

NACWA 2010

Stormwater Committee

July 20, 2010

Los Angeles Stormwater Program: A Watershed-Wide Approach

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Assistant Division Manager



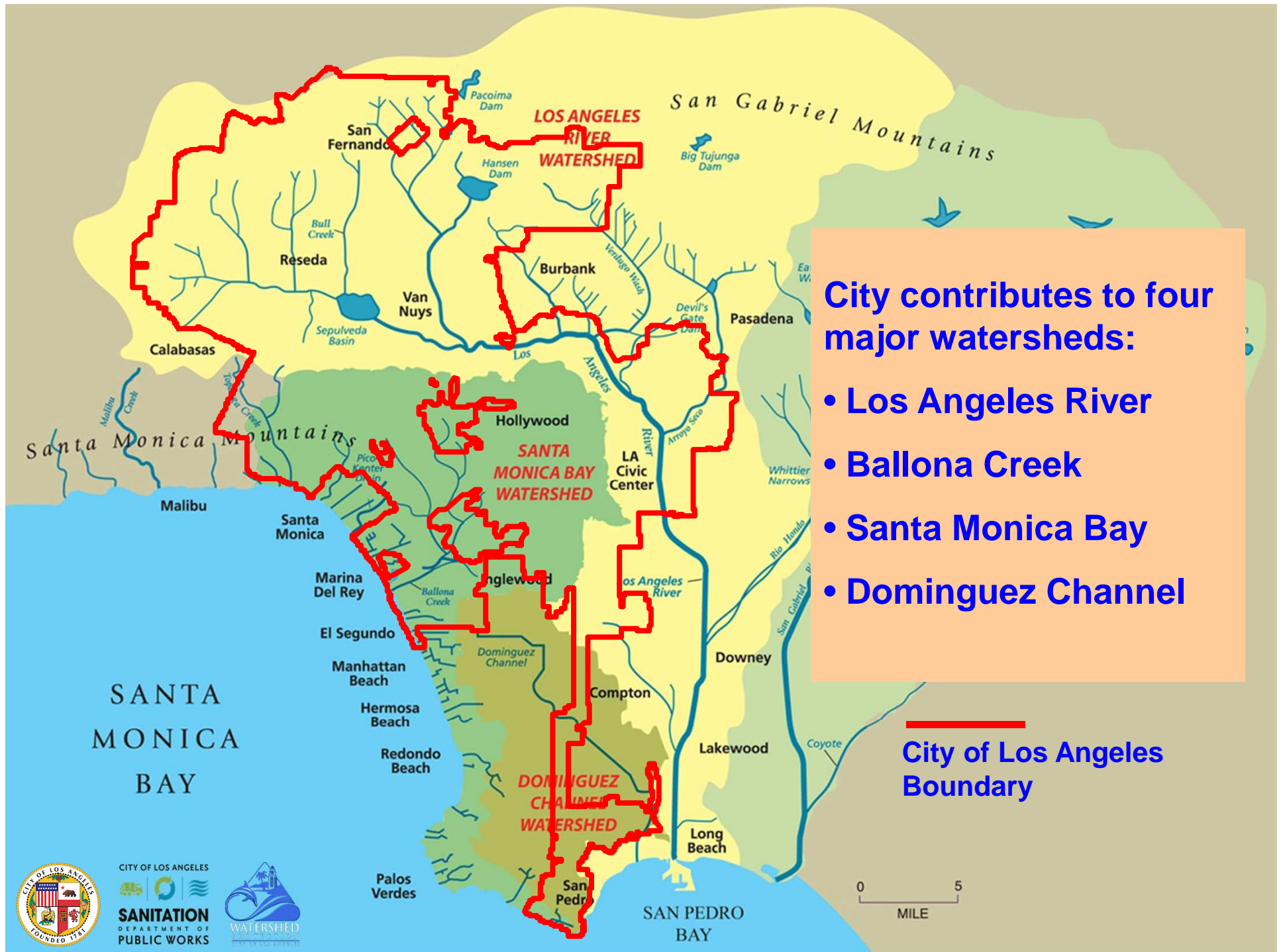
City of Los Angeles
Department of Public Works
Bureau of Sanitation
Watershed Protection Division



City of Los Angeles

- Second most populous city in the United States (4 million people)
- 465 square miles
- Arid - average rainfall of less than 15 inches/year
 - ranging from as little as 3” to as much as 40”





City contributes to four major watersheds:

- Los Angeles River
- Ballona Creek
- Santa Monica Bay
- Dominguez Channel



CITY OF LOS ANGELES



Storm Drain System



Stormwater Collection

- Separate storm drain system
- City's storm drain system
 - 1,500 miles of pipes
 - 100 miles of open channels
 - 38,000 catch basins
- Managed by City, County and USACE
- Storm drains flow directly to the ocean

