WATER QUALITY

CARRIE INCIONG, Section Head

Section Background

The Water Quality Section, formerly known as the NPDES Section, is responsible for managing efforts to comply with the 2001 NPDES MS4 Phase I Permit requirements for the LACFCD and coordinating the NPDES Permit compliance efforts of the other departments in the County of Los Angeles. The Section will also be responsible for administering compliance of the 2003 NPDES MS4 Phase II Permit for the north Los Angeles County area when it becomes effective.

In addition to its NPDES Permit responsibilities, the Section participates in the development of the Federal CWA Section 303(d) requirement for TMDLs and other water quality related policies.

Recently, the Section has also assumed new water quality monitoring responsibilities associated with TMDL development and implementation.

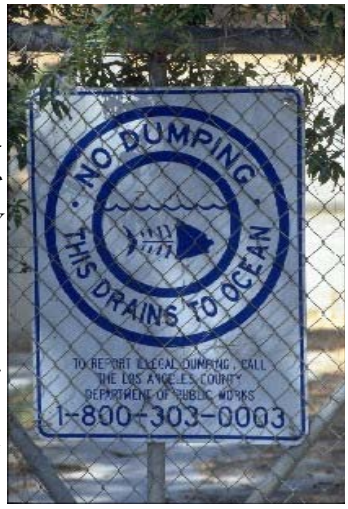
Mission

To ensure compliance with the requirements of the NPDES Permit through the development and implementation of programs such as TMDLs that control stormwater pollution and protect the beneficial uses of the water bodies of the state and to assume the leadership role for Stormwater Quality Improvement in the County by proactively encouraging, supporting and participating in research and public education efforts aimed at stormwater quality improvements and stormwater pollution prevention.

Accomplishments

Illicit Connection /Illicit Discharge Unit

- Continued to lead the BMPs Task Force.
- Submitted to the LARWQCB the *Dry-Weather Discharge Treatment Feasibility Study.*
- Received LARWQCB approval of the NPDES Phase II MS4 Permit for north Los Angeles County, awaiting approval from the SWRCB.



- Created a proposed Trash TMDL Implementation Work Plan for Ballona Creek and Los Angeles River.
- Initiated a trend analysis on illicit connections and illicit discharges.
- Conducted Trash TMDL Baseline Monitoring (including installation of CDS units and catch basin inserts in the Los Angeles River and Ballona Creek Watersheds).
- Prepared the Annual Stormwater Monitoring Reports.
- Prepared the NPDES Annual Programs Reports.

TMDL Development and Monitoring Unit

- Aided in the organization of and participated in sampling events for the development of the Ballona Creek TMDLs.

- Aided in the organization of and participated in sampling events for the development of the San Gabriel River TMDLs.
- Aided in the development of:
  - Santa Monica Bay Beaches Wet-Weather Bacteria TMDL.
  - Santa Monica Bay Beaches Dry-Weather Bacteria TMDL.
  - Marina del Rey Mother's Beach and Back Basins Bacteria TMDL.
  - Malibu Creek Watershed Bacteria TMDL.
  - Cabrillo Beach and Los Angeles Harbor Bacteria TMDL.
  - Santa Clara River Nutrients TMDL.
  - Los Angeles River Nitrogen Compounds TMDL.
  - Ballona Creek Metals TMDL.
  - Los Angeles River Metals TMDL.
- Commented on the *Water Control Policy for developing California's CWA Section 303(d) List and Draft Functional Equivalent Document.*
- Initiated a workgroup to develop a water quality database to be used as a data repository.
- Developed a monitoring plan for North Santa Monica Bay Pre-Implementation Monitoring and associated water quality database.

