


Creating Green Streets in DC

MWCOG Green Streets Workshop
April 8, 2013

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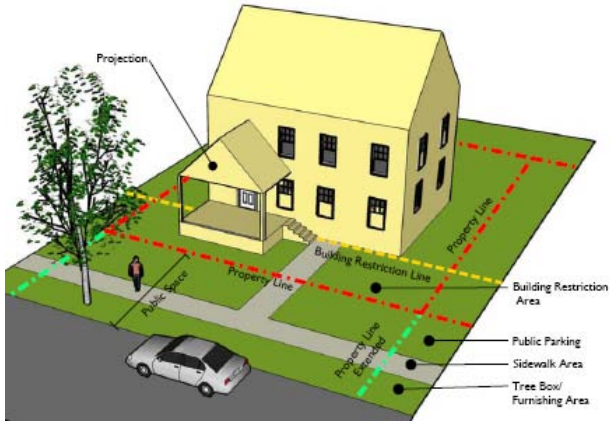
DC Green Streets

- What are Green Streets?
  - Stormwater Volume Reduction & Water Quality Treatment
  - Low Impact Development (LID)
  - Green Infrastructure (GI)
  - Energy Efficient Lighting
- Policy History - LID Action Plan
- DDOT LID Projects
- Private LID Projects in ROW
- LID & GI Standards
- Maintenance
- Challenges



What is Public Space?

What many streets look like

DC Green Street Policy Evolution

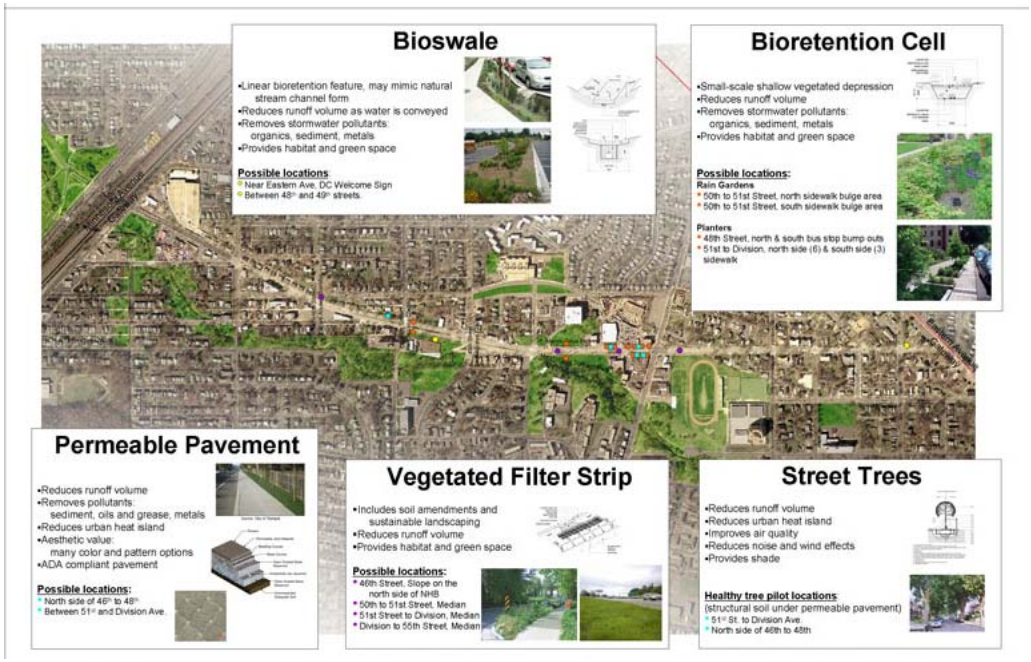
- Anacostia Waterfront Initiative Transportation Architecture Design Guidelines (2005)
- Great Streets Program (2005-present)
- DDOT Action Agenda (2010)
- DDOT Sustainability Plan (2010)
- DDOT Complete Streets Policy (2010)
- DDOT LID Action Plan (2010)
- DC MS4 Permit (2011- 3rd Permit)
- New Citywide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

