

## Agenda Item #9



June 13, 2014

# Overview

## Countywide Perspective

- Orange County Stormwater Program
- Stormwater Permits and Urban Runoff
- Critical Policy Issues

## City Perspective

Richard Boon, County of Orange

Amanda Carr, City of Irvine

Gene Estrada, City of Orange

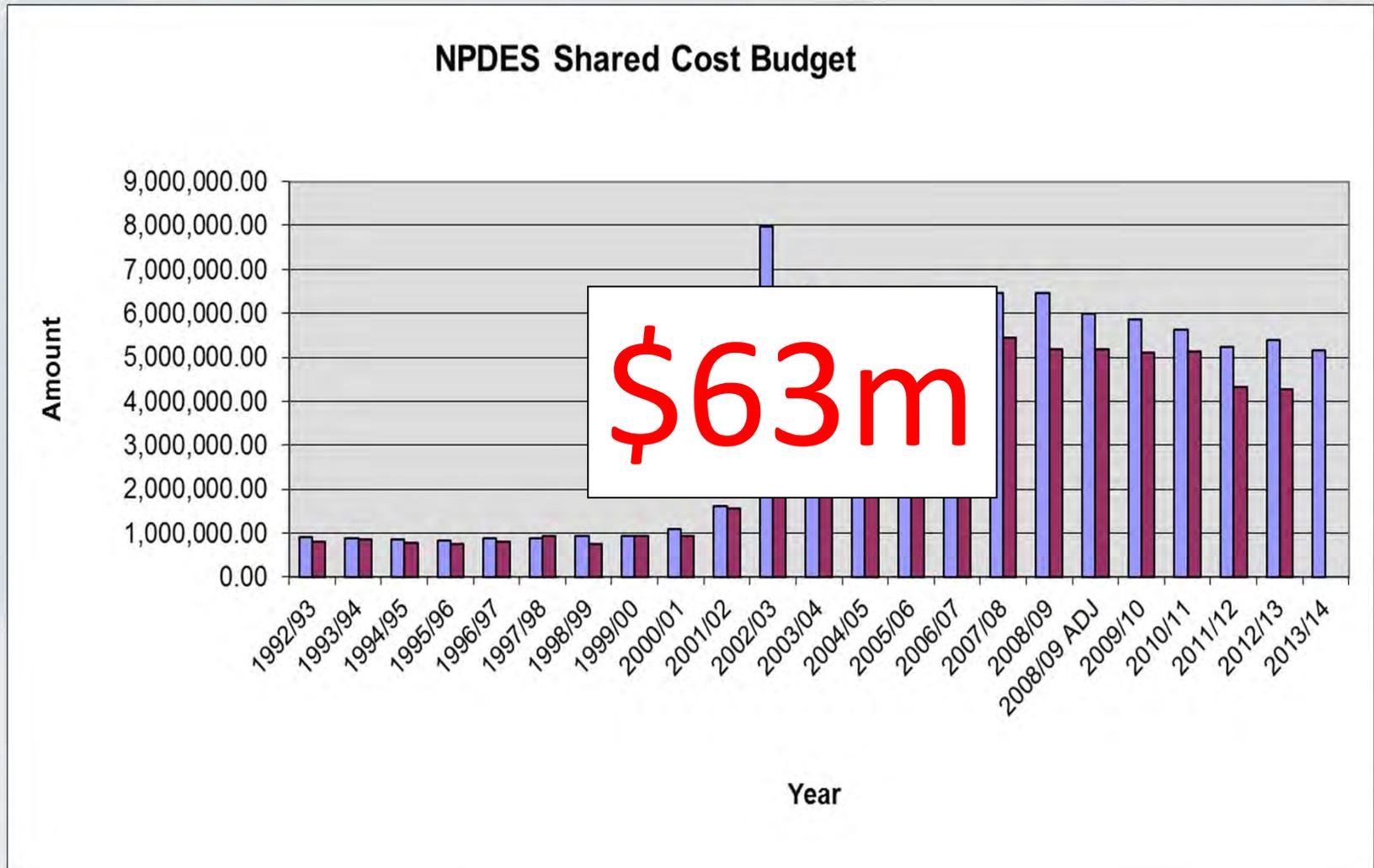


# Orange County Stormwater Program

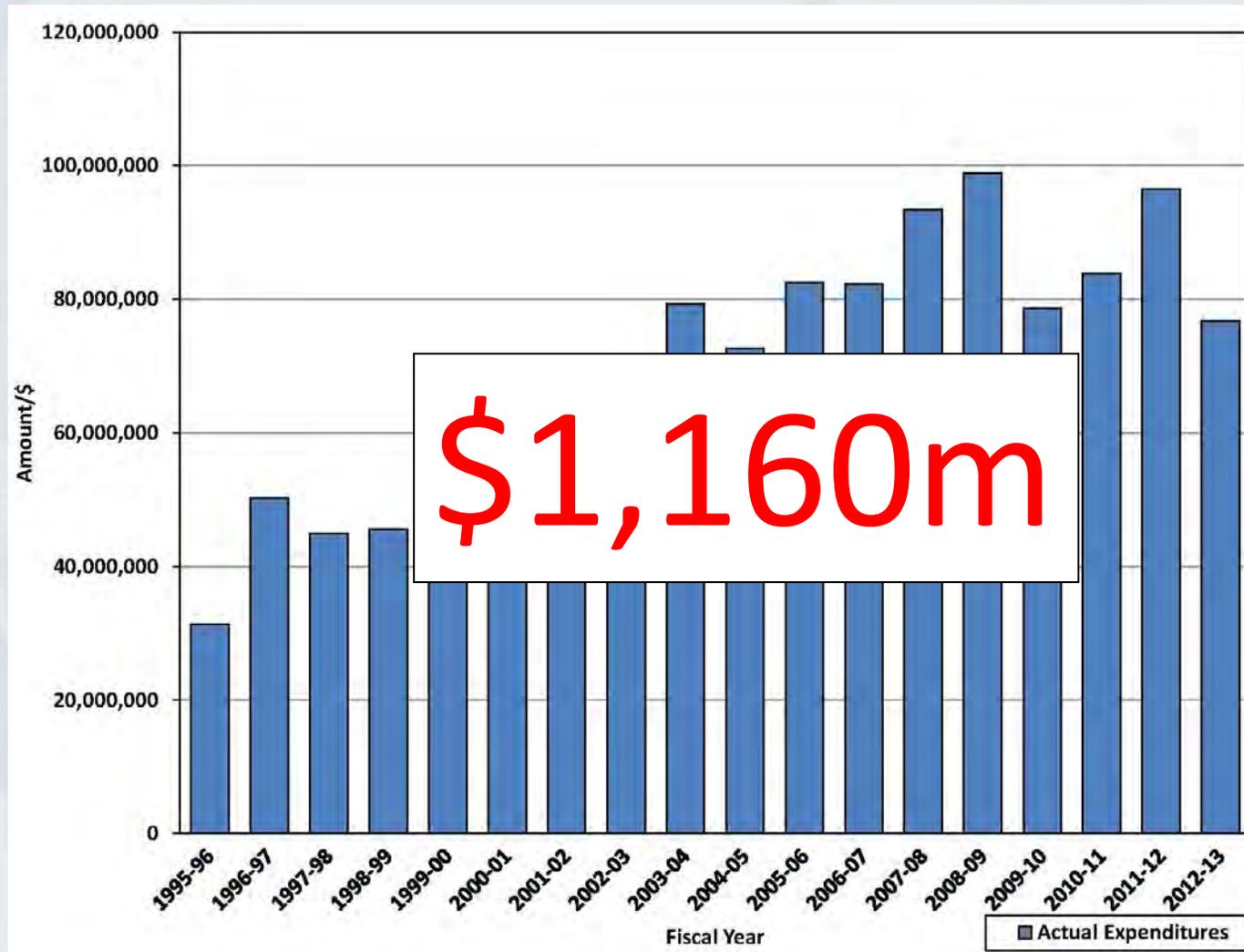
- 24 years of program implementation (MS4 permits since 1990)
- County and City staff bring 100's of years of collective water quality experience
- Nationally recognized consultant expertise has assisted in all areas of program development
- Highly acclaimed program elements:
  - Land Development – OC Engineering Council Engineering Project Achievement Award 2012
  - Public Education – CASQA Outstanding Outreach and Media Project; APWA Model Program