Special Studies Unit

- Awarded a $200,000 contract to conduct a Peak Flow Impact Study.
- Awarded a $130,000 contract to conduct the Bioassessment Monitoring Study in Los Angeles County.
- Executed a $600,000 agreement to partially fund the Bight 2003 Estuary Sampling Project.
- Awarded a contract to conduct the New Development Impact Study.
- Initiated the Post-Construction Stormwater BMPs Effectiveness Study in the Fall of 2003.
- Prepared and submitted to the LARWQCB the *Technical Manual for Stormwater Best Management Practices in the County of Los Angeles*.
- Coordinated the Shoreline Monitoring Plan for Santa Monica Bay.
- Developed and submitted to the LARWQCB a list of County of Los Angeles storm drains potentially discharging to Areas of Special Biological Significance during dry weather and storm drains directly discharging to the Santa Monica Bay.
- Awarded a contract to fund the development of Sediment Toxicity Monitoring Protocols.
- Negotiated a Memorandum of Agreement with the City of Los Angeles to conduct weekly shoreline water quality monitoring on behalf of the County of Los Angeles and other stormwater dischargers discharging directly to the Santa Monica Bay .
- Prepared and submitted to the SWRCB eight Monitoring and Reporting Plans and Quality Assurance Project Plans for Low-Flow Diversion Projects.

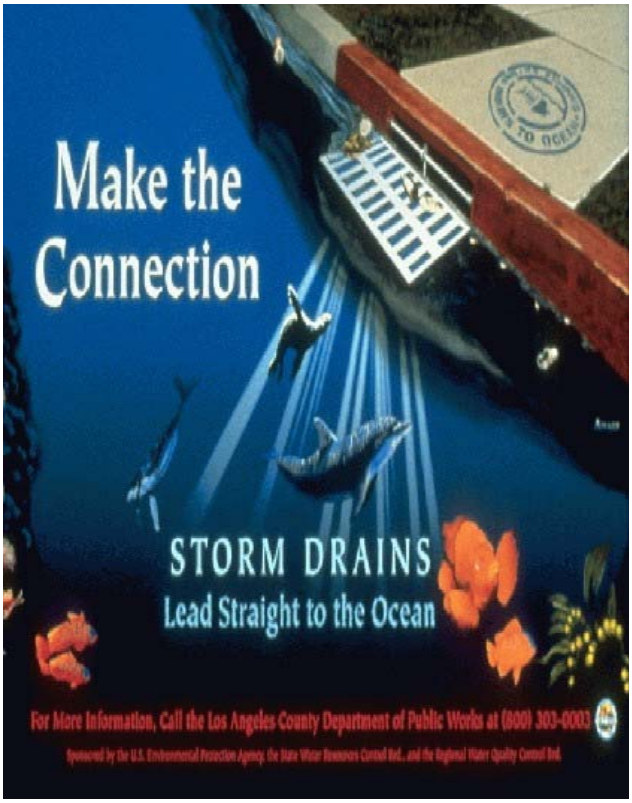
Field Support

- Inspected Public Works facilities and construction sites for NPDES compliance and BMP implementation.
- Provided field support activities for the IC/ID Model Program and actively investigated reported illicit connections.
- Provided support and safety advise for NPDES Permit-required sampling activities.
- Organized personnel for collecting water quality samples related to TMDL implementation and source identification plans, including the Malibu Creek pollutograph.
- Conducted flow measurements related to TMDL implementation plans, including the installation of water quality sampling devices in storm drains that required confined-space entry.
- Collected various storm drain identification data as required for the Santa Monica Bay Beaches and Marina del Rey Harbor Bacteria TMDLs.
- Provided field support for the Trash TMDL Baseline Monitoring study.
- Provided field support for Public Works' Earth Day events.
- Assisted environmental advocacy groups in sampling exercises in San Gabriel, Rio Hondo, and Ballona Creek Watersheds.

Municipal Stormwater NPDES Permit

History of the NPDES MS4 Permit

The CWA of 1972 created the framework to regulate discharges into waters of the United States. Initially focused mainly on regulating wastewater treatment and industrial discharges, the CWA was amended in 1987 to regulate stormwater discharges. Specifically, the amendment established regulation of stormwater discharges through the issuance of an NPDES Permit. The NPDES Permit is issued by the State to municipalities and prohibits nonstormwater discharges into the stormwater system. The Permit also regulates the water quality exiting the stormwater system through application of BMPs to the maximum extent practicable.



To date, there have been three NPDES Permits issued to the Los Angeles County. The first NPDES Permit was issued in June 1990, the second was issued in July 1996, and the current Permit was issued in December 2001. A Phase II NPDES Permit has been approved by the Lahontan RWQCB for the north Los Angeles County area and County of Los Angeles is awaiting SWRCB's approval. Negotiations for the 2006 NPDES Phase I Permit are expected to commence in the winter 2004.

