	21	23.1
Whittier	83,680	85,331	1,651	2.0
<b>Total</b>	<b>1,737,414</b>	<b>1,744,312</b>	<b>6,898</b>	<b>0.4</b>
<b>Notes</b>				
1. Orchard Dale population for 2000 calculated based on a 0.55% population growth as given in the Orchard Dale Water District 2010 UWMP				

**Table 9-4. Gateway Region UWMP Population Forecasts**

<b>Water Supplier</b>	<b>2010</b>	<b>2030</b>	<b>Change</b>	<b>Percent Change</b>
Bellflower-Somerset MWC	46,000	46,920	920	2.0
CWSC - East Los Angeles District	150,890	153,380	2,490	1.7
City of Cerritos	54,546	55,495	949	1.7
City of Compton	81,963	93,336	11,373	13.9
City of Downey	110,457	121,084	10,627	9.6
City of Huntington Park	64,219	70,370	6,151	9.6
City of Lakewood	80,048	84,430	4,382	5.5
City of Lynwood	65,965	72,665	6,700	10.2
City of Norwalk	18,361	19,031	670	3.6
City of Paramount	57,989	63,844	5,855	10.1
City of Santa Fe Springs	18,199	27,303	9,104	50.0
City of South Gate	102,832	115,199	12,367	12.0
City of Vernon	100	104	4	4.0
City of Whittier	48,200	50,500	2,300	4.8
GSWC - Artesia	52,974	54,553	1,579	3.0
GSWC - Bell/Bell Gardens	69,119	70,511	1,392	2.0
GSWC - Florence-Graham	62,451	68,438	5,987	9.6
GSWC - Norwalk	43,683	46,899	3,216	7.4
GSWC - Southwest	271,861	303,858	31,997	11.8
Long Beach Water Department	462,257	498,686	36,429	7.9
Montebello Land and Water Company	32,219	33,425	1,206	3.7
Orchard Dale Water District	19,894	21,415	1,521	7.6
Park Water Company	128,193	145,331	17,138	13.4
Pico Rivera Water Authority	39,002	42,963	3,961	10.2
Pico Water District	24,011	26,867	2,856	11.9
Suburban Water Systems	115,000	115,300	300	0.3
<b>Total</b>	<b>2,220,433</b>	<b>2,401,907</b>	<b>181,474</b>	<b>8.2</b>
<b>Notes:</b>				
1. MWC: Mutual Water Company				
2. CWSC: California Water Service Company				
3. MWD: Metropolitan Water District				
4. GSWC: Golden State Water Company				



### **9.2.1 Senate Bill X7-7 and the Water Conservation Act of 2009**

The Senate Bill X7-7 (SBX7-7), the Water Conservation Act of 2009 (Act) was signed into law November 2009. This legislation set a goal of achieving a 20 percent statewide reduction in urban per capita water use, and requires urban retail water suppliers to set 2020 Urban Water Use Targets to meet that goal. Commonly referred to as the 20 x 2020 Plan, the Act identifies the methodologies, water use targets and reporting requirements that apply to urban water suppliers. It directed the California Department of Water Resources (DWR) to develop technical methodologies and criteria to ensure the consistent implementation of the Act, and to provide guidance to urban retail water suppliers in developing baseline water use and compliance water use targets. Each urban retail water supplier must include the following information in their UWMPs, beginning in their submittal for 2010:

- Baseline Daily Per Capita Water Use (Baseline)
- 2020 Urban Water Use Target (2020 Target)
- 2015 Interim Urban Water Use Target (2015 Interim Target)

According to Sections 10608.20(a)(1) and 10608.28 of the California Water Code, urban retail water suppliers may plan, comply, and report the above information on a regional basis, an individual basis, or both.

The Gateway Regional Alliance was formed by participating water suppliers within the Gateway Region to examine the Region's compliance with the SBX7-7 Water Conservation Bill of 2009 (SBX7-7). The results were reported in the *Gateway Regional Water Conservation Alliance Report* (Gateway Alliance Report, Los Angeles Gateway Region Integrated Regional Water Management Authority, June 2011), and will be used in the analysis of the water balance.

### **9.2.2 Methodology**

#### **9.2.2.1 Data Collected**

Because the main sources of information for developing the Gateway Region water balance were UWMPs, the data collected for all water suppliers was based on the information available in UWMPs. The information gathered consisted of total yearly water demand and total yearly water supply volumes for the water suppliers within the Gateway Region. This data was collected for the current year (2010) and future years through 2030 for an average year and the third year in a multiple-dry year period. The DWR *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* (Guidebook) defines these periods, which are used in the development of the Gateway Water Balance:

- Average year period: a year or an averaged range of years in the historical sequence that most closely represents median runoff levels and patterns. It is defined as the median runoff over the previous 30 years or more. This median is recalculated every 10 years.
- Multiple-dry year period: generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903. For example, 1928-1934 and 1987-1992 were the two multi-year periods of lowest average runoff

during the 20th century in the Central Valley basin. Suppliers should determine this for each watershed from which they receive supplies.

For the purposes of the Gateway Region water balance, drought year conditions are defined as the third year during a multiple-dry year period or the worst case scenario water shortage.

Additional information collected included:

- Water demand volumes by use; i.e., residential, commercial, industrial, institutional, landscape, recycled uses.
- Water supply sources and the volume of water per source, i.e. groundwater, water purchased from a wholesaler, recycled water
- City population projections produced by the Southern California Association of Governments (SCAG)
- Daily per capita baselines and conservation goals calculated by the water suppliers according to SBX7-7.

#### 9.2.2.2 Data Review

Data collected from the 2010 UWMPs were reviewed and for consistency and accuracy. This consisted of:

- Restricting the water balance period to 2010-2030. Some UWMPs provided data and projections from the 2010 through 2035; however, as both 2005 and 2035 were optional according to the DWR Guidebook, not all water suppliers provided projections for 2035. Therefore, the time period for the water balance extends from 2010 through 2030, for which all UWMPs provided data.
- Including recycled water demand in the total demand volume, when applicable.
- Including unaccounted for system losses in the total demand volume, when applicable.
- Spot-checking that totals and units are correct. In cases of discrepancies, published totals were used over calculations of data by water use.
- Verifying that all projections included current and expected conservation efforts.

To analyze water reliability, the supply by source and total demand for the third year of the multiple-dry year period was used. While all the UWMPs included water reliability data according to the Guidebook, data came in varying levels of detail. When there was not sufficient data, water suppliers were contacted to request the data or for guidance on how to estimate the data. If no guidance was received, the following assumptions were made to complete the data:

- Groundwater supply was maintained at existing rights. Carryover and exceedence provisions were not included unless specified in the UWMP or by the water supplier.
- Recycled water supply was omitted unless specified in the UWMP or by the water supplier that recycled water is considered a reliable source.
- When specified as a reliable source, imported water was used to make up the difference between total supply and groundwater.

- The worst-case scenario water supply and demand volumes were used when given in lieu of the third year in a multiple-dry year period and considered equivalent.

The reviewed data for each UWMP was entered into a spreadsheet. Table 9-5 is an example of a UWMPs reviewed data.

**Table 9-5. Example UWMP Data**

	A	B	C	D	E	F
1	<b>Water Supplier 1</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
2	<b>Average Supply</b>					
3	<b>Source 1</b>					
4	<b>Source 2</b>					
5	<b>Total</b>	<b>B3 + B4</b>	<b>C3 + C4</b>	<b>D3 + D4</b>	<b>E3 + E4</b>	<b>F3 + F4</b>
6	<b>Average Demand</b>					
7	<b>Use 1</b>					
8	<b>Use 2</b>					
9	<b>Total</b>	<b>B7 + B8</b>	<b>C7 + C8</b>	<b>D7 + D8</b>	<b>E7 + E8</b>	<b>F7 + F8</b>
10	<b>Average Year Surplus/Deficit</b>	<b>B5 - B9</b>	<b>C5 - C9</b>	<b>D5 - D9</b>	<b>E5 - E9</b>	<b>F5 - F9</b>
11						
12		<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
13	<b>Drought Year Supply</b>					
14	<b>Source 1</b>					
15	<b>Source 2</b>					
16	<b>Total</b>	<b>B14 + B15</b>	<b>C14 + C15</b>	<b>D14 + D15</b>	<b>E14 + E15</b>	<b>F14 + F15</b>
17	<b>Drought Year Demand Total</b>					
18	<b>Drought Year Surplus/Deficit</b>	<b>B16 - B17</b>	<b>C16 - C17</b>	<b>D16 - D17</b>	<b>E16 - E17</b>	<b>F16 - F17</b>

### 9.2.2.3 Calculations

Efforts were taken to collect the data in Table 9-4 for every water supplier within the Gateway Region, including for those water suppliers with an UWMP and those not required to have an UWMP. When further information was needed from a water supplier, they were contacted and requested to provide as much of the data in Table 9-4 as was available. The following water suppliers were contacted:

- Bellflower-Somerset Mutual Water Company
- City of Bellflower
- City of Compton
- City of Downey
- City of Huntington Park
- City of La Habra Heights
- City of Lakewood
- City of Maywood
- City of Norwalk
- City of Paramount
- City of Santa Fe Springs
- City of Signal Hill
- City of South Gate
- City of Vernon
- City of Whittier
- Long Beach Water Department
- Orchard Dale Water District
- Pico Rivera Water Authority

For some water suppliers models were developed to fill in some or all of the predicted future water supplies and demand. The models used information collected from UWMPs and other documents for neighboring areas within the Gateway Region. The models were developed using these attributes:

1. Percentage of volumes of water supply by source.
2. Percentage of volumes of water demand by use.
3. Per capita water use, using values either from the Gateway Alliance Report or calculated using historical data.

Additional data from MWD's and CBMWD's 2010 UWMPs were also used in predicting future water supply and demand.

### 9.2.2.4 Example Water Supply and Demand Model – City of Maywood

Because recent data could not be obtained from all of the water suppliers to the City of Maywood (Maywood Mutual #1 Maywood Mutual #2, and Maywood Mutual #3), a model was developed based on the assumption that per capita water use and population growth rate would be comparable that those of the City of Huntington Park. According to the 2010 UWMP, Huntington Park's baseline per capita water use according to the 20 x 2020 Plan calculation methods is 77 gpcd. Using a per capita demand of 77 gallons per day and the Southern California Association of Governments (SCAG) forecasted population for the City of Maywood, a forecasted total demand for average years was calculated.

To calculate average year supply, it was assumed that the supply would be equal to the demand. In addition, according to the City of Maywood Water Quality Assessment (December 2010), the City of Maywood uses imported water and groundwater. Using the calculated forecasted demand

and the forecasted imported water volume for the City of Maywood's three water supplier provided in CBMWD's 2010 UWMP, the forecasted groundwater was determined.

To be conservative, drought condition supplies were assumed to be the same as average year supplies. Demands were assumed to be about 5 percent greater during drought conditions, as was assumed in different 2010 UWMPs.

### **9.2.3 Results**

See the list below and Figure 9-1 for the cities within the Gateway Region that were included in the water balance.

- Artesia
- Bell
- Bell Gardens
- Bellflower
- Cerritos
- Commerce
- Compton
- Cudahy
- Downey
- Hawaiian Gardens
- Huntington Park
- La Habra Heights
- La Mirada
- Lakewood
- Long Beach
- Lynwood
- Maywood
- Montebello
- Monterey Park
- Norwalk
- Orchard Dale
- Paramount
- Pico Rivera
- Santa Fe Springs
- Signal Hill
- South Gate
- Vernon
- Whittier
- Some Los Angeles County Unincorporated



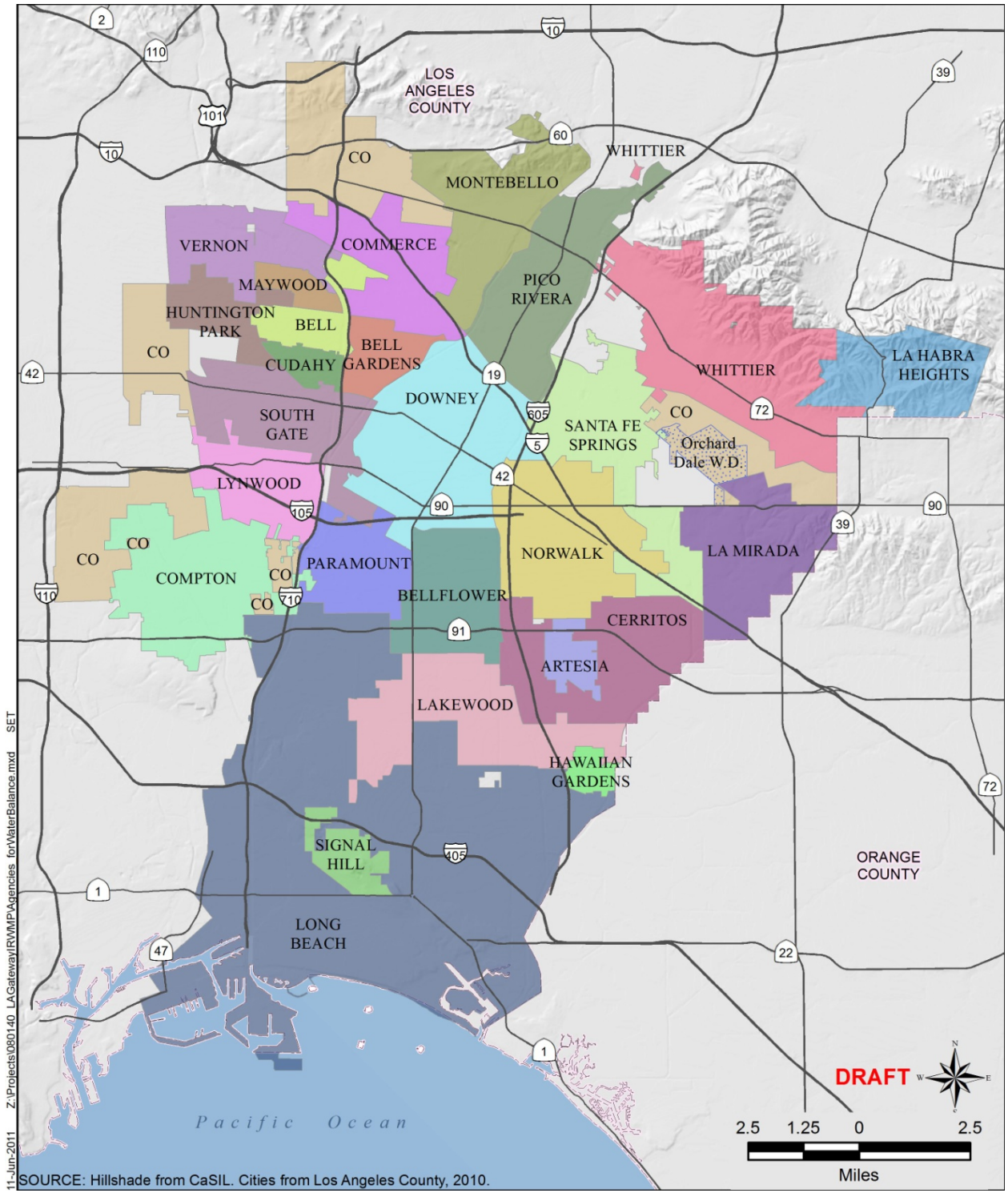


Figure 9-1. Cities Included in the Gateway Region Water Balance

Due to the lack of information, only portions of the unincorporated areas within the Gateway Region were included in the water balance.

Current water supplies for the Gateway Region consists of groundwater, imported water, and recycled water. As a whole, the Gateway Region is heavily dependent on groundwater, with a majority of the water suppliers receiving most, if not all, of their supply from groundwater. Of total current supplies for the Gateway Region, 66.7 percent is groundwater, 28.8 percent is imported water, 4.4 percent is recycled water, and less than 1 percent of the water can be classified as other, which includes sources such as banked groundwater. Forecasting to 2030, the average water supply distribution will remain essentially the same, with a small increase in recycled water use. See Figure 9-2 for a comparison in current and future water supplies.

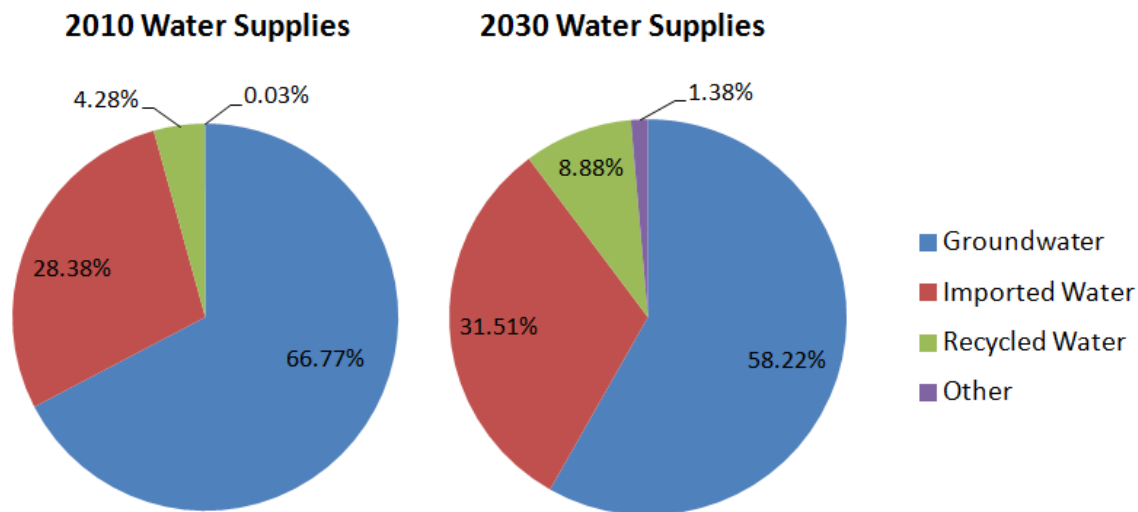


Figure 9-2. Average Year Water Supplies for the Gateway Region

### 9.2.3.1 Water Supply and Demand during Average Year Conditions

The Gateway Region will have enough water supplies through 2030 based on average water years. Current water supplies are about 292,900 ac-ft/year, 4,800 ac-ft/year above what is demanded. This surplus is forecasted to increase by the year 2020 to about 13,800 ac-ft/year, and will continue to increase through 2030, with an expected surplus of about 14,200 ac-ft/year. Table 9-6 shows the supply and demand totals for average water years for 2010, 2020, and 2030.

The increase in average year surplus can be attributed to the assumptions made by the water suppliers in their UWMPs:

- The water service area is fully built-out and water demands will increase only due to redevelopment within current development limits.
- Conservation measures, including programs and policies will be fully implemented.
- Capital improvement projects involving water use efficiency and water supply will be completed.
- Recycled water projects will be completed.
- Recycled water will gradually replace potable water for uses such as landscaping and irrigation.

**Table 9-6. Average Year Supply and Demand Balance for the Gateway Region, ac-ft/year**

Water Supplier	2010			2020			2030		
	Supply	Demand	Difference	Supply	Demand	Difference	Supply	Demand	Difference
Bellflower-Somerset MWC	+5,400	+6,900	-1,500	+5,900	+7,100	-1,200	+6,000	+7,400	-1,400
CWSC - East Los Angeles District	+17,500	+16,600	+900	+18,900	+19,400	-500	+19,100	+19,600	-500
City of Bellflower	+700	+700	0	+700	+700	0	+700	+700	0
City of Cerritos	+11,500	+9,600	+1,900	+13,900	+12,100	+1,800	+14,300	+12,200	+2,100
City of Compton	+8,900	+8,900	0	+9,800	+9,800	0	+10,500	+10,500	0
City of Downey	+17,000	+17,000	0	+18,100	+18,100	0	+18,800	+18,800	0
City of Huntington Park	+4,900	+4,900	0	+6,100	+6,100	0	+6,400	+6,400	0
City of La Habra Heights	+2,900	+2,800	+100	+2,900	+2,800	+100	+2,900	+2,800	+100
City of Lakewood	+9,600	+9,600	0	+11,800	+10,600	+1,200	+11,800	+10,600	+1,200
City of Lynwood	+5,600	+5,800	-200	+9,100	+7,200	+1,900	+9,700	+7,600	+2,100
City of Maywood	+3,400	+2,300	+1,100	+2,300	+2,300	0	+2,400	+2,400	0
City of Norwalk	+2,300	+2,300	0	+2,800	+2,800	0	+3,300	+3,300	0
City of Paramount	+7,100	+6,700	+400	+9,500	+7,800	+1,700	+9,700	+8,200	+1,500
City of Santa Fe Springs	+6,700	+6,300	+400	+7,600	+6,600	+1,000	+9,100	+7,500	+1,600
City of Signal Hill	+1,900	+1,900	0	+2,100	+2,100	0	+2,200	+2,200	0
City of South Gate	+8,400	+8,400	0	+11,900	+12,100	-200	+12,600	+12,800	-200
City of Vernon	+8,900	+8,900	0	+21,700	+13,800	+7,900	+21,800	+13,800	+8,000
City of Whittier	+7,400	+7,400	0	+8,000	+8,000	0	+8,200	+8,200	0
GSWC – Artesia	+5,600	+5,600	0	+6,900	+6,900	0	+7,000	+7,000	0
GSWC – Bell/Bell Gardens	+5,300	+5,300	0	+6,300	+6,300	0	+6,400	+6,400	0
GSWC – Florence-Graham	+5,200	+5,200	0	+6,100	+6,100	0	+6,500	+6,500	0
GSWC – Norwalk	+5,000	+5,000	0	+6,600	+6,600	0	+6,800	+6,800	0
GSWC – Southwest	+29,900	+29,900	0	+38,900	+38,900	0	+40,300	+40,300	0
Long Beach Water Department	+63,400	+63,400	0	+68,800	+68,800	0	+70,700	+70,700	0
Montebello Land and Water Company	+3,400	+3,400	0	+3,700	+3,700	0	+3,700	+3,700	0
Orchard Dale Water District	+2,200	+2,000	+200	+2,500	+2,200	+300	+2,600	+2,300	+300
Park Water Company	+11,200	+11,200	0	+15,600	+15,600	0	+16,500	+16,600	-100
Pico Rivera Water Authority	+5,000	+5,500	-500	+5,800	+6,000	-200	+5,800	+6,300	-500
Pico Water District	+3,000	+3,300	-300	+3,600	+4,000	-400	+3,800	+4,200	-400
Suburban Water Systems	+23,500	+21,200	+2,300	+23,000	+22,600	+400	+23,000	+22,600	+400
<b>Total</b>	<b>+292,800</b>	<b>+288,000</b>	<b>+4,800</b>	<b>+350,900</b>	<b>+337,100</b>	<b>+13,800</b>	<b>+362,600</b>	<b>+348,400</b>	<b>+14,200</b>
<b>Notes:</b>									
1. Volumes were rounded to the nearest 100 ac-ft/year.									
2. MWC: Mutual Water Company									
3. CWSC: California Water Service Company									
4. GSWC: Golden State Water Company									

### 9.2.3.2 Water Supply and Demand during Drought Conditions

During drought conditions, the Gateway Region is expected to have sufficient water supply through 2030. In 2015 the Gateway Region is forecasted to have an available water supply during drought conditions of 332,100 ac-ft/year, about 800 ac-ft/year more than demanded. This surplus is expected to increase through 2030 to about 7,900 ac-ft/year, an excess of about 3 percent of demand.

The expected water supply for drought conditions for the year 2030 is about 20,700 ac-ft/year greater than the expected water supply for normal water years for the year 2030. The increase in drought water supply can be attributed to the assumptions used in some suppliers' 2010 Urban Water Management Plan. The drought conditions assumptions from the UWMPs include:

- The water service area is fully built-out and water demands will increase only due to redevelopment within current development limits.
- Conservation measures, including long-term programs and policies and short-term actions will be fully implemented.
- Capital improvement projects involving water use efficiency and water supply will be completed.
- Recycled water will gradually replace potable water for uses such as landscape irrigation.
- Current and future recycled water projects will be operating at 100 percent capacity.
- Current groundwater supplies are stable enough for water suppliers to withdraw 100 percent of their water right during drought conditions.
- Central Basin Judgment allows for 20 percent carryover and 10 percent exceedence provisions for groundwater.
- Wholesale providers will have enough supply during drought conditions for water suppliers to provide 100 percent contracted water.

From the UWMPs, long-term conservation measures can include participating in groundwater replenishment or banking, or increasing the use of recycled water. Short-term or emergency conservations measures include restricting and prohibiting water use and water rationing. Water use efficiency and water supply projects can include replacing aging infrastructure, installing water meters, and developing water storage. The effect of short-term conservation measures can be tested by comparing average year demand with supply during drought conditions in 2030. If in 2030 drought conditions supply was available but with average year demand, there would be a surplus of 4,400 ac-ft/year, which is about 1 percent of average demand.

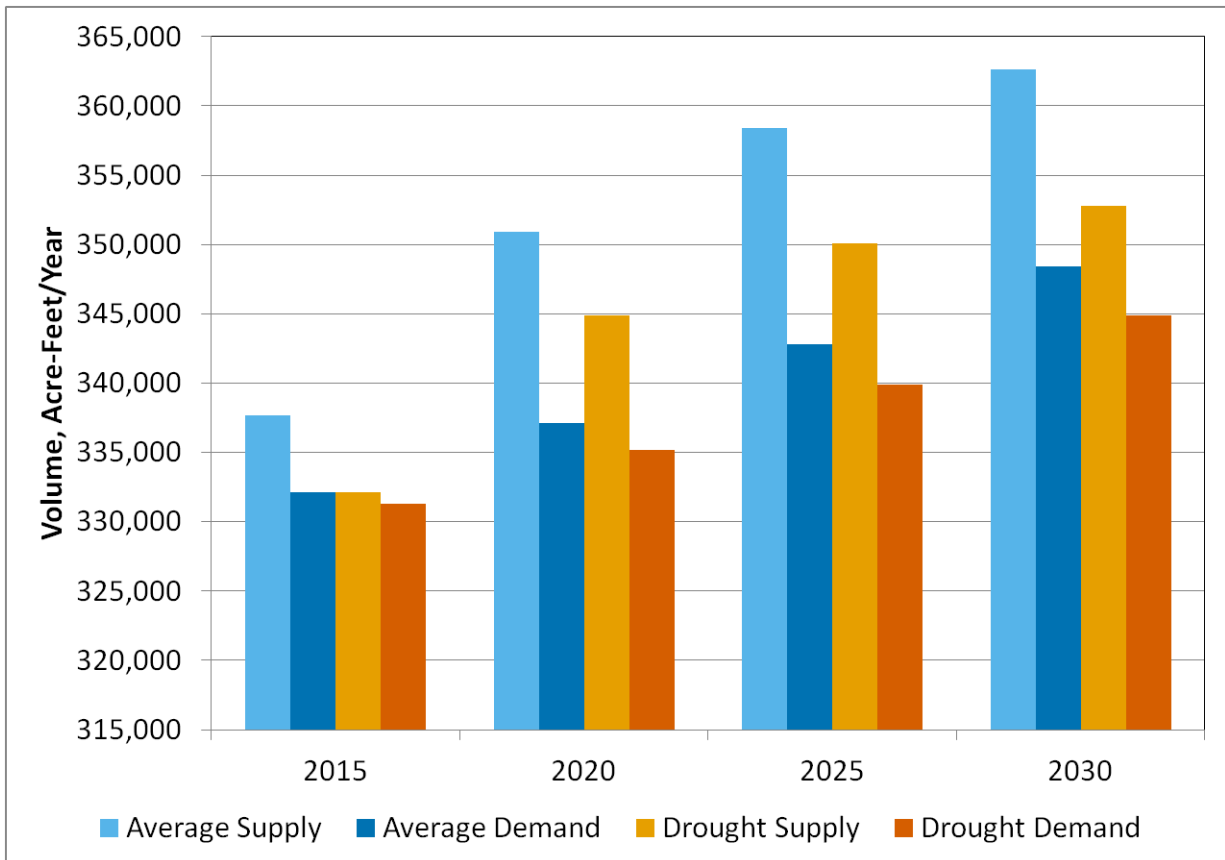
The assumption that all recycled water projects will be complete and operating at 100 percent capacity by 2030 results in a recycled water supply of about 30,600 ac-ft/year in 2030 during drought conditions in the Gateway Region. Taking recycled water completely out of the balance for drought year conditions would result in a water supply deficit in 2030 of 22,700 ac-ft/year, which is about 9 percent of demand during drought conditions.

Groundwater, not including carryover or exceedence provisions, is expected to make up about 60 percent of the drought year supply by 2030. The groundwater supply could decrease by 2 percent during drought year conditions before being in deficit in 2030. Assuming that all water suppliers use the 20 percent carryover during drought conditions for 2030, the expected surplus would increase to about 50,000 ac-ft/year, or about 15 percent of demand during drought conditions.

**Table 9-7. Drought Conditions Supply and Demand Balance for the Gateway Region, ac-ft/year**

Water Supplier	2015			2030		
	Supply	Demand	Difference	Supply	Demand	Difference
Bellflower-Somerset MWC	+4,800	+5,300	-500	+4,900	+5,400	-500
CWSC – East Los Angeles District	+17,800	+17,800	0	+18,100	+18,100	0
City of Bellflower	+700	+700	0	+600	+600	0
City of Cerritos	+13,900	+13,500	+400	+15,000	+13,900	+1,100
City of Compton	+8,200	+9,600	-1,400	+8,800	+10,600	-1,800
City of Downey	+19,600	+19,600	0	+20,400	+20,400	0
City of Huntington Park	+5,900	+6,300	-400	+6,300	+6,700	-400
City of La Habra Heights	+2,900	+3,000	-100	+2,900	+3,000	-100
City of Lakewood	+10,400	+9,900	+500	+10,400	+10,600	-200
City of Lynwood	+7,300	+7,300	0	+7,900	+7,800	+100
City of Maywood	+2,300	+2,400	-100	+2,400	+2,500	-100
City of Norwalk	+2,100	+2,700	-600	+2,500	+3,500	-1,000
City of Paramount	+8,700	+8,200	+500	+9,000	+8,600	+400
City of Santa Fe Springs	+5,500	+4,600	+900	+5,500	+6,000	-500
City of Signal Hill	+2,000	+1,900	+100	+2,000	+2,000	0
City of South Gate	+11,600	+11,600	0	+12,600	+12,600	0
City of Vernon	+15,000	+13,800	+1,200	+21,600	+13,800	+7,800
City of Whittier	+8,000	+8,000	0	+8,700	+8,700	0
GSWC – Artesia	+6,800	+6,800	0	+7,000	+7,000	0
GSWC – Bell/Bell Gardens	+6,300	+6,300	0	+6,400	+6,400	0
GSWC – Florence-Graham	+5,900	+5,900	0	+6,500	+6,500	0
GSWC – Norwalk	+6,500	+6,500	0	+6,800	+6,800	0
GSWC – Southwest	+38,100	+38,100	0	+40,300	+40,300	0
Long Beach Water Department	+67,600	+67,600	0	+70,700	+70,700	0
Montebello Land and Water Company	+3,300	+3,400	-100	+3,400	+2,600	+800
Orchard Dale Water District	+2,500	+2,200	+300	+2,600	+2,300	+300
Park Water Company	+15,600	+15,600	0	+17,100	+17,100	0
Pico River Water Authority	+5,700	+5,500	+200	+5,800	+5,700	+100
Pico Water District	+3,600	+3,700	-100	+3,600	+3,800	-200
Suburban Water Systems	+23,500	+23,500	0	+23,000	+20,900	+2,100
<b>Totals</b>	<b>+332,100</b>	<b>+331,300</b>	<b>+800</b>	<b>+352,800</b>	<b>+344,900</b>	<b>+7,900</b>
<b>Notes:</b>						
1. Volumes were rounded to the nearest 100 ac-ft/year.						
2. MWC: Mutual Water Company						
3. CWSC: California Water Service Company						
4. GSWC: Golden State Water Company						





**Figure 9-3. Summary of Expected Supply and Demand in the Gateway Region for Average and Drought Conditions**

As seen in Table 9-6, in an average year in 2030 nine water suppliers are expected to be in surplus, 15 water suppliers are expected to break even, and six water suppliers are expected to be in deficit. In an average year in 2030, those water suppliers in surplus are expected to have a total surplus of about 31,500 acre-feet, while those water suppliers in deficit are expected to have a total deficit of about 3,100 acre-feet. In a year with drought conditions in 2030, eight water suppliers are expected to be in surplus, 13 water suppliers are expected to break even, and nine water suppliers are expected to be in deficit (Table 9-7). During drought conditions in 2030, those water suppliers in surplus are expected to have a total surplus of about 20,600 acre-feet, while those water suppliers in deficit are expected to have a total deficit of 4,800 acre-feet.

### 9.3 Imported Supply Reliability

The CBMWD and WRD obtain imported water from MWD. MWD gets imported water from the Sacramento-San Joaquin Delta (Delta) via the State Water Projects (SWP) and Colorado River Water from the California River Aqueduct. The reliability of MWD supplies from all available sources is described in detail in:

- 2010 Integrated Water Resources Plan (MWD IRP)
- 2010 Regional Urban Water Management Plan (RUWMP)

- Water Surplus And Drought Management Plan, Report No. 1150

Other documents that influence the evaluation of reliability include:

- Final State Water Project Delivery Reliability Report 2011 (DWR, 2012)
- Colorado River Basin Water Supply & Demand Study Final Study Reports (USBR 2012).

MWD's key concern is the continual deterioration of water supply reliability. The MWD IRP defines Metropolitan's long-term water plan and strategies to protect from future supply shortages, with an emphasis on water-use efficiency through conservation and local supply development. MWD is actively working to increase its available supplies and develop dry year supplies. The proposed measures in the IRP and RUWMP will extend the available SWP and Colorado River supplies through a range of groundwater banking and storage agreements, and agreements with the Federal Government and others to store surface water in Colorado River reservoirs (Lake Mead), and through other transfers and exchanges. The IRP and the RUWMP document how MWD is using surface and groundwater storage to increase reliability by storing water in wet periods for use in the dry periods when Delta and Colorado River supplies could be reduced.

The MWD RUWMP (MWD 2010) also identifies how MWD will support implementation of Demand Management Measures (DMMs) and work with other wholesale and retail water purveyors to meet the 20 x 2020 Conservation goals within the MWD service area. This includes wholesale agencies like the CBMWD and Gateway Region water purveyors. The RUWMP shows that the MWD can provide reliable water supplies under single driest year and the multiple dry year conditions. The RUWMP provides justification for projected water supplies from the SWP and Colorado River sources, and this will help retail water purveyors to comply with Senate Bills 221 and 610 (See Appendix A.3) and document that sustainable water supplies are available. The 2010 RUWMP implementation approach depends on the full use of the current State Water Contract provisions and full use of the Colorado River Aqueduct capacity.

The Water Surplus and Drought Management Plan identifies how MWD will respond to surplus and shortage and allocate and store supplies under varying types of hydrologic conditions.

### **9.3.1 State Water Project**

MWD imports Sacramento and San Joaquin River water through the State Water Project (SWP) under contract with DWR. The final State Water Project Delivery Reliability Report 2011 (DWR, 2012) and Technical Addendum updates estimates of the current (2011) and future (2031) SWP delivery reliability and incorporates regulatory requirements for SWP and Federal Central Valley Project (CVP) operations. Estimates of future reliability also reflect potential impacts of climate change and sea level rise. The report shows that future SWP deliveries will be impacted by two significant factors. The first is significant restrictions on SWP and CVP Delta pumping required by the biological opinions issued by the U.S. Fish

and Wildlife Service (December 2008) and National Marine Fisheries Service (June 2009). The second is climate change, which is altering the hydrologic conditions in the State. The availability of the SWP water supplies may be highly variable.

The conditions in the Delta and actions to improve through-Delta transport of water are the keys to the SWP's ability to deliver water to MWD, and subsequently the MWDs deliveries to CBMWD and to Gateway retail water agencies. The report indicates that the export of water from the Delta, and hence the reliability of the SWP supplies, may be reduced under existing and future conditions as compared to historical operating conditions as a result of the impacts to the Delta from the historic operations. This occurs in normal and drought periods. Under the 2009 SWP Reliability Report, the delivery estimates for the SWP for current (2009) conditions as percentage of maximum Table A amounts, are seven percent, equivalent to 134 TAF, under a single dry-year (1977) condition and 60%, equivalent to 1.15 MAF, under long-term average condition.

### **9.3.2 Colorado River**

MWD obtains water from the Colorado River under a number of categories specified in its supplemental water storage and delivery contract with the Secretary of the Interior: its basic apportionment that is classified as Priority 4 water, unused and surplus water that is classified as Priority 5 and Priority 6(a) water, and water resulting from a number of conservation programs that is classified as Priority 3(a) water. The MWD Colorado River supplies could also be impacted by climate change, drought conditions, water rights issues and/or changes to operational decisions by the Federal Government.

The USBR recently completed the Colorado River Basin Water Supply & Demand Study Final Study Reports (USBR, 2012) which document that the amount of water available and changes in the demand throughout the Colorado River Basin over the next 50 years. It notes that Colorado River water supplies are highly uncertain and dependent upon a number of factors. The USBR used a scenario planning process to project future water supply and demand. A range of critical uncertainties were defined and used to evaluate the potential supply impacts, including stream flow variability and future climate changes. A set of reliability metrics was established to compare scenarios. Based on the potential future conditions, management options and strategies to respond to any supply and demand imbalance were proposed and further evaluated. In general, without implementation of additional water management options and strategies, water delivery reliability is likely to decrease over time, resulting in increasing vulnerability. All water delivery indicator metrics show increasing vulnerability across the time periods evaluated, although the magnitude varies with each metric, and the frequency of shortages to the Lower Basin states, including California, is likely to occur with a greater frequency over time (DWR 2012a). The vulnerability is as much associated with increased demands as with potential variability in the future supply from the Colorado River, and any opportunities to reduce current demands or forestall future demand increases are advisable to ensure reliability.

## 9.4 Recommendations

Overall, the Gateway Region will have enough water supplies to satisfy average and drought conditions demands through 2030. Because of this, it is recommended that projects and programs for water supply not be given a higher priority for inclusion in the Gateway Region IRWMP. The water supply may be available but distribution systems to get the water to its intended destination may still need to be constructed to fully utilize the available water supply. This is an important step and should not be overlooked. Some water suppliers are expected to be in deficit, while the rest will be in surplus or will break even. Therefore, it is also recommended that water suppliers use the Gateway Region IRWMP as an opportunity to further cooperation and coordination with each other and enhance or establish emergency water supply interconnections. Table 9-8 shows the interconnection of each water supplier listed in the 2010 UWMPs or other sources.

**Table 9-8. Interconnections within the Gateway Region**

Water Supplier	Supply-Demand Difference in 2030, ac-ft/year (Average/Drought)	Interconnected Agencies
Bellflower-Somerset MWC	-1,400 / -500	Park Water Company, Bellflower Home Garden Water Company, Bellflower MWS
California Water Service Company - East Los Angeles District	-500 / 0	Montebello Land and Water Company, South Montebello Irrigation District, City of Montebello
City of Bellflower	0 / 0	
City of Cerritos	+2,100 / +1,100	City of Santa Fe Springs
City of Compton	0 / -1,800	CBMWD, MWD
City of Downey	0 / 0	Bellflower-Somerset MWC, City of South Gate, GSWC, City of Bellflower, City of Santa Fe Springs, City of Paramount
City of Huntington Park	0 / -400	CBMWD
City of La Habra Heights	+100 / -100	
City of Lakewood	+1,200 / -200	GSWC, City of Cerritos, Long Beach Water Department
City of Lynwood	+2,100 / +100	City of Compton, City of South Gate
City of Maywood	0 / -100	City of Huntington Park, Southern California Water Company
City of Norwalk	0 / -1,000	Park Water Company, City of Santa Fe Springs, City of Cerritos, GSWC
City of Paramount	+1,500 / +400	Long Beach Water Department, City of Downey, GSWC
City of Santa Fe Springs	+1,600 / -500	City of Cerritos
City of Signal Hill	0 / 0	
City of South Gate	-200 / 0	City of Downey, City of Lynwood, City of Huntington Park, Walnut Park Mutual Water Company, GSWC – Hollydale
City of Vernon	+8,000 / +7,800	
City of Whittier	0 / 0	City of Pico Rivera, City of Santa Fe Springs, California Domestic Water Company, SGVWC, Suburban Water Systems
GSWC - Artesia	0 / 0	City of Cerritos, City of Lakewood
GSWC - Bell/Bell Gardens	0 / 0	City of Huntington Park, Maywood Mutual Water Company #3
GSWC - Florence-Graham	0 / 0	City of Huntington Park

GSWC - Norwalk	0 / 0	Suburban Water Company, City of Norwalk, City of Santa Fe Springs
GSWC - Southwest	0 / 0	City of Inglewood, Hawthorne, Park Water Company
Long Beach Water Department	0 / 0	
Montebello Land and Water Company	0 / +800	
Orchard Dale Water District	+300 / +300	Suburban Water Company
Park Water Company	-100 / 0	
Pico Rivera Water Authority	-500 / +100	City of Whittier, SGVWC
Pico Water District	0 / -200	
Suburban Water Systems	+400 / +2,100	City of Whittier, SGVWC, La Habra Heights County Water District
<u>Notes:</u> <ol style="list-style-type: none"> <li>1. CBMWD: Central Basin Municipal Water District</li> <li>2. MWD: Metropolitan Water District</li> <li>3. Bellflower-Somerset MWC: Bellflower-Somerset Mutual Water Company</li> <li>4. GSWC: Golden State Water Company</li> <li>5. SGVWC: San Gabriel Valley Water Company</li> </ol>		



# 10 Water Management Strategies

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After identifying water related issues of the region, and then compiling goals for the IRWMP to mitigate, treat, or resolve those issues, the plan must next look for “solutions” or approaches to help meet those goals.

## 10.1 Formulation of Water Management Strategies

An important and necessary step in the IRWMP process is to formulate strategies that will be effective in addressing critical water needs and issues for the region. Typical strategies that are generally considered for common water management issues should not be overlooked. However, since each region and their set of issues are unique, the strategies and resulting prioritized actions should be tailored to their particular needs.

GWMA and region stakeholders considered a broad range of water management strategies to address planning goals to ensure that no good idea was overlooked. The IRWMP planning process considered various approaches to solve identified problems, combined various actions, and evaluated effectiveness. The planning process was open and public. Brainstorming additional solution paths was important to shape alternatives, provide the broadest consideration, and obtain stakeholder commitment to the process. Environmental forces, such as climate change, were also considered when developing strategies. A central purpose of the process was to integrate water management initiatives undertaken by each of the participants into a program of integrated projects for the Gateway Region.

The IRWMP Guidelines suggest using a range of resource management strategies (Table 10-1) developed for the 2009 California Water Plan as a starting point. The intent of considering resource management strategies is to encourage diversification of water management approaches as a way to mitigate for uncertain future circumstances and comply with state law PRC §75026.(a) and CWC §10541(e)(1). A Resource Management Strategy, as defined in the CWP Update 2009, is a project, program, or policy that helps local agencies and governments manage their water, and related resources. An IRWMP must consider each strategy in the CWP Update 2009 listed below.

Other strategies may also be considered. In formulating earlier work for the region, including the Planning Grant Application, Gateway’s technical team identified at least 18 strategies that Gateway wants to consider among the general list of more than 27 strategies in their IRWMP guidelines and the State Water Plan (<http://www.waterplan.water.ca.gov>).

**Table 10-1. DWR Suggested Resource Management Strategies**

CA Water Plan Update 2009 Resource Management Strategies	
<ul style="list-style-type: none"> <li>• Agricultural Water Use Efficiency</li> <li>• Urban Water Use Efficiency</li> <li>• Crop Idling for Water Transfers</li> <li>• Irrigated Land Retirement</li> <li>• Conveyance – Delta</li> <li>• Conveyance – Regional/local</li> <li>• System Reoperation</li> <li>• Water Transfers</li> <li>• Flood Risk Management</li> <li>• Agricultural Lands Stewardship</li> <li>• Economic Incentives (Loans, Grants and Pricing)</li> <li>• Ecosystem Restoration</li> <li>• Forest Management</li> <li>• Recharge Area Protection</li> </ul>	<ul style="list-style-type: none"> <li>• Conjunctive Management &amp; Groundwater Storage</li> <li>• Desalination</li> <li>• Precipitation Enhancement</li> <li>• Recycled Municipal Water</li> <li>• Surface Storage – CALFED</li> <li>• Surface Storage – Regional/local</li> <li>• Drinking Water Treatment and Distribution</li> <li>• Groundwater Remediation/Aquifer Remediation</li> <li>• Land Use Planning and Management</li> <li>• Matching Quality to Use</li> <li>• Pollution Prevention</li> <li>• Salt and Salinity Management</li> <li>• Urban Runoff Management</li> <li>• Water-Dependent Recreation</li> <li>• Watershed Management</li> </ul>

Additionally, the GWMA wanted to concentrate and focus efforts on water conservation and water use efficiency, environmental and habitat protection and improvement, integrated flood management and protection and improvement of groundwater quality. Strategies that relate to these items will be highlighted and encouraged in the process.

## 10.2 Gateway Strategies

During their April 2012 meeting, Gateway Stakeholder’s suggested a suite of strategies to address the adopted IRWMP goals that had been previously adopted. They considered possible strategies from the Water Plan list during a group brainstorming exercise. This exercise looked at each goal individually and stakeholders recommended all the strategies that would be useful in meeting that goal. Information on water supply and demand, water quality, and storm water was used to determine strategies or combination of strategies that effectively address regional issues. Of course not all strategies are applicable to the water issues in the region. For example, since agriculture is very limited in the Gateway Region, Agricultural Water Use Efficiency or irrigated land retirement is not applicable.

The brainstorming exercise produced a well-rounded and diverse list of strategies that are listed in Table 10-2. The stakeholders were presented this table at a subsequent stakeholder meeting and it was sent by e-mail all participants for comment to make sure all thoughts captured were complete and accurate.

Several strategies (16) apply to the goal of optimizing and ensuring water supply reliability as well as the goal of protecting and enhancing water quality (9). Each of the six goals has at least

five strategies that contribute to meeting the goal. Land use planning and watershed planning apply to most of the goals (5) and all strategies have to apply to at least one goal.

In all, Stakeholders considered a comprehensive set of strategies to help achieve the IRWMP Goals. As a group, they reviewed each strategy and decided how applicable it was in meeting the IRWMP goals. Table 10-3 presents the strategies and why they were considered.

Some of the strategies suggested in Table 10-1 were not considered by the stakeholder group. Table 10-4 addresses the reasons why some Water Plan approaches were not included in the IWRMP discussions.

### **10.3 Using Strategies**

The purpose of looking at strategies was to help stakeholders identify actions and projects that would apply to strategies to benefit the water management in the region and specifically help meet the goals of the IRWMP. A wide range of ideas can translate to a wide range of actions that can bridge and support several goals, or supply multiple benefits. One of the criteria applied during project review and ranking was related to how well the project used the recommended strategies, and whether the project incorporated multiple strategies. While it is important to set the range of strategies to move the process forward, we want to be able to have some flexibility to add or remove strategies if better ideas appear later in the process.

**Table 10-2. IRWMP Goals and Stakeholder Suggested Water Management Strategies**

Water Management Strategy	Goals of the IRWMP						
	Identify and address the water dependent natural resources needs of the Gateway Region Watersheds.	Protect and enhance water quality	Optimize and ensure water supply reliability	Coordinate and integrate water resource management	Provide stewardship of the Region's water dependent natural resources through enhancement of amenities and infrastructure	Manage flood and storm water's to reduce flood risk and water quality impacts	
Flood management		X				X	2
Conjunctive use			X	X			2
Conveyance			X			X	2
Desalination		X	X				2
Economic Incentives (Grants, Loans, Pricing)			X				1
Ecosystem restoration	X	X			X		3
Environmental and habitat protection & Imp	X				X		2
Groundwater management		X	X	X			3
Imported water			X				1
Land use planning	X		X	X	X	X	5
Recharge area protection	X	X			X		3
Recreation and public access					X		1
Storage			X				1
Storm water capture and management		X	X			X	3
System re-operation						X	1
Treatment methodologies		X					1
Water and wastewater treatment			X				1
Water conservation	X		X				2
Water quality protection and improvement		X	X				2
Water recycling			X	X			2
Water supply reliability			X				1
Water transfers			X				1
Watershed planning	X	X	X	X		X	5
	6	9	16	5	5	6	
	X - suggested by Stakeholder Exercise						
	X - Added by Bill						

**Table 10-3. Consideration of Strategies**

<b>Water Management Strategy</b>	<b>Why considered?</b>
Flood management	Local and regional flooding issues
Conjunctive use	Active groundwater basin and available surface supplies
Conveyance	Aging infrastructure in Region; needs to improve
Desalination	Proximity to ocean water; possible brackish water sources
Economic Incentives (Grants, Loans, Pricing)	Should always be considered
Ecosystem restoration	Needed in the mostly urban and channelized Region
Environmental and habitat protection & Imp	Needed in the mostly urban and channelized Region
Groundwater management	Intensive groundwater use in the Region
Imported water	Imported water supplies a portion of current use; recharge
Land use planning	Important factor; controlled by Cities in GWMA
Recharge area protection	Intensive groundwater use in the Region
Recreation and public access	Needed in the mostly urban region
Storage	Protection from drought and needed to improve reliability
Storm water capture and management	Local flooding and water quality needs (TMDL)
System re-operation	Should always be considered
Treatment methodologies	Can improve present supply
Water and wastewater treatment	Can improve present supply
Water conservation	Always should be considered; needed for 20x2020 targets
Water quality protection and improvement	Intensive groundwater use in the Region
Water recycling	Urban area has available supply and use areas
Water supply reliability	Protection for drought
Water transfers	Can better optimize distribution in urban setting
Watershed planning	Can benefit from integrated planning

**Table 10-4. Strategies Not Considered**

<b>Strategies Not Directly Considered by IRWMP Stakeholders</b>	
<b>Water Management Strategy</b>	<b>Why not considered?</b>
Agricultural Water Use Efficiency	Region has little agriculture
Crop Idling for Water Transfers	Region has little agriculture
Conveyance – Delta	Considered in Imported Water Strategy
Agricultural Lands Stewardship	Region has little agriculture
Forest Management	Region has no forest lands
Precipitation Enhancement	Urban area with no capture area
Surface Storage – CALFED	Not on the horizon
Groundwater Remediation/Aquifer Remediation	Considered in Treatment Methodologies
Matching Quality to Use	Water quality flexibility not viable for region
Pollution Prevention	Considered as Water Quality protection
Salt and Salinity Management	Considered in groundwater management
Urban Runoff Management	Considered in Storm Water Capture and Management



# 11 Climate Change

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This chapter presents a discussion of the baseline climate conditions and the potential quantitative effect of climate change on the Gateway Region, including the effects to both local water supplies and demands and the imported water supply. Included are a qualitative evaluation of the Region's vulnerabilities and potential adaptation responses. The process for considering GHG emissions and choosing between project alternatives is also summarized. The plan for further data gathering and analysis of the vulnerabilities is integrated into the overall project performance and monitoring strategy (Chapter 17).

## 11.1 Baseline Climatology

### 11.1.1 Local Climate

An initial assessment of historical local climate was performed to establish a baseline. NOAA's National Climate Data Center (NCDC) maintains an archive that includes 30-year monthly averages (1981 to 2010) of climate variables for gauges from NOAA's Cooperative Observer Program (COOP) network, the Weather Bureau Army Navy (WBAN) network and the Climate Reference Network (CRN) of stations. The archive includes four precipitation stations in the Gateway region located at Downey, Long Beach, Whittier and Montebello. It also includes two temperature stations at Long Beach and Montebello. Data from these six stations are averaged to establish historical baseline precipitation and temperatures for each season.

Historical and future periods of equal length are selected taking into account the IRWMP planning horizon and the availability of Global Climate Model (GCM) projections which are only parameterized for climate expected by mid-century (circa 2050) and late century (circa 2099). Gridded historical monthly wind, evapotranspiration and runoff (1981 to 2010) GCM data as well as daily precipitation and temperature (1980 to 1999) GCM data are obtained from online archives hosted by the Lawrence Livermore National Labs (LLNL). In each GCM data layer, the Gateway IRWMP is covered by 16 grid cells, each 0.125 degrees of latitude and longitude. Daily projection data for characterizing mid-century climate are only available from 2046 to 2065. A corresponding 20-year historical window was selected for daily GCM simulations of past climate which are available through 1999. Monthly GCM results were divided into the period before and after 2010 for historical and future analysis respectively. The analysis window for monthly analysis was extended to 40-years to ensure the inclusion of the 2050 for mid-century projections. Data extracted from the NCDC and LLNL archive were analyzed, and the results are presented in Table 11-1.

**Table 11-1. Historical Baseline Values of Seasonal Climate Variables for Gateway Region**

Climate Variable	Winter	Spring	Summer	Fall	Source	Dates
Precipitation (mm)	72.8	28.2	1.1	16.3	NCDC 30-year Monthly Means	1981-2010
Max Temperature (°C)	20.6	23.4	28.9	26.4	NCDC 30-year Monthly Means	1981-2010
Min Temperature (°C)	8.3	12.0	17.4	14.2	NCDC 30-year Monthly Means	1981-2010
Wind Speed (m/s)	3.1	4.1	3.7	3.0	LLNL Gridded Monthly Gridded	1981-2010
Evapotranspiration (mm/m)	57.7	129.1	203.8	124.0	LLNL Gridded Monthly Simulations	1981-2010
Runoff (mm/m)	69.2	48.1	10.7	9.2	LLNL Gridded Monthly Simulations	1981-2010
Cooling Degree Days (Fahrenheit-days)	0	3	63	41	LLNL Gridded Daily Observations	1980-1999
Heating Degree Days (Fahrenheit-days)	654	290	7	123	LLNL Gridded Daily Observations	1980-1999
Days with 1 inch or more of precipitation each year	2.55	0.65	0	0.25	LLNL Gridded Daily Observations	1980-1999

The table shows seasonal averages computed for each climate variable as well as Heating Degree Days (HDD), Cooling Degree Days (CDD) and the number of days with rainfall in excess of one inch. HDD is the cumulative sum (in Fahrenheit-days) of average daily temperatures less than 65F while CDD is the cumulative sum (in Fahrenheit-days) of average daily temperatures in excess of 75F. For most California homes, HDD is indicative of domestic gas consumption while CDD is an indicator of electricity use and associated water use. The number of rain days each year when the Gateway region receives 1 inch or more of precipitation is used as an indicator of local flooding.

### 11.1.2 Climate in Water Source Regions

The Gateway region imports surface water from the State Water Project (SWP) and the Colorado River Aqueduct (CRA). Two primary sources that document baseline conditions and contain projections of climate impacts to source water areas are incorporated by reference. This includes:

- The *Final State Water Project Delivery Reliability Report 2011* (DWR, 2012)
- *Colorado River Basin Water Supply and Demand Study* (USBR, 2012).

## 11.2 Climate Projections

### 11.2.1 Projections of Local Climate Change

Lawrence Livermore National Labs (LLNL) hosts archives of long-range climate projections from Coupled Model Inter-comparison Project Phase 3 (CMIP3) conducted by the World Climate Research Programme (WCRP) (Maurer et al., 2007). The climate projections were derived from Global Climate Model (GCM) simulations by spatially downscaling and correcting any quantitative biases in the results. Simulation results from NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) model are used in the Gateway climate analysis. Change analysis for Gateway is performed for mid-century conditions using available historical and future data for periods of equal length. Daily simulation results are analyzed over a historical window from 1980 to 1999 and a mid-century projections window of 2046 to 2065. Daily projection data for characterizing mid-century climate are only available from 2046 to 2065, and the corresponding historical GCM simulations are only available through 1999. Daily analysis is consequently performed with 20-year time series. Monthly analysis is performed with 40-year time series with historical data from 1971 to 2010 and a mid-century projections window of 2011 to 2050 which includes both the IRWMP planning horizon and mid-century.

The projections are analyzed for three GCM simulations corresponding to high (A1B), medium (A2) and low (B1) future greenhouse gas emissions scenarios. The three emissions scenarios are associated with different levels of future socio-economic, technological, and energy use developments developed by the Intergovernmental Panel on Climate Change (IPCC) and published in the Special Report on Emissions Scenarios (SRES, 2000). The A1B scenario envisions globalized world with emphasis on rapid economic development and spread of ideas and technologies but with a balance between use of fossil fuels and renewable energy. The A2 scenario is that of a regionally fragmented world with less transfer of ideas and technology; economically driven scenario with the highest projected population among all scenarios. The B1 scenario assumes a globalized world with an emphasis on rapid development of clean technologies and economies driven by investing in environment friendly solutions. These three emission scenarios are used in this analysis because they are the only scenarios for which downscaled climate model results are available in the LLNL climate data archive.

Changes between historical and future GCM simulation results are summarized for nine climate variables including precipitation, maximum temperature, minimum temperature, wind speed, evapotranspiration, runoff, cooling degree days, heating degree days, and days with precipitation of 1 inch or more. Table 11-2 summarizes the seasonal changes in climate variables computed from monthly time series. The values represented projected changes, in percentage, by mid-century (2050) using the NOAA GFDL model. In the table, cells with green backgrounds indicate increases of 3 percent or more, red backgrounds indicate decreases of 3 percent or more and white backgrounds indicate no change.

Table 11-3 shows projected changes in climate daily metrics by mid-century (2050) using the NOAA GFDL model with increases shown in green while decreases are shown in red backgrounds. Cells with white backgrounds indicate no change.

**Table 11-2. Projected Changes in Monthly Climate Metrics for Gateway by Mid-Century (2050)**

Climate Variable	Emission Scenario	Seasonal Change (%)			
		Winter	Spring	Summer	Fall
Precipitation	High (A1B)	5%	-27%	-36%	6%
	Medium (A2)	16%	-26%	15%	26%
	Low (B1)	7%	-25%	0%	40%
Maximum Temperature	High (A1B)	5%	4%	6%	6%
	Medium (A2)	3%	5%	5%	4%
	Low (B1)	4%	5%	4%	5%
Minimum Temperature	High (A1B)	10%	8%	10%	12%
	Medium (A2)	6%	10%	8%	8%
	Low (B1)	11%	8%	6%	6%
Wind Speed	High (A1B)	0%	1%	-2%	0%
	Medium (A2)	-1%	2%	-1%	1%
	Low (B1)	-3%	-1%	1%	0%
Evapotranspiration	High (A1B)	1%	5%	6%	5%
	Medium (A2)	-2%	3%	5%	3%
	Low (B1)	-3%	4%	4%	3%
Runoff	High (A1B)	15%	-22%	-11%	-12%
	Medium (A2)	25%	3%	-6%	28%
	Low (B1)	27%	-9%	-2%	4%

**Table 11-3. Projected Changes in Daily Climate Metrics for Gateway by Mid-Century (2050)**

Climate Variable	Emission Scenario	Seasonal Change ( percent)			
		Winter	Spring	Summer	Fall
Change in Cooling Degree Days (Fahrenheit-days)	High (A1B)	0.0	4.7	223.6	95.3
	Medium (A2)	0.0	2.8	231.9	68.0
	Low (B1)	0.0	2.8	119.9	47.3
Change in Heating Degree Days (Fahrenheit-days)	High (A1B)	-264.2	-163.9	-4.3	-73.8
	Medium (A2)	-191.7	-146.1	-3.6	-60.3
	Low (B1)	-146.7	-124.8	-2.9	-51.9
Change in Days with Precipitation exceeding 1 inch (days)	High (A1B)	-0.5	0.1	0.0	0.2
	Medium (A2)	0.2	-0.1	0.0	0.1
	Low (B1)	-0.6	0.1	0.0	0.2

The two tables show that:

- Precipitation is projected to increase in winter (5 percent to 16 percent) and fall (6 percent to 40 percent) while decreasing in spring (-25 percent to -27 percent). Projections for summer precipitation are mixed with both decreases and increases possible under different emission scenarios.
- Maximum daily temperature is projected to increase by 3 percent to 6 percent in all seasons while minimum daily temperature is projected to increase by 6 percent to 12 percent.
- Minor changes in wind speed ranging from increases of 2 percent to decreases of 3 percent are projected.
- Evapotranspiration is projected to increase by 3 percent to 6 percent in spring, summer and fall while decreasing slightly or remaining unchanged in winter.
- Runoff is projected to increase in winter by 15 percent to 27 percent while decreasing by 2 percent to 11 percent in the summer. Results for the other two seasons are varied with less spring runoff and more fall runoff projected in two of three future emission scenarios.
- Significantly higher cooling requirements are projected in summer and fall while negligible changes are projected in winter and spring.
- Significantly lower heating requirements are projected in winter, spring and fall. Negligible changes are projected in summer.
- Only marginal changes amounting to less than one additional extreme rainfall event a year are projected with small increases in fall and no increases in summer. Decreases in winter and increases in spring are also projected in two of three future emission scenarios.

It should be noted that the precipitation analysis presented in this report does not take into account potential changes in the frequency and magnitude of “pineapple express” storms associated with atmospheric river events. These events cannot be simulated using the current



generation of global climate models. The projections should be updated when projections of climate induced changes in atmospheric river events become available.

### **11.2.2 Projections of Sea Level Rise**

Sea level rise is an important consideration in the Gateway Region because of its proximity to the Pacific Ocean. Global sea level rose about 210 mm between 1900 and 2009 (Church and White 2011). There is uncertainty about the rate of future sea level (Houston and Dean 2011) due primarily to uncertainty about future changes in global wind patterns and the rate of polar ice melt. In this study, the range of projections of sea level rise found in the scientific literature is summarized in Table 11-4.

Global sea level change is a result of contribution of processes such as thermal expansion, land ice changes, changes in permafrost, and ice sheet flow. Study of ice sheet dynamics is still an evolving science, and its contribution to sea level rise is not fully modeled in existing sea level rise projections (Rahmstorf 2007). The sea-level rises estimated in the Third Assessment Report (TAR) were published by the IPCC are for 2050 while sea level rise for 2090-2099 relative to 1980-1999 level were published in the Fourth Assessment Report (AR4). Both of these estimates exclude uncertainties associated with dynamical changes in ice flow. These projections should be updated in future when projections with improved ice sheet dynamics get included in models for global sea level rise.