# Program Management Costs



# Program Implementation Costs



# Stormwater Permits

The federal Clean Water Act requires that stormwater permits for discharges from municipal storm sewers:

- shall include a requirement to **effectively prohibit non-stormwater discharges** into the storm sewers; and
- shall require controls to **reduce the discharge of pollutants to the maximum extent practicable**, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.



# Urban Runoff

*There are four interrelated but separable effects of land-use changes on the hydrology of an area: changes in peak flow characteristics, changes in total runoff, changes in quality of water, and changes in the hydrologic amenities.*

Luna Leopold, USGS, 1968



# Pre-Development Landscape

30% Evapotranspiration



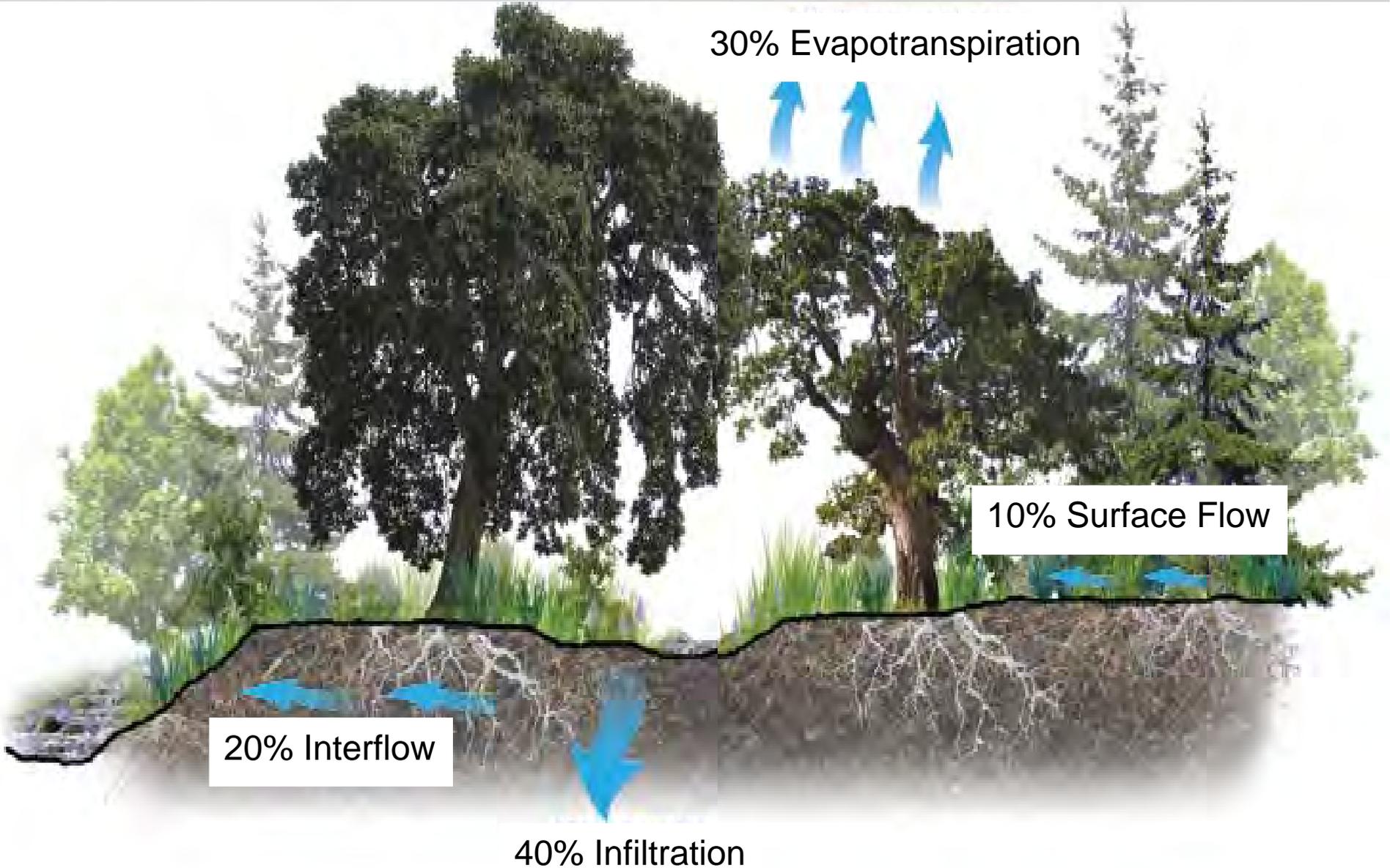
10% Surface Flow



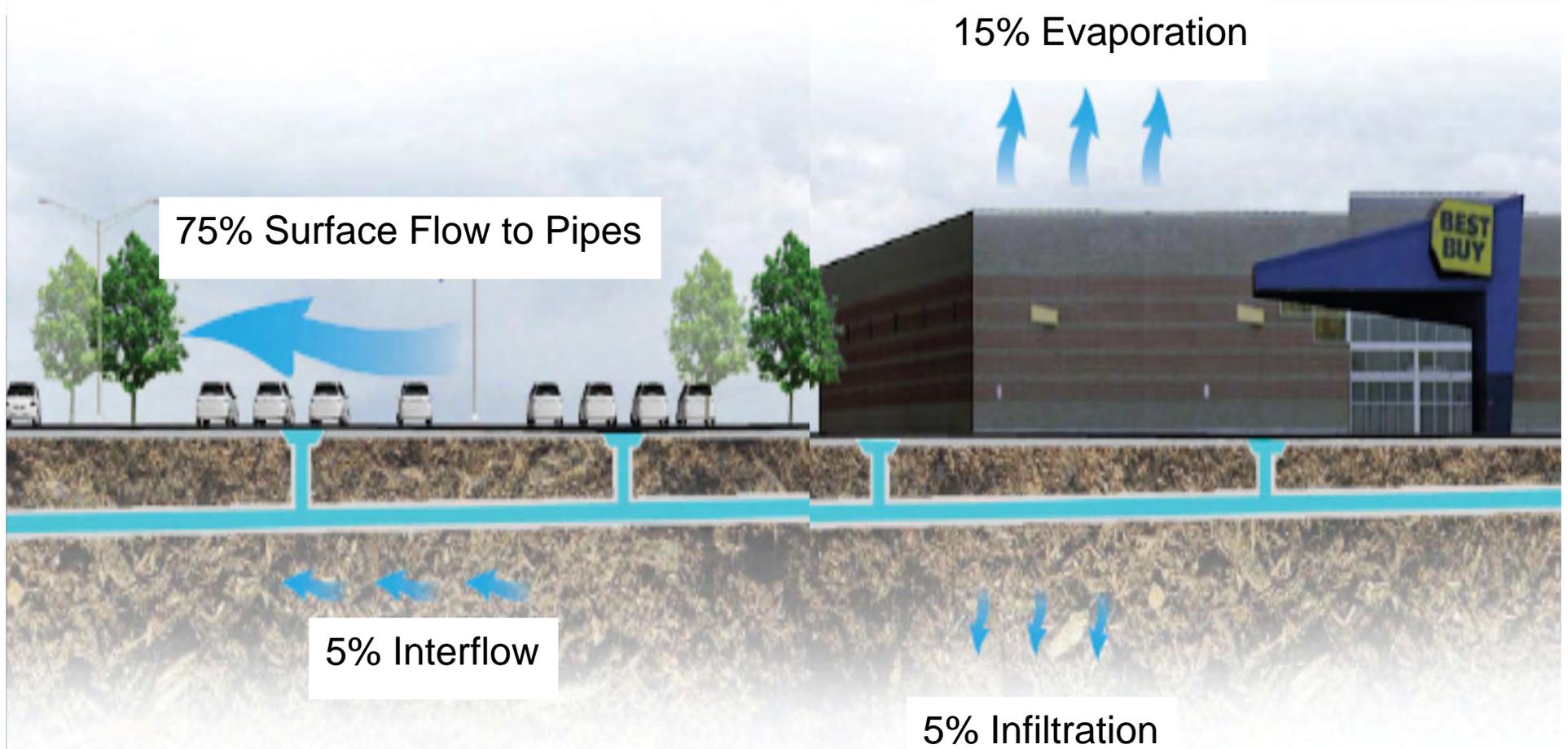
