Buckland Green Streets

An Innovative Stormwater Management Project in the village of Shelburne Falls in Buckland, MA.

Funding for the project comes from a MADEP 604b grant
Sustainable Stormwater Management (*Low Impact Development*)

- Landscape-based approach to sustainable development, redevelopment, and retrofits
- Strategies that maintain existing natural systems, hydrology, ecology
- Strategies that protect natural resources
- Cost-effective, flexible approach based on simple techniques
- Implemented nationwide, in cold climates, urban areas, suburban areas, small towns

Conventional Storm Sewers (*grey infrastructure*)

- Increased runoff & decreased recharge
- Polluted waterways
- Take up more space
- Lack vegetation and wildlife habitat
- Do not reflect community character
- Expensive
Rainfall and Stormwater Runoff vs. Infiltration

**Undeveloped**
- Stormwater runoff = 10%
- Rainfall Infiltration = 50%

**Developed**
- Stormwater runoff = 55%
- Rainfall Infiltration = 15%
Rainfall, Stormwater, and Peak Runoff Rates

Rainfall / Runoff LID vs Conventional

Flow

Hours

0 4 8 12 16

Conventional  LID  Rainfall
Treat stormwater close to the source

- Manage frequent, low-intensity storms
- Provide filtration, treatment, and infiltration
- Provide open space and wildlife habitat
- Store water for landscape use
- Reduce heat island effect
- Enhance site aesthetics
Water Quality & Resilience in the Deerfield River Watershed

- Mitigate stormwater and flash flooding
- Protect soil, vegetation, and wildlife habitat
- Protect infrastructure and public safety
- Reduce non-point source pollution
- Respect community character
Crittenden Hill Road, Buckland, MA.
Crittenden Hill Road Stormwater Management Concept Design
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Roadwork and Infrastructure Upgrades
- Possible regrading, widening, and curbing of the existing road
- New catchbasins and storm sewer piping to safeguard homes downslope from runoff
- Culvert upgrade over mountain stream at base of hill.

New Bioretention Basins
- Multiple connected basins possible
- Intercept and pretreat runoff at top of road
- Overflow to storm sewer

New Bioretention Basin
- Intercept and pretreat runoff at bottom of road
- Receive overflow from water tank
- Overflow to existing catch basins, which are the beginning of the storm sewer

Water Tank Retrofitted to Bioretention Basin
- 30 ft. concrete water tank
- Existing location and grade suitable to intercept stormwater from road and surrounding slopes
- Overflows into new stormwater infrastructure in ROW needed to safeguard residential properties and address existing erosion and flash flooding hazards