**Table 11-4. Summary of Sea Level Rise Projections**

Scale	Emissions Scenario	Projected Rise	Period	Climate Model	Data Source
<b>Mid-Century</b>					
Los Angeles	Historical	0.022 - 0.044m	2050	Extrapolation of Historical Trend	NOAA
California	Historical	0.15m	Mid-century	Extrapolation of Historical Trend	California DWR
California	Multi-Scenario	0.24 - 0.31m	Mid-century	Semi Empirical (Rahmstorf's) Approach	California DWR
California	Multi-Scenario	0.087 - 0.095m	2020 - 2049	PCM	Journal Publication
California	Multi-Scenario	0.116 - 0.127m	2020 - 2049	HadCM3	Journal Publication
California	Multi-Scenario	0.04 - 0.3m	2030	Multi-model Ensemble	National Academy
California	Multi-Scenario	0.12 - 0.6m	2050	Multi-model Ensemble	National Academy
Global	High (A1B)	0.063 - 0.284 m	2050	Multi-model Ensemble	IPCC
Global	Medium (A2)	0.058 - 0.269 m	2050	Multi-model Ensemble	IPCC
Global	Low (B1)	0.052 - 0.259 m	2050	Multi-model Ensemble	IPCC
<b>Late-Century</b>					
California	Multi-Scenario: Medium (A2) and Low (B1)	0.54 - 0.94m	End-Century	Semi empirical (Rahmstorf's) Approach	California DWR
California	Multi-Scenario: High (A1fi) and Low (B1)	0.192 - 0.288m	2070 - 2099	PCM	Journal Publication
California	Multi-Scenario: High (A1fi) and Low (B1)	0.268 - 0.409m	2070 - 2099	HadCM3	Journal Publication
California	Multi-Scenario	0.42 - 1.67m	2100	Multi-model Ensemble	National Academy
Global	High (A1B)	0.21 - 0.45 m	2090 - 2099	Multi-model Ensemble	IPCC
Global	Medium (A2)	0.23 - 0.51 m	2090 - 2099	Multi-model Ensemble	IPCC
Global	Low (B1)	0.18 - 0.38 m	2090 - 2099	Multi-model Ensemble	IPCC

At the regional scale, semi-empirical and model based approaches have been used to compute the sea level change in Statewide studies including the DWR and California Climate Change Center (2009) study based on the Rahmstorf (2007) approach. In that study, projections of mid-century rise were disaggregated into three components including extrapolation of historical trend (0.15m), additional rise due to increasing air temperatures (0.24m - 0.31m) and an uncertainty range of 0.15m - 0.39m. Another study (Hayhoe et al. 2004) projected the change in sea level along California using simulations from two GCM, namely, the Parallel Climate Model (PCM) and the Hadley Center's Coupled Model Version 3 (HadCM3). These projections were based on two SRES scenarios- high emission A1 and low emission B1. A more recent report by the National Academy of Sciences (National Academies Press, 2012) estimates sea level rise along the Californian coast. The study reports that relative to the sea levels in the year 2000, sea level is estimated to rise 0.12m - 0.61m by 2050 and 0.42m -1.67m by 2100.

Historical data of long-term mean sea level are recorded at 128 gauges located in the ocean by National Oceanic and Atmospheric Administration (NOAA) and made available through the Center for Operational Oceanographic Products and Services (CO-OPS). Each of these gauges has a minimum of 30 years of recorded data. The CO-OPS station located at Los Angeles (9410660) is the nearest available station to the Gateway region, and it has monthly records of mean sea levels from 1923 to 2006. The trend at the Los Angeles CO-OPS station shows an increase of 0.83mm/year with a 95 percent confidence interval of +/- 0.27mm/year. If this rate of increase is assumed to remain steady until mid-century, the extrapolated mean sea level would rise by between 0.022m and 0.044m in 2050 over the 2010 mean sea level. While this simple computation ignores other evidence of accelerating rates of air warming and polar ice melt, it does provide a baseline of minimum projected change.

### **11.2.3 Projections for Imported Water Sources and Imported Supply Vulnerability**

The reliability of the imported water supplies from the Colorado River and the Sacramento-San Joaquin Delta were discussed in Section 8.3. The MWD IRP and the Regional UWMP contain detailed discussion of the potential vulnerabilities, and the impacts and strategies being employed by MWD to ensure a secure and reliable supply of imported water. As part of the 2010 update of the IRP, MWD conducted extensive modeling and a reliability analysis addressing potential climate change impacts to imported water supplies from the SWP and Colorado River, and used the results of their reliability study to evaluate and prioritize several management programs for dry year supplies, water storage and other measures.

Snowmelt is a major source of water for both the SWP and the Colorado River Aqueduct. Temperature increases could increase the portion of winter precipitation falling rainfall and reduce the capacity of mountain snowpack to function as a natural winter storage reservoir. Changes to the timing of spring snowmelt could impact reservoir operations and ultimately reservoir water storage and deliveries. Analysis of SWP operations have shown that climate change is likely to reduce the reliability of water deliveries by increasing the frequency of recurring of extreme low flow years. By mid-century, water shortages worse than the 1977 drought are estimated to occur once every 6-8 years. Water exports from the San Joaquin Delta are projected to fall by between 7 percent and 10 percent.

The USBR released the *Colorado River Basin Water Supply and Demand Study* (USBR, 2012). The purpose of the Study was to define current and future imbalances in water supply and demand in the Colorado River Basin and the adjacent areas of the Basin States that receive Colorado River water over the next 50 years (through 2060), and to develop and analyze adaptation and mitigation strategies to resolve those imbalances. The report includes characterization of future water supply and demand imbalances under varying supply and demand conditions in the Basin, and presents an assessment of the risks to Basin resources from potential future impacts of climate change. It identifies potential strategies and options to resolve Basin-wide water supply and demand imbalances. The results of the 112 future climate projections are documented in the report.

The two critical uncertainties primarily affecting the future of water supply are (1) changes in stream flow variability and trends and (2) changes in climate variability and trends. The variability of demand scenarios under climate change conditions was evaluated. The results of the 112 future climate projections are presented in the report or climate results are presented in terms of annual precipitation, temperature and seasonal trends. For hydrologic processes, results are presented for ET, snowpack, soil moisture, and runoff. The last section of the results focuses on projected changes in stream flow, both annually and seasonally. It is anticipated that the information will be used by MWD to subsequently update the IRP and the CAR reliability report.

### **11.3 Water System Vulnerability and Responses in the Gateway Region**

The Gateway Region has prioritized vulnerabilities in critical areas.

#### **11.3.1 Coastal Aquifer Vulnerability**

For the Gateway Region, impact of sea level rise will be prominent along coastal aquifers. The Ghyben-Herzberg principle which governs saltwater-freshwater relationships in coastal aquifers states that for each unit that freshwater level drops below sea level, the saltwater-freshwater interface will rise by 40 units. The Alamitos Barrier, Dominguez Gap Seawater Barrier and West Coast Basin Barrier projects currently inject water into coastal aquifers through a series of wells to prevent sea-water from advancing into the groundwater basin. Even the lowest projected sea-water level rise of 0.022m would require the saltwater-freshwater barrier to be raised by 0.88m to maintain the current barrier. Significantly more water must be injected into the wells to prevent saltwater intrusion. Other coastal effects of sea level rise could include an increase in invasive species in estuaries, bluff erosion, beach retreat, and alteration of the ecosystem balance. In addition, increasing recharge through integrated storm water management and implementation of Low Impact Development (LID) practices for new construction or urban renewal projects has the potential to increase recharge to the groundwater basin and raise groundwater elevations. Projects that increase recharge, raise or maintain water level (e.g.; water conservation) or make use of recycled water as alternative supplies could also address this area of vulnerability.

### **11.3.2 Water Supply Vulnerability**

The IRWMP acknowledges the potential water supply risks and vulnerabilities and contains goals and objectives that will help the area live within the boundaries of existing water contracts, surface water and groundwater entitlements, and local resources. The Gateway IRWMP includes project concepts for conservation, recycling recharge of storm water, and groundwater treatment, and use in order to help GWMA and the members sustainably manage the available supply. The Gateway members are retail water purveyors of MWD and CBMWD wholesale water supplies and as such, support and participate in the programs for adaptive management. These programs and the adaptive management approach ensure that water supplies available from existing imported water sources are sustainable and reliable.

#### **11.3.2.1 Local Supply Vulnerability**

Natural inflow from local precipitation and mountain front recharge could be impacted as runoff generating rainfall events occur earlier in each water year. Total volumes of rainfall and runoff may be reduced. Improved management of recharge zones and integrated storm water retention and recharge facilities may be required to ensure local runoff flows into the aquifer rather than running off into local streams and then to the ocean. On the demand side, increased temperatures could increase domestic water consumption, particular for outdoor uses which are subject to higher evapotranspiration as a result of higher temperature. This could influence the ability to meet the 20 X 2020 water conservation goals.

#### **11.3.2.2 Imported Supply Vulnerability**

The SWP and CRA source areas supply reliability was discussed in Section 8.3. Climate change could impact imported water supply availability. The Gateway Region is vulnerable to the impacts of climate change on the State Water Project and Colorado River. Changes in the snowmelt patterns could impact reservoir operations and net storage. Water deliveries could be impacted during periods of drought and in warm winters when reservoirs discharge water early to avoid flooding. Ecological water requirements could also change, particularly in the Sacramento-San Joaquin Delta from which water is sourced.

MWD is the water wholesaler to the Gateway Region. MWD updated the IRP in 2010. The IRP documents climate change vulnerability and uncertainty for Colorado River and SWP supplies. The MWD program was one of the DWR case studies in the Climate Change Handbook for Regional Water Planning (DWR, 2011). The impact analysis included intensive demand and supply gap modeling and probability analysis. The supply/demand impacts of concern include:

- Demand – increased outdoor residential/agricultural use
- Supply – snowpack reductions
- Supply – sea level rise in the Delta, which could result in pumping cutbacks for SWP
- Water quality impairments
- Extreme weather events such as drought
- Loss of hydroelectric power generation capacity



MWD’s adaptive management approach supports the Gateway Region. MWD evaluated strategies to examine the supply gap resulting from climate change and ranked supply strategies. Strategies included in the plan were evaluated against criteria to create a water portfolio of three tiers: Core Resources, an Uncertainty Buffer, and Foundational Actions. Core Resources comprise “baseline” management programs and activities to prevent the future gap between demands and available supplies. The Uncertainty Buffer is composed of projects that may be implemented should the need arise in the future. Foundational Actions are larger-investment, including longer term projects that can be started on an investigative level without incurring extensive costs.

The adaptive management strategy identified in the IRP is supported by the GWMA (Figure 11-1). The MWD IRP will continue to be updated as new information, data, and tools are available, and as conditions and needs change. The uncertainty buffer and foundational actions laid out in the water project portfolio require periodic reevaluation as part of the adaptive management strategy. Gateway members will continue to represent the region to MWD and support the exchange of information, continued research and development efforts, and the development and implementation of the strategies identified.

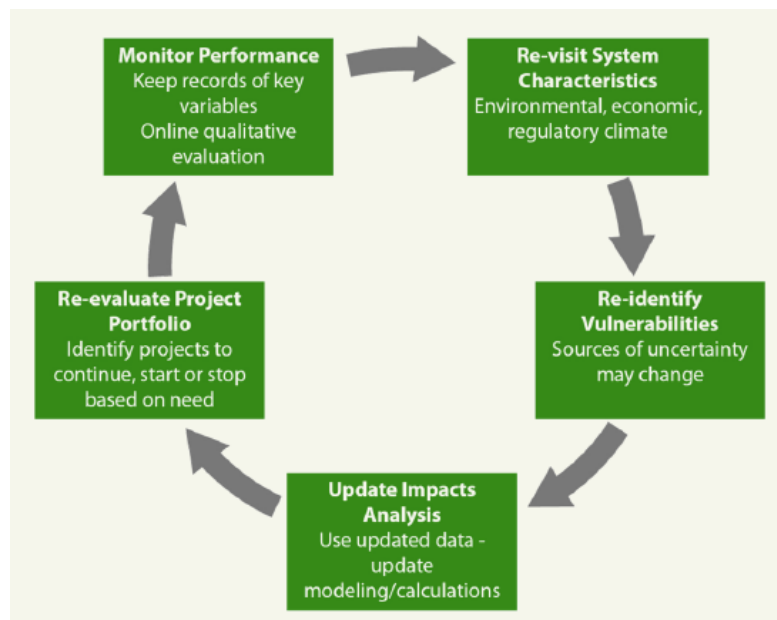


Figure 11-1. Adaptive Management Cycle Applied by MWD

### 11.3.3 Ecological Vulnerability

Changes in precipitation and temperature patterns are likely to increase the water requirements of plants and animals in natural habitats including uninhabited spaces, local streams and wetlands such as the Rio Hondo and the El Dorado Lakes, and waterways such as the Los Cerritos Channel. Increased ecological water demand will encounter competing demands from household water uses including landscaping and evaporative coolers prevalent

in many older and lower incomes neighborhoods. The Gateway IRWMP Region also has large outdoor water uses including community regional parks, nature centers, wildlife sanctuaries, nurseries, recreational areas such as Whittier Narrows, golf courses and water sports centers. Coastal areas such as Long Beach also have major hotels and other facilities that support tourism and coastal recreation. Ecological systems are likely to be most vulnerable as municipal and industrial water demands are usually prioritized in the event of water supply deficits.

Some increase ecological demand could be met with increased use of recycled water or imported water when available. However, increased water use comes at the cost of increased GHG emissions from energy use in the recycling process or in conveying imported water to the region. Increased pumping of local aquifers could also have adverse impacts on groundwater quality.

Higher temperatures could also lead to increased ozone productions, exacerbating photochemical smog production and related health and environmental problems. It could also alter biogeochemical cycles and shifts in ecological composition in existing habitats towards drier climate vegetation. Such ecological shifts increase the risk of wildfires and forest fires which often originate in uninhabited spaces or recreational areas but can spread to population centers (Pierce et al. [eds.] 2012). Wildfires lead to loss of vegetation cover, ash deposition, large sediment and debris flows which damage water quality in streams and lakes. Other water quality impacts could include changing declining dissolved oxygen content, increased water temperature, and pH levels. These water quality changes can threaten aquatic habitats for fish and other aquatic life in rivers, lakes and eventually coastal systems such as Alamito Bay.

#### **11.3.4 Flooding Vulnerability**

Current climate model projections cannot be used directly to evaluate flood risk because the distribution of individual rainfall events in climate models is not reliable. However, a number of results from this study point towards increased flood risk in winter and fall including increased precipitation in winter and fall, increased winter runoff, and increased number of days each year with precipitation exceeding 1 inch. These factors could lead to increased storm water flooding in urban areas and increased risk of flooding along Rio Hondo, the San Gabriel River and smaller tributary streams.

#### **11.3.5 Other Vulnerabilities**

The California Climate Adaptation Planning Guide (APG) has been finalized<sup>3</sup>. The *APG: Understanding Regional Characteristics* report assesses the impact of climate change across the state, including the Gateway Region. The report notes that communities should consider evaluating the following areas where the region is vulnerable to climate change impacts:

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<sup>3</sup> [http://resources.ca.gov/climate\\_adaptation/local\\_government/adaptation\\_policy\\_guide.html](http://resources.ca.gov/climate_adaptation/local_government/adaptation_policy_guide.html)

- Reduced tourism
- Wildfire risk
- Public health - heat and air quality
- Coastal erosion

The responses to these vulnerabilities are not specifically included in this version of the IRWMP but are provided to make the community more aware of the potential risks and encourage communities to integrate actions with the other local and regional plans (Chapter 13).

## 11.4 Water-Energy Intensity and GHG Emission

The Gateway Region is developing a broad portfolio of projects that contribute towards improved climate adaptation in the Region. The Plan compares energy use and associated greenhouse gas (GHG) emissions for the most common water operations including conveyance, pumping groundwater, drinking water treatment, wastewater treatment and recycling to rank projects for energy use and emission. Projects containing operations with low energy use are ranked less favorably since higher energy use also implies increased GHG emissions.

Emissions data are collected and verified by the California Climate Action Registry (CCAR) and distributed through its Climate Action Registry Reporting Online Tool (CARROT). The emissions are reported in units of carbon dioxide equivalent (CO<sub>2</sub>e), which reflect the combined global warming potential of key greenhouse gases such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and a range of hydro-fluorocarbons. In 2008, Los Angeles County reported an emissions factor of 1052 lbs. CO<sub>2</sub>e/MWh of electricity it generates. This emissions factor is multiplied to the energy intensity of water operations to estimate water-related emissions in pounds of carbon dioxide equivalent per acre-foot of water. The results show that for the Gateway Region's projects that optimize local water use through recycling or improved water quality result in lower energy use and GHG emissions than projects that increase imported water supply.

Estimates of energy intensity for water operations including delivering water to the Region from East and West Branches of SWP, the CRA, MWD, groundwater pumping, water recycling, distribution and peak energy use reduction programs are presented in Table 11-5. Energy intensities for MWD are applied for emissions analysis of all imported water in this study because they best reflect the actual current practice of blending water supplies from all available sources before distribution. For each project in the IRWMP, estimates of greenhouse gas emissions in pounds of carbon dioxide equivalent per acre-foot of water (lbs. CO<sub>2</sub>e/AF) are provided in Chapter 12, Section 12.3.4.

**Table 11-5. Water Operations**

Rank	Water Operation	Energy Intensity (kWh/MG)	Energy Intensity (kWh/AF)	Water-related Emissions (lbs. CO <sub>2</sub> e/AF)	Source
1	Pumping water from East Branch of State Water Project to Devil Canyon	9558	3115	3277	GEI 2010, Embedded Energy in Water Studies
2	Pumping water from West Branch of State Water Project to Castaic	7864	2563	2696	GEI 2010, Embedded Energy in Water Studies
3	Blended Water Delivery by Metropolitan Water District	7588	2473	2602	GEI 2010, Embedded Energy in Water Studies
4	Pumping water from Colorado River Aqueduct to Lake Skinner	7462	2432	2558	GEI 2010, Embedded Energy in Water Studies
5	Wastewater Treatment	2500	815	857	CEC 2005
6	Groundwater Pumping	1779	580	610	CEC 2006
7	Water Recycling	1228	400	421	CEC 2005
8	Drinking Water Treatment	100	32	34	CEC 2005
9	Peak Energy Reduction			460	CEC 2011

## 11.5 Summary of Climate Adaptation and Mitigation Analysis

The climate change analysis of the Gateway Region has evaluated projected changes in seasonal precipitation, maximum and minimum temperature, wind speed, evapotranspiration, runoff, cooling and heating degree days, and in days with precipitation exceeding 1 inch under three climate scenarios. A summary of projections available in the scientific literature for sea level rise along the Los Angeles coastal, the California, and global seas for mid-21<sup>st</sup> century have also been compiled and presented.

Based on the change analysis, four key water system vulnerabilities have prioritized for the region including coastal aquifers, water supply, ecological functions and flooding. The broad portfolio of projects developed in the region has been qualitatively evaluated to assess how well each project contributes towards climate change adaptation, mitigating greenhouse gas emissions and greater reliance on renewable energy. The greenhouse contributions of water-related operations of each proposed project has also been quantitatively evaluated, and projects with demonstrable GHG emissions-reduction impacts have been identified and

ranked (Chapter 12). Other projects were identified as having possible emissions-reduction or emissions-increase impacts but the net impact could not be computed because the water saving have not been quantified. Some projects have no measureable water savings or in changes emissions from water operations.



## 12 Project Solicitation and Prioritization

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The development of goals and objectives for the IRWMP provided general guidance for GWMA to develop strategies to achieve those goals. By nature, strategies developed to achieve those goals would be followed by or supported by actions to successfully carry out those strategies. Actions are considered to be projects or programs that help IRWMP stakeholders, and participants meet those strategies identified.

To determine appropriate actions or projects, the IRWMP development process looked to stakeholders who know the issues and region to suggest appropriate projects. The project submittal, review and ranking process was a dynamic process intended to capture project information in a specific manner and review and rank that information efficiently and transparently in accordance with DWR Guidelines. It was also intended to provide an avenue for projects to be integrated to better meet regional goals and objectives.

### 12.1 Project Solicitation and Submittal Process

The Project Solicitation and Submittal Process provide the steps taken to efficiently obtain project information from project proponents or sponsors. Besides describing the projects, additional information provided general conditions, impacts, benefits, and other attributes of the projects. This information was ultimately used to score and rank the projects in terms of meeting goals, feasibility criteria, and readiness to proceed. Stakeholders and project proponents that were interested in having their projects included in the IRWMP were required to fill out the Project Submittal form and submit it via email to the Consultant Team. From there the file was added to a collective “response” file, which stored the information and placed it in “tabular” format using the Adobe suite of products. Projects were automatically downloaded into an Access database and output into tabular format as well as various formats for reports.

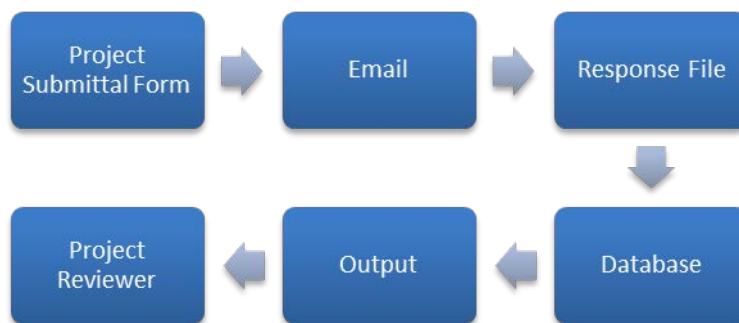


Figure 12-1. Project Database Tool and Overview of Submittal Process

### **12.1.1 Project Database Tool**

Before soliciting project ideas from Stakeholders, a systematic way to track and store projects and their attributes was needed. For the Gateway IRWMP process, a database tool was developed integrating Adobe Acrobat, Microsoft Access, and Microsoft Excel programs. The tool has several components that feed information to the database and systematically and efficiently retrieve that information. The project database tool is comprised of a Project Submittal Form and the Project Database Suite. These items were used to collect, store, and ultimately evaluate projects that were submitted to the Gateway IRWMP.

#### **12.1.1.1 Project Submittal Form**

The Project Submittal Form (Appendix C) was created to obtain specific project information from project sponsors. It is an Adobe fill-able form containing project information that was submitted via email. It provided those submitting projects with the opportunity to describe their project and summarize its attributes, and provided an efficient way to view project information in different ways. Project information requested on the form was intended to assist those later reviewing the projects (Reviewers).

The form is a questionnaire with both multiple choice and essay questions allowing project sponsors to provide as much detail as possible regarding the project. It is a fill-able PDF form provided to stakeholders during the Project Solicitation period that project sponsors submit digitally to the Gateway IRWMP email address ([gatewayirwmp@geiconsultants.com](mailto:gatewayirwmp@geiconsultants.com)).

#### **12.1.1.2 Project Database Suite**

The Project Database pairs Excel and Access files containing all data from the Project Submittal Form. It allows the extraction of data provided for a project, a variety of easy to use tabular formats, and the output of all text that was provided into the Project Submittal Form.

The Project Submittal Form was easy to use and almost limitless in data input. However, it does not allow end users to print out the form with all data available. To extract all data provided by project submitters, the data needed to be extracted into a database (Access) and re-printed into Adobe. This allowed for the production of a Project Workbook. The Project Workbook is simply a collection of all the information provided on all Project Submittal Forms. It allows Reviewers to read, and print if desired, all of the data provided by project submitters.

### **12.1.2 Project Solicitation**

The project solicitation was intended to identify projects and concepts for projects to meet the Gateway IRWMP goals. It was anticipated that there would be a wide variety of projects submitted at different levels of readiness, cost and integration. The process sought to include projects that were planned for development over the planning horizon, not only projects considered ready for funding.

Projects were solicited through written and email announcements and letters of invitation were sent via email and were posted on the Gateway IRWMP website. The email announcement was

sent out to identify stakeholders on June 22, 2012. The deadline for project submittal was originally September 5, 2012. To aid sponsors in providing a complete and meaningful range of projects the project submittal due date was extended. Some additional projects were included as late as December 2012.

Project sponsors, including public agencies and nonprofit corporations, were encouraged to submit project concepts that they believe would meet the Gateway IRWMP goals and objectives. They were further urged to submit the projects regardless of whether the project was ready to proceed or not, or if it would qualify for Proposition 84 Implementation Grant funding.

### **12.1.3 Consultant Suggested Projects**

In addition to project sponsors, the Consultant Team was also asked to submit project concepts that they considered important to the Region. For example, during the assessment of groundwater quality, the Team noted the location of several superfund cleanup areas that will ultimately jeopardize a portion of the Region's groundwater supply. It was important to include at least the concept of a feasibility study for cleanup of that area so that the Plan's actions (projects) would at least recognize the Region's needs in that regard.

Several projects were added in this way to the Plan. Since water supply did not appear to be a large issue for the Region as a whole, no regional water supply projects were added by the Consultant Team.

By offering the technical team an opportunity to submit projects, it took advantage of their careful review of groundwater, storm water, water supply and demand, and groundwater monitoring to improve regional needs.

### **12.1.4 Past Project Suggestions**

To capitalize on past work in the Region, stakeholders were provided with lists of projects and their descriptions from earlier and neighboring IRWMP efforts.

Many stakeholders had once participated in GLAC and their previous projects were included in the GLAC IRWMP project lists compiled a few years ago. To make this information manageable, only projects that were proposed within or near the Gateway Region were included.

Stakeholders were also provided with the project list for neighboring Santa Ana Watershed Project Authority (SAWPA). These too were only projects that were near the Gateway boundary.

These project lists served to remind stakeholders of possible actions for their agency or city that was suggested in the past, as well as providing a resource that would share solutions for similar issues that stakeholders may have. They also were intended to give stakeholders general project ideas they might alter for their own jurisdiction. Copies of the lists can be found at [www.gatewayIRWMP.org](http://www.gatewayIRWMP.org).

## **12.2 Project Review Process**

A multi-level reviewing process was used to review, rank, and define projects for inclusion in the Gateway IRWMP. The initial review was the verification the project submittal form was complete. Complete project submittal forms were then sent to a team of reviewers for technical review, evaluation, and ranking.

Project ranking is required by the IRWMP Guidelines to be included in the plan. It helps to sort projects on their relative benefits, and whether they help meet or support the IRWMP goals and state water preferences. However, this ranking serves only as a general indicator of benefits and not necessarily whether the Region should fund or implement the project. It helps determine which projects might be ready for grant funding but does not serve as the final determination on which projects should proceed.

This ranking is not directly for grants. Proposed grant projects must be ranked in the Plan, per guidelines, but projects do not need to be on the top of the list. Grant opportunities will depend more on the readiness of individual projects to proceed.

### ***12.2.1 Review and Ranking Criteria***

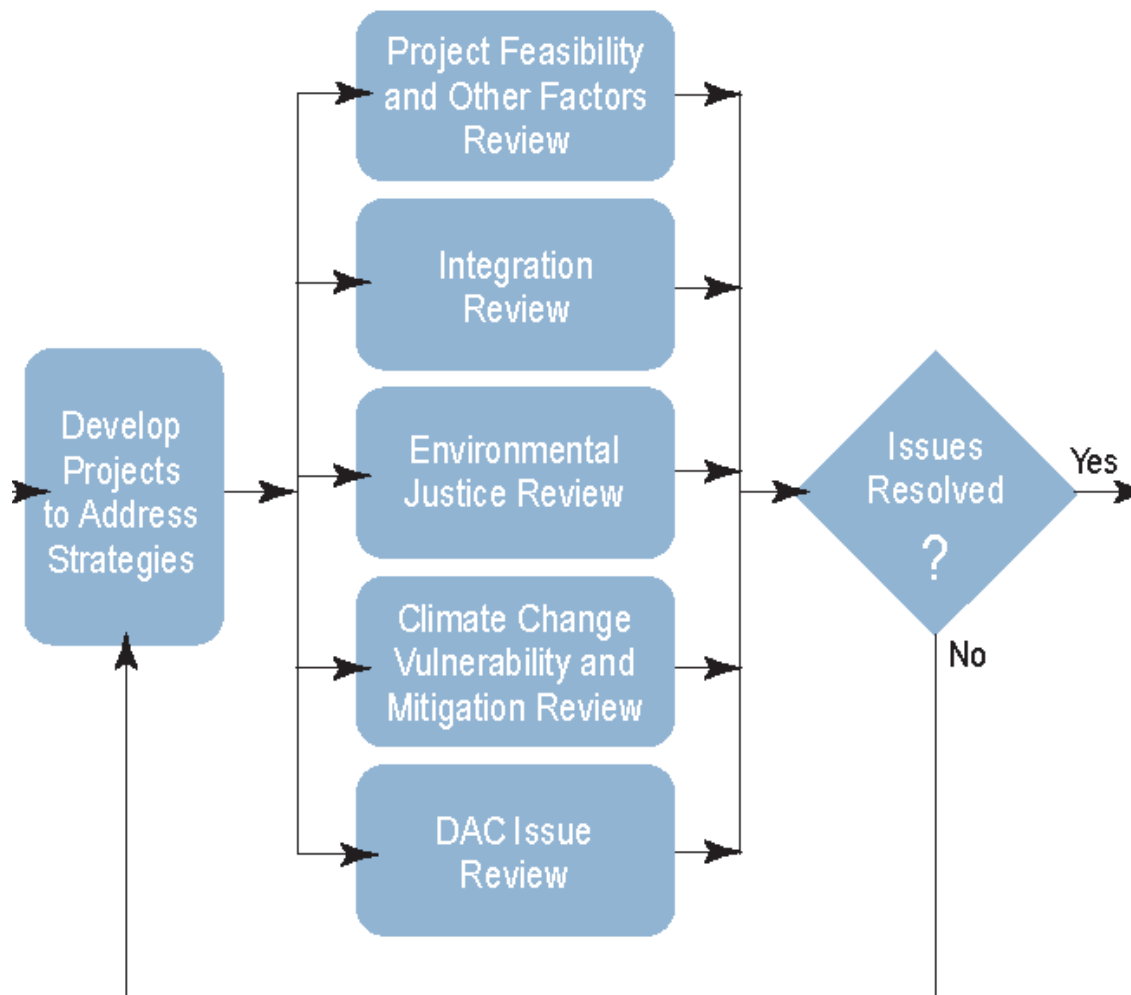
Projects must first address one or more of the goals and objectives set out for the Plan. If projects do not support those goals, they should not be considered for inclusion in the Plan.

The state has indicated a number of preferences and priorities for water-related needs in the state. Projects that share those elements are more desirable from the state's perspective and therefore, would be more preferable and should rank higher than ones that do not.

Other factors, such as cost effectiveness, technical feasibility, timeliness, multiple or regional benefits, were also reviewed to determine if projects are both ready and effective to address water issues.

Based on IRWMP standards in the DWR Guidelines, the Consulting Team drafted a scoring sheet for use in the technical review and ranking of proposed projects and presented that criteria list to stakeholders on June 14, 2012.

The ranking criteria combine several parallel IRWMP development process steps described in Chapter 2. As shown in Figure 12-2, project feasibility, environmental justice review, climate change, DAC issue review, and integration were all considered, at least in part, in this project scoring step. Table 12-1 shows the final project scoring sheet for project ranking. Criteria included goals, IRWMP factors, and IRWM requirements, the latter two from the IRWMP Guidelines.



**Figure 12-2. Project Ranking Process**



**Table 12-1. Score Sheet**

Project Title		Project ID			
Reviewer					
	Criteria	How Well Does the Project Meet the Criteria?	Factor Weight	Total Points	Reviewer Comments
		0-5	1-3		
Regional Goals	Identify and address the water dependent natural resources needs of the Gateway Region Watersheds.		3	0	
	Protect and enhance water quality. <i>Objectives: Attain required TMDL levels in accordance with their individual schedules; Effectively reduce major sources of pollutants and environmental stressors in the region.</i>			0	
	Optimize and ensure water supply reliability. <i>Objectives: Continue and enhance water use efficiency measures to meet 20X2020 per capita water use targets; Expand regional water recycling facilities and recycled water distribution to help provide reliable water sources; Systematically upgrade aging water infrastructure in the Region.</i>			0	
	Coordinate and integrate water resource management.			0	
	Provide stewardship of the Region's water dependent natural resources through enhancement of amenities and infrastructure. <i>Objective: Create habitat, open space, and water-based recreational opportunities in the Region.</i>			0	
	Manage flood and storm waters to reduce flood risk and water quality impacts. <i>Objective: Install or optimize water monitoring to effectively manage storm water in the Region. Obtain, manage, and assess water resources data and information.</i>			0	
Factors	Relation to Resource Management Strategies <i>(How well does the project contribute to the diversification of the water management portfolio?)</i>		2	0	
	Benefits to DAC Water Issues <i>(How well does the project help address critical water related needs of DACs within the IRWM region?)</i>		2	0	
	Cost Effectiveness and Economic Feasibility <i>(Is the project cost effective? How economically feasible is the project? <a href="http://www.water.ca.gov/economics/downloads/Guidebook_June_08/EconGuidebook.pdf">http://www.water.ca.gov/economics/downloads/Guidebook_June_08/EconGuidebook.pdf</a>)</i>		2.5	0	
	Timeliness - Project Status <i>( Is the project ready to proceed?)</i> 0 = No expected start date provided. 1 = Expected to start greater than 6 years from now 2 = Expected to start 3-6 years from now 3 = Expected to start 1-3 years from now 4 = Expected to start within 1 year from now 5 = Already Started		2.5	0	
	Technical Feasibility of Project <i>(In examining the methods, materials, or equipment used in the project, are there sufficient data to indicate the project will result in a successful outcome?)</i>		3	0	
	Permitting <i>(Status of Permitting)</i>		2	0	
	Project Costs and Funding <i>(Are project costs developed and reasonable? Is there a funding plan?)</i>		2.5	0	
	Provides multiple benefits		2	0	
	Integration with local land use planning		2	0	
	Provides regional benefits		2.5	0	
Requirements	Environmental Justice <i>(How well does the project redress inequitable distribution of environmental burdens (and access to environmental goods?)</i>		2	0	
	State Program Preferences <i>(How well does the project meet State Program Preferences DWR Guidelines Section F?)</i>		2	0	
	Statewide Priorities <i>Def: How well does project meet statewide priorities (DWR Guidelines Table 1).</i>		2.5	0	
	Climate Change Adaptation <i>(How well does the project adapt to climate change?)</i>		2	0	
	Greenhouse Gas Emissions Contribution- Project <i>(How well does the project assist in reducing GHG emission?)</i>		2	0	
	Greenhouse Gas Emissions -Support to Renewable Energy <i>(How well does project support renewable energy for reducing GHG emissions?)</i>		2	0	
<b>TOTAL PROJECT SCORE</b>				0	
<b>Can this project be integrated with other projects? If so, which project(s)?</b>					

### 12.2.2 Weighting Factors for Ranking Criteria

Not all of the factors considered are equally important. Proposed projects must support the IRWMP goals and objectives, so questions quantifying whether a project supports one or more goals should be heavily rated in the ranking. Other factors may not be as important to project ranking. How well a project aligns with state priorities may not be as important as supporting goals, for example.

Stakeholders were asked to provide a relative weighting for the proposed rating sheet questions in their meeting June 14, 2012. Each stakeholder assigned a number (1, 2, 3) to each question in the raw score sheet (1 = low importance; 3 = high). Those values were averaged for each question on the sheet. Table 12-2 shows the distribution of weighting factors from the exercise and the final “average” weighting for each question. These factors were embedded into the final score sheet, Table 12-1.

### 12.2.3 Project Technical Review Team

The technical review and ranking was done by a team of engineers, environmental planners, and subject specialists. Most of the questions on the score sheet were answered by Matt Zidar (GEI Planner), Ginger Gillan (GEI Environmental Scientist), Aaron McWilliams (GEI- Registered Engineer who also worked on the 20 x 2020 work for the region), and Bill Bennett (Civil and Geotechnical Engineer). For certain questions, specialists were brought in to help. For example, for the Disadvantaged Community Impacts question, Lorena Ospina, planner from GEI, as well as Gina Nila, stakeholder representative from City of Commerce were asked to review based on their experience dealing with DAC Impacts. Lorraine White (Environmental Planner) provided input on the Environmental Justice question as did Matt Zidar, and Bill Bennett, based on previous experience. The three climate change questions were only answered by Kwabena Asante (CE, Phd.), a climate expert.

**Table 12-3. Team Review Assignments**

Review Subject Areas	Reviewer							
	Matt Zidar	Aaron McWilliams	Bill Bennett	Lorena Ospina	Kwabena Asante	Ginger Gillan	Gina Nila	Lorraine White
Project Feasibility	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		
Integration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		
Environmental Justice	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>
Climate Change					<input checked="" type="checkbox"/>			
DAC Issues				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Land Use	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					
Questions to Answer	All but Climate and DAC	All but Climate, DAC, and Env.Justice	All but Climate and DAC	DAC Only	Climate Only	All but Climate, DAC, and Env.Justice	DAC Only	Env.Justice Only

**Table 12-2. Weighting Factor Development**

Criteria		1	2	3	FINAL
		# of votes for weights 1-3			Weight
Regional Goals	Identify and address the water dependent natural resources needs of the Gateway Region Watersheds.	n/a	n/a	n/a	3
	Protect and enhance water quality. <i>Objectives: Attain required TMDL levels in accordance with their individual schedules; Effectively reduce major sources of pollutants and environmental stressors in the region.</i>	n/a	n/a	n/a	3
	Optimize and ensure water supply reliability. <i>Objectives: Continue and enhance water use efficiency measures to meet 20X2020 per capita water use targets; Expand regional water recycling facilities and recycled water distribution to help provide reliable water sources; Systematically upgrade aging water infrastructure in the Region.</i>	n/a	n/a	n/a	3
	Coordinate and integrate water resource management.	n/a	n/a	n/a	3
	Provide stewardship of the Region’s water dependent natural resources through enhancement of amenities and infrastructure. <i>Objective: Create habitat, open space, and water-based recreational opportunities in the Region.</i>	n/a	n/a	n/a	3
	Manage flood and storm waters to reduce flood risk and water quality impacts. <i>Objective: Install or optimize water monitoring to effectively manage storm water in the Region. Obtain, manage, and assess water resources data and information.</i>	n/a	n/a	n/a	3
	Factors	Relation to Resource Management Strategies <i>(How well does the project contribute to the diversification of the water management portfolio?)</i>	4	15	2
Benefits to DAC Water Issues <i>(How well does the project help address critical water related needs of DACs within the IRWM region?)</i>		7	11	3	2
Cost Effectiveness and Economic Feasibility <i>(Is the project cost effective? How economically feasible is the project? <a href="http://www.water.ca.gov/economics/downloads/Guidebook_June_08/EconGuidebook.pdf">http://www.water.ca.gov/economics/downloads/Guidebook_June_08/EconGuidebook.pdf</a>)</i>		1	9	11	2.5
Timeliness - Project Status <i>( Is the project ready to proceed?) 0 = No expected start date provided. 1 = Expected to start greater than 6 years from now 2 = Expected to start 3-6 years from now 3 = Expected to start 1-3 years from now 4 = Expected to start within 1 year from now 5 = Already Started</i>		2	9	10	2.5
Technical Feasibility of Project <i>(In examining the methods, materials, or equipment used in the project, are there sufficient data to indicate the project will result in a successful outcome?)</i>		0	3	18	3
Permitting <i>(Status of Permitting)</i>		6	11	4	2
Project Costs and Funding <i>(Are project costs developed and reasonable? Is there a funding plan?)</i>		1	9	10	2.5
Provides multiple benefits		4	11	6	2
Integration with local land use planning		6	12	3	2
Provides regional benefits		1	10	10	2.5
Requirements		Environmental Justice <i>(How well does the project redress inequitable distribution of environmental burdens (and access to environmental goods?)</i>	5	13	3
	State Program Preferences <i>(How well does the project meet State Program Preferences DWR Guidelines Section F?)</i>	1	12	8	2
	Statewide Priorities <i>Def: How well does the project meet listed statewide priorities (DWR Guidelines Table 1).</i>	2	7	11	2.5
	Climate Change Adaption <i>(How well does the project adapt to climate change?)</i>	5	15	1	2
	Greenhouse Gas Emissions Contribution- Project <i>(How well does the project assist in reducing GHG emission?)</i>	6	14	1	2
	Greenhouse Gas Emissions -Support to Renewable Energy <i>(How well does the project support renewable energy for the purposes of reducing GHG emissions?)</i>	6	13	2	2

**Technical Review Team:**

William J. Bennett, P.E., G.E., Principal Engineer

**Role/Responsibilities:** Project Manager/ Mr. Bennett managed, coordinated deliverables, provided general project review and led the GEI team.

**Years of Experience:** 37

**Firm/Current/Proposed Location:** GEI Consultants, Inc./Sacramento



Matt Zidar

**Role/Responsibilities:** IRWMP Advisor/ Mr. Zidar advised The team on the overall IRWMP approach, environmental justice and general review.

**Years of Experience:** 28

**Firm/Current/Proposed Location:** GEI Consultants, Inc./Sacramento



Kwabena Asante, PhD, P.E.

**Role/Responsibilities:** Climate/ Dr. Asante led climate change vulnerability and mitigation analyses.

**Years of Experience:** 15

**Firm/Current/Proposed Location:** GEI Consultants, Inc./Sacramento



Lorena Ospina

**Role/Responsibilities:** Lead Planner & Urban Water Conservation Consultant/ Ms. Ospina coordinated stakeholder involvement and reviewed DAC project impacts.

**Years of Experience:** 16

**Firm/Current/Proposed Location:** GEI Consultants, Inc./Glendale



Ginger Gillin

**Role/Responsibilities:**

CEQA Environmental Documents Requirements, Fish Passage/ Ms. Gillin advised the IRWM team of the need for CEQA compliance for the IRWMP development and for projects that are integrated into the IRWMP.



**Years of Experience:**

29

**Firm/Current/Proposed Location:**

GEI Consultants, Inc./Portland

Lorraine White

**Role/Responsibilities:**

Project Reviewer/ Ms. White reviewed Project submittals specifically for Environmental Justice issues and advised the team on Environmental Justice matters.



**Years of Experience:**

28

**Firm/Current/Proposed Location:**

GEI Consultants, Inc./Sacramento

Name	Role	Experience	Location	Project Experience
Aaron McWilliams, P.E.	Water Conservation, Water Supply, Associate Engineer	9	Glendale	Gateway Authority 20 x 2020, Imperial Irrigation District IRWMP
Gina Nila	DAC Impact Review	---	City of Commerce	Environmental Services Manager for the City of Commerce, a stakeholder

**12.2.4 Project Review and Discussion**

Reviewers were provided project information and a score sheet for each project to review and score projects. Project score sheets also provided room for comments on particular questions (Table 12-1).

Reviewers were also asked to consider the following issues:

1. Is there a critical need for further clarification for the project, given its status and general information?



2. What are the next steps for the project? If it isn't ready to fund and build, what steps can be funded or planned now?
  - a. Reconnaissance Report
  - b. Feasibility Study
  - c. Funding Plan/commitment
  - d. Design
  - e. Environmental Documentation
  - f. Construction
  - g. Implementation
3. Do partners know they are included?
4. Integration:
  - a. Are there other projects that can be bundled?
  - b. Are there other locals/agencies that could join in this project?
  - c. Are there similar projects in adjacent regions?
  - d. Is the project going to interfere with other proposed projects?
  - e. Is the project going to use water from other projects or dedicated to other projects?
  - f. Can the project be operated cooperatively with other projects for a better outcome?

## **12.3 Project Scoring and Ranking**

Each criterion on the score sheet is scored on a scale of 0 (low) to 5 (high). The maximum points possible were 267.5 for the 73 projects submitted. Projects were then ranked by score. Regardless of rank, projects were reviewed for integration opportunities to further satisfy regional goals and state requirements. Further discussion on project integration is provided in Chapter 13.

### **12.3.1 Project Statistics**

At present, 73 projects were submitted by stakeholders and project proponents in the Gateway Region. Twenty-one projects did not provide total costs. Of those that did, the largest total estimated cost provided for a project is \$25M, and the lowest total estimated cost provided for a project is \$70,000. The average cost provided was \$3.47M. The total estimated cost for all projects is \$180,461,227.

Many of the projects submitted for consideration in the IRWMP were at the “concept” level. That is, there was little information to define the project, limited environmental permitting and documentation work, and not much cost information available. These concept projects generally require a feasibility study or additional engineering before they can reasonably be considered for implementation.

Only a few projects were considered “ready for funding.” This status requires full cost, design, and feasibility information, along with a completed or nearly completed environmental permit. Most projects did not have a funding plan or local matching funding available.

Project types were generally well distributed, but the predominate project type was water quality. This was not surprising since water quality has been identified as a major issue and its

improvement and protection a major goal of the Plan. About 30 percent of the projects were focused on water quality. Storm water and flood-related projects comprised about 18 percent of the submitted project ideas.

Water conservation, new or refurbished groundwater wells, infrastructure, and recycling each captured about 10 percent of the remaining projects. A few park and open space projects were considered as well. However, there were many storm water projects that included a park and open space component, which showed multiple benefits were being considered by many stakeholders.

Table 12-4 summarizes the types of projects that were submitted and ranked by the Technical Review Team.

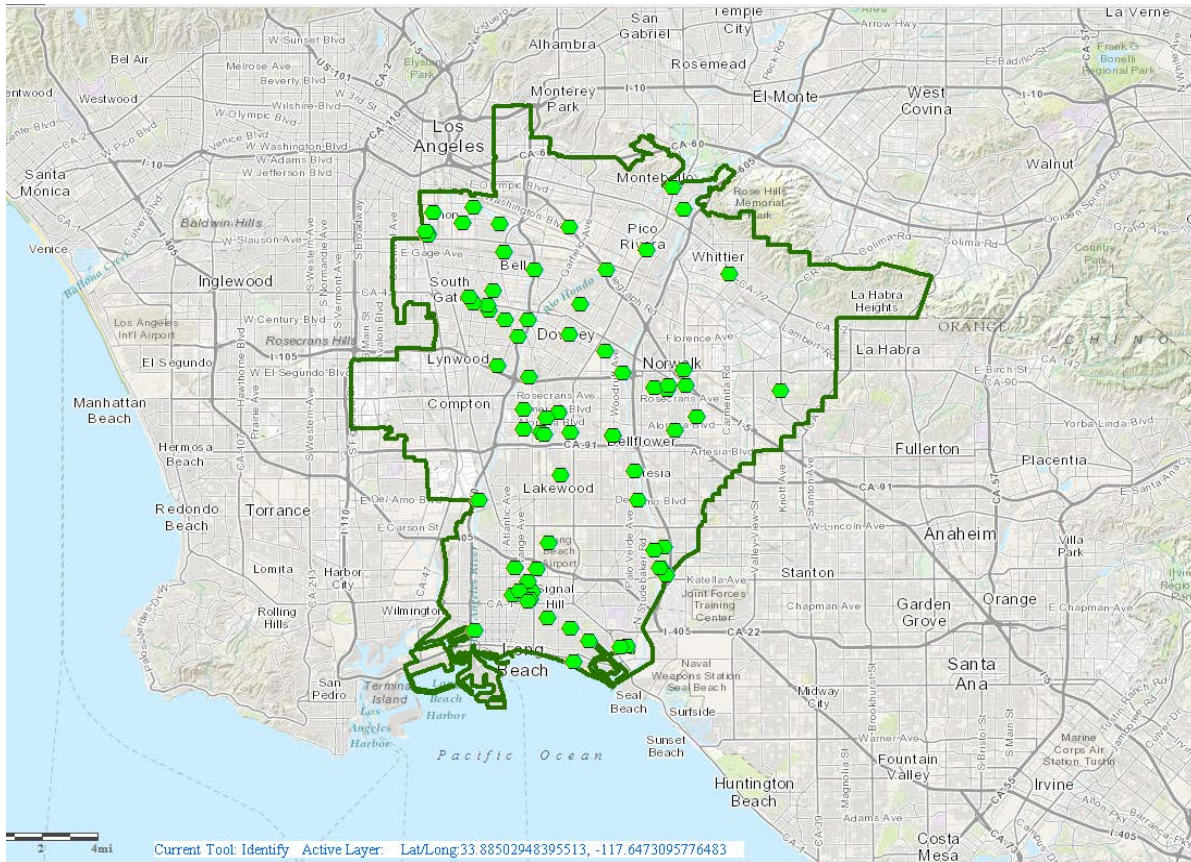
**Table 12-4. Project Breakdown by Type**

<b>Project Type</b>	<b>No. of Projects Submitted</b>
Infrastructure	6
Conservation	7
Water Quality	22
Recycling	6
Wells	9
Flood/Storm Drains	13
Interties	4
Parks	3
Storage	3

Fifteen of the 22 members of GWMA submitted project ideas for the IRWMP. Table 12-5 shows the distribution of projects by sponsor. Several cities submitted several project ideas. The City of Long Beach provided 14 projects for the Plan and Paramount 9. Six cities only submitted a single project. The projects generally span the geographical extent of the Gateway Region, Figure 12-3.

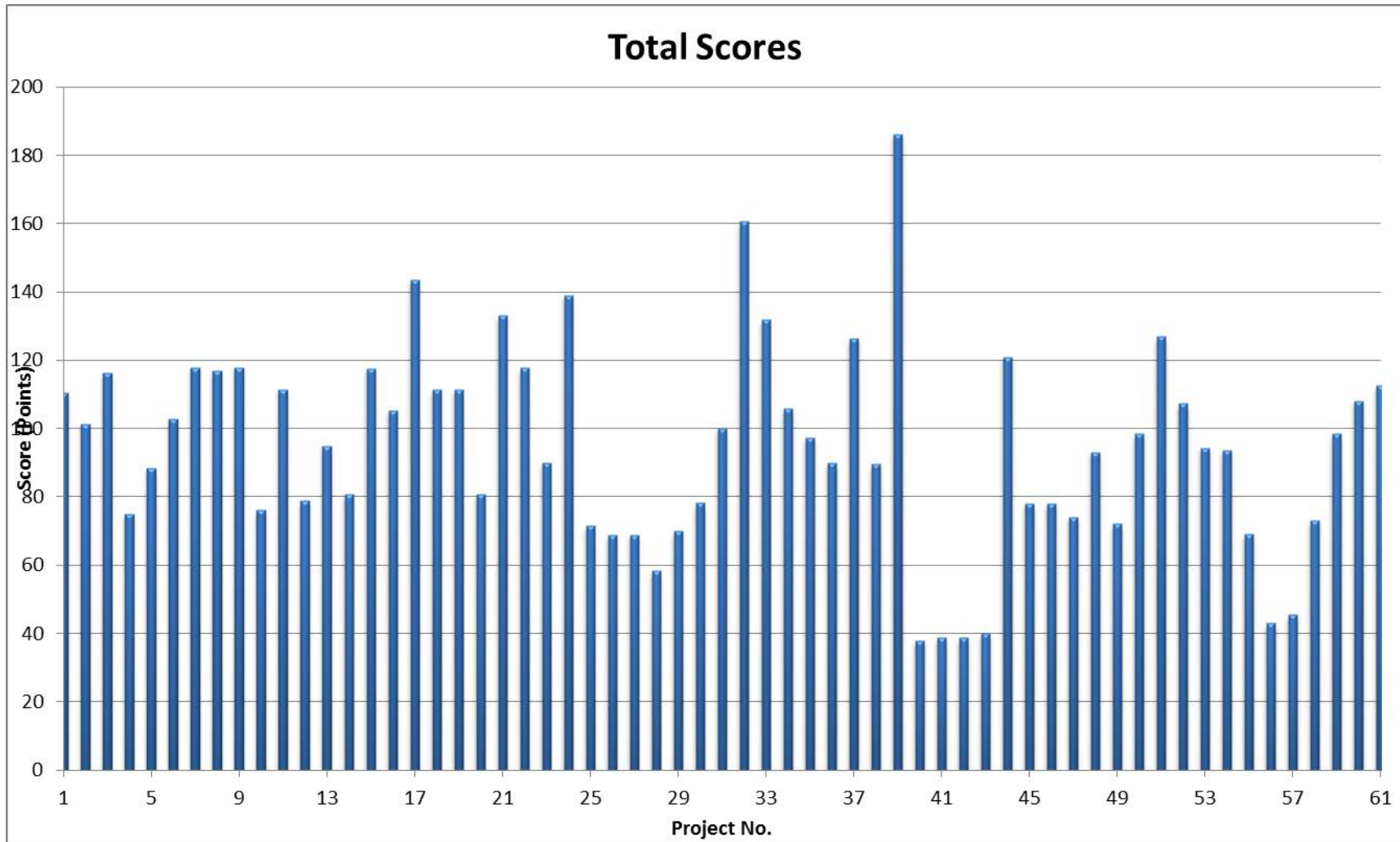
**Table 12-5. Projects Submitted by Stakeholders**

<b>City/Agency</b>	<b>No. of Projects</b>
Central Basin Municipal Water District	2
City of Bellflower	1
City of Bellflower Municipal Water System	1
City of Downey	5
City of La Mirada	1
City of Lakewood	1
City of Long Beach	14
City of Lynwood	1
City of Norwalk	7
City of Paramount	9
City of Pico Rivera	3
City of Signal Hill	7
City of South Gate	8
City of Vernon	7
Long Beach Water Department	1
Consultant Team	5
Total:	73



**Figure 12-3. Project Locations Within the Gateway Region**

Figure 12-4 graphically shows the final project ranking by the Technical Review Team by plotting average scores for each project. There were about 10 projects that received an average score of better than 120. These projects generally displayed multiple, regional benefits, and were nearly ready to implement.



**Figure 12-4. Project Score Distribution**



### **12.3.2 Project Ranking**

The projects were ranked based on their average reviewer score and were shared with GWMA for discussion. Projects that had multiple benefits or were for regional or multiple agencies, and were water quality/storm water projects with multiple goals scored higher in the technical ranking. Projects that did not score well were those that had a single purpose, served or benefitted only one city, had no cost estimates or environmental work done, and had little to no details provided.

Because a variety of individuals were tasked to focus on different aspects of a project and not answer some questions altogether, project totals are the sum of individual average scores for each question and not the average of the total scores from each reviewer. A reviewer who was not tasked to score a certain question was not included in the average value for that question. The ranked project list is in Appendix C.

### **12.3.3 Analysis Results for Project Factors and Requirements**

Project ranking described in the previous section was based on aggregating the Technical Review Team's scores for all the factors or questions considered in the score sheet (Table 2-1). By looking at this combined score, Projects are ranked generally or in an overall perspective for all the criteria. Of course the weighting factors developed by the stakeholders and built into the scoring provide emphasis that some factors are more of a priority than others in that total score.

The project database also allows a simple comparison or analysis of projects for each individual scoring factor. A table was prepared that displays the combined Team Technical Review scores for each factor. Table 12-6 presents a portion of that table; the full table is in Appendix C. A color gradient has also been applied to the chart, which presents the relative scoring in relation to maximum, average, and minimum score for that factor or criteria for this set of projects. Green shades signal the project scores high in the category. Red shades indicate the project scores low relative to the other projects. Yellow denotes average scores.

The table allows a quick relative analysis on which projects would best support certain criteria. For example, if one were looking for projects that best benefit disadvantaged communities (DACs), they should look for green indicators under the Economic Feasibility column.

The table also verifies the overall project ranking. Project rows that are mostly green shades show a high rank in their aggregate scores.

The "Analysis Results for Project Review Factors and Requirements" table (Appendix C) allows more detailed comparison or analysis of attributes between projects incorporated in the Plan. Besides those mentioned above, the table separates Technical Review Team scores for Project timeliness, Technical feasibilities, permitting, costs and funding, State preferences and priorities, and adaption to climate change; among others.

Table 12-6. Analysis Results for Project Review Factors and Requirements

Project No.	Project	Benefits DAC	Economic Feasibility	Timeliness, Project Status	Technical Feasibility	Permitting	Costs and Funding	Provide Multiple Benefits	Integration with Land Use Plans	Provides Regional Benefits	Environmental Justice	State Preferences	Statewide Priorities	Climate Change Adaptation (How well does the project adapt to climate change?)
1	Pico Rivera Emergency Intertie	2.0	8.1	10.6	11.3	6.5	7.5	6.0	4.5	5.0	4.5	5.0	5.6	6.0
2	Advance Groundwater Wellhead Treatment Facility	2.0	6.3	10.0	10.5	0.0	6.3	5.5	3.0	1.9	2.0	1.5	7.5	8.0
3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project	2.5	6.3	8.8	12.8	6.5	6.9	5.0	3.5	3.8	3.0	4.0	7.5	6.0
4	Groundwater Well Supply Reliability Project	1.0	8.1	8.1	6.0	0.0	6.3	2.5	3.5	1.9	2.5	1.0	4.4	4.0
5	Hermosillo Park Well - Well No. 9 and water mains	1.5	8.1	8.8	12.0	5.0	7.5	2.0	4.5	3.1	2.5	2.0	3.1	4.0
6	Installation of Catch Basin - Screening Devices (ARS/CPS)	0.5	7.5	9.4	6.8	0.0	6.9	2.0	3.0	6.3	3.5	5.0	6.3	8.0
7	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion	1.0	0.0	6.9	8.3	0.0	0.0	5.0	4.0	9.4	4.0	2.0	6.9	6.0
8	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion	0.0	0.0	6.9	8.3	0.0	0.0	5.0	4.0	9.4	4.0	2.0	6.9	6.0
9	Los Cerritos Channel Metals TMDL - Low Flow Diversion	1.0	0.0	6.9	8.3	0.0	0.0	5.0	4.0	9.4	4.0	2.0	6.9	6.0
10	MWD West Coast Feeder Connection and Transmission Main	3.5	6.3	2.5	5.3	0.0	5.6	1.5	4.0	1.9	3.5	3.5	5.6	6.0
11	New Groundwater Well	1.0	7.5	10.0	12.8	5.0	9.4	4.5	4.0	1.9	3.0	4.5	5.6	8.0
12	New Water Well	3.5	6.3	2.5	6.0	0.5	4.4	2.5	4.5	1.9	3.0	4.0	6.9	6.0
13	Bellflower Municipal Water Distribution System Reconstruction	1.5	6.3	8.1	10.5	4.0	5.6	3.5	4.5	1.3	3.5	3.0	5.6	4.0
14	New Water Well	3.5	6.9	2.5	6.8	0.5	4.4	2.5	4.5	1.9	3.0	4.0	6.9	6.0
15	Norwalk Park Reservoir and Booster Pump Station	1.5	6.3	5.0	9.8	7.5	7.5	6.0	5.0	3.8	3.0	5.0	6.9	8.0
16	Norwalk Water Main/Meter Replacements - Gridley to Maidstone	2.0	6.9	10.0	12.0	0.5	7.5	3.5	3.5	0.6	3.0	6.5	8.1	6.0
17	Outfall Monitoring	1.0	8.8	8.1	12.8	1.5	5.6	7.5	4.5	11.3	4.0	6.0	6.9	10.0
18	Pilot Plant for Treatment of Los Angeles River Water	1.0	5.0	10.0	7.5	4.0	10.0	6.5	1.5	3.8	3.0	6.5	7.5	8.0
19	Potable Water Interconnections- Bloomfield x Hayford and Pioneer x Lakeland	2.0	8.1	10.0	11.3	1.0	6.3	4.5	3.0	2.5	4.0	8.0	8.8	6.0

1



### **12.3.4 Water-Energy Intensity and GHG Emission Ranking**

The Gateway Region projects contribute towards improved climate adaptation in the Region. In this section, we compare the energy use and associated greenhouse gas (GHG) emissions for the submitted Gateway projects. They are listed in order of decreasing energy intensity. In subsequent climate mitigation analysis, projects containing operations at the top of the list are ranked less favorably since higher energy use also implies increased GHG emissions.

Emissions impacts of proposed projects were estimated based on current water use, the source of current water use, and the change in water use and source proposed in each project. 15 of the 73 proposed projects in the Gateway IRWMP region are estimated to reduce water use by approximately 24,380 acre-feet a year. An additional 6 projects are also projected to reduce water use but the volume of reduction could not be estimated. Five projects are also projected to increase water use.

Changes in emissions associated with each project are computed by aggregating energy intensities and emissions resulting from water operations impacted by the project. For example, a recycled water conversion project could include avoided emissions from reduction in water imports and emissions from water recycling operations. The difference in emissions rate for the two operations (in lbs. of CO<sub>2</sub>e/AF) is multiplied by the volume of water converted (in acre-feet) to obtain the net emissions impact of the project. The 73 projects proposed in Gateway would result in a total emissions reduction of 54.6 million lbs. of CO<sub>2</sub>e annually. The 15 projects with quantified water savings and documented emissions reductions are listed in Table 12-7.

**Table 12-7. GHG Emissions Impact of Proposed Projects with Quantified Water Savings**

ID	Rank	Project Title	Submitting Agencies	Water Saving (AF)	Emissions Source	Unit Emissions (lbs. CO2e/AF)	Net Emissions (lbs. CO2e)
32	1	West San Gabriel River Parkway Phase 3 Development	City of Lakewood	-11000	- Import	-2602	-28622000
49	2	Production Well 22	City of Vernon	-11000	- Import + Pumping	-1992	-21912000
67	3	El Dorado Regional Park Water Quality & Water Conservation	City of Long Beach, Dept. of Parks, Recreation and Marine	-667	- Import	-2602	-1735534
2	4	Advance Groundwater Wellhead Treatment Facility	City of Signal Hill	-300	- Import + Pumping	-1992	-597600
35	5	City of Signal Hill Recycled Water System	City of Signal Hill	-183	- Import + Recycle	-2181	-399123
53	6	South Gate Park Recycled Water Conversion project	City of South Gate	-170	- Import + Recycle	-2181	-370770
5	7	Hermosillo Park Well - Well No. 9 and water mains	City of Norwalk	-500	- Pumping	-610	-305000
4	8	Groundwater Well Supple Reliability Project	City of Signal Hill	-300	- Pumping	-610	-183000
65	9	El Dorado Nature Center Lakes Water Quality and Water Conservation	City of Long Beach, Dept. of Parks, Recreation and Marine	-70	- Import	-2602	-182140
68	10	El Dorado Nature Center Lake Dredging and Leak Repair	City of Long Beach, Dept. of Parks, Recreation and Marine	-67	- Import	-2602	-174334
64	11	Citywide Parks Irrigation System Upgrades	City of Long Beach, Dept. of Parks, Recreation and Marine	-25	- Import	-2602	-65050

18	12	Pilot Plant for Treatment of Los Angeles River Water	Long Beach Water Department	-32	- Import + Treatment	-1745	-55840
3	13	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project	City of Downey	-65	- Pumping + Recycle	-189	-12285
62	14	Long Beach Graywater Program	City of Long Beach, Office of Sustainability	-2.2	- Import	-2602	-5724.4
37	15	Disadvantaged Communities Schools Retrofit Program	Central Basin Municipal Water District	-2	- Import	-2602	-5204

An additional 11 projects required water operations changes but the amount of water involved could not be quantified by the submitting agencies. 6 of the projects would result in water savings while the remaining 5 would create new water demand. For such projects, emissions impacts are presented in Table 12-8 as unit emissions per acre-foot of water, with negative values indicating an emissions reduction and positive values indicating increased emissions.