20% Interflow



40% Infiltration



# Post Development Landscape



# Permit Renewal

The Permit Writer



# Critical Policy Issues

1. Affirming the “Iterative Process”
2. Recognizing Progress
3. Findings – “Bridging The Analytic Gap”
4. Applying “Maximum Extent Practicable”
5. Land Development – No Basis For Change
6. Enabling Program Development





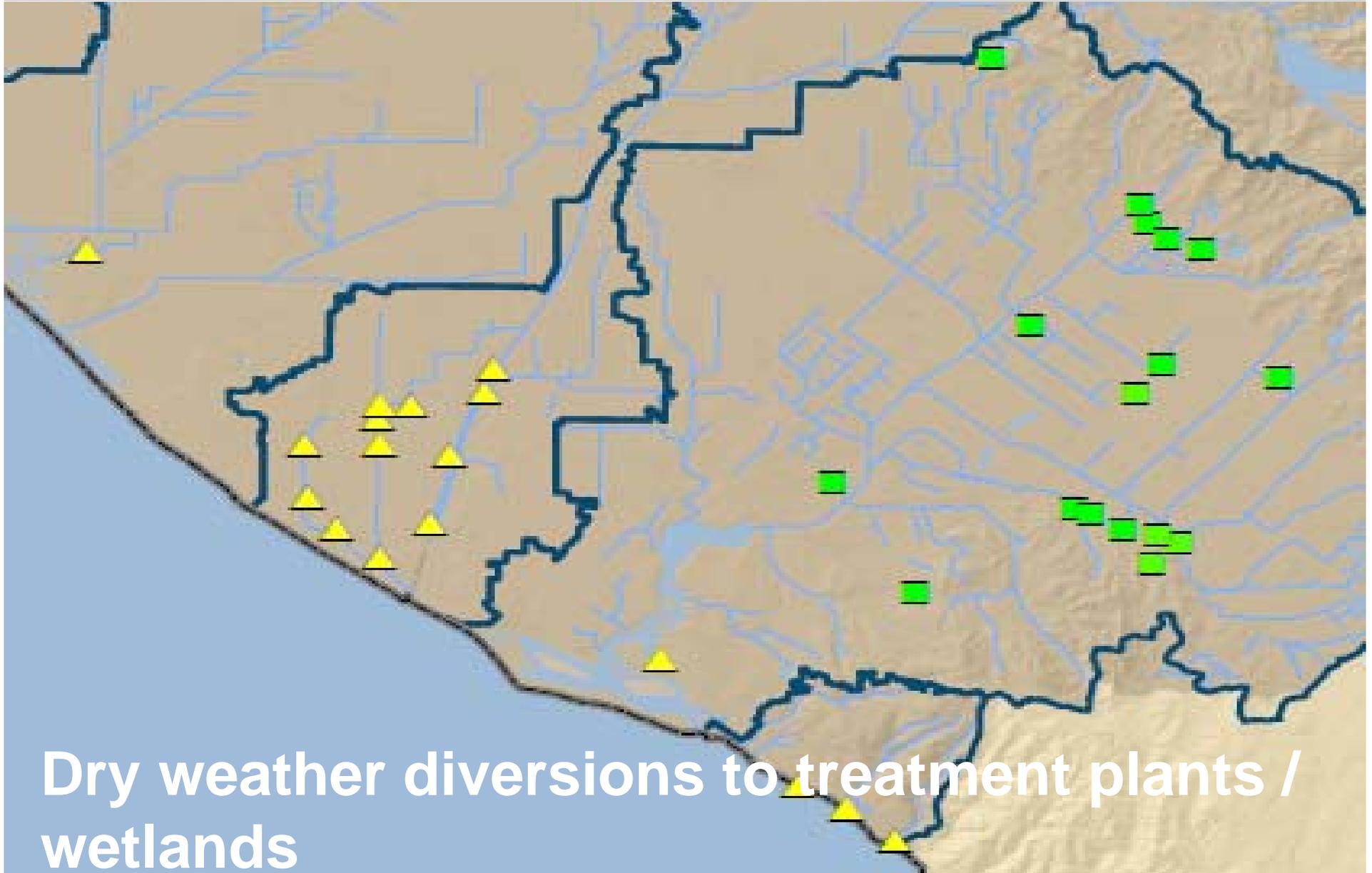
## 2. Recognize Progress: Bacteria



# Recognize Progress : Nutrients



# Recognize Innovative Use of Drainage Infrastructure



# Recognize Progress: Pesticides

## Summary of Toxicity - California Watersheds – SWRCB – 2010

- 992 sites - 48% exhibited toxicity
- With the exception of ammonia, all evaluations implicated pesticides.

New DPR rule will largely--but not completely--end widespread water and sediment toxicity from pyrethroids in California's urban watersheds (Kelly Moran, PhD, pers.comm.).



