Storm Water Management through Low Impact Development

Board of Supervisors
August 10, 2010

County of Santa Barbara

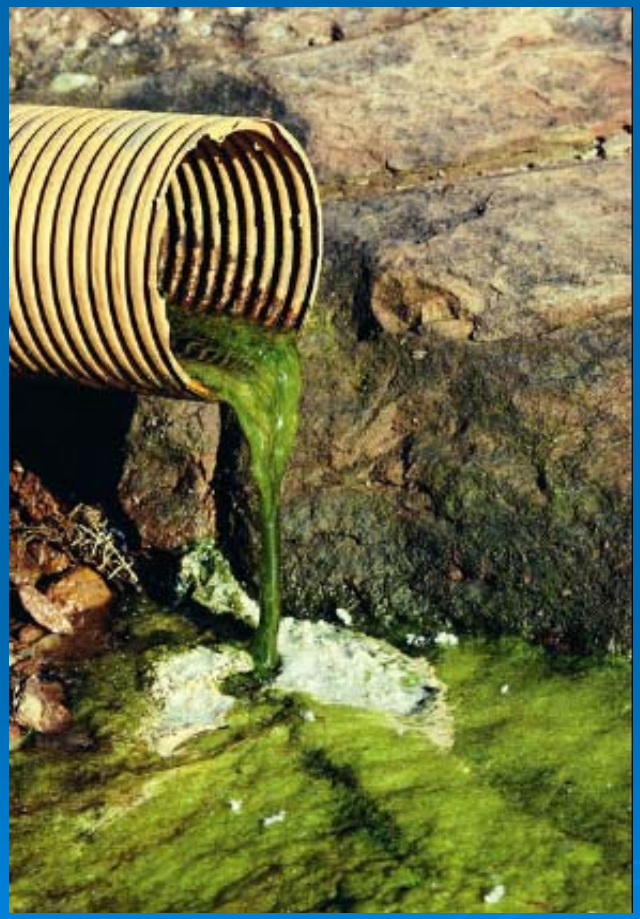
Presentation Outline

- County's Storm Water Management Program – Joy Hufschmid, PCW Manager
- New requirements from Regional Water Quality Control Board – Dominic Roques, Engineering Geologist, RWQCB
- Expectations for new / redevelopment – Glenn Russell, Ph.D., P&D Director
- RWQCB Perspective – Jeffrey Young, Chair, Central Coast RWQCB

Storm Water Regulations

- U.S. EPA identified urban runoff (stormwater) as significant cause of water pollution
- Pollutants include sediment, bacteria, oil & grease, toxic chemicals, and trash
- Pollutants transported by rain, irrigation and other runoff to streams and the ocean (untreated)
- New NPDES requirements became effective in 2003

NPDES Municipal General Permit



- National Pollutant Discharge Elimination System
- Program enacted under the Clean Water Act (U.S. EPA)
- Requires a permit for any discharges of pollutants into waters of the U.S.
- Permit issued to County by Regional Water Quality Control Board (administered by PCW)

NPDES: County Requirements

- Develop, implement, maintain and enforce a Countywide storm water management program designed to reduce pollutants (approved July 2006)
- Specify Best Management Practices for six areas (minimum control measures)
- Report annually on implementation and effectiveness of program
- *County* program, administered by PCW but implemented by many departments

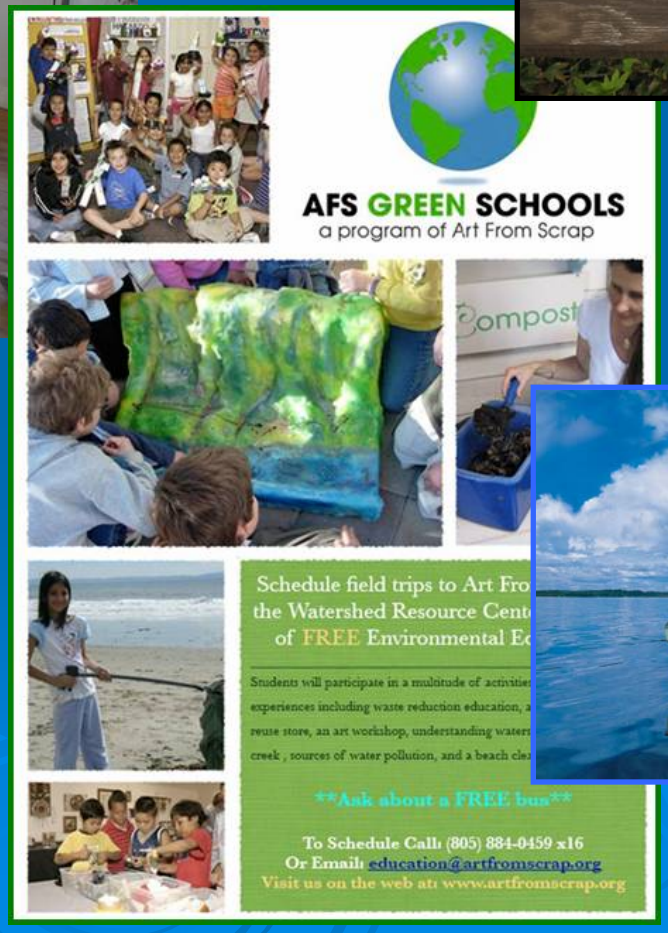
Storm Water Management Program: 6 Minimum Control Measures

- Public Involvement and Participation
- Public Education and Outreach
- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Post-construction Storm Water Management in New Development
- Pollution Prevention / Good Housekeeping Practices in Municipal Operations

Public Participation & Involvement

1- 877- OUR-OCEAN

Public Outreach & Education



Illicit Discharge Detection & Elimination

Pollution Prevention and Good Housekeeping

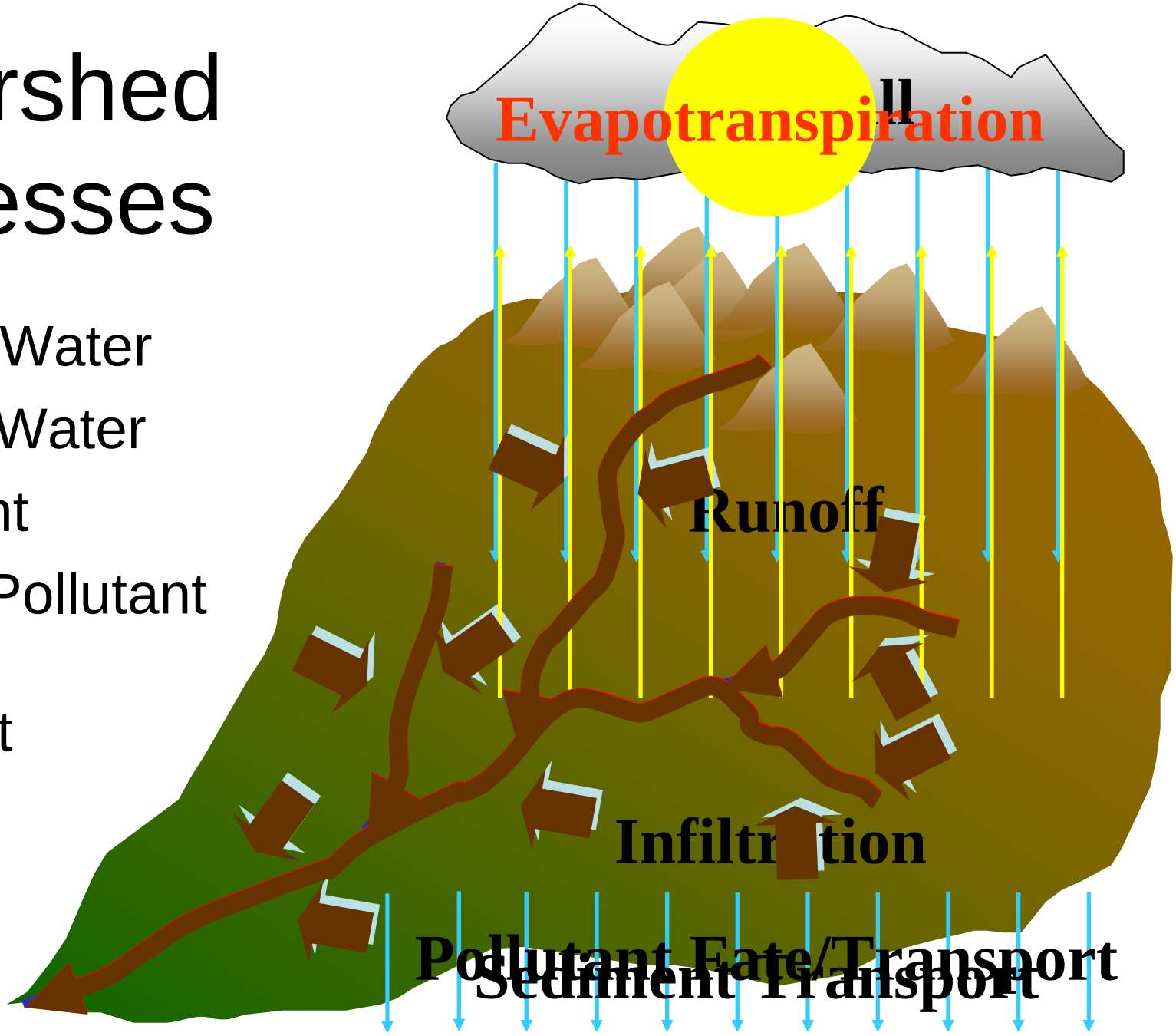
Construction Activities

New and Redevelopment

New Requirements from the Regional Water Quality Control Board
(Dominic Roques)

Watershed Processes

- Surface Water
- Ground Water
- Sediment
- Habitat/Pollutant fate and transport



Definitions

Hydromodification – Alterations to patterns and processes of runoff and sediment from a watershed into its receiving waters as a result of land-use changes; that produce changes to the physical, chemical, and/or biological conditions of those receiving waters

Hydromodification Control – stormwater management approaches to address changes to the watershed processes that directly affect receiving waters (e.g., surface runoff, infiltration, erosion)

Definitions

Hydromodification Control "Methodology" – the steps taken to determine the best stormwater management controls for new and redevelopment projects

Hydromodification Control Criteria – Numeric stormwater management objectives applied to new and redevelopment projects

Watershed Processes – Processes and functions that occur at the water - land interface that affect receiving waters (e.g., surface runoff, infiltration, evapotranspiration, erosion, sediment delivery)

Performance-Based Stormwater Management – Management that has definable outcomes that can be measured

Project Goals/Guiding Principles

- To “manage stormwater” by protecting and/or reestablishing watershed processes
- Criteria for measuring successful management must be performance-based
- Management prescriptions must be both scientifically supported and readily implemented
- Products must provide both parcel-specific and watershed-scale benefits to municipalities.

The Joint Effort from Start to Finish

Water Board Notification Letter	**August 4, 2009**
Stakeholder Input to Develop Project Milestones	**August 27 to September 8, 2009**
Water Board Offer to Participate	**Mid-October, 2009**
Present Joint Effort Strategy to Water Board	**October 23, 2009**
Commence 2-yr Collaborative Effort	**September 2010**
Apply Hydromodification Criteria	**September 2012**

Joint Effort Technical Work funded by State

Characterize Landscape (Watersheds and Receiving Waters)

PRODUCTS:

Maps

GIS layers

Stratify the Landscape

PRODUCTS:

Final classified landscape maps

Associated GIS layers

Analyze Conditions and Processes

PRODUCTS:

Report of findings

Refine Methodology to Develop Hydromod Control Criteria

PRODUCTS:

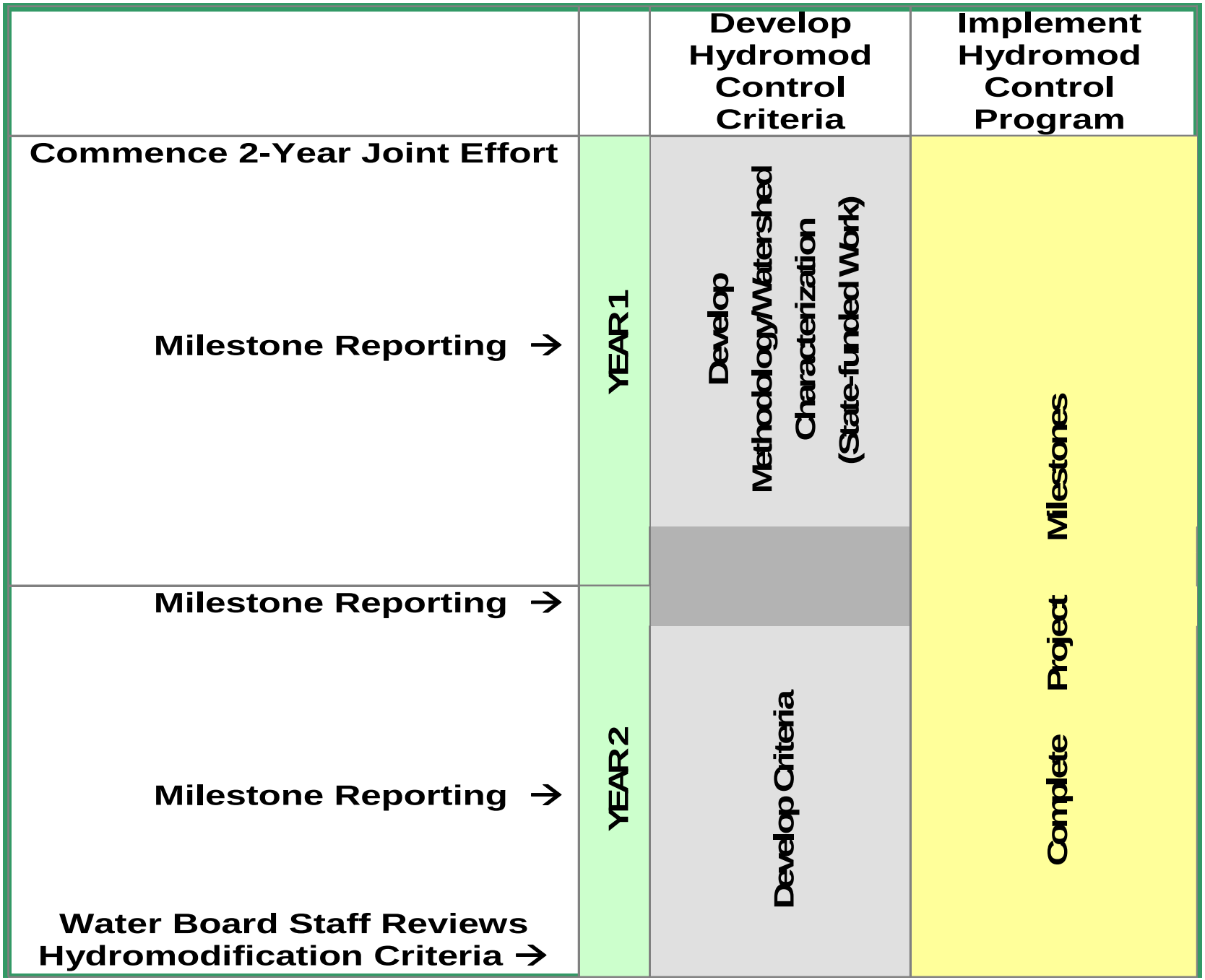
Guidance document describing steps necessary to develop hydromod control criteria

KEY: **GIS** **FIELD** **ANALYSIS**

Implementation of a Municipal Hydromodification and LID Program

Program Component	Description
Interim LID BMP	Municipalities can make substantial progress toward LID implementation during the two-year period before the specific numeric hydromodification criteria are available.
Applicability Thresholds	Applicability Thresholds are the specific conditions that make projects subject to water quality and/or hydromodification controls.
Municipal Code Updates	Municipal code updates that allow or require hydromodification control and LID, remove implementation obstacles.
BMP Design & Hydrologic Analysis Guidance	This technical guidance assists the user in calculating pre- and post-project runoff; designing specifications for structural BMPs; modeling approach; assessing whether treatment and hydromodification control goals are met.
Hydromodification & LID Technical Assistance	Provide assistance for municipal staff and those in the development community related to the technical understanding and implementation of hydromodification controls and use of LID.

Two-Year Schedule of Joint Effort



Expectations for New and Redevelopment (Glenn Russell, Ph. D.)

P&D's Role in Applying LID

P&D responsible for implementing LID through development review process

- Continue to apply LID on all applicable private projects based on current policy
- NEW: Require minimum LID measures for projects **currently identified** in LUDC & CEQA Guidelines. Use revised application form
- NEW: Identify and track LID design principles and features incorporated into each project (for future reporting to RWQCB)

New Application Requirements

Show how LID is applied in three categories

- *Site Design: Reduce overall disturbance and minimize overall impervious area*
- *Effective Impervious Area: Direct runoff from impervious surfaces (roofs, roads) to pervious areas (open space, landscape, or permeable pavement)*
- *Hydrologic Controls: Slow and reduce runoff*

New Application Requirements: Site Design

- Reduce disturbance by preserving natural drainages & vegetation and minimizing impervious areas

Conventional Site Plan

LID Site Plan

New Application Requirements: Effective Impervious Area

- Direct Runoff from impervious surfaces (roofs, driveways, roads)
- To pervious areas (landscape or permeable pavement

New Application Requirements: Hydrologic Controls

- Infiltration (trench, basin)
- Biofilters (swales, bioretention, buffer strips, landscape planter box)
- Rainwater reuse (cisterns, rain barrels)

Central Coast RWQCB Perspective (Jeffrey Young)

Questions

Board of Supervisors
August 10, 2010



County of Santa Barbara