Alewife 604B BMP Development Project
Public Meeting with Belmont Citizens Forum and Sustainable Belmont

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Tonight’s agenda

• Introduction
  – Water quality impairments in the watershed
  – Project purpose and scope
  – Green infrastructure

• Site identification workshop

• Next steps
INTRODUCTION
Alewife Brook subwatershed
Water quality impairments in the watershed
Phosphorus
0.15 lb/acres/yr

Undeveloped watershed

Plants

O₂ > 5 mg/l
Eutrophication

Phosphorus

1.98 lb/acre/yr
15x predevelopment

Belmont
- 4.77 sq miles
- 34.5% impervious
-->600 kg P/yr +/- 200 kg to Alewife Brook

Developed landscape
**MyRWA water quality website**

The Mystic River Watershed Association has been collecting water quality data and studying this question for over a decade and has your answer! Because there are so many measures of water quality, it is best to ask this question in a few different ways. To begin answering this question, choose the path below that interests you most.

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**Overview:** Where does pollution come from?

**Swimming & Boating:** Are we meeting water quality standards?

**Weeds & Algae:** How much nutrients and why does it matter?

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**Click here for information about the Mystic Monitoring Network.**

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Photo Credits: Red-Eared Slider Turtle by David Fichter; River Herring by Patrick Herron; Sailing On Upper Mystic Lake by Ken Legler; Great Blue Heron by John Harrison; Mystic River from the Mystic River Watershed Association; Sunny Morning after Fresh Snow Storm on the Mystic River by Rich Jarvis; Water
## MyRWA water quality website

### I LOVE THIS STUFF: MORE WATER QUALITY INFORMATION PLEASE!

*More information coming soon!*

### 2013 Raw Data

Select a characteristic from the drop-down menu to view the results for each month: `Total Phosphorus`

Learn more about these characteristics and sampling dates at the [Monitor Resources](http://mysticriver.org/in-depth-water-quality/) page.

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Total Phosphorus source geography in the watershed
Total Phosphorus source geography in Belmont
Project purpose and scope
Why are we engaged in this project?

• Problem
  – Too many nutrients are being carried off of the land area

• Objectives of the project
  – Initiate a conversation
  – Identify pollution sources
  – Identify opportunities
  – Develop conceptual designs for two structures
  – Share key expertise among municipalities
Green stormwater infrastructure for Belmont
Glossary

- LID (Low Impact Development)
- BMPs (Best Management Practices)
- Green (stormwater) infrastructure
Low Impact Development (LID)

• Definition
  – Planning and design approach to restore pre-development hydrology of urban and developing watersheds

• Characteristics
  – Small scale facilities
  – Manage runoff as close to source as possible
  – Mimic natural processes
  – Slow down, cleanse, infiltrate and reuse rainwater

• Benefits
  – Reduce localized flooding
  – Improve water quality
  – Reduce stream erosion
  – Improve quality of life
  – Cost effectiveness
Low Impact Development toolbox

• Preserve Existing Vegetation and Soils
• Re-vegetate Impervious Land
• Bioretention swale and basin (rain garden)
• Permeable pavements
• Constructed wetland
• Green Roof
• Street Trees
• Rainwater Harvesting
Bioretention basin / Raingarden
Hardy School, Arlington
$3,700  Materials
$830   Labor
Design   (In-kind)
Excavation (In-kind)
Volunteers
MyRWA Staff Outreach
Bioretention Basin: Green Street Application
Curb Extension, Portland OR
Peabody square, Dorchester
Bio(retention) Swale
MIT Campus – Cambridge, MA
Porous paving
Porous paving
Porous Asphalt Winter Conditions - Welch School, Peabody MA
Permeable Pavers (Interlocking and Grid Types)
Constructed wetlands
Constructed wetlands
Previous project in Horn Pond, Woburn MA
Previous project in Horn Pond, Woburn MA
LID Retrofit opportunity: Vegetated swale
Previous project in Horn Pond, Woburn MA
LID Retrofit opportunity: Vegetated swale

Section A-A
Previous project in Horn Pond, Woburn MA
LID Retrofit opportunity: Vegetated swale

• Water Quality Improvements:
  – 82% Total Suspended Sediment (TSS) removal
  – 60% Total Phosphorus removal (ave.)
  – 40% Total Nitrogen removal (ave.)
  – 70% Metals removal (ave.)
  – 48% Organics removal (ave.)

• Project Benefits:
  – Improved Water Quality
  – Reduced Erosion/ Sedimentation
  – Ease of Maintenance
  – Improved Aesthetics

Estimated Cost: $15,600.
SITE IDENTIFICATION WORKSHOP
Stormwater quality concerns

What part of the land area or drainage area (e.g. street, parking lot, development) do you have the greatest concern about stormwater water quality?

e.g.
- heavily used parking lot that drains directly to water body
- significant road surface draining directly without treatment
Stormwater quality concerns
Most significant flooding issues

Where are the most significant flooding issues in your town?
Public projects

What public projects will occur within the next five years within the community?

* * *

e.g.

- development or redevelopment of road
- parking lot
- school
- library
- public offices
Private projects

What private properties, partners or projects will be amenable toward incorporating green infrastructure

e.g.
• Condo development
• Businesses
• Churches
• Non-profits
• Private homeowner
Best opportunities to incorporate green stormwater infrastructures

What do you identify as some of the best opportunities to incorporate green stormwater infrastructures?

Positive siting characteristics could include

• treating a large impervious surface
• placement in a visible location for education
• ease of maintenance
• aesthetics/recreational space
• traffic calming
• heat island reduction
• wildlife habitat
• energy efficiency (green roof)
• costs
• educational/pilot project
Workshop conclusion
NEXT STEPS
Additional ideas?

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Upcoming dates:

**January 13th - 17th**
Prioritization workshop
Municipal Staff, key stakeholders, Bioengineering Group

**January 29th**
Meeting of Belmont Stormwater Committee

**Feb – March**
Site visits by bioengineering Group (5 sites)

**May**
Development of conceptual design on two sites