# Recognize Progress: Copper

- Principal sources of copper in urban runoff: **vehicle braking**, architectural copper and ornamental ponds/swimming pools.
- SB346 (Kehoe) 2010

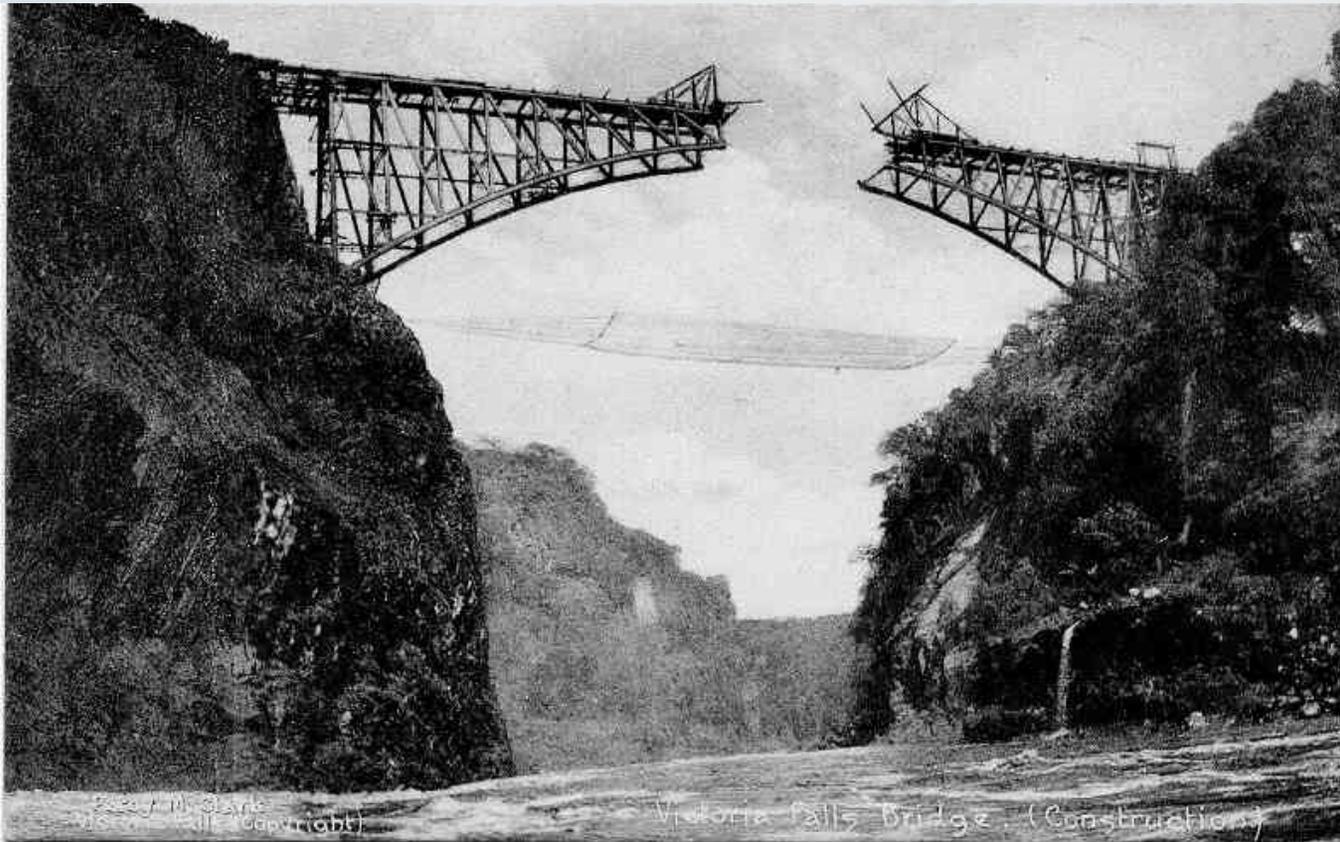
## Vehicle Brakepads

2021 – No more than 5% Cu by weight

2025 – No more than 0.5% Cu by weight



### 3. Directives Require Findings



*Findings must “bridge the analytic gap between the raw evidence and ultimate decision or order.”*

*WQ Order 95-4*



# Examples

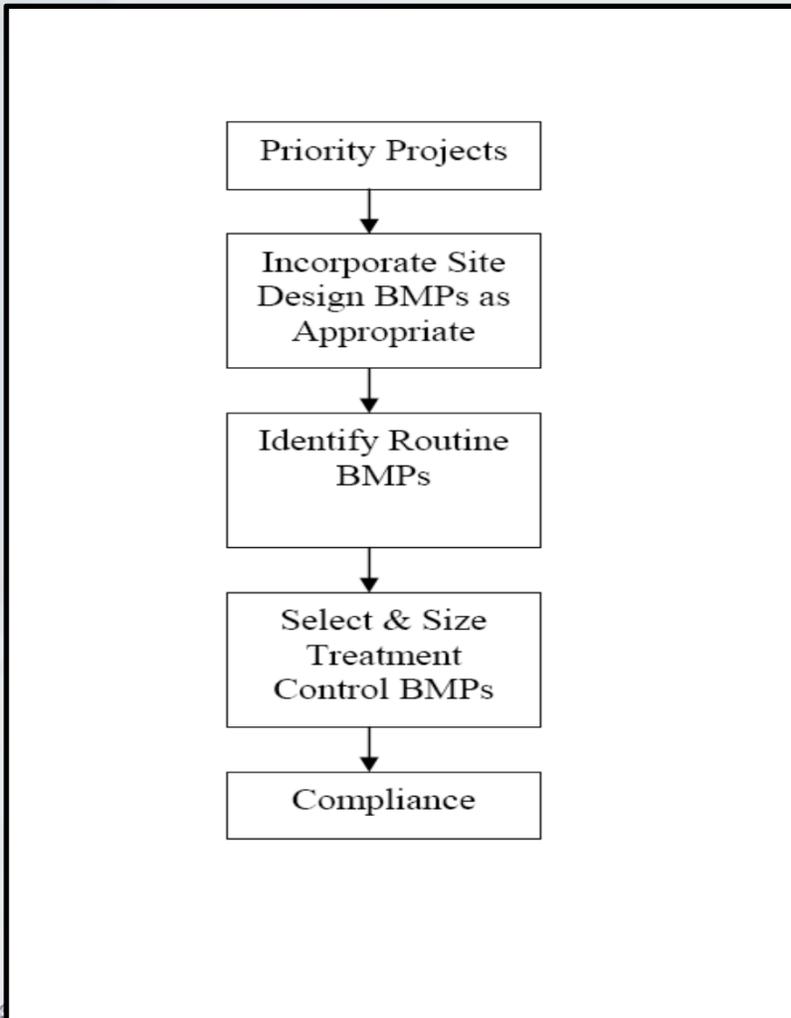
→ XIV.C. Now requires cleaning and inspection of underground drains in addition to open channels

\$6.3 Million for CCTV of 600 miles of storm drain.



