



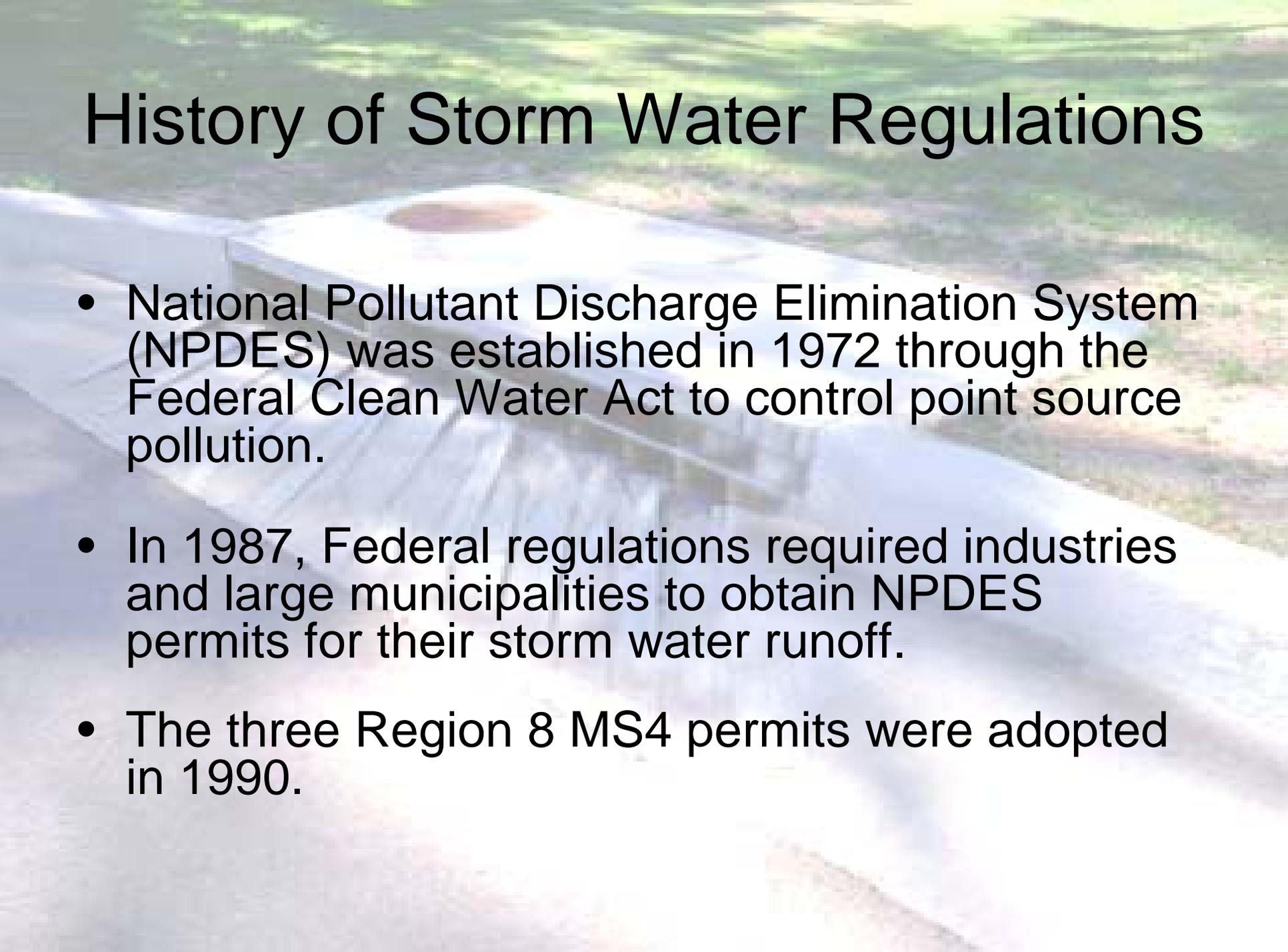
Orange County MS4 Permit Urban Storm Water Runoff Management Program

**Order No. R8-2009-0030
(NPDES No. CAS618030)**

Public Hearing
April 24, 2009

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History of Storm Water Regulations



- National Pollutant Discharge Elimination System (NPDES) was established in 1972 through the Federal Clean Water Act to control point source pollution.
- In 1987, Federal regulations required industries and large municipalities to obtain NPDES permits for their storm water runoff.
- The three Region 8 MS4 permits were adopted in 1990.

