Community Trails Strategy







CITY OF Burlington

Report

May 2015

MMM GROUP



Acknowledgements

The study team would like to express their appreciation to the following individuals that contributed to the development of this strategy and the many other City staff, stakeholders, committee representatives and members of the public who through their input, contributed to its development:

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Community Trails Strategy







CITY OF Burlington

Report | Volume 1 – Background Report

May 2015

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1994

Developed the Strategy for Greenways & Trails



Implemented key portions of the Waterfront Trail (late 1990)



Initiated the Orchard Community Trail System (2000)



Adopted the 2008 Official Plan – trails / cycling policies (2008)



Adopted the Cycling Master Plan – on-road cycling focus and major off-road trails (2009)



Implemented the Hydro Corridor and Centennial Multi-use Trails (2010)



Today

V1.1 Establishing the Business Case

V1.1.1 Introduction

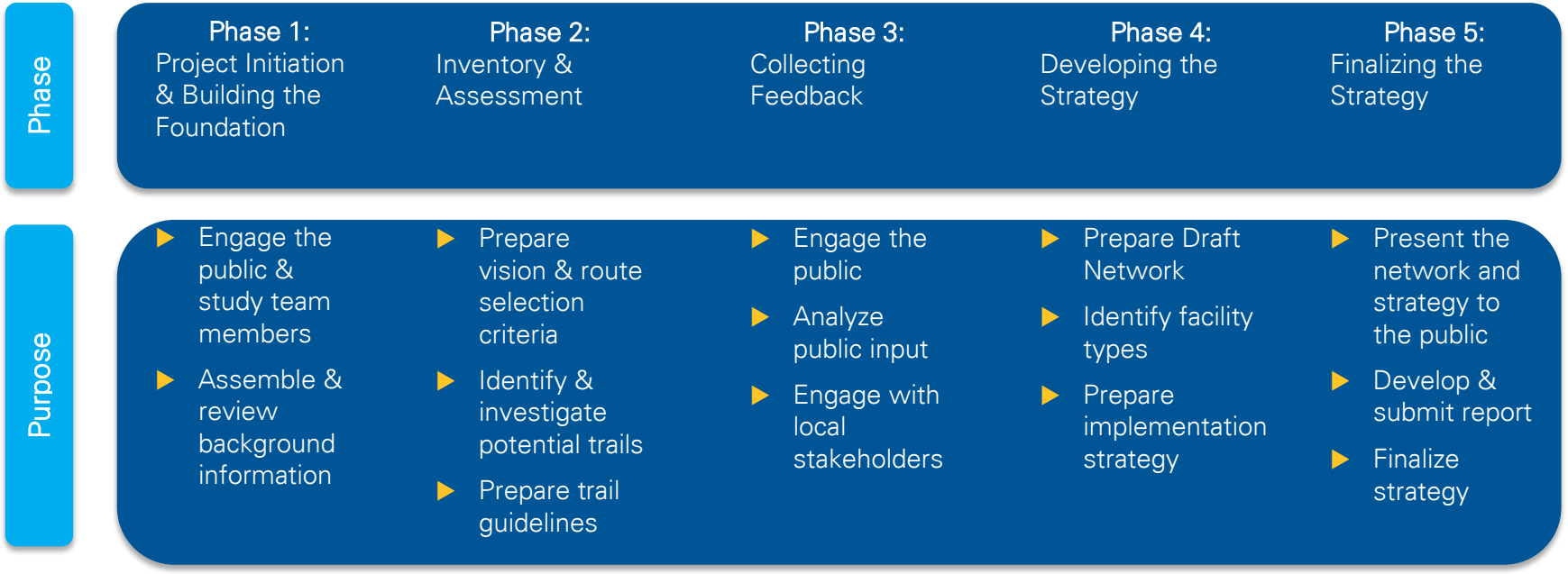
Results from the 2011 Statistics Canada Census indicate a 6.9% population growth since 2006 in Burlington. This is consistent with many other municipalities found within Halton Region demonstrating its desirability as a residential destination. The City's location within the Greater Toronto and Hamilton Area and access to a range of transportation modes and alternatives make it an attractive place to live, with relatively easy access to the larger urban areas of Toronto and Hamilton. However, a community is not solely about living and working. In order to establish a viable and sustainable community a number of critical components including but not limited to the ability to walk / bike to work, air quality, amenities, culture and ability to pursue local recreational pursuits.

Burlington has a long history of active transportation and recreation – the use of human powered forms of transportation to engage in day to day or leisure / fitness activities – since the development of the first piece of the Waterfront Trail in 1994. Since this time, the City has been committed to developing a system of trails that promotes walking, cycling and rolling to one's destination or using alternative modes of transportation on trails to engage in the City's urban and rural communities.

The Community Trails Strategy is intended to guide future trail development, design, and implementation of the City's community trails network and supports the City's broader City-building objectives. It is to be used as a working tool / document providing valuable information for making informed decisions on a system wide basis. The recommendations included in the strategy are supported by a number of City plans, policies and initiatives.

The geographic opportunities and constraints found within Burlington include its strong urban centre with services and amenities in the core, and a fixed urban boundary outside of which lies naturally significant rural / agricultural areas containing the Niagara Escarpment. By understanding these unique characteristics a clear focus is established for encouraging the use of on and off-road trails for short-distance recreational / utilitarian trips within the core and long-distance recreational trips within the rural areas. This focus is summarized and prioritized in the Community Trails Strategy. The strategy sets out a network of off-road trail connections that builds on what is already on the ground. The network focuses on a number of short-term priorities / initiatives which could be explored by the City following the adoption of the strategy and is supported by a set of policies, recommendations and tools. The information included in the strategy not only focuses on the development of the network but also acknowledges the importance of supporting the development of physical infrastructure with promotion, outreach and educational programs. The development of the strategy included a comprehensive process, which took place over a nine month period. The strategy was developed in five phases. **Figure V1.1** describes the process used to develop the Community Trails Strategy.

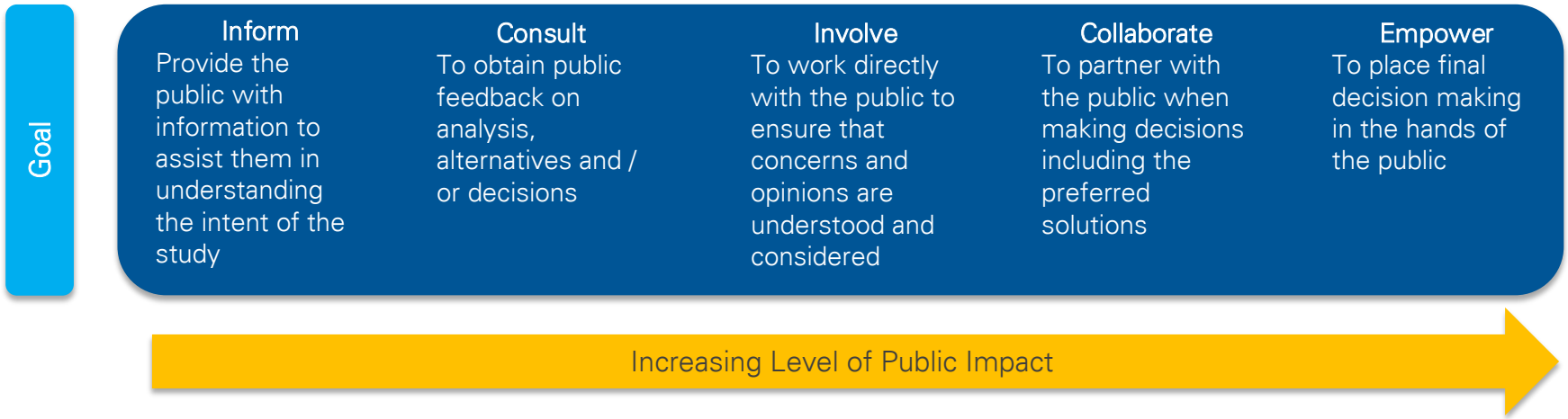
Figure V1.1 – Community Trails Strategy Study Process



As this strategy is intended to guide the development of community trails, an essential component of the strategy was to understand the community's thoughts on the current trails system, their opinions regarding future opportunities and areas which may pose challenges, ideas about potential facility types / trail design alternatives and discuss ways that residents can be further informed, educated and encouraged to use trails throughout the city for recreation and transportation.

A consultation strategy to engage the community and key stakeholders was developed at the beginning of the study and was used to guide the preparation and completion of consultation and engagement activities. The strategy was consistent with the City's Community Engagement Charter and the International Association of Public Participation (IAP2) approach to a robust community engagement strategy. **Figure V1.2** illustrates the IAP2 approach used to guide the development of the strategy.

Figure V1.2 - IAP2 Community Engagement Approach source: www.iap2.org



A consultation plan was developed over the course of the study process which addressed / achieved the IAP2 objectives. Figure V1.3 shows the range of public and stakeholder engagement activities where feedback and input was collected to inform the development of the Community Trails Strategy.

Figure V1.3 - Range of Public & Stakeholder Consultation Activities Used



A summary of the input provided and a description of how it was used to inform the development of the strategy is provided in more detail in section V1.2.1.

V1.1.2 Understanding the Strategy

In advance of setting out the proposed Community Trails network, it is important to outline what the strategy is and what it is not. By clearly defining these two elements the City will be better able to more accurately communicate the intent of the document to City staff, those responsible for the plan's implementation, the public and other key partners and stakeholders. Table V1-1 provides an overview of some of the key assumptions used to frame the Community Trails Strategy.

Table V1-1 – Overview of Guiding Strategy Principles

What the Strategy Is…	What the Strategy Is Not…
▶ A long-range, flexible blueprint for community trails highlighting important points of connection ▶ A set of tools to facilitate implementation ▶ Suggested next steps with regard to network priorities ▶ Guidelines for the development, maintenance and operation of trails (e.g. maintenance, signage, lighting, liability, risk management, etc.)	▶ Prescriptive or set-in-stone ▶ An imbalanced approach to implementation ▶ Strict, legislated standards which must be met or adhered to

V1.1.3 Outlining the Policy Support

The Community Trails Strategy was developed and informed by many of the City's planning and policy documents that contain trail or active recreation related policies, objectives and initiatives. Key local planning documents that have informed the development of the Community Trails Strategy include:

- City of Burlington Cycling Master Plan
- City of Burlington Official Plan
- City of Burlington Parks, Recreation & Cultural Assets Master Plan
- Burlington, Our Future – Strategic Plan Summary 2011 – 2014
- Burlington Community Action Plan for Life

A continuous and connected Community Trails Strategy must also consider on-road facilities which provide direct connections to off-road and destination trails where the opportunity to provide an off-road link does not exist. For these components of the network the Cycling Master Plan was the primary reference.

In addition relevant information from ongoing studies was provided by City staff including the Mobility Hubs Opportunities and Constraints Study and the Transportation Master Plan Update.

One of the key objectives of the Strategy was providing connectivity to surrounding communities where possible. In addition to City policies and plans, the study team also reviewed other relevant planning and policy documents at the federal, provincial and regional level as well as from surrounding communities. In reviewing these documents it can be concluded that there is significant support from all levels of government to continue the development of an integrated trails system City-wide. A summary of the key findings from each of the policies and plans reviewed and their relevance to the Community Trails Strategy can be found in **Appendix A**.

V1.1.4 Trails as part of a Multi-modal / Integrated Transportation Network

The development of the Community Trails Strategy occurred at the same time as the City's Transportation Master Plan Update. Though the study process for the Transportation Master Plan Update continued after the completion of the Community Trails Strategy it brings to light the importance of the role that trails play as a part of the greater transportation network for the City of Burlington.

Multi-modal Transportation
A connected transportation system that supports cars, bicycles, pedestrians and public transit.
(source: www.walklive.org)

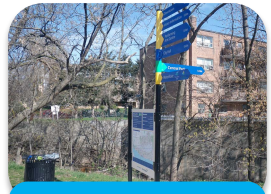
The City's Cycling Master Plan (2009) focuses solely on cycling as a mode of transportation / recreation and the cycling network relies on routes that use the road network and off-road links that are considered critical to the continuity of an overall cycling network. The Community Trails Strategy complements the Cycling Master Plan and focuses on the variety of trail user groups and off-road trails that suit these user groups. Although the Community Trails Strategy does include some on-road links, these are recommended only where a critical off-road link cannot be achieved. In these locations (i.e. where there is no park or public open space available) cyclists would be directed to use the road and pedestrians would use the sidewalk. Together, the Cycling Master Plan and Community Trails Strategy work in a complementary fashion to provide comprehensive network for active (non-motorized) modes of transportation. Incorporating trails into an integrated system of transportation modes can be achieved through a number of multi-modal combinations including but not limited to:


Bike Racks on Buses


Bus Stops at Trail Entrances


On-Road Connections


Secure Bike Parking


Staging Areas & Signage


Pedestrian & Cyclist Crossings

In the City of Burlington the off-road trails network already plays an integral role in the ability to participate in local recreational pursuits. However, as the demand grows for alternative and sustainable forms of transportation residents of the City may realize the opportunity that trails provide for utilitarian activities. By providing connections to other modes of transportation at key destinations and mobility hubs the City will be better positioned to continue to promote walking and cycling as a viable form of transportation which can be integrated into day to day activities. Mobility Hubs are transit stations with significant levels of planned transit service (the intersection of two or more current or planned regional rapid transit lines) and high residential and employment development potential within an 800m radius of the transit station. There are two provincially identified Mobility Hubs (Burlington GO and Downtown Burlington) and two locally identified Mobility Hubs (Aldershot GO and Appleby GO).

V1.1.5 Building the Case for Trails

Trail use is recognized as one of the top three recreational activities with over 20% participation throughout the Province of Ontario and an anticipated growth rate of 2.3% (Ministry of Tourism, Culture and Sport). Trail use has been embraced province and nation-wide as a convenient and affordable way to enjoy nature and one's community, improve individual and community health and contribute to local economic development. Evidence shows that by investing in trails we are investing in our community's future, quality of life and economic viability. Some of the key benefits associated with the development of trails are summarized below.



Active and Healthy Living

- Almost half of Canadians, ages 12 and over, report being physically inactive and 26% of youth between the ages of 2 and 17 years old are overweight or obese (Statistics Canada).
- Ontario Ministry of Health and Long Term Care states that only 30 minutes of brisk walking per day are required in order to maintain one's health, and the most effective fitness routines are moderate in intensity, individualized and incorporated into our daily activities.
- A 5% increase in the walkability of a residential neighbourhood was associated with 32 more minutes of physically active travel per day and a 0.23% reduction in Body Mass Index (BMI). (Frank, 2006) and individuals who have access to trails increase their recreational activity on average by 44% (Irish Trail Strategy, 2006).