# 3. Land Development: No Case For Change

2003-2011



2011-





Contributed by Gene Estrada, City of Orange



Contributed by Gene Estrada, City of Orange

# Land Development: No Case For Change

- Product of 2 year stakeholder development process
- \$1.5m development costs
- Only 2 years into implementation (Less than 1 year in South Orange County)
- No evaluation of LID BMP performance
- No technical justification for proposed changes - which would be very costly
- No findings in permit



# Examples

- XII. Changes BMP Lexicon
- XII.A. Creates new requirements for General Plans
- XII.B.1 50 Days for Implementation
- XII.B.2 “Priority” or “Non-Priority”
- XII.C.6 Prescription of mechanisms
- XII.C.10 Recordation of Project WQMPs
- X.D.1.c 80% capture
- XII.D.3 48 Hour Drawdown time
- XII.D.8 Requires entry on to private property
- XII.E.1 BMPs require peer reviewed performance data
- XII.F.4 & G.5 Requires mitigation of infiltration constraints



# Examples

- XII.G.1.d. 1.5x Biotreatment Sizing
- XII.I.2. 10' Groundwater Separation
- XII.N.1.b. No hydromodification exemption for engineered channels
- XII.N.2. Hydromodification performance standard is changed



### 3. Going Beyond "Maximum Extent Practicable"

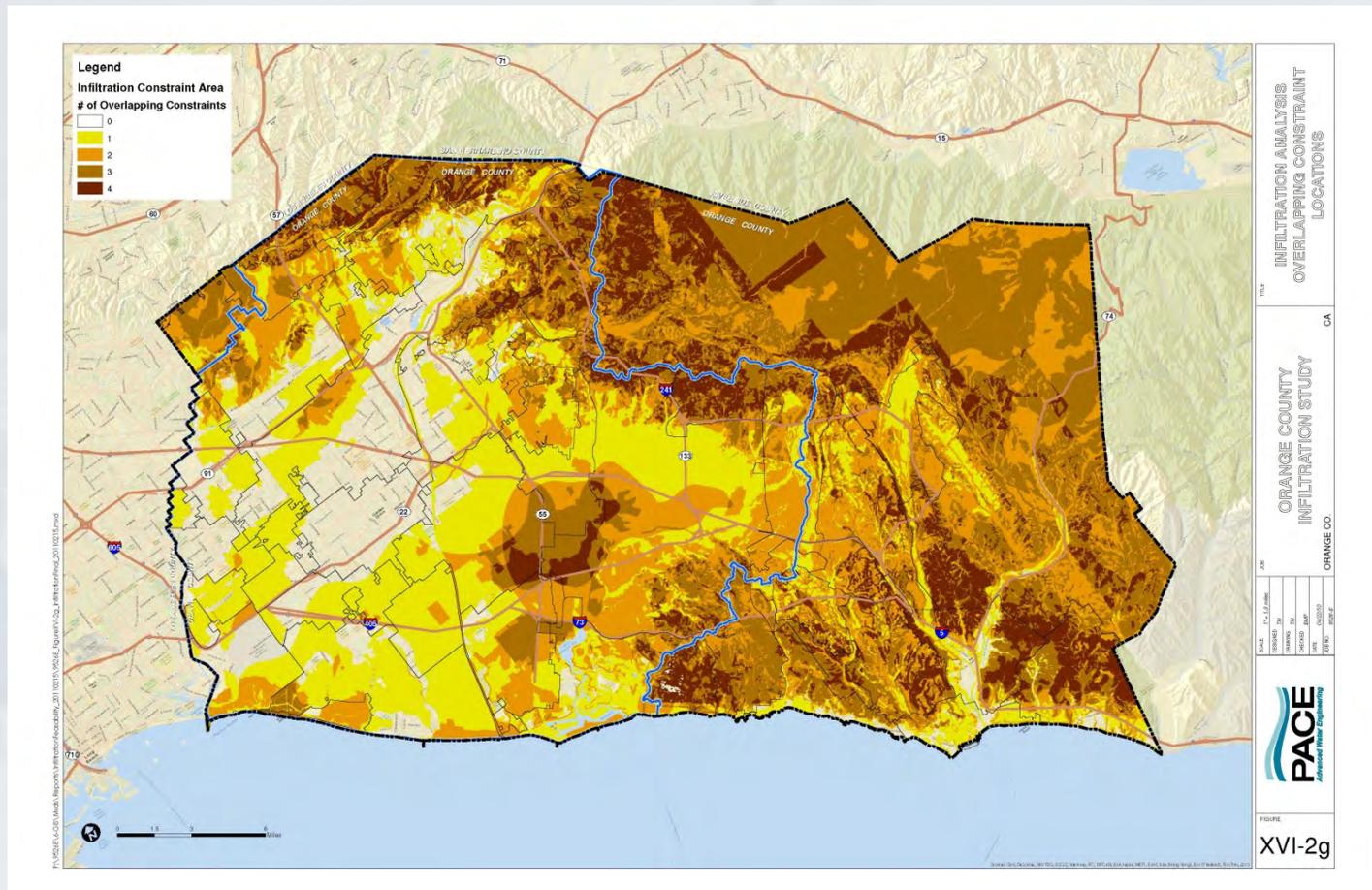


For example: The 80<sup>th</sup> percentile runoff event is now considered cost effective and is the design event that achieves the MEP definition under the Clean Water Act – WEF/ASCE, 1998



# Examples

➔ XII.F.4 & G.5 Appears to require mitigation of infiltration constraints



# Examples

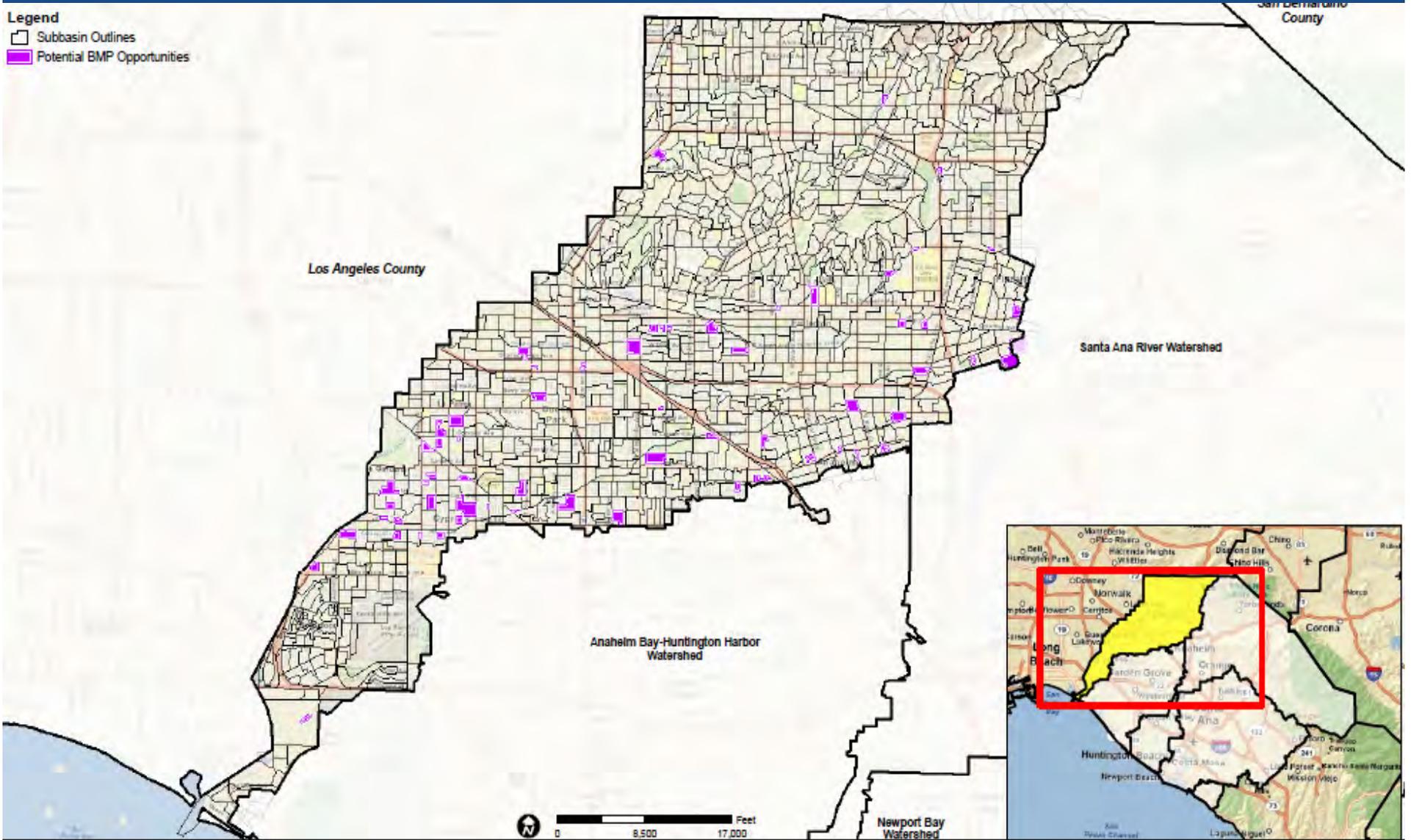
→ XII.B.2. All development projects must now be categorized as “Priority” or “Non-Priority”

