Makeover Montgomery
April 15, 2011
Silver Spring, Maryland

What is a Suburb?
Retrofitting Suburban Land Use
Within and Around Cities

Policies and Practices

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www.svrdesign.com
How to take this -
And make it better?
And make it better?
FRAGMENTING COMMUNITY

POLICY, CONTROL AND RESOURCES ARE IN SILOS
Healthy Communities

Environmental Systems

Multi-modal Transportation Network

Sustainable Energy

Economic Development

REPROGRAMMING FOR THE FUTURE
Federal Policy Leadership

EPA – HUD – DOT

Livability Principles

• Provide more transportation choices.
• Promote equitable, affordable housing.
• Enhance economic competitiveness
• Support existing communities.
• Coordinate and leverage federal policies and investment.
• Value communities and neighborhoods.
Federal Policy Leadership

Department of Justice
American with Disabilities Act (ADA)

2010 ADA Standards for Accessible Design and Public ROW Accessibility Guidelines
Federal Policy Leadership

DHHS – CDC
Healthy Communities Program

Prevent chronic disease by:
• Promoting healthy eating and active living
• Sustainable interventions in communities
• Reach diverse populations
Comprehensive Planning should consider:

- Obesity Prevention
- Increasing physical activity choices
- Reducing health disparities
- Food systems
- Food access
- Food security
- Aging populations
- Clean air
- Clean water
Planning for Active Living

Comprehensive Planning should consider:
• Complete Streets
• Transportation choices
  ▪ Walking
  ▪ Biking
  ▪ Transit
  ▪ Auto
• Accessibility
• Destinations
• Safety
• Speed
• Recreation
Linking to the Built Environment

What do these policies look like on the ground?
Suburban “style”?

Suburbs are often defined as residential areas outside a city but is this really the case?

Suburban “styles” exist within our cities as well as outside of them and both require retrofitting.
Land use “Drivers” for Retrofit

• Increasing population and changing lifestyles
  • Housing

• Addressing Footprint and Mitigate stormwater
  • Mall parking lot examples
  • ESD to MEP in Montgomery County

• Space for urban agriculture
  • Seattle examples

• Increasing tree canopy
  • Seattle’s stormwater credit for trees
  • China’s efforts toward urban forests
  • Applying Montgomery County Canopy Goals
Housing
Parking Lots - Lots of reasons to retrofit?

Footprint

Pedestrian Environment

Accessibility

Stormwater impact (impervious)

Heat Island Affect (impervious)

Autofocused
Parking Lots—walk to shop?
Parking Lots- walk to shop?
Parking Lots - walk to shop? not in yet....
walk to shop?
No pedestrian path from trail to mall
We can retrofit parking footprints
Green Parking Lots

Northgate Mall, Seattle WA
Current
Northgate Mall, Seattle WA
2007-2011
Cost Comparison of Conventional and Green Parking Lot Designs*

<table>
<thead>
<tr>
<th></th>
<th>Option 1: Conventional Design w/ Water Quality Filters</th>
<th>Option 2: Pavers Porous Asphalt Telescoping Swales</th>
<th>Option 3: Pavers Telescoping Swales Water Quality Filters</th>
<th>Option 4: Telescoping Swales Water Quality Filters</th>
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</thead>
<tbody>
<tr>
<td>Total Capital Costs ($ Mil.)</td>
<td>$6.60</td>
<td>$6.37</td>
<td>$6.10</td>
<td>$5.73</td>
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<tr>
<td>Maintenance Costs ($/yr.)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sweeping**</td>
<td>$35,040</td>
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<tr>
<td>Landscaping</td>
<td>$20,000</td>
<td>$24,000</td>
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<tr>
<td>Water Quality</td>
<td>$14,000</td>
<td>$2,000</td>
<td>$4,000</td>
<td>$6,000</td>
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<tr>
<td>Total</td>
<td>$69,040</td>
<td>$61,040</td>
<td>$63,040</td>
<td>$65,040</td>
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</table>

*planning level estimates

**The Low Impact Development Technical Guidance Manual for Puget Sound recommends maintaining permeable paver parking lots. This is not cost effective in some cases.

©
Green Parking Lots

September 30, 2006

WHO SHOULD CONSIDER GREEN PARKING LOTS?

If you're looking for a cost-effective option for meeting landscaping and water quality requirements when building or redeveloping a parking lot, consider going green.

WHAT ARE GREEN PARKING LOTS?

Green parking lots reduce runoff that is discharged into local water bodies by using permeable paving and natural drainage landscapes.

Along or together, these two strategies can be used to meet water quality and landscape requirements and provide credit toward flow control requirements for parking lots.

Permeable Paving

Permeable pavements include pavers, grid systems, porous asphalt and porous concrete. Pavers may be pre-cast sections or individual units that fit together. They are available in a variety of patterns and colors and can be used to enhance the project’s aesthetic. Grid or lattice systems are rigid plastic forms that are filled with gravel or soil and vegetation. Porous asphalt and porous concrete are similar to conventional asphalt and concrete in structure and form except that the fines (sand and finer material) have been removed.

