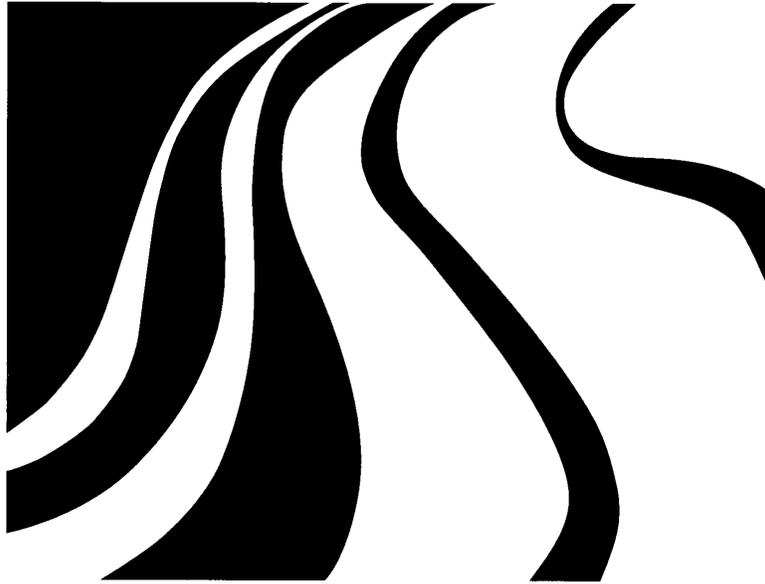


STORM WATER



MANAGEMENT  
CITY *of* LONG BEACH

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

**December 1, 2008**



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### INTRODUCTION

The City of Long Beach Stormwater Management Program (LBSWMP), which is now beginning its **10th** 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 controlling 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 Management Division in the Department of Public Works was recently restructured and renamed the Stormwater/Environmental Compliance Division. Its staff includes one Administrative Analyst, one temporary staff, and a newly budgeted position—Environmental Specialist (unfilled), in addition to the Stormwater/Environmental Compliance Officer. 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, 2007, through September 30, 2008.



### 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, made up 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 Termino Avenue Drain Project; conduct legislative analysis and make recommendations to senior management and elected; negotiate the MS4 permit negotiation 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 Compliance Officer was invited as a guest speaker to highlight the City's NPDES challenges and **successes** at the following major events:
  - "California Water Environment Association ("**CWEA 35<sup>th</sup> Annual PS3 Conference and Exhibition**" – use of a biocidal catch basin "sponge" as a bacterial control BMP, Long Beach, CA – 2/26/08 (Appendix 1.7)
  - "**State Water Resources Control Board**" Hearing: Item – LA River Trash TMDL approval and forward to USEPA – presentation and only municipality present in full support of approval, Sacramento, CA – 4/15/08 (Appendix 1.23)
  - "**Lets Talk Trash**" forum on solutions to pollution in the Los Angeles River– Aquarium of the Pacific, Long Beach, CA - 5/22/08 (Appendix 1.6)
  - "**15<sup>th</sup> Annual Maintenance Workshop-Green Building Exchange**" BMPs and trash control measures in the City of Long Beach, Redwood City, CA – 6/26/08 (Appendix 1.9)

- “CASQA 2008 4<sup>th</sup> Annual Conference” stormwater pump station retrofits for trash and other structural controls, Oakland, CA – 9/22/08 (Appendix 1.12 and 1.13)
- **Stormwater/Environmental Compliance Officer is a Board member for:**
  - EcoMedia National Advisory Board (Co-Chair) (Appendix 1.5)
  - SAVE OUR BEACH <http://www.saveourbeach.org/> (Appendix 1.2)
- **Earthday 2008:**
  - Earthday Recreation Park (Appendix 1.4)
  - Press Telegram Advertorial (Appendix 1.3)
    - Hard Copy Circulation: 249,000 daily
    - Internet: Daily visits: 285,000 with 1.3 million daily page views – it remains posted and viewable online:
      - <http://adserver1.harvestadsdepot.com/medlanlbpt/ss/078506/>
      - (Appendix 1.19)
- **Good Morning America** – Smart Sponge/Los Angeles River Issues – Filmed February 2008 - Aired Nationwide Memorial Day Weekend-2008 (Appendix 1.8) Still posted and viewable at: <http://abcnews.go.com/Video/playerIndex?id=4931102>
- INC Magazine: November 2008 (Appendix 5.14)
- **Termino Drain Project** – \$30M Stormdrain Improvement Project - Construction scheduled to begin 2009 (Stormwater/Environmental Compliance Officer is city liaison):
  - Board of Supervisors Approval (Appendix 1.10)
  - Presentation (Appendix 1.11)
- **Completion of the Long Beach Solar Project at Long Beach Airport** (Program expanded in Fall of 2006 to add Alternative Energy, Air Quality and Green Space development (<http://www.ecozonemedia.com/#/home>)).
  - EcoZone Case Study (Appendix 1.16)
- **Successful submittal of the Los Angeles River Metals Coordinated Monitoring Plan** (Regulatory Requirement of the LA River Metals TMDL) (Appendix 1.18 and Appendix 1.22) (City actively participates as member to both Technical and Steering Committees)





### **PUBLIC AGENCY ACTIVITIES**

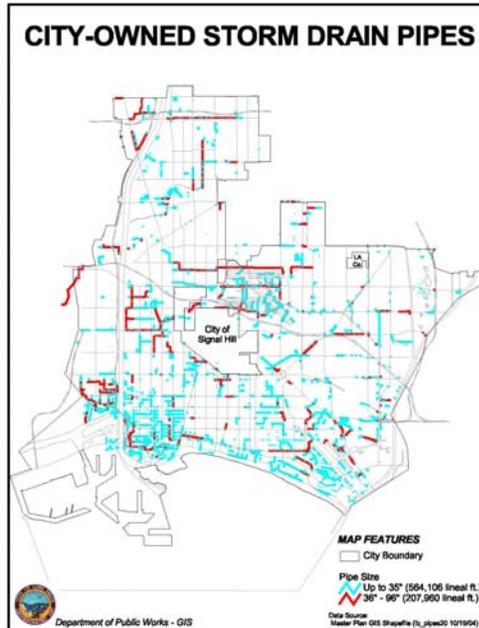
In addition to increased code enforcement, distribution of public construction guidelines, and maintenance of streets, storm drains, and landscapes, the City has emphasized community outreach efforts designed to reduce littering throughout the city. The City's Environmental Services Bureau has continued 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 41 community and business corridor cleanups
- Involved 1,371 volunteers at neighborhood cleanup efforts collecting 147 tons of trash debris and green waste.
- Issued 1,294 litter citations.
- Collected almost 30,000 tons of material through the curbside recycling program.
- Responded to 15,371 Special Item Pickup Program requests collecting 1,870 tons and 938 E-waste requests collecting 39,863 lbs.
- Collected 10,617 tons of trash and debris from street sweeping.
- Filed 464 Right of Way NPDES Inspection reports.

### **DEVELOPMENT PLANNING AND CONSTRUCTION**

In FY 08, there were 4,802 inspections and 19 development projects for which SUSMPs were required, bringing the total SUSMPs completed since the permit was issued to 146. 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 difference. 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.

- The city is currently upgrading its stormdrain GIS/database capabilities in an effort to enhance preparedness and response, control regular and preventative maintenance costs and to ensure sound financial planning for infrastructure improvements, (Appendix 4.2).

**PUBLIC INFORMATION AND EMPLOYEE TRAINING**

Communicating information to residents, school children, commercial and industrial establishments, and City employees about storm water and urban runoff pollution is a priority for the City. In FY 08, the Stormwater/Environmental Compliance Division made use of EcoZone’s EcoMedia program (27 signs/600,00 daily impressions), Heal the Bay’s Key to the Sea program, the Junior Health Inspector program, Windows-On-Our-Waters *Tidepool Cruiser*, Intranet/Internet, and a host of El Dorado Nature Center programs, just to name a few. In addition, three televised interviews featured the City’s stormwater pollution prevention efforts on the Heart of the City, Planet Green, and Good

Morning America. 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. Additionally, EcoZone, which is expanding the type of media used to distribute educational messages, continues to be successful at raising non-taxpayer funds to enhance programs aimed at educating the public about pollution prevention. In FY 08, approximately \$221,500 was generated for the City. As a matter of fact, EcoZone fully funded a “Solar Forest/Green Roof” project at the Long Beach Airport.



Six solar panel units are seen on Solar Lane, a section of the Long Beach Airport by the outdoor baggage claim and cafe area. The system will offset nearly a half million pounds of carbon dioxide emissions. (Diandra Jay / Staff Photographer)



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 rising public safety and overall operational costs. In FY 08, the Long Beach Storm Water Management Plan was implemented at an estimated cost of **\$26,863,474**, which equates to an investment equivalent to \$57 per capita.

