

---

**TO:** GENERAL COMMITTEE

**SUBJECT:** RAINSCAPING LOW IMPACT DEVELOPMENT (LID) GARDEN PILOT UPDATE

**WARD:** 4

**PREPARED BY AND KEY CONTACT:** W. FISCHER *W. Fischer*  
SUPERVISOR OF PARKS PLANNING & DEVELOPMENT (Ext.5101) *S.F.*

**SUBMITTED BY:** *for* J. WESTON, M.A.Sc., P. Eng., PMP *West/Kobler*  
DIRECTOR OF ENGINEERING

**GENERAL MANAGER APPROVAL:** R. J. FORWARD, MBA, M.Sc., P. Eng. *R. J. Forward*  
GENERAL MANAGER OF INFRASTRUCTURE & GROWTH MANAGEMENT

**CHIEF ADMINISTRATIVE OFFICER APPROVAL:** C. LADD *C. Ladd*  
CHIEF ADMINISTRATIVE OFFICER

---

**RECOMMENDED MOTION**

1. That the operation and maintenance costs associated with the proposed RainScaping Low Impact Development Garden Pilot Project in Sunnidale Park be endorsed and the project proceed to construction in partnership with the Lake Simcoe Region Conservation Authority (LSRCA).

**PURPOSE & BACKGROUND**

2. The purpose of this staff report is to provide Council with an update on the detailed design of the RainScaping Low Impact Development (LID) Garden Pilot Project (LID Garden Pilot Project) in Sunnidale Park based on the Motion #14-G-175 as follows:

**RAINSCAPING LOW IMPACT DEVELOPMENT (LID) GARDEN PILOT PROJECT - SUNNIDALE PARK (WARD 4)**

- a) That the proposed RainScaping Low Impact Development Garden Pilot Project site in Sunnidale Park, be approved so that the design of the project may proceed.
  - b) That staff report back to General Committee once the design of the proposed RainScaping LID Garden Pilot Project is completed to a level that allows the annual maintenance costs to be established. (ENG013-14) (File: R04-SU)
3. LID is a stormwater management approach that aims to mimic predevelopment hydrologic processes by increasing detention, infiltration and treatment of stormwater runoff at its source. By dealing with rainwater before it runs off the property, homeowners can reduce the amount of water entering conventional stormwater drainage infrastructure (i.e. watercourses, storm sewers and stormwater management ponds). LID is a key element of the stormwater management system to achieve reduced impacts from development runoff and to reduce phosphorus loads from stormwater runoff.

## ANALYSIS

4. Further to the original staff report ENG013-14 on June 23, 2014, City staff met with the LSRCA to refine the conceptual design of the LID garden before presenting it to the Friends of Sunnidale Park Working Group and City staff for their initial input. Based on comments to minimize maintenance costs and to address concerns over the size of the design, the concept was reduced from the initial available space of approx. 1,500 m<sup>2</sup> to approx. 500 m<sup>2</sup> with the following benefits:
- a) It allows the pilot project to become a more intimate space within the park.
  - b) Views from Sunnidale Road, though the former playground area, are not impeded.
  - c) Bordered to the north by evergreen plant material, the views from within the proposed Rainscaping garden design creates long distance views to the rest of the park.
  - d) The design contains two proposed structures for the demonstration project at a size of approximately 2.7 m x 4.6 m (9' x 15'). These features could be used by the public for passive uses and for shade and seating opportunities for those visiting the garden or for general park use.
  - e) More open space is left next to the demonstration garden to allow for "informal" family activities to take place within the park such as picnics.

Refer to Appendix "A" for the LID garden footprint within the former playground area and Appendix "B" for the Rainscaping garden concept.

5. The LSRCA held a public open house on the design concept at the Dorian Parker Centre on November 27, 2014. The purpose of the Sunnidale Park Rain Garden Public Workshop was to introduce residents of the Kidd's Creek watershed to present conceptual design plans for a rain garden demonstration site for Sunnidale Park for public comment and to introduce the local neighbourhood to the "Creeks Project". The Open House in November was attended by 20 participants largely comprised of neighbourhood residents and the Ward Councillor. Of these attendees, 15 evaluation forms were received and a summary of the public comments are found in Appendix "C".
6. Some of the comments, as summarized in Appendix "C", identified alternate locations suggested by the attendees. These alternative locations included municipal facilities and private buildings that would have constraints and limitations due to programming function, building layout and site configuration that would not conform to the intended vision and purpose of the LID garden. There were also two suggested alternative locations within Sunnidale Park being the area surrounding the Dorian Parker Centre and the Barrie Metals Pavilion. These locations both had structure design and programming impacts that were deemed to be less desirable than the preferred location of the former playground. The detailed assessment of the Sunnidale locations are contained in Appendix "D".
7. Sunnidale Park was specifically recommended by the LSRCA for its connection to the headwaters of the Kidd's Creek watershed in Barrie and within a park setting. As passive, recreational uses and public education opportunities are proposed in the parks master plan, this demonstration site will have many spin-off benefits including an opportunity for Barrie residents to learn and potentially ultimately adopt a behaviour change at the household level. As a result, City staff still recommended the former playground area as the preferred site for the LID garden, as was approved through Motion #14-G-175 in June 2014.
8. In order to assess the operational impacts on the proposed LID garden, the LSRCA retained Parklane who undertook a maintenance review of the garden and determined it would require approximately 40 person hours each year for the first two years for maintenance of the vegetation only. Upon review of the estimate by City staff, this translated into an approximate dollar value of \$6,000 annually when accounting for municipal staff time and equipment allocation for the garden maintenance.

9. To facilitate the concerns expressed over the costs to maintain the proposed garden design, the LSRCA agreed to include in the proposed construction tender contract, an item for a two year maintenance contract of the garden to permit the establishment of the plant material by the same contractor completing the installation. This time period would then allow City staff sufficient time to inspect and confirm the sustained growth and acceptable condition of the plant material before transfer of maintenance responsibilities. This will address the concern of high maintenance costs in the first two years that is typical of plant material establishment.
10. As the projected schedule has the detailed design and construction tender being issued in 2015, the two year maintenance contract would extend into 2016 and 2017. Municipal control over the LID garden would not begin until 2018. At this time, City staff estimate that the garden would require less time to manage, and therefore projected an annual operating cost of approximately \$5,000 to be included in the development of the 2018 Business Plan.
11. Therefore, based on the proposed two year maintenance contract being included in the construction contract for the LID garden, staff recommend that the RainScaping LID Garden Pilot Project be approved to proceed to detailed design and construction in 2015.

#### **ENVIRONMENTAL MATTERS**

12. There are no environmental matters associated with the recommendation.

#### **ALTERNATIVES**

13. There is one alternative available for consideration by General Committee:

**Alternative #1** General Committee could choose not to endorse the maintenance costs associated with the LID Garden Pilot Project in Sunnidale Park and direct staff to restore the existing playground with topsoil and sod.

This alternative is not recommended as the following benefits would not be realized:

- a) The creation of public educational opportunities for the reduction of stormwater runoff, rainwater capture, LID opportunities at a local residential scale and the use of drought resistant plant material to reduce water consumption.
- b) The enhancement of public enjoyment of the park through additional floral displays and photographic opportunities.

#### **FINANCIAL**

14. The City has estimated 40 hours of staff time to review the detailed design, tender the project and monitor construction activities in 2015. This time has been included in the 2015 work plan and is projected to continue throughout the two year maintenance contract period. The construction costs for the garden, estimated at approximately \$100,000, have been secured and budgeted for by the LSRCA for 2015.
15. RPF staff proposes to monitor the establishment of the LID Garden Pilot Project during the two year maintenance contract period included in the construction contract. During the development of the 2018 Business Plan, the projected \$5,000 operating costs for the maintenance of this LID garden will be refined and evaluated along with any new asset maintenance needs that have been established in the previous year.

16. Any funding requirements for future life cycle replacement of the plant material within the garden will be considered by City staff through future Business Plan processes. Currently, the average life cycle for a park shade structure exceeds 35 years with a variable cost for construction ranging from \$25,000 to over \$75,000 per structure depending on its design and material selection.

**LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN**

17. The recommendation(s) included in this Staff Report support the following goals identified in the 2010-2014 City Council Strategic Plan:
- Manage Growth and Protect the Environment
  - Improve and Expand Community Involvement and City Interactions
18. Privately managed stormwater practices would lead to a reduction in overland stormwater flows, resulting in less stormwater impacting Lake Simcoe and other area watercourses. This would reduce the impacts of urban growth and help protect the quality of our water and our urban ecosystems.
19. The LID Garden Pilot Project would provide the City of Barrie with an opportunity to engage citizens by offering an easily accessible demonstration tool to learn how to naturally process water on their own properties through collection and infiltration.

APPENDIX "A"

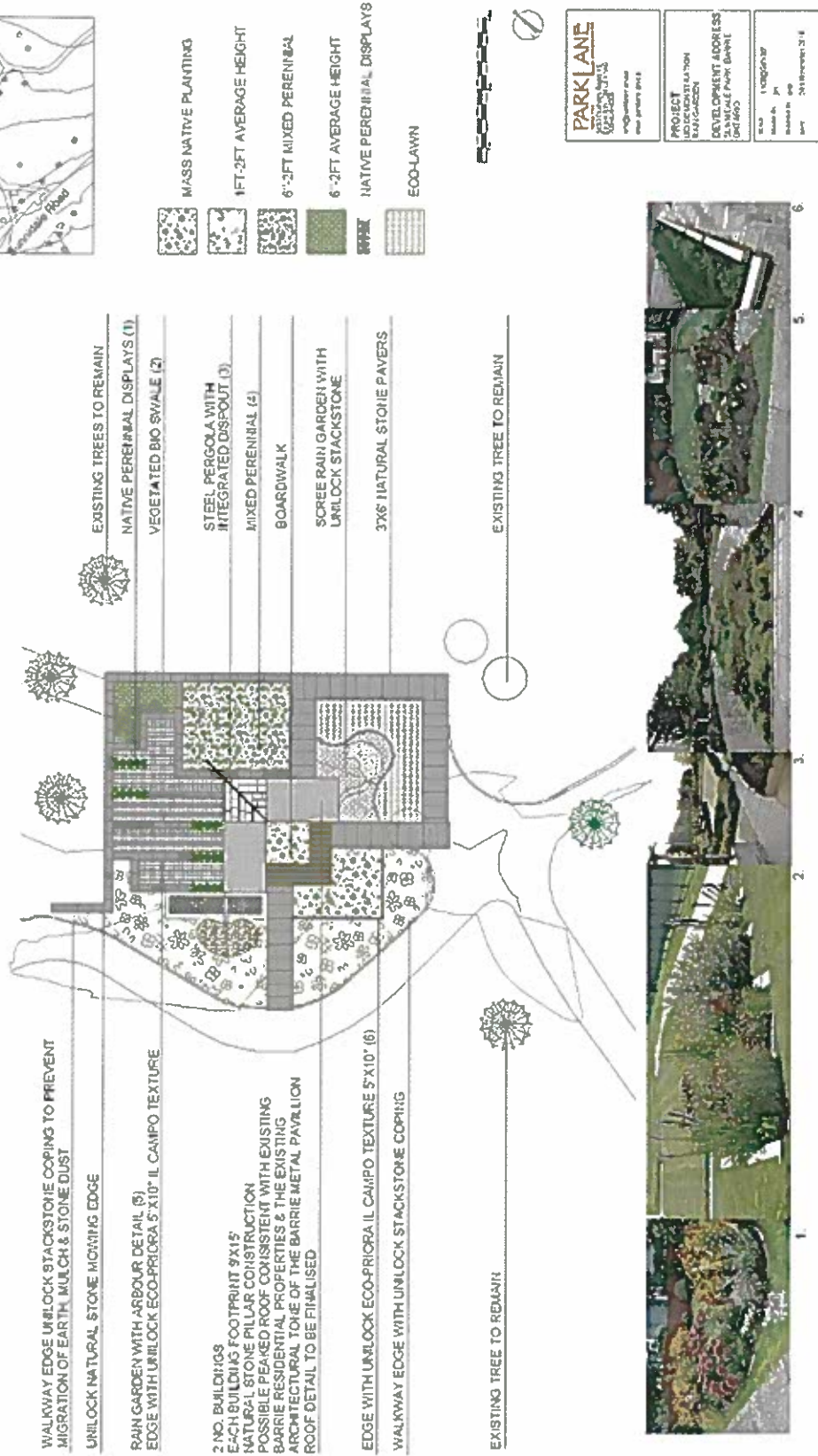
Updated Size of the RainScaping Garden



**APPENDIX "B" – Proposed Design for the RainScaping LID Garden  
(A copy is available in the Councillor's Lounge)**

**LID DEMONSTRATION RAIN GARDEN**

In the past all residential landscapes attempted to shed water off the properties to swales and storm water sewers as quickly as possible. This has led to problems with our streams, rivers and lakes as well as to the wildlife supported by them. Today we have learned that one of the most effective ways to protect our fresh water resource is to keep the water on site and allow it to percolate into the naturally purifying earth. This is best achieved through RAIN GARDENS



**APPENDIX "C"**

**Summary of Public Comments from November 27, 2014 Rain Garden Workshop**

**Comment Form Summary**

**(i) Creeks Project**

Overall attendees were in support of the *Creeks Project*, and think that it is a needed project for the Barrie Community. There were no objections to the project. One recommendation was brought forward and one comment:

- Look at retention pond north of Cundles Road for improvement opportunities
- Widening of 400 Hwy in the near future may inhibit goal of fish in Sunnidale Park

<b>How many attendees:</b>	<b>Yes</b>	<b>No</b>	<b>No response</b>
Knew their house was connected to Lake Simcoe via stormwater system?	13	2	/
Thought the presenters message was clear and concise	14	/	1
Feel the demonstration garden is a good way to educate the community	12	/	3
Think Sunnidale Park is a good location for the Demonstration garden	8	5	2
Agree to the proposed location in Sunnidale Park (old playground site)	6	8	1

**(ii) RainScaping LID Demonstration Garden**

Most participants feel that the LID demonstration garden was a good way to educate and inspire Barrie citizens to make changes at their household that will help Lake Simcoe through rainwater management. In addition many participants agree Sunnidale Park is a good location to place the demonstration garden, however approximately half of the attendees did not agree that the demonstration garden was located in the right location within the park.

Two (2) other locations were assessed against the proposed former playground site (Dorian Parker Centre, near the new playground and the Metals Pavilion, Arboretum). Refer to Appendix "D" for details.

For the residents who did not agree to the location within the park, they were asked to make suggestions on alternate locations in the City for this type of project. The following locations were identified:

- City Hall
- Waterfront - South Shore Centre
- Royal Victoria Hospital - Cancer Care Centre
- Any Recreation Centre in the City
- Another location in Sunnidale Park such as the north end of Arboretum

**Staff Comments:**

With staffs' knowledge of each suggested site, three (3) of the locations are corporate buildings and that very specific programming around each facility and, in the case of City Hall, there is already an existing roof-top garden demonstration project in place to illustrate the concepts of green roofs (located above Mayor, CAO, Access Barrie offices). The other suggested locations would have their facility programs impacted if a large scale LID demonstration site were to be implemented around the structure. The last location, the RVH, is not an appropriate location as it is not a City owned facility.

Two (2) other locations were reviewed in Sunnidale Park and these are detailed in Appendix "D".

APPENDIX "D"

**Alternate Review of RainScaping LID Garden Locations within Sunnidale Park against the former Playground Site**

**Review Location #1 - attached to the existing Dorian Parker Centre (DPC) and near the new Fire Fighters Playground**

Advantages:

- Potential in providing a LID function to an existing structure.
- It is a high traffic area within the park to reach the most residents.
- Operational costs may be decreased if water is required during first 2 years of implementation to establish plant material.
- May connect up with the recently installed bio-swale.
- Could provide shade for parents who are watching over their kids at the playground.

Disadvantages:

- With the unknown programming status of the DPC, the demonstration Garden could be impacted in the future.
- With the busy and noisy nature of the new playground, the reflective experience where one has time to "connect" with the interpretive features of the demonstration site may be impeded.
- The playground was sponsored by the Barrie Firefighters and has a theme running through the different elements. This demonstration site is not a part of that vision.
- With the amount of children playing here, there is greater potential for the gardens to be trampled upon.

**Review Location #2 – modification of the Barrie Metals Pavilion, Arboretum**

Advantages:

- The 2007 Park Master Plan indicated a need for new destination points within the park and opportunities for natural, cultural heritage and educational opportunities.
- May reduce operational costs as maintenance exists for arboretum garden beds although more ornamental in design and installed with an irrigation system.

Disadvantages:

- May take away from the current "branding" and iconic design of the Barrie Metal Pavilion.
- Would be very difficult to adequately retrofit current roof structure to support LID opportunities due to the shape (no eaves troughs).
- It may not generate the same level of public interest as a new feature area in the park as it's within an existing garden area.
- Pavilion does not resemble a typical Barrie household which would take away from the demonstration sites ability to educate and connect the message of Low Impact Development.



**Review Location #3 - old Playground Site**

Advantages:

- Is a high profile site with pre-existing use and pathways leading people to the location.
- Has its "own site", not currently programmed with other uses which would allow for a focus on the intended purpose of the demonstration site and avoid "mixed messaging".
- Being away from busy park areas, it would allow for a more reflective park user experience which may result in more uptake of the education message on household LID's.
- Site has a vista that includes the valley with Kidd's Creek flowing through it. This will help with connecting up the main message of the demonstration site, i.e. how household's in Barrie are connected to Lake Simcoe via stormwater systems and local creeks; will also help with telling the story of Kidd's Creek and further the goal of restoring an active cold water fish habitat.
- A new feature in the park to increase the range of public experiences, meeting the passive use recommendations and educational opportunities of the park's Master Plan.