Storm Water Permits

- Statewide General Construction
- Statewide General Industrial
- CalTrans

Other SW discharges regulated through:

- MS4 - Municipal Separate Storm Sewer System
 - Municipal activities
 - Industrial and construction activities
 - Commercial and service activities
 - Residential activities

Municipal Permit Overview

- MS4 permits have not historically had numeric effluent limits, but TMDLs change that.
- For the most part, permittees must reduce pollutant loads in discharges from their MS4 to the “**Maximum Extent Practicable (MEP).**”
- Where MEP takes into account such issues as: the gravity of the problem, technical & economic feasibility, public health risks and societal benefits and concerns.

Maximum Extent Practicable

The permittees meet that MEP standard through an iterative process.

- If water quality standards (wqs) aren't being met,
- Implement Best Management Practices (BMPs)
- Monitor

→ If there are still wqs exceedences,

- Implement improved BMPs
- Monitor

1990 MS4 Permit

- Develop a Drainage Area Management Plan (DAMP)
 - Catchbasin Stenciling and Cleaning
 - Street Sweeping
 - Pesticide/Fertilizer Management
 - Post-construction Water Quality Management Plans
- Eliminate Illicit Connections and Discharges
 - Establish Legal Authority
 - Address Illicit Discharges
- Public Education
- Water Quality Monitoring

1996 MS4 Permit

- DAMP
- Eliminating Illicit Discharges and Connections
- Public Education
- Water Quality Monitoring

- Water Quality Ordinance and Enforcement
Consistency Guide (developed at end of previous permit)
- Required Statewide General Construction Permit
Coverage prior to grading permit issuance

2002 MS4 Permit

- DAMP
- Eliminating Illicit Discharges and Connections
- Public Education – Number of Impressions
- Water Quality Monitoring

- Municipal Inspections of Construction sites, Industrial facilities and Commercial businesses.
- New Development Structural Treatment BMPs.
- TMDLs incorporated for Newport Bay and San Diego Creek (nutrients and sediment).

Audits

- From 2003 to 2007 each co-permittee was audited by RB staff
- The 2-day audits included record review, program analysis and field observations.
- 5 of the 26 audits resulted in ACLs being issued ranging from \$48,280 - \$126,480.
- All 5 ACLs were paid without needing hearings.

Timeline

- Jun 21, 2006 ROWD submitted
- Jan 18, 2007 2002 Permit expired & extended
- Oct 02, 2008 Tri-County Meeting
- Nov 10, 2008 1st Draft released
- Nov 21, 2008 Public workshop
- Dec 7 – Mar 4 8+ Stakeholder meetings
- Dec 30, 2008 Comment deadline (1)
- Jan 30, 2009 Comment deadline (2)
- Feb 13, 2009 Comment deadline (3)
- Mar 25, 2009 2nd Draft released
- Apr 09, 2009 Written comment deadline
- Apr 13, 2009 3rd Draft released to the Public
- Apr 24, 2009 Public Hearing

Comment Letters

- Staff received 24 comment letters on the 1st (Nov. 11, 2008) draft that generated 173 individual comments.
- Staff received 13 comment letter on the 2nd (March 25, 2009) draft that resulted in 71 individual comments.
- Responses to these 244 comments are provided in the Response to Comments.

November 10, 2008 Draft

Major changes from 2002 MS4 Permit:

- Added categories and High/Medium/Low benchmarks to Commercial Program.
- Incorporation of Low Impact Development (LID) and Hydrologic Conditions of Concern (HCOC) requirements for new development and significant re-development.
- Addition of new TMDLs to the Permit.

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2002 Permit Commercial Entities

- Automobile mechanical repair, maintenance, fueling or cleaning
- Automobile and other vehicle body repair or painting
- Mobile automobile or other vehicle washing
- Mobile carpet, drape or furniture cleaning
- Mobile high pressure or steam cleaning
- Painting and coating
- Nurseries and greenhouses
- Landscape and hardscape installation
- Pool, lake and fountain cleaning
- Other sites the Permittee determines may contribute significant pollutants
- Any commercial sites tributary to and within 500 feet of an ASBS

Commercial Inspections

2002 MS4 Permit

- Ranking was to be based on:
 - Overall threat to water quality
 - Type, magnitude and location of commercial activity
 - Potential for pollutant discharge
 - History of non-storm water discharges
- High priority sites were to be inspected by 7/1/03, Permittees were to establish inspection frequencies/priorities based on above criteria.

