

Building Community Resilience Through Local Regulations

Participant Guide to Massachusetts Bylaws & Best Practices



Module 4: The Power of a Bylaw, Part II

Making Low Impact Development
the New Standard

Context

This document is part of a comprehensive curriculum program, *Building Climate Resilience Through Local Regulations*, developed by Mass Audubon in collaboration with other nonprofit organizations and federal, state and regional agencies. The curriculum contains 8 modules, each of which guides the user through different components of improving community resilience through local regulations that support green designs and nature-based climate solutions. Each module includes a participant guide (e.g., this document) and a PowerPoint presentation.

The full curriculum, supplemental resources and additional information on bylaw review and best practices are available through: [Massachusetts Rivers Alliance](#) and [Mass Audubon](#). The [SNEP Network's website](#) provides additional resources including an interactive virtual storymap and webinar recordings.

Acknowledgements

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The Southeast New England Program (SNEP) Network brings together local environmental organizations, academic institutions, regional planners, and consultants who collaborate to provide municipalities, tribes and organizations in Rhode Island and Southeast Massachusetts access to free training and technical assistance to advance stormwater management, ecological restoration, and sustainable financing goals across the region. The SNEP Network is administered through EPA's partnership with the New England Environmental Finance Center, a non-profit technical assistance provider for EPA Region 1. The SNEP Network supports this bylaw review curriculum as a key resource for communities to update their local regulations for improved nature-based climate solution implementation. Find out more about the SNEP Network at www.snepnetwork.org.

Introduction

Cities and towns in Massachusetts have the power to shape the way their communities grow. Ordinances and bylaws specify how and where development can occur. Their policy decisions have implications not only on the people who live and work in each community; but also on the environment. Understanding how Low Impact Development (LID) standards can be incorporated into local regulations is critical to building a community's climate resilience.

Objectives

After completing this module, participants will be able to answer the following questions:

- How does LID shape a community's land use patterns and environmental protections?
- Where do specific LID regulations belong in a community's regulations?
- How can communities adopt LID standards in their ordinances, bylaws, and regulations?

LID and Nature-Based Climate Solutions

As discussed in previous modules, both natural and built green infrastructure provide many valuable functions, such as capturing, filtering, and infiltrating stormwater. These functions are increasingly important to reduce the impacts of



climate change and provide greater resiliency. LID involves integrating nature and natural functions of plants and soils into our built environment. LID can be done at any scale, from the most rural communities to urban, and in both new development and redevelopment. Retrofitting with LID features can also help restore natural water filtering and infiltration functions where they have been lost.

Communities often encounter barriers when trying to encourage more widespread adoption of LID techniques, however, because their local zoning and subdivision regulations support conventional development practices and discourage even prohibit LID techniques. Inconsistencies and conflicts across different components of local land use rules also impede the consistent use of LID.



LID in Local Bylaws & Regulations

This section explains where LID regulations can be found in municipal regulations and provides real-life LID examples from across the Commonwealth. In addition to these examples, the Executive Office of Energy and Environmental Affairs (EEA) provides a set of [model bylaws](#) as a part of its [Smart Growth/Smart Energy Toolkit](#), many of which relate to LID principles. These model bylaws serve as a good starting point for communities when developing more resilient regulations.

Protecting our most important natural green infrastructure like forests, farmlands, wetlands and buffer zones is accomplished through many measures like acquisition through state grants or the Community Preservation Act. But Zoning and other land use regulations can also play a key role in protecting these most precious features on parcels that do get developed.

Open Space Residential Design (OSRD)

OSRD, or related zoning tools such as Natural Resource Protection Zoning, or Conservation Subdivision, provide an alternative to traditional subdivision design that seeks to reduce the environmental impacts of development while providing cost-saving incentives to developers. OSRD clusters development into small sections, leaving more open space undisturbed while reducing impervious roadway needed to serve the same number of units. OSRD typically derives the number of allowable units on a site from a formula that considers the total amount of developable land (with the goal of not unduly reducing the total yield expected under a conventional subdivision plan). Unit yields can be greater than a conventional subdivision when applicants are given incentives such as including affordable housing or preserving extra open space.