Phase I 2001 NPDES Permit

The current NPDES Permit was issued on December 13, 2001 by the LARWQCB under Order No. 01-182, NPDES No. CAS004001. The LACFCD and 84 incorporated cities were the listed Permittees. The City of Long Beach, which was part of the 1996 NPDES Permit, received its own NPDES Permit in 1999 under order No. 99-060 and is, therefore, not part of the 2001 Permit.

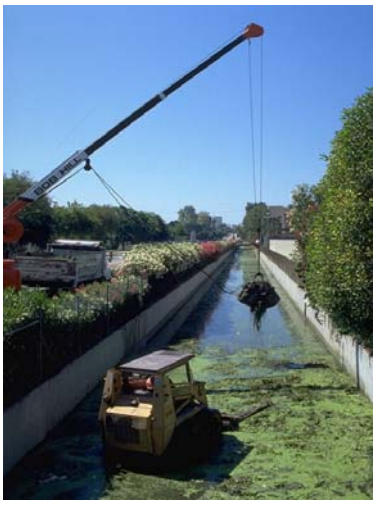
The Permit includes the Stormwater Quality Management Program (SQMP).

The SQMP are:

1. Public Information and Participation
2. Industrial/Commercial Facilities Control
3. Development Planning
4. Development Construction
5. Public Agency Activities
6. Illicit Connections/Illicit Discharges (IC/ID)

Phase II NPDES Permit

The Phase II NPDES Permit targets the north Los Angeles County area and is administered by the Lahontan RWQCB. It establishes water quality requirements for stormwater/urban runoff in small urbanized areas not already covered by the Phase I NPDES Permit. This Phase II NPDES Permit will impact the County's unincorporated areas in the Antelope Valley that are located within and beyond the LACFCD boundary. This area was required to apply for coverage under the Phase II NPDES Permit by August 8, 2003.



The Phase II NPDES Permit is to be less stringent then the Phase I Permits but still requires Permittees to implement BMPs that reduce pollutants to the maximum extent practicable. The Permit requires the regulated areas to develop and implement a Stormwater Management Plan (SWMP) that describes BMPs, measurable goals, and timetables for implementation in six Minimum Control Measures.

The Minimum Control Measures are:

- Public Education and Outreach
- Public Information and Involvement
- Illicit Discharge Detection Elimination
- Construction Site Runoff Control
- Post Construction Runoff Control
- Pollution Prevention/Good Housekeeping.

Public Works and the LACFCD submitted for Phase II NPDES Permit coverage in August 2003. The Minimum Control Measures will be implemented upon approval of the Phase II NPDES Permit by the SWRCB.

The Lahontan RWQCB informed Public Works in June 2004 they are considering retracting the Phase II NPDES MS4 Permit due to State budget cuts.

Total Maximum Daily Load (TMDL)

The CWA of 1972, the goal of which was "fishable, swimmable, and drinkable" waters, included Section 303, which was intended to serve as a safety net for the Nation's impaired waters. The CWA required all wastewater treatment plants and industrial discharges to meet certain minimum standards. If these dischargers met the minimum standards and a water body was still impaired, the CWA required that all of the dischargers to the water body improve the quality of their discharge until the water body attained its designated beneficial uses.

In California, the State's water quality is regulated under the Porter-Cologne Act and the delegated authority of the CWA to the nine semi-autonomous Regional Water Quality Control Boards and the State Water Resources Control Board. Each RWQCB assigns "beneficial uses" to each surface and groundwater body in its area of jurisdiction. These uses are memorialized in Basin Plans. There are approximately two dozen beneficial uses, ranging from drinking water supply to aquatic habitat to contact and non-contact recreation. The SWRCB and RWQCBs evaluate all water bodies within a region using new and existing monitoring data to determine if the water quality is supporting the designated beneficial uses.

