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### Development Impacts on Water Quality



Increased quantity Decreased quality Bacteria Sediments Temperature Nutrients Petroleum Derivatives Pesticides and Herbicides Heavy Metals







# More land is used per person with new development

Rate of Land Development and Rate of Population Growth •more than 1/4th of all the 700 200 600 land converted (millions) from rural to 150 urban and Acres of Developed Land suburban uses 100 since European settlement 50 occurred in only 15 years. 1982 1987 1992 1997 2000 2005 2010 2015 2020 2025 1982-1997 Population Developed Land











### More houses are being developed in the shoreland zone

















## Low Impact Development



### Treat rainfall close to where it falls











### **Roberts Maine Grill, Kittery**































### **Ordinances that promote LID**

### **Rhode Island Stormwater Design** and Installation Standards Manual

LID must be used to the maximum extent practicable to reduce volume for new and redevelopment projects.

The objective is to have LID considered at an early stage in the plan



### **SPO LID Model Ordinance**

• Use LID to treat 0.5 inches of runoff from all impervious surfaces on the site, and 0.2 inches of runoff from all disturbed pervious areas of the site (lawn).\*



### **Belgrade and China Lakes Region**

MODELLOW IMPACT DEVELOPMENT MODELLOW IMPACI DEVELOPMEN (UD) ORDINANCE PROVISIONSFOR

HORE AND ZONING ORDINANCES

- Developed by KVCOG
- Single family development in SLZ
- 3 tiered system for new structures, additions and accessory structures
- Pre-permit inspection, LID plan, and O&M plan
- \$300-600

![](_page_24_Picture_6.jpeg)

![](_page_25_Picture_0.jpeg)

### **York Ordinance language 2007**

• Low Impact Design. Each applicant is *required* to *submit a statement* to the Planning Board *documenting proposed* Low Impact Design (LID) *for the site,* which will help to reduce stormwater volumes and help to enhance stormwater quality. LID includes, but *is* not limited to green roofs, rain gardens, tree wells, infiltration basins, and permeable pavement. The applicant shall submit technical documentation about the suitability of such designs with the request for LID features.

### York

- Proposing stronger LID requirements
- Looking into requirements for Single Family Houses: 25% infiltration requirements for 1" rainfall
- Also researching potential for porous pavement requirements for all town adopted roads

### **South Portland**

**Promoting Small-Lot Stormwater Treatment Practices at the Municipal Level** 

![](_page_26_Picture_6.jpeg)

# South Portland: three types of stormwater permits

- Post-Construction Stormwater Management Plan
- Basic Stormwater Management Plan: Covers minor development
- Drainage Plan: small development activities which are not subject to site plan review.

![](_page_27_Picture_4.jpeg)

Recommended for All Development Projects

These low-impact development (LID) concepts are excellent ways to protect water quality. They often to reduce project costs as well. <u>Reduce Impervious Surface</u> <u>Downspout Disconnection</u> <u>Soil Quality Restoration</u> <u>Conserve or Add Natural Vegetation</u>

Recommended for Drainage Plan Permit Seekers Rain Gardens Dripline Filters Downspout Disconnection Soil Quality Restoration

Recommended for Basic and Post-Construction Stormwater Management Plan Permit Seekers Surface Soil Filter Gravel Wetland Subsurface Sand Filter Rainwater Storage and Reuse Pervious Pavement and Green Roofs Certified Systems

### **Presentation for Coastal Communities Stormwater Management Manual**

Topsham Public Library Thursday, May 12th 3:30-4:30PM and 5:30-6:30PM

Wells on Wednesday, May 18th 3:30-4:30PM & 5:30-6:30PM

### **Back Cove Rain Garden**

![](_page_28_Picture_4.jpeg)

### **Porous concrete York Hospital**

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![](_page_29_Picture_2.jpeg)

![](_page_30_Picture_0.jpeg)

![](_page_30_Picture_1.jpeg)

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