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

- An increase in the number of Sanitary Sewer Overflows (SSO) and associated volumes into the Los Angeles River, Colorado Lagoon and Marine Stadium (Appendix C.1.21 and 2.11). This year 29 SSOs (51,504 gallons) was 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 Economy and its catastrophic impacts to the City. Going into FY09 (October 1, 2008), it was known that a funding shortfall may occur based on economic indicators. That shortfall, depending on what the State does, may increase by another \$6 million to \$8 million.
- The addition of more (3) Total Maximum Daily Loads (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 specifically needed for grant funding match monies, for Capital Improvement Program (CIP) projects and special studies aimed at improving water quality.
- Significant cost increases in energy, construction raw materials and labor.
- Permit costs for required programs that are proving not to be cost effective (e.g. MS4 Water Quality Monitoring Program) (Appendix C1.15).



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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## SECTION 2

### 1.0 PROGRAM MANAGEMENT

Section One explains 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 in the amount of time it takes to respond and/or resolve 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 includes process to identify the appropriate City department(s) to respond to storm water/environmental pollution issues.

The department representatives serving as Task Force members oversee proper and timely implementation of the LBSWMP (Appendix 1.1). 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.



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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## SECTION 2

### 1.2 REGIONAL PARTICIPATION (On-going and NEW)

The Stormwater/Environmental Compliance Division staff and other staff within the City are actively involved in a great number of task forces, councils, organizations, and 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 dialogue promoting watershed health and resolving environmental and regulatory issues. The Water Augmentation Study is one of the LASGRWC's current projects, which will explore the potential for increasing local water supplies and reducing urban runoff pollution by increasing infiltration of storm water runoff. The Stormwater/Environmental Compliance Division and the Department of Parks, Recreation and Marine continue to work with the LASGRWC on one of the demonstration project's monitoring locations for this study, located at Veterans Park in Long Beach. The LASGRWC holds regular stakeholder meetings that not only cover organization business, but also include informative workshops. Staffs from the Department of Parks, Recreation and Marine and Stormwater/Environmental Compliance Division attend these meetings to participate in the LASGRWC.

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 objects for the WMMP.



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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## SECTION 2

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 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 (Appendix 6.18).

The City actively and financially participate as a member of the Los Angeles River Metals TMDL Committees. The LARWQCB 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 (WILD), rare threatened or endangered species (RARE), warm freshwater habitat (WARM), wetlands (WET), and groundwater recharge (GWR).

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 and the TMDL subcommittee meetings to assist the EAC with achieving its goals and objectives.



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

## SECTION 2

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 attends and presents applicable projects at these meetings to assist the BMP Task Force with achieving its goals and objectives.

### NEW ACTIVITIES

**Port of Long Beach WRAP** (Water Resources Action Plan) – the Stormwater/Environmental Compliance Officer has just begun working with Port of Long Beach and Port of Los Angeles staff on this action plan. The plan is being developed to assist with TMDLS and NPDES permit development. Current focus areas for potential pollutant control measures include land uses and sources, on-water uses and sources, and watershed issues and sources (Appendix F6.1)

**Breakwater Study** – the Division is actively participating with the City Manager's Government Affairs Office and Departments of Parks, Recreation Marine and Health to conduct a one-year reconnaissance study to determine if there is a federal interest in a study to reconfigure the Long Beach Breakwater (\$100K) (Appendix F6.3 and Appendix F6.4) Additional information may be found at:  
<http://www.longbeach.gov/citymanager/ga/breakwater/default.asp>

**CREST (Cleaner Rivers Though Effective Stakeholder-led TMDL)**  
<http://www.crestmdl.org/about/index.html> As the city moved forward with its Recreational Water Quality Microbial Source Investigation Open Coastal Beach Sites study (Appendix 2.5 and Appendix 2.6), CREST was wrapping up its own study. A partnership between the regional stakeholders was formed, leading to joint presentations and sharing of data/information. The report, appendices, and response-to-comments for the CREST Final Report can be downloaded from their website:  
[http://www.crestmdl.org/studies/bsi\\_final\\_docs.html](http://www.crestmdl.org/studies/bsi_final_docs.html)

The stakeholders re working together on strategies and priorities related to the upcoming LA River bacteria TMDL.

### 1.3 CURRENT PROJECTS

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



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

## SECTION 2

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

### 1.3.1 PUMP STATION TRASH NET INSTALLATION (Ongoing)



## Trash Net Systems

- \$3,725,037 Capital Costs<sup>1</sup>
- Located at five pump stations along LA River (SD1, SD3, SD4, SD5, SD6)
- <sup>1</sup>Includes (2) new slated for SD 12 and SD13 in 2009
- Trash, Debris, Green waste, sediment
- Captured (lbs)
  - Storm season 04/05: 324,745
  - Storm season 05/06: 142,300
  - Storm season 06/07: 167,265
  - Storm season 07/08: 176,520
  - TOTAL : 810,830 lbs
- Maintenance
  - \$9,000 per pump station 3 to 4 times per year on average

This BMP 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 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.

The nets were in place prior to the 2004-2005 storm season. This picture shows the trash nets at pump station SD-6. These have been so successful that the City secured



## MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

### SECTION 2

additional funding and is in the design phase of the planning to install another trash net system at a sixth pump station.

#### **1.3.2 ADDITIONAL LOS ANGELES RIVER PUMP STATION TRASH NET INSTALLATION (IN DESIGN) \$1,444,002**

The Department of Public Works is currently working with \$1,116,000 in State Water Resources Control Board funding from the Urban Stormwater Program Prop 40 grant program and \$382,002 of its own funding to install trash net devices at two pump stations (SD-12 and SD-13). These projects will significantly reduce trash and debris entering the Los Angeles River. These trash net systems are similar to ones located at other City pump stations and have proven to be effective at capturing trash, sediment, and green waste. The trash net project at SD-13 is currently in the design phase and the project at SD-12 will soon go out to bid.

#### **1.3.3 LOS ANGELES RIVER PUMP STATION 12 VSS UNIT (Ongoing)**

This BMP assists with Los Angeles River Trash TMDL compliance. Recognizing that treatment and drainage of storm water from the 91 and 710 freeways was a necessity, the City of Long Beach joined with the State Department of Transportation (Caltrans) to install a vortex separation system (VSS) unit at pump station SD-12. This VSS unit has been so successful that the City is planning to install a second unit at a pump station SD-11.



#### **1.3.4 ADDITIONAL LOS ANGELES RIVER VSS UNIT (IN DESIGN)**

On June 9, 2006, the Department of Public Works submitted a grant application to the State Water Resources Control Board for funding from the Urban Stormwater Program Prop 40 grant program to significantly reduce pollution entering the Los Angeles River. On October 2, 2006, the City was notified that it had been approved to receive grant funding in the total amount of \$605,000 for installation of a vortex separation system (VSS) unit at a City-owned pump station. Pump station SD-11 will be the site of the new VSS unit.



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This pollution trap device is similar to ones located on other City storm drains that have proved to be effective at capturing trash, debris, and sediment. The Project is currently in the design phase.

#### 1.3.5 20<sup>th</sup> & WALNUT VSS UNIT \$661,755 (Ongoing)

**Vortex Separation Systems**

- 20<sup>th</sup> \* Walnut: \$661,175
- SD12: \$383,848 Partnership with CalTrans
- Trash, Debris & Sediment
- Capture (lbs):
  - Storm Season 04/05: 15,015
  - Storm Season 05/06: 19,180
  - Storm Season 06/07: 37,914
  - Storm Season 07/08: 58,840
  - Total: 130,949 lbs
- Maintenance:
  - \$6,000/unit 2 to 3 times/yr
- CDS Technologies

A photograph showing a white, cylindrical Vortex Separation System unit installed in a concrete storm drain. Two workers in safety gear are visible inside the drain, one near the unit and another further down. The unit is positioned at the bottom of the drain, with a curved metal grate above it.

This BMP assists with Los Angeles River Trash TMDL compliance. Project expenditures for this VSS unit totaled \$661,755 with funding by the State Budget Act Appropriation of FY 2000-2001. Construction was completed in September 2004. The unit is placed on a



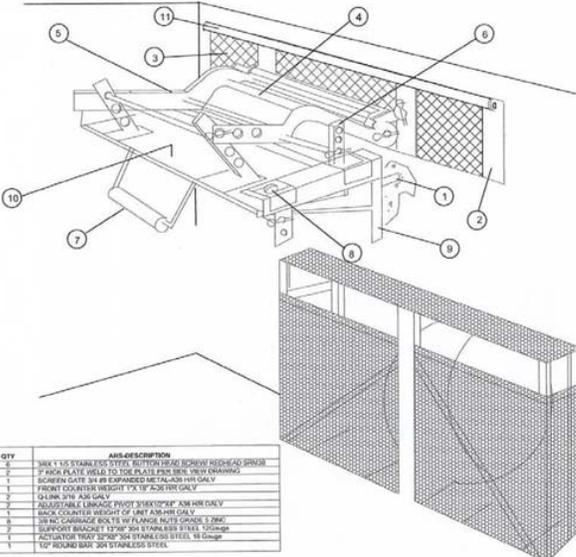
# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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42-inch pipe at the intersection of E. 20<sup>th</sup> Street and Walnut Avenue, which drains into Hamilton Bowl. This picture, taken after the first storm in October 2005, shows that this BMP technology continues to be extremely successful at capturing trash and debris. Beach Outfalls Project (\$400,000)