Completed 2012

Great Street: Pennsylvania Avenue SE

Completed 2012

Great Street: NHB Ave NE Green Street



Street Tree Planting

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

Department of Environment Street Projects

Private Installations in Streets

DDOT LID Action Plan

Comprehensive Stormwater Management Enhancement Act of 2008:

1. *New DDOT policies to **reduce impervious surface** and **employ other LID measures in right-of-way construction projects** and retrofit projects*
2. *A revised DDOT **public space permitting process** and the development of a mechanism to minimize storm-water runoff from the public right-of-way*
3. ***Requirements and incentives for private developers** to reduce impervious surface and employ LID measures when their projects extend into the public right-of-way*
4. *Policies, including fees, for the use of public space to **manage storm-water runoff from private property***
5. *Policies to address ongoing **maintenance** of LID or storm-water best management practices installed in public right-of-way areas adjacent to private property*
6. *Strategies to **remove impediments to LID projects** on **residential properties** relating to public space, and*
7. ***Costs** for each recommendation and a **recommended timeline** for funding in the Mayor's proposed budget. The Mayor shall incorporate these recommendations in the next and subsequent proposed annual budgets."*

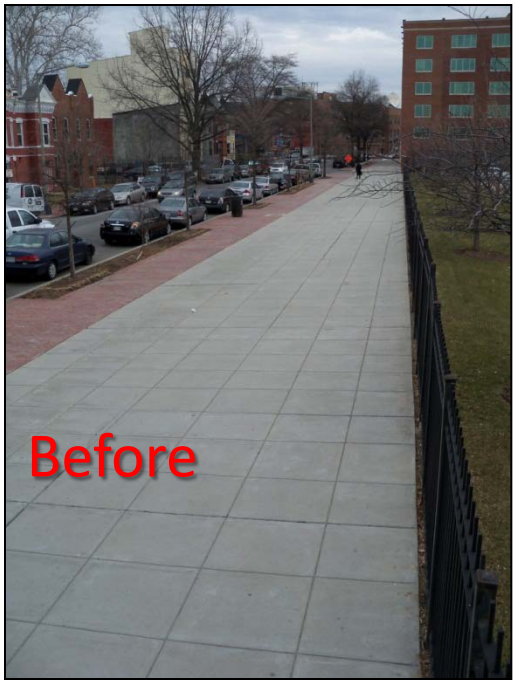
RiverSmart Washington

- Implement GI & LID to the Maximum Extent Practicable
- Quantify stormwater volume reductions
- Two Sewersheds
  - Petworth/MacFarland – CSO
  - Chevy Chase – Lafayette – MS4

District Department of Transportation
DISTRICT DEPARTMENT OF THE ENVIRONMENT
dc
FORCE
Friends of Rock Creek's Environment
AECOM
LimnoTech
Water | Environment | Scientists | Engineers
The Low Impact Development Center, Inc.
Casey Trees
WASHINGTON DC
National Fish and Wildlife Foundation