Commercial Rankings (2007-8)

	HIGH	MEDIUM	LOW
City 1	1	0	1585
City 2	0	44	974
City 3	0	514	1382
City 4	0	147	289
City 5	1	192	107
City 6	2	61	201
City 7	0	0	135
City 8	0	40	83

1st Draft Permit - Commercial

- Moved mobile cleaners to its own program
- Added plastic pellet storage/transport, pest control, building materials retail, vehicle maintenance/fueling/cleaning/storage.

	High	Med.	Low
% of total	10%	40%	50%
Inspection frequency	annually	biennially	Once per permit term

2nd Draft Permit - Commercial

- Acknowledged possible limitations when refused access.
- Dropped some of the business categories.
- Changed mobile business requirements to a pilot program.
- Confirmed that restaurant inspection program would continue on an annual inspection frequency.

3rd Draft Permit - Commercial

	High	Med.	Low
% of total	10%	20%	70%
Inspection frequency	annually	biennially	Once per permit term

- Provided the opportunity for permittees to develop an alternative inspection selection criteria and reporting framework.

November 10, 2008 Draft

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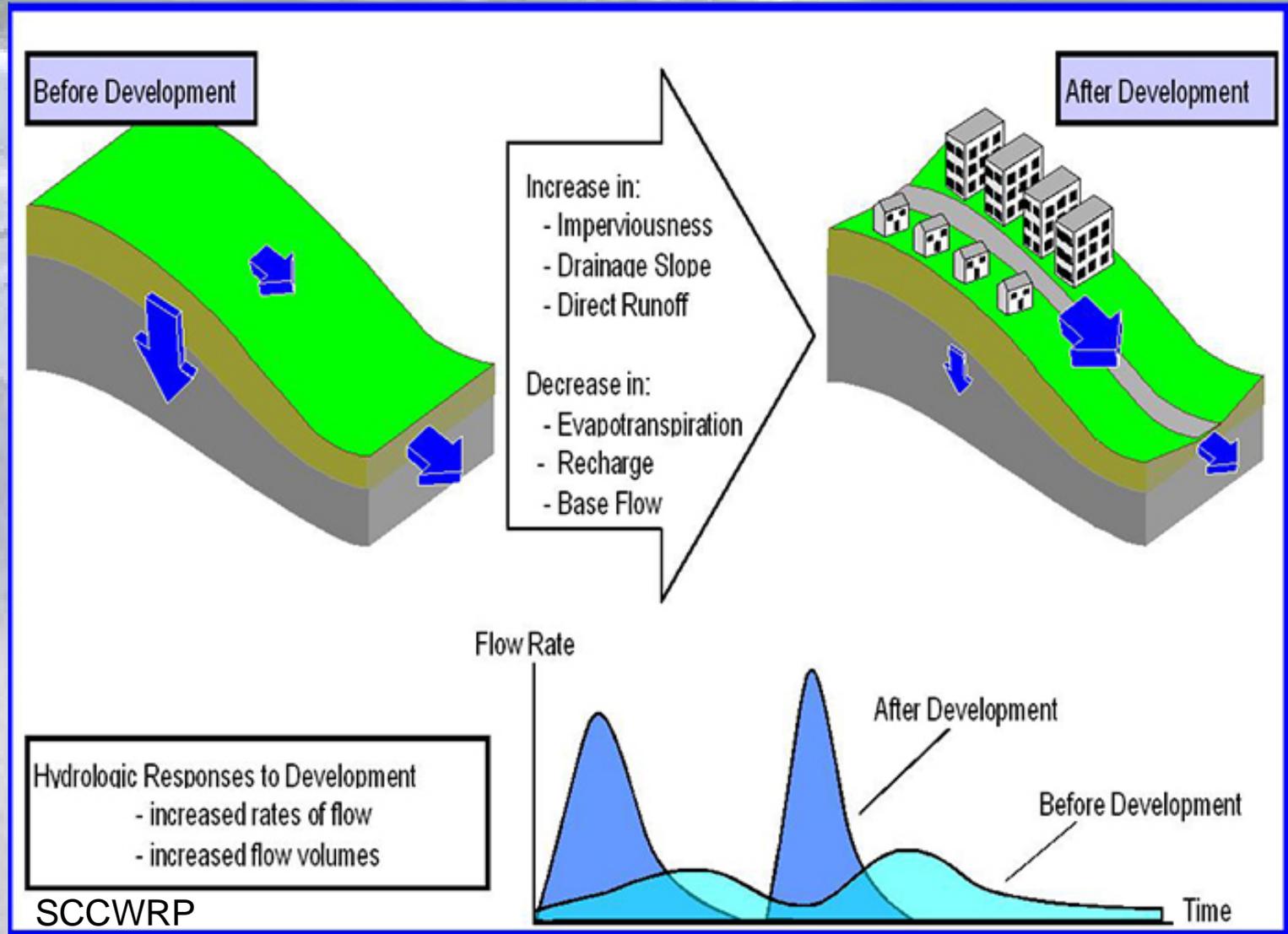
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2002 Permit