If a RWQCB determines that a water body is not supporting its beneficial use, that water body is placed on the Federal 303(d) Impaired Water Bodies list. Once on the list, a plan called a TMDL is scheduled for development with the goal of reducing or

eliminating the water body's impairments. While Section 303(d) of the CWA has been in effect since 1972, only a few TMDLs had been developed across the country prior to the early 1990s. TMDL development intensified after the recent filing of a third-party lawsuit, brought by environmental advocacy groups against the United States Environmental Protection Agency (USEPA). The LARWQCB, the SWRCB, and the USEPA entered into a consent decree in 1999, requiring the development of TMDLs for 92 Analytical Units in the Los Angeles and Ventura County area by 2012, which is expected to be accomplished with 67 TMDLs.

A TMDL plan specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards. In order to return an impaired water body to support its beneficial uses, the pollution above that maximum has to be "budgeted" by allocating it among the various dischargers to the water body. Allocations are usually assigned to point and non-point sources such as wastewater treatment plants, industrial dischargers, municipal stormwater dischargers, and overland runoff. Natural sources should also be evaluated and included in the allocation process.

After a TMDL has been adopted by the RWQCB, the TMDL must be approved by the SWRCB, the Office of Administrative Law, and the USEPA. At any point prior to approval of the TMDL at the USEPA level, the TMDL may be returned to the RWQCB to be reconsidered. When the USEPA approves the TMDL, the RWQCB is notified, and they in turn notify all of the TMDL's responsible parties. This date is known as the "effective date" of the TMDL.

The TMDL itself holds no power of enforcement even after it becomes effective. Enforcement of the TMDL is achieved by incorporating it into the NPDES Permit.

One important aspect of the NPDES Permit is that compliance is based on the timely implementation of BMPs to the maximum extent practicable, rather than the achievement of numerical limits. BMPs are commonly prefabricated proprietary devices, like oil-water separators; specially designed applications, such as vegetated runoff conveyances; or programs such as public education believed to improve runoff quality by their construction or execution. The alternative to BMP implementation requirements is for a Stormwater Permit to dictate water quality objectives that must be met.

As of August 2004, the following TMDLs have become effective for water bodies in the Los Angeles County:

- Santa Clara River: Nutrients
- Santa Monica Bay Beaches: Dry Weather Bacteria, Wet Weather Bacteria
- Los Angeles River: Trash, Nutrients
- Ballona Creek: Trash
- San Gabriel River, East Fork: Trash
- Marina del Rey: Bacteria

As of August, 2004, the following TMDLs are under development for water bodies in the Los Angeles County:

- Malibu Creek Watershed: Bacteria, Nutrients
- Los Angeles River: Metals
- Ballona Creek: Bacteria, Metals, and Organics
- San Gabriel River: Nutrients
- Marina del Rey: Organics and Metals
- Cabrillo Beach (Inner) LA Harbor area and Los Angeles Main Harbor Channel : Beach Closures (Bacteria)
- Malibu: Bacteria and Nutrients

Special Studies

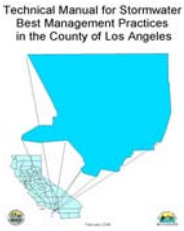
The 2001 NPDES Permit contains provisions for several special studies, as outlined below.

Dry-weather Discharge Treatment Feasibility Study

This study, submitted to the LARWQCB on July 1, 2003, evaluated known dry-weather discharges to impaired water bodies throughout the permitted area and ranked them as candidates for discharge to the sanitary sewer system or for on-site treatment. The study, done in-house, identified more than 80 candidate treatment projects.

Technical Manual for Stormwater Best Management Practices in the Los Angeles County

This manual, submitted to the LARWQCB on February 2, 2004, combined the Public Works' existing Standard Urban Stormwater Mitigation Plan (SUSMP) manual with pertinent portions of the California Stormwater Quality Association New Development BMP Handbook. The manual,



written for the development and engineering communities, is tailored to the conditions of Los Angeles County and includes information on pollutants of concern, BMP effectiveness, and BMP costs. The LARWQCB has sent the manual to four outside parties for peer review.

Peak Flow Impact Study

Public Works is funding this study to determine the impacts, if any, that upstream development causes on the physical integrity of natural streams. In the event of impacts, the study will develop and recommend mitigative Best Management Practices. The project is being managed by the Southern California Coastal Waters Research Project.

