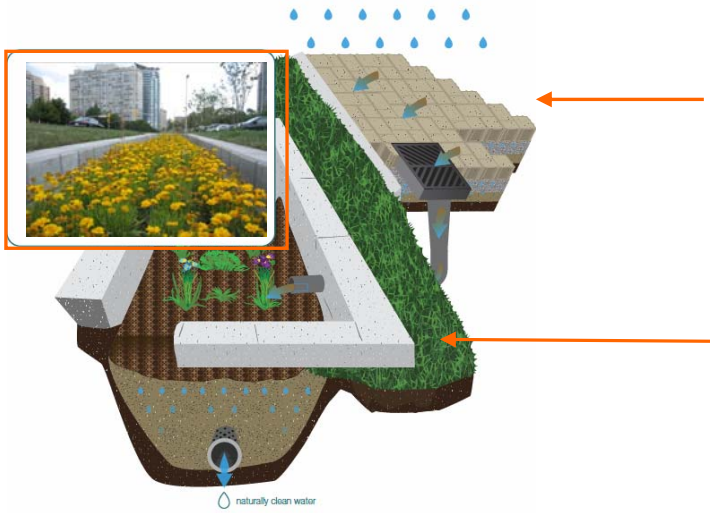
Elm Drive

Location: Mississauga
Constructed: May 2011

Fact Sheet

Project Overview

The Elm Drive low impact development (LID) road retrofit is located on Elm Drive West, just south of the Square One Shopping Centre in Mississauga, Ontario. The Elm Drive project incorporates both permeable paver lay-bys within the road right of way (on City of Mississauga property) and bioretention planters on the adjoining property owned by the Peel District School Board. Runoff flows from Elm Drive West onto the permeable paver lay-by and into the bioretention planters.



Permeable Pavers

An alternative to traditional pavement, permeable pavers allow rainfall and road runoff to pass between joints in the pavers into an underground gravel storage layer. Stored water can infiltrate into the surrounding native soils.

Bioretention Planters

Runoff that is not infiltrated by the pavers is then transferred to bioretention planters, which provide additional infiltration and filter the runoff. The landscaped planters utilize specialized bioretention soil media to treat the stormwater before it is returned to Cooksville Creek.

Successes

The successes achieved with this project include:

Innovative Project – The Elm Drive project is one of the first green street retrofits to take place in Ontario. The LID retrofit improves stormwater quality and reduces runoff at the site.

Joint Partnership – A partnership was formed between three stakeholders: the City of Mississauga, the Peel District School Board (PDSB) and Credit Valley Conservation (CVC). This partnership allowed the City to maintain the LID infrastructure, part of which is located on PDSB property. CVC provided design, construction assistance and is conducting performance monitoring and maintenance inspections.

Demonstration Showcase – The LID features at Elm Drive have been showcased through numerous presentations, events and site tours. These efforts have helped educate numerous stakeholders on the benefits of LID.

Performance – Preliminary monitoring indicates that LID features are performing well, and that for the majority of rainfall events (up to 95% of all events) little to no stormwater runoff leaves the site.

Infrastructure Assessment

CVC is working with an expert advisory committee consisting municipalities, regional government, the MOE, consultants, universities and industry to assess the performance of the LID features at Elm Drive. Objectives include:

- To evaluate the performance of LID at controlling runoff volume, peak flows, quality, erosion and restoring the natural water balance.
- Determine whether the LID practices are working as designed and maintenance requirements for optimal LID performance.
- Evaluate the degree to which LID reduces the impacts of extreme weather events due to climate change and builds resiliency in municipal infrastructure.
- Meet the objectives of CVC's monitoring strategy report (available at www.bealeader.ca)

Performance Findings

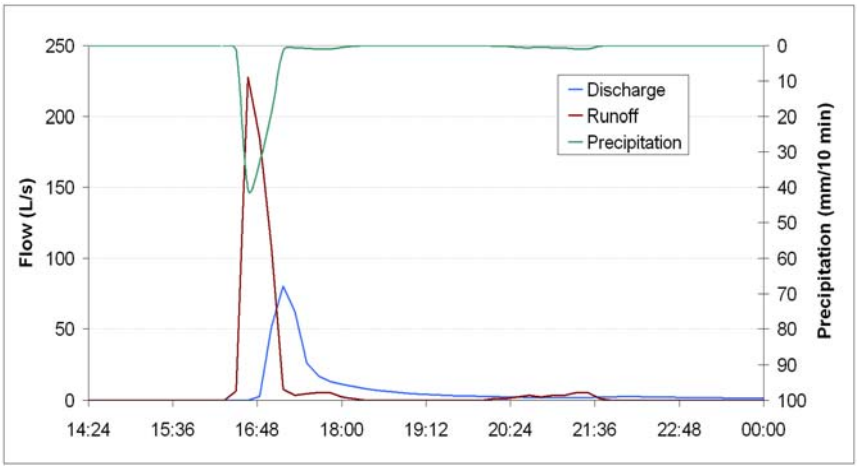
LID practices are exceeding all design expectations, providing significant benefits:

- **Rainfall events up to 25mm (95% of all events in a typical year) have no stormwater runoff**
- **99% total suspended solids removal**
- **Reducing peak flows up to a 2-year event**

100 Year Event - July 8, 2013

On July 8, 2013 an extreme event occurred over Elm Drive - 104 mm over 5 hours, peak intensity of 240 mm/hr for a duration of 10 minutes. Preliminary analysis indicates that this storm event exceeded the 100-year design storm.

As the figure shows, even for this extreme event, the LIDs at Elm Drive helped to provide peak and volume reductions and provide a 40-min lag time of discharge from site.



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