- A study by the Nova Scotia Heart and Stroke Foundation in 2004 concluded that 40% of chronic illness could be prevented by regular physical activity and suggested that urban planning could offer opportunities for increased physical activity by creating walking and cycling alternatives, such as trails, to motorized transportation.
- Participation in physical activity including the use of trails for the enjoyment of nature is directly linked to one's mental health through the release of natural endorphins as well as increased interaction in social scenarios.



Community Safety

- Results from a Thunderhead Alliance research study indicated a positive correlation between the levels of cycling and walking and increased safety of users. Cities with the highest raw numbers of walking and cycling also had the lowest per capita fatality rates for pedestrians and cyclists[i].
- Public opinion research indicates that with the development and / or enhancement of hard infrastructure many pedestrians and cyclists report that they feel safer and thus participate more frequently in active transportation activities and trail use.
- Two principal safety concerns for pedestrians and cyclists relate to personal safety and security, some of which may be due to non-motorized and motorized modes sharing the same infrastructure[ii].
- Though research has found that in the United States, pedestrians and cyclists suffer 2-3 times more accidents than a car driver (per 100 million trips) (Pucher and Dijkstra, 2003)[iii], trails are often located out-side the roadway right-of-way, providing pedestrians and cyclists with a dedicated facility away from vehicular traffic therefore increasing user comfort and safety.
- Substandard infrastructure can increase safety concerns of pedestrians and cyclists. Inadequate infrastructure, dangerous intersections and crosswalks and poor lighting were found to be significant contributors to increased fatality and injury rates among pedestrians and cyclists[iv].



Tourism & Economic Development

- An economic impact study completed for the Eastern Ontario Trails Alliance estimated that after the ten year build-out period of the 520km system, approximately 1600 jobs will be created or sustained, and $45 million in annual economic and tourism benefits will be generated in the communities through which it passes (EOTA, 2006).

- In 2005, Quebec hosted 410,000 bicycle tourists who spent an average of $83 per day and an average of 6.8 nights compared to $66 per day and an average of 3.1 nights spent by other tourists.
- A study of the "T" Railway in Newfoundland (2002) found that the total annual economic impacts associated with this trail are estimated to be as high as $17.4 million in new income generated, upwards of 850 new jobs and millions of dollars in additional tax revenue for both the provincial and federal governments.
- 70% of all Bruce Trail users report that the trail is their main reason for visiting the area, and they spend an average of $20.00 per visit, per user, within a 10km corridor on either side of the trail.

Case Study: Region of Niagara, ON

The Region of Niagara recognizes the potential value of trail tourism. For over a decade the Region has been pursuing trail related development in partnership with the provincial and federal government, the Niagara Parks Commission, the Municipalities of Niagara-on-the-Lake, St. Catharines, Thorold, Welland, Port Colborne, and Fort Erie. When linked together, the trails form the Greater Niagara Circle Route, a large trail loop approximately 150km in length that follows the Welland Canal, Lake Erie shoreline between Port Colborne and Fort Erie, the Niagara River and the Lake Ontario shoreline between Niagara-on-the-Lake and Port Weller. The completed parkway is estimated to add as much as $218M annually to local economies.

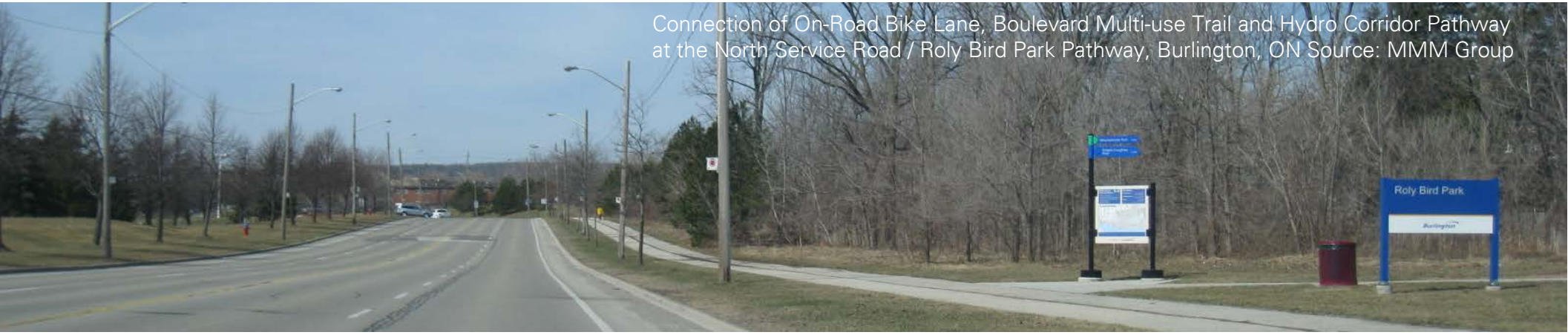
- Economic Development Departments have recognized the value of trail systems integrated into commercial and industrial developments. For example, the Hanlon West Business Park in Guelph, Ontario includes a trail system surrounding a central natural heritage feature. This feature is being used to attract new industry to Guelph whose employees will benefit by being able to travel to and from work, and take exercise breaks using local trails.



Environment & Sustainable Transportation

- In Canada, the number of automobiles continues to increase steadily and people are driving greater distances more often. The average car travels 16,000 km/year or about 300 km/week. Limiting the number of kilometres driven by choosing another mode of transportation is by far the best way to reduce air pollution (Public Health Agency of Canada).
- Canadians make an average of 2,000 car trips per year over distances less than 3 km. Surveys show that 66% of Canadians would like to cycle more than they presently do. Seven in ten Canadians say they would cycle to work if there "were a dedicated lane which would take them to their workplace in less than 30 minutes at a comfortable pace"[v].

- If 5 million Canadians walked or cycled instead of using their automobiles for short trips (averaging 3 kilometres per week), polluting car emissions would be reduced by 30 metric tonnes over a six-month period. (Go for Green, 1994).
- The ecological footprint is a measure of human demands on natural resources such as land, water and air, and is reduced when people choose to travel by walking and cycling. "The greatest contributing factor to a large ecological footprint is carbon intensive fuel supplies for transportation, electricity and heating" (Ontario College of Family Physicians, 2005, p. 20). Cycling and walking have negligible effects on the size of the ecological footprint.
- Initiatives to promote and encourage active transportation are a viable option to reducing discretionary motor vehicle usage and promoting environmental benefits. Some of the key environmental benefits include[vi]:
  - Resource conservation (less dependency on natural resources such as petroleum and coal);
  - Pollution reduction;
  - Integration of compact mixed development that encourages transit, cycling and walking and puts less focus on automobile facilities;
  - Reduced traffic and road congestion;
  - Reduced delays from collisions;
  - Reduced unreliability of travel time;
  - Reduced fuel and transport costs; and
  - Improved ability to access facilities and services[vii]



Connection of On-Road Bike Lane, Boulevard Multi-use Trail and Hydro Corridor Pathway at the North Service Road / Roly Bird Park Pathway, Burlington, ON Source: MMM Group

V1.2 Understanding & Responding to the Public Demand

V1.2.1 What Does the Public Want?

The public and stakeholder consultation and engagement activities and initiatives were used to gather input at two key stages of the development of the strategy. The input gathered informed the development of the proposed network, key network priorities, promotion and outreach opportunities as well as next steps to facilitate the implementation of the Community Trails Strategy. An overview of the consultation and engagement objectives for phases 1 and 2 of the strategy development are summarized in **Table V1-2** and a summary of some of the key highlights from the public and stakeholder consultation are provided in **Table V1-3**. A more detailed summary of input received can be found in the consultation record – **Appendix B**.

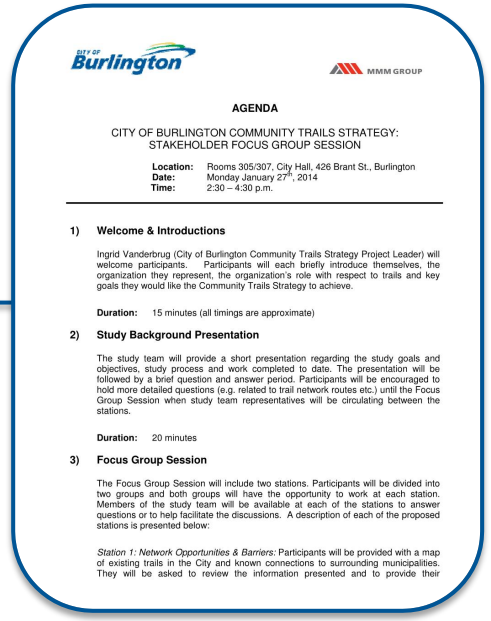
Table V1-2 - Overview of Public & Stakeholder Engagement Objectives

Consultation Phase 1: Present and review the existing trail conditions found in the City of Burlington and document potential opportunities or challenges associated with developing a community trails network and filling in gaps in the existing system.	**Consultation Phase 2:** Present and review the draft community trails network and priority projects associated with the development of the network. The public and stakeholders were also asked to review draft recommendations, promotion / outreach and implementation strategies.

Table V1-3 - Summary of Public & Stakeholder Input Received

Phase 1 & 2 Consultation Activities
Focus Group Sessions #1

- **Engagement Overview:** Three sessions were held on January 27th, 2014, including interviews with the Mayor and Council, representatives from City Advisory committees as well as key local stakeholders. The City Advisory Group session included representatives of the Cycling Committee, Accessibility Advisory Committee, Sustainable Development Committee, and the Road Safety Committee. The key local stakeholder group included representation from the Bruce Trail Conservancy, Iroquoia Bruce Trail Club, Niagara Escarpment Commission, Halton Region Public Health, Hamilton Burlington Trails Council, Tourism Burlington, Royal Botanical Gardens, Cootes to Escarpment, Conservation Halton, Halton District Catholic School Board, Halton District School Board, and the International Mountain Bike Association (IMBA).
- **Materials Presented:** Each group was provided with materials including a map of existing on and off-road trail routes. Sessions included a brief presentation including an overview of relevant background information e.g. study vision and goals, route selection criteria, existing conditions, etc.
- **Questions Asked:** Attendees were asked to review the materials presented and provide their input on their experience using the trails, how they could be improved, areas of opportunities and potential challenges and future outreach and promotion initiatives.
- **Key themes which emerged from the Councillor session included:**
  - The trails system should focus on off-road connections, including natural areas where possible.
  - People use the trail system but there are a number of conflicts between different user groups (e.g. pedestrians and cyclists.)
  - Maintenance of the trail system should be identified as a priority but the City should not expect people to use the trail system year-round.



Burlington

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AGENDA

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY:
STAKEHOLDER FOCUS GROUP SESSION

Location: Rooms 305/307, City Hall, 426 Brant St., Burlington
Date: Monday January 27th, 2014
Time: 2:30 – 4:30 p.m.

1) **Welcome & Introductions**

Ingrid Vanderbrug (City of Burlington Community Trails Strategy Project Leader) will welcome participants. Participants will each briefly introduce themselves, the organization they represent, the organization's role with respect to trails and key goals they would like the Community Trails Strategy to achieve.

Duration: 15 minutes (all timings are approximate)

2) **Study Background Presentation**

The study team will provide a short presentation regarding the study goals and objectives, study process and work completed to date. The presentation will be followed by a brief question and answer period. Participants will be encouraged to hold more detailed questions (e.g. related to trail network routes etc.) until the Focus Group Session when study team representatives will be circulating between the stations.

Duration: 20 minutes

3) **Focus Group Session**

The Focus Group Session will include two stations. Participants will be divided into two groups and both groups will have the opportunity to work at each station. Members of the study team will be available at each of the stations to answer questions or to help facilitate the discussions. A description of each of the proposed stations is presented below:

Station 1: Network Opportunities & Barriers: Participants will be provided with a map of existing trails in the City and known connections to surrounding municipalities. They will be asked to review the information presented and to provide their

Phase 1 & 2 Consultation Activities

- Different wards have different socio-demographic populations. Facilities should be developed which respond to their wants and needs where possible.
- Specific areas for consideration: Bronte Creek, LaSalle Park, Kerncliff Park, City View Park, Lowville Park, crossings of the QEW.

- **Key themes from the Stakeholder Group session included:**
  - The City should consider and incorporate more land-use planning techniques that integrate trails into the development of retrofitting of communities.
  - The City should take advantage of funding opportunities to support the development of trail facilities at the provincial and federal level where possible.
  - At key trail terminus and starting points the implementation of trail amenities should be considered e.g. signage, benches, wayfinding and transit. The design of staging areas should be a key consideration and outcome of the strategy.
  - Gaps and missing links in the system need to be connected. The City should adopt the philosophy of no dead end trails.
  - A dedicated location should be created for mountain biking, like other communities have done. This may help to alleviate the pressure and conflicts currently occurring in some areas such as City View and Kerncliff Park.
  - The City should explore partnerships with the Halton Region Public Health to develop education and promotional programs in support of trail use.
- **Key themes from the Advisory Committees group session included:**
  - Missing links in the system should be identified and connections should be made including the use of intersection pedestrian signals, green spaces, north-south connections, crossings of the highway and roadway crossings with a lack of wayfinding.

Stakeholders were asked about examples of communities with exemplary trails. Some responses included:


Trails along the Rideau Canal, Ottawa ON Source www.ncc-ccn.gc


Park Trails in Brampton, ON Source: MMM Group



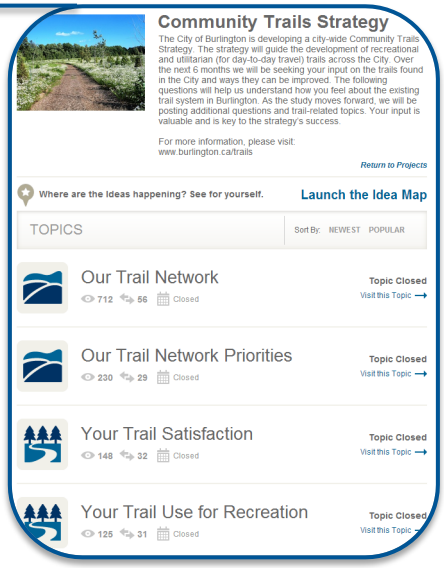
Cycling Trails in Quebec, Source: MMM Group

Phase 1 & 2 Consultation Activities

- Clear connections need to be made to existing destination trails such as the Bruce Trail.
- The City should consider consistent approaches to trail maintenance and clearing in the winter to ensure that people can use the system in different seasons.
- The strategy should address trail signage, wayfinding and maintenance to facilitate ease of connectivity as well as a sense of security when using the trails.
- Bold initiatives and programs are required to make trail use (e.g. walking and cycling) more appealing.

