

STORM WATER



MANAGEMENT
CITY *of* LONG BEACH

Annual Storm Water Permit & Assessment Report
Order No. 99-060/CAS004003 (CI8052)

December 1, 2009



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INTRODUCTION

The City of Long Beach Stormwater Management Program (LBSWMP), which is now beginning its 11th year, continues to be fully implemented in compliance with its National Pollutant Discharge Elimination System (NPDES) permit, the federal Clean Water Act (CWA) and subsequent CWA amendments, all of which were adopted to protect receiving waters such as rivers, lakes, and oceans from contamination by preventing pollutants from entering municipal storm drain systems (MS4s). The City of Long Beach (City) complies with CWA guidelines through its NPDES permit and is committed to preserving and maintaining the quality of our beaches and waterways while improving marine habitat and the quality of life of our residents.

The City is currently operating under the requirements of NPDES No. CAS004003, Order No. 99-060, issued by the Regional Water Quality Control Board on June 30, 1999.

On December 26, 2003, the City submitted its Report of Waste Discharge (ROWD) in accordance with Title 23, California Code of Regulations. The City's ROWD consisted of a statement of accomplishments, Long Beach Stormwater Management Plan, Water Quality Monitoring Plan, draft permit, challenges, and future goals.

The Stormwater/Environmental Compliance Division staff consist of one Administrative Analyst, one clerk typist, and an Environmental Specialist (unfilled), in addition to the Stormwater/Environmental Compliance Officer. This year, there was a change in the division with the retirement of the division officer towards the end of the reporting period; an acting officer currently fills this position. This team's major responsibilities include continual development and implementation of the goals and objectives of the LBSWMP and ensuring compliance with the requirements of the City's Municipal NPDES Permit. Additional duties and accomplishments of the Stormwater/Environmental Compliance division are detailed in the Program Management Section below.

The Annual Storm Water Permit Report and Assessment details the City's storm water management accomplishments and expenditures for the period of October 1, 2008, through September 30, 2009.

PROGRAM MANAGEMENT

The Stormwater/Environmental Compliance Division is responsible for the development, enhancement and implementation of the City's comprehensive Long Beach Stormwater



Management Plan (LBSWMP). The division works extensively with an internal NPDES Task Force, composed of City personnel from various City departments, to share information and responsibilities, collaborate on stormwater and environmental projects and resolve NPDES issues on a real time basis.

Additionally, Stormwater/Environmental Compliance division staff: proactively pursue grant funding for NPDES structural Best Management Practice (BMP) project development and implementation and innovative financing for Stormwater/Environmental Public Education and Outreach; contract manage the maintenance of the city-owned stormdrain system; assist with the development and implementation of the Airport and Port Industrial NPDES Permits; serve as the City liaison for Los Angeles County's Termino Avenue Drain Project; conduct legislative analysis and make recommendations to senior management and elected; negotiate the MS4 permit; and actively participate in regional task forces, councils, organizations, and committees related to stormwater/environmental activities. This ongoing involvement has proven to be an excellent avenue for exchanging information and collaborating on joint projects.

Program Management major highlights for this reporting year include:

- **The Stormwater/Environmental Compliance Officer was invited to speak about water quality issues at the following events:**
 - EPA National Beach Conference, Huntington Beach, CA, April 20-22, 2009: co-presented the Alamitos Bay Circulation Study, which was commissioned by the City of Long Beach to investigate the effects of two power plants on water quality in the bay area. (Appendix 1.1)
 - CMAA Water Summit: Aging Infrastructure, "Water Wars," Las Vegas, Nevada, July 19-20, 2009: panel speaker for a session called "National Regulatory Developments and the ARRA." Event organizers covered all trip expenses. (Appendix 1.2)
- **Stormwater/Environmental Compliance Officer is a Board member for:**
 - EcoMedia National Advisory Board (Co-Chair)
 - SAVE OUR BEACH <http://www.saveourbeach.org/>
- **Termino Avenue Drain Project:** The much-anticipated \$30 million storm drain improvement project broke ground on September 30, 2009.
- **\$10 Million for Water Quality Improvements:** The City of Long Beach is one of 16 cities that formed the Los Angeles Gateway Region, Integrated Regional Water Management Joint Powers Authority (JPA). The JPA was approved for \$10 million in funding through the Water Boards Clean Water State Revolving



Fund to install water quality improvements in catch basins that drain to the Los Angeles River. Long Beach will use the funding to install Connector Pipe Screens inside all catch basins leading to the River and use the remainder of its allocation to install Automatic Retractable Screens in as many catch basins as possible.

- **The City of Long Beach was featured or mentioned in the following articles:**
 - “Recyclables Market Tumbles, City Remains Committed.” Long Beach Business Journal, April 14-27, 2009. Page 14 (Appendix 1.3)
 - “Absorbing a Setback.” Time, May 11, 2009. Page 8 (Appendix 1.4)

PUBLIC AGENCY ACTIVITIES

In addition to increased code enforcement, distribution of public construction guidelines, and maintenance of streets, storm drains, and landscapes, the City has emphasized community outreach efforts designed to reduce littering throughout the city. The City’s Environmental Services Bureau has continued to implement a Citywide Litter Abatement and Awareness Campaign. This campaign and the City’s other public agency activities are both numerous and extensive. Other notable Public Agency Activities include:

- Conducted 84 community and business corridor cleanups, up from 41 last year
- Involved 1,631 volunteers at neighborhood cleanup efforts, collecting 147 tons of trash debris and green waste.
- Collected over 27,000 tons of material through the curbside recycling program.
- Responded to 16,373 Special Item Pickup Program requests collecting 1,624 tons and 777 E-waste requests collecting 25,557 lbs.
- Collected 10,049 tons of trash and debris from street sweeping.
- Filed 445 Public Works NPDES Inspection reports.

DEVELOPMENT PLANNING AND CONSTRUCTION

In FY 09, there were 3,256 inspections and 19 development projects for which SUSMPs were required. The City’s plan review process focuses on the impacts of development on storm water quality as early as possible during the planning phase of a project. The City mandates that storm water quality impacts must be fully addressed by the developer prior to issuance of any permits, which safeguards against the discharge of pollutants into the storm drain system and/or receiving waters. Chapter 18.95 of the Long Beach Municipal Code details the City’s NPDES and SUSMP regulations.



ILLICIT DISCHARGES AND ILLICIT CONNECTIONS

Within the City limits, there are about 383 miles of active storm water carriers, which include pipes, open channels, ditches, culverts, connector pipes and drains. Of those carriers, 180 miles are City-owned, 142 miles are Los Angeles County-owned, and 40 miles are Caltrans-owned with various other owners making up the remaining 21 miles. The City maintains 5.5 miles of channels and ditches. Los Angeles County has 32 miles of open flood control channels, i.e., Los Angeles River, San Gabriel River, Los Cerritos Channel, etc. Caltrans has 11 miles of channels and ditches. Inspectors and field staff from the Fire, Harbor, Health and Human Services, Planning and Building, Public Works, and Water Departments receive annual training on how to identify, report, and eliminate illicit discharges and play a vital role in prohibiting illicit discharges and eliminating illicit connections. If an illicit connection is detected, an advanced system of communication and follow-up is in place to ensure the removal of the connection. During this reporting period no illicit connections were found.

PUBLIC INFORMATION AND EMPLOYEE TRAINING

Communicating information about storm water and urban runoff pollution to residents, school children, commercial and industrial establishments, and City employees is a priority for the City. In FY 09, the Stormwater/Environmental Compliance Division made use of the EcoZone program (25 signs totaling 46,336,470 total impressions – Appendix 1.5), Heal the Bay's Key to the Sea program, the Junior Health Inspector program, Windows-On-Our-Waters *Tidepool Cruiser*, the Intranet/Internet, and a host of El Dorado Nature Center programs, just to name a few. In addition, Long Beach was mentioned in a Time Magazine article and featured in the Long Beach Business Journal for its efforts to prevent storm water pollution. The City made well over the permit required 1.5 million impressions related to storm water pollution prevention issues and their solutions through the use of various media. New outreach materials and methods are constantly being explored while proven techniques are carried on.

In FY09, the City continued to partner with EcoMedia through its EcoZone program, which is dedicated to creating environmental advertising and corporate sponsorship opportunities. The program revenue helps fund environmental efforts with partner agencies, such as the City of Long Beach. EcoZone continues to be successful at raising non-taxpayer funds to enhance programs aimed at educating the public about pollution prevention. In FY 09, \$30,107 in revenue was generated for the City (Appendix 1.5).



Public information and employee training are fundamental to changing people's behaviors and stopping pollution at its source. The more people are aware that their actions have a specific effect on storm water quality and the environment in general, the more they will be the solution to pollution, rather than its cause.

CHALLENGES

The City of Long Beach continues to face a difficult financial situation due to the economic crisis and increase in operational costs. In FY 09, the Long Beach Storm Water Management Plan was implemented at an estimated cost of **\$ 25,914,530**, which equates to an investment equivalent to \$55 per capita.

In this uncertain economic environment, the program continues to face a number of challenges:

- Sanitary Sewer Overflows (SSO) and associated discharges into the Los Angeles River, Colorado Lagoon and Marine Stadium. This year 29 SSOs (28,763 gallons) were recorded by the City's Water Department. These SSOs have serious health and safety impacts to our residents, resulting in poor water quality and negative Heal the Bay Report Cards.
- The economic recession has led to major budget cutbacks.
- The addition of 3 Total Maximum Daily Loads locations (Colorado Lagoon/Metals, Los Cerritos Channel/Metals, Los Angeles River/Bacteria) and the unpredictable costs of their implementation.
- Uncertainty and difficulties in planning and implementation as a result of the City's Report of Waste Discharge (ROWD), submitted on December 26, 2003, not yet being approved.
- Workload and staffing shortages at local, state, and federal levels.
- Lack of General Fund dollars available for grants with matching fund requirements, Capital Improvement Program (CIP) projects, and special studies aimed at improving water quality.
- Permit costs for required programs that are proving not to be cost effective.



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1.0 PROGRAM MANAGEMENT

Section one details the City's strategy, regional efforts, and projects related to implementing the Long Beach Storm Water Management Program (LBSWMP). The Department of Public Works Stormwater/Environmental Compliance Division administers this citywide program. The objective of the LBSWMP is to improve the quality of storm water runoff by effectively prohibiting non-storm water discharges and by reducing the discharge of pollutants to the maximum extent practicable (MEP). While it is the Stormwater/Environmental Compliance Division's responsibility to coordinate the development, implementation, and revision of the LBSWMP, all City departments are involved in the cooperative effort to implement the LBSWMP.

1.1 IMPLEMENTATION STRATEGY

The Citywide NPDES Task Force (Task Force) guides and supports the implementation of the LBSWMP. The Task Force is made up of representatives from multiple City departments. Due to a decreased workforce and daily demands, the Stormwater/Environmental Compliance Division has emphasized using electronic communications to disseminate information, receive feedback, provide guidance, and discuss pertinent issues related to NPDES. Using the intranet, internet and other electronic communication devices decreased the response time to (562) 570-DUMP (3867) reports. Task Force members concentrate on integrating the LBSWMP elements into the City's guidelines and standards. The Task Force addresses training, public education, public agency activities, development planning and construction, legal authority, industrial and commercial site visits and procedures to detect and remove illicit connections and improper disposal into the storm drain system. Part of this effort includes a process for identifying the appropriate City department(s) needed to respond to storm water/environmental pollution issues.

The department representatives serving as Task Force members oversee proper and timely implementation of the LBSWMP. These contacts are responsible for coordinating the annual report preparation, training, and revisions to policies and procedures within their departments. The Task Force members are essential in providing two-way communication that keeps the appropriate staff up to date with NPDES matters.

1.2 REGIONAL PARTICIPATION

The Stormwater/Environmental Compliance Division staff and other City staff are actively involved in a great number of task forces, councils, organizations, and



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committees that focus on storm water, pollution prevention, education, and watershed activities.

The Los Angeles River Master Plan (LARMP) Advisory Committee - works to continue the implementation of improvement projects within the Los Angeles River Master Plan, which was approved in 1996. These meetings focus on efforts and issues related to the Los Angeles River, such as maintenance, signage, and landscaping guidelines. Long Beach Stormwater/Environmental Compliance Division staff and the Department of Parks, Recreation, and Marine staff attend these meetings to assist the LARMP Advisory Committee in meeting the goals and objectives of the LARMP.

The San Gabriel River Master Plan (SGRMP) - is in an implementation phase now, and the County Board of Supervisors has adopted both the master plan and EIR. Staff from the Department of Parks, Recreation, and Marine and the Stormwater/Environmental Compliance Division attend these meetings to assist the SGRMP stakeholders in meeting the goals and objectives of the SGRMP.

The Los Angeles and San Gabriel Rivers Watershed Council (LASGRWC) - is a nonprofit organization that engages stakeholders in dialogues to promote watershed, environmental, and regulatory issues. The LASGRWC holds regular stakeholder meetings that not only cover organization business, but also include informative workshops.

The Dominguez Watershed Advisory Council (DWAC) - created and supports implementation of a comprehensive Watershed Management Master Plan (WMMP) for the Dominguez Watershed. Staff from the Harbor Department and the Stormwater/Environmental Compliance Division attend these meetings to assist the DWAC in meeting its goals and objectives for the WMMP.

The Los Angeles Contaminated Sediments Task Force (CSTF) - works to identify contaminated sediment in Los Angeles County and develop viable disposal options. The City of Long Beach Harbor Department (Port of Long Beach) helps fund this task force and special studies related to disposal and reuse. Staff from the Harbor Department and the Department of Parks, Recreation, and Marine attend these meetings to assist the CSTF with its goals and objectives.

The San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC) - is one of seven conservancies within the California Resources Agency. It works to preserve urban open space and habitat and undertakes projects that provide low-impact



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recreation, education, wildlife and habitat restoration, and watershed improvements. Staff from the Department of Parks, Recreation, and Marine and Stormwater/Environmental Compliance Division attend the RMC's public meetings.

