

AASHTO Joint Meeting: Environment/Maintenance/Asset Management Stormwater/Wetlands



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Transportation**

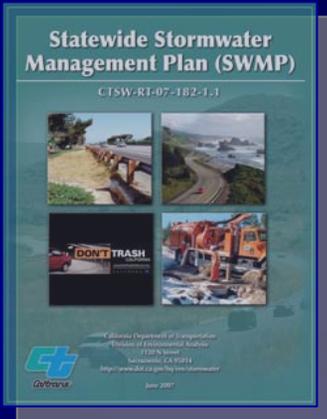
DOT features that may impact stormwater / wetlands

- Differences Between Traditional MS4s and the State's Linear Transportation System
- Cross many water courses
- Traverse more than one watershed
- Limited Right-of-Way
- Off site mitigation
- Maintenance challenges
- Facilities Operations

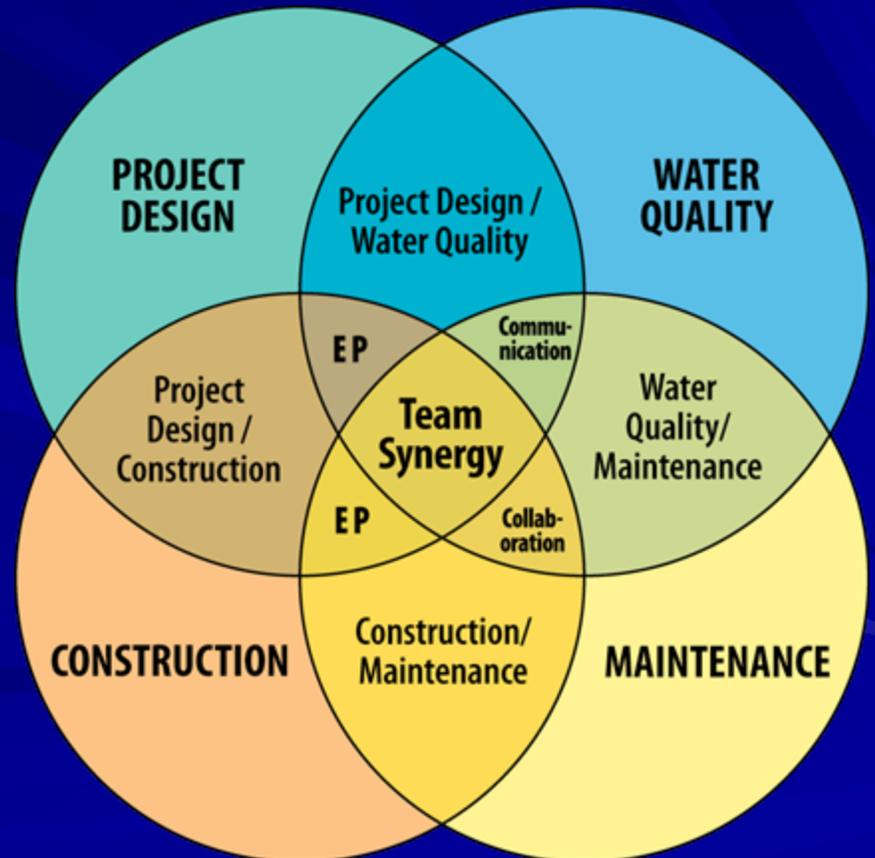
What should we know about Stormwater Management?

- NPDES permit requirements cover all DOT activities (Design, Construction, Operation & Maintenance)
- Any agency with storm drain systems are regulated under Clean Water Act
- Majority of DOTs are in litigation or under court order due to stormwater deficiency in their program
- Upcoming regulations:
 - Construction and Development Effluent Limitation Guidelines
 - NPDES permit renewals
 - Accountability (action levels, effluent limits, and monitoring)
 - Total Maximum Daily Loads

