

# Implementing LID/GI in Massachusetts Communities



## Bioretention areas

Rain gardens and bioswales were the most commonly implemented BMPs in central Massachusetts communities

*Bioretention area at Natick Middle School*

## WPI GI/LID Project

In 2016 the USEPA issued the MS4 permit, requiring Massachusetts' towns to mitigate stormwater pollution. The MS4 encourages implementation of Green Infrastructure (GI) and Low-Impact Development (LID). We worked with the Massachusetts Department of Environmental Protection and the Central Massachusetts Regional Stormwater Coalition to identify barriers to and successes in implementation of GI/LID. We interviewed stormwater officials from five Massachusetts municipalities and toured GI/LID in each community. We identified difficulties with finding land, funding projects, maintaining installations and a lack of data on stormwater mitigation tools. Using our data, we developed actionable guidelines to help municipalities more easily implement GI/LID.

## Common Challenges and Some Recommendations:

*Each challenge has recommendations to address it, and many have links to follow up with*

### Community Education

*recommendations to help avoid other implementation roadblocks*

**Challenge: A lack of public support can hinder the implementation of GI/LID.**

**Once municipalities have secured sufficient funding and an appropriate location for the GI, the lack of approval of the residents can stop a project from progressing.**

**Collaborate with outside groups, such as activist groups and schools, to arrange GI/LID educational activities. Inc**

**Challenge: Uncertainty around the details of these novel projects deters their use by town planner and engineers.**

**Show project sites that demonstrate the effectiveness of GI/LID to residents, developers, ConCom agents, planners, and engineers who are uncertain about implementing it in their communities. Several of our interviewees expressed that demonstration sites were a big factor in the decision to implement GI/LID in their community. Devens MA is willing to have their community serve as an example for LID and GI techniques:**

**[devenscommunity.com/work/](https://devenscommunity.com/work/)**



## Maintenance

recommendations to ensure BMPs are properly maintained

**Challenge: Operations and Maintenance (O&M) is an issue in both public and private BMP installations due to the lack of funding and education for O&M workers.**

Ensure adequate funding for operations and maintenance when implementing BMPs.

Offer joint training to coalition communities through the CMRSWC to O&M workers

Put educational signage on BMP locations to educate the public and make it easier for workers to differentiate between weeds and intentional plants.

Developers should provide a detailed O&M plan to be followed by O&M workers. This should be implemented as a municipal regulation.



An educational placard explaining Stormwater Runoff from a [Stormwater Maintenance BMP Resource Guide](#)

**Challenge: Operations and Maintenance (O&M) is an issue in both public and private BMP installations due to a lack of responsibility or confusion about who is responsible for O&M.**

Regulations should be put in place by municipalities that clearly state which parties are responsible for maintaining public and private BMPs.

Require maintenance of private BMPs to be performed by establishing fines and regulations in municipal code for continued maintenance of BMPs

## More links

[EPA - Managing Stormwater with Low Impact Development Practices - 2009](#)

[FEMA - Building Community Resilience with Nature-Based Solutions-2021](#)

[Philadelphia Water Department - Green Stormwater Infrastructure Tools-2009](#)

[EPA and Seattle Public Utilities - Green Stormwater Operations and Maintenance Manual - 2009](#)

[Operation and Maintenance of Green Infrastructure Receiving Runoff from Roads and Parking Lots -2016](#)

[Regular Inspection and Maintenance Guidance for Bioretention Systems / Tree Filters - 2011](#)

[Regular Inspection and Maintenance Guidance for Porous Pavements-2011](#)

[Georgetown Law, Georgetown Climate Center - Green Infrastructure Toolkit: Incentive-Based Tools](#)

[Georgetown Law, Georgetown Climate Center - Green Infrastructure Toolkit: Funding and Financing](#)



WPI

WROC  
Massachusetts Water Resource Outreach Center

WPI  
LID/GI  
team

Michael Souza Richard Widman  
Noelle Crump Garrett McMerriman