The Southern California Association of Governments (SCAG) - promotes economic growth, personal well-being, and livable communities through leadership, vision, and progress. The City of Long Beach continues to be a member of SCAG.

The Stormwater Monitoring Coalition (SMC) of Southern California - a collaborative working relationship of storm water regulators and municipal storm water management agencies, works to develop the technical information and tools needed to improve storm water decision-making. The City of Long Beach, a founding member and the only municipal representative, continues to be an active member.

The Los Angeles River Metals TMDL Committees - The City actively and financially participates as a member of the Los Angeles River Metals TMDL Committees. The Los Angeles Regional Water Quality Control Board developed the Los Angeles River and Tributaries Metals TMDL (LAR Metals TMDL) to address potential impairments resulting from the concentrations of Cadmium, Copper, Lead, Selenium and Zinc occasionally exceeding the California Toxics Rule (CTR) standards. The identified beneficial use impairments include wildlife habitat, rare threatened or endangered species, warm freshwater habitat, wetlands, and groundwater recharge.

The NPDES Municipal Stormwater Permit Executive Advisory Committee (EAC) - actively addresses storm water issues among its stakeholders and with representatives from the Los Angeles Regional Water Quality Control Board. Long Beach Stormwater/Environmental Compliance Division staff attends these meetings as well as the TMDL subcommittee meetings to assist the EAC with achieving its goals and objectives.

The Los Angeles River Watershed and County Best Management Practice (BMP) Task Forces - are ongoing forums to facilitate the selection, implementation, and financing of effective BMPs. Long Beach Stormwater/Environmental Compliance Division staff attend and present applicable projects at these meetings to assist the BMP Task Force with achieving its goals and objectives.

The Water Resources Action Plan (WRAP) - The Stormwater/Environmental Compliance Officer continued to work with staff at the Ports of Long Beach and Los Angeles to complete the Water Resources Action Plan (WRAP). The plan was



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developed to address water quality concerns in harbor waters, in order to assist with TMDLS and NPDES permit development (Appendix 1.6). The final report was published in August 2009 and can be downloaded from www.polb.com.

The Cleaner Rivers Through Effective Stakeholder-led TMDL – is a stakeholder effort initiated by the City of Los Angeles for the purpose of developing TMDLs to restore and protect water quality in the Los Angeles River and Ballona Creek. The Department of Public Works continues to represent the City of Long Beach in these discussions.

In FY09, division staff continued to participate with the City Manager's Government Affairs Office and the Parks, Recreation, and Marine and Health Departments to conduct a one-year reconnaissance study of the Long Beach Breakwater (\$100K). The purpose of the reconnaissance study was to provide the US Army Corps of Engineers with the information they need to determine if there is sufficient federal interest to proceed to a more in-depth feasibility study. Such a feasibility study would more thoroughly examine various reconfigurations of the Long Beach Breakwater. Additional information may be found at: <http://www.longbeach.gov/citymanager/ga/breakwater/default.asp>

NEW ACTIVITIES

Los Angeles Gateway Project - The City of Long Beach is a member of the Los Angeles Gateway Region, Integrated Regional Water Management Joint Powers Authority, which submitted a grant proposal that was approved for the installation of treatment train best management practices in catch basins throughout 16 cities along the Los Angeles River. This project is further detailed in the following section.

Council of Governments Participation - In FY09, the Long Beach City Council approved two memoranda of agreement allowing the City to participate with the Gateway Cities Council of Governments (GCCOG) and San Gabriel Valley Council of Governments (SGVCOG) in the development of coordinated implementation plans to address metals TMDLS in reaches 1 and 2 of the Los Angeles River (Appendixes 1.7 & 1.8). The Stormwater/Environmental Compliance Officer represents the City in both committees.

1.3 CURRENT PROJECTS

The Long Beach Stormwater/Environmental Compliance Division is currently managing and monitoring several grant-funded capital improvement projects aimed at reducing



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pollution throughout the city. The following are made possible through various grant awards and special revenue sources.

1.3.1 STIMULUS FUNDING RECEIVED TO CONTINUE ADDITIONAL TRASH NET PROJECTS \$955,045

This Best Management Practice assists with Los Angeles River Trash TMDL compliance. These trap nets are designed to capture trash and debris prior to entering City-owned pump station pumps, thereby significantly reducing contaminants discharged directly into the Los Angeles River. The nets are maintained under the City's storm drain system maintenance and repair contract. The project involved removing existing trash racks, installing storm drain pollution trap nets, and constructing a hoist-crane structure and low flow channel steel screens at pump stations SD-1, SD-3, SD-4, SD-5, and SD-6.

In December 2008, the State Water Resources Control Board (Water Board) notified the City that its Proposition 40 funding for construction of trash nets at pump stations 12 (SD12) and 13 (SD13) was being frozen due to the State's budget crisis. The projects subsequently received funding from the American Reinvestment and Recovery Act (ARRA) through the Water Board's Clean Water State Revolving Fund. The projects will be completed during the next reporting period.



1.3.2 STIMULUS FUNDING RECEIVED TO CONTINUE ADDITIONAL VSS UNIT PROJECT \$539,634

Similar to the trash net projects above, funding for the construction of a vortex separation at pump station 11 (SD11) was frozen and later supplemented with Recovery Act funding. Like the trash nets, this BMP will help ensure that the City is in compliance with the LA River Trash TMDL. A similar system was installed in 2004 at Hamilton Bowl, located at 20th Street and Walnut Avenue in the City of Long Beach. The VSS units are maintained under the City's storm drain system maintenance and repair contract.



1.3.3 BEACH OUTFALLS PROJECT

In FY09, 150 catch basins that drain to the beach were retrofitted with structural BMPs as part of the Beach Outfalls Treatment Train Project. The three devices used were selected for their pollutant removal capabilities in treating runoff. The devices used were the Automatic Retractable Screen (ARS), the AbTech SmartSponge® and the Catch Basin Pipe Screen (CPS). Appendices 1.9, 1.10, 1.11

The ARS (first stage containment) is strategically placed in the inlet of the catch basin, thereby preventing trash and debris from entering the catch basin. The device is designed to open when the screen is overloaded during rains to prevent flooding. The AbTech SmartSponge® (second stage containment) are the filter baskets that are set inside the catch basin and are designed to capture oils, grease, pesticides, and sediment and destroy bacteria. The CPS is the catch basin outfall pipe screen, which is designed to capture in the sump what may have bypassed the first and second stages. Collectively, these are a series of treatment devices selected and sequenced for maximum effectiveness. In addition, trash screens were installed at the five outfall pipes that drain directly onto the beach.



1.3.4 LOS CERRITOS PROJECT

In addition, the City set aside \$170,000 to retrofit catch basins that empty into the Los Cerritos Channel in council district 3. These catch basins received the ARS and CPS devices. The project is similar to the Beach Outfalls Project, except the SmartSponge® is not included. During the reporting period, 75 catch basins were retrofitted as part of this project.



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1.3.5 LOS ANGELES GATEWAY PROJECT

The City of Long Beach is one of 16 cities that will benefit from Recovery Act funding through the Los Angeles Gateway Region, Integrated Regional Water Management Joint Powers Authority (LA Gateway Authority). The State Water Board Clean Water State Revolving Fund is fully funding this \$10 million project. Within Long Beach limits, all publicly owned catch basins (3,952) will have a CPS device installed. At least 143 of those will also receive the ARS device. It is estimated that the devices will prevent 400 tons of trash and debris from entering the Los Angeles River each year.

1.3.6 COLORADO LAGOON REMEDIATION AND RESTORATION



On September 9, 2009, the City of Long Beach broke ground on a \$3.2 million project to help improve the water quality and prevent recontamination at the Colorado Lagoon (Appendix 1.12). The Funds from the California State Water Resources Control Board (SWRCB) as part of the American Recovery and Reinvestment Act of 2009, will be used to:

1. Clean and modify the underground culvert that connects the Colorado Lagoon to Marine Stadium.
2. Improve water quality by removing contaminated sediments.
3. Restore and maintain the estuarine habitats.
4. Construct a bioswale on the western lagoon arm to help filter runoff.
5. Construct a low-flow diversion system to redirect dry-weather run-off into the sewer system.

The Colorado Lagoon is a tidal water body that is connected to the Alamitos Bay and the Pacific Ocean through an underground tidal culvert to Marine Stadium. The Lagoon is located in a park setting and is owned and maintained as a City park by the City Department of Parks, Recreation and Marine (PRM). The Lagoon serves three main functions hosting estuarine habitat, provide public recreation (including swimming), and retain and convey stormwater drainage. The water and sediment quality within the Lagoon are degraded. The Lagoon is listed on California's 303(d) list of impaired water



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bodies due to elevated levels of lead, zinc, chlordane, and polycyclic aromatic hydrocarbons (PHAs) in the sediment and chlordane, dichloro-diphenyl-trichloroethane (DDT), dieldrin, and polychlorinated biphenyls (PCBs) in fish and mussel tissue. In additional testing confirmed the presence of PCBs, cadmium, copper, mercury, and silver as secondary contaminants of concern. Bacterial contamination of the Lagoon water is also a major concern, and indicator bacteria was added in 2006 to California's 303(d) list. This project will result in the restoration of the site's ecosystem, provide enhance recreation facilities and improve water and sediment quality while managing storm water.

A hearing with the Regional Water Quality Control Board (RWQCB) was schedule for October 1, 2009, for Consideration of a proposed Basin Plan Amendment to incorporate a Total Maximum Daily Load (TMDL) for Organochlorine (OC) Pesticides, Polychlorinated Biphenyls (PCBs), Sediment Toxicity, Polycyclic Aromatic Hydrocarbons (PAHs), and Metals for Colorado Lagoon. As of this Report, the TMDL was approved at the hearing with conditions requiring additional monitoring. More details on the approval of this TMDL is forthcoming and can be found on the RWQCB website, <http://www.swrcb.ca.gov/rwqcb4/>. Continued approval of this TMDL will be submitted to the State Water Resources Control Board (SWRCB) and the Environmental Protection Agency (EPA).

1.3.7 TERMINO DRAIN PROJECT

The City of Long Beach and Los Angeles County Flood Control District broke ground on a \$22.6 million storm drain project on September 30, 2009. This landmark project is one of the Flood Control District's largest storm drain projects totaling 12,190 Linear feet. This project will result in the following benefits to the City:



- 1 Accommodate a 50-year rain event that will help alleviate flooding in the surrounding neighborhoods thereby reducing fear and potential damage to the public, businesses, and their property.
- 2 Outfit catch basin with screens and sponges to prevent trash and pollutants such as grease and oil from reaching the City's beaches and waterways.



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- 3 Construct low flow-diversion structures that will redirect flows away from coastal waters and into the sanitary sewer system for treatment.

Construction of this project is scheduled for mid-October 2009 and is slated for completion by November 2011 (Appendix 1.13).

1.3.8 LOS CERRITOS CHANNEL TMDL

The City of Long Beach has been cooperating with six other cities and Caltrans for the past year to provide technical information to help ensure that the Los Cerritos Channel Total Maximum Daily Loads (TMDLs) for Metals to be established by EPA are as accurate as possible. The City has co-chaired a Technical Committee that was established to work with both EPA and the RWQCB. The City provided technical monitoring support through its monitoring consultant, Kinnetic Laboratories, Inc. (KLI). This support included preparation of a technical memorandum on the application of metals translators to the Los Cerritos Channel for wet-weather and a second technical memorandum on dry- weather translators requested by EPA. This information, together with supplemental dry- weather monitoring, consisting of approximately 120 samples of flows within the channel and discharges into the channel, assisted EPA to prepare revised TMDLs that are more appropriate to the watershed.

The seven cities and Caltrans are now concluding a Memorandum of Understanding with the Los Angeles Gateway Integrated Regional Water Management Joint Powers Authority to prepare both an Implementation Plan and a Monitoring Plan to facilitate achieving the objectives of the Metals TMDLs. The parties propose to prepare these plans and submit them to the RWQCB for use in a Basin Plan amendment and/or reissuance of MS4 permits.

The ultimate goals of the seven cities and Caltrans are TMDLs that accurately address conditions in the watershed, an Implementation Plan that facilitates achievement of the numeric targets of the TMDLs over a reasonable period of time, and a Monitoring Plan that includes the following: ambient monitoring; TMDL effectiveness monitoring; and special studies, if needed, to collect additional water quality data to evaluate assumptions made in the TMDLs, to collect data to assess compliance with the TMDLs' waste load allocations, address uncertainties in the TMDLs, and assist in sizing best management practices (BMPs).



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2.0 MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

The City of Long Beach puts into practice public agency activities that reduce the discharge of pollutants into the storm sewers and local receiving waters to the maximum extent practicable. In order to effectively improve the quality of storm water, the City has the following in place:

- Storm Drain System Operations and Maintenance,
- Trash and Greenwaste Control,
- Code Enforcement,
- Street Maintenance,
- Public Construction Activities,
- Landscape Maintenance, and
- Training.

2.1 STORM DRAIN SYSTEM OPERATIONS AND MAINTENANCE

Within the City limits, there are about 383 miles of active storm water carriers, which include pipes, open channels, ditches, culverts, connector pipes, and drains. Of those carriers, 180 miles are City-owned, 142 miles are owned by Los Angeles County, and 40 miles are Caltrans-owned, with various other owners making up the remaining 21 miles. The City maintains 5.5 miles of channels and ditches, Los Angeles County has 32 miles of open flood control channels, and Caltrans has 11 miles of channels and ditches.

In addition, the City owns 23 pump stations and approximately 3,800 catch basins, all of which are cleaned repeatedly throughout the year. The related maintenance costs for FY 09 were \$700,000. Sample storm drain maintenance data is provided in Appendix 1.14.

Waste characterization shows that the predominant types of debris include trash (a combination of plastics, polystyrene-foam, glass, and paper) and green waste. The most likely source of the trash is littering, whereas the most likely source of the green waste is a combination of non-anthropogenic sources and individuals who sweep, hose, or blow material into the storm drain.



