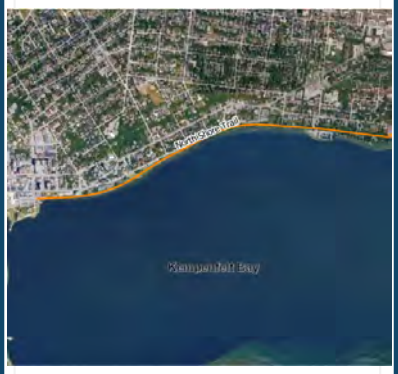

# North Shore Trail Vegetation Management Plan Update

**Prepared For:**

The City of Barrie

October 2022

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# Executive Summary

In 2002 the City of Barrie ('City') completed the North Shore Trail Master Plan (Final concept: Multiuse Trail) and shortly after the North Shore Trail ('Trail') was constructed from Heritage Park to Penetanguishene Rd. This 4.0m wide, three (3) kilometer long trail traverses through urban environments, natural features while acting as a buffer from Lake Simcoe to the City making it a destination that accommodates both active and passive activities by local residents and the Barrie community as a whole. The naturality of the trail attracts hikers and cyclers for a close to home feel and connection with nature, while the local destination makes the Trail ideal for a relaxing walk for pedestrians. The diversity of the trail amenities, features, vegetation and users make the area a valuable community asset and one the City continues to preserve, protect and enhance.

After construction, and stabilization of the trail and throughout the years, the planted vegetation began to mature, invasive species inevitably began to establish along the trail corridor blocking views of the lake and choking out native species. Due to these causes, a North Shore Trail Vegetation Management Plan (2009) ('Plan') and subsequently in 2011 a North Shore Trail Management Plan Review ('Plan Review') were completed to help City Staff prioritize maintenance requirements of the trail while incorporating feedback from the public on trail preferences.

The Plan and Plan Review focused heavily on the maintenance of the trail in order to enhance the trail experience for all Barrie residents, including constructing vistas to the waterfront. In general, the maintenance activities included pruning of eye level vegetation to improve view of the water in select sections of the trail, general control of invasive vegetation through local removal/destruction and increasing levels of service areas from "natural" maintenance to a more active maintenance role. No major removals or re-design of the trail was recommended or completed.

Post 2011, as the vegetation matured and the invasive species continued to establish a foothold, yearly maintenance activities became more expensive and increasingly difficult to continue at a City level. As such, the City retained Greenland International Consulting ('Greenland') to provide an Update to the 2009 / 2011 North Shore Trail Vegetation Management Plan ('Plan Update').

The Plan Update goal is to provide recommendations to reduce the on-going maintenance costs burdening the City, improve the health and diversity of the existing vegetation, control the invasive species and provide recommendations for the planting of new trees and shrubs to promote the return of the natural vegetation communities along the trail and support pollinators and bird habitats. This Plan Update will also provide recommendations methods and approaches to reduce erosion along the deteriorating areas of the shoreline and propose methods on how to prevent and protect the shore into the future. Lastly, the Plan Update will address policy review as it relates to the Trail such that the City can retain better control of the Trail corridor.

From the Plan Update, the following recommendations are proposed:

1. That the City of Barrie Council adopt the Plan Update as described in the following report;
2. That the North Shore Trail Corridor be maintained as an Urban Forest, promoting a healthy and diverse vegetative community;

3. That a ditch system be constructed on the north side of the trail, with collections points that direct flow to the Lake with outfall enhancements on the southern bank;
4. That natural steps / pathways be created from the trail to the Lake at designated locations; and,
5. That the City re-visit the policy and zoning of the North Shore Trail Corridor such that it can be re-designated as an Environmental Protection for greater control.

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**Appendix B** – Ecological Land Classification Mapping

**Appendix C** – Public Consultation

**Appendix D** – Plan Update Maintenance Level

**Appendix E** – Net Present Value Cost Calculations

# 1 Introduction

The City of Barrie's North Shore Trail Vegetation Management Plan encompasses the maintenance of the vegetation and walkway along the northern extension of Barrie's existing waterfront trail system.

This Plan will establish standards for the maintenance of the trail and the trail experience for all Barrie residents, including maintaining and establishing vistas to the waterfront, improving the health and diversity of the existing vegetation, and recommendations for the planting of new trees and shrubs to promote the return of the natural vegetation communities along the trail and support pollinators and bird habitats. This Plan will also establish methods and approaches to reduce erosion along the deteriorating areas of the shoreline and propose recommendations as to how to prevent and protect the shore into the future.

This three (3) kilometer long trail traverses through many urban environments and natural features making it a destination that accommodate both active and passive activities by local residents and the Barrie community as a whole.

The naturality of the trail attracts hikers and cyclers for a close to home feel and connection with nature. While the local destination makes the Trail ideal for a relaxing walk for pedestrians. The diversity of the trail amenities, features, vegetation and users make the area a valuable community asset and one the City of Barrie continues to preserve, protect and enhance.

## 1.1 Study Area

The North Shore Trail ('trail') is located along the north shore of Kempenfelt Bay in the east end of the City of Barrie. The trail is a continuous four (4) meter wide, three (3) kilometer long limestone path constructed on the original rail bed existing from the foot of Mulcaster Street to the eastern City limit at Penetanguishene Road.

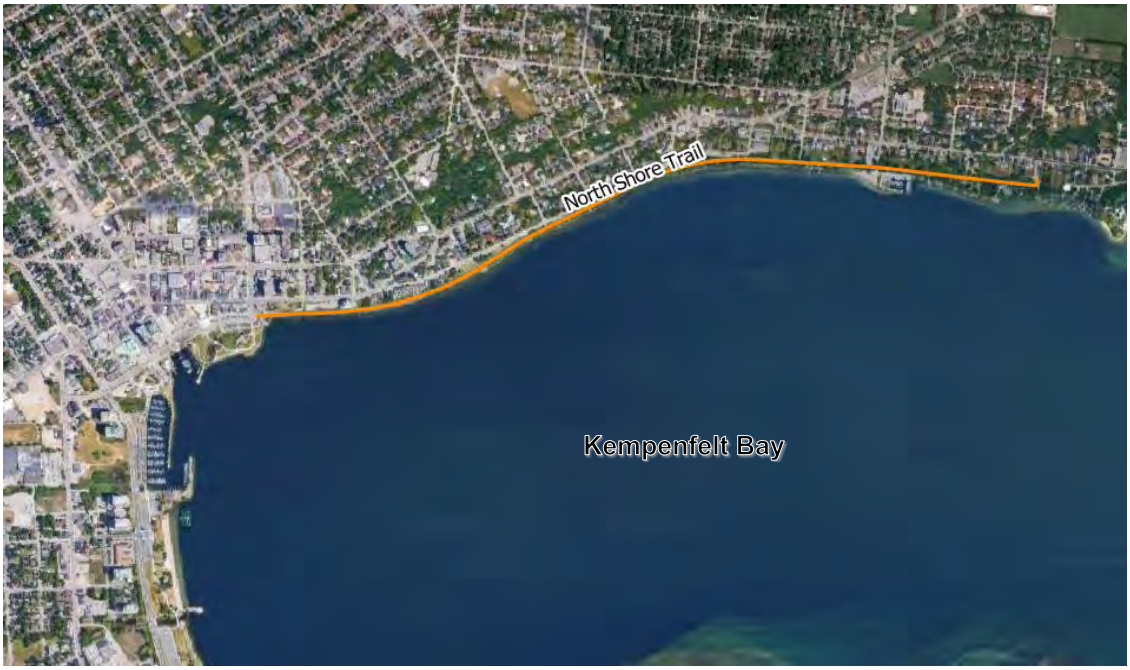



*Figure 1: Study Area*

# 2 Background

## 2.1 Background Information Review

The Trail was constructed per the 2002 North Shore Trail Master Plan Final Concept: Multi Use Pathway. Following construction and upon stabilization and maturing of the vegetation, early in 2007 "Phase 1" for vegetation management on North Shore Trail was completed as a test pilot project. Upon the successful implementation of the Vegetation Management Plan for the Phase 1 area, from the west edge of Kempenfelt Park to Vancouver Street, an updated Vegetation Management Plan was approved on February 23, 2009, which included the Phase 2 and 3 areas, and established guiding principles for maintenance activities. Once the Motion 10-G-365 was adopted by City Council, key activities were implemented including "Phase 2 & 3" Vegetation Management Plan and Vegetation Management programs for planting opportunities (e.g., Adopt-a-Park).

As part of the 2011 Vegetation Management Plan review, a public consultation process was undertaken to consult with residents in the neighbourhood of the North Shore Trail. The enhancements on the Vegetation Management Plan were proposed as a result, involving a modified pruning thinning width along the maintenance corridor, and first highlighted many areas on the North Shore Trail for the planting of native shrubs, perennials, and wildflowers. Since the 2011 report, annual maintenance programs have been completed, although there have been no further changes or updates to the Vegetation Management Plan.

As urbanization intensifies and climate change becomes an ever more urgent issue, trees and wooded areas in urban centres are recognized as green infrastructure and natural assets considered "essential" to keeping communities healthy and helping municipalities deal with climate change in a cost-effective way. Therefore, the existing Vegetation Management Plan strategies need to be updated to reflect the current facts and demands. The urban forest will be valued as an asset and thus, treated in a scientific way and reflected in City-wide plans to protect, maintain, and establish trees in an effective and locally appropriate way.

As the vegetation of the trail matured and maintenance activities were required to focus on smaller and smaller sections of the trail, local residents took action and pruned trees, shrubs and bushes generally to improve their own view of the lake. This type of action should be discouraged and needs to be addressed going forward to ensure a consistent management plan is being applied to the entire tail system.

## 2.2 Goals and Objectives

The following guiding principles were considered in the development of the updated Vegetation Management Plan:

i. Maintain the uniqueness of the North Shore respecting the diversity of the waterfront topography, native vegetation and adjacent land uses;
ii. Maintain and enhance the natural character and integrity of the waterfront through Policy provisions;
iii. Protect and enhance existing tree and shrub cover through naturalization and infill plantings (Waterfront Master Plan);
iv. Provide a suitable and contextually appropriate approach to naturalization and enhancement;
v. Enhance and encourage the use and accessibility of the trail by all residents; and,
vi. Promote and restore the integrity of the tree canopy cover within the trail corridor.

## 2.3 Mission Statement

Enhance the North Shore Trail through the development of an updated Vegetation Management Plan, including policy recommendations, thereby increasing general trail satisfaction, addressing public feedback, and protecting and improving the health and diversity of the existing native vegetative community.

# 3 Existing Conditions

## 3.1 Existing Maintenance Program

The existing Vegetation Management Plan identified four (4) maintenance regimes, which are illustrated in **Appendix A**, and summarized below:

Category 1 – Urban Park

- Sparse trees/ large shrubs (~20 stems/ ha)
- Removal of non-native, invasive and/or dead vegetation
- Dense planting of low-growing shrubs
- Turf to be managed as major waterfront park

Category 2- High Maintenance Forested Areas

- Thinning of trees/ shrubs (~400 stems/ha)
- Removal of non-native, invasive and/or dead vegetation
- Dense planting of low-growing shrubs
- Thinning/ removal of small trees and shrubs to maintain views

Category 3 – Low Maintenance Forested Areas

- Maintain Density of Trees/shrubs at ~2500 stems/ha
- Removal of all non-native, invasive and/or dead vegetation
- Planting low growing shrubs where required
- Pruning/ thinning of small shrubs and tree to maintain views

Category 4 – Naturally Maintained Forested Areas

- Removal of all non-native, invasive and/or dead vegetation
- Planting of low maintenance native species where required

In general, the trail becomes more naturalized moving eastward. It is primarily classified as Category 1-Urban Park by the trailhead at Sam Cancilla Park, at St. Vincent Park the dominant classification becomes Category 3, and from Johnson's Beach to the east trailhead, the primary classification is Category 4. These are not the sole maintenance category in each area, however represent dominant level of maintenance conducted.

## 3.2 Vegetation Inventory

To better understand the current tree coverage facts, an Ecological Land Classification (ELC) investigation was conducted in 2022. Based on the existing vegetation on both sides of the trail, mapping was completed that identified the vegetation types (ecological land classifications), such as 'Dry-Fresh Oak-

Red Maple Deciduous Forest Type' or 'Sumac Cultural Thicket Type'. Per the latest ELC Community Units map, there are sixteen (16) different classification units identified in North Shore Trail area, as shown in **Appendix B**. A glossary of the ELC codes and their associated classification is also provided in **Appendix B**.

The entire trail can be identified into three zones related to the tree coverage in category, as shown in **Figure 2** and summarized below:

1) High urbanized area Zone A
   - From Sam Cancilla Park to west edge of Kempenfelt Park, where the trail with sparse tree coverage is pressured by urban development and private properties.
2) Transition area Zone B
   - From Kempenfelt Park to Vancouver Street, where the trail is along Kempenfelt Drive separated with public park or landscape strips covered by sumac thicket and groups of pioneer species (poplars, birches, and willows)
3) Forested area Zone C- Vancouver Street to Penetanguishene Road.
   - The area with low human-influenced landscape with dense Scotch Pine, White Cedar or Oak deciduous forest.

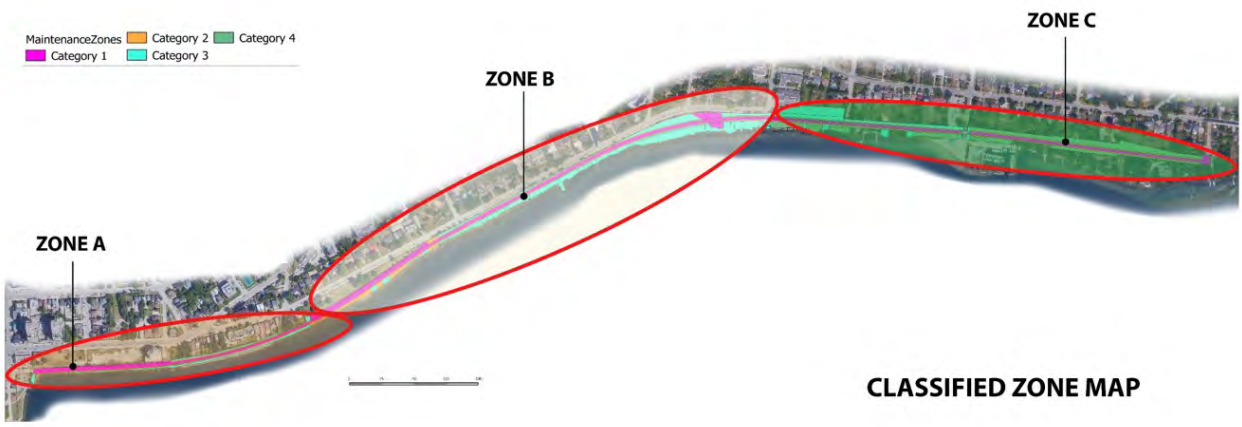



*Figure 2: Management Zones*

A more detailed classification of the dominant ELCs is presented below in **Table 1**. The primary, secondary and tertiary land classifications were determine based on total land area of each ELC in the identified management zones.

*Table 3-1 Management Zone ELCs*

| Ecological Land Class | Zone A | Zone B | Zone C |
|---|---|---|---|
| Primary ELC | Dry-Moist Old Field Meadow | Sumac Cultural Thicket | Dry-Fresh Oak-Hardwood Deciduous Forest |
| Secondary ELC | Sumac Cultural Thicket | Dry-Fresh White Pine-Oak Mixed Forest | Dry-Fresh Deciduous Forest Ecosite |
| Tertiary ELC | Anthropogenic | Dry-Fresh Oak-Red Maple Deciduous Forest | Dry-Fresh Poplar Mixed Forest |

Except for ANTHR (Human-influenced Landscape) and CUM1-1 (Dry-Moist Old Field Meadow Type), all other areas are classified as forested areas. By analysis of comparison between the current and historic vegetation coverage maps, the forested area can be observed being shrunk significantly from 67.6% in 2009 to 61.6% in 2021, as shown in **Figure 3.**

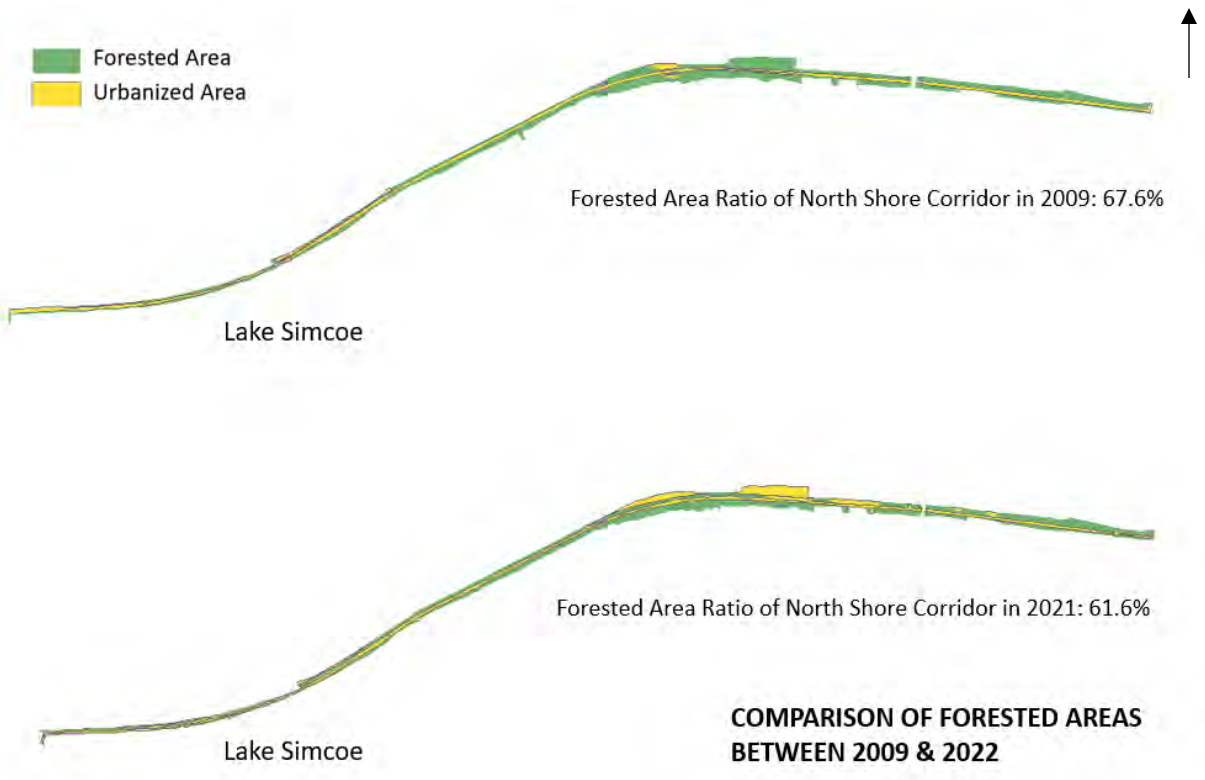



*Figure 3: Comparison of North Shore Trail Forested Areas- 2009 to 2022*

The most severely degraded forest areas are the central and eastern end of North Shore Trail in the urbanized area. To shape a comfortable and pleasant open space of the "Winter City", and to respond to the impact of urbanization on nature to prevent the existing urban forest from further decline, establishing a strategic plan is critical for maintaining and restoring the tree coverage at site level.

From the eastern City limit at Penetanguishene Road to the west at Mulcaster Street, the North Shore Trail biophysical condition and land use classification are continually changed from a forested area to a sparse tree covered urban zone.

In addition to the above, several invasive vegetative species were observed along the trail corridor. The species of concern include, but are not limited to: dog-strangling vine, garlic mustard, wild chervil, phragmites, black locusts etc. In addition, while sumac is a native species, it is typically considered overly aggressive and chokes out other native species, and therefore characterized as an invasive species for the purposes of this site.

## 3.3 Shoreline Erosion

Based on the increasing urbanization along the trail system as noted in **Section 3.2** there are several areas along the North Shore Trail which are experiencing moderate to severe erosion, with the vast majority of scouring along the southern side (shoreline side) of the trail, as shown in **Figure 4**.

The erosion is caused by overland sheet flow overtopping the trail during precipitation events which generally flows from the higher elevations from the north side of trail, over and along the trail itself and continuing down towards the Lake. The sheet flow eventually concentrates in various low lying flow collection points and erodes the southern bank on its path down to the Lake.

The City has addressed aeras of concern with the installation of armour stone or a wooden barrier complete with rip-rap at known ongoing erosion locations, however the erosion has continued along the trail with storm flows moving around the above noted mitigation measures, or finding new paths toward the Lake.

In addition, several of locations of erosion are further degraded due to the public use where the pathways are formed as access points to the Lake for various recreational activities, and in some locations has resulted in new pathways for sheet flow around the current erosion mitigation measures. These non-standard paths are commonly referred to as “cow paths”.

*Figure 4:Examples of Erosion along the southern side of the North Shore Trail*

The southern bank of the North Shore Trail is generally steep ranging from 3:1 slopes at the western portion near Heritage Park and increasing in steepness from 2:1 to less than 2:1 as the trail moves east. In practice, 2:1 side slopes are the maximum slope designed to and anything greater than 2:1 have

difficulty establishing vegetation and are generally not recommended for stability. In addition, a 2:1 slope may not conform to a stable slope analysis in relation to the lake and potential for wave uprush.

# 4 Management Plan Alternatives

## 4.1 Alternative #1 – Do Nothing

This option will result in maintaining the status quo of the trail at existing levels. This alternative will not include any upgrades and continue to use the existing trail maintenance program.

This alternative is not recommended as the current plan is proven to not be sustainable given the changes to the maturing native vegetation and spread of invasive vegetation since the original Vegetation Management Plan (2009) and in addition it does not address public comments/ concerns for the trail, based on the existing maintenance program.

## 4.2 Alternative #2- Site Specific Improvements Targeted Towards Future Vision

This alternative aims to develop additional management options for the trail which will address previous public comments / concerns and achieve a future vision for the trail. This could include increasing vegetation maintenance (i.e. increased urbanization) or reducing vegetation maintenance levels (i.e. further naturalization). Based on current concerns from City Staff and Council, and the general trend of increasing public consciousness of environmental concerns, a management plan that reduces vegetation removal and maintenance will inform recommended vegetation management levels.

This alternative will take into account current best practices for urban forest management in South Ontario, while updating the management plan to address current concerns. Given the scope and purpose of this project, this is the recommended option.

### 4.2.1 Alternative 2a- Phased Implementation

This option involves implementing the recommended trail upgrades in a phased approach, which for this project means improvements are spread out each year for all 20 years. This option attempts to balance the improvements in one area of the trail, and use other funds to maintain it going forward. This option has no upfront capital cost and uses the City maintenance budget to complete the upgrades. The downside to this option is that some funds to improve the trail need to be taken away from the maintenance aspect and as such, while savings will be realized due to the improvements, other maintenance areas of the trail may fall behind.