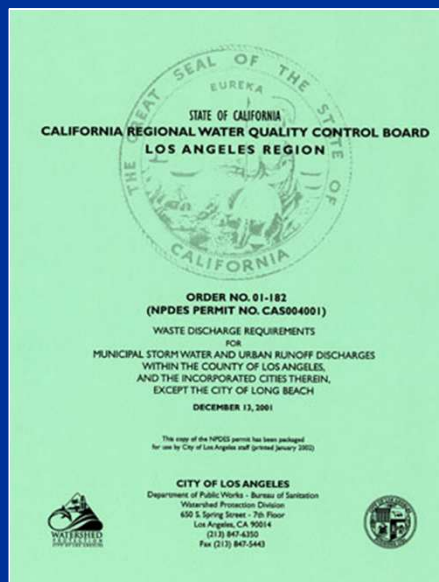
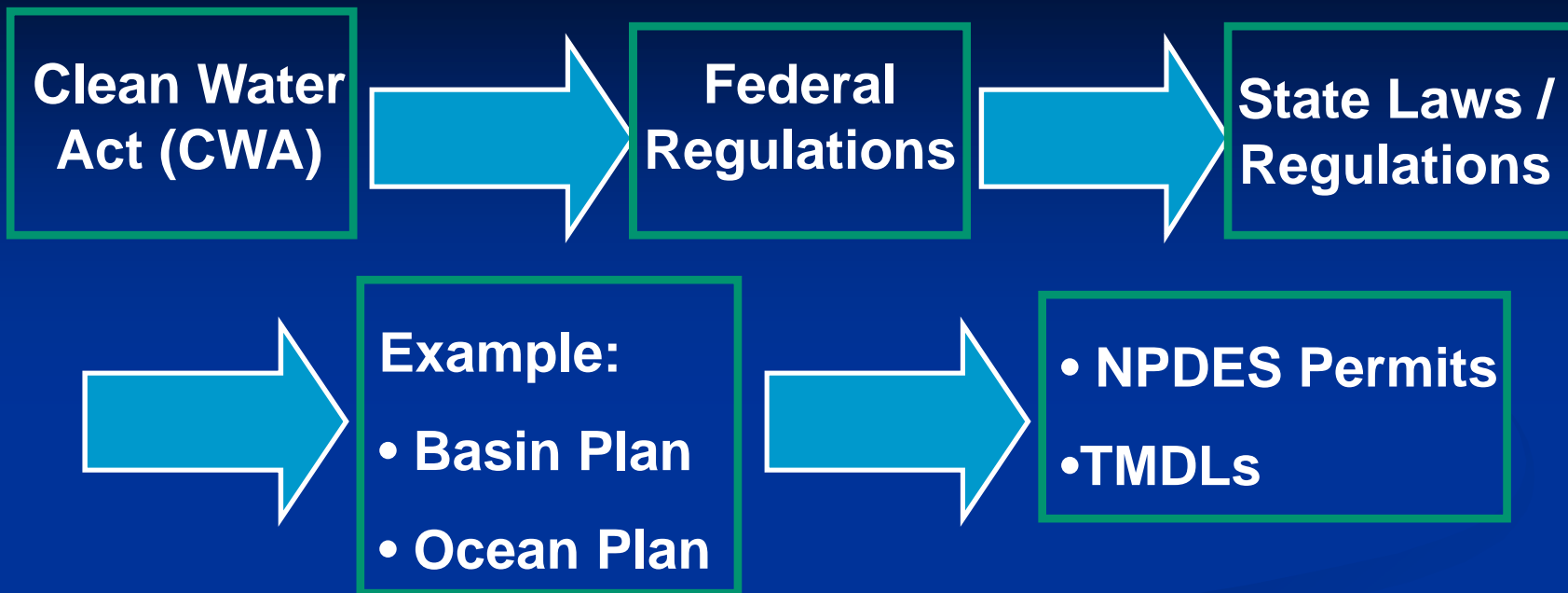


Conveys...

Over 100 million gallons per day of Dry-Weather Flow
Over 350 billion gallons per day of Wet-Weather Flow



Stormwater Quality Regulations



Recent news:

- Ventura County recently issued a new, more stringent, MS4 Permit.
- New LA County MS4 Permit Anticipated in 2012.



TMDLs

Total Maximum Daily Loads

By 2012 more than 60 TMDLs
will be adopted

15 TMDLS have been adopted

- A TMDL is the maximum amount of a specific pollutant such as trash, bacteria, or pesticides, that a water body can receive and still meet water quality standards.
- TMDL's are developed and promulgated by the Regional Water Quality Control Board. The City of Los Angeles is required to comply with several TMDL's to improve the quality of receiving water bodies
- Pollutants of concern: Trash, Bacteria, Metals, Pesticides, Oil & Grease, etc.



