

Update on the April 8th Regional Green Streets Workshop



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Bicycle and Pedestrian Subcommittee
May 21, 2013

What are Green Streets?



- Variety of definitions in the literature
- Generally speaking, the use of landscaping, trees, and related design elements to capture and filter stormwater runoff from streets

Timeline

- Background

- December 19th – Letter to TPB on from Anacostia Watershed Restoration Partnership

- Suggested development of a Regional “Green Streets” policy, similar to “Complete Streets” policy

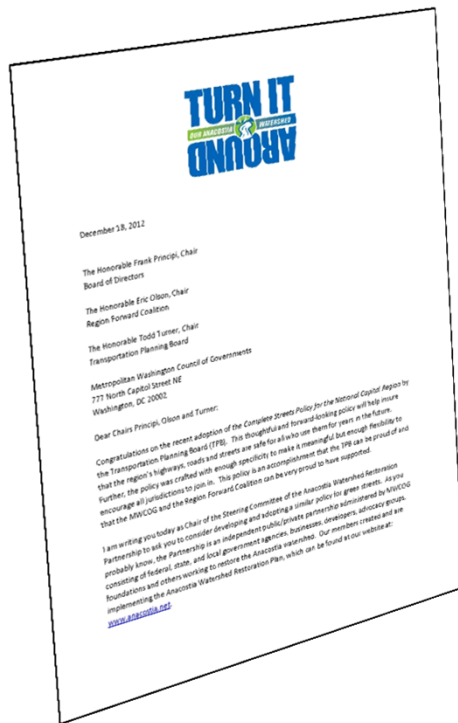
- January 11th – TPB Technical Committee

- Suggested a stakeholders workshop
- Determine what gaps, if any, a regional policy could help fill, as well as potential obstacles

- TPB staff and COG’s Department of Environmental Programs (DEP) staff organized a regional Green Streets workshop

- April 8th workshop

- TPB briefed May 15th.



Review of Green Streets Concepts: Information from the April 8th Workshop

April 8th Green Streets Workshop

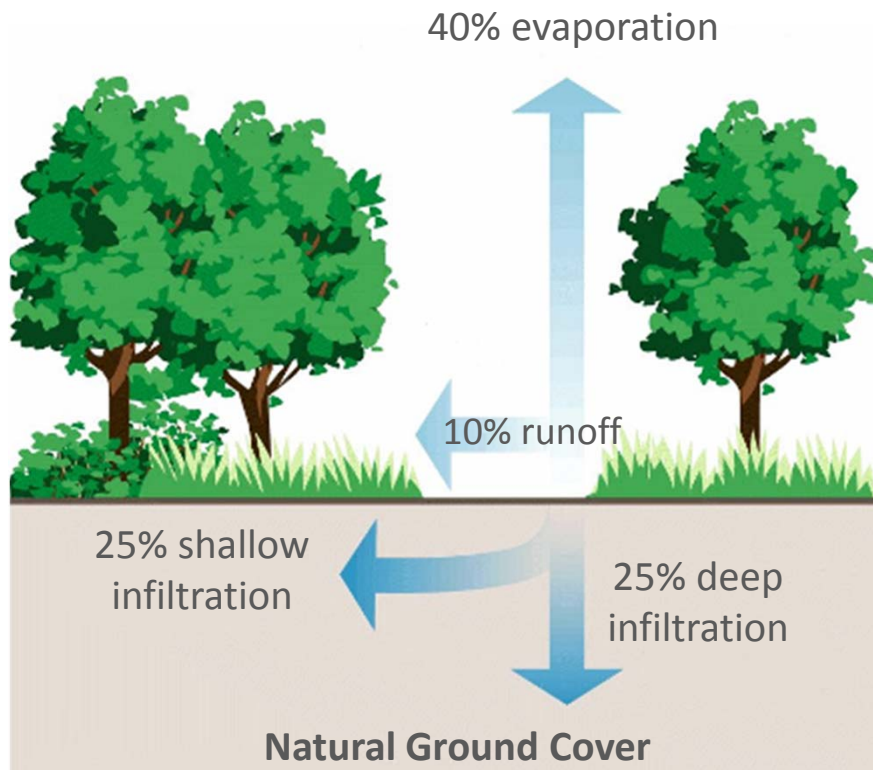
- 90 participants
 - Planners
 - DOT Public Works staff
 - Environmental Staff
 - Consultants and members of the public
- Nine Speakers
 - Keynote
 - EPA
 - Philadelphia Water Department
 - State Laws and Practices
 - DDOT
 - MDOT
 - VDOT
 - Local Policies and Practices
 - Fairfax County
 - Arlington County
 - Prince George's County

