

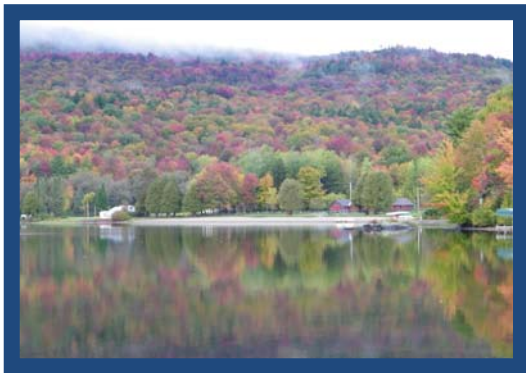
# Case Study: Town of Elmore

## Vermont Municipal Green Infrastructure Toolkit

Green Infrastructure (GI) means different things to different people depending on the context in which it is used. In Vermont we define it as “a wide range of multi-functional, natural and semi-natural landscape elements located within, around, and between developed areas at all spatial scales.” This includes everything from forests and meadows to wetlands, floodplains, and riparian areas. For municipalities Green Infrastructure can be promoted in two ways: by using Low Impact Development (LID) concepts at both the macro-level of town planning and site design and by promoting the use of Green Stormwater Infrastructure (GSI) practices and techniques. LID seeks to maintain a site’s pre-development ecological and hydrological function through the protection, enhancement, or mimicry of natural processes.” GSI consists of systems and practices that restore and maintain natural hydrologic processes in order to reduce the volume and water quality impacts of the built environment while providing multiple societal benefits.”

### Making the Case for GI

As part of a project with the Vermont Agency of Natural Resources and with other Regional Planning Commissions in Vermont, Lamoille County Planning Commission (LCPC) sought to assess regulatory gaps and barriers to the adoption of green infrastructure programs and practices in several of our towns.



We selected one community to work with most closely on updating bylaws to encourage GI. We used a weighted analysis to identify Elmore as a priority community, using the following:

- Percent impervious cover, percent impervious cover within 300 ft of surface water, and percent impervious cover within 150 feet of surface water
- Percent canopy cover
- Stream miles as a percent of town
- Impaired stream miles as a percent of total stream miles
- Population as a percent of total county population
- Lot coverage, as defined in the zoning regulations
- Potential for implementation

### Elmore and Stormwater

The Town of Elmore is fortunate to be home to Lake Elmore, a 219 acre lake lying northwest of the village, emptying into the Lamoille River through Pond Brook. Elmore is also home to Elmore Mountain, with an elevation of 2,608 feet and located in Elmore State Park.

In 2013, the Town amended its municipal plan. The plan called for improving water quality of Lake Elmore and updating the zoning bylaws. Before starting the bylaw update, LCPC conducted a build-out analysis testing scenarios that included increasing lot coverage.

With the passage of the Shoreland Protection Act,

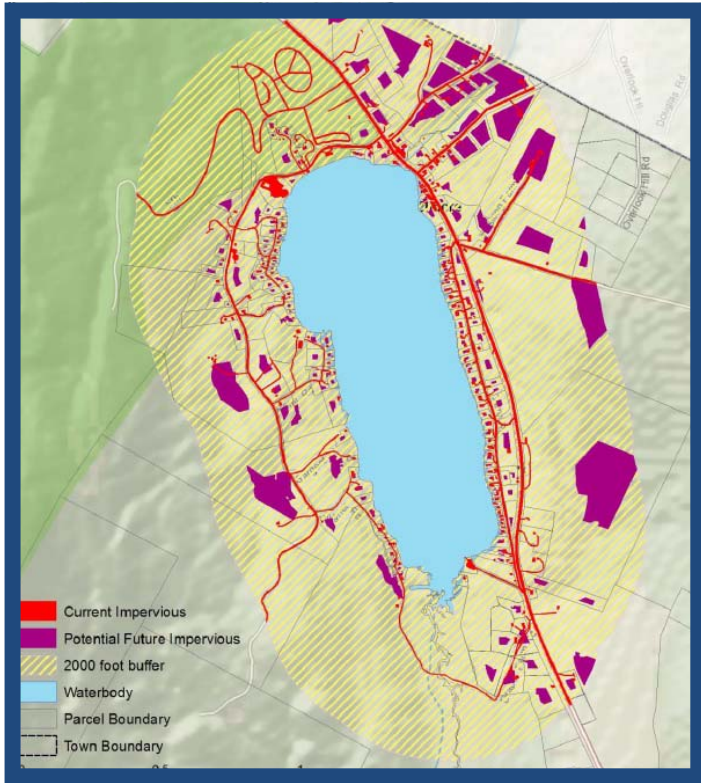
*Elmore’s Developed Shoreland District regulates development within 500 feet of the lake’s mean water level.*

Elmore knew it wanted to strengthen local water quality regulations.

This GI project dovetailed with Elmore’s existing plans to update its bylaws. The new regulations provide specific conditional use standards for stormwater management, allow redevelopment of existing properties along the developed shoreline, and provide strong protections for undeveloped lakes and ponds. GI and LID practices are encouraged throughout the regulations.

## Build-out Analysis

In 2012, LCPC conducted a build-out analysis of the impact of current and future development around the Lake Elmore shoreline using a stormwater model, impervious surface data, GIS build-out analysis data, and



average rainfall amounts. This analysis measured the volume of stormwater runoff given current lakeshore development and measured the potential volume of stormwater runoff in the future, given alternative scenarios, including incorporating GI practices.

The results? Increasing lot coverage from 10% to 15%, and new development, could result in up to 13 acre/feet of runoff—or the equivalent of 166 school buses of water!

## Shoreland Protection Act

Vermont's Shoreland Protection Act went into effect July 1, 2014. Municipalities with a delegated municipal agreement are authorized to implement the Act locally, provided their standards are equal to or stronger

than the State's.

Elmore is in the process of pursuing this option. Their zoning regulations were revised to enable the Town to seek this delegated authority.

To comply with the Act, Elmore created two Shoreland Districts: one "Developed" around Lake Elmore and the other for the "Undeveloped" shorelands of Little Elmore Pond, Little Pond, and Hardwood Pond.

Property owners' ability to redevelop their existing lots remains through robust and clear "grandfathering" language.

## Challenges

Elmore is a small community but its growing population grew almost 50% from 1990 to 2010. New development is often residential and small scale. As more people choose to make Lake Elmore their year-round home, more pressure will be exerted on the lake.

Interest in developing on high elevations could sway the regulations from protecting high elevations, as runoff from above directly impacts lower waterbodies.

## Next Steps

The Selectboard approved the amended regulations in July 2015. While the new regulations will be in effect, the VT Agency of Natural Resources will need to approve the request for municipal delegation. Elmore's local standards are stronger in many cases than the State's, but allow flexibility for continued growth and lot improvements, encouraging GI and LID practices.

The effectiveness of GI practices to curb water pollution and increase water quality will take time to measure, but as demonstrated by previous data, the sooner new practices are implemented, the better the lake and Lamoille River will be.

For more information on building Green Infrastructure in Lamoille County, please contact LCPC:

802-888-4548 or [lcpc@lpcvt.org](mailto:lcpc@lpcvt.org)

or, visit <http://vpic.info/GreenInfrastructureToolkit.html>