Post-construction BMPs

- Required structural BMPs to address post-construction runoff from new and significant re-development.
- BMPs included: catchbasin inserts, biofilters, porous pavement, infiltration basins, etc.
- With regards to increased runoff from build-out, there were requirements to consider the potential for hydromodification (downstream erosion) in CEQA and conditions of approval, but no specific control requirements.

Development and Runoff



Low Impact Development

- The goal of Low Impact Development (LID) is to mimic pre-development site hydrology through source control and site design.
- By implementing BMPs that increase infiltration, evapotranspiration, harvesting/reuse and to a limited extent, biofiltration, one can reduce the Effective Impervious Area (EIA) of a site and reduce runoff.
- The ‘Effective’ part of EIA is where the hydraulic “connectedness” of the surface water drainage system is taken into account.

1st Draft Permit

Post-construction BMPs (1 of 2)

- Use of LID BMPs, where feasible, to address pollutant loading and increased flow.
- 5% Effective Impervious Area (EIA) standard
- Groundwater protection measures included:
 - 10-foot vertical separation to seasonal high groundwater
 - 100 foot horizontal separation from supply wells
 - Infiltration not used in high pollutant areas
- Provided alternative requirements when LID is infeasible.
- All public agency and 50% private structural treatment BMPs must be inspected annually.

1st Draft Permit

Post-construction BMPs (2 of 2)

More detailed requirements regarding Hydrologic Conditions of Concern (HCOC) or downstream erosion potential.

- If less than 5% EIA, no HCOC.
- If 5% EIA or greater:
 - Evaluate changes in: runoff volume, infiltration, concentration time and erosion.
 - If HCOC, prepare pre/post development hydrographs, if adverse erosion likely, additional controls are required.

2nd Draft Permit

Post-construction BMPs (1 of 2)

- Low Impact Development
 - Changed LID BMP design criteria from 5% EIA to a capture volume based on 85th percentile, 24-hr storm event.
 - Added a requirement to prioritize LID BMPs: Highest priority for (a) Preventive techniques (e.g, preserving natural features); then (b) Mitigative measures (e.g., infiltration). Then the mitigation measures are to be prioritized (from highest to lowest) (a) Infiltration; (b) Harvest/re-use; and (c) bio-filtration.

2nd Draft Permit

Post-construction BMPs (2 of 2)

- Hydromodification - HCOC
 - Changed the 5% EIA to a capture volume based on a 2-yr storm event.
 - Downstream Waters of the U.S. required HCOC analysis even if hardened/engineered.
 - Added an option for the permittees to develop a Watershed Master Plan to address HCOC on a regional basis.
- In-Lieu or Alternative Programs
 - The "infeasibility of LID BMPs" must meet a technically-based feasibility criteria before allowing alternatives and/or in-lieu programs.

