



Sustainable Neighbourhood Action Plan Implementation: Showcasing LID Retrofits

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Overview

STEP is a multi-agency initiative developed to support broader implementation of sustainable technologies and practices within a Canadian context.

The water component of STEP is a conservation authority collaborative. Current partners are:



Lake Simcoe Region
conservation authority



Credit Valley
Conservation
inspired by nature



Toronto and Region
Conservation
Authority

Our key areas of focus are:

- Low Impact Development
- Erosion and Sediment Control
- Road Salt Management
- Natural Features Restoration

Introduction to SNAP

Sustainable Neighbourhood Action Program (SNAP)



A neighbourhood-based solution for sustainable urban renewal and climate action

- Brings efficiencies
- Draws strong community support
- Builds innovative partnerships for implementation

In association with:

**Sustainable Neighbourhood
Action Program**



A Growing Network of SNAPs



TRCA SNAPs

- Bayview Glen SNAP (Markham)
- Black Creek SNAP (Toronto)
- Burnhamthorpe SNAP (Mississauga)
- County Court SNAP (Brampton)
- Lake Wilcox SNAP (Richmond Hill)
- West Bolton SNAP (Caledon)
- Bramalea SNAP (Brampton)
- Rexdale SNAP (Toronto)
- Thornhill SNAP (Vaughan)
- The Pocket SNAP (Toronto)

CVC SNAPs

- Fletchers Creek SNAP (Brampton)
- Hungry Hollow SNAP (Halton Hills)

A plan urban renewal & climate action



SNAPs bring people together to retrofit and restore mature neighbourhoods.

Achieving LID and Climate Co-benefits across the SNAP Network



Burnhamthorpe SNAP, Mississauga



Black Creek SNAP, Toronto

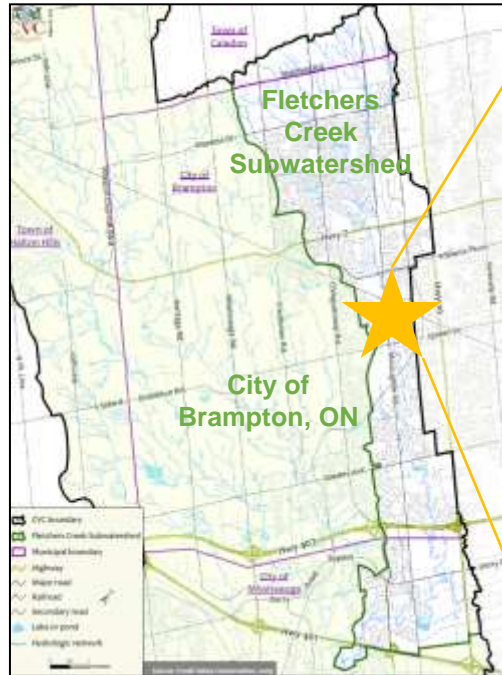


County Court SNAP, Brampton

Fletchers Creek SNAP

Background

Fletchers Creek SNAP

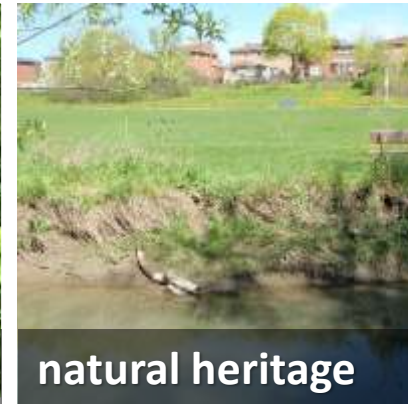


Fletchers Creek SNAP is based in an established, urban neighbourhood situated along Fletcher's Creek in central **Brampton, Ontario**.