Bioassessment Monitoring and Regional Index of Biological Indicator Study

Public Works has begun sampling freshwater streams and estuaries for biodiversity as a potential sign of water body health. Twenty sites are being sampled annually throughout the Los Angeles County for the life of the NPDES Permit. In addition, Public Works will participate in a regional research project to create an Index of Biological Indicators for Southern California.

BMP Effectiveness Study

This study will evaluate five different types of stormwater BMPs by sampling and calculating influent and effluent loading. The study requires retrofitting previously installed publicly-owned BMPs with monitoring equipment.

Bight 2003 Estuaries Sampling Project

Public Works is funding the sampling of the estuaries and offshore sediments of the five major river systems in the Los Angeles County. Sediment will be sampled for general chemistry, physical attributes, toxicity, and species types and diversity. This research is being coordinated by the Southern California Coastal Waters Research Project as part of its quadrennial snapshot of the California coastline between Point Conception and Mexico.

New Development Impacts Study

Public Works, partnering with the City of Santa Clarita, will be monitoring impacts due to new development and comparing stormwater quality between subwatersheds with and without post construction BMPs. In the absence of subwatersheds where samples can be feasibly obtained, Public Works and the City will develop and calibrate a rainfall/runoff/water quality model to simulate the assumed effects of post construction BMPs.

Other Responsibilities

Task Forces and Committees

Numerous committees and task forces have been established to support the many agencies and stakeholders who have interests and responsibilities in the NPDES Permit, TMDLs, and related matters. These committees include:

Watershed Management Committees

Each of the six major Watershed Management Areas within the NPDES Permit area (Malibu Creek and adjacent rural areas, Ballona Creek and adjacent urban areas, Dominguez Channel and Los Angeles Harbor, Los Angeles River, San Gabriel River, and Santa Clara River) is organized into a Watershed Management Committee (WMC) comprised of a representative from the LACFCD and each city within that watershed. Each WMC is required to meet at least quarterly under the 2001 NPDES Permit; however, Malibu Creek and Ballona Creek WMCs have elected to meet monthly. The LACFCD serves as the chair and/or secretary for the Dominguez, Los Angeles, San Gabriel, and Santa Clara WMCs.

Executive Advisory Committee

The Executive Advisory Committee's role is to facilitate programs within each watershed and to enhance consistency among all of the programs. Traditionally, representatives from each WMC attend the Executive Advisory Committee Meetings.

Los Angeles BMP Task Force

Public Works formed and supports a voluntary committee, Los Angeles County BMP Task Force, comprised of stakeholders interested in stormwater BMPs. Public Works designed and sponsors a web page for the Task Force: www.BMPLA.org.

The mission of the Task Force is to be an ongoing forum to facilitate the selection, implementation and financing of effective BMPs through data gathering, analysis and exchange and stakeholder coordination and outreach.

Other Ongoing and Ad Hoc Committees

Section staff also serve on committees that were formed either by Public Works or other agencies for special purposes, such as the:

- Santa Monica Bay Restoration Project Technical Advisory Committee.
- Southern California Stormwater Monitoring Coalition.
- Santa Monica Bay Beaches Bacteria TMDLs Technical Steering Committee.
- Santa Monica Bay Beaches Bacteria TMDLs Jurisdictional Groups Representation.
- California Stormwater Quality Association.
- Santa Monica Mountains Local Coastal Plan Technical Advisory Committee.
- Southern California Coastal Waters Research Project.
- Grant application committees formed by various stakeholders to apply for water quality improvement grants.
- Bight 2003 Regional Monitoring Steering Committee.