Compliance Measures & Elements

Institutional Measures

Structural Measures

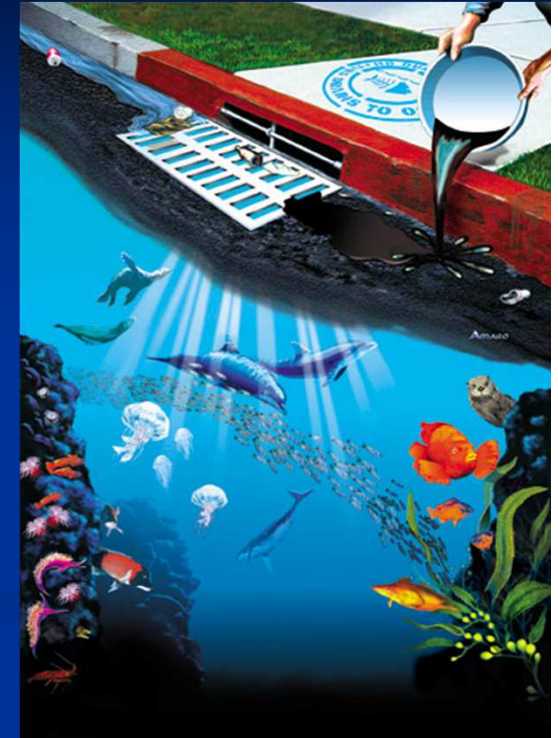
On-Site Measures

Regional Measures

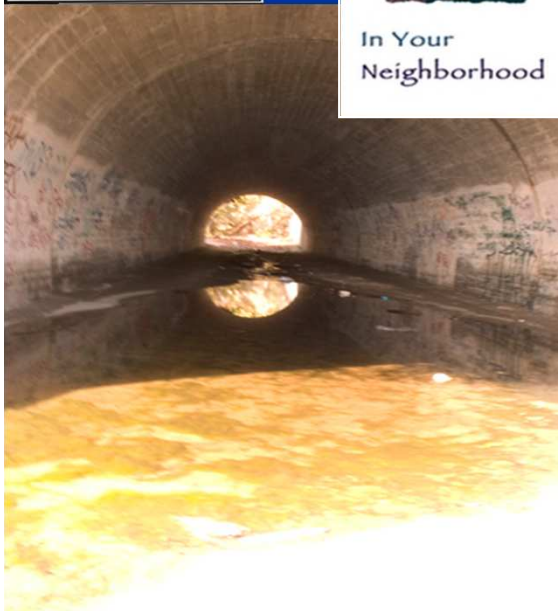
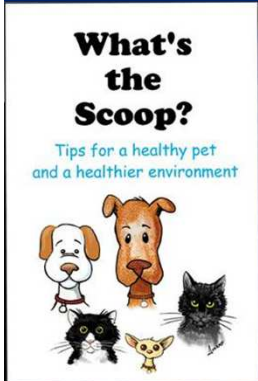


Institutional Measures

- Educational and Outreach Programs
- Street Maintenance
- Storm Drain Maintenance
- Land Use Planning and Management
- Ordinances/Codes and Enforcement



Institutional Measures



- Public Trash Receptacles
- Improved Restaurant and Grocery Store Trash Management
- Expanded Public Education
- Incentive Programs
- Portable Bathrooms
- Pre-wet Weather Storm Drain Flushing



Institutional Measures

Catch Basin Cleaning

- 💧 All 38,000 catch basins are cleaned at least once per year (Average is about 2-3 per year)
- 💧 100,000 cleaned catch basins in FY 07/08
- 💧 All 38,000 catch basins are labeled to prevent illegal dumping

Street Sweeping

- 💧 Weekly to monthly sweeping



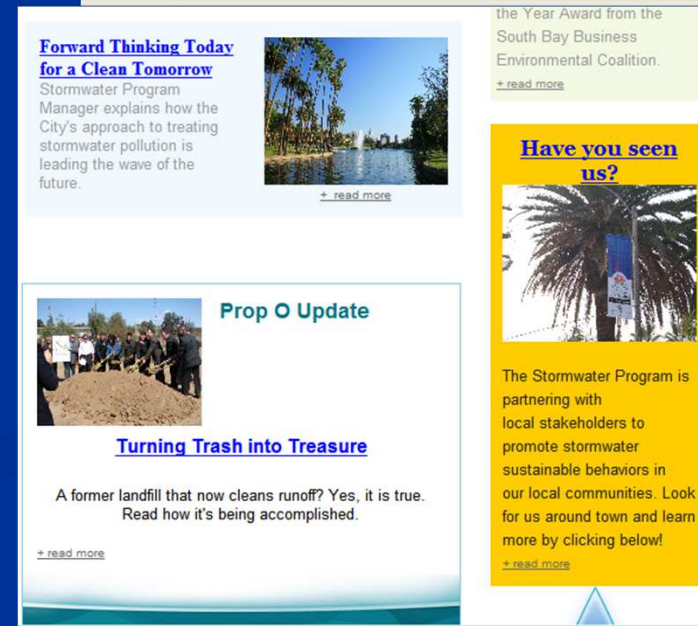
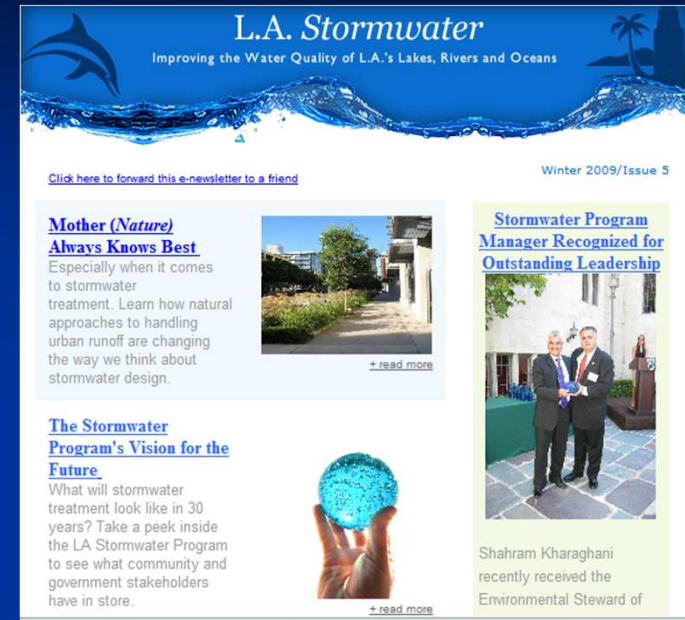
WISHFUL THINKING...



UNTIL THIS IS A REALITY,
PLEASE PICK UP AFTER YOUR PET.

Public Outreach

- Two year since launch of the quarterly e-newsletter, *L.A. Stormwater*.
- Over 2,000 subscribers
- Located at:
www.lastormwater.org/siteorg/download/nwsltr.htm



Public Outreach

- Clean Water: It's a Team Effort
- Bus shelters, online media, print ads
- 1 billion impressions with campaign



Clean Water: *It's a Team Effort!*

What can you do to help?
Visit LAstormwater.org/teameffort

Also covered under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request will provide reasonable accommodations to ensure equal access to its programs, services and activities.

Clean Water: *It's a Team Effort!*

Water Quality Sampling

- Three times a week, Taraneh samples Machado Lake and other L.A. water bodies to make sure they are clean and safe for all to enjoy.
- The City of L.A. has allocated \$117 million in Proposition 0 funds to clean up Machado Lake and complete restoration projects in Ken Malloy Harbor Regional Park over the next several years.