Paving Removal Program

ARRA Funded project began 2010

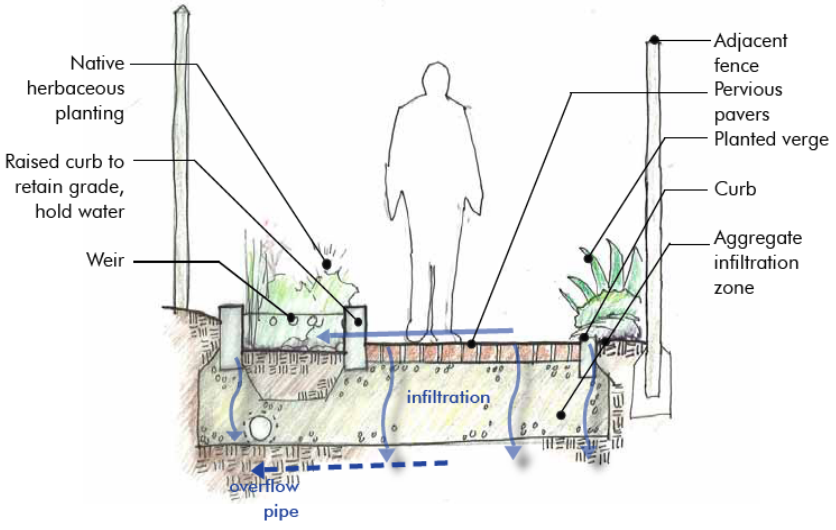


P St & North Capitol St NE

Calvert St Median

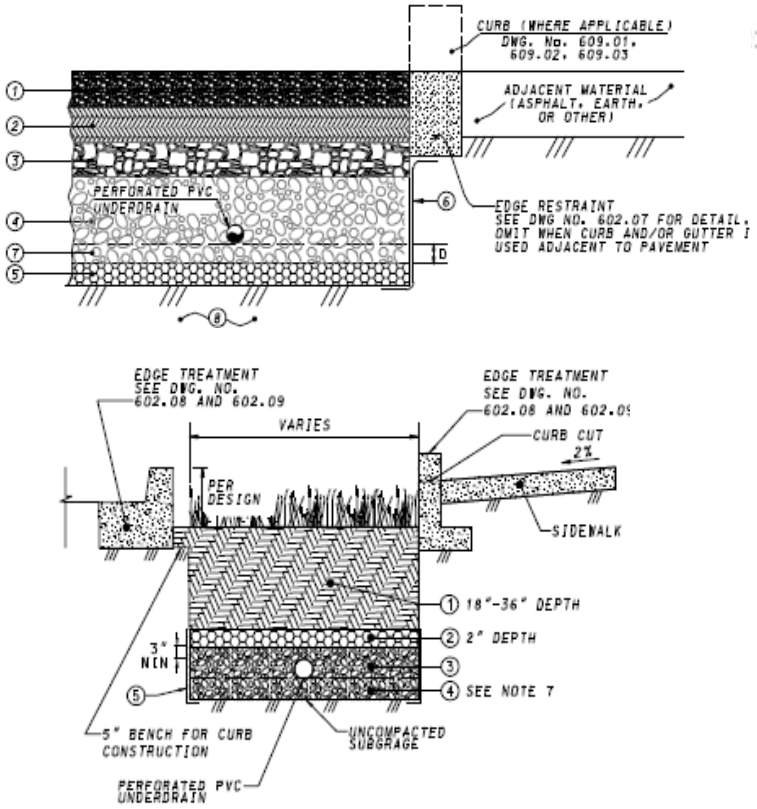
Green Alleys

- Install permeable pavement in Alleys for reconstruction or new construction
  - Pervious Concrete
  - Porous Asphalt
  - Permeable Pavers
- Pilot Pedestrian only access Green alley



LID & GI Standards

- Practices
  - Bioretention & variations
  - Permeable Paving
  - Tree Space Design
- Process
  - Multi-disciplinary design team
  - LID Council of Experts
  - Research best practices, stakeholder interviews, local site inspections
- Drafts Issued for Public Review
  - Construction drawings & specifications
  - DDOT design procedure
  - Submit Comments by April 18, 2013
- Upcoming
  - LID Illustrative Design Manual
  - Maintenance Schedules, Plant lists



New Stormwater Regulations

- Options for meeting new requirements in ROW
  - Retain full volume requirement (1.2 inch)
  - Retain half volume on-site & half off-site
  - Retain volume to the Maximum Extent Practicable (MEP)
- What design will meet MEP?
  - What space is available to manage stormwater
    - Tree Space, Parking lanes
    - Adjacent public land open space
  - Uses of public space
    - Pedestrian zones, bike lanes, bus shelters, mature trees, sidewalk cafes
  - Space conflicts - utilities