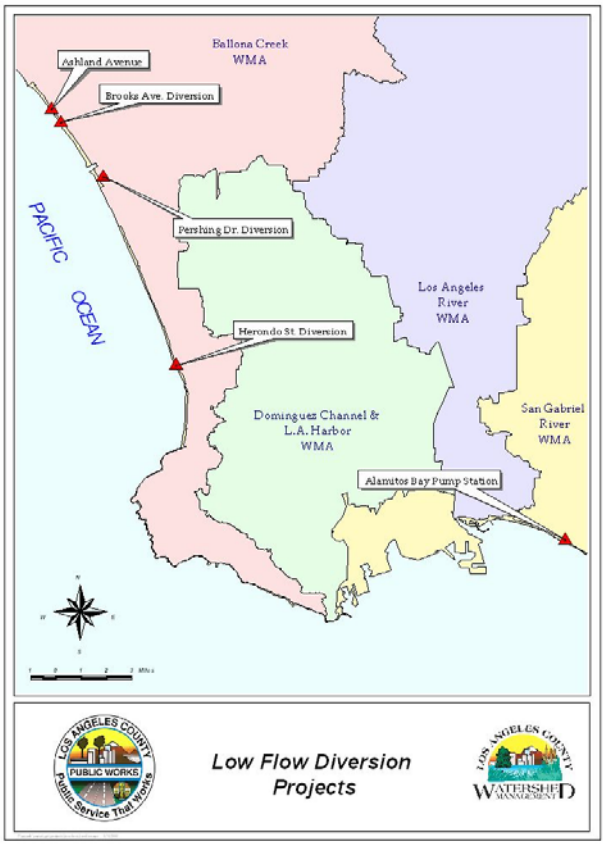
Monitoring

The Section is responsible for complying with monitoring requirements associated with the NPDES MS4 Phase I Permit. All section staff are trained in water quality sampling or storm sampling coordination. Section staff sample during dry-and wet-weather conditions. During the storm season, the section staff are on call and are mobilized for any storm with greater than 0.25 inches of rain. Sampling events are designed to provide representative water quality data for each watershed during dry and wet weather.

The Section is also responsible for development, implementation, and compliance monitoring for TMDLs. If additional data is required during the development of a TMDL, the Section will collaborate with stakeholders to develop a monitoring plan to acquire additional data. Once a TMDL is established, the Section will team with the watershed sections to gather any information needed to design implementation solutions. After implementation solutions are in place, the Section designs and carries out a monitoring plan to ensure compliance with the TMDL. Finally, the Section collects data to be used during TMDL reopener periods to support modifications to the TMDL, if necessary.

Low-Flow Diversions

One method used to improve water quality is the installation of low-flow diversions, which are designed, constructed, and maintained by Public Works and are operating at numerous shoreline locations stretching from Santa Monica to Long Beach. These underground diversions re-route residual dry-weather flows from the storm drains to wastewater treatment plants where bacteria and other pollutants are removed.



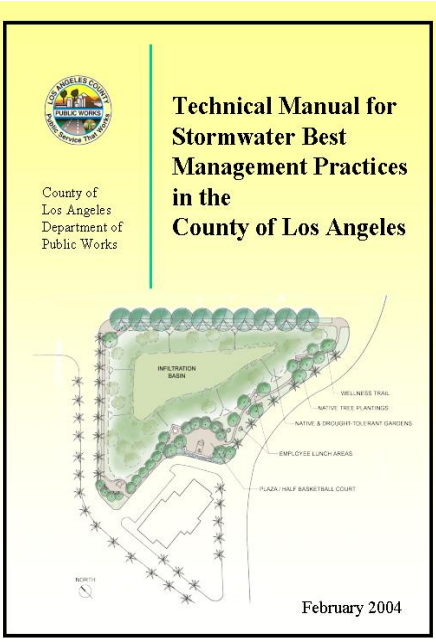
The systems work during dry months when there are still residual storm drain flows, which may be highly polluted. The residual flows come from overwatering lawns, hosing off driveways, washing cars in the street, and other activities. As the runoff flows to the storm drain, it mixes with litter, motor oil, cigarette butts, fertilizer, pesticides, animal droppings, and anything else along the way. The resulting runoff may contain high concentrations of bacteria, metals, and organics that can create health risks for swimmers, harm marine life, and cause beach closures.

During the storm season, the flows bypass the diversions to preserve capacity at the wastewater treatment plants. A rain gage shutoff is also used to handle unexpected storm events. For the rest of the year, however, all storm drain flows are routed to the wastewater treatment plant and away from the beach.

Although these projects are highly effective, they are just one element in the County of Los Angeles' overall water quality enhancement effort. The most critical item is to educate the public that stormwater pollution is everyone's responsibility. The diversions remove a percentage of contaminants in specific areas, however, the ultimate solution is for all residents and businesses to minimize the amount of pollution entering the storm drains.