**Beach Outfalls Treatment Train BMPs - Fall 2008**



ITEM	QTY	ARS DESCRIPTION
1	2	1/2" X 1/4" STAINLESS STEEL BOTTOM RIBS, SCREW HEAD END
2	2	2" ANK PLATE WELD TO THE PLATE FOR BENT VIEW CHAMFER
3	1	SCREEN GATE 36" X 48" EXPANDED METAL MESH ONLY
4	1	FRONT COUNTER WEIGHT 1/2" X 1/2" ALUMINUM ONLY
5	2	2" ANK PLATE WELD TO THE PLATE FOR BENT VIEW CHAMFER
6	2	ADJUSTABLE LINKAGE PIVOT 3/8" X 3/8" X 3/8" FOR HORIZONTAL
7	2	FRONT COUNTER WEIGHT 1/2" X 1/2" ALUMINUM ONLY
8	8	1/2" ANK CARTRIDGE BOLTS W/ PLANK NUTS GRADE 3 ZINC
9	1	SUPPORT BRACKET 1/2" X 1/2" X 1/2" STAINLESS STEEL 1/2" THICK
10	1	ACTUATOR TRAY 3/8" X 1/2" X 1/2" STAINLESS STEEL 1/2" THICK
11	1	TOP HOUSING BODY 36" X 48" STAINLESS STEEL

**Cost ~ \$2,500 per standard catch basin**

City of Long Beach Outfall Project  
Clean Screen SS-3 & CPS unit

**ARS- debris excluder1**

**Abtech insert  
Not shown**

**CPS- outfall pipe screen**

**Background:**

The storm drain collection system conveys untreated rainwater and nuisance flows directly to the beach and ocean. This runoff contains toxic pollutants like trash, debris, oils, grease pesticides and bacteria. Permit required maintenance of the system does not adequately address the problem.

**Beach Outfalls Treatment Train Project :**

Engineered, structural treatment devices, also known as Best Management Practices (BMPs), selected specifically because of their pollutant removal capabilities will be staged as control measures to treat the runoff. This is a 3-stage BMP "Treatment train." The first stage, strategically placed in the inlet of the catch basin is the trash and debris excluder. The second stage will be the filter baskets set inside the catch basin designed



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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to capture oils, grease, pesticides, sediment and destroy bacteria. The third and final stage is designed to capture in the sump what may have bypassed the first and second stages. Collectively, a series of treatment devices selected and sequenced for maximum effectiveness.

### **Results:**

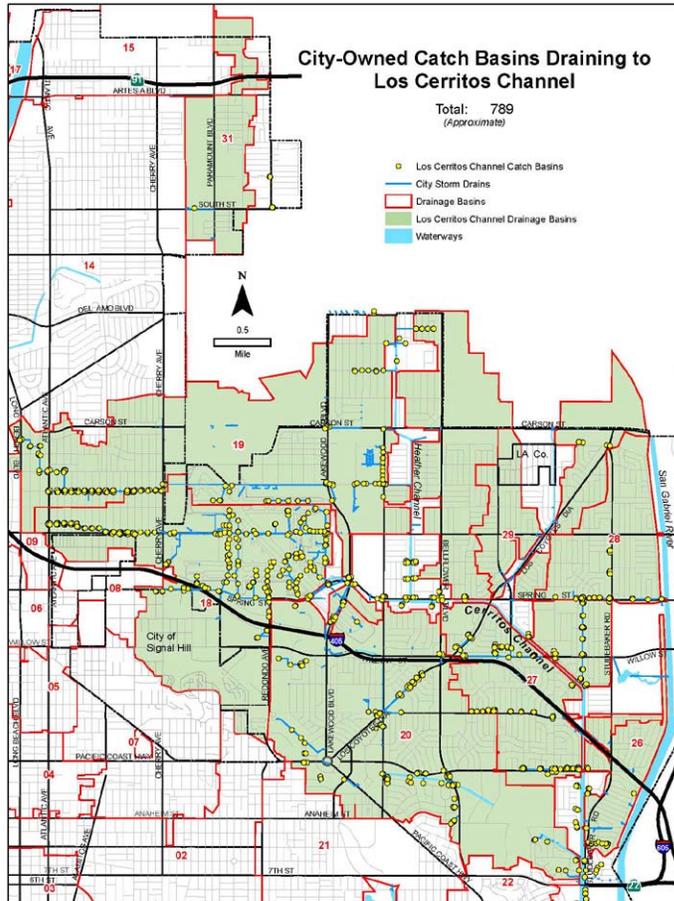
Pollutants will be removed at the catch basin, eliminating direct discharge to the beach or ocean. Maintenance and monitoring records will be used to validate pollutant removal.





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### 1.3.6 Los Cerritos Channel (\$176K)

	# Catch Basins	Treatment Devices (\$2,500/CB)
Area 1	38	\$ 95,000.00
Area 2	20	\$ 50,000.00
Area 3	30	\$ 75,000.00
Totals	88	\$220,000.00
<b>Project Total</b>		<b>\$176,000.00</b>



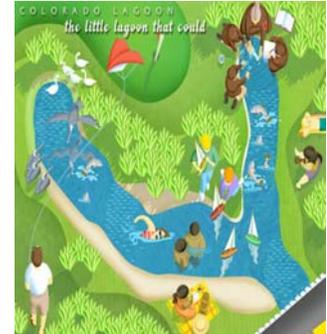
# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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The targeted pollutant in the Los Cerritos (1.3.7) project is trash. This project is very similar to the Beach Outfalls project, however the AbTech Smart Sponge Inserts will not be included.

### 1.3.7 COLORADO LAGOON REMEDIATION AND RESTORATION

Based on the recommendations from the Feasibility Study, the City's Stormwater/Environmental Compliance Division is working with the US Army Corps of Engineers (USACE) to develop a Project Cooperation Agreement for restoration of Colorado Lagoon.



This project will involve excavating the west arm of the Lagoon, re-contouring slopes, replacing vegetation, modifying the existing culvert, the installation of low storm water flow diversions to the sanitary sewer system, and the construction of several bioswales.

Council approved the project's EIR on October 14, 2008 (Appendix 2.2). Phase I of this project will begin remediation/restoration in Summer 2009.

## 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 difference. 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 3,872 catch basins and 23 pump stations, all of which are cleaned repeatedly throughout the year. The related maintenance costs for FY 08 were nearly \$640,000. See Appendices (2.4, 2.7, 2.9) for sample stormdrain maintenance data.

**Smart Sponge Summary**

- \$841,100
- 1,904 inserts installed in 529 catch basins
- Capture trash, debris, hydrocarbons & bacteria
- Capture 2004 – present (lbs):
  - 91,963 lbs of contaminants (trash, debris, sediment, oil, grease, organics, heavy metals)
  - 637,000 lbs if installed in entire system
  - 25,300 lbs oil derivatives (volatiles, hydrocarbons) ~3,500 gals
  - 175,000 lbs ~ 25,000 gals if installed in entire system
  - Destroys 79-97% E. Coli & other fecal coliform

Product & Data  
AbTech  
Industries



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, individuals and landscapers sweeping, hosing, or blowing this material into the storm drain. (See Appendix 2.14 for additional study findings related to the Smart Sponge Insert)

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



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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 actually raining.

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 down the kitchen sink. Regrettably, in FY08 there were 29 SSOs, equating to 51,504 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 an amount not to exceed \$195,000 (Appendix 4.1)

### 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.

The Public Works Department Environmental Services Bureau (ESB) oversees numerous programs including street sweeping, refuse collection, and household recycling collection. In FY 08, ESB staff attended 24 neighborhood meetings and community events promoting recycling and litter abatement.

### Award Winning Litter 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 08:

- Conducted 41 community and business corridor clean-ups.
- Involved 1,371 volunteer participants at neighborhood and business clean-up events.
- Collected over 147 tons of litter from clean-up efforts.
- Gave away 6,040 car litterbags (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 275 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 15 public elementary schools (Kindergarten – 3<sup>rd</sup> grades), teaching approximately 5,548 students the importance of not littering.
- Collected 889 tons of litter from alleys throughout the city through the “Alley Clean-Up” program, which involved over 3,300 community service workers.



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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- Provided over 2,000 litter and recycling containers at Special Events throughout the City.
- Maintained sponsorship of 11 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 100 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 20 print ads in the following publications *Press Telegram*, *The District* magazine, *Downtown* and *Grunion Gazettes*, *La Opinion*, *Signal Hill Tribune*, and *School News* to promote the Campaign.
- Utilized approximately 4,010 Litter-Free boulevard banners in three languages (English, Spanish and Khmer) that were posted along 55 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.
- Issued approximately 1,660 litter citations through the Long Beach Police Department.
- Produced a “No Junk Mail” brochure to enable residents to remove themselves from ‘junk mail’ advertising lists and pre-screened offer directories.
- Printed litter-awareness message (*Stamp out litter*) on City utility bill envelopes to encourage residents to visit the Campaign website and to find out how they can help keep Long Beach litter-free.
- Printed customized posters and distributed flyers promoting the 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.

### 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



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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placed 91 litter receptacles along residential streets and 821 litter receptacles along commercial streets, all of which are emptied weekly. A total of 41 tons of trash and debris was collected from litter receptacles on residential streets, and 366 tons was collected from commercial street receptacles.