3rd Draft Permit

Post-construction BMPs

- A pilot groundwater monitoring program be started by the permittees to address infiltration concerns.
- All infiltration activities are to be coordinated with the local groundwater management agency.
- Minimum 5-foot vertical separation to seasonal high groundwater for infiltration, instead of 10 feet.
- The model WQMP will be available for a 30-day public comment period prior to approval by the EO.
- If all downstream waters are hardened and engineered to accept the proposed flow, then it assumed that there are no hydrologic conditions of concern.
- Post-construction BMPs will be inspected every 4 years.

November 10, 2008 Draft

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2002 Permit TMDLs

- TMDLs that had been approved at the time of the MS4 permit approval included:
 - Nitrogen and phosphorus (nutrients) for San Diego Creek and Newport Bay
 - Sediment for San Diego Creek and Newport Bay

Total Maximum Daily Loads (TMDLs)

- Water quality objectives are set to protect beneficial uses (BUs).
- If WQ standards are not being met, a water is placed on the impaired waters list or 303(d) list.
- The TMDL is the amount of a pollutant that be discharged to a water and still support BUs.
- That load is split up among the point source and non-point source dischargers in the watershed.
- TMDLs for urban runoff are implemented through the MS4 permits.

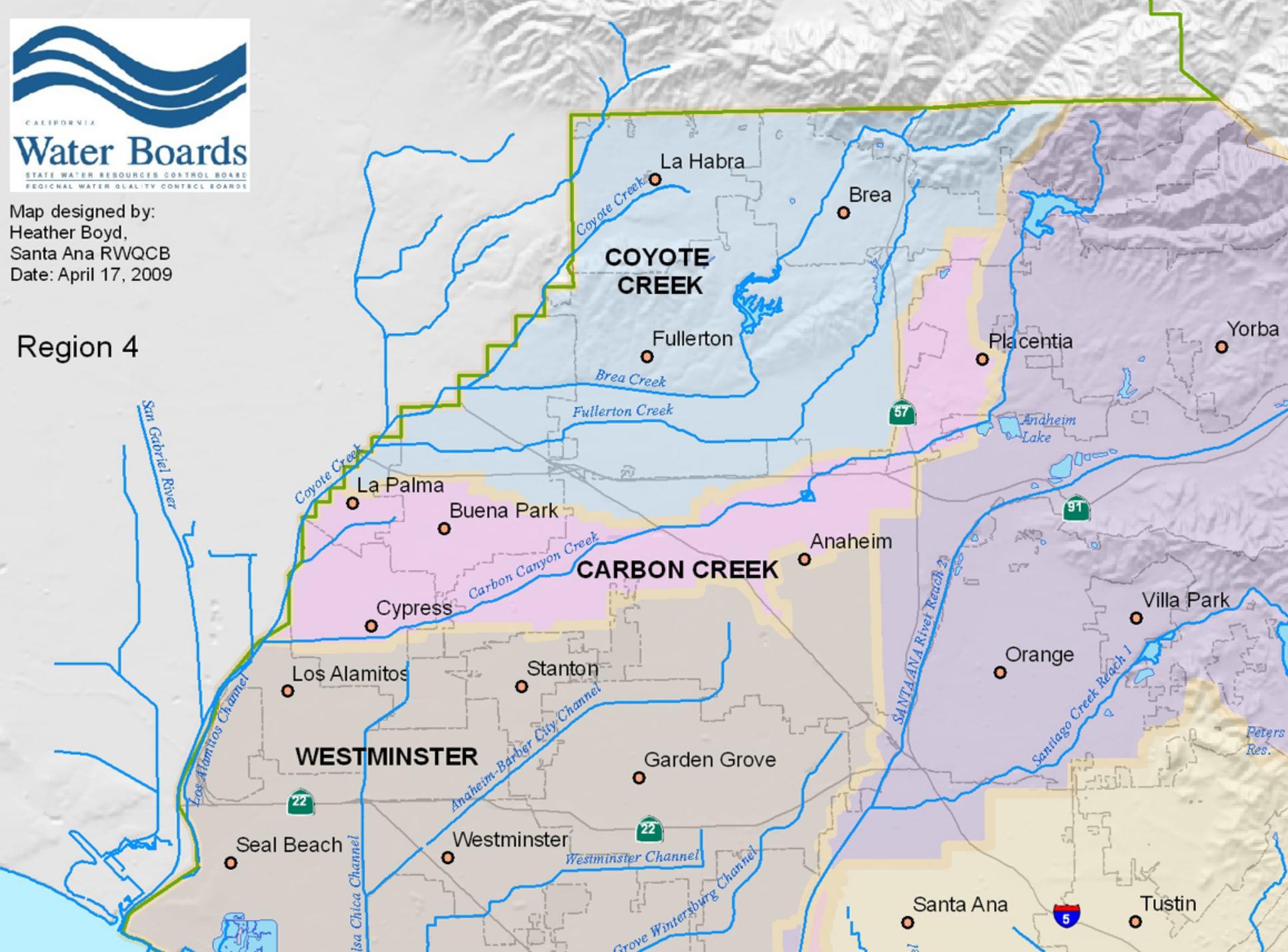
1st Draft Permit – TMDLs (1 of 2)