**Table 12-8. Unit GHG Emissions Impacts of Proposed Projects with Unquantified Water Savings or New Use**

ID	Rank	Project Title	Submitting Agencies	Water Impact	Emissions Source	Unit Emissions (lbs CO2e/AF)
23	1	Splash Pad/Spray and Wading Pool Retrofit	City of Norwalk	Unquantified Water Savings	- Import	-2602
36	1	Coyote Creek Irrigation Runoff Reduction Program	City of Norwalk	Unquantified Water Savings	- Import	-2602
69	1	Long beach Urban Runoff Recycling Facility (LBURRF)	City of Long Beach, Public Work/Storm Water Management	Unquantified Water Savings	- Import	-2602
13	4	Bellflower Municipal Water Distribution System Reconstruction	City of Bellflower Municipal Water System	Unquantified Water Savings	Distribution	-500
57	5	Water SCADA Energy Savings Automation Project	City of South Gate	Unquantified Water Savings	- Peak Reduction	-460
58	5	Well 28 Reservoir and Booster Pump Station	City of South Gate	Unquantified Water Savings	- Peak Reduction	-460
51	7	Cesar Chavez Park Recycled Water irrigation Project	City of South Gate	Unquantified New Water Demand	Recycle	421
52	7	Firestone Blvd. Median Project	City of South Gate	Unquantified New Water Demand	Recycle	421
7	9	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion	City of Signal Hill	Unquantified New Water Demand	Treatment	857
8	9	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion	City of Signal Hill	Unquantified New Water Demand	Treatment	857
9	9	Los Cerritos Channel Metals TMDL - Low Flow Diversion	City of Signal Hill	Unquantified New Water Demand	Treatment	857

## 13 Project Integration – Project Alternatives

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This section describes the approach used to integrate projects to best meet the adopted IRWMP goals and objectives.

The Gateway IRWMP projects have been individually reviewed and prioritized by the project Technical Review team using the evaluation criteria adopted by the GWMA stakeholders. The ranked projects are all to be included in the IRWMP if they help to meet the IRWMP goals and objectives. A specific project must be in the Gateway IRWMP if it is to be eligible for State funding grants or loans. To be competitive for grant funding, a project in the IRWMP should be consistent with the state's preferences and priorities. Those projects which provide regional and multiple benefits, include multiple partners or sponsors and are ready- to-proceed will be more competitive.

### 13.1 Integration Strategy and Approach

The “integration” process includes closely reviewing proposed IRWMP projects, their major components, and their overlying resource strategies to coordinate them with other proposed projects, existing water management strategies and infrastructure, and projects proposed by neighboring regions. Integration should consider the technical merits and impacts of the project and transcends institutional divisions and boundaries. This coordination is to make sure that:

1. Projects do not adversely impact one another, or current water management systems.
2. Projects complement each other and improve the benefits beyond those developed from individual projects.
3. Single benefit and similar projects are appropriately bundled into more comprehensive and collective regional program alternatives to save effort and cost in administration, permitting, planning, and design-construction and generally make them ready for funding opportunities.
4. The plan considers merging or adding parts or components of projects that would further increase additional benefits.

The integration step could result in modifying one or more projects so they are compatible, eliminating projects that adversely impact other plans or projects, or having no change to the proposed project. Integration may go beyond combining projects by merging project components into a new alternative project. These concepts are presented in Figure 13-1.

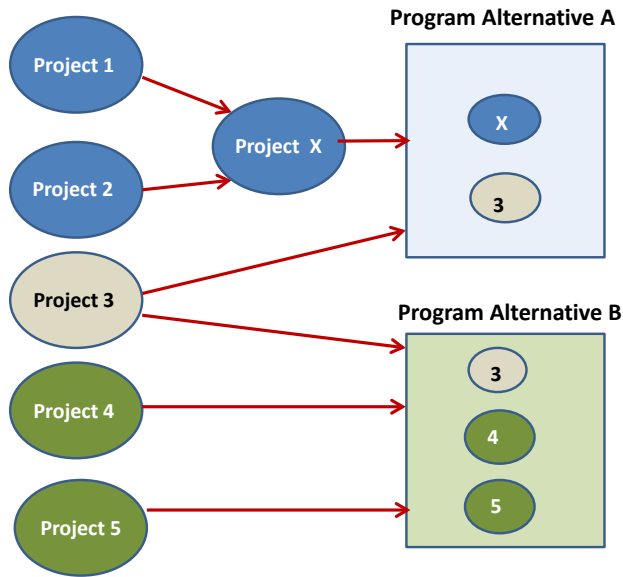


Figure 13-1. Bundling Projects into Gateway Program Alternatives

## 13.2 Integration Analysis

### 13.2.1 Project Bundles

The integration review was initially made during the formal review of projects for ranking. Members of the Technical Review Team took special care to answer the last question on the score sheet, which was, “Can this project be integrated with other projects? If so, which?” Answers to that question for all projects were assembled into a table for an easy analysis. Table 13-1 presents a portion of that table; the full table is in Appendix D.

Primarily, reviewers looked for opportunities to bundle separate projects from various cities in the Region into a regional effort that collected them into one larger comprehensive regional project. In that way the bundled projects could share administrative and contracting costs and services; thereby making them more economical.

Other cities or entities might also join in the “regional” project and further improve the project’s cost effectiveness or benefits.

To differentiate the new bundled projects from existing projects originally submitted for the IRWMP, the bundled projects are considered, “Alternatives.” Table 13-2 lists the alternative projects or project bundles that the Technical Review team found appropriate or possible to merge. Besides the program alternative name, the table describes the alternative and includes a list of individual projects (by project ID number) that could be considered as part of the alternative.

**Table 13-1. Example Reviewer Integration Comments**

II	Project Title	Bennett	Zidar
1	Pico Rivera Emergency Intertie	Suggest splitting interties from well takeover and retrofit since they are so different; Might be better to collect other intertie projects and make that a regional effort. (projects 10, 38)	
2	Advance Groundwater Wellhead Treatment Facility		Anything groundwater related that supports Central Basin GW Mgmt. Possible to integrate with other water quality treatment and improvement projects, especially if they are DACs.
3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project	Unknown at this time	Integrate with other recycled water use and development and/or other conservation efforts to meet 20X2020 goal.
4	Groundwater Well Supple Reliability Project	Consider all well work as one regional project? See projects 4,5,11,12,14,31,49,55	Could be linked with infrastructure upgrade efforts for DACs if this is a DAC. Integrate with other projects that reduce reliance on imported water and/or support DACs. Relate to overall groundwater development, recharge and management activities in context of IRWMP.
5	Hermosillo Park Well - Well No. 9 and water mains	Consider all well work as one regional project? New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55	Integrate with other projects that reduce reliance on imported water and/or support DACs. Relate to overall groundwater development, recharge and management activities in context of IRWMP.

**Table 13-2. Program Alternatives and Projects**

<b>Program Alternatives and Projects</b>			
<b>No.</b>	<b>Program Alternative</b>	<b>Description</b>	<b>Projects Included</b>
A1	Systems Interties	Create partnerships that connect drinking water systems, provide operational flexibility, coordinate responses to catastrophic supply interruption, drought preparedness, adaption to climate change and meet the water supply and quality needs of the DAC.	1, 10, 19, 38, 61 ★
A2	Well Rehabilitation and Replacement	Increase supply reliability, preserve and protect the groundwater supply and optimize the available supply through conjunctive use, consistent with the groundwater management plan and adjudication.	4, 5, 11, 12, 14, 31, 49, 55
A3	Recycling	Reduce the need for imported water, Stretch the groundwater supplies, Reliably meet current and future non-potable water demands Provide water to support habitat/open space and ecosystem needs	3, 18, 24, 32, 51, 53
A4	Outfall Monitoring	Includes program elements to manage water quality, flood, and storm waters; help attain the required TMDL levels	17, 50 ★
A5	Installation of Catch Basin Screening	Modifying existing catch basin drains to capture trash to meet Trash TMDL requirements for the region	6, 24, 33, 48 ★
A6	Improve storm/flood infrastructure	Improves flood issue: Bundle 2 or more.	25, 26, 27 28, 29, 30, 45, 46, 47, 56
A7	Upgrade Aging Infrastructure	Upgrade aging urban infrastructure, including drinking water distribution systems, wastewater collection and treatment, support DACs. Develop regional Program	13, 15, 16, 20, 22, 40, 57, 58,
A8	Groundwater Treatment Projects	Projects that protect and treat groundwater contamination and help prevent the general spreading of the contaminated water; Bundle 2 or more.	40,41,42,43
A9	Collect and treat low flow urban drainage	Projects that deal with runoff and TMDL requirements. Bundle 2 or more.	7, 8, 9, 54, 60

(Stars indicate likely project)

### **13.2.2 Program Alternatives**

Where GWMA stakeholders are all affected by a common problem with a ready solution, the IRWMP can provide a shared regional project. Proposed projects could be further developed as GWMA Projects and implemented through the GWMA to share costs and provide benefit throughout the region.

Program alternatives were configured to meet the Gateway IRWMP goals, coordinate and integrate state water resources management strategies, and provide a planning framework that reflects GWMP priorities. Forming partnerships and bundling similar projects into strategic program alternatives will help the Gateway Region focus on shared strategies and supports stakeholder collaboration.

Table 13-2 lists the projects integrated into program alternatives to best meet multiple goals and objectives, identify partnership opportunities, establish funding priorities; write grants and share cost or other resources (e.g.; technical staff).

#### **13.2.2.1 Systems Intertie Program**

The purpose Systems Intertie program is to create partnerships that provide benefits to multiple stakeholders, connect drinking water systems, provide operational flexibility, and

coordinate the response to catastrophic supply interruption. The Systems Intertie program alternative supports the statewide priorities for drought preparedness, adaption to climate change and for meeting the water supply and quality needs of the DAC. There were five (5) stakeholder projects associated with integrating municipal systems under the goals to ensure water supply reliability and to coordinate and integrate water resources management. This program alternative contributes to achieving the Gateway IRWMP objective to systematically upgrade aging water infrastructure.

#### 13.2.2.2 Well Rehabilitation, Replacement, and Treatment Program

The purpose of the Well Rehabilitation and Replacement program alternative is to preserve and protect the groundwater supply and optimize the available supply through conjunctive use, consistent with the prevailing groundwater management plan and adjudication. The benefits are also to:

- Rehabilitate wells to maintain groundwater production and reduce current and future reliance on imported water.
- Comply with drinking water standards and protect the groundwater supply through wellhead or other treatment.
- Rehabilitate and “repurpose” industrial or remediation wells to meet municipal demands.
- Support critical water supply and quality needs of DACs.
- Reduce power consumption through improve pumping efficiencies.

The proposed program supports multiple statewide priorities for drought preparedness, efficient groundwater management, increased supply reliability; climate change response, both in terms of energy/greenhouse gas reduction and adaption to climate change; conjunctive management, restoring groundwater quality. The program alternative also includes elements that support the Systems Intertie program alternative where the proposed wells will be used through the interties.

There are eight (8) well replacement or rehabilitation oriented projects that are consistent with the Gateway goal to ensure water supply reliability, and the related objective to systematically upgrade aging water infrastructure. Three projects propose treating water to potable standards. In the context of the IRWMP, the projects are related to overall groundwater development, recharge and management efforts in the region.

#### 13.2.2.3 Recycling/20 X 2020 Conservation Program

The purpose and benefits of the Recycling/20 X 2020 Conservation program alternative are to:

- Reduce the need for imported water.
- Stretch the groundwater supplies.
- Reliably meet current and future non-potable water demands.
- Provide water to support habitat/open space and ecosystem needs.



The program alternative also includes projects that were to improve irrigation efficiencies or implement best management practices identified in the UWMPs of GWMA member cities. The proposed program supports multiple statewide priorities for drought preparedness; using and reusing water more efficiently, improving supply reliability, reducing the need for imported water, adapting to climate change and supporting DAC water supply and quality needs.

Stakeholders submitted six (6) recycling projects that support the supply reliability goal and the Gateway objectives to: 1) enhance water use efficiency measures to meet 20 x 2020 per capita water use targets and 2) expand recycling for the Gateway Region. Most proposed projects expand regional distribution infrastructure and are consistent with the program concepts identified in the Southern California Comprehensive Water Reclamation and Reuse Study, and the successor effort in the Southern California Water Recycling Projects Initiative.

#### 13.2.2.4 Outfall Monitoring

To comply with basin-wide TMDL regulations, individual agency monitoring costs could be reduced if a single program was developed through the GWMA and costs were shared. The proposed Outfall Monitoring Projects (Nos. 17, 50) is to meet the IRWMP goal for managing flood and storm water to reduce flood risk management and water quality impacts, and the specific objective to install or optimize water monitoring.

#### 13.2.2.5 Improve Catch Basins and/or Install Screening Devices

GWMA has worked to address the trash TMDL and successfully funded joint programs using ARRA funds. Three proposed projects (Nos. 6, 33, and 48) are to continue efforts to improve catch basins and/or install screening devices. Additional cities have joined this alternative so that 13 cities are seeking funding from an implementation grant for catch basin work.

#### 13.2.2.6 Integrated Flood Management Program

The purpose of the Integrated Flood Management (IFM) Program is to:

- Protect and enhance water quality.
- Attain the required TMDL levels.
- Manage flood and storm waters to reduce flood risk and damage.
- Recycle and reuse storm water and urban drainage.
- Integrate other strategies for preserving or enhancing habitat, open space and protecting natural resources where such integration would be cost effective and increase project benefits.

The IFM program alternative includes the GWMA Projects that improve flood management and storm water issues. A number of parks and open space projects have been proposed, some of which include storm water management features to reduce runoff and/or improve water quality, and other habitat, open space or natural resource features (Nos. 23, 32, 34, 39).

These are included in the IFM program since stakeholders sought to integrate storm water management and water quality benefits into the project concepts submitted.

#### 13.2.2.7 Infrastructure Replacement, Repair, and Upgrade

A common need in the Gateway Region is to upgrade aging urban water management infrastructure, including drinking water distribution systems, wastewater collection and treatment. Stakeholders submitted eight (8) projects to upgrade or replace aging infrastructure. These were single sponsor projects targeted to meeting a system needs, but focused on a limited geography and rate base. Some are projects that would meet the water supply and quality needs of DACs. The need to upgrade aging infrastructure is almost universal, although the ability and willingness to generate local funds varies greatly.

#### 13.2.2.8 Groundwater Treatment Projects

A number of groundwater treatment concept proposals were submitted by the Consultant Team for consideration. Treatment would be for a number of contaminants. These concepts should be considered as a regional opportunity.

#### 13.2.2.9 Collect and Treat Low Flow Urban Drainage

The IFM program concept includes projects to collect and treat low flow urban drainage captured in the storm drains (Projects Nos. 7, 8, 9, 60), or other projects to capture and clean up storm water or first flush flows (Projects Nos. 24, 52, 54, and 59) using best management practices. Stakeholders are also supportive of all regional efforts to recycle and reuse storm water to contribute to the water supplies (recharge, irrigation, etc.) and protect water quality where feasible, cost effective and in the interest of the GWMA stakeholders. The projects designed to treat low flow urban runoff to meet TMDL standards could contribute to reusing storm water, reducing the demand for imported water, and meeting Gateway 20 x 2020 conservation goals.

### **13.2.3 Compatibility with Other Projects**

Just as important as combining like projects, reviewers looked for incompatibilities with one project to another. For example, did projects use the same water source or supply the same area without considering each other's effects? Or, would constructing one project have a negative impact or a reduction in benefits of another?

Reviewers did not find any apparent incompatibilities between the projects that were submitted. The City of Long Beach did have several projects that were located at the same park complex, but it was apparent that their planning was very coordinated for the site.

There were no obvious occurrences of committing the same water supply, including recycled water sources, treating or controlling the same flood water or storm water runoff.

As additional projects are considered in the future, their compatibility should be checked to existing proposed projects and interregional plans.

### **13.2.4 Compatibility with Projects in Other Regions**

As with projects planned within the Region, projects proposed in immediately neighboring regions should be compatible with the projects proposed in the Gateway IRWMP.

#### **13.2.4.1 GLAC**

Stakeholders in their November and December 2012 meetings presented with the top-ranked projects from GLAC Region's Lower Los Angeles-Lower San Gabriel Subregion. These projects were being advanced for implementation funding by the subregion through the GLAC protocol and are generally located in or near the Gateway Region. A copy of the project list is included in Appendix D. The projects include a wastewater treatment project, three groundwater recharge basin improvement projects, and a gray water retrofit project. The gray water project was later transferred to this IRWMP for ranking and advancement for an implementation grant application for possible Proposition 84 funding.

A brief technical review of the GLAC projects found no conflicts with the proposed Gateway projects. The Gateway Region should be generally supportive of most of the projects, based upon the criteria that were used to rank Gateway projects. The storm water greenway project appears to be in line with some of the proposed Gateway projects and would integrate nicely with the Gateway Plan. As pointed out above, the gray water retrofit project was later transferred to Gateway and was supported for funding by the Gateway stakeholders.

Thus, no conflicts or incompatibilities were discovered between the GLAC top project list and the Gateway project list.

#### **13.2.4.2 Santa Ana Watershed Protection Authority (SAWPA)**

Similar to GLAC, Technical Review team representatives reviewed the list of proposed projects from SAWPA. The SAWPA region is presenting a number of projects (22) for funding in the near term. As a representation of all of the SAWPA IRWMP projects, this list did not appear to have projects that would be incompatible with the current Gateway proposals. Most projects on the list are not near the Gateway Region, and being in a separate watershed, would not have an effect on Gateway projects. The SAWPA list can be found in Appendix D.

Additional information on SAWPA projects can be found on their website at [www.sawpa.org](http://www.sawpa.org). A full list of SWAPA projects is available at that link.

## 14 Other Planning Coordination

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This chapter reviews the IRWMP's processes for coordinating activities, including planning activities with local governments, agencies, neighboring regions and their planning entities. Of particular concern are coordination with other water planning and local land use planning. This chapter identifies:

- The process to coordinate water management projects, plans and activities in order to avoid conflicts and take advantage of efficiencies.
- Other neighboring IRWM efforts and the way cooperation or coordination with these other efforts will be accomplished.
- Areas where a State agency or other agencies may be able to assist in communication, cooperation, or implementation of IRWMP components, processes, and projects, or where State or federal regulatory decisions are required before implementing the projects.

### 14.1 Coordination of Activities within the IRWM Region

The Gateway Region was formed to ensure fair distribution of state funding. Many of the Gateway cities are DACs that felt underrepresented in other regional planning efforts. These cities were instrumental in the formation of the GWMA. Members of GWMA come from the local water and land use management entities, including those with more regional responsibilities (See Chapter 5). Stakeholders from organized groups are invited to participate and meetings are open to the public. The GWMA is working to:

- Coordinate with the other regional agencies.
- Comply with the SB X7-7 reporting requirements and meet 20 x 2020 water conservation goals.
- Cost effectively meet RWQCB TMDL and MS4 permit requirements.
- Engage non-governmental organizations and non-profits working on common water resource issues.
- Provide a central point for sharing information.
- Identify sources of state, local, and federal funding to implement Gateway IRWMP projects.
- Ensure land use and water supply agencies and authorities focus on common solutions.

GWMA coordinates interests within the common watershed. Members have a long history and experience working together to solve problems; and have built trust, confidence and working relationships over time. The GWMA provides the governance structure to organize within the region and coordinate between the regions to ensure GWMA member interests are acknowledged and represented (See Chapters 4 and 5).

## 14.2 Identification and Coordination with Neighboring IRWM Regions

Figure 14-1 shows the other IRWM regions in the Los Angeles funding/hydrologic region. The Santa Anna Watershed is located to the south in a different funding/hydrologic region. GWMA seeks to be represented to the other areas where time and resources permit.

## 14.3 Integration with Surrounding Regions

GWMA plans to effectively integrate and cooperate with neighboring IRWMPs by actively collaborating with other regions on projects and issues and by attending meetings, providing agendas, reports, and minutes to other organizations. GWMA has already met with the Santa Ana Watershed Project Authority (SAWPA), which borders its eastern boundary, to discuss potential interregional projects. GWMA welcomes representatives of the Greater Los Angeles County Region (GLAC), its northwestern neighbor, at its monthly meetings to liaison and share information. In addition, GWMA keeps in touch with many other regions through *Basecamp*, a project management and collaboration system in use by a majority of the regions through the Roundtable of Regions.

GWMA will continue to work to also:

- Share plans in the Los Angeles Region and to the Santa Ana Watershed Projects Authority region.
- Coordinate grant opportunities where it is in the mutual interest of the IRWMP regions.
- Review neighboring plans.
- Seek inter-regional cooperation to avoid conflicts.

## 14.4 Coordination with Agencies

GWMA will coordinate with the other regional, state and federal agencies to seek input, project partnerships, and funding for Gateway IRWMP projects. The larger regional agencies include the LACSD, Los Angeles County Flood Control, and MWD. From a state and federal standpoint, the USACE, RWQCB, SWRCB, and DWR are all current stakeholders of Gateway IRWMP. All of the agencies were all invited to participate, and/or were involved to the degree time and resources would allow.

As discussed further below, even where the agencies were not able to be actively engaged in all the IRWMP meetings, the available information, data and agency plans were consulted. The U.S. Bureau of Reclamation (USBR) has provided significant amount of support to the areas for a number of studies as described in the next section. The resource agencies like DFG and USFWS were not able to be actively engaged. If any of the IRWMP projects require federal permit, use federal money or involve federal lands, then the individual projects will seek early consultation with the appropriate federal agency. This will ensure that requirements, impacts and potential mitigations are identified during planning and allow local interests to anticipate mitigation costs into projects designs. This will also help avoid costly scheduling delays.

PROPOSITION 84  
Integrated Regional Water Management Program  
IRWM Regions  
Los Angeles Sub-Region Funding Area

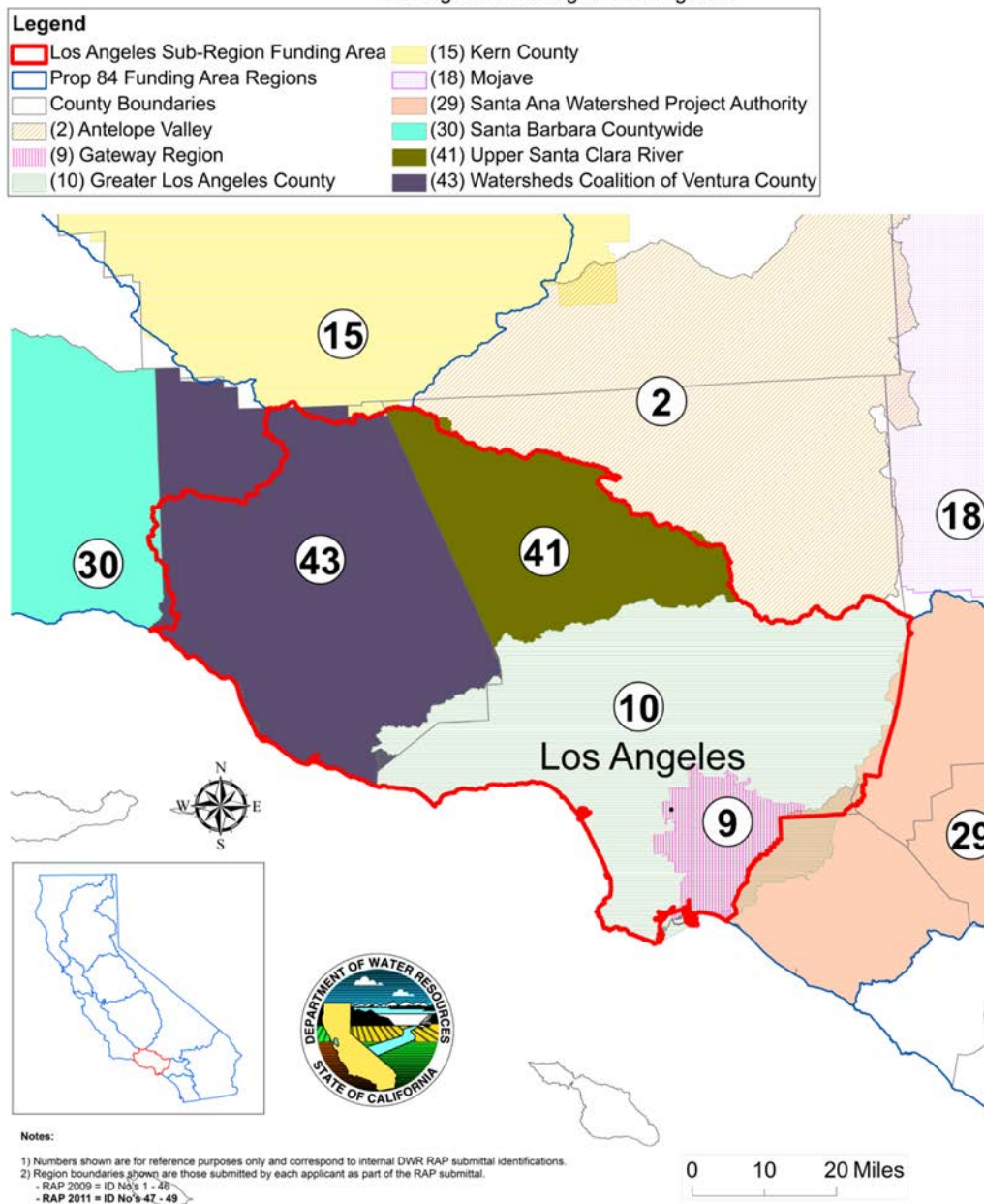


Figure 14-1. Los Angeles Sub-region Funding Area

## 14.5 Relation to Local Water Planning

There are a number of existing plans and related planning process that overlay the Gateway Region and influence GWMA projects and IRWMP implementation strategies. Some of the existing efforts include ‘integrated’ planning to meet multiple objectives, involve other stakeholder groups and implement a mix of DWR strategies. The current plans and policies affect water management as well as the land use plans and policies of the cities and county.



The plans' relation to the Gateway IRWMP, and potential affects to the IRWMP are described below. The Gateway IRWMP is intended to compliment the other local water planning efforts and integrate projects and actions where appropriate and beneficial.

Stakeholders include representatives from the other larger regional agencies. This helped to ensure that the IRWMP was consistent with the existing plans. The existing plans helped to define limits and management tools or criteria that supported project formulations, prioritization, and development of performance monitoring programs. For example, the compliance with water quality standards in the Water Quality Control Plan provide established limits that provide performance measures that will be used to track the progress in meeting IRWMP goals and objectives and other regulatory requirements.

#### **14.5.1 Water Quality Control Plan**

A primary issue for the Gateway IRWMP is the need for the Region to comply with Los Angeles LARWQCB requirements and be consistent with the Water Quality Control Plan (Basin Plan). LARWQCB approved municipal storm water runoff regulations to prevent trash, metals, bacteria, chemicals and pesticides from being washed into storm drains and into creeks, rivers and the ocean. The Municipal Separate Storm Sewer Systems (MS4) Permit and TMDL Monitoring requirements,<sup>4</sup> referred to here as the MS4 Permit/Order, cover municipalities in Los Angeles County, except for Long Beach which has its own storm water permit. The Gateway IRWMP provides an opportunity for the GWMA members to:

- Work cooperatively to design and implement cost-effective programs and projects to comply with the MS4 Permit/Order.
- Develop plans and take corrective actions to reduce the pollutants in storm water and non-storm water.
- Coordinate monitoring and reporting.
- Share work to reduce costs of compliance to individual GWMA members.
- Seek and obtain funding for joint projects and programs.

The IRWMP has identified program alternatives to meet IRWMP water quality objectives and also meet LARWQCB requirements. GWMA will continue to serve as the mechanism to coordinate and develop integrated programs and projects that manage, treat, reuse and recharge storm water and non-storm water and help the Gateway Region comply with the Permit/Order.

#### **14.5.2 Urban Water Management**

GWMA formed a regional alliance to prepare the Gateway Regional Water Conservation Alliance Report (GEI 2011) to define the 20 x 2020 conservation goals and meet the requirements of SB7X-7. The retail water companies and municipal utilities, and the

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<sup>4</sup> See Final Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4. ORDER NO. R4-2012-0175, NPDES No. CAS004001. (December 5, 2012).

wholesale water agencies identified in Chapter 3 have adopted 2010 Urban Water Management Plans. This includes the plans listed in Table 9-1, Chapter 9.

Programs and plans listed in the UWMP are candidates for Gateway IRWMP projects. Coordination through the GWMA is an important mechanism for integrating water conservation strategies, demand management measures and recycling.

### **14.5.3 Regional Recycled Water Planning**

A number of regional planning efforts have been undertaken to define recycled water and reuse projects. These include:

- Central Basin MWD Recycling Project
- Plan for the Beneficial Reuse of Recycled Water, LACSD
- Southern California Water Recycling Projects Initiative

#### **14.5.3.1 Central Basin MWD Recycling Project**

In the Gateway Region, the CBMWD plans for use of recycled water obtained from the LACSD. Water is distributed for reuse to a number of GWMA members consistent with the CBMWD 2010 Water Use Efficiency Master Plan. The recycled water distribution system was described in Chapter 3. The GWMA IRWMP identified project opportunities to extend the recycled water distribution systems infrastructure within the Gateway Region to appropriate points for use. The CBMWD is a GWMA member. This coordination will support recycled water use and development of new user connections for large landscapes, industrial water use and restoration of habitats.

#### **14.5.3.2 Plan for the Beneficial Reuse of Recycled Water**

The LACSD developed the ‘Plan for the Beneficial Reuse of Recycled Water’ in 1995 to provide a clear vision to maximize the use of recycled water, and to promote and expand use of recycled water. An updated version is under development that will examine the status of the Districts’ efforts. GWMA interests are to be represented during the update of the LACSD Plan to include Gateway Region potential water recycling opportunities, including examining the various obstacles that stand in the way of increased water recycling, defining possible solutions to these obstacles, identifying the potential for recycled water use in the LACSD service area, including the Gateway Region.

#### **14.5.3.3 Southern California Water Recycling Projects Initiative**

Southern California Water Recycling Project Initiative is a multi-year Bureau of Reclamation planning program (USBR 2004). DWR is a participant. The Initiative is designed to continue the work begun during the Southern California Comprehensive Water Reclamation and Reuse Study (SCCWRRS) completed in 2002, and to assist local water and wastewater agencies in final planning and environmental documentation leading to implementation of projects identified in the SCCWRRS. GWMA, through the CBMWD, will continue to participate and work to obtain federal matching monies to extend state bond monies and local

revenue and build potential recycling projects in the Gateway IRWMP and/or as part of the CBMWD recycling plan.

#### **14.5.4 Groundwater Management**

The Gateway Region overlies the Central Groundwater Basin, which is adjudicated by the Courts. Groundwater is managed through the Central Basin Judgment. The West Coast Basin, also adjudicated, lies mostly in the South Bay Subregion to the west, but a small portion lies in the Lower San Gabriel and Los Angeles Rivers Subregion. The DWR is the watermaster in both basins, while the WRD is responsible for ensuring an adequate supply of replenishment water to offset groundwater production through monitoring, and various groundwater reliability programs and projects.

GWMA members live within the boundaries established by the adjudications and need to purchase replenishment water to recharge groundwater beyond their entitlements. This influences the economics of groundwater development and recharge efforts, including those related to treating contaminated water for use, and/or recharging of storm water or recycled water. GWMA will continue to be the mechanism to coordinate and integrate projects for groundwater treatment and reuse and/or for recharging recycled water and storm water.

#### **14.5.5 Related Watershed Planning and Monitoring**

There are a number of parallel integrated planning efforts in the Gateway Region. GWMA acknowledges these efforts and seeks to be consistent with current or proposed plans and programs. This includes:

- Los Angeles Basin Water Augmentation Study (WAS)
- San Gabriel River Regional Monitoring Program ([SGRRMP](#))
- Los Angeles River Watershed-wide Monitoring Program ([LARWMP](#))
- Southern California Storm water Monitoring Coalition (SMC) Regional Watershed Monitoring Program
- The Southern California Coastal Water Research Project (SCCWRP)
- Los Angeles County Sediment Management Plans

GWMA members are participants. Coordination and participation in these efforts will be through the GWMA representatives which will share information and coordinate input to these other efforts.

##### **14.5.5.1 Los Angeles Basin Water Augmentation Study (WAS)**

The ten-year Los Angeles Basin Water Augmentation Study (WAS) was a three phase effort initiated in 2000 (Watershed Council 2005, 2010). The WAS produced a regional analysis and implementation strategy for decentralized storm water projects and practices to meet multiple objectives for reducing storm water, improving water quality and recharging groundwater.

USBR forged a partnership with the Los Angeles and San Gabriel Rivers Watershed Council. The Council evolved into the [Council for Watershed Health](#). The Groundwater Augmentation Model was developed by the USBR to quantify storm water runoff and the potential for groundwater recharge (USBR 2007). The final report analyzed the challenges and opportunities to implement a systematic decentralized storm water infiltration strategy, and made recommendations to implement projects. The recommendations note a need for revised land use, zoning and development standards to support Low Impact Development (LID).

The results of this work and final report recommendations can be used by the GWMA to further identify Gateway IRWMP projects, programs and monitoring to implement storm water and non-storm water BMPs to comply with the LARWQCB MS4 Permit/Order.

#### 14.5.5.2 Los Angeles River Watershed Monitoring Program (LARWMP)

The Los Angeles River Watershed Monitoring Program (LARWMP) was developed during 2007 by a group of stakeholders representing major permittees, regulatory and management agencies, and conservation groups. The objectives of the program are to increase awareness of the importance of issues at the watershed scale and to improve the coordination and integration of monitoring efforts for both compliance and ambient conditions. The GWMA can continue to build on the coordinated monitoring effort (See Chapter 18, Performance and Monitoring).

#### 14.5.5.3 San Gabriel River Regional Monitoring Program (SGRRMP)

The San Gabriel River Regional Monitoring Program (SGRRMP) began development in 2004 by multiple stakeholders representing major permittees, regulatory and management agencies, and conservation groups. Development of the program was motivated by a permit condition for the LACSD. The program seeks to increase awareness of issues at the watershed scale and improve the coordination and integration of monitoring efforts for both compliance and ambient conditions. The GWMA can continue to build on the coordinated monitoring effort (See Chapter 18, Performance and Monitoring).

#### 14.5.5.4 Southern California Storm Water Monitoring Coalition (SMC) Regional Watershed Monitoring Program

The Southern California Storm Water Monitoring Coalition (SMC) Regional Watershed Monitoring Program was initiated in 2008. This program is conducted in collaboration with the State Water Board's Surface Water Ambient Monitoring Program, three Southern California Regional Water Quality Control Boards (Los Angeles, Santa Ana, and San Diego) and several county storm water agencies (Los Angeles, Ventura, Orange, Riverside, San Bernardino and San Diego). The SMC monitoring program seeks to coordinate and leverage existing monitoring efforts to produce regional estimates of condition, improve data comparability and quality assurance, and maximize data availability, while conserving monitoring expenditures. The primary goal of this program is to implement an ongoing, large-scale regional monitoring program for southern California's coastal streams and rivers.

#### 14.5.5.5 The Southern California Coastal Water Research Project (SCCWRP)

The Southern California Coastal Water Research Project (SCCWRP) is a research institute focusing on the coastal ecosystems of Southern California from watersheds to the ocean. It is a participant in the SMC. SCCWRP was created by a joint powers agreement, stemming from a common need among multiple government entities. SCCWRP's diverse member agencies, including municipalities that discharge treated wastewater to the ocean, storm water agencies, and water quality regulators, joined together to create a solid foundation for impartial research. This includes research to define best practices for monitoring, data management and sharing; and technology transfer.

#### 14.5.5.6 Los Angeles County Sediment Management Plans

The Los Angeles County Department of Public Works, through the Los Angeles County Flood Control District has developed a 20-year Sediment Management Strategic Plan (Strategic Plan) for years 2012 to 2032 that pursues new alternatives that can reduce the environmental and social impacts of sediment management. It evaluates and defines sediment management methods including removal, transport, placement and use. The District manages a flood control system of dams, debris basins, and other drainage infrastructure, which reduces risk of floods and debris flows for downstream communities. Effective sediment management requires the regular removal of sediment that deposits within District facilities. The Strategic Plan represents the results of a continuing dialogue about sediment management between the District and numerous stakeholders in the region. The Strategic Plan provides an overview of sediment management issues, evaluates various strategies to help identify optimal solutions.

The GWMA can serve as the conduit for coordination with the District on strategic plan activities within the Gateway Region and for projects that would benefit its members.

#### **14.5.6 Salt and Nutrient Plan**

WRD is working to develop a Salt/Nutrient Management Plan (SNMP) for the Central Basin and West Coast Basin pursuant to the SWRCB Recycled Water Policy. The objective is to manage salts and nutrients from all sources on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses. The SNMP will evaluate current and future salt and nutrient loading through 2025 and calculate the assimilative capacity. It will include a monitoring plan and implementation plans and projects to manage salt/nutrient loading. Ultimately, the plan will be adopted as a basin plan amendment. The GWMA will track the plan to identify potential projects and to evaluate how monitoring activities can be coordinated to reduce costs where possible.

### **14.6 Relation to Land Use Planning**

GWMA serves as the means for exchanging information and integrating the land use and water plans and planning process. Because GWMA includes municipalities that are responsible for management of both water and land use, local land-use planning decision makers has been integrally involved in formulation of the Gateway IRWMP. The participation of the land use agencies will ensure constant evaluation of the interactions

between water management strategies considered in the IRWMP and ongoing land use planning. The cities and County also use their local police powers to develop local ordinances, regulations, and design standards.

#### **14.6.1 City and County General Plans**

GWMA members provided the attention to the land use issues that effect, or could be affected by, the Gateway IRWMP, thus minimizing the potential for conflicts between the plans. California Government Code (§65350-65362) requires that each county and city in the state develop and adopt a General Plan. The General Plan consists of a statement of development policies and setting forth objectives, principles standards, and plan proposals. It is a comprehensive long term plan for the physical development of the county or city. In this sense, it is a "blueprint" for development.

The Gateway IRWMP has provided the opportunity for all the local land use agencies to coordinate on regional water issues, and the city and county general plans and the land use planning process are mechanisms for local governments to integrate land use and water supply decisions and use the IRWMP to meet the goals of the cities and County as identified in their respective general plans. For the development of the Gateway IRWMP, the city and county information were consulted to characterize the historical and existing conditions in the Gateway Region; to document demand and supply conditions; and to formulate assumptions for the future without project land use and water supply conditions. The Gateway IRWMP will be updated as needed in the future. The updates will include consideration of any major changes to the prevailing land use plans.

The city and county general plans must contain seven (7) state-mandated elements. They may also contain any other elements that the legislative body of the county or city wishes to adopt. The seven (7) mandated elements are: Land Use, Open Space, Conservation, Housing, Circulation, Noise, and Safety. The breadth of the general plans may result in less detailed or comprehensive review of regional water issues. The Gateway Cities and this area of Los Angeles County are generally close to build out. Future development will be mostly remodel, infill or urban renewal. General Plan updates will most likely occur in the Open Space, Conservation, and Safety sections of the general plans to address hazard/flood management, groundwater recharge, storm water and non-storm water management and water quality, water conservation and public service. The Cities and County retain all local land use authority, but GWMA members will work to coordinate future updates to their general plans with the information, projects and programs identified in the Gateway IRWMP.

#### **14.6.2 Local Ordinances, Zoning and Design Standards, and Regulation**

The GWMA municipalities adopt local ordinances, zoning and development design standards and regulations that apply to new projects and guide the actions of the agencies. The Water Supply Augmentation Study (WAS; See Water Management Section above) recommended each land use authority review and update the development standards and design guidelines to include Low Impact Development (LID) approaches for infrastructure development and apply innovative storm water infiltration.



There are currently few standard plans that incorporate infiltration techniques such as parkways with bio-swales. Standard plans include details on the type of catch basins, sidewalks, curbs and gutters that can be installed on both private and public projects. The WAS recommended local governments develop consistent standard plans and guidelines could reduce development review times. It also advised developing regional and sub-watershed storm water capture, percolation and retention facilities to provide mitigations for new development impacts for increased storm water and non-storm water runoff, while also improving runoff water quality and increasing groundwater recharge resulting from current land uses.

Since some of the groundwater basins are adjudicated, the WAS report went on to recommend that governing bodies, including those with land use authority, work together to support establishment of conjunctive use policies for groundwater basins that will encourage localized storm water recharge; and to provide credits for recharge from implementation of storm water BMPs. This also would provide economic incentives to develop decentralized storm water BMPs.

Since the Gateway area is mostly built out, this would apply predominantly to any changes to current land use. This complicates the ability to build regional storm water facilities, assess impact fees to fund projects and to integrate storm water, water quality and recharge projects to meet multiple objectives. The IRWMP is the opportunity to integrate projects, develop shared design standards and regulation where needed, work through GWMA to fund needed regional improvement, and apply both the water districts and local land use authorities to address common problems.

# 15 Plan Impacts and Benefits

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This chapter includes discussion of potential impacts and benefits of IRWMP implementation, including both impacts and benefits within the IRWM Region, between regions, and those directly affecting DAC and Environmental Justice related concerns. It also includes discussion of how the effects of individual projects are to be addressed by project proponents. The analysis also serves as a benchmark as the IRWMP is implemented and performance is evaluated. The benefits and impacts identified in this chapter will help the GWMA determine whether the potential benefits have been realized or if unanticipated impacts have occurred. As the Gateway IRWMP is implemented and project performance data are gathered, the impacts and benefits can be reviewed and updated as part of the planned update process.

## 15.1 General Benefits and Impacts of Regional Planning and Implementing the IRWMP

Through the Gateway IRWMP, the GWMA hopes to realize the advantages of regional planning for local communities. The communities are facing increased costs for storm water regulatory compliance; purchasing imported surface water meeting drinking water standards; and preventing flooding in drainage impaired areas. The advantage of the Gateway regional planning approach and Gateway IRWMP are related to:

- Identifying regional projects and programs that help to create economies of scale.
- Increased focus on the issues and objectives most affecting the local Gateway communities.
- Greater ability to influence legislative process.
- Developing a long-term vision for regional water management for water supply and water quality issues.
- Managing water resources within a recognized hydrologic boundary rather than many isolated political boundaries.
- Increasing competitiveness for state and federal funds.
- Reducing costs by co-funding programs for regulatory compliance and monitoring.
- Establishing goals and policies for the most economical and efficient use of available water resources and tax revenues.
- Providing a forum for DACs in the Gateway Region to pool resources, access funding and ensure equitable distribution of funding.
- Creating greater opportunity to promote the needs of the sub regional area to the regional agencies.

Without the Gateway IRWMP, these benefits would be smaller or even lost to the Gateway Region. In addition, the Gateway region could experience the following impacts of not adopting and implementing the IRWMP.

- Lack of access to state resources to address identified Gateway issues such as updating aging infrastructure.
- Increased costs to individually comply with water quality related regulations and TMDLs.
- Inability to fairly compete with other areas, support DACs and ensure Environmental Justice.
- Limited economic development opportunities associated with unaddressed water supply and water quality issues.
- Reduce supply reliability.
- Increased costs related to a need for more imported water.
- Decreased quality of life due to neglect of regional flood, water supply and environmental resources.

The Gateway IRWMP brings focus to the communities at a grass roots level, allowing greater participation of local agencies and interest groups for purposes of providing and delivering benefits at a localized level. Many of these needs have been underfunded and neglected due to the emphasis on the macro scale regional planning. Planning at a regional scale has been occurring in the Gateway Region for many years. The scale of the regional planning is such that the benefits to the smaller local entities and public are not always well understood.

Even though macro scale programs provide economies of scale to address the larger water issues, the costs for these programs have an impact on local communities because they consume available public funding, whether local taxes/ water/sewer rates or by consuming the available state bond funds. The focus on watershed scale regional flood control also dilutes the attention to local flood and storm water needs. Regional water quality compliance to meet regulatory requirements places further burdens on the local communities, many of which are disadvantaged and have limited financial, managerial and regulatory capacity.

## **15.2 Impacts and Benefits of the IRWMP Program Alternatives**

The Gateway IRWMP integration effort defined regional program alternatives. The program alternatives provide a planning framework to integrate projects and achieve multiple benefits within the Region. Table 15-1 presents the potential regional impacts and benefits of the proposed Gateway program alternatives. These are qualitative benefits. Quantification of specific benefits is part of the economic analysis to be prepared to support rate studies or for purposes of grant application. The GWMA also discussed and identified potential interregional benefits and impacts that could result from implementation of the program alternatives and Table 15-2 presents the potential interregional benefits and impacts.

**Table 15-1. Potential Regional Impacts and Benefits of the Proposed Gateway Program Alternatives**

Program	Gateway Region	
	Potential Benefits	Potential Impact
A1. Systems Intertie Program	<ul style="list-style-type: none"> <li>• Help meet DAC drinking water and water quality needs</li> <li>• Increase supply reliability</li> <li>• Provide operational flexibility, coordinate response to catastrophic supply interruption</li> <li>• Supports drought preparedness, adaption to climate change</li> <li>• Promote conjunctive use</li> <li>• Share systems storage, wells and pumping facilities</li> <li>• Make use of alternative supplies, promote exchanges or transfers</li> <li>• Increase available supply through treatment of contaminated groundwater</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic Short-term construction related dust, sediment, traffic and noise</li> </ul>
A2. Well Rehabilitation, Replacement	<ul style="list-style-type: none"> <li>• Maximize groundwater use up to entitled amounts/annual yield                             <ul style="list-style-type: none"> <li>○ Replace wells to maintain current levels of production</li> <li>○ Repurpose industrial or remediation wells for municipal supplies</li> </ul> </li> <li>• Promote conjunctive use</li> <li>• Increase reliability, improve drought response</li> <li>• Reduce need for imported water</li> <li>• Reduced power consumption via more efficient pumps, reduced GHG emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Potential to increased groundwater production</li> <li>• Could increase costs for replenishment water if projects result in increased groundwater pumping</li> <li>• New pumping could cause changes in flow pathways and contaminant migration</li> </ul>

Program	Gateway Region	
	Potential Benefits	Potential Impact
A3. Recycling	<ul style="list-style-type: none"> <li>• Reduce the need for imported and potable water</li> <li>• Stretch the available groundwater supplies</li> <li>• Reliably meet current and future non-potable water demands and meet 20 X 2020 goals.</li> <li>• Provide water to support habitat, open space and ecosystem needs</li> <li>• Meet non-potable water demands</li> <li>• Improve irrigation efficiency</li> <li>• Conservation and reuse reduce potable demand treatment costs</li> <li>• Avoided import water costs</li> </ul>	<ul style="list-style-type: none"> <li>• Potential water quality impairment from disposal of residual by products from treatment</li> <li>• Could impacts to groundwater quality from injection of lesser quality water</li> <li>• Increased consumer costs and rates for wastewater treatment and purple pipe distribution infrastructure</li> <li>• Potential reduction in water sales</li> <li>• Public acceptance</li> </ul>
A4. Outfall Monitoring	<ul style="list-style-type: none"> <li>• Protect and enhance water quality</li> <li>• Reduce cost to monitor attainment of TMDL levels</li> <li>• Document benefits of other improvements</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>
A.5 Installation of Catch Basin Screening	<ul style="list-style-type: none"> <li>• Support, expand current program to comply with Trash TMDL</li> <li>• Reduce water quality impairment</li> <li>• Protect beaches, riparian corridor and related habitat and recreational resources</li> <li>• Share costs for regulatory compliance</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term construction related dust, traffic and noise</li> <li>• Could impact riparian resources if located in active channel</li> </ul>
A6. Improve Storm water/Flood Infrastructure	<ul style="list-style-type: none"> <li>• Reduce or avoid storm damage</li> <li>• Protect life and property, reduce flood risk</li> <li>• Improved economic development potential of community</li> <li>• Apply best management practices to improve water quality</li> <li>• Integrate other strategies for preserving or enhancing habitat, open space and protecting natural resources where such integration would be cost effective and increase project benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Short-term construction related dust, traffic and noise</li> <li>• Increase downstream flood risk and first flush water quality effects</li> <li>• Loss of riparian habitat</li> </ul>

Program	Gateway Region	
	Potential Benefits	Potential Impact
A7. Upgrade Aging Infrastructure	<ul style="list-style-type: none"> <li>• Meet DAC water supply and quality needs</li> <li>• Increase supply reliability</li> <li>• Ensure consistent service and limit interruptions</li> <li>• Increased potential for economic development</li> <li>• Reduce systems losses, reduce treatment costs</li> <li>• Protect public health</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic Short-term construction related dust and sediment, traffic and noise</li> </ul>
A.8 Groundwater Treatment Projects	<ul style="list-style-type: none"> <li>• Extend or stretch groundwater supplies</li> <li>• Reduce imported water need</li> <li>• Increase supply reliability</li> <li>• Improve groundwater quality</li> <li>• Meet DAC drinking water and water quality needs through wellhead or other treatment</li> <li>• Protect public health</li> <li>• Better drought response</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic Short-term construction related dust and sediment, traffic and noise</li> <li>• Water quality impairment via disposal of residual by products from treatment</li> </ul>
A9. Collect and Treat Low Flow Urban Drainage	<ul style="list-style-type: none"> <li>• Recharge or reuse of storm water if captured</li> <li>• Protect water quality and support compliance with TMDL</li> <li>• Could meet non-potable water demands (parks, green space, rights of way, etc.)</li> <li>• Capture, use, recharge and storage of low flow and/or storm water</li> <li>• Recycle and reuse storm water and urban drainage</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce instream flows effecting riparian habitat and species</li> <li>• Water quality impairment via disposal of residual by products from treatment</li> <li>• Impacts to groundwater quality from injection of poor quality water if reuses for ASR or seawater barrier</li> </ul>
A10. Conservation, Parks, Open Space and Habitat	<ul style="list-style-type: none"> <li>• Reduce the reliance on imported water</li> <li>• Support drought response and climate change adaption</li> <li>• Provide access to open space</li> <li>• Preserve and protect habitat</li> <li>• Improve quality of life</li> <li>• Make use of lessor quality of water</li> </ul>	<ul style="list-style-type: none"> <li>• Increased cost to cities and rate payers</li> </ul>



**Table 15-2. Potential Interregional Benefits and Impacts**

Program	Interregional	
	Potential Benefits	Potential Impact
A1. Systems Intertie Program	<ul style="list-style-type: none"> <li>• Systems could be connected across region with entities outside the Gateway Region</li> <li>• Regionalization, consolidation of facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Perceived loss of control or management authority</li> </ul>
A2. Well Rehabilitation, Replacement	<ul style="list-style-type: none"> <li>• Supports conjunctive use</li> <li>• Reduced demand for imported water</li> <li>• Help avoid conflicts over Colorado River and northern California water supplies</li> </ul>	<ul style="list-style-type: none"> <li>• Increased pumping could cause conflicts with other overlying groundwater users</li> <li>• Reduction in revenue to other regional agencies</li> <li>• Increased pumping could change rate and direction of groundwater flow or impact current recharge operations if not coordinated</li> </ul>
A3. Recycling	<ul style="list-style-type: none"> <li>• Consistent with regional recycling goals and plans</li> <li>• Support achievement of Southern California and state 20 X 2020 goals</li> <li>• Reduce reliance on imported supplies and related impacts on the Delta and Colorado River</li> <li>• Support interregional exchanges</li> </ul>	<ul style="list-style-type: none"> <li>• Project specific (see Table 15-1 above)</li> <li>• No regional impacts identified for reclaimed wastewater</li> </ul>
A4. Outfall Monitoring	<ul style="list-style-type: none"> <li>• Support TMDL compliance on Los Angeles and San Gabriel Rivers</li> </ul>	<ul style="list-style-type: none"> <li>• None identified.</li> </ul>
A5. Improve Catch Basins and/or Install Screening Device	<ul style="list-style-type: none"> <li>• Consistent with RWQCB Basin Plan</li> <li>• Prevent migration of trash to other Southern California Region</li> <li>• Help protect ocean resources, recreation value</li> <li>• Reduce cost to clean up beaches</li> </ul>	<ul style="list-style-type: none"> <li>• None identified. All San Gabriel and Los Angeles River water flows to the ocean through Gateway Region and not to or through other regions</li> </ul>
A9. Collect and Treat Low Flow Urban Drainage	<ul style="list-style-type: none"> <li>• Reduce reliance on imports, prevent conflicts</li> <li>• Protect ocean and riparian water quality</li> </ul>	
A6. Improve Aging Storm water/Flood Infrastructure	<ul style="list-style-type: none"> <li>• Incorporate projects to be consistent with interregional flood control plan and efforts in the greater watershed area.</li> </ul>	<ul style="list-style-type: none"> <li>• Marginal increase in runoff</li> </ul>

A7. Infrastructure Replacement, Repair and Upgrade	<ul style="list-style-type: none"> <li>• Support regional economy</li> <li>• Help avoid ensure economic justice issues are addressed</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>
A8. Groundwater Treatment Projects	<ul style="list-style-type: none"> <li>• Same as regional benefits</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>
A9. Collect and Treat Low Flow Urban Drainage	<ul style="list-style-type: none"> <li>• Support for regional 20 X 2020 goals</li> <li>• Reduce reliance on imported water</li> </ul>	<ul style="list-style-type: none"> <li>• None identified</li> </ul>
A10. Conservation, Parks, Open Space and Habitat	<ul style="list-style-type: none"> <li>• Support for regional 20 X 2020 goals</li> <li>• Provide public access and increase recreational opportunity</li> </ul>	<ul style="list-style-type: none"> <li>• Some potential for land use conflicts, reduced development potential on some rezoned parcels</li> </ul>

## 15.3 Quantifiable Benefits and Costs of Proposed Projects

The quantitative and qualitative benefits of each project were generally identified by project proponents in the project descriptions submitted for review and evaluation. The projects were at different stages in the planning process and project information was not provided in equal level of detail. The project proponents identified the general benefits anticipated. Table 15-3 shows the overall benefits identified for the projects proposed for inclusion in the IRWMP.

Those projects that had preliminary or final designs provided greater level of detail regarding qualitative and quantitative benefits or impacts. Each project proponent will be responsible for further defining qualitative and quantitative benefits and costs to a level of detail required for a complete grant application consistent with DWR or other grant program requirements. The evaluation may be in the form of a cost effectiveness analysis or cost/benefit analysis. In future updates of the Gateway IRWMP more emphasis will be placed on quantifying individual project benefits and standardized approaches may be used to capture information to allow better tracking of project and overall regional performance.

**Table 15-3. Summary of Projects Benefits**

ID#	Program Alternative	Project Title	Water Supply	Flood Management	Ecosystem Restoration	Demand Management	Recreation, Public Access	Power Cost, Production	Economic Development	Water Quality
1	A1	Pico Rivera Emergency Intertie	•			•		•	•	•
2	A8	Advance Groundwater Wellhead Treatment Facility	•					•	•	•
3	A3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project		•					•	
4	A2	Groundwater Well Supple Reliability Project		•	•		•		•	•
5	A2	Hermosillo Park Well - Well No. 9 and water mains		•	•				•	•
6	A5	Installation of Catch Basin - Screening Devices (ARS/CPS)						•	•	•
7	A9	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion				•		•	•	
8	A9	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion		•			•	•		•
9	A9	Los Cerritos Channel Metals TMDL - Low Flow Diversion	•					•	•	
10	A1	MWD West Coast Feeder Connection and Transmission Main	•						•	

11	A2	New Groundwater Well		•					•	•
12	A2	New Water Well		•					•	•
13	A7	Bellflower Municipal Water Distribution System Reconstruction	•	•	•		•	•	•	•
14	A2	New Water Well		•	•		•		•	•
15	A7	Norwalk Park Reservoir and Booster Pump Station	•	•	•		•		•	•
16	A7	Norwalk Water Main/Meter Replacements - Gridley to Maidstone		•					•	•
17	A4	Outfall Monitoring		•					•	
18	A3	Pilot Plant for Treatment of Los Angeles River Water		•					•	
19	A1	Potable Water Interconnections- Bloomfield x Hayford and Pioneer x Lakeland					•		•	
20	A7	SCADA and Automation		•	•				•	•
21	A1 0	Shallow Wells Abandonment	•			•			•	
22	A7	Small System Infrastructure Rehabilitation Project			•		•	•	•	•
23	A1 0	Splash Pad/Spray and Wading Pool Retrofit	•						•	
24	A5	Bellflower NPDES Permit and TMDL Compliance Storm water Improvements	•			•	•	•	•	
25	A6	Storm Drain Improvement Project Zone 4				•		•	•	
26	A6	Storm Drain Improvement Project Zone 2	•			•		•	•	
27	A6	Storm Drain Improvement Project Zone 3	•			•			•	•
28	A6	Storm Drain Improvement Project Zone 6								•
29	A6	Storm Drain Improvement Project Zone 7	•							•
30	A6	Storm Drain Improvements in the City of La Mirada	•							•
31	A2	Well 21 Conversion Project		•	•				•	
32	A3	West San Gabriel River Parkway Phase 3 Development		•					•	
33	A5	Catch Basin Trash Inserts and Face Plate Screens					•		•	
34	A1 0	Cha'wot Open Space Preservation and Storm water Runoff Reduction	•	•				•	•	•
35	A3	City of Signal Hill Recycled Water System		•					•	
36	A1 0	Coyote Creek Irrigation Runoff Reduction Program	•					•	•	
37	A1 0	Disadvantaged Communities Schools Retrofit Program	•					•	•	
38	A1	Emergency Water Connection Improvements	•						•	
39	A9	Fernwood Water Improvement Park				•	•		•	•

40	A8	Monitoring of Activities Surrounding the Omega Chemical Corporation Superfund Site	•				•		•	
41	A8	Addition and/or Expansion of Arsenic Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin				•	•	•	•	•
42	A8	Addition and/or Expansion of Color Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin		•	•	•	•		•	
43	A8	Addition of 1,4-Dioxane Treatment for Ground Water Extracted from the Central Basin	•	•				•	•	•
44	A9	Optimization of Strategies to Reduce Storm water Impacts on Surface Water Quality based on Cost-Effectiveness	•		•	•	•		•	•
45	A6	57th Street Storm Drain Improvement Project	•							•
46	A6	55th Street Storm Drain Improvement Project		•					•	•
47	A6	District Boulevard Storm Drain Improvement Project		•					•	•
48	A5	Vernon Catch Basin Trash Inserts and Face Plate Screen Project				•			•	
49	A2	Production Well 22				•	•	•	•	•
50	A4	Vernon Outfall Monitoring Project		•					•	
51	A3	Cesar Chavez Park Recycled Water irrigation Project		•						
52	A9	Firestone Blvd. Median Project			•		•		•	•
53	A3	South Gate Park Recycled Water Conversion project		•					•	
54	A9	Tree Well Dry Weather Runoff and First Flow Storm water Capture/TMDL Project	•	•	•	•	•		•	•
55	A2	Well 25 Replacement		•					•	
56	A6	Storm Drain Improvements- The Manor and Salt Lake and Wood Avenues.		•					•	•
57	A7	Water SCADA Energy Savings Automation Project		•	•		•			•
58	A7	Well 28 Reservoir and Booster Pump Station				•				•
59	A1 0	Chittick Field	•			•		•	•	
60	A9	Treatment of Low Flow and First Flush Storm water Discharges - Termino Drain	•		•	•	•		•	•
61	A1	Pico Rivera 1.5 Million Gallons Reservoir	•			•		•	•	•
62	A3	Long Beach Graywater Program		•					•	
63	A9	Willow Springs Habitat Enhancement, Trail Improvement and Water Quality Improvements				•	•	•	•	•
64	A1 0	Citywide Parks Irrigation System Upgrades	•			•		•	•	

65	A1 0	El Dorado Nature Center Lakes Water Quality and Water Conservation	•			•		•	•	
66	A1 0	El Dorado Park Duck Pond Water Quality and Habitat Improvements	•			•	•	•	•	
67	A1 0	El Dorado Regional Park Water Quality & Water Conservation	•		•				•	•
68	A1 0	El Dorado Nature Center Lake Dredging and Leak Repair	•	•	•	•	•		•	•
69	A9	Long Beach Urban Runoff Recycling Facility (LBURRF)					•		•	•
70	A5	The Los Cerritos, San Gabriel River and Alamitos Bay Outfall Trash Collectors							•	•
71	A1 0	The Los Cerritos, San Gabriel River and Alamitos Bay Low Flow Diversion System	•			•			•	
72	A1 0	Construct Bioswales/Landscaping in various locations in Long Beach		•	•		•			
73	A1 0	Pump Station Vortex Separation System (VSS) Devices	•			•	•		•	

## 15.4 California Environmental Quality Act and Permitting

### 15.4.1 Compliance Approach and Responsibilities

Potential environmental impacts of all individual projects listed in the Gateway IRWMP have been, or will be evaluated in accordance with CEQA by the project proponents sponsoring the project and serving as the lead agency and in accordance with their project schedules. The Gateway IRWMP does not legally bind participants to carry out projects listed in the plan. The responsibility for complying with CEQA and other environmental laws rests with the public agency or agencies that that is proposing and managing the project. Individual projects must be certified through either categorical exemption, negative declaration, mitigated negative declaration or a full Environmental Impact Report (EIR). During project planning, the environmental data that was collected was factored into the development and application of the ranking and screening criteria to the degree that such data was available; and CEQA clearance was one of the ‘readiness-to-proceed’ criteria used by the GWMA to set project priorities.

Where multiple agencies are participating in funding for the project, the lead agency will be determined by the project participants. Where agreements between agencies are to be adopted for projects, which would commit to a course of action to the exclusion of other courses of action, these agencies will need CEQA clearances to commit funding or approve the final agreements.

The adoption of the Gateway IRWMP by individual member or submittal of any implementation grant proposals by the GWMA are exempt from the CEQA since these actions are related to feasibility, planning studies (§15262) and information collection



(§15306). The Gateway IRWMP consisted of basic data collection and resource evaluation activities which would not result in the disturbance of any environmental resource; and involved planning studies for possible future actions by the participating agencies.

#### **15.4.2 Avoiding, Minimizing, and Mitigating Potential Impacts**

The purpose and need for projects to be included in the Gateway IRWMP is also to avoid, minimize or mitigate impacts related to the current management regime and existing activities. In other words, projects seek to address current negative environmental effects or impacts to Gateway stakeholders and the Gateway Region that are the result of the baseline or existing conditions. Environmental, water quality, and other baselines conditions were documented during the project planning to identify environmental constraints and opportunities. This was intended to identify environmental impacts and benefits earlier rather than later in the planning process; and to allow for flexibility in design of the projects and capital facilities to include measures to avoid impacts, determine mitigation costs and integrate environmentally friendly elements into Gateway program alternatives where possible. Gateway projects will therefore avoid, minimize or mitigate any additional contributions to the negative impacts to groundwater overdraft, storm water runoff, water quality (TMDL issues) and the lack of open space and access to parks. The purpose of this proactive approach was also to ensure that impacts were considered and avoided to the degree possible long before an EIR or other CEQA documents were prepared for any Gateway IRWMP projects.