April 8th Keynote Speaker: Dominique Lueckenhoff, EPA

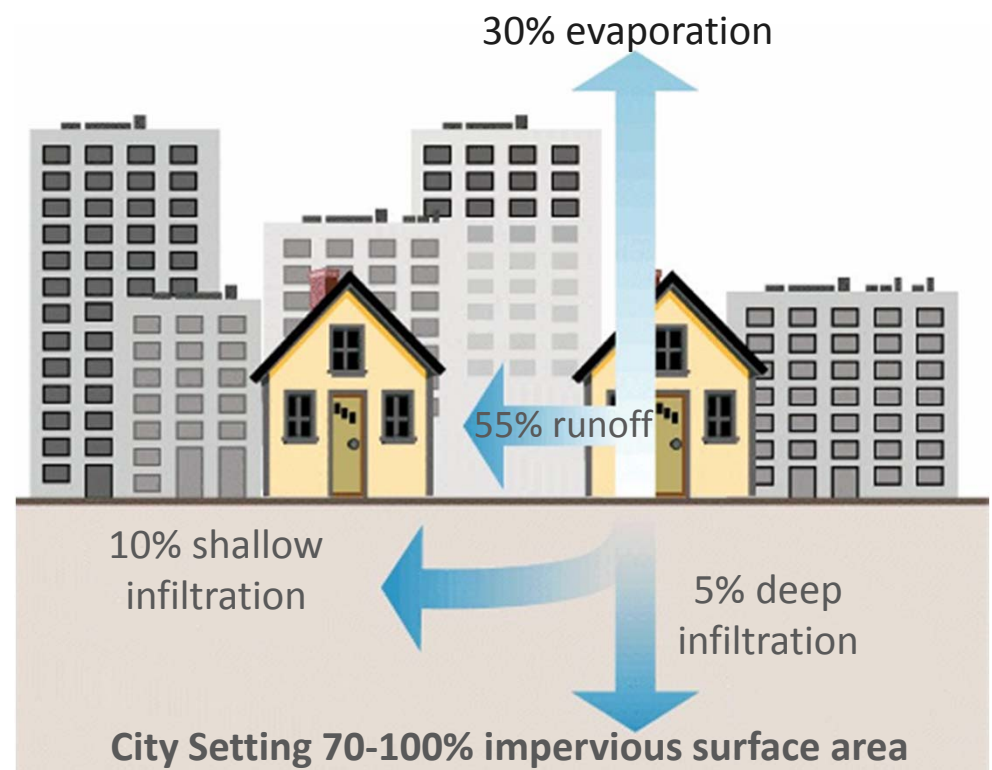


- *Green Streets in the Federal Government and Around the Nation: Valuable to the Nation's Environment and Economy*
 - Scope of the Stormwater Runoff Problem
 - Benefits of Green Infrastructure Solutions
 - Chesapeake Bay Watershed Stormwater Regulations
 - EPA Grant programs

Natural vs. Urban Stormwater Drainage



Stormwater infiltrates into the ground
Plants and trees work to absorb stormwater



Water hits impervious surface and runs off roofs, streets, parking lots etc.
Runoff goes into the sewers - worsens flooding

The Traditional Storm Water Approach

- Brick and mortar solutions
- Highly engineered solutions – Detention vs. Retention
- Slow pace of permit renewals and retrofit due to “sticker shock”
- Storm Water as pollution – not an asset

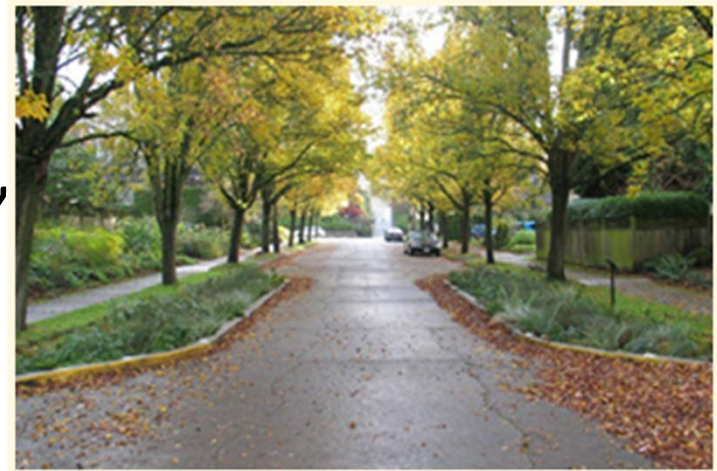




Why Green Streets?