### 4.2.2 Alternative 2b- Aggressive Implementation

This option uses the scenario where all the recommendations previously listed are completed over three (3) years. This option requires fairly significant capital upfront in years 0, 1 and 2 in order to complete all the upgrades, however, due to the new nature of the trail. Over the remaining 18 years, the maintenance budget is expected to be reduced, especially in years 2-10 while the vegetation communities are establishing. In years 10-20, the maintenance will slowly increase as the vegetation matures and inevitably needs care.

This is the recommended approach method, as it addresses trail concerns over a shorter period, resulting in greater trail satisfaction by users and is expected to result in lower capital costs over the 20-year period of this plan (further discussed in **Section 8**). This is supported by the public survey conducted by the City

(see **Section 5.2**), where 81% of respondents answered that it should take less than five (5) years to complete any approved improvements.

# 5 Public Consultation

## 5.1 Public Information Centre

As part of this Plan Update, a Public Information Centre was conducted through a Virtual Public Open House, held on 18 May 2022. The Public open house provided a chance for interested residents in the neighbourhood of the North Shore Trail as well as the general public who use the trail to review the recommendations and provide feedback. The presentation slides are provided in **Appendix C**.

Comments were received regarding the following topics:

- Vegetation Management;
- Trail Maintenance;
- Erosion Issues;
- By-Law Concerns related to presence of tents;
- Ecological Concerns;
- Trail Usage; and
- Other Comments.

A number of comments received were outside the scope of this Plan Update, and will not addressed in this Report. Most of the comments revolve around Trail access issues. It will be the responsibility of the City to decide how or if to address these comments.

A Summary of the comments are provided in Appendix C.

## 5.2 Public Survey

In addition to the PIC, a public survey was posted on the City of Barrie's Building Barrie website, from 07 May 2022 to 05 June 2022. The purpose of the survey was to assess how residents are using the trail, and determine maintenance priorities of the trail users. A total of 74 people completed the North Shore Trail Vegetation Management Plan survey, while 194 people completed the Quick Poll on how they prefer to use the North Shore Trail. A detailed report on the survey responses is provided in **Appendix C**.

Most relevant to this plan were questions regarding satisfaction of trail maintenance over the last two (2) and ten (10) years, and ranking of maintenance priorities along the trail. Answers to these questions showed that 77% of respondents were somewhat or extremely satisfied with trail maintenance over the last 2 years, while only 59% of respondents were somewhat or extremely satisfied with trail maintenance over the last 10 years. This indicates that the City has been improving their practices over recent years since the implementation of the Vegetation Management Plan Review in 2011.

In regards to the ranking of maintenance items, nine (9) options were presented to survey respondents and they were asked to rank them from most to least important. Non-native species removal was determined to be the most important issue to respondents, followed by trail surface maintenance. Viewpoints and access points to the water were determined to be the least important items. Based on the survey response, opinions on the relevance of each maintenance item were split, as every item was given an average ranking between 4.27 and 5.49 (with a minimum of 1 and maximum of 9 possible).

Where possible, public comments from the PIC and survey were incorporated into the final Vegetation Management Plan.

# 6 Recommended Vegetation Management Plan

## 6.1 Management Plan Strategies

The following strategies are key to building urban forest resilience to respond to changing climate and urbanization in future:

1) Incorporate structural, functional, and genetic diversity into the North Shore Trail Forest system to build resilience in the face of climate change.
2) Develop partnerships with public and private landowners to create opportunities for urban forest programs on lands in or adjacent to the North Shore Trail boundary to respond to urbanization.
3) Provide proactive tree protection and restoration framework for tree maintenance and replacement standard to avoid urban forest coverage loss.
4) Establish specific and site-targeted measures for the different situations.

### 6.1.1 Maintenance Considerations

Many municipalities in south Ontario undertake some level of urban forest management. This can range from basic removal and replacement of street trees to more comprehensive establishment, maintenance, and risk management programs for urban forest. Through studying the best practices related to other municipal urban forests about administrative processes, site assessment, tree selection and establishment, tree maintenance and monitoring, some fundamental tools are summarized to address these challenges are to optimize urban forest resilience by:

**(1) Administrative Processes**

- Have staff members with ISA Certified or equivalent, participate in urban forest management;
- Consider budget on tree maintenance, establishment and on requested-based tree removal; and,
- Integrated tree management programs should be developed and implemented with local agency and municipal partners, and residents.

**(2) Site assessment**

A thorough site assessment should be undertaken by a knowledgeable professional before planning or planting any trees or shrubs, such as Physiography, topography, soil texture, soil structure, soil chemistry, drainage and water availability, light and microclimate are all important physical site conditions that can affect plant growth and establishment, and should be considered.

**(3) Tree planting selection and tree establishment**

- Species selection should be undertaken in conjunction with site assessment data. Consider woody species from the list of potentially suitable species for the City of Barrie, which should prioritize eco-physiological factors over practical, service-based and aesthetic or cultural considerations.
- Deciduous and coniferous trees should be planted in early spring or fall;
- Avoid all woody species considered potentially invasive within the site;
- New planted trees should be spaced 6 to 10 m on center;

- Establish standard installation detail for new tree installation on site; and,
- Engage with local conservation authorities as well as other local partners (community groups, Nurseries etc.) to explore opportunities for both testing and providing potentially suitable woody stock of a wider range of species from an increased number of provenances.

**(4) Tree Maintenance and Monitoring**

- Trees are pruned for a variety of reasons including managing risk, improving tree health and/or form, developing tree structure, providing clearance, and improving aesthetics.
- In general, no more than 25% of live growth should be removed at one time for new tree pruning. It is a good practice to reduce multiple leaders to allow dominance of one main upright leader to prevent crown breakage
- No more than 10% live growth should be removed from mature trees at one time unless required to correct severe defects for mature tree pruning.
- Municipalities should develop prescriptions or specifications for tree pruning based on the ANSI 300 standards and ISA Best Management Practices
- Manual controls are best undertaken in mid to late fall and caution should be taken when mowing or trimming not to damage the tree/shrub being protected
- Having a tree risk management plan or policy.
- Develop and maintain a comprehensive and current inventory of trees within the North Shore Trail corridor.
- Collect data in formats and using methods that are well-documented and can be readily compared with previous data, even if the newer methods are more accurate or otherwise improved.

## 6.2 Vegetation Management Categories

According to the site analysis above, the North Shore Trail is categorized into one of three maintenance situations as described below and illustrated within **Appendix D**.

1) High Urbanized Area Zone A (Including Category 1 & 2)

From Sam Cancilla Park to the west edge of Kempenfelt Park, where the trail with sparse tree coverage is pressured by urban development and private properties. Proposed maintenance includes:

- General maintenance of the trail corridor, including the removal of all trees, branches and/or shrubs within 1 metre horizontally and minimum 3.5 metres vertically from the trail surface;
- Modified pruning and thinning width of an additional 2 metres along the trail where all small shrubs are removed or pruned to a height of less than 60 cm and trees pruned to a height of 2.5 metres for under canopy visibility;
- Full removal of all non-natives, invasive vegetation;
- Removal of dead, diseased or hazardous trees from the vicinity of the trail;
- Creating a tree-lined promenade with the newly planted trees with 8- 10m spacing on the north side as the vegetation buffer. The trees selection is based on eco-physiological factors, practical, service-based, and aesthetic or cultural considerations;
- Implement tree compensation for any tree to be removed at a replacement ratio 3:1 or to be determined by establishing Term of Reference for Tree Preservation;

- Dense planting of low-growing shrubs or installation of managed turf;
- Turf to be managed as a major waterfront park as defined in Management Category 1, of the Pesticide Use Policy;
- Maintenance of the trail and existing viewpoints as identified within the North Shore Trail Master Plan (Final Concept: Multi-Use Trail, May 2002) and the following Vegetation Management Categories.

*Figure 5: Site Photos - From Sam Cancilla Park to west edge of Kempenfelt Park*

2) Transition Area Zone B (Including Category 1, 2 &3)

From Kempenfelt Park to Vancouver Street, where the trail is along Kempenfelt Drive separated with public park or landscape strips covered by sumac thicket and some pioneer species (poplars, birches, and willows). Proposed Maintenance includes:

- General maintenance of the trail corridor, including the removal of all trees, branches and/or shrubs within 1 metre horizontally and minimum 2.5 metres vertically from the trail surface.
- Removal of all non-natives, invasive vegetation;
- Removal of dead, diseased or hazardous trees from the vicinity of the trail;
- Adding and planting trees with a diversity of species with a recommended species list for forest restoration where required; The trees to be selected based on eco-physiological factors, practical, service-based, and aesthetic or cultural considerations;
- Pruning, thinning or removal of small shrubs only to create, maintain or enhance views in a variety of options; filtered views, maintained openings and/or natural views.

*Figure 6: Site Photos - From Kempenfelt Park to Vancouver Street*

3) Forested Area Zone C (Mainly Category 4)

From Vancouver Street to Penetanguishene Road, where the area with low human-influenced landscape with dense Scotch Pine, White Cedar or Oak deciduous forest. Proposed maintenance Includes:

- Removal of dead, diseased or hazardous trees from the vicinity of the trail;
- Reducing vegetation maintenance and keep the state of nature undisturbed;
- Prohibiting any unnecessary tree removals;
- Pruning of trees and shrubs to provide minimum clearances from the trail surface for safe passage;
- Removal of non-native/ invasive vegetation.

*Figure 7: Site Photos – From Vancouver Street to Penetanguishene Road*

## 6.3 Viewpoint Management Options

It is recommended to continue to maintain all major lookouts identified in **Appendix A.** No further lookouts are suggested, to prevent urbanization of the trail.

Existing maintained viewpoints, such as maintained openings and natural views, are recommended to continue to be maintained along the south side of the trail. There are several locations, in particular at Kempenfelt Park, where vegetation is cut back annually to maintain views from the North side of the trail to the Lake. Previous efforts to allow growth to continue for 2-3 years, at which point the trees will have grown enough that canopy growth is above viewing height, have been unsuccessful to due residents cutting down growth before it is above viewing height. Instead, it is recommended to plant low-lying and dense growing native shrubs, with trees at wider intervals. As existing vegetation dies off, the newly planted shrubs and trees will provide views to the Lake, while protecting the shore from erosion. Pruning/ removal of low-lying branches can be completed to maintain views. In order for this to be effective, it will be critical that trimming or pruning of vegetation by anyone other than the City be curbed, as it has been proven to be detrimental to vegetation health.

In addition, as detailed in **Section 7**, further access to the shore is suggested through the development of access points at current erosion concern points.

# 7 Erosion Mitigation

As noted in **Section 3.3,** based on visual inspection of the trail, it is presumed the erosion is the result of stormwater flowing over the trail at low points and eroding the southern bank of the trail system. In order to reduce the erosion on the south bank of the trail, the stormwater needs to be reduced from overtopping the trail and/or directed to specified reinforced locations as well as improve the southern trail bank.

In order to help mitigate the erosion on the trail, the following recommendations are provided:

1. Construct a defined vegetated ditch system on the north side of the trail for collection to a specific discharge (low) point;
2. Install conveyance pipes (e.g. culvert) to convey collected stormwater under the trail and daylight on the south side with appropriate outfall protections i.e. 150mm dia. rip-rap;
3. Identify low areas of the trail for major overflow routes and enhance the southern slope with flow spreaders, rip rap, and/or reinforced vegetation as required;
4. Restore the southern bank of trail in select locations complete with Erosion Control Blankets (24-48 Month bio-degradable) and native vegetation; and,
5. Provide natural steps / pathways from trail down to lake to reduce foot traffic / trampled vegetation causing erosion. *Based on the side slopes of the southern bank, a pathway with stairs to meet code and landings may be difficult and expensive. This should be further investigated at a detailed design stage.

The above noted mitigation measures will require some preliminary and detailed design in order to implement. The ditch conveyance capacity should at minimum target the 2-year storm event and if grades allow, the 5-year storm event. Targeting the 2–5-year storm events will allow the trail to capture over 90% of the precipitation events in any given year. All larger precipitation events will likely have an associated volume too large for a ditch system of this nature where space and cost become barriers. In

order to mitigate erosion, low points in the trail need to be identified where major spill over is likely to occur and direct the sheet flow to a location purposefully constructed to receive the water such as level spreader to a reinforced vegetated bank or rip-rap bank.

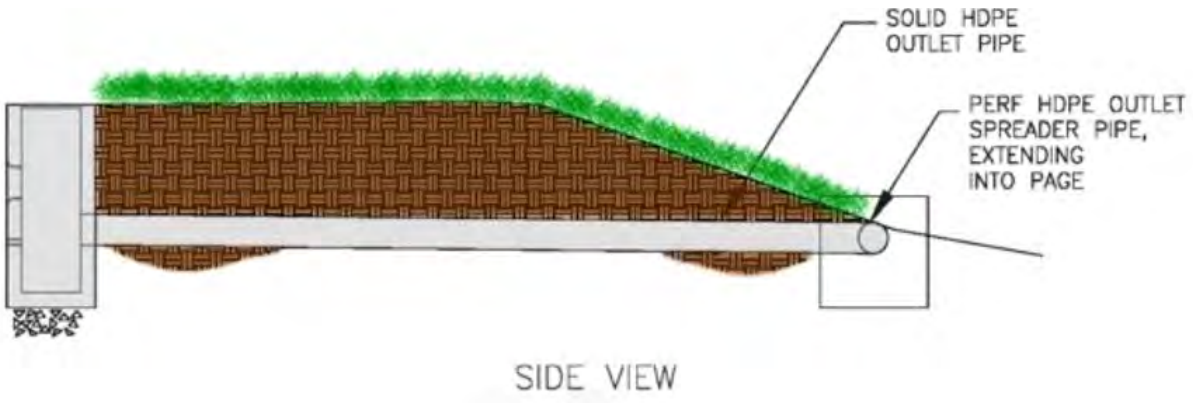



*Figure 8- Example Stormwater Drainage Underground complete with Pipe Flow Spreader*

# 8 Financial

Based on reports from the City and as supported by the capital budget, the ongoing maintenance per year is approximately $50,000 / year in 2021. As the maintenance of the trail gets more difficult, the budget is expected to continually increase each season. Projecting this yearly maintenance cost over a 20-year time frame using a 3% inflation rate and 3.5% discount rate provides a Net Present Value of $915K in 2022 dollars. This means to leave the trail and continue to maintain it over the next 20 years will cost the City approximately $915K using the above noted rates.

There are two (2) ways to implement the recommendations provided herein.

1. Alternative 2a: Continue to use the City maintenance budget of $50,000/year and allocate a portion of this budget (60%) to recommended improvements each year from 1-20, and retain 40% for required maintenance activities. Or;
2. Alternative 2b: Complete all the recommended upgrades in years 1-5 at a higher capital cost and reduce the City maintenance budget for the North Shore Trail from years 6-20 (using the reduced funds in years 6-20 to pay for the capital costs in years 1-5).

Under Alternative 2a of the implementation plan, it would be suggested to follow a phased approach and install the recommended upgrades in small sections, i.e. install some ditching (100m) complete with one (1) culvert and plant new trees / stabilization in a pre-determined section each year where needed most.

Under Alternative 2a of the implementation plan, the City would undertake all the recommendations to the trail at one time in years 1-5 with higher capital costs, however it is expected that the improvements will significantly reduce the ongoing maintenance budget and can result in a net savings. This option can be difficult to implement as the higher capital costs will require approval from council and update to the City Capital Costs.

A summary of proposed costs for each alternative identified, is presented below in **Table 8-1**. A breakdown of the Net Present Value over a 20-year time horizon is available in **Appendix E.**

*Table 8-1 Summary of Proposed Costs*

| | **Alternative 1- Do Nothing** | **Alternative 2a – Phased Approach** | **Alternative 2b – Aggressive Approach** |
|---|---|---|---|
| **Initial Cost (Years 1-5)** | $290,000 | $287,000 | $678,000 |
| **Total Cost (Years 1-20)** | $915,000 | $928,000 | $893,000 |

# 9 Policy Recommendations

The North Shore Trail's current land designation of Open Space leaves the protection and maintenance of the trail open to general guidelines with the potential to result in unintended consequences and uses within the Trail corridor. Referencing The City of Barrie's Official Plan, Section 4.7.2.1, the Definition of Environmental Protection ('EP') Area may lend a more suitable land use designation to the trail corridor ensuring the natural heritage character of the trail is retained, promoted and flourishes well into the future while limiting potentially consequential changes to the trail from actives and uses currently allowed within the current Policy Designation.

Barrie's definition for EP Land Uses includes *"Natural hazard lands and sites including areas of flood plain, erosion, steep slopes and unstable soils." (4.7.2.1c.)* This could include, at the minimum, the southern side of the trail adjacent to the water shoreline thus limiting further encroachment of existing uses while promoting the area's natural heritage character to remain and be enhanced.

The Lake Simcoe Region Conservation Authority Policy, Section 6.2, supports this Policy Initiative by not permitting shoreline alterations, which would form part of consistent overall Policy provisions to ensure the protection of the entire trail corridor. It should be noted that The North Shore Trail Corridor is within the Lake Simcoe Region Conservation Authority's current *Regulated Area* and as such prohibits the removal, alteration or disturbance of the trail, wildlife, or vegetation.

Barrie's *Intensification Area Urban Design Guidelines* also outline in *Section 3.1.1 Natural Heritage Features "Environmental Protection Areas in the Intensification Areas must be preserved. To protect natural vegetation, ecological functions and the cultural landscape, all other natural heritage features should be preserved where possible."* These existing policies together with further legislative provisions would contribute to protection of this important natural heritage feature in Barrie's Downtown.

It is our recommendation that Council consider redesignating the North Shore Trail Corridor within Barrie's Official Plan to better reflect the guiding principles contained within the Documents. Barrie's current Zoning provisions for the North Shore Trail Corridor are in compliance with existing legislation policy and will therefore not require any policy changes other than to amend the Land Use Category from an *Open Space Zone* to *Environmental Protection Zone*.

# 10 Closure

It is recommended that Council accept the proposed update to the Vegetation Management Plan and erosion mitigation strategies, as described in this report. The proposed management plan will promote a healthy and diverse vegetative community and address safety concerns while continuing to provide satisfaction to general public.

The proposed Vegetation Management Plan does not suggest significant changes to the current maintenance categories; however, provides further guidance and recommendation on what types of maintenance are desirable in each category, as well as provide recommendations for replacement of removed vegetation.

In addition, Council should consider directing Planning Staff to review Barrie's current Official Plan and Zoning By-Law in an effort to adapting current policies to and overall approach that will retain the integrity of the important natural heritage feature while aligning with Lake Simcoe Region Conservation Authority Policies and Regulations. This will provide the City with a stronger position against development adjacent to the trail as well as deter local persons from continuing to alter the vegetation themselves.

Overall, City Staff are managing this natural resource well given the current Policy Provisions. It is recommended in the context of developing a comprehensive restoration and enhancement strategy, the City consider a number of initiatives.

Firstly, that Council considers the inclusion of annual budget provisions specifically earmarked for naturalization plantings for the North Shore Trail Corridor.

Secondly, and concurrently with the above, consider engaging with the local community, community organizations, Stakeholders and City Supporters to actively participate in establishing a long-term funding facility to finance current and future goals and objectives of the City for the North Shore Trail Corridor.

Thirdly, develop opportunities to engage the Community to educate, inform and participate to create a generational legacy for this vital City asset.

*Respectfully Submitted,*

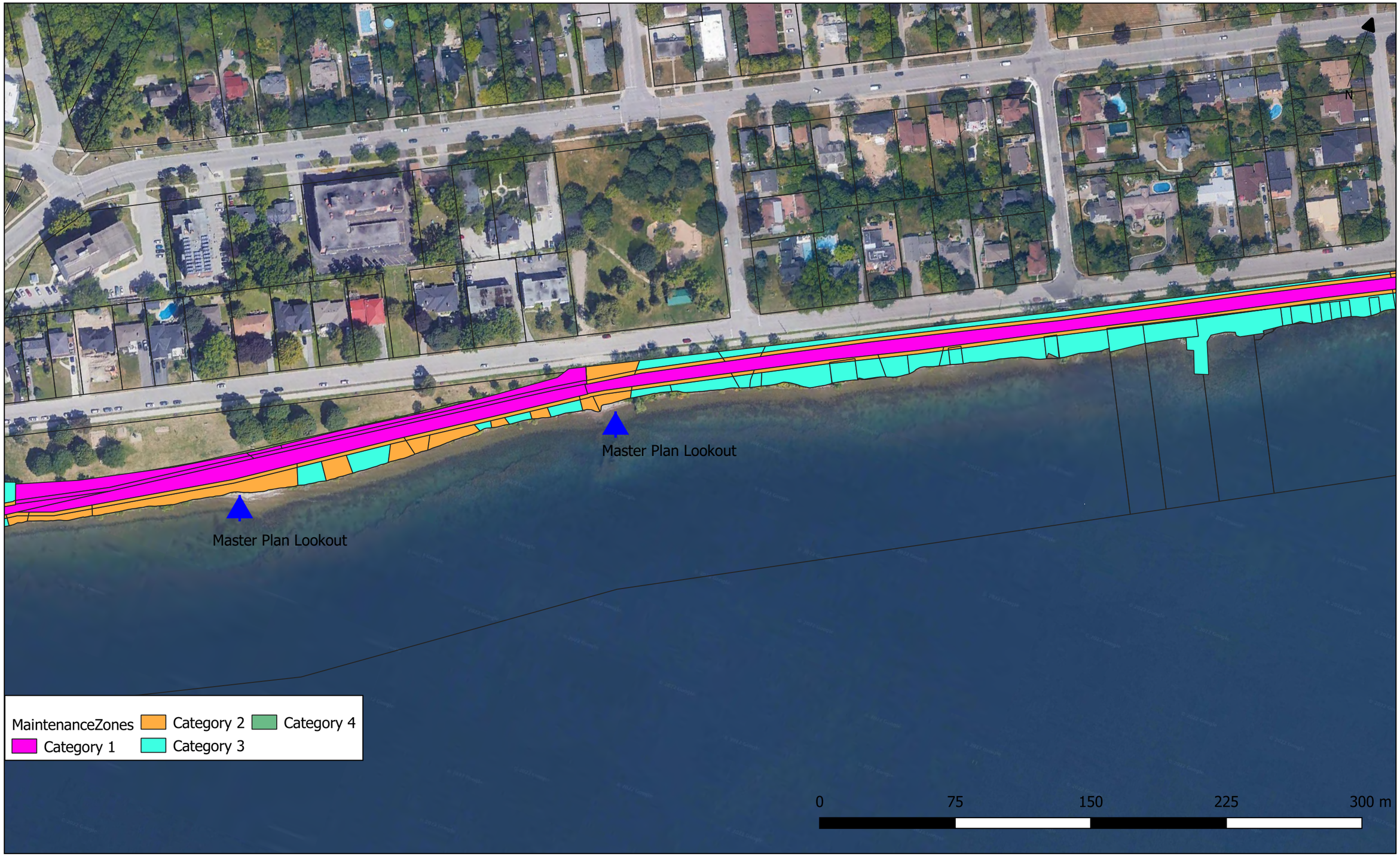
***GREENLAND INTERNATIONAL CONSULTING LTD. & POPOVICH AND ASSOCIATES***

# Appendix A

Current Maintenance Level

GREENLAND®
Group of Companies

N
MaintenanceZones
Category 1
Category 2
Category 3
Category 4
0
75
150
225
300 m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Master Plan Lookout
Master Plan Lookout
MaintenanceZones
Category 1
Category 2
Category 3
Category 4
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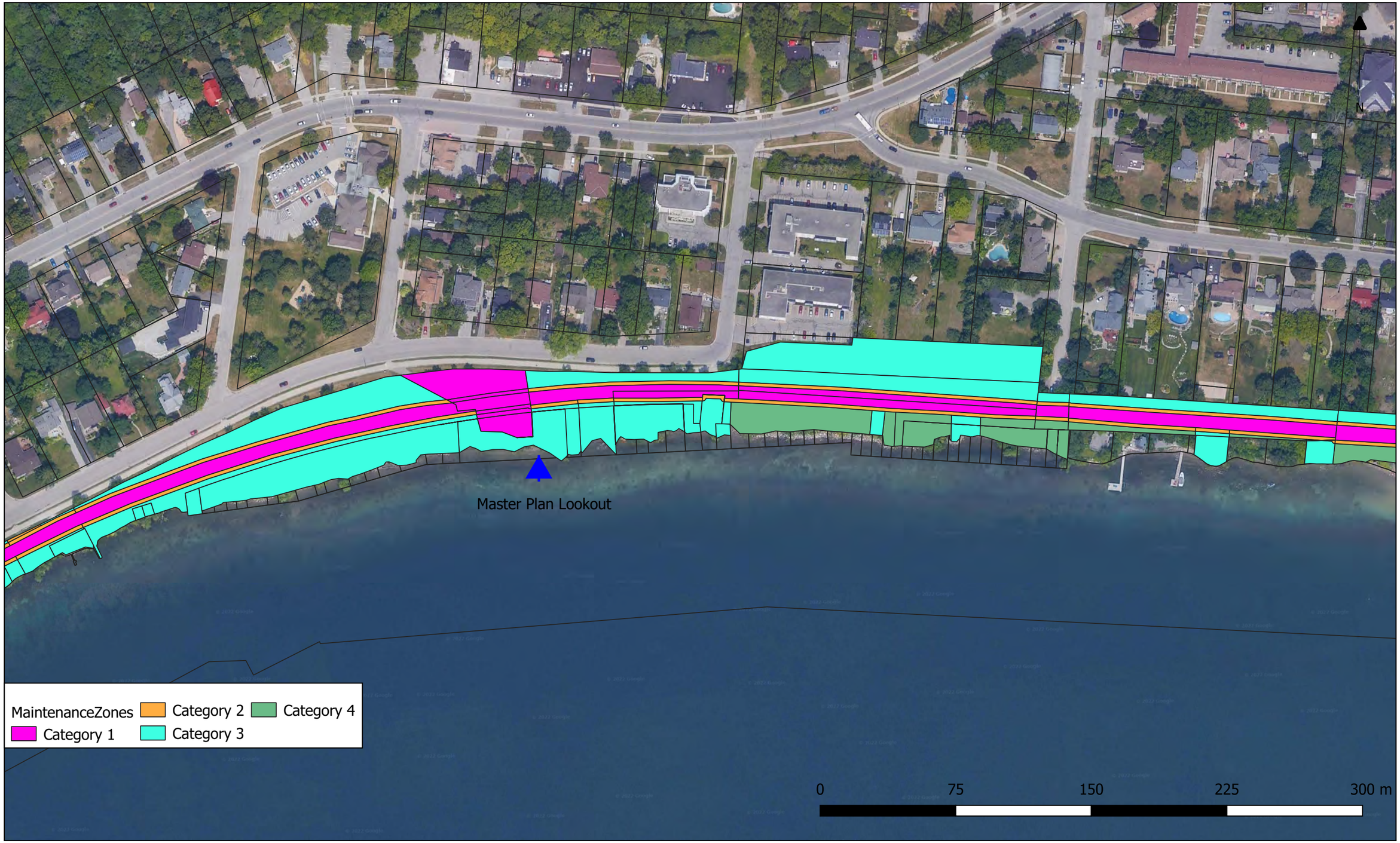
N
Master Plan Lookout
MaintenanceZones
Category 1
Category 2
Category 3
Category 4
0
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300 m

N
MaintenanceZones
Category 1
Category 2
Category 3
Category 4
0
75
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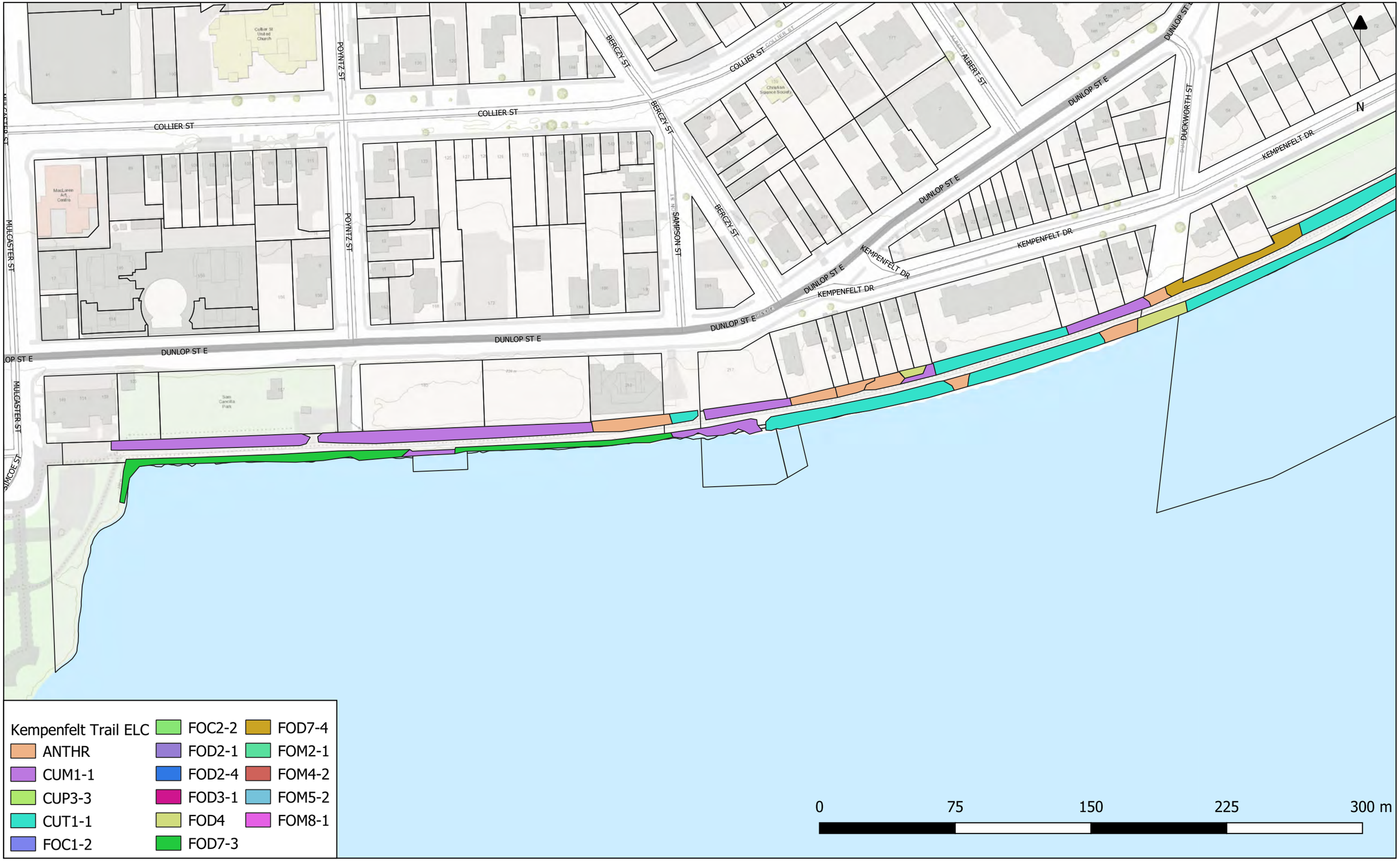
300 m

# Appendix B

Ecological Land Classification Mapping

Ecological Land Classification Units – North Shore Trail

| CODE | ELC Community Unit |
|---|---|
| ANTHR | Anthropogenic (Human-Influenced Landscapes) * No ELC code available |
| CUM1-1 | Dry-Moist Old Field Meadow Type |
| CUP3-3 | Scotch Pine Coniferous Plantation Type |
| CUT1-1 | Sumac Cultural Thicket Type |
| FOC1-2 | Dry-Fresh White Pine - Red Pine Coniferous Forest Type |
| FOC2-2 | Dry-Fresh White Cedar Forest Type |
| FOD2-1 | Dry-Fresh Oak - Red Maple Deciduous Forest |
| FOD2-4 | Dry-Fresh Oak - Hardwood Deciduous Forest Type |
| FOD3-1 | Dry-Fresh Poplar Deciduous Forest Type |
| FOD4 | Dry-Fresh Deciduous Forest Ecosite |
| FOD7-3 | Fresh-Moist Willow Lowland Deciduous Forest Type |
| FOD7-4 | Fresh-Moist Black Walnut Lowland Deciduous Forest Type |
| FOM2-1 | Dry-Fresh White Pine - Oak Mixed Forest Type |
| FOM4-2 | Dry-Fresh White Cedar - Poplar Forest Type |
| FOM5-2 | Dry-Fresh Poplar Mixed Forest Type |
| FOM8-1 | Fresh-Moist Poplar Mixed Forest Type |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POYNTZ ST
BERCZY ST
SAMPSON ST
ALBERT ST
DUNLOP ST E
DUCKWORTH ST
KEMPENFELT DR
MULCASTER ST
SIMCOE ST
N
Kempenfelt Trail ELC
ANTHR
CUM1-1
CUP3-3
CUT1-1
FOC1-2
FOC2-2
FOD2-1
FOD2-4
FOD3-1
FOD4
FOD7-3
FOD7-4
FOM2-1
FOM4-2
FOM5-2
FOM8-1
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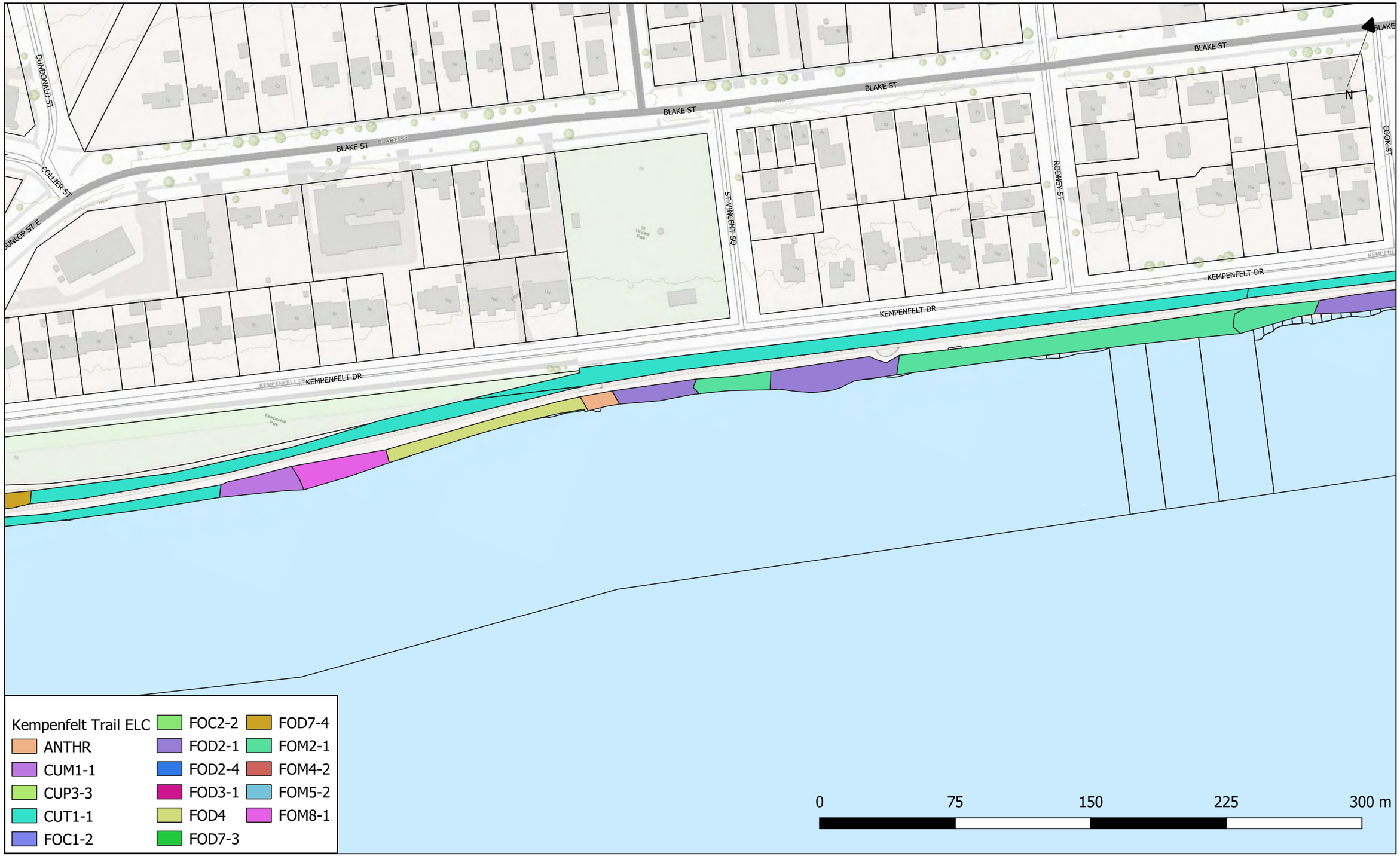
BLAKE ST
DUNDONALD ST
COLLIER ST
DUNLOP ST E
ST VINCENT SQ
RODNEY ST
COOK ST
KEMPENFELT DR
N
Kempenfelt Trail ELC
ANTHR
CUM1-1
CUP3-3
CUT1-1
FOC1-2
FOC2-2
FOD2-1
FOD2-4
FOD3-1
FOD4
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FOM5-2
FOM8-1
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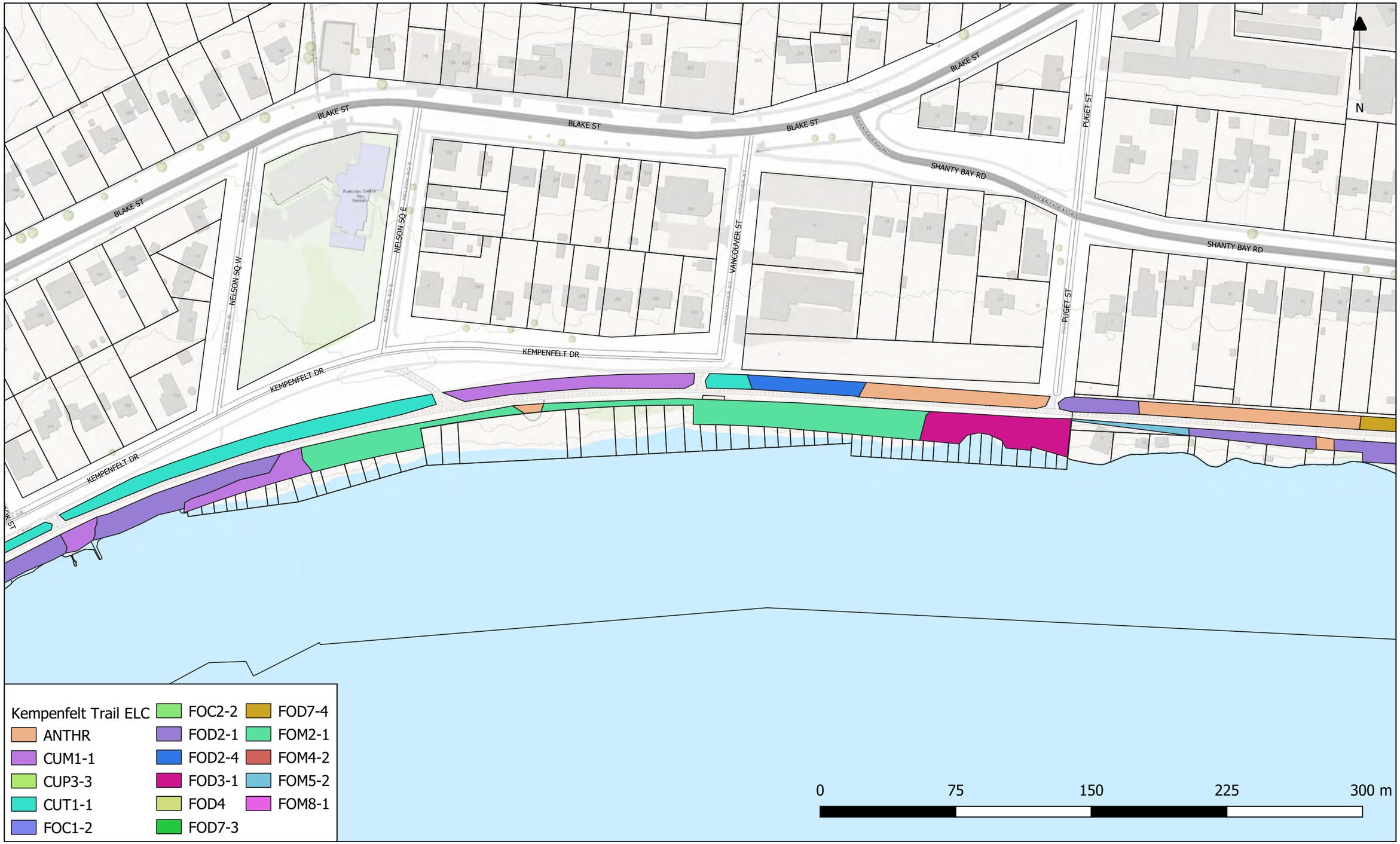
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BLAKE ST
BLAKE ST
BLAKE ST
BLAKE ST
NELSON SQ W
NELSON SQ E
VANCOUVER ST
SHANTY BAY RD
SHANTY BAY RD
SHANTY BAY RD
PUGET ST
PUGET ST
KEMPENFELT DR
KEMPENFELT DR
KEMPENFELT DR
N
Kempenfelt Trail ELC
ANTHR
CUM1-1
CUP3-3
CUT1-1
FOC1-2
FOC2-2
FOD2-1
FOD2-4
FOD3-1
FOD4
FOD7-3
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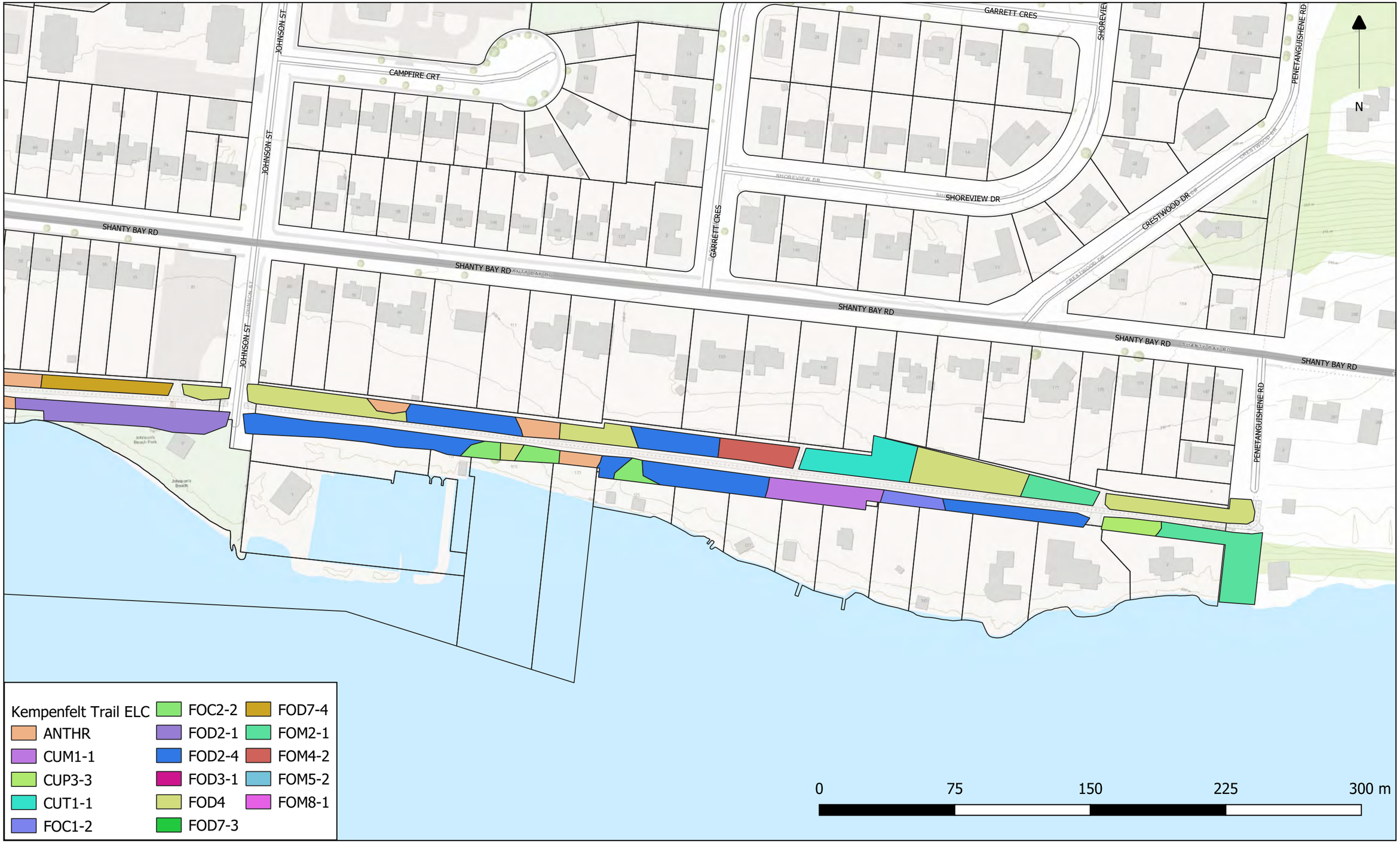
JOHNSON ST
CAMPFIRE CRT
GARRETT CRES
SHOREVIEW DR
CRESTWOOD DR
PENETANGUISHENE RD
SHANTY BAY RD
N
Kempenfelt Trail ELC
ANTHR
CUM1-1
CUP3-3
CUT1-1
FOC1-2
FOC2-2
FOD2-1
FOD2-4
FOD3-1
FOD4
FOD7-3
FOD7-4
FOM2-1
FOM4-2
FOM5-2
FOM8-1
0
75
150
225
300 m

# Appendix C

Public Consultation

GREENLAND®
Group of Companies

# Appendix C-1

Public Information Centre

GREENLAND®
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# North Shore Trail Vegetation Management Plan Update

Public Information Centre

May 18 2022

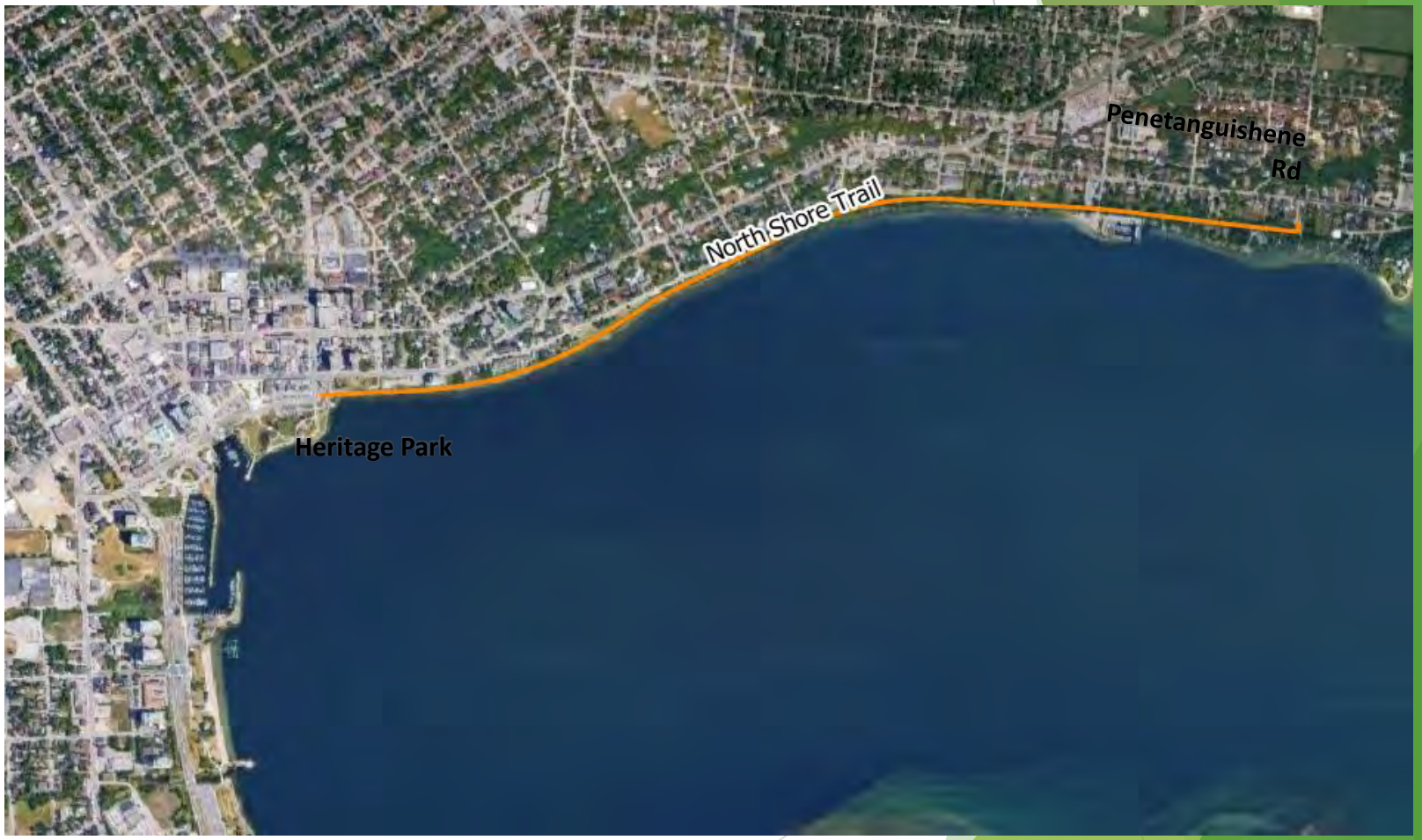
GREENLAND® international consulting ltd.

POPOVICH

Barrie

# Study Area

- 3 km limestone path along the north shore of Kempenfelt Bay in the east area of Barrie
- From Heritage Park to Penetanguishene Road
- Traverses through urban environments and natural features while acting as a buffer between Lake Simcoe and the City



# Background of the North Shore Trail

- Constructed in 2002
- In early 2007 “Phase 1” for vegetation management was completed as part of a ‘Pilot Project’
- An updated Vegetation Management Plan was approved in 2009, now including “Phase 2 & 3” encompassing the entire length of the trail
- The 2009 Plan established guiding principles for maintenance activities
- An update was completed in 2011 to help Staff prioritize maintenance requirements and incorporate public feedback
- The update included a modified pruning width & highlighted many areas for the planting for native shrubs, perennials and wildflowers
- As vegetation matured and invasive species established a foothold, yearly maintenance activities have become more expensive and increasingly difficult to continue
- No update to the proposed maintenance activities has been completed since the 2011 update

# Study Purpose

- The Plan Update will establish standards for the maintenance of the trail and the trail experience for all Barrie residents, and establish methods to reduce erosion and protect the shoreline in the future
- This involves the following goals:
  - Provide recommendations to reduce on-going maintenance costs
  - Improve the health and diversity of the existing vegetative community
  - Control invasive species
  - Provide recommendations for the planting of new trees and shrubs to promote the return of natural vegetation communities & support bird and pollinator habitats
  - Provide recommendations for methods to reduce erosion and protect the shoreline in the future

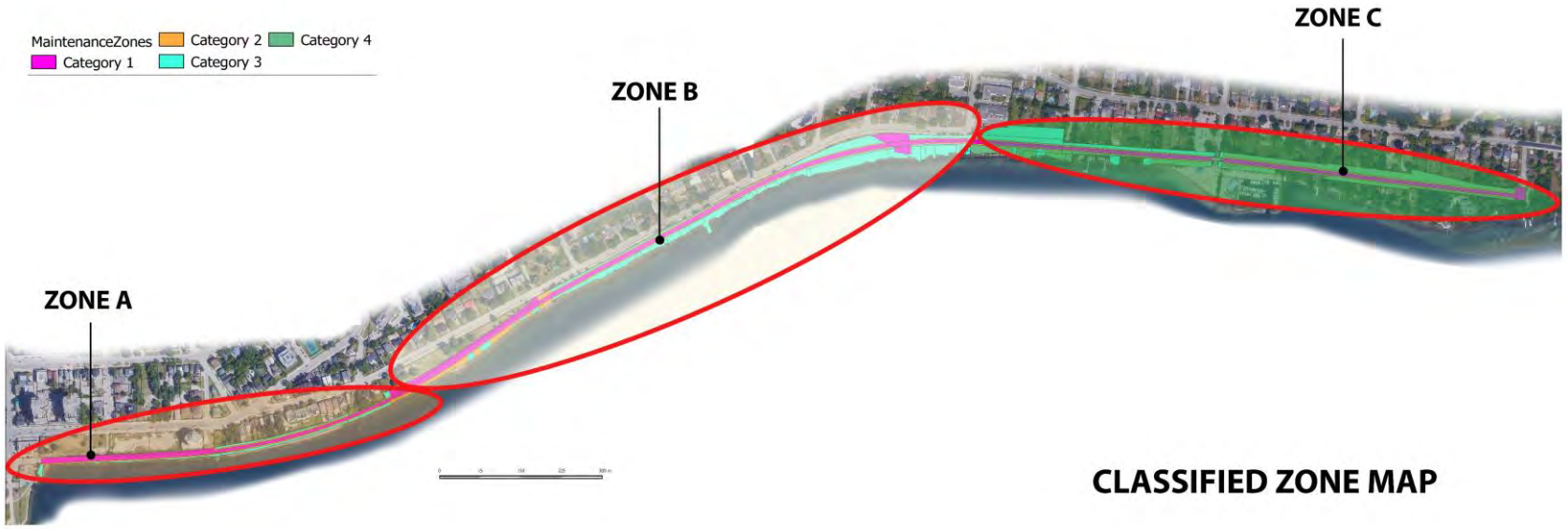
# Mission Statement

Enhance the North Shore Trail through the development of an updated Vegetation Management Plan, including policy recommendations, thereby increasing general trail satisfaction, addressing public feedback, and protecting and improving the health and diversity of the existing native vegetative community.

# Existing Maintenance Program

# Vegetation Inventory

- Vegetation and Maintenance can be split into 3 Zones:
  - A: Highly Urbanized, sparse tree coverage
  - B: Transition Zone, Public park or landscape strips covered by sumac thicket and groups of pioneer species (poplars, birch, willows)
  - C: Forested Area, low human influence with dense scotch pine, white cedar or Oak deciduous forest



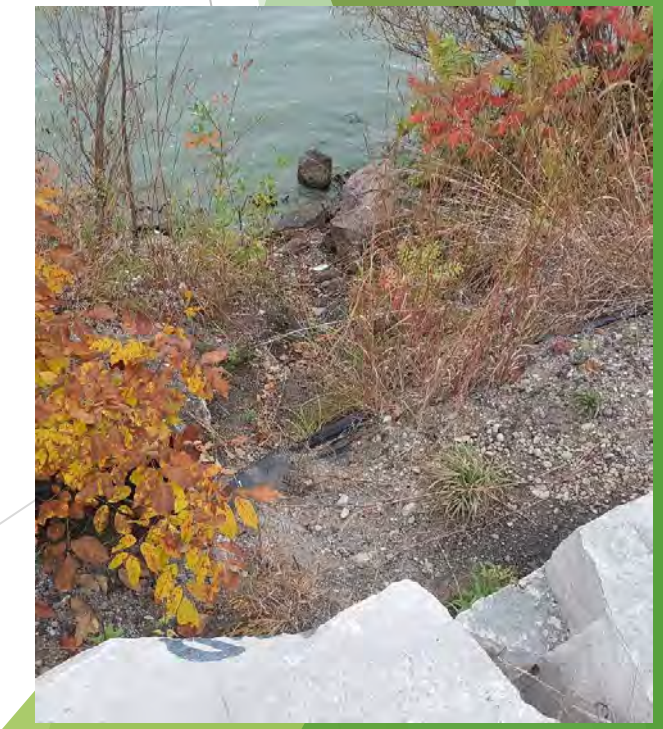

| | Zone A | Zone B | Zone C |
|---|---|---|---|
| Primary ELC | Dry-Moist Old Field Meadow | Sumac Cultural Thicket | Dry-Fresh Oak-Hardwood Deciduous Forest |
| Secondary ELC | Sumac Cultural Thicket | Dry-Fresh White Pine-Oak Mixed Forest | Dry-Fresh Deciduous Forest Ecosite |
| Tertiary ELC | Anthropogenic | Dry-Fresh Oak-Red Maple Deciduous Forest | Dry-Fresh Poplar Mixed Forest |

Invasive Species of Concern:

- Dog Strangling Vine
- Garlic Mustard
- Phragmites
- Black Locusts
- Sumac

# Shoreline Erosion

- Several Areas experiencing moderate to severe erosion
- Caused by overland sheet flow overtopping the trail during precipitation events
  - Flow concentrates in low lying areas and erodes southern bank on its path toward the Lake
- Areas of concern have been addressed with armour stone or a wooden barrier, but erosion has continued
- Several locations further degraded due to public use where pathways are formed
  - In some locations footpaths have created a new path for sheet flow around current mitigation measures



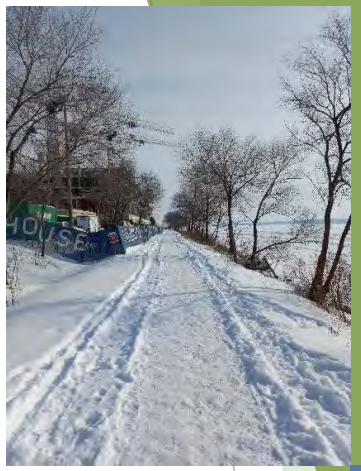
# Vegetation Management Alternatives

- Alternative #1: Do Nothing
  - Maintain Status Quo of the Trail
  - No upgrades, continue to use existing maintenance program
- Alternative #2: Site Specific Improvements Targeted Toward Future Vision
  - Development additional management options to address public comments/concerns & achieve a future vision for the trail
  - Reduce vegetation removal and maintenance to address concerns from Staff / Council and follow trend of increasing public consciousness of environmental concerns
  - Two options: a) Phased approach – complete improvements over 20 years, continue with yearly maintenance; b) Aggressive approach – complete improvements in 5 years, continue with reduced yearly maintenance

# Recommended Vegetation Management Plan - Alternative 2

- Adapt the following key strategies:
  1) Incorporate structural, functional, and genetic diversity into the North Shore Trail Forest system to build resilience in the face of climate change.
  2) Develop partnerships with public and private landowners to create opportunities for urban forest programs on lands in or adjacent to the North Shore Trail boundary to respond to urbanization.
  3) Provide proactive tree protection and restoration framework for tree maintenance and replacement standard to avoid urban forest coverage loss.
  4) Establish specific and site-targeted measures for the different situations.

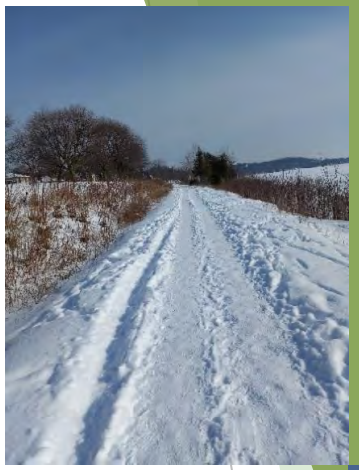
# Maintenance Categories

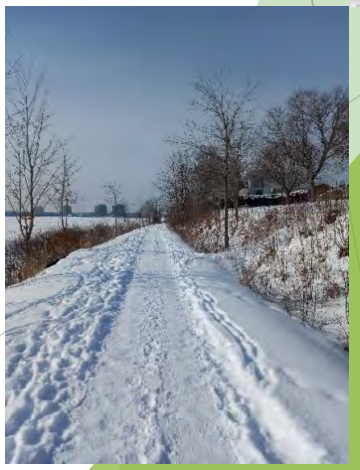


- Urban Zone A: Sam Cancilla Park to West Kempenfelt Park (Maintenance Categories 1 & 2)
  - General maintenance of the trail corridor, including the removal of all trees, branches and/or shrubs within 1 metre horizontally and minimum 3.5 metres vertically from the trail surface;
  - Modified pruning and thinning width of an additional 2 metres along the trail where all small shrubs are removed or pruned to a height of less than 60 cm and trees pruned to a height of 2.5 metres for under canopy visibility;
  - Full removal of all non-natives, invasive vegetation;
  - Removal of dead, diseased or hazardous trees from the vicinity of the trail;
  - Creating a tree-lined promenade with the newly planted trees with 8- 10m spacing on the north side as the vegetation buffer. The trees selection is based on eco-physiological factors, practical, service-based, and aesthetic or cultural considerations;
  - Implement tree compensation for any tree to be removed at a replacement ratio 3:1 or to be determined by establishing Term of Reference for Tree Preservation;
  - Dense planting of low-growing shrubs or installation of managed turf

# Maintenance Categories

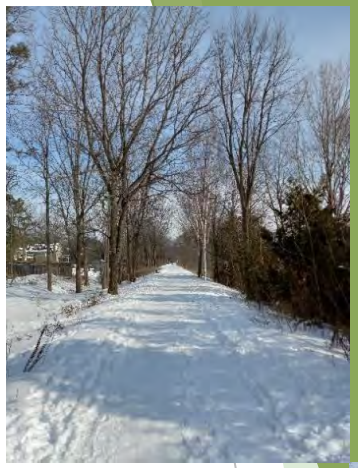
- Transition Zone B: West Kempenfelt Park to Vancouver Street (Maintenance Categories 1,2 & 3)
  - General maintenance of the trail corridor, including the removal of all trees, branches and/or shrubs within 1 metre horizontally and minimum 2.5 metres vertically from the trail surface.
  - Removal of all non-natives, invasive vegetation;
  - Removal of dead, diseased or hazardous trees from the vicinity of the trail;
  - Adding and planting trees with a diversity of species with a recommended species list for forest restoration where required; The trees to be selected based on eco-physiological factors, practical, service-based, and aesthetic or cultural considerations;
  - Pruning, thinning or removal of small shrubs only to create, maintain or enhance views in a variety of options; filtered views, maintained openings and/or natural views





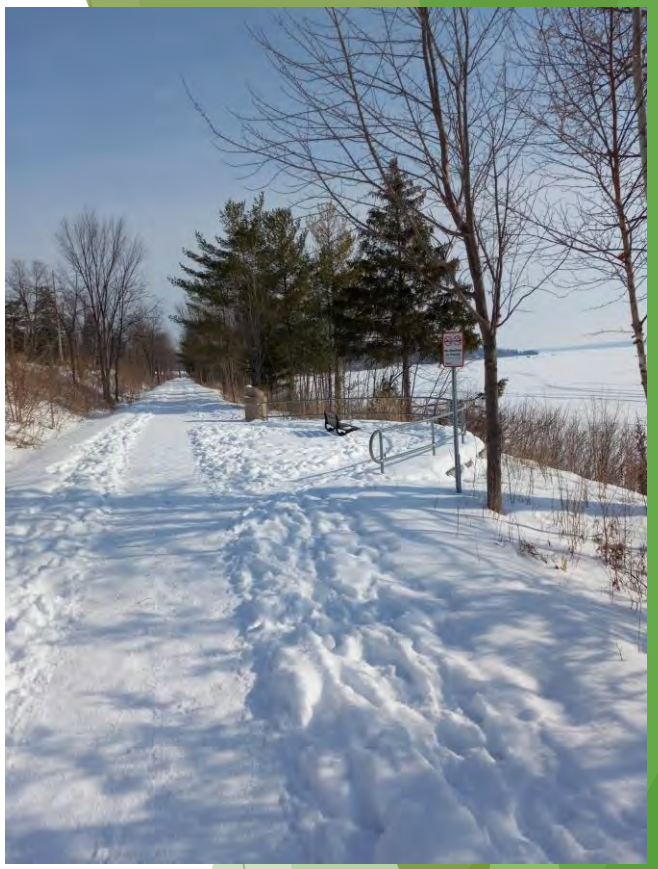
# Maintenance Categories

- Forested Zone C: Vancouver Street to Penetanguishene Rd (Primarily Maintenance Category 4)
  - Removal of dead, diseased or hazardous trees from the vicinity of the trail;
  - Reducing vegetation maintenance and keep the state of nature undisturbed;
  - Prohibiting any unnecessary tree removals;
  - Pruning of trees and shrubs to provide minimum clearances from the trail surface for safe passage;
  - Removal of non-native/ invasive vegetation

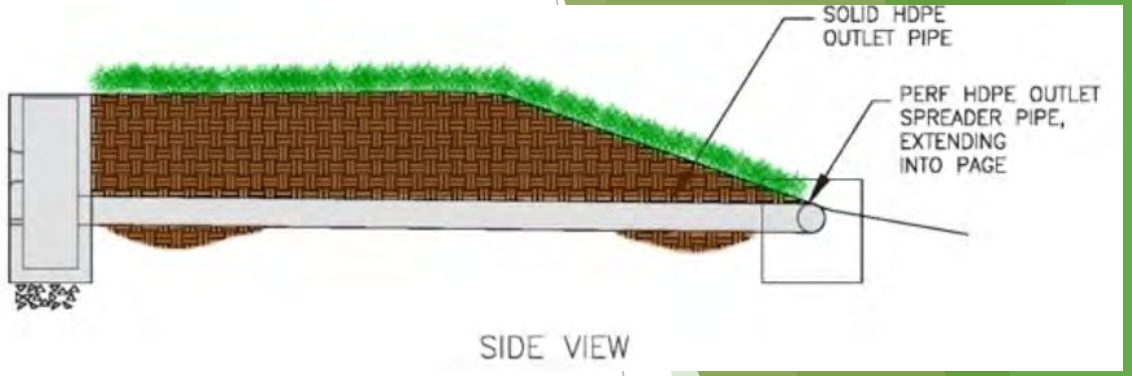


# View Point Management

- Continue to maintain all existing Major Viewpoints
- Development of further access points to the shore addressed through erosion mitigation
- No additional major viewpoints recommended



# Erosion Mitigation




- In order to reduce erosion, stormwater needs to be reduced from overtopping the trail / directed to specified reinforced locations
- Recommendations:
  - Construct a defined vegetated ditch system on the north side of the trail for collection to a specific discharge (low) point;
  - Install conveyance pipes (e.g. culvert) to convey collected stormwater under the trail and daylight on the south side with appropriate outfall protections i.e. 150mm dia. rip-rap;
  - Identify low areas of the trail for major overflow routes and enhance the southern slope with flow spreaders, rip rap, and/or reinforced vegetation as required;
  - Restore the southern bank of trail in select locations complete with Erosion Control Blankets (24-48 Month bio-degradable) and native vegetation; and,
  - Provide natural steps / pathways from trail down to lake to reduce foot traffic / trampled vegetation causing erosion *Based on the side slopes of the southern bank, a pathway with stairs to meet code and landings may be difficult and expensive.

# Financial Considerations

- On-going maintenance per year is $50k
- To continue to maintain the trail at existing levels will cost ~$915k over the next 20 years (2022 dollars)
- 2 Options to Implement Alternative 2:
  - A) Phased Approach – Allocate 60% of yearly budget to suggested improvements, retain 40% for maintenance activities
  - B) Aggressive Approach – Complete all recommended upgrades in years 1-5 at higher capital cost, reduce maintenance budget for years 6-20

| | Option 1- Do Nothing | Option 2A - Phased Approach | Option 2B - Aggressive Approach |
|---|---|---|---|
| Initial Cost (years 1-5) | $290K | $287K | $678K |
| Total Cost (years 1-20) | $915K | $928K | $893K |

# Policy Recommendations

- Current Open Space land designation leaves protection and maintenance of trail open to general guidelines
- Environmental Protection may lend a more suitable land use designation to the trail
  - At minimum, changing the designation of the south side of the trail will limit encroachment of existing uses & promote natural heritage character of the area
  - Supported by Lake Simcoe Region Conservation Authority Policy
    - Trail corridor is within the LSRCA Regulated Area, which prohibits removal, alteration or disturbance of the trail, wildlife, or vegetation
- Amending the Land Use Category in the Official Plan from Open Space to Environmental Protection Zone reflects guiding principles in the Official Plan, LSRCA Policy and Barrie's Intensification Area Urban Design Guidelines

# Final Recommendations

- That the City of Barrie Council adopt the Plan Update as described in the Final Report;
- That the North Shore Trail Corridor be maintained as an Urban Forest, promoting a healthy and diverse vegetative community;
- That a ditch system be constructed on the north side of the trail, with collections points that direct flow to the Lake with outfall enhancements on the southern bank;
- That natural steps / pathways be created from the trail to the Lake at designated locations; and,
- That the City re-visit the policy and zoning of the North Shore Trail Corridor such that it can be re-designated as an Environmental Protection for greater control

# Thank You

- If there are any questions, please contact one of the representatives below:

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Greenland Consulting
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bparker@grnland.com

Kevin Rankin
Manager of Parks & Forestry Operations
City of Barrie
705-739-4220 x4754
Kevin.rankin@barrie.ca

GREENLAND® international consulting ltd.

POPOVICH

Barrie

# Appendix C-2

Public Survey

GREENLAND®
Group of Companies

# Project Report

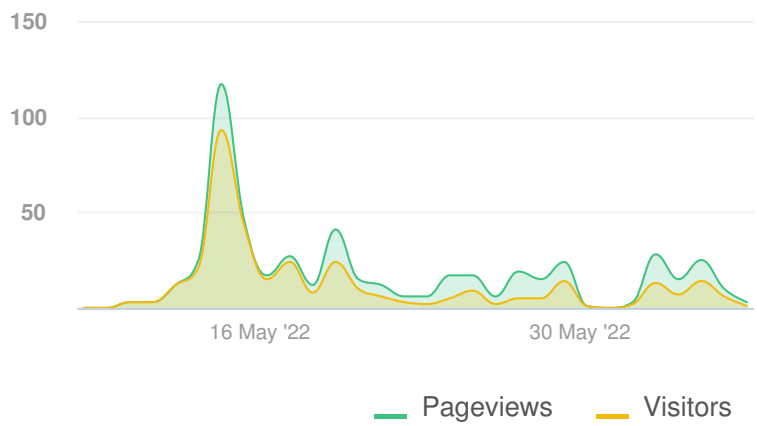
07 May 2022 - 05 June 2022

# Building Barrie

## North Shore Trail Vegetation Management

BANG THE TABLE engagementHQ

## Visitors Summary




## Highlights

| TOTAL VISITS | MAX VISITORS PER DAY | NEW REGISTRATIONS |
|---|---|---|
| 463 | 93 | 2 |

| ENGAGED VISITORS | INFORMED VISITORS | AWARE VISITORS |
|---|---|---|
| 232 | 240 | 398 |

| Aware Participants | 398 |
|---|---|
| Aware Actions Performed | Participants |
| Visited a Project or Tool Page | 398 |

| Informed Participants | 240 |
|---|---|
| Informed Actions Performed | Participants |
| Viewed a video | 0 |
| Viewed a photo | 0 |
| Downloaded a document | 11 |
| Visited the Key Dates page | 0 |
| Visited an FAQ list Page | 0 |
| Visited Instagram Page | 0 |
| Visited Multiple Project Pages | 9 |
| Contributed to a tool (engaged) | 232 |

| Engaged Participants | 232 | | |
|---|---|---|---|
| Engaged Actions Performed | Registered | Unverified | Anonymous |
| Contributed on Forums | 0 | 0 | 0 |
| Participated in Surveys | 3 | 0 | 71 |
| Contributed to Newsfeeds | 0 | 0 | 0 |
| Participated in Quick Polls | 2 | 0 | 192 |
| Posted on Guestbooks | 0 | 0 | 0 |
| Contributed to Stories | 0 | 0 | 0 |
| Asked Questions | 0 | 0 | 0 |
| Placed Pins on Places | 0 | 0 | 0 |
| Contributed to Ideas | 0 | 0 | 0 |

# ENGAGEMENT TOOLS SUMMARY

| 0 | 1 | 0 | 1 | 0 |
|---|---|---|---|---|
| FORUM TOPICS | SURVEYS | NEWS FEEDS | QUICK POLLS | GUEST BOOKS |

| 0 | 0 | 0 |
|---|---|---|
| STORIES | Q&A S | PLACES |

| Tool Type | Engagement Tool Name | Tool Status | Visitors | Contributors | | |
|---|---|---|---|---|---|---|
| | | | | Registered | Unverified | Anonymous |
| Survey Tool | North Shore Trail Vegetation Management Plan survey | Published | 88 | 3 | 0 | 71 |
| Quick Poll | How do you prefer to use the North Shore Trail? | Published | 196 | 2 | 0 | 192 |

# INFORMATION WIDGET SUMMARY

| 1 | 0 | 0 | 0 | 0 |
|---|---|---|---|---|
| DOCUMENTS | PHOTOS | VIDEOS | FAQS | KEY DATES |

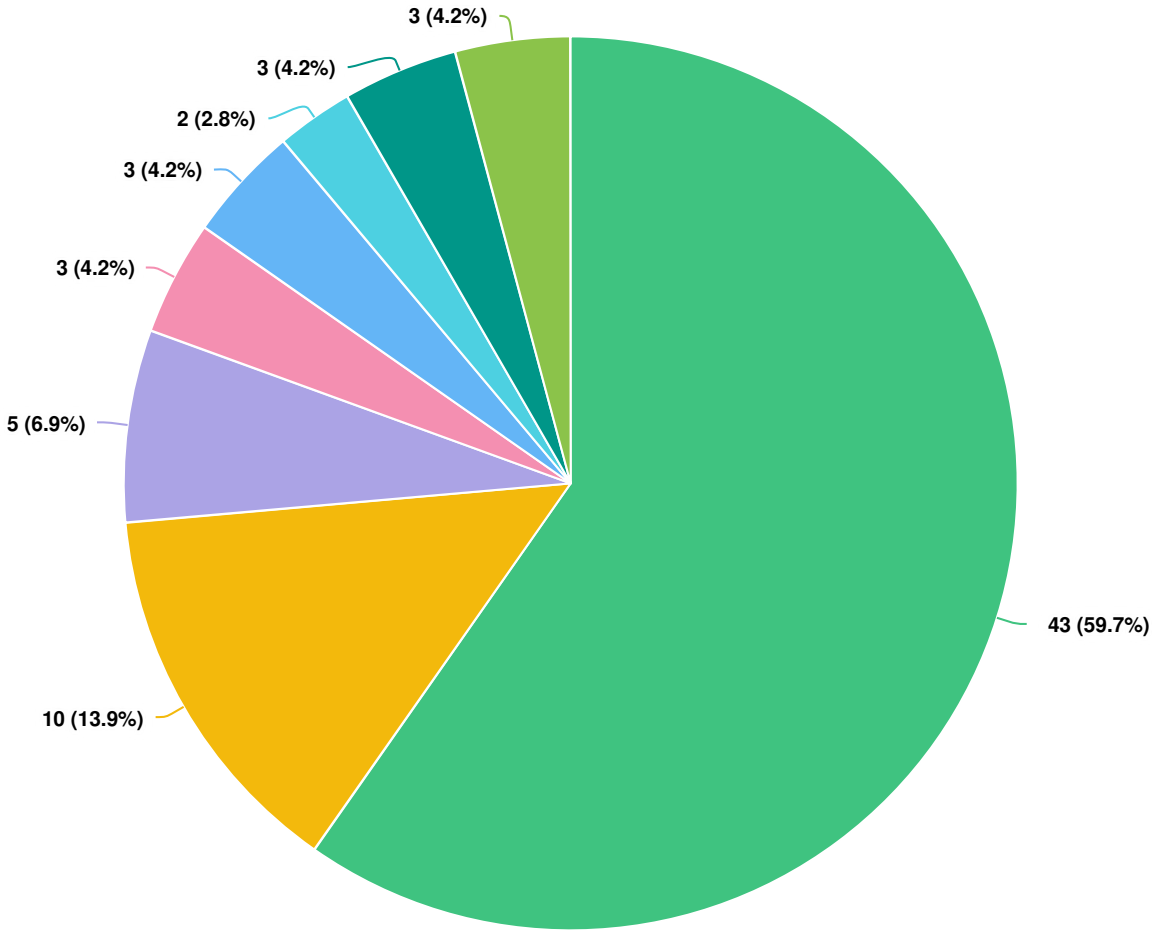
| Widget Type | Engagement Tool Name | Visitors | Views/Downloads |
|---|---|---|---|
| Document | North Shore Trail VMP Presentation.pdf | 11 | 12 |

# ENGAGEMENT TOOL: SURVEY TOOL

## North Shore Trail Vegetation Management Plan survey

| Visitors 88 | Contributors 74 | CONTRIBUTIONS 75 |
|---|---|---|

**Which Ward do you reside in?**



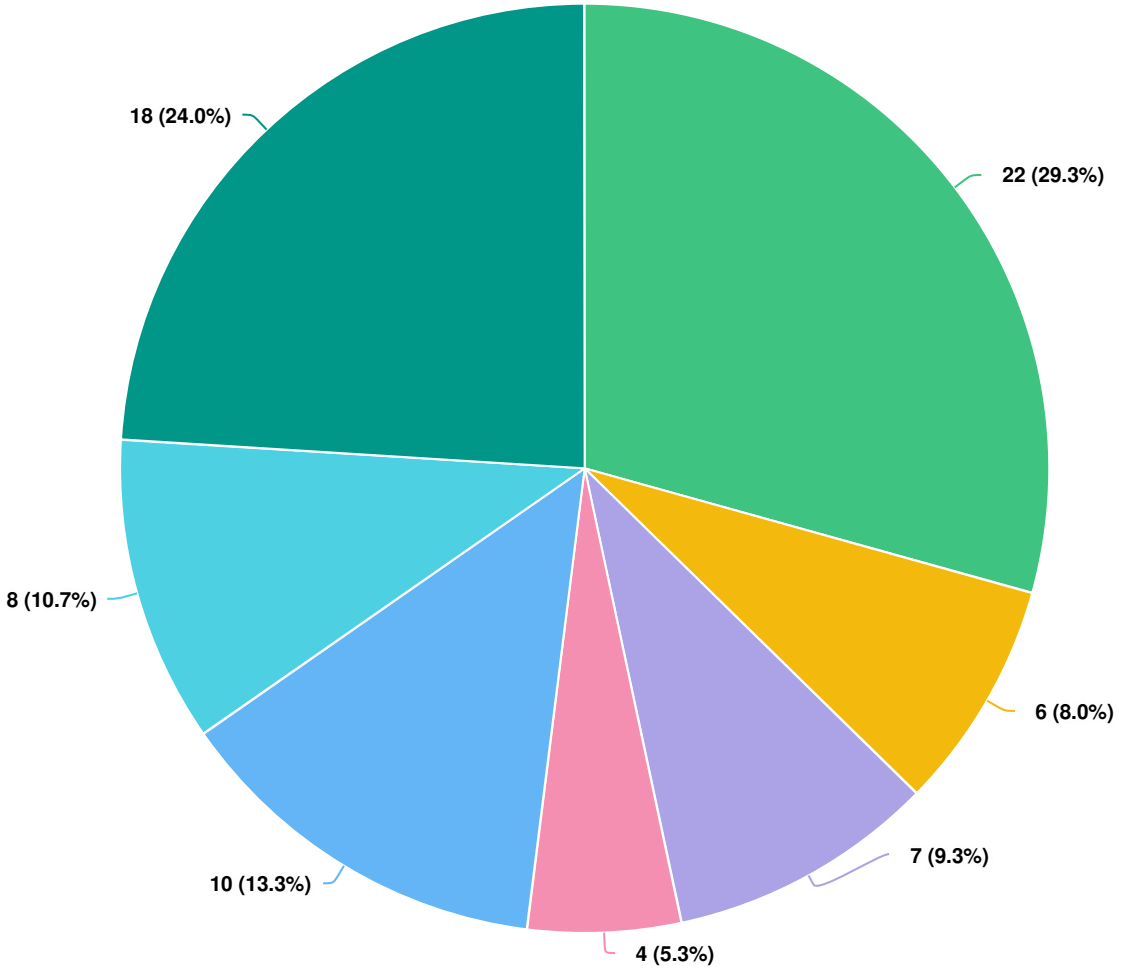

**Question options**

Ward 1 Ward 2 Ward 3 Ward 4 Ward 5 Ward 6 Ward 7 Ward 8

*Optional question (72 response(s), 3 skipped)*

*Question type: Dropdown Question*

## On average, how often do you use the North Shore Trail in a month?



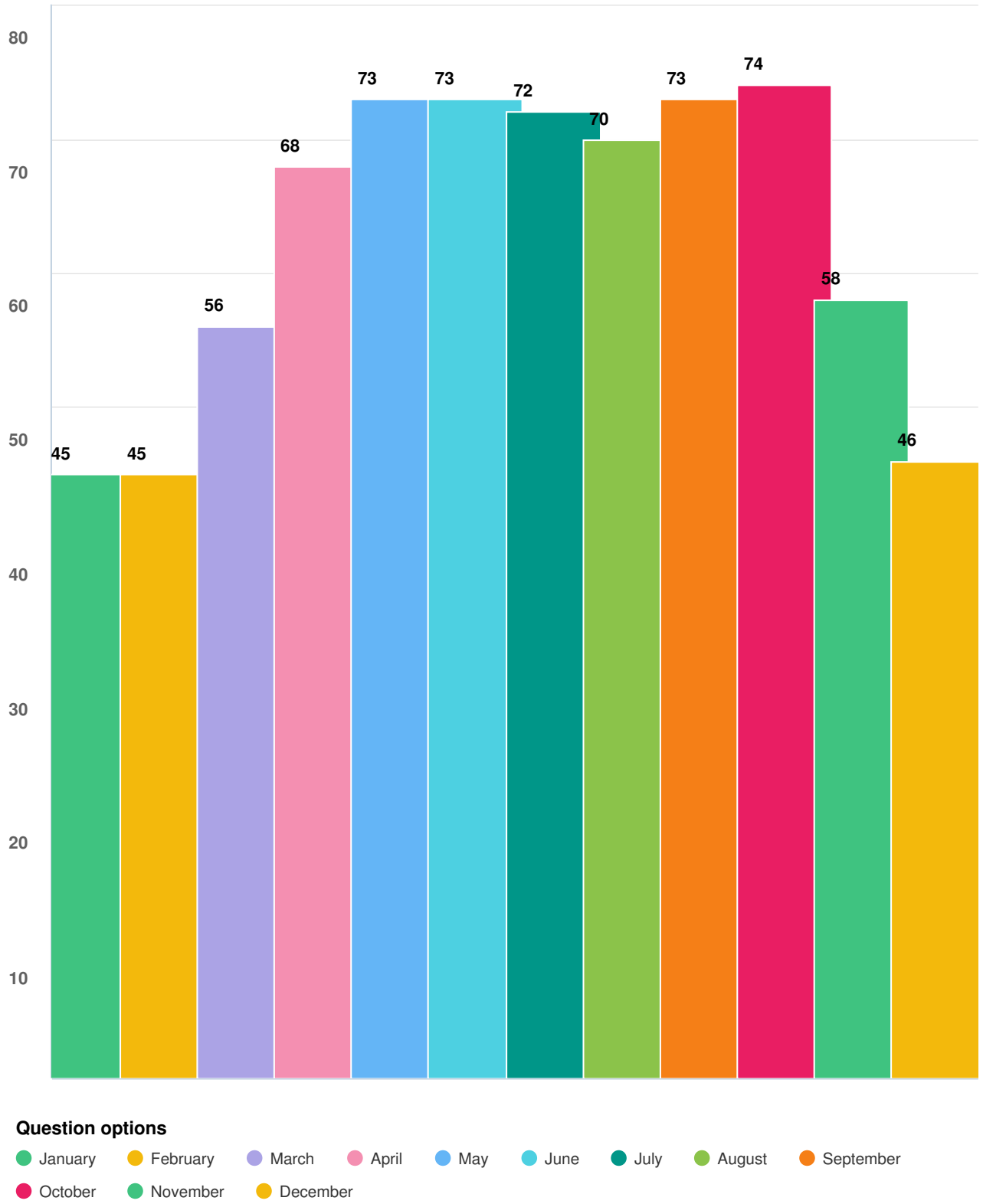

**Question options**

- 25+ visits (roughly daily)
- 21-24 visits (roughly six times per week)
- 17-20 visits (roughly five times per week)
- 13-16 visits (roughly four times per week)
- 9-12 visits (roughly three times per week)
- 5-8 visits (roughly twice per week)
- 1-4 visits (roughly once per week)

*Mandatory Question (75 response(s))*

*Question type: Radio Button Question*

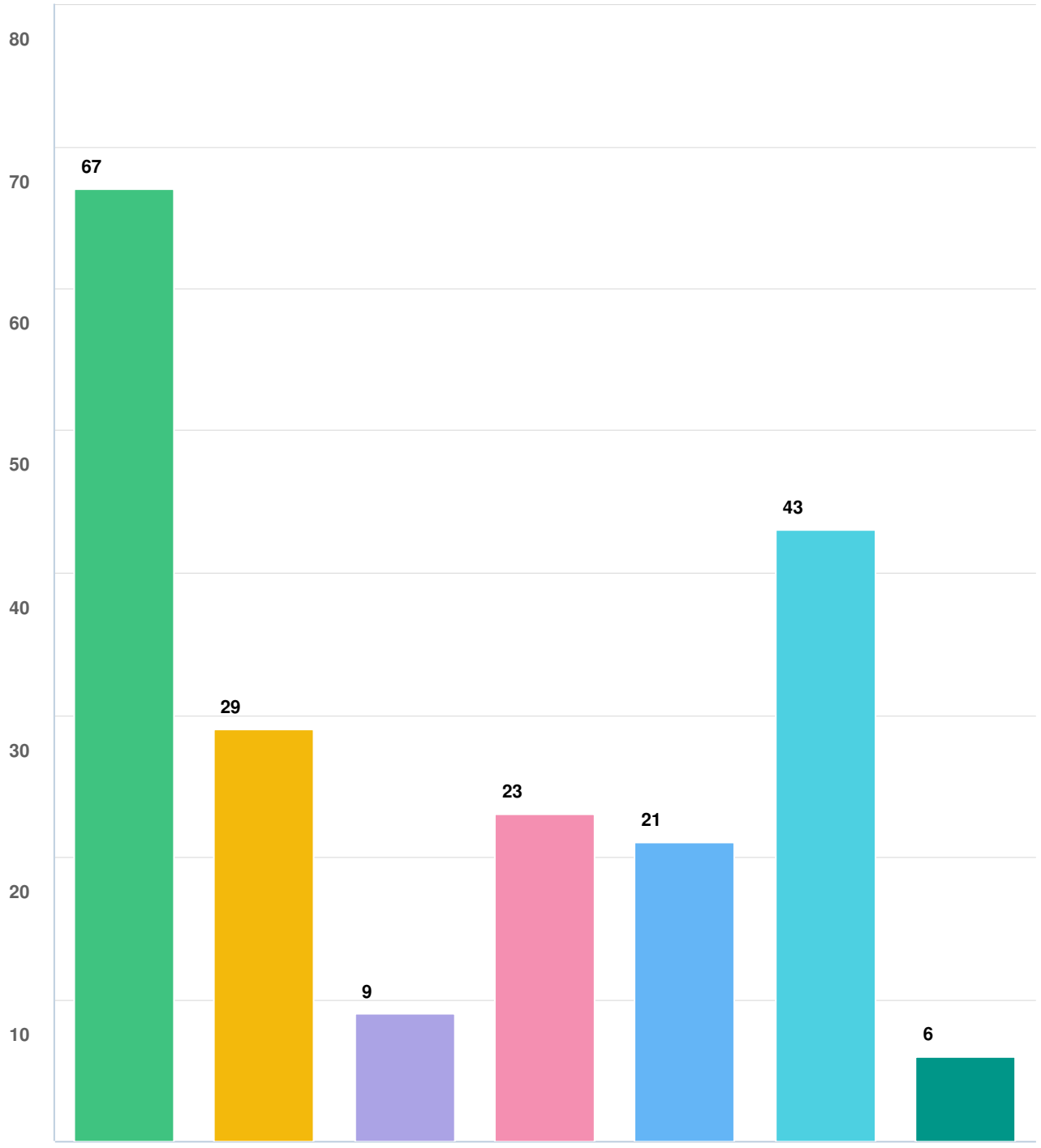
## Which months do you use the trail (choose all that apply)?




*Optional question (74 response(s), 1 skipped)*

*Question type: Checkbox Question*

## What is your primary activity on the trail (choose 3)?



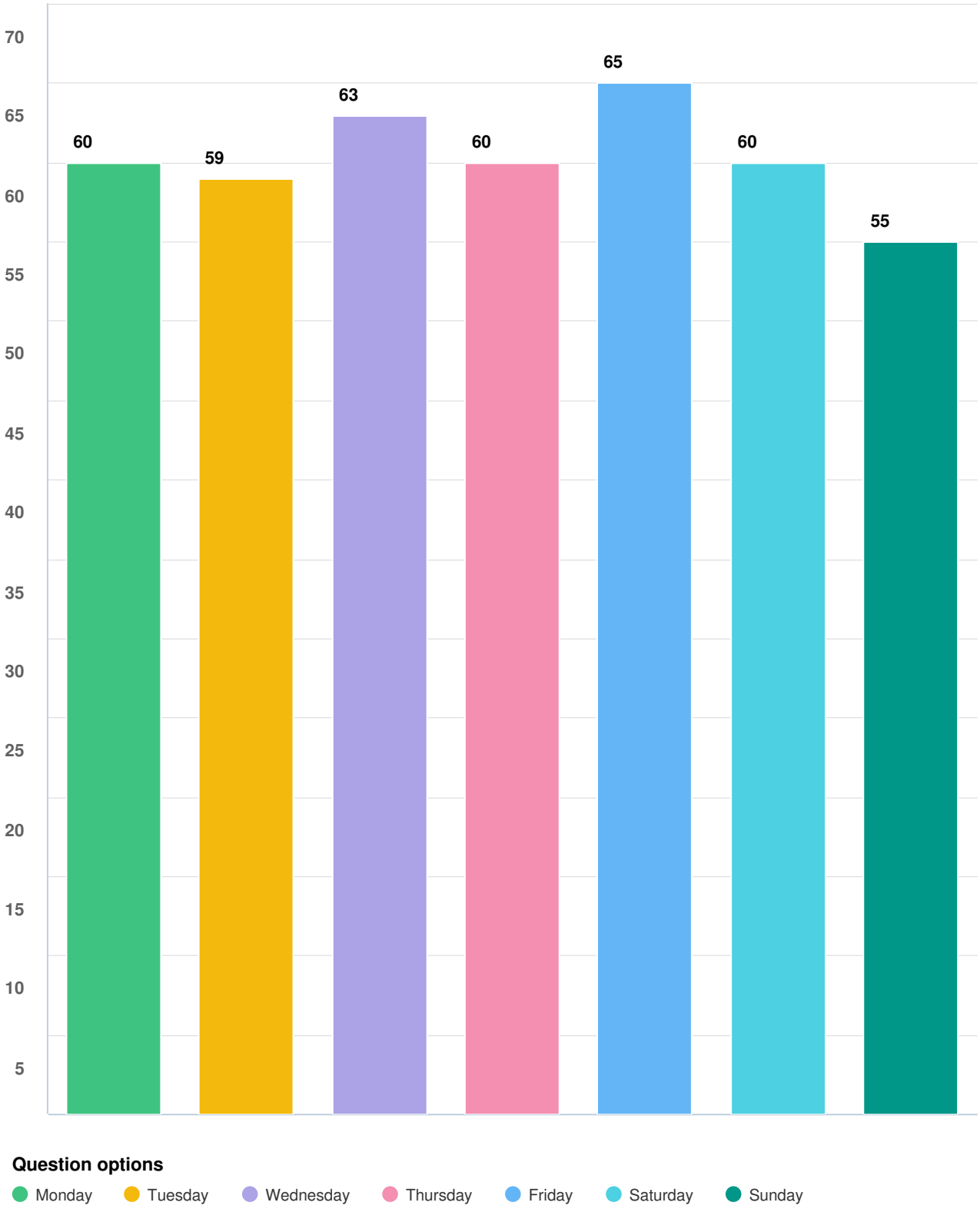

**Question options**

- Walking/hiking
- Biking
- Jogging/running
- Pet walking
- Bird watching
- Enjoying nature
- Other (please specify)

*Optional question (75 response(s), 0 skipped)*

*Question type: Checkbox Question*

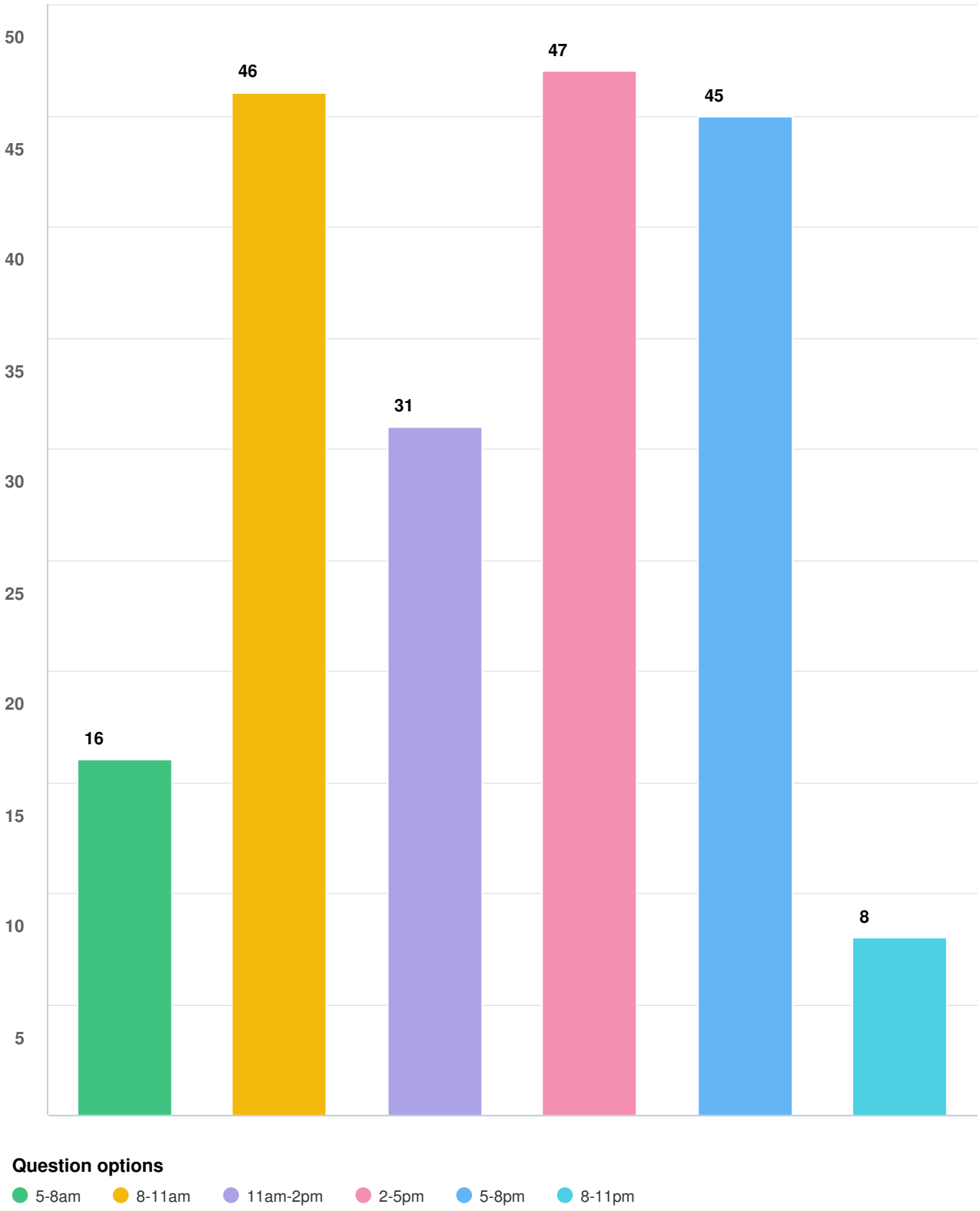
## On average, what day(s) do you use the trails (choose all that apply)?




*Optional question (75 response(s), 0 skipped)*

*Question type: Checkbox Question*

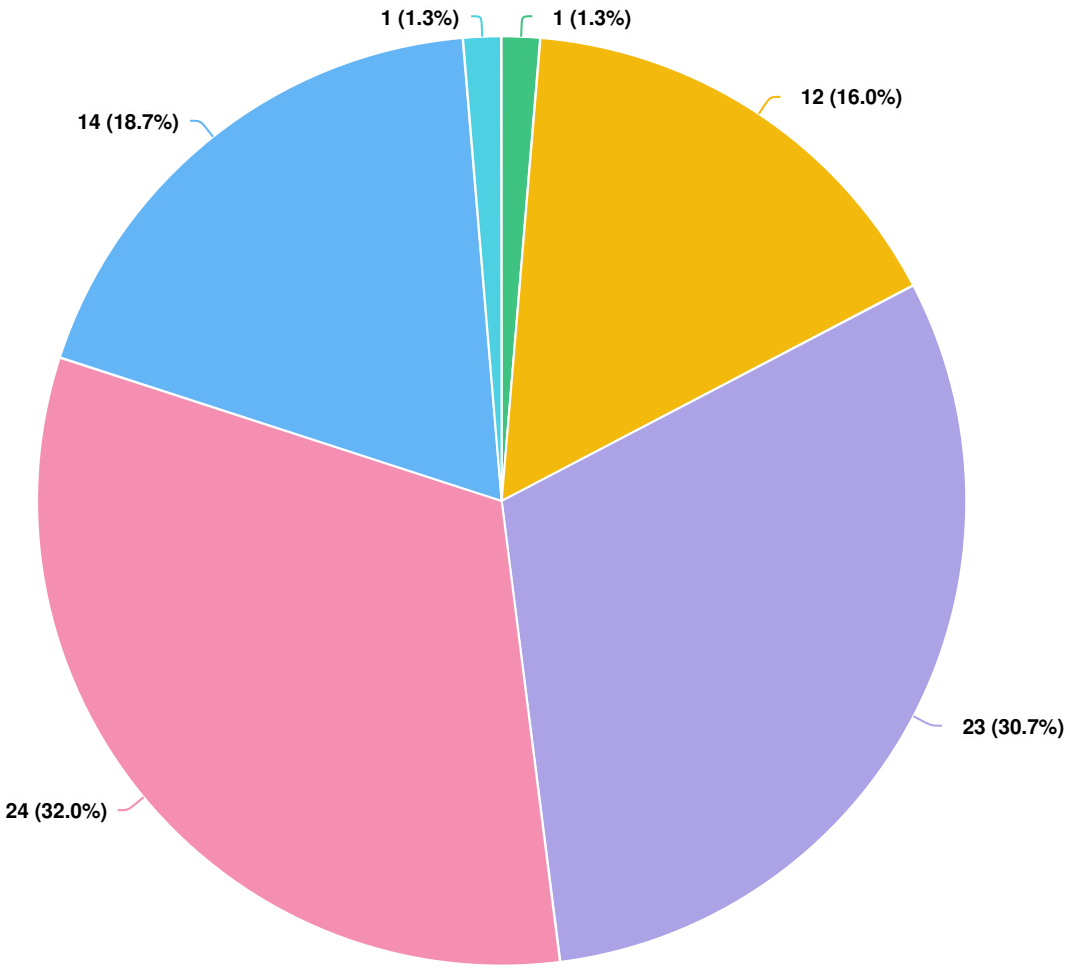
## On average, what time of day do you use the trail (choose all that apply)?




*Optional question (75 response(s), 0 skipped)*

*Question type: Checkbox Question*

## On average, how much time do you spend on the trail per visit?

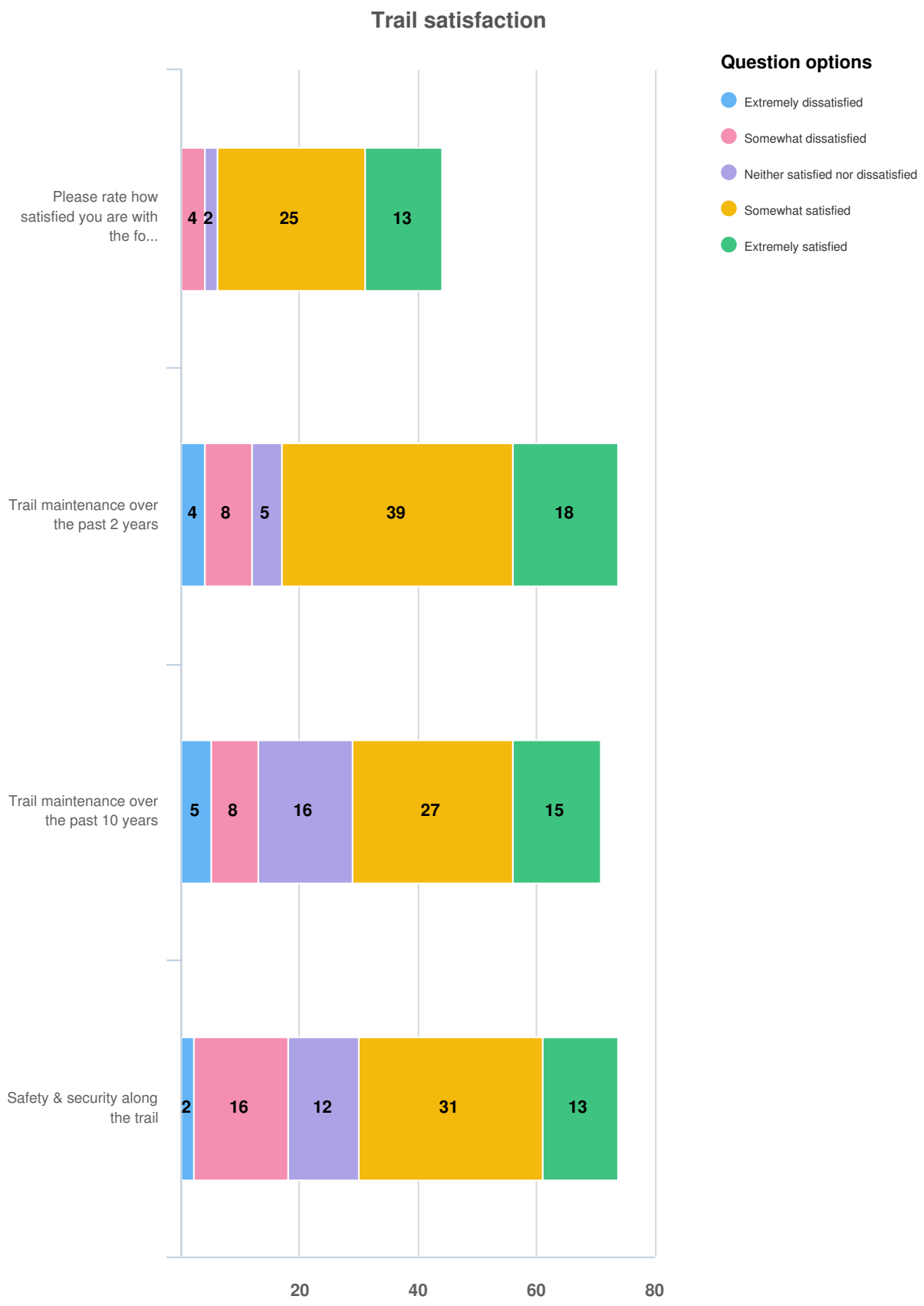



**Question options**

1-15 minutes · 16-30 minutes · 31-45 minutes · 46-60 minutes · 61-90 minutes · 91-120 minutes

*Optional question (75 response(s), 0 skipped)*

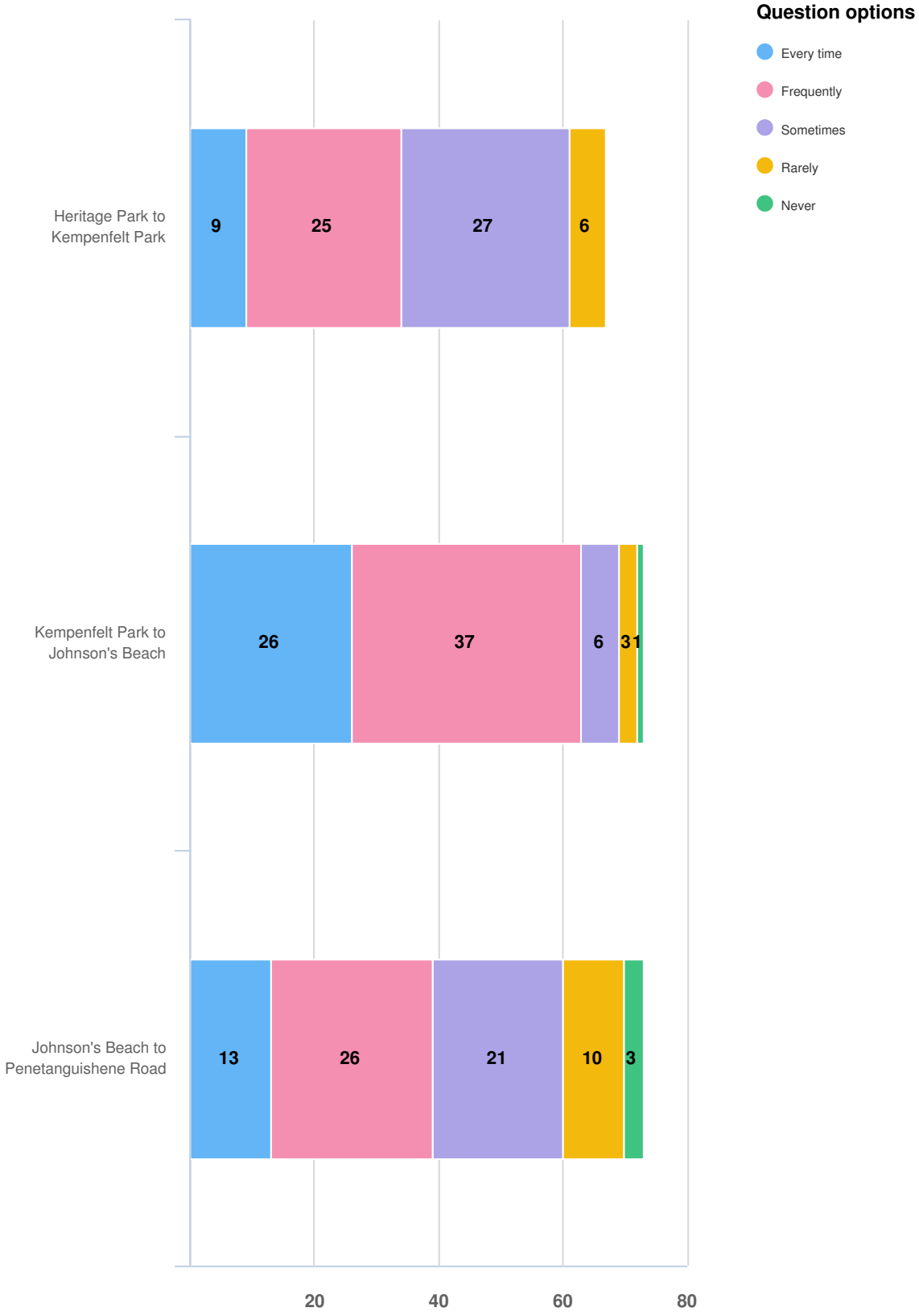
*Question type: Dropdown Question*




*Optional question (75 response(s), 0 skipped)*

*Question type: Likert Question*

## How often do you use the following portions of the trail:




*Optional question (74 response(s), 1 skipped)*

*Question type: Likert Question*

## How often do you use the following access points to the trail:

*Optional question (75 response(s), 0 skipped)*

*Question type: Likert Question*

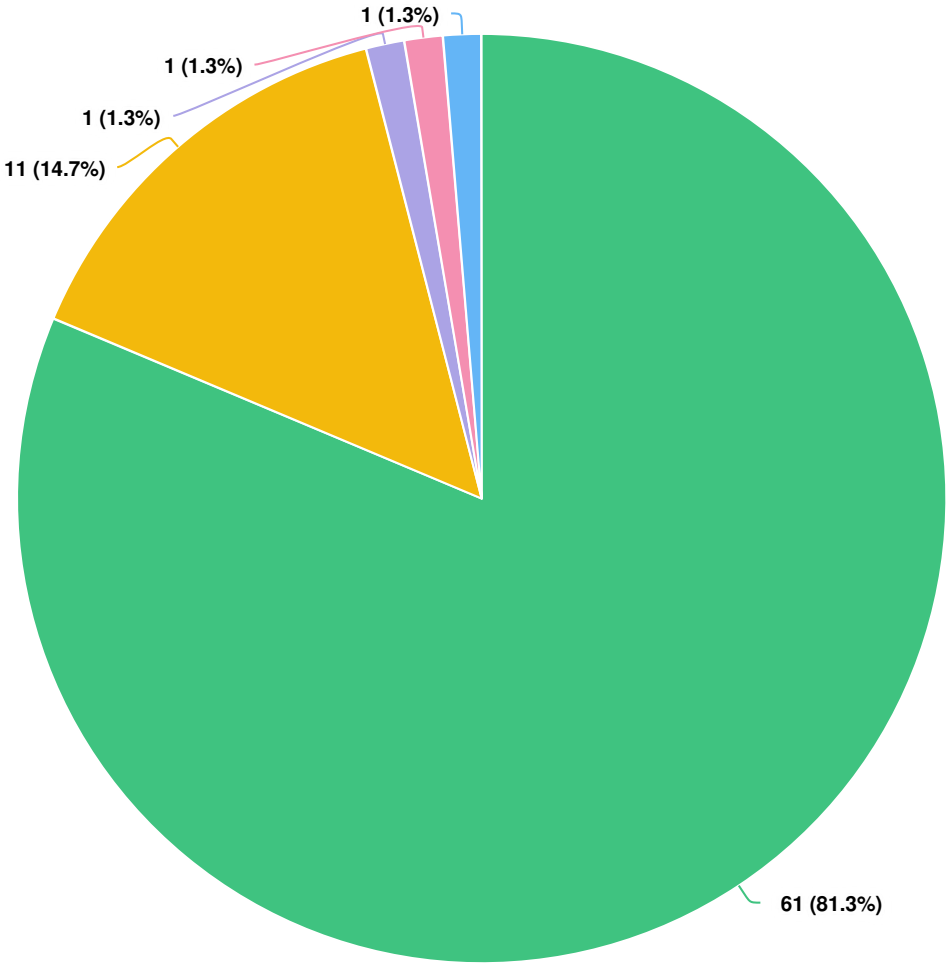
## Please rank the following maintenance items in order of most important (1) to least important (9):

| OPTIONS | AVG. RANK |
|---|---|
| Non-native invasive species removal | 4.27 |
| Trail surface | 4.36 |
| Trees & shrubs | 4.87 |
| Shoreline erosion | 4.87 |
| Improve pollinator habitat | 4.92 |
| Improve wildlife habitat | 5.13 |
| Access to the trail | 5.14 |
| Viewpoints | 5.36 |
| Access to the water | 5.49 |

*Optional question (73 response(s), 2 skipped)*

*Question type: Ranking Question*

## How long do you believe it should take to phase in any approved improvements?




**Question options**

20+ years · 15 to 20 years · 10 to 15 years · 5 to 10 years · Less than 5 years

*Optional question (75 response(s), 0 skipped)*

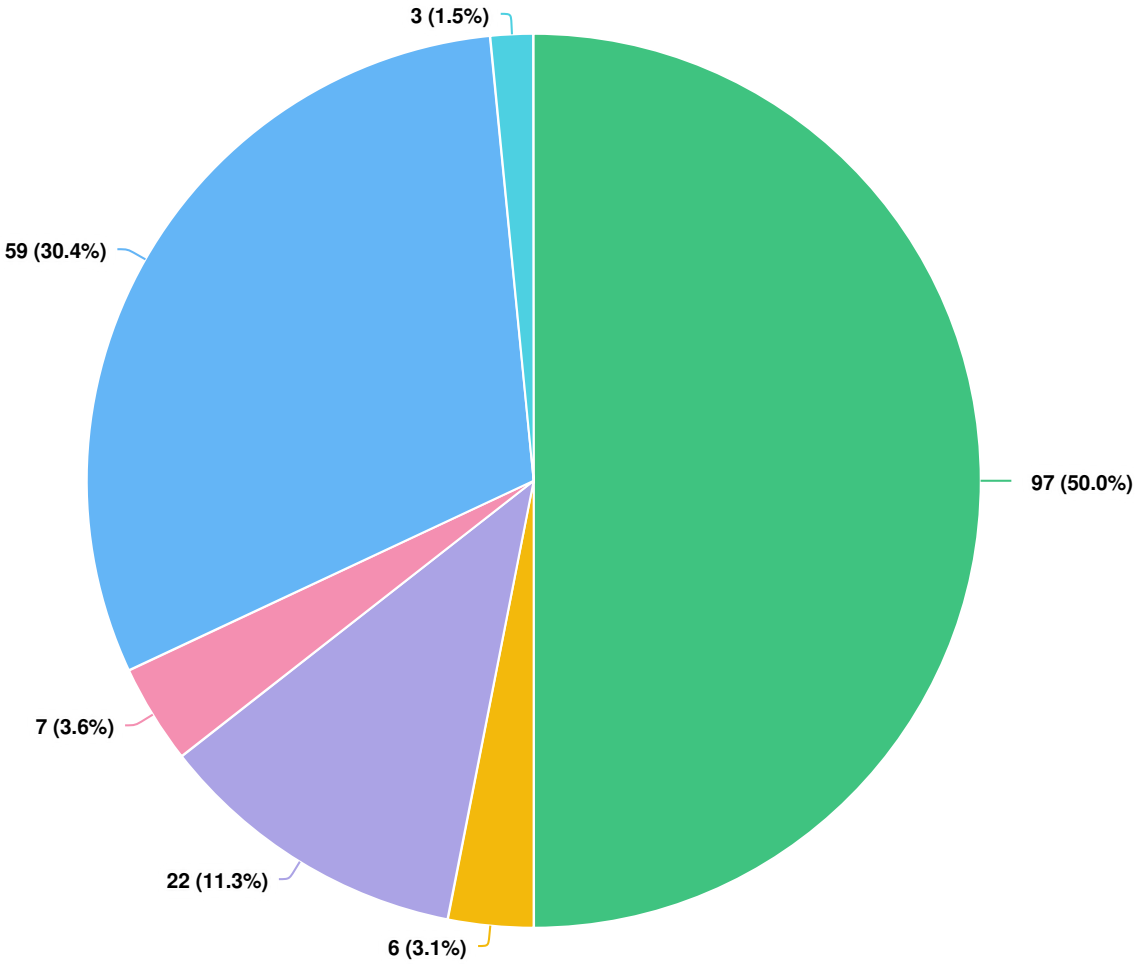
*Question type: Dropdown Question*

# ENGAGEMENT TOOL: QUICK POLL

## How do you prefer to use the North Shore Trail?

| Visitors 196 | Contributors 194 | CONTRIBUTIONS 194 |
|---|---|---|

**How do you prefer to use the North Shore Trail?**




**Question options**

- I don't use the North Shore Trail
- All of the above
- Sight seeing
- Cycling
- Running
- Walking

*Mandatory Question (194 response(s))*

*Question type: Radio Button Question*

# Appendix C-3

Public Comments
Record

GREENLAND®
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# EMAILED COMMENTS FOR NORTHSHORE TRAIL PIC

## VEGETATION MANAGEMENT COMMENTS

**Invasive Species**

It is my sincere hope that the City adopts Proposal 2: Aggressive Implementation. The trail is a real mess of non-native and invasive vegetation and needs serious restoration. A 20 year timeline is too long. In the ten years I have lived close to the trail I have seen a serious decline in the quality of vegetation on the trail. Where once there were flowers along the trail, we now have sumac. If the 20 year option is deemed necessary, I hope removing non-native and invasive plants is given top priority."

Noxious and invasive weeds, such as ragweed which has proliferated along parts of the trail and migrated into residents' yards the last couple of years, should be eradicated early in the growing season.

We have a variety of infestations of Canada's worst invasive species taking a stronghold at various locations on the North Shore Trail. It is generally accepted that we cannot eradicate phragmites australis but we can control their spread using best practices and connecting with local experts such as Dr . Rick Irvin.

Here in ON we have Dr. Janice Gilbert and Professor Lynn Short who are experts in the control of Invasive Phragmites – unfortunately the only strategy that guarantees the drowning of Invasive Phragmites is cutting below water – Ontario Phragmites Working Group have special boats and specialized Invasive Phragmites cutting machinery. Dr. Janice Gilbert founded the not- for - profit Invasive Phragmites Control Center. You can contact her at janicegilbert@rogers.com or Phragmites @GLG.org

What is urgently needed is a full on professional Invasive Plant Management Program on the trail. With the advance of wild chervil: This plant is highly invasive on the trail. In three years its presence has expanded so much it appears, to me, to be pushing out garlic mustard I am not sure how much longer my volunteers will be prepared to continue with this work.

In the last eight years I have witnessed a significant decline in the quality and diversity of the vegetation on the trail. There are many more invasives and few flowers, while sumac threatens to take over much of the north bank. The vegetation management cutting on the trail each fall over the last several years is largely responsible for this. The damage to habitat caused by invasive plants in Barrie and around the waterfront especially has been ignored for too long. The longer this work is put off, the more costly the restoration of native habitat will be. Committed, yearly, full season professional invasive plant management work is needed now. Will you fight for this?

I was disappointed to hear Mr. Popovich of Green Land Consulting say he wasn't aware of the danger of phragmites advancing into the bay. The patch we have been working for several years is well established

and making its way into the water as well as up the bank. If we were to stop working on this patch (below Nelson Park) it would be in the bay in a season. “

Remove the poison ivy.

**Trees and Planting**

Thinning out weedy trees growing too close together would give healthier specimens room to grow and provide bank stabilization. There are many examples where this needs to be done.

As a preventive measure against future rogue trails in sparsely treed areas, consider planting shrubby trees that will not exceed four or five feet in height.

To help reduce the loss of evergreen trees in winter, it was suggested that they be planted in groups of 3 or more.

I would suggest planting as many red and white oaks as possible along the North Shore Trail. A mature oak trees can support 1, 139 organisms including 126 species of birds.

Seeing that Barrie is already a Bee City and hopefully soon will receive the official designation of Bird Friendly City, , we can greatly increase the food sources of birds by planting any of the following native shrubs- honey suckle, (16 species) witch hazel, chokecherry, sand cherry, serviceberry, winter berry, common blackberry, and spicebush.

To further protect and help save bees we need to plant as many pines and firs as possible. Bees use the resin from pines and firs to keep their hives, watertight, airtight and protected from predators. Silver birches, yews, elder trees, and pines are noted for their ability to absorb pollution, the more of these species that are planted the better it will be for all of us.

Planting of trees and shrubs that feed birds such as mountain ash.

I know there could be ice build up on paved paths, but the path on the north side, is more sheltered, the larger trees are a great protection.

**Pollinators**

Here in as possible and feed as many pollinators, I would suggest the following native plants, milkweed ( host plant for Monarchs) butterfly bush, cup plants, blue vervain, golden Alexander, ironweed, false dragonhead, zig zag goldenrod, sneezeweed, and sky blue asters.

I believe there is an opportunity to create a tourist attraction by planting natural wild flowers all along the embankment facing the bay. The embankment faces south so lots of sunshine for flowers. There are patches of flowers but more could be added over the coming years. Natural wild flowers do not need a great deal of attention, as long as the correct ones are planted for the conditions. The only issue would be “pickers”, as we see people taking bouquets home from those that exist today.

## Trail Maintenance Comments

We feel strongly that the view of Kempenfelt Bay should be maintained along the North shore for the enjoyment of ALL Barrie residents walking, riding or sitting along the North shore from Kempenfelt Park west to Vancouver St. by trimming of scrub- meaning keeping sumacs, invasive species, and higher growing plants (those that are not singular, well rooted trees) trimmed as per past plan and execution.

Currently, the rough areas in Kempenfelt Park are quite overgrown and are in need of trimming as per past/current park plan.

We request reinstatement of this plan. The consulting is complete and now is the time to return to plan to properly maintain Barrie Parks. The remainder of the North Shore path beyond Kempenfelt Park, we support and request some trimming in order for the view to be maintained along the path. Walkers and riders on the asphalt path should be able to see the water. All residents using the lower path should also be able to see the water.

Overgrowth of scrub is unsightly and not the best solution for our City and Residents.

Vegetation is troublesome with no set-back from the edges of the trail.

## EROSION ISSUE COMMENTS

**Erosion related to storm water**

The trail has a hardened (well compacted) trail tread with a surface of aggregate and is crowned for almost all its length. The trail is some 3 km long, with an elevation gain from west to east of 30 meters or so. Longitudinal gradients are therefore negligible. The north (upslope) side of the trail has a swale for most of its length that acts as a significant barrier to cross-trail flow, and indeed even in places where no swale exists – the location where Puget Street debouches onto the trail is a good example – the trail tread shows no water scouring in spite of lying transverse to a long section of vertical flow. In trail building terminology the trail is really a turnpike with its raised crowned tread and exhibits very little wear despite heavy usage.

The trail tread itself shows no signs of erosion to warrant concern. There is no evidence of any cross-trail stream flows, which strongly suggests that the upslope swale is either never over-topped, or if it is then the resultant flow is sheet flow. If this is indeed the case, then the typical catchment area for downslope flow is the portion of the trail itself from the top of the crown to the lakeside trail edge.

Surely, the root systems of trimmed scrub can help support the land and minimize erosion. The movement of water run off spouts (As suggested in the consultant recommendations) will be a better way to support the land erosion while still allowing the beauty of Barrie's North Shore Trail to be enjoyed by all.

Barrie's waterfront views are our city's #1 feature and differentiate Barrie from all cities south of here. This must be prioritized and preserved. Other measures can help support the decline in erosion and we can find a suitable resolution to meet both needs.

One note I wanted to add is that the stormwater management plans need to be integrated with the vegetation management plan. We both know that the SW issue has been going on for almost a decade now and hopefully there can be a resolution soon."

**Erosion related to Foot Traffic**

There are many locations where the edge of the trail is breaking down due to erosion and foot traffic. They are in almost every case at the entry to rogue trails created to access the lakeshore and allow sheet flow to become stream flow. Once soil is exposed, further erosion due to freeze/thaw cycles can take place. It is worth noting that none of the shore access points towards the eastern end of the trail where property owners control both sides of the trail show signs of erosion. The rogue trails are a huge problem. There are so many of them and they are so so heavily used. While writing these comments to you, one of us glanced out the window and counted a party of seven young adults emerging from a steep one onto the trail. This is not at all uncommon. Unfortunately, the proliferation of rogue trails over the years with few attempts to stop them, has created the expectation that people can clamber and wander where they please, regardless of harm to the natural environment. The expectation has even been reinforced by signage warning people of poison ivy in areas beside the trail. It seems to us what's needed is strong encouragement, by various means, <u>to stay on the trail</u>.

1. May we suggest the following:
    i. Select a couple of judiciously chosen access points (that don't lead anywhere else) and construct effective natural step or step and landing sequences flanked by retaining walls to eliminate slope and preserve sheet flow. Re-vegetate as necessary.
    ii. Close all others by constructing retaining walls, fill, seed or otherwise re-vegetate with plant and shrubby trees that are difficult for humans to navigate. Until vegetation is re-established cover rogue trail path with large cut or fallen tree limbs (wired down if necessary) and trunks to seriously hinder further passage.
    iii. Erect signage advising users to keep to the trail and noting that the area is undergoing re-vegetation and erosion control.

We did have an opportunity to walk along Kempenfelt Dr this past weekend. I counted 12 man made dirt trails down to the NS Tail between Vancouver St and including those in Kempenfelt Park.

**Erosion Management Concerns**

It is not at all clear how ditching the north side would be at all helpful to the majority of erosion problems. Can we see the technical study/assessment or other information that led to that conclusion?

A narrow trench filled with crush fill will quickly accumulate small-particle detritus from trail traffic and vegetation and become ineffective. There seems little point in gathering water to be delivered as a stream on steep slopes: one is converting sheet flow to stream flow and creating exactly the condition to be avoided.

Please remember that a number of residents, primarily on Shanty Bay Road, with narrow and/or steep side-yards, have traditionally relied for decades on the City allowing back access via the trail to their properties for landscaping, construction and tree-trimming/removal equipment when necessary. For some of us, the sewer even runs through the back yard. Also, in dire circumstances, some emergency services could use the back access. Is this ditch going to impede that kind of access?

## By-Law Concerns- Homeless and Camping

Enforce the no-camping prohibition. Anyone who lives nearby or regularly walks the trail with their eyes open knows people are sleeping rough and "camping" below the trail and above Johnson's Beach once the weather warms -- in the very areas that need protection from human intrusion and their waste and detritus. Then there's the fire danger from smoking and campfires; it doesn't take much in a dry summer.

We have significant challenges with the trail in this area, particularly with the proximity of Johnson's Beach. The dense and tall vegetation that is in the area near my house at Shanty Bay invites people to trespass and use the trail to use drugs and act out under the cover of the nearby trees. We have in fact had people jump over the fence to do drugs, break bottles, and set fires.

There is also homeless people using the adjacent area to set up tents to live there through the summer. This is worrisome as this leads to a tremendous quantity of litter and waste products entering the water.

I suggest that the city consider increasing the cleanup of the vegetation areas, increase low growing planting of native shrubs that will protect the shoreline of erosion, but avoid creating areas under tall cover that encourage these types of poor behaviours.

## Ecological Health

**Lake Simcoe**

A new community of life will have been created among the multitude of branches on the trees.I would highly recommend that all trees and tree branches that die be allowed to fall into the lake, thereby vastly improving the ecological health of the lake and providing new habitats for a variety of aquatic life. I would also go so far to suggest that the towering Christmas tree We light at Meridian Square, be

pulled out into the ice covered bay and be allowed to sink naturally into the bay when the ice melts in the spring.

Whenever, trees dies and tumbles into the bay it starts a second life that may last up to 600 years! At the bottom of the bay, the dead trees will attract crayfish, minnows, mud puppies, tadpoles, a variety of fish, dragonfly nymphs, mayflies, wood ducks, soft shell turtles, blue herons, diatoms, and algae**.**

The trail could be cleared and sanded for winter use without using salt because of closeness to the lake.

## Trail Usage

**Biking**

While cycling uncontrolled entry points are dangerous, due to vegetation and slopes on either side. Many times I have had people jump out directly in from of me from both sides of the trail. I nearly ran over a couple, by the force of gravity, were forced to run down the bank from Kempenfelt Dr. through the bramble then landing on the bay side, because of their momentum, as I was heading east.

Powered vehicles, basically e-bikes, are travelling too fast with so many on foot, along with uncontrolled entry points for pedestrians and their pets. At powered speed someone is going to get hit as they emerge from the uncontrolled entry point on either side of the trail.

Many bikers do not know they are required by law to have and use a signalling device, to warn hikers and other bikers when they are approaching from behind, at speed. Very few signals other than virtual nudging from behind, meaning: "Pedestrian get out of my way".

**Alarm bell to be sounded Highway Traffic Act**

**Section75 (5) Every motor vehicle, motor assisted bicycle and bicycle shall be equipped with an alarm bell, gong or horn, which shall be kept in good working order and sounded whenever it is reasonably necessary to notify pedestrians or others of its approach. R.S.O. 1990, c. H.8, s. 75 (5). PS: Even the folks on bike patrol are not signaling.**

As the trail is getting more busy- shifting bikers to other areas will be the answer. I don't believe bikers are there for the scenery and "smelling of the roses" so to speak

No bicycles on trail, the trail is just not big enough to accommodate speed bikes. Too many walkers, children on trikes, strollers, dogs, etc, to have fast speed bikes zipping by. Very unnerving and the walk becomes scary

**Dogs**

At Kempenfelt Park people take their dogs down to the water. When they head back up the embankment to the trail the dog emerges 10 feet in front of the dog walker on their extendible leash. I have been attacked by dogs and nearly knocked off my bike by the leash strung out at pedal height.

Not everyone stoops and scoops. Some that do, use the trees ( higher branches), as a catch all for their little dog packages.

The trail is a staple for dog walkers. Some poop bag stations and more bins and a watering station for dogs would be beneficial.

**Entry Points**

The entry points at Kempenfelt Park are ridiculously poor, basically pedestrian made muddy trails with boulders through over grown bushes and weeds. A ramp similar to the one at Nelson Square is required. No official entry points for four or more blocks along Kempenfelt Dr., from Sam Cancilla Park to Cook St, but folks park cars all along that distance, about 1.5 km. Is there an official entry point at Sampson St or is it another pedestrian made trail?

Along Kempenfelt Dr. take note of all the little trails people have created to get from the parking along Kempenfelt Dr. to the trail. These are all danger points for folks riding bikes, especially with tall vegetation blocking sight lines. It's somewhat similar on the Bay side but access is generally slower as people are forced to climb up from the water side, except for dogs on extra long leashes.

## OTHER COMMENTS

**Rezoning and Development**

We feel the case has not yet been explicitly made to support the recommendation to move to a more restrictive EP designation. What would the City actually do with more control, that it cannot do now under its own bylaws and policies and those of LSRCA? Does it actually need an EP designation to pass a bylaw restricting human incursion into the natural areas and assessing penalties? What is to stop the city now from actively discouraging rogue trails and other incursions into the natural areas?

Designate the trail as a wildlife refuge including the placement of bird feeders, bird houses

Building intensification downtown, virtually right on the trail, is going to make the trail even more congested.

**Groundwater**

a portion of this trail runs through a contaminated site known as the North Barrier Wall. The North Barrier Wall is located in front of the following addresses (217 Dunlop St East, 1- 39 Kempenfelt Drive). I have attached a photo for your reference. This site contains infrastructure such as a steel piled wall along the shoreline, maintenance access holes, and monitoring wells. I attend the site approx. twice a year to monitor the groundwater within this site. The groundwater monitoring wells are located near or within the current limestone walking trail and within the vegetated buffer beside the steel wall. I was wondering if I could obtain a copy of the proposed planting to ensure there will be no impacts to the monitoring wells within this site.

## Tourism and Partnerships

Put in a fishing-peer with the city possibly selling minnows and selling admissions for fishing. There are lots of places in the city for boats but no fishing, swimming but no fishing. It's time for at least one place for fishing with no boats or swimming

I do nature photography, most of my pictures have been taken along the trail. I was thinking, with help, to put a photo book together and selling it with portions going to the maintenance to the trail. Or the city buy my pictures to promote the trail. So many birds and wild life for people to see and enjoy nature. I think a nature book or calendar of photos from the Barrie trail would sell, help promote the trail and upkeep. Would show off the beauty of our trail. I've been taking pictures around Barrie for over 25 yrs. I Hope we can work on this project.

### Seating Areas and Surface

More seating areas

Paving the path, would be great. I am sure others would rather have the pavement than dirt.
My reasoning; there are so many sand flies, and dog poop.

I haven't been down to the path, as the construction in the area, causes a lot of dust.

.

**From:**
**Sent:** May 25, 2022 9:03 AM
**To:** Brad Parker <bparker@grnland.com>; kevin.rankin@barrie.ca; clare.riepma@barrie.ca
**Subject:** North Shore Trail Vegetation Management

Hello Kevin and Brad, (CC to Clare Riepma)

Although unable to attend last week's webinar, I have been informed of the content and consultant recommendations by a friend who attended the meeting.

My family resides on Kempenfelt Drive and uses the North Shore trail daily. We also witness the enjoyment of the path by Barrie residents and note that path usage has increased tremendously over the past couple of years. This path provides a 4 season, wonderful outdoor experience for many and will only increase as our population increases. The best part of this trail is the view of the water, the feel of the breeze coming across the water and enjoyment of seeing the animal life in the water.

We feel strongly that the view of Kempenfelt Bay should be maintained along the North shore for the enjoyment of ALL Barrie residents walking, riding or sitting along the North shore from Kempenfelt Park west to Vancouver St. by trimming of scrub- meaning keeping sumacs,

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Kevin.rankin@barrie.ca

Hello Kevin and Brad,
Thank you for sharing possible alternatives for Northshore Trail protection in the presentation of May 24th. We live on Shanty Bay Road and our property gives onto the trail in Zone C as described in the presentation. We have been for some years members of a volunteer organization that has built and maintained a hiking trail in environmentally-protected hills in the North Bay area of California. Very different environments, but with some very similar issues.

Based on our experience with trail maintenance and design, and our support of Barrie's trails and green spaces we would like to offer some observations, comments and questions on erosion control, vegetation management and policy as regards the Northshore Trail.

**Erosion**

1. The trail has a hardened (well compacted) trail tread with a surface of aggregate and is crowned for almost all its length. The trail is some 3 km long, with an elevation gain from west to east of 30 meters or so. Longitudinal gradients are therefore negligible. The north (upslope) side of the trail has a swale for most of its length that acts as a significant barrier to cross-trail flow, and indeed even in places where no swale exists – the location where Puget Street debouches onto the trail is a good example – the trail tread shows no water scouring in spite of lying transverse to a long section of vertical flow. In trail building terminology the trail is really a turnpike with its raised crowned tread and exhibits very little wear despite heavy usage.

2. The trail tread itself shows no signs of erosion to warrant concern. There is no evidence of any cross-trail stream flows, which strongly suggests that the upslope swale is either never over-topped, or if it is then the resultant flow is sheet flow. If this is indeed the case, then the typical catchment area for downslope flow is the portion of the trail itself from the top of the crown to the lakeside trail edge.

3. There are many locations where the edge of the trail is breaking down due to erosion and foot traffic. They are in almost every case at the entry to rogue trails created to access the lakeshore and allow sheet flow to become stream flow. Once soil is exposed, further erosion due to freeze/thaw cycles can take place. It is worth noting that none of the shore access points towards the eastern end of the trail where property owners control both sides of the trail show signs of erosion. The rogue trails are a huge problem. There are so many of them and they are so so heavily used. While writing these comments to you, one of us

glanced out the window and counted a party of seven young adults emerging from a steep one onto the trail. This is not at all uncommon.

4. Unfortunately, the proliferation of rogue trails over the years with few attempts to stop them, has created the expectation that people can clamber and wander where they please, regardless of harm to the natural environment. The expectation has even been reinforced by signage warning people of poison ivy in areas beside the trail. It seems to us what's needed is strong encouragement, by various means, <u>to stay on the trail</u>.

5. May we suggest the following:
    i. Select a couple of judiciously chosen access points (that don't lead anywhere else) and construct effective natural step or step and landing sequences flanked by retaining walls to eliminate slope and preserve sheet flow. Re-vegetate as necessary.
    ii. Close all others by constructing retaining walls, fill, seed or otherwise re-vegetate with plant and shrubby trees that are difficult for humans to navigate. Until vegetation is re-established cover rogue trail path with large cut or fallen tree limbs (wired down if necessary) and trunks to seriously hinder further passage.
    iii. Erect signage advising users to keep to the trail and noting that the area is undergoing re-vegetation and erosion control.
    iv. Enforce the no-camping prohibition. Anyone who lives nearby or regularly walks the trail with their eyes open knows people are sleeping rough and "camping" below the trail and also above Johnson's Beach once the weather warms -- in the very areas that need protection from human intrusion and their waste and detritus. Then there's the fire danger from smoking and campfires; it doesn't take much in a dry summer.

6. It is not at all clear how ditching the north side would be at all helpful to the majority of erosion problems. Can we see the technical study/assessment or other information that led to that conclusion?

7. A narrow trench filled with crush fill will quickly accumulate small-particle detritus from trail traffic and vegetation and become ineffective. There seems little point in gathering water to be delivered as a stream on steep slopes: one is converting sheet flow to stream flow, and creating exactly the condition to be avoided.

8. Please remember that a number of residents, primarily on Shanty Bay Road, with narrow and/or steep side-yards, have traditionally relied for decades on the City allowing back access via the trail to their properties for landscaping, construction and tree-trimming/removal equipment when necessary. For some of us, the sewer even runs through the back yard. Also, in dire circumstances, some emergency services could use the back access. Is this ditch going to impede that kind of access?

**Vegetation management**

9. Noxious and invasive weeds, such as ragweed which has proliferated along parts of the trail and migrated into residents' yards the last couple of years, should be eradicated early in the growing season.

10. Thinning out weedy trees growing too close together would give healthier specimens room to grow and provide bank stabilization. There are many examples where this needs to be done.

