WORKSHOP #3 AGENDA

- 5:30 pm: Introductions and General Overview of Project – Pat Smith, FRCOG
- 5:45 pm: Highlights of Workshops #1 and #2 and LID Field Trip – Ivan Ussach, MRWC, and Pat Smith, FRCOG
- 6:15 pm: Incorporating LID into Local Bylaws – Debbie Shriver, Consultant, Water Resource Planning & Protection
- 6:45 pm: Community Experiences with LID in Local Bylaws and Public Projects – Panel Discussion with all presenters and participant input
- 7:15 pm: Workshop Series Conclusion and Available Resources
INTRODUCTIONS AND GENERAL OVERVIEW OF PROJECT

PRESENTER:
Patricia A. Smith
Senior Land Use Planner
Franklin Regional Council of Governments

PROJECT BACKGROUND

- Follow-on to Eastern Millers River Watershed LID project conducted by Montachusett Regional Planning Commission (MRPC) and Millers River Watershed Council (MRWC) in 2011-2013

- Purpose: To provide LID education and technical assistance to develop LID bylaws/ordinances in Orange, Montague, Northfield, Warwick, Erving, Wendell, and New Salem

- Goal: To mitigate the impacts of stormwater runoff in urban areas like Montague and Orange and encourage development that incorporates LID to protect the sensitive areas in the more rural areas of the watershed

- Funding provided through EPA’s Section 319 Nonpoint Source Pollution Grant Program, administered by MassDEP
WESTERN MILLERS LID PROJECT TASKS

- Updating Local Bylaws with LID
- Series of three (3) or more workshops for town officials, DPW staff, Planning Boards, Conservation Commissions, building inspectors, developers and local residents:
  1. Introduction to Stormwater Management in the Millers River Watershed
  2. LID Technologies and BMPs
  3. LID Bylaw Development
- Field trip to view local LID installations (MRWC)
- Development of white papers on LID for general distribution and posting on websites

PROJECT TIMELINE

- Timeline: 24-month project
  - Local Planning Board contacts began in Spring of 2014
  - Technical assistance on LID ordinance/bylaw development to Town Planning Boards to be provided throughout the term of the project
  - Regional Workshops to be held in Summer/Fall of 2015
WORKSHOP SCHEDULE

- **Workshop #1**: May 29, 2015
  
  Introduction to Stormwater Management in the Western Millers River Watershed

- **Workshop #2**: September 18, 2015
  
  Franklin County LID Field Trip & LID Technologies and Best Management Practices

- **Workshop #3**: November 2, 2015
  
  Incorporating LID into Local Bylaws and Public Projects

WORKSHOP #1 HIGHLIGHTS

- Held at the Greenfield Transit Center--May 29, 2015
- Presentations:
  - Millers River Watershed – Ivan Ussach, MRWC
  - Impairment of the Watershed – Malcolm Harper, MassDEP
  - Low Impact Development – Fred Civian, MassDEP
A watershed is simply the drainage basin for a particular body of water: every brook, stream, lake and river has its own watershed. Water moving downhill is either captured by plants, evaporated or collected by that receiving body of water.
Millers River Watershed Sub-basins in Franklin County (8):

- Tully River: Orange, Warwick
- Lake Rohunta: New Salem, Orange
- West Brook: Warwick, Orange
- Middle Millers River: Orange
- Whetstone Brook: Wendell, Orange
- Gales Brook: Warwick, Orange
- Moss Brook: Northfield, Warwick, Erving
- Lower Millers River: Montague, Northfield, Erving, Wendell

Rivers connect communities!

MALCOLM HARPER, MASSDEP

Millers River Watershed Impairments and 319 Nonpoint Source Grant Program

Franklin Regional Council of Governments
May 29, 2015
Background

- As enacted in 1972, Section 303(d) of the Clean Water Act requires States to:
- Identify waters not meeting State water quality standards
- Integrated List [303(d) list]
- Total Maximum Daily Load (TMDL)

Impaired Waters

- There are 5 categories on the Integrated List; impaired waters fall into one of three categories:
  - Category 4a – TMDL is completed
  - Category 4c – Impairment not caused by a pollutant
  - Category 5 – Impaired and requiring one or more TMDLs
- A Total Maximum Daily Load is the maximum amount of a pollutant that can enter a water body, and that water would still meet water quality standards (a pollution budget).
Impaired Waters – Millers Watershed

Grants for Nonpoint Sources of Pollution

- Section 319 (319) of the Clean Water Act: address nonpoint sources (NPS) of water pollution
- Grants for prevention, control, and abatement of NPS pollution, and restoring beneficial uses and/or meeting or maintaining state water quality standards
- Delisting of impaired waters
What is Nonpoint Source Pollution?