- Urban roads, along with sidewalks and parking lots, are estimated to constitute almost **two-thirds** of the total impervious cover.
 - Mandates to reduce stormwater pollution
 - US communities are facing a total of \$106 billion in needed stormwater management and combined sewer correction upgrades or improvements.
- Green Infrastructure often more Cost-Effective
- Added benefits - “Rain as a Resource rather than a Waste”
 - Augment water supplies
 - Beautification – Better Streetscapes – “Livability”

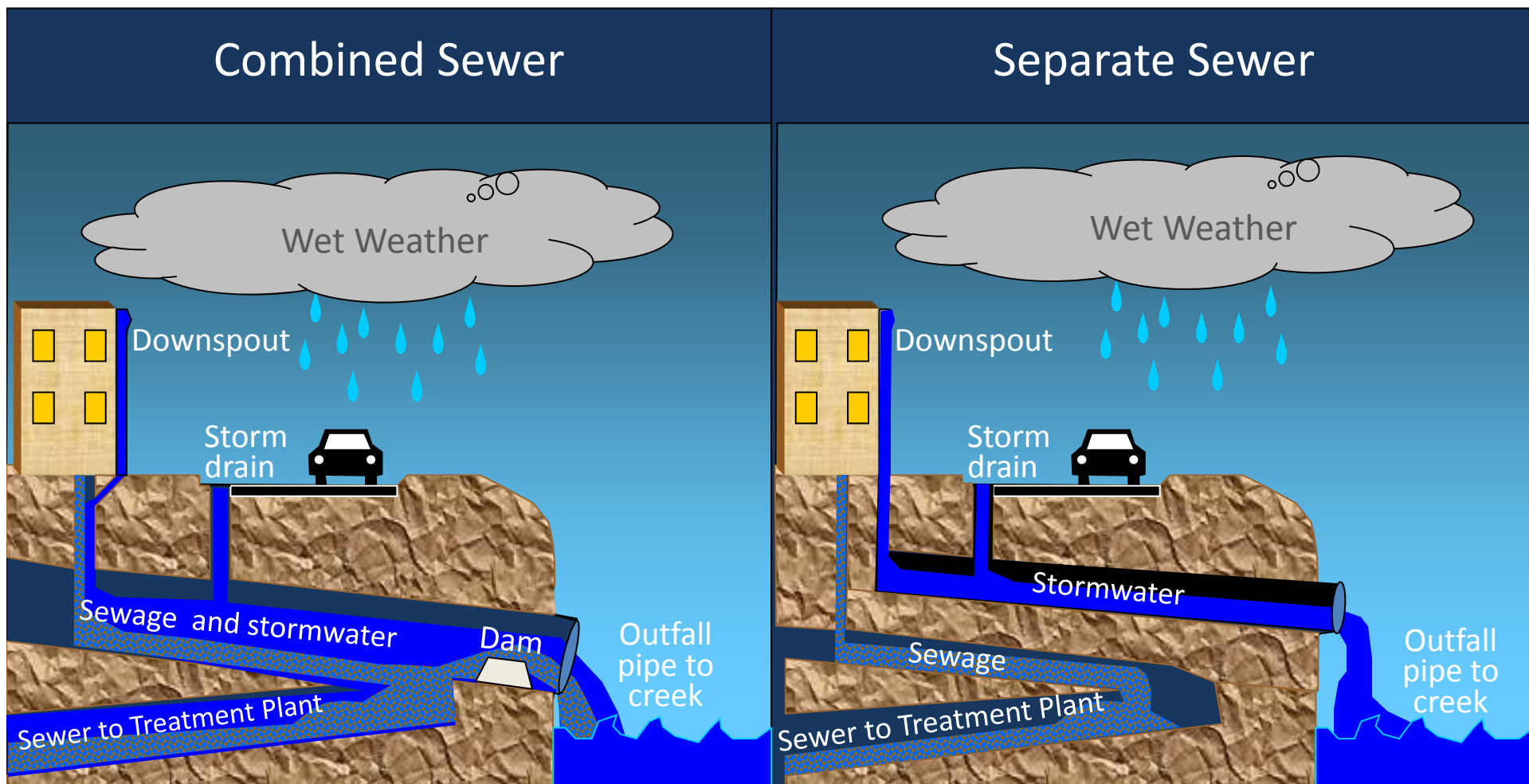


April 8th Featured Speaker: Christine Knapp, City of Philadelphia Water Dept.

- *A Green Street Perspective from another Region: Philadelphia's Green Street Policy Grows from Its Green City/Clean Water Agenda*
 - Philadelphia's problematic combined sewer system
 - Mitigation: Central Tunnel option vs. Green Infrastructure option



Types of Sewers in Philadelphia



Combined Sewer

Separate Sewer

60% of Philadelphia

40% of Philadelphia

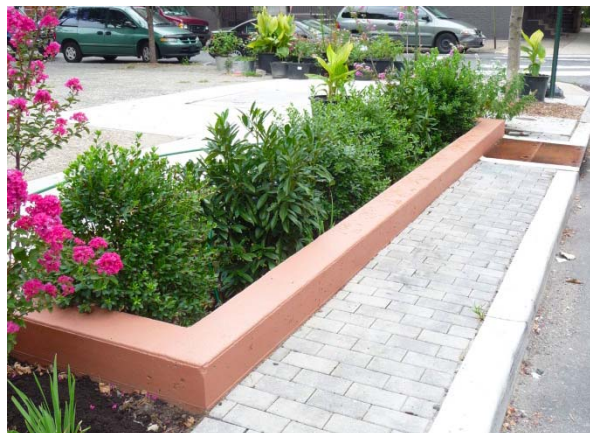
Philadelphia Representative Spoke on Efforts to Reduce Combined Sewer Overflows (CSOs)