### **15.5 Impacts and Benefits to DACs**

The GWMA has actively sought to engage interested parties and DACs in the IRWMP development and implementation. Roughly 47 percent of the Gateway Region is considered DAC areas. DACs are directly represented by Gateway cities on the GWMA. This allows management IRWMP decisions to be influenced by DAC issue and concerns, resulting in tangible benefits for DAC's. Some local agencies, organizations and DACs are not full members of the GWMA but can participate in a meaningful way as interested parties. No Tribal lands were identified in the Gateway Region. Implementation of the IRWMP is expected to have the following benefits to DACs and other interested parties:

- Discussion Forum- Provide a forum to discuss water management issues, concerns, and priorities, especially those important to DACs.
- Information Dissemination- Share information that DACs may not normally have access to. For instance, DACs and Interested Parties may not have the staff to regularly track funding opportunities or attend other regional or statewide meetings.
- Overcome Constraints- DACs in the Gateway Region may lack financial, management or technical capabilities, but through the GWMA, the DACs can come together to reduce costs, share resources and pursue funding.
- Reduced Costs- The regional programmatic alternatives potentially could reduce costs for regulatory compliance for TMDL or other storm water management activities, public outreach or other joint programs.

- Create a Collective Voice. DACs often cannot send staff to the larger regional agency meetings or track activities that could directly affect their community. The GWMA and committees allow the communities to identify issues early, establish positions and collectively represent their interests to the larger regional entities.

## 16 Financing Strategies

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As part of the IRWMP process, research was conducted on alternative funding opportunities specific to implementation of Gateway IRWMP projects and programs. This section reviews:

- Local Government funding available to the Gateway IRWMP member agencies
- Grants and loans that may be available for Gateway IRWMP stakeholders

### 16.1 Local Government Funding

The information presented below identifies the sources of local funding used for capital projects and management actions to implement the IRWMP. This includes sources of funding that GWMA members will use to meet maintenance and operations obligations for projects. It also describes the constraints that local governments face in generating revenues. Each member that seeks grant funding will need to demonstrate that maintenance and operations funds are to be committed to the projects. This could include proof through and adopted capital improvements plan, other engineering feasibility studies and reports, rate studies or approved funding program adopted pursuant to California requirements.

#### 16.1.1 Integrating Funding Authorities and Sources

Integrating local funding authorities and sources will help the Gateway Region pursue grant funded projects and seek state and federal funding. Most grant programs require a local match. Integrating available local funding or supporting some approach to sharing costs may be needed to help meet local match contributions, and for funding projects feasibility studies, design and environmental review. Planning and permitting often requires local investment prior to obtaining state or federal grant funding or loans for construction.

Under their general government authority, local revenue is generated by IRWMP member agencies (i.e., cities) from a variety of sources including general funds or enterprise funds, water and sewer rates, developer or impact fees, connection fees, property taxes, and sales taxes. As applicable, there is also the opportunity to generate fees on groundwater pumping or storage. Gateway IRWMP member agencies are funded through water standby and availability charges, water rates, impact fees and water sales. In addition, GWMA has been formed to coordinate shared project funding.

#### 16.1.2 Benefits Assessments, Benefits Assessment Zone Formation

Funding for large regional projects such as groundwater banking facilities, is often obtained through benefits assessments. Benefits assessments are special charges levied on property to pay for public improvements that benefit property in a predetermined district. Regional flood control and storm water projects, riparian and habitat development, recycled water and groundwater

storage are all projects that have been identified as candidates for projects of high priority in the Gateway Region.

Benefit assessments link the cost of public improvements to those landowners who specifically benefit from the improvements. Benefit assessment zones are defined geographically and levies are put on all properties within a designated benefit assessment zone. The boundaries of a benefit assessment district may coincide exactly with those of a city, county, or other existing special district, or they may cover only part of those jurisdictions. A comprehensive engineers report is needed to form an assessment district. The report must outline the proposed area, key projects, estimated project costs, annual cost to each property, and the benefit formula used to determine each property's share of the cost. It is the legal basis for an assessment district and must be formally approved by the governing body that will administer the district. Proposition 218, which established a strict definition of "special benefits," instituted a common formation and ratification process for all benefit assessment districts.

### ***16.1.3 Constraints and Certainty of Funding***

GWMA defines how monies are collected and decisions are made. One intent of GWMA is to identify stable sources of funding for shared programs where these programs are determined to provide benefits to member agencies. GWMA provides the mechanism for ongoing and stable funding for programs and projects with shared benefits.

Local governments funding is required for multiple purposes and the ability for local governments in the Gateway Region is constrained by economic and political realities. Like other regions of the state, the Gateway Region has a limited ability to pay for all necessary improvement projects or programs. Unemployment has been high across the state and the ability to raise local revenue is limited by economic conditions. Grants and loans become important in leveraging the limited local financing capacity.

Proposition 13 created limits on the ability of city and County governments to raise property taxes. Proposition 218 creates similar constraints for agencies and special districts, including specific procedural requirements related to generating fees and assessments. Any efforts to generate new charges and assessments would be subject to voter approval. Planning or construction of new facilities requires a full evaluation of benefits and costs and an electoral process, as defined by the proposition and amendments to state law.

For specific projects to be implemented under the IRWMP, it is important to note that one of the evaluation criteria for project prioritization was the presence of the local funding match, or at the presence of a solid plan to define stable funding for construction and maintenance of proposed projects. The process included review of the economic conditions of the proposing sponsor and DACs were carried forward and granted higher priority in the second stage of review for Proposition 84 monies since there is an opportunity for DWR to waive the matching fund requirements. The DAC sponsors are still required to demonstrate that stable funds are available for maintenance and operations.

### 16.1.4 Grants and Loans – State and Federal

Grants and/or loans are available to help implement Gateway IRWMP projects and programs. Federal and state agencies provide technical assistance and program funding for Gateway IRWMP related projects or programs, including implementation of DWR recommended water management strategies. The Gateway IRWMP member agencies have project recommendations for groundwater management, water conservation, water recycling, water quality protection and improvement, and support for meeting the critical water supply and quality needs of disadvantaged communities. DACs often qualify, and many times are prioritized, for grant programs to support basic needs for facility planning, design work, and environmental review.

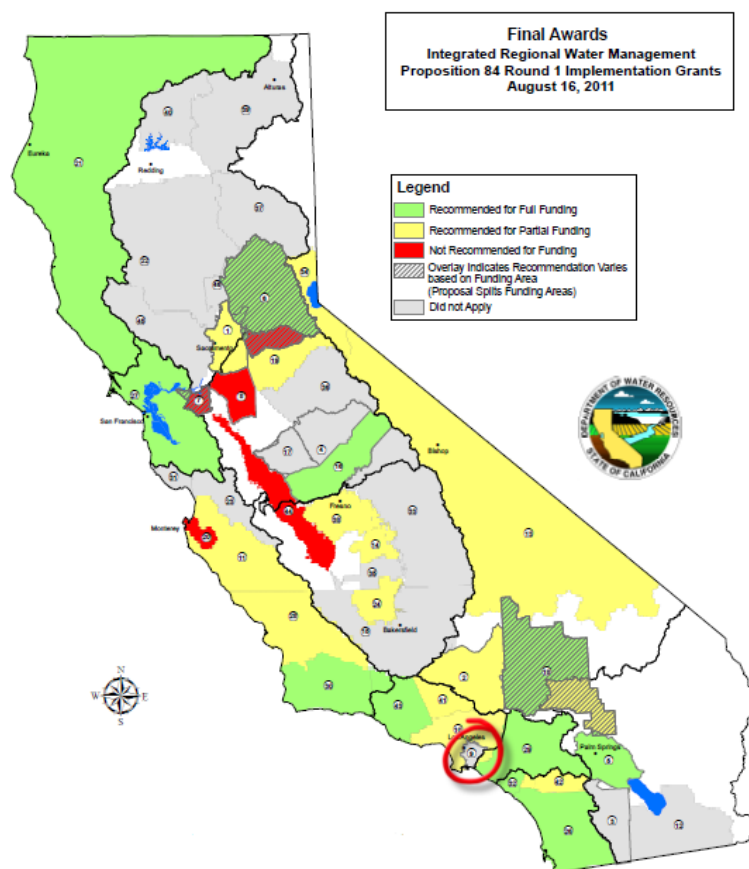
#### 16.1.4.1 Proposition 84 IRWM and Proposition 1E Flood/Storm water Grants

Both programs are managed by DWR under common guidelines. A summary table of grant programs is provided in Table 16-1 at the end of the chapter.

#### *Proposition 84 DWR IRWMP Grant Program*

Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act provided bond was passed by voters in 1996 and allocated \$900,000,000 to support IRWMP and implementation of projects. The intent of the IRWMP grant program is to promote and practice integrated regional water management to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, efficient urban development, protection of agriculture, and a strong economy. The program recognizes the inter-connectivity of water supplies and the environment and then pursues projects yielding multiple benefits.

The Gateway IRWMP provides a mechanism for setting priorities to pursue IRWMP Implementation Grant funding. It will also help the Region, in the long-term, to coordinate, refine, and integrate existing planning efforts within a comprehensive, regional context; identify specific regional priorities for implementation projects; and help to obtain funding support for the Gateway Region plans, programs, and projects. A regional approach is strongly prioritized.



The Gateway IRWMP development was funded with approximately \$1M in IRWMP Planning Grants.

The Gateway Region will be competing with other Regions for the remaining Implementation Grant funding in Round 2. The Gateway Region is identified in the adjacent figure. There is roughly \$131M available for implementation grant awards this year. The draft solicitation package was released in early July 2012. Of the \$131 M, roughly \$31M will be made available for the Los Angeles-Ventura Funding Region. Not less than 10 percent of the available funding will be used to support projects that address critical water supply or water quality needs for DACs.

#### *Proposition 1E, the Disaster Preparedness and Flood Prevention Bond*

Proposition 1E was passed by California voters in November 2006. It authorized the Legislature to appropriate \$300 million for grants for Storm water and Flood Management (SWFM) projects. Currently, there are plans to disburse a second round of SWFM Grant funding under the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E). Approximately \$92M in SWFM funding is available through this second round of solicitation. A final package was released in November 2012. Applications were due in December 2012 with awards to be announced in July 2013.

In order to apply, projects must be identified within an approved IRWMP. It is also encouraged that eligible projects help to meet multiple benefits.

Competition is statewide. Proposed projects must be in the Gateway IRWMP.

#### *State and Federal Water Revolving Funds*

The purpose of the USEPA Water Revolving Loan Program is to support projects that will put the clean water and drinking water State Revolving Fund (SRF) on a “firmer foundation.” There are two types of funds, the Clean Water SRF and the Drinking Water SRF. In California, the State Water Resources Control Board managed the Clean Water SRF for wastewater treatment<sup>5</sup> and the Department of Health Services manages the Drinking Water SRF.<sup>6</sup> The USEPA works with California State and local partners to develop a sustainability policy including management and pricing for future infrastructure funded through SRFs to encourage conservation and to provide adequate long-term funding for future capital needs. Portions of these funds may be applied to regional IRWMP programs that focus on urban water conservation programs that would benefit the entire Region.

#### **Resources for Small Water Public Systems**

Rural Community Assistance Corporation (RCAC) <<http://www.rcac.org/>>  
California Rural Water Association (CRWA) <<http://www.calruralwater.org/>>  
Self-Help Enterprises (SHE) <<http://www.selfhelpenterprises.org/>>  
Expense Reimbursement Grant (ERG), CPS Human Resources Services <<http://www.cps.ca.gov/>>  
California State University Sacramento, Office of Water Programs (CSUS) <<http://www.owp.csus.edu/>>  
American Water Works Association (AWWA), California-Nevada Section <<http://ca-nv-awwa.org/canv/web/>>

<sup>5</sup> <[http://www.waterboards.ca.gov/water\\_issues/programs/grants\\_loans/srf/](http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/)>

<sup>6</sup> <<http://www.cdph.ca.gov/services/funding/Pages/SRF.aspx>>



### *Drinking Water SRF*

CDPH has a range of funding opportunities for public water systems.<sup>7</sup> The CDPH Safe Drinking Water State Revolving Fund Final Intended Use Plan (August 2011)<sup>8</sup> identifies specific set aside programs that help disadvantaged communities.

- Water System Technical, Managerial, and Financial (TMF) Capacity Development program helps DACs with systems assessments, operator training, engineering services and other support. Preliminary engineering assistance is provided through a contract with University of California, Davis “Center for Appropriate Technology for Small Water Systems” (UCD). The contract provides engineering services to small systems that lack the funds and expertise to obtain these services on their own. UCD prepares preliminary engineering reports for identified high priority small and disadvantaged systems projects to move them through the funding process.
- Small Water System (SWS) Technical Assistance Set-aside. This program is for communities serving populations of less than 10,000 and provides technical assistance through the Rural Community Assistance Corporation (RCAC), California Rural Water Association (CRWA) and Self Help Enterprises. The CDPS Small Water Systems Technical Support Unit<sup>9</sup> holds quarterly meetings with the technical assistance providers (CalTAP). These meetings provide the opportunity to identify and implement more effective and meaningful methods of providing technical assistance to smaller and disadvantaged systems.

### *Clean Water SRF*

The California State Water Resources Control Board (SWRCB) manages the SRF. The SWRCB has a Small Community Wastewater Strategy<sup>10</sup> and has a Small Community Wastewater Grant (SCWG) Program, most recently funded by Propositions 40 and 50, provided grants for the planning, design, and construction of publicly-owned wastewater treatment and collection facilities to small communities (i.e., with a population of 20,000 persons, or less) with financial hardship. On November 17, 2011, the State Water board executed a contract with California Rural Water Association (CRWA) to provide up to \$500,000 in wastewater-related technical assistance to small, disadvantaged communities (SDACs) statewide. The types of technical assistance that will be offered include:

- Preparation of financial assistance applications
- Compliance audits and troubleshooting to address permit violations or improve operations
- Review of proposed project alternatives to assist in identifying low-cost, sustainable approaches
- Assistance with planning and budgets, including capital improvement planning

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<sup>7</sup> <<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/DWPfunding.aspx>>

<sup>8</sup> <[http://www.cdph.ca.gov/services/funding/Documents/SRF/FinalSFY2011-2012IUP\(FFY2011DWSRFAllotment\)081711.pdf](http://www.cdph.ca.gov/services/funding/Documents/SRF/FinalSFY2011-2012IUP(FFY2011DWSRFAllotment)081711.pdf)>

<sup>9</sup> <<http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Smallwatersystems.aspx>>

<sup>10</sup> <[http://www.waterboards.ca.gov/water\\_issues/programs/grants\\_loans/small\\_community\\_wastewater\\_grant/strategy.shtml](http://www.waterboards.ca.gov/water_issues/programs/grants_loans/small_community_wastewater_grant/strategy.shtml)>

- Assistance with community outreach, awareness, and education, especially with regard to rate setting and Proposition 218 compliance

The technical assistance provided under this contract is intended to be targeted and specific, with each SDAC allotted a maximum of 20 hours of technical assistance. CDPH staff may approve additional time on a case-by-case basis.

#### *USEPA Hardship Grants Program for Rural Communities*

USEPA has a Hardship Grants program<sup>11</sup> to help small, disadvantaged rural communities address their wastewater treatment needs. California identifies eligible projects and may commit a portion of their grants for technical assistance. Designed to complement the Clean Water SRF loan program, this program will distribute funds based on the number of rural communities lacking access to centralized water treatment; and the rural per capita income in California.

#### *State Community Development Block Grant Program*

The USDA Housing and Urban Development (HUD) program offers Community Development Block Grants (CDBG). They are given directly to California, which then allocates the funds to small cities and nonurban counties. Grants may be used for community and economic development activities, but are primarily used for housing rehabilitation, public infrastructure projects including wastewater and drinking water facilities--and economic development. Seventy percent of grant funds must be used for activities that principally benefit low- and moderate-income communities.

#### *Rural Utilities Service Water and Waste Disposal Program*

The USDA Rural Utilities Service provides grants and loans through the Water and Waste Disposal (WWD) program. The program targets rural communities with 10,000 people or fewer for drinking water, wastewater, solid waste, and storm drainage projects. Rural Utilities Service also administers the "Water 2000" initiative to bring safe, affordable drinking water to all rural areas by the year 2000. These programs are administered locally by state and area rural development offices.

This may be a potential source for DACs in the Gateway Region, depending upon their area boundaries, which lack local resources to plan and develop water and wastewater facilities, and may help projects get ready for other funding sources. Money can be used for construction, land acquisition, legal fees, engineering fees, capitalized interest, equipment, initial operation and maintenance costs, and related costs to complete a project. Both public agencies and nonprofit organizations are eligible.

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<sup>11</sup> <<http://water.epa.gov/type/watersheds/wastewater/eparev.cfm#7>>

### *Economic Development Grants for Public Works and Development Facilities*

The U.S. Department of Commerce provides grants through the Economic Development Administration (EDA) to economically distressed areas for public works projects, including water and wastewater facilities. The projects must promote economic development, create long-term jobs, and/or benefit low-income persons or the long-term unemployed.

Projects must fulfill a pressing need of the area. Recycling to create water for expanding the renewable energy industry should be a candidate since it would help to establish industrial plants or facilities. Projects must have an adequate share of local funds; evidence firm commitment and availability of matching funds, be capable of being started and completed in a timely manner. State money could be used to match the federal money. The State, Gateway Cities, the Economic Development Commission, or other nonprofit organizations would be eligible.

### *Federal Water Bank Fund*

The Federal Water Bank Fund is designed to deliver funding to priority projects with significant national or regional economic benefit. The Federal Water Infrastructure Bank would be authorized to borrow money from the federal Treasury at very low rates. In turn, the bank would make low-interest loans for larger projects that typically are too big to access the SRF. If the Gateway Region were to embark on a large regional project, funds from the bank could be obtained for projects providing a regional benefit (i.e., Recycling or Groundwater Recharge).

### **16.1.5 Recycled Water/ Desalination Funding Programs**

The Gateway IRWMP has identified conceptual projects in the area of recycled water that would help to reduce dependence both on groundwater supplies and imported water. Integrating state and federal funding is a strategy that could be applied. There are a number of state and federal financial assistance programs relating to recycled water projects available to the Gateway Region, including the SWRCB's grant and low-interest loan programs<sup>12</sup> and the U.S. Bureau of Reclamation's Title XVI Grant Program.

### *Reclamation Wastewater and Groundwater Study and Facilities Act - Title XVI*

Title XVI of Public Law 102-575, the Reclamation Wastewater and Groundwater Study and Facilities Act, authorizes the federal government to partially fund the capital cost of recycling projects. Title XVI program the act directs the Secretary of the Interior to undertake a program to investigate and identify opportunities for water reclamation and reuse of municipal, industrial, domestic, and agricultural wastewater, naturally impaired ground and surface waters, and for design and construction of demonstration and permanent facilities to reclaim and reuse wastewater. It authorizes the Secretary to conduct research, including desalting, for the reclamation of wastewater and naturally impaired ground and surface waters. The funds have

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<sup>12</sup> <[http://www.waterboards.ca.gov/water\\_issues/programs/grants\\_loans/](http://www.waterboards.ca.gov/water_issues/programs/grants_loans/)>

also been used to evaluate water markets, transfers and for creating economic incentives to conserve water. These funds are managed and distributed by the USBR.

Gateway Region projects for recycling would be candidates for funding.

***State Revolving Fund (SRF) / Water Recycling Loan Program (WRLP)/Water Recycling Grants (WRG)***

The SRF, WRLP, and WRG provide agencies with low-interest construction loans for water recycling and groundwater development projects.

***Clean Water State Revolving Fund.*** Mentioned earlier, the SRF can apply to recycling and desalination. Eligible project types include publicly-owned wastewater treatment facilities, local sewers, sewer interceptors, and water reclamation facilities, as well as, nonpoint source pollution control projects.

***Water Recycling Funding Program (WRFP).*** The SWRCB provides funding for the planning, design, and construction of water recycling projects. Water recycling planning grant funding is available to assist public agencies with their feasibility study and planning efforts. Construction projects may be funded with a combination of grants and loans. Privately owned water utilities that are regulated by the Public Utilities Commission are also eligible to apply for construction grants.

***Water Recycling Facilities Planning Grant Program (FPGP).*** The purpose of the FPGP is to provide grants to public agencies that will assist in the preparation of facilities planning studies for water recycling using treated municipal wastewater and/or treated groundwater from sources contaminated. In addition to encouraging new recycling planning studies, these funds are intended to supplement local funds and enhance the quality of local planning efforts. The FPGP Grants are provided for facilities planning studies to determine the feasibility of using recycled water to offset the use of fresh/potable water from state and/or local supplies.

***Construction Funding Program.*** The Construction Funding Programs derive funding from the SRF loan program. The Category III and V program could support Region projects. Category III – Local Supply Water, provides treatment and delivery of municipal wastewater to users that replace the use of local water supply with recycled water. Category V – Pollution Control, provide treatment and disposal of municipal wastewater to meet waste discharge requirements imposed for water pollution control.

***Water for America Initiative*** -USBR is responsible for administering and managing the Water for America Initiative Program. The Gateway Region IRWMP goals to improve and enhance local and regional water resources parallel the goals of the Water for America Initiative. Specific grants available under the Water for America Initiative include the following:

***Advanced Water Treatment Grants.*** The Advanced Water Treatment Grants will provide funding for pilot or demonstration projects that will test the viability of advanced water treatment technologies. These grants will help create new water supplies to address water supply

imbalances. The purpose of these projects is to demonstrate the technical and economic viability of using an impaired water source within a specific locale.

***Water Marketing and Efficiency Grants.*** Through the Challenge Grant Program - Water Marketing and Efficiency Grants, Reclamation provides some funding to irrigation and water districts for projects focused on water conservation, efficiency, and water marketing. The focus is on projects that can be completed within 24 months that will help sustainable water supplies in the western United States. The Water for America Initiative is intended to help communities meet increasing demands on limited water supplies through collaborative projects, water conservation technologies, and expanded information sharing.

***System Optimization Review Grants.*** A System Optimization Review is a broad look at system-wide efficiency to improve efficiency and operations of the water delivery system. The Review results in a plan of action that focuses on improving efficiency and operations on a regional and basin perspective. Those recommended improvements may then be eligible for the Water Marketing and Efficiency Grant funding.

### **16.1.6 Metropolitan Water District of Southern California**

***Desalination Research and Innovation Partnership (DRIP).*** DRIP, managed by MWD, is aimed at developing and demonstrating next-generation desalination and disinfection technologies that are designed to economically treat large volumes of brackish water for potable and non-potable uses. This partnership includes applied research conducted by California utilities, universities, and private industry to evaluate innovative technologies for treating surface water, municipal wastewater, brackish groundwater, and agricultural drainage water applications.

***Community Partnering Program (CPP).*** MWD's CPP provides sponsorships to non-profit community organizations, educational institutions, public agencies and professional associations for short- and long-term water-related projects, events and activities.

#### ***Water Environmental Research Foundation Partnership Program***

Water Environmental Research Foundation (WERF) actively pursues opportunities to leverage funding and knowledge through research partnerships with other organizations. Research partners are typically nonprofit organizations or government entities with research objectives similar to those of the Foundation. Partnership agreements leverage resources and develop and disseminate broad-based knowledge. They also provide access to diverse audiences and foster cooperation. WERF will often allocate a set amount of funding in anticipation of projects to be identified by the partners. WERF also enters into multi-year partnership programs with government or quasi-governmental agencies. These partnerships focus in depth on particular topics and come together in the joint planning and co-funding of multiple projects. This opportunity would help Gateway in the identification of future partnerships for Project Alternatives that fall in line with the Partnership Program objectives.

#### 16.1.6.1 Los Angeles County

##### *Water Quality Funding Initiative (WQFI)*

Faced with severe TMDL requirements for trash and metals, interested residents, cities, and the County of Los Angeles are pursuing a parcel tax on properties in the county to pay for storm water and water quality projects that will help these cities meet State Board TMDL requirements. The status of this initiative and its revenue is not clear at this writing, but if successful, the initiative will provide a critical funding stream for the Gateway Region.



**Table 16-1. Grant Funding Matrix Examples of Previous and Current Programs**

Program	Brief Description	Key Points	Key Application Dates	Contact Info
<b>Federal Stimulus (American Recovery &amp; Reinstatement Act) in California</b>				
CDPH, Safe Drinking Water State Revolving Funds	Projects that assist in achieving or maintaining compliance with the Safe Drinking Water Act (SDWA). Includes source water protection projects	<p>\$160M available plus regular annual allocation of - \$80M</p> <p>Planning, design &amp; construction projects; \$20M max/yr/project, 20 yr payback; \$30M max/yr/entity, 20 yr payback</p> <p>Planning only: \$100k max/project, 5 yr payback; Current interest rate: 2.3%; principal forgiveness or negative interest loans may be available</p>	<p>On-going program</p> <p>Process includes an Invitations to submit a full application, then applicant has 60 days to complete application and 60 days later must begin construction.</p>	<a href="http://www.cdph.cagov/service/funding/Pages/SRF.aspx">www.cdph.cagov/service/funding/Pages/SRF.aspx</a>
SWRCB, Clean Water State Revolving Fund	<p>Eligible applicants; POTW (local public agencies) &amp; NPS (local public agencies, non-profit organizations, and private parties)</p> <p>Eligible Projects:</p> <ul style="list-style-type: none"> <li>- Publicly owned treatment facilities such as: wastewater treatment, including installation and major rehabilitation of sewer lines, and storm water prevention/reduction</li> <li>- Water recycling projects</li> <li>- Nonpoint source and estuary enhancements projects (expanded use)</li> </ul>	<p>No state matching required.</p> <p>Program funding: \$284.6M</p> <p>No upper limit for project; however maximum annual funding cap of \$50M per agency per year.</p>	Applications under Economic Stimulus Package.	<a href="http://www.waterboards.ca.gov/water_issues/programs/grants_loans/CleanWaterSRF@waterboards.ca.gov">http://www.waterboards.ca.gov/water_issues/programs/grants_loans/CleanWaterSRF@waterboards.ca.gov</a>
USBR CALFED Bay Delta		\$50M as stated in ARRA		
USBR Title XVI	Recycled water feasibility investigations, preliminary engineering studies and research projects. Brackish water desalination is also considered.	\$126M as stated in ARRA		

Program	Brief Description	Key Points	Key Application Dates	Contact Info
<b>State</b>				
<b>Drinking Water, General – CA Department of Public Health (CDPH)</b>				
CDPH, Prop 50 Chapter 3: Water Security	Projects designed to prevent damage to water treatment, distribution, and supply facilities, to prevent disruption of drinking water deliveries, and to protect drinking water supplies from intentional contamination.	Minimum: \$5,000 Maximum: \$2,000,000 No match required 25% of funds set aside for disadvantaged communities (DACs).	Applications not currently open	<a href="http://www.cdph.ca.gov/services/funding/Pages/Prop50.aspx">www.cdph.ca.gov/services/funding/Pages/Prop50.aspx</a>  946-449-5600 prop50@cdph.ca.gov
CDPH; Prop 50 Chapter 4a1: Small Community Water System Facilities	Grants to small community water systems to upgrade monitoring, treatment, or distribution infrastructure. The water system must be in non-compliance with a safe drinking water standard.			
CDPH, Prop 50 Chapter 4a2: Demo Projects for New Containment Treatment and Removal Technologies	Development and demonstration of new treatment and related facilities for water containment removal and treatment. (Must demonstrate new technology).			
CDPH, Prop 50 chapter 4a3: Community Water Systems Monitoring Facilities	Community water system water quality monitoring facilities and equipment. (Must be in non-compliance with safe drinking water standard).			
CDPH, Prop 50 chapter 4a4: Drinking Water Source Protection	Source Water protection projects to protect contamination of water supply. Fund may be used for planning, preliminary engineering, detailed design, construction, education, land acquisition, conservation easements; equipment purchase, and implementing the elements of the SWP program.			
CDPH, Prop 50 chapter 4a5: Disinfection Byproduct Facilities	Treatment facilities necessary to meet DBP safe drinking water standard. (Must be in non-compliance with US EPA Stage 1 DBP Rule). If the project is receiving funds under Ch.6, it is not eligible under this	Minimum: \$5,000 Maximum: \$10,000,000 No match required. 25% of funds set aside for DACs.		

Program	Brief Description	Key Points	Key Application Dates	Contact Info
	chapter.			
CDPH, Prop 50 Chapter 4b: Southern California Projects	Projects that assist in meeting drinking water standards and in meeting state's requirement to reduce Colorado River use to 4.4 MAF (Priority ranking based on population, volume of Colorado River water use reduction, and cost/volume saved). This program does not include recycled water.	Minimum: \$50,000 Maximum: \$20,000,000 1:1 match 25% of funds set aside for DACs. No match required for DACs or small water systems.	Applications not currently open.	
CDPH, Prop 50 Chapter 6b: Containment removal	Containment treatment or removal technology (for Petroleum, NDMA, Perchlorate, Radionuclides, pesticides, heavy metals, pharmaceuticals).	Minimum: \$50,000 Maximum: \$5,000,000 1:1 match 25% of funds set aside for DACs. No match required for DACs or small water systems.		
CDPH, Prop 50 chapter 6c: UV and Ozone Disinfection	Projects using UV or Ozone Technology. (Must address MCL compliance violation).			
CDPH, Prop 84 Section 75021: Safe Drinking Water Emergency Funding	To fund emergency and urgent actions to ensure that safe drinking water supplies. Eligible projects include, but are not limited to, the following: Provide alternate water supplies including bottled water where necessary to protect public health. Improvements in existing water systems necessary to prevent contamination or provide other sources of safe drinking water including replacement wells. Establishing connections to adjacent water system. Design, purchase, installation and initial operation costs for water treatment	Minimum 50% cost share  Maximum: \$250,000 per project	Applications not currently open; the prior pre-application period closed in September 2008.	<a href="http://www.cdph.ca.gov/services/funding/Pages/Prop84.aspx">www.cdph.ca.gov/services/funding/Pages/Prop84.aspx</a>  916-449-5600 prop84@cdph.ca.gov

Program	Brief Description	Key Points	Key Application Dates	Contact Info
	equipment and systems.			
CDPH, Prop 84 Section 75022: Small Community Infrastructure Improvements for Chemical and Nitrate Contaminants	These funds may be used for grants for small community drinking water system infrastructure improvements and related actions to meet safe drinking water standards. Priority shall be given to projects that address chemical and nitrate contaminants, other health hazards and by resources.	Minimum: 50% cost share  Maximum: \$5,000,000 per project.		
<b>Integrated Regional Water Management (IRWM)</b>				
DWR, Prop 84 chapter 2 & Prop 1E Article 4: Integrated Regional Water Management (IRWM)	Projects that assist local public agencies to meet long-term state water needs, including delivery of safe drinking water, protection of water quality, and protection of the environment. For: Development/Revision of IRWMPs, or Implementation projects of IRWMPs.	\$131 M total Implementation \$92M Prop 1E  Los Angeles Sub region: Round 2 Implementation \$31 M Round 2 Prop 1E Grant funding shall not exceed \$30,000,000 per project No Maximum grant amount. 50% minimum cost share.	All IRWM regions must be approved via the Regional Acceptance Process (RAP) prior to grant application submittal. Proposed projects must be included in approved IRMWP.	
<b>Groundwater</b>				
CDPH, Prop 84 Section 75025: Groundwater Contamination	Grants to prevent or reduce contamination of groundwater that serves as a source of drinking water.	CDPH is currently working on development of these criteria based on Senate Bills SB X2 1 and SB 732 (signed into law on 9/30/08)	Applications not currently open;	<a href="http://www.cdph.ca.gov/services/funding/Pages/Prop84.aspx">www.cdph.ca.gov/services/funding/Pages/Prop84.aspx</a>  946-449-5600 prop84@cdph.ca.gov
DWR, Prop 84: Local Groundwater Assistance Program	Groundwater studies, groundwater monitoring, groundwater management	Program funds: \$6.4M  Up to \$250,000 per applicant	Last application period July 13 2012	<a href="http://www.grantsloans.water.ca.gov/grants/assistance.cfm">www.grantsloans.water.ca.gov/grants/assistance.cfm</a>
SWRCB, Underground Storage Tank Cleanup Fund	Federal and state governmental entities are not eligible for reimbursement from the Fund. This program was created to provide a means for petroleum UST owners and operators to meet the federal and state requirements. The Fund also assists in a	\$1.5 million less the eligible claimant's applicable level of financial responsibility (or deductible).	Applications accepted on a continuous basis.	<a href="http://www.waterboards.ca.gov/water_issues/programs/ustcf/">www.waterboards.ca.gov/water_issues/programs/ustcf/</a>  1-800-813-FUND

Program	Brief Description	Key Points	Key Application Dates	Contact Info
	large number of small businesses and individuals by providing reimbursement for unexpected and catastrophic expenses associated with the cleanup of leaking petroleum USTs.			
<b>Recycled Water</b>				
SWRCB, Prop 13/50: Water Recycling Funding Program- Construction Grants	Grants provided for design and construction of water recycling facilities.  All proposed projects must be placed on the SWRCB's WRCP Competitive Project List (CPL) and/or the SRF Priority List to be considered.	25% of the eligible construction cost up to \$5M	Applicants accepted on a continuous basis.	<a href="http://www.waterboards.ca.gov/recycling/construction.html">www.waterboards.ca.gov/recycling/construction.html</a>
SWRCB, Prop 13/50: Water Recycling Funding Program- Construction Grants	Grants are provided for facilities planning studies to determine the feasibility of using recycled water to offset the use of fresh/potable water from state and /or local supplies. Pollution control studies, in which water recycling is an alternative, are not eligible.	50% of eligible costs up to \$75,000	Applicants accepted on a continuous basis.	
<b>Storm water / Stream &amp; Habitat Restoration</b>				
CA State Parks, Prop 1E: Habitat Conservation Fund Program	Eligible funding categories: Deer/Mountain Lion Habitat: Land acquisition; Rare, Endangered, Threatened, or Fully Protected Species Habitat: Land acquisition Wetlands Habitat Projects: Acquisition, enhancement, or restoration Anadromous salmonids and Anadromous trout habitat: Acquisition, enhancement, or restoration Riparian habitat: acquisition, enhancement, restoration Trails: acquisition or development of trails	\$2M Available  No Min/Max; Recommended maximum \$200,000  Required match of 50%	Applications deadline the first work day of October annually.	<a href="http://www.parks.ca.gov/pages/1008/files/hcf_guide_2007_final_draft_5-15-07.pdf">www.parks.ca.gov/pages/1008/files/hcf_guide_2007_final_draft_5-15-07.pdf</a>

Program	Brief Description	Key Points	Key Application Dates	Contact Info
	Program: Event or series of events intended to bring urban residents into areas with indigenous plants and animals			
CA State Parks: Land and Water Conservation fund	Acquisition or development of lands and facilities that provide or support public outdoor recreation.	No Min/Max; 2007 awards (13) ranged from \$30,000 to \$210,000 Required match of 50%  Funds are divided: 60% for SoCal, 40% for NorCal	Applications deadline generally the first week of March annually.	<a href="http://www.parks.ca.gov/?page_id=21360">www.parks.ca.gov/?page_id=21360</a>
CA Wildlife Conservation Board: Various	The Wildlife Conservation Board's three main functions are land acquisition, habitat restoration and development of wildlife oriented public access facilities. Wildlife Conservation Board programs: California Forest Conservation Program (CFCP) California Riparian Habitat Conservation Program (CRHCP) Ecosystem Restoration on Agricultural Lands (ERAL) Habitat Enhancement and Restoration Program (General)		Applications accepted continuously.	<a href="http://www.wcb.ca.gov/Pages/wcb_grant_information.asp">www.wcb.ca.gov/Pages/wcb_grant_information.asp</a>
DWR, Prop 84 Chapter 4: Feasibility Studies	Conduct feasibility-level investigations of proposed flood risk reduction projects to address short term flood control needs such as levee inspection and evaluation, floodplain mapping and improving the effectiveness of emergency response	\$10M in FY 2007-2008 \$10M in FY 2008-2009	TBD	<a href="http://www.grantsloans.water.ca.gov/grants/irwm/integregio.cfm">www.grantsloans.water.ca.gov/grants/irwm/integregio.cfm</a>  DWR_IRWM@water.ca.gov
DWR, Prop 84 Chapter 5: Urban Streams Restoration Program	Eligible uses include: Creek cleanups, eradication of exotic or invasive plants, channel reconfiguration to improve stream geomorphology and aquatic habitat functions, acquisition of parcels critical for flood management, coordination of community involvement of projects. Eligible applicants: local public agencies, non-profit/citizens' groups. Partnership is required.	Program funding: \$9M  Max/Min per project: \$4M / \$1M  Eligible applicants: local public agencies, non-profit/citizens' groups.	Next round: TBD	<a href="http://www.grantsloans.water.ca.gov/grants/stream/cfm">www.grantsloans.water.ca.gov/grants/stream/cfm</a>
SWRCB, Prop 84: Clean Beaches Initiative Grant	Water quality improvement projects that protect beaches and coastal waters from pollution and toxic contamination, such as	\$90M; to be distributed as follows: \$35M to assist local public agencies comply with the discharge prohibition	Second round TBD.	<a href="http://www.waterboards.ca.gov/water_issues/program/beaches/cbi_pr">www.waterboards.ca.gov/water_issues/program/beaches/cbi_pr</a>



Program	Brief Description	Key Points	Key Application Dates	Contact Info
	sewer collection system improvements or storm water runoff reduction programs.  Two types of concept proposal applications: implementation projects and research projects	into Areas of Special Biological Significance. \$18M to the Santa Monica bay Restoration Comm. \$37M to the Clean Beaches Initiative program.  Potential award limits (based on 2007 proposals): \$125,000 to \$5M 20% matching for projects > \$1M 15% match for projects < \$1M Matching for DACs waived		<a href="#">jects/index.shtml</a>
SWRCB, Prop 84: Storm water Grant Program	Projects designed to reduce and prevent storm water contamination of rivers, lakes, and streams.	Program funds: \$82M Award limits: \$5M  Future updates will be available.	February 2013	<a href="http://www.waterboards.ca.gov/water_issues/program/grants_loans/proop84/index.shtml">www.waterboards.ca.gov/water_issues/program/grants_loans/proop84/index.shtml</a>
<b>Federal</b>				
U.S. Army Corps of Engineers- Section 206 Wetland Restoration Grants	For local government projects to restore aquatic ecosystems. Projects are evaluated to determine if they benefit the environment through restoring, improving, or protecting aquatic habitat for plants, fish and wildlife. Proposed projects are also reviewed to determine if they are technically feasible, environmentally acceptable, and provide cost effective environmental benefits. Each project must be complete within itself and not part of a larger project.	Maximum federal expenditure per project is \$5M  Project costs are shared 65% federal and 35% non-federal.	Continuously soliciting programs to carry out the program objectives	
USEPA: Targeted Watersheds Grant Program	Designed to encourage community-based approaches and management techniques to protect and restore watersheds	Unknown future funding	TBD	
USEPA, Region 9: Wetland Program	Provide eligible applicants an opportunity to conduct projects that promote the	Total anticipated funding = \$1.9M		

Program	Brief Description	Key Points	Key Application Dates	Contact Info
Development Grants	coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution.	6 to 15 awards anticipated and likely range from \$50k to \$350k  EPA funding max = 75%		
USBR CALFED Bay Delta		\$50M as stated in ARRA	Continuously soliciting programs to carry out the program objectives	
USBR Title XVI	Recycled water feasibility investigations, preliminary engineering studies and research projects. Brackish water desalination is also considered	\$126M as stated in ARRA	Continuously soliciting programs to carry out the program objectives	<a href="http://www.usbr.gov/lc/socal/titlexvi.html">www.usbr.gov/lc/socal/titlexvi.html</a>
<b>USBR Water for America: Plan for our Nations Water Future</b>				
Investigations Program	For planning studies on specific water resource problems conducted by USBR on a geographically defined basis with state, local and federal partners		TBD	<a href="http://www.usbr.gov/wfa/investigate.html">www.usbr.gov/wfa/investigate.html</a>  <a href="http://www.usbr.gov/wfa/basin.html">www.usbr.gov/wfa/basin.html</a>
Basin Study Program	Comprehensive water supply and demand studies to assess the impact of increasing water demands. USBR will work with the state and local partners to initiate and perform 2 to 3 comprehensive water supply and demand studies in the west.	-50/50 cost sharing -2 year duration -to be conducted on major river basins and sub-basins		William Steele 951-695-5310 wfa@do.usbr.gov
<b>USBR Water for America: Expand, Protect and Conserve our Nation's Water Resources</b>				
Water for America- Water Marketing and Efficiency Grants	For providing funding to implement water conservation and marketing programs (i.e. implement the plan developed under the SOR grant).	Up to \$300,000 per project -Minimum 50% non-federal cost share -Completion of project in 2 years	Continuously soliciting programs to carry out the program objectives	<a href="http://www.usbr.gov/water2025/">www.usbr.gov/water2025/</a> <a href="http://www.usbr.gov/waterconservation/">www.usbr.gov/waterconservation/</a>
Water for America- System Optimization Review (SOR) Grants	For studies to evaluate means of saving water via conservation and to develop a plan that includes elements of water conservation, water management, water marketing and preventing conflicts over		Continuously soliciting programs to carry out the program objectives	William Steele 951-695-5310 wfa@do.usb.gov

Program	Brief Description	Key Points	Key Application Dates	Contact Info
	water.			
Water for America-Advanced Water Treatment Grants	For pilot or demonstration projects that will test the viability of advanced water treatment technologies.		TBD	
Water for America-Species of Concern Grants	For planning, design and construction proposals that will benefit federally listed species that are affected by a Reclamation facility or action or that benefit federal recognized candidate species		TBD	
Water Conservation Field Services program	For water conservation and efficiency improvements.	\$100,000 max in federal funding per project	TBD	
<b>USBR Water for America: Enhance our Nations Water Knowledge (Administered jointly by the USGS and USBR) – To assess water availability, increase new technologies in water planning and management, and to map the geologic and hydrogeologic framework of the Nation’s aquifers</b>				
National Streamflow Information Program	Support upgrade of data transmission radios at stream gages and Support regional-scale for selected watersheds and aquifers	\$2M available \$3M available	TBD; USGS is requesting feedback on program at <a href="http://water.usgs.gov/wsi/stakeholder_feedback.html">http://water.usgs.gov/wsi/stakeholder_feedback.html</a>	
Groundwater Resources Program	To develop and apply methods to enhance the quality of water use information, groundwater data accessibility and undertake regional-scale groundwater studies	\$3M available		
National Cooperative Geologic Mapping Program	To enhance geologic mapping, geophysics, and hydrogeologic knowledge of regions being studied	\$1.5M available		
<b>Local</b>				
Metropolitan Water District: Local Resources Program	New and expansion of existing water recycling and groundwater recovery projects. Includes construction of new substantive treatment or distribution facilities. Existing projects or those that have commenced construction prior to application submittal are ineligible.	\$250/AF maximum incentive reimbursement (Applications must be made through the applicant’s respective Metropolitan member agency).	Project applications accepted on open and continuous basis until target yield of 174 KAFY is fully subscribed	<a href="http://www.mwdh2o.com/index.htm#grants">www.mwdh2o.com/index.htm#grants</a>

## **16.2 Implementation Strategy**

### **16.2.1 Opportunity**

The implementation of projects developed in the IRWMP process is very dependent on funding opportunities that are present at any particular time. Many projects laid out in the plan require more capital to implement than is available in the normal budget of individual agencies. Thus, implementation of major projects requiring resources beyond the financial capacity of most agencies is currently opportunistic. Agencies must wait for funding opportunities to appear for which they are qualified and be prepared to apply and move quickly to respond. This also means the IRWMP implementation is likewise dependent on funding opportunity.

These agencies must look for funding opportunities, like State and federal grants and loans, for completing project planning, design, environmental permitting, and construction. Grants and loans are usually competitive, so agencies must find sources that they are qualified for and then spend effort and funds to prepare quality grant and loan applications and contribute matching funds from local sources to secure these additional resources.

Moreover, these State and federal grants and loans are not steady or consistent. They are usually dependent on the passage of bonds or legislation, which vary year to year, decade to decade. They are not available in a sustainable fashion.

### **16.2.2 IRWMP Advantage**

While still opportunistic, the regional stature of the Gateway IRWMP allows its member agencies and participants to collectively prepare for and respond to opportunities. This saves time and effort for individual agencies, produces stronger and more compelling funding applications, and, using their modest collective contributions, produces or implement multi-partner, regional, and multi-benefit projects. While not all projects in the IRWMP are or should be undertaken by the GWMA on behalf of its members, there are many projects that benefit from the approach.

### **16.2.3 Proposed Steps to Implementing Projects**

The opportunistic nature of resources leads to the following action steps needed to implement projects for the plan.

- Maintain flexible plan.
- Share information regularly on funding opportunities with IRWMP participants.
- Maintain resources to allow response to funding opportunities.
- Consider having GWMA administer projects that are regional in nature and benefit.
- Update priorities and IRWMP project lists regularly.

- Respond to funding opportunities as they appear and implement projects that are ready. Priority projects should be implemented first, where possible.
- Look for additional innovative solutions to meet IRWMP goals.

### **16.3 Funding Implementation Strategy**

Matching the type of project to the type of funding and revenue source is important for development and implementation of a funding strategy for the IRWMP. Chapter 13 discussed the Project Integration strategy. Section 13.2.2 specifically discussed the GWMA Program Alternatives that provide regional benefit and contribute to meeting regional goals and objectives. Projects are bundled under the Program Alternatives. The projects may fall into a number of categories that influence how they could be funded and from what sources. The types of projects that need to be funded include:

1. Regional Project Alternatives that benefit all GWMA members and meet common needs
2. Regional Projects Alternatives that include multiple GWMA members which meet the needs of project partners and provide benefit to the participants and region
3. Local project that benefit only one member but fit within the regional project alternative
4. Local projects that benefit only one member and do not clearly fit into a regional project alternative

Regardless of the type of project, each member agency needs to be responsible for meeting any local match funding requirements of any specific grant program and will need to demonstrate that maintenance and operations funds are to be committed to the projects from existing sources of revenue. This could include proof through an adopted capital improvements plan, other engineering feasibility studies and reports, rate studies, or approved funding program adopted pursuant to California requirements.

#### ***16.3.1 Regional Project Alternative Benefiting all GWMA Members and Meet Common Needs***

Where GWMA stakeholders are all affected by a common problem with a ready solution, the IRWMP can provide a shared regional project and there should be shared funding. Proposed projects could be further developed as GWMA programs and implemented through the GWMA to share costs and provide benefit throughout the region. Sections 12.2.3 and 12.2.4 discussed coordination of activities within the region and between the regions. These could be regarded as JPA fixed cost items to be funded by the members pursuant to the JPA funding agreements and annual budget. These can be regarded as the basic basket of goods and services to be provided by the GWMA and might include:

- Coordinating with the other regional agencies and between regions.
- Complying with the SB X7-7 reporting requirements and meet 20 x 2020 water conservation goals.
- Meeting LARWQCB TMDL and MS4 permit requirements.
- Providing a central point for data management
- Identifying sources of state, local, and federal funding to implement Gateway IRWMP projects.

Program costs and annual budgets need to be developed. Staff or consultant roles should be defined to implement the basic basket of goods and services that the GWMA will provide and sustain. Costs are to be distributed based on the cost distribution approach defined in the JPA. Local funding would be from available, existing revenue sources of the members or regional fees. Some specific projects in this category may have start-up costs. The following Project Alternatives fall into this category.

- Outfall Monitoring (See 13.2.2.4)
- Improve Catch Basins and/or Install Screening Devices (See 13.2.2.5)
- Integrated Flood Management Program (See 13.2.2.6)

The costs, timing, and responsibilities need to be further developed for these shared benefit projects. The JPA funding formula may also need to be revised to apportion costs to the members from available, existing revenue sources. These projects could be subsidized by State or federal grants. Projects would respond to specific grant opportunities.

### ***16.3.2 Regional Projects Alternatives that Include Multiple GWMA Members Which Meet the Needs of Project Partners and Provide Benefit to the Participants and Region***

The projects would include a limited number of GWMA members that would provide local match or cooperative funding from existing revenue sources based on contracts or other negotiated agreements. These projects could be subsidized by State or federal grants and loans. Projects would respond to specific grant opportunities. Projects with defined local funding matches would be a higher priority. The Regional Program Alternatives (Ch. 13) subject to this type of funding and financing agreements include:

- Systems Intertie Projects (See 13.2.2.1)
- Well Rehabilitation, Replacement and Repair (See 13.2.2.2)
- Recycling/20 x 2020 Conservation (See 13.2.2.3)
- Collect and Treat Low Flow Urban Drainage (See 13.2.2.3)



### **16.3.3 Local Project that Benefit Only One Member and Fit within a Regional Project Alternative**

These are projects that have been identified in Chapter 13 as fitting into a Regional Project Alternative, but primarily support one member. These may not be subject to as high a priority for GWMA support using any JPA funding since benefits are more limited and these projects are less likely to be competitive for State funds that require multiple benefits and participants. This does not preclude members from seeking State or federal grant or loan funding independently and providing any local match requirements from existing revenue sources. The Program Alternatives (Ch.13) subject to this type of funding and financing agreements include:

- Infrastructure Replacement, Repair, and Upgrade (See 13.2.2.7)
- Groundwater Treatment Projects (See 13.2.2.8)

### **16.3.4 Local Projects that Benefit Only One Member and Do Not Clearly Fit into a Regional Project Alternative**

These projects would not usually be funded with any regional funding and would not be cost-shared by the GWMA for State or local grant funding. This does not preclude members from seeking State or federal grant or loan funding independently and providing any local match requirements from existing revenue sources.

## **16.4 Example of the Screening Projects for a Grant Application**

This section discusses project prioritization process for a Gateway Proposition 84 Implementation Grant application to provide an example of how the GWMA may select projects for future grant applications.

A review and ranking of the list of projects that were previously ranked in the IRWMP development process was undertaken to evaluate which projects would best meet the selection criteria in the PSP and be most competitive for funding. Other grant programs will have their own selection criteria. The GWMA can more quickly and efficiently respond to future opportunities by being prepared to develop and apply an evaluation criterion based on the specific grant. This Chapter previously identified potential funding programs were the GWMA may need to review the grant and develop a selection criteria and process to decide what projects to submit. The process may or may not include opening up the projects list and conduct of a “call-for-projects” to expand the list. Anticipating how to make explicit decisions through an open, explicit and transparent process will help avoid conflicts and increase the probability of success.

The selection criteria in the PSP were used to define which of the Gateway projects would be competitive for the Proposition 84 Implementation Grant funding. Readiness-to-proceed is a major factor. A project must be ready to construct to be competitive. This means that the project has a completed work plan, schedule and budget; that environmental clearance and

permits have been procured or, at minimum, a plan is in place to obtain environmental clearance prior to award of a contract; and that the local funding match is identified or the projects qualifies for a DAC waiver of the 25 percent local funding match requirement. Subject to DWR review, DACs may be able to use Implementation Grant funding to complete design and/or environmental work leading to construction, but ultimately the projects must be constructed.

The Consulting Team evaluated projects for their readiness-to –proceed using the information submitted by project sponsors. The PSP identifies a number of fatal flaws that eliminated a project from further consideration based on legislatively defined criteria (e.g.; Approved UWMP or GWMP). This is an example of an exclusion criterion, where a project is either eligible or not eligible. Once these projects were eliminated, the process described below was followed.

A first stage screening included eliminating those projects that would be ineligible or not be competitive. A list was generated that showed those projects screened from further review. If a project was not included it was not because the project was not worthy or of merit, but because it would not be a likely candidate for funding based on the DWR PSP. The process included:

1. Sorting the projects based on where the project was in the planning process.
  - a. Those projects that were identified as in the Concepts stage and would not start in under a year; or were in Project Planning and Feasibility Studies phase, did not have secure funding, or that did not identify the funding needed, were eliminated from further consideration. Projects where the sponsor stated that they were not seeking money at this time were not considered further.
  - b. Those projects that were identified as Started, Ready to Construct, Final Design, Preliminary Design or Project Concepts that could commence in less than one year were carried forward for further review.
  - c. If a project in the Concept stage of planning identified local match funding, it was retained for further review.
2. Storm water projects that represented single beneficiary or single benefit /purpose projects were removed from further considerations.

The second stage of screen was to evaluate and identify those projects that would be most competitive in term of readiness-to-proceed based on sponsor provided information. A second table was produced that showed the projects that were the most ready-to-proceed. These projects showed a relatively high readiness to proceed in terms of the CEQA and permits required; and secured local funding or at least a plan for securing funding. The availability of detailed documentation, including economic feasibility study and/or technical analysis required further review since the information would be needed to prepare a competitive grant application.

A third table showed those projects that were nearly ready to construct, but required additional design work. Many of these projects could be competitive if they were further in the planning and design process. The projects were not competitive because they: a) did not have local funding identified, b) required additional design, c) were project concepts or not ready to start in less than one year. Of those projects that could start within 1 year, many did not have local funding secured or did not identify a plan to secure local funding. Projects that require additional design would not be eligible unless these were for DACs and be would be able to qualify for a waiver of the 25 percent local match requirement.

The explicit criteria and process was described at a GWMA Stakeholder meeting. The tables were then presented, which the Stakeholders reviewed. This information was used to support a dialog and negotiation of which projects would be included in the grant application. This allowed the group to focus on those projects that would be most competitive and supported decisions on how to fund and prepare the grant application. The project data base used to store and analyze projects collected in the IRWMP development expedited the sorting required in this grant funding opportunity exercise.

# 17 Data Management

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This chapter describes the process of data collection, storage, and dissemination to IRWM participants, stakeholders, the public and the State. Two data management systems were developed to support the IRWMP. The first was developed to support submittal and review of stakeholder sponsored projects. The second was a GIS web-enabled map viewer linked to an Oracle database platform. This chapter also presents a User Manual of the GIS Map Viewer. Recommendations for next steps are also presented. Currently GWMA, via the consulting team, is responsible for the IRWMP project GIS Map Viewer. Future plans for data management are being discussed and are under development by the GWMA to deal with priorities associated with water quality issues facing the Region (MS4 Permit/Order).

## 17.1 Gateway Project Review and Submittal DMS

This section provides a brief summary of the project review data management systems and tools, which was used to track, store, and share stakeholder's project information. The GWMA needed a system to collect and organize projects for the IRWMP and otherwise support project sponsors when submitting their project information. The data was submitted in standard formats to allow for easy application of the project review and evaluation criteria adopted by the GWMA. Chapter 12 described the project submittal and review data base tools (See 12.1.1).

To meet the needs, the Consulting Team developed the Project Submittal Form and the Project Database Suite. These tools were used to integrate data using a common and compatible method for collection, storage, and evaluation of stakeholder-provided project information. The objective was to make the submittal and review process simple, consistent and easy on both the projects sponsors and reviewers.

The Project Submittal Form (Appendix C) provided the common protocol to gather data in a consistent manner. It is an Adobe form to allow submittal of information via email. The form allows project sponsors to provide as much detail as necessary during the Project Solicitation period.

The Project Database pairs Excel and Access files containing all data from the Project Submittal Form. It allows the extraction of data provided by the project sponsor, storage in the project data base, and production of reports to support Reviewers and for developing projects summaries in a Project Workbook was produced to document the submitted project information. The data base was maintained by the Consulting Team. This DMS is a deliverable to the GWMA and the tools are available for future 'calls-for-projects' and projects reviews. In the future, the tools could be further integrated with the web enabled system discussed below to further share collected projects information.

## **17.2 Gateway Map Viewer – IRWMP Database**

The GWMA needed a way to collect and share spatial data describing the baseline conditions, results of prior monitoring efforts, location of facilities (current/proposed), and document the problems to be addressed in the IRWMP. Map based visualizations were also needed to show flooding problem areas, storm water problem areas and locations where best management practices (BMPs) to improve water quality could be prioritized.

A GIS, web enabled tool was envisioned that would allow sharing data; presenting analysis results to stakeholders and the public in understandable formats; and allowing stakeholders to produce maps that could be shared with their constituencies. It would make the available data accessible during the IRWMP development, to support project formulations, and help the GWMA make incremental decisions.

The Gateway Map Viewer is a GIS-based tool that allows multiple layers of public domain and stakeholder provided information to be incorporated into a shared database layers include raw groundwater information, monitoring locations and results, project locations, demographic information, city/county/district boundaries. The database can also store georeferenced reports, texts, plans, and other documents that can be easily retrieved. The Consulting team developed a web-enabled map viewer and database that could be accessed by stakeholders and the public through the web from the following link, which is also available on the GWMA website, [www.gatewayIRWMP.org](http://www.gatewayIRWMP.org): <http://arcgis02.geiconsultants.com/gateway2/gis/>. The Consultant Team was responsible for the development and maintenance of the web site and data management system. The tools are available to the GWMA for ongoing use during IRWMP implementation.

### **17.2.1 Sources of Data and Use of Gateway Map Viewer to Develop the IRWMP**

Stakeholders and the Consultant Team contributed data for the Gateway Map Viewer. Data obtained from stakeholders, such as projects, along with readily available public domain sources, was collected and uploaded. The original source data was plotted and reviewed for purposes of quality control.

#### **17.2.1.1 Groundwater Quality, Levels and Related Data**

For the IRWMP, the Gateway Map Viewer was used to compile and store groundwater quality, and other well information from existing groundwater monitoring programs. This data was used to assess regional groundwater quality conditions (See Chapter 7, 7.1.1). The sources of data included are documented in Section 7.2.3.

#### **17.2.1.2 Storm water and Runoff Water Quality**

Chapter 8 describes identified storm water and flooding problems in the Region. Figure 8-1 highlights the results of the stakeholder survey on flooding locations with graphics that are color-coded to identify flooding severity and storm frequency.

The Watershed Management Modeling System (WMMS) developed by Los Angeles County Flood Control District was used to evaluate current water quality conditions within the Gateway IRWMP Region. The watershed model component of the WMMS is the Loading Simulation Program C++ (LSPC) provides a comprehensive data management and modeling system that is capable of representing loading, both flow and water quality, from non-point and point sources and simulating in-stream processes. The compiled data and modeling results will help the GWMA over the long run in evaluating which BMP alternatives can provide the greatest benefits. The maps presented showing the modeling results for various constituents and the prioritized problem areas for flood mitigation measures are also incorporated into the Gateway Map Viewer.

The Gateway Map Viewer can also be used by the GWMA to track where centralized and decentralized BMPs are being implemented, current or new monitoring locations and as a tool to present monitoring results.

#### 17.2.1.3 Flood Risk

Both the 100-year and 500-year Federal Emergency Management Agency floodplains within the Gateway Region have been included as layers in the Gateway Map Viewer. The specific information was obtained from DWR in their Best Available Maps program where they have identified areas that would potentially be inundated during those rare events. Within the Gateway Region, most 100-year events are contained within the river levees.

#### *Other Data*

Other demographic and base information generally available from government resources were also provided as layers in the Gateway Map Viewer. This includes boundaries of districts, cities, and legislative districts, disadvantaged communities, super fund sites, watersheds, rivers, highways, gaging stations, flood infrastructure, and other georeferenced information.

## **17.3 Potential Future GIS/DMS Needs and Development**

### **17.3.1 MS4 Permit/Order and TMDL DMS Needs**

The MS4 and TMDL permits will require an individual permittee to develop an Integrated Monitoring Program (IMP) or to participate with other permittees in a Coordinated Integrated Monitoring Program (CIMP). Either approach will have extensive data collection, management and reporting. MSV Permit/Order Attachment E – Reporting Program, notes the benefits of the CIMP approach, noting that “the CIMP provides Permittees opportunities to increase the cost efficiency and effectiveness of the monitoring program” and that “the greatest efficiency may be achieved when a CIMP is designed and implemented on a watershed basis”. The GWMA is evaluating how to support members and whether to do a CIMP.

The GWMA could reduce the overall monitoring and data management program costs to individual members through the CIMP to achieve economies of scale and management



efficiencies. A CIMP will require a shared approach to sampling, laboratory analysis, data management and compliance reporting. The existing IRWMP GIS/DMS could be expanded to include functionalities needed to support the CIMP, including:

- Allowing users to submit laboratory testing and monitoring results to a central data base that supports:
  - Quality control and assurance measures
  - Management of water quality time series data
  - Preparation of required compliance reports
  - Submitting of the required data to the State (SWAMP/RWQCB)
- Tracking of projects that implement best management practices.
- Management of reports and special studies to share and distribute results.

#### 17.3.1.1 Quality Control and Assurance Measures

MS4 permittees are required to develop a Monitoring and Reporting Plan (MRP) and Quality Assurance Project Plan (QAPP) for Regional Water Board Executive Officer approval. The GWMA could jointly develop the monitoring plan, establish locations and develop both the MRP and QAPP for the Gateway Region. The QAPP will include protocols for sample collection, standard analytical procedures, and laboratory certification. All samples will be collected in accordance with applicable Surface Water Ambient Monitoring Program (SWAMP) protocols.

#### 17.3.1.2 Management of Water Quality Time Series Data

Large amounts of monitoring data will be generated by an IMP or CIMP and a DMS would need to effectively manage the sampling, QA/QC, monitoring and reporting program. A GIS element to the DMS and the monitoring and reporting plan would help document the results and explain the problem and solutions to the public. The GWMA will need to make decisions regarding how develop and apply a GIS/DMS to meet the requirements. As described below in Section 14.5.5, Related Watershed Planning and Monitoring, there are alternatives for GWMA to consider.

#### 17.3.1.3 Preparation Compliance Report

The MS4 Permit/Order, Attachment E spells out the reporting requirements, including how the TMDL reporting could be integrated. The GWMA will need to develop a system to support reporting to the RWQCB. The functional requirement for any data management systems should be based on the MS4 Permit/Order.

#### 17.3.1.4 Submitting of the Required Data to the State

The Southern California Coastal Water Research Project (SCCWRP) discussed in Chapter 14 serves as the Southern California Regional Data Center (SCRDC) for the Surface Water Ambient Monitoring Program's (SWAMP's) California Environmental Data Exchange Network (CEDEN). Any tools developed to support GWNMA regional monitoring should

include a functional requirement to support submittal to the state's regional data center as well as the required reports to the RWQCB.