State guidelines recommend adopting OSRD as the standard form of subdivision development, or at least allowing it as a by-right alternative. Many communities already have some form of cluster development in their bylaws, but they often require a special permit process that does not adequately offset the added time and expense, and is thus unappealing to developers. It is also important for these types of bylaws to include standards and procedures for ensuring that the most important natural features are included in the permanently protected open space, and that the long-term legal durability of that protection is ensured.



Example Regulations

The Town of Sherborn (OSRD):

The Town established OSRD as a “preferred alternative” to conventional subdivision design, allowing it by right in all three of their residential districts. Sherborn’s requirement below is a good illustration of OSRD as a way to tailor development to the natural resources of a specific location.

“Developed areas and protected open space shall be placed within the parcel in a manner that best fits the characteristics of the land and the purposes of this bylaw, in particular the protection of clean groundwater resources and environmental resiliency.”¹

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Town of Westport:

Westport's Planning Board created a "Landowner's Guide to Open Space Residential Development" as a supplement to their OSRD provisions. The intent of the guide is to:

*"guide landowners and developers through OSRD practices, detailing its purpose, rationale, and design techniques."*²

The guide utilizes diagrams that accompany summaries of the town's OSRD bylaw.

General Bylaws

There are several locations in a municipality's General Bylaws where LID regulations can be incorporated. Some of the most common locations are within wetlands bylaws and stormwater bylaws. For example, a wetlands bylaw may permit the use of LID measures in wetland buffer zones (e.g., bioretention areas, infiltration trenches, or grass swales), as long as their use does not conflict with any other regulations. Stormwater bylaws can also encourage a number of LID stormwater techniques.³

Example Regulations

The Town of Westwood (Stormwater Management Bylaw):

*"[The bylaw] stipulates land disturbance review processes for nearly all new development are consistent with LID stormwater standards for best practice. The bylaw mandates compliance with performance and design guidelines emphasizing LID techniques and conservation, with permit requirements for development disturbing more than one-half acre of land and administrative review stipulated for all projects disturbing at least 5,000 square feet."*⁴

LID regulations can also be located in a dedicated Low Impact Development Bylaw. For example, the Town of Westminster first implemented an LID bylaw in 2006 (updated in 2020).

The Town of Westminster (LID Bylaw):

Through this bylaw, Westminster established requirements and procedures to manage stormwater runoff, promote groundwater recharge, and prevent pollution from development projects.

*"Land uses in Town affect our streams, lakes and water supplies. Careful planning of new development and redevelopment will protect the quality and health of these important water resources. Therefore, the Town of Westminster enacts this Low Impact Development bylaw to provide guidance that will prevent harmful impacts from land development activities."*⁵



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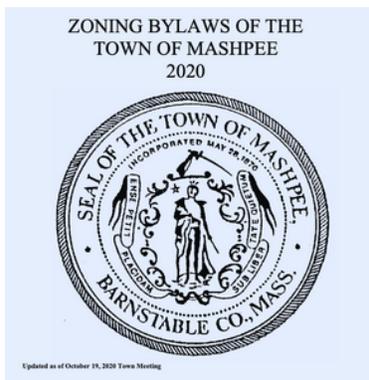
Zoning

A Zoning Bylaw (ZBL)'s dimensional regulations can either limit or encourage the use of LID principles in site design. For instance, flexibility in frontage and setback requirements can allow for more creative designs that push development away from environmentally sensitive areas. This flexibility contrasts from traditional dimensional regulations, which are often strict and can preclude LID practices. Other opportunities for LID include permitting rain gardens or bioretention areas within required setbacks, or limiting lawn size.