Overland runoff from many sources
Lawn fertilizer
Wildlife
Dog waste
Stormwater
Agriculture
Not regulated by NPDES discharge permits

How NPS Affects Water Bodies

- Polluted overland runoff into surface waters
- Polluted recharge to groundwater
- Direct discharge of stormwater from developed areas
- Sediments transported from channel disturbance
- Nutrients, pathogens, sediment
319 Projects That Can Help

- BMPs to meet water quality standards or restore beneficial uses
- Protection of healthy watersheds and high quality waters
- Outreach and education projects
- Development of Stormwater Utilities
- Projects that meet NPS Management Program Plan goals

Funding

- About $1.4 million each year
- 7-10 projects per year
- 40% non-federal match
- DM/WBEs @ 3.4% and 3.8%
- Approx. three year duration
- Reimbursement basis
- 10% retainage is withheld
How To Apply

- Request for Responses issued April 1
- Notice & RFR are posted on MassDEP website
- Prior to RFR, discussion of priorities and initiatives for the year
- Proposals are due June 2
- Applicants notified in Fall
- Funds are anticipated in Winter

FRED CIVIAN, MASSDEP

The Coming EPA Phase II MS4 Rules for Massachusetts
For the Millers River Watershed
May 29, 2015
Why Stormwater?

- Single largest source of water pollution statewide
- ~60% of water contamination for impaired waters is caused by excess bacteria and phosphorus
- ~50% of watersheds don’t have enough water in summer
- Direct relationship to “Impervious Cover”
- NO TREATMENT provided in municipal stormwater collection systems

How Development Alters Stream Flows

[Diagram showing runoff over time for pre-development, post-development with no controls, and post-development with controls developed by David Nyman, CEI Environmental]
Coming MS4 Permit for Massachusetts

- Six Minimum Control Measures
  1. Public Education and Outreach
  2. Public Involvement and Participation
  3. Illicit Discharge Detection and Elimination
  4. Construction Site Runoff Control
  5. SW management for New Development and Redevelopment
  6. Good Housekeeping and Pollution Prevention for Municipal Operations

- Plus TMDLs

Good Housekeeping and Pollution Prevention for Municipal Operations

- Inventory facilities and adopt SOPs
  - Parks and Open Space
  - Buildings and Facilities
  - Vehicles and Equipment

- Catch Basins
  - 50% full is a trigger
  - If 50% full twice in a row, investigate for excess sediment
  - Report annually # of catch basins; # inspected; # cleaned; volume or mass of material removed
Good Housekeeping and Pollution Prevention for Municipal Operations (continued)

- Street Sweeping –
  - Adopt procedures; do all streets at least once/year
  - More frequent sweeping if needed for pollution load reduction
- Write a SWPPP for municipal facilities
  - Maintenance garages
  - Public works yards
  - Transfer stations and other waste handling facilities
  - Include spill response, salt piles, site inspections, employee training, management of stormwater runoff

Resources

- MassDEP comments on DraftMS4 permit
- Massachusetts Stormwater Handbook
  - [http://www.mass.gov/dep/water/laws/policies.htm#storm](http://www.mass.gov/dep/water/laws/policies.htm#storm)
- CMRSWC
  - [http://centralmastormwater.org/Pages/index](http://centralmastormwater.org/Pages/index)
- MA Stormwater Coordinator
  - Frederick.Civian@state.ma.us
10 MA Stormwater Standards

1. No new untreated stormwater discharges
2. Manage peak discharges to limit flooding
3. Provide increased recharge
4. Provide enhanced treatment
5. Prevent pollution from land uses with higher potential pollutant loads (LUHPPLs)
6. Enhanced protection for Critical Areas
7. Redevelopment: meet standards to maximum extent practicable AND improve existing conditions
8. Control construction-related impacts
9. Provide operation and maintenance
10. Remove illicit discharges

WORKSHOP #2 & FIELD TRIP HIGHLIGHTS

- September 18, 2015:
  - Franklin County LID Field Trip
  - Workshop #3: LID Technologies and Best Management Practices

- Presentations:
  - LID Technologies and Best Management Practices—Andrew Bohne RLA, LEED AP, New England Environmental
  - LID Cost/Benefit Analysis—Ivan Ussach, MRWC
FRANKLIN COUNTY LID FIELD TRIP

- JWO Transit Center, Greenfield
- Olive St. Sidewalk Island Garden, Greenfield
- High School Rain Gardens, Greenfield
- Davis & Chapman St. Parking Lot, Greenfield
- Deerfield Academy Green Roof, Deerfield
- Unity Park, Montague
- Riverfront Park, Orange
Low Impact Development (LID) and Best Management Practices

USING LID DESIGN FEATURES TO HELP REDUCE A PROJECTS STORMWATER IMPACTS
Andrew Bohne, RLA
abohne@neeinc.com

NEW ENGLAND ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTING SERVICES

LID Works For Different Size, Context, and Shape Projects

Institutional
LID Works For Different Size, Context, and Shape Projects

Neighborhood Settings

Traditional Vs. LID

Residential Streets
Natural Channel vs. Rip-Rap Channel

Used in Urban and Rural Settings

ECOLOGICAL DESIGN AND PLANNING
Sustainable Design (GI) – Amherst, MA

www.neelinc.com
Concrete and Asphalt Vs Porous Paving

UNH Stormwater Center
It works in New England!