When installed over a drainage storage bed, these permeable pavements allow rain to infiltrate through the voids of the permeable surface. Beneath the permeable surface, runoff storage is achieved and/or infiltration occurs where soil permits. Surfaces that infiltrate 100% of the six-month storm runoff may be eligible to be removed from area calculations for water quality requirements. See attached handout for more information on different types of permeable paving.

Natural Drainage Landscapes

Natural drainage landscapes include bio-swales, rain gardens, and bioengineered planting strips that can improve water quality and reduce runoff.

Bio-swales are open, linear channels that filter stormwater as the water flows through vegetation to the discharge point. Although their width and length vary as needed to achieve function, at a minimum they are two feet wide at the bottom and have a maximum slope of 2.5:1.

Rain gardens are shallow depressions in the landscape and are designed to hold and infiltrate runoff. They are amended with bioengineered soil and vegetation with plants that are adapted to both wet and dry conditions.

Bioengineered planting strips are similar to bio-swales but they include an infiltration component. As with rain gardens, native soil below the swale is excavated and backfilled with gravel and loamy sand and planted with shrubs and groundcover.

All systems include an overflow system such as a perforated pipe or a raised overflow device to convey excess drainage to another system or discharge point. These natural drainage landscapes can help reduce the volume of runoff generated from parking lots and filter, infiltrate and store runoff for slower discharge. Existing landscape features such as planters and landscape strips can be converted to natural drainage landscapes.

HOW DO GREEN PARKING LOTS MEET REQUIREMENTS?

The green parking lot strategies described above may help meet requirements for several City codes, including:

- Seattle Municipal Code (SMC) Ch.22.800, Stormwater, Grading, and Drainage Control Code
- SMC 23.47.016, Screening and Landscape Standards

www.seattle.gov/dpd

Seattle Department of Planning & Development – Client Assistance Memo – CAM515
Space for Urban Agriculture
Tree Canopy
# Seattle’s Flow Control Credits for Trees

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Design Variable</th>
<th>Flow Control Credit</th>
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<tbody>
<tr>
<td></td>
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<td><strong>Creek Standard</strong></td>
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<tr>
<td>Retained Trees</td>
<td>Evergreen</td>
<td>20% canopy area (min 100 sf/tree)</td>
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<tr>
<td></td>
<td>Deciduous</td>
<td>10% canopy area (min 50 sf/tree)</td>
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<tr>
<td>New Trees</td>
<td>Evergreen</td>
<td>50 sf / tree</td>
</tr>
<tr>
<td></td>
<td>Deciduous</td>
<td>20 sf / tree</td>
</tr>
<tr>
<td>Green Roof</td>
<td>4 inch depth</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>8 inch depth</td>
<td>54%</td>
</tr>
<tr>
<td>Dispersion</td>
<td>NA</td>
<td>90%</td>
</tr>
<tr>
<td>Permeable Pavement Surface (3” subbase)</td>
<td>Slope ≤ 2%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Slope 2% - 5%</td>
<td>45%</td>
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Courtesy Seattle Public Utilities
Tree Canopy Goals for Montgomery County

American Forests recommended - 45 %
The overall estimate of existing canopy is 50%

*but this can be deceiving when you look at the urban areas where trees provide shade to mitigate the heat island effect and intercept rainfall to mitigate stormwater*

Silver Spring Central Business District — 14 percent
Montgomery Hills — 8 percent
Clarksburg Town Center — 33 percent
Bethesda Central Business District — 24 percent
Bethesda-Chevy Chase planning subregion — 61.9 percent
What if
You took space from the street and installed trees

Multiple benefits – pedestrian, shade, stormwater, traffic calming
Transportation “Drivers” for Retrofit

• Increasing population
• Reducing auto dependency
• Improve options for healthy mobility
• Address footprint- reduce lane widths
• Increase tree canopy
• Mitigate stormwater
1. Implementing Environmental Site Design in Montgomery County Dec 14, 2010
2. 2009 Environmental Site Design (Maryland Stormwater Manual)
3. New Road Code and Standards 2011
4. On going Urban Design Guidelines
Residential Areas

Garrett Park
The Oaks
Windermere
Clarksburg
Mixed Use / Urban

White Flint
Silver Spring
Fenton Village
You can improve Walk Scores

Silver Spring – Walkscore **95**
- Residential area near metro stop

White Flint – Walkscore **88**
- Residential area near metro stop

Garrett Park – Walkscore **52**
- Residential neighborhood street

The Oaks / Windermere – Walkscore **35**
- Residential neighborhood street

Clarksburg – Walkscore **29**
- Residential neighborhood street

images via walkscore.com
Retrofit Urban Streets with ESD- Mobility gains

Step 1 - Striping bike lane - speed control

Step 2 - Adding low plantings for enhanced pedestrian environment
Retrofit Residential Streets with ESD - mobility gains
Suburbs and Cities Share this Problem

Retrofitting speed – would provide safe mobility, reduced road lane widths, less stormwater impact and room for trees
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