Stormwater program needs



Integrate WQ as part of our Day to Day Business Practices



Storm Drain System Inventory



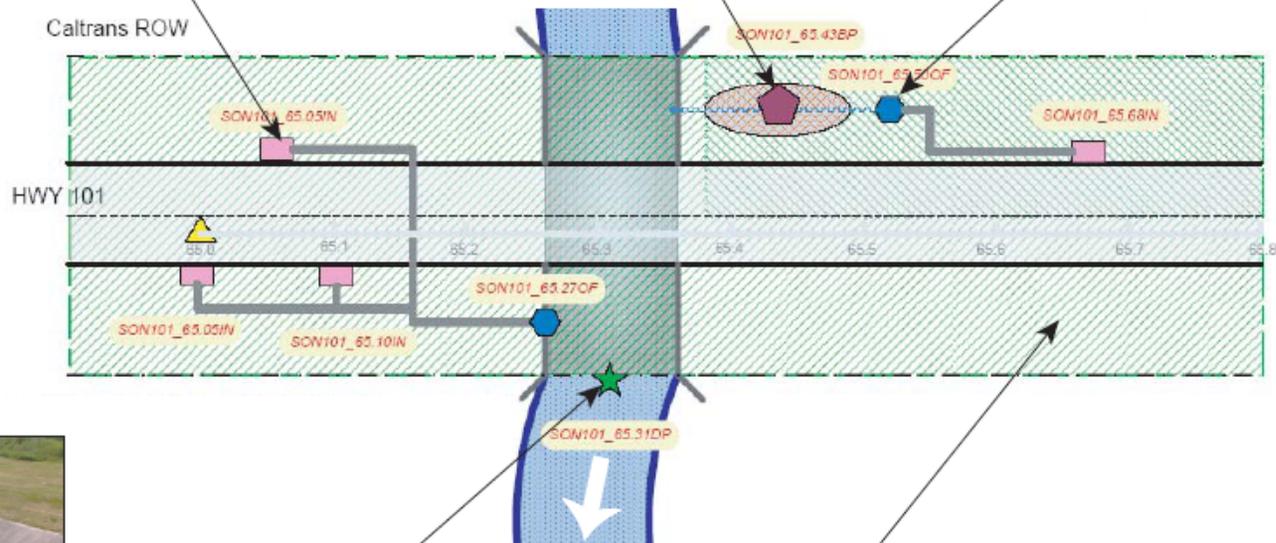
Inlet:
Structure within the Caltrans ROW that directs stormwater into the storm drain system



Best Management Practices (BMPs):
Prevent soil erosion (Pollution Prevention BMPs) and treat stormwater prior to discharge from Caltrans property (Treatment BMPs).



Outfall:
Endpoint of a pipe outlet that daylights within the Caltrans ROW and allows water to flow to a discharge point.



Discharge Points:
End of a pipe, culvert, channel, swale, or ditch discharging from the Caltrans ROW into a water of the US, stormwater conveyance system, or property not owned by Caltrans.

Tributary Drainage Areas (TDAs):
The area within Caltrans ROW where runoff flows to the associated discharge point. Defined by Caltrans ROW boundaries and investigation of drainage features, highway slope, and other indicators.



Source Control = Good Housekeeping



Win-Win!
Win

Open Graded AC

Permeable Friction Course (PFC)