The Department of Parks, Recreation, and Marine maintain another 200 beach receptacles during the summer and 27 during the winter months. They are emptied five times per week during the summer and three times per week during the winter. The Department also maintains 80 marina trash receptacles. These are emptied six times per week. The Queensway Bay area has 30 litter receptacles, which are emptied daily. In City parks, there are 555 receptacles with a capacity of 55 gallons that are emptied daily for a total of 6.65 tons collected in FY 08. The 20 receptacles in City parks that have a capacity of 3 cubic yards are emptied twice each week for a total of 390 cubic yards collected in FY 08. Furthermore, 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 conducting Neighborhood Cleanup events. In FY 08, 1,215 tons of trash were removed during cleanup events at a cost of \$46,034.42. 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. Please visit the Web site at: [www.longbeach.gov/cd/neighborhood\\_services/clean\\_up\\_programs.asp](http://www.longbeach.gov/cd/neighborhood_services/clean_up_programs.asp).

### **10<sup>th</sup> Annual Neighborhood Leadership Conference.**

The 10<sup>th</sup> 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 5.4)



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### 2.2.3 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 08, 29,940 tons of material was collected through the curbside recycling program. Table 2-1 shows recyclables collected in FY 08. This amount is expected to increase in FY 09 since the recycling program has been extended to small apartment complexes up to 10 units.

**Table 2-1: CURBSIDE RECYCLING**

<b>WM Recycling Collection</b>	29,940	Tons of recyclables collected from Curbside Recycling Program.
	17,656	Tons of newspaper collected.
	5,198	Tons of corrugated cardboard collected.
	6,785	Tons of commingled containers collected.
	7,667	Gallons of used motor oil.
	1,028	# of oil filters.
	301	Tons of mixed paper collected.

### 2.2.4 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 08, there were 760 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 08, the Public Works Street Maintenance Division recycled 4,779 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. BMPs, such as surrounding the base of bulk materials with sand bags and covering with plastic tarps, are utilized to assure that exposed materials will not migrate from their temporary storage locations.

### 2.2.5 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 for a small fee. Table 2-2 shows the number of collection requests for special item pickups.

**Table 2-2: SPECIAL ITEM PICKUPS**

<b>Special Collections</b>	15,371 req, 1,870 tons	# of requests and tons from Special Item Pick-up Program.
	8,464 req, N/A tons	# of requests and tons of furniture.
	50 req, 81.51 tons	# of requests and tons of tires.
	760 req, N/A tons	# of requests and tons of yard waste/tree clippings.
	2,347	# of collected City provided trash bins (old).
	269	# of requests of Out Lates (missed collections).
	938 req, and 39,863 pounds	# of requests and pounds of E-waste.
	107 req, N/A tons	# of requests and tons of appliances.
	5,481 req, N/A tons	# of requests and tons of other.

### 2.2.6 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,



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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, and displaying tri-lingual street pole banners encouraging motor oil recycling as a method of supporting clean beaches and waterways. In FY 08, 7,667 gallons of used motor oil was collected along with 1,028 used oil filters through the curbside recycling program.



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 programs.

### 2.2.7 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 waste including 23,800 pounds of e-waste and 9,000 pounds of various batteries. Table 2-3 shows the amounts of hazardous waste collected at the event. A total of 3,215 cars were serviced at this collection event.

Unfortunately, there was only (1) HHW Roundup event held this reporting year, heavily impacting the collection numbers. Hopefully more funding will be made available in FY09 so at least a minimum of (2) HHW events may be held.



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**Table 2-3: HOUSEHOLD HAZARDOUS WASTE COLLECTION**

<b>County HHW Collection Event</b>	3/29/08, 3,215 cars	Date of event and # of cars serviced at Household Hazardous Waste Roundup.
	1,400	Gallons of used motor oil.
	6,000	pounds of car batteries.
	750	pounds of oil filters.
	12,350	Gallons of paint.
	350	Gallons of antifreeze.
	3,000	Pounds of batteries.
	23,800	Pounds of E-waste.
	1,131	# of computers (CRT units).
	8,400	Gallons of misc. waste (pesticides, pool chemicals, etc.)

### 2.2.8 TRASH COLLECTION ON THE BEACH AND ALONG 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 fivetimes 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 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



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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.

### 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.



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### 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 FY 07/08, the Department of Community Development opened 7,183 and closed 7,769 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 Department of Planning and Building 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 08, there were 2,741 inspections conducted.

## 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 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 08, the Street Sweeping Division swept 163,298 miles and picked up 10,617 tons of material, which included the continued service of beach parking lots. In addition, ESB purchased 20 new Elgin Street Sweepers that will be put into service during FY 09.



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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Though not typically allowed to be reported as a NPDES compliance measure and expense, during this reporting period 231,273 tons of waste from City managed routes and beaches were collected at a cost of \$24,789,164.

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 thirty lots with an average lot size of 71 acres five times each week at an estimated annual cost of \$265,674. The Department of Community Development Parking Operations Division maintains eight parking structures and lots that are swept once or twice each week and degreased once or twice monthly at a cost of \$146,286 in FY 08.

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.

### 2.5 PUBLIC CONSTRUCTION ACTIVITIES

Public construction activities are focused toward 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 to be based on rational criteria including magnitude and type of potential pollutant (Appendix 3.0)

The Department of Public Works Construction Management Division insures Best Management Practices specified in the project specifications are implemented as defined in the City's permit. During October 1 through April 1 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 08, Public Works inspectors filed 464 NPDES Inspection Reports.



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

- NLB Enhancement (*Area "D"*)
- Tanaka Park Alley Improvements (*Annual Contract*)
- Improvements to Taxiways Charlie & Lima
- Improvements to Taxiway Kilo (*Phase I & II*)
- Annual Citywide Local Streets
- Naples Island Soil Anchors (*Phase II*)
- Annual Citywide Street Repairs & Minor Improvements
- Annual Citywide Sidewalk Repairs, ADA Ramps, etc.
- Improvements to Long Beach Blvd.: bet. *San Antonio/Del Amo* and *California Ave: San Antonio/46<sup>th</sup> St.*
- Atherton Storm Drain
- Installation of Street Lights at CSULB
- Improvement to Atlantic Avenue Medians
- Improvements of Walnut Avenue bet. 10<sup>th</sup>/PCH
- Design Build of LNG/LCNG Fuel Station
- Improvements of Bellflower Blvd. bet. Spring St. Wardlow Rd.
- Improvements of Belmont Plaza Pool
- Improvements of 7<sup>th</sup> Street between Redondo/PCH
- Traffic Signal Modifications at Pine/Ocean and Atlantic/Marshall Pl.
- Median Island Improvements on MLK between PCH/20<sup>th</sup> Street
- Citywide Local Street Improvements (*Area "6"*)
- Improvements of Carson Street from Bellflower Blvd. to the Long Beach Towne Center
- Incident Reports

### 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 expanded our education program to the general public by offering a monthly garden series called "Out of the Wilds; And Into Your Garden". This program informs the general public about the use of drought tolerant



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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## SECTION 2

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, per our Master Plan, and require little maintenance once established. Our monthly Saturday Stewards program educates the general public and gives hands-on experience working with mulching techniques and invasive removal. The Nature Center's annual Native Plant Sale places over 1200 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.

Green waste generated from our grounds and landscape maintenance operations in our parks 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 most grass clippings in our parks are not collected, all mowers used by contractors use recycling or mulching decks.

Green waste from our tree trimming operation and Blair Field maintenance operation is taken (by City vehicle) to a local transfer station for recycling. BMPs, such as surrounding the base of bulk materials with sand bags and covering with plastic tarps, are utilized to assure that exposed materials will not migrate from their temporary storage locations. Our Accounting Office maintains the disposal records.

Green waste generated from our grounds and landscape maintenance 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 green waste contractor (Edco Waste) then removes the waste for recycling, leaving an empty container. City staff headquartered in the Golden Yard maintains the disposal records.

### **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 has two Certified Pest Control Advisors (PCA) on-staff to ensure the appropriate procedures and policies for pesticide, herbicide and fertilizer management. Additionally, the department possesses a Restricted Material Permit for those herbicides and pesticides that are on the State Agricultural



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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## SECTION 2

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. In FY 08, 1,455 areas of the City benefited from the Beneficial Insect Program at a total cost of \$33,532.52.

### **2.6.2 Native Vegetation Practices**

Native plant materials are of particular concern in several locations – El Dorado Nature Center, the Queensway Bay Area (which includes Golden Shore Marine Reserve), the Jack Dunster Marine Biological Reserve, 7<sup>th</sup> St. 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 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



## MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

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Center staff schedule more frequent irrigation during the summer and fire season 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, 7<sup>th</sup> St. 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.

The contractor and city staff keep maintenance practices, pesticide records and schedules for these sites.

The amount of trash and debris collected from the various sites this past year remained the same with an estimated three tons alone from trash at Golden Shore Marine Reserve; four tons were collected at Los Cerritos Wetlands. Colorado Lagoon was estimated once again at three tons and 40,000 pounds at Sims Pond, due to a continuing large project of Sciopus removal.

Green waste or biomass generated from trimming, pruning, and clearing is either chipped or shredded and kept on site as mulch.