### **17.3.2 Project Submittal System**

For IRWMP update and future rounds of grant funding, the GWMA could develop additional functionality in the current web enabled GIS/DMS tool to:

- Allow project sponsors to submit and update their project information on-line
- Promote transparency and let other GWMA stakeholders view the project information
- Provide a map of proposed projects, also documenting the status of the project
- Allow for upload of supporting projects documentation.
- Manage the IRWMP and project performance monitoring during implementation

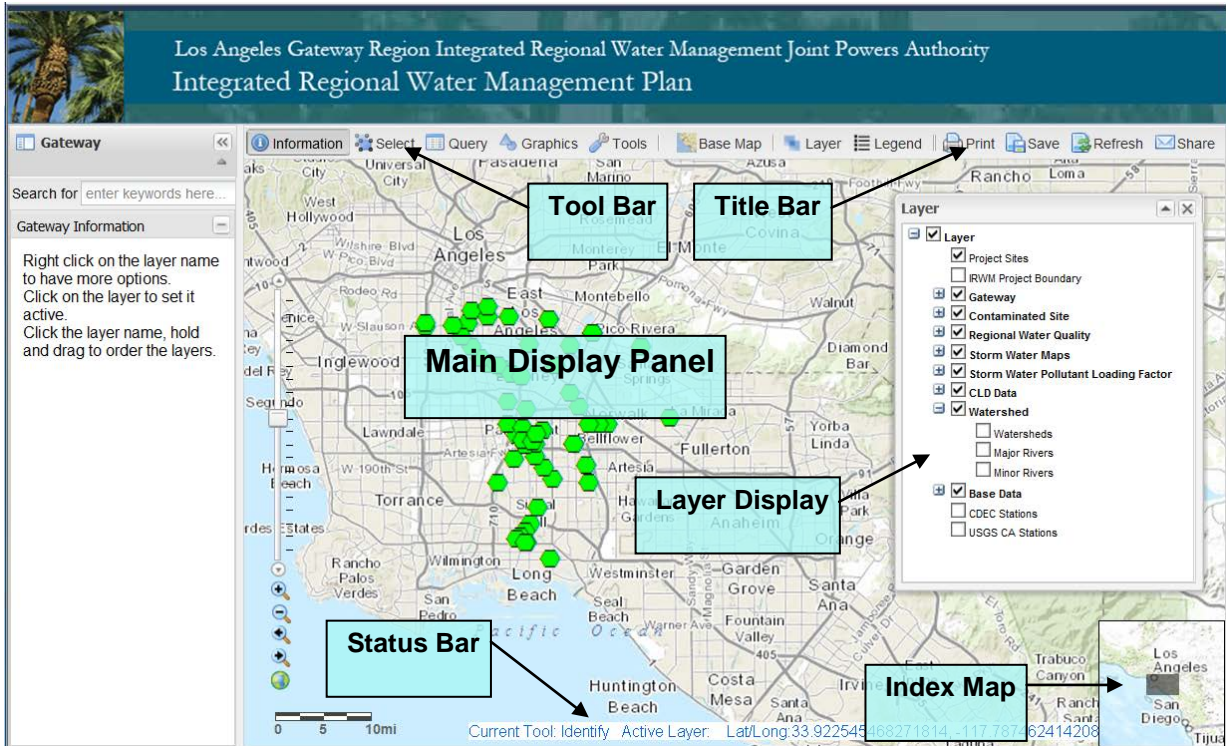
## **17.4 Gateway Map Viewer User Manual and Documentation**

This section provides a brief user manual for the tool and some easy-to-follow examples for how to use the system. The Gateway Map Viewer was developed on ESRI ArcGIS Server 10.x. It is a GIS-enabled web browser application. The base map projection is from ERSI map service and the projection is GCS\_WGS\_1984.

The purpose of the map viewer was to allow stakeholders to access and share regional information through a readily accessible internet enabled tool; to support decision making and an open and transparent process; and to allow stakeholders better define regional data sharing needs by applying the tool during development of the IRWMP. This later purpose was intended to help stakeholders define what would be needed to support the GWMA during IRWMP implementation and better plan for meeting the long term needs.

### **17.4.1 Section 1: Interface Introduction**

The map interface is divided into six parts:



- Part 1: The **Main Display Panel** displays the GIS map.
- Part 2: The **Title Bar** contains the Print, Save, Refresh, and Share buttons, as well as Base Map, Layer and Legend display control options.
- Part 3: The **Tool Bar** contains Information, Select, Query, Graphics, Tools, and Bookmark tools and subtools.
- Part 4: The **Layer Display** panel shows which layer folders and layers are visible, and which layer is the active layer for the map tools (highlighted).
- Part 5: The **Index Map** displays the extent shown in the Main Display Panel within the context of the greater geographic area.
- Part 6: The **Status Bar** shows the Current Tool in use, the Active Layer, and Lat/Long coordinates.

## 17.4.2 Section 2: Map Navigation

### 17.4.2.1 Zoom In/Zoom Out/Zoom to Full/Previous Extent/Next Extent

Zooming in and out can be accomplished in a number of ways:



1. The zoom slider located in the left of the main display panel can be moved upward to zoom in to a larger scale or downward to zoom out to a smaller scale.
2. Clicking the + or – buttons under the slider (see picture to the left) will allow the user to drag an extent box that will re-center the map display to that extent. The same can also be accomplished by holding down the Shift (zoom in) or Shift + Ctrl (zoom out) keys and dragging an extent box.
3. A mouse scroll forward zooms into the map, while a mouse scroll back zooms out.
4. The plus (+) key zooms in a level; the minus (-) key zooms out a level.
5. A double-click anywhere on the map display centers and zooms in on that area.

Zooming to the map display's full extent can be accomplished by clicking the Full Extent button (globe) under the slider.

Likewise, returning to the previous extent or going to the next extent is a matter of clicking the appropriate button (arrows back and forward, respectively) under the slider.

### 17.4.2.2 Pan

To move the map display around, simply click and drag the map display. Alternatively, you can use the arrow keys to move the display.

## 17.4.3 Section 3: Layer Management

### 17.4.3.1 Display Layer/Select Active Layer

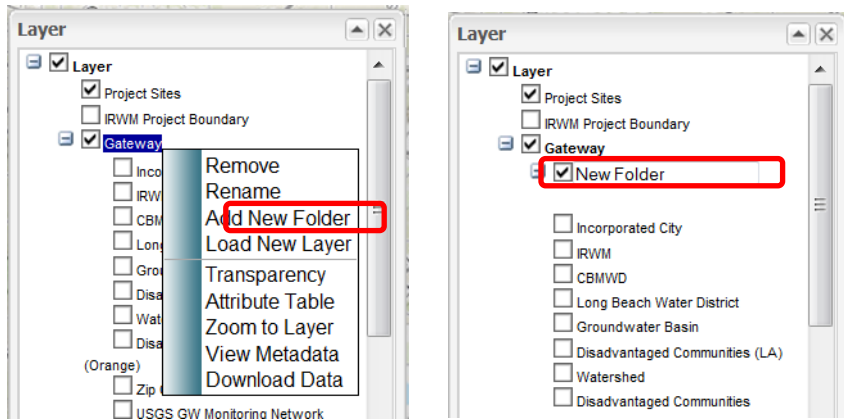
Layers shown in the map display are controlled using the Layer Display panel. (If the Layer Display panel isn't visible, click the Layer button in the Data Control Bar.)

To display a layer, simply check the box next to the layer. Make sure the folder containing the layer is also checked, as every layer is controlled by its root folder. Click the plus (+) symbol to expand and view the layer contents within a collapsed folder. To make a layer invisible, uncheck the box next to the layer.

To select an active layer, click on the name of one of the visible (checked) layers so that it is highlighted. Unchecked layers cannot be active layers.

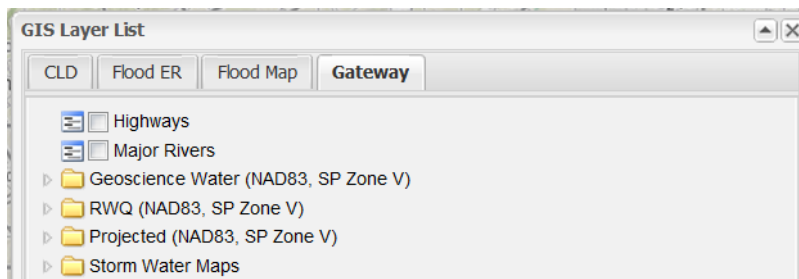
### 17.4.3.2 Add Layer/Folder

To add a new folder to the Layer Display panel, right-click on the name of the root folder within which you'd like the new folder to be placed and select Add New Folder. A checked New Folder will be placed under that root folder that can be renamed.

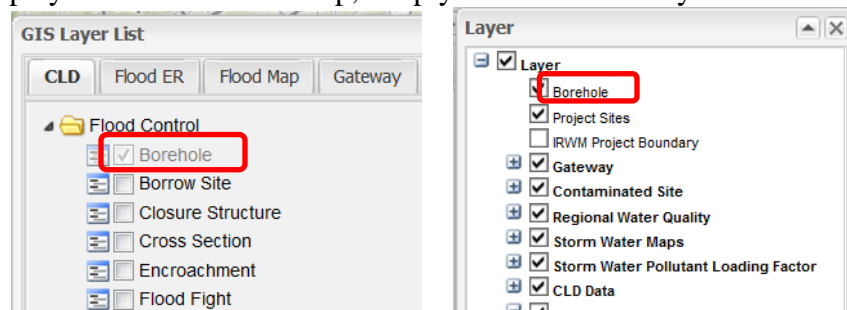


To add a new layer to a folder:

1. Right-click on the name of the folder and select Load New Layer.
2. A GIS Layer List will pop up containing several layers grouped into tabs: California Levee Database, CA Flood ER, SPK Levee and Flood Map. Within each tab are category subfolders, each containing several data layers. Clicking on these categories will display the layers contained therein.

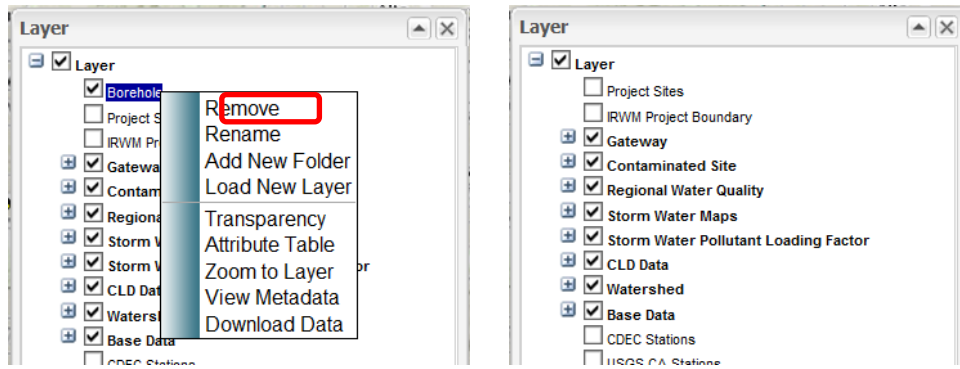


3. Checking a previously unchecked layer will add that layer to the Layer Display panel and to the map display. To return to the map, simply close the GIS Layer List.

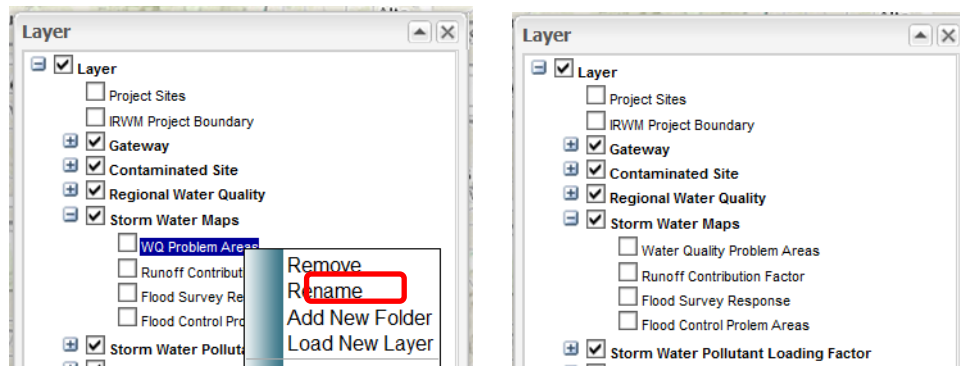


### 17.4.3.3 Remove/Rename Layer/Folder

To remove a layer or folder, right-click on the name of the layer or folder and click Remove. If you are removing a folder, a prompt will ask you to click OK to remove the folder and its subnodes to preclude accidentally removing layers within that folder.

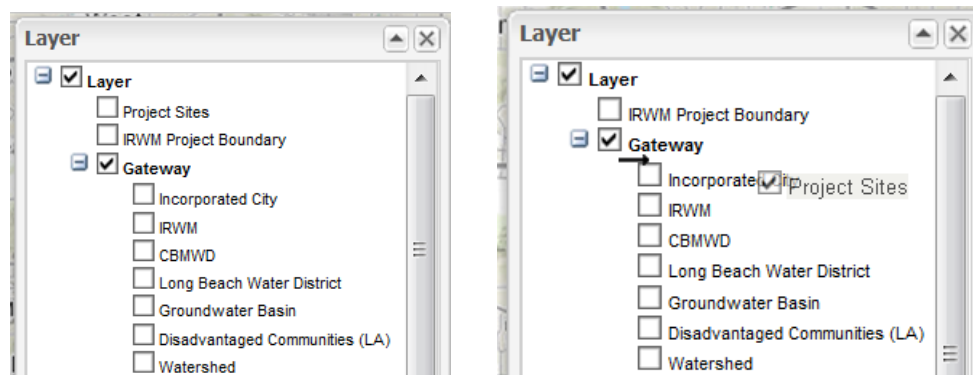


Renaming a folder or layer requires right-clicking the folder or layer name and clicking Rename. A text box will appear around the name that allows the user to change it. Once the name has been changed, hit Enter to make it final.

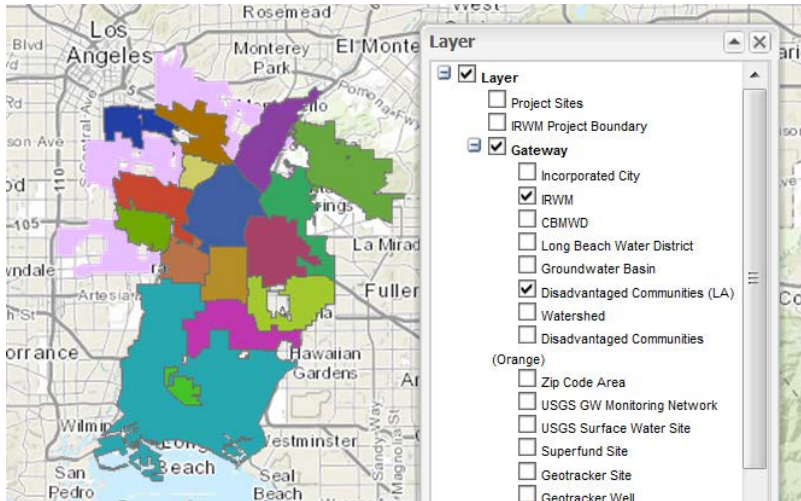


#### 17.4.3.4 Reorder Layers/Folders

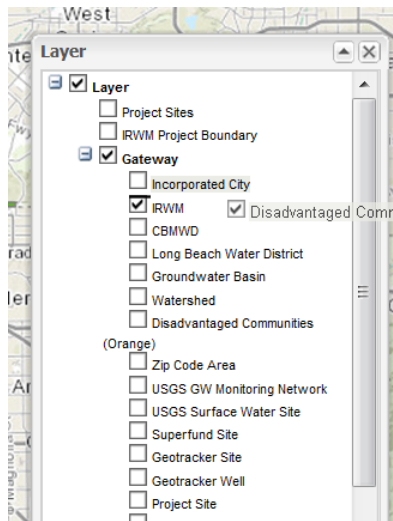
To change the order of layers or folders, click and hold the name of the layer or folder you want to move and drag it to its new location. While moving, pay attention to the arrow or underscore marker that indicates its new position if dropped; dragging the layer leftward will place it at the level of root folders, moving it rightward will place it within a root folder. Further, moving a layer or folder to a new position correspondingly changes the hierarchy of the map display.

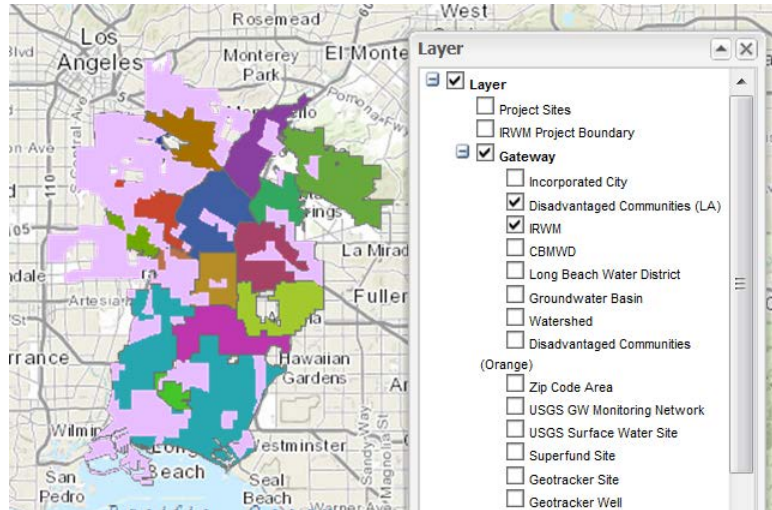






The layer showing cities included in the IRWM Gateway Region (IRWM) has a higher placement in the Layer window than the layer showing the disadvantaged communities in Los Angeles County (Disadvantaged Communities (LA)). As a result, the disadvantaged communities are not entirely visible. To see the entire extent of the disadvantaged communities, the Disadvantaged Communities (LA) layer needs to be moved above the IRWM layer in the Layer window.

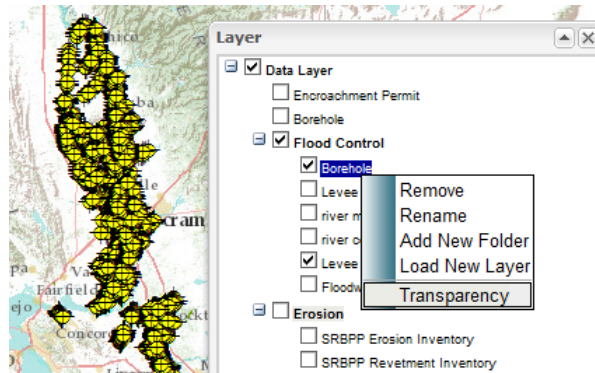




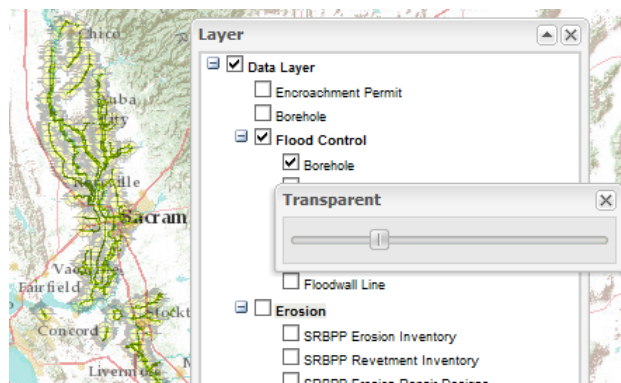
### 17.4.3.5 Layer Transparency

On those occasions where you may want to view a layer or map feature underneath another layer without reordering their positions, the transparency of the top layer can be adjusted:

Right-click on the name of the layer you want to make more transparent and click Transparency. Then move the slide bar until the desired transparency is achieved.



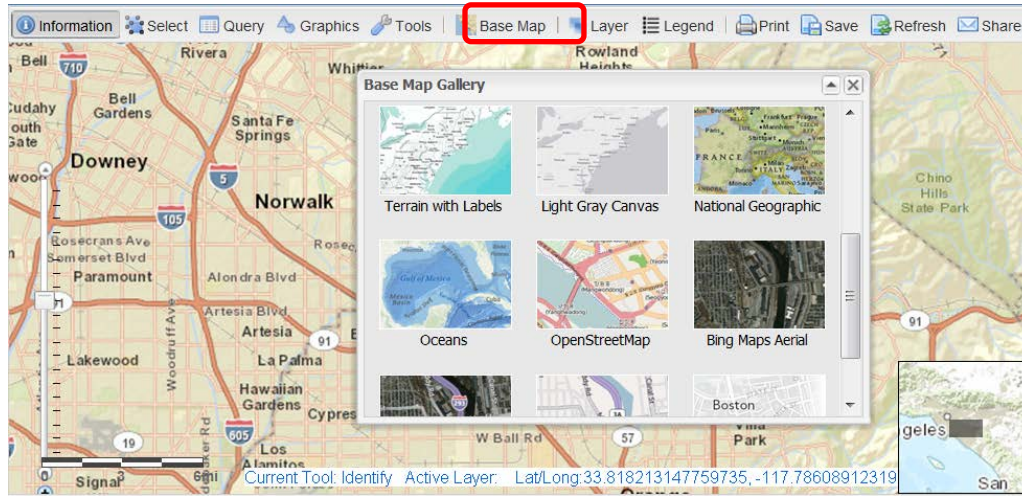
Move the transparent slider bar to make the Borehole layer become transparent



## 17.4.4 Title Bar

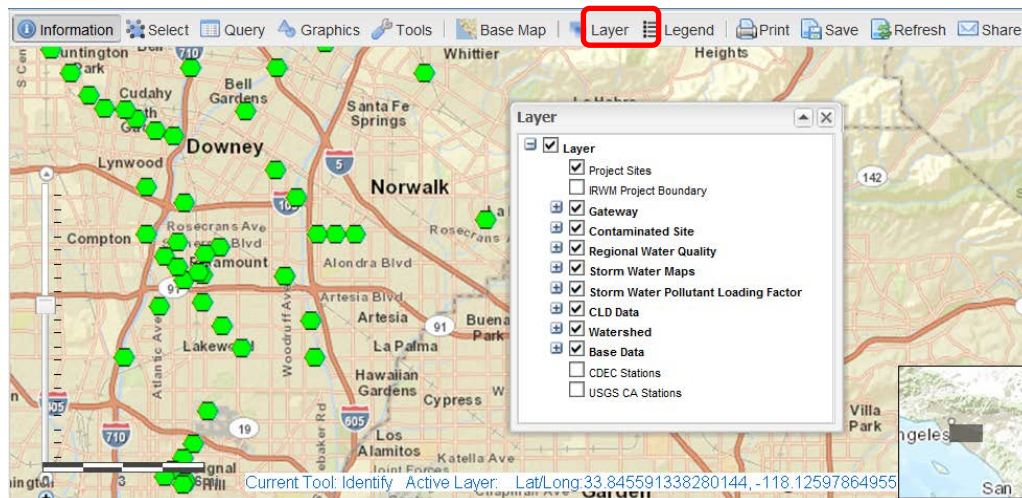
### 17.4.4.1 Base Map

Using the Base Map option, the user can determine the type of background that serves as the basemap for the display.



### 17.4.4.2 Layer

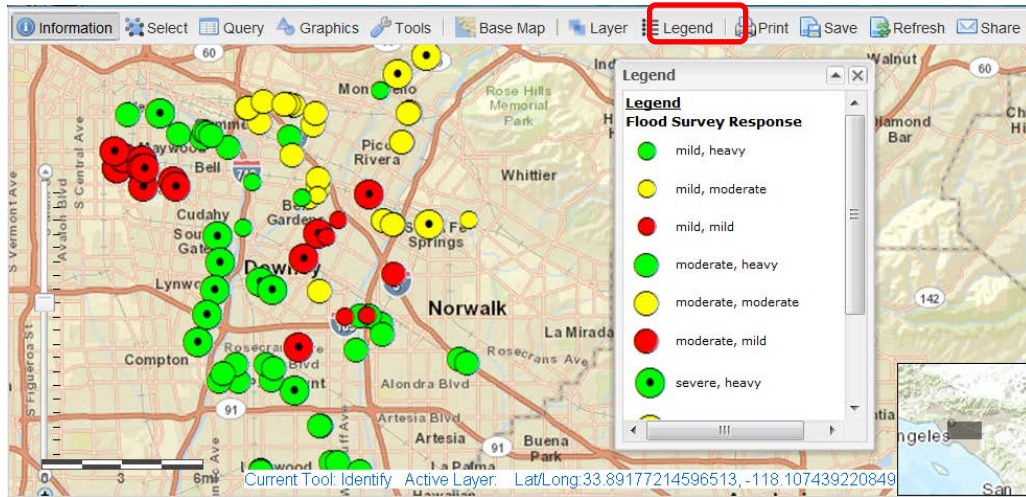
Toggles the Layer Display box on and off, allowing the user to check, uncheck, add and remove layers to display on the map.



### 17.4.4.3 Legend

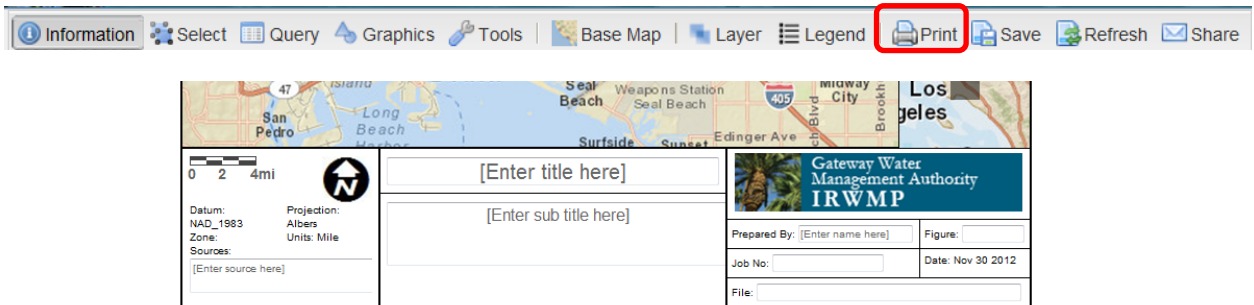
Displays the legend, which shows the symbology for all checked layers.





#### 17.4.4.4 Print

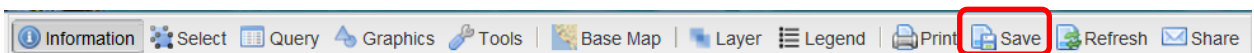
If you'd like to print the map, click the Print button. A new page will pop up that shows the map displayed with a customizable title bar. The display can be zoomed in and out to cover any preferred extent, and can then either be printed directly or saved as a PDF.



#### 17.4.4.5 Save and Refresh

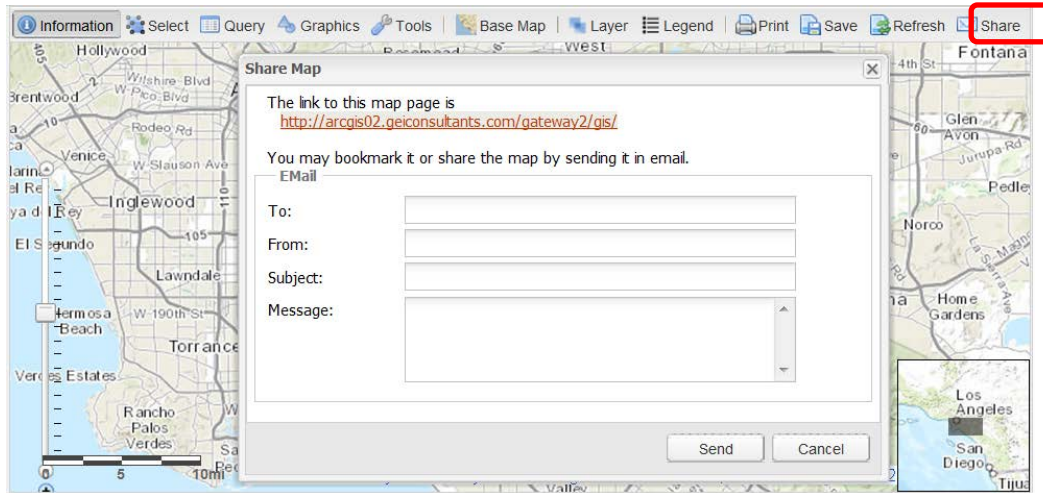
Save the current map display with its active layer, visible layers, graphics and selections by clicking Save. When you refresh or later return to the map, it will display as you left it when saving.

Clicking Refresh returns the map to the most recent saved display.



#### 17.4.4.6 Share

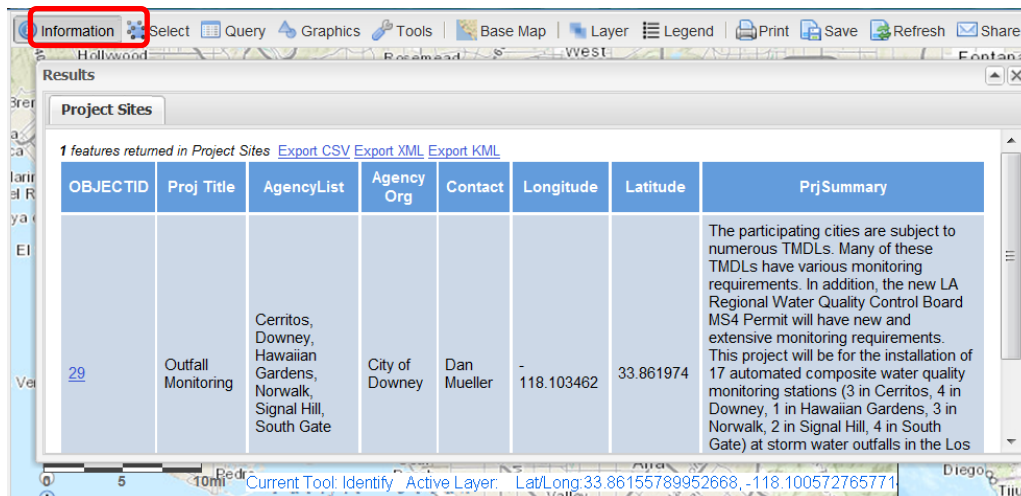
If you'd like to share your map display with other users, click Share, which will prompt an email box that includes the link to your saved display.



## 17.4.5 Tool Bar

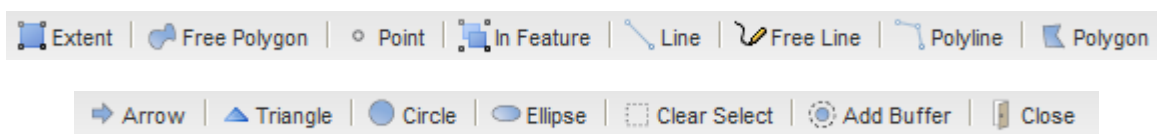
### 17.4.5.1 Information

Clicking the Information button on the tool bar provides the user with information about layers' attributes. By clicking this tool and then clicking on the map display, data for all the visible features at that point will display in the Results panel, which can then be exported into various file formats. Also, clicking on the OBJECTID number will zoom to and highlight that specific feature.



### 17.4.5.2 Select

Clicking the Select button on the tool bar opens up several selection options:



These tools can be used to select and find information in several different ways.

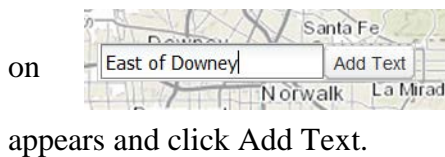
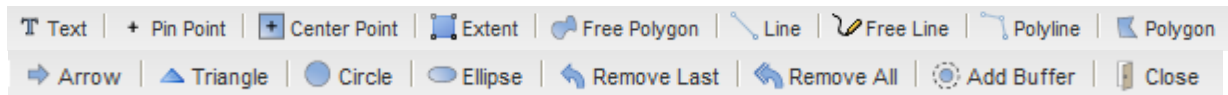
### 17.4.5.3 Query

Clicking on the Query tool opens up the Query Window. Turn on layer of interest. Click on Query button. Select layer from the layer list.

The user can select the layer to query, which populates all attribute types within that layer. Using a combination of selected attributes and Boolean operators (note: clicking the Get Values button shows all the individual features within a given attribute column) will display information about the specified feature, which then can be zoomed to or exported in various formats. Use Ctrl or Shift key to do multiple selections to display those columns.

### 17.4.5.4 Graphics

The user can add various graphics to the map display (along with notes that will appear when the graphic feature is clicked) using the following tools:



- **Text:** Click the Text button and then click where the map display you would like the text to appear. Then type the desired text into the box that

appears and click Add Text.

**Pin Point/Centerpoint:** Plants a push pin or centerpoint icon at the specified area.



- **Extent:** Allows user to create a drag-and-drop extent box.



- **Polygon/Free Polygon:** User can create a polygon based on either clicked vertices or freehand design.

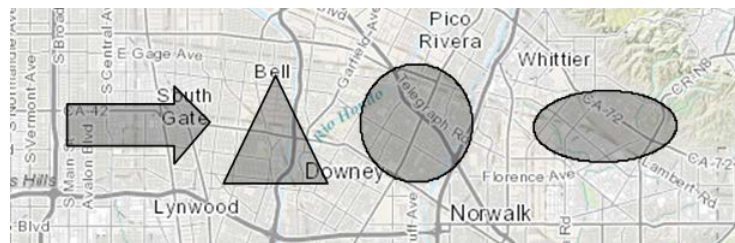




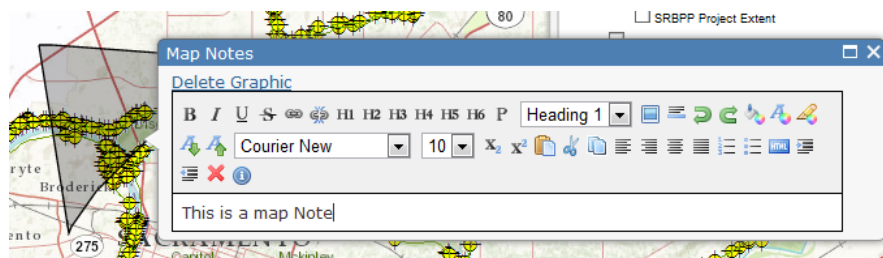
- **Line/Polyline/Free Line:** Allow the user to place a line (click at start, hold, drag to end, drop), polyline (click at start, move to next point, click, continue, double-click at end), or free line (click, hold, drag to create line, drop at end) on the map display.



- **Arrow/Triangle/Circle/Ellipse:** Displays the corresponding shape.

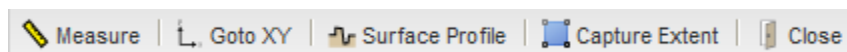


- **Remove Last:** Removes only the last graphic drawn.
- **Remove All:** Removes all graphics from the map display.
- **Add Buffer:** Opens a buffer distance text box, allowing the user to specify a distance around the graphic to be included in the display. A dropdown menu gives the user measurement unit option of Feet, Miles, Meters and Kilometers. Once a buffer distance is entered it will be applied to all graphics until Disable Buffer is clicked.
- **Close:** Closes the Graphics options toolbar.
- **Map Notes:** Each graphic contains a map notes that can be shared

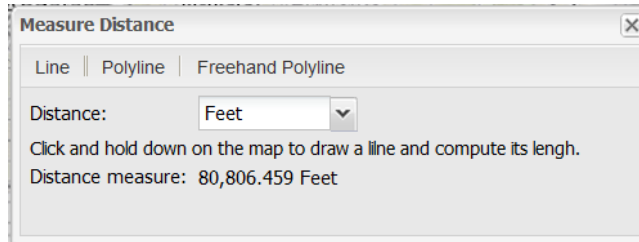


#### 17.4.5.5 Tools

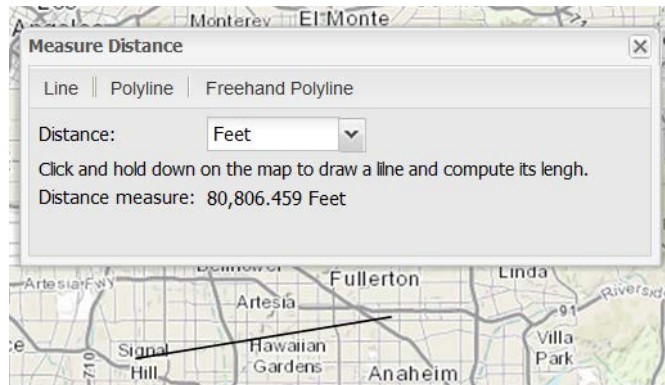
The following tools are available under the Tools option:



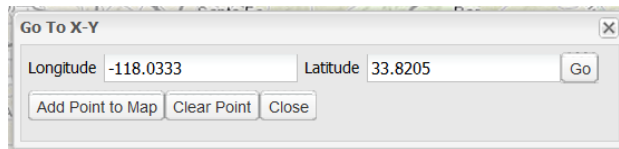
- **Measure** allows the user to measure the distance between two (or more) points using a single Line, a Polyline with multiple vertices, or a Freehand Polyline.



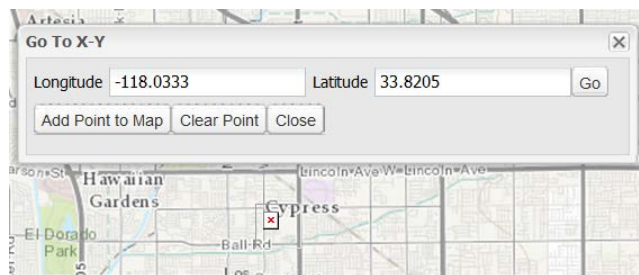
Draw a line to get the distance of a Line/Polyline/Freehand Polyline



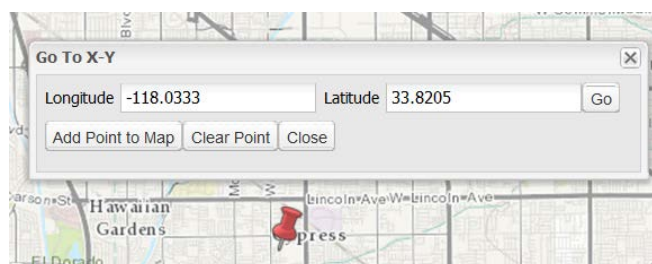
- **Goto XY** allows the user to navigate to a particular area using a specified latitude and longitude.



Click “Go” to zoom to and re-center on that location, icon will fade away after a few seconds.



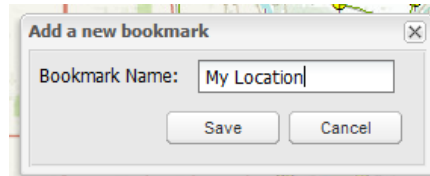
Click “Add Point to Map” to zoom to and display the specific lat/long point.



- **Surface Profile** gives the user the ability to view an altitude profile based on a drawn polyline.
- **Capture Extent** grabs a screenshot of the specified extent and stores it as a PNG image file.
- **Close** closes the Tools options toolbar.

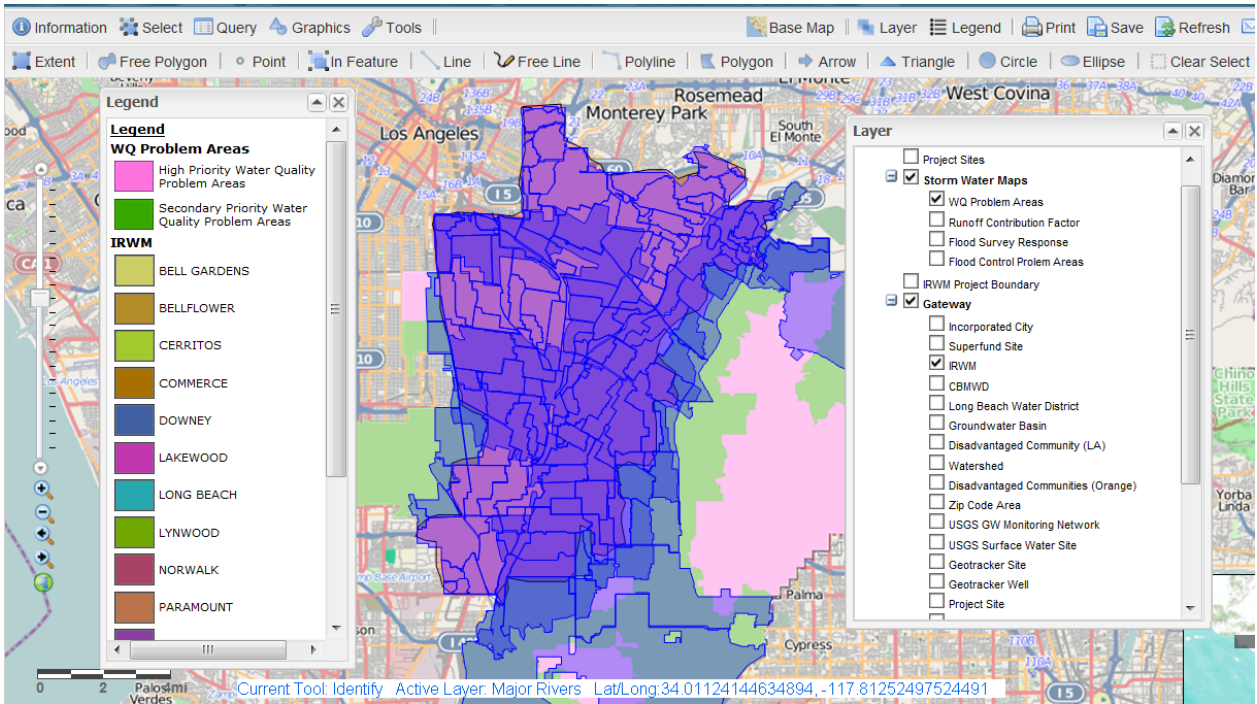
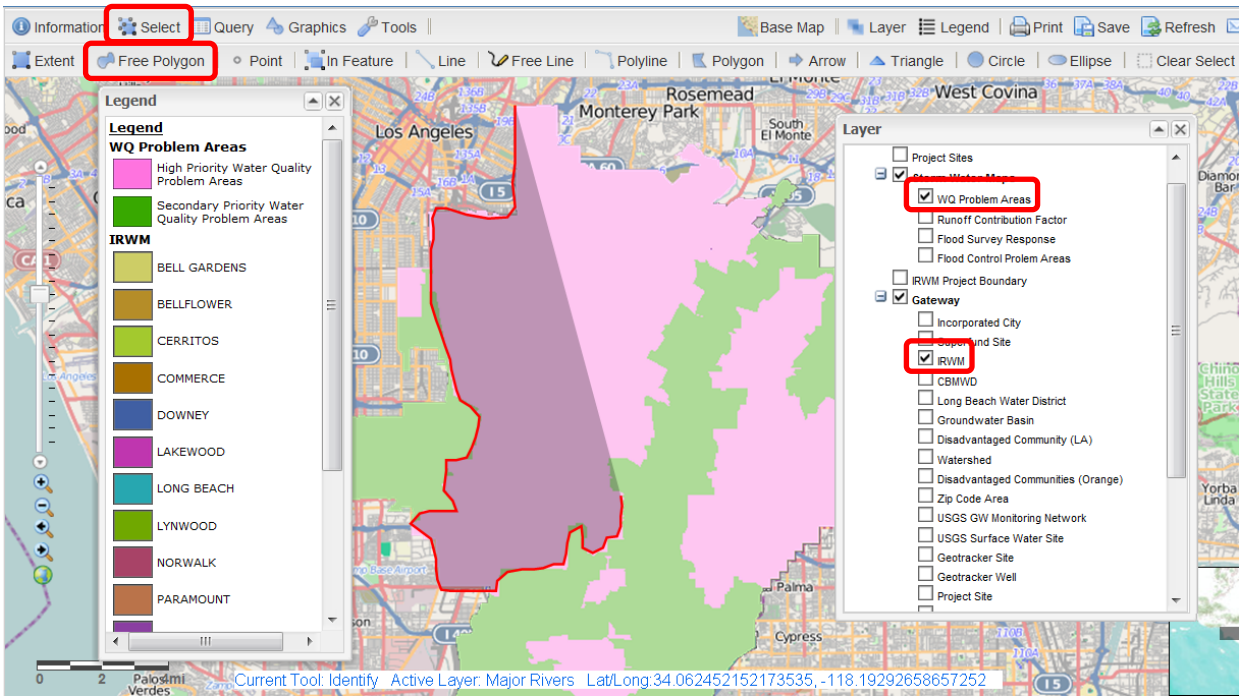
#### 17.4.5.6 Bookmark

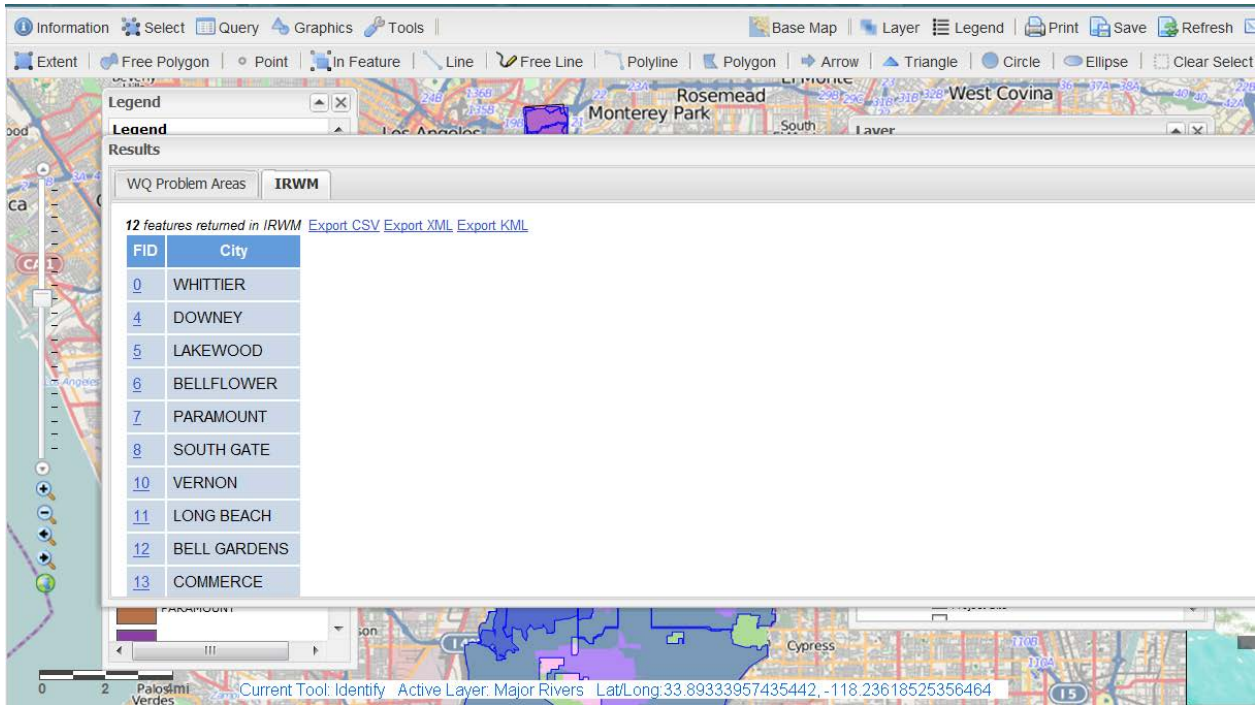
Clicking the Bookmark button allows the user to save the extent of the current map display, which can be recalled later using the dropdown.



**Example 1:** Find what cities are located in high priority water quality problem areas using the Free Polygon select tool.

1. Turn on the layers that are being analyzed. In this example, these layers are “IRWM” for the cities in the IRWMP and “WQ Problem Areas” for the water quality problem areas. Since we need to find out which cities are located in the water quality problem areas, the “WQ Problem Areas” layer should be the topmost layer. Move the “WQ Problem Areas” layer above the “IRWM” layer if needed.
2. Click on the Free Polygon tool and trace the area designated as “High Priority Water Quality Problem Area”. The Legend may be opened to see the differentiation in water quality problem areas.
3. When you are finished tracing the shape, an Information table will open with the cities and the water quality problem areas inside the shape.

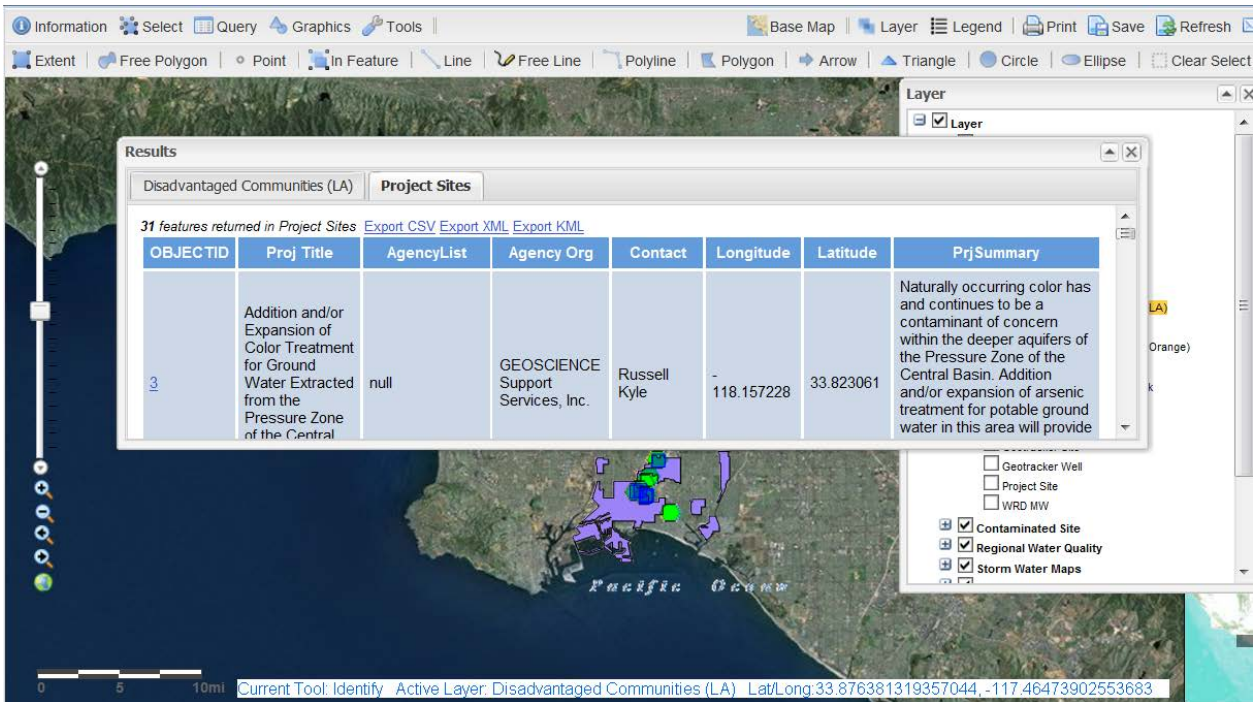
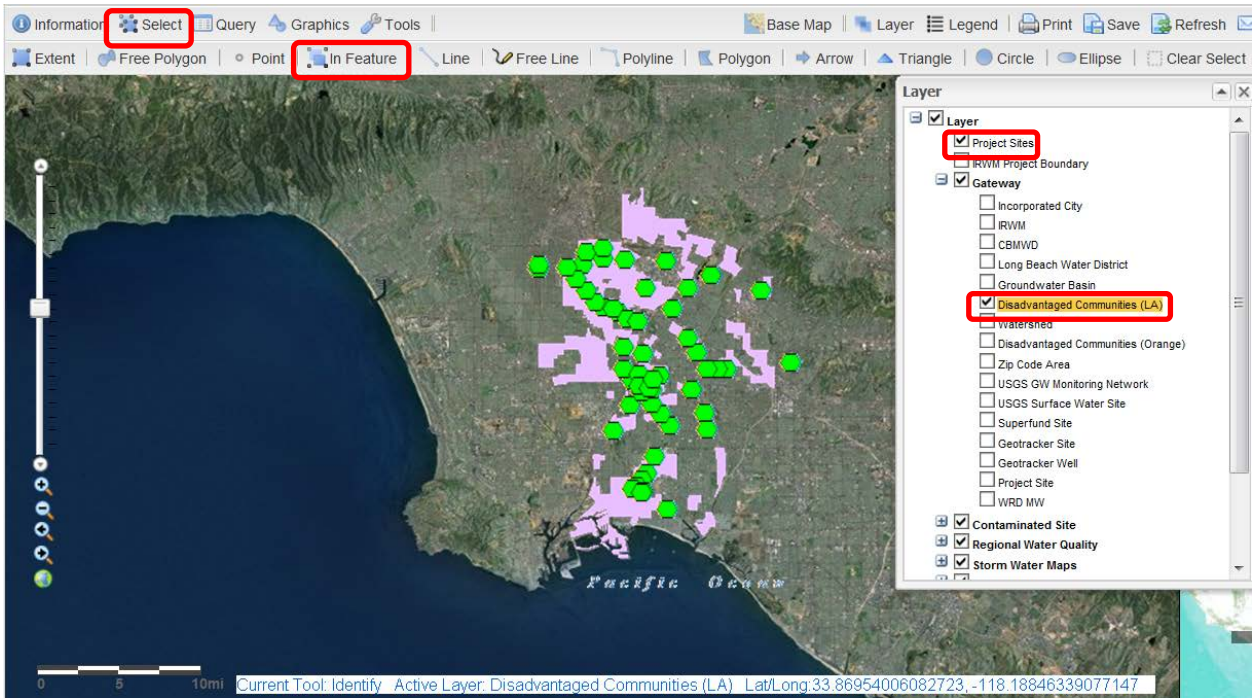




**Example 2:** Find what projects are located within a disadvantaged community using the In Feature tool.

1. Turn on the layers that are being analyzed. In this example, these layers are “Project Sites” for and “Disadvantaged Communities (LA)” for disadvantaged communities in Los Angeles County. For this tool, it does not matter which is the topmost layer.
2. Click on the Disadvantage Communities (LA) layer to activate it. When a layer is active, it will be highlighted in yellow.
3. Click on the In Feature tool. An information table will open with the Project Sites and Disadvantage Communities in Los Angeles County that are coincidentally located.



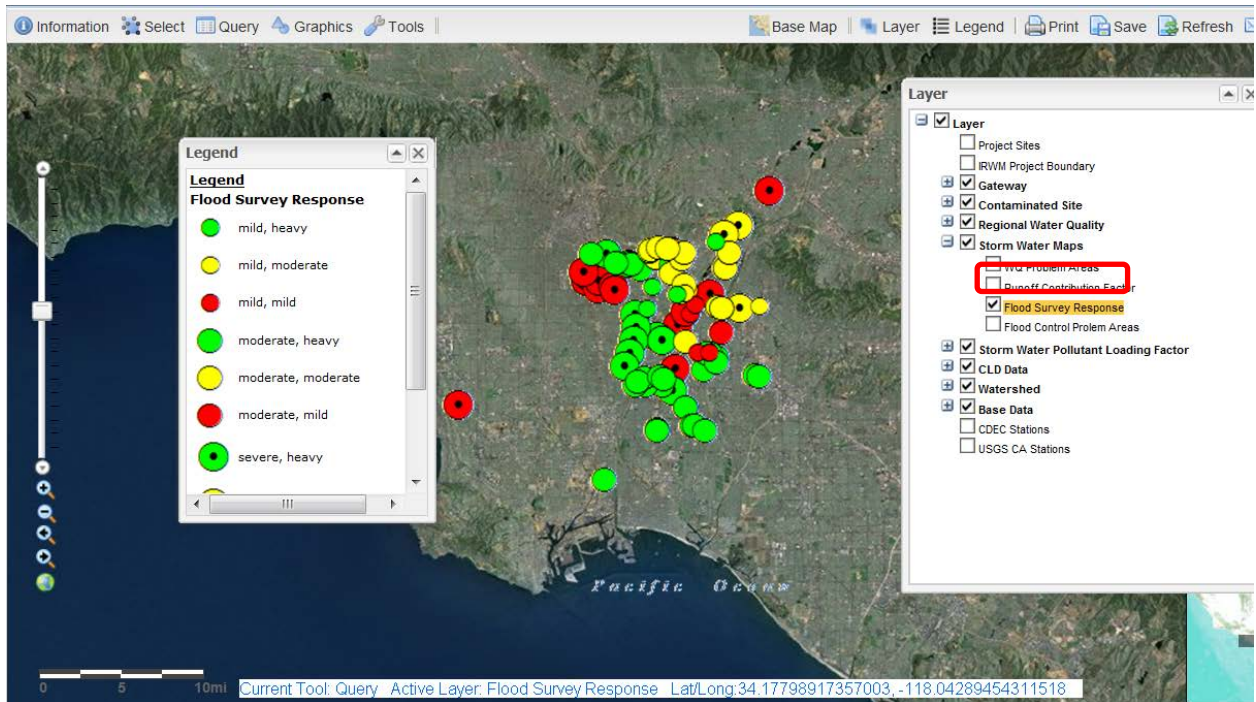


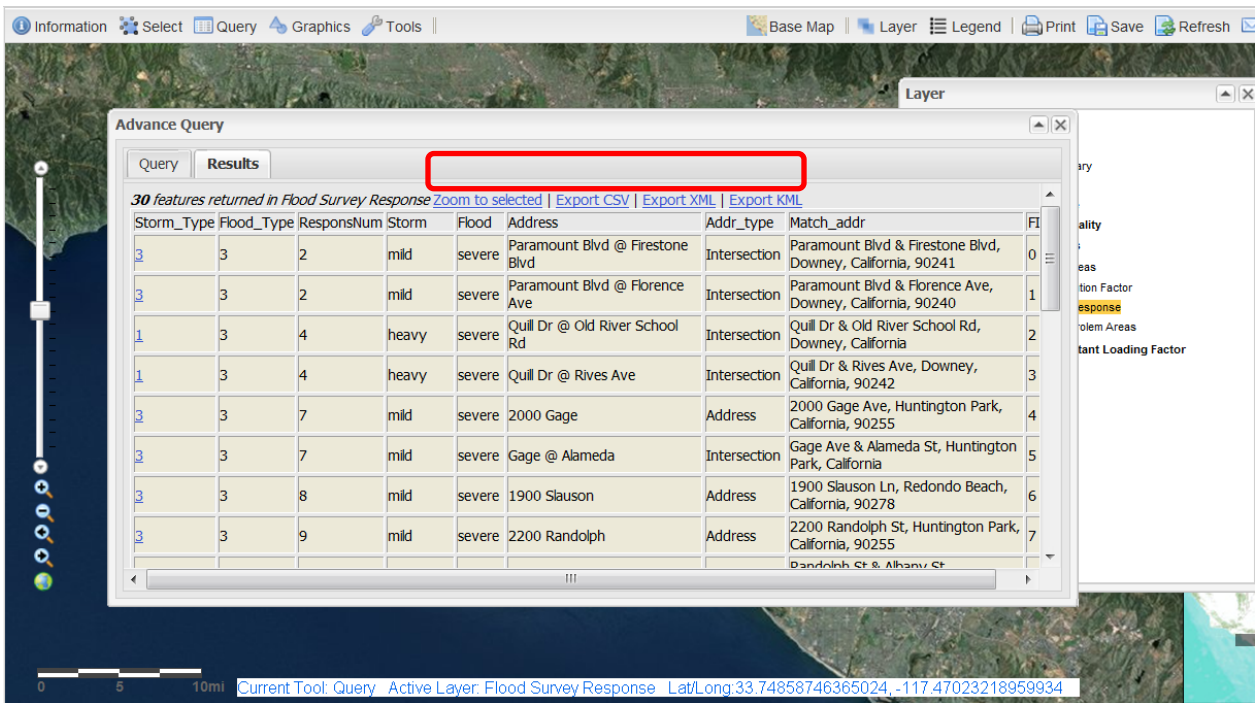
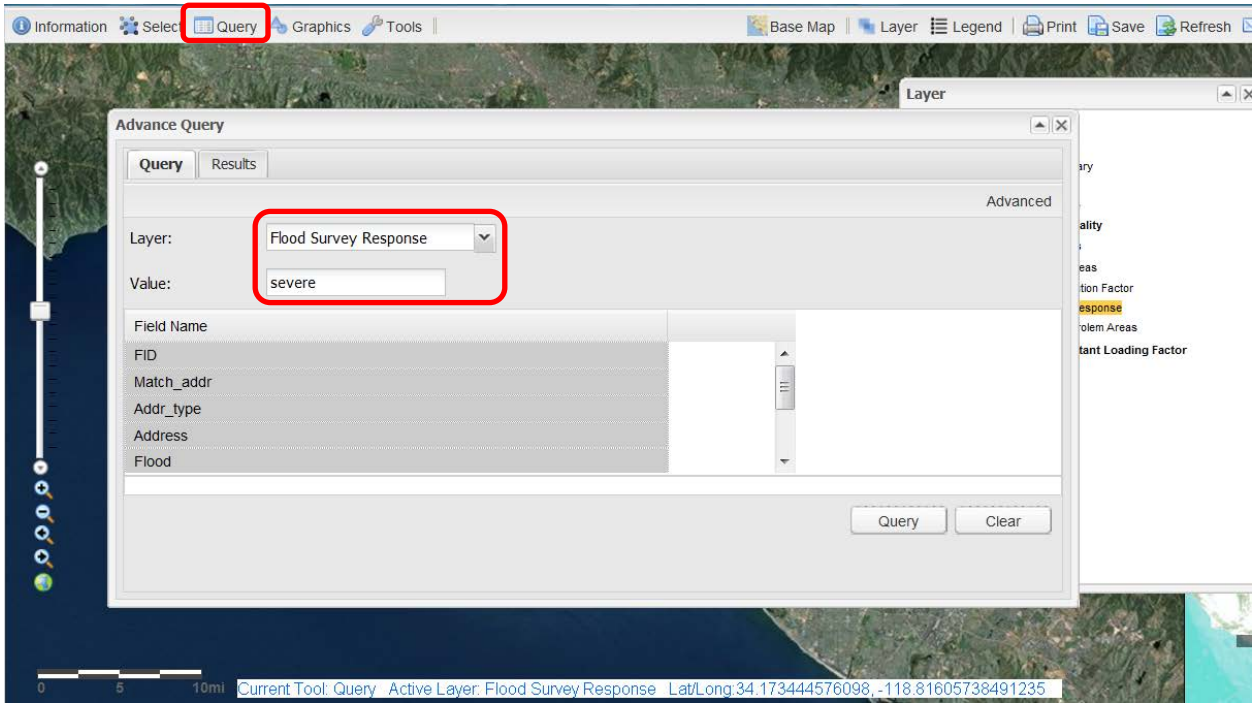
**Example 3:** Determine how many Flood Survey Responses returned a Severe Flood using the Query tool.

1. Ensure that the Flood Survey Response layer is turned on.
2. Click on the Query tool. The Advanced Query window will open.



3. In the Advanced Query window, select the Flood Survey Response layer from the “Layer” drop-down. Type “severe” as the value. The search will be conducted on all fields, but the user is able to select which fields are shown for the results. Select the desired return field under “Field Name”.
4. Click on the “Query” button.
5. The results will be shown on the “Results” tab. Also in the “Results” tab, the user can select a result to zoom to on the map and export all the results to CSV, XML, or KML.





## 18 Plan Performance and Monitoring

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This Chapter defines the Plan Performance and Monitoring Strategy. The IRWMP legislation and DWR standards require that IRWMPs include performance measures and monitoring to document progress toward meeting plan objectives. The purpose of the Plan Performance and Monitoring strategy is to document how the IRWMP objectives are to be measured, how the program alternatives are being implemented to meet the objectives; and that the anticipated IRWMP benefits are being delivered.

Performance is tracked at two levels. First, at the IRWMP level, performance measures and criteria are developed and used to evaluate the overall progress in meeting the plan objective. Second, at the project level, each projects sponsor or sponsoring group will track performance against the project specific objectives and performance plan. The results of the performance and monitoring effort will be used to measure and track success, prepare regular progress reports to the GWMA and present IRWMP results to public and stakeholders to maintain and gain further support for the IRWMP.