GreenPlain Conceptual Design

Initial Planting
SECTION 319 STORMWATER WORKSHOP for the W. MILLERS RIVER WATERSHED

Financial Benefits of Using LID for Stormwater Management

Ivan Ussach, Watershed Coordinator
Millers River Watershed Council
Sept. 18, 2015
Greenfield, MA

“Healthy Rivers for Healthy Communities”
Key Findings from the USEPA 2013 Case Study Economic Analyses:
* LID Can Cost Less than Grey Infrastructure Alone
* LID Approaches Result in Multiple Benefits
* LID Approaches Can Be Successfully Integrated into Capital Improvement Programs
* Economic Analyses can be used to Address Public Concerns and Gain Stakeholder Support

Source: USEPA, 2013: Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs
How can we use the community development process to reduce stormwater pollution?

How can homeowners, businesses and institutions reduce stormwater runoff from developed areas?
Stormwater is a watershed-wide, community issue.

When it rains…

All segments of the community contribute –
Homeowners, businesses, institutions, municipalities

Many small sources of stormwater runoff add up to very large damages in the watershed.
Small subbasins especially susceptible to damages associated with IC

Stormwater damages lead to...

- Street & basement flooding
- Road & bridge washouts
- Fouled drinking water
- Beach closings due to high bacteria counts
- Drought & water use restrictions
- Low stream flows
- Fish kills and loss of aquatic life
- Reduced ecosystem biodiversity
- Sedimentation of streams
“First flush” of pollutants is most damaging  
Sustainable stormwater management addresses these

Most rainstorms are ~ 1” or less in 24 hours

Source: Stormwater Managers' Resource Center

Identify your community’s subwatersheds

Consider development & stormwater impacts in this context
To reduce stormwater problems -

Look for opportunities in:

• New development
• Redevelopment
• Municipal maintenance
• Projects both large and small by businesses, institutions and homeowners.
• Retrofits

Bring stormwater management into discussions about community development

The whole community can be part of the solution with

• Regulatory and
• Voluntary approaches
Both can work together to grow greener
Regulatory – Bylaws/Ordinances for

- Conservation Design (OSRD)
- Stormwater Management/
  Low Impact Development
  (LID)

LID & Conservation Design manage stormwater

- Conservation of natural hydrology, trees, vegetation
- Stream & wetland buffers
- Minimize impervious surfaces
- Stormwater micromanagement
- Ecological landscaping
- Cost-effective
These regulatory measures best suited for Larger projects -
• New development – commercial, residential subdivisions, institutional, industrial
• Redevelopment

Bylaws require passage by Town Meeting or City Council

Regulatory tools important for communities to meet MS4 requirements and conform with state stormwater standards

Stormwater/LID Bylaws typically conform to MA Stormwater Management Standards & require:

Post-development stormwater runoff less than or equal to pre-development conditions

Groundwater recharge equal to pre-development

Stormwater management practices remove 80% of average annual load of Total Suspended Solids

Key questions are
• Scale of project to which bylaws apply and
• What activities are exempt from the bylaws
Do existing Subdivision & Site Plan Review regulations allow for LID?

Look at allowable lot coverages in zoning.

High percentages of lot coverage may encourage high impervious cover.

Examine municipal street & parking lot design standards
Can LID practices be used?

Roads: Width, placement of sidewalks, shared driveways, curb requirements
Parking lots: Shared, multi-level lots; flexibility in number of spaces
Limitations of regulatory tools for stormwater management

Require strong public understanding & support to pass at Town Meeting or by City Council

Primarily affect new development & redevelopment

Require robust, clear regulations to implement bylaws

Most stormwater problems come from existing development & are not addressed by regulatory tools

We need more approaches to solve stormwater problems.

Opportunities for municipalities

• Make sure community boards & departments are alert to stormwater management opportunities
  * Planning Board
  * Conservation Commission
  * DPW
  * Highway Department

• Meet with developers early in projects and discuss stormwater management and the use of low impact approaches

• Build the case for growing greener with community constituencies
Municipal maintenance

Are there opportunities to use porous paving on roads & municipal parking lots?

Municipal maintenance

Can stormwater be diverted into vegetated areas where roads cross streams?
Municipal maintenance

Culvert replacement – Would a box culvert be a better alternative?

Voluntary approaches for Businesses
Institutions
Homeowners

Vital to remedy existing stormwater problems
Build the case for growing greener

A Community Guide to Growing Greener

Version 1, February, 2011
Massachusetts Watershed Coalition, Inc.
WHITE PAPERS

- Incorporating Low Impact Development (LID) into Local Bylaws
- Integrating Green Infrastructure into Public Projects
- LID Economic Benefits of Low Impact Development (LID) Projects for Stormwater Management: Highlights from Recent Literature

QUESTIONS? COMMENTS?

The Franklin Regional Council of Governments would like to thank the Montachusett Regional Planning Agency (MRPC) for its assistance in providing background materials on the Eastern Millers River Watershed LID project, which have been used extensively in the development of this presentation.
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