New Approach

- Design streets and urban sites so rainfall infiltrates, supports vegetation, and/or is reused
- Enforce strong stormwater regulations on development
- Create stormwater billing structure that rewards good practices

Goal: 9500 Impervious Acres converted to “Greened Acres”

Photo Credits: Philadelphia Water Department and Meliora Environmental Design



Workshop Presentations: State and Local Speakers

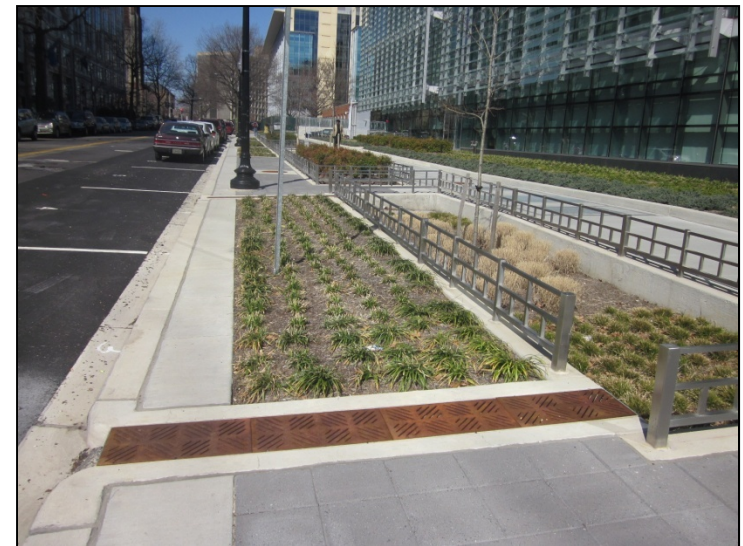
- Creating Green Streets in DC
- VDOT Stormwater Management
- Fairfax County Green Streets Programs
- Arlington Green Streets
- Maryland Stormwater Management
- Prince George's Complete and Green Streets Policy

Creating Green Streets in DC



DC Green Street Policy Evolution

- Anacostia Waterfront Initiative Transportation Architecture Design Guidelines (2005)
- Great Streets Program (2005-present)
- DDOT Action Agenda (2010)
- DDOT Sustainability Plan (2010)
- DDOT Complete Streets Policy (2010)
- DDOT LID Action Plan (2010)
- DC MS4 Permit (2011- 3rd Permit)
- New Citywide Stormwater Regulations (2013)
 - Retain 1.2 inches of runoff



Completed
2012

Great Street: Pennsylvania Avenue SE



Before: P St open



After: P St closed, Bioretention #1



Bioretention #2

Street Tree Planting

- Larger Tree Spaces
- Increased Soil Volumes
 - Structural Soils
 - Structural Cells
- Permeable Pavements



