Other Techniques
Infiltrating Planter Box for Roof Runoff (Plymouth, MA)
Rain Barrels

- For capture/re-use of roof runoff
- Most barrels average 60 gallons and cost $75 - $125
- Cisterns are much larger systems, often involving pumps and drywell structures.
Porous Pavements (Wilmington MA)

- Interlocking Concrete Pavers
- Porous Asphalt / Concrete
- Flexipave
GravelPave

Turfstone
Dry Well / Infiltration Trench

- Dry wells range in size and complexity from a simple gravel-filled pit or trench to large perforated structures fed by drainage pipes.

- Often used to capture runoff from roof downspouts, driveways

- Work best in sand/gravel soils
Soils

Hydrologic Soil Groups

A: Sand, loamy sand or sandy loam soils. High infiltration rates!

B: Silt loam or loam. Moderate infiltration when fully wetted.

C: Sandy clay loam. Poor infiltration when thoroughly wetted.

D: Clay loam, silty clay loam, sandy clay, silty clay or clay. Highest runoff potential, very low infiltration when fully wetted.
Water Bars

- Water bars intercept runoff on sloped pathways and divert it to stable vegetated areas
- Install on sloped paths with concentrated flows
- Construct with 6”-8” diameter timbers and ¾” crushed stone
- Install multiple bars with spacing based on table

<table>
<thead>
<tr>
<th>% Grade</th>
<th>Spacing Between Water Bars (in feet)</th>
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<tbody>
<tr>
<td>2</td>
<td>250</td>
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<tr>
<td>5</td>
<td>130</td>
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<tr>
<td>10</td>
<td>80</td>
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<tr>
<td>15</td>
<td>50</td>
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<tr>
<td>25+</td>
<td>40</td>
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</tbody>
</table>
Green Roofs

- Can be built almost any flat or low-angle roof.
- Reduce stormwater runoff volume and peak discharge
- Lower heating and cooling costs.
- Cost: $30-$45 per square foot
Soil Amendment

• Any material added to soil to improve water retention, infiltration and structure.

• Add organic matter and nutrients to the soil, which stimulates plant growth.

• Compost can be tilled or added to the surface as a mulch. This “compost blanket” will retain water and improve water quality.

• Reduces need for fertilizer.

• Cost: $15-25 per cubic yard, depending on whether delivery is needed.
LID Costs (Installed)

- **Raingarden:**
  - With Stone = $12 sf
  - Without Stone = $10 sf

- **Bioretention Cell:**
  (Unlike raingardens, biocells have piping such as an underdrain to a catch basin)
  - Large (1000+ sf) = $8 sf
  - Medium (500-1000 sf) = $10 sf
  - Small (200-500 sf) = $30 sf
  - Very Small (<200 sf) = $30 sf

- **Swale:**
  (includes bioretention soil mix)
  - Grass = $8 lf
  - Vegetated/Bioretention = $10 lf

- **Catch Basin Upgrade:**
  - Deep Sump = $3,000 installed
  - Hydrodynamic Separator = $12-15,000 installed

- **Porous Pavement:**
  (includes infiltration bed 24” min)
  - Pavers (large area) = $8 sf
  - Pavers (small area) = $12 sf
  - Asphalt (large area) = $7 sf
  - FlexiPave = $8 sf
  - GravelPave = $15 sf

- **Tree Box Filters:**
  (Filterra)
  - $10K per 0.25 ac
Thank you for your time!