11. As a preventive measure against future rogue trails in sparsely treed areas, consider planting shrubby trees that will not exceed four or five feet in height.

**Policy**

12. We feel the case has not yet been explicitly made to support the recommendation to move to a more restrictive EP designation. What would the City actually do with more control, that it cannot do now under its own bylaws and policies and those of LSRCA? Does it actually need an EP designation to pass a bylaw restricting human incursion into the natural areas and assessing penalties? What is to stop the city now from actively discouraging rogue trails and other incursions into the natural areas?

Thank you for considering our input and, in advance, for answering the questions we have raised. Please let us know if we can help you in any way.

Sincerely,

June 2, 2022

invasive species, and higher growing plants (those that are not singular, well rooted trees) trimmed as per past plan and execution.

Currently, the rough areas in Kempenfelt Park are quite overgrown and are in need of trimming as per past/current park plan. Please see photos attached (taken this week).
We request reinstatement of this plan. The consulting is complete and now is the time to return to plan to properly maintain Barrie Parks.

As for the remainder of the North Shore path beyond Kempenfelt Park, we support and request some trimming in order for the view to be maintained along the path. Walkers and riders on the asphalt path should be able to see the water. All residents using the lower path should also be able to see the water.
Surely, the root systems of trimmed scrub can help support the land and minimize erosion. The movement of water run off spouts (As suggested in the consultant recommendations) will be a better way to support the land erosion while still allowing the beauty of Barrie's North Shore Trail to be enjoyed by all.

Barrie's waterfront views are our city's #1 feature and differentiate Barrie from all cities south of here. This must be prioritized and preserved. Other measures can help support the decline in erosion and we can find a suitable resolution to meet both needs. Overgrowth of scrub is unsightly and not the best solution for our City and Residents.

Best,

# Appendix D

Plan Update Maintenance Level

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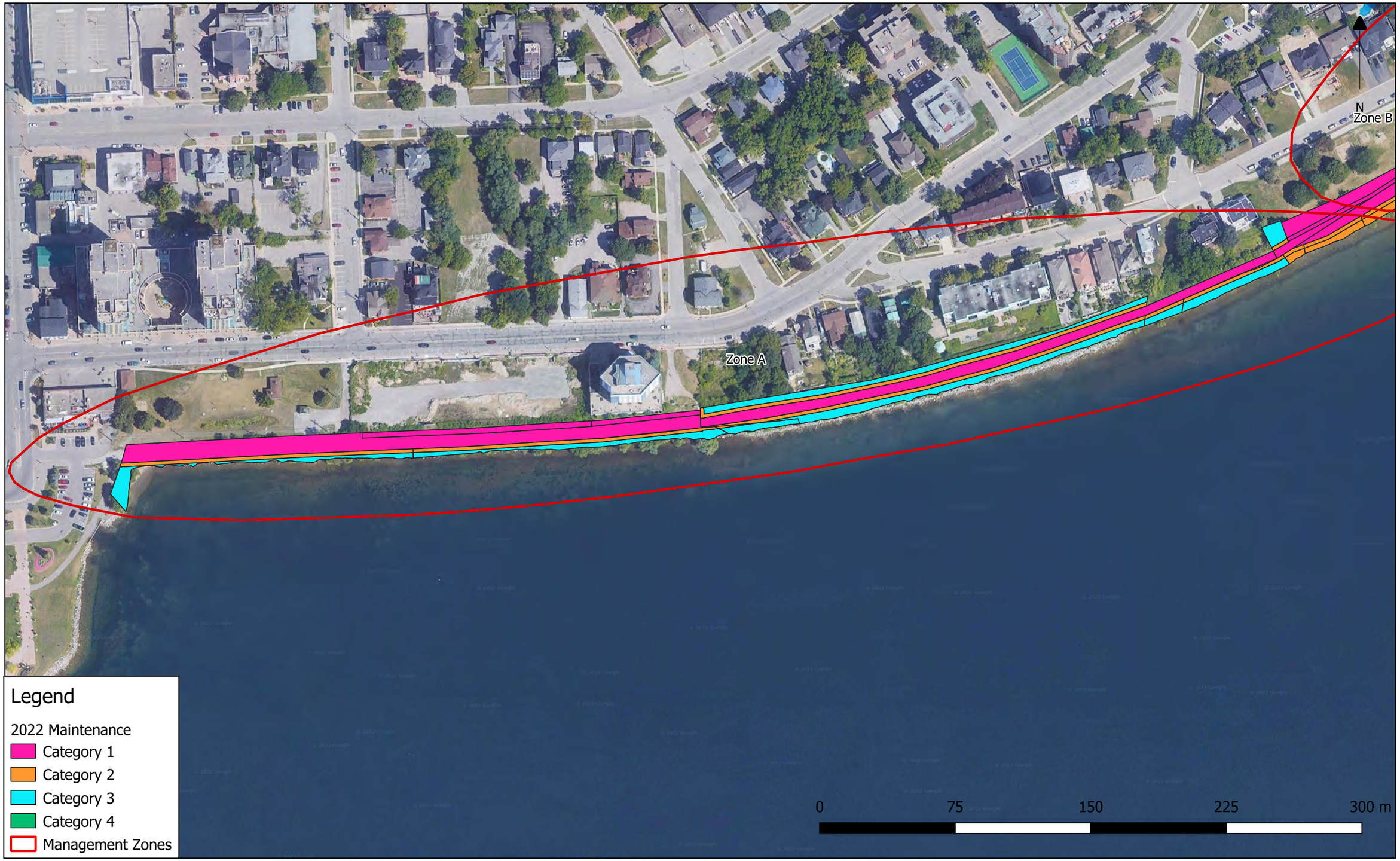
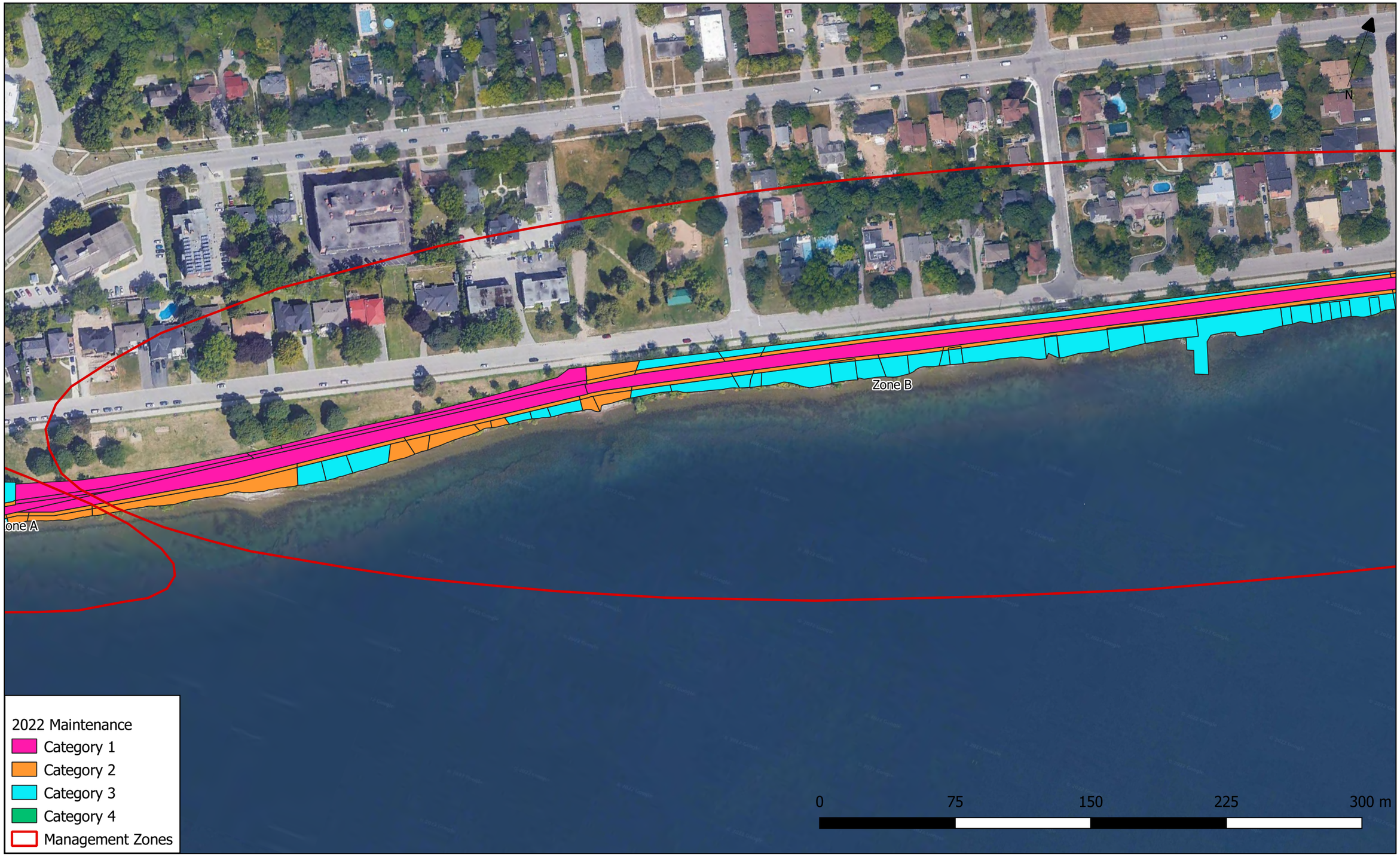

N
Zone B
Zone A
Legend
2022 Maintenance
Category 1
Category 2
Category 3
Category 4
Management Zones
0
75
150
225
300 m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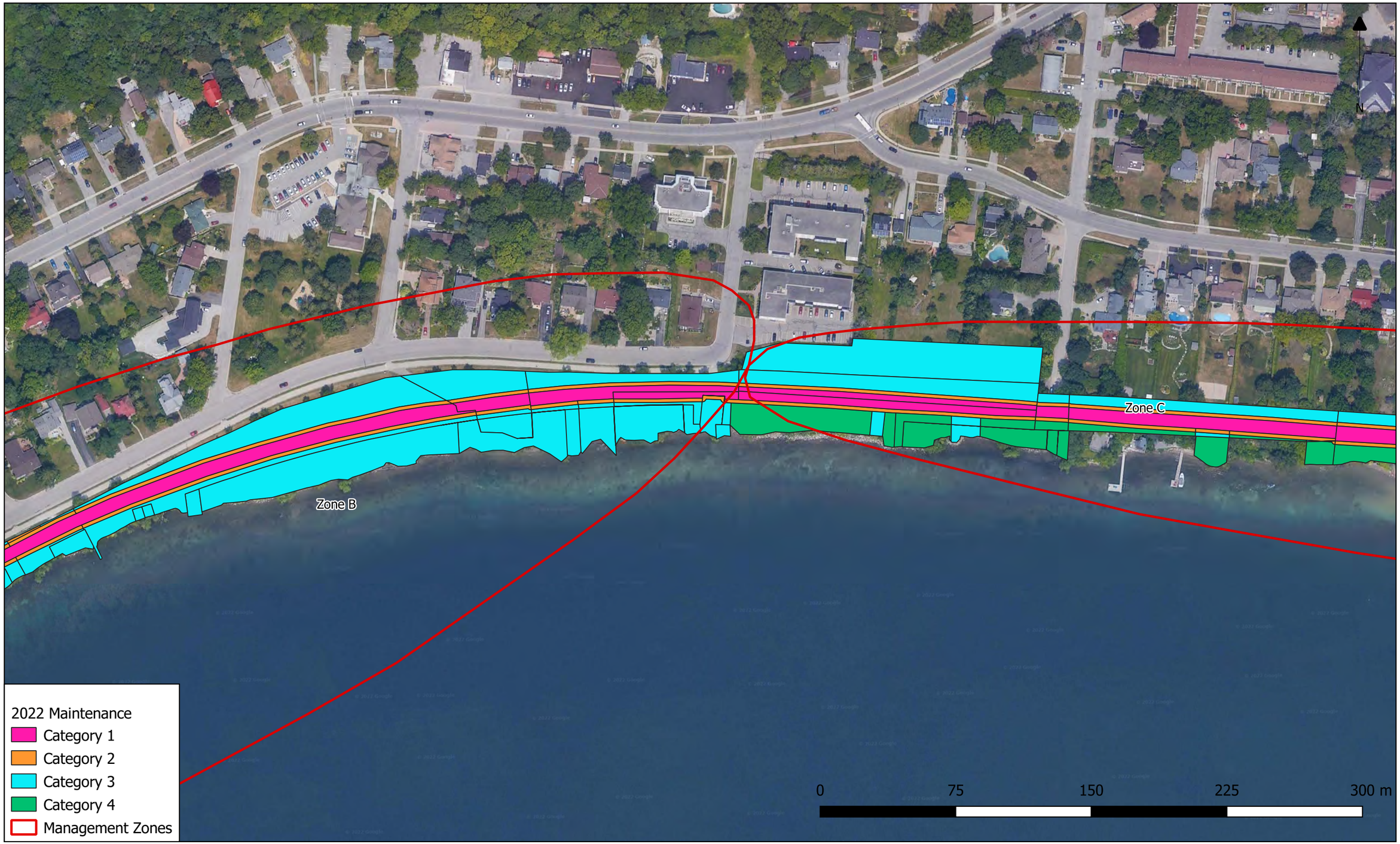
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2022 Maintenance
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Management Zones
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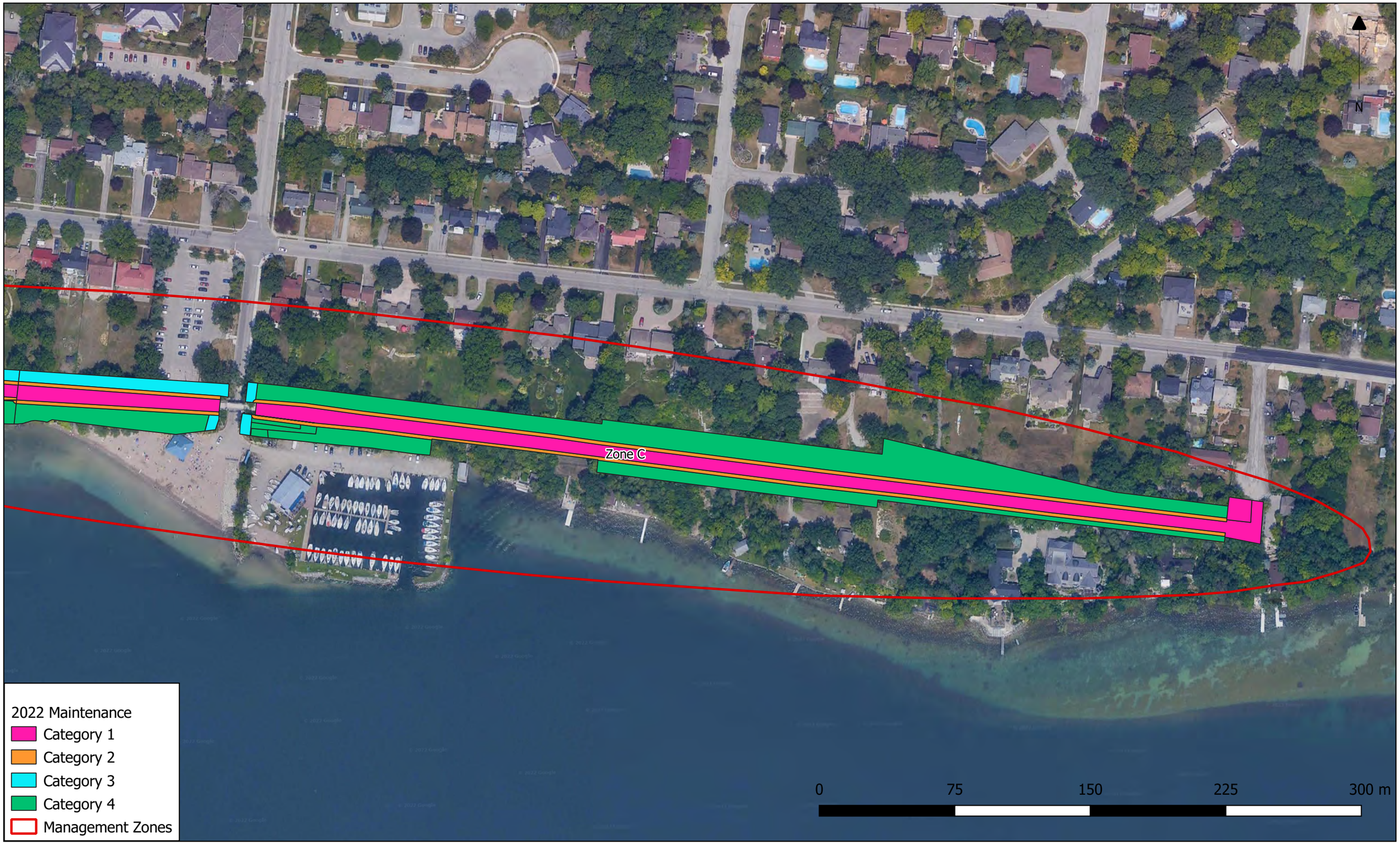
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Zone C
2022 Maintenance
Category 1
Category 2
Category 3
Category 4
Management Zones
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300 m

# Appendix E

Net Present Value /
Cost Benefit Analysis

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# North Shore Trail Improvements

## 20 Year Life Cycle Cost

| | |
|---|---|
| Average Inflation Rate | 2.05% |
| Municipal Discount Rate | 3.50% |

**OPTION 1-Do Nothing**

| | Year 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital Cost** | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **Replacement Cost** | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $0 |
| **Energy Costs** | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **O&M Costs** | $50,000 | $51,025 | $52,071 | $53,138 | $54,228 | $55,339 | $56,474 | $57,632 | $58,813 | $60,019 | $61,249 | $62,505 | $63,786 | $65,094 | $66,428 | $67,790 | $69,180 | $70,598 | $72,045 | $73,522 | $75,029 |
| **Total Value** | $50,000 | $51,025 | $52,071 | $53,138 | $54,228 | $55,339 | $56,474 | $57,632 | $58,813 | $60,019 | $61,249 | $62,505 | $63,786 | $65,094 | $66,428 | $67,790 | $69,180 | $70,598 | $72,045 | $73,522 | $75,029 |
| **Present Value** | $50,000 | $49,300 | $48,609 | $47,928 | $47,256 | $46,594 | $45,942 | $45,298 | $44,663 | $44,038 | $43,421 | $42,812 | $42,213 | $41,621 | $41,038 | $40,463 | $39,896 | $39,337 | $38,786 | $38,243 | $37,707 |
| **20-Yr Life Cycle Cost** | **$915,165** | | | | | | | | | | | | | | | | | | | | |

**Notes:**

**OPTION 2-A PHASED APPROACH**

| | Year 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital Cost** | | | | | | | | | | | | | | | | | | | | | |
| Zone A Vegetation | $ 10,000.00 | $10,205 | $10,414 | | | | $11,295 | $11,526 | $11,763 | | | | $12,757 | $13,019 | $13,286 | | $13,836 | | | | |
| Zone B Vegetation | $ 10,000.00 | $10,205 | $10,414 | $10,628 | $10,846 | $11,068 | $11,295 | $11,526 | $11,763 | $12,004 | $12,250 | $12,501 | $12,757 | $13,019 | $13,286 | $13,558 | $13,836 | $14,120 | $14,409 | $14,704 | $15,006 |
| Zone C Vegetation | $ - | | | $10,628 | $10,846 | $11,068 | | | | $12,004 | $12,250 | $12,501 | | | | $13,558 | | $14,120 | $14,409 | $14,704 | $15,006 |
| Erosion Mitigation | $ 10,000.00 | $10,205 | $10,414 | $10,628 | $10,846 | $11,068 | $11,295 | $11,526 | $11,763 | $12,004 | $12,250 | $12,501 | $12,757 | $13,019 | $13,286 | $13,558 | $13,836 | $14,120 | $14,409 | $14,704 | $15,006 |
| **O&M Costs** | $ 20,000 | $20,000 | $20,000 | $20,600 | $21,218 | $21,855 | $22,510 | $23,185 | $23,881 | $24,597 | $25,335 | $26,095 | $26,878 | $27,685 | $28,515 | $29,371 | $30,252 | $31,159 | $32,094 | $33,057 | $34,049 |
| **Total Value** | $50,000 | $50,615 | $51,243 | $52,483 | $53,755 | $55,058 | $56,395 | $57,764 | $59,169 | $60,609 | $62,085 | $63,598 | $65,150 | $66,741 | $68,372 | $70,045 | $71,760 | $73,518 | $75,321 | $77,170 | $79,066 |
| **Present Value** | $50,000 | $48,903 | $47,836 | $47,337 | $46,844 | $46,358 | $45,877 | $45,402 | $44,934 | $44,471 | $44,013 | $43,561 | $43,115 | $42,674 | $42,239 | $41,809 | $41,384 | $40,965 | $40,550 | $40,140 | $39,736 |
| **20-Yr Life Cycle Cost** | **$928,148** | | | | | | | | | | | | | | | | | | | | |

**Notes**: This cost estimate assumes no donations or community involvement/partnerships, which may reduce costs
Assumes 10K Cost per year, per selected improvement area

**OPTION 2-B AGGRESSIVE APPROACH**

| | Year 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital Cost** | | | | | | | | | | | | | | | | | | | | | |
| Zone A Vegetation | $ 43,000.00 | | | | | | | | | | | | | | | | | | | | |
| Zone B Vegetation | | | $152,568 | | | | | | | | | | | | | | | | | | |
| Zone C Vegetation | $ 16,500.00 | | | | | | | | | | | | | | | | | | | | |
| Erosion Mitigation | | $407,674 | | | | | | | | | | | | | | | | | | | |
| **O&M Costs** | $ - | $17,500 | $17,859 | $18,225 | $18,598 | $18,980 | $19,369 | $19,766 | $20,171 | $20,585 | $21,007 | $21,437 | $21,877 | $22,325 | $22,783 | $23,250 | $23,726 | $24,213 | $24,939 | $25,687 | $26,458 |
| **Total Value** | $59,500 | $425,174 | $170,427 | $18,225 | $18,598 | $18,980 | $19,369 | $19,766 | $20,171 | $20,585 | $21,007 | $21,437 | $21,877 | $22,325 | $22,783 | $23,250 | $23,726 | $24,213 | $24,939 | $25,687 | $26,458 |
| **Present Value** | $59,500 | $410,796 | $159,095 | $16,438 | $16,207 | $15,980 | $15,757 | $15,536 | $15,318 | $15,104 | $14,892 | $14,683 | $14,478 | $14,275 | $14,075 | $13,878 | $13,683 | $13,492 | $13,426 | $13,361 | $13,297 |
| **20-Yr Life Cycle Cost** | **$893,271** | | | | | | | | | | | | | | | | | | | | |

**Notes**: This cost estimate assumes no donations or community involvement/partnerships, which may reduce costs