Private Installations in Streets



Constitution Square



Golden Triangle BID



The Yards



Casey Trees

Paving Removal Program

ARRA Funded project began 2010

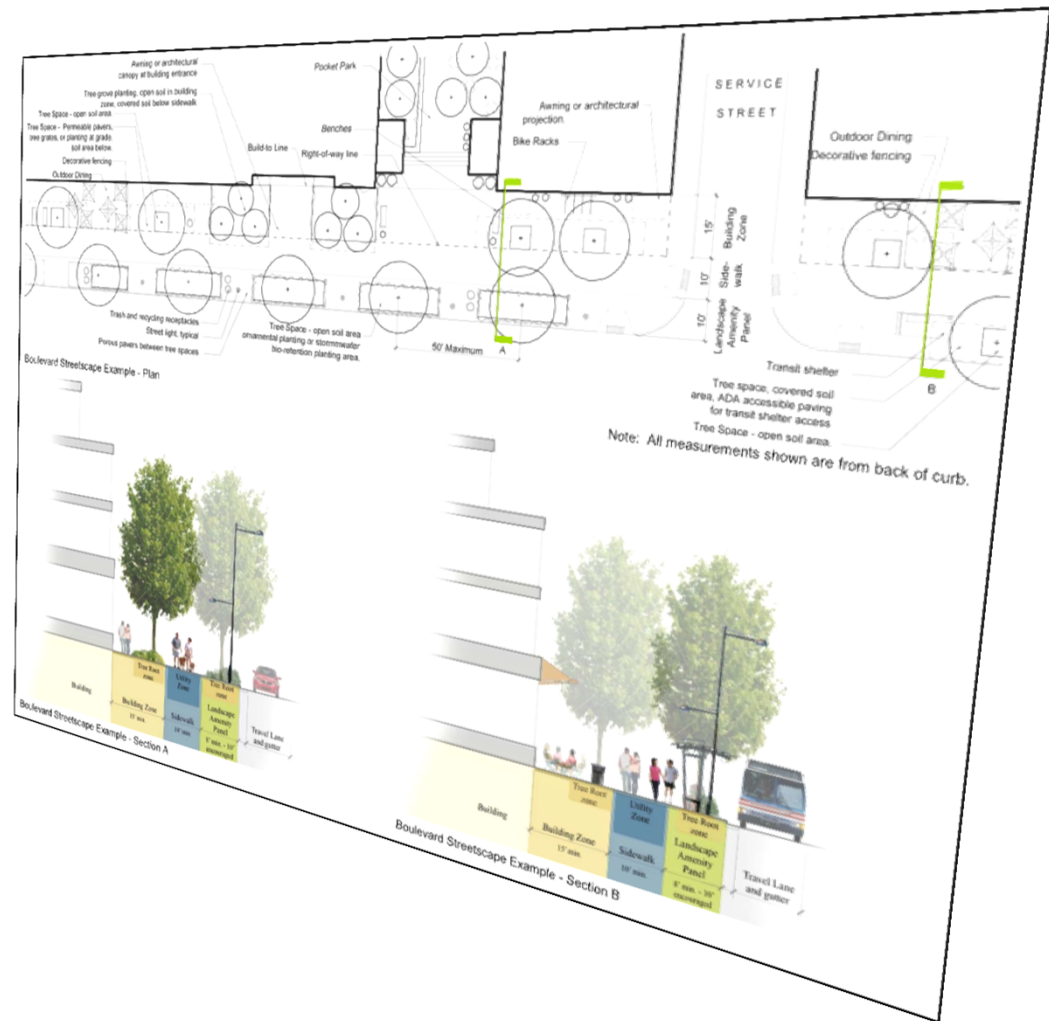


P St & North Capitol St NE



Calvert St Median

Virginia



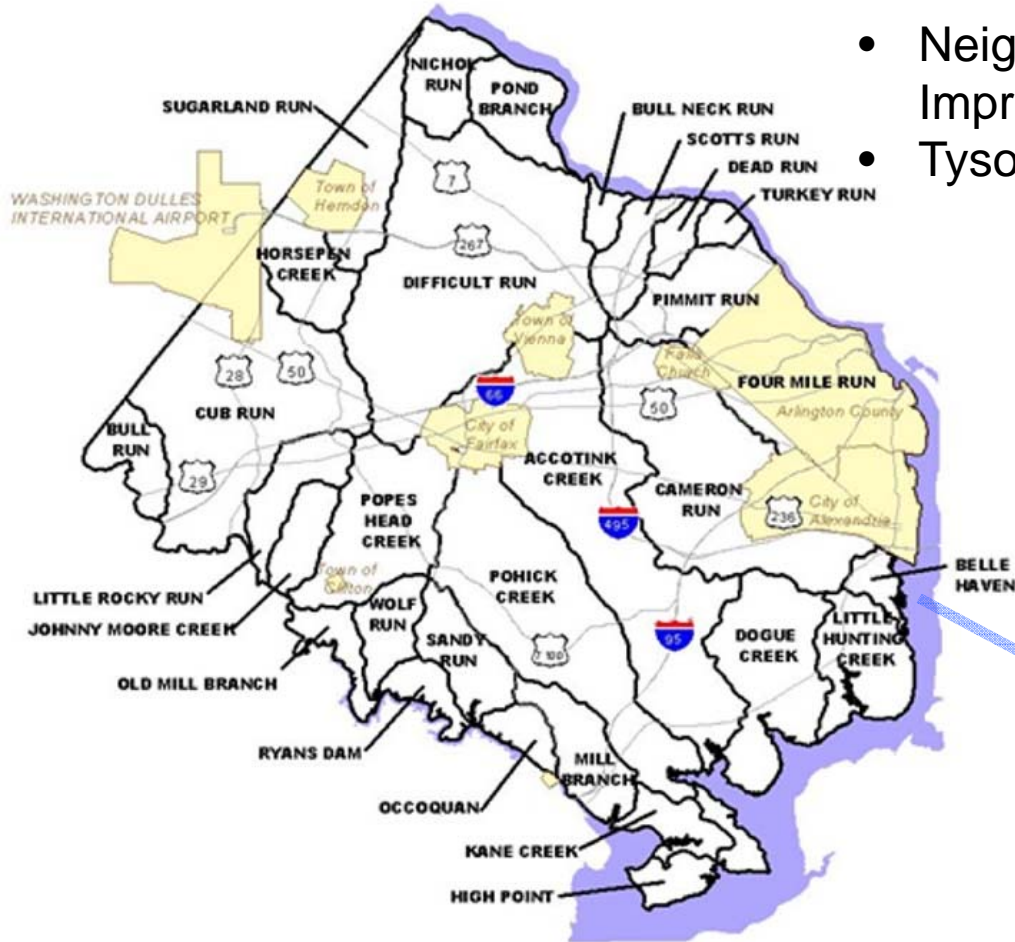
VDOT Stormwater Management

- The Virginia Stormwater Management Regulations are applicable to all Regulated Land Disturbance Activities (RLDA) undertaken by or for VDOT
- All routine maintenance activities exempted
- On-site retention not required.
- Low Impact Development (LID) permitted within VDOT ROW with maintenance agreement.