The GWMA is responsible for:

- IRWMP implementation, evaluation, and monitoring the overall performance in meeting the goals and objectives.
- Annually evaluating the performance for implementing projects that contribute to meeting the overall goals and objectives.
- Tracking all projects sponsors, including aggregating reports of specific projects performance and monitoring.

The annual review by the GWMA is part of the adaptive management strategy that will help guide changes to the IRWMP in the future. It will be used to facilitate discussion of “lessons learned” from project-specific monitoring efforts.

The IRWMP objectives were established by GWMA (Chapter 6). GWMA broadly define the objectives so that they were easy to communicate and gain consensus. GWMA deferred creation of the methods to measure the objective until such time as an integration strategy was developed and projects were identified. Chapter 13 explained how the plan development integrated strategies and configured program alternatives. Performance measures were defined for the IRWMP objectives that include:

- Attain required TMDL levels in accordance with individual schedules.
- Effectively reduce sources of pollutants and environmental stressors.
- Continue and enhance water use efficiency measures to meet 20 x 2020 per capita water use targets.
- Expand Regional Water Recycling facilities and recycled water distribution to help provide reliable sources.

- Systematically upgrade aging water infrastructure.
- Create habitat, open space and water based recreational opportunities.
- Install and optimize water monitoring to effectively manage storm water in the Region.  
Obtain, manage and assess water resources data and information.

## **18.1 Water Quality**

Objectives 1, 2, and 7 are to meet the water quality goal of the IRWMP. The primary driver behind the IRWMP water quality objectives is the need to comply with Los Angeles RWQCB requirements and meet Water Quality Control Plan (Basin Plan) Objectives. Los Angeles RWQCB approved municipal storm water runoff regulations to prevent trash, metals, bacteria, chemicals and pesticides from being washed into storm drains and into creeks, rivers and the ocean. The Municipal Separate Storm Sewer Systems (MS4) Permit and TMDL Monitoring requirements,<sup>13</sup> referred to here as the MS4 Permit/Order, cover municipalities in Los Angeles County, except for Long Beach which has its own storm water permit. The MS4 Permit requires cities in the Gateway Region to develop plans to reduce the pollutants in storm water, and to monitor the results and take corrective action when goals are not met. Many of the GWMA stakeholders are storm water discharge permit holders. The stakeholders have a wide range of strategies available under the new permit to reduce pollution. GWMA, through the IRWMP, has identified program alternatives to meet IRWMP water quality objectives, and also may serve as corrective actions that would meet RWQCB requirements. Both qualitative and quantitative performance measures have been identified along with metrics to be used to track progress.

### **18.1.1 Monitoring**

MS4 Permit contains standards provisions for monitoring, record keeping and reporting<sup>14</sup>, and for the specific Monitoring and Reporting Program<sup>15</sup> within the various watershed areas in the Gateway Region. The GWMA is investigating cost effective approaches to execute an integrated regional monitoring program and assessment program. The intentions for the IRWMP are to:

- Integrate RWQCB requirements
- Avoid duplicative efforts
- Achieve cost effectiveness
- Be consistent with the Basin Plan

The GWMA has discussed development of an integrated watershed monitoring program designed to include:

- Receiving Water Monitoring

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<sup>13</sup> See Final Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4. ORDER NO. R4-2012-0175, NPDES No. CAS004001. (December 5, 2012).

<sup>14</sup> Permit Attachment C

<sup>15</sup> Permit Attachment D

- Storm water Outfall Monitoring
- Non-Storm water Outfall Monitoring
- New Development/Re-Development Effectiveness Tracking
- Regional Studies

Gateway member agencies responsible for MS4 monitoring and reporting were still developing the approach to meeting the requirements of the MS4 Permit/Order and deciding how to configure a regionalized program. Baseline, existing conditions have been established through the monitoring program discussed in Section 14.5.5 (SGRRMP, LARWMP) and the related monitoring reports and in Section 8.2, Storm water and Water Quality Problem Areas. The current beneficial uses and list of impaired water bodies are also part of the IRWMP baseline. The future ambient, special studies and compliance monitoring will be implemented by the GWMA members pursuant to the MS4 Permit/Order, will rely on these sources for purposes of comparing future monitoring results.

### **18.1.2 Reporting**

All of the MS4 permittees, whether operating separately or as a member of a watershed group, will prepare and submit by December 15 annual reports to the RWQCB. These reports will be used by GWMA to discuss the effectiveness of its past and ongoing control measures, IRWMP projects and further develop plans for future control measures. The required content is spelled out in the MS4 Permit/Order for the watershed management areas in the Gateway Region. Annual Reports will clearly identify all data collected and strategies, control measures, and assessments implemented by each permittee within their jurisdiction.

### **18.1.3 Performance Measures**

The table below presents IRWMP performance measures to help the GWMA measure and track progress in meeting the IRWMP objectives. To meet the IRWMP water quality objectives, watershed control measures are defined as those structural or non-structural control, operations and maintenance procedures that are designed to achieve applicable water quality-based effluent limitations or receiving water limitations.<sup>16</sup>

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<sup>16</sup> See MS4, Section C, Watershed Management Programs

<b>Performance Measure</b>	<b>Metric</b>
Implement Watershed Control Measures under MS4 Permits.	<ul style="list-style-type: none"> <li>• Number and type of project implemented</li> <li>• Amount of investment in dollars<sup>17</sup></li> </ul>
Reduction in the number of exceedence days for non-compliance with water quality based effluent limitations and/or receiving water limitations	<ul style="list-style-type: none"> <li>• Days exceeding standard</li> <li>• Number of violations</li> </ul>
Develop watershed management plan (WMP) or enhanced watershed management plans (EWMP) pursuant to the MS4 Permit	Number of agencies with <ul style="list-style-type: none"> <li>• RWQCB approved WMP or EWMP</li> <li>• Adopting and implementing Low Impact Development ordinances</li> <li>• Number of agencies implementing green street policies</li> </ul>
Reduction in trash reaching local river and the ocean	<ul style="list-style-type: none"> <li>• Number of trash racks, catch basins and/or devices installed</li> <li>• Pounds of trash collected</li> <li>• Number of violations of standard</li> </ul>
Improved monitoring of water quality	<ul style="list-style-type: none"> <li>• Number of outfall monitoring stations installed</li> <li>• Reduced cost of regional program versus individual monitoring</li> </ul>
Reduction of flow and/or treatment of non-storm water discharges identified as contribution to noncompliance with MS4	<ul style="list-style-type: none"> <li>• Amount of low-flow urban run-off (AF/yr) diverted to:               <ul style="list-style-type: none"> <li>○ sanitary sewer</li> <li>○ Alternative treatment (e.g.; biofiltration), restoration or other remedial measures</li> <li>○ Beneficial reuse, including groundwater replenishment</li> </ul> </li> </ul>
Progress in implementing storm water management minimum control measures	<ul style="list-style-type: none"> <li>• Agencies, number and type of minimum control measures and projects implemented</li> <li>• Amount of investment (\$)</li> <li>• Number of updated, revised storm water control manuals</li> <li>• Adopted policies and standards</li> </ul>
GWMA implementing BMPs for public agency facilities and activities <sup>18</sup>	<ul style="list-style-type: none"> <li>• Number, type and investment in general and activity specific BMPs</li> </ul>

Specific analysis tools may also be used to evaluate feasible alternatives to controlling storm water, non-storm water and developing more detailed watershed management plans pursuant to the RWQCB Permit/Order. The RWQCB Permit/Order requires a quantitative Reasonable Assurance Analysis using a peer- reviewed public domain model such as the Watershed

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<sup>17</sup> Each MS4 Permittee is required to conduct a fiscal analysis of the annual capital, operations and maintenance costs to implement the requirements of the RWQCB order; and to describe the actions and expenditures in an Annual Report.

<sup>18</sup> See Order/Permit Table 18, BMPS for Public Agency Facilities and Activities



Management Modeling System (WMMS), Hydrologic Simulation Program-FORTRAN (HSPF), and/or the Structural BMP Prioritization and Analysis Tool (SBPAT).

There are a number of performance measures and management practices that meet both the water quality objective and the 20 x 2020 conservation objectives. The next section includes discussion of the programs that would reduce urban runoff and may also help meet IRWMP water quality objectives.

## **18.2 Enhance Water Use Efficiency to Meet 20 x 2020 per Capita Water Use Targets**

IRWMP objectives 3, 4, and 5 are to achieve the goal for optimizing and ensuring water supply reliability included. All of the GWMA stakeholders that are retail water agencies with greater than 3,000 connections must have an Urban Water Management Plan (UWMP) prepared and adopted by July 1, 2011. The monitoring and reporting requirements are defined in state law and 2010 UWMP Guidebook published by DWR.

### ***18.2.1 Monitoring***

The GWMA will integrate performance measures and monitoring included in the UWMP to track implementation of Best Management Practices (BMPs/Demand Management Measures (DMMs)<sup>19</sup> and progress in meeting the 20 x 2020 conservation goal. The UWMPs are to contain schedules for implementing the BMPS/DMMs being implemented by stakeholders. Signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California submit annual reports to the California Urban Water Conservation Council<sup>20</sup>. These same reports will be used to inform GWMA.

### ***18.2.2 Performance Measures***

The UWMP annual reports are the source of monitoring the performance measures described below.

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<sup>19</sup> The DMMs are as documented in the DWR guidelines and/or as defined by the California Urban Water Conservation Council.

<sup>20</sup> California Water Code 106351(e)

<b>Performance Measure</b>	<b>Metric</b>
Adopted and DWR approved UWMP	<ul style="list-style-type: none"> <li>• Number of agencies with adopted UWMP approved by DWR as to meeting standards</li> </ul>
Implementation of Best Management Practices /Demand Management Measures (BMPs/DMMs) and other strategies defined in the applicable UWMP.	<ul style="list-style-type: none"> <li>• Annual report and listing of BMPs/DMMs implementation activities and investments</li> </ul>
Individual stakeholders track and measure volume of conserved water	<ul style="list-style-type: none"> <li>• Volume of water conserved (AF/yr)</li> <li>• Volume of imported water use avoided (AF/yr)</li> <li>• Reduction in per capita water use (gpcd)</li> <li>• Avoided cost of imported water (\$)</li> </ul>

### **18.3 Expand Regional Water Recycling Facilities**

Objective 4 is to expand recycling is part of the goal to increase water supply reliability. Individual GWMA stakeholders are pursuing a range of recycling projects and continuing to participate in regional recycling. This includes increasing treatment levels and improving purple pipe distribution systems.

#### **18.3.1 Monitoring**

GWMA members will monitor and report on the projects that expand the use of recycled water.

#### **18.3.2 Performance Measures**

<b>Performance Measure</b>	<b>Metric</b>
Individual GWMA stakeholders track and measure increased use of recycled water	<ul style="list-style-type: none"> <li>• Feasibility studies and CIP improvement plans adopted and funded.</li> <li>• Number of new connections to recycled system</li> <li>• Volume of water treated for recycling/reuse (AF/yr)</li> <li>• Volume of imported water use avoided (AF/yr)</li> <li>• Areas receiving recycled water for irrigation or habitat creation (acres)</li> <li>• Amount of distribution system improvements (linear feet of purple pipe)</li> <li>• Avoided cost of imported water (\$)</li> </ul>
Reduced groundwater pumping	<ul style="list-style-type: none"> <li>• Provide an alternative supply in lieu of groundwater (AF/yr)</li> </ul>

## 18.4 Systematically Upgrade Aging Water Infrastructure

Objective 5 is to systematically upgrade aging water infrastructure is also part of the goal to optimize and ensure water supply reliability. This includes projects to help DACs meet water supply and quality needs.

### 18.4.1 Monitoring

GWMA members will monitor and report on the projects that upgrade infrastructure as projects are funded and implemented. Any updates to CIPs will be included in future IRWMP updates.

### 18.4.2 Performance Measures

Performance Measure	Metric
Individual GWMA stakeholders update CIPs	<ul style="list-style-type: none"> <li>Feasibility studies and CIP improvement plans adopted and funded</li> </ul>
Wastewater collection systems improvements	<ul style="list-style-type: none"> <li>Pipeline replacements (linear feet)</li> <li>Population served</li> <li>Reduction in number of breaks</li> <li>Reduction in systems loss (cfs)</li> </ul>
Well replacements or repair to preserve pumping capacity	<ul style="list-style-type: none"> <li>Number of wells repaired, replaced</li> <li>Preserved groundwater pumping/yield (AF/yr; cfs of pumping capacity)</li> <li>Volume of imported water avoided (AF/yr)</li> <li>Avoided cost of imported water (\$)</li> </ul>
Groundwater treatment facility improvements to treat and reuse contaminated water	<ul style="list-style-type: none"> <li>Groundwater pumping/yield (AF/yr; gpm of pumping capacity)</li> <li>Volume of imported water avoided (AF/yr)</li> <li>Avoided cost of imported water (\$)</li> </ul>
Systems Interties	<ul style="list-style-type: none"> <li>Population served</li> <li>Supply interruptions avoided (number of events)</li> </ul>
Upgrade drinking water treatment plants	<ul style="list-style-type: none"> <li>Volume treated (gpm)</li> <li>Customer complaints (events)</li> <li>Number of exceedence events (events)</li> </ul>
Upgrade wastewater treatment facilities	<ul style="list-style-type: none"> <li>Volume treated (gpm)</li> <li>Number of exceedence events (events)</li> </ul>

## 18.5 Create Habitat, Open Space, and Water Based Recreational Opportunities

Objective 6 is to create habitat, open space and water based recreational opportunities. It is part of the goal to provide stewardship of the region’s natural resources and enhancement of amenities and open space. Integrated performance measures include reduced erosion potential through habitat preservation and creation.

### 18.5.1 Monitoring

GWMA members will monitor and report on the projects that create, enhance or preserve habitat and open space.

### 18.5.2 Performance Measures

Performance Measure	Metric
Create or preserve habitat and open space	<ul style="list-style-type: none"> <li>List of species and habitat supported</li> <li>Areas created, enhanced or preserved by habitat type (acres)</li> <li>Easements procured (acres)</li> </ul>
Increased wildlife and botanical diversity	<ul style="list-style-type: none"> <li>Species counts and observations (number of sightings; number of observation/survey events)</li> </ul>
Improve recreational opportunities for urban populations	<ul style="list-style-type: none"> <li>People served</li> <li>Visitor days</li> <li>Number of interpretive events held</li> </ul>
Reduced erosion and runoff, avoided water quality degradation	<ul style="list-style-type: none"> <li>Runoff reduced through preservation and avoidance of development (cfs)</li> <li>Reduced sedimentation (tons)</li> <li>Reduced storm water runoff and pollution loads (mg/l)</li> </ul>

## 18.6 Project Performance and Monitoring Plan

Projects are included in the IRWMP because they contribute to meeting the overall regional IRWMP goals and objectives. Each of the Projects Sponsors will develop project performance and monitoring plans. If the GWMA is lead it will develop the projects performance and monitoring plan. The projects specific plans are to be developed during the planning phase and are intended to set the stage for tracking a project’s contribution to

meeting the IRWMP objectives. The performance measures and metrics above provide a basis for further developing a detailed project performance table which will identify:

- Project goals
- Desired outcomes
- Output indicators – measures to effectively track output
- Outcome indicators – measures to evaluate change that is a direct result of the work
- Measurement tools and methods
- Measurable targets that are feasible to meet during the life of the Proposal

Output indicators measure on-the-ground implementation of management actions, such as acres of habitat restored, miles of levees strengthened, etc. Output indicators describe the level of activity that will be provided over a period of time, including a description of the characteristics (e.g., timeliness) established as standards for the activity. Outputs refer to the internal activities of a program – the products and services delivered

Outcome indicators measures “response” or “results” and describe the ultimate outcome of the project or management action upon the ‘system’ that is being managed (For example, improved water quality in a specific water body). The outcome measures should be tied to the goals and objectives of the program. These could also be specific numerical targets. These usually compare systems wide with and without (baseline) projects conditions for large systems variables. The relationship of the projects monitoring to existing or proposed regional programs and the ability to integrate monitoring efforts should also be evaluated.

Prior to project implementation, each projects specific monitoring plan will provide an explanation of the following:

- Describe what is being monitored (e.g.; water quality, water depth, flood frequency, and effects the project may have on habitat or particular species (before and after construction) .
- Measures to remedy or react to problems encountered during monitoring.
- Location and frequency of monitoring, also documenting any quality assurance projects plan (QAPP).
- Monitoring protocols/methodologies, including who will perform the monitoring.

In addition, project sponsors will provide data to the state in forms and formats needed to include in the state’s data bases where this is a condition of any grant funding. The GWMA members are already participating in a number of regional monitoring efforts. One of the potential projects is to develop further regional monitoring for purposes of the ensuring and demonstrating compliance with the TMDL requirements. Projects Sponsors will ensure the monitoring schedule is maintained and that adequate resources (funding) are available in maintenance and operations budgets in order to maintain monitoring of the project throughout the scheduled monitoring timeframe.

# 19 Plan Amendments

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Integrated Regional Water Management Plans are not static. They are living documents that must change over time to meet the changing needs of water management within the region or to adapt to changing forces or opportunities from outside the region. One might even consider that successful plans surely require attention and updating because they have accomplished parts of their goals and must be adjusted for new goals on the horizon.

The Gateway IRWMP process has considered the need to adapt the plan to change. Stakeholders reviewed how they might update the plan or parts of the plan during their meeting on December 13, 2012 and agreed by consensus on a procedure for amendments, as detailed below.

There are two levels of plan amendments that need to be considered: 1) changing the basic elements and assumptions for the plan or 2) changing or maintaining a current project or actions list for the plan.

## 19.1 Basic Plan Changes

Where major elements or formal parts of the IRWMP must be changed or updated, the procedure would need to be more involved. Changes to the Goals and Objectives of the plan, for example, or the governance structure or the underlying funding and representation of the IRWMP or the Regional Water Management Group are all large changes in the base document. Since the plan was originally adopted by resolution of the various bodies, including, in Gateway's case, the GWMA itself, any changes should require these bodies to re-adopt the updated plan.

The IRWMP Guidelines require the IRWMP to be reviewed every five years for adequacy. Legislative changes to IRWMP requirements or administrative changes by DWR in Guidelines for IRWMPs have required existing plans be updated in the past. Water management needs or priorities within the Region may also change over time and require plan updates to be current. Regions should anticipate plan updates in some form every five years.

Like the original IRWMP adoption process, major plan updates should be governed and led by a careful, open, stakeholder-driven process. Like the original IRWMP, the process must revisit issues, goals, strategies, projects, integration, impacts, benefits and implementation pathways.

Therefore, updates to the plan must be considered and authorized by the region's governing body and its membership. **Plan updates must be authorized and directed by majority vote of the Gateway Water Management Authority.**



## 19.2 Project List Changes

Updating the project list within the IRWMP is generally considered a minor adjustment to the plan, and almost a maintenance procedure, considering the plan should be flexible enough to endure at least five years between formal updates.

New funding opportunities may arise or water management conditions change that would affect various projects on the project list. In addition, new project ideas or funding opportunities may arise for the region. Funding criteria for grants and loans may change, making a project more competitive for funding. For projects to receive state funding, they must be included on the IRWMP project list. To allow flexibility for new ideas or better integrated programs, the list should have the ability to be modified in a quick and easy way. The IRWMP is not being changed, the procedure is just adding projects to the list.

**Updating the project list should be initiated as needed using a “call for projects” procedure and that update should be at the pleasure of the GWMA Board.** The following procedure was endorsed by the Stakeholders in December 2012:

Project List Maintenance Process:

1. Request(s) to GWMA Board from Member or Stakeholder
2. GWMA authorizes Project List Amendment by vote and sets solicitation period (~30 day)
3. Members/stakeholders submit projects through submittal form
4. GWMA selects Technical Review Committee
5. Technical Review Committee reviews submittals and screens and ranks projects using previously developed ranking criteria (Approximately 30 days)
6. Technical Review Committee presents to Stakeholders
7. Stakeholders recommend Amended List to GWMA for adoption
8. GWMA adopts list

Figure 19-1 outlines the procedure. Any additional decisions that may be required should be addressed to the GWMA Board.

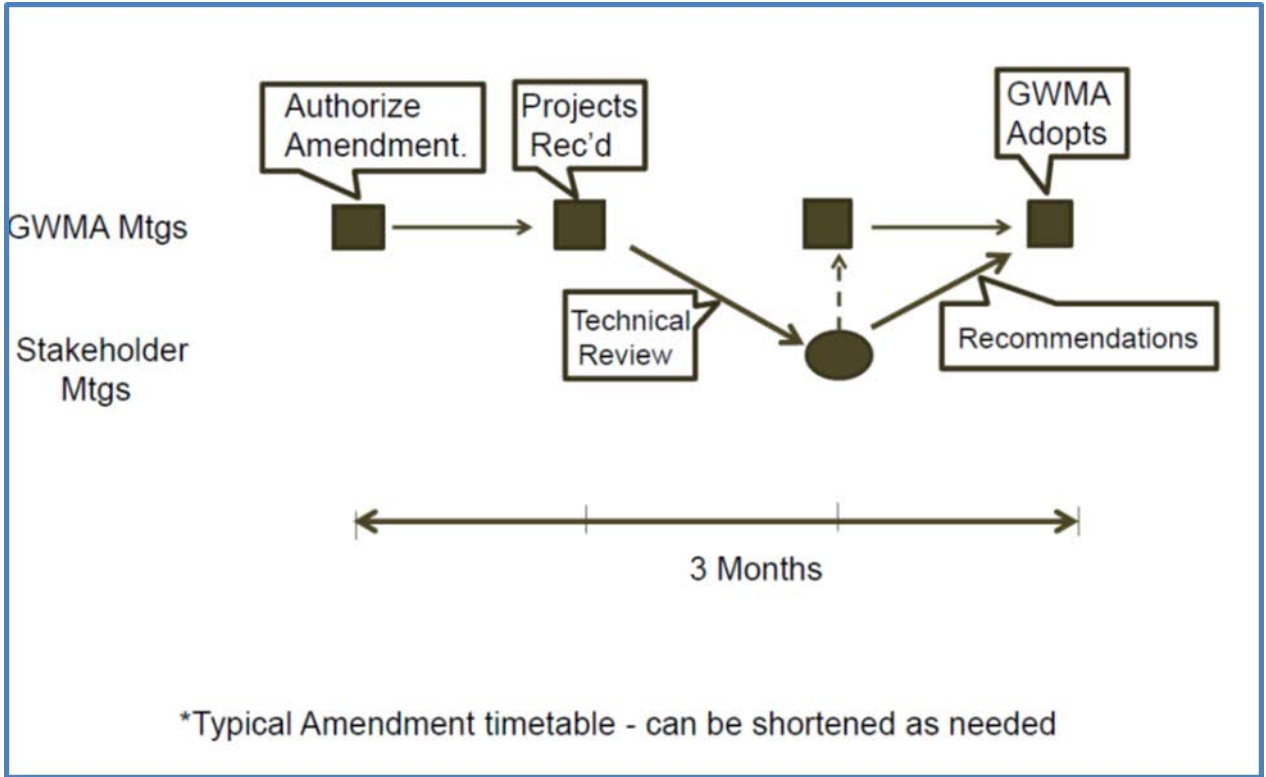


Figure 19-1. Project List Maintenance Process

## 20 Conclusions and Recommendations

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### 20.1 Conclusions

- GWMA has led an open, participatory, collaborative public process for the development of an IRWMP for the Gateway Region. A stakeholder group was formed to make recommendations to the GWMA and guide the process.
- Stakeholders formulated a list of Goals and Objectives that was adopted by the GWMA that address the major water management issues in the Region, including water quality protection and enhancement, water supply reliability, flooding, and storm water management and environmental stewardship.
- The IRWMP process includes studies on groundwater and groundwater quality and monitoring, storm water and flooding, and water supply and demand. The effect of climate change on the plan was also analyzed.
- A wide range of projects were suggested and incorporated in the plan to carry out water management strategies addressing IRWMP Goals and Objectives. Project Alternatives provide regional solutions for regional problems.

Coordination with other planning efforts, effective communications, and plan performance monitoring are important continuing steps for GWMA in the continued effective management of the Gateway Region's water resources.

### 20.2 Recommendations

#### 20.2.1 IRWMP Maintenance- Communications, Coordination, and Reporting

GWMA should:

*1.1 Continue to coordinate regional water management efforts and be active in implementing solutions to water management issues.*

*1.2 Coordinate annual meeting in January to review the progress in meeting goals and objectives; review the annual reports for grant funded projects; and review and discuss the annual reports required in December under the MS4 Permit/Order.*

Under the Plan Performance and Monitoring Program (PPM; Ch 15), grant funded project sponsors will be required to submit annual reports to the GWMA for consolidation and review. Each member of the GWMA is encouraged to use the PPM program to track individual efforts in the IRWMP program alternatives so that the GWMA and public know what has been accomplished and so the GWMA can demonstrate success. This includes activity in each of the program alternatives including tracking and reporting on efforts to:

- Enhance Water Use Efficiency to Meet 20 x 2020 per Capita Water Use Targets
- Expand Regional Water Recycling Facilities

- Systematically Upgrade Aging Water Infrastructure
- Create Habitat, Open Space and Water Based Recreational Opportunities

Under the MS4 Permit/Order, annual reports are required<sup>21</sup> which identify all data collected and strategies, control measures, and assessments implemented by each permittee within their jurisdiction.

*1.3 Coordinate Interactions with Other Intra-Regional Efforts and with Neighboring IRWM Regions*

Liaisons or representatives should provide regular updates regarding the activity of key groups or planning initiatives to GWMA. For example, GWMA should continue to coordinate with watershed TMDL committees.

*1.4 Maintain a stakeholder contact list of liaisons, key points of contact and representatives to other agencies and regional planning efforts.*

*1.5 Maintain the GWMA website to track calendars, distribute documents, and share data.*

*1.6 Develop Contracts between the GWMA and Proposition 84 Grant Recipients*

GWMA will be the contract manager and fiscal agent for any grant awards under contract with DWR. GWMA will need to sign contracts with the entities to implement projects. This includes designating contract managers, binding recipients to DWR contract requirements, establishing administrative costs and overhead, and other required provisions.

*1.7 Update Projects list as necessary and as grant opportunities are identified.*

*1.8 Track legislation, inform elected leader and develop lobbying efforts to direct resources to the area to implement the IRWMP and related projects and programs.*

*1.9 Develop Gateway specific public outreach and education materials and campaigns.*

**20.2.2 Further Develop GWMA Projects**

Two specific GWMA projects were conceptually identified that require further development of scope, schedules, budgets, roles and responsibilities and funding. Both are related to how the region will reduce the overall individual agency costs through shared program implementation and development. The concepts for shared program require further development including definition of scope, schedule, budget, roles, and responsibilities and funding/cost sharing agreements. Efforts would require a program to manage and share data

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<sup>21</sup> See Attachment C, Final Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4. ORDER NO. R4-2012-0175, NPDES No. CAS004001. (December 5, 2012)

and to generate local revenue to share costs to comply with requirements. The two principal initiatives include:

*2.1 Address MS4 Permit/Order Watershed Monitoring and Reporting Program<sup>22</sup>*

The MS4 Permit/Order requires watershed scale monitoring. A cooperative program should be developed to improve overall cost effectiveness of compliance and assessment monitoring efforts in the LA and San Gabriel River watershed that are within the Gateway Region. A cooperative plan and program would reduce redundancies, target monitoring efforts on contaminants of concern and to adjust monitoring locations and sampling frequencies to better respond to detections and problems. The results would be used to establish management priorities in both watersheds. The results could be used by GWMA to integrate ongoing and planned special studies and prioritize corrective measures.

*2.2 Support Watershed Corrective Action Plans*

The GWMA needs a program to implement cost effective corrective actions and best management practices (BMP) to meet water quality standards and objectives for both storm water and non-storm water runoff. The BMPs could include both centralized and decentralized actions to improve water quality and comply with the MS4 Permit/Order. Additional work is needed to define the most cost effective BMPs and programmatic actions. GWMA programmatic efforts should be implemented based on the results of prior research and demonstration projects, the contemporary monitoring results that identify problem areas, available models to establish initial priorities for impacted areas, and establish an actionable engineering plan that defines benefits, roles and responsibilities, funding requirements and a financial model. Benefits should factor in integrated program objectives for groundwater recharge, water quality improvements and storm water management.

*2.3 GWMA should install, maintain, and further develop the web enabled GIS data base used to support IRWMP implementation and further development of monitoring program for the MS4 permit. This data management system facilitates data sharing, production of required reports, document water quality improvements, and tracks projects.*

*2.4 Define Funding and a Finance plan to cost effectively implement actions and best management practices to comply with orders and requirements.*

As with monitoring, a shared GWMA program should be developed to identify how to fund the actions identified under Recommendation 20.4. GWMA provides the governance and funding mechanism to take advantage of the funding authorities available to special districts or the cities under Proposition 218 and 13, respectively.

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<sup>22</sup> Permit Attachment D

### **20.2.3 Provide Regional Leadership**

*3.1 The GWMA should continue to provide leadership to influence local water planning and develop unified positions to other regional water management entities to ensure economic justice and the fair distribution of grants, program funding and projects.*

The GWMA now provides the opportunity to engage elected leaders and improve the representation to the other regional agencies that are undertaking programs and project, or subsidizing local programs for activities like water conservation and recycling. Through the GWMA, the Gateway Region has the opportunity to create greater awareness of the communities needs and will work to provide more cohesive input to regional agencies.



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# Appendix A Resolutions

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RESOLUTION NO. 2013-X

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
LOS ANGELES GATEWAY REGION INTEGRATED REGIONAL  
WATER MANAGEMENT JOINT POWERS AUTHORITY AUTHORIZING THE  
ADOPTION OF THE GATEWAY INTEGRATED REGIONAL  
WATER MANAGEMENT PLAN

WHEREAS, the Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority (GWMA) is comprised of cities and other government agencies interested in maximizing opportunities to integrate water management activities such as water supply reliability, water quality, environmental stewardship, and flood management; and

WHEREAS, the GWMA is a Regional Water Management Group recognized by the State of California Department of Water Resources; and

WHEREAS, Proposition 84 provided funding for the IRWMP grant used to develop the Gateway Integrated Regional Water Management Plan pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001 et seq.); and

WHEREAS, GWMA has continued to engage potential GWMA members and various stakeholders throughout the Region into the IRWMP development process; and

WHEREAS, the GWMA has developed the Gateway Integrated Regional Water Management Plan through an open, participatory, collaborative, public process;

NOW, THEREFORE, THE GWMA DOES HEREBY RESOLVE, ORDER, AND DETERMINE AS FOLLOWS:

Section 1. The Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority adopts the IRWMP dated June 2013;

Section 2. The Board Secretary shall certify to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 2013.

Christopher Cash, Board Chair

ATTEST:

Charlie Honeycutt, Board Secretary



RESOLUTION NO. 2013-X  
A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF \_\_\_\_\_  
AUTHORIZING THE ADOPTION OF THE GATEWAY INTEGRATED REGIONAL  
WATER MANAGEMENT PLAN DATED JUNE 2013

**WHEREAS**, the Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority (GWMA) is comprised of cities and other government agencies interested in maximizing opportunities to integrate water management activities such as water supply reliability, water quality, environmental stewardship, and flood management; and

**WHEREAS**, Proposition 84 provided funding for the IRWMP grant used to develop the Gateway Integrated Regional Water Management Plan pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001 et seq.); and

**WHEREAS**, the GWMA is a Regional Water Management Group recognized by the State of California Department of Water Resources; and

**WHEREAS**, the GWMA has developed the Gateway Integrated Regional Water Management Plan through an open, participatory, collaborative, public process; and

**WHEREAS**, the City of \_\_\_\_\_ actively supports and is a member the GWMA; and

**WHEREAS**, the City of \_\_\_\_\_ has been an active Stakeholder, contributor, and participant in the development of the Gateway Integrated Regional Water Management Plan;

**NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of \_\_\_\_\_ that it does hereby adopt the Gateway Integrated Regional Water Management Plan dated June 2013.**

PASSED, APPROVED, AND ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 2013.

\_\_\_\_\_  
\_\_\_\_\_, Mayor

ATTEST:

\_\_\_\_\_  
\_\_\_\_\_, City Clerk

RESOLUTION NO. 2013-6-13-1  
A RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
LOS ANGELES GATEWAY REGION INTEGRATED REGIONAL  
WATER MANAGEMENT JOINT POWERS AUTHORITY AUTHORIZING THE  
ADOPTION OF THE GATEWAY INTEGRATED REGIONAL  
WATER MANAGEMENT PLAN

**WHEREAS**, the Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority (GWMA) is comprised of cities and other government agencies interested in maximizing opportunities to integrate water management activities such as water supply reliability, water quality, environmental stewardship, and flood management; and

**WHEREAS**, the GWMA is a Regional Water Management Group recognized by the State of California Department of Water Resources; and

**WHEREAS**, Proposition 84 provided funding for the IRWM planning grant used to develop the Gateway Integrated Regional Water Management Plan pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001 et seq.); and

**WHEREAS**, GWMA has continued to engage potential GWMA members and various stakeholders throughout the Region into the IRWMP development process; and

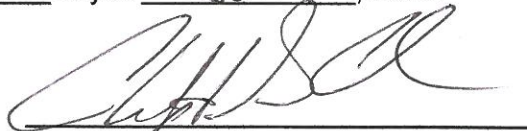
**WHEREAS**, the GWMA has developed the Gateway Integrated Regional Water Management Plan through an open, participatory, collaborative, public process;

**NOW, THEREFORE, THE GWMA DOES HEREBY RESOLVE, ORDER, AND DETERMINE AS FOLLOWS:**


**Section 1.** The Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority adopts the IRWMP dated June 2013;

**Section 2.** The Board Secretary shall certify to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 13<sup>th</sup> day of June, 2013.

  
\_\_\_\_\_  
Christopher S. Cash, Board Chair

ATTEST:

  
\_\_\_\_\_  
Charlie Honeycutt, Board Secretary

# Appendix B Outreach Plan

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# Outreach Plan for the Gateway Integrated Regional Water Management Plan



## Outreach Plan for the Gateway Integrated Regional Water Management (IRWM) Plan

Following is an outreach plan that outlines the strategies, tactics and materials necessary to reach the stakeholders and general public, with an emphasis on Disadvantaged Communities, or DACs, to enlist their participation in Gateway IRWMP's development process.

Integrated Regional Water Management (IRWM) is a collaborative effort to identify and integrate projects, programs and policies for demand, water supply, water quality and flood management for the Gateway IRWM Region (Region). IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.

### ASSUMPTIONS

- All parts of the plan are open to review and comment. As part of the IRWMP process, the Gateway IRWMP group will be accepting initial comments at the public meeting (both the stakeholder and Gateway Water Management Authority "GWMA" meetings are public). There is a public draft document and a public meeting halfway through a public review and comment period. The public can appear at the JPA meeting when the plan is adopted.
- As the governing board of a joint powers authority, the GWMA will evaluate and respond to public comment.
- The public review draft of the plan will be submitted in about 14 months from now.
- The final IRWMP is adopted by the GWMA and copies are submitted to Department of Water Resources.
- We cannot call the plan anything else as the State has a particular definition and standards for an IRWMP.
- Any member of the public is eligible to participate in meetings and provide input regardless of whether they are owners or tenants of where they live.
- We have based our recommendations on census data of select cities with the highest density of DACs as well as conversations with a few stakeholders and residents in select cities.
- A component of the IRWMP process is community outreach to stakeholders within the Region. Initial outreach will be conducted to non-GWMA members, interested parties and disadvantaged communities.
- Stakeholders are defined as people who are speaking on behalf of a group of people and are usually but not always part of an organization, whether public, private or nonprofit

## THE PLAN

Goal of the project (the “why?”): Demonstrate a concerted effort was made to reach out to underserved communities (stakeholders and general public) in the Gateway Cities to provide input into the IRWMP.

Goal of the plan: Ensure community is fully engaged or has an opportunity to be engaged in the process of developing the plan. The general goal, which is being finalized in the first steps of the planning process, is to ensure the water supply and water quality of these communities are protected and enhanced.

## THE OUTREACH

### GOALS

- Demonstrate that a concerted effort was made to appropriately inform stakeholders in the gateway communities of the upcoming plan and their right to contribute to it
- Demonstrate that a concerted effort was made to reach stakeholders that represent residents in the DACs
- Make initial contact with at least 5 DAC reps to be added to the existing Stakeholders Group

### MESSAGING

1. Keep Your Water Clean For Your Children: This is about keeping your community’s water clean and reliable for your children and future generations
2. Call to Action: Come to the public meeting for information + logistics

\*all translated into Spanish

### AUDIENCES:

#### *(1) City Representatives*

1. Action items
  - Join the stakeholders’ group and come to subsequent meetings
  - Spread the word on the plan and how to participate
  - Provide referrals of who else we should outreach to
  - Review the plan and provide feedback

#### *(2) General Stakeholders*

1. What is the action we want them to take?
  - Join the stakeholders group and come to subsequent meetings
  - Spread the word on the plan and how to participate
  - Provide referrals of who else we should outreach to
  - Review the plan and provide feedback as representatives of their community
2. What are the barriers and motivators?
  - Motivator -- having a say or an impact in the future water quality of their area



- Motivator - water quality and quantity issues are a good fit with nonprofit's mission or main line of services
  - Barrier -- time if they are nonprofits because they're usually short of resources
3. What type of stakeholders are they?
- Government
  - Businesses
  - Chambers of Commerce
  - HOA's
  - Nonprofits
  - Community leaders: not affiliated with an organization but influential in the community
  - Faith-based groups: churches or religious groups are huge gathering centers for many communities. We could tap into these leaders to publicize the meetings for us.
4. What are potential methods of communication (e.g., do they have Internet access, available media outlets)
- Most have Internet access, either at home, work or through smart phones
  - Some nonprofits and/or businesses have social media presence we could tap into
  - Utilize existing access to local cable and stakeholder websites, including GWMA website

### *(2.1) DAC Stakeholders*

1. What is the action we want them to take?
- Join the stakeholders group and come to subsequent meetings
  - Spread the word on the plan and how to participate
  - Provide referrals of who else we should outreach to
  - Review the plan and provide feedback as a representative of their community
2. What are the barriers and motivators?
- Motivator -- protect the water quality in their area for the community; make an impact on the future; contribute to caring about and making water quality protection a social norm (if other people are participating or telling you about it)
  - Motivator -- precedent of nonprofit coalitions (e.g., Environmental Justice Coalition for Water) and civic groups (e.g., Padres Unidos, a parent advocacy group) having mobilized around water and Bell accountability issues and made a difference
  - Motivator - giving underserved communities a voice in protecting the water quality, and, by extension, quality of life in their communities
  - Motivator - water quality issue is a good fit with nonprofit's mission or main line of services
  - Barrier -- time if they are nonprofits because they're usually short of resources
  - Barrier -- distrust in government, especially around water issues (e.g., Maywood)
  - Barrier - long timeline of plan's development process and a lack of immediate tangible benefits/changes that directly impact their lives
3. What type of stakeholders are they?
- Businesses

- Nonprofits
  - Community leaders: not affiliated with an organization but influential in the community
  - Faith-based groups: churches or religious groups are huge gathering centers for many communities. We could tap into these leaders to publicize the meetings for us.
4. What are potential methods of communication (e.g., do they have Internet access, available media outlets)
- Nonprofits usually have Internet access
  - Some nonprofits and/or businesses have social media presence we could tap into
5. Any special “messaging” considerations for this group?
- Some may be monolingual Spanish-speakers and we need to consider this when conducting outreach

### (3) General Public

1. What is the action we want them to take?
- Primary:
    - Learn about the Gateway IRWMP and how it affects their community (either through attending a public meeting, reading about it online, etc)
  - Secondary:
    - Attend the 2/29 public meeting
    - Provide feedback based on highlights and questions we will provide
2. What are the barriers and motivators?
- Motivator -- protect the water quality in your area for your family and future generations; contribute to caring about and making water quality protection a social norm (if other people are participating or telling you about it).
  - Barrier - doesn't seem important to their everyday lives; low on their priority list; unclear call to action (it's too complicated to read the information or submit a comment)
  - Barrier - long timeline of plan's development process and a lack of immediate tangible benefits/changes that directly impact their lives
  - Barrier: fear they will be solicited for money in any way
3. What's the basic demographic info (e.g., ethnicity, age, language, immigrants?)
- Majority Latino, except for Compton, which is still majority Latino but has 1/3 African American population
  - **A majority (over 50% for many cities) of the households have children under 18 living with them, which could potentially mean that keeping the water clean for children and their families is highly important**
  - Average family size is about 3-4 people and age range runs the gamut, with the bulk of the population being younger than 18 and in the 25-44 range.
  - First generation residents are more comfortable speaking Spanish; younger generation is bilingual
4. What are potential methods of communication (e.g., do they have Internet access, available media outlets)
- Older generation reads or listens to Spanish-language media; younger generation have local media, mainstream media and social media

**(3.1) DAC Public**

1. What is the action we want them to take?
  - a. Primary:
    - Learn about the Gateway IRWMP and how it affects their community (either through attending a public meeting, reading about it online, etc)
  - b. Secondary:
    - Attend the 2/29 public meeting
    - Provide feedback based on highlights and questions we will provide
2. What are the barriers and motivators?
  - Motivator -- water quality has been a hot button issue in some cities like Maywood (i.e., they had brown running water) so residents may be motivated to participate and spread the word. A recent meeting in Maywood about water quality where volunteers went door-to-door distributing flyers garnered a turnout of about 100-120.
  - Motivator -- protect the water quality in your area for your family and future generations; make an impact on the future, norms (if other people are participating or telling you about it).
  - Barrier - doesn't seem important to their everyday lives; low on their priority list; unclear call to action (it's too complicated to read the information or submit a comment)
  - Barrier - high tenant rate compared with owners. Communities with high tenant rates are usually more transient and its residents less engaged compared with owner-occupied communities
  - Barrier -- transportation and child care (or child-friendly tools/activities to keep them preoccupied during meeting): since all meetings will be held in Paramount and there are significant numbers of single parents; consider meetings in other communities
  - Barrier -- time: many of them work in the evening and meetings are held at 7pm
3. What's the basic demographic info (e.g., ethnicity, age, language, immigrants?)
  - Majority Latino, except for Compton, which is still majority Latino but has 1/3 African American population
  - Most of the high-density DAC cities were low on home-ownership (30%) vs. rentals (70%) except for Compton, where 55% of the homes were owner occupied, and Paramount, where about 40% of the homes were owner occupied
  - **A majority (over 50% for many cities) of the households have children under 18 living with them, which could potentially mean that keeping the water clean for children and their families would be highly important**
4. What are potential methods of communication (e.g., do they have Internet access, available media outlets)
  - Limited Internet access at home but younger generation has access through schools and libraries
  - Older generation consumes Spanish-language press like La Opinion and Univision; bilingual younger generation may be best reached through the school system
  - Consider bilingual outreach flyers at libraries
5. Any special "messaging" considerations for this group?

- Direct link to water quality and importance of protecting family's health would be critical
- While the experience of some cities mobilizing around water quality issues is an opportunity to engage them further, it could also potentially be a challenge if we are lumped with any other water quality cases associated with government. Distrust in governments responding to communities' needs around this issue runs high.
- It may be beneficial to provide maps in any flyer or invitation to the meetings to make it easier for residents to participate.
- Describe Gateway IRWMP process, timeline, and how projects get funded and built.

## TACTICS:

### PHASE I: PLANNING

#### A. Create Materials

1. Finalize the messaging & the action: Before reaching out to the public, it is critical that the stakeholders group reach a consensus on what the key messaging points are and that the call to action (i.e., what exactly we want people to do and how they can provide input) has been clearly articulated.
  - a. Finalize the key messaging points for the public dissemination of the IRWMP
  - b. Decide on which sections/components of the plan will be widely publicized for public comment and the logistics of the way people will submit their comments. The final result should be a simple, easy to understand prompt and a clear cut way to respond to it.
  - c. Create the available avenues for public comment (e.g., offline stations, online form, etc)
  - d. Formulate how we will address or respond to feedback and through what channels
2. Develop a flyer: Create a basic flyer, in Spanish and English, that provides an "at a glance" of the project and then a clear call to action (e.g., come to the meeting, visit the website or call for more info). Use the design to set the tone for other program pieces.

*Audiences: General and DAC Public (for consumption), General and DAC stakeholders (for distribution)*
3. Create an editable design piece: Create a Word document with a designed header and footer that can be repurposed by anyone on the project to create program flyers or announcements. This way, the look and feel of the template will be immediately recognizable and associated with the project.

*Audiences: City representatives and GEI*

4. Create an E-newsletter: Collect email signups through the GWMA website or events whenever possible and send people periodic (e.g., quarterly) updates about the status of the plan should they be interested. E-newsletters would be bilingual and brief.
  - a. Create a sign-up sheet to take to events. Sheet would allow people with emails to sign up to receive the newsletter.
  - b. Create an E-newsletter template and subsequent updates with information that is relevant to a broad audience and send it out approximately once a quarter.
  - c. Make the E-newsletter available on the website and have an online signup form prominently visible

*Audience: Any*

5. Update the program website: Make the website accessible to the general public by making it more visually compelling as well as more user-friendly navigation and content-wise -- focusing on a clear call to action and specifics about how this plan will have a direct impact on people living in Gateway cities.
  - a. Re-create the website homepage including the structure, content and design
  - b. Add in a "get involved" page that provides visitors with an easy way to see what the opportunities are for involvement in the plan
  - c. Create a form that allows people to submit comments and thoughts about the plan online
  - d. Make sure that someone is collecting, tracking and addressing these comments on the back end - if people sense that comments and emails aren't being promptly responded to, they may disengage
  - e. Make the site bilingual - add a plug-in tool to translate site into Spanish

## **B. Build Partnerships**

1. Expand the existing list of stakeholders with an emphasis on DACs: There are several existing groups and coalitions of stakeholders covering the Gateway Cities that we could leverage. Because there is an extensive list of stakeholders that already exists, we will focus our efforts on expanding the list further with an emphasis on including more DAC stakeholders in the Gateway Cities. This list will go off of the existing list and should be a collaborative document (shared between GEI, SGA and the City reps) so that outreach to various organizations and people becomes a team effort.
  - a. Create a collaborative online document for information sharing
  - b. Ask each of the stakeholders to contribute at least two (2) possible stakeholder candidates (either in the General or DAC group)
  - c. We will focus on identifying and recruiting DAC stakeholders
  - d. Each stakeholder could commit to helping us distribute materials and resources to their networks

*Audiences: General stakeholders, DAC stakeholders*

## PHASE II: IMPLEMENTATION

### A. Set Up Public Comment Opportunities (especially for those with no Internet access)

1. Set up response mechanisms:
  - a. Online (see Website section under A.5 on page 8)
  - b. Offline stations at community centers or other strategic locations in the region: partner with a few key community centers and libraries that will contain information about the Gateway IRWMP and the opportunity for the public to submit a comment based on plan highlights and questions to be developed (e.g., self-addressed postcards, feedback email address, etc)

### B. Public Meetings

1. Decide on logistics
  - a. Book a meeting venue, select a time and date
  - b. Define purpose and expected outcomes of the meeting
    - i. Agree on what the key message points will be
    - ii. Decide on what action we're asking the public to take at the meeting
  - c. Decide how the meeting will be organized
    - i. Presentation? Open forum? Small breakout sessions?
    - ii. Line up the speaker(s), key messages for each and assess if a facilitator is needed
    - iii. Develop presentation, key messages, length and format (e.g., powerpoint, images, poster boards, etc)
    - iv. As needed, hire a simultaneous interpreter or use bilingual staff to interpret the proceedings of the meeting for non-English speakers
    - v. Create the necessary meeting materials (e.g., sign in sheet, comment cards, FAQ or flyer, etc)
2. Publicize the meeting
  - a. Create an event flyer (i.e. who, what, where, etc)
    - i. Send it out to local media outlets (e.g. chamber of commerce newsletters and respective City publications)
    - ii. Reach out to online community calendars including those on City websites and media websites
    - iii. Send it out to the City reps and ask that they post the announcement on the City website, cable channels, newsletters and online calendars
    - iv. Create an email invitation and send it out to city representatives, stakeholders, existing coalitions and task forces covering the region & local clubs (e.g. Rotary Clubs) to help spread the word
3. Conduct and/or facilitate the meeting
  - a. Conduct a dress rehearsal, if possible, to ensure everyone understands their role during the meeting, when and how the public will have an opportunity to weigh in and ensure the meeting proceeds smoothly
4. Synthesize comments and report back to community
  - a. Create a summary of the comments received during the meeting and your responses
  - b. Translate the summary and responses into Spanish



- c. Post the summary and responses to the IRWMP website
- d. Make the summary and responses available in libraries and community centers for those without Internet access

## C. Media

1. Use existing outlets
  - a. Tap into existing community resources such as:
    - i. School districts' newsletter and websites (e.g., school districts sometimes have an extensive mailing list and networks we could tap into to promote meetings and distribute information)
    - ii. City governments' newsletters, websites and local cable access television stations (e.g., individual cities and Gateway Cities' Council of Governments)
    - iii. Local nonprofits' newsletter and websites
    - iv. Coalitions and task forces within Gateway Region
    - v. Churches' bulletins and newsletter (e.g., Santa Rosa de Lima is a large church that spans several Gateway cities and could potentially help publicize meetings and promote the plan)
2. Identify key spokespeople within General & DAC Stakeholder Groups as well as General & DAC Public Groups (1-2 spokespeople total)
  - a. Debrief identified spokespeople on media outreach using talking points
3. Develop and distribute talking points for media outreach in English and Spanish
  - a. Limited to three (3) talking points (similar to the messaging points on page 2) that can be tailored depending on the type of outlet (mainstream vs. local, print or TV vs. radio, etc)
4. Mainstream Spanish-language media outreach
  - a. Some households consume more mainstream Spanish media such as La Opinion or Univision TV
5. Hyper local media outreach
  - a. There are a few smaller local papers that we could tap into to reach these communities, such as Eastern Group Publications, which is one of the largest chains of local bilingual papers with the following publications, many of which are based in the Gateway Cities:
    - i. Eastside Sun / Northeast Sun / Mexican American Sun / Bell Gardens Sun / City Terrace Comet / Commerce Comet / Montebello Comet / ELA BrooklyN Belvedere Comet / Wyvernwood Chronicle / Vernon Sun
  - b. Outreach to local Compton media for non-Spanish speakers: Compton Bulletin (<http://www.thecomptonbulletin.com/>)
  - c. The Wave for Maywood/South Gate area
  - d. El Aviso Magazine

#### **D. Online Promotion**

1. Cross linking: ask stakeholders that have websites and/or social media outlets to include a link to the Gateway IRWMP site or a direct link to the meeting information or public comment page within the website.
2. Geo targeted Google ads: when people within the boundaries of the Gateway do a water related search, they will be directed to the GWMA website

# **Appendix C Project Submittal Review and Process**

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**Project Index**

ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
1	Pico Rivera Emergency Intertie	Pico Water District	City of Pico Rivera	Construct interties between the City of Pico Rivera, Central Basin MWD, and Pico Water District to transfer water among agencies when there is a need and continue fully utilize the groundwater remediation wells to protect water quality of the region. CBMWD is in the process of decommissioning its Water Quality Protection Plan (WQPP) primarily due to lack of funding and the City plans on modifying the existing wells, piping, and pumping facilities to integrate them into the City water system. Majority of the City’s production wells are over 50 years old and lost their well yield. This project will integrate an existing well of the CBMWD that was constructed less than 10 years ago to the City of Pico Rivera water system and continue pump groundwater as part of the cleanup process. Once completed, project will continue to provide ground water remediation, improve reliability of the City water system adding storage capacity, and provide assistance to neighboring agencies in emergency demand needs through inter-ties.
2	Advance Groundwater Wellhead Treatment Facility		City of Signal Hill	The Newport-Inglewood Fault runs directly through the City of Signal Hill. This unique geology essentially divides the City on a northwest axis, as well as provides a natural southern boundary for the Central Basin Groundwater Aquifer, preventing seawater intrusion from the south. However, the portion of the Central Basin Groundwater Aquifer that lies underneath the city limits, directly north of the earthquake fault has a high concentration of “organic color” within the groundwater. This project will construct an advance water treatment wellhead facility that will remove the organic color and treat this “new water source” for use as potable water supplies within the City
3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement		City of Downey	The project consists of the design and construction of an 8-inch recycled water main and associated facilities from the Rio Hondo Golf Course, east to Furman Park and the Rio Hondo Elementary School for landscape irrigation purposes. The total length of new pipeline will be 2,100 feet. In addition, the irrigation system at the 14-acre Furman Park will be replaced to

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
	Project			eliminate an inefficient system that is over 20 years old and uses excessive amounts of potable water. An estimated recycled water demand of 56 acre-feet per year is projected from the two sites.
4	Groundwater Well Supple Reliability Project		City of Signal Hill	This project rehabilitates two existing City groundwater supply wells located in the vicinity of Orange Ave. and Cherry Ave. Intersection and constructs a new groundwater supple well in the vicinity of Cherry Avenue and South Street. The City’s two existing water supply wells both were constructed in the 1980’s and are slowly losing groundwater production capabilities as they age. The rehabilitation/lining of these two existing wells will ensure the longest possible useable life of these facilities. The construction of a new water supply well will offset the loss of projection capacity from the two existing wells over time.
5	Hermosillo Park Well - Well No. 9 and water mains	City of Norwalk	City of Norwalk	Potable water well to serve the southern portion of the City's Municipal Water System
6	Installation of Catch Basin - Screening Devices (ARS/CPS)	City of Norwalk	City of Norwalk	Installation of CPS and ARS trash screening devices on 250 City and County owned catch basins located in Norwalk.
7	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion		City of Signal Hill	This project will construct a system that will divert low storm water flows from an existing storm drain outfall that services approximately 50% the Los Angeles River watershed located within the City’s boundaries directly into the Sanitary collection main for eventual treatment by the Los Angeles County Sanitation District. This project will prevent summer non-storm water flows and “first flush” storm low flows from ultimately being emptied into the Hamilton Bowl Storm water Retention facility and ultimately

**Project Index**

ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
				pumped into the lower Los Angeles River Estuary.
8	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion		City of Signal Hill	This project will construct a system that will divert low storm water flows from an existing storm drain outfall that services approximately 40% the Los Angeles River watershed located within the City’s boundaries directly into the Alamitos Sanitary Sewer Lift Station for eventual treatment by the Los Angeles County Sanitation District. This project will prevent summer non-storm water flows and “first flush” storm flows from ultimately being emptied into the Hamilton Bowl Storm water Retention facility and ultimately pumped into the lower Los Angeles River Estuary.
9	Los Cerritos Channel Metals TMDL - Low Flow Diversion		City of Signal Hill	This project will construct a system that will divert low storm water flows from an existing storm drain outfall that services approximately 90% the Los Cerritos Channel watershed located within the City’s boundaries directly into the Spring Street sanitary sewer lift station for eventual treatment by the Los Angeles County Sanitation District. This project will prevent summer non-storm water flows and “first flush” storm low flows from ultimately being draining into the Los Cerritos Channel and ultimately into Alamitos Bay.
10	MWD West Coast Feeder Connection and Transmission Main	City of Paramount	City of Paramount	To complement the City's imported water connections this project would construct a new connection on the MWD's West Coast Feeder. It will provide the City of Paramount with more redundancy in the supply of imported water.



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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
11	New Groundwater Well		City of Downey	To help secure a reliable, safe, energy efficient, and economically feasible source of drinking water into the future, the City is proposing to construct a new deep groundwater well and associated equipment and piping. The scope of the project includes design, construction, materials, development, testing, and permitting of the well and associated equipment and piping. A Request for Proposals (RFP) was previously prepared and professional services agreement executed for the design and construction management of the project. The project has commenced and is currently in the preliminary design phase. City personnel would provide project oversight and administration of contracts.
12	New Water Well (1)	City of Paramount	City of Paramount	Construction of a new water well to replace an existing water well that is currently 30 years old. The project will provide the City with a reliable source of water for its residents for the future.
13	Bellflower Municipal Water Distribution System Reconstruction		City of Bellflower Municipal Water System	Project will replace approximately 44,000 linear feet of aging and undersized distribution mains to increase flow capacity for both domestic use and fire protection, minimize water loss through leakage and improve water aesthetics.
14	New Water Well (2)	City of Paramount	City of Paramount	Construction of a new water well to replace an existing water well that is currently 35 years old. The project will provide the City with a reliable source of water for its residents for the future.
15	Norwalk Park Reservoir and Booster Pump Station	City of Norwalk - could expand to City of Bellflower/Santa Fe Springs	City of Norwalk	This project is needed to increase water supply reliability and could be a joint project with neighboring communities.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
16	Norwalk Water Main/Meter Replacements - Gridley to Maidstone	City of Norwalk	City of Norwalk	Construction of approximately 3 miles of deteriorated and undersized water mains, and meters located in the south west corner of Norwalk. Design of the project has been completed. Funding request only for construction.
17	Outfall Monitoring	Cerritos, Downey, Hawaiian Gardens, Norwalk, Signal Hill, South Gate, Lynwood, Long Beach, Lakewood	City of Downey	The participating cities are subject to numerous TMDLs. Many of these TMDLs have various monitoring requirements. In addition, the new LA Regional Water Quality Control Board MS4 Permit will have new and extensive monitoring requirements. This project will be for the installation of 17 automated composite water quality monitoring stations (3 in Cerritos, 4 in Downey, 1 in Hawaiian Gardens, 3 in Norwalk, 2 in Signal Hill, 4 in South Gate) at storm water outfalls in the Los Angeles River, San Gabriel River, and Los Cerritos Channel to monitor and attain required TMDL levels and help manage water runoff in the region.
18	Pilot Plant for Treatment of Los Angeles River Water	Long Beach Water Department	Long Beach Water Department	Provide a skid mounted treatment train capable of treating 20 GPM and the engineering support to confirm the effluent will be suitable for potable use. The Pilot Plant is to be installed near West Del Amo Boulevard and Oregon Avenue Long Beach, CA. The pilot plant will be operated for 4 months with the option to increase the time of study to 24 months after review of initial data.
19	Potable Water Interconnections- Bloomfield x Hayford and Pioneer x Lakeland	City of Norwalk	City of Norwalk	Design and construction of two potable water interconnections in Norwalk, located at the intersections of Pioneer x Lakeland and Bloomfield x Hayford. The interconnections would serve as emergency back-up between City of Norwalk and two other water agencies, in case of contamination issues, or other emergencies. Currently, there is no back-up interconnection source for these locations.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
20	SCADA and Automation	City of Pico Rivera	City of Pico Rivera	<p>The City will upgrade the SCADA and Automation system to include the following:</p> <ol style="list-style-type: none"> <li>1. SCADA Workstation and new hardware plus redundant workstations</li> <li>2. Historian server for long term archiving</li> <li>3. Replace existing RTU's with PLC's</li> <li>4. Install uninterruptible power supplies for all devices</li> <li>5. Replace the leased telephone line communication with spread spectrum radio communications</li> </ol>
21	Shallow Wells Abandonment		City of Downey	To properly abandon three (3) old shallow groundwater wells (Wells 1, 13, and 20) to prevent potential cross-contamination from surface runoffs to drinking water aquifers.
22	Small System Infrastructure Rehabilitation Project	CBMWD and local retail water cities and agencies in DAC areas	Central Basin Municipal Water District	Central Basin MWD would act as the project manager and would distribute funds to local DAC cities and agencies on a first-come, first-served basis for small water system infrastructure projects to increase reliability and possibly provide water quality improvement.
23	Splash Pad/Spray and Wading Pool Retrofit	Other agencies may participate including the Water Replenishment District	City of Norwalk	Retrofit of spray pools/wading pools and splash pads in order to reuse water for irrigation purposes and/or groundwater recharge
24	Bellflower NPDES Permit and TMDL Compliance Storm water Improvements	City of Bellflower	City of Bellflower	<p>The project will consist of:</p> <ol style="list-style-type: none"> <li>1) installation of catch basin automatic retractable screens at various locations</li> <li>2) installation of bioswales at various locations</li> <li>3) installation of bioretention systems at various locations</li> <li>4) installation of infiltration basins at various locations</li> </ol>

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
				5) installation of pervious pavement at various locations 6) installation of covered trash receptacles at various locations 7) NPDES permit and TMDL-required storm water and non-storm water monitoring
25	Storm Drain Improvement Project Zone 4	City of Paramount	City of Paramount	As part of the City of Paramount's Master drainage plan, several areas in the city have been identified as drainage deficient areas that are subject to flooding. This project includes the addition of storm drains to reduce or eliminate these deficiencies in Zone 4 of our established drainage zones.
26	Storm Drain Improvement Project Zone 2	City of Paramount	City of Paramount	As part of the City of Paramount's Master drainage plan, several areas in the city have been identified as drainage deficient areas that are subject to flooding. This project includes the addition of storm drains to reduce or eliminate these deficiencies in Zone 2 of our established drainage zones.
27	Storm Drain Improvement Project Zone 3	City of Paramount	City of Paramount	As part of the City of Paramount's Master drainage plan, several areas in the city have been identified as drainage deficient areas that are subject to flooding. This project includes the addition of storm drains to reduce or eliminate these deficiencies in Zone 3 of our established drainage zones.
28	Storm Drain Improvement Project Zone 6	City of Paramount	City of Paramount	As part of the City of Paramount's Master drainage plan, several areas in the city have been identified as drainage deficient areas that are subject to flooding. This project includes the addition of storm drains to reduce or eliminate these deficiencies in Zone 6 of our established drainage zones.
29	Storm Drain Improvement Project Zone 7	City of Paramount	City of Paramount	As part of the City of Paramount's Master drainage plan, several areas in the city have been identified as drainage deficient areas that are subject to flooding. This project includes the addition of storm drains to reduce or eliminate these deficiencies in Zone 7 of our established drainage zones.
30	Storm Drain Improvements in the City		City of La	City of La Mirada Storm Drainage Improvements at ten locations.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
	of La Mirada		Mirada	
31	Well 21 Conversion Project		City of Vernon	The Well 21 Conversion Project, currently in the process of having specifications developed, will convert an existing industrial well to a potable water production facility. The work will include the construction of a fully functional pump station. The installation of a discharge pump and motor, electrical equipment, inflatable packer, discharge piping, and SCADA controls are critical components of this project.
32	West San Gabriel River Parkway Phase 3 Development	City of Lakewood, Southern California Edison Company and L.A. County Public Works	City of Lakewood	The project will provide re-grading, establish predominantly native riparian flora, native grasses and add a 2,900-foot ADA trail along Lakewood’s 7.5 acres of undeveloped riverside land between Del Amo Boulevard and Candlewood Street. Project will link the new greenbelt with the existing 19 acres of the West San Gabriel River Parkway Nature Trail. The addition of this new trail development will create a mile and one-half of continuous greenbelt along Lakewood’s eastern edge. This will provide both traffic free river access for nearby residents, improve watershed, enhance the environment and add a quiet, natural oasis in an overbuilt area. The new development will also lend additional regional access for county residents seeking off road entry to the Los Angeles County San Gabriel River hiking, skating and bicycle path that extends from the base of the San Gabriel Mountains to Seal Beach. Completion of this trail will finalize Lakewood’s commitment to regional goals to establish access and greenbelt along the length of the river.
33	Catch Basin Trash Inserts and Face Plate Screens	Downey, Norwalk, Hawaiian Gardens, Lakewood	City of Downey	Trash and litter are already being removed from storm water runoff draining to the Los Angeles River via catch basin inserts. The remainder of the participating cities drains into the San Gabriel River and/or Los Cerritos Channel. No inserts have been installed in these areas. This project intends to remedy this situation by installing similar inserts and face plate screens at high-priority (i.e.: high-litter) locations.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
34	Cha'wot Open Space Preservation and Storm water Runoff Reduction		City of Signal Hill	This project proposes the purchase of up to 10 of 32 acres of available open space in the northerly hilltop area of Signal Hill to: preserve existing nature and wildlife; provide walking, hiking, and recreational opportunities; naturally reduce storm water runoff by preserving undeveloped open space; reduce the demand for potable water by reducing the amount of land available for development.
35	City of Signal Hill Recycled Water System		City of Signal Hill	This project will construct a recycled water system in the City of Signal Hill that also could be expanded in to areas of the City of Long Beach that are currently not served by recycled water. The City's Recycled Water Feasibility Study, completed in March 2012, established a recommended backbone recycled water distribution system alignment within the City boundaries that consist of approximately 47,000 linear feet of 2-inch up to 12-inch diameter distribution piping and a booster pump station. A total of 62 potential irrigation and industrial recycled water users have been identified within the City of Signal Hill with a potential total estimated recycled water demand of 183 acre-feet per year.
36	Coyote Creek Irrigation Runoff Reduction Program	City of Norwalk, City of Lakewood, and City of Bellflower	City of Norwalk	Installation of Irrigation Runoff Reduction Devices. The primary goal is to reduce metals loadings by reducing excess irrigation runoff via irrigation reduction technology, test plots of low-water using hybrid grass turf, and public outreach. This device measures soil moisture using wireless sensors that determine the optimal amount of water needed. This can reduce water usage by 50%.