Photovoltaic Systems    Repair    Antenna Cell Sites  
Electric Vehicle Chargers  
New Residential Construction    Light/Flag Poles  
Accessory Buildings    Patio Covers  
Retaining Walls    Blockwall/Columns



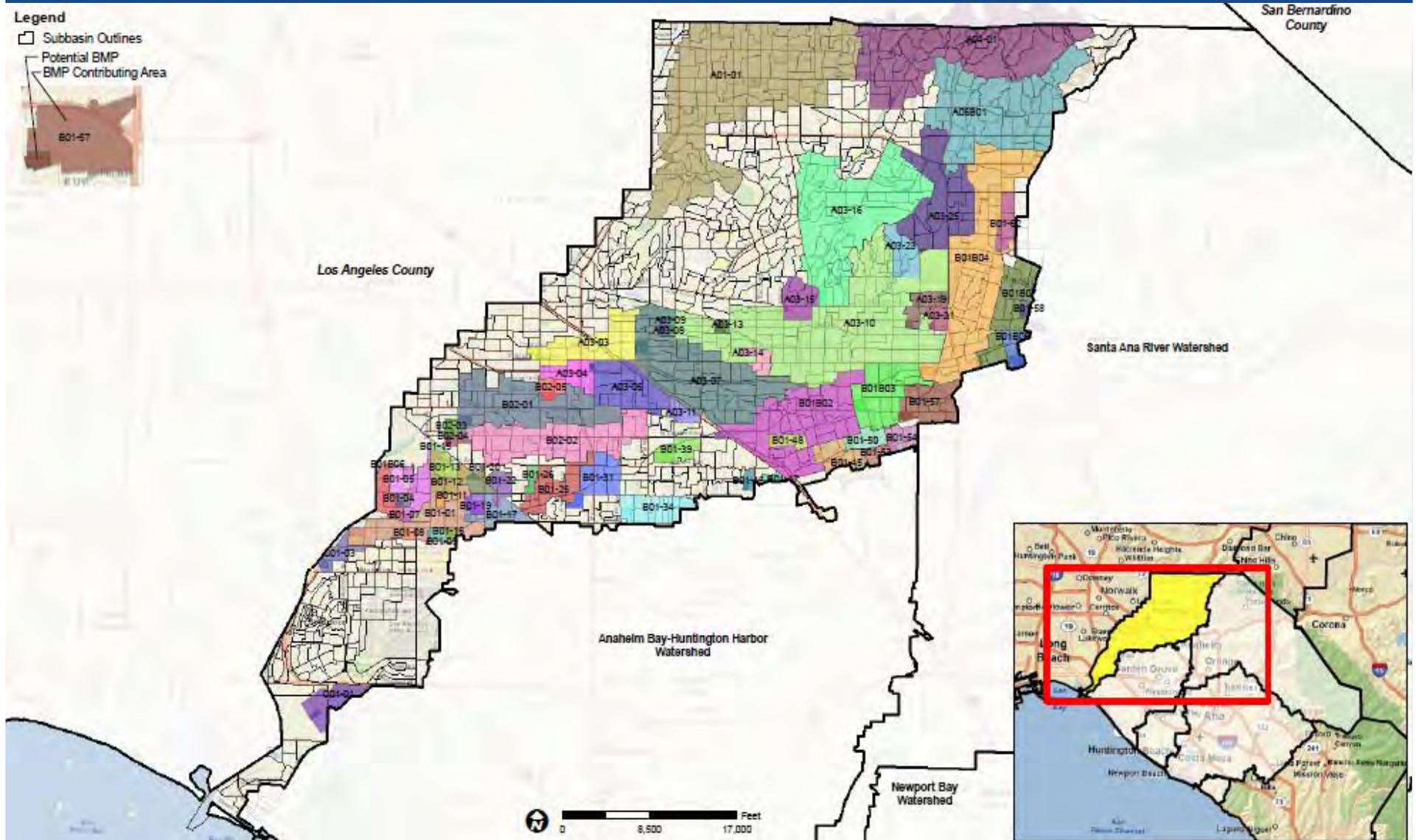
# Screened Regional BMP Opportunity Locations