There are many opportunities in a ZBL to limit impervious surface coverage in a community, such as minimizing impervious cover requirements for parking. Communities can also establish parking maximums, incentivize permeable pavement options, and promote common driveways shared between multiple dwellings.⁶

Example Regulations

The Town of Mashpee (Zoning Bylaw):



*"[The bylaw] details sustainable parking lot design that minimizes impervious cover and removal of native plantings. Specifically, the bylaw stipulates a minimum ratio of 1:5 of landscaping or natural area to paved area in parking regions and substantial preservation of existing vegetation, with further stormwater provisions promoting roadside swales and natural drainage options."*⁷



The City of Framingham (Zoning Bylaw):

The City of Framingham includes a robust set of special regulations in its ZBL to minimize land disturbance, including tree protection. The bylaw states:

*"the removal of trees shall not be permitted within the side/rear setbacks... unless identified by the Town's Tree Warden to be hazardous and/or diseased."*⁸

Developers/applicants are also required to retain trees above a certain size in their front setback and replace any removed trees of significant size.

Subdivision Rules & Regulations

Design standards of Subdivision Rules and Regulations provide several opportunities to incorporate LID principles by regulating the design of new roads. Examples include: reducing street width and minimizing total paved area as well as eliminating large, impervious cul-de-sacs by allowing and/or incentivizing one-way turnaround, or "hammerhead," streets. Beyond roadway requirements, planning boards—which are responsible for adopting, administering, and amending a community's Subdivision Rules and Regulations – should also consider:

- Limiting clearing;
- Reducing lawn size;
- Requiring retention of or planting new native vegetation;⁹ and
- Installing roadway and sidewalk drainage.

Example Regulations

The City of Northampton

(Subdivision Rules & Regulations):

The City's Subdivision Rules and Regulations heavily incorporate a suite of LID concepts, including definitions and illustrations of green roofs, rain gardens, and shared streets. Developers are encouraged to include LID techniques in their subdivision plans; "developers should consider 'green alley and 'shared streets' options." If not, they must "show that LID techniques are not feasible from a design perspective," based on specific standards.¹⁰



Site Plan Review

Site plan review (SPR), part of the general zoning bylaw, is the review of a development application by local agents and boards. This can be applied to projects that reach a certain size threshold or for particular uses (regardless of size). For example, SPR may be triggered when shared driveways or restaurants are developed, or for commercial uses over 5,000 square feet. SPR can incorporate LID principles in ways similar to subdivision rules and regulations, noted above: the reviewing board (e.g., planning board) can require developers to follow certain standards in landscaping, road construction, and site layout.

The Metropolitan Area Planning Council (MAPC) provides a list of recommended LID provisions that can be incorporated into a SPR:

- Allow bioretention areas, filter strips, swales, and constructed; wetlands to count towards to fulfillment of site landscaping/open space requirements;
- Require driveway width no more than 9 feet;
- Permit use of pervious material for single family driveways and/or use of 'two-track' design for residential driveways;
- Allow discharge of uncontaminated rooftop runoff to lawn areas and buffers;
- Allow temporary (72-hour) ponding of stormwater prior to infiltration; and
- Require development of a stormwater management and erosion control plan for construction activities.¹¹

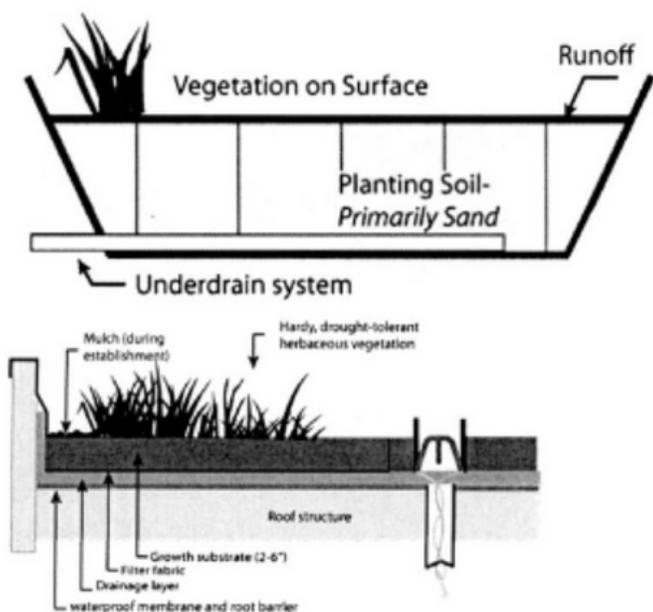


Figure 1. Diagram of green roof structure.