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Selected areas in the MS4 have been designated as high priority based on the amount of trash and debris normally collected. A Rain-Emergency Checklist identifies catch basins, grates, and cross drains that are checked immediately prior to a forecasted rain event. These areas are cleaned of any trash and debris prior to a storm event to ensure that these pollutants are not washed into the receiving waters. To ensure that no clogged systems contribute to flooding, a separate list is maintained of areas to be checked while it is raining. In addition, City staff is prepared to respond to reports of flooding and other concerns during rain events.

The Water Department operates and maintains the City's sanitary sewer system, as detailed in the Public Agency Activities section of the LBSWMP. Procedures are implemented to keep sewage from entering the storm drain system. Methods may include education, inspection, covering or blocking storm drain inlets and catch basins, or containing and diverting the sewage away from open channels and other storm drain facilities. One way the City is trying to prevent sewer overflows is through a joint outreach effort by the Stormwater/Environmental Compliance Division and the Water Department to educate restaurant owners and residents about the negative effects of pouring fats, oils, and grease (FOG) down the kitchen sink. Regrettably, in FY09 there were 29 SSOs, equating to 28,763 gallons, reported by the City's Water Department.

Additionally, Public Works and the Health Department maintain a Vector Control & Trauma Scene Waster cleanup Memorandum Of Understanding (MOU)/. In FY09, MOU-related expenses amounted to \$71,507.

2.2 TRASH AND GREENWASTE CONTROL

Trash and green waste are controlled through various operations across several departments. These include:

- Litter Receptacles,
- Neighborhood Cleanup Assistance,
- Household Recycling,
- Greenwaste Disposal,
- Special Collection,
- Used Oil Recycling,
- Household Hazardous Waste Collection, and
- Trash Collection on the Beach and Along Water Bodies.



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The Environmental Services Bureau (ESB) provides various refuse, recycling, litter abatement and street sweeping programs. In fiscal year 2009 (FY 09), ESB added several programs to its existing ones, including the following:

- ESB began a Marina Recycling program, providing 135 recycling bins to Alamitos and Shoreline Marinas, and a 2-yard recycling bin to Rainbow Marina.
- A multifamily recycling ordinance was implemented in FY 2009, requiring the City's private waste haulers to provide the option of recycling to multifamily units with ten or more units.

ESB co-hosted the KidECO event, a one-day environmental education event where over 1,000 children were invited from summer camps featuring interactive booths, educational games, and a poster contest.

Litter Abatement Campaign

ESB established a Litter Abatement and Awareness Campaign program (Litter-Free Long Beach) during FY 05. Below is a description of Campaign programs conducted during FY 09:

- Conducted 84 community and business corridor clean-ups.
- Involved 1,631 volunteer participants at neighborhood and business clean-up events.
- Collected nearly 147 tons of litter from clean-up efforts.
- Gave away 1,570 car litter bags (containing litter and recycling promotional items) at neighborhood clean-up events, to various outreach programs, and to City Council Offices.
- Promoted the "No Litter Zone" program through door-to-door efforts with 305 businesses participating in the program receiving a free 20-gallon trash can, liners, broom and dust pan for use to help keep their store fronts clean.
- Presented the "Lunch with a Lizard" program to 26 public elementary schools (Kindergarten – 3rd grades), teaching approximately 10,000 students the importance of not littering.
- Collected 819 tons of litter from alleys throughout the city through the "Alley Clean-Up" program, which involved over 3,300 community service workers.
- Provided approximately 1400 litter and recycling containers at Special Events throughout the City.



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- Maintained sponsorship of 16 street locations through the “Adopt-a-Street” program.
- Sponsored the “Litter Stinks” poster contest, which invited sixth through eighth-graders to submit posters encouraging the public not to litter. Over 250 student entries were submitted.
- Placed a full page Earth Day ad in the Downtown and Grunion Gazettes featuring the litter message of the winning poster of the “Litter Stinks” school poster contest.
- Placed 21 print ads in the *Press Telegram*, *Downtown* and *Grunion Gazettes*, and *School News* to promote the Litter Campaign.
- Utilized approximately 720 Litter-Free boulevard banners in three languages (English, Spanish and Khmer) that were posted along 384 street locations to reinforce the Campaign’s message and reflect different aspects of Long Beach’s natural environment.
- Continued a program for residents to contact and report businesses that leave unwanted handbills on residential property and create litter in Long Beach neighborhoods.
-
- Produced and distributed a “No Junk Mail” brochure to enable residents to remove themselves from ‘junk mail’ advertising lists and pre-screened offer directories.
- Printed customized posters and distributed flyers promoting neighborhood clean-up events (English, Spanish, Khmer).
- Provided a series of informational brochures and flyers on litter abatement, recycling, hazardous waste and composting.
- Produced promotional bumper stickers, baseball caps, coasters, pencils, water bottles, canvas bags and rulers.

Appendix 1.15 contains a copy of the 2008-2009 LB EcoGuide, which was mailed out to Long Beach residents.

2.2.1 LITTER RECEPTACLES

Keeping refuse from entering the storm drain system takes an enormous effort. Placing trash receptacles in convenient locations and servicing them on a regular basis is a consuming task. To ensure that people have an alternative to littering, the City has placed 94 litter receptacles along residential streets and 843 litter receptacles along commercial streets, all of which are emptied weekly. A total of 51 tons of trash and



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debris was collected from litter receptacles on residential streets, and 458 tons was collected from commercial street receptacles.

The Department of Parks, Recreation, and Marine maintains another 200 beach receptacles during the summer and 27 during the winter months. They are emptied five times and three times per week, respectively. The Department also maintains 80 marina trash receptacles that are emptied six times per week. In addition, the Queensway Bay area has 30 litter receptacles that are emptied on an as needed basis. In City parks, there are 555 (55 gallon) receptacles that are emptied daily. Lastly, special events are provided with additional litter containers on an as-needed basis. These are collected on the day of the event.

2.2.2 NEIGHBORHOOD CLEANUP ASSISTANCE

The City's Department of Community Development assists resident volunteers by helping them organize Neighborhood Cleanup events. In FY 09, 1,152 tons of trash was removed during cleanup events at a cost of \$45,488 (Appendix 1.16). The Department provides free trash dumpsters, trash bags, and gloves and lends tools for use during the cleanup events. Neighborhood groups are also given free use of community computers and photocopiers to produce flyers for the event. For further information, please visit the web site at:

www.longbeach.gov/cd/neighborhood_services/clean_up_programs.asp.

2.2.3 10th ANNUAL NEIGHBORHOOD LEADERSHIP CONFERENCE

The 10th Annual Neighborhood Leadership Conference was held at Long Beach City College- Liberal Arts Campus on October 25, 2008. The goal of the Conference was to provide an opportunity for participants to network and enhance their leadership skills and knowledge in order to improve their community.

A "Green Initiatives in Long Beach" workshop was held to teach participants about programs to help them reduce water use and create an "urban forest" in their neighborhoods. Information was provided on how to help keep our neighborhoods and rivers clean. Participants also learned about grants to fund beautiful drought-tolerant gardens and other environmental projects in their neighborhood." (Appendix 1.17)



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2.2.4 HOUSEHOLD RECYCLING

The City's Environmental Services Bureau continues to improve the household recycling program. All manual collection of open bins has been converted to automated collection of covered carts. Residents are provided with 32-gallon, 64-gallon, or 96-gallon carts for commingled collection of recyclables in the categories of newspaper, cardboard, mixed paper, plastic, cans (aluminum, steel, and tin), glass, and empty paint and aerosol cans. In FY 09, 27,152 tons of material was collected through the curbside recycling program. Table 2-1 shows recyclables collected in FY 09. A multifamily recycling ordinance was implemented in FY09, requiring the City's private waste haulers to provide the option of recycling to multifamily units with ten or more units.

Table 2-1: CURBSIDE RECYCLING

WM Recycling Collection	27,152.15	Tons of recyclables collected from Curbside Recycling Program.
	10,692.99	Tons of newspaper collected.
	9,512.00	Tons of corrugated cardboard collected.
	6,428.43	Tons of commingled containers collected.
	6,775	Gallons of used motor oil.
	515	# of oil filters.
	90	Tons of mixed paper collected.

2.2.5 GREENWASTE DISPOSAL

The City requires residents to tie tree limbs, shrubs, and trimmings into bundles and securely wrap materials for proper disposal. The Special Collection Program provides pickup for these materials. In FY 09, there were 1,073 requests for pickup of yard waste. The Environmental Services Bureau also offers treecycling of holiday trees. Residents may take trees to any of the several drop-off locations or put the tree out for free pickup on the specified date. As an added incentive to residents, the City offers seminars on composting and distributes literature that explains methods of green waste composting.

The Departments of Parks, Recreation, and Marine and Public Works recycle grass and tree limbs from City grounds. In FY 09, the Public Works Street Maintenance Division recycled 2,837 tons of grass and tree limbs. City departments minimize the amount of green waste collected from City facilities by reuse. Grass clippings are evenly



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distributed over the areas that are being mowed (grasscycling). Green waste from trimming, pruning, and clearing is chipped or shredded and kept on site as mulch.

Green waste generated from park grounds and landscape maintenance operations is the responsibility of the contractors, and is disposed of at a legally permitted off-site location. The City receives diversion credits for this green waste. Contractors maintain logs identifying its disposal activities, which are available to the City for inspection upon request. It should be noted that the grass clippings in our parks are not collected since all mowers used by contractors use recycling or mulching decks.

Green waste from the tree trimming operation and Blair Field maintenance operation is taken (by City vehicle) to a local transfer station for recycling. BMP's, such as surrounding the base of bulk materials with sand bags and plastic tarps, are utilized to assure that exposed materials will not migrate from their temporary storage locations. Green waste generated from grounds and landscape operations in the Queensway Bay area is the City's responsibility, and is collected by the contractor and deposited in a container in the Golden Yard, a city facility. A green waste contractor then removes the waste for recycling, leaving an empty container. City staff maintains the disposal records.

2.2.6 SPECIAL COLLECTION

Two well-publicized special item collection programs, the Oversized Items Pickup and Dumped Items Pickup, are designed to reduce bulky items from alleys and vacant lots throughout the City. The Environmental Services Bureau (ESB) distributes a trilingual (English, Spanish, and Khmer) promotional flyer to inform residents about the Oversized Items Pickup program. City-serviced refuse accounts receive two free bulky item collections per year, and additional collections are available at a cost of \$5.61 per item. Table 2-2 shows the number of collection requests for special item pickups.



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Table 2-2: SPECIAL ITEM PICKUPS

Special Collections	16,373 req, 1,624 tons	# of requests and tons from Special Item Pick-up Program.
	7,790 req, N/A tons	# of requests and tons of furniture.
	679 req, 82.5 tons	# of requests and tons of tires.
	1,073 req, N/A tons	# of requests and tons of yard waste/tree clippings.
	2,599 containers	# of collected City provided trash bins (old).
	246	# of requests of Out Lates (missed collections).
	777 req, and 25,557 pounds	# of requests and pounds of E-waste.
	140 req, N/A tons	# of requests and tons of appliances.
	5,441 req, N/A tons	# of requests and tons of other.

2.2.7 USED OIL RECYCLING

The City operates a curbside residential recycling program that includes collection of used motor oil and oil filters. Residents are provided with free used motor oil recycling containers at their request. Waste Management, Inc., the City's recycling contractor, collects the containers and leaves empty replacement containers. ESB staff attended numerous community events throughout the year to promote the Used Motor Oil Recycling program and distribute motor oil containers and funnels. ESB also gave away litterbags and shop towels that have information about recycling motor oil. Additional promotional efforts include advertising in the *Wave*, a publication mailed with Long Beach utility bills. In FY 09, 7,975 gallons of used motor oil was collected along with approximate 1,115 used oil filters through the curbside recycling program and at a Los Angeles County Household Hazardous Waste Roundup.

In addition, drop-off locations throughout the City, such as gas stations and auto parts stores, are posted on the Environmental Services Bureau Web site and listed in ancillary promotional materials. These certified drop-off centers are managed and maintained by the business owners and supplement the City's efforts.



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2.2.8 HOUSEHOLD HAZARDOUS WASTE COLLECTION

ESB staff, in partnership with the Los Angeles County Department of Public Works and the Sanitation District of the County of Los Angeles, held a very successful Household Hazardous Waste (HHW) Roundup that collected several types of hazardous materials including 38,150 pounds of e-waste and 8,840 pounds of batteries.

Table 2-3: HOUSEHOLD HAZARDOUS WASTE COLLECTION

County Collection Event	HHW	
	3/28/09	Date of event
	1,200	Gallons of used motor oil.
	6,000	pounds of car batteries.
	900	pounds of oil filters.
	13,750	Gallons of paint.
	250	Gallons of antifreeze.
	8,840	Pounds of batteries.
	38,150	Pounds of E-waste.
	765	# of computers (CRT units).
	6,500	Gallons of misc. waste (pesticides, pool chemicals, etc.)

2.2.9 TRASH COLLECTION ON THE BEACH AND ALONG WATER BODIES

The Department of Parks, Recreation, and Marine is responsible for the maintenance of recreational water bodies. The Beach Maintenance and Queensway Bay divisions service approximately 442 litter and trash receptacles on our beaches, marinas and the park areas of the Greater Queensway Bay. The 227 beach receptacles are emptied five times weekly during the summer and three times weekly in the winter. Eighty Marina trash receptacles are emptied six days per week. Queensway Bay litter receptacles (approx. 214) are emptied seven days a week and a Landscape contractor performs this task. Rainbow Harbor Grounds and Esplanade areas are emptied 1,095 times a year. Rainbow Lagoon and South Shore Launch Ramp are emptied 730 times a year. Shoreline Marina and Golden Shore areas are emptied 365 days a year. Our ocean front beaches are raked 5 to 6 days per week depending on conditions. Floating debris is removed from the waters of Rainbow Harbor on a daily basis. Special events are



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provided with additional litter containers on an as needed basis and are collected on the day of the event.