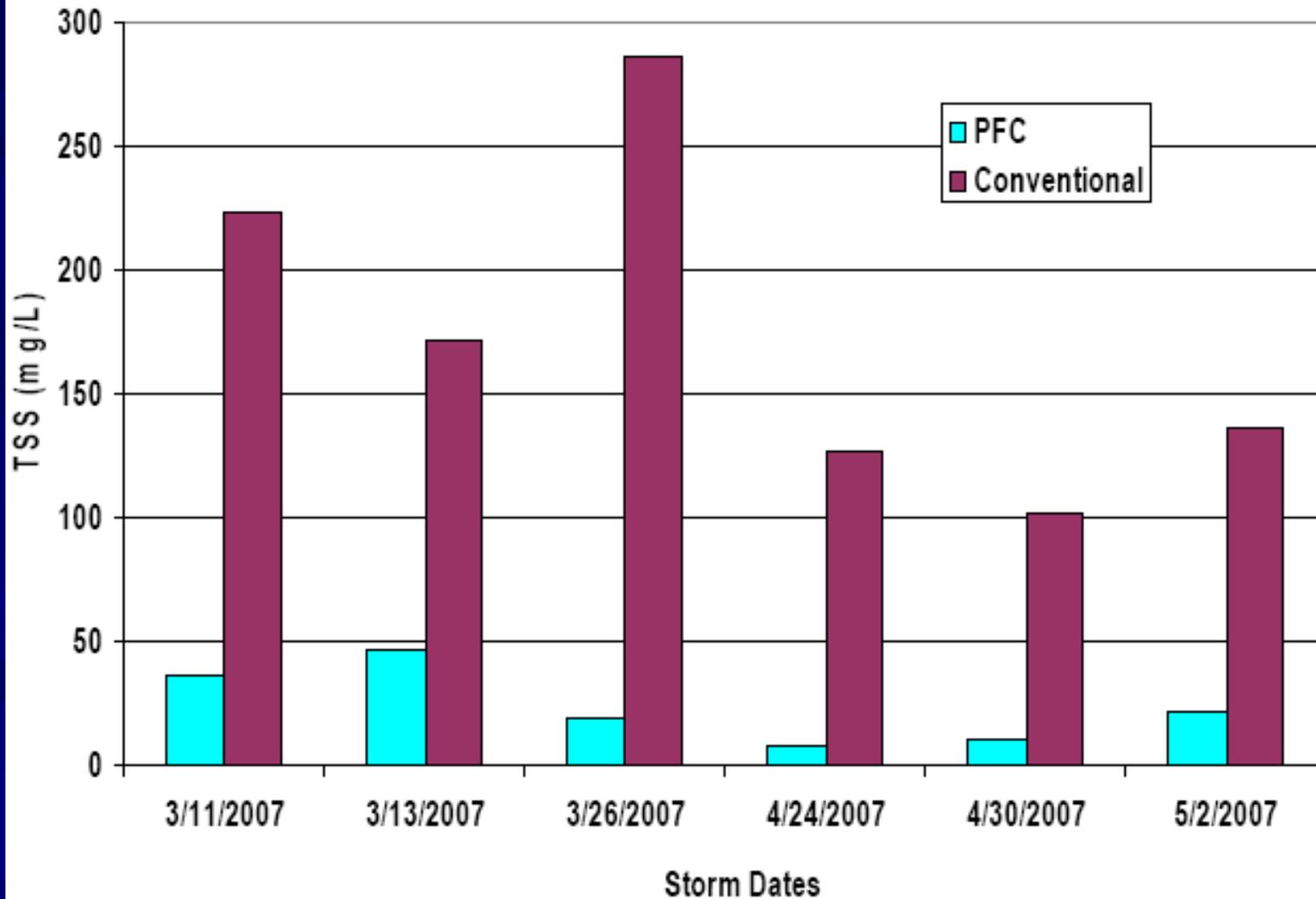
Use

- Thin Lift (< 2")
- Wear course
- Used over structural base pavement
- Open (gap) Graded
- May use crumb rubber, latex or other
- Void > 18%

Benefits

- Reduce hydroplaning
- Splash spray reduction
- Increase visibility
- Smoother riding surface
- Noise reduction
- **Water Quality**

PFC Water Quality Benefits



Operation and Maintenance Guidance for BMPs



Maintenance Considerations...

Before deciding



Mowing ?

Safe
Access?

Frequency?

Lifecycle
Cost?

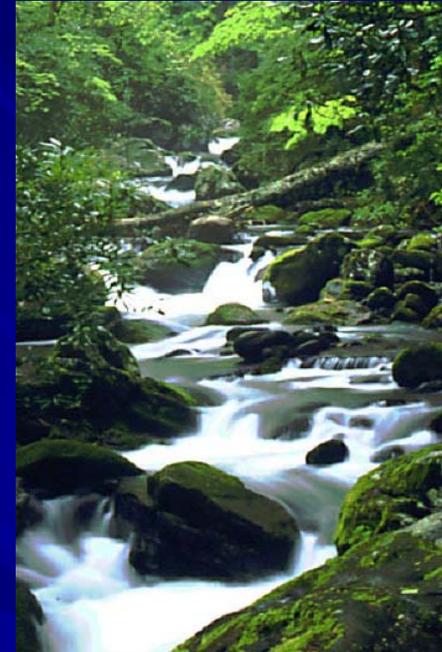


70 participants
41 AASHTO Delegates
FWHA, EPA

June 23-25, 2008

Delegates Collaboration

- Panel Discussions (DOTs, EPA, FHWA, AASHTO)
- Peer-to-Peer Exercises
- Identified DOT Stormwater Challenges
- Prioritized Research needs
- Technical Presentations



What We Have Learned

- New NPDES Permit challenges
- TMDLs – what is it, strategies for DOTs
- SW Treatment Research Findings
- DOT Case Studies (successes/ failures)
- Program Effectiveness Assessments
- Voted on Research Needs: High-Medium-Low Priorities (TERI Database)
- Stormwater Exploratorium....Many more....



DOTs Identified Top Stormwater Challenges

- Funding Allocation for Design
- Contractor Compliance Issues
- Resources / Funding for Programs
- Resources for Maintenance
- Education / Training of Maintenance
- Education / Training of Construction
- Scheduling Issues in Design Process
- Lack of Involvement of Maintenance
- Long Term Maintenance of BMPs



Research Needs (TERI Database)

1. Cost and Benefits of Transportation-Specific MS4 and Construction permitting
2. Framework for New Multi-State Collaborative Program to Appraise Effectiveness of Highway Stormwater Runoff Treatment Options
3. Quick Turnaround Synthesis of State DOTs' Best Practices for Roadside Treatment of Stormwater Runoff.
4. Development of an Expert System for Selecting Stormwater BMP
5. Assessing the Effect on Highway Stormwater Runoff on Biological Water Quality Impairments-How Polluted is Stormwater from Transportation Facilities?