MindMixer – Let's Talk Burlington – Session #1 and #2

- **Engagement Overview:** Two MindMixer sessions were developed and launched during Phase 1 of the Community Trails Strategy development. The first session focused on questions regarding existing trail use. The second session focused on gathering input on the existing trail system.
- **Materials Presented:** The first MindMixer session did not present any materials developed for the study, however, the second session presented the existing conditions community trails map illustrating the current off-road trail network. The map and questions were issued twice over the course of the first phase.
- **Questions Asked:** The first MindMixer session had four questions posted to respondents including:
  - Please rank how important the funding of a community trails network is
  - Please rank how important trails are for your daily transportation i.e. getting to work, school or other destination
  - Please rank how important trails are for your day-to-day recreation activities
  - Please rank how satisfied you are with the current trails in the City of Burlington

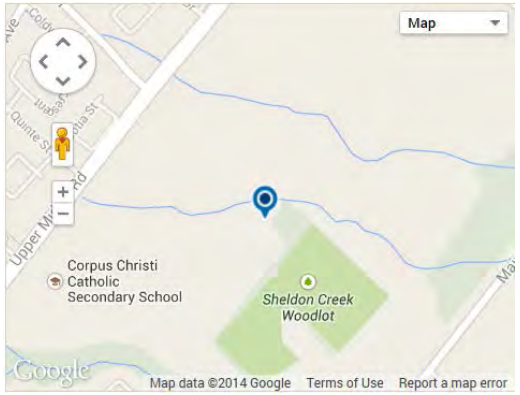


Phase 1 & 2 Consultation Activities

The second MindMixer session presented the existing trail network and posted a number of key questions related to use and priorities for improvements and new connections. Some discussion questions included:

- What trails do you use now?
- How do you use the trails e.g. walking, biking, rollerblading, etc.?
- Have you experienced any conflict with other users on the trail?
- Are there specific locations where you think signs are needed?

- **Key Themes:**
  - The majority of respondents (65%) indicated that they feel that the funding of community trails is very important as a City initiative.
  - For respondents' daily transportation 40% indicated that trails are very important while 26% indicated that they were very unimportant. Many respondents indicated that they use the Centennial trail to get downtown for day-to-day activities, however, others indicated that the lack of winter maintenance can be a deterrent for year-round use.
  - With regard to day-to-day recreational activities respondents had a higher rate of support for frequent use – 79% indicated that they are very important. Some respondents suggested that the development of additional natural trails would contribute to increased use and reference the City of Brampton as a local example of a perceived success.
  - Just over half of respondents indicated that they were either very satisfied or somewhat satisfied (57%) with the current conditions of trails in the City. However, an additional 29% voiced their dissatisfaction with the trail system. The majority of the comments referred to the need for improvements to the existing trails, additional lighting and maintenance to improve perceived comfort and safety on the trail system. Others provided suggestions for major roadways where an alternative trail connection would be desirable.



Example Mapping Comment Received:
"Connect two proposed trails here behind the woodlot to create a continuous trail south connecting the two halves of Sutton Drive. Would also work with the potential trail crossing further south as shown in the Cycling Master Plan."

Phase 1 & 2 Consultation Activities

- Additional recommendations for trail improvements were provided including:
  - The need for additional trail mapping, wayfinding and signage would help with ease of the use of trails; use additional signage and education to prevent conflicts on trails between user groups; additional design concepts for pedestrians and cyclists at intersections should be considered or where the trails cross major roadways; and people with varying abilities and mobility levels should also be considered when developing trails.

Public Open House #1

- **Engagement Overview:** The Public Open House was a combined consultation session between the Community Trails Strategy and the Transportation Master Plan. During February 2014 there were four venues where members of the public were engaged, these included the Burlington Art Centre, Appleby Ice Centre, Haber Recreation Centre and the Royal Botanical Gardens.
- **Materials Presented:** A set of display boards were prepared and used to engage attendees at the sessions. The display boards presented relevant background information (i.e. supportive policies and plans and also presented many of the key findings from the study to date including the draft route selection criteria, existing off-road trail system, potential facility types, etc.)
- **Questions Asked:** A set of interactive display boards were also prepared to gather input on potential opportunities and barriers as they relate to trail development. Respondents were asked to provide their thoughts on the current state of trails in the City, how they could be improved, what they wanted to preserve and potential linkages for future consideration.
- **Key Themes:**
  - People want to use the trails more and would like to have more opportunities where they can walk, cycle, rollerblade, etc. For example, creating more multi-use trails in the residential areas provides additional opportunities and may take the pressure off some trails that are heavily used, such as those along the waterfront.





Phase 1 & 2 Consultation Activities

- The need to repair / replace some of the aging trail infrastructure (e.g. Francis Road Bikeway, one of the older and narrower multi-use trails in the city).
- The need to improve connections between the north and south parts of the city (i.e. better connections across the QEW).
- Respondents have their own connections throughout the community that they use; however, they are not considered formal and require additional signage and design.
- There is confusion between the use of City trails and other trails such as the Bruce Trail in City View Park where barriers have been erected to discourage mountain bike riding within the park, and onto the Bruce Trail on adjacent private lands (Note: the Bruce Trail Conservancy has individual agreements with adjacent land owners for the Bruce Trail walking/hiking route, but this does not include permission for mountain biking).
- Inconsistent messaging in signs and promotion materials etc., leads to confusion among users (i.e. what is permitted where etc.,) and this can lead to conflict.
- The trails found within the hydro corridor are well used but require additional connections to other modes of transportation e.g. transit.

How Was The Input Used?

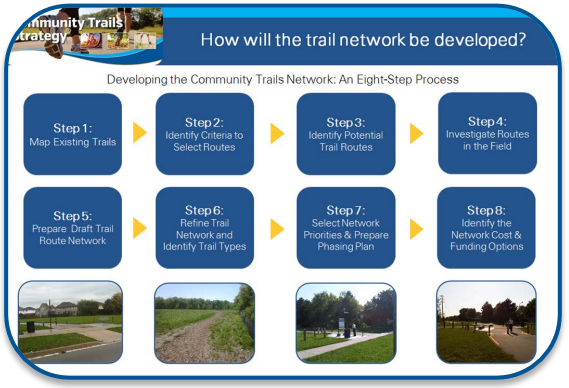
The input gathered during Phase 1 of the consultation and engagement process was used to establish the community trails network for the City of Burlington. More specifically, it was also used to identify potential network opportunities and challenges that were taken into consideration when developing the implementation component of the strategy. Ongoing discussions with City staff and stakeholders helped to refine the content of the strategy.



Phase 1 & 2 Consultation Activities

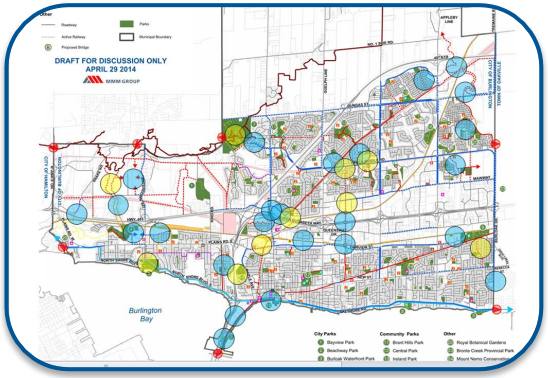
Focus Group Session #2

- **Engagement Overview:** The second set of focus group sessions were held on May 6th, 2014. The sessions engaged members of Council through a morning drop-in session, followed by an interactive session with representatives from the stakeholder group and representatives from City advisory committees.
- **Materials Presented:** Each group was provided a brief study overview presentation which included details regarding the proposed community trails network, route priorities for the short and long-term as well as suggested next steps regarding potential promotion and outreach initiatives.
- **Questions Asked:** The attendees were asked to review the proposed community trails network and to identify any revisions, questions or additions for the study team to consider. They were also asked to provide their input on potential long and short-term priorities.
- **Key themes which emerged from the Councillor session included:**
  - The Bruce Trail route at Dundas Street which currently involves a difficult at-grade crossing (Note: there is ongoing planning work underway regarding the crossing, and the anticipated solution includes a route along Dundas Street to the signalized crossing at Brant Street)
  - Seamlessly linking downtown Burlington to the Community trail system
  - The Cumberland mid-town crossing should be considered a high priority for a pedestrian and cyclist crossing of the QEW
  - The strategy should explore potential staging areas and entry features to highlight gathering points for trail use
  - Connections found in Alton Village should be considered a short-term priority with additional linkages to Ireland Park to the south.



Phase 1 & 2 Consultation Activities

- Key themes from the stakeholder / interest group session included:
  - City View and Kerncliff Park should have a trail management plan developed based on ongoing discussions between the different land owners and the Bruce Trail Conservancy (which has an easement over a portion of City View Park).
  - The network should identify loop routes as an opportunity for various trip lengths.
  - Explore the development of a Regional tourism map to promote walking and cycling.
  - Should explore the implementation of trail amenities and staging areas at key locations throughout the network in partnership with local agencies and interest groups.
- Key themes from the City Advisory Committee representatives included:
  - The strategy should reflect approach from the Mount Nemo Study – where additional protection is required within the area and partnerships with the NEC will be required.
  - The strategy should address the different design concepts for trails including trail amenities.
  - Proposed links should be phased / scheduled to dovetail with future intensification areas



What are the Priorities?

- Trails in natural areas should be a priority to complement hydro corridor trails
- QEW crossing for pedestrians and cyclists
- Spencer Smith Park trail safety
- Connections within Cootes to Escarpment Ecopark

Phase 1 & 2 Consultation Activities
Public Open House #2
▶ **Engagement Overview:** The second public open house was held on Thursday May 22nd, 2014 at the Burlington Art Centre between 7:00 p.m. and 9:00 p.m. ▶ **Materials Presented:** A set of display boards were prepared and used to engage attendees as the session. Information presented on the display boards included findings from the Community Trails Strategy e.g. the draft community trails network, network priorities, strategy recommendations, design concepts and proposed next steps. Attendees were also provided with a presentation summarizing study findings. ▶ **Questions Asked:** A set of interactive display boards were prepared for the attendees to use to document their input. The draft community trails network map was used by attendees to document their input on the proposed network and to highlight short-term priorities. Attendees were also provided with a comment form which they could use to document their input during and following the session. ▶ **Key Themes:** ▶ Natural areas (e.g. creek corridors throughout the urban area) should be explored for future trail opportunities – they are more interesting to walk through than hydro corridors. ▶ More signage is needed as well as trail mapping to indicate the different surface types on trails. Explore making trail data available as an open-data source. ▶ Winter maintenance should be addressed through the strategy for existing trails.
How Was The Input Used? The input was used to refine the recommended community trails network and priorities for implementation. Participants also provided the team with valuable input on potential promotion and outreach initiatives that could be considered by the City and its partners.

V1.2.2 Establishing a Community-wide Trails Vision

A vision for the community trails network was developed from feedback and input provided. In addition, it also builds on and is intended to complement many of the City's existing policies and initiatives as noted in section V1.1.3 such as the City's Official Plan Review, Mobility Hubs Opportunities and Constraints Study and the Transportation Master Plan Update. The vision which has been established for Community Trails in the City of Burlington sets-out a clear long-term goal for trail development within the City.

"Community Trails in the City of Burlington are designed and developed as a means of connecting residents and visitors to open spaces, parks, community destinations and surrounding communities for recreational and day-to-day activities. The network is made up of off-road connections which reflect current design standards and unique municipal characteristics and are sensitive to environmental features."

V1.2.3 Strategic Objectives for the City of Burlington

The Community Trails vision is supported by seven objectives which inform the overall direction of the strategy. The objectives were developed as action areas which guided the development of the network, supportive recommendations and initiatives.

- 1: Build upon the work previously completed by the City, surrounding municipalities, local interest groups and stakeholders (e.g. the Waterfront Trail /Regeneration Trust and Trans Canada Trail Association, Bruce Trail Conservancy etc.).
- 2: Improve connectivity between existing and new communities throughout the municipality.
- 3: Bridge missing links and provide on and off-road connections between existing trail systems.
- 4: Accommodate a range of trail user groups (i.e. pedestrians, hikers, cyclists, etc.) of all ages and abilities.
- 5: Where possible, ensure that trails are accessible and adhere to accessibility standards as set out by the Province of Ontario.
- 6: Identify municipal structures and processes for community trail design, implementation and maintenance.
- 7: Identify funding and partnership opportunities to facilitate the implementation and operation of the community trails network.

V1.3 Establishing the Building Blocks

V1.3.1 Who are the Trail Users?

Trail users come in all shapes and sizes, vary in ages and physical ability, all factors that influence trail use. Each user group has a sense of what their trail experience should be and in many cases participants in various user groups overlap. When developing the community trails network for the City of Burlington two primary user groups were assumed – Cyclists and Pedestrians and each of these groups can be further subdivided.


Source: MMM Group Limited

Pedestrians:

- Walkers
- Hikers
- Users with mobility aids
- Joggers / Runners


Source: MMM Group Limited

Cyclists:

- Recreational
- Utilitarian
- Sport: Mountain Biking

It is important to note, however that not all trails can be designed to accommodate all users in all locations. Where possible pedestrians and cyclists must be educated about how to safely and comfortably engage in their preferred activity while interacting with other users. In addition, certain locations within the city may not accommodate some user groups for reasons other than simply the design (i.e. cyclists are not permitted to use sections of the Bruce Trail located on private property). Clear signage and design treatments may be strategically used to encourage certain users over others, however additional education, positive reinforcement strategies and outreach will be important to ensure that these linkages are properly used.

V1.3.2 Accessibility and Trails

In 2005, the Ontario Government committed to building a more accessible province when it passed the Accessibility for Ontarians with Disabilities Act (AODA).