Source: Northampton, MA, Subdivision Rules and Regulations.

Example Regulations

The Town of Franklin (Site Plan Review):

Franklin created a “Best Development Practices Guidebook” that serves as a set of standards for Site Plan Review, subdivision review, and other projects according to the guidebook.

*"[The] guidebook describes the required and preferred design and construction practices in Franklin related to stormwater management, erosion and sedimentation control, landscape design, and site planning. It is designed to aid the residents of Franklin, developers and designers, throughout the entire permitting and construction process to ensure that the Town is developed in a low impact, self-sustaining way. These practices reinforce the use of Low Impact Development (LID) design strategies to encourage sustainable, meaningful development within the Town of Franklin."*¹²



Figure 2. Low Impact Design Condominium Complex. *Source: Town of Franklin Department of Planning and Community Development.*

To meet these goals, Franklin’s guidebook provides criteria for Site Plans to:

- “Preserve views and vistas both into and out of the site;”
- “Minimize cut and fill;” and
- “Conserve energy by orienting buildings to the sun and wind for maximum efficiency.”¹³

Boards of Health Regulations

Local Boards of Health (BOH) may have provisions in their own Rules and Regulations that relate to LID principles, especially regarding wastewater management and discharge.

Example Regulations

The Town of Mashpee:

Mashpee’s BOH Regulations permit greywater discharge under certain conditions, which include locating the discharge system an adequate height above the water table and requiring the installation plan be drawn by a licensed professional.¹⁴

Municipal Separate Storm Sewer System (MS4) Permit Compliance

This federal/state permit issued jointly by the US EPA and Massachusetts Department of Environmental Protection (MassDEP), regulates stormwater discharges for over 200 Massachusetts municipalities. It requires local governments to implement certain control measures and sets standards that must be met. When implementing new stormwater management regulations, communities must pay careful attention to MS4 permit requirements. Furthermore, the MS4 permit requires regulated communities to review their local bylaws/ordinances for compliance with certain aspects related to stormwater management, and to update their rules to assure compliance. Following the best available LID practices helps municipalities comply with MS4 regulations.



Stormwater Minimum Control Measures

According to MassDEP, compliance requires meeting the following six minimum control measures:

1. Pollution Prevention for Municipal Operations

Towns must address runoff from municipal activities, such as vehicle storage or maintenance and road construction, by developing a stormwater system operations and maintenance plan, and training employees in good housekeeping practices.

2. Illicit Discharge Detection and Elimination (IDDE) Program

Municipalities must develop an IDDE program that includes mechanisms for detecting and prohibiting "Illicit discharges" (i.e., non-stormwater substances discharged to the storm drain system, which often contain pollutants and contaminants).

3. Construction Site Runoff Control

Municipalities must enforce regulations that limit the stormwater runoff from active construction sites.

4. Post Construction Runoff Control

Municipalities must enforce regulations that control ongoing stormwater runoff after a construction project is completed.

5. Public Education and Outreach

Municipalities are required to distribute educational materials to four audiences (residents, industry, commercial and construction) and engage in a formal public education process.

6. Public Participation and Involvement

Municipalities should "give the public the opportunity to play an active role in developing and implementing the MS4 program."¹⁵

Stormwater Management Standards

The Massachusetts Stormwater Management Standards also apply and are administered through local reviews including Wetlands Protection Act permits issued by the local Conservation Commission and other local permits where the local regulations incorporate the state regulations by reference. For more detailed information, refer to the [MassDEP stormwater management webpage](#).

Conclusion

This module further explored the local bylaws and regulations introduced in Module 3, and described how to best incorporate LID principles. Citing examples from across Massachusetts, the module demonstrated the many options for amending general bylaws, zoning bylaws, and board rules and regulations to better align with LID best practices. Finally, Module 4 summarized stormwater standards from the MS4 General Permit that communities should recognize as they develop or amend stormwater management regulations. Module 5 will outline examples of successful implementation of LID by Massachusetts communities.



End Notes

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