The Jack Dunster Marine Biological Reserve is 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, using no herbicides or machinery. Mulch is then applied to the site to prevent plants from returning until the native plants have colonized. Steven Ormanye and Associates perform all procedures and record



# MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

## SECTION 2

keeping of Jack Dunster Marine Biological Reserve in conjunction with the Nature Center's Adopt-A-Wetland program.

### 2.6.3 Municipal Swimming Pool Maintenance

Belmont Plaza 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 – 10,000 gallons for the indoor pool and 250 – 500 gallons for the outdoor pool.

The King Park and Silverado Park Pools are backwashed according to need. In the summer months, both pools are backwashed approximately three times per week. In 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 Construction Division staff meetings. In addition, the Stormwater/Environmental Compliance Division staff conducted refresher training for the Public Works Engineering Bureau. During this training, the *Storm Watch: Municipal Storm Water Pollution Prevention* video training program was used. The Stormwater/Environmental Compliance Division staff also routinely sent out "e-notice" reminders to appropriate City personnel regarding BMPs and NPDES requirements.



# 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 to have developers and 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 will effectively prohibit non-storm water discharges and reduce the discharge 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,
- 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. The Planning and Building Department's 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 guidance and informational documents provided 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 FY08, Development Services Staff (formerly Planning and Building) 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 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.

Long Beach 2030 seeks to incorporate these themes while including environmental, economic, and social sustainability principles in every aspect of the plan.

### 3.3 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 08 statistics for Development Planning and Construction.

**Table 3-1: DEVELOPMENT PLANNING AND CONSTRUCTION STATISTICS**

Number of projects requiring a SWPPP	20
Number of Inspections	4,802*
Number of development projects for which SUSMPs were required	19
Number of development projects for which SUSMPs were completed	0
Number of development projects for which SUSMPs were completed since the permit was adopted	146



# MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION

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## SECTION 3

\*This includes enforcement actions. One site may have several inspections done during one visit. Checking each BMP is considered a separate inspection.

### 3.4 TRAINING

Development planning, construction, and inspection staffs receive training on storm water management requirements and BMP implementation. The Developer Information Handbook remains current and is available online. The City continues to use the handbook in conjunction with existing training materials.

Additionally, the Stormwater/Environmental Compliance division, along with the Public Works Project Development division and Construction Management division have an integral part in developer plan review and project inspection.



# 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, formerly known as Planning and Building, 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](http://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 dispatches 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. (Appendices 4.3, 5.1, 5.2, 5.3)



# 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.

### **SPECIAL STUDIES**

#### **“City of Long Beach Recreational Water Quality Source Investigation Open Coastal Beach Sites” (Appendix 2.5, 2.6, 2.10 and 2.13)**

Completed this year, “City of Long Beach Recreational Water Quality Source Investigation Open Coastal Beach Sites” began in September 2007. Long Beach near shore waters along open coastal beaches are on the Clean Water Act (CWA) 303(d) list due to bacteria contamination. The CWA requires states to develop and implement Total Maximum Daily Loads (TMDLs) for waters on the 303(d) list. Potential sources of contamination in the open coastal beaches of Long Beach must be characterized as part of the TMDL process. Bacteria and pathogens may come from a number of sources, including the Los Angeles River, local storm drains, boats and associated pump out facilities, birds, and even recreational beach users.

The study was divided into three phases. Phase I identified areas of concerns requiring more focused investigations. It is also in this phase that it was determined whether or not the contamination is coming from a land-based source or not. Phase II was dependent upon the findings of Phase I but focused on subsurface water discharges from anthropogenic sources and sand/sediment that may serve as reservoirs and sources of fecal indicator bacteria. Phase III involved investigating whether samples contaminated with fecal indicator bacteria are from human or non-human sources.

Currently, 15 Long Beach coastal beach sites are monitored (AB411) for fecal indicator bacteria on a weekly basis. Periodic violations of fecal indicator bacteria water quality standards occur at these locations, even during dry weather conditions, resulting in advisory postings and closures.

### **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



# MANAGEMENT PROGRAM FOR ILLICIT DISCHARGES AND ILLICIT CONNECTIONS

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## SECTION 4

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. If the presence of an illicit connection is suspected, the storm drain is investigated and the necessary action is taken to eliminate the connection.



# PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

## SECTION 5

### 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](http://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.

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,



# PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

## SECTION 5

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 storm water related questions from the attendees. In FY 08, Stormwater/Environmental Compliance Division staff reached out to over 23,000 people and distributed approximately 4,200 educational giveaways at the Port of Long Beach Green Port Exposition, the Women’s Conference in Long Beach, the California State University Long Beach Kid Eco event, and the Earth Day event at Recreation Park (Appendices 5.5, 5.8 and 5.9). 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 Division Outreach**

<b>Event</b>	<b>Attendees</b>	<b>Giveaways</b>
Kid Eco – CSULB	700	700
Earth Day - Recreation Park	500	500
Green Port Festival	10,000	1,500
The Women's Conference	12,500	1,500
<b>Total</b>	<b>23,700</b>	<b>4,200</b>

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, and rulers are made available and informational literature is printed in several different languages (English, Spanish and Khmer).



## PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

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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 but also 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. For a summary of the programs achievements see Appendix 6.10.



The Environmental Services Bureau (ESB) staff participated in 38 events and meetings to promote environmental programs in FY 08. These included neighborhood association meetings; safety, community, and environmental fairs; and composting workshops.

Table 5-2: Environmental Services Bureau Outreach

<b>Outreach and Education</b>	23 visits with 1,440 students	# of schools visited by TREC Program.
	7	# of schools starting a recycling program.
	17 events, 15,300 attendees	Community, Safety, Env. Fair attended.
	7 attended, 184 attendees	Neighborhood Association Meeting attended.
	14 workshops, 848 attendees	Composting Workshop given.



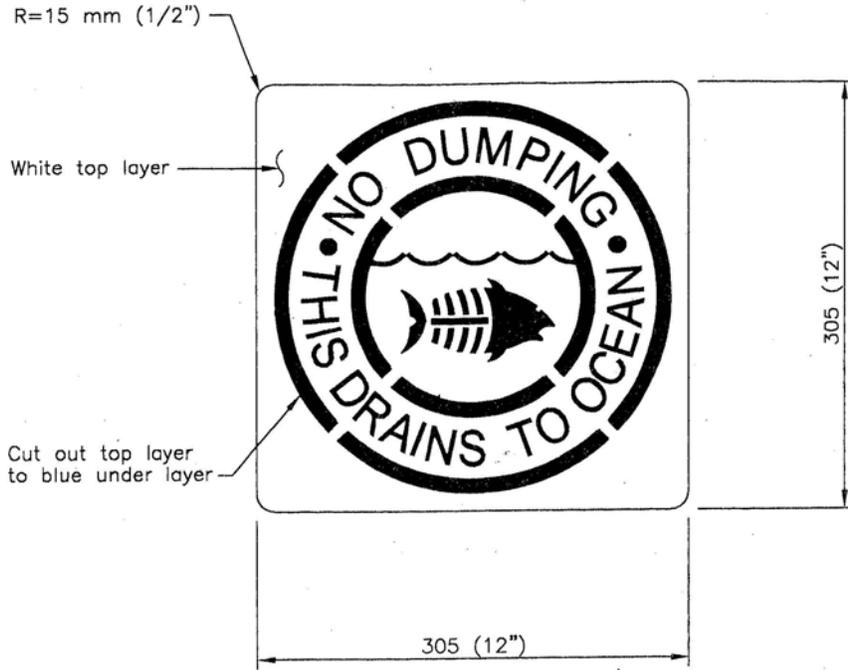
## PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

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### SECTION 5

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..

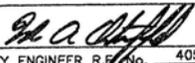
The **Developer Information Program** continues to be used by the Development Services Department to educate contractors, developers, and “do-it-yourselfers.” In addition, permit applicants have access to staff at the Development Services Center during normal business hours. Information about storm water 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. (Also see Appendix 3.0)



**Notes:**

1. Stencil material shall be two-layer resilient thermoplastic with 30% graded glass beads, 3.15 mm (125 mils) total thickness with beveled edges. Material shall be AASHTO designated M249-79(86), except that material shall be pre-formed.
2. Before application, prepare P.C.C. surfaces with a primer sealer. Apply stencils with propane torch heating, per manufacturer's recommendations.
3. Other graphic designs than that shown above are subject to approval. Submit full-size drawings and material samples to the City Engineer before application.
4. For new catch basins, stamp design into fresh concrete with tool loaned by the City of Long Beach, Public Service Bureau, Phone (562) 570-2700.

Dimensions are in millimeters, except as noted

REVISIONS		CITY OF LONG BEACH, CALIFORNIA DEPARTMENT OF PUBLIC WORKS	STANDARD PLAN NO.
NO.	DATE		METRIC 636
1	12/23/02	CATCH BASIN STENCIL	SHEET
2	02/28/03		1 OF 1
3			
4			
APPROVED BY: 		CITY ENGINEER R.E. No. 40599	DATE: 4/16/03 EX. DATE: 03/31/07



## PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

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**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. A total of \$250,000 was spent to educate residents and business owners about these prohibitions.