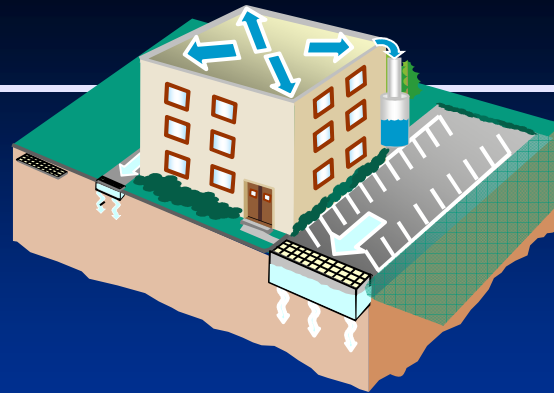
What can you do to help?
Visit LAstormwater.org/teameffort

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On-Site Measures

Small-scale Capture and Infiltration Projects to Minimize Runoff Volume

- On-site treatment
- On-site infiltration
- Cisterns
- Rainwater Harvesting



- Downspout Disconnection
- Rain Barrels/cisterns
- Tree Wells
- Porous Pavement
- Green Streets
- Green Roofs



SUSMP and LID

♦ Proposed Low Impact Development (LID) Ordinance

Requirements:

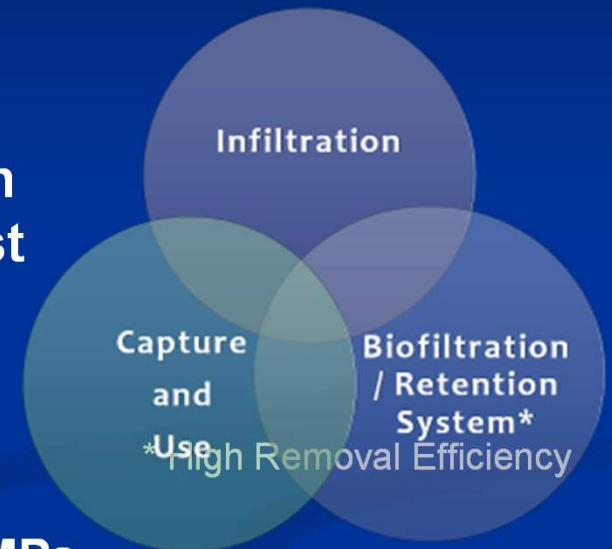
Amends and expands on the existing Standard Urban Stormwater Mitigation Plan requirements (SUSMP) of capturing the first $\frac{3}{4}$ " of a storm event by incorporating LID practices and standards.

Residential (4 units or less):

- Projects must chose from prescriptive list of BMPs

All other developments (commercial, industrial, etc.):

- Similar to SUSMP Requirements
- Majority of projects implementing SUSMP would satisfy LID requirements
- Cost to comply w/ LID \approx SUSMP



Examples – On-site Parking Lot Infiltration



Green Streets Initiative

Green Streets:

- Promote green streets which consist of stormwater infiltration swales in the parkways that collect runoff from the street trees and permeable pavement.
- Establish standard plans for the construction of green streets in order to infiltrate runoff.



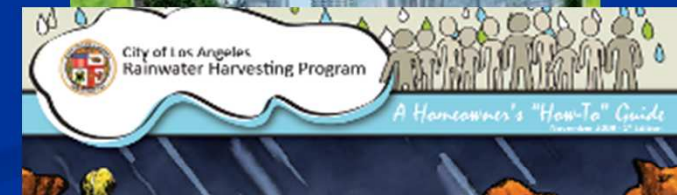
Status:

- Mayor and Council adopted report on Permeable Pavement, Green Alleys, and Green Streets.
- Developing and implementing pilot green streets and alleys projects.
- Green Street Committee developing standards.



Green Streets Initiative

- ♦ Green Streets:
 - ♦ Completed two manuals:
 - ♦ “Green Streets and Green Alleys Design Guidelines Standards”
 - ♦ “Homeowners How-to-Guide”
 - ♦ Starting the third manual:
 - ♦ “Urban Greening Policies and Standards”
 - ♦ Located at www.lastormwater.org



Green Streets:

- STORMWATER CURB EXTENSION (VSCE) TOR & LOCAL STREETS**

DEPARTMENT OF PUBLIC WORKS

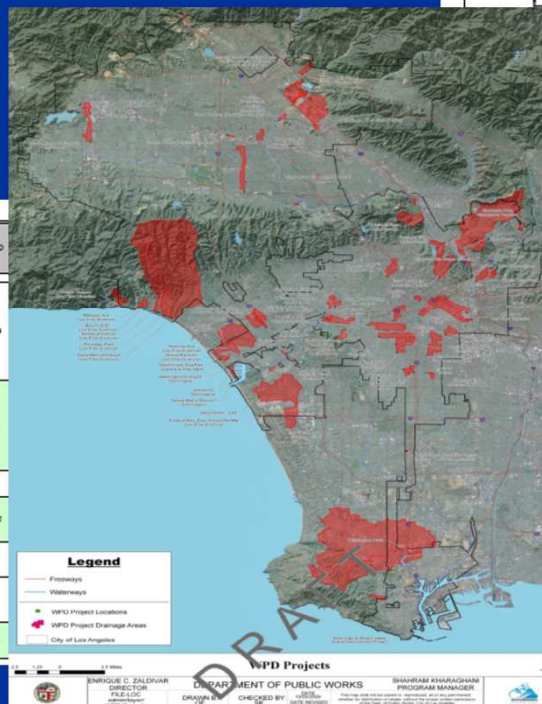
CITY OF LOS ANGELES

STANDARD PLAN S - 484 - 0

REVISIONS

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Green Infrastructure Projects								
No.	Project Title	Project Description	BMP1	BMP2	BMP3	BMP4	BMP5	Comments
Green Street								
1	6th Street Green Corridor Project	A two-pronged approach to greening in the heart of downtown urban environment, the creation of a green corridor along 6th Street in the economically disadvantaged Los Angeles corridor of central Los Angeles will reduce air and water pollution, provide shade along hot island effect, while simultaneously showcasing new and existing green infrastructure for sustainability, including the aesthetic experience of the thoroughfare and improved tree canopy. The project includes the installation of street trees, as well as tree hangovers at selected street intersections that will improve the tree canopy beneath the street and provide shade. Having a lush canopy effect, the sub-streetways can also reduce vehicle speeds, significantly improving driver safety.	Information System (Green)	Permeable Pavement	Streetwater Planters	Ornamental Plantings	Ornamental Plantings	14
2	57th and Figueroa St. Project	Project is located a low-income and densely populated portion in Central District of Los Angeles. Area is a strip of City-owned land that has been between Figueroa and 116th Street, owned from March 1970 to 2016. 57th Street school is located about 1020' E away from the project site. Project provides a green corridor through the area with trees, shrubs, and groundcover to reduce direct precipitation as well as stormwater from the adjacent areas. Proposed elements include: 1) Street trees, 2) shrubs, 3) groundcover, 4) water features. The proposed corridor is located along the right-of-way, and the project will have a total length of 110' and a width of 10'.	Information System (Green)	Permeable Pavement	Canopy Trees	Tree Shrub	Ornamental Plantings	8
3	Alexander Development Street Address, Phase V (short, Spring from Manager Street to 10th Street)	This project will provide two left turn lanes on Buena Vista to facilitate left turn movements from Buena Vista, and create two right turn lanes on Buena Vista at Alexander Street to facilitate the right turn movements. Elements will include extensive use of canopy trees, arbutus trees, drought tolerant plantings, and permeable paving.	Information System (Green)	Permeable Pavement	Canopy Trees	Ornamental Plantings	Ornamental Plantings	12
4	Baldwin Blvd and San Fernando Road Intersecting Greening Improvements	Enhance Green Gateway meeting at Cochran Avenue will be three miles along Baldwin Creek and the SR99 will be segmented meeting with waterways. Main path nature vegetation to capture runoff from streets and storm drains along the street corridor.	Information System (Green)	Permeable Pavement	Streetwater Planters	Streetwater Planters	Ornamental Plantings	
5	Baldwin Creek Greenway planting at Cochran Avenue	Enhance Green Gateway meeting at Cochran Avenue will be three miles along Baldwin Creek and the SR99 will be segmented meeting with waterways. Main path nature vegetation to capture runoff from streets and storm drains along the street corridor.	Information System (Green)	Permeable Pavement	Streetwater Planters	Streetwater Planters	Ornamental Plantings	
6	Buckhorn Street between Lexington Street and Clark Ave	This project will transform Buckhorn Street, between Lexington Street and Clark Ave into a green street through the planting of Green solutions for stormwater management, and aesthetic improvement. 100 yards of the project include measures such as: flowering canopy trees, planters, infiltration basins, drought tolerant plantings, and permeable paving.	Information System (Green)	Permeable Pavement	Streetwater Planters	Canopy Trees	Ornamental Plantings	
7	Del Rio Park Walkway/Play Area Greening and Irrigation	The project, located in Inglewood City, will convert a "parkette" into a "mini-park" with a play area, a dog park, and a basketball court. The project will include a series of green infrastructure elements including: tree canopy, stormwater management, and aesthetic improvement.	Stormwater	Tree Shrub	Tree Shrub	Ornamental Plantings	Ornamental Plantings	



DRAFT REVISION

Examples – Elmer Ave Green Street Project

- ◆ Elmer Ave between Stagg and Keswick Streets.
- ◆ Partnered with LASGRWC and TreePeople.
- ◆ Installation of rain barrels, rain garden bioswales, porous pavements, and infiltration galleries under the street.
- ◆ Completed in May 2010.



Examples - Riverdale Ave Green Street Project

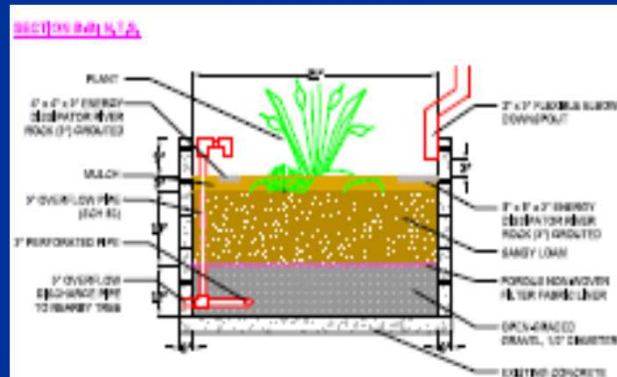
- ♦ Riverdale St between Crystal St & Los Angeles River.
- ♦ Installation of planters, porous pavers, and infiltration gallery along approximately 500' of the existing parkway and sidewalk to infiltrate street runoff.
- ♦ Estimated completion in July 2010



Rainwater Harvesting

Downspout Disconnection

- ♦ Pilot this program to harvest rainwater for irrigation use on residential and commercial properties.
- ♦ Install rain barrels, directed roof runoff to on-site pervious area, and constructed planter boxes.
- ♦ Program initiated in June 2009 and near completion.
- ♦ Will lead to developing standards for City-wide implementation.



Example

Hall House BMPs Demonstration Project

- Infiltration Trenches
- Vegetated Swales
- Porous Pavement
- Cisterns



Rainwater Harvesting

Rainwater Harvesting Standards:

- Uses can include irrigation, groundwater recharge, firefighting, etc.
- Maintain consistency on applying standards for the use of captured rainwater.
- Establish rainwater treatment requirements.