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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
37	Disadvantaged Communities Schools Retrofit Program	CBMWD and MWD, local cities, retail agencies and various school districts.	Central Basin Municipal Water District	This program will be comprised of two components: first a retrofit program to install water and energy saving devices and second, an energy and water conservation educational program, all in 10 Disadvantaged Communities (DAC) schools. This program will retrofit schools K-12 with High-Efficiency Toilets, Zero Consumption or High-Efficiency Urinals, Custom Flow Control Valves, Waterbrooms, irrigation management systems, water saving irrigation heads, artificial turf and California Friendly plants where applicable. Potential energy retrofits will be coordinated with Southern California Edison. Additionally, an educational program will be implemented to increase student, faculty and staff’s knowledge of water and energy conservation and runoff reduction. A partnership with Southern California Edison and Southern California Gas Company will be pursued to fund a portion of the educational component.
38	Emergency Water Connection Improvements	City of Paramount	City of Paramount	The project includes various improvements to the current emergency water connections with the City of Long Beach, City of Downey and Golden State Water Company. Improvements include installation of meters, automated valving and SCADA connections at each water connection.
39	Fernwood Water Improvement Park	City of Lynwood	City of Lynwood	Fernwood Water Improvement Park is a multi-benefit project that serves disadvantaged communities in the City of Lynwood while meeting IRWMP water management objectives. The project site is currently an empty 6.5-acre lot owned by the City of Lynwood located on a long stretch along Fernwood Ave., between Atlantic Ave. and Long Beach Blvd. The park will feature storm water improvement elements such as infiltration areas and bioswales. The project also includes native shrubs and trees that will increase habitat for birds, butterfly species and mammals. Moreover, the park will provide recreational opportunities for disadvantaged communities in Lynwood.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
40	Monitoring of Activities Surrounding the Omega Chemical Corporation Superfund Site		GEOSCIENCE Support Services, Inc.	The Omega Chemical Corporation Superfund Site represents a significant threat to the quality and protection of ground water in the LA Gateway Region. Activities surrounding monitoring and remediation of the plume should be followed to ensure that the interests of the Gateway communities are being served. Future plans for remediation through pump, treat, and reinjection will provide for water quality enhancement and protection.
41	Addition and/or Expansion of Arsenic Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin		GEOSCIENCE Support Services, Inc.	Naturally occurring arsenic has and continues to be a contaminant of concern within the deeper aquifers of the Pressure Zone of the Central Basin. Addition and/or expansion of arsenic treatment for potable ground water will provide for an enhancement in water supply to the region.
42	Addition and/or Expansion of Color Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	Lynwood	GEOSCIENCE Support Services, Inc.	Naturally occurring color has and continues to be a contaminant of concern within the deeper aquifers of the Pressure Zone of the Central Basin. Addition and/or expansion of arsenic treatment for potable ground water in this area will provide for an enhancement in water quality and supply to the region.
43	Addition of 1,4-Dioxane Treatment for Ground Water Extracted from the Central Basin		GEOSCIENCE Support Services, Inc.	1,4-dioxane is an emerging contaminant of concern that has been detected in many water supply wells in the LA Gateway Region. The highest detected concentrations in excess of the CDPH Notification Level (1 ug/L) occur in the northwestern portion of the Region near the Cities of Commerce and Bell, and in the central portion of the Region in the vicinity of the Cities of South Gate, Downey, and Norwalk. Addition of 1,4-dioxane treatment for potable ground water in these areas will provide for the enhancement and protection of ground water quality.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
44	Optimization of Strategies to Reduce Storm water Impacts on Surface Water Quality based on Cost-Effectiveness	Gateway IRWMP	Gateway	This planning project would identify the most cost-effectiveness approaches for reducing pollutant loading from storm water discharges. The planning process would include three components: (1) screening of locations where storm water BMPs could cost-effectively implemented, (2) application of watershed models to link storm water discharges to receiving water quality, and (3) BMP modeling to determine the most cost-effective BMP strategies. Cost-effectiveness would consider the type of BMPs (distributed vs. regional, green vs. gray, etc.), the size of BMPs, and the location of BMPs. Assessment of BMP locations would consider ownership (public versus private), footprint, and relative connectedness to receiving water. This project would greatly assist with TMDL planning and consider opportunities to infiltrate storm water and increase groundwater supplies.
45	57th Street Storm Drain Improvement Project		City of Vernon	As part of the City of Vernon's Master Drainage Plan, several areas have been identified as drainage deficient areas that are subject to flooding. This project includes the installation of 330 linear feet of 24-inch RCP pipe; 46 linear feet of lateral pipe, 2 catch basins, 1 manhole, 1 junction structure, and 2 concrete collars.
46	55th Street Storm Drain Improvement Project		City of Vernon	As part of the City of Vernon's Master Drainage Plan, several areas have been identified as drainage deficient areas that are subject to flooding. This project includes the installation of 1,520 linear feet of RCP pipe, 6 catch basins, 6 manholes, 4 junction structures, and 4 concrete collars.
47	District Boulevard Storm Drain Improvement Project		City of Vernon	As part of the City of Vernon's Master Drainage Plan, several areas have been identified as drainage deficient areas that are subject to flooding. This project includes the installation of 2,800 linear feet of RCP pipe; 326 linear feet of lateral pipe, 16 catch basins, 11 manholes, 8 junction structures, and 16 concrete collars.

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
48	Vernon Catch Basin Trash Inserts and Face Plate Screen Project		City of Vernon	A vast majority of the City of Vernon's existing catch basins were fitted with inserts as part of the ARRA Funded Catch Basin Project. The City has approximately 46 City and 36 County catch basins that could not accommodate inserts due to size, shape, and angle constraints. The project will require the customer design and installation of 82 inserts in the vacant catch basins.
49	Production Well 22		City of Vernon	Well 22 Conversion Project will include the construction of a fully functional pump station. The installation of a discharge pump and motor, electrical equipment, inflatable packer, discharge piping, and SCADA controls are critical components of this project.
50	Vernon Outfall Monitoring Project		City of Vernon	The City of Vernon is subject to numerous TMDLs. Many of the TMDLs have various monitoring requirements. In addition, the new LA Regional Water Quality Control Board MS4 Permit will have new and extensive monitoring requirements. This project will be for the installation of 10 automated composite water quality monitoring stations at storm water outfalls in the Los Angeles River.
51	Cesar Chavez Park Recycled Water irrigation Project	City of South Gate, Central Basin Municipal Water District	City of South Gate	This project consists of extending a recycled water main West from Atlantic Ave. along Southern Ave. to irrigate future portions of the L.A.D.W.P right-of-way. This L.A.D.W.P. right-of-way is not landscaped and the City would like to improve this blighted property by continuing to add additional phases of Cesar Chavez Park Project and irrigating it with recycled water.
52	Firestone Blvd. Median Project	City of South Gate/Central Basin Municipal Water District	City of South Gate	This project would enhance the Firestone corridor by installing a landscaped median that will utilize recycled water to irrigate the landscape. A reverse swale would also capture storm water runoff

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
53	South Gate Park Recycled Water Conversion project	City of South Gate/Central Basin Municipal Water District	City of South Gate	Conversion of South Gate Park from potable irrigation water to recycled water.
54	Tree Well Dry Weather Runoff and First Flow Storm water Capture/TMDL Project	City of South Gate/??	City of South Gate	Installation of tree wells designed to capture dry weather flows and first storm flows in tree wells along the curb before the flow reaches the storm drain.
55	Well 25 Replacement	City of South Gate	City of South Gate	Replacement of Well 25 that had well casing failure.
56	Storm Drain Improvements- The Manor and Salt Lake and Wood Avenues.	City of South Gate	City of South Gate	Improve storm water conveyance by increasing the size of the catch basins and the storm drain pipes that lead directly to the Los Angeles River.
57	Water SCADA Energy Savings Automation Project	City of South Gate/southern California Edison Company	City of South Gate	This project would give Edison the ability to shut off certain water wells during peak electricity demands of to participate in demand response events automatically.
58	Well 28 Reservoir and Booster Pump Station	City of South Gate	City of South Gate	Construction of a 1.5 million gallon reservoir and booster pump station.
59	Chittick Field	City of Long Beach, City of Signal Hill and Los Angeles County Flood	City of Long Beach	Construct additional 1) new Trash Collection Systems (TCS) and/or refurbished TCS at all inlets into the basin, 2) replace the concrete lined "low flow" swales with grass lined swales for bio-filtration, 3) construct a new underground "low flow" pipe network to convey treated water to the basin pump station and 4) replace existing pump station with new low flow

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ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
		Control District		pump station.
60	Treatment of Low Flow and First Flush Storm water Discharges - Termino Drain	City of Long Beach	Department of Public Works, Storm water Management	This project will involve installation of a treatment train system to provide treatment for dry weather flows throughout the year and provide offline treatment of first flush flows during storm events. An on-site treatment system is proposed that will incorporate settling of larger particulates, filtration through ion exchange media, and support biological treatment by support of a plant and microbe community to provide further trapping, absorption, and uptake of pollutants through an array of physical, chemical and biological mechanisms. Reuse of the treated water for local irrigation will be explored to further reduce discharge volumes. Although a final decision has not been made with respect to the treatment system, it is expected that the installation will be comparable to the Modular Wetland System (MWS-Linear 2.0).
61	Pico Rivera 1.5 Million Gallons Reservoir	City of Pico Rivera	City of Pico Rivera	Construct a 1.5 M Gallon reservoir. Pico Rivera currently has three reservoirs that in total store less than 1 M Gallons. The proposed reservoir will enable the City to maintain an adequate quantity of water for the population and provide a source of water for itself and other municipalities, if a catastrophic event occurs.



**Project Index**

ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
62	Long Beach Graywater Program	City of Long Beach,	City of Long Beach, Office of Sustainability	<p>The City of Long Beach is undertaking a pilot program that implements gray water "laundry to landscape" systems at up to 36 homes. To date, 26 homes have received gray water installations.</p> <p>The proposed project would:</p> <ul style="list-style-type: none"> <li>(1) Build on previous experience to expand the Laundry to Landscape program into 99 additional homes in Long Beach disadvantaged communities. Augment existing program to allow for appropriate landscape improvements for which the pilot project demonstrated a need.</li> <li>(2) Conduct 9 additional demonstration projects to study gray water solutions scaled for larger, multi-unit residences, residences with less open space, other uses for water from the Laundry to Landscape Program and other gray water sources (sinks/showers).</li> <li>(3) Monitor existing 36 pilot program installations to study long term maintenance requirements.</li> <li>(4) Include an outreach program to secure participants in qualifying DAC census tracts and block groups.</li> <li>(5) Installations will be conducted by a team that includes a professional plumber, college students pursuing environmental degrees and disadvantaged youth from the local community, thereby creating new knowledge-based skills in the community.</li> </ul> <p>A total of 108 properties will be retrofitted and will save approximately 2.2 AFY of potable water (Based on average of 130 gallons saved per week per installation).</p> <p>An additional unique benefit of the program is the direct engagement of DAC residents on water conservation issues and solutions.</p>

**Project Index**

ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
63	Willow Springs Habitat Enhancement, Trail Improvement and Water Quality Improvements		City of Long Beach, Dept. of Parks, Recreation and Marine	This project will implement an important component of the Willow Springs Park Master Plan by restoring the existing storm water retention basin system to a naturalized system including a water treatment wetland and associated bioswales throughout the site drainage course. The existing concrete-lined detention basin will be restored to provide wetland habitat that will function as storm water retention as well as provide water quality improvements and native habitat. The basin and associated drainage system collects storm water runoff from the surrounding 50-acre site as well as surrounding areas. The trail system throughout the 50-acre site will also be constructed to provide recreational access to the native habitat and the water quality enhancements.
64	Citywide Parks Irrigation System Upgrades		City of Long Beach, Dept. of Parks, Recreation and Marine	Irrigation upgrades and central system controller to reduce potable water consumption at six parks totaling 96 acres. The project upgrades controllers at ten additional parks to central control, which will also reduce consumption of potable water. The project also installs central control hardware and software.
65	El Dorado Nature Center Lakes Water Quality and Water Conservation		City of Long Beach, Dept. of Parks, Recreation and Marine	The lakes at the El Dorado Nature Center are fed by potable water. The project would replace the potable water source with recycled water. To avoid additional nutrient problems with the reclaimed water, a nanofiltration system would be added to the reclaimed treatment to reduce nutrient levels to those in the potable water.
66	El Dorado Park Duck Pond Water Quality and Habitat Improvements		City of Long Beach, Department of Parks, Recreation and Marine	Storm water from a wide drainage area (including major streets) drains into the Duck Pond at El Dorado Park. Polluted runoff combined with avian waste from the large numbers of waterfowl who frequent the pond creates a highly contaminated water body in the midst of a large community recreational amenity. In addition, the concrete edges of the lake are crumbling and maintenance costs are escalating. The project will replace the concrete lake edges with bioengineering and vegetated treatments that will filter incoming runoff and provide habitat. Where possible, vegetated

**Project Index**

ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
				swales will treat storm water as it flows to the pond, providing intermittent riparian habitat through the park.
67	El Dorado Regional Park Water Quality & Water Conservation		City of Long Beach, Dept. of Parks, Recreation and Marine	This project installs a nanofiltration system to enable reclaimed water to replace potable water for filling four recreational lakes in El Dorado Regional Park. The project also replaces hardscaped lake edges and stream connections between lakes with landscape bioengineered for filtration to provide habitat and improve lake water quality.
68	El Dorado Nature Center Lake Dredging and Leak Repair		City of Long Beach, Dept. of Parks, Recreation and Marine	The south lake at the El Dorado Nature Center is fed by potable water and has a major leak. The project will dredge the lake and repair the leak, saving approximately \$40,000 of potable water annually.
69	Long beach Urban Runoff Recycling Facility (LBURRF)	Cities of Long Beach, Signal Hill, Lynwood and South Gate	City of Long Beach, Public Work/Storm water Management	Construct a facility that would intercept non-Storm water and initial Storm water runoff flow and treat for trash, metals and bacteria after which the water would be recycle for irrigation use along the 710 Freeway and Parks along the vicinity of the Freeway.
70	The Los Cerritos, San Gabriel River and Alamitos Bay Outfall Trash Collectors	Long Beach, Signal Hill, Lakewood, Bellflower, Paramount, Downey, Norwalk,	City of Long Beach, Public Works/Storm water Management	Investigate sites along the Los Cerritos Channel, Lower San Gabriel River and Alamitos Bay to determine the feasibility of constructing full capture Trash Devices in specified storm drain outfall structures and catch basin This work will include the design and construction of these BMPs.

**Project Index**

ID	Project Title	Partner Agencies	Submitting Agency	Project Summary
		Cerritos		
71	The Los Cerritos, San Gabriel River and Alamitos Bay Low Flow Diversion System	Long Beach, Signal Hill, Lakewood, Bellflower, Paramount, Downey, Norwalk, Cerritos	City of Long Beach, Public Works/Storm water Management	Investigate sites along the Los Cerritos Channel, Lower San Gabriel River and Alamitos Bay to determine the feasibility of constructing Low Flow Diversion (LFD) Devices in locations that have high levels of metals and bacteria. This work will include the design and construction of 4 LFDs that will be identified in the feasibility report.
72	Construct Bioswales/Landscaping in various locations in Long Beach	City of Long Beach	City of Long Beach, Public Works/Storm water Management	Construct/Reconstruct new and existing medians to capture and treat storm water runoff that can be used for irrigation similar to a Filter Device/System.
73	Pump Station Vortex Separation System (VSS) Devices	Long Beach, Signal Hill, Lakewood, Bellflower, Paramount, Downey, Norwalk, Cerritos	City of Long Beach, Public Works/Storm water Management	Investigate sites upstream of storm drain pump station along the Los Cerritos Channel, Lower San Gabriel River and Alamitos Bay to determine the feasibility of constructing Pre Filter Vortex Separation System Structural BMPs to capture trash, metals and sediment possibly containing bacteria. This work will include the design and construction of these BMPs. 5 Location to be identified.

## Project Ranking

RANK	ID	PROJECT TITLE	Score
1	39	Fernwood Water Improvement Park	186
2	63	Willow Springs Habitat Enhancement, Trail Improvement and Water Quality Improvements	168
3	32	West San Gabriel River Parkway Phase 3 Development	163
4	17	Outfall Monitoring	144
5	24	Bellflower NPDES Permit and TMDL Compliance Storm water Improvements	139
6	21	Shallow Wells Abandonment	133
7	33	Catch Basin Trash Inserts and Face Plate Screens	132
8	51	Cesar Chavez Park Recycled Water irrigation Project	127
9	37	Disadvantaged Communities Schools Retrofit Program	126
10	1	Pico Rivera Emergency Intertie	123
17	64	Citywide Parks Irrigation System Upgrades	117
12	44	Optimization of Strategies to Reduce Storm water Impacts on Surface Water Quality based on Cost-Effectiveness	121
11	66	El Dorado Park Duck Pond Water Quality and Habitat Improvements	123
13	7	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion	118
13	9	Los Cerritos Channel Metals TMDL - Low Flow Diversion	118
15	22	Small System Infrastructure Rehabilitation Project	118
16	15	Norwalk Park Reservoir and Booster Pump Station	118
18	8	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion	117
28	65	El Dorado Nature Center Lakes Water Quality and Water Conservation	107
19	3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project	116
20	61	Pico Rivera 1.5 Million Gallons Reservoir	115
21	18	Pilot Plant for Treatment of Los Angeles River Water	112

## Project Ranking

RANK	ID	PROJECT TITLE	Score
22	11	New Groundwater Well	111
22	19	Potable Water Interconnections- Bloomfield x Hayford and Pioneer x Lakeland	111
24	60	Treatment of Low Flow and First Flush Storm water Discharges - Termino Drain	110
26	52	Firestone Blvd. Median Project	107
25	59	Chittick Field	109
26	67	El Dorado Regional Park Water Quality & Water Conservation	107
29	34	Cha'wot Open Space Preservation and Storm water Runoff Reduction	106
30	16	Norwalk Water Main/Meter Replacements - Gridley to Maidstone	105
32	6	Installation of Catch Basin - Screening Devices (ARS/CPS)	103
33	2	Advance Groundwater Wellhead Treatment Facility	101
34	31	Well 21 Conversion Project	100
31	69	Long beach Urban Runoff Recycling Facility (LBURRF)	104
35	50	Vernon Outfall Monitoring Project	99
36	35	City of Signal Hill Recycled Water System	97
36	70	The Los Cerritos, San Gabriel River and Alamitos Bay Outfall Trash Collectors	97
39	13	Bellflower Municipal Water Distribution System Reconstruction	95
40	53	South Gate Park Recycled Water Conversion project	94
41	54	Tree Well Dry Weather Runoff and First Flow Storm water Capture/TMDL Project	94
38	62	Long Beach Graywater Program	96
42	48	Vernon Catch Basin Trash Inserts and Face Plate Screen Project	93
43	23	Splash Pad/Spray and Wading Pool Retrofit	90
44	36	Coyote Creek Irrigation Runoff Reduction Program	90
45	38	Emergency Water Connection Improvements	90

## Project Ranking

RANK	ID	PROJECT TITLE	Score
46	5	Hermosillo Park Well - Well No. 9 and water mains	88
48	72	Construct Bioswales/Landscaping in various locations in Long Beach	85
47	71	The Los Cerritos, San Gabriel River and Alamitos Bay Low Flow Diversion System	87
51	73	Pump Station Vortex Separation System (VSS) Devices	80
49	20	SCADA and Automation	81
50	14	New Water Well	81
52	12	New Water Well	79
53	30	Storm Drain Improvements in the City of La Mirada	78
54	45	57th Street Storm Drain Improvement Project	78
55	46	55th Street Storm Drain Improvement Project	78
57	10	MWD West Coast Feeder Connection and Transmission Main	76
56	68	El Dorado Nature Center Lake Dredging and Leak Repair	78
58	4	Groundwater Well Supple Reliability Project	75
59	47	District Boulevard Storm Drain Improvement Project	74
60	58	Well 28 Reservoir and Booster Pump Station	73
61	49	Production Well 22	72
62	25	Storm Drain Improvement Project Zone 4	72
63	29	Storm Drain Improvement Project Zone 7	70
64	55	Well 25 Replacement	69
65	26	Storm Drain Improvement Project Zone 2	69
65	27	Storm Drain Improvement Project Zone 3	69
67	28	Storm Drain Improvement Project Zone 6	58
68	57	Water SCADA Energy Savings Automation Project	46
69	56	Storm Drain Improvements- The Manor and Salt Lake and Wood Avenues.	43



## Project Ranking

RANK	ID	PROJECT TITLE	Score
70	43	Addition of 1,4-Dioxane Treatment for Ground Water Extracted from the Central Basin	40
71	41	Addition and/or Expansion of Arsenic Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	39
71	42	Addition and/or Expansion of Color Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	39
73	40	Monitoring of Activities Surrounding the Omega Chemical Corporation Superfund Site	38

**Analysis Results for Project Review Factors and Requirements**

Project No.	Project	Benefits DAC	Economic Feasibility	Timeliness, Project Status	Technical Feasibility	Permitting	Costs and Funding	Provide Multiple Benefits	Integration with Land Use Plans	Provides Regional Benefits	Environmental Justice	State Preferences	Statewide Priorities	Climate Change Adaptation (How well does the project adapt to climate change?)
1	Pico Rivera Emergency Intertie	2.0	8.1	10.6	11.3	6.5	7.5	6.0	4.5	5.0	4.5	5.0	5.6	6.0
2	Advance Groundwater Wellhead Treatment Facility	2.0	6.3	10.0	10.5	0.0	6.3	5.5	3.0	1.9	2.0	1.5	7.5	8.0
3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project	2.5	6.3	8.8	12.8	6.5	6.9	5.0	3.5	3.8	3.0	4.0	7.5	6.0
4	Groundwater Well Supply Reliability Project	1.0	8.1	8.1	6.0	0.0	6.3	2.5	3.5	1.9	2.5	1.0	4.4	4.0
5	Hermosillo Park Well - Well No. 9 and water mains	1.5	8.1	8.8	12.0	5.0	7.5	2.0	4.5	3.1	2.5	2.0	3.1	4.0
6	Installation of Catch Basin - Screening Devices (ARS/CPS)	0.5	7.5	9.4	6.8	0.0	6.9	2.0	3.0	6.3	3.5	5.0	6.3	8.0
7	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion	1.0	0.0	6.9	8.3	0.0	0.0	5.0	4.0	9.4	4.0	2.0	6.9	6.0
8	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion	0.0	0.0	6.9	8.3	0.0	0.0	5.0	4.0	9.4	4.0	2.0	6.9	6.0
9	Los Cerritos Channel Metals TMDL - Low Flow Diversion	1.0	0.0	6.9	8.3	0.0	0.0	5.0	4.0	9.4	4.0	2.0	6.9	6.0
10	MWD West Coast Feeder Connection and Transmission Main	3.5	6.3	2.5	5.3	0.0	5.6	1.5	4.0	1.9	3.5	3.5	5.6	6.0
11	New Groundwater Well	1.0	7.5	10.0	12.8	5.0	9.4	4.5	4.0	1.9	3.0	4.5	5.6	8.0
12	New Water Well	3.5	6.3	2.5	6.0	0.5	4.4	2.5	4.5	1.9	3.0	4.0	6.9	6.0
13	Bellflower Municipal Water Distribution System Reconstruction	1.5	6.3	8.1	10.5	4.0	5.6	3.5	4.5	1.3	3.5	3.0	5.6	4.0
14	New Water Well	3.5	6.9	2.5	6.8	0.5	4.4	2.5	4.5	1.9	3.0	4.0	6.9	6.0
15	Norwalk Park Reservoir and Booster Pump Station	1.5	6.3	5.0	9.8	7.5	7.5	6.0	5.0	3.8	3.0	5.0	6.9	8.0
16	Norwalk Water Main/Meter Replacements - Gridley to Maidstone	2.0	6.9	10.0	12.0	0.5	7.5	3.5	3.5	0.6	3.0	6.5	8.1	6.0
17	Outfall Monitoring	1.0	8.8	8.1	12.8	1.5	5.6	7.5	4.5	11.3	4.0	6.0	6.9	10.0
18	Pilot Plant for Treatment of Los Angeles River Water	1.0	5.0	10.0	7.5	4.0	10.0	6.5	1.5	3.8	3.0	6.5	7.5	8.0
19	Potable Water Interconnections- Bloomfield x Hayford and Pioneer x Lakeland	2.0	8.1	10.0	11.3	1.0	6.3	4.5	3.0	2.5	4.0	8.0	8.8	6.0
20	SCADA and Automation	1.0	6.9	7.5	7.5	0.0	4.4	3.0	3.0	0.6	3.0	2.0	2.5	6.0



**Analysis Results for Project Review Factors and Requirements**

Project No.	Project	Benefits DAC	Economic Feasibility	Timeliness/Project Status	Technical Feasibility	Permitting	Costs and Funding	Provide Multiple Benefits	Integration with Land Use Plans	Provides Regional Benefits	Environmental Justice	State Preferences	Statewide Priorities	Climate Change Adaptation (How well does the project adapt to climate change?)
21	Shallow Wells Abandonment	0.5	9.4	10.0	14.3	9.5	7.5	7.0	3.5	5.6	4.0	3.5	8.1	4.0
22	Small System Infrastructure Rehabilitation Project	2.0	6.3	8.8	7.5	4.0	6.3	4.0	1.0	6.9	5.0	6.0	8.1	8.0
23	Splash Pad/Spray and Wading Pool Retrofit	0.5	5.0	7.5	6.0	0.5	6.9	3.5	2.0	3.1	3.0	4.0	5.0	8.0
24	Bellflower NPDES Permit and TMDL Compliance Stormwater Improvements	1.0	8.1	7.5	7.5	3.5	5.0	5.5	2.5	10.0	4.5	6.0	6.9	10.0
25	Storm Drain Improvement Project Zone 4	3.0	6.9	1.3	12.0	0.0	5.6	2.5	4.0	1.3	4.5	3.0	5.0	4.0
26	Storm Drain Improvement Project Zone 2	3.0	6.9	1.3	12.0	0.0	5.0	2.5	4.0	1.3	2.5	3.0	5.0	4.0
27	Storm Drain Improvement Project Zone 3	3.0	6.9	1.3	12.0	0.0	5.0	2.5	4.0	1.3	2.5	3.0	5.0	4.0
28	Storm Drain Improvement Project Zone 6	3.0	5.6	1.3	9.0	0.0	3.8	2.0	2.0	0.6	3.5	3.0	5.0	4.0
29	Storm Drain Improvement Project Zone 7	3.0	6.9	1.3	12.0	0.0	5.0	2.5	4.0	1.3	3.5	3.0	5.0	4.0
30	Storm Drain Improvements in the City of La Mirada	1.0	7.5	10.0	14.3	1.0	8.8	2.5	5.5	1.3	3.5	0.5	1.3	4.0
31	Well 21 Conversion Project	1.5	11.3	10.0	12.0	4.5	7.5	4.0	2.0	2.5	2.5	2.5	3.1	6.0
32	West San Gabriel River Parkway Phase 3 Development	2.0	9.4	10.6	13.5	8.5	7.5	8.5	6.0	7.5	5.5	4.0	5.6	10.0
33	Catch Basin Trash Inserts and Face Plate Screens	1.0	10.0	10.0	13.5	2.0	6.9	6.5	4.0	6.9	4.0	5.5	6.9	6.0
34	Chia'wot Open Space Preservation and Stormwater Runoff Reduction	2.0	1.3	5.6	6.8	0.0	0.0	6.0	5.5	5.0	4.5	4.5	5.6	6.0
35	City of Signal Hill Recycled Water System	2.5	6.3	8.1	10.5	0.0	5.6	4.5	2.5	2.5	3.5	3.5	9.4	8.0
36	Coyote Creek Irrigation Runoff Reduction Program	2.0	5.6	7.5	4.5	4.0	4.4	3.5	0.5	6.9	3.5	3.5	5.0	8.0
37	Disadvantaged Communities Schools Retrofit Program	2.5	10.0	10.0	13.5	8.5	10.6	6.0	4.0	6.9	3.5	3.5	4.4	8.0
38	Emergency Water Connection Improvements	2.5	7.5	7.5	9.0	2.0	5.0	3.5	3.5	4.4	4.0	3.5	5.6	6.0
39	Fernwood Water Improvement Park	2.5	8.1	12.5	12.8	7.5	10.0	8.0	6.5	5.0	5.0	8.0	11.3	10.0
40	Monitoring of Activities Surrounding the Omega Chemical Corporation Superfund Site	1.5	0.6	0.0	2.3	0.5	0.0	1.5	1.0	5.6	3.0	1.0	0.6	4.0



**Analysis Results for Project Review Factors and Requirements**

Project No.	Project	Benefits DAC	Economic Feasibility	Timeliness, Project Status	Technical Feasibility	Permitting	Costs and Funding	Provide Multiple Benefits	Integration with Land Use Plans	Provides Regional Benefits	Environmental Justice	State Preferences	Statewide Priorities	Climate Change Adaptation (How well does the project adapt to climate change?)
41	Addition and/or Expansion of Arsenic Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	2.0	0.6	0.0	2.3	0.0	0.0	1.5	0.5	1.9	4.0	1.0	0.6	4.0
42	Addition and/or Expansion of Color Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	2.0	0.6	0.0	2.3	0.0	0.0	1.5	0.5	1.9	4.0	1.0	0.6	4.0
43	Addition of 1,4 Dioxane Treatment for Ground Water Extracted from the Central Basin	3.0	0.6	0.0	2.3	0.0	0.0	1.5	0.5	1.9	4.0	1.0	0.6	4.0
44	Optimization of Strategies to Reduce Stormwater Impacts on Surface Water Quality based on Cost-Effectiveness	2.5	5.6	2.5	5.3	4.0	1.3	5.5	3.0	10.0	3.5	3.5	2.5	8.0
45	57th Street Storm Drain Improvement Project	1.5	8.8	10.0	9.8	0.5	6.3	1.0	4.5	1.3	4.0	2.5	2.5	4.0
46	55th Street Storm Drain Improvement Project	1.5	8.1	10.0	9.8	0.5	6.3	1.5	4.5	1.3	4.0	2.5	2.5	4.0
47	District Boulevard Storm Drain Improvement Project	1.5	8.1	10.0	9.8	0.5	6.3	1.5	4.5	1.3	4.0	2.5	2.5	4.0
48	Vernon Catch Basin Trash Inserts and Face Plate Screen Project	1.0	3.1	7.5	6.8	0.5	1.3	4.0	3.0	3.8	4.0	3.5	3.1	4.0
49	Production Well 22	0.0	7.5	7.5	8.3	1.5	6.3	4.0	2.5	2.5	2.5	3.0	3.1	0.0
50	Vernon Outfall Monitoring Project	1.0	1.3	7.5	7.5	1.5	0.0	4.5	3.0	7.5	3.0	2.5	3.1	6.0
51	Cesar Chavez Park Recycled Water Irrigation Project	0.5	0.6	7.5	9.0	1.5	2.5	7.0	5.5	2.5	4.0	6.5	10.0	8.0
52	Firestone Blvd. Median Project	2.0	0.6	7.5	7.5	0.0	1.9	4.5	6.5	3.1	3.5	3.0	3.8	8.0
53	South Gate Park Recycled Water Conversion project	2.5	1.3	5.0	6.0	0.0	1.9	5.5	4.0	1.3	4.0	4.0	5.6	8.0
54	Tree Well Dry Weather Runoff and First Flow Storm Water Capture/TMDL Project	1.5	0.0	5.0	2.3	0.0	0.0	4.5	1.5	2.5	3.0	4.5	7.5	8.0
55	Well 25 Replacement	2.5	0.6	7.5	6.8	0.5	0.0	3.0	2.5	2.5	3.0	2.5	3.1	6.0
56	Storm Drain Improvements- The Manor and Salt Lake and Wood Avenues.	4.0	0.0	5.6	5.3	0.0	0.0	2.0	1.5	1.3	4.0	2.0	0.6	4.0
57	Water SCADA Energy Savings Automation Project	1.5	0.0	7.5	3.0	0.0	0.0	1.5	1.0	1.9	1.5	1.5	2.5	6.0
58	Well 28 Reservoir and Booster Pump Station	2.5	1.3	6.9	9.8	1.0	1.9	3.5	3.5	1.3	4.5	2.5	3.1	6.0
59	Clittrick Field	2.0	1.9	11.3	8.3	6.0	0.6	3.5	0.5	2.5	4.0	2.0	2.5	8.0
60	Treatment of Low Flow and First Flush Stormwater Discharges - Termino Drain	1.5	1.9	10.0	3.8	1.5	1.9	7.0	2.0	8.8	3.5	3.0	4.4	8.0



**Analysis Results for Project Review Factors and Requirements**

Project No	Project	Benefits DAC	Economic Feasibility	Timeliness, Project Status	Technical Feasibility	Permitting	Costs and Funding	Provide Multiple Benefits	Integration with Land Use Plans	Provides Regional Benefits	Environmental Justice	State Preferences	Statewide Priorities	Climate Change Adaptation (How well does the project adapt to climate change?)
61	Pico Rivera 1.5 Million Gallons Reservoir	2.0	8.8	10.0	9.8	4.5	7.5	5.0	5.0	5.0	4.0	6.5	6.3	8.0
62	Long Beach Graywater Program	1.5	6.3	10.0	12.8	6.0	6.3	4.0	4.0	1.3	2.5	2.5	3.8	8.0
63	Willow Springs Habitat Enhancement, Trail Improvement and Water Quality Improvements	1.5	6.9	11.9	12.8	5.5	6.9	9.5	9.5	8.8	5.5	5.5	6.9	8.0
64	Cityside Parks Irrigation System Upgrades	1.0	8.8	9.4	9.8	1.0	5.6	5.5	6.0	6.3	4.5	4.0	7.5	8.0
65	El Dorado Nature Center Lakes Water Quality and Water Conservation	1.0	5.0	6.3	8.3	0.0	4.4	4.5	2.5	3.8	4.0	3.0	5.6	10.0
66	El Dorado Park Duck Pond Water Quality and Habitat Improvements	1.0	5.0	8.1	9.0	0.0	5.0	4.5	3.0	8.1	4.5	4.0	3.8	8.0
67	El Dorado Regional Park Water Quality & Water Conservation	1.5	3.8	4.4	6.0	0.0	3.8	6.5	2.5	2.5	2.5	3.5	6.3	10.0
68	El Dorado Nature Center Lake Dredging and Leak Repair	0.5	5.6	5.0	9.0	0.0	5.6	3.5	1.5	1.9	3.5	2.0	3.8	10.0
69	Long beach Urban Runoff Recycling Facility (LBURRF)	1.5	3.1	6.9	6.0	0.0	3.1	4.0	1.5	5.0	3.5	6.0	6.9	8.0
70	The Los Cerritos, San Gabriel River and Alamitos Bay Outfall Trash Collectors	1.5	4.4	7.5	7.5	0.0	4.4	4.0	0.5	7.5	4.0	5.5	5.6	4.0
71	The Los Cerritos, San Gabriel River and Alamitos Bay Low Flow Diversion System	1.5	3.8	9.4	5.3	0.0	3.1	3.5	1.0	4.4	3.0	4.5	6.3	4.0
72	Construct Bioswales/Landscaping in various locations in Long Beach	1.5	4.4	6.9	6.8	0.0	3.1	2.5	0.5	3.1	2.0	4.5	5.0	4.0
73	Pump Station Vortex Separation System (VSS) Devices	2.0	3.1	6.9	4.5	0.0	3.1	2.5	0.5	6.3	2.5	2.0	5.6	4.0

<b>Minimum Score</b>	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.0	0.5	0.6	1.5	0.5	0.6	0.0
<b>Average Score</b>	1.7	5.2	7.1	8.5	1.8	4.5	4.1	3.2	4.0	3.6	3.6	3.6	5.1	6.3
<b>Maximum Score</b>	4.0	11.3	12.5	14.3	9.5	10.6	9.5	9.5	11.3	5.5	8.0	11.3	11.3	10.0



# Appendix D Project Integration

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## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
1	Pico Rivera Emergency Intertie	Suggest splitting interties from well takeover and retrofit since they are so different; Might be better to collect other intertie projects and make that a regional effort. (projects 10, 38)	
2	Advance Groundwater Wellhead Treatment Facility		Anything groundwater related that supports Central Basin GW Mgmt. Possible to integrate with other water quality treatment and improvement projects, especially if they are DACs.
3	Furman Park/Rio Hondo Elementary School Recycled Water Main Extension and Irrigation System Improvement Project	Unknown at this time	Integrate with other recycled water use and development and/or other conservation efforts to meet 20X2020 goal.
4	Groundwater Well Supply Reliability Project	Consider all well work as one regional project? See projects 4,5,11,12,14,31,49,55	Could be linked with infrastructure upgrade efforts for DACs if this is a DAC. Integrate with other projects that reduce reliance on imported water and/or support DACs. Relate to overall groundwater development, recharge and management activities in context of IRWMP.
5	Hermosillo Park Well - Well No. 9 and water mains	Consider all well work as one regional project? New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55	Integrate with other projects that reduce reliance on imported water and/or support DACs. Relate to overall groundwater development, recharge and management activities in context of IRWMP.
6	Installation of Catch Basin - Screening Devices (ARS/CPS)	Consider a regional program for this and other TMDL catch basin problems (proj 33)	
7	Los Angeles River Estuary Bacteria TMDL - Southeast Area Low Flow Diversion		Other TMDL projects in the watershed.



## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
8	Los Angeles River Estuary Bacteria TMDL - Southwest Area Low Flow Diversion		Other TMDL projects in the watershed.
9	Los Cerritos Channel Metals TMDL - Low Flow Diversion		Other TMDL projects in the watershed.
10	MWD West Coast Feeder Connection and Transmission Main	Might be bundled with intertie program for region: see project #1, 38	
11	New Groundwater Well	New wells could be regional program...New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55	Integrate with other projects that reduce reliance on imported water and/or support DACs. Relate to overall groundwater development, recharge and management activities in context of IRWMP.
12	New Water Well	New regional well program might be in order.....New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55	Integrate with other projects that reduce reliance on imported water and/or support DACs. Relate to overall groundwater development, recharge and management activities in context of IRWMP.
13	Bellflower Municipal Water Distribution System Reconstruction		
14	New Water Well	new regional well program might be in order.....New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55,58	
15	Norwalk Park Reservoir and Booster Pump Station		
16	Norwalk Water Main/Meter Replacements - Gridley to Maidstone	Could group water main replacement as regional?	Integrate or bundle with other DAC improvement projects.
17	Outfall Monitoring	More Cities may want to participate as regional program See project 50.	Other TMDL projects

## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
18	Pilot Plant for Treatment of Los Angeles River Water		Pilot effort could provide valuable data and results for further application, and for regional recycling and reuse strategy.
19	Potable Water Interconnections- Bloomfield x Hayford and Pioneer x Lakeland	Intertie: Can be merged with Projects 1 and 10....	Bundle with other DAC support and system improvement projects, or others that improve infrastructure and support emergency response to catastrophic interruptions, loss of supply from contamination, and increased reliability from interconnections.
20	SCADA and Automation	Benefits only Pico Rivera	DAC support if verified.
21	Shallow Wells Abandonment		Could be part of regional groundwater management and protection approach or theme.
22	Small System Infrastructure Rehabilitation Project		This is an integrated strategy for a services delivery model for DAC infrastructure upgrade and repair program.
23	Splash Pad/Spray and Wading Pool Retrofit		
24	Bellflower NPDES Permit and TMDL Compliance Stormwater Improvements	Similar to Project 6	The concept is good and demonstrates and integrated regional approach involving multiple participants to provide multiple benefits and meet statewide priorities and preferences.
25	Storm Drain Improvement Project Zone 4	Need to consider eco-friendly alternatives to storm drain infrastructure. Consider IFM; Consider Design for all zones as one project (project 25-29); consider making a regional plan	Other stormwater projects in region, especially those for DACs. Could seek to integrate mitigation efforts and directly create environmental benefits and features for region wide program.

## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
26	Storm Drain Improvement Project Zone 2	Need to consider eco-friendly alternatives to storm drain infrastructure. Consider IFM; Consider Design for all zones as one project( project 25-29); consider making a regional plan	Could be integrated into regional flood/stormwater management with watershed/region wide water quality, habitat and potential recreation benefits.
27	Storm Drain Improvement Project Zone 3	Need to consider eco-friendly alternatives to storm drain infrastructure. Consider IFM; Consider Design for all zones as one project( project 25-29); consider making a regional plan	Could be integrated into regional flood/stormwater management with watershed/region wide water quality, habitat and potential recreation benefits.
28	Storm Drain Improvement Project Zone 6	Need to consider eco-friendly alternatives to storm drain infrastructure. Consider IFM; Consider Design for all zones as one project( project 25-29); Consider making a regional plan	Could be integrated into regional flood/stormwater management with watershed/region wide water quality, habitat and potential recreation benefits.
29	Storm Drain Improvement Project Zone 7	Need to consider eco-friendly alternatives to storm drain infrastructure. Consider IFM; Consider Design for all zones as one project (project 25-29); consider making a regional plan	Could be integrated into regional flood/stormwater management with watershed/region wide water quality, habitat and potential recreation benefits.
30	Storm Drain Improvements in the City of La Mirada	Consider IFM; Need to consider eco-friendly alternatives to storm drain infrastructure. Consider making a regional plan( projects 25-29)	Could be integrated into regional flood/stormwater management with watershed/region wide water quality, habitat and potential recreation benefits.
31	Well 21 Conversion Project	New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55	

## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
32	West San Gabriel River Parkway Phase 3 Development	considered part of trail system which is regional	Could integrate with other habitat plans and restoration activities to support further development of IFM and a more regional approach.
33	Catch Basin Trash Inserts and Face Plate Screens	Consider a regional program for this and other TMDL catch basin problems (proj 6)	Integrate as part of regional TMDL compliance plan to be consistent with Basin Plan and requirements.
34	Cha'wot Open Space Preservation and Stormwater Runoff Reduction	need to show direct water benefits or link with water project	Could be part of regional strategy and project could be part of regional habitat preservation and mitigation bank or strategy.
35	City of Signal Hill Recycled Water System		Regional 20X2020 and recycled water strategy.
36	Coyote Creek Irrigation Runoff Reduction Program	Need more details on conservation measures (what lands, what methodolgies,) Can use DWR's CIMIS now for the program??	Demonstration programs for regional water conservation and compliance with 20X202 goal.
37	Disadvantaged Communities Schools Retrofit Program		Regional approaches to WUE/Conservation and 20X2020 program.
38	Emergency Water Connection Improvements	Inter-ties also on project 1, project 10, others; Might bundle	Regional inteconnection progam to improve reliability.
39	Fernwood Water Improvement Park		Integrated Flood Management.
40	Monitoring of Activities Surrounding the Omega Chemical Corporation Superfund Site	Suggest grouping all monitoring program projects together for IRWMP	
41	Addition and/or Expansion of Arsenic Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	Suggest grouping all groundwater treatment projects together for IRWMP (Projects 41,42,43)	
42	Addition and/or Expansion of Color Treatment for Ground Water Extracted from the Pressure Zone of the Central Basin	Suggest grouping all groundwater treatment projects together for IRWMP (Projects 41,42,43)	

## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
43	Addition of 1,4-Dioxane Treatment for Ground Water Extracted from the Central Basin	Suggest grouping all groundwater treatment projects together for IRWMP (Projects 41,42,43)	
44	Optimization of Strategies to Reduce Stormwater Impacts on Surface Water Quality based on Cost-Effectiveness	Region planning/feasibility study for stormwater project could incorporate other local agency studies proposed in other projects	Potential unifying theme for IRWMP since multiple TMDL and water quality related singular projects proposed in the watershed. Would provide a basis for integrating diverse projects proposed by singular stakeholders.
45	57th Street Storm Drain Improvement Project	Should consider IFM with additional purposes, if possible. Consider lumping Vernon storm drain projects together as a program (45, 46, 47)	Potential to integrate with other flood/stormwater projects on a regional scale and possibly to better identify regional benefits, especially if linked to other DACs.
46	55th Street Storm Drain Improvement Project	Should consider IFM with additional purposes, if possible. Consider lumping Vernon storm drain projects together as a program (45, 46, 47)	
47	District Boulevard Storm Drain Improvement Project	Consider IFM;Need to consider eco-friendly alternatives to storm drain infrastructure.; consider making a regional plan( projects 25-29, 45-47,56)	
48	Vernon Catch Basin Trash Inserts and Face Plate Screen Project	Consider regional project; bundle with Projects 6, 33.	Integrate with other TMDL/stormwater related project activities in the watershed.
49	Production Well 22	New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55	
50	Vernon Outfall Monitoring Project	Could collect additional outfalls in the program. See project 17	Integrate with other TMDL/stormwater related project activities in the watershed.

## Project Integration Opportunities

ID	Project Title	Bennett	Zidar
51	Cesar Chavez Park Recycled Water irrigation Project	Recycled water extention. See Project 3.	Could integrate with other recycled water projects in region; other park expansion using recycled water and other DAC support efforts.
52	Firestone Blvd. Median Project	More planning needed in this project	Good integration of strategies, could be part of regional recycling and stormwater management. Need better projects description and costs.
53	South Gate Park Recycled Water Conversion project	Perhaps bundle recycling study for new demand for region projects 3, 52, 53	Regional recycling and 20X2020 to reduce groundwater/imported water use.
54	Tree Well Dry Weather Runoff and First Flow Storm Water Capture/TMDL Project	Suggest planning and feasibility step with Project 44 for regional stormwater issues	Could integrate with other BMP related projects targeted to TMDL reduction.
55	Well 25 Replacement	New wells could be bundled into a regional program. See projects 4,5,11,12,14,31,49,55,58	DAC infrastructure replacement and reliability projects.
56	Storm Drain Improvements- The Manor and Salt Lake and Wood Avenues.	Consider IFM;Need to consider eco-friendly alternatives to storm drain infrastructure.; consider making a regional plan( projects 25-29, 45-47,56)	
57	Water SCADA Energy Savings Automation Project	Not a goal of Plan	
58	Well 28 Reservoir and Booster Pump Station	Needs more planning and feasibility study. See Project 15.	
59	Chittick Field		
60	Treatment of Low Flow and First Flush Stormwater Discharges - Termino Drain	Feasibility study for treatment of storm water; see project 18	Regional TMDL compliance program. Improve water quality and related habitat benefits
61	Pico Rivera 1.5 Million Gallons Reservoir	Regulating reservoirs that add emergency water availability for fire/EQ. See projects 15, 58, 61	Multiple partners in coordinated emergency response planning to address catastrophic supply interruptions.

Project ID	Project Title	Implementing Organization	Project Description	Rank
14830	San Jose Creek Water Reclamation Plant East Process Optimization Project	County Sanitation Districts of Los Angeles County	<p>This project includes the following: construction of flow equalization, sequential chlorination, replacement of process air compressors (PACs), and optimization of aeration system controls. These improvements would improve the secondary treatment process and allow the plant to consistently meet effluent and Title 22 requirements at plant design capacity.</p> <p>Flow equalization tanks would increase the quantity and availability of recycled water by 8,400 acre-feet per year. Implementation of sequential chlorination would ensure continued compliance with Title 22 disinfection requirements for unrestricted reuse while minimizing the formation of disinfection byproducts. Replacing PACs, which are the plant's largest power demand, would significantly lower power consumption. Optimization of aeration system controls would improve secondary treatment and use process air more efficiently, thereby further lowering power demands and greenhouse gas emissions (GHG).</p>	1
14790	Dominguez Gap Spreading Grounds West Basin Percolation Enhancement	Los Angeles County Flood Control District	<p>The proposed project will increase the percolation within the spreading grounds facility in order to increase groundwater recharge. The preliminary scope includes removing between 5 to 10-feet of clay sediment or installing vertical trenches/drains through the poorly draining strata in the facility's west basin. Preliminary studies have been conducted including boring samples which will be used to further develop conceptual plans and estimate project benefits.</p>	2
14806	Graywater Standard Implementation	City of Long Beach	<p>The City of Long Beach has undertaken a pilot program to implement graywater strategies at up to 36 homes. To date, 20 homes have received graywater installations.</p> <p>This planning project would: (1) Expand the Laundry to Landscape program into 99 additional homes in Long Beach disadvantaged communities. Augment existing program to allow for landscape improvements for which the pilot project demonstrated a need.                      (2) Conduct 9 demonstration projects to study graywater solutions scaled for larger, multi-unit residences, residences with less open space, other uses for water from the Laundry to Landscape Program, and other graywater sources.                      (3) Monitor existing 36 pilot program installations and fix issues as needed. A total of 108 properties will be retrofit and will save approximately 1.9 AFY of potable water.</p>	3



Project ID	Project Title	Implementing Organization	Project Description	Rank
14822	San Gabriel Coastal Basin Spreading Grounds Improvement Project	Los Angeles County Flood Control District	<p>The project will modify the spreading grounds to improve efficiency, safety, and to optimize the use of of the Mines Avenue Pipeline connecting San Gabriel Coastal Basin Spreading Grounds and Rio Hondo Coastal Basin Spreading Grounds. The amount of water that can be recharged will be increased by removing operational limitations on the facility and creating a more direct connection for reclaimed water to be delivered to and recharged at Rio Hondo Coastal Basin Spreading Grounds.</p> <p>The project consists of lining the intake canal, installing a grout curtain in the internal levee, modifying the canal weir gates, constructing an additional canal inlet structure for reclaimed water, and installing groundwater monitoring wells.</p>	4
1571	Rio Hondo Coastal Basin Spreading Grounds - Sediment Removal from Basins	Los Angeles County Flood Control District	<p>The Rio Hondo Spreading Grounds basins have approximately 450,000 cubic yards of sediment accumulated in them. In addition to reducing the facility's water storage capacity, the facility's percolation capacity has been reduced from 400 cubic feet per second to 200 cubic feet per second. The facility is thus filled to capacity sooner, which results in having to bypass storm flows sooner and recharging less locally generated water. The decreased capacity has also reduced operational flexibility, thus hindering accommodation of the increasingly dynamic schedules of imported and recycled water deliveries. This project would restore percolation and storage capacity, potentially yielding approx. 1,000 af/yr of replenishment water.</p>	5
14829	Broadway Neighborhood Stormwater Greenway Project	City of Los Angeles Bureau of Sanitation	<p>In partnership with Water Replenishment District of Southern California and it's "Regional and Distributed Stormwater Capture Feasibility Study," the proposed project will design and implement stormwater Best Management Practices (BMPs) in the City of Los Angeles with the primary goals of TMDL compliance and stormwater infiltration. Three levels of BMPs will be developed; local parcel based Low Impact Development (LID) for 8 acres (60 residential parcels), neighborhood scale LID for 12 acres (3 residential streets and 2 blocks of commercial streets), and a sub-regional scale facility for 30 acres of mixed land uses. The local and neighborhood BMPs will capture and infiltrate all dry-weather flow and up to the ¼ inch storm. The sub regional BMP will capture up to the 2 inch storm for 30 acres. The sub regional BMP will also receive dry-weather flows from 228 acres of mixed land uses. Designs will be standardized to remote widespread implementation.</p>	6

**Santa Ana Watershed Protection Authority (SAWPA) Project Recommendation**

1	2071	Inland Empire Utilities Agency	Wineville Regional Recycled Water Pipeline and Groundwater Recharge System Upgrades
2	2068	USDA Forest Service - San Bernardino National Forest	Forest First - Increase Stormwater Capture and Decrease Sediment Loading through Forest Ecological Restoration
3	2050	Eastern Municipal Water District	Perris Desalination Program - Brackish Water Wells 94, 95 and 96
4	2105	Inland Empire Utilities Agency	San Sevaine Ground Water Recharge Basin
5	2275	City of Fontana	Vulcan Pit Flood Control and Aquifer Recharge Project
6	2270	Orange County Water District	Alamitos Barrier Improvement Project
7	2291	City of Yucaipa	Wilson III Basins Project and Wilson Basins/Spreading Grounds
8	2285	City of Irvine	Peters Canyon Channel Water Capture and Reuse Pipeline
9	2125	City of Corona Department of Water & Power	Corona/Home Gardens Well Rehabilitation and Multi-Jurisdictional Water Transmission Line Project
10	2284	Municipal Water District of Orange County	Commercial/Industrial/Institutional Performance-Based Water Use Efficiency Program
11	2062	Eastern Municipal Water District	Quail Valley Subarea 9 Phase 1 Sewer System Project
12	2281	City of Ontario	Francis Street Storm Drain and Ely Basin Flood Control and Aquifer Recharge Project
13	2237	Western Municipal Water District	Customer Handbook to Using Water Efficiently in the Landscape
14	2078	San Bernardino Valley Water Conservation District	Plunge Creek Water Recharge and Habitat Improvement
15	2098	Orange County Water District	Prado Basin Sediment Management Demonstration Project
16	2154	San Bernardino Valley Municipal Water District	Enhanced Stormwater Capture and Recharge along the Santa Ana River
17	2206	City of Upland	14th Street Groundwater Recharge and Storm Water Quality Treatment Integration Facility
18	2286	Soboba Band of Luiseno Indians	Soboba Band of Luiseño Indians Wastewater Project
19	2174	Lake Elsinore and San Jacinto Watersheds Authority	Canyon Lake Hybrid Treatment Process
20	2287	City of Riverside	Recycled Water Project Phase I (Arlington-Central Avenue Pipeline)
21	2012	Western Municipal Water District	Arlington Basin Water Quality Improvement Project
22	2168	Inland Empire Utilities Agency	Regional Residential Landscape Retrofit Program

# Appendix E Flood Survey Results

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**Flood Survey**

Name	Affiliation/ Organization	Title	Email address	Num	Response
Ed Estrella	City of Downey	Assistant Civil Engineer	eestrell@downeyca.org	1	DOWNEY AV: Between Florence Av and Gallatin Rd - area subject to street flooding particularly the west side of the street on mild rain storm event.
				2	PARAMOUNT BL: Between Firestone Bl and Florence Av - severe flooding during mild rain storm event, particularly on the west side of Paramount Bl (L.A. County Flood Control District had plans to construct "FLORMONT DRAIN" however was never built).
				3	IMPERIAL HWY: Between Woodruff Av and Rio Sans Gabriel - we encounter constant flooding on any mild rain storm event along the north side of Imperial Hwy and the frontage Rd adjacent to the Gabriel River Bridge.
				4	QUILL DRIVE: Between Old River School Rd and Rives Av - severe street flooding and overflows onto Rives Av during any large storm event.
				5	DOS RIOS: Between Glenciff Dr and Allengrove St - street is prone to flooding on a moderate rain storm event.
				6	LAKEWOOD BL: At Stewart & Gray Rd intersection - moderate street flooding on a moderate rain storm event
Christina Dixon	City of Huntington Park	Analyst	cdixon@huntingtonpark.org	7	1. a. severe 2000 Gage/ Alameda b. mild storm
				8	2. a. severe 1900 Slauson/ Alameda b. mild storm
				9	3. severe 2200 Randolph/ Albany b. mild storm
				10	4. a. severe 2700 Randolph/ Seville b. mild storm
				11	5. a. severe Gage/ Seville NE corner b. mild storm
				12	6. a. severe Florence/ Seville NE corner b. mild storm
				13	7. a. severe 2750 Gage/ Stafford b. mild storm
				14	8. a. severe 2900 Slauson/ Bicket b. mild storm
				15	9. a. severe 6900- 7100 Bissell b. mild storm Note nine locations with severe flooding in mild storm conditions
Bernardo Iniguez	City of Bellflower	Environmental Services Manager	biniguez@bellflower.org	16	Rosecrans Ave. at Sonrisa St. a. Severe flooding on street. b. During any storm event.
				17	Lakewood Blvd. at Oak St. a. Moderate to severe flooding on street. b. During large storm event.
				18	Virginia Ave. at Alondra Blvd. a. Mild to moderate flooding on street. b. During medium to large storm event.
				19	Carfax Ave. at Greenhurst St. a. Mild to moderate flooding on street. d. During medium to large storm event.
				20	17915 and 17914 Ardmore St. a. Mild to moderate flooding on street. b. During medium to large storm event.
Anthony Howard	Los Angeles County Sanitation Districts	Supervising Engineer II	ahoward@lacsdc.org	21	General street flooding along Atlantic Ave. in the Cities of Lynwood and South Gate. LACSD has a sewer that runs along this street as well as a pumping plant in close proximity. Over the last 4-5 years the largest return frequency of storms we have seen has been about 5 years, and we have noticed street flooding with even less severe storms. So this area is subject to flooding with storms having return frequencies of less than 5 years. Also, storm runoff from this area has to be pumped into the LA River.
Sarah Ho	City of Paramount	Management Analyst	sho@paramountcity.com	22	Texaco St. between Alondra Blvd. and Somerset Blvd. a)moderate b)large storms
				23	Hunsaker Ave. and Alondra Blvd. a)moderate b)large storms
				24	Hunsaker Ave. and Myrrh St. a)moderate b)large storms
				25	Somerset Blvd. and Orizaba Ave. a)moderate b)large storms
				26	Adams St. and Indiana St. a)moderate b)large storms

**Flood Survey**

Name	Affiliation/ Organization	Title	Email address	Num	Response
Samuel T Kouri	City of Montebello	Deputy City Engineer	skouri@cityofmontebello.com	27	Beverly Bl and Poplar Av. During moderate to heavy storms there is flooding due to the deteriorated condition of the CMP Connector Pipes.
				28	Lincoln Av. between San Gabriel Bl and LaMerced Av. During a moderate storm event Lincoln Av has to be closed because all lanes are under water. The catch basins and connector pipes in this area need to be reconstructed. The drainage in this area discharges into the Rio Hondo settling basin.
				29	Chapin Rd north of Union St. Chapin flooding is due to sunken areas. Chapin Rd is built over a landfill and there is no storm drain system
Shauna Clark	City of La Habra Heights	City Manager	shaunac@lhcity.org	30	La Habra Heights doesn't have storm drains as other cities do. Water soaks into the earth and doesn't run off the way it would in other cities. However, having said large storms can create problems
Chau Vu	City of Bell Gardens	Acting PW Director	cvu@bellgardens.org	31	Gage at Specht north side. At times the storm drains cannot handle the amount of water but when the rain subsides they drain. Mild & only large storms.
				32	Chalet at Foster Bridge, mild & only large storms
				33	Shull and Jabonera floods but that area drains to a flood control channel and when the channel is high our streets don't drain. Mild & only large storms.
Adrian Diaz	City of Pico Rivera	Senior Tech	adiaz@pico-rivera.org	34	All of Pico Rivera, and many other cities are in a flood zone. It takes 45 inches of rain to cause the whittier dam to overflow and flood cities. Not certain how this is being handled by IRWM.
				35	1.5600 Lindsey & Reichling Lane ( Moderate) storm drain 4 blocks way size?
				36	2. Corner of 9700 Terradell and Orange ( Moderate ) Stormdrain 3 blocks away
				37	3. 4600 Rosemead at Olympic ( Moderate) No storm drians
				38	4. Paramont at Loch Alene ( Moderate) storm drian 5 blocks away
				39	5. 8800- 8900 Washington Blvd
				40	Corner of 9900 Terradell and Pico Vista( Moderate ) San Gabriel River dumps onto street and floods area, issue with flood control gate- outfall .
Ramiro Hernandez	City of South Gate	Water Operations Foreman	rhernandez@sogate.org	41	The area bounded by the Los Angeles River to the east to Atlantic ave. to the west; from Firestone Blvd. to the north to Imperial Hwy. to the south, experience moderate to severe flooding during large storms when the L.A. River is more than half full.
				42	The area bounded by the Los Angeles River to the west to the Long Beach Frwy (710) to the east; from Firestone Blvd. to the north to the Long Beach Frwy (710) over the Los Angeles River to the south, is a mobile home park (Thunderbird Villas) that is next to the Bandini Flood Control Channel that has faced potential evacuations during large storms when the Los Angeles River is more than half full. The Bandini Flood Control Channel is very close to overflowing during large storms to within one foot from the top of the Bandini Flood Control Channel.
Scott B. Rigg	City of Vernon	Public Works & Water Superintendent	srigg@ci.vernon.ca.us	43	Location No. 1: Boyle Avenue at Vernon Avenue. Severe. Large Storm.
				44	Location No. 2: Fruitland Avenue east of Gifford Avenue. Moderate. Large Storm.
				45	Loaction No. 3: District Blvd. east of Heliotrope Avenue. Moderate. Large Storm.
				46	Location No. 4: Santa Fe Avenue at Vernon Avenue. Moderate. Large Storm.
				47	Location No. 5: 48th Street west of District Blvd. Moderate. Large Storm
				48	Location No. 6: 49th Street west of District Blvd. Moderate. Large Storm.
				49	Location No. 7: 50th Street west of District Blvd. Moderate. Large Storm.
				50	Location No. 8: 27th Street west of Santa Fe Avenue. Moderate. Large Storm.
				51	Location No. 9: Maywood Avenue at Fruitland Avenue. Moderate. Large Storm.