 - VDOT Subdivision Street Acceptance Policy encourages LID practices
- Central office staff develop Municipal Separate Storm Sewer (MS4) program wide policies and procedures, handle annual reporting, training, and assessment of VDOT's operations.
- District staff responsible for implementation

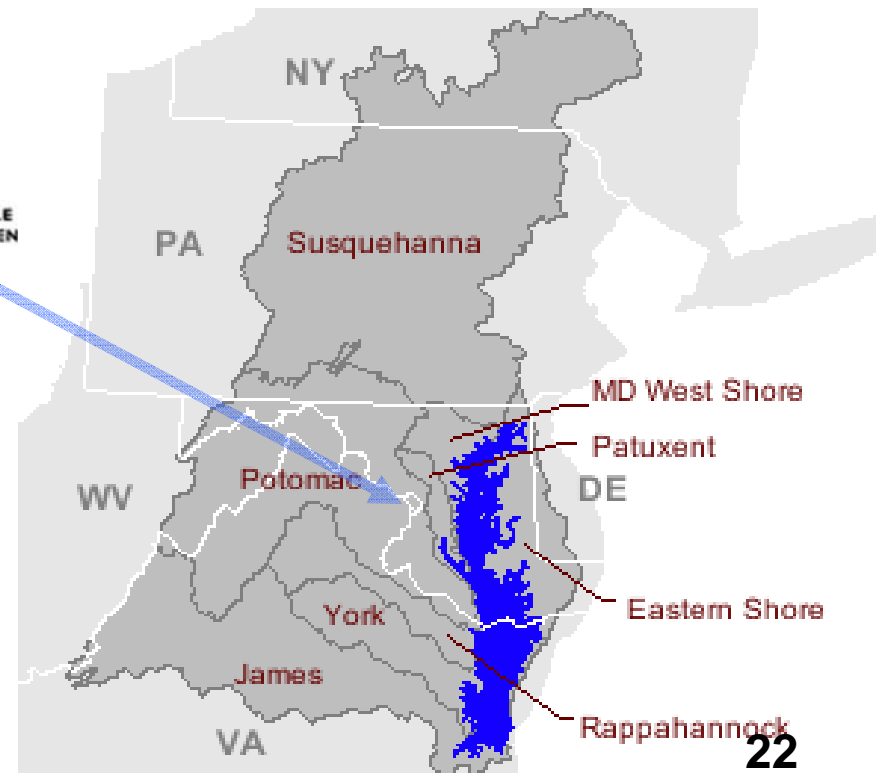


Green Street Discussion

- Neighborhood Drainage Improvements
- Tysons Corner Plan



Chesapeake Bay Watershed



Size: 395 sq. miles

Population: 1.2 million

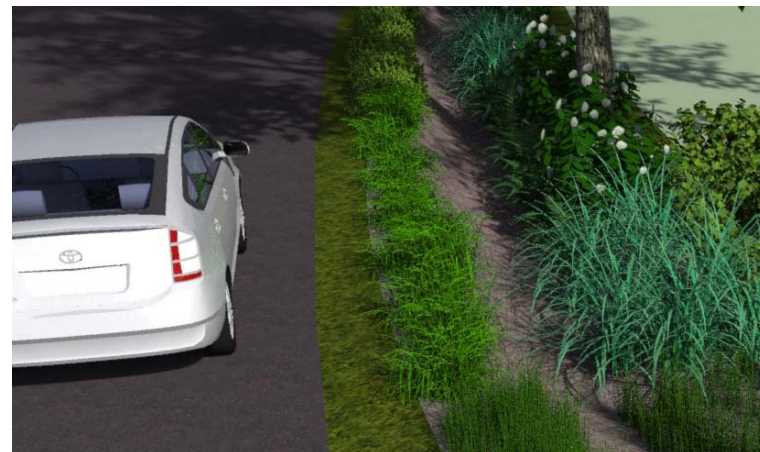
MS4 - Phase 1 Community

Fairfax County Neighborhood Drainage Project Goals:

- ✓ Reduce flooding and erosion
- ✓ Collect runoff at the source
- ✓ Improve water quality
- ✓ Improve tributary stability
- ✓ Use innovative & functional designs
- ✓ Make it aesthetic

Solutions:

- ✓ Swales
- ✓ Permeable Pavement
- ✓ Infiltration Trenches



Arlington Green Streets

- Green Streets are the core element of Arlington’s stormwater program
- “More than a filter”
 - Reduced volume, heat island, beautification, traffic calming
- Opportunities
 - Road Diets, Traffic Calming, Redevelopment, Pedestrian Improvements
- Challenges
 - Utilities, parking
- “Design, Learn, Design”
 - Green Streets designs are still evolving; learn from performance.
- Long term plan
 - Projects scored and ranked
- Maintenance obligations will grow over time



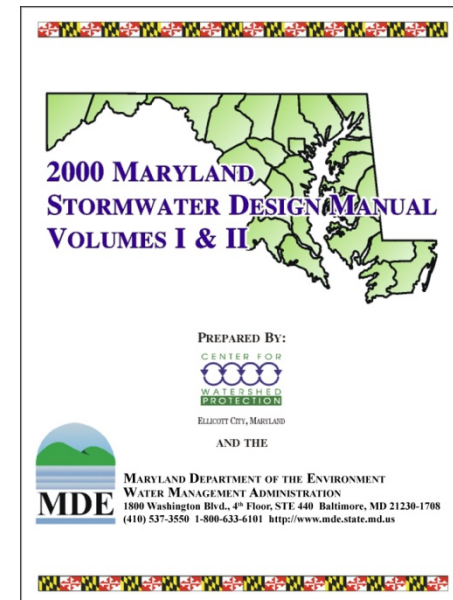
Patrick Henry Drive



Maryland

Maryland's SWM Framework

- The State Highway Administration (SHA) is responsible for only one quarter of the lane miles in MD
- Statewide Stormwater Manual 2000.
- New Regulatory Drivers
 - Stormwater 2007
 - The Bay TMDL and Maryland's Watershed Implementation Plans
 - Sustainable Growth & Agricultural Preservation Act of 2012





From this...



to this.



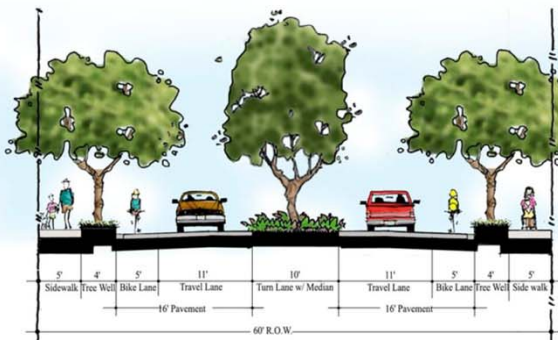
Prince George's County Complete and Green Streets Policy (12/2012)

SUBTITLE 23. ROADS AND SIDEWALKS.