Status:

- Completed draft guideline matrix proposal.
- Held workshops with stakeholders - County and State Health Departments, Heal the Bay, Santa Monica BayKeeper, Regional Water Quality Control Board, City of Santa Monica, County Department of Public Works, and other agencies.
- Target completion by end of 2010.



Other LID Measures



***Imperial Highway
Median Greening
(completed)***



***Westminster Dog Park
Bioremediation Filter
(completed)***

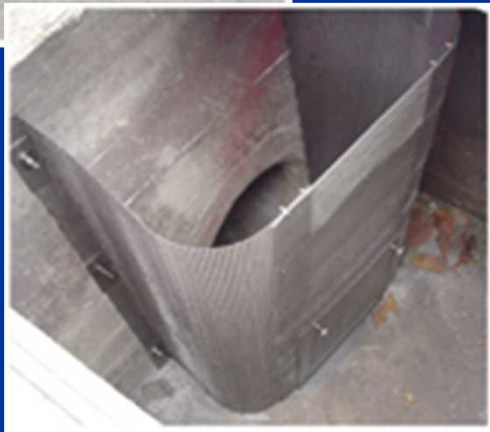
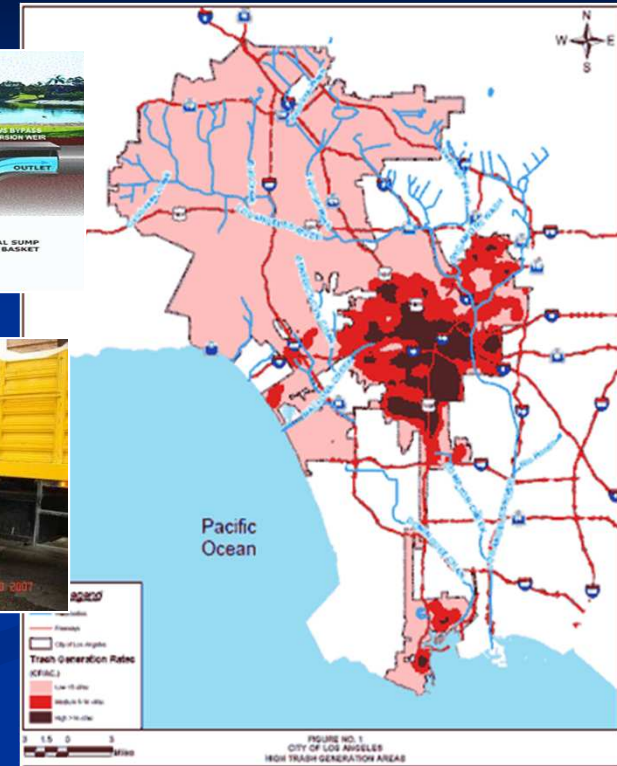
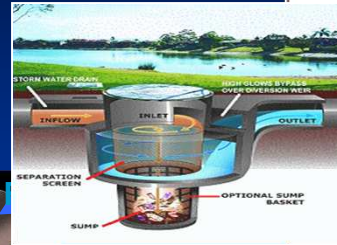
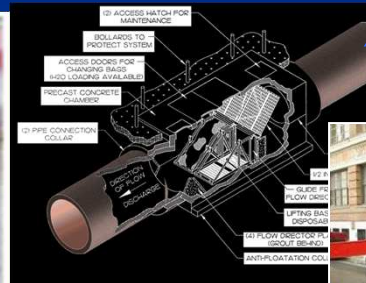


***Grand Ave Tree Wells
(completed)***



Structural Measures - Trash TMDL

- High Trash Generation Study
 - 3 year study
 - Identified worst areas in the City