Fletchers Creek SNAP Neighbourhood



stormwater and creek



natural heritage



urban forest



built environment



Fletchers Creek SNAP Community



Community Interests

- Trees
- Shade / Cooling
- Neighbourhood appearance
- Gardening
- Cycling
- Pedestrian safety
- Butterflies
- Nature education / close-to-home recreations
- Parks and trails
- Social connectivity
- Safety and security
- Food insecurity
- Creek health



EVALUATION PROGRAM

Alignments with Local Plans & Programs



Select examples

CVC

- Fletchers Creek Subwatershed Study
- Integrated Watershed Management Program
- Sustainable Landscaping and Community Outreach Programs

Region of Peel

- Peel Climate Change Partnership
- Peel Urban Forest Strategy
- Region of Peel Water Efficiency Strategy Update

City of Brampton

- Brampton Grow Green Environmental Master Plan
- City of Brampton Stormwater Retrofit and Enhancement Study
- Brampton's 2040 Vision: One Million Trees Program, Eco Park Strategy, Nurturing Neighbourhoods Program

Fletchers Creek SNAP Vision

Fletchers Creek is a green, climate change-ready neighbourhood supported by beautiful, healthy spaces and championed by caring neighbours.



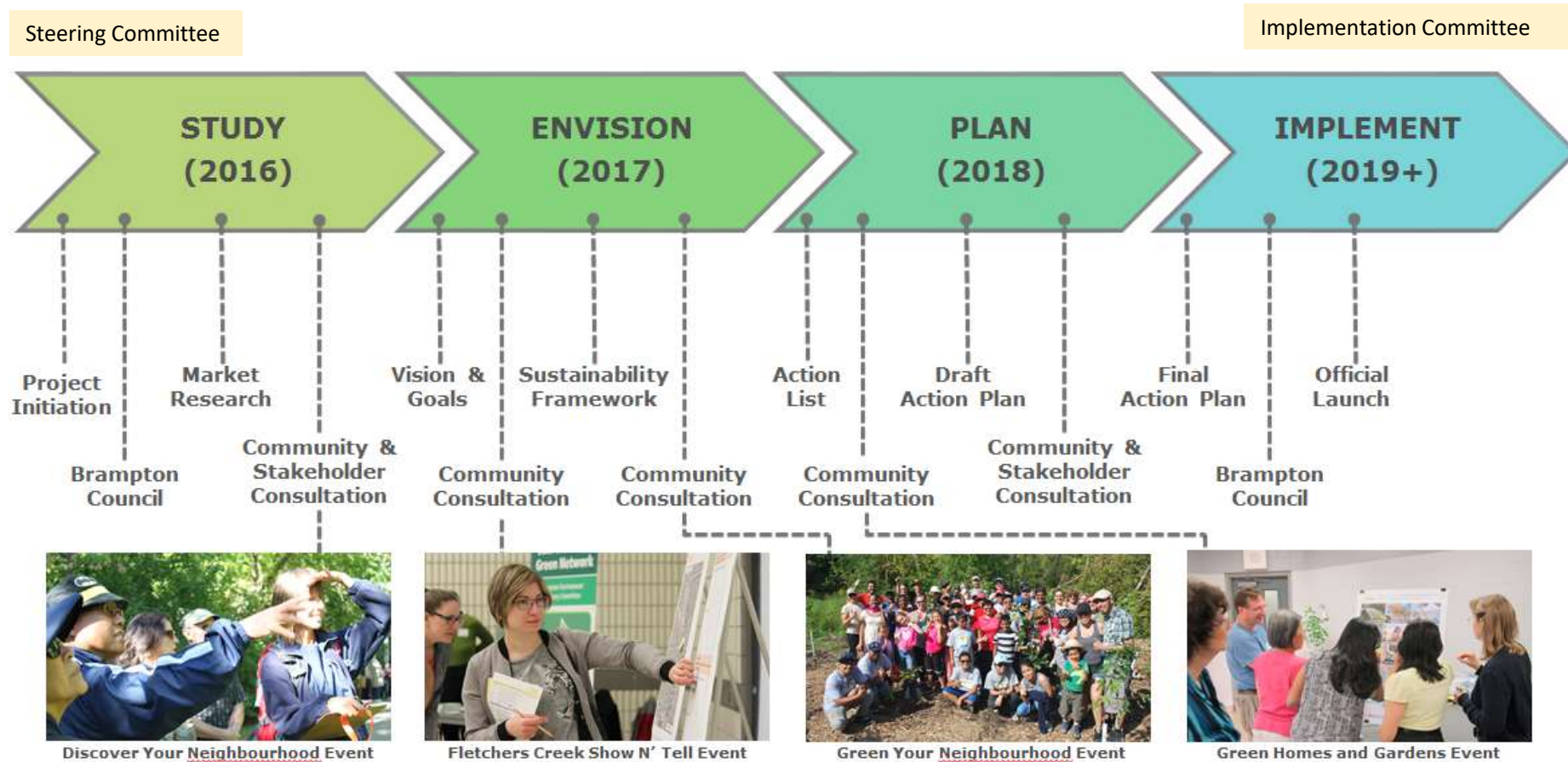
cvc.ca/fcsnap



Goals

- A. Create a healthy and diverse landscape.
- B. Support a clean and healthy Fletchers Creek.
- C. Reduce environmental impacts of everyday decisions and activities.
- D. Engage the community in neighbourhood improvement.

