



MID - COAST

REGIONAL PLANNING COMMISSION
166 SOUTH MAIN STREET, SUITE 201
ROCKLAND, ME 04841

WWW.MIDCOASTPLANNING.ORG (207) 594-2299

An Introduction to Low Impact Development Ordinance Options

Municipal land use ordinances regulate development to protect current and future landowners, neighboring residents and businesses, public facilities including roadways, drinking water supplies and other natural resources. Many of these ordinances seek to reduce the potentially negative impacts of development. Updating ordinances through amendments is worth considering given the advances made over the past twenty years in site design and construction. This introduction presents helpful low impact development strategies. In contrast to conventional stormwater controls, low-impact development techniques emphasize onsite treatment and infiltration of stormwater.

- *Impervious Surface Limits:* Impervious surfaces like buildings, roads and parking lots increase stormwater runoff, which can result in flooding and the spread of pollution. Therefore, some ordinances limit the size of impervious surfaces, also known as ground coverage. Maine shoreland zoning ground coverage limits are typically 20% in areas not already developed or in areas not used for maritime activities. For areas outside of shoreland zones, municipalities should consider limits based upon whether the area is prone to flooding or has significant natural resources. Typically limits in sensitive areas range from 10 to 20% of a parcel. Within already developed areas like villages, this percent is larger, sometimes 70 to 100%, than in rural areas with less development.

Note: The Stormwater Management Law (Title 38 M.R.S.A. Section 420-D) requires a full permit to be obtained from the Maine Department of Environmental Protection prior to construction of a project consisting of 20,000 square feet or more of impervious area or 5 acres or more of a developed area in an urban impaired stream watershed or most-at-risk lake watershed, or a project with 1 acre or more of developed area in any other stream, coastal or wetland watershed. A permit-by-rule is necessary for a project with one acre or more of disturbed area but less than 1 acre impervious area (20,000 square feet for most-at-risk lakes and urban impaired streams) and less than 5 acres of developed area. Furthermore, a Maine Construction General Permit is required if the construction will result in one acre or more of disturbed area.

- *Use of Permeable Pavement:* Roads, driveways, sidewalks and parking lots can be constructed with porous materials to allow for development in areas where stormwater runoff, flooding and pollution would be of concern if traditional pavement were used.

This allows for development in areas with impervious surface limitations. The Knox County Regional Airport installed permeable/porous pavement in its parking lot due to the proximity of wetlands. Such systems help recharge local groundwater tables and reduce the need for conventional storm water management improvements, but can have a higher initial installation cost. Permeable pavement contains aggregate but little or no sand, creating voids through which water can drain.

- *Onsite Infiltration:* Bioretention, dry wells, swales, and other drainage systems that contain water and allow it to drain more slowly onsite can reduce runoff and flooding. Ordinances can require the installation of such systems in areas prone to flooding and near environmentally sensitive areas or public facilities like roadways subject to flooding. Effective use of these systems can reduce basement flooding as well. Green roofs, vegetation on top of buildings, have also been used effectively to reduce runoff pollution.
- *Subdivision Roadways:* Low volume roadways like those in small subdivisions can be designed narrower than public roads or higher volume roadways. Narrow roads reduce runoff and save on material and construction costs, which are usually the most expensive component of subdivision development. Narrow roadways reduce vehicle speeds, which can be a significant safety feature in residential neighborhoods. Road widths can be reduced to 18 to 20 feet, while still being accessible to emergency vehicles (Source: U.S. Fire Administration). Likewise, turnarounds (cul-de-sacs) with smaller radii (30 feet), or with bioretention islands in the center, or t-turnarounds (60 x 20 feet) can be used to reduce runoff pollution.
- *Example of a Simple Low Impact Ordinance Development Provision:* “Each applicant is required to submit a statement to the Planning Board documenting proposed Low Impact Design (LID) for the site, which will help to reduce stormwater volumes and help to enhance stormwater quality. LID includes, but is not limited to reduced impervious surfaces, reduced roadway widths, onsite infiltration systems, and permeable pavement. The applicant shall submit technical documentation about the suitability of such designs with the request for LID features.”

For more information, these resources may be useful:

- The Low Impact Development Center: <http://www.lowimpactdevelopment.org/>
- U.S. Environmental Protection Agency: <http://www.epa.gov/owow/NPS/lid/>
- U.S. Department of Defense, study on low impact development: http://www.wbdg.org/ccb/DOD/UFC/ufc_3_210_10.pdf

Low Impact Development Guides:

- Maine: <http://www.midcoastplanning.org/PDFs/LID-Maine.pdf>
- Rhode Island: <http://www.midcoastplanning.org/PDFs/LID-RI.pdf>