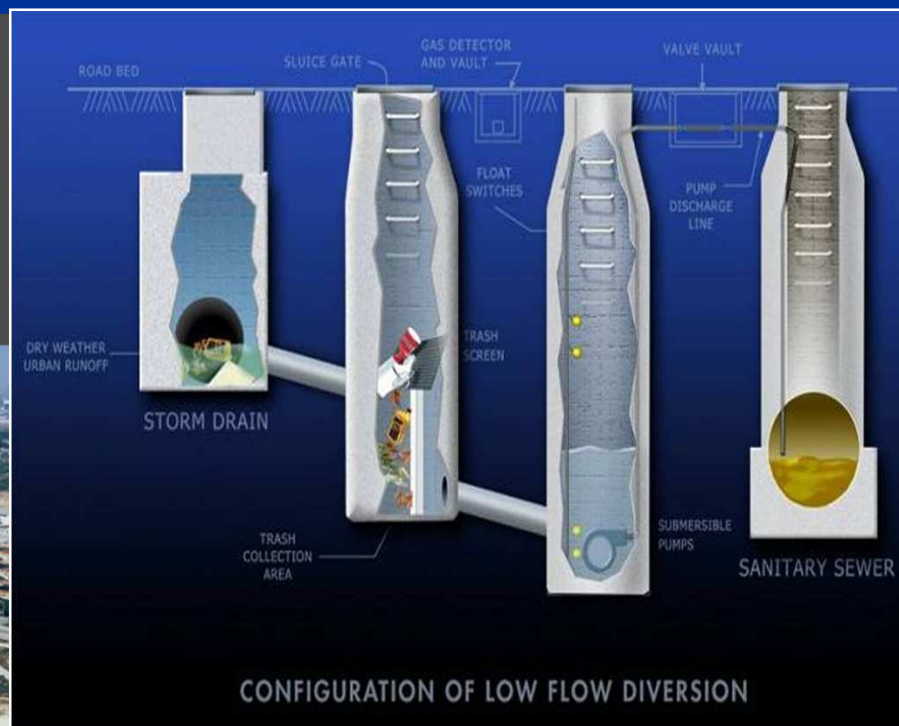
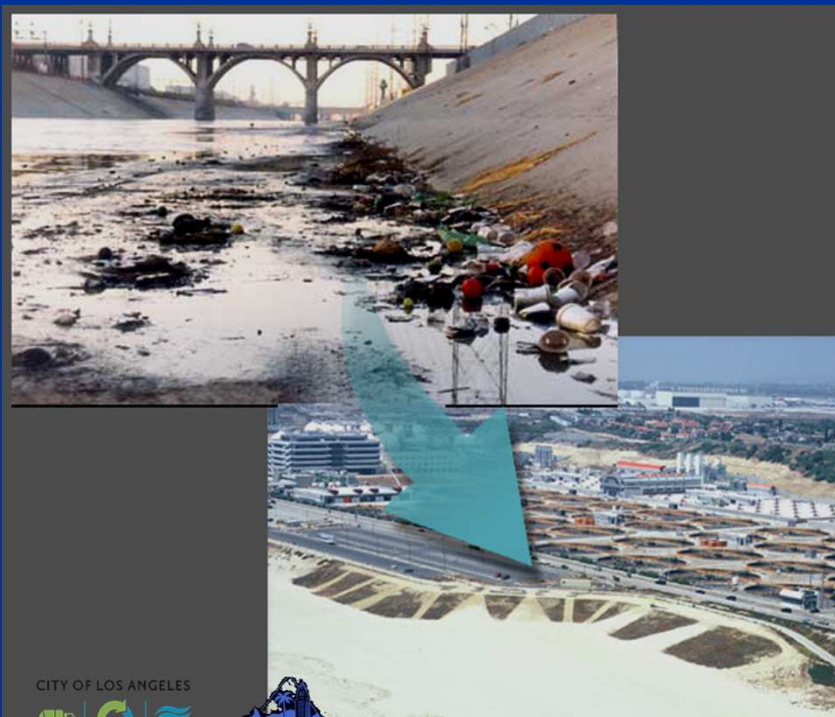
As of 2009, the City reduced its trash contribution to receiving waters by over 50%.



Structural Measures - Low Flow Diversion

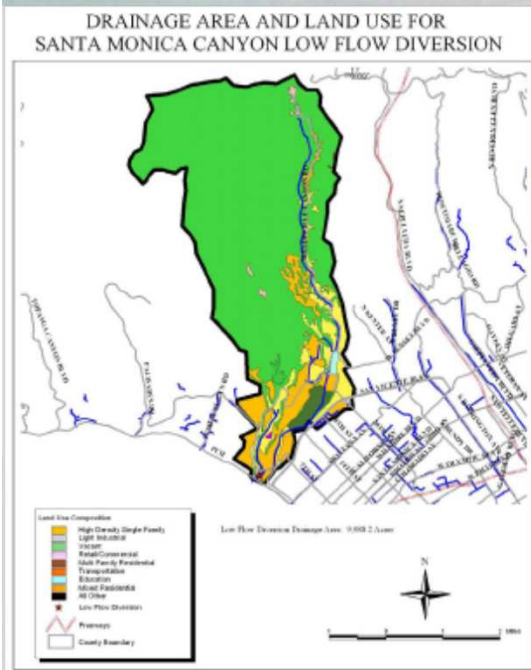
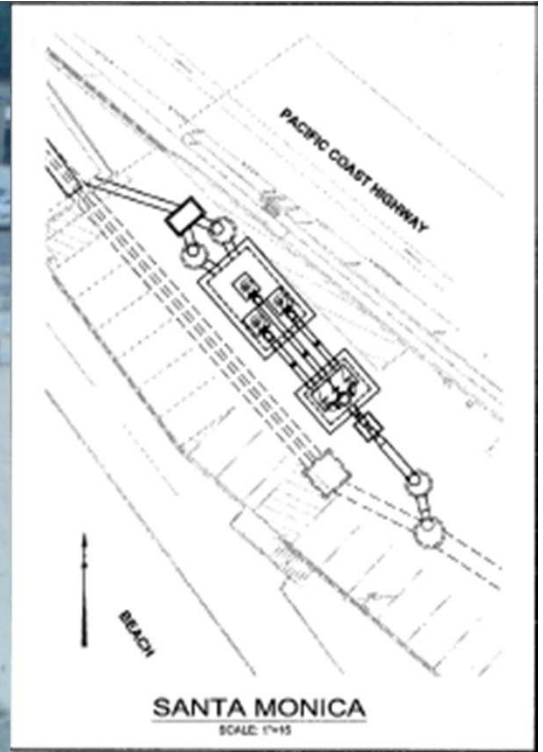
- Divert dry weather runoff away from beaches
- Send flow to Hyperion Treatment Plant for treatment
- Constructed 23 Low Flow Diversion structures.

Bacteria TMDL



Santa Monica Canyon Channel

- Tributary Drainage Area: 10,000 acres
- Existing Capacity: 3,200,000 gpd
- Upgraded Capacity: 7,750,000 gpd