The Department is responsible for the maintenance of recreation water bodies at Heartwell, Scherer, and El Dorado Parks, the Colorado Lagoon and Rainbow Lagoon. Maintenance functions at Heartwell and Scherer Parks are performed by contract maintenance. Maintenance functions at El Dorado Park and Rainbow Lagoon are performed by both contract maintenance and by City staff. Maintenance functions at Colorado lagoon are performed by City Staff. At all locations, the contractor is required to remove trash, including floating and submerged debris from the lakes on a daily basis. All cleaning is required to be completed in accordance with the requirements of the CA Department of Fish and Game and the Regional Water Quality Control Board. The landscape contractors responsible for trash removal are not required per their contract to keep records of the amount of trash that is removed from the lakes or from the parks. However, City staff is required to inspect and document the daily removal of all trash and debris from the lakes. In addition to trash removal, the contractors or City staff is required to make periodic treatments for control of algae and aquatic growth, except for Rainbow Lagoon and Colorado Lagoon, which are ocean/tidal water. Staff monitors the lake activity and authorizes the use of treatment on an as-needed basis as necessary. Treatments are applied in accordance with manufacturer's instructions and best maintenance practices.

In addition to the park lakes and Rainbow Lagoon, the City actively maintains Rainbow Harbor (Queensway Bay), the Downtown Marina, and the beaches. A combination of contracted and City staff remove debris by dip net and clean filters in the Greater Queensway Bay area which includes; Rainbow Lagoon, Shoreline Marina, Rainbow Harbor and Marina and South Shore Launch Ramp.

The Long Beach Water Department also participates in beach cleanups to promote environmental stewardship and education. The Department organizes quarterly events at Bluff Park (Ocean Blvd) that are geared towards high school and college students, Scout members, and the general public. The Department provides free giveaways, trash bags, gloves, bottled water, volunteer service verification forms, and official recognition from the Long Beach Board of Water Commissioners. This year, approximately 330 volunteers participated in the Water Department's cleanups. The largest event took place in September, with roughly one tone of trash and debris collected.



2.3 CODE ENFORCEMENT

The City conducts several code enforcement activities that assist with controlling the discharge of pollutants into the storm drains and reduce the discharge of pollutants into Long Beach receiving waters to the maximum extent practicable. These include:

- Property Maintenance,
- Oil Code Enforcement.

2.3.1 PROPERTY MAINTENANCE

Property maintenance activities deal with eliminating unsightly conditions and governing the maintenance of buildings and surrounding property. Complaints of trash and debris in yards, overgrown vegetation, inoperative or abandoned vehicles, etc., are investigated and Municipal Code violation notices or citations are issued where warranted. Failure to comply may result in referral to the City Prosecutor or in a cleanup by City staff at the owner's expense. In FY09, the Department of Community Development opened 6,817 and closed 7,289 cases.

2.3.2 OIL CODE ENFORCEMENT

In the 1970s, four islands were constructed in the Long Beach Harbor for the purpose of accessing oil under the harbor. Strict procedures are in place for preventing and dealing with oil spills. Monthly field inspections cover housekeeping practices, potential safety hazards, security, and a number of other issues. Employees are trained annually, and the department stays abreast of new technologies and industry progress by attending various committees and focus groups, including some specifically related to storm water.

The Code Enforcement Division of the Long Beach Development Services Department is responsible for enforcing City regulations governing the drilling of new wells and the maintenance of existing production sites. Annual permits are issued, and investigations are conducted to ensure compliance. In FY 09, there were 5,370 investigations related to oil operations, resulting in three enforcement actions.

2.4 STREET MAINTENANCE

The City's street sweeping service is one of the largest and most effective programs supporting storm water pollution prevention. The majority of streets and street medians



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in Long Beach are swept on a weekly basis, which greatly exceeds the permit requirement of twice per month. To increase the effectiveness of street sweeping, signs are posted and citations are issued so that vehicle owners leave certain streets vacant on street sweeping days. In addition, street sweeping and refuse collection routes have been better coordinated to provide more efficient service, such as having street sweeping occur after refuse collection on a given street. During FY 09, the Street Sweeping Division swept 154,153 miles and picked up 10,050 tons of material. In addition, ESB purchased 20 new alternative-fueled Elgin Street Sweepers that were put into service in FY 09.

Though not typically allowed to be reported as a NPDES compliance measure and expense, during this reporting period 194,100 tons of waste from City managed routes and beaches were collected at a cost of \$24,267,593. In addition, the Health and Harbor Departments spent \$18,130 and \$463,547, respectively, on trash collection in their facilities.

A number of parking lots and structures are also routinely swept and degreased to prevent trash and hazardous materials from entering the storm drain system. The Department of Parks, Recreation, and Marine sweeps 30 lots with an average lot size of 71 acres five times each week at an estimated annual cost of \$164,817 in FY09. The Department of Community Development Parking Operations Division maintains another 11 parking structures and lots. The majority are swept either once or twice each week and degreased once or twice monthly at a cost of \$150,427 in FY 09.

2.5 PUBLIC CONSTRUCTION ACTIVITIES

All departments involved in construction-type activities implement good housekeeping practices. They ensure that properly managed wastes are disposed of during street, road, and other maintenance activities. Employees who conduct maintenance activities are given appropriate BMP training about the potential pollutants that may be released as a result of street repair.

Public construction activities focus on City projects whose construction contracts are administered by one of many City departments. City design staff and consultants have the responsibility to prepare plans and specifications that include appropriate BMPs. The BMPs selected are based on rational criteria including magnitude and type of potential pollutant.



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The Department of Public Works Construction Management Division insures that the Best Management Practices specified in the project specifications are implemented as defined in the City's permit. During October 1 through April 1 of each year, the project inspectors conduct site inspections and complete the City inspector construction site checklist on a weekly basis. During the months from April 1 through September 30, construction inspectors monitor the city for any violations while driving from project to project. When a project is not in compliance with the contract documents or Public Works permit, the Public Works inspectors have the authority to enforce the contract or permit by issuing verbal warnings, written notices, withholding progress payments, or suspending the work. In FY 09, Public Works inspectors filed 445 NPDES Inspection Reports.

During the reporting period, the public right-of-way projects were inspected pre/during/post construction were:

- 2008 Fiscal Year Annual Citywide Sidewalk Improvements
- California State University Street Light Improvements
- Atlantic Avenue Raised Median Improvements
- Improvements on Easy Avenue between 20th Street and 27th Street
- 2008 Fiscal Year Annual Citywide Street Improvements
- Improvements to Taxiway Kilo Phase I-II
- Improvements to Taxiway Kilo Phase III
- Improvements to Taxiway Charlie and Lima
- Improvements to Martin Luther King Jr. Avenue Between Pacific Coast Highway and Anaheim Street
- Improvements to Walnut Avenue Between Pacific Coast Highway and Anaheim Street
- Improvements to Oregon Avenue Between Pacific Coast Highway and Anaheim Street
- Construction of Atherton Storm Drain Phase I
- Improvements to Spring Street Between Termino Avenue and Lakewood Boulevard
- ADA Ramp Construction Phase 21 and 22
- Improvements to Atlantic Avenue Between Bixby Road and San Antonio and 52nd Street and South Street
- Improvement to Broadway Avenue Between Redondo Avenue and Termino Avenue
- Linden Avenue Parking Lot



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- Improvements to South Street Between Cherry Avenue and Arlington Avenue
- Termino Avenue Storm Drain Improvements
- Improvements to 1st Street Between Long Beach Boulevard and Alamitos Avenue
- Atlantic Avenue Northbound Turn Pocket
- Long Beach Boulevard Center Medians
- Westside Storm Drain Line Phase I
- Atherton Storm Drain Line Phase II
- Alamitos Avenue Between 15th Street and Barcelona Way

2.6 LANDSCAPE MAINTENANCE

The Nature Center continues to train staff and volunteers from the Habitat Stewards Program in non-chemical management practices to be used when maintaining the facility grounds. Monthly classes and expert speakers keep our staff and Stewards on the cutting end of organic and “green” gardening, as they continue to restore the habitat to regional California native plant species. We have extended our education program to the general public by offering a monthly garden series called “Out of the Wilds, And Into Your Garden” which continues to see at least 20 participants monthly. The program informs the general public about the use of drought tolerant native plants, as well as non-chemical solutions for weed and pest control for their home gardens.

The use of mulch continues to be practiced at the Nature Center to help abate the use of herbicide on the grounds. Staff and volunteers continue to remove non-native and invasive plants, and any replacements are all California native species. Our monthly Saturday Stewards program educates the general public and provides hands-on experience working with mulching techniques and invasive removal. The Nature Center’s annual Native Plant Sale places over 1,200 water-wise native plants into community gardens, and classes such as our Container Gardening with Natives offer members of the community options for growing drought tolerant species in small spaces.

This year, staff, with the aid of the Habitat Stewards volunteers, has crated a small, but thriving plant nursery. All of the plants propagated are drought tolerant California native species, and many are grown from seeds harvested from existing plants on site. The goal of the nursery is to grow pesticide free plants that can be used in our restoration efforts.



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2.6.1 Pesticide, Herbicide, and Fertilizer Usage

Both City staff and contractor staff are responsible for the management of pesticides, herbicides, and fertilizers. The Department of Parks, Recreation, and Marine has one Certified Pest Control Advisors (PCA) and two Qualified Applicators Certificates on staff to ensure the appropriate procedures and policies for pesticide, herbicide and fertilizer management are followed. Additionally, the department possesses a Restricted Material Permit for those herbicides and pesticides that are on the State Agricultural Commissioner's restricted list, and routinely passes annual state inspections. The PCA purchases, stores, and distributes pesticides and herbicides to staff that are either Pest Control Applicators, or staff that has received annual training in the proper use and handling of pesticides and fertilizers. The PCA follows required state law that incorporates best management practices for the application of chemicals. This practice is called IPM (Integrated Pest Management). In addition, the PCA insures that the manufacturer's instructions are followed for storage and application. The PCA is required to keep accurate records of the quantities and use of specific chemicals are required by the state and the County of Los Angeles and sends a monthly report to the Agricultural Commission of Los Angeles that documents chemical usage. Staff is trained annually in the laws governing the use of pesticides and herbicides and in the BMPs (such as restricted uses around lakes and waterways or prohibition of spraying when rain is forecast) related to the storage and use of such substances.

All of our grounds and landscape maintenance contractors must also possess a Pest Control Advisors License and have certified Pest Control Applicators on staff. Additionally, they must possess a Los Angeles County Agricultural Permit. Our contractors must adhere to the same requirements identified above for City staff.

Furthermore, the City employs Integrated Pest Management (IPM) practices to minimize the necessity for pesticide applications. Alternative measures include: cultural practices and biologically applications.

2.6.2 Native Vegetation Practices

Native plant materials are of particular concern in several locations – El Dorado Nature Center, 34th Street and Orange Avenue Park, the Queensway Bay Area (which includes Golden Shore Marine Reserve), the Jack Dunster Marine Biological Reserve, 7th Street Greenbelt, and Sims Pond. Azteca, the grounds maintenance contractor, is responsible for the maintenance of the landscaping at the El Dorado Nature Center and a full-time city staff gardener monitors the work, with the help of volunteers from the Habitat



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Stewards program. The Nature Center has a mixture of native and non-native plant material that was originally planted over 38 years ago. It is department policy to replace any material that must be removed (for various reasons such as disease or general decline) with native plants. In addition, any new plantings are designed with native plants only. The 17-acre expansion site at the Nature Center is exclusively native plant material. El Dorado Nature Center staff ensures that plant material selections are appropriate and sustainable. The plant material, once established, is irrigated on a 10-week rotation. Maintenance and Nature Center staff schedules more frequent irrigation during the summer and fire seasons when grasses are dry and the Santa Ana winds are present. Herbicides and pesticides are minimally used to eliminate invasive weeds and aquatic vegetation.

In the Queensway Bay Area, native species have been planted in Shoreline Park (Lighthouse Point and Beach Garden) and in the restored wetland area commonly referred to as the "Golden Shore Marine Reserve". The selection of native species, which include perennials, grasses, and aquatic species, has been done with input from consultants (i.e., MBC Applied Environmental Science, Acorn Group) and from qualified in-house staff. All invasive weeds are removed by hand, with no herbicides or pesticides. Removal of trash from Golden Shore Marine Reserve is done by hand with great care on a limited or as needed basis to prevent any human impact on the site. Staff from the Golden Yard performs the record keeping. Golden Shore, Sims Pond, 7th Street Greenbelt, and Jack Dunster Marine Biological Reserve is maintained by the Los Cerritos Wetland Stewards, who are experienced in maintaining delicate habitats. Only native and non-invasive plants from the appropriate plant community are used when replacing plants at these sites. Most invasive and non-native plants are removed by hand; chemicals are used at a minimum. Mulch is then applied to the site to prevent weeds from returning until the native plants are established, which also helps with conservation. Approximately two to three dozen medians have been newly planted with natives or drought tolerant low-maintenance plants. They require less trimming and generate less green waste.

The Jack Dunster Marine Biological Reserve is mostly maintained by the Los Cerritos Wetland Stewardship Program, which is experienced in maintaining delicate habitats. Only native non-invasive plants that are on the original approved plant pallet are used. All invasive and non-native plants are removed by hand to avoid using no herbicides or machinery. Mulch is then applied to the site to prevent plants from returning until the native plants have colonized.



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2.6.3 Municipal Swimming Pool Maintenance

The Belmont Plaza Pool is comprised of an indoor and outdoor tank. The indoor pool is drained every other year for maintenance, resulting in approximately one million gallons of pool water discharged into the sewer system over a period of a few days. The pool was last drained in 2007. The indoor pool is backwashed eight times annually while the outdoor pool is backwashed weekly or bi-weekly depending on the season. The discharge volume for backwash is approximately 7,000 to 10,000 gallons for the indoor pool and 250 to 500 gallons for the outdoor pool. Two sets of records are kept: one in the pool office and the other in the pool filter room basement.