Fletchers Creek SNAP Timeline



Five Key Areas, Twenty-Seven Actions



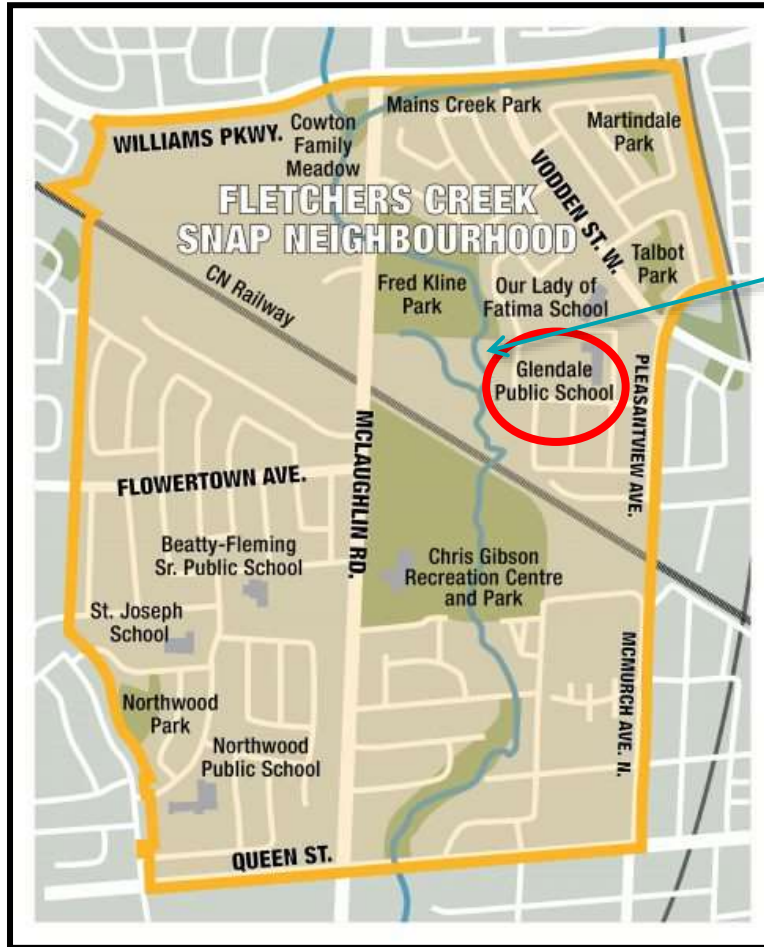
Five Key Areas, Twenty-Seven Actions



Glendale P.S. Rain Garden

Case Study

Overview



Fletcher's
Creek

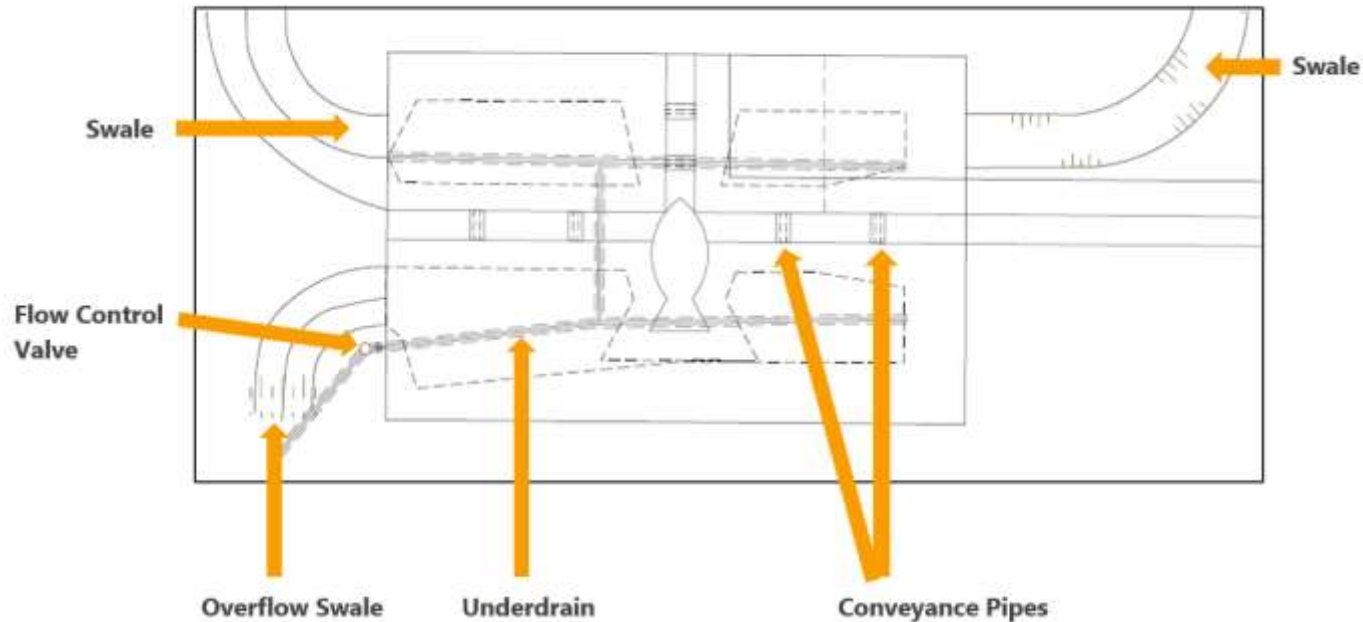


Goals and Drivers

- Address existing drainage concerns
- Improve water quality in Fletchers Creek
- Enhance the aesthetics of the school property and increase native habitat
- Create additional learning opportunities for students and the community