- Nitrogen, phosphorus and sediment TMDLs for San Diego Creek and Newport Bay.
- Urban runoff waste load allocations (WLAs) and water column targets for metals in Coyote Creek that were adopted by the Los Angeles Region(R4):
 - Copper
 - Lead
 - Zinc



Map designed by:
Heather Boyd,
Santa Ana RWQCB
Date: April 17, 2009

Region 4



1st Draft Permit – TMDLs (2 of 2)

- Fecal Coliform in Newport Bay (compliance by 2013 - 2019).
- Water column targets for the organophosphorus pesticides - diazinon and chlorpyrifos in San Diego Creek and chlorpyrifos in Newport Bay.
- Water column targets for the organochlorine compound TMDLs adopted by the Regional Board
 - San Diego Creek (total DDT, toxaphene, total PCBs, chlordane)
 - Newport Bay (total DDT, total PCBs, chlordane).

2nd Draft Permit - TMDLs (1 of 2)

- Until Regional Board TMDLs have been approved by the State Board, Office of Administrative Law and U.S. EPA, any U.S. EPA promulgated TMDLs apply.
- It is clearly stated that the permittees must comply with TMDL WLAs and water column targets.

2nd Draft Permit – TMDLs (2 of 2)

- Added the U.S. EPA promulgated, water column targets for metals:
 - San Diego Creek – selenium, copper, cadmium, lead, zinc
 - Newport Bay – copper, cadmium, lead, zinc
 - Rhine Channel – mercury, chromium
- Added the U.S. EPA promulgated WLA for organochlorine compounds:
 - San Diego Creek – total DDT, chlordane, dieldrin, PCBs, toxaphene
 - Upper Newport Bay – total DDT, chlordane, PCBs
 - Lower Newport Bay – total DDT, chlordane, dieldrin, PCBs
 - Rhine Channel – total DDT, chlordane, dieldrin, PCBs

3rd Draft Permit - TMDLs

- No major changes.



Comments on 3rd Draft Permit

- Geosyntec
- County of Orange
- U.S. EPA
- NRDC
- Latham & Watkins
- CICWQ
- Prontowash
- OCWD
- County of Orange/OC CoastKeeper
- County of Riverside

Errata

- On advice of counsel, we've changed many of the "to the maximum extent practicable's" to "to a level consistent with the maximum extent practicable standard".
- XII.C.7.a-d were incorrectly formatted.
- Included the maps (Attachment A and B).
- III.I reference corrected.
- XII.D.5 substitute language

The County of Orange, OCFCD, and Incorporated Cities

Attachment "A"