The King Park and Silverado Park Pools are backwashed according to need. During the summer months, both pools are backwashed approximately three times per week. During the winter months, the pools are backwashed approximately two times per week. (The filtration systems for these pools are substantially different from those of the Belmont Plaza Pools.) During backwashing, there are approximately 250 to 500 gallons of water discharged into the sewer lines. Records and information are kept and maintained at the individual pool sites.

2.7 TRAINING

All City staff whose job activities directly affect storm water quality, and those who respond to questions from the public related to storm water pollution prevention and education, receive a mandatory annual refresher training regarding the requirements of the storm water management program, BMP implementation, and identifying and reporting illicit connections and discharges. The majority of training is now conducted via the City's intranet and internet, giving employees easy access to professional training material. NPDES is also a quarterly topic of discussion at the Construction Division staff meetings. In FY09, the construction inspection staff received 57.5 hours of training. The Stormwater/Environmental Compliance Division staff also routinely sent out Rain Alerts to appropriate City personnel regarding BMPs and NPDES requirements, especially before anticipated rain events (Appendix 1.18).



MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

SECTION 2

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MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

SECTION 3

3.0 MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

The Development Planning and Construction program is in place so that developers and property owners consider storm water quality management during the planning phase of their projects and implement appropriate controls during construction. This program applies equally to privately and publicly owned property. Projects within the public right of way are addressed in the Public Agency Activities Section (2.0). Applying this program to applicable development projects effectively prohibits non-storm water discharges and reduce the quantity of pollutants into the storm drain system. To achieve this objective, the City has implemented the following:

- California Environmental Quality Act (CEQA) guidelines,
- General Plan considerations for watershed and storm water management,
- Sustainable City Action Plan
- Chapter 18.95, "NPDES and SUSMP Regulations," of the Long Beach Municipal Code, and
- Training.

3.1 CEQA

Under the CEQA Act of 1970, the City of Long Beach is required to consider the potential environmental impacts of proposed developments. Long Beach Development Services' Environmental Planner conducts this review. Environmental review is required for projects that cause a public official or body to take "discretionary" action in approving or denying a project. The environmental review documents serve as guide to the person or persons who must make a decision about the project. Projects may be processed as a Categorical Exemption (exempt from CEQA Act), a Negative Declaration (declares that there are no impacts or that impacts can be mitigated), or an Environmental Impact Report (done for large projects that are likely to have significant effects on the environment). The outcome of the environmental review is included in Council reports, and documents are attached in the case of Negative Declarations and Environmental Impact Reports.



MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

SECTION 3

3.2 GENERAL PLAN

In FY09, Development Services Staff made strides in updating the City's General Plan. Known as the Long Beach 2030 Plan, its focus is on "Creating a Sustainable City." The plan will integrate land use, mobility, economic development, and urban design to create a physical framework for the City.

An extensive amount of community outreach was done in FY07 to find out what topics mattered most to constituents. A community survey was conducted as part of this effort. What resulted are seven emerging themes for the future of our City:

1. A city at the water's edge.
2. A clean environment everywhere.
3. Healthy and active neighborhoods.
4. Expanded transportation choices, including improved sidewalks and roads.
5. Community connections and cultures, with a focus on education and diversity.
6. Shared economic prosperity, emphasizing a promotion of "green" technology.
7. A safe and secure environment.

As a coastal city, clean water and clean beaches is a large concern to the residents and visitors of Long Beach. Under the guidance of the General Plan, the City expects to bring this shared vision to fruition.

A draft of the General Plan has been completed and is under review by City staff. Once the draft is approved, community meetings will be held to discuss the content of the plan. These are expected to occur during the first part of next year.

3.3 SUSTAINABLE CITY ACTION PLAN

This year, the Office of Sustainability in the City Manager's Office developed a Sustainable City Action Plan (Appendix 1.31). Still in its draft form, the plan contains a section on water that is of particular importance in the City's NPDES efforts. It contains the following two water initiatives:

- Ensure a sustainable water supply through conservation and reduced dependence on imported water.
- Implement low impact development strategies to reduce runoff and pollution at the source and increase the beneficial use of rainwater.



MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

SECTION 3

Specifically, the sustainability goals are reduce the per capita use of potable water, exceeding the State mandate to achieve a demand reduction of 20 percent in per capita water use by the year 2020, to facilitate the installation of rain catchment systems at five City facilities by 2012 through a pilot program, and facilitate the development of 50 green roofs communitywide by 2016. Through the efforts of the Water Department, Long Beach has already made considerable progress in reducing water consumption. In terms of low impact development, the construction of a bioswale as part of the Colorado Lagoon restoration is a good first step. In the future, the City will seek funding opportunities to further implement this initiative.

The City's Sustainable City Commission approved the Sustainable City Action Plan in draft form and community workshops were subsequently held to receive public feedback. The plan will go to the City Council for approval once it is finalized.

3.4 CHAPTER 18.95, "NPDES AND SUSMP REGULATIONS," OF THE LONG BEACH MUNICIPAL CODE

The Long Beach Municipal Code includes a chapter specifically for NPDES / SUSMP requirements. This addresses requirements for BMPs, Storm Water Pollution Prevention Plans, and Standard Urban Storm Water Mitigation Plans. Enforcement actions are currently not documented separately from inspections. Table 3-1 shows FY 09 statistics for Development Planning and Construction.

Table 3-1: DEVELOPMENT PLANNING AND CONSTRUCTION STATISTICS

Total development projects issued	4,451
Number of projects requiring a SWPPP	20
Number of development projects for which SUSMPs were required	19
Number of NPDES Inspections	3,256

3.5 TRAINING

The lbstormwater.org continues to provide information on Best Management Practices that developers and staff can access. The City continues to use this information in conjunction with existing training materials.



MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

SECTION 3

Additionally, the Stormwater/Environmental Compliance division, along with the Public Works Project Development division and Construction Management division have an integral role in developer plan review and project inspection. Using their training, inspectors and other staff can easily identify NPDES violations and educate developers so that corrective action can be taken immediately.



MANAGEMENT PROGRAM FOR ILLICIT DISCHARGES AND ILLICIT CONNECTIONS

SECTION 4

4.0 MANAGEMENT PROGRAM FOR ILLICIT DISCHARGES AND ILLICIT CONNECTIONS

The general objective of this program is to improve the quality of storm water by reducing the pollutants entering the storm drain system that may negatively affect receiving water quality by effectively eliminating illicit discharges and prohibiting illicit connections.

Departments such as Fire, Harbor, Health and Human Services, Development Services, Public Works, and Water play important roles in investigating possible illicit connections and discharges. They communicate their findings to the Stormwater/Environmental Compliance Division and other appropriate parties, oversee cleanups, and follow-up as needed. Incident documentation is recorded and maintained by the responsible department. Reports of suspected illicit connections and discharges may also come from the public via the Stormwater Management Program hotline, 562-570-DUMP (3867) and Web site, www.lbstormwater.org.

4.1 ILLICIT DISCHARGES

When the City is informed of an alleged illicit discharge, the Fire Department is the lead responder. The Fire Department evaluates the situation and, when necessary, will dispatch the Hazardous Materials (Haz Mat) unit of the Department of Health and Human Services. The Haz Mat unit will then verify the magnitude of the spill, identify the responsible party, and give instructions on how to proceed with the cleanup. The responsible party is then required to have the area cleaned up. Haz Mat will oversee the cleanup and decide when the situation has been adequately remedied. If the responsible party does not have an established account with a cleanup contractor, the City's contractor is used and the expense is charged to the responsible party. The responsible party may choose to do the cleanup personally if the amount is small. In this case, the responsible party may dispose of materials at a household hazardous waste roundup. These disposals must be verified by presenting a receipt to the Haz Mat Specialist. If no responsible party can be identified, the City will pay for the cleanup through a contractor, or if the discarded amount is small, the Haz Mat Specialist will personally conduct the cleanup.

It is important to note that calls coming in from the public expedite the response to illicit discharges that may have otherwise gone undiscovered. Calls and e-mails are responded to immediately, and most issues are resolved within one business day.



MANAGEMENT PROGRAM FOR ILLICIT DISCHARGES AND ILLICIT CONNECTIONS

SECTION 4

Annual refresher training for inspectors and field workers is conducted through the use of instructional videos and guest lecturers used in conjunction with a review of Department/Division procedures. This training specifically addresses how to identify and report illicit discharges.

4.2 ILLICIT CONNECTIONS

An illicit connection is any man-made conveyance that is connected to the storm drain system through which prohibited flows are discharged. The City of Long Beach rarely issues permits for storm drain connections. The Public Works Construction Division maintains a database of permitted connections. Historically, the City has encouraged through-curb connections rather than direct pipe connections because these are the easiest and least expensive to survey for illicit connections and discharges. They are located above ground and can be easily observed by City staff. In addition, City staff checks the inside of catch basins and the sides of open channels during regular maintenance activities for any illicit connections. All open channels and catch basins owned by the City have been inspected for illicit connections.

Historically, investigating underground pipes for pipe-to-pipe illicit connections has been the most expensive and least effective means for illicit connection inspection. The City's storm drain maintenance contractor is required to inspect 1/5th of the storm drain system pipes that are 36 inches in diameter or greater, and to report any suspected or confirmed illicit connections to the Stormwater/Environmental Compliance Officer. If the presence of an illicit connection is suspected, the storm drain is investigated and the necessary action is taken to eliminate the connection.



5.0 MANAGEMENT PROGRAM FOR PUBLIC INFORMATION AND EMPLOYEE TRAINING

The City of Long Beach takes a comprehensive approach to storm water and urban runoff educational outreach. The goal is to provide information about the impacts of storm water and urban runoff pollution and to encourage behavioral changes that will lead to reducing pollutants at the source. The four-targeted groups include:

- General public / city residents,
- Commercial / industrial establishments,
- School children, and
- City employees.

This effort is lead by the City's Stormwater/Environmental Compliance Division; however, many City departments are also active in educational outreach. Most outreach campaigns include urban runoff pollution prevention messages in their materials. Throughout the year, City staff participates in numerous activities to deliver the storm water message and supply the tools and guidance on how to be the solution to pollution.

The Stormwater/Environmental Compliance Division continues to develop materials that are applicable to more than one targeted audience or pollutant and explain the nature of non-point source pollution and its significant contribution to water quality impairment.

5.1 GENERAL PUBLIC / CITY RESIDENTS

The Long Beach Stormwater/Environmental Compliance Division continues to be the principal player in educating the public on ways to modify behavior that will lead to improved water quality. The information and reporting hotline, 562-570-DUMP (3867), and Web site, www.lbstormwater.org, are excellent educational tools that give the public a way to become active participants in the fight against pollution by being able to easily report illegal dumping via telephone or e-mail 24 hours a day, seven days a week (Appendix 1.19).

The City prioritizes inter-agency cooperation when dealing with storm water issues. On a regular basis, the Stormwater/Environmental Compliance Division staff resolves issues with members of other City departments, especially Health and Human Services, Development Services, Public Works Construction Management Division, Water, and

Fire. On other occasions, the Division staff join forces with other government agencies, in particular the Los Angeles County Department of Public Works and the Los Angeles County Sanitation District.

During special events, such as community meetings and watershed cleanups, the Stormwater/Environmental Compliance Division staff is present to listen to constituent concerns and answer stormwater related questions from the attendees. In FY 09, Stormwater/Environmental Compliance Division staff reached out to over 21,000 people and distributed approximately 16,500 educational giveaways at KidECO on the California State University, Long Beach campus, the Port of Long Beach Green Port Festival, the Earth Day event at Boeing, Long Beach Unified School District Science Fair, and the Good Neighbor Festival (Appendices 1.20, 1.21, 1.22, & 1.23). In addition, the City’s Stormwater Program’s Web site is a great vehicle for educating the public and announcing important information about storm water projects.

Table 5-1: STORMWATER/ENVIRONMENTAL COMPLIANCE OUTREACH

Event	Attendees	Giveaways
KidECO – CSULB	1,000	1,000
Green Port Festival	10,000	10,000
Earth Day at Boeing	1,200	1,000
LBUSD Science Fair	8,000	4,000
Good Neighbor Festival	800	500
Coastal Cleanup Day		500
Total	21,000	17,000





The City of Long Beach’s diverse population creates a unique challenge for conveying storm water information to recipients of outreach and public education efforts. The Stormwater/Environmental Compliance Division is always looking for new opportunities to deliver the message. Promotional items such as magnets, pencils, stickers, and rulers are made available and informational literature is printed in several different languages (English, Spanish and Khmer).

The Stormwater/Environmental Compliance Division continues to take advantage of the Adopt-A-Waterway program, which has expanded to become the EcoZone program of EcoMedia, LLC. The new EcoZone program is no longer limited to water quality but now also includes air quality, energy conservation, and preservation of parks and greenspace. EcoZone brings together city and state governments with corporate partners to address critical environmental challenges. This national public-private partnership helps cities support ongoing and new environmental projects and initiatives at no additional cost to taxpayers. The program brings revenue into the City specifically for storm water pollution prevention and education and educates the public with its signs. Each sign is installed with an environmental message, such as “Please Do Not Litter,” displayed below the corporate sponsor’s information.

The Environmental Services Bureau (ESB) staff participated in 37 events and meetings to promote environmental programs in FY 09. These included neighborhood association meetings; safety, community, and environmental fairs; and composting workshops.

Table 5-2: ENVIRONMENTAL SERVICES BUREAU OUTREACH

Outreach and Education	13	# of schools visited by TREC Program.
	7	# of schools starting a recycling program.
	14	Community, Safety, Env. Fair attended.
	10	Neighborhood Association Meeting attended.
	12	Composting Workshop given.