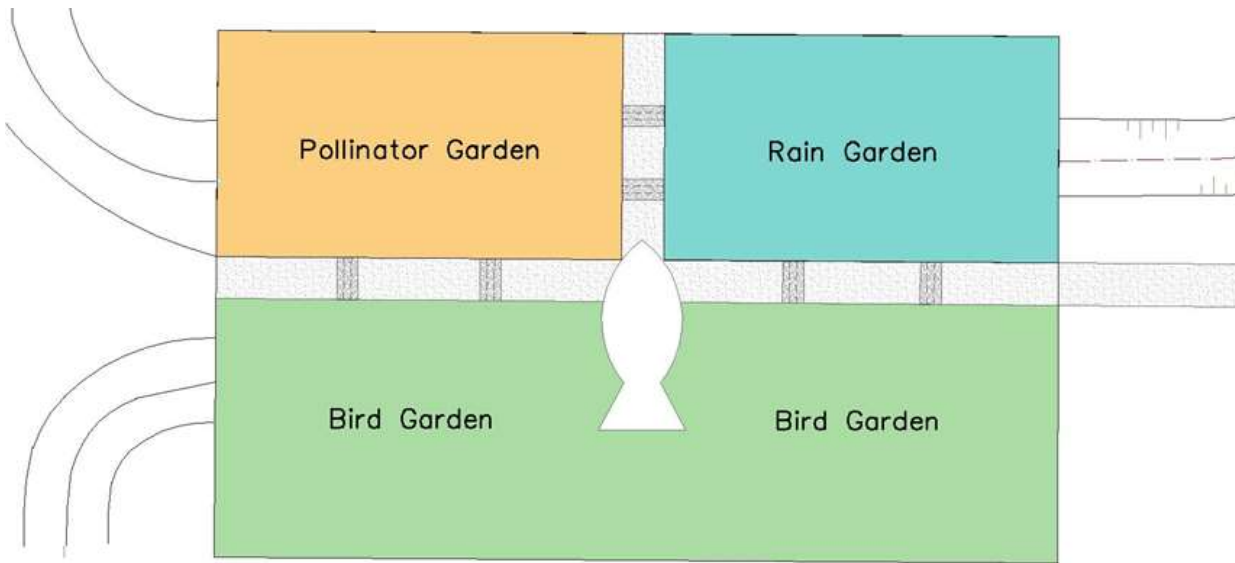


Infrastructure Design



- The drainage area = 1.61 ha
- Inlets are grass swales that direct runoff to the rain garden
- Treats at least the 27 mm storm event (90% of all storms)
- Three rain garden areas capture a total of 210 m³ of water (or 1300 bathtubs!)

Landscaping Design



Construction





Operation and Maintenance



Student and Volunteer Involvement



Challenges and Lessons Learned



- More topsoil than originally anticipated
