Outline

• South OC Water Quality Improvement Plan (WQIP) Introduction
• Water Quality Asset Inventory and Pollutant Load Modeling Special Study
• OC Stormwater Tools
  – Current status
  – Future vision
Water Quality Improvement Plan

- Priority Water Quality Conditions
- Water Quality Numeric Goals, Strategies and Schedules
  - Optional Alternative Compliance (B.3.c)
- Monitoring & Assessment
- Adaptive Management

Developed by the County of Orange and the 11 Cities of the South Orange County Watershed Management Area
Highest Priority Water Quality Conditions

Priorities

- Human Pathogen Health Risk
- Stream Erosion
- Unnatural Water Balance

Goals and strategies

- Focus on human waste source control
- Focus on stream rehabilitation
- Focus on dry weather runoff elimination
Key Elements of Plan Implementation

Implement strategies

Adapt periodically

Tools and Datasets

Monitor and assess

Track progress toward goals

Many are watershed-scale
Asset Inventory Special Study and OC Stormwater Tools
Special Study: Water Quality Asset Inventory and Pollutant Load Estimates

**Improve datasets to describe watershed connectivity**
- Storm drain networks
- Delineations

**Develop and maintain a WQ asset inventory**
- BMP attributes
- Connectivity
- BMP condition and maintenance

**Quantify and track multiple BMP benefits in a consistent framework**
- Support progress evaluation, reporting, and adaptive management
- Support planning

Provide tools for collaboration on dataset development and plan implementation
Planning, Collaboration, and Scenario Management Space

Asset Management/ O&M Tracking Space

Implementation Progress Reporting Space

Drainage Asset Networks and Delineations

BMP Inventory, Rapid Assessment, and Maintenance Module

Modeling Module (pollutants, water balance)

Open-source, web-based application
Study Phases

Tool Development

Inventory Module

Modeling Module

Planning and Reporting Modules

Permittee Efforts

Perform BMP inventory, assessments and track O&M

Improve drainage asset data and other infrastructure datasets

Interpret and report results of modeling – case study watershed

Broader, ongoing use for prioritization, project evaluation, reporting
Structural BMP Inventory Module

- Stormwater BMPs
  - Treatment, low impact development, hydromodification
- Trash capture
- Low flow diversion and treatment systems
- Multi-benefit BMPs
  - e.g., wet ponds with water harvesting, cisterns with on-site use, groundwater recharge
- BMP Attributes and Photos
- Modeling Parameters
- Rapid Assessment Method
- Maintenance Tracking
- Funding Tracking
- Documents
Mobile-optimized field workflow for:

- Inventory
- Assessment
- Maintenance
- Post-Maintenance Assessment
Area-Based BMP Inventory Module (in progress)

• Water conservation measures
  – Efficient irrigation
  – Drought tolerant/absorbent landscaping
• Stream rehab/restoration projects
• Human waste source tracking
• Private development sites
Watershed Drainage Asset Data and Connectivity
Example Inlet-Scale Delineations
Modeling Module (future)

- **"Living model"** based on inventory data and connectivity to drainage assets

- **Stormwater runoff and pollutant loads**
  - Modeled runoff hydrology and stormwater routing
  - Data-driven water quality estimates

- **Dry weather flow**
  - Data-driven flow generation high resolution sensors
  - Surface and subsurface sources
What are the estimated benefits (flow reduction, water quality, water supply) of a BMP at a given location?
Inventory and Modeling Use Case – Unnatural Water Balance

Develop spatial inventory of:
• Existing water use efficiency measures
• Existing structural BMPs

Use high resolution flow monitoring data to develop baseline flow estimates

• Track progress to date
• Prioritize subwatersheds for projects and source controls
• Estimate the effect of proposed measures
Conclusions

OC Stormwater Tools will provide the municipalities of South Orange County a foundation to:

• Quantify, track, and communicate progress toward achieving pollutant load reduction goals & milestones detailed in the WQIP
• Facilitate collaboration with agencies, stakeholders, and partners throughout the South OC Watershed Management Area
• Manage urban stormwater runoff using a data-driven approach
Discussion and Questions

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