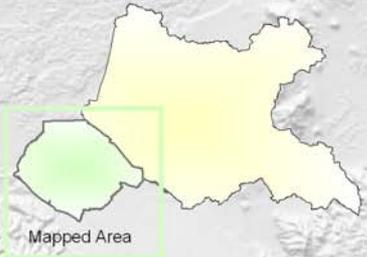
Area wide Urban Storm Water Runoff

Santa Ana Regional Water Quality Control Board



Map designed by:
Heather Boyd,
Santa Ana RWQCB
Date: April 17, 2009

Region 4

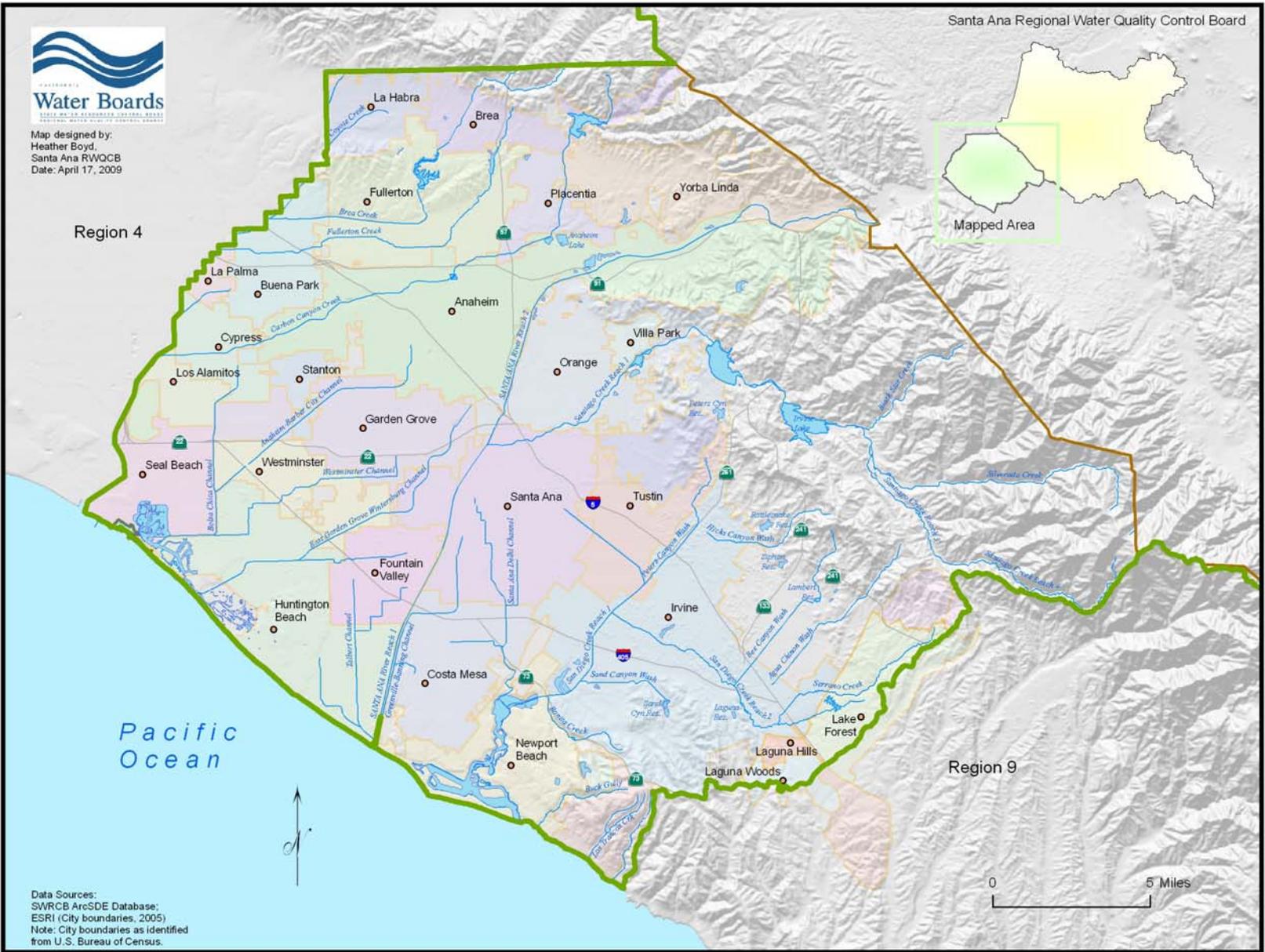


Mapped Area

Pacific Ocean

Region 9

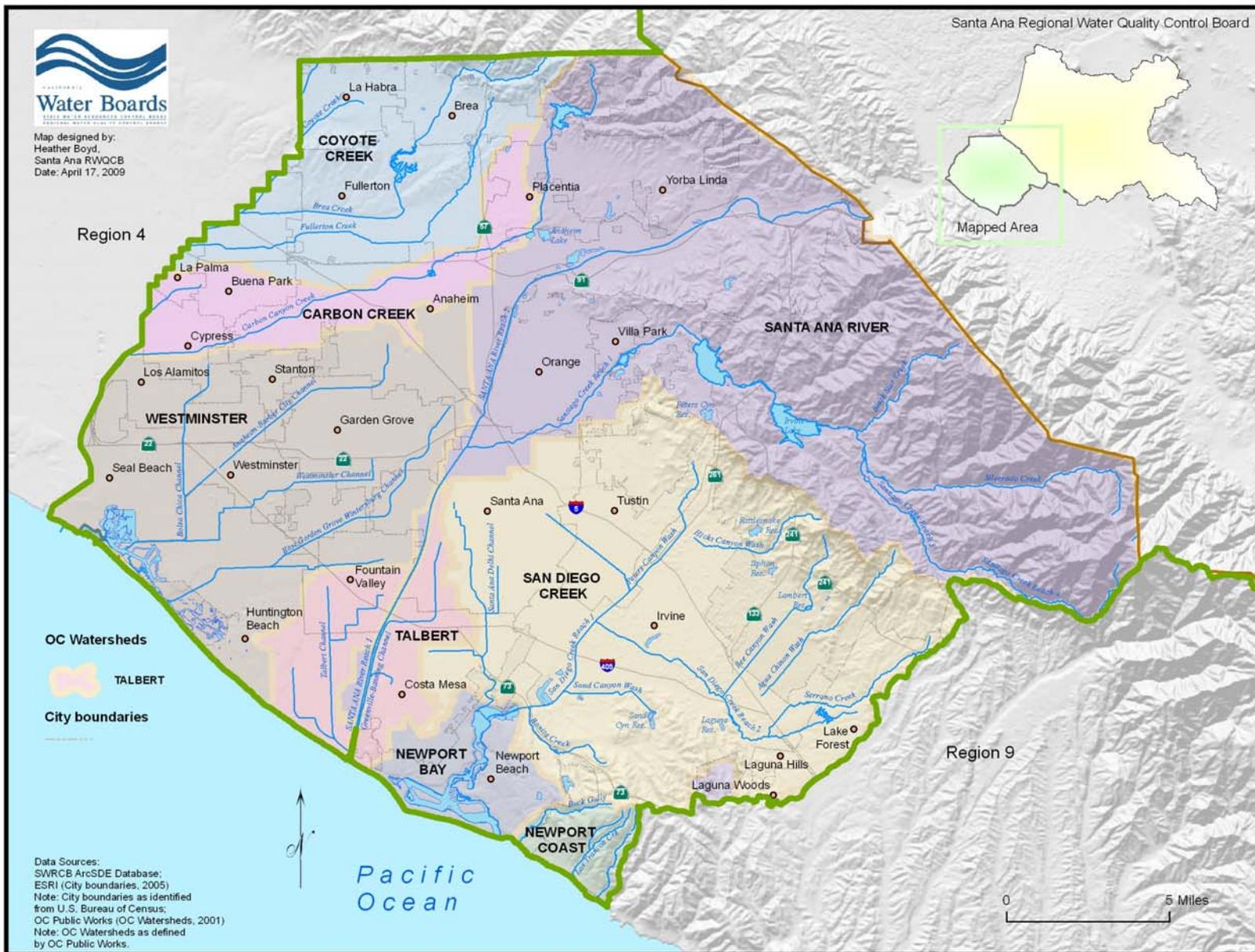
Data Sources:
SWRCB ArcSDE Database;
ESRI (City boundaries, 2005)
Note: City boundaries as identified
from U.S. Bureau of Census.



The County of Orange, OCFCD, and Incorporated Cities

Attachment "B"

Area wide Urban Storm Water Runoff



Conclusion

Staff recommends adoption of R8-2009-0030 with the changes proposed in the errata sheet.



LID Techniques

- Bioretention cells, commonly known as rain gardens
- Cisterns and rain barrels
- Green roofs
- Permeable and porous pavements
- Grass swales are broad, open channels sown with erosion resistant and flood tolerant grasses. Used alongside roadways for years primarily as stormwater conveyances, swales can slow stormwater runoff, filter it, and allow it to soak into the ground. Swales and other biofiltration devices like grass filter-strips improve water quality and reduce in-stream erosion by slowing the velocity of stormwater runoff before it enters the stream.

U.S. Environmental Protection Agency. Washington, DC. "Fact Sheet: Low Impact Development and Other Green Design Strategies" June 1, 2006.