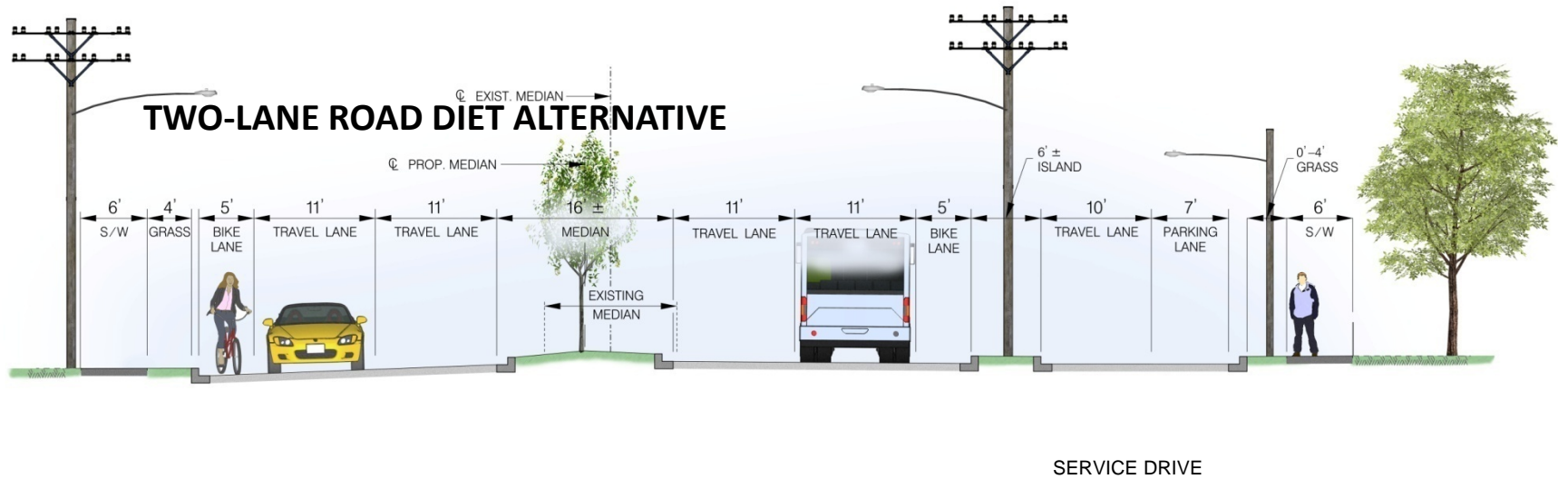
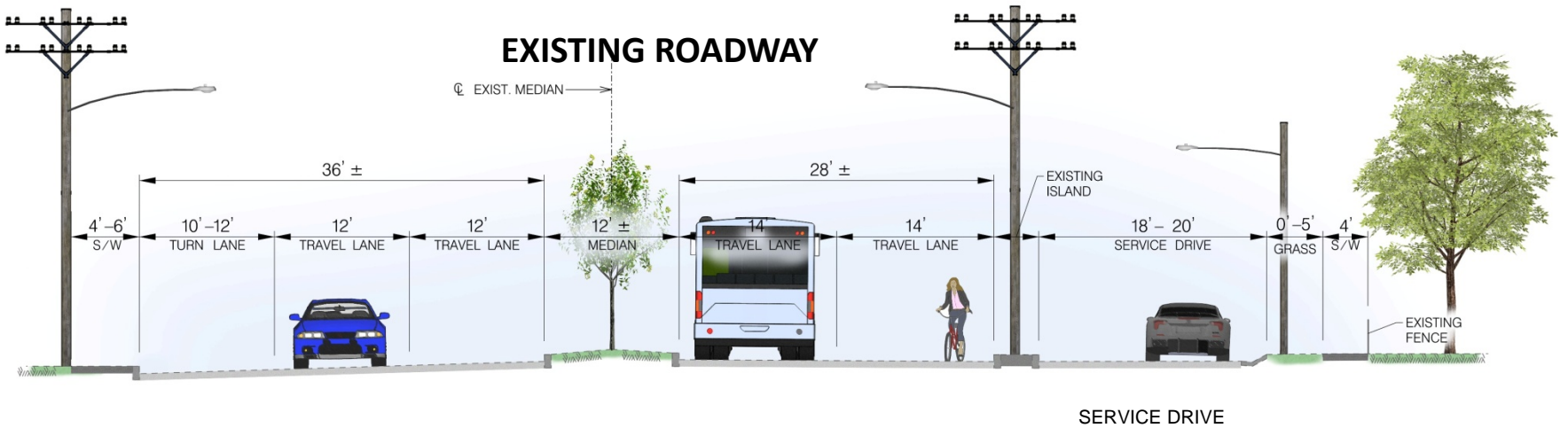
DIVISION 7. COMPLETE AND GREEN STREETS.

Sec. 23-615. Complete and Green Streets Policy.

- Create more livable communities and places
- Manage stormwater in an environmentally-friendly way
- Increase tree canopy
- Make it easier for people to walk, bike, and use public transportation



Ager Road Green/Complete Street Design



Overall April 8 Workshop Findings



Workshop Findings (1 of 2)

- Stormwater runoff pollution must be reduced
 - Worsens flooding, water quality
 - Regulations require it
 - Long term process
- Green Infrastructure is often more cost-effective
- Multiple Benefits from Green Streets
 - Enhanced water supplies, beautification, reduced heat island, enhanced property values, economic development
- Green Streets can be Complete Streets
 - Traffic calming, road diets, and streetscaping projects provide opportunities for, benefit from Green infrastructure
 - But trade-offs cannot always be avoided

Workshop Findings (2 of 2)

- Laws have changed
 - Agencies are still working out strategies for complying with new requirements
- Design is still a work in progress
 - West coast designs need adaptation to eastern climate
 - “Design, Learn, Design” (Learn from field performance. Local soil conditions affect performance)
 - Challenges - utilities, competing uses, soil conditions, connections to drainage
 - Maintenance
- Cooperation between multiple agencies and developers is needed
 - Transportation cannot do it alone
 - Watershed strategy vs. site strategy
 - A directive from the top of a government or agency can help bring multiple departments and agencies together

Next Steps

A. Compile Current and Best Practices

- Continue to share information on evolving Best Practices through the relevant committees and periodic workshops
- Ensure understanding of requirements and current practices

B. Develop Options for Regional Approaches

- Additional technical-level discussions
- Bring back to TPB following these discussions

Questions?

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