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 and pesticide use, are sponsored by the Water Department. Examples of how the City of Long Beach exceeds its NPDES permit requirement (Part 3, I, A, 2, f, Water Conservation Practices).

The 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) Special River and Beach Cleanups,
- 3) Adopt-A-Wetland,
- 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 innovative conservation program which allows 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



## PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

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with marine debris and pollution, this past fiscal year more than 9,100 volunteers worked over 13,000 hours to combat non-point source pollution on city beaches.

2) Special cleanups this year included:

- a) The year's largest event in terms of volunteer participation was the 24th Annual California Coastal Cleanup Day on September 20th. This year, Long Beach had over 1,800 volunteers help to remove over 6,000 pounds of trash from 7 locations along the coast.
- b) The Nature Center partnered with Friends of the Colorado Lagoon for a Winter Bird Festival and Wetland Cleanup at the Colorado Lagoon Wetland and Marine Science Education Center. Over 100 members of the community learned about migratory birds that visit the local wetlands, and what they can do to help keep pollutants out of our storm drains and local waterways.
- c) The Nature Center joined with Friends of the Los Angeles River (FoLAR) in hosting "La Gran Limpieza" The Great Los Angeles River Cleanup and River School Day for the local community. Over 450 volunteer assisted in removing trash from the mouth of the Los Angeles River and Golden Shore Marine Reserve.
- d) The Nature Center partnered with the Ti'at Society (local Tongva Indians) and Farm Lab to host a day of environmental education. Over 300 volunteers took part in creating a large sand sculpture based on a Native American story, as well as removing trash from the local shoreline.

3) During the 2007-08 year the Adopt-A-Wetland program held monthly cleanups at Colorado Lagoon, Sims Pond and Jack Dunster and Golden Shore Marine Reserves. Students from local high schools, CSULB and LBCC were educated about non-point source pollution and wetland restoration. In conjunction with the Adopt a Wetland program, staff members from El Dorado Nature Center attended training on developing community based coastal habitat restoration projects to be used for future wetland programs.

4) The Nature Center continued to offer wetland education programs at the Colorado Lagoon Wetland and Marine Science Education Center. This year 74 programs were given to local junior and senior high school students on the importance of wetland ecosystems, their place in our local watershed, and water quality and its effects on marine life. Along with the student programs, staff held 15 weekend programs for the local community to increase awareness about the fragile wetland habitat located at the Colorado Lagoon, and 8 weeks of vacation programs for elementary school



# PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

## SECTION 5

students. The Nature Center continues to partner with Friends of the Colorado Lagoon (FOCL) to develop educational strategies, as well as educate the public about the upcoming restoration projects slated to begin next year at the lagoon.

5) El Dorado Nature Center's Movable Museum program, "Protect Our Watery World" (POWW), took a brief hiatus this year to re-evaluate the program, but was able to continue offering programs to local elementary schools again in February. Volunteers visited approximately 700 third and fourth grade students 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 including: Fairfield YMCA Family Wellness Fair, 13<sup>th</sup> 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, 29<sup>th</sup> Annual LA Environmental Education Fair, King Elementary Health Fair, Martin Luther King and Daisy Lane Parades, and Niemes Elementary School Environmental Fair.

### **Parades**

Parades are another way that Nature Center staff create awareness and provide education about ocean pollution to the community. This year our staff marched in the Daisy Lane Christmas Parade and the Martin Luther King Holiday Parade. The staff handed out fun and educational materials on 'You Are the Solution to Ocean Pollution' to thousands of children at each parade.

## **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, including 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 (Appendix 5.6)



### 5.3 SCHOOL CHILDREN

The City found through surveys and direct contact that the *Window-On-Our-Waters Tidepool Cruiser* used for LBUSD outreach efforts was so well received that continued funding in FY 08 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.

This year WOOW joined forces with the Friends of the Los Angeles River for their LA riverbed cleanup (Appendix 5.7).

What: River School Day Cleanup and Environmental Festival

When: Friday, October 12th 9:00 a.m. – 12:00 p.m.

Where: Willow Street Estuary (see attached map)



**600 VOLUNTEERS!**





# PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

## SECTION 5

The Stormwater/Environmental Compliance Division was once again able to contribute \$4,000 to support **Heal the Bay's Key to the Sea** marine education program (Appendix 5.11). This year the program was once again very successful:

**Table 5-3: Key to the Sea**

School	Tier 1	Students	Teachers	Field Trip	Bus
Gompers	1	72	4	2	2
Grant	1	344	15	8	8
Mark Twain	0	100	5	2	0
Patrick Henry	1	86	5	2	0
Riley	1	74	4	2	0
Roosevelt	1	341	15	6	5
Willard	1	94	5	2	2
Total (7)	6	1111	53	24	17



**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 08, the TREC mobile classroom made a total of 23 visits to LBUSD schools, making 45-minute presentations to 1,440 students. In addition, ESB has assisted 7 LBUSD schools in establishing recycling programs in FY 08.

**The El Dorado Nature Center's Moveable Museum** program, "Protect Our Watery World" (POWW), visited many third and fourth grade school classrooms 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. Volunteers visited approximately 700 third and fourth grade students in FY08.

Other Nature Center Programs that offered stewardship and nonpoint source pollution education included All volunteers in our Habitat Stewards and Sharing Nature in the City. Volunteers receive extensive training concerning in our place in the watershed and the effects of pollution on aquatic ecosystems, as well as specialized training on native flora and fauna.

The Long Beach Health and Human Services Department's Bureau of Environmental Health has developed a curriculum entitled **The Junior Health Inspector Program** that 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



# PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

## SECTION 5

March 2004 and reached 274 students in FY 08 for a total of 3,224 over the past 4 years. (Appendix 5.10)

**Table 5-4: Junior Health Inspector Program:**

Date	Location	# Students
4/23/2008	Hudson Elementary	29
4/24/2008	Hudson Elementary	26
4/25/2008	Hudson Elementary	29
4/26/2008	Hudson Elementary	28
5/23/2008	Cesar Chavez Elementary	22
5/24/2008	Cesar Chavez Elementary	22
5/25/2008	Cesar Chavez Elementary	23
5/26/2008	Cesar Chavez Elementary	15
7/9/2008	Lafayette Elementary	28
7/10/2008	Lafayette Elementary	26
7/11/2008	Lafayette Elementary	26
		<b>274</b>

The ***Environmental Defenders*** is a program of the Los Angeles County Department of Public Works. It is a free assembly geared towards children in grades K-6. Two professional actors present the interactive 30-minute program. Through animated and live action video segments, role-playing, an action-packed game and educational giveaways, students are taught about important environmental concepts. Topics covered in the assembly include the Three R's (Reduce, Reuse and Recycle), storm water pollution, household hazardous waste, illegal dumping and water conservation.

### 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. Below are links to the City's new web-based Stormwater Training Material.



# PUBLIC INFORMATION AND EMPLOYEE TRAINING PROGRAM

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## SECTION 5

### Storm Water Division

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#### **Training Videos:**

Storm Watch is a video training program that describes the fundamental concepts and practices of storm water pollution prevention for municipal operations. The video describes storm water pollution and its negative effects on people, wild life and the environment. The primary focus of the video is on operational Best Management Practices (BMPs).

[Storm Water Pollution Prevention for Municipalities: Storm Watch Training Quiz](#)



### 6.0 ASSESSMENT

The Long Beach Stormwater Management Program (LBSWMP) continues to be implemented, revised, and expanded as needed to ensure effective reduction in 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) (Appendix 2.8), 570-2876 (Refuse), and 570-4199 (Beach Advisory). Despite large fiscal deficits, in FY 08, the City spent \$26,863,474 (\$57 per capita) on NPDES expenditures. This is a 20 percent increase in spending from FY07, equating to an \$8/per capita increase, in FY 08 Stormwater Management Program Expenditures. (Appendix 6.14)

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 6.9), City Council, the Mayor (Appendix 6.1) and all City staff. On a scale of 1 to 10, the City of Long Beach should once again receive a 10 based on its commitment to the full implementation of the requirements of its municipal MS4 permit. The programs highlighted in this report demonstrate a consistent effort to perform at a level of "Above and Beyond."

### 6.1 ASSESSMENT OF MANAGEMENT PROGRAM FOR PUBLIC AGENCY ACTIVITIES

Overall, the City spent \$14,530,025 (54 percent of LBSWMP expenditures) for expenses associated with Public Agency Activities. This represents a 14 percent increase 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. Although there was a 13 percent drop in the number of volunteers (1,371 total), they managed to collect almost nine percent more trash than the previous year. The campaign also sponsored 38 community and business corridor cleanups this past year compared to the year before. Another achievement includes engaging 275 businesses to participate in the "No Litter Zone" program.

This year a household hazardous waste roundup was conducted and the collection results were amazing. There was a considerable drop from FY07 in the amount of



materials collected from last year since this year there was only one roundup instead of two. Nevertheless, the event successfully collected 1,400 gallons of used motor oil, 23,800 pounds of E-waste and 8,400 of miscellaneous pesticides, pool chemicals, etc.

The Department of Parks, Recreation, and Marine continues to be a vital component in preventing storm water pollution. The Department organized some new cleanup events in FY 08 and made the 24th Annual International Coastal Cleanup a great success.