- Finding the correct compost blend was a challenge
- The side slopes of the garden were supposed to remain bare but were seeded
- Additional considerations are required when it comes to school rain gardens

Successes

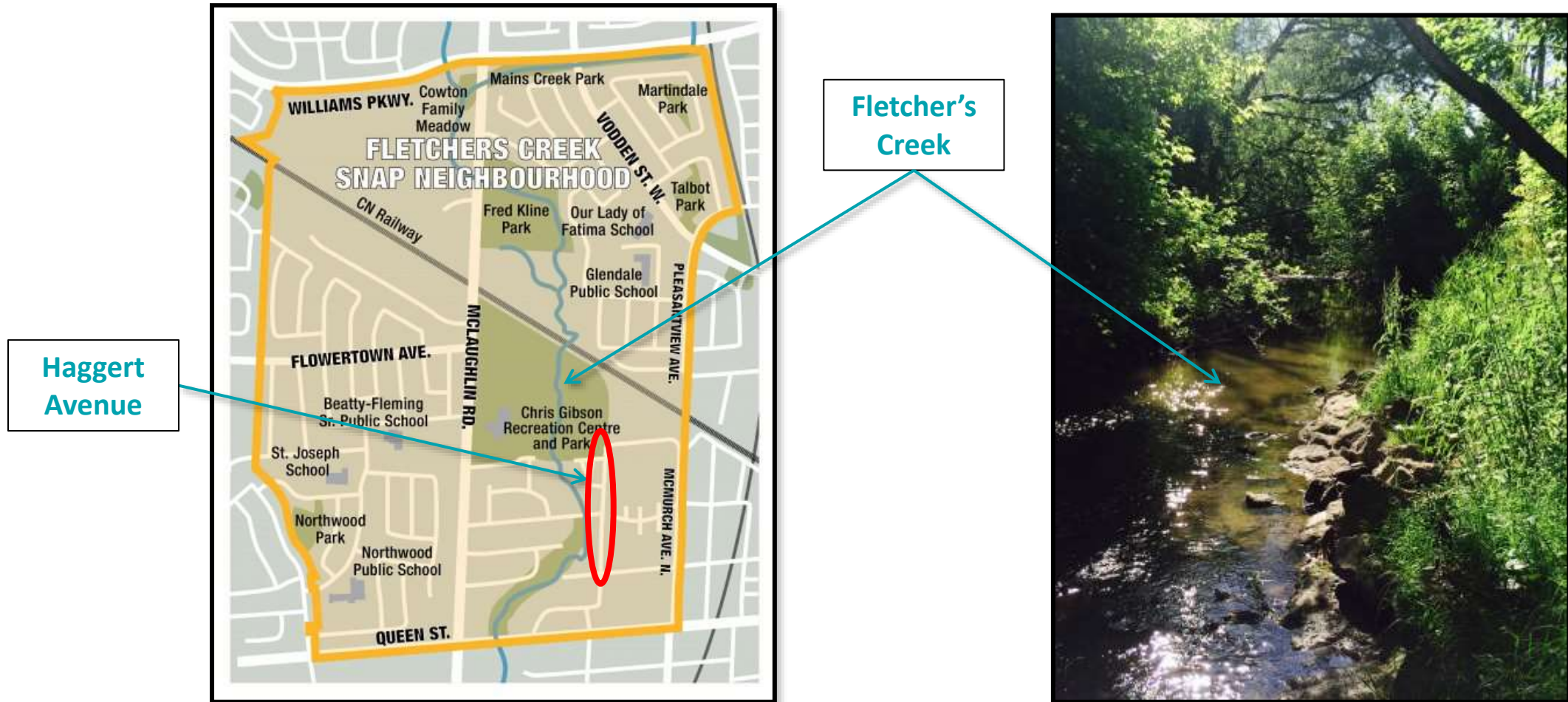
- Designed to achieve several environmental goals
- Reduced overall project costs and environmental impact
- Multi-stakeholder collaboration
- Provided an experiential learning opportunity