As mentioned in the Public Agency Activities Section, ESB displays street pole banners with the “Litter Free Long Beach” slogan and banners promoting motor oil recycling as a



behavior that will lead to cleaner beaches and waterways. ESB frequently made use of the *Wave* publication by inserting an environmental tip, slogan, or educational piece. The *Wave* is printed in Spanish and Khmer, in addition, to English and is mailed with utility bills to approximately 170,000 residents. ESB also advertises in local newspapers and has numerous flyers, posters, and campaign giveaways. In addition, ESB has an informational and reporting hotline, 562-570-2876, which is staffed by five full-time employees (FTEs) Monday through Friday and one FTE for a half day on Saturdays. After-hours callers have the option to leave a message in the hotline voicemail box, which has a next business day response time.

The **Developer Information Program** continues to be used by the Development Services Department to educate contractors, developers, and “do-it-yourselfers.” In addition, permit applicants have access to staff at the Development Services Center during normal business hours. Information about storm water management, applicable BMPs, various brochures, pamphlets, handouts, and related permit requirements are made available in the Development Services Center on the fourth floor of City Hall and via the City’s website.

Water Conservation is a top priority of the Water Department, especially the Long Beach Board of Water Commissioners. Drought conditions of the past several years have made water conservation mandatory. In FY 08, the Water Department implemented an emergency water shortage plan that prohibited washing down sidewalks, driveways, and gutters with a regular hose, banned over irrigation, and limited the days and hours that watering is allowed. In FY09, approximately \$250,000 was spent to educate residents and business owners about these prohibitions. As a result, Long Beach recorded a record 10-year low for water use in November 2008 (Appendix 1.24).

Implementation of conservation BMPs is ongoing and a variety of educational outreach programs are integral parts of the Water Department’s master plan. The “Water Ambassador” volunteers of the Water Department routinely attend events throughout the year to promote water conservation and water quality issues. The Department continues to make use of a mobile, interactive water conservation kiosk, which rotates among different City buildings for display and use in the lobby area. Landscape/gardening education classes, which address issues such as water conservation and fertilizer/pesticide use, are sponsored by the Water Department. These are examples of how the City of Long Beach exceeds its NPDES permit requirement (Part 3,I, A, 2,f, Water Conservation Practices).



El Dorado Nature Center of Long Beach Parks, Recreation and Marine serves as an important arm of the City's public information and education program for NPDES. The following are brief descriptions of educational outreach programs that address issues of non-point source pollution and storm water management as defined by our permit. Nature Center programs described include:

- 1) Adopt-A- Beach,
- 2) Adopt-A-Wetland
- 3) Special Event Cleanups
- 4) Colorado Lagoon Wetland and Marine Science Education Center,
- 5) Protect Our Watery World (POWW) Movable Museum,
- 6) Educational Outreach Fairs and Festivals

1) Adopt-A-Beach is an ongoing conservation program that works in conjunction with the California Coastal Commission, allowing school clubs, businesses, churches, community associations and other groups to get involved by agreeing to clean up a quarter mile section of the Long Beach shoreline four times annually. People of all ages and diverse backgrounds have become part of the solution to ocean pollution, enlarging public awareness that trash on the land inevitably becomes trash on the beach and in the ocean. With more people becoming aware of the issues with marine debris and pollution during the 2008-2009 fiscal year, more than 6,500 volunteers worked over 12,600 hours to combat non-point source pollution on city beaches.

2) During the 2008-09 year, the Adopt A Wetland staff reevaluated the program to focus more on the urban run-off produced from the Los Angeles River that collects in the Golden Shore Marine Reserve located at the mouth of the river. The monthly program now holds wetland cleanups solely at the marine reserve, and offers a 9 month service learning program for high school students that has been partially funded by the California Coastal Commissions "Whale Tail Grant" program. This year over 400 students participated in the pilot program, gaining valuable information about the wetlands, and helping to remove over 2000 lbs of debris.

3) Special cleanups this year included:

- a) The year's largest event in terms of volunteer participation was the 25th Annual California Coastal Cleanup Day on September 19th. This year, Long Beach had over 1,600 volunteers help to remove over 3 tons of trash from 8 locations along the coast.



- b) The Nature Center joined with Friends of the Los Angeles River (FoLAR) in hosting "La Gran Limpieza" The Great Los Angeles River Cleanup for the local community. Over 100 volunteers assisted in removing 600 lbs of trash from the mouth of the Los Angeles River and Golden Shore Marine Reserve.

4) The Nature Center continued to offer wetland education programs at the Colorado Lagoon Wetland and Marine Science Education Center. This year 40 programs were given to over 1100 local students on the importance of wetland ecosystems, their place in our local watershed and water quality and its effects on marine life. Because of the pending Colorado Lagoon restoration project, the Aquatic Stewardship staff created a new school program that will be offered at two beach sites along the Long Beach coast. The new "Explore the Shore" program is aimed at educating elementary school children on the effects of urban run-off to our local watershed and coastline. Activities within the program give students the opportunity to collect debris data from our local beaches, analyze the origins and hypothesize possible solutions to the problems. The program was piloted to 6 classes during the 2008-09 fiscal year and will begin running in November of 2009.

5) El Dorado Nature Center's Movable Museum program, "Protect Our Watery World" (POWW) continued its program this year sending volunteers into visit approximately 1400 elementary school students. The goal of the program is to spread the word on non-point source pollution, the durability of trash in the marine environment and the harmful effects of trash on ocean animals.

6) Nature Center staff and volunteers educated over 6000 members of the community about stormwater run off and the effects of pollution on marine environments at local fairs and festivals. Some of which included; the 14th Annual LBUSD Science Fair, ECO Kid Fair at CSULB, Water Replenishment District of Southern California's Ground Water Festival, Point Vicente Interpretive Center Whale of a Day celebration, 30th Annual LA Environmental Education Fair, Niemes Elementary School Environmental Fair, Long Beach Water Departments Earth Day Celebration, and the Boy Scouts of America Scout-O-Rama event.

5.2 COMMERCIAL / INDUSTRIAL ESTABLISHMENTS

The City's Department of Health and Human Services (DHHS) conducts educational site visits to distribute and discuss applicable BMP and educational materials to business owners/facility operators. The visits include information about the City's



Municipal NPDES permit and requirements regarding Notices of Intent (NOI) and Storm Water Pollution Prevention Plans (SWPPP). DHHS has enhanced its database that is used to track visits and other information. Additionally, we have continued our outreach to local businesses via our Chamber of Commerce Membership.

5.3 SCHOOL CHILDREN

The City found through surveys and direct contact that the **Windows-On-Our-Waters Tidepool Cruiser** used for LBUSD outreach efforts was so well received that continued funding in FY 09 was more than justified. This mobile educational vehicle addresses many of the critical issues of non-point source pollution and its effect on the marine environment in an exciting, innovative, and hands-on way. Participants are given the tools they need to decide for themselves the type of impact they will have on the beaches and coastal waters.

In FY09, the Tidepool Cruiser reached out to second and third graders at various elementary school campuses, including: Emerson Parkside Academy, Grant, Edison, Garfield, Birney, Gant, and Burnett (Appendix 1.25). Over \$8,000 in revenue from the EcoZone program was used to fund these visits.

The Stormwater/Environmental Compliance Division once again contributed \$4,000 to support **Heal the Bay's Key to the Sea** marine education program (Appendix 1.26). The program provides students, teachers, and informal educators with access to environmental education curricula and hands-on learning opportunities. The program offers professional development workshops for educators, field trips, and bus stipends for field trips to: Cabrillo Marine Aquarium, Roundhouse Marine Studies Lab & Aquarium, SEA Lab, and Santa Monica Pier Aquarium. This year, the program was successful in reaching 1,871 K-5th grade students in the Long Beach Unified School District:



Table 5-3: KEY TO THE SEA

School	Students	Teachers	Field Trip	Bus
Gompers	72	4	2	2
Grant	336	14	7	7
Harte	48	2	1	1
Hudson	94	5	2	2
Jane Addams	167	9	3	1
Lincoln	50	2	1	1
Los Cerritos	36	1	1	1
Lowell	38	2	1	1
Mark Twain	99	4	2	0
McKinley	126	5	3	3
Patrick Henry	85	4	2	0
Riley	93	5	2	0
Roosevelt	148	8	3	3
Tincher	33	1	1	1
Webster	46	2	1	1
Total (15)	1,871	68	32	24



This year, the Stormwater/Environmental Compliance Division also contributed \$5,000 to Aquarium of the Pacific. The funds benefited the Cesar Chavez Elementary School *It All Flows to Me* program by allowing free admission to the aquarium along with classroom programs (Appendices 1.29 & 1.30).



TREC, the Traveling Recycling Education Center, is used by the Environmental Services Bureau (ESB) staff to spread the recycling and anti-littering message to the Long Beach community at public events and to students of LBUSD. During FY 09, the TREC mobile classroom made a total of 13 visits to LBUSD schools, making 45-minute presentations to 1,900 students. In addition, ESB has assisted 7 LBUSD schools in establishing recycling programs in FY 09.

The Long Beach Health and Human Services Department’s Bureau of Environmental Health continues to run **The Junior Health Inspector Program**, which teaches children to recognize the benefits of living in a healthy and safe home and ways to improve the environment in their community. Upon completion of the program, students are able to



use techniques to reduce and eliminate hazards in the home. The health hazards include mold contamination, lead poisoning, storm water pollution, vector, household hazardous waste and unintentional injuries. The program began in March 2004 and reached 106 students in FY 09 for a total of 3,330 over the past 5 years.

5.4 CITY EMPLOYEES

City employees are educated about storm water issues through web-based trainings, flyers, displays, internet, the City's LBTv8 programs, and other viable means. The Stormwater/Environmental Compliance Division pays to send employees to appropriate external training workshops.

Many Departments incorporate NPDES training into their regular training and safety meetings. The City has web-based Stormwater Training Material, Storm Watch. This video training program describes the fundamental concepts and practices of stormwater pollution prevention for municipal operations, and the negative effects of pollution on people, wild life, and the environment. The primary focus of the video is on Best Management Practices. Viewers have the option of taking a quiz after watching the video.



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6.0 ASSESSMENT

The Long Beach Stormwater Management Program (LBSWMP) continues to be implemented, revised, and expanded as needed to ensure the effective reduction of urban and storm water pollution. The effectiveness of these efforts, as detailed in this report, is confirmed by qualitative and quantitative methods. The methods include surveys, pre and post assessment, feedback received via hotlines and Internet sites, a hands-on interactive NPDES Task Force, one-on-one interaction with (9) Council members and their staff, and monitoring. Three major reporting and informational hotlines remain available to the public 24 hours per day: 570-DUMP (Storm water), 570-2876 (Refuse), and 570-4199 (Beach Advisory). Despite large fiscal deficits, in FY 09, the City spent \$25,914,530 (\$52 per capita) on NPDES-related expenditures. This is almost a three percent decrease in spending from FY08, or a \$3 decrease per capita(Appendix 1.17) Considering the tough economy, this is not a large decrease.

The successes of the Long Beach Stormwater Programs are directly attributable to the fully implemented LBSWMP and the level of commitment from the City Manager (Appendix 1.30), City Council, the Mayor and all City staff. The full implementation of the requirements of the municipal MS4 permit is a prime example of how City employees are "Working Together To Serve." The programs highlighted in this report demonstrate a consistent effort to perform at a level above and beyond what's required.

6.1 ASSESSMENT OF MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

Overall, the City spent \$11,810,641 (46 percent of LBSWMP expenditures) for expenses associated with Public Agency Activities. This represents a 19 percent decrease from last year.

The Litter Abatement and Awareness Campaign, targeted towards changing residents' behavior, continues to be very successful. Neighborhood cleanup events are held as part of this campaign. There was a 19 percent increase from last year in the number of volunteers (1,631 total). The campaign also sponsored 84 community and business corridor cleanups this year, which is a significant increase (51 percent) compared to the year before. Another achievement includes engaging 305 businesses to participate in the "No Litter Zone" program.

This year a household hazardous waste roundup was conducted and the collection results were impressive. There was an increase of certain types of materials collected



compared to last year. For example, there was a 38 percent increase (38,150 pounds) in e-waste collected and a 194 percent increase (8,840 pounds) of batteries collected. In addition, participants turned in 1,200 gallons of used motor oil, 13,750 gallons of paint, and 765 computers.

The Department of Parks, Recreation, and Marine continues to be a vital component in preventing storm water pollution. The Department helped make the 25th Annual Coastal Cleanup a great success.

In FY 09, street sweeping continued to prove itself as an effective BMP with the collection of 10,050 tons of materials. Although, "Refuse Collection" is not recognized as a direct "NPDES" expense or measure, it deserves recognition. In FY 09, 194,100 tons of waste was removed from City managed routes at a cost of \$25,267,593.

Public Works inspectors are assigned to active construction sites and are routinely in the field to make sure construction work is conducted as specified in the contract or Public Works permit and take enforcement action as needed. In FY 09, Public Works inspectors filed 445 NPDES Inspection Reports.

6.2 ASSESSMENT OF MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

Development Planning and Construction costs decreased by \$60,036, a two percent decrease from FY 08 to FY 09. There were 19 new projects requiring SUSMPs, none of which were completed this year. There were 1,546 fewer inspections, a 32 percent drop from the previous year, which may be reflective of the troubled economy.

6.3 ASSESSMENT OF MANAGEMENT PROGRAM FOR ILLICIT DISCHARGES AND ILLICIT CONNECTIONS

The expenditures associated with Illicit Connections and Illicit Discharges detection increased by \$58608, a four percent increase compared to FY 08. City departments remain committed to investigating, and if found, eliminating illicit discharges and connections. Notice of suspected illicit discharges and connections come from many sources, including the public through the 570-DUMP hotline, www.lbstormwater.org website, and by directly reporting to City employees. Calls and e-mails are responded to immediately with collaboration among departments.



6.4 ASSESSMENT OF MANAGEMENT PROGRAM FOR EDUCATION AND PUBLIC INFORMATION

There was not a significant change (2 percent increase) from last year's expenditures related to this program element. This year, 15 percent of public education and outreach was attributed to informing resident and business owners about water conservation and use prohibitions. As a result, the Water Department continues to record less water usage, which results in less runoff reduction.

