

# Green Infrastructure Projects in Northeast Ohio,

## Different Scales, Different Projects

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# Green Infrastructure Projects in NE Ohio: Different Scales, Different Types

- College Buildings
- Municipal Stormwater Retrofits
- Green Streets
- Stream and Wetland Restoration
- Campus Green Infrastructure Masterplan
- Watershed Restoration Masterplan



# Cuyahoga Community College Eastern Campus Health Careers Training Building



- 60,000 square feet
- 1.5 ac site
- \$15 M project



# Cuyahoga Community College Eastern Campus Health Careers Technology Building

Designed to comply with OEPA water quality reqmts

### LEED Silver Elements

- Permeable paving in courtyard
- 4 Raingardens integrated in Design
- Sustainable Courtyard
- Green Roof demonstration
- Cistern, 28,000 gallons, 2 weeks irrigation supply
- Vegetated discharge channel



# Cuyahoga Community College Eastern Campus Health Careers Technology Building

### LEED vs Code Reqmts

- Some City Engrs only recognize BMPs in ODNR Rainwater and Land Development Manual
- Don't recognize cistern as BMP
- Must follow raingarden design from manual



# Stormwater Retrofits Reifsnyder Park, Stormwater Treatment Wetland



## Stormwater Retrofits Reifsnyder Park, Stormwater Treatment Wetland

- Owner: City of Canton
- Goals: Reduce pollutant, phosphorous loading in Nimishillen Creek to comply OEPA concerns
- Objective: Install 1 acre stormwater treatment wetland at 36" storm sewer discharge.
- Demonstration project for multiple future installations.
- Construction Cost: \$125,000
- Construction Completed: 2003

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## Green Infrastructure Demonstration Project Ohiopyle, Pa.



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## Green Infrastructure Demonstration Ohiopyle, Pa.

- Purpose: Reduce infiltration to sanitary sewers and reduce excessive discharges, address agency concerns.
- Borough wastewater plant capacity overwhelmed by summer tourism
- 4 blocks, 1900 LF of bioswales, permeable paving in parking lanes, 41 rainbarrels.
- Homeowner manual, Public Education
- Construction Cost: \$ 1.0 million ARRA funding
- Status: Bids Rec'd, Const Start Nov 2009

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## Stream Restoration: Upper 40 Stream Restoration



- 1500 LF floodplain restoration
- Create 8 ac/ft storage
- Reduce peak by 35%
- Park creation

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## Stream Restoration: Foster's Run Stream Restoration



- 1500 LF new stream channel
- Multi stage channel
- Existing ravine
- Severe erosion/sedimentation
- 4% average gradient
- Extensive HEC RAS modeling for velocity management

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## Stream Restoration: Upper 40/Foster's Run Restoration

- Purpose:
- Restoration of 2 mile tributary of Chagrin River
  - Relieve severe erosion, sedimentation and flooding
  - Restore public access
  - Restore habitat
  - Total Cost: \$ 2 million
  - Joint project between Mayfield Village, Cleveland Metroparks
  - Funding: Clean Ohio Conservation Fund, 60%

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