In FY 08, 10,617 tons of debris collected from street sweeping validates that it is still a key BMP for keeping trash out of the storm drain system. Another program, "Refuse Collection", which is not allowed to be reported as a direct "NPDES" expense or measure, must be recognized and noted. In FY 08 231,273 tons of waste was removed from City managed routes at a cost of \$24,789,164.

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 08, Public Works inspectors filed 464 NPDES Inspection Reports.

### **6.2 ASSESSMENT OF MANAGEMENT PROGRAM FOR DEVELOPMENT PLANNING AND CONSTRUCTION**

Development Planning and Construction costs increased by \$121,824, (+ 4 percent) from FY 07 to FY 08. There were 19 new projects requiring SUSMPs, none of which were completed this year. There were 1,044 fewer inspections, an 18 percent drop from the previous year, which may be reflective of the troubled economy. There were fewer new construction projects in Long Beach during the past year compared to the previous year

### **6.3 ASSESSMENT OF MANAGEMENT PROGRAM FOR ILLICIT DISCHARGES AND ILLICIT CONNECTIONS**

The expenditures associated with Illicit Connections and Illicit Discharges detection increased by \$300,000, a 28 percent increase compared to FY 08. The reason for the increase is the proactive nature of the City and the storm drain maintenance program. Additionally, some recent special studies conducted to investigate impairments to our recreational water quality suggest that IC/IDs are not the source of the impairments or an area of concern for Long Beach.



That being said, 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](http://www.lbstormwater.org) website and directreporting to 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 from last years expenditures related to this program element. This year, 41 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 has seen record lows in water usage and we have seen measurable runoff reduction. As a matter of fact, August broke a record with water demand 19 percent below the 10-year average for annual water use.

Rising costs associated with Water Conservation education, Behavior Modification Education and Outreach efforts and NPDES related inspections are the reason. Additionally, many of the grant-funded structural BMP projects now require an educational element as part of the grant requirement.

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

### 6.5 ASSESSMENT OF WATER QUALITY MONITORING

#### CITY OF LONG BEACH STORMWATER MONITORING REPORT 2007/2008



*Annual Storm Water Permit Report and A  
December 1, 2008*



### SUMMARY

This report provides a summary of the results of the ninth 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 nine 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. Development of a new NPDES permit is currently underway for Ventura County and is expected to 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.

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.

### **Summary of Results**

Drier than normal conditions have persisted in Long Beach since the NPDES permit was first issued in 1999. Normal precipitation for October through April at the Long Beach Airport is 12.27 inches (NCDC/NOAA 2004). Rainfall has been below normal for eight of the past nine years. The only period exceeding the long-term average rainfall was 2004/2005 when rainfall was over twice the normal levels. During the 2007/2008 wet season, 8.99 inches of rain was measured at the Long Beach Airport. Although this was still 72percent of normal precipitation, it was sufficient to allow all four full storm events to be monitored at each mass emission site and an additional three storm events for TSS only at the Belmont Pump Station, Bouton Creek, and Los Cerritos Channel mass emission sites.

Two dry weather inspections/monitoring events were conducted during the 2007/2008 monitoring year. These surveys are conducted during the summer dry weather period at each of the four mass emission stations. A total of 18 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. Due to the early season storm event, the first dry weather survey was actually conducted four days after the first monitored storm event yet still before the official start of the wet season (October 1). 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 September 26th, 2007. The second dry weather survey was initiated on May 7th, 2008 once winter rains had subsided. Dry weather monitoring was conducted for the three mass emission sites that exhibited dry weather flows during the fall survey. During the May survey, dry weather flows at Bouton Creek were not sufficient to obtain a representative sample. Due to the low flow, one third of the sample was saltwater from Alamitos Bay.

Since this program started in early 2000, the Dominguez 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 expected that operation of the newly configured Dominguez Gap Wetlands may alter the situation. 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.

Included in this year's report is the completion of a study to identify potential sources of contaminants of concern that contribute to elevated concentrations in sediments within the western arm of Colorado Lagoon. This provides an update to the previous year's report that includes sampling that was underway when the 2006/2008 annual report was submitted. The additional data did not substantially alter preliminary conclusions presented in last year's report. Appendix B provides a complete summary of this effort.

The following provides a brief synopsis of the results of the City of Long Beach's 2007/2008 stormwater monitoring program:

### **Wet Weather Chemical and Bacterial Results**

Numeric standards do not exist for stormwater discharges. 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.

With one exception, the additional data from the 2007/2008 monitoring period continued to support general trends established over the past nine years. The following trends continue:

- Dissolved concentrations of cadmium, copper, and nickel do not vary substantially between wet and dry weather.



- Concentrations of dissolved zinc and lead are often higher during storm events than during dry weather sampling events. Elevation in dissolved zinc has often been associated with increasing toxicity in the sea urchin fertilization test.
- 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. These compounds are now rarely detected and, when detected, are now present at low concentrations that do not exhibit toxicity in the more sensitive bioassay tests.
- Fecal indicator bacteria typically exceed Basin Plan water quality criteria during both wet and dry weather monitoring. Concentrations of indicator bacteria are often slightly less in dry weather conditions than observed during wet weather conditions. This is most apparent in Bouton Creek where the dry weather concentrations of both total and fecal coliform bacteria are below Basin Plan criteria about 75% of the time.

The major differences observed between this year and previous years were associated with the Dominguez Gap Pump Station. Since the start of the City's stormwater monitoring program, discharges from this site have been unusual. They typically only happened after a series of large, closely spaced storm events. In addition to the limited numbers of discharge events, concentrations of stormwater contaminants were consistently low. This year discharges increased in frequency despite rainfall being 72 percent of normal. A total of five rainfall events resulted in discharges.

Along with the increase in frequency of discharges, measured concentrations of TSS and several trace metals were found to be elevated relative to previous concentrations measured at this site. The five highest concentrations of TSS recorded at this site have occurred since April 2007 and three of the highest dissolved lead concentrations occurred in conjunction with storm events monitored this year. Despite the increased frequency of discharges and concentrations of some contaminants, loading rates (pounds of contaminant/1000 acres) for key urban contaminants showed evidence of decreases in recent years. This appears to be due to the fact that discharges, although more frequent, are typically characterized by smaller volumes.

The observed changes are believed to be largely related to the construction activities and the general reconfiguration of the site to develop a constructed wetland habitat. As the wetland vegetation becomes fully established it is expected to provide improved water quality. Improved control of flow through the wetlands prior to storm events may also be capable of further reducing stormwater discharges to the Los Angeles River.



### **Dry Weather Chemical and Bacterial Results**

Water quality of dry weather discharges has been generally consistent over the past eight years. Dry season water quality has not tended to vary greatly between sites or sampling dates. In general, the concentrations of suspended particulates and total recoverable metal concentrations are low in dry weather runoff. Trace metals are predominantly in the dissolved form. 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. It is uncommon for dissolved copper to exceed the CTR freshwater criterion due to the elevated hardness of dry weather discharges. This year, one of three dry weather samples exceeded the CTR freshwater criterion and two of the three measurements exceeded the CTR saltwater criterion for dissolved copper. Highest concentrations (27 µg/L and 11 µg/L) were once again encountered in dry weather flows from the Los Cerritos Channel mass emission station. In addition, one of the two dry weather measurements of total copper in the Los Cerritos Channel dry weather samples exceeded Ocean Plan criteria.

The 27 µg/L of dissolved copper measured at the Los Cerritos Channel site during the September 2007 dry weather survey was the highest concentration measured of dissolved copper reported during both dry and wet weather surveys at any station since the start of the program. The magnitude of dissolved copper during the September 2007 dry weather survey is especially surprising since the early season storm event that occurred on September 22nd preceded the dry weather survey by just a few days. The high levels of dissolved copper at the Los Cerritos Channel site appear to be primarily a dry weather phenomenon. Eight out of the ten highest concentrations of dissolved copper reported during the dry weather surveys, have been from the Los Cerritos Channel mass emission site. In contrast, only two of the ten highest concentrations of dissolved copper reported during storm events have been at the Los Cerritos Channel site. The consistency of elevated levels of copper during dry weather in this watershed warrants further investigation.

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 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 2007/2008 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. Elevation in dissolved zinc has often been associated with increasing toxicity in the sea urchin fertilization tests. Although dissolved zinc concentrations were relatively low this season, TIEs still implicated zinc as the most likely source of toxicity.
- 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. These compounds are now rarely detected and, when detected, are now present at lower concentrations that tend not to exhibit toxicity in the more sensitive bioassay tests.
- Based upon all eight years of monitoring, stormwater discharges from the Dominguez Gap Pump Station continue to have the lowest concentrations of total metals.
- Fecal indicator bacteria typically exceed Basin Plan water quality criteria during both wet and dry weather monitoring. Dry weather concentrations of indicator bacteria are often slightly less than those observed during wet weather conditions. This is most apparent in Bouton Creek where the dry weather concentrations of both total and fecal coliform bacteria are below Basin Plan criteria about 75 percent of the time.

### Toxicity Results

Minor water flea toxicity (2 TUc) was detected at all three stations during the first storm of the year only. Toxicity to sea urchin fertilization was detected at all three of the stations, but at none during the first storm event. The December 19th storm produced moderate urchin toxicity (8 TUc) at the Bouton Creek and Los Cerritos Channel mass emission sites. Severe urchin toxicity (32 TUc) was seen at Belmont Pump in the January 5th storm, which also produced moderate toxicity at Bouton Creek (8 TUc) and



Cerritos Channel (16 TUc). The frequency of stormwater toxicity to sea urchins at the Long Beach stations during this monitoring period (42 percent) was decreased from 100 percent in the 2006/2007 study, and also decreased from the 70 to –75 percent seen in the 2004/2005 and 2005/2006 monitoring periods. The magnitude of stormwater toxicity to sea urchins was similar to 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 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. Minor reproductive toxicity (2 TUc) to Ceriodaphnia was measured in the fall dry weather samples from Bouton Creek and the Los Cerritos Channel. The very slightly elevated salinity of the Bouton Creek sample possibly contributed to that observed toxicity. The spring dry weather sample from Bouton Creek was not tested with either species because its much higher salinity indicated that it was not representative of dry weather runoff.
- Dry weather samples from the Los Cerritos Channel produced substantial chronic toxicity to sea urchins in both the spring (32 TUc) and fall (16 TUc). Both samples also produced sufficient acute toxicity (3.4 and 3.8 TUa, respectively) to trigger TIEs.
- Toxicity to urchins was present in both wet and dry weather samples at roughly equal magnitude. Toxicity to water fleas was very low at all stations in both wet and dry weather samples. These results do not support a hypothesis of differing composition of stormwater and dry weather discharge at Long Beach.
- Both of the wet weather sea urchin TIEs were abandoned due to the loss of acute toxicity in the baseline bioassays. The results of the concurrent reference toxicant test suggested that the gametes were less sensitive than is typical in our laboratory and therefore incapable of detecting residual toxicity.
- The two dry weather TIEs were completed successfully and both strongly suggested that zinc was the primary toxicant inhibiting urchin fertilization. Although the results of two dry weather sample TIEs implicate zinc as a probable toxicant in Los Cerritos Channel, chemistry analyses show relatively low levels (12 – 21 ug/L total; 8.3 – 17 ug/L dissolved) of this metal in the samples compared to wet weather samples (up to 1300 ug/L total and 260 ug/L dissolved) that did not trigger urchin TIEs. This apparent contradiction is likely due to differential bioavailability influenced by speciation, co-occurrence of other cations and general water quality parameters such as pH and



salinity. Other recent studies have shown that different combinations of four metals (Cd, Cu, Ni, Zn), have synergistic, additive or antagonistic toxic effects to sea urchin development, depending on the particular combinations tested.

### **Pilot Watershed Source Identification Program 2008 Update**

This investigation was designed to identify possible sources of contaminants of concern within the storm drain system by collecting and analyzing sediments from areas that effectively isolate segments of the storm drain system. Initial results of this study were presented as part of the 2006/2007 report. At the time of the initial report, the investigation was still incomplete. Additional sampling was underway to further investigate sources of contaminants of concern from along a segment of the storm drain located along Seventh Street, one of major transportation corridors in the targeted drainage area. Sampling was completed during the summer of 2007. Completion of the additional sites in 2007 did not have a substantial impact on results presented in last year's report. The final results are summarized below.

- During the field investigation it was discovered that all three major storm drain systems contributing runoff to the western arm of Colorado Lagoon are interconnected at a number of locations in the upper portion of the watershed.
- Soils from the former Pacific Electric Train right-of-way contained relatively low concentrations of persistent, bioaccumulative, and toxic (PBT) compounds of concern. The only 303(d) list contaminant of concern at this site was zinc. Concentrations of zinc normalized to the fine fraction of the sediment were similar to normalized zinc concentrations in Colorado Lagoon.
- Relatively low concentrations of PBTs were present in sediments from Site E6-1 located in the upper portion of the watershed (areas north of Tenth Street) that contributes flow to both Lines D and B. This suggests that upper portions of the watershed do not serve as significant sources of the primary constituents of concern in Colorado Lagoon.
- Sediment sampled from Site E in 2005 and Site E1 (the original Site E) in 2007 exhibited elevated levels of lead. Both of these sites are extremely close to Colorado Lagoon and are near the upper extent of tidal influences within the drainage system. Lead concentrations at Site E1 were nearly five times those found in the contaminated sediments of Colorado Lagoon. Concentrations of lead were over nine times those found in Colorado Lagoon when all results were normalized to the fine-grained sediment.



- Concentrations of copper, silver, zinc, DDT and chlordane in storm drain sediments from throughout most of the watershed are typically 1-3 times the concentrations measured in sediments from Colorado Lagoon.
- Concentrations of copper and zinc in sediment from the Seventh Street lateral were about four times those found in the contaminated sediments of Colorado Lagoon. When results were normalized to the fine-grained sediment, concentrations of copper and zinc were five and six times higher than in Colorado Lagoon.
- Concentrations of these contaminants in storm drain sediments indicate that sources of these contaminants are likely sufficient to maintain the current elevated levels of these contaminants in Colorado Lagoon if measures are not taken to intercept or otherwise decrease sediment loads.

### **Recommended Programmatic Changes**

Two minor adjustments to the NPDES monitoring program and one special study are recommended for the 2008/2009 monitoring period. Minor adjustments include elimination of analysis of the triazine pesticides and dry weather monitoring at the Dominguez Gap Pump Station. A special study is also recommended to investigate and identify the cause of elevated concentrations of dissolved copper in dry weather flows within the Los Cerritos Channel watershed.

Recommended changes in last year's report included elimination of the stormwater plume tracking in Alamitos Bay and removal of triazine pesticides from the analytical requirements. Verbal acceptance was received that the plume study could be eliminated but, lacking formal acceptance, triazine pesticides were still included in the analytical suite during the 2007/2008 program.

In previous years, the only triazine pesticides detected in stormwater or dry weather discharges have been prometon, simazine and cyanazine. All three typically occur at levels of less than 10 times the detection limit. This year atrazine was measured at a concentration of 0.014 µg/L in a dry weather sample from the Los Cerritos Channel. The reporting limit for atrazine is 0.01 µg/L. The only applicable water quality criterion for atrazine is a drinking standard MCL of 3 µg/L. The infrequent presence of these compounds in stormwater runoff and the low concentrations when they are detected suggests that this group of organic compounds should be considered for elimination from the analytical suite.

No dry weather discharges have been recorded at the Dominguez Gap Pump Station since monitoring first began in 1999. Any future discharges during the summer would be associated with excess water drawn from the Los Angeles River to both provide



infiltration and maintain the wetlands. Since these discharges would not be representative of dry weather discharges from the City of Long Beach, we recommend removal of requirements to inspect this site and measure water quality associated with any dry weather discharges that might be observed at this site in the future.

The Los Cerritos Channel is currently 303(d) listed for copper. Reducing copper loads will be an important goal of the TMDL process. A recommendation is to develop a simple work plan to conduct two to three synoptic surveys designed to rapidly collect samples from 8-12 key locations that effectively isolate major segments and branches of the drainage system. The investigation should be flexible and iterative in nature to allow use of data from each successive survey to further refine the sampling grid and improve chances of successfully narrowing down the source area or areas. Since high concentrations of dissolved copper is the primary concern, less costly analytical methods such as ICP should be used to allow for more samples to be run at lower costs.

### **6.6 SPECIFIC HIGHLIGHTS AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD**

- \$4.5M invested in stormdrain/environmental projects and/or studies that will lead to tangible and significant improvements:
  - Beach Outfall Treatment Train Project (\$400,000)
  - Los Cerritos Channel Treatment Train Project (\$175,000)
  - Termino Drain match (\$2,905,000)
  - Breakwater Reconnaissance Study (\$100,000)
  - CIP match funding for LA River Pump Stations Trash Net and VSS structural BMPs to reduce trash, debris, green waste and sediment from entering the LA River (\$468,000)
  - Completion of the Recreational Water Quality Microbial Source Investigation Open Coastal Beaches (\$362,342)
- \$200,000 Solar Installation at Long Beach Airport (Appendix 6.3)
- Real time “RAIN ADVISORY” and “STORM WARNINGS “ to the general public. Additionally, created a mini-sandbag distribution program to make it easier for residents to obtain the supplies needed for flood protection and safety (Appendix 5.12 and 5.13))
- Completion of the Joint Dominguez Gap & DeForest Treatment Wetlands Project \$7,000,000 (Appendix 2.3)
- Partnership with Los Angeles County Department of Public Works, Los Angeles County Sanitation and Los Angeles County Board of Supervisors to fund the



Belmont Pump Station Sanitary Sewer Diversion \$500,000 (Related information: Appendices 2.12, 6.2, 6.16, and 6.17 )

- Recognition for Environmental Stewardship (Appendix 6.4)
- Creation of the Office of Sustainability (Appendices 6.13, 6.15 and 6.19)

### **6.7 SUGGESTIONS TO IMPROVE LBSWMP**

- Modifications to the Water Quality Monitoring requirements and reporting and reallocation of resources now being used to adequately address the (3) major Long Beach watershed TMDLs.



### 6.8 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.
- Development and Implementation of the TMDLS slated for Colorado Lagoon, 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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