Private Projects in Public Space

- Disturbance in public space regulated for stormwater control by DDOE
- Runoff from private property cannot be managed in public space
- Opportunity to manage off-site street stormwater runoff
  - For private development projects
  - For stand-alone stormwater retrofit projects to generate Stormwater Retention Credits
- Coordinating permit process
  - DDOT, DDOE, & DC Water
  - Consolidation of maintenance covenants

LID Site Maintenance

- DDOT ROW Projects
  - Inventory all sites in GIS
  - Vegetated sites: Urban Forestry Administration
  - Permeable Pavement: DDOT Street Maintenance Division & Dept. of Public Works
- Bioretention Maintenance Training Program for contractors with UDC Community College
- Private installations in ROW
  - Maintenance Covenants with adjacent property owner
  - Maintenance Agreement with non-adjacent property owner

How Do we Implement the Projects?

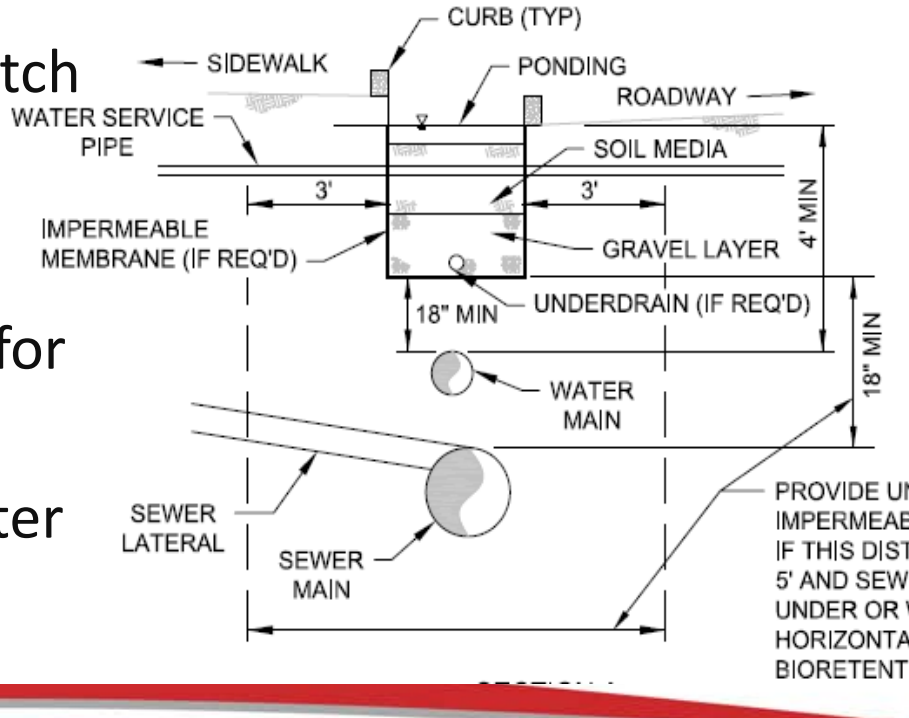
- Road construction projects
  - FHWA State Transportation Program, ARRA Funds
  - Local fund match
  - Stormwater Management Approved Expense
- Retrofit Projects
  - Separate design & construction projects
  - Local Stormwater Fee (DDOE) (Targetted for MS4 Area)
  - Local Green Alley Funds
  - FHWA Transportation Enhancement funds (changing)
  - EPA (via DDOE) Clean Water State Revolving Fund

Design Challenge: Curb Cut Design

Design Challenge: Pedestrian Safety

Design Challenges

- Soil Infiltration, Testing, & Underdrain Use
  - High Geotechnical testing costs
  - Large cost for underdrain connection to sewer
  - Underdrain connection to catch basins
- Utility Coordination
  - Vertical & horizontal offsets for LID near utility lines
  - Restoration requirements after repair excavation



What's Next

- Transition to new stormwater requirements
  - New design project contracts include new requirements
  - Train design, construction, & inspection staff
  - Impact to cost, design effort, construction coordination
- Changing the urban landscape

Questions

http://ddot.dc.gov/DC/DDOT/Projects+and+Planning/Environment/Low+Impact+Development

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