Haggert Ave. Bioswale - ROW Retrofit

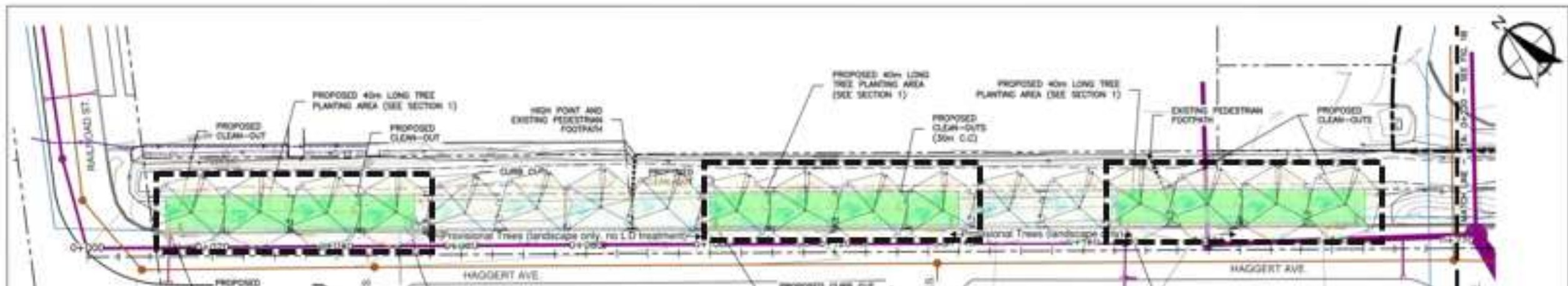
Case Study

Overview



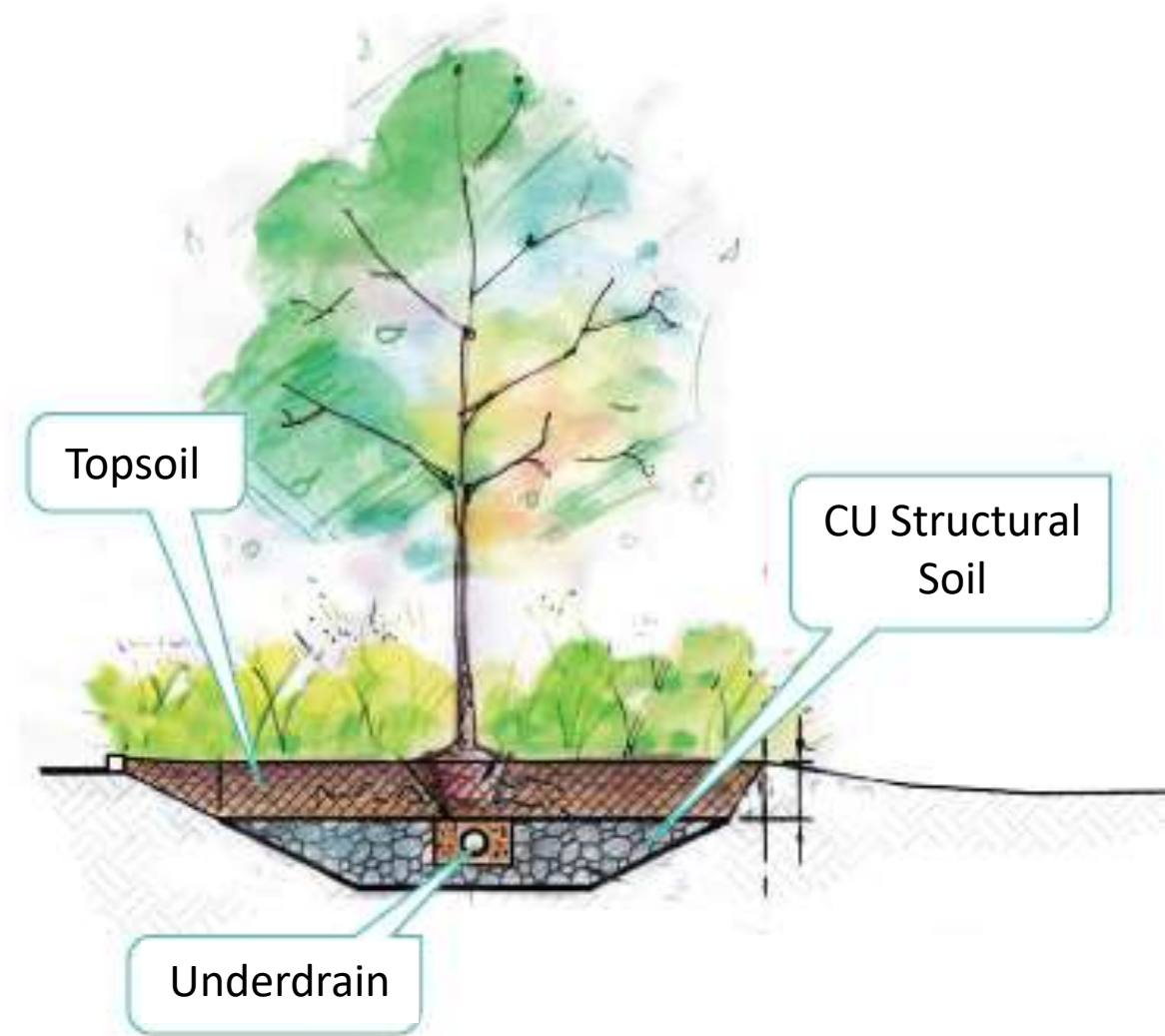
Goals and Drivers

- Stormwater Management Retrofit and Enhancement Study
 - Road resurfacing is good opportunity to include LID
- No Stormwater Management in SNAP neighbourhood and other environmental concerns
- SNAP Theme – Green Street



Infrastructure Design

- Drainage area = 3500 m²
- Treatment area = 350 m²
- Inlets are poured concrete spillways
- Provides water quality management for the 27 mm storm event (90% of all storms)
- Three bioswale cells store a total of 63 m³ of water (or 400 bathtubs!)



Landscaping Design – Revised After Tendering

- Initial Plan included trees, perennial grasses, and flowering perennials
- Uncertainties for flowing vegetation about survivability and maintenance
- Landscaped plan was revised to minimize the amount of flowing plants
- Good opportunity to test different treatments

Plant Type	Original Plan	Revised Plan
Trees	44	44
Grasses	2303	2239
Flowers	1515	751

Haggert Avenue



**Credit Valley
Conservation**
inspired by nature

Music: "We Made It" by scottholmesmusic.com



Operation and Maintenance

- Monitoring
 - Infiltration testing
 - Water level
 - Site inspections
- Maintenance
 - Brampton building inspection and maintenance program
 - Developing Standard Operating Procedures



Monitoring Well Installation

Challenges and Lessons Learned

- Importance of details being specified clearly and accurately in the drawings
- Importance of communicating closely with contractor and ensuring drawings and notes are understood
- Ensure any changes are communicated clearly and reiterated at the appropriate time



Preconstruction meeting

Partnerships are Building Capacity for LID



Working with Contractor

“We appreciate having your team present as much as possible as this type of construction is new for us”

-Contractor

“...a unified approach from the team made it easier to overcome any situation that it was presented with.”

