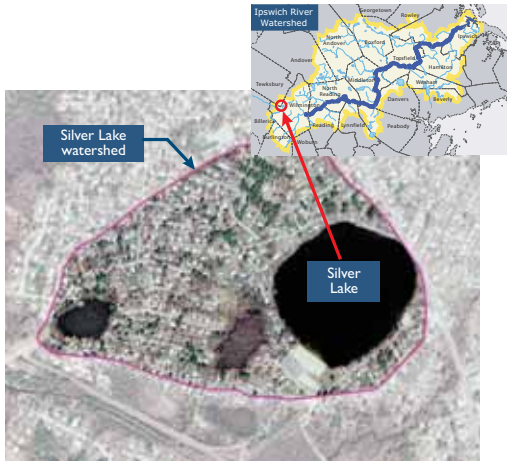
Silver Lake Water Quality Improvement Project

– a low-impact development demonstration –

The town of Wilmington is working with the Massachusetts Department of Conservation and Recreation to improve water quality in Silver Lake through **low-impact development** (LID) techniques.

How does stormwater affect Silver Lake?

Silver Lake is a "kettlehole lake" formed about 15,000 years ago by a retreating glacier. The Silver Lake watershed (the land area that drains towards the lake) includes 132 acres in Wilmington and Tewksbury. The storm sewers throughout this watershed empty directly into the lake, which drains to Lubbers Brook and then to the Ipswich River. Silver Lake generally has good water quality, but bacteria levels after storms can increase and lead to beach closures. Additionally, phosphorous and nitrogen from lawn and garden fertilizers enter the lake in stormwater runoff and can cause excessive plant and algae growth.

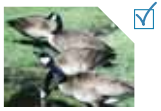


LID aims to preserve or restore a site's natural ability to manage rainfall. Instead of carrying pollutants directly into the lake, precipitation is filtered through soil and plants and soaks into the ground where it recharges the water table.

How YOU Can Help!

☑ Keep litter, leaves, and debris out of street gutters and storm drains.

☑ Apply lawn and garden chemicals sparingly (if at all) and according to directions.



☑ Don't feed waterfowl! Feeding encourages large bird flocks whose droppings contribute to dangerous bacteria levels in the swimming area.

☑ Pick up after your pet! Don't dispose of pet waste in storm drains.

How does this project improve water quality?

Permeable Paving

Conventional asphalt in the beach parking lot has been replaced with four types of **permeable paving** materials, which allow stormwater to soak into the ground before reaching Silver Lake.

- Permeable pavers (the parking spaces)
- Porous asphalt (the parking aisles)
- Gravelpave™ (the gravel pathway leading to the handicap parking spaces)
- FlexiPave™, a porous surface made from recycled tires and gravel (located to the right of the main access drive along the chain link fence)
- A section of conventional asphalt was retained for purposes of comparison (main access driveway)

Other Features

Landscaped areas in the parking lot, called **bioretention cells**, use special plantings and soils to temporarily retain and filter stormwater.

Stormwater pipes at either end of the beach have been replaced by **planted swales**, which filter and reduce runoff, prevent erosion, and discourage geese from gathering.

On Silver Lake Ave. and Dexter St., across the lake from the town beach, **rain gardens** and permeable pavers were installed along the street. Rainwater from roofs, driveways, and the street will drain to these areas, where it will be filtered and recharged to the ground.

Scientific Study

The U.S. Geological Survey will collect data on groundwater levels and water quality under the beach parking lot (notice the observation well caps located in the parking lot), as well as the quantity and quality of stormwater runoff into the lake. The data will be used to evaluate the effectiveness of the LID stormwater improvement efforts.

Project Partners

This Silver Lake demonstration project is funded under a Targeted Watershed grant for restoration of the Ipswich River. The grant was awarded by the U.S. Environmental Protection Agency to the Massachusetts Department of Conservation and Recreation. Matching funds were provided by the Town of Wilmington.

dcr Massachusetts

EPA United States Environmental Protection Agency New England

Wilmington, Mass. Incorporated 1730

USGS

Engineering Design: GeoSyntec Consultants, Acton MA
Construction: Cali Corporation, Natick MA.

For more information, please visit:
http://www.mass.gov/dcr/waterSupply/ipswichRiver/index.htm
The Wilmington Department of Public Works can be contacted at (978) 658-4481