This program element is one of the most important components of the LBSWMP because its goals include awareness and behavioral changes leading to tangible improvements in our local environment.

6.5 ASSESSMENT OF WATER QUALITY MONITORING CITY OF LONG BEACH STORMWATER MONITORING REPORT 2008/2009

This report provides a summary of the results of the tenth year of monitoring conducted under the terms of Order No. 99-060 National Pollutant Discharge Elimination Systems Municipal Permit No. CAS004003 (CI 8052) for City of Long Beach. Included in this report is a synthesis of key elements of the data set as developed over the duration of the program. The following section provides a summary of the background and purpose of the monitoring program. This is followed by a summary of key findings based upon the full ten years of monitoring.

BACKGROUND AND PURPOSE

Under the terms of Order No. 99-060, the City of Long Beach was required to conduct a water quality monitoring program for stormwater and dry weather discharges through the City's municipal separate storm sewer system (MS4) beginning in the 1999/2000 wet weather season. The permit was initially issued for the term of five years. At the end of the initial five years the City was directed by the Regional Board to continue operating under the 1999 permit until further notice. It is expected that the recently approved NPDES permit for Ventura County will serve a model for both Los Angeles County and City of Long Beach NPDES permits.

Major elements of the current monitoring and reporting program include 1) mass emission monitoring during storm events, 2) monitoring of dry weather discharges at each mass emission site, and 3) special studies. Two special studies were conducted



during the past monitoring season to assist in addressing sources and sinks for contaminants in the Los Cerritos Channel watershed and estuary.

Mass emission monitoring is conducted at four sites during four wet weather storm events each year. Monitoring sites specified in the permit are as follows:

- Basin 14: Dominguez Gap Pump Station Monitoring Site
- Basin 20: Bouton Creek Monitoring Site
- Basin 23: Belmont Pump Station Monitoring Site
- Portions of Basins 18, 19, 27 and 29: Los Cerritos Channel Monitoring Site

This element of the program is intended to characterize stormwater discharges, identify contaminants of concern and develop pollutant load estimates for each major watershed. Monitoring is required to be conducted during the first significant rainfall event of the season. Flow-rated, whole storm composite samples are obtained at each site and analyzed for major constituents of concern, which include conventional constituents, total and dissolved metals, organophosphate pesticides and herbicides. Toxicity testing using sea urchin fertilization tests and water flea survival and reproduction is conducted on the composite storm samples from three of the four mass emission sites. Phase 1 Toxicity Identification Evaluations (TIEs) are performed on samples with toxicity in order to determine the likely contaminants contributing to the observed toxicity.

Dry weather monitoring consists of inspections at each mass emission site and the collection and analysis of dry weather discharges over two different separate 24-hour periods during each dry season. This element of the program is intended to identify pollutants of concern and associated toxicity at the mass emission sites during the dry season. Dry weather discharge samples are subjected to the same chemical analysis and toxicity testing used for the stormwater monitoring program.

The purpose of this present report is to submit the results of the City of Long Beach's stormwater monitoring program for the tenth year (2008/2009) under the current permit.

SUMMARY OF RESULTS

The 2008/2009 season marked the fourth season in a row of below normal precipitation, further intensifying Southern California drought conditions. The last storm season with above normal precipitation was 2004/2005 when rainfall was approximately twice the seasonal averages. Normal precipitation for September through April at the Long Beach



Airport is 12.51 inches. This season, a total of 9.29 inches of rainfall was recorded at the airport. Compared to normal precipitation at this site, there was a 3.22 inch deficit for the season or 74% of normal.

Two dry weather inspections/monitoring events were conducted during the 2008/2009 monitoring year. These surveys are conducted during the summer dry weather period at each of the four mass emission stations. A total of 20 dry weather surveys have now been conducted since issuance of the permit in 1999. Dry weather surveys are scheduled around periods with extreme low tides since the Bouton Creek site is intertidal and requires an extended period of low water to flush out the saltwater such that only dry weather discharges can be sampled. No dry weather sampling was conducted at the Belmont Pump Station this year since all dry weather flows have been diverted to the sanitary system.

The first dry weather survey was conducted on July 2, 2008. The second dry weather survey was initiated on May 7th, 2009 once winter rains had subsided. Dry weather inspections were conducted at all four mass emission sites. This included inspections at the Belmont Pump Station to verify that the sanitary bypass was working and the Dominguez Gap Pump Station which, to date, has not had dry weather discharges. During both the July and May surveys, dry weather flows at Bouton Creek were not sufficient to obtain a representative sample. Due to the low flows, saltwater from Alamitos Bay represented significant percentages of the water draining from the channel. This condition persisted up to the time tidal waters once again began to enter Bouton Creek.

Stormwater monitoring was intended to be conducted during four events at each site. Due to a variety of factors including drought conditions, a set of defective batteries and the lack of rainfall events meeting the necessary antecedent conditions, the full complement of storm events was not captured at each site. Two to three full sampling events were captured at the Belmont Pump Station, the Los Cerritos Channel, Bouton Creek and the Dominguez Gap Pump Station. The first storm event occurred on November 25th and 26th, 2008. Representative stormwater samples were collected at the two pump station sites that were not dependent upon deep cycle batteries. The next two monitored events, December 15, 2008 and February 5 and 6, 2009, resulted in successful sampling at all four stations for the complete suite of water quality analyses. An attempt was made to sample another storm event on February 13th and 14th but rainfall was below levels predicted by the NOAA quantitative precipitation forecast and, as a result, failed to meet minimal volume requirements for a full storm event. Runoff



samples from both the Bouton Creek and Los Cerritos Channel sites were used as TSS events.

Included in this year's report are the results of two special studies. The first was designed to document concentrations and loads of both copper and bacteria in dry weather flows to the open channel portion of the Los Cerritos Channel. The second was a study designed to obtain contemporary information on the distribution and concentrations of chlordane, other organochlorine pesticides and trace metals in sediments from the estuarine portion of the Los Cerritos Channel. These special studies are detailed in Appendix B and C.

The following sections provide a brief synopsis of the results of the City of Long Beach's 2008/2009 stormwater monitoring program.

WET WEATHER CHEMICAL AND BACTERIAL RESULTS

For the purpose of this report, water quality criteria or objectives were used to provide reference points for assessing the relative importance of various stormwater contaminants, though specific receiving water studies are necessary to quantify the presence and magnitude of any actual water quality impacts. The 2005 California Ocean Plan (SWRCB, 2006), the Los Angeles Region Basin Plan (CRWQCB, Los Angeles Region, 1994), California Department of Fish and Game (Siepmann and Finlayson, 2002) criteria for chlorpyrifos and diazinon, and both saltwater and freshwater criteria from the California Toxics Rule (USEPA, 2000) were used as benchmarks as requested by Regional Board staff. In addition, National Recommended Water Quality Criteria (USEPA, 2002) were used as benchmarks for compounds such as malathion that are not considered to be priority pollutants. Comparisons of stormwater concentrations with various water quality criteria are intended to provide a framework for evaluating constituents of concern and allow for identification of watersheds that could benefit from additional BMPs or source identification/reduction efforts.

Benchmark reference values have been often exceeded for dissolved forms of copper, lead and zinc throughout the life of the permit (Kinnetic Laboratories, Inc., 2007). These metals continue to exceed benchmark criteria at all sites. Dissolved copper exceeded both CTR freshwater criteria and CTR saltwater criteria in 100% of the stormwater samples this wet season. Concentrations of dissolved lead and zinc only exceeded the CTR freshwater criteria. Concentrations of dissolved lead exceeded the CTR freshwater



criterion in 70% of the samples. Dissolved zinc exceeded the CTR freshwater criteria in 60% of the stormwater samples.

Other than bacteria, few other contaminants have exceeded benchmark values but the persistence of low levels of certain chlorinated pesticides is a concern. Chlorinated pesticides are far less common in stormwater both due to strong associations with sediment and the fact that most have been banned for over 20 years. Despite this fact, chlordane compounds were detected in 70 percent of the stormwater samples and in all three monitored events at the Belmont Pump Station. The Event Mean Concentration (EMC) for chlordane during the first monitored event at the Belmont Pump Station was 0.336 µg/L. This is the highest concentration measured at any monitoring station since the program was initiated 10 years ago.

Another organochlorine compound, toxaphene, was detected in stormwater from all monitoring locations during the December storm event but was again highest in stormwater discharges from the Belmont Pump Station.

Among the most substantive long term changes continues to be the increased frequency of stormwater discharges from the Dominguez Gap Pump Station. During the early years of the City's stormwater monitoring program, discharges from this site were unusual. They typically only happened after a series of large, closely spaced storm events caused the infiltration basin to fill to the point that additional rainfall would induce discharges. In addition to the limited numbers of discharge events, concentrations of stormwater contaminants were consistently low. Since construction started on development of the Dominguez Gap wetlands, discharges have increased in frequency despite rainfall being well below normal during the past two year. Stormwater discharges at this location are expected to remain a common occurrence with completion of the wetland construction, development of the wetland vegetation and the installation of the summer pump.

Along with the increase in frequency of discharges, measured concentrations of TSS and several trace metals have been elevated relative to previous concentrations measured at this site. During the construction phase, TSS and dissolved lead concentrations were among the highest recorded at this site. During the 2008/2009 season, concentrations of TSS and dissolved lead associated with stormwater discharges showed signs of returning to levels more consistent with the preconstruction period. As this site is still not operating as designed, we expect to see further improvements in water quality as the flow regimes are stabilized and water levels within the wetlands are better managed in anticipation of storm events.



DRY WEATHER CHEMICAL AND BACTERIAL RESULTS

Water quality of dry weather discharges has been generally consistent over the past nine years. Dry season water quality has not tended to vary greatly between sites or sampling dates. This year dry weather monitoring was limited to the Los Cerritos Channel due to the diversion to the sanitary system at the Belmont Pump Station and insufficient flow at the Bouton Creek site. In general, the concentrations of suspended particulates and total recoverable metal concentrations are low in dry weather runoff monitored by the City. Trace metals are predominantly in the dissolved form and hardness is also consistently high which tends to mitigate the effects of the dissolved metals. As a result, most trace metals were below CTR freshwater criteria during both dry weather sampling events.

As in all previous years, copper remains the primary constituent of concern in dry weather discharges. The chronic CTR freshwater and the Ocean Plan criteria were both exceeded in one of the two surveys conducted at the Los Cerritos Channel site. The chronic CTR saltwater criterion for copper was exceeded in both surveys. Overall it is relatively uncommon for dissolved copper to exceed the CTR freshwater criterion due to the elevated hardness of dry weather discharges but historically exceedances of these benchmarks have been most frequent at the Los Cerritos Channel site. Dissolved copper was 5.7 µg/L in July, 2008 and 13 µg/L in May 2009.

As in all previous years, no dry weather discharges were observed from the Dominguez Gap Pump Station. Dry weather discharges are expected to become common at this site as water diversions from the Los Angeles River are increased to support the constructed wetlands. At the time of the last dry weather survey, the system was still not operating as expected due to maintenance work necessary to bring the new, electric summer pump back on line.

TEMPORAL TRENDS IN CONSTITUENTS OF CONCERN

- Each year, long term trends have been examined for selected trace metals and organic compounds, TSS, and bacteria. With extremely few exceptions, data from the 2008/2009 storm events continue to confirm patterns that were established in the first few years of monitoring. These include the following: Dissolved concentrations of cadmium, copper, and nickel do not vary substantially between wet and dry weather periods.
- Concentrations of dissolved zinc and lead are often higher during storm events than during dry weather sampling events.



- Concentrations of total copper, lead and zinc are consistently higher in association with storm flows.
- The decline in concentrations of chlorpyrifos and diazinon in stormwater at all sites remains one of the most significant temporal trends. Neither of these organophosphate compounds was detected in stormwater or dry weather discharges during the 2008/2009 monitoring year.
- Malathion, another organophosphate pesticide, continues to be commonly detected in stormwater at levels exceeding national nonpriority pollutant guidelines but has not been implicated as a source of significant toxicity.
- Historically, concentrations of total trace metals in stormwater from the Dominguez Gap Pump Station were notably lower than the other monitoring locations but over the past two years concentrations of total copper, lead and zinc are showing signs of increases to levels comparable to other sites. This is concurrent with increasing concentrations of suspended solids.
- Fecal indicator bacteria typically exceed Basin Plan water quality criteria during both wet and dry weather monitoring although dry weather monitoring was limited to the Los Cerritos Channel site this past year

TOXICITY RESULTS

No significant daphnid mortality was seen at any of the three stations in any of the three storms collected. Minor water flea reproductive toxicity (2 TUc) was detected at the Belmont Pump station during the first and second storms of the year. In the second storm, Bouton Creek data showed fairly high reproductive toxicity (16 TUc) and Cerritos Channel data showed 4 TUc of reproductive inhibition. The complete absence of acute toxicity and the very low within-test variability in this test event suggests that the apparent toxicity of these samples reflects statistical sensitivity rather than “real” sample toxicity. No chronic toxicity to water fleas was detected any station in samples from the third storm.

Toxicity to sea urchin fertilization was not detected at any of the stations, during the first storm event, nor was there measurably decreased fertilization in Belmont Pump samples from any of the three storms. The December storm produced moderate urchin toxicity (8 TUc) at the Bouton Creek station, but no toxicity at the Los Cerritos Channel monitoring station. The Bouton Creek sample data showed very low within-test variability, and the 8 TUc observed was probably unrealistically high. There were 4 TUc in the Los Cerritos Channel sample from the third storm but no toxicity in stormwater runoff from the Bouton Creek watershed.



