

Strategies to Guide Policy and Projects

Now that we know more about the actions we need to take to preserve and enhance the South End’s characteristics, let’s take a closer look at the strategies we can use to help us achieve these goals. You’ve seen these icons throughout the plan, which represent which theme each of the “Key Strategies” relates to. Here’s where you’ll find those key strategies...and more! In this section, all of the plan’s strategies are grouped by theme, so that we better understand what it will take within a particular system, or by a particular group of people to implement #OurVision for the South End.



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How to Read This Section

For each of the themes that follow, you’ll find a series of recommended strategies. Each of these strategies includes a “first step” to make it happen, and identifies potential stakeholders that might be involved in getting it going.



Recommended Strategy



First steps to make it happen



Stakeholders who should be involved



STORMWATER MANAGEMENT

The vital connection between the City of Burlington and Lake Champlain relies on the thoughtful management of stormwater, and reducing our impact on the Lake is among our highest priorities as a community. As an urban industrial landscape where ‘things are made,’ we see a lot of infrastructure dedicated to transportation and storage of cars and freight in the South End—e.g. surface parking lots and large building footprints—which typically involves a lot of pavement. These paved areas, however, generate stormwater runoff that follows several different paths to the Lake. As we know from page 24 in the “About the South End” section, stormwater runoff for the South End is either collected in underground combined sewer pipes that drain to the wastewater treatment plant, or it drains directly into Englesby Brook or Lake Champlain (via the Barge Canal or Blanchard Beach).

The primary stormwater issues that impact our receiving waters are the **amount** of runoff for areas that drain to the combined sewer or Englesby Brook and the **quality** of the runoff that’s draining to Englesby Brook or the Lake. The aim of a sustainable stormwater management system is to first reduce the total amount of runoff. This can be done through minimization of impervious surface and use of green stormwater infrastructure. For the runoff that cannot be held on-site, a sustainable stormwater management system aims to slow down the water to reduce peak flows to the combined sewer and to provide treatment to the runoff that drains to our receiving waters.

Lake Champlain is considered to be “impaired” due to excessive phosphorus levels. To correct this impairment, the City will need to substantially reduce the phosphorous entering Burlington Bay, and ensure that future development has a net zero—or even a regenerative—impact on phosphorus runoff. To meet this ambitious target, the City will need to seek out any and all opportunities to reduce and clean stormwater,

ranging from retrofits to existing systems, to implementing the most effective and innovative systems in new public and private projects. We should also be proactive about curbing potential impacts on Lake Champlain from chloride, a contaminant associated with the use of road salt for clearing ice and snow in winter conditions, and other pollutants our urban landscape may contribute to the lake. And an important component of all of this work is making sure that the community is educated on the importance of caring for our waterbodies and understanding what they can do to help reduce runoff and pollution.

Outside of planBTV South End, the City is preparing a City-wide Integrated Plan for Stormwater and Wastewater which will detail a wide range of water quality strategies.

This plan looks specifically at the South End, and identifies strategies to better utilize resources to manage and treat stormwater runoff to improve our impaired waterbodies:

- Identifying opportunities to expand stormwater capacity within existing infrastructure
- Reducing neighborhood runoff & localized flooding
- Improving the quality of runoff before it reaches its destination

Strategies for Stormwater Management

EXPAND STORMWATER CAPACITY WITHIN THE NEIGHBORHOOD.

Deploy creative thinking and planning for stormwater in a systematic way by retooling our existing infrastructure.

Plan it as a system. With the ever increasing focus on cleaning up Lake Champlain, both the City and private developers will be asked to do more to slow down and clean runoff from their property. An eco-district approach can be used in the South End so that the most effective stormwater solutions can be put to work in the right places. Much like the “Green Machine” for stormwater management downtown, a district system should be explored for the South End using the public right-of-way for bioswales, retention pockets, tree wells, and other techniques to “bank” stormwater credits, giving more flexibility for future projects.

Explore the feasibility and alternatives for establishing a stormwater management district

Community & Economic Development Office; Department of Planning & Zoning; Department of Public Works

Rethink the role of parks and open spaces. The City’s first-ever Parks, Recreation & Waterfront Master Plan, adopted in 2015, identifies a major role for the City’s parks and open spaces in stormwater management. Burlington’s parks can perform essential ecological and biological functions for the City, as well as help capture stormwater runoff, prevent erosion and reduce the impact of floods. Management priorities will be established for each city park to identify its role in stormwater management, followed by an assessment of its geology and topography. This will guide decisions about each park’s capacity for and placement of amenities to ensure that its use complements its natural qualities and its larger role in the ecological health of the City.