**Flood Survey**

Name	Affiliation/ Organization	Title	Email address	Num	Response
Frank D. Beach	City of Santa Fe Springs	Utility Services Manager	Frankbeach@santafesprings.org	52	Orr and Day Road and Florence Avenue Moderate flooding 1 inch of rainfall within 24 hrs.
				53	Norwalk Blvd North of Los Nietos Road Severe Flooding Moderate rain fall
				54	Slauson Ave west bound from Santa Fe Springs Road Mild flooding Moderate rain fall
Gina Nila	City of Commerce	Environmental Services Manager	ginan@ci.commerce.ca.us	55	Jillson St. - c/s Eastern to Fitzgerald, moderate during consistent rains.
				56	Kuhl - c/s Gage & rear entrance to Veteran's Park, moderate during consistent rains.
				57	Washington Blvd. - c/s under I-5 freeway bridge. Experienced moderate flooding for the first time this month from a heavy storm.
				58	Bandini Blvd. - West of Malt, moderate flooding from consistent rains.
				59	Greenwood Ave. - c/s Slauson Blvd., moderate flooding from consistent rains.
				60	6008-5824 Ferguson and between Atlantic and Gerhart, moderate flooding from consistent rains.
				61	Garfield Ave. - c/s Washington Blvd. and Flotilla, moderate flooding from consistent rains.
				62	Astor - c/s Jardine & Quigley, moderate flooding from consistent rains.
Grissel Chavez	City of Norwalk	Public Service Superintendent	gchavez@ci.norwalk.ca.us	63	Curtis and King, north of Imperial Highway - Moderate - flooding caused by large storms; insufficient drainage issues and grading of street
				64	Dalwood, south of Adoree - Moderate - flooding caused by large storms; grading of street
				65	Hoxie, north of Imperial Highway - Moderate - flooding caused by large storms; grading of street; insufficient drainage
				66	Firestone Blvd, from Shoemaker to Dinard - Moderate - flooding caused by large storms; grading of street / insufficient drainage
				67	Dalwood, south of Foster Road- Moderate - flooding caused by large storms; grading issues / insufficient drainage
Lisa Ann Rapp	City of Lakewood, Department of Public Works	Director of Public Works	lrapp@lakewoodcity.org	68	Candlewood Street from Briercrest to Ocana. Flooding can be mild to moderate when there are extended length storms, and the water level in the open drainage channels has risen. Flap gates close and do not allow the water on the streets to drain into the channel. Once it stops raining and the water level in the adjacent channel goes down, the street will drain. Several years ago, about 15 cars stalled out on this segment of roadway.
				69	Harwick Street and Yearling Street west of Paramount Blvd. This area can flood when there are large storms for several days. The water will come up to the resident's garages and front doors. This happens infrequently.
				70	Carfax Avenue west of Palo Verde Avenue. Flooding can be mild to moderate when there are extended length storms, and the water level in the open drainage channels has risen. Flap gates close and do not allow the water on the streets to drain into the channel. Once it stops raining and the water level in the adjacent channel goes down, the street will drain.
Dan Wall	City of Whittier	Assistant Director of Public works	dwall@cityofwhittier.org	71	n/a
				72	n/a
				73	n/a
				74	n/a
				75	n/a
Carlos Alba	City of Artesia	City Enginner	acecivil@aol.com	76	No flooding issues in th last 16 years.

# Appendix F Gateway IRWMP Outreach Report

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# Gateway IRWMP Outreach Report

May 17

# 2013

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The following report, prepared by S. Groner Associates Inc. (SGA), summarizes the outreach activities for the Gateway Integrated Regional Water Management Plan (IRWMP). Besides the general public, these outreach activities targeted DAC (disadvantaged communities) stakeholders during the plan development. These include promoting two public meetings around the IRWMP to encourage participation from DAC stakeholders, allowing this underserved population an opportunity to give feedback and comments leading up to the final adoption of the plan on June 13, 2013.

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## I. Meeting Outreach

### 1. Materials Developed

Following are the materials and website that were developed throughout the IRWMP process to keep the general public, stakeholders and the surrounding communities abreast of developments throughout the planning process.

#### 1.1 Website

A website ([www.gatewayirwmp.org](http://www.gatewayirwmp.org)) containing materials for download and updates on the IRWMP process was developed and launched in 2012. Below is a screenshot of the home page.

**Gateway Water Management Authority**  
GWMA

16401 Paramount Blvd.  
Paramount, CA 90723

562-663-6850 phone  
562-634-8216 fax

Home About Us Membership GWMA Documents IRWMP Documents

### Welcome!

The Gateway Water Management Authority ("Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority") is an agency made up of cities and agencies within the Gateway region of Southeastern Los Angeles County serving more than 2 million people. These entities and stakeholders are interested in developing an Integrated Regional Water Management Plan ("IRWMP") because they have common water quality, water supply and storm runoff problems and issues. They are also demographically similar. These common traits provide a unique opportunity to jointly find common, integrated, and coordinated solutions for the region's water related issues through the IRWMP process.

For more information about Gateway Water Management Authority, please e-mail: [Grace J. Kast, Executive Officer](mailto:Grace.J.Kast@geiconsultants.com).

Explore our site to learn more about the Gateway Region IRWMP!

### GWMA Board News

**GWMA Board Meetings**  
Regular Board Meetings are held the second Thursday of each month, 12:00 Noon at PROGRESS PARK PLAZA  
15500 Downey Avenue  
Paramount, CA  
unless otherwise posted.

[GWMA Board Meeting Agenda - May 9](#)

### IRWMP News

In December of 2011, the GWMA Board began its Integrated Regional Water Management Planning ("IRWMP") process with funds provided by the California Department of Water Resources ("DWR") through a \$950,000 grant, matching grants provided by the GWMA and in-kind services provided by Gateway region stakeholders involved in the IRWMP process.

The Public Review Draft of the Gateway Integrated Regional Water Management Plan is now available at the following link:

[Gateway IRWMP Report Public Review Draft \[26.9MB\]](#)  
(This is a large file, please be patient)

Comments on the draft plan will be accepted through May 15, 2013, and may be directed by e-mail to:  
[GatewayIRWMP@geiconsultants.com](mailto:GatewayIRWMP@geiconsultants.com)

A Public Meeting will be held on the Draft Plan on May 1, 2013, at 5:00 pm at Progress Park Plaza, 15500 Downey Avenue, Paramount, CA 90723. We encourage stakeholders and the public to attend, learn about the plan, and comment on the Draft Plan.

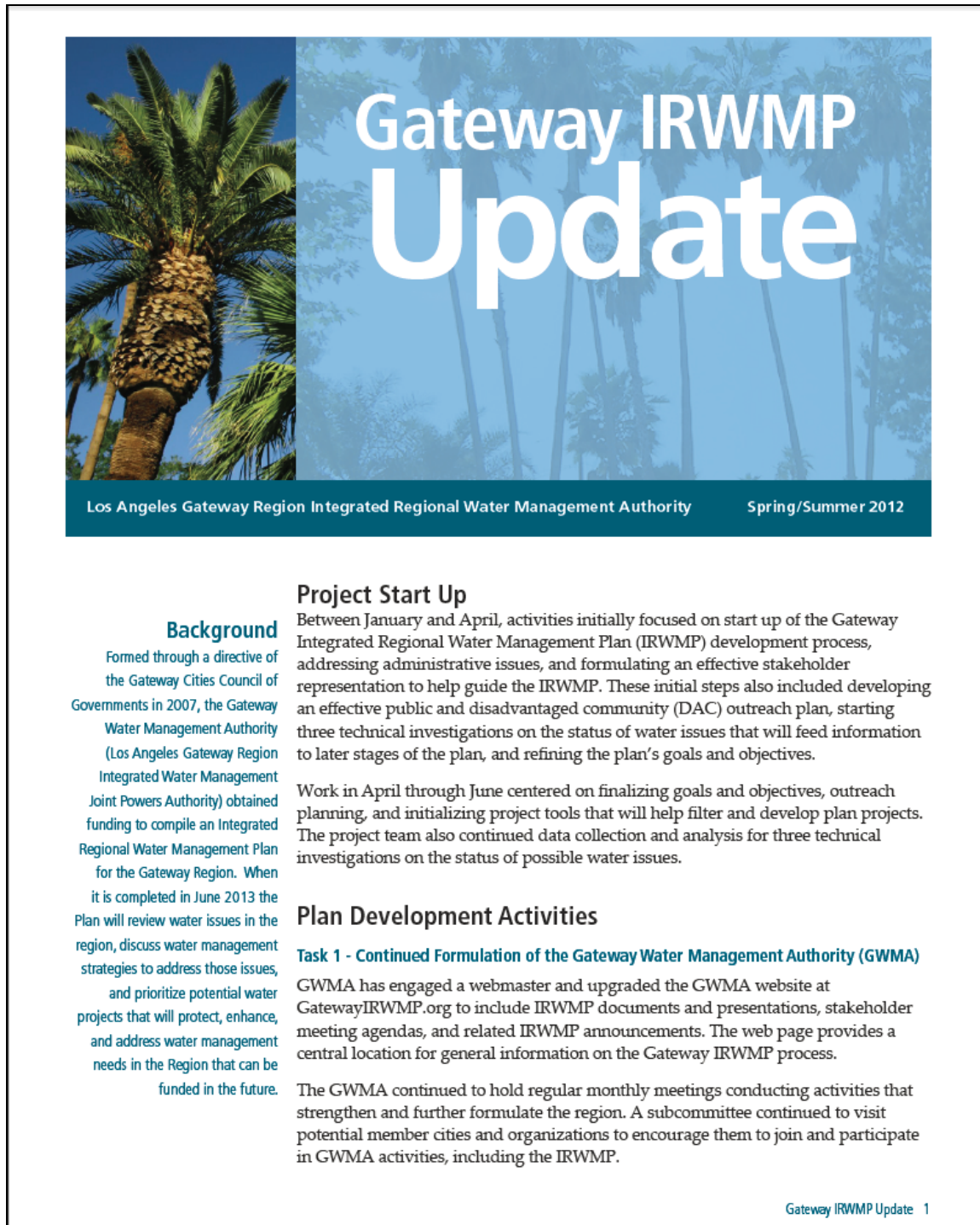
### Current Members

- Artesia
- Bell
- Bellflower
- Bell Gardens
- Central Basin MWD
- Cerritos
- Commerce
- Downey
- Huntington Park
- La Mirada
- Lakewood
- Long Beach

#### 1.2 Newsletter

A Newsletter on IRWMP activities and updates was developed and distributed in Spring/Summer of 2012 through the Gateway Water Management Authority (GWMA, also

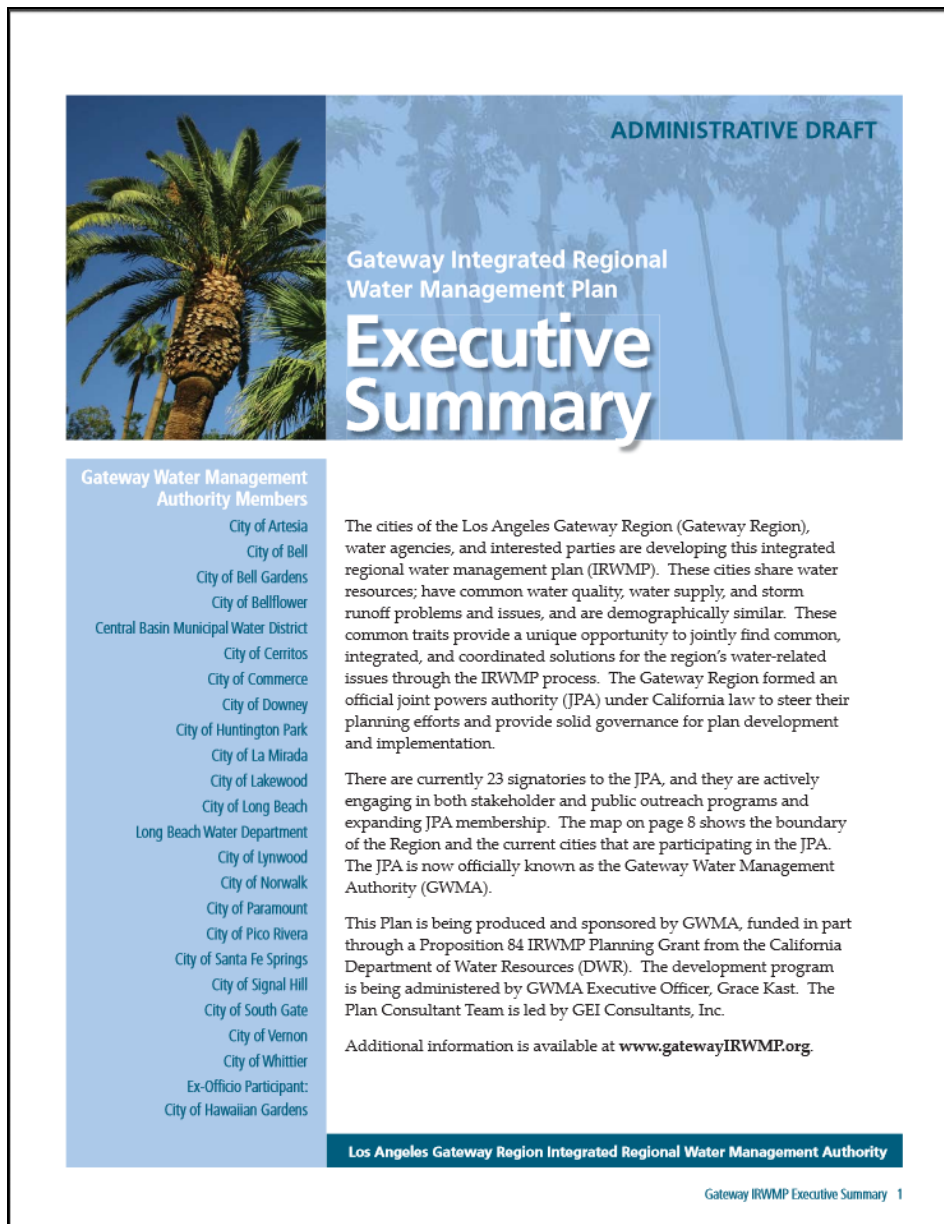
known as the Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority) member agencies in hard copy (copies available at city offices) and posted on the website. Below is an image of the newsletter's cover. Download the entire newsletter [here](#).



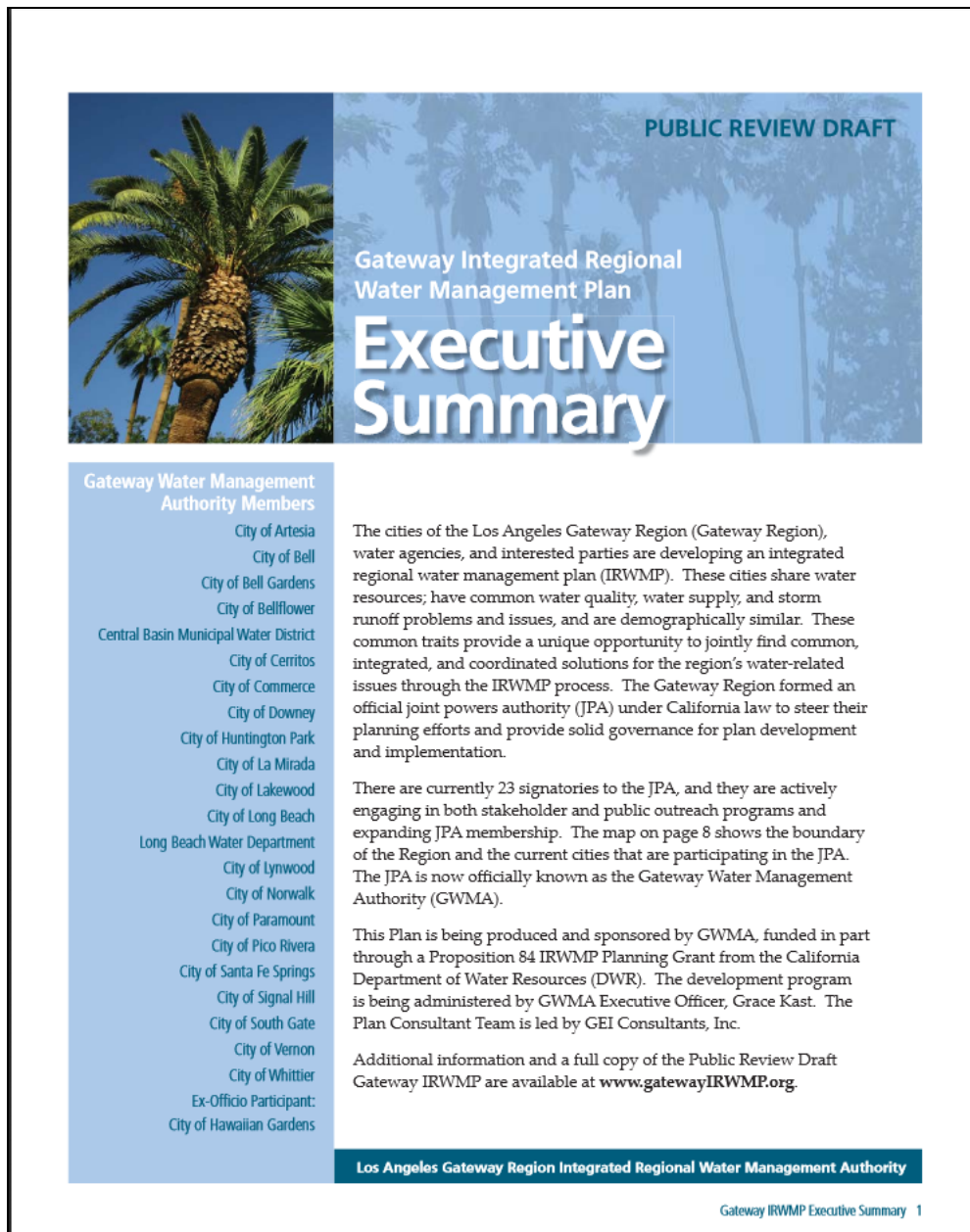
### 1.3 Executive Summary Brochure

An Executive Summary was developed and distributed through member agencies both at the Administrative Draft stage and Public Review Draft stage in hard copy and electronic form downloadable on the website.

Below is a cover image of the Administrative Draft of the Executive Summary distributed at the earlier stages of the plan development and the Public Review Draft of the Executive Summary distributed at a later stage. Download the entire summaries [here](#) and [here](#).







## 1.4 Public Meetings

### Initial Public Meeting:

- English Meeting Flyer
- Spanish Meeting Flyer

Due to a short turnaround time, most of the outreach to promote the public meeting was conducted by phone and email. Below are the flyers in English and Spanish.

# GATEWAY WATER MANAGEMENT AUTHORITY

Los Angeles Gateway Region  
Integrated Regional Water Management  
Joint Powers Authority

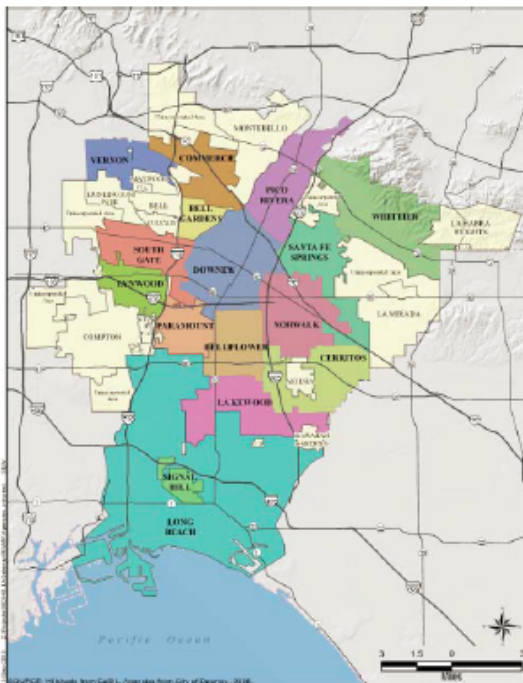
16401 Paramount Blvd., Paramount, CA 90723 • 562.663.6850 phone 562-634-8216 fax • www.gatewayirwmp.org

## PUBLIC INFORMATIONAL MEETING REGIONAL WATER PLANNING

February 29, 2012

7:00 pm

Clearwater Building, 2nd floor  
16401 Paramount Blvd., Paramount, CA 90723



The Gateway Water Management Authority has obtained funding to compile an Integrated Regional Water Management Plan (IRWMP) for the Gateway Region. We are just starting the IRWMP process, which will take 17 months to complete. The Plan will:

- Review water issues in the region
- Discuss water management strategies to address those issues
- Prioritize potential water projects
- Protect, enhance, and address water supply and management needs in the region

Our planning process includes an initial public meeting the evening of February 29. We cordially invite the Public to attend. We will present an overview of the upcoming IRWMP planning process and let you know how and when you can contribute to the planning effort.

For additional information, contact Bill Bennett, Project Consultant, at (916) 631-4564 or send an e-mail to [GatewayIRWMP@geiconsultants.com](mailto:GatewayIRWMP@geiconsultants.com). You may also refer to our website at [www.gatewayirwmp.org](http://www.gatewayirwmp.org).

– THIS PLAN AFFECTS YOUR COMMUNITY –  
TELL US YOUR MOST IMPORTANT WATER ISSUES



## REGIÓN GATEWAY DE LOS ANGELES GRUPO DE PLANIFICACIÓN DE ADMINISTRACIÓN DE AGUA AUTORIDAD COMÚN DE COMPETENCIAS

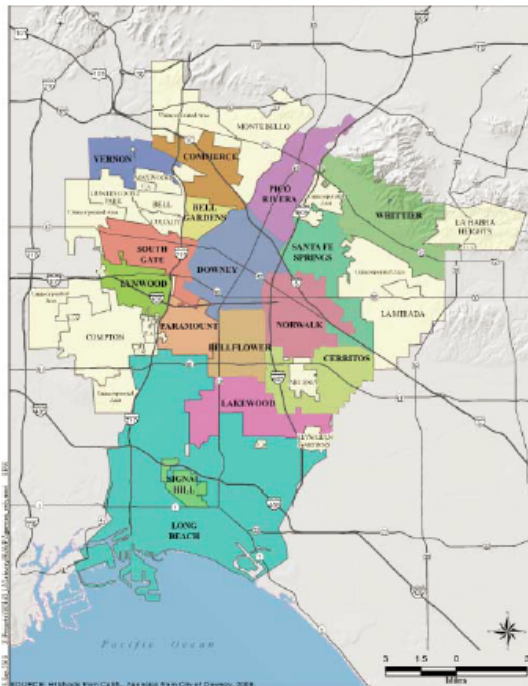
16401 Paramount Blvd., Paramount, CA 90723 • 562.663.6850 phone 562-634-8216 fax • [www.gatewayirwmp.org](http://www.gatewayirwmp.org)

### REUNIÓN PÚBLICA INFORMATIVA

29 de Febrero de 2012

7:00 pm

Clearwater Building, 2nd floor  
16401 Paramount Blvd., Paramount, CA 90723



La Región Gateway de Los Angeles, ha obtenido fondos para completar un Plan integrado para evaluar y administración de agua en la Región (IRWMP). Apenas estamos empezando el proceso IRWMP, que tendrá 17 meses para completar.

El Plan sera:

- Revisar problemas de agua en la región
- Discutir estrategias de agua para resolver esas cuestiones
- Priorizar los proyectos potenciales de agua
- Proteger, mejorar y tratar de identificar las necesidades de administración de agua la región

Nuestro proceso de planificación incluye una primera reunión pública la noche del 29 de Febrero. Invitamos cordialmente al público para asistir. Vamos a presentar una visión general de la próxima IRWMP proceso de planificación y cómo y cuándo puede contribuir al esfuerzo de planificación.

Para obtener información adicional, póngase en contacto con Lorena Ospina, consultor del proyecto, al (818) 552-6412 o enviar que un correo electrónico a [GatewayIRWMP@geiconsultants.com](mailto:GatewayIRWMP@geiconsultants.com)

También puede referirse a nuestro sitio Web en [www.gatewayirwmp.org](http://www.gatewayirwmp.org).

– ESTE PLAN AFECTA A SU COMUNIDAD –

DÍGANOS SUS PERSPECTIVOS DE AGUA MÁS IMPORTANTES

## 2. Public Review Draft IRWMP Public Meeting

Following is an overview of the materials developed for the second public meeting.

For the online outreach, PDF versions of the English and Spanish Flyer with Flowchart and the Project Index were distributed to organizations and media publications. They were encouraged to share these materials with their relevant networks. For the offline outreach, the following materials were made available to community members in order to inform them of the date of the meeting, provide context on what will be discussed, and create a method for gathering feedback from community members who could not attend the meeting.

- English Meeting Flyer with Flowchart
- Spanish Meeting Flyer with Flowchart
- Condensed English Water Management Plan Executive Summary
- Full Spanish Water Management Plan Executive Summary
- Project Index
- Comments and Questions Sheet

### 2.1 English Meeting Flyer with Flowchart (Double-sided)

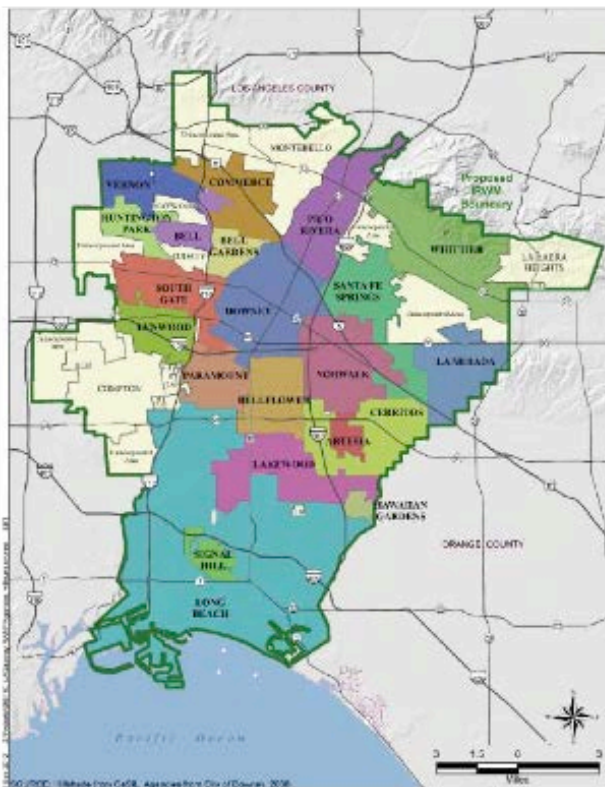
The purpose of the meeting flyer and flowchart is to provide information on logistics and what will be discussed at the public meeting. The flowchart was developed to make the meeting announcement more user-friendly and visual. In addition to the basic information such as date, time, and location of the meeting, the flowchart on the backside provided an at-a-glance view of the steps for community members to take to participate in and provide feedback to the planning process.

# GATEWAY WATER MANAGEMENT AUTHORITY

Los Angeles Gateway Region  
Integrated Regional Water Management  
Joint Powers Authority

16401 Paramount Blvd., Paramount, CA 90723 • 562.663.6850 phone 562-634-8216 fax • [www.gatewayirwmp.org](http://www.gatewayirwmp.org)

**PUBLIC INFORMATIONAL MEETING**  
**REGIONAL WATER PLANNING**  
**May 1, 2013 at 5:00 pm**  
Progress Park Plaza  
15500 Downey Avenue, Paramount, CA 90723



**THIS PLAN AFFECTS  
YOUR COMMUNITY**

The Gateway Water Management Authority is finalizing an **Integrated Regional Water Management Plan (IRWMP)** for the Gateway Region. The Plan will:

- Review water issues in the region
- Discuss water management strategies to address those issues
- Prioritize potential water projects
- Protect, enhance, and address water supply and management needs in the region

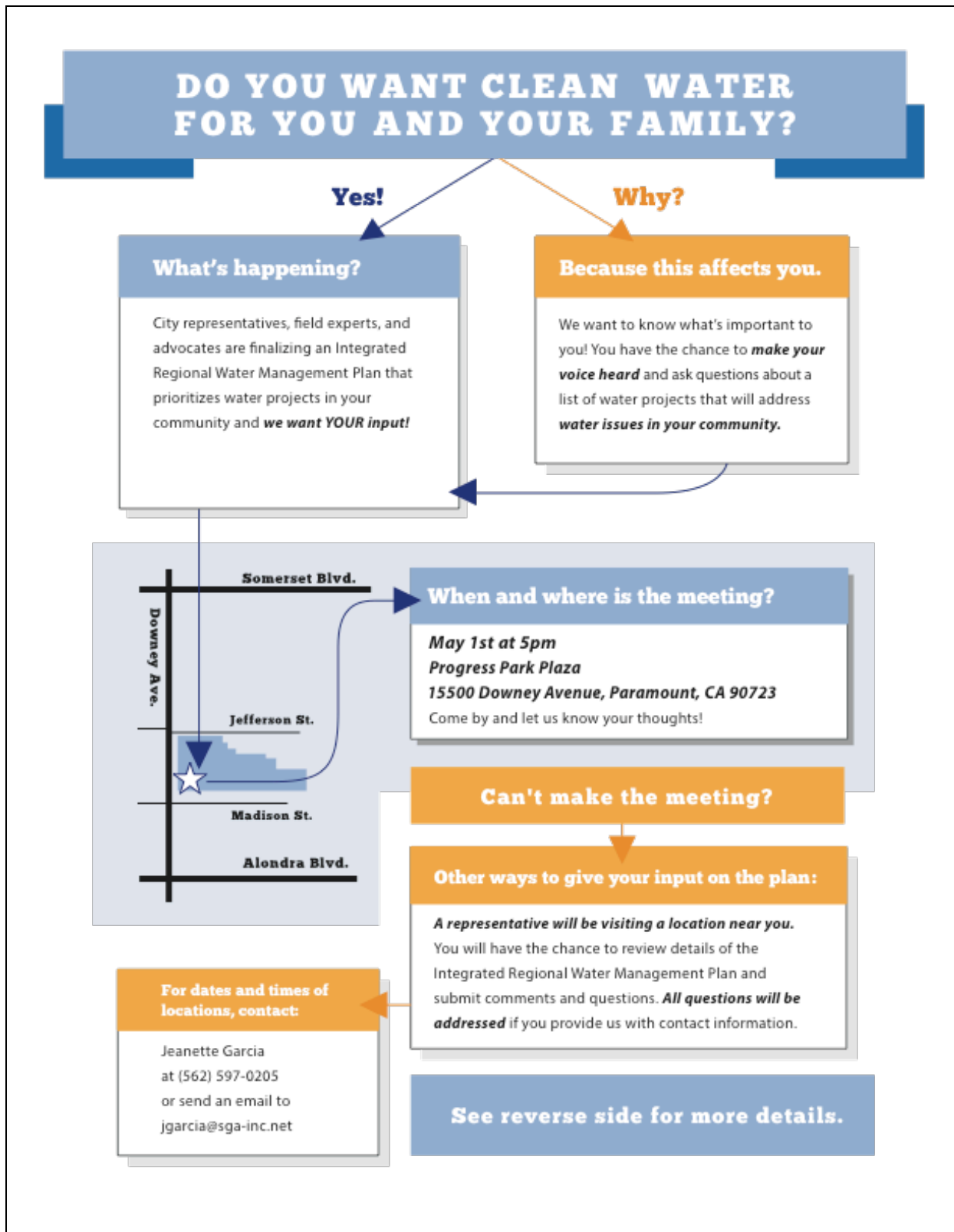
Our planning process includes a **public meeting** the evening of **May 1, 2013**. We cordially invite the public to attend.

We will:

- Present an overview of the IRWMP
- Look at the region's major water issues
- Review major elements of the IRWMP
- Briefly go over proposed water projects

We will also let you know how you can contribute to this planning effort.

For additional information, contact Bill Bennett, Project Consultant, at (916) 631-4564 or send an e-mail to [GatewayIRWMP@geiconsultants.com](mailto:GatewayIRWMP@geiconsultants.com). You may also refer to our website at [www.gatewayirwmp.org](http://www.gatewayirwmp.org).



## 2.2 Spanish Meeting Flyer with Flowchart (Double-sided)

This meeting flyer and flowchart is a direct translation of the English meeting flyer with flowchart above, which was created to increase outreach to DACs, many of who are Spanish speakers.

### REGIÓN GATEWAY DE LOS ANGELES

#### GRUPO DE PLANIFICACIÓN DE ADMINISTRACIÓN DE AGUA

#### AUTORIDAD COMÚN DE COMPETENCIAS

16401 Paramount Blvd., Paramount, CA 90723 • 562.663.6850 phone 562-634-8216 fax • [www.gatewayirwmp.org](http://www.gatewayirwmp.org)

**REUNIÓN PÚBLICA INFORMATIVA**  
**1 de Mayo del 2013**  
**5:00 pm**  
Progress Park Plaza  
15500 Downey Ave., Paramount, CA 90723



COURTESY: IIRWMP from OWR, Agencies from City of Downey, 2008

La Región Gateway de Los Angeles, está empezando el proceso de finalizar el Plan integrado para evaluar y administración de agua en la Región (IRWMP). El Plan revisará:

- Problemas de agua en la region
- Estrategias de agua para resolver esas cuestiones
- Los proyectos potenciales de agua para la Región
- Proteger, mejorar y tratar de identificar las necesidades de administración de agua la Región

Nuestro proceso de planificación incluye una reunión pública la noche de 1 de Mayo del 2013. Invitamos cordialmente al público para asistir.

Vamos a presentar la visión del Plan de la Región que incluirá:

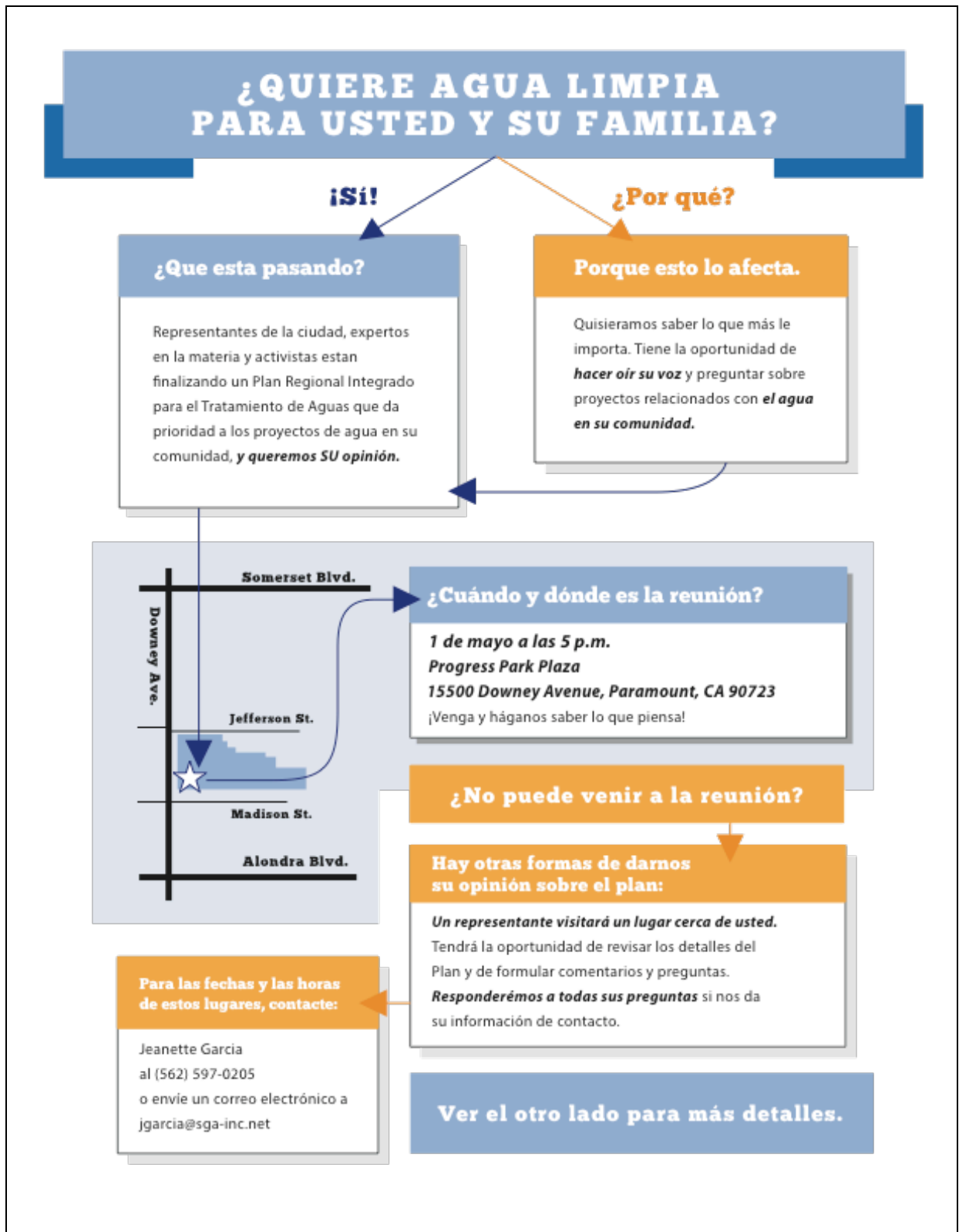
- Un resumen del Plan IRWMP
- Una evaluación sobre cuestiones de agua más importantes de la Región
- Elementos principales de revisión de la IRWMP
- Brevemente repasar los proyectos de agua propuestos

Para obtener información adicional, póngase en contacto con Lorena Ospina, consultor del proyecto, al (818) 552-6412 o enviar que un correo electrónico a [GatewayIRWMP@geiconsultants.com](mailto:GatewayIRWMP@geiconsultants.com)

También puede referirse a nuestro sitio Web en [www.gatewayirwmp.org](http://www.gatewayirwmp.org).

### ESTE PLAN AFECTA A SU COMUNIDAD





## 2.3 Condensed English Water Management Plan Executive Summary

This is a condensed version of the eight-page Water Management Plan Executive Summary. This summary provides contact information, a short introduction of the plan, and important dates such as the date of the public meeting and the release date of the final list of water projects.



**Gateway Integrated Regional Water Management Plan Summary**

**PUBLIC MEETING FOR FINALIZING REGIONAL WATER PLANNING**  
May 1, 2013 at 5:00 pm  
Progress Park Plaza  
15500 Downey Avenue, Paramount, CA 90723  
[Last chance to give feedback and ask questions!](#)

**Gateway Water Management Authority Members**

- City of Artesia
- City of Bell
- City of Bell Gardens
- City of Bellflower
- Central Basin Municipal Water District
- City of Cerritos
- City of Commerce
- City of Downey
- City of Huntington Park
- City of La Mirada
- City of Lakewood
- City of Long Beach
- Long Beach Water Department
- City of Lynwood
- City of Norwalk
- City of Paramount
- City of Pico Rivera
- City of Santa Fe Springs
- City of Signal Hill
- City of South Gate
- City of Vernon
- City of Whittier
- Ex-Officio Participant:  
City of Hawaiian Gardens

City representatives from the Los Angeles Gateway Region (Gateway Region), water agencies, and field experts have developed a plan to manage water resources in your neighborhood called an integrated regional water management plan (IRWMP). The plan provides a unique opportunity to find common solutions to the region's water-related issues that you and your family. The Gateway Region in which you live formed a group called the Joint Powers Authority (JPA) under California law responsible for planning and executing the water projects on behalf of residents like you.

The JPA is now called the Gateway Water Management Authority (GWMA) but its role remains the same. Our mission is to identify water projects relevant to the cities in which you live so they can be funded down the road by the California Department of Water Resources (DWR).

Highlights of what you need to know about this process and what you can do:

- The group came up with 73 Water Management Projects.
- All comments from residents about the water projects will be responded to. The comment period ends May 15<sup>th</sup>, 2013. This will be your last chance to let us know your thoughts on the plan before it is finalized.
- Residents are invited to attend the meeting on May 1<sup>st</sup>, 2013 in Paramount City, where they can provide feedback and ask questions about the projects.
- The report including final list of water projects is scheduled to be released June 3<sup>rd</sup>, 2013.

For additional information, please contact Bill Bennett, Project Consultant, by calling (916) 631-4564 or sending an e-mail to [bbennett@geiconsultants.com](mailto:bbennett@geiconsultants.com) or Grace Kast, Executive Officer of the GWMA, by calling (562) 663-6850 or sending an e-mail to [gracekast.gateway@gmail.com](mailto:gracekast.gateway@gmail.com). You may also refer to our website at [www.gatewayirwmp.org](http://www.gatewayirwmp.org).



## 2.4 Spanish Water Management Plan Executive Summary

This handout is a Spanish translation of the eight-page Water Management Plan Executive Summary. It provides more in-depth information relating to IRWMP objectives and how projects are prioritized.

## *Resumen Ejecutivo*

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La Región Gateway de Los Angeles, agencias de agua, y partes interesadas están desarrollando el proceso de finalizar el Plan integrado para evaluar y administración de agua en la Región (IRWMP).

Estas ciudades comparten recursos hídricos; tienen común calidad de agua, provisiones de agua y problemas de escurrimiento de la tormenta y problemas y son demográficamente similares. Estos rasgos comunes proporcionan una oportunidad única para encontrar conjuntamente común, integrado y coordinado de soluciones para cuestiones relacionadas con el agua de la región a través del proceso IRWMP. La Región de Gateway formaron una Autoridad Común de Competencias, Grupo de Planificación de Administración de Agua (GWMA), bajo la ley de California para dirigir sus esfuerzos de P es un esfuerzo colaborativo para gestionar todos los aspectos de los recursos planificación y gobernanza sólida para plan de desarrollo e implementación.

La Región Gateway de Los Angeles, está empezando el proceso de finalizar el Plan integrado para evaluar y administración de agua en la Región (IRWMP). Este Plan está siendo producida y patrocinado por GWMA, financiado en parte por una Proposición 84 desde el Departamento de recursos hídricos de California (DWR). El programa de desarrollo se está administrando por la Directora Ejecutiva de GWMA, Grace Kast. El equipo de consultores del Plan, GEI Consultants, Inc., directa la información contenida el Plan y una copia completa del proyecto de revisión pública del Plan IRWMP están disponibles en [www.gatewayIRWMP.org](http://www.gatewayIRWMP.org).

## *Proceso IRMWP*

El proceso Regional de IRWM hídricos es un esfuerzo de colaboración para gestionar todos los aspectos de los recursos hídricos en una región. El proceso trata de abordar los problemas y perspectivas distintas de todas las entidades que participan a través de soluciones mutuamente beneficiosas. El proceso de desarrollo de Gateway IRWMP comenzó a principios de 2012.

El proceso de desarrollo de Gateway IRWMP tiene los siguientes pasos principales:

- Recoge información sobre la gestión del agua de la región
- Definir los problemas de agua de la región
- Identificar estrategias que ayudarán a aliviar los problemas
- Ideas sobre proyectos que se implementan las estrategias
- Filtrar los proyectos para asegurarse de que los proyectos serán integrados para que sean compatibles y complementarios de otros proyectos existentes o sugeridas, no perjudiquen ciertas poblaciones y cumplir otros requisitos
- Priorizar los proyectos filtradas para aplicación
- Desarrollar un procedimiento para implementar proyectos colectivos

- Determinar métodos y herramientas para supervisar la ejecución de los proyectos dentro de la IRWMP, así como el plan general
- Completar un Plan escrito
- Aprobación del Plan por GWMA y miembros de la Organización

### ***Metas y Objetivos de el Plan de La Región Gateway de Los Angeles***

- Identificar y atender las necesidades de dependientes de recursos naturales de agua de las cuencas de la región de Gateway.
- Proteger y mejorar la calidad del agua.
  - Objetivo: alcanzar niveles TMDL requiere según sus horarios individuales.
  - Objetivo: reducir eficazmente las principales fuentes de contaminantes y factores de estrés ambientales en la región.
- Optimizar y garantizar la fiabilidad del suministro de agua.
  - Objetivo: continuar y mejorar las medidas de eficiencia de uso de agua para satisfacer los objetivos de uso de agua per cápita de 20 X 2020.
  - Objetivo: ampliar las instalaciones de reciclado de agua regional y reciclado de distribución de agua para ayudar a proporcionar fuentes de agua confiable.
  - Objetivo: infraestructura de agua sistemáticamente actualización del envejecimiento en la región.
- Coordinar e integrar la gestión de recursos hídricos.
- Proporcionar administración de agua de la región dependientes de recursos naturales a través de la mejora de los servicios e infraestructura.
  - Objetivo: crear el hábitat, espacios y oportunidades de recreación a base de agua en la región.
- Gestión de inundación y aguas para reducir los impactos de calidad de agua y riesgo de inundación de la tormenta.
  - Objetivo: instalar u optimizar el agua control para administrar el agua de lluvia en la región.
  - Obtener, administrar y evaluar la información y datos de recursos de agua.

### ***Estrategias y proyectos***

Las agencias interesadas debían sugerir proyectos para el IRWMP que se aplican las estrategias de manejo de agua y cumplir con los objetivos de la IRWMP. Proyectos fueron solicitados a partir de finales de Junio de 2012 hasta Septiembre de 2012.

Setenta y tres (73) proyectos fueron recogidos, revisados y clasificados por un Equipo de Revisión Técnica de los ocho individuos; cada uno asignado diversas partituras con base en su experiencia.

Proyectos también fueron evaluados por el equipo técnico en un paso de la "integración" para asegurarse de:

1. Proyectos de impacto adverso sobre uno al otro, o los sistemas actuales de gestión de agua;
2. Proyectos complementan entre sí y mejoran los beneficios más allá de las desarrolladas de proyectos individuales;

3. Solo beneficio y proyectos similares se lían apropiadamente en alternativas de programa regional más integral y colectiva para ahorrar esfuerzo y costos en la administración, permitiendo, planificación y diseño construcción y hacerlos generalmente listo para oportunidades de financiación; y
4. El plan considera fusión o agregando piezas o componentes de proyectos que aún más aumentan beneficios adicionales.

### **Conclusiones IRWMP Incluyen:**

- GWMA ha llevado un proceso público, abierto, participativo y colaborativo para el desarrollo de el Plan de la puerta de entrada. Se formó un grupo de partes interesadas para formular recomendaciones a la GWMA y guiar el proceso.
- Los interesados formularon una lista de metas y objetivos que fueron adoptados por el GWMA para abordar las cuestiones de gestión de agua más importantes en la región, incluyendo la protección de la calidad de agua y mejora, inundaciones, gestión del agua de tormenta y cuidado del medio ambiente.
- El proceso IRWMP incluyeron estudios sobre suministro de agua subterránea, calidad de las aguas subterráneas y monitoreo, aguas pluviales y las inundaciones y suministro de agua y demanda; el efecto del cambio climático.
- Una amplia gama de proyectos fueron sugeridos e incorporados en el plan para llevar a cabo estrategias de manejo de agua IRWMP metas y objetivos. Alternativas del proyecto regional soluciones para los problemas regionales.
- Coordinación con otros esfuerzos de planeación, comunicación efectiva y monitoreo del desempeño del plan son importantes seguir pasos para GWMA en la administración continua de los recursos hídricos de la región Gateway.

### **Recomendaciones IRWMP Incluyen:**

- GWMA debe continuar coordinar esfuerzos de la administración regional de agua y participar activamente en la implementación de soluciones para problemas de administración del agua.
- Actualizar la lista de proyectos según sea necesario y como oportunidades de subvención se identifican.
- Definir el financiamiento y un plan de financiamiento para acciones rentable implementar acciones y mejores prácticas de manejo para cumplir con órdenes y requisitos.
- La GWMA debe continuar a proveer un liderazgo para influir en la planificación hidrológica local y desarrollar posiciones unificadas a otras entidades de gestión de agua regional para garantizar la justicia económica y la justa distribución de subvenciones, fondos y proyectos.

## **2.5 Project Index**

The Project Index provides a list of all the water projects with a summary of each included in the plan. There are 73 projects from 12 cities throughout the Gateway region. A copy of the Project Index can be found in Appendix C of the IRWMP.

## 2.6 Comments and Questions Sheet

A comments and questions sheet was available at the tabling events. The sheet was created for community members to provide comments and questions if they could not attend the meeting.

### **Gateway Water Management Authority Comments and Questions**

#### **Comments:**

Please write down any questions that you may have for the Gateway Water Management Authority regarding the Integrated Regional Water Management Plan and its water projects and we will get back to you.

#### **Questions:**

#### **Contact info**

Name: \_\_\_\_\_ E-mail: \_\_\_\_\_ Phone #: \_\_\_\_\_

*Contact information will not be shared with third parties.*

## II. Online Outreach

For the first public meeting held in February 2012, a total of 27 DAC stakeholders including organizations and publications were informed of the IRWMP via email and phone.

Organizations
Communities for a Better Environment
East Yard Communities 4 Environmental Justice
California Environmental Justice Alliance
La Causa
Alliance for Better Community
Union de Vecinos
BASTA in Bell
Community Development Department
Maywood First
League of Women Voters - Los Angeles
Human Services Association
Families in Schools
Southeast Community Development Corporation
Oldtimers Foundation
Los Angeles Unified Preschool
First 5 LA
Southeast Churches/Service Center
Alta Public Schools
Latino Equity Alliance

Publications
<i>Paramount Journal</i>
<i>Wave Newspaper</i>
<i>La Opinión</i>
<i>The Compton Bulletin</i>
<i>Eastern Pacific News Group</i> ( <i>Eastside Sun, Northeast Sun, Bell Gardens Sun, City Terrace Comet, Commerce Comet, Montebello Comet, ELA Brooklyn Comet, Wyvernwood Chronicle, Vernon Sun</i> )
<i>The Whittier Daily News</i>
<i>Los Cerritos News</i>
<i>El Aviso Magazine</i>

In May 2013, a total of 30 DAC stakeholders including organizations and publications were reached online via email and follow-up calls. Furthermore, an email was sent to the following stakeholders for any final questions comments or questions regarding the IRWMP.

Organizations
Communities for a Better Environment
East Yard Communities 4 Environmental Justice
California Environmental Justice Alliance
La Causa
Alliance for Better Community
Union de Vecinos
BASTA in Bell
Community Development Department
Maywood First
League of Women Voters - Los Angeles
Human Services Association
Families in Schools
Southeast Community Development Corporation
Oldtimers Foundation
Los Angeles Unified Preschool
First 5 LA
Southeast Churches/Service Center
Alta Public Schools
Latino Equity Alliance

Publications
<i>Paramount Journal</i>
<i>Wave Newspaper</i>
<i>La Opinión</i>
<i>The Compton Bulletin</i>
<i>Eastern Pacific News Group</i> ( <i>Eastside Sun, Northeast Sun, Bell Gardens Sun, City Terrace Comet, Commerce Comet, Montebello Comet, ELA Brooklyn Comet, Wyvernwood Chronicle, Vernon Sun</i> )
<i>The Whittier Daily News</i>
<i>Los Cerritos News</i>
<i>El Aviso Magazine</i>
Patch.com - Long Beach
Patch.com - Cerritos/Artesia
Patch.com - South Gate/Lynwood

## 1. Patch.com Long Beach Post on April 22, 2013

### Last Chance to Provide Feedback on Water Management Plan on 5/1

Posted by [lphan@sga-inc.net](mailto:lphan@sga-inc.net), April 22, 2013 at 05:14 pm

[Comment](#) • [Recommend](#) • [Like](#) 0 [Tweet](#) 0

Thursday, May 2, 2013, 12:00 AM [Add to calendar](#)

15500 Downey Ave Paramount CA 90723 [See map](#)

This is the public's **last chance** to provide feedback on the list of water management projects included in the Integrated Regional Water Management Plan for the Gateway region. You have the chance to make your voice heard and ask questions. Come to the meeting on May 1, 2013 at 5:00 pm, located at Progress Park Plaza, 15500 Downey Avenue, Paramount, CA 90723.

**Comments** [+ Leave a Comment](#)

## 2. Online outreach through Cities

Some representatives of the GWMA added a link to the Gateway IRWMP website on their respective agencies' websites.

The Executive Summary Brochure was also distributed through member agencies both at the Administrative Draft stage and Public Review Draft stage in electronic form on the IRWMP website.



### III. Offline Outreach

#### 1. Community Outreach

There were three community outreach tablings conducted, including two tablings at markets with high foot traffic and one public library.

Outreach materials were distributed at one community center as follows.

##### Silverado Park Community Center

Date: April 25, 2013

Address: 1545 W. 31<sup>st</sup> St, Long Beach, CA 90810

Materials Distributed	# of Materials Distributed
(English) Flyer with Flowchart	50
(Spanish) Flyer with Flowchart	50

Notes: Materials were placed in the front office inside the Silverado Park Community Center building.

#### 2. Community Tablings

##### Food 4 Less

Date: April 27, 2013

Time: 11 am - 12 pm

Address: 6700 Cherry Ave, Long Beach, CA 90805

Materials Distributed	# of Materials Distributed
(English) Flyer with Flowchart	4
(Spanish) Flyer with Flowchart	1

Notes: The English Water Management Plan Executive Summary, Spanish Water Management Plan Executive Summary, and Project Index were also provided at the table. The managers at this Food 4 Less location confirmed that this was a high traffic time, but in actuality foot traffic was minimal.



Figure 1 (Food 4 Less - Long Beach): A community member from Long Beach reviews a Spanish flyer and project summary.

**Long Beach Public Library**

Date: April 27, 2013

Time: 1:15 pm - 2:15 pm

Address: 101 Pacific Ave, Long Beach, CA 90822

Materials Distributed	# of Materials Distributed
(English) Flyer with Flowchart	4 (35)
(Spanish) Flyer with Flowchart	2 (35)
(English) Management Plan Summary	1 (35)
(Spanish) Management Plan Summary	1 (20)
Project Index	3 (35)

Notes: Materials were placed at the library's information desk and community information kiosk. Materials that were placed (vs. picked up by a community member) are in parentheses. The most interest in the meeting came from library goers who voiced that water was an important issue to them.



Figure 2 (Long Beach Public Library): An interested community member from Long Beach inquires about the location of the meeting.



Figure 3 (Long Beach Public Library): Victoria, a former community organizer, promises to pass the information along to her peers.

**Food 4 Less**

Date: April 27, 2013

Time: 3:45 pm - 4:45 pm

Address: 10901 Imperial Hwy, Norwalk, CA 90650

Materials Distributed	# of Materials Distributed
(English) Flyer with Flowchart	1
(Spanish) Flyer with Flowchart	2

Notes: The English Water Management Plan Executive Summary, Spanish Water Management Plan Executive Summary, and Project Index were also provided at the table.



Figure 4 (Food 4 Less - Norwalk): A community member from Norwalk picks up a flyer in English.

**3. Newsletter Distribution**

Approximately 100 copies of the Newsletter were distributed.

**4. Public Review Draft of the IRWMP**

About 22 copies of the Public Review Draft of the IRWMP were distributed to the main libraries of the respective cities that are part of the GWMA for the public's reference.

In addition, about 100 copies of the Public Review Draft Executive Summary were distributed to agencies, GWMA as well as members of the stakeholders group.

## IV. Media Coverage

### 1. Whittier Daily News

Whittier Daily News reporter Mike Sprague attended the May 1<sup>st</sup> public meeting after hearing about it from SGA. In an article that ran May 2, 2013, entitled, "Proposed water management plan for Southeast area nears completion," Sprague provided a brief overview of the major items discussed at the meeting. The article included quotes from Bill Bennett of GEI Consultants, and Grace Kast, the GWMA's Executive Director, who stated the importance of planning on a regional scale.

### Proposed water management plan for Southeast area nears completion

By Mike Sprague, Staff Writer  
[@Bt3Reporter](#) on Twitter  
Posted: 05/02/2013 07:01:32 PM PDT  
Updated: 05/02/2013 07:01:55 PM PDT

PARAMOUNT -- A proposed water management plan for the southeast area of Los Angeles County under way for about a year is nearing completion.

The plan, which provides data on climate change, water demand, quality and supply issues and storm water issues, also proposes more than 73 other projects at a cost of nearly \$100 million.

The final meeting to seek public input on this plan was held Wednesday in Paramount but only a couple of people attended.

The Board of Directors of the Gateway Water Management Authority, a joint powers authority consisting of 22 cities and the Central Basin Municipal Water District, is expected to approve the plan at its June 13 meeting.

While the plan ranks all 73 projects, most important for all of them is just its adoption, said Grace Kast, the authority's executive director.

"By adopting this plan, it will make the projects eligible for (state) bond money," Kast said.

William Bennett, a consultant for the authority who helped prepare the plan, said the state recently allocated \$31 million for the Los Angeles area for water projects.

While the ranking is required for the plan, it will have no effect on whether a project would get state money, said Bennett.

"If there's a solicitation for the grant, the only requirement is that your project has to be on the list. It doesn't have to be on the top. Projects that

ranked high were ones with multiple benefits and agencies," Bennett said. "Projects that didn't score well were single-purpose or single-city projects."

The top-ranked project by the plan was for Fernwood Water Improvement Park in Lynwood.

Second on the list was a project to restore natural habitat in the Willow Springs area of Long Beach from the existing storm water concrete-lined basin.

Third on the list is a proposal to add a 2,900-foot trail along the 7.5 acres of undeveloped land between Del Amo Boulevard and Candlewood Street in Lakewood.

The city of Pico Rivera's proposal to connect its water system with Central Basin Municipal Water District and Pico Water District ranked 10th.

The plan is important for more than just the projects, Bennett said.

"It looks at water planning and the future in a regional sense so that we're incorporating the needs of the area with regional solutions as opposed to each city and water district doing planning by themselves."

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## V. Summary of Meeting, Comments and Responses

### Public Meeting 1: February 29, 2012

The first public meeting for the Gateway IRWMP (Integrated Regional Water Management Plan) took place on February 29, 2012.

SGA outreached to 27 outlets (see Outreach section for details). Four DAC stakeholders participated in the public meeting as follows:

#### Attendees:

Charlie Honeycutt, City of Signal Hill  
Joseph Velasco, Orchard Dale Water District  
Eduard Varela, City of Maywood (Mayor)  
Oscar Magana, City of Maywood

#### Consultants & GWMA staff:

Bill Bennett, GEI  
Namju Cho, SGA  
Dale Schafer, CCP  
Grace Kast, GWMA

The meeting provided a brief summary of what an IRWMP is, the decision-making process, stakeholders involved, current outreach strategies for DACs and timeline for next steps.

### Public Meeting 2: May 1, 2013

The second special public meeting for the Gateway IRWMP (Integrated Regional Water Management Plan) took place on May 1, 2013 at 5:00 pm. The meeting was held at the Progress Park Plaza located on 15500 Downey Ave, Paramount, CA 90723.

SGA developed materials, outreached to 30 outlets (see Outreach section for details) and conducted tablings at two markets with high foot traffic and one public library, and distributed outreach materials at one community center. Four DAC stakeholders participated in the public meeting as follows:

#### Attendees:

Enrique Huerta, Greater Los Angeles  
County IRWMP  
Mike Sprague, Whittier Daily News  
Ken Putnam, Consultant for Bell Gardens  
and Montebello  
Bill DeWitt, City of South Gate  
(Councilmember)

#### Consultants & GWMA staff:

Bill Bennett, GEI  
Aaron McWilliams, GEI  
Erica Mahgerefteh, SGA  
Dale Schafer, CC

The meeting provided a recap of what an IRWMP is, the decision-making process, stakeholders involved, outreach strategies for DACs and timeline for next steps. The meeting also presented water projects that would be included in the plan as well their respective rankings and timeline for final approval of the plan.

The attendees inquired as to the designation of problem areas in regards to flooding and zoning, and how the areas may affect property values. The IRWMP representative said it's

more about street flooding than major flooding. The attendees were also interested in obtaining funding for such projects related to the IRWMP in their communities. Applying for grant funding was mentioned as a major source of funding for the projects.

A participant asked what it meant for a project to be "ready to go" to get state funding for it and the IRWMP rep responded that the project needs to be shovel ready. If a project isn't shovel ready, the project can still be included in the IRWMP but just not submitted in this round of grant funding. It was discussed that cities with larger populations such as Long Beach may be in a better position to get grant funds because they have financial resources to apply for grants.

Another question that was raised related to climate change vulnerabilities of future IRWMP projects. The main climate change vulnerability discussed pertained to water supply. Attendees expressed that they were interested in more ways to recycle and conserve water.

The deadline for public review of the IRWMP on May 15, 2013 was announced.

## VI. Legal Notice for IRWMP Adoption

As required by law, a series of legal notices have been placed in two regional publications covering the Gateway communities. The first set of notices ran on May 30, 2013, in Whittier Daily News and the Long Beach Press Telegram, respectively. Below are images of the legal notices that ran on May 30. The notices also ran in both publications on June 6, 2013. The scheduled date for the adoption of the IRWMP is June 13, 2013.





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### Advertisement Details

**Ad Id:** 22117489  
**Location:** Long Beach, CA  
**Created:** May 30, 2013  
**Expires:** Jun 7, 2013  
**Views:** 6

### Advertiser Details

**Username:** tmo\_1216206  
**Joined:** May 30, 2013  
**Ads:** 1  
**Placed:**



## NOTICE OF INTENT TO ADOPT AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN The Los Angeles Gateway Region...

Source: [Long Beach Press-Telegram](#)

[Reply By Email](#)

**Description** **Basic Info**

NOTICE OF INTENT TO ADOPT AN INTEGRATED REGIONAL WATER MANAGEMENT PLAN The Los Angeles Gateway Region Integrated Regional Water Management Joint Powers Authority intends to adopt an Integrated Regional Water Management Plan (IRWMP) for the Gateway Cities Region of Los Angeles County at their June 13, 2013 Board meeting. The IRWMP was prepared over the last year with the input of various stakeholders, including water purveyors, environmental groups, watershed organizations, state and local agencies, and representatives of cities and communities within the Gateway Region. The IRWMP identifies projects and programs that provide benefits to meet the goals of the regional plan, such as protect and enhance water quality, optimize and ensure water supply reliability, and manage flood and storm waters to reduce risk and water quality impacts. The meeting, which the public is invited to attend, will be held June 13, 2013 at 12:00 pm at the Progress Park Plaza 15500 Downey Avenue Paramount, CA 90723 For more information on the IRWMP, please contact Gateway Water Management Authority Executive Officer Grace Kast at (562) 663-6850 or [gracekast.gateway@gmail.com](mailto:gracekast.gateway@gmail.com). A copy of the Gateway IRWMP can be found at the Gateway website, [www.gatewayirwmp.org](http://www.gatewayirwmp.org). Pub May 30, June 6, 2013(2)PT(360342)

**Gateway Water Management Authority**

16401 Paramount Blvd.  
Paramount, CA 90723  
(562) 663-6850  
[www.gatewayirwmp.org](http://www.gatewayirwmp.org)