Source: MyNewWaterfrontHome.com — May 2012

As part of the AODA a set of Accessibility Standards for the Design of Public Spaces were developed to inform pathway and trail design. The intent is that these standards will help remove barriers in outdoor spaces for people with disabilities. The standards are to be applied for new construction and / or extensive renovation. The standards and criteria set out in the regulation apply to the development of recreational trails, beach access routes and exterior paths of travel.

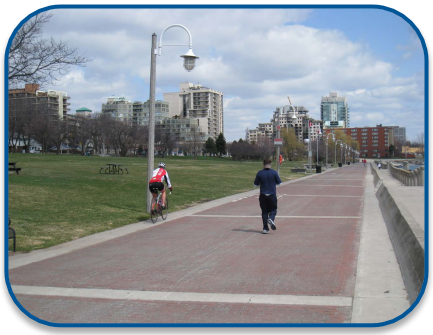
The Accessibility Standards for the Design of Public Spaces (Ontario Regulation 191/11 Part IV.I) provide the technical requirements for recreation trails and should be a primary reference for those responsible for the design and implementation of community trails in Burlington. Additional considerations regarding accessibility and trail design are provided in **Appendix C**.

V1.3.3 What are the Network Opportunities & Challenges

The Community Trails Strategy was developed with the intention of building on work already completed by the City as well as past trail successes. The existing trail infrastructure, programs and initiatives undertaken by the City, the Region and local partners and stakeholders were considered opportunities from which to build a more connected and continuous system of off-road community trails. Through the study team's review of policies, plans and initiatives as well as field work a number of network opportunities were documented. However, in developing a Community Trails Strategy that is realistic and feasible it is also important to acknowledge the challenges / barriers that the City may face when implementing the network. **Table V1-4** highlights some of the key opportunities and barriers.

Table V1-4 - Summary of Burlington Community Network Opportunities & Barriers

Community Trails Network Opportunities	Community Trails Network Barriers
▶ Existing system of interconnected trails ▶ Prior municipal experience developing trail facilities in hydro corridors ▶ Supportive municipal and regional policies and plans ▶ Existing signage and wayfinding strategies and prior application ▶ Existing long-distance cycle touring and trail routes ▶ Local community and stakeholder involvement ▶ Existing trail promotion and programming ▶ Intensification and new development areas	▶ Railways ▶ Missing links in the existing system – lack of continuity ▶ Natural areas containing sensitive environments (e.g. deep valleys, escarpment lands etc.) ▶ Expansive rural area with limited opportunities for public use ▶ Varying and unclear messaging for user groups ▶ Lack of a consistent approach to the installation of trail amenities, including lighting ▶ High cost for year-round maintenance ▶ Aging infrastructure requiring repairs ▶ Variation in the application of trail design details, such as surface type ▶ Major highway corridors (i.e. QEW and 407) and roadways






V1.3.4 Who are the Key Players?

Trail development in the City of Burlington has been the responsibility of a number of key agencies / stakeholders including City of Burlington staff, Halton Region, Conservation Halton, the Bruce Trail Conservancy and the Waterfront Regeneration Trust among others. There are trail stakeholders and interest groups at all levels that have contributed to the development of the City's current trail network and who will be involved with the development of new connections, programs and initiatives through the implementation of this plan. It is important to have an understanding of each of the groups involved and the role that they play. **Table V1-5** is a summary of those responsible for elements of trail development throughout the City and key stakeholders that were invited to participate in the development of the Community Trails Strategy.

Table V1-5 - Overview of Key Trail Stakeholders

Organization	Roles & Responsibilities
City of Burlington	▶ Capital Works is responsible for the design and development of trails on City-owned lands including park spaces. ▶ Capital Works and Transportation Services are responsible for the design and development of trails and trail connections within City –owned road rights-of-way and the on-road cycling network. ▶ Capital Works and Transportation Services are responsible for the design and development of all off-road facilities including sidewalks and multi-use trails within Regionally-owned road rights-of-way. ▶ Roads and Parks Maintenance is responsible for the maintenance of all road and trail infrastructure. ▶ Planning and Building are responsible for local by-law enforcement.

Organization	Roles & Responsibilities
Halton Region	▶ The Region is responsible for on-road cycling facilities within Regionally-owned roads within Regional rights-of-way. ▶ The Region is also responsible for trail linkages found in Regional Forest Tracts and woodlots that are under their jurisdiction (e.g. Milton and Halton Hills).
Conservation Halton	▶ Conservation Halton is responsible for developing and maintaining trail facilities within local conservation areas and lands they own. On a location-specific basis, through individual agreements, the City is responsible for maintaining trails on properties owned by Conservation Halton.
Bruce Trail Conservancy	▶ The Bruce Trail Conservancy is responsible for the design, development and maintenance of Bruce Trail linkages found within the City. These include sections of the trail on lands owned by a public body (e.g. City, Region etc.), and include large sections of the trail on privately owned lands through access agreement(s) with individual land owners.
Waterfront Regeneration Trust	▶ Since the 1990's The Waterfront Regeneration Trust has developed the vision and coordinated the creation of the Waterfront Trail. In Burlington Waterfront Trail traces the entire waterfront by way of off-road connections through public lands and on-road links along City and Regional roads.

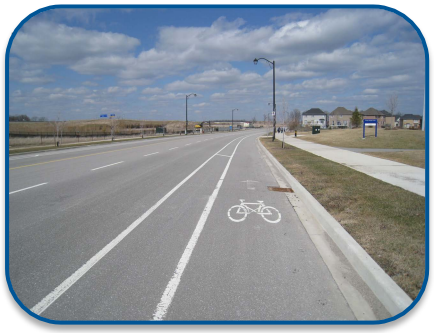
Organization	Roles & Responsibilities
Trans Canada Trail Association	▶ The Trans Canada Trail Association is a non-profit, registered charity that works to promote and assist in the development and use of trails throughout Canada. They are a partnership and funding agency for local municipalities. Once completed, the Trans Canada Trail will measure nearly 17,000 km across Canada. In Burlington, the route follows the same route as the Waterfront Trail with donor recognition at the Pavilion in LaSalle Park.
Royal Botanical Gardens	▶ The Royal Botanical Gardens (RBG) is the largest botanical garden in Canada and is also a National Historic Site. The gardens found within the RBG lands also accommodate trail connections which can be used by pedestrians and hikers alike. There are over 27km of trails which link key areas of cultural and natural significance.

In addition to the agencies noted above there are numerous other public agencies, interest groups and stakeholders that were invited to participate in the development of the Community Trails Strategy through Stakeholder Group workshops. They include:

- Hamilton Burlington Trails Council
- Tourism Burlington
- International Mountain Biking Association
- Town of Oakville
- Niagara Escarpment Commission
- Iroquoia Bruce Trail Club
- Halton Region Health Department
- Halton Police
- Halton District School Board
- Halton Region Planning Services
- Hamilton Waterfront Trust
- Cootes to Escarpment Ecopark
- Halton Catholic District School Board
- City of Hamilton

V1.3.5 How are Trails Developed Today?

The development of trails in the City of Burlington is guided by a number of municipal practices. The process used to develop trails is dependent on the jurisdiction under which the proposed connection falls. As noted above, there are a number of public entities and interest groups that are involved in the design, development, promotion and maintenance of trail facilities throughout the City. The Community Trails Strategy is intended to be a guide for those involved in trail development. An important aspect of the Community Trails Strategy includes realistic solutions that can be adopted by the City and its partners. By understanding the City's current process for developing and servicing trails it was possible to identify areas of improvement or additional means of coordinating efforts that will help to maximize the efforts of City staff and their partners.






[i] Thunderhead Alliance. "Bicycling and Walking in the US; Benchmarking Report, 2007". Prescott, AZ: Thunderhead Alliance. 2007
[ii] Behan, K & Smith Lea, N. "Benchmarking Active Transportation in Canadian Cities". Toronto Community Foundation. Clean Air Partnership (2010).
[iii] Pucher, J. and Dijkstra, L. "Making Walking and Cycling Safer: Lessons from Europe". Transportation Quarterly 54 (2000): 25-50.
[iv] Zeeger, C.V. "Designing for Pedestrians". In the Traffic Safety Toolbox: A primer of Traffic Safety. Washington D.C.: Institute for Transportation Engineers. (1993)
[v] Ontario Trails Strategy, Ministry of Health Promotion. 2005, Province of Ontario
[vi] Litman, T. "Evaluating Non-Motorized Transportation Benefits and Costs". Victoria Transport Policy Institute. www.vtpi.org. 2005.
[vii] Toronto Public Health. Road to Health: Improving Walking and Cycling in Toronto. 2012

Community Trails Strategy







CITY OF Burlington

Report | Volume 2 –Implementing the Strategy

May 2015

MMM GROUP



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Volume 2 of the Community Trails Strategy outlines the process followed to develop the network, and highlights strategies tools, priorities and initiatives which can be used to facilitate implementation. Appendices C through F contain supplemental information to support implementation.

Key recommendations are identified throughout Volume 2, and these have also been consolidated in Table V2.11 at the end of this Volume for ease of reference.

V2.1 Developing the Community Trails Network

V2.1.1 An Overview of the Network Development Process

The process undertaken to develop the Community Trails Network included eight steps which are founded on the development and application of route selection criteria. The steps followed to develop the network are illustrated in Figure V2-1. Findings from Steps 1 through 6 are documented in sections V2.1.2 through V2.1.7.

The strategy is intended to facilitate the development of a Community Trails Network that will be embraced by Burlington residents and visitors to the city. Public and stakeholder engagement was a key element throughout the study process in the identification of preferred route and network priorities. For additional details regarding network implementation and priorities please refer to Sections V2.2 and V2.3.

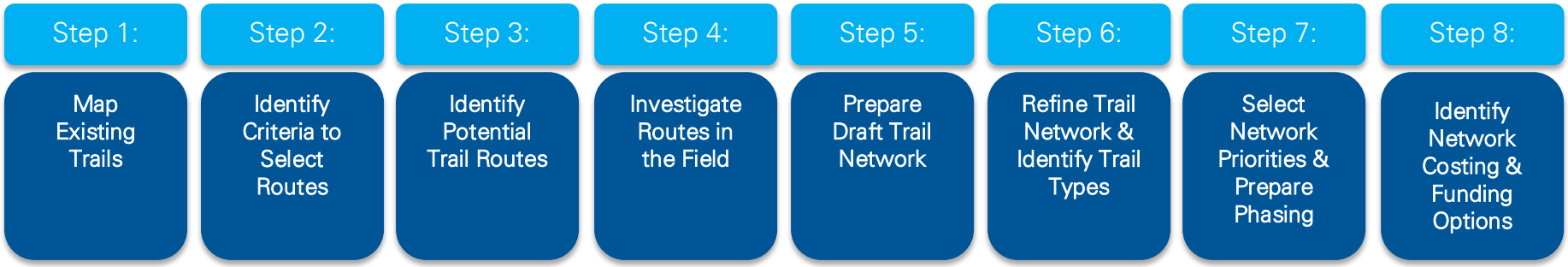


Figure V2-1 – Overview of Network Development Steps

V2.1.2 What is on the Ground Now?

Step 1:

Map Existing Trails

Objective: To consolidate and digitally map existing and previously planned routes, in the existing built-up area as well areas of future community expansion or intensification, specifically:

- off-road trail connections outside road rights-of-way;
- off-road trail connections within road rights-of-way; and
- links critical to network continuity using the street network where opportunities outside of road right-of-way do not exist (i.e. pedestrians would use the sidewalk network and cyclists would be directed to use the road network).

Base information was provided by the City, Region and other agencies (e.g. Bruce Trail Conservancy, Conservation Halton and Royal Botanical Gardens).

A primary objective of the strategy was to develop a network that builds on previous work completed and infrastructure that is currently "on the ground". Using the GIS information provided, the study team undertook a review of existing and previously planned routes. Map 1.0 illustrates the existing trails network. A sample of the existing major trails found in the City include those described in Table V2.1.

CITY OF Burlington
Ontario Canada

MAP 1.0
EXISTING TRAILS NETWORK
MAY 2015

CITY OF BURLINGTON
COMMUNITY TRAILS STRATEGY

Legend

Existing Trails

- Existing Multi-Use Trail (Within Road Right-of-Way)[1]
- Existing Off-Road Multi-Use Trail (Outside of Road Right-of-Way)[2,3]
- Existing Off-Road Trail (Outside of Road Right of Way) Trail and Surface Type Varies

Other Regional Trails / Routes[3,4]

- Existing Bruce Trail and Side Trail[4]
- Waterfront Trail / Trans Canada Trail
- Greenbelt Cycling Route

Other

- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)

Key Community Destinations

- Emergency Services
- Hospital
- Schools
- Transit Hub
- City Hall
- Community Centre
- Library
- Other Key Destinations

Other

- Roadway
- Active Railway
- Municipal Boundary

Land Ownership

- City of Burlington Parks
- Railways
- Major Utility Corridors
- Royal Botanical Gardens
- Conservation Halton Lands

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TOWN OF MILTON
DERRY RD.
KILBRIDE ST.
MILBURROUGH LINE
TWISS RD.
NO. 8 SIDE RD.
BRITANNIA RD.
CITY OF HAMILTON
CITY OF BURLINGTON
CEDAR SPRINGS RD.
COLLING RD.
NO. 4 SIDE RD.
NO. 2 SIDE RD.
BELL SCHOOL LINE
TREMAINE RD.
NO. 1 SIDE RD.
GUELPH LINE
WALKER'S LINE
APPLEBY LINE
407 ETR
TOWN OF OAKVILLE
DUNDAS ST.
UPPER MIDDLE RD.
MAINWAY
COOTES TO ESCARPMENT STUDY BOUNDARY
HWY 403
SNAKE RD.
WATERDOWN RD.
KING RD.
BRANT ST.
QUEEN ELIZABETH WAY
PLAINS RD. W
PLAINS RD. E
FAIRVIEW ST.
BURLOAK DR.
NORTH SHORE BLVD. W
NORTH SHORE BLVD. E
MAPLE AVE.
LAKESHORE RD.
BURLINGTON BAY
LAKE ONTARIO

Legend Notes:

1. Includes routes owned and/or managed by the City of Burlington and / or Halton Region.
2. Includes routes owned and/or managed by the City of Burlington or other agencies including Halton Region, Conservation Halton, Royal Botanical Gardens.
3. Portions of Regional Trails / Routes may be coincident with City – owned / managed trails and / or cycling routes.
4. Uses may be restricted on some trails. For example, cycling is not permitted on the Bruce Trail outside of Conservation Halton lands, the Royal Botanical Gardens and the Bruce Trail on privately owned lands. Some existing trails are located on private land through access agreements with private landowners.