Technical Manual for Stormwater Best Management Practices in the County of Los Angeles

In March 2000, the LARWQCB established requirements for a SUSMP to be implemented on priority development and redevelopment projects. The 2001 NPDES Permit stipulated that a technical manual be created to aid in the siting and design of BMPs in the Los Angeles County.



The Technical Manual for Stormwater BMPs in the County of Los Angeles was written by WMD staff, with the input of interested Permittee cities. The manual draws heavily from the previous SUSMP manual, created as a result of the 1996 NPDES Permit, and the California Stormwater Quality Association's New Development Best Management Handbook. The purpose of the manual is to provide technical guidance to the development and engineering communities in the design of BMPs. These BMPs are designed into the project during the planning phase and are meant to treat or recharge runoff in accordance with SUSMP requirements.

The manual discusses SUSMP activity areas, different source control BMPs, and various non-proprietary treatment control BMPs. The manual also includes tables and charts for calculating treatment flow rates and volumes, as well as design criteria for the various BMPs.

Lessons Learned

The Section cannot over-emphasize the value of stakeholder involvement. The Permittee cities feel especially vulnerable, and often look to the Public Works for guidance. If anything, in some instances, coordination outside of Public Works has been more successful than coordination within Public Works. Some divisions are still learning the significance of the NPDES Permit.

One particularly successful coordination effort occurred with the quarterly meetings of neighboring principal stormwater Permittees, such as Ventura County and the City of Long Beach. This enables WMD to stay abreast of Permit activities in other municipalities and it becomes valuable information when WMD is involved with the LARWQCB on the terms of the NPDES Permit.

Water quality problems that are the responsibility of Public Works cannot be properly addressed without considering the issues of surrounding areas and other municipalities. Watershed boundaries do not follow governmental boundaries and, therefore, the value of partnerships cannot be overlooked. This is emphasized in the nature of the NPDES Permit and TMDLs, which require cooperation between co-permittees and co-responsible agencies in order to meet compliance and avoid fines and liability.

Forming collaborative and effective working relationships with other affected agencies help not only to find solutions to water quality problems but also helps Public Works gain new insight into how best to comply with the still relatively new world of NPDES and TMDL regulations. On the other hand, being the Principal Permittee on the NPDES Permit and sometimes the

lead responsible agency on TMDLs puts Public Works into an advisory and leadership role with other cities. In this capacity, Public Works is continuing to reevaluate its role and responsibility in communicating water quality-related information to cities. Ensuring that communications from Public Works reaches all levels of affected city government is apparent when consultants are hired by cities to help them meet compliance with regulations. Public Works can no longer assume that communicating with one level of city government will ensure that the message will reach other levels. Communications must now occur at all levels, from the mayor's office, to public works director's or city engineer's, to water quality staff and hired consultants.

In addition to the need for partnerships and increased communications with other agencies, Public Works is continuing to realize the value of understanding legal aspects of water quality regulations and policies from the Federal and State levels. Knowledge of legalities is extremely important in order to properly evaluate all the potential impacts of the NPDES Permit, TMDLs, and other policies. As an example, with the emergence of several recent TMDLs, legal comments are as numerous, if not as important, as technical comments.

The process from applying to adopting the current NPDES Permit took about 18 months. For this reason, Public Works intends to start preparing the Report of Waste Discharge during late summer 2004.

Future

This Section foresees that the 2006 NPDES MS4 Phase I Permit may actually be composed of general provisions for all Permittees and specific provisions assigned due to the consent decree of at least 37 more TMDLs assigned to various water bodies within Los Angeles County that will be developed within the next Permit period. The TMDL requirements will require reorganizing the Division to incorporate development and reassessments of water quality standards by the Water Quality Section, implementation by the watershed sections, and monitoring, data analysis, and data management by a new section, yet to be approved and created. Enormous funds and more technical expertise will be required to comply with these TMDLs.

After SWRCB approval, Phase II NPDES Permit requirements will take effect in the County's unincorporated areas of Antelope Valley. Similar, but less stringent than the Phase I NPDES Permit, the Phase II NPDES Permit will also require ongoing compliance and funding.

Map of Los Angeles County Permitted Area