The frequency of stormwater toxicity to sea urchins at the Long Beach mass emission monitoring sites during this monitoring period (29%) was decreased from 42% last year, from 100% in the 2006/2007 study, and also decreased from the 70-75% seen in the 2004/2005 and 2005/2006 programs. The magnitude of stormwater toxicity to sea urchins was also decreased from that seen in previous years. Compared with stormwater samples from other southern California watersheds the Chollas Creek (San Diego) and Ballona Creek (Santa Monica) urchin results were overall more similar to Long Beach than were the Los Angeles River and San Gabriel River results, as the Chollas and Ballona Creek samples were obtained from smaller highly urbanized watersheds.

- No dry weather toxicity testing was done at Belmont Pump because dry weather flows are now bypassed to the sanitary sewer. Bouton Creek did not have sufficient flow for sampling in either spring or fall so there are no dry weather data for Bouton either. Minor lethal and reproductive toxicity (2 TUc) to *Ceriodaphnia* was measured in the July dry weather samples from the Los Cerritos Channel.
- Dry weather samples from Los Cerritos Channel produced substantial chronic toxicity to sea urchins in July (16 TUc) but not in the May sample (2 TUc).
- Toxicity to urchins at the Los Cerritos Channel station was present in both wet and dry weather samples with the dry weather sample showing a higher TUc value. With the exception of the problematic elevated TUc in the second storm, toxicity to water fleas was very low at Cerritos in both wet and dry weather samples.
- The low acute toxicity values observed in both wet and dry weather bioassays did not trigger performance of any TIEs in the 2008/2009 monitoring program. Correlation analyses of chemical data with toxicity data were performed on combined data from all stations and also on data from each of the individual stations. Conventional pollutants are correlated with daphnid toxicity at Bouton Creek and the Los Cerritos Channel but not at Belmont. Dissolved cadmium copper, lead, nickel, and zinc are positively correlated with daphnid toxicity at the Bouton Creek and/or Los Cerritos Channel stations, but only with cadmium and lead at the Belmont Pump Station. Urchin toxicity is correlated only with cadmium and lead and only at the Los Cerritos Channel station. The observed versus predicted acute toxicity approach was of limited use in the present program because of the absence of sufficient acute toxicity. Although acute toxicity was not evident, concentrations of the key constituents of concern also did not indicate that toxicity should have been expected.



LOS CERRITOS CHANNEL DRY WEATHER COPPER AND BACTERIA SOURCE TRACKING

Three dry weather surveys were conducted in open channel portion of the Los Cerritos Channel Watershed located within the City of Long Beach.

- Flows measured at the Los Cerritos Channel Stearns Street monitoring station were 1.32 cfs during the first survey, 0.67 cfs during the second and 0.37 cfs during the final survey. These reflect a general decrease in dry weather runoff at this location.
- The percentage of copper in the dissolved form ranged from 62% in the second survey to 88% in the first survey. This compares to the roughly 80% dissolved copper in Ballona Creek dry weather investigations but is far less than the CTR default value of 96% used for developing the draft TMDL limits in terms of total recoverable copper.
- Dry weather discharges sampled in from the main channels and the outfalls had very different water quality characteristics. Water in the main channels was typically warmer by 2-3°C, had pH levels in excess of 1 full unit higher, had twice the oxygen content and twice the turbidity. There was no consistent pattern of differences between dry weather flows sampled in the main channel and water from outfalls. Concentrations of fecal indicator bacteria were consistently higher in water sampled from the outfalls but this was most evident in the case of total coliform where the geometric mean of water from outfalls was an order of magnitude greater than in water from the main channels.
- Copper was measured at 1500 ug/L (total) and 750 ug/L (dissolved) in water coming from the enclosed portion of the Clark Channel at the northern boundary of the City of Long Beach. The water was high in conductivity (4.92 mS/cm) and hardness (1800 mg/L). The water also had the lowest pH (7.7) of any channel site. The water temperature was among the lowest measured in the open channels but comparable to other channel sites where water was exiting a closed conveyance.
- Exceedances of the CTR chronic criterion for dissolved copper occurred commonly during all three dry weather surveys (**Error! Reference source not found.**). Overall 23 of the 70 samples taken in the main channels exceeded the chronic CTR criterion. Six of these exceeded the acute CTR criterion. A similar fraction of the 48 outfall samples also exceeded the CTR chronic criterion. Six of the outfall samples also exceeded the acute criterion.
- A few cases of exceptionally high concentrations of total recoverable and dissolved copper were encountered during the study but no systematic pattern



was evident through all surveys. During the first survey, copper was measured at 1500 ug/L (total) and 750 ug/L (dissolved) in water coming from the enclosed portion of the Clark Channel at the northern boundary of the City of Long Beach.

- Total copper loads measured at the Stearns Street monitoring site were 38.6 g/day during the first survey, 31.3 g/day during the second survey and just 6.8 g/day during the third survey. **In all cases, loading rates for total copper were far below the proposed TMDL Waste Load Allocation of 108.26 g/day.** Thus the highest loading rate measured anywhere in the watershed during all three surveys was still just 40% of the proposed dry weather WLA for the stormwater permittees.

LOS CERRITOS CHANNEL ESTUARY CHLORDANE AND METALS SEDIMENT SURVEY

Much of the upper Los Cerritos Estuary between Atherton and Seventh St. was found to be actively scoured by tidal currents and storm events. The 1.3 miles of the estuary extending from the Atherton St. Bridge to the LCE 4 sampling location had similar bottom characteristics. All four sites along this portion of the Estuary were characterized by hard, dry clay layer that was difficult to penetrate. At LCE 1 there was no evidence of depositional sediments. The bottom consisted of a hard, dry clay covered by a thin algal mat. Sampling sites LCE 2, LCE 3, and LCE 4 showed evidence of thin layers of sediment over the top of the clay layer. A depositional layer was first evident at LCE 2 but the layer of unconsolidated sediment was thin (approximately 5 centimeters) and relatively sandy. The thickness of the depositional layer increased slightly at LCE 3 and LCE 4 and showed evidence of increasing levels of finer grained material.

The physical characteristics of the sediment at both the LCE 5 and LCE 6 sampling sites were substantially different. The hard clay layer underlying the very channelized, upper 1.3 miles of the Estuary was not evident at these sites. The sediment at both these sites was less than 50% solids compared to sediments from the upper portion of the estuary (LCE 1 through LCE 4) that contained 68 to 83 percent solids.

Chlordane compounds remain an issue of concern in sediments of the Los Cerritos Estuary. Concentrations were at or near the Effects Range Median (ERM) level at three of the four sites sampled in the upper portion of the Estuary. Only traces of two chlordane compounds, chlordane-gamma and trans-nonachlor, were detected at the LCE 1 sampling site. This was clearly due to the fact that tidal currents and storm flows are preventing the accumulation of any substantial quantities of sediment. Chlordane compounds measured in sediments from the lower portion of the estuary were over four



times the ERM and concentrations at both sites far exceeded the 1994 BPTCP and 2003 Bight survey results.

DDT compounds followed similar distributional patterns except that concentrations never exceeded ERMs. Concentrations in sediments from the four sites in the upper Los Cerritos Estuary ranged from below detection limits at LCE 1 to 10.2 at LCE 3. Concentrations of DDT were again highest at LCE 5 (23.8 ng/g-dry wt) and LCE 6 (19 ng/g – dry wt). These values represent roughly a three-fold increase relative to the Bight '03 survey results at the same locations

Trace metals were moderately elevated at the two survey locations in the lower portion of the Estuary. Five metals exceeded the Effects Range Lows (ERLs) at each of these sites but none exceeded ERM benchmarks. ERLs were exceeded by two to three metals at most other survey sites. There is little evidence of substantive changes in concentrations of metals at LCE 5 and LCE 6 since they were last sampled in the Bight '03 Survey.

Overall, the two survey sites in the lower portion of the Los Cerritos Channel Estuary showed the highest level of contamination. Storm events which transport thousands of tons of sediment every year are the most likely source of contamination since organochlorine pesticides, in particular, are strongly associated with suspended sediment. Alternative sources from Marine Stadium and Alamitos Bay cannot entirely be eliminated due to the flow reversals in this portion of the estuary caused by the pumping of cooling water for the AES power plant.

RECOMMENDED PROGRAMATIC CHANGES

Several minor adjustments to the NPDES monitoring program are recommended based upon the results of the 2008/2009 monitoring period as well as work conducted over the past ten years. Two of these recommendations were also suggested last year but, lacking official authorization, these changes were not incorporated into the 2008/2009 monitoring year. These minor adjustments include elimination of 1) analysis of the triazine pesticides and 2) dry weather monitoring at the Dominguez Gap Pump Station. In addition, we recommend establishing a new upstream sampling location for the Bouton Creek watershed that would enable successful quantification and sampling of the lower dry weather flows now being experienced in this watershed.



Triazine Pesticides

Over the past two years we have recommended that triazine pesticides should be excluded from the analytical set. The only triazine pesticides detected in stormwater or dry weather discharges have been prometon, simazine, and atrazine. All typically occur at levels of less than 10 times the reporting limits which have been progressively lowered over time.

Simazine was the only compound in this group that was detected in stormwater during the 2008/2009 monitoring season. It is also the most common triazine herbicide detected in stormwater since the start of the monitoring program. Simazine was measured in stormwater from the Los Cerritos Channel at a concentration of 0.0861 µg/L with a reporting limit of 0.01 µg/L.

Prometon was not detected this year but historically it has been most common triazine in dry weather discharges. Atrazine was measured in a dry weather sample from the Los Cerritos Channel on only one occasion during the 2007/2008 season. The reported concentration for atrazine was 0.014 µg/L, which is less than twice the reporting limit of 0.01 µg/L. The uncommon occurrence of the triazine pesticides in both stormwater and dry weather flows combined with the very low concentrations measured in stormwater and dry weather flow continue to provide support for elimination of these constituents from the analytical suite.

Suspension of Dominguez Gap Dry Weather Monitoring

Since this program started in early 2000, the Dominguez Gap Pump Station has never been observed to have dry weather discharges due the large infiltration basin adjacent to the site. This continues to be the case but it is still expected that the Pump Station will be operating as originally designed. The County anticipates that problems with the electric pump will be resolved by August such that constant flow can be maintained through the wetlands. Since the Los Angeles River will be providing the source water for maintenance of the wetlands any discharges during the summer months will not be representative of dry weather flows from the City of Long Beach storm drains. We therefore recommend removal of requirements to inspect this site and measure water quantity and quality associated with any dry weather discharges that might be observed at this site in the future.

Wet weather monitoring at the Dominguez Gap Pump Station should continue until the effects of operating the Pump Station for both management of the wetlands and



stormwater are better understood. An alternative mass emission site may need to be considered if maintenance of the wetland system continues to result in substantial and unquantifiable contributions from the diverted Los Angeles River water.

Investigation of Alternative Site for Bouton Creek Dry Weather Monitoring

Although the decrease in dry weather flows in Bouton Creek over the past few years has been a positive result for the stormwater program and water conservation efforts, better documentation of the diminishing flows and associated water quality would be beneficial. A reconnaissance effort is scheduled to be conducted during the summer to locate an upstream site that is accessible and either unimpacted by tidal effects or where tidal effects are at least minimized. If a reasonably secure, accessible site can be located, portable sampling equipment will be used for the 24-hour dry weather sampling efforts. Observations would be conducted to identify outfalls with dry weather flows that are located between the existing mass emission site and the dry weather sampling location to qualitatively identify potential sources that would be missed while conducting dry weather sampling at an alternative upstream site. It is expected that any dry weather discharges missed by moving the dry weather sampling site would be compensated by better flow measurements and less influence of residual saltwater draining from the algal growths that impede low flow in the channel.

6.6 SPECIFIC HIGHLIGHTS AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD

Despite the financial crisis and other challenges, the City of Long Beach had many accomplishments in FY09. The Beach Outfall Project was completed, resulting in the retrofitting of 150 catch basins. Most of the Los Cerritos Project was also completed and will result in improved water quality for the Los Cerritos Channel. In addition, the City is excited to be one of the 16 cities receiving stimulus funding to retrofit even more catch basins.

An early challenge for Long Beach was the news from the State Water Board that three projects funded by Proposition 40 were being frozen. At that time, the project for the construction of trash nets at pump station SD12 had already gone to bid and was ready to be awarded. However, the City was fortunate enough to receive stimulus funding in order to restart the projects where they left off.

As noted in section one, the ground breaking for Termino Avenue was a major accomplishment for the City of Long Beach, County of Los Angeles, and local residents who have struggled with flooding in their neighborhoods. The water quality



improvements that are included in the project will significantly reduce pollution at Colorado Lagoon, Marine Stadium, and Alamitos Bay.

6.7 SUGGESTIONS TO IMPROVE LBSWMP

The LBSWMP does not adequately address new requirements that will soon come down the pipeline, such as three new TMDLs at the Los Angeles River, Los Cerritos Channel, and Colorado Lagoon. A suggestion is to revisit the plan and develop strategies to specifically address future requirements and the allocation of resources to meet such requirements.

6.8 THE FUTURE

The City of Long Beach will continue to work on the following items in the future:

- Development and Implementation of the City's Underground Storage Tank (UST) Compliance Management System. The goal, to operate and maintain an environmentally safe UST program in accordance with State Water Resources Control Board regulations.
- Implementation of Sanitary Sewer Diversions permanent Sanitary Sewer Diversions at the Belmont Pump Station and at 8th and Roswell (Termino Drain Project)
- Inclusion of structural "TREATMENT TRAIN" BMPs for all new street projects.
- Continue process for approval and implementation of the TMDLs for the Colorado Lagoon.
- Continue development and implementation of the TMDLS slated for, Los Cerritos Channel and the Los Angeles River.
- Begin construction of both the Termino Drain stormdrain project and the Colorado Lagoon Remediation/Restoration project.
- Begin construction of (3) structural BMPs at SD11, SD12 and SD13 to aid with compliance with the LA River Trash TMDL
- Continue to work with LA River Watershed cities on the LA River Metals TMDL (Compliance Monitoring Plan – Ambient Monitoring and the LA River Bacteria TMDL –Development)
- LA River Trash TMDL – Compliance reporting and enhancements.

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