FINDING RETROFITS – ROADWAY DISCONNECTION CASE STUDIES

CLEAR December Disconnection Workshop Series
December 9, 2020
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Eastern Connecticut Conservation District
Roadway Disconnections in East Lyme
Colony Road Tree Filters (2012)

Cart-before-the-horse approach:

- ECCD obtained funding from CT DEEP through the Clean Water Act §319 to conduct a stormwater improvement project in the Niantic River watershed.
- Impaired waters in a watershed with an approved 9-element watershed plan are eligible for CWA §319 funds.
- ECCD approached East Lyme to assist with identifying a suitable location.
- Selected Latimer Brook – impaired due to bacteria and nutrients.
- Selected tree filters as LID BMP.

Kwanzan Cherry (Prunus serrulata 'Kwanzan')
What is a Tree Filter?
Disconnected Impervious Area

Tree Filter Locations - Colony Road, East Lyme, CT

<table>
<thead>
<tr>
<th>Tree Filter</th>
<th>Disconnected Area (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF-1</td>
<td>0.35</td>
</tr>
<tr>
<td>TF-2</td>
<td>0.35</td>
</tr>
<tr>
<td>TF-3</td>
<td>0.25</td>
</tr>
<tr>
<td>TF-4a &amp; 4b</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1.2 acres</strong></td>
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This map does not contain any authoritative data and is for informational purposes only.

Prepared by: Eastern Connecticut Conservation District
October 2012
Starting to get smarter:

- ECCD informed East Lyme DPW that we planned to apply for additional CWA §319 funding to install more tree filters in the Niantic River watershed as part of watershed based plan implementation.
- East Lyme had just received a STEAP grant for a Downtown Niantic Streetscape Improvement project.
- We combined forces; the ECCD grant paid for the tree filters; the East Lyme STEAP grant paid for design and installation.
Hybrid Theory

• The tree filter design was altered to take advantage of site conditions
• The presence of deep stratified drift deposits below the site allowed us to decouple the tree filters from the stormdrain system
• This gave us greater flexibility in siting the tree filters
• Leveraging our funding sources allowed us to maximize the effectiveness of the BMP

Pennsylvania Ave prior to the Streetscape Improvement project.
Disconnected Impervious Area

<table>
<thead>
<tr>
<th>BMP</th>
<th>Disconnected Area (ac)</th>
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<tbody>
<tr>
<td>Tree filters</td>
<td>0.17 acres</td>
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</table>
Now we’re really starting to figure this thing out:

- East Lyme planning major repaving project in 80-acre mixed commercial and residential neighborhood adjacent to Niantic River. Contacted ECCD to see if we could install more tree filters.
- ECCD obtained CWA §319 funding.
- East Lyme engineering staff developed an alternative design which was 1/3 the cost of a precast tree filter.
What is a Tree Well?
### Disconnected Impervious Area

**Phase 1**
- **Area**: 54.6 AC
- **Impervious**: 28.6 AC (52%)  

**Phase 2**
- **Area**: 25.4 AC

**BMP Disconnected Area (acres)**

<table>
<thead>
<tr>
<th>BMP</th>
<th>Disconnected Area (acres)</th>
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<tbody>
<tr>
<td>Tree Wells</td>
<td>14.3</td>
</tr>
<tr>
<td>Dry Wells</td>
<td>2.4</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>16.7 acres</strong></td>
</tr>
</tbody>
</table>

*Switchgrass ‘Panicum virgatum’*
Lessons Learned

◦ Public/private partnerships can have big impacts
◦ Identifying and incorporating disconnection opportunities into planned capital improvement projects is key
◦ Lead time to apply for funding if needed, so having a capital improvement/road maintenance plan is important
◦ Take advantage of documents like WBPs, TMDLs, LISS CCMP that call for pollutant reductions that strengthen applications – this is where a P3 comes in handy
◦ Be patient, creative and flexible