-City of Brampton

Successes



Tested a new approach – CU
Soil Base Layer and Topsoil
Upper Layer



Topsoil infiltration
exceeds design rate
(30 mm/hr)



Promoting LID Retrofits

Widespread Adoption and Implementation

Next steps, partnerships and successes.

What's Next for Fletchers Creek SNAP

Key Upcoming Projects

- A new school rain garden
- Neighbourhood-wide Butterflyway
- Community Tree Project – build local resiliency to extreme heat via tree planting
- Redside habitat enhancements / restoration
- Community resiliency / capacity building



Key Metrics



increase trees planted



increase volume of water cleaned/filtered/cooled



increase people engaged

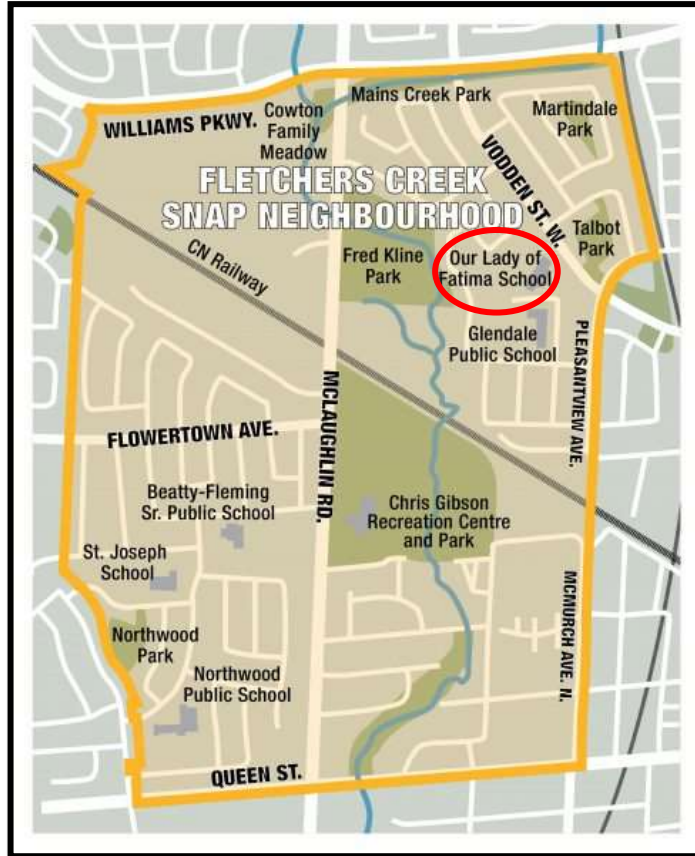


increase sustainable actions initiated



increase community projects initiated

Upcoming Implementation Projects



Supporting Our Municipal Partners



City of Brampton

- LID Inspection and Maintenance Program
- Roads Capital Program
- Chris Gibson Recreation Centre expansion
- Stormwater Charge Program Outreach
- Fletcher's Creek Fluvial Geomorphology Assessment
- One Million Trees Program
- Bee City Designation

Region of Peel

- Water Efficiency Programs
- Peel Climate Change Partnership
 - Flood Resiliency Strategy
 - Green Natural Infrastructure Strategy

Working Together – Using SNAP model

- Find timely opportunities for LID
- Build in robust community engagement and support
- Foster and build new partnerships
- Leverage multi-stakeholder support for collectively expertise and resources and to raise funds
- Pilot and implement innovative approaches – learn and apply lessons to advance LID broadly

Partners and Funders



Thank You

For more information:

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