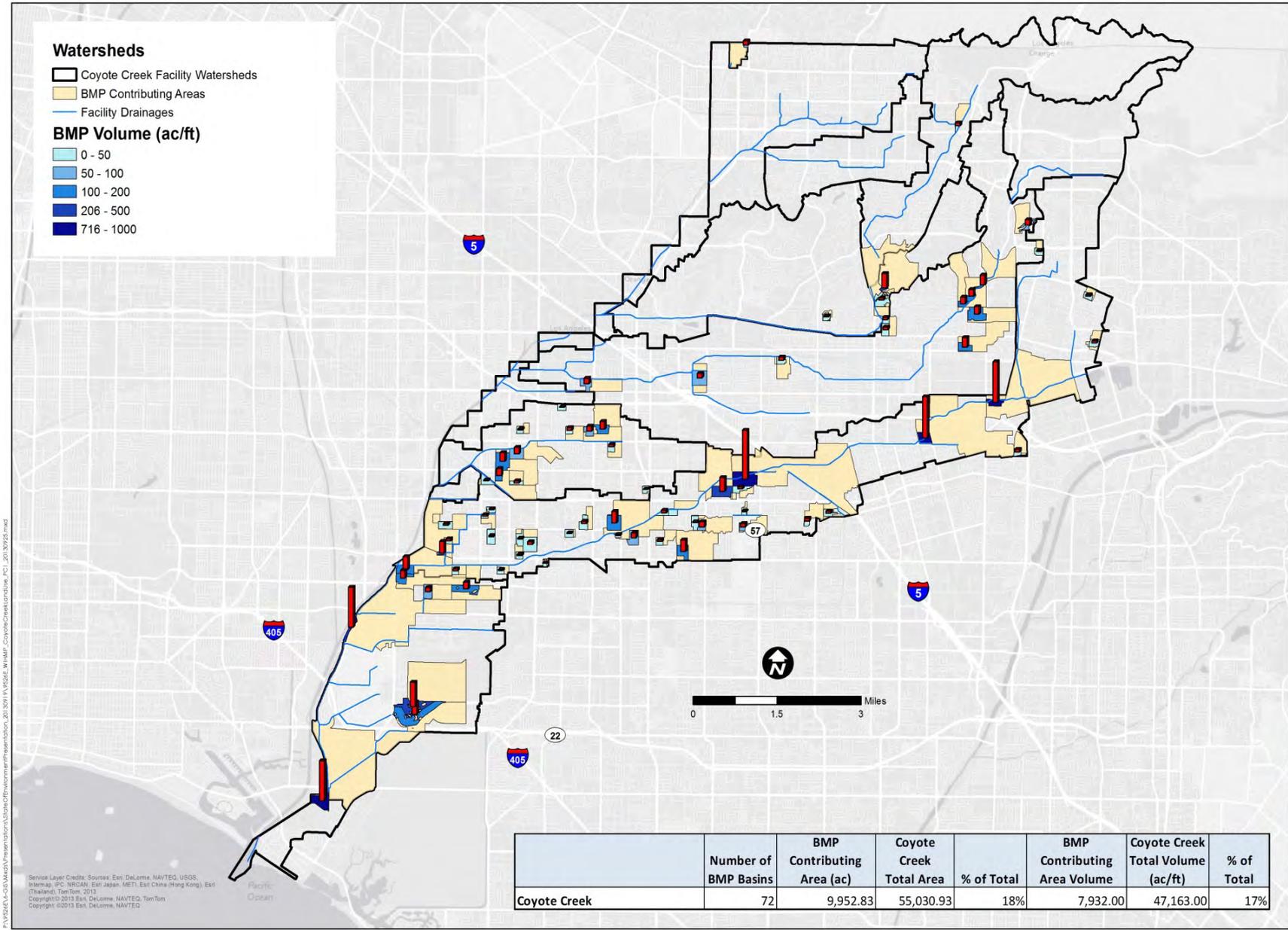
- Legend**
- Subbasin Outlines
  - Potential BMP Opportunities



# Regional Opportunities - Contributing Areas

- Legend**
- Subbasin Outlines
  - Potential BMP
  - BMP Contributing Area





ORANGE COUNTY WHMP

ORANGE COUNTY

COYOTE CREEK  
POTENTIAL BMP COLLECTION

CA

SCALE: 1" = 12,500'

DESIGNED BY: [Redacted]

DRAWN BY: [Redacted]

CHECKED BY: [Redacted]

DATE: 09/18/13

DRAWING NO.: 9226-E

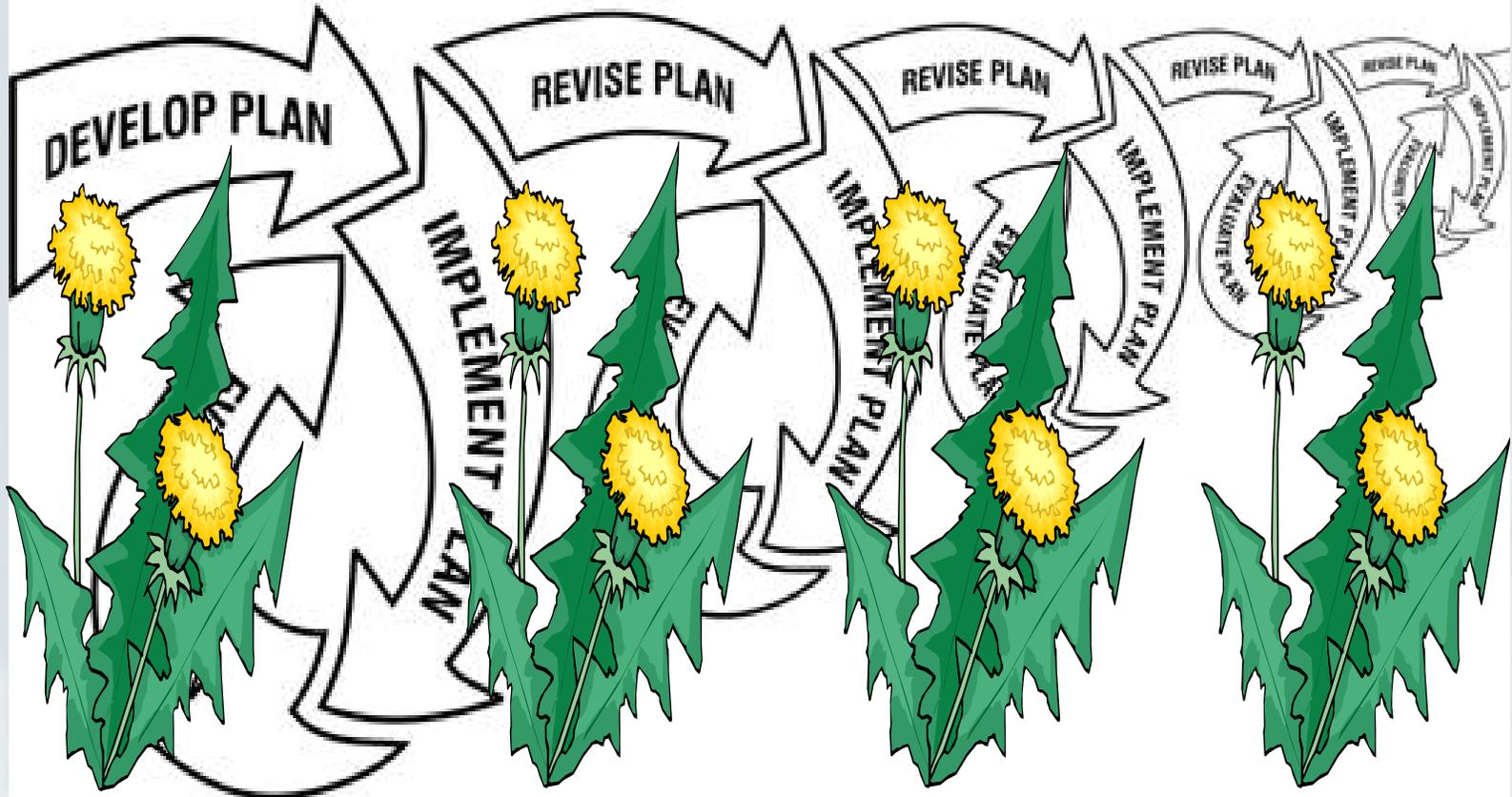
**PACE**  
Advanced Water Engineering

F:\V2266-A-GIS\Map\Presentations\Subarea\Environment\Presentations\20130919\424E\_Whmp\_CoyoteCreekLandscape\_PC\_20130925.mxd

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# 6. Enable Program Development