Regional Measures

- Infiltration Basins
- Constructed Wetlands
- Detention/Retention Basins



Echo Park Lake



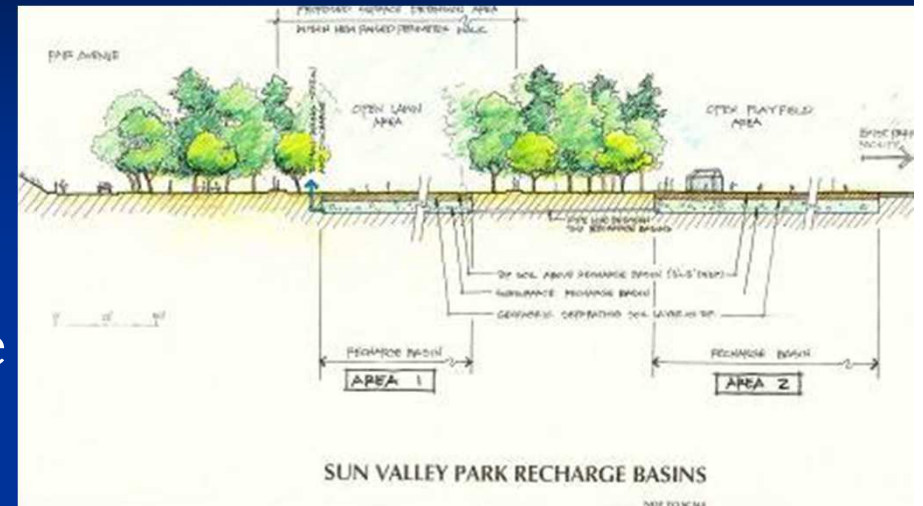
Machado Lake



Regional Measures

Sun Valley Park Project

- Alleviate flooding and improve water quality
- Capture / Infiltrate / Reuse
- Increase Open Space



Regional Measures

♦ South Los Angeles Wetland Park Project

Creation of a Wetland Park. Capture all dry weather and a portion of stormwater flows from 540 acres.

Estimated Completion date: Winter 2012.

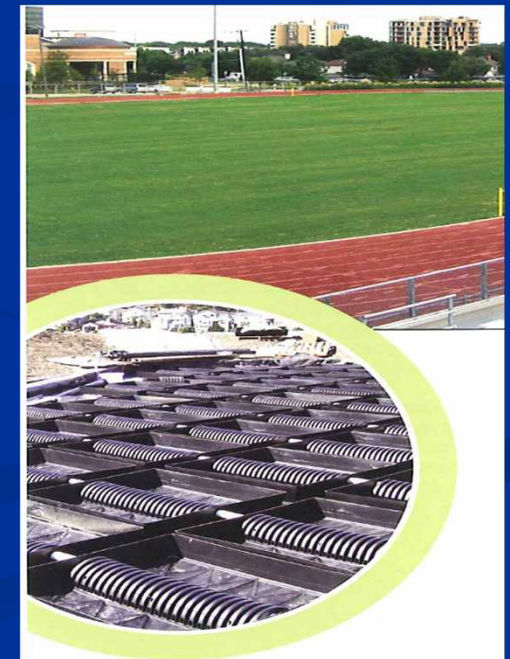


Regional Measures

💧 Westside Park Rainwater Use Project

Pilot project to harvest rainwater for use as subsurface irrigation system for 2 acres of the park on a power line easement site.

Estimated Completion date: Spring 2011.

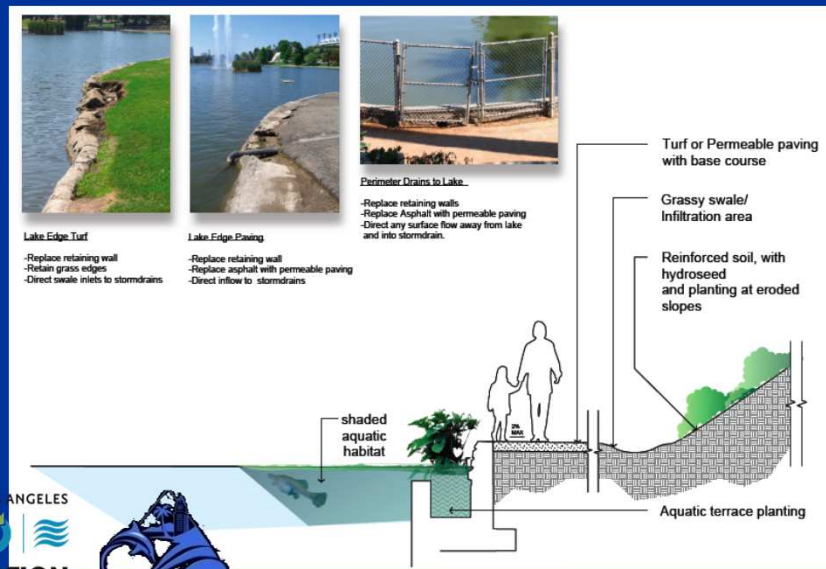


Regional Measures

💧 Echo Park Lake Rehabilitation

751 Echo Park Ave., Echo Park. Treatment of all dry weather and 1-year/1-hour storm event flows. Treated flow will be discharged into the lake. The lake will be rehabilitated to reduce potable water demand.

Estimated completion in 2013.



Regional Measures

Strathern Pit Multiuse Wetland Park

Creation of a Multiuse Wetland Park. Will capture and reuse all dry weather and storm water flows from 929 acres.

Site is located on 46 acres.

Figure ES-1



Regional Measures



Temescal Canyon Park Rainwater Use



Westchester Infiltration



Penmar Rec & Golf Center Rainwater Use

How Do We Fund These Projects?

– Local Measures:

- **Proposition O:** \$500 million clean water bond (2004)

STORMWATER
BOND
MEASURE

– State Measures:

- **Proposition 12:** Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond (2000)
- **Proposition 40:** Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection (2002)
- **Proposition 50:** Water Quality, Supply and Safe Drinking Water Projects. Coastal Wetlands Purchase and Protection (2002)
- **Proposition 84:** Water Quality, Safety and Supply, Flood Control, Natural Resource Protection, Park Improvements (2007)



Questions / Comments



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Watershed Protection Division

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www.lastormwater.org

Mission Statement:

***“To Protect the Beneficial Uses of
Receiving Waters, while Complying with
All Pollution Abatement Regulations”***