Implement Stewardship recommendations from the BPRW Master Plan; continue to advance Oakledge Park siting study.

Parks, Recreation & Waterfront Department; Department of Public Works



John Brickels—Stormwater Street



REDUCE NEIGHBORHOOD RUNOFF.

As future development and redevelopment occur, both public and private entities should expand the use of low-impact development techniques to meet or exceed the City’s performance standards for stormwater.

 **Minimize paved areas**, which are the primary source of runoff. In the spirit of “an ounce of prevention is worth a pound of cure” every square foot of pavement or roof area should be evaluated for its necessity. For example, parking areas should be sized for average use, not peak needs, and alternatives to driving and parking should be considered at high demand times. Driveway widths and streets should be just wide enough to accommodate the largest vehicles that typically come and go, and not necessarily the largest trucks that may ever show up. Multi-story buildings should be encouraged over single-story spaces so that the “per person” or “per job” roof area is reduced.

 *Revise land development regulations to encourage or require minimization of parking lot sizes, street widths and roof surfaces; expand the use of pervious pavements and/or green roofs; and encourage multi-story development to reduce impervious surface footprints.*

 *Department of Planning & Zoning; Department of Public Works*

 **Slow the water down** with measures that will disperse runoff rather than concentrate the flows. New developments, road projects, and parks can accomplish this quite easily by design, with stormwater being dispersed to multiple points and travel over planted areas before entering the City’s network of stormwater pipes. Existing systems can be retrofitted, where “green pockets” are inserted between the paved area and the collection systems for stormwater dispersal or filtration into the ground. Parking areas can be surfaced with permeable asphalt or paver systems that absorb or even store some stormwater.

 *Identify the “low hanging fruit” for reducing flows into the systems for retrofits of existing infrastructure.*

 *Department of Public Works*

 **Flow restoration for Englesby Brook.** Englesby Brook is an impaired waterbody primarily due to the uncontrolled volume of stormwater runoff draining from impervious surfaces in the area. The Flow Restoration Plan for the brook identifies that best management practices need to first be implemented throughout the watershed to reduce runoff to meet its target flow. Once the reduced flow has been met, we can set our sights on enhancing its capability by restoring the riparian zone along the brook’s edge. This means installing and maintaining plants and trees along its banks to hold in the soil, and providing treatment and filtering of rainwater before it enters the brook.

 *Complete the Englesby Brook Flow Restoration Plan and pursue prioritized implementation of the proposed stormwater management retrofits*

 *Department of Public Works*

Engage the Champlain School and community groups to apply for an Ecosystem Restoration Grant to fund riparian enhancement.

IMPROVE WATER QUALITY.

Treat the water to remove phosphorous and other pollutants before it heads to the lake. Because the soil types and water table in the South End are less well suited to infiltration practices than other parts of the city, underdrains will be needed in most stormwater treatment projects. Bioretention cells or raingardens and sand filters are nothing more than landscaped pockets of soil and gravel of various shapes and sizes, which provide a place for stormwater to soak in and give life to plants and be cleaned in the process. Street trees can be planted in Silva Cell™ stormwater planters, which take in water from the street, clean and filter it with the soil, and then allow the water to be taken up by the tree while also providing adequate soil volume for tree survival. These types of features should be used routinely in public and private development projects in favor of the conventional “collect and send into the lake” systems. In addition, retrofits of existing systems will be needed to meet the City’s goals, which can be spurred on by pilot demonstration projects in the South End. Three possible ideas are:

- **Plant more trees** along the Champlain Parkway or Pine Street with Silva Cell™ System that stores and filters runoff.
- **Green bus bulbs.** The planned curb extensions in the Champlain Parkway project can be “upgraded” to also serve a stormwater management function by becoming mini-bioretention cells. Public art can further be incorporated to make these distinctive, attractive places.
- **Living Bioswales.** Within the South End and particularly along Pine Street, linear stormwater planters can be introduced to provide both reduction and treatment of runoff.

▶ *Identify opportunities for applying the City’s College Street stormwater toolkit into new projects and to existing infrastructure in areas where change is not expected.*

👤 *Department of Public Works*



“Englesby Brook needs to be highlighted and nurtured as a stormwater collector and central water artery of the South End.”
 COMMUNITY COMMENT FROM WEBTOOL