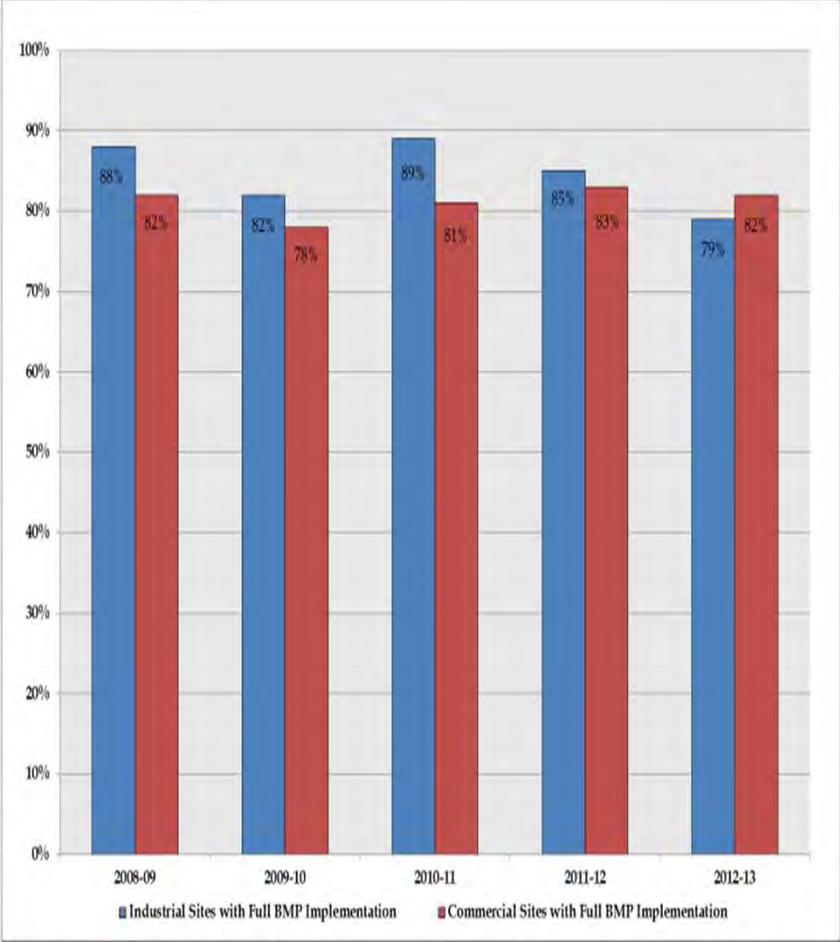
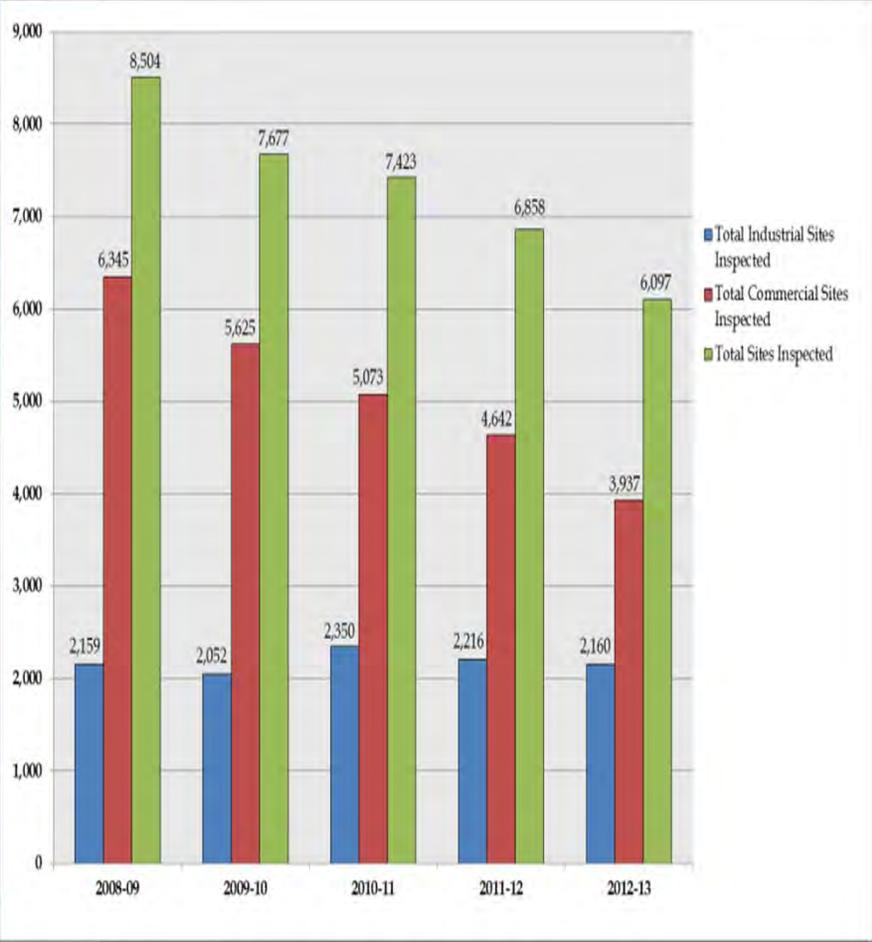


# Examples

- VII.E.3.a. Requires Executive Officer approval of individual drain inlet screen replacement
- IX. and X. Retain current inspection frequencies for industrial and commercial sites
- XIV.C. May preclude use of proprietary BMPs
- Requires quarterly update of existing development inventories



# Inspection



# Summary

- Affirm “Iterative Process”
- Recognize progress and successes
- Provide additional findings
- Recognize MEP and thresholds of significance
- Continue Model WQMP/TGD
- Remove “prescription” that is counter-productive



# Conclusion



# TMDLs

Permittees generally support the approaches, including BMP-based compliance options. However, TMDL provisions lack clarity and are improperly transcribed into the Draft Order.

- *Compliance provisions lack clarity*
- *For BMP-based compliance option:*
  - *Process is inconsistent with TMDL BPAs (including schedule)*
  - *Does not recognize existing plans*
  - *6 month development timeframe is insufficient*
- *TMDL Appendices contain (unnecessary) inconsistencies with Basin Plan Amendments*

	WLAs		
	Daily Maximum (kg/day)		
	Copper	Lead	Zinc
Dry Weather <sup>1</sup>	0.941	NA	NA
Wet Weather <sup>2</sup>	24.71 µg/L x daily storm volume (L)	96.99 µg/L x daily storm volume (L)	144.57 µg/L x daily storm volume (L)

1. Calculated based upon the median flow at LACDPW gauge station F354-R of 19 cfs multiplied by the numeric target of 20 µg/L minus direct air deposition of 0.002 kg/day.  
 2. In Coyote Creek, wet weather TMDLs apply when the maximum daily flow in the creek is equal to or greater than 156 cfs measured at LACDPW gauge station F354-R, located at the bottom of the creek, just above the Long Beach WRP.

Vs.

I. Copper  
 A. Discharges of urban runoff in Coyote Creek must not transport more than 0.941 kilogram of total recoverable copper per day during dry weather.  
 B. The mass of total recoverable copper in wet weather urban runoff that is transported daily in Coyote Creek must not exceed 24.71 µg/L multiplied by the daily storm volume in liters.

II. Lead  
 The mass of total recoverable lead in wet weather urban runoff that is transported daily in Coyote Creek must not exceed 96.99 µg/L multiplied by the daily storm volume in liters

III. Zinc  
 The mass of total recoverable zinc in wet weather urban runoff that is transported daily in Coyote Creek must not exceed 144.57 µg/L multiplied by the daily storm volume in liters



# Low Impact Development

20% Evapotranspiration

35% Surface Flow

10% Interflow

35% Infiltration