Research Needs (TERI Database)- cont'd

6. Green Design Features and Management Practices for Handling Stormwater Runoff
7. Long-term Construction and Maintenance E.g., Costs – Comparison/Cost Benefit Analysis of Traditionally Sized Hydraulic Structures vs. Wildlife-friendly Structures
8. Guidelines for the Development of Bioretention Stormwater Treatment on the Roadside
9. Hydraulic Modifications to Achieve Watershed Total Maximum Daily Loads

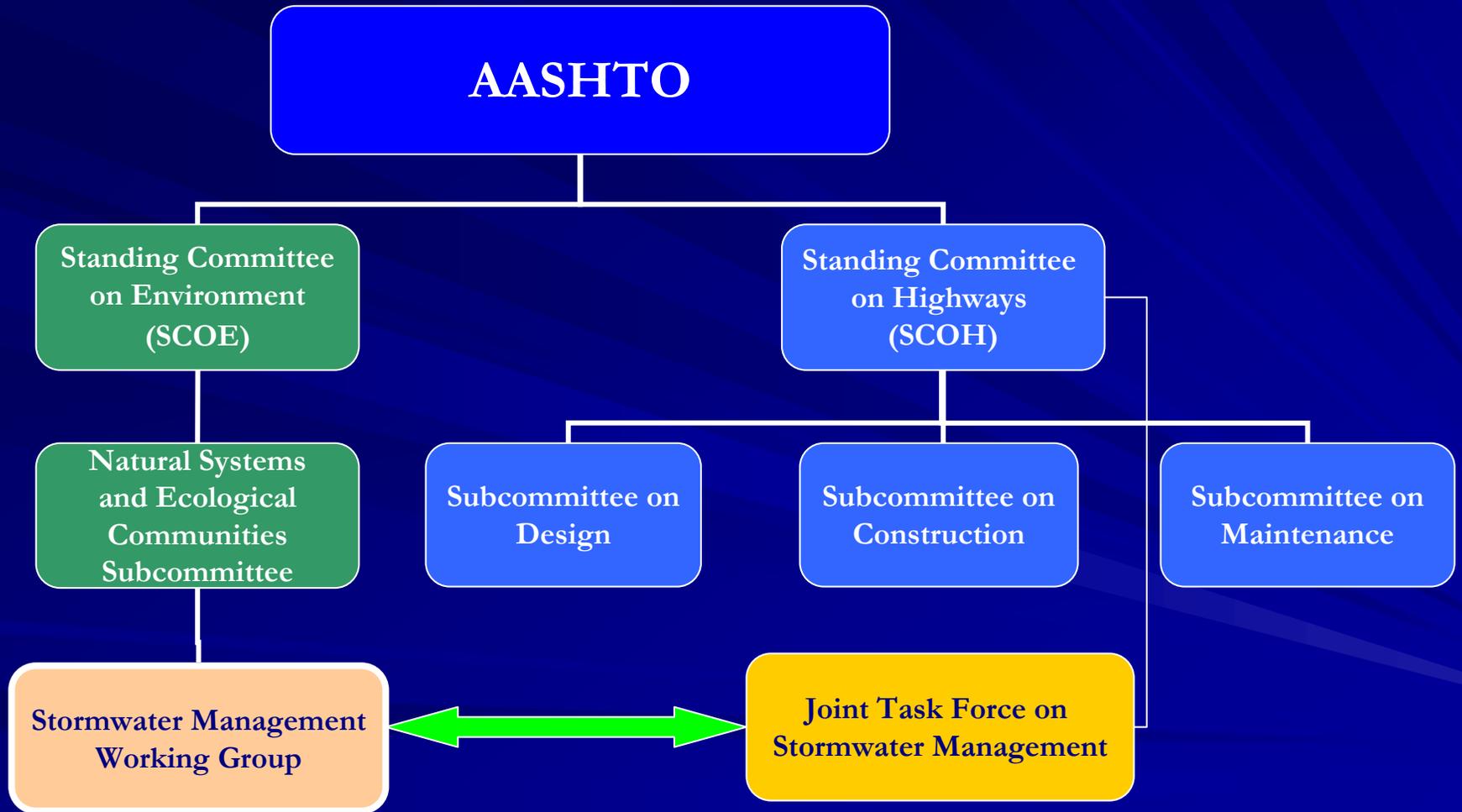


DOT Stormwater Working Group – next steps?

- This is just the beginning... we have a lot to learn from each other
 - Delegates Feedback
 - 99% Rate Conference Extremely High High Value
 - Continue the Collaboration
 - Implement suggestions
 - Many more...
- “Have learned tools and knowledge to take back to my program”
- “Networking with DOTs and Discussions with Regulators valuable”



Integrating Stormwater Management



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