0 0.75 1.5 3 4.5 6 Kilometers

City Parks

1. Bayview Park
2. Beachway Park
   Burloak Waterfront Park
3. Hidden Valley Park
4. LaSalle Park
   Lowville Park
5. City View Park
6. Paletta Lakefront Park
7. Sherwood Forest Park
   Spencer Smith Park
8.
9.
10.

Community Parks

11. Brant Hills Park
12. Central Park
13. Ireland Park
14. Kilbride Park
15. Maple Park
16. Millcroft Park
17. Mountainside Park
18. Nelson Park
19. Norton Community Park
20. Orchard Community Park
21. Tansley Woods Park

Other

22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area

Table V2.1 – Summary of Existing Major Trails

Features	Description
#1: Waterfront Trail - Spencer Smith Park - 6.7m wide, patterned asphalt surface and 2.5m wide concrete surface (lower promenade).	Waterfront promenade designated as part of the Waterfront Trail and Trans Canada Trail.
#2: Waterfront Trail - Beachway Park - 3-5m wide, asphalt and granular surfaces.	Designated as part of the Waterfront Trail.
#3: The Hydro Corridor Multi-use Trail , North Service Road to Berwick Drive; and Centennial Bikeway, Martha Street to Burloak Drive - 3-4m, asphalt surface, pedestrian bridges, vehicular access controls, wayfinding signage.	Connections to Roly Bird Park, Ireland Park, Newport Park, Berton Park (Hydro Corridor Multi-use Trail); and connection to Nelson Park, Sherwood Forest Park and connection to Prospect Street Burlington Mall (Centennial Bikeway), connections to downtown Burlington and the Waterfront Trail.
#4: Multi-use trails along a number of arterial roads including Upper Middle Road, portions of Dundas Street, Walker's Line, Appleby Line and Burloak Drive - 3-4m wide, asphalt or concrete surface, pedestrian bridges, vehicular access controls (at crossings), wayfinding signage.	Connections to numerous commercial and institutional destinations, residential neighbourhoods and community facilities.
#5: Trails in the Orchard Community - Trail network (partially implemented) including asphalt, granular and woodchip surfaces.	Connections throughout the community utilizing utility corridors, creek corridors and woodlots.

In addition to the major trails, numerous local and minor trails are also be found within the City's park systems as well as key subdivision links, walkway blocks between streets, creek blocks and storm water management blocks. Also included in the city are segments of several regional trails and cycling routes namely the Bruce Trail, Waterfront Trail, Trans Canada Trail, and Greenbelt Cycling Route.

V2.1.3 Developing the Route Selection Criteria

Step 2:

Identify Criteria to select Routes

Objective: Develop a set of qualitative principles to guide the selection of routes. The criteria were reviewed with the study team, members of Council, stakeholders and members of the public at the first public open house. Overall there was support for the criteria, and with some minor suggestions incorporated, they are presented in Table V2.2.

Table V2.2 – Community Trails Network Route Selection Criteria

Criteria	Description
Connected	Trails should be connected to form a continuous, linked network throughout the City. Connections will be made to residential and employment areas and important community destinations.
Linked	Trails should seamlessly connect to a complementary network of on-road cycling routes. Where off-road connections are not possible on-road links will serve as the main connections. Trails will be located primarily on public lands but may be explored on private lands where an agreement is reached with the landowner.
Visible	Trails should be a visible component of the City's recreation and transportation system and be clearly identified through signage.
Convenient	Trails should be easy to access from all areas throughout the City and should be supported by trail amenities (e.g. marketing, signage, mapping, etc.).
Accessible	To the extent possible and practical trails will be designed for all levels of physical ability. Trails should be designed, where possible, to meet the requirements of the Accessibility for Ontarians with Disabilities Act and be complemented by signs indicating the level of accessibility to inform users.
Well-Designed	Sustainable principles should be considered when determining route alignment, design and material selection. Supportive facilities should be incorporated at key locations along a trail so they can be easily serviced.
Context Sensitive	Trails will be designed to meet current and widely accepted guidelines to the extent it is feasible and practical. Alignments and designs will be modified as needed to respond to the unique or environmentally sensitive characteristics of the location.

Criteria	Description
Diverse	The trail system should appeal to a range of user abilities and interests. There should be a hierarchy of route types to accommodate a variety of trail experiences.
Sensitive to Safety	Reducing risk to users and providing comfortable facilities increases user confidence. Acceptance can be developed by reducing real and perceived risk. Route safety should not be compromised because of cost.
Cost-Effective	The cost to implement and maintain the network will be affordable and scaled for the City. Funding and partnership opportunities should be explored to offset costs wherever possible.
Expandable	The network will be strategically planned to allow for future opportunities and to provide connections to surrounding communities. In areas of new development and intensification, trails should be incorporated into the planning process.

Recommendation 1: The route selection principles should be reviewed at the time detailed route feasibility assessments for the Community Trail linkages are being completed, when changes to the network routing are being considered and when new route opportunities are identified.

V2.1.4 Identifying Potential Routes

Step 4:

Investigate Routes in the Field

Objective: Potential trail connections were identified, mapped and considered by the team in further detail. Once the review was complete, the routes were refined based on consolidated base mapping, route selection criteria, input from the public and stakeholders, expertise of the study team and an analysis of GIS data.

Proposed routes identified by the study team as potential community trail connections included:

- Connections along utility corridors;
- Existing and future desired connections on public or privately owned lands;
- Multi-use trails in the road right-of-way where space is available;
- Neigbourhood connections to major primary trails (e.g. neighbourhood connections to the Centennial Bikeway);

- Conservation authority lands;
- Areas of new community development including both greenfield and infill /intensification locations;
- Connections to and within future mobility hubs; and
- Connections to other key destinations throughout the City.

V2.1.5 Documenting the Findings

Step 5:

Prepare Draft Trail Network

Objective: Examine each of the potential routes in the field and collect additional information including photographs, GPS waypoints, and measurements to help inform the development of the Community Trails Network. In-field investigation was also supplemented with a desktop mapping exercise.

Field investigations took place between October 2013 and May 2014, and included the collection of over 850 photographs and approximately 200 GPS waypoints that were added to the project database.

V2.1.6 Preparing the Network

Step 3:

Identify Potential Trail Routes

Objective: Potential routes were refined using the criteria and information collected in the field. Refinements were also made using the technical expertise of the study team and input from the public, stakeholders and local interest groups.

- The proposed Community Trails Network is illustrated on Map 2.0 and is intended to guide future decision making related to the development of trails throughout the City. As per the focus of the Community Trails Strategy, routes are intended to be primarily off-road, wherever possible, and are supported by on-road linkages only where necessary / where the potential to develop a link off road does not exist. The Cycling Master Plan (2009) has a strong focus on the on-road network. The Community Trails Strategy and 2009 Cycling Master Plan are complementary in nature.

CITY OF Burlington Ontario Canada

MAP 2.0
PROPOSED TRAILS NETWORK
MAY 2015
CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY

Legend

Existing Trails

- Existing Multi-Use Trail (Within Road Right-of-Way)[1]
- Existing Off-Road Multi-Use Trail (Outside of Road Right-of-Way)[2,3]
- Existing Off-Road Trail (Outside of Road Right of Way) Trail and Surface Type Varies

Other Regional Trails / Routes[3,4]

- Existing Bruce Trail and Side Trail[4]
- Waterfront Trail / Trans Canada Trail
- Greenbelt Cycling Route

Proposed Trails and Critical On-Road Connections[5,6]

- Proposed Multi-Use Trail Connection (Within Road Right-of-Way)
- Proposed Multi-Use Trail Connection (Outside of Road Right-of-Way)
- Proposed On Road Connections - Proposed in Community Trails Strategy[7]
- Proposed On Road Connections Per Cycling Master Plan[8]
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)
- Proposed Bridge
- Existing Mid-Block Crossing of Collector or Arterial (eg. Mid-Block Pedestrian Signal or Median Island)
- Mid-Block Crossing Locations Suggested for Improvement (eg. Mid-Block Pedestrian Signal or Median Island)
- Rail Crossings and conections in Mobility Hubs as per City of Burlington Official Plan Review: Mobility Hubs Opportunities and Constraints Study (May 2014)
- Future Trail Conections

Key Community Destinations

- Emergency Services
- Schools
- City Hall
- Library
- Hospital
- Transit Hub
- Community Centre
- Other Key Destinations

Other

- Roadway
- Active Railway
- Municipal Boundary

Land Ownership

- City of Burlington Parks
- Railways
- Major Utility Corridors
- Royal Botanical Gardens
- Conservation Halton Lands

MMM GROUP

TOWN OF MILTON
DERRY RD.
KILBRIDE ST.
TWISS RD.
NO. 8 SIDE RD.
MILBURO UGH LINE
BRITANNIA RD.
CITY OF HAMILTON
CITY OF BURLINGTON
CEDAR SPRINGS RD.
COLLING RD.
NO. 4 SIDE RD.
NO. 2 SIDE RD.
BELL SCHOOL LINE
TREMAINE RD.
NO. 1 SIDE RD.
407 ETR
WALKER'S LINE
GUELPH LINE
TOWN OF OAKVILLE
COOTES TO ESCARPMENT STUDY BOUNDARY
DUNDAS ST.
UPPER MIDDLE RD.
MAINWAY
SNAKE RD.
WATERDOWN RD.
NO. 6 HWY N
HWY 403
KING RD.
BRANT ST.
QUEEN ELIZABETH WAY
BURLOAK DR.
PLAINS RD. W
PLAINS RD. E
FAIRVIEW ST.
NORTH SHORE BLVD. W
NORTH SHORE BLVD. E
MARIE AVE.
LAKESHORE RD.
BURLINGTON BAY
LAKE ONTARIO

Note: Multi-use trails will be reconstructed in coordination with the widening of Dundas Street.

Note: Protect pedestrians and cyclists in corridor with any future changes along Upper Middle Road between Burloak Drive and the Hydro Corridor at Upland Drive.

Provide multi-use trail on east (lake) side of Lift Bridge to provide direct connection to Waterfront Trail in Hamilton

Legend Notes:

1. Includes routes owned and/or managed by the City of Burlington and / or Halton Region.
2. Includes routes owned and/or managed by the City of Burlington or other agencies including Halton Region, Conservation Halton, Royal Botanical Gardens. Does not include informal footpaths.
3. Portions of Regional Trails / Routes may be coincident with City – owned / managed trails and / or cycling routes.
4. Uses may be restricted on some trails. For example, cycling is not permitted on the Bruce Trail outside of Conservation Halton lands, the Royal Botanical Gardens and the Bruce Trail on privately owned lands. Some existing trails are located on private land through access agreements with private landowners.
5. Achieving proposed connections may be subject to agreement / easement with landowner(s), and / or agreements resulting from Planning approvals and condition of approval.
6. Conceptual trail alignments have been investigated during the network development for the Community Trails Strategy and will require additional review / investigation when implementing individual routes.
7. Refer to Appendix C - Section C.3.1 of the report for the facility types for these routes.
8. This map illustrates only proposed on-road connections that are considered critical to the continuity of the community trails network. For further details regarding the existing and planned on-road cycling network, please refer to the City of Burlington Cycling Master Plan, and the Halton Region Active Transportation Master Plan (pending approval 2015).

4.5 6 Kilometers

City Parks

1. Bayview Park
2. Beachway Park
3. Burloak Waterfront Park
4. Hidden Valley Park
5. LaSalle Park
6. Lowville Park
7. City View Park
8. Paletta Lakefront Park
9. Sherwood Forest Park
10. Spencer Smith Park

Community Parks

11. Brant Hills Park
12. Central Park
13. Ireland Park
14. Kilbride Park
15. Maple Park
16. Millcroft Park
17. Mountainside Park
18. Nelson Park
19. Norton Community Park
20. Orchard Community Park
21. Tansley Woods Park

Other

22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area

The map legend illustrated below includes:



- Existing multi-use trails within the road right-of-way – (e.g. trails existing today in roadway boulevards);
- Existing off-road multi-use trails outside of the road right-of-way – (e.g. major trails existing today in parks and open spaces);
- Existing off-road trails outside of the road right-of-way – (e.g. minor trails existing today in parks and open spaces, and connections from local neighbourhoods to major multi-use trails);
- Proposed multi-use trail connections within the road right-of-way – (e.g. multi-use trails proposed in roadway boulevards);
- Proposed multi-use trail connections outside of the road right-of-way – (e.g. multi-use trails proposed on parks and open spaces);
- Proposed on-road connections from the **2009 Cycling Master Plan** – proposed network links utilizing the road network that were part of the approved network in the 2009 Cycling Master Plan, and are **considered critical to the connectivity** of the Community Trails Network in the Community Trails Strategy. In these locations there are currently no known opportunities for multi-use trail links either outside of the road right-of-way or within the road right-of-way); and

- Proposed on-road connections identified in the **Community Trails Strategy** – proposed network links utilizing the road network that were **not part of the approved network in the 2009 Cycling Master Plan, which are critical to connectivity** of the Community Trails Network in the Community Trails Strategy. In these locations there are currently no known opportunities for multi-use trail links either outside of the road right-of-way or within the road right-of-way.

Recommendation 2: The proposed Community Trails Network should be used as a blueprint for future network development and to inform next steps and municipal priorities related to trail development.

Recommendation 3: It is recognized that from time to time new network opportunities may arise that were not known at the time the Community Trails Strategy was developed. Potential changes to the network should be evaluated on an on-going basis and the Community Trails Strategy should be updated accordingly.

Recommendation 4: The Community Trails network should be included as a schedule in the Official Plan, with the provision that modifications to the network routing can be justified at the Department Director level without the need for an Official Plan Amendment.

Table V2.3 provides a summary of the existing and proposed Community Trails Network as illustrated on **Map 2.0**.

Table V2.3 – Summary of Community Trail Network Route Lengths[1]

Linkage Type	Existing (km)	Proposed (km)	Total (km)
Multi-use Trail (within the Road Right-of-Way)[2]	49.0	39.9	88.9
Off-road Multi-use Trail (Outside of the Road Right-of-Way)	32.1	40.5	72.6
Off-road Trail (i.e. minor trails outside of the Road Right-of-Way)	63.5	None proposed in Community Trails Strategy	63.5
On-Road Connections (Proposed in the Community Trails Strategy)[3]	n/a	5.1	5.1
On-Road Connections Per the 2009 Cycling Master Plan[4]	n/a	4.3	4.3
Bruce Trail (main and side trails)	45.0	None proposed in Community Trails Strategy	45.0
Total	**189.6**	**89.8**	**279.4**

Notes:
(1) To avoid double counting, Regionally Significant Routes are not included in the calculation of total length because portions are coincident with network routes in the Community Trails Strategy. Specifically these routes are: the Waterfront Trail (20.0km), Trans Canada Trail (17.2km) and the Greenbelt Cycling Route (2.0km).
(2) Includes existing and proposed multi-use trails within Regional road rights-of-way.
(3) Includes on-road connections considered to be critical to connectivity of the Community Trails Network, **but not included** in the 2009 Cycling Master Plan.
(4) Includes only those on-road connections from the 2009 Cycling Master Plan that considered to be critical to connectivity of the Community Trails Network. Refer to the Cycling Master Plan for full details regarding the cycling network.

V2.1.7 Selecting Facility Types

Objective: For each route an appropriate facility type was suggested by considering a number of factors including geographic location, surrounding facilities, context within the city-wide network and roadway characteristics (i.e. only for on-road connections).

The network can be defined using the following hierarchy of trail types. Additional description and details for each of the trail types is available in Appendix C.

- **Primary Multi-use Trails:** Key connections in urban areas and important commuter routes. Asphalt surfaced and typically the widest of the trails. Some primary multi-use trails may be candidates for lighting and winter maintenance.
- **Secondary Multi-use Trails:** Typically include both asphalt and granular surfaced trails. These may be used as a transportation route in the spring, summer or fall, but would not be a candidate for winter maintenance. Many of the existing local neighbourhood trails fit into this category.

Step 6:

Refine Trail Network & Identify Trail Types

- **Woodland Mulch Trails :** Located in woodlots, creek valleys and in some cases environmentally sensitive areas. Some of these may be aligned with informal footpaths that have evolved over time.
- **Hiking / Foot Trails:** Typically located in natural areas such as woodlots, valley lands and wetlands. Note that no new Hiking / Foot Trails are proposed in the Community Trails Strategy's network, though the City may wish to consider these on a site-by-site or as requested basis. Generally, the development of Hiking / Foot Trails would be by organizations such as Conservation Halton and the Iroquoia Bruce Trail Club (i.e. on their own lands or through agreements with individual land owners).

Map 3.0 illustrates the proposed network hierarchy based on the application of the Primary, Secondary and Woodland Mulch Trails.

CITY OF Burlington
Ontario Canada

MAP 3.0
PROPOSED TRAIL NETWORK HIERARCHY
MAY 2015

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY

Legend

Existing Trails[1,2]

- Existing Primary Multi-Use Trail
- Existing Secondary Multi-Use Trail
- Existing Secondary Trail (Trail and Surface Type Varies)

Other Trails / Routes

- Existing Bruce Trail and Side Trail[3]

Proposed Trails and Connections[4,5]

- Proposed Primary Multi-Use Trail
- Proposed Secondary Multi-Use Trail
- Proposed Woodland Mulch Trail
- Proposed Hiking / Foot Trail
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)
- (B) Proposed Bridge
- Existing Mid-Block Crossing of Collector or Arterial (eg. Mid-Block Pedestrian Signal or Median Island)
- Mid-Block Crossing Locations Suggested for Improvement (eg. Mid-Block Pedestrian Signal or Median Island)
- Rail Crossings and Connections into Mobility Hubs as per City of Burlington Official Plan Review: Mobility Hubs Opportunities and Constraints Study (May 2014)
- Future Trail Conections

Key Community Destinations

- Emergency Services
- Hospital
- Schools
- Transit Hub
- City Hall
- Community Centre
- Library
- Other Key Destinations

Other

- Roadway
- Active Railway
- Municipal Boundary

Land Ownership

- City of Burlington Parks
- Railways
- Major Utility Corridors
- Royal Botanical Gardens
- Conservation Halton Lands

MMM GROUP

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PLAINS RD. E
FAIRVIEW ST.
BURLOAK DR.
NORTH SHORE BLVD. W
NORTH SHORE BLVD. E
MAPLE AVE.
LAKESHORE RD.
BURLINGTON BAY
LAKE ONTARIO

Legend Notes:

1. This map illustrates both off-road routes that are outside o' road rights-of-way and those within road rights-of-way (e.g. in-boulevard multi-use trails). For details regarding the existing and planned on-road cycling network, please refer to the City of Burlington Cycling Master Plan, and the Halton Region Active Transportation Master Plan (pending approval 2015).
2. Includes routes owned and/or managed by the City of Burlington or other agencies including Halton Region and Conservation Halton. Does not include informal footpaths.
3. Uses may be restricted on some trails. For example, cycling is not permitted on the Bruce Trail outside of Conservation Halton lands, the Royal Botanical Gardens and the Bruce Trail on privately owned lands. Some existing trails are located on private land through access agreements with private landowners.
4. Achieving proposed connections may be subject to agreement / easement with landowner(s), and / or agreements resulting from Planning approvals and condition of approval.
5. Conceptual trail alignments have been investigated during the network development for the Community Trails Strategy and will require additional review / investigation when implementing individual routes.

0 0.75 1.5 3 4.5 6 Kilometers

City Parks

1. Bayview Park
2. Beachway Park
3. Burloak Waterfront Park
4. Hidden Valley Park
5. LaSalle Park
6. Lowville Park
7. City View Park
8. Paletta Lakefront Park
9. Sherwood Forest Park
10. Spencer Smith Park

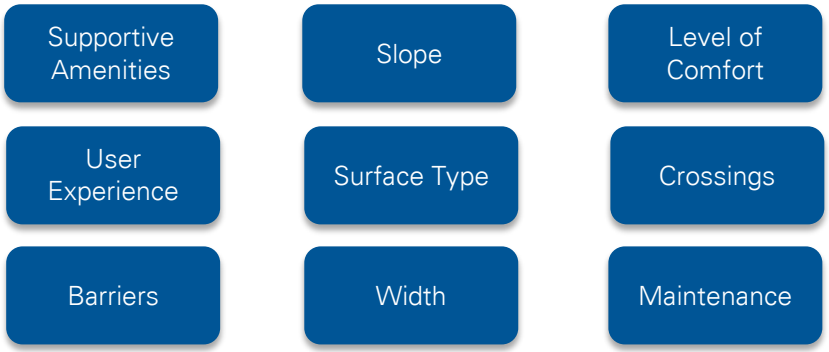
Community Parks

11. Brant Hills Park
12. Central Park
13. Ireland Park
14. Kilbride Park
15. Maple Park
16. Millcroft Park
17. Mountainside Park
18. Nelson Park
19. Norton Community Park
20. Orchard Community Park
21. Tansley Woods Park

Other

22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area

Trails identified as part of the network will require additional investigation to confirm the preferred facility design based on context sensitive considerations and characteristics including but not limited to:



Appendix C contains a compendium of design guidelines for various elements of the Community Trail network. Although they provide guidance for a range of typical municipal-wide conditions, they do not address every condition encountered. This toolkit should be used as a reference guide by City staff involved with the planning, design and implementation of the community trail network. These guidelines and standards also reference key external guidelines that should also be consulted where appropriate such as Ontario Traffic Manual Book 15 and 18, and Ontario Regulation 191/11 the Design of Public Spaces Standards.

Recommendation 5: The Trail Design Guidelines contained in Appendix C should be adopted as a reference guide by City staff involved with the planning, design and implementation of the Community Trail network.

V2.2 Implementing the Community Trails Strategy

V2.2.1 Prioritizing Network Implementation

The Proposed Approach

The Community Trails Strategy is intended to guide future decision making when designing, developing and maintaining the Community Trails Network. The strategy is not intended to be prescriptive but rather a means of identifying and prioritizing next steps in the development of a City-wide system of trails. Implementation of the strategy will require strong partnerships between the City, Region and local agencies, interest groups and stakeholders and should be based on a set of clear priorities. Network priorities can be divided into two categories – **Build Projects** (i.e. design and construction) and **Advance Planning Initiatives** for future design and construction. A description / definition of each are presented in **Table V2.4**. The High Priority Projects are illustrated on **Map 5.0**.

Table V2.4 – Priority Project Types

Build Projects		Advance Planning - Infrastructure Renewal, New / Enhanced and Growth
Infrastructure Renewal	New / Enhanced and Growth	
Projects that require reinvestment in existing infrastructure that has reached the end of its service life or does not meet current trail design guidelines. These involve assessment of the existing infrastructure, a new design to meet current standards, and construction.	Projects that require the development of a new connection where one does not currently exist. This may include an entirely new link where no trail exists or formalizing a desire line / pathway that has evolved over time. These involve assessment of the existing condition, the preparation of designs and construction.	Projects where the City should engage in ongoing discussions with owners, public agencies and stakeholders to advance key high priority mid and long term projects to design ready and / or construction ready status. These include both new growth areas of the City (i.e. developer lands, other owners i.e. utilities) as well as advance planning for projects in lands that are already owned or managed by the City.

Both the Build Projects and Advance Planning Initiatives listed in **Table V2.5** were identified as high priorities by the public, stakeholders and the study team (i.e. Build = Construct in the short-term; Advance Planning = Plan in the short-term to be construction ready in the medium or longer term). Other medium and long-term projects that comprise the full network are illustrated on **Map 6.0** and described on pages V2-31 through V2-46.

Table V2.5 – Summary of Priority Projects and Planning Initiatives for the Community Trails Strategy

Build Projects		Advance Planning
Rehabilitation	New & Enhanced	

▶ Spencer Smith Park Promenade
▶ Francis Road Bikeway
▶ LaSalle Park Trail Connection
	▶ Hydro Corridor Multi-use Trail (Millcroft Golf Course*)
	▶ Cumberland Hydro Corridor Multi-use Trail (Northern Section)
	▶ Downtown Hydro Corridor Multi-use Trail*
	▶ Alton Village Multi-use Trails
	▶ Dundas Street (Guelph Line to Tremaine Road*)
	
	* Projects previously identified in Capital Budget 2014 and 2015 to 2024.
		▶ Lemonville Road to the Bruce Trail
		▶ Current / Future Development Lands Including
		  ▶ Eagle Heights Subdivision
		  ▶ Bronte Creek Meadows
		  ▶ Evergreen (Tremaine/Dundas Secondary Plan)
		▶ City View / Kerncliff Park (i.e. Trail Management Plan)
		▶ Cumberland Hydro Corridor (Southern Section and QEW Crossing)
		▶ Elgin Promenade / Centennial Bikeway Connection to the Waterfront
		▶ Beachway Park
		▶ Mobility Hubs / GO Stations
		  ▶ Aldershot GO Station
		  ▶ Burlington GO Station
		  ▶ Appleby GO Station
		▶ QEW Crossing (Brant Street Area)
		▶ Bronte Creek Provincial Park to Lowville Park Trail (was considered but removed from further consideration)

Details for each of the Build Projects are further described in the following pages. The phased build-out of the network is illustrated in Map 4.0. Map 5.0. illustrates and numbers the high priority Build and Advance Planning projects which are further described in the section following Map 5.0. Specifically this section contains additional details regarding the justification, key considerations and recommended next steps for the Build Projects, and considerations for the Advance Planning initiatives. An opinion of probable cost to implement the high priority Build Projects is included with each project description. An opinion of cost was not developed for Advance Planning projects. Clarity regarding potential costs for these will become more apparent as each Advance Planning project is explored in further detail.

CITY OF Burlington
Ontario Canada

MAP 4.0
PROPOSED PHASING
MAY 2015
CITY OF BURLINGTON
COMMUNITY TRAILS STRATEGY

Legend

Existing Trails

- Existing Multi-Use Trail (Within Road Right-of-Way)[1]
- Existing Off-Road Multi-Use Trail (Outside of Road Right-of-Way)[2,3]
- Existing Off-Road Trail (Outside of Road Right of Way) Trail and Surface Type Varies

Other Regional Trails / Routes[3,4]

- Existing Bruce Trail and Side Trail[4]
- Waterfront Trail / Trans Canada Trail
- Greenbelt Cycling Route

Proposed Trails and Critical On-Road Connections[5,6]

- Proposed Multi-Use Trail Connection (Within Road Right-of-Way)
- Proposed Multi-Use Trail Connection (Outside of Road Right-of-Way)
- Proposed On Road Connections - Proposed in Community Trails Strategy[7]
- Proposed On Road Connections Per Cycling Master Plan[8]
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)
- Proposed Bridge
- Existing Mid-Block Crossing of Collector or Arterial (eg. Mid-Block Pedestrian Signal or Median Island)
- Mid-Block Crossing Locations Suggested for Improvement (eg. Mid-Block Pedestrian Signal or Median Island)
- Rail Crossings and Connections into Mobility Hubs as per City of Burlington Official Plan Review: Mobility Hubs Opportunities and Constraints Study (May 2014)
- Future Trail Conections

Proposed Phasing

- Short Term
- Medium Term
- Long Term

Key Community Destinations

- Emergency Services
- Schools
- City Hall
- Library
- Hospital
- Transit Hub
- Community Centre
- Other Key Destinations

Other

- Roadway
- Active Railway
- Municipal Boundary

Land Ownership

- City of Burlington Parks
- Railways
- Major Utility Corridors
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- Conservation Halton Lands

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COOTES TO ESCARPMENT STUDY BOUNDARY
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LAKE ONTARIO

Legend Notes:

1. Includes routes owned and/or managed by the City of Burlington and / or Halton Region.
2. Includes routes owned and/or managed by the City of Burlington or other agencies including Halton Region, Conservation Halton, Royal Botanical Gardens.
3. Portions of Regional Trails / Routes may be coincident with City – owned / managed trails and / or cycling routes.
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5. Achieving proposed connections may be subject to agreement / easement with landowner(s), and / or agreements resulting from Planning approvals and condition of approval.
6. Conceptual trail alignments have been investigated during the network development for the Community Trails Strategy and will require additional review / investigation when implementing individual routes.
7. Refer to Appendix C - Section C.3.1 of the report for the facility types for these routes.
8. This map illustrates only proposed on-road connections that are considered critical to the continuity of the community trails network. For further details regarding the existing and planned on-road cycling network, please refer to the City of Burlington Cycling Master Plan, and the Halton Region Active Transportation Master Plan (pending approval 2015).

4.5 6 Kilometers

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Community Parks

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20. Orchard Community Park
21. Tansley Woods Park

Other

22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area

CITY OF Burlington
Ontario Canada

MAP 5.0
PROPOSED HIGH PRIORITY PROJECTS
MAY 2015

CITY OF BURLINGTON
COMMUNITY TRAILS STRATEGY

Legend

Existing Trails
- Existing Multi-Use Trail (Within Road Right-of-Way)[1]
- Existing Off-Road Multi-Use Trail (Outside of Road Right-of-Way)[2,3]
- Existing Off-Road Trail (Outside of Road Right of Way) Trail and Surface Type Varies

Other Regional Trails / Routes[3,4]
- Existing Bruce Trail and Side Trail[4]
- Waterfront Trail / Trans Canada Trail
- Greenbelt Cycling Route

Proposed Trails and Critical On-Road Connections[5,6]
- Proposed Multi-Use Trail Connection (Within Road Right-of-Way)
- Proposed Multi-Use Trail Connection (Outside of Road Right-of-Way)
- Proposed On Road Connections - Proposed in Community Trails Strategy
- Proposed On Road Connections Per Cycling Master Plan[7]
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)
- (B) Proposed Bridge
- Existing Mid-Block Crossing of Collector or Arterial (eg. Mid-Block Pedestrian Signal or Median Island)
- Mid-Block Crossing Locations Suggested for Improvement (eg. Mid-Block Pedestrian Signal or Median Island)
- Rail Crossings and Connections into Mobility Hubs as per City of Burlington Official Plan Review: Mobility Hubs Opportunities and Constraints Study (May 2014)
- Future Trail Connections

Proposed Phasing
- High Priority

High Priority Projects
- Build Projects
- Advance Planning Initiative

Key Community Destinations
- Emergency Services
- Schools
- City Hall
- Library
- Hospital
- Transit Hub
- Community Centre
- Other Key Destinations

Other
- Roadway
- Active Railway
- Municipal Boundary

Land Ownership
- City of Burlington Parks
- Railways
- Major Utility Corridors
- Royal Botanical Gardens
- Conservation Halton Lands

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DERRY RD.
KILBRIDE ST.
MILBURROUGH LINE
TWISS RD.
NO. 8 SIDE RD.
CITY OF HAMILTON
CITY OF BURLINGTON
BRITANNIA RD.
CEDAR SPRINGS RD.
COLLING RD.
NO. 4 SIDE RD.
NO. 2 SIDE RD.
BELL SCHOOL LINE
TREMAINE RD.
NO. 1 SIDE RD.
WALKER'S LINE
APPLEBY LINE
407 ETR
GUELPH LINE
COOTES TO ESCARPMENT STUDY BOUNDARY
DUNDAS ST.
UPPER MIDDLE RD.
MAINWAY
SNAKE RD.
WATERDOWN RD.
HWY 403
PLAINS RD. W
KING RD.
BRANT ST.
QUEEN ELIZABETH WAY
PLAINS RD. E
FAIRVIEW ST.
BURLOAK DR.
NORTH SHORE BLVD. W
MAPLE AVE.
NORTH SHORE BLVD. E
LAKESHORE RD.
BURLINGTON BAY
LAKE ONTARIO

Advance Planning Initiatives

Note: Numbers to not reflect the order of high priority projects. Please refer to Section 2.2.1 for a detailed description of each project.

1. Lemonville Road to the Bruce Trail
2. Eagle Heights Subdivision
3. Bronte Creek Meadows
4. Evergreen (Tremaine/Dundas Secondary Plan)
5. Cityview / Kern Cliff Park
6. Cumberland Hydro Corridor (Southern Section and QEW Crossing)
7. Elgin Promenade / Centennial Trail Connection to the Waterfront
8. Beachway Park
9. Aldershot GO Station
10. Burlington GO Station
11. Appleby GO Station
12. QEW Crossing (Brant Street Area)
13. Bronte Creek Provincial Park to Lowville Park

Build Projects

1. Spencer Smith Park Promenade
2. Northern Hydro Corridor Multi-use Trail (Millcroft Golf Course)
3. Cumberland Hydro Corridor Multi-use Trail (Northern Section)
4. Downtown Hydro Corridor Multi-use Trail
5. Alton Village Multi-use Trails
6. Francis Road Bikeway
7. Dundas Street (Guelph Line to Tremaine Road)
8. LaSalle Park Trail Connection

Legend Notes:

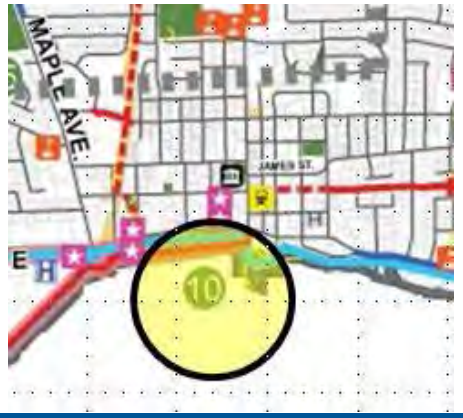
1. Includes routes owned and/or managed by the City of Burlington and / or Halton Region.
2. Includes routes owned and/or managed by the City of Burlington or other agencies including Halton Region, Conservation Halton, Royal Botanical Gardens.
3. Portions of Regional Trails / Routes may be coincident with City – owned / managed trails and / or cycling routes.
4. Uses may be restricted on some trails. For example, cycling is not permitted on the Bruce Trail outside of Conservation Halton lands, the Royal Botanical Gardens and the Bruce Trail on privately owned lands. Some existing trails are located on private land through access agreements with private landowners.
5. Achieving proposed connections may be subject to agreement / easement with landowner(s), and / or agreements resulting from Planning approvals and condition of approval.
6. Conceptual trail alignments have been investigated during the network development for the Community Trails Strategy and will require additional review / investigation when implementing individual routes.
7. This map illustrates only proposed on-road connections that are considered critical to the continuity of the community trails network. For further details regarding the existing and planned on-road cycling network, please refer to the City of Burlington Cycling Master Plan, and the Halton Region Active Transportation Master Plan (pending approval 2015).

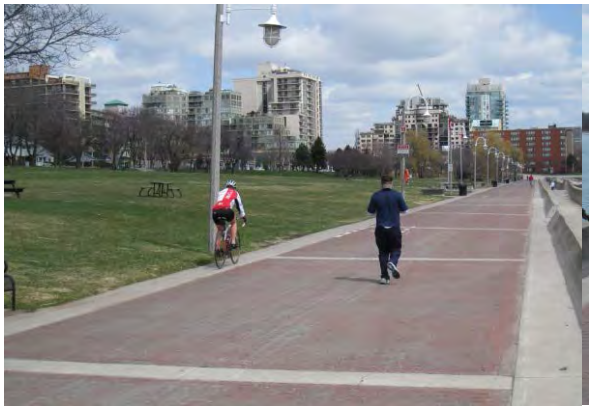
City Parks
1. Bayview Park
2. Beachway Park
3. Burloak Waterfront Park
3. Hidden Valley Park
4. LaSalle Park
4. Lowville Park
5. City View Park
6. Paletta Lakefront Park
7. Sherwood Forest Park
7. Spencer Smith Park
8.
9.
10.

Community Parks
11. Brant Hills Park
12. Central Park
13. Ireland Park
14. Kilbride Park
15. Maple Park
16. Millcroft Park
17. Mountainside Park
18. Nelson Park
19. Norton Community Park
20. Orchard Community Park
21. Tansley Woods Park

Other
22. Royal Botanical Gardens
Bronte Creek
23. Provincial Park
Mount Nemo
Conservation Area
24.

0 0.75 1.5 3 4.5 6 Kilometers





View east of the main promenade in Spencer Smith Park.



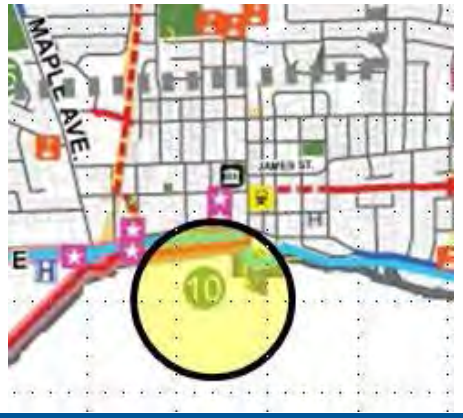
View west of the main promenade in Spencer Smith Park, with the cycle lane markings shown at the right side.

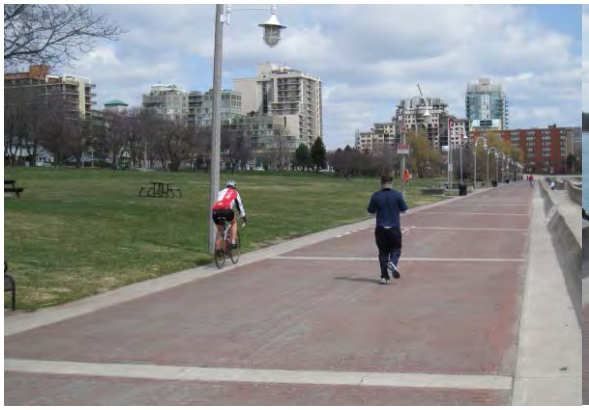
Build Project #1
Location:
Spencer Smith Park Promenade

Description / Need: The existing multi-use facility is heavily used at times and there have been conflicts between various user groups in the past. The coloured asphalt section currently has line markings suggesting where cyclists should travel, however cyclists tend to travel outside of the suggested space. An evaluation of the existing treatment is required, along with recommendations for an alternate treatment if deemed necessary.

Existing Conditions, Opportunities and Constraints:

- The existing facility is approximately 6.7m wide, including the concrete aprons on either side of the coloured and textured asphalt surface.
- The main promenade intersects with secondary trails in several locations throughout the park and regular openings in the concrete wall along the south side of the promenade allow pedestrians to cross the promenade to gain access to the separate pedestrian walkway between the promenade and the water's edge.
- Using paint for delineation, a 1.5m wide (approx.) space has been created for cyclists on the north side of the promenade (see photo above right).
- Current active transportation guidelines recommend a minimum facility width of 2.4m for 2-way bicycle travel.
- Various options were reviewed, and the following two options were considered to have the most merit.
  - Option 1- Shared Space: - remove all line work and erect shared pathway signs in key locations along the promenade. Users share the entire space regardless of direction of travel and speed of travel.
  - Option 2 – Separate Space Based on Direction of Travel: - remove the existing line work; replace it with a 100mm wide dashed white line running along the centre line of the promenade to create two travel lanes of equal width. Add directional arrows and shared pathway signs at key locations including the entry points on to the promenade, where other pathways intersect with the main promenade and at nodes along the promenade. Separation is based on direction of travel and not user group or speed of travel.







Build Project #1 Location: Spencer Smith Park Promenade	View east of the main promenade in Spencer Smith Park.	View west of the main promenade in Spencer Smith Park, with the cycle lane markings shown at the right side.

Recommendation(s):

- **Option 2 is recommended**. The concept of providing guidance or separation based on the direction of travel is consistent with best practices for multi-use trail design for high volume locations where there is insufficient space to provide separate trails with a substantial buffer between (i.e. one trail for slower moving pedestrian users and one trail for faster moving users such as in-line skaters and cyclists). Guidance is provided with pavement markings and strategically placed signage reminding slower users to travel on the right hand side of the eastbound and westbound lane. Users will be familiar with the practice of slower moving users traveling to the right, as this is consistent with operating vehicles in roadways.
- During celebrations and events prohibit cycling along the promenade by erecting barriers have event staff at the barriers to enforce closure.

Estimated Cost Based on Unit Pricing: $9,000.00

Length: 0.6km





View west from Dundas Street at Millcroft Park Drive, showing the existing golf cart path connecting fairways on either side of Millcroft Drive. Source: Google



View east from Berwick Drive, illustrating the generally flat, open character of the hydro corridor. Source: Google

Build Project #2
Location: Hydro Corridor Multi-use Trail (Millcroft Golf Course)

Description / Need: The Hydro Corridor Multi-use Trail is virtually complete with the exception of the 1.0km section between Dundas Street and Berwick Drive. Completing this gap would result in a continuous trail from the northeast corner of the city to Brant Street to the north of the QEW.

Existing Conditions, Opportunities and Constraints:

- The western half of the corridor (approximately 0.5km) is generally flat and open. The eastern half (approximately 0.5km) is occupied by the Millcroft Golf Course. Specifically the 12th hole runs along the southern portion of this section of the hydro corridor.
- The northern portion of the hydro corridor (paralleling the 12th hole) is golf course rough and beyond the out-of-bounds line for the course. There appears to be ample space to align the trail provided that it can be located closer to the northern edge of the corridor to maximize the separation between the 12th fairway and the trail. This may be supplemented with netting to protect trail users from any errant golf balls, and caution signs for trail users warning them of active golf play in the vicinity.
- A crossing of the golf course service road will be required, which can be accomplished with a basic crossing design including warning signage for both trail users and golf course staff.
- A small creek crossing will be required, and developing the trail connection also results in the opportunity to create a connection paralleling the creek, up to pedestrian and cycling routes along the south side of Dundas Street.

Recommendation(s):

- Completing this link has been a priority for some time and staff is currently engaged in the design of this section of trail and is in consultations/negotiations with Hydro One (owner) and the golf course operator to complete this link, with the goal of implementing the trail connection within the short term.

Estimated Cost Based on Unit Pricing: $300,000

Length: 1.0km





View east along the Upper Middle multi-use trail. The north end of the proposed Cumberland Hydro Corridor connects directly to the Upper Middle trail.



View looking south into the northern section the of the Cumberland Hydro Corridor illustrating the worn footpath.

Build Project #3
Location:
Cumberland Hydro Corridor Multi-use Trail (Northern Section)

Description / Need: The northern section of the Cumberland Hydro Corridor is surrounded primarily by residential neighbourhoods and has been used informally as a trail by residents for many years. Its linear nature makes it an excellent candidate for a centrally located north-south trail connection. When combined with the central and southern portions of this corridor, it has would become a key primary citywide spine trail linking the Hydro Corridor Multi-use Trail with the Centennial Bikeway.

Existing Conditions, Opportunities and Constraints:

- Corridor is approximately 20m wide on average, generally flat to gently sloping with a turf groundcover and some woody vegetation that has grown in over time.
- Provides good connections to the Upper Middle Road multi-use trail, the Mainway multi-use trail and into the surrounding neighbourhood via street connections / intersections with Palmer Drive and Heathfield Drive.
- Good sightlines at the Palmer Drive and Heathfield Drive road crossings.
- Would require removal of some of the trees and shrubs that have grown in over time, and some encroachments by adjacent landowners would have to be addressed.
- An enhanced trail crossing of Mainway (e.g. pedestrian refuge or pedestrian activated signal) should be considered and further study is required.

Recommendation(s):

- Develop a primary multi-use trail in the northern section, starting at Upper Middle Road (tie into the existing Upper Middle Road multi-use trail) to Mainway.

Estimated Cost Based on Unit Pricing: $330,000

Length: 1.1km





View north from Ontario Street. The wide, well worn footpath is indicative of a strong latent demand for this connection.



View north from the end of Stephenson Drive, with the Fairview Street overpass in the background.

Build Project #4
Location: Downtown Hydro Corridor Multi-use Trail

Description / Need: This strong linear corridor provides a key link between the Fairview / Plains Road corridor and the waterfront, and provides a continuous off-road linkage opportunity that complements on-road cycling facilities on Brant Street and Maple Avenue. It also provides numerous opportunities for connections into the surrounding neighbourhoods. Implementation of this route would contribute significantly to a vibrant and livable downtown core. This route was also identified in the Cycling Master Plan and other strategic planning documents.

Existing Conditions, Opportunities and Constraints:

- The alignment will need to consider existing infrastructure and roadway crossings at Elgin Street, Ontario Street, Richmond Road and Grahams Lane.
- The majority of the south end of the corridor is currently occupied with municipal parking lots, and the corridor crosses Lakeshore Road at a mid-block, uncontrolled location. It is recommended that the trail route be diverted easterly at Elgin Street through Brock Park to Nelson Street, to take advantage of the signalized intersection at Nelson Street and Lakeshore Road.
- Strong potential to link the northern end of this route directly to Fairview Street by formalizing a well-worn footpath adjacent to the Fairview Street overpass. Connecting easterly to Fairview Street at Brant Street will require a crossing of the end of the existing railway spur.
- Should long-term plans result in changes to the character of the hydro corridor, (i.e. burial of the hydro lines, urban intensification and reorganization of municipal parking along the corridor); a continuous trail should be a key priority.

Recommendation(s):

- Develop a primary multi-use trail from Elgin Street to Fairview Street.

Estimated Cost Based on Unit Pricing: $540,000

Length: 1.8km







Build Project #5 Location: Alton Village Multi-use Trails	Pedestrian/multi-use bridge over the stormwater management channel, connecting streets on either side of the channel. Note the platform in the centre of the photo that is used for occassional service access.	Stormwater channel viewed from the sidewalk along one of the streets crossing the channel. Note the platform for occasional service access and the bollard to restrict access by unauthorized vehicles.

Description / Need: Alton Village is one of the City's newest residential communities. It includes several new park and school sites. Multi-use trail routes have been provided along Palladium Boulevard, a portion of Dundas Street and a portion of the north hydro corridor. Additional trail connections utilizing the stormwater management corridors would provide a localized community connection.

Existing Conditions, Opportunities and Constraints:

- Three stormwater management /open space corridors designed into the community, which follow former drainage courses. Corridors have been naturalized and include a service access route that could be used as a platform for a trail connection.
- Sufficient headroom exists below the existing pedestrian bridges.
- Where these platforms meet existing sidewalks, a removable bollard has been installed.
- Curb cuts exist at road crossings of Thomas Alton Boulevard.
- Existing dense vegetation may not allow for trail development in some areas.
- In all three cases, a significant destination exists adjacent to the corridor (i.e. park and/or school).
- Installation of a trail in each corridor would create a series of loops that connect the existing multi-use trail along Palladium Way, along Dundas Street or in the Hydro Corridor Multi-use Trail.

Recommendation(s):

- Develop a secondary multi-use trail in all three corridors to create connections between the multi-use trail along Palladium Way, Dundas and in the north hydro corridor.

Estimated Cost Based on Unit Pricing: $420,000

Length: 2.8km





Francis Road Bikeway north of Cedar Ave. View north of limestone trail with ponding on the trail surface.



Example of an older style access barrier along the Francis Road Bikeway that has heaved resulting in buckling of the trail surface.

Build Project #6
Location:
Francis Road Bikeway

Description / Need: The Francis Road Bikeway parallels the QEW Niagara on the west side of the highway. Many comments were received about the Francis Road Bikeway during the Community Trails Strategy consultation. Respondents rated it high on the priority list for improvement/upgrading to standards that are more current.

Existing Conditions, Opportunities and Constraints:

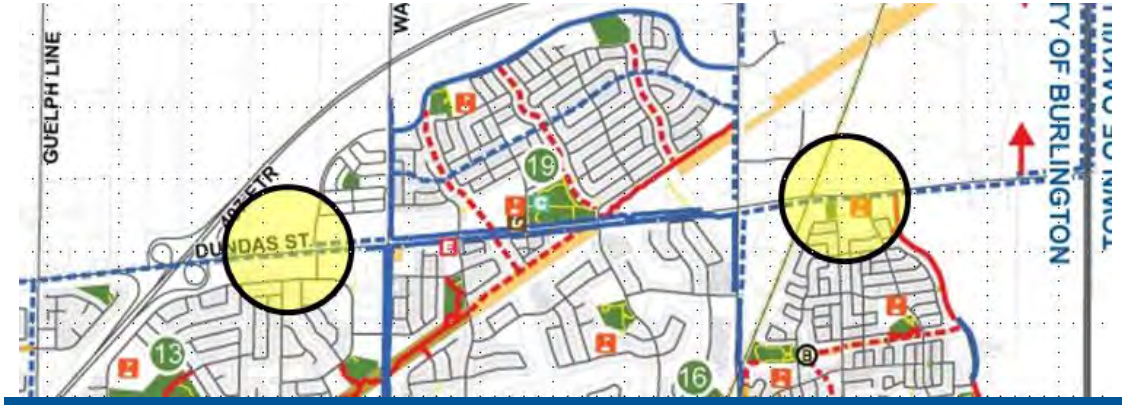
- The Francis Road Bikeway is an older trail of variable width and surface type.
- Surface types include compacted limestone with limited asphalt in some locations. The visible width is generally less than 2.0m, and grass has crept into the trail bed over the years, resulting in a narrowing of the trail. Current guidelines for bi-directional multi-use trails recommend a minimum width of 2.4m.
- In locations where the surface is asphalt, the condition is moderate to poor, with numerous cracks and patches resulting in a rough surface, and ponding of water was observed in a number of locations.
- Trail signage is older and requires replacement.
- Gates at road crossings are an older design and posts have heaved in some locations, buckling the asphalt surface or resulting in edges of the concrete foundation protruding into the trail surface.

Recommendation(s):

- Upgrade entire trail to meet current Primary multi-use trail standard, including road crossings, signage and amenities.
- Change the name of the link to the Francis Road Multi-use Trail

Estimated Cost Based on Unit Pricing: $350,000

Length: 1.4km





View east along Dundas Street from just west of Walkers Line. Source: Google

Build Project #7
Location: Dundas Street (Guelph Line to Tremaine Road)

Description / Need: The Halton Region Active Transportation Plan and other related long-term plans envision a more pedestrian and cyclist friendly corridor. Once completed, pedestrian and cycling routes along Dundas will become a key network link across the north part of the city. This route provides both a citywide and ultimately a regional function, as it will continue into Oakville and Hamilton.

Existing Conditions, Opportunities and Constraints:

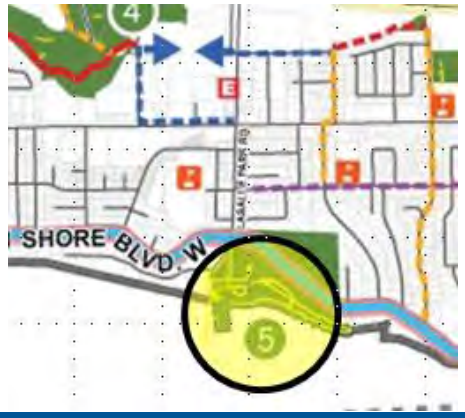
- A number of private entrances to commercial plazas, and a number of intersecting roadways will have to be considered during design development.
- The alignment will also have to consider utilities both above and below ground as well as utility vaults, roadside drainage, creeks and existing signs.
- Integration of the pedestrian / cyclist route with transit stops will need to be factored into the design.

Recommendation(s):

- This project is currently part of the Halton Region capital works plan, with completion scheduled for 2017. The city should continue to work collaboratively with the Region on the design and implementation of this link.

Estimated Cost Based on Unit Pricing: $1,732,500. Note: This project is a short-term initiative that is being worked on by the Region of Halton.

Length: 6.3km







Build Project #8 Location: LaSalle Park Trail Connection	Existing natural surface and woodchip trail in wooded area	Entrance to natural surface trail looking west from the intersection of North Shore Blvd., and Belhaven Cr.

Description / Need: Provide a multi-use trail connection (i.e. accommodating pedestrian uses and cycling) from North Shore Blvd at Belhaven Cr. into LaSalle Park using the Waterfront Trail route. The on-road cycling route along North Shore Blvd in this location is a shared use facility including sharrows. Less-experienced cyclists find the on-road connection challenging due to grade and having to share the space with motor vehicles.

Existing Conditions, Opportunities and Constraints:

- The existing trail includes several steep grades and extensive regrading would be required to promote accessibility. Regrading would have significant impacts on trees in the wooded area
- Excavation of the trail base to accommodate an asphalt surface trail in the wooded area would have significant impacts on the trees
- Asphalt in this location may attract small-wheeled users such as skateboarders and in-line skaters. The potential for irregularities in asphalt surface in the forested location along with concerns regarding wet leaves, surface ice and fallen branches / twigs suggest that asphalt is not a suitable surface in this location

Recommendation(s):

- Minor upgrades to the existing trail surface and alignment to the Secondary Multi-use Trail standard, to create a consistent width and consistent surface type of compacted limestone screenings
- Ensure that trailhead mapping and other mapping materials communicate the challenging slopes on this section of trail

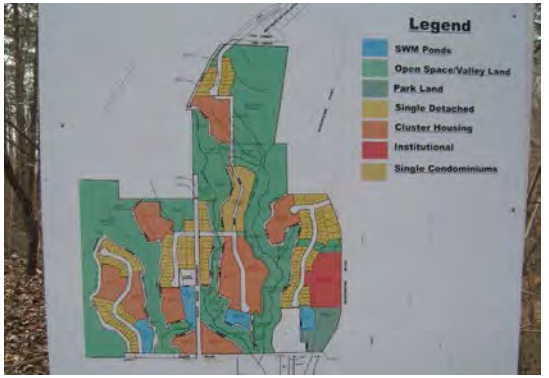
Estimated Cost Based on Unit Pricing: $100,000

Length: 0.5 km

Planning Initiatives



Advance Planning Initiative #1 Lemonville Road to the Bruce Trail: Involves ongoing discussions, planning, consultation and potential partnership with Conservation Halton to establish a formal trail connection between the north terminus of Lemonville Road and the Bruce Trail. This potential connection was identified during the preparation of the Community Trails Strategy and some initial discussions took place with representatives of Conservation Halton as a participant in the Agency Working Group for the project and as the owner of these lands. The link is envisioned for the tablelands on the west side of the valley. Today there is a well-worn footpath north from Lemonville Road. Once established, this link will also provide a strong connection into the City trail system via Lemonville Road to Hidden Valley Park, which provides an excellent staging area location (i.e. ample parking, washrooms etc. are already available). This initiative falls within the Cootes to Escarpment study boundary and will be explored through a separate process. The City component of this initiative is signage along Lemonville Road connecting the Conservation Halton property and Hidden Valley Park. This signage would be implemented in coordination with formalization of the trail on Conservation Halton property.



Advance Planning Initiatives #2 (Eagle Heights), 3 (Bronte Creek Meadows) and 4 (Evergreen – Tremaine/Dundas Secondary Plan) Future Development Lands: Through the development approvals process, City staff should work with the proponent in each of these three locations to plan, design and implement trail network links. These would include links within the subject location and connections to the surrounding community that are appropriate and reflect the vision of the Community Trails Strategy. As part of the community planning process for each of these locations the proponent and City would work together to determine the appropriate trail network (e.g. using proposed park and open space lands, portions of the street network or some combination thereof).



Advance Planning Initiative #5 City View/Kerncliff Park: During the development of the Community Trails Strategy, City staff (Parks and Open Space), Conservation Halton, representatives of the Bruce Trail Conservancy and the Iroquoia Bruce Trail Club had initial discussions regarding the mitigation and management of cycling impacts on the Bruce Trail both within City View / Kerncliff Park and beyond the boundaries of the Park. Discussions included identification of the issues, ownership and easement agreements, potential physical mitigation, signage, public outreach and enforcement to strategies to positively guide user behaviour. Collaboration should continue with the goal of developing strategies that can be implemented, monitored and adapted over time as necessary. Some suggestions that came forward during the development of the Community Trails Strategy included:

- clearer, more informative signing so that users have a better understanding of which trails permit cycling, which do not, and why;
- including mountain bike organizations (i.e. IMBA representatives and local club representatives) in the process so that appropriate information and positive reinforcement can come from within those organizations to riders;
- providing alternate routes into and through the parks so that cyclists do not need to use the Bruce Trail to access the parks;
- developing an alternate location(s) for mountain bike trails, and collaborating with mountain bike organizations (i.e. IMBA and local clubs) to develop, design, implement and maintain an appealing mountain bike destination trail /area (similar to successful destination trails Conservation Halton operates at locations such as Kelso and Hilton Falls; and
- involving mountain bike organizations (i.e. IMBA and local clubs) in the closure and rehabilitation of unauthorized trails in City View and Kerncliff Park.

Advance Planning Initiative #6 Cumberland Hydro Corridor: This initiative relates to the hydro corridor from Mainway south to Fairview Street and includes Fairvew Street from Guelph Line to Walker's Line. This link includes a grade-separated pedestrian / cyclist crossing of the QEW and creation of a trail link within the hydro corridor. Discussions and negotiations will be required with land owners that have property abutting the hydro corridor, Hydro One, CN Rail and MTO. Completing this route would provide a mid-town link between the existing Centennial Bikeway and Hydro Corridor Multi-use Trail by closing the gap between the existing Cumberland Trail south of Fairview Street and the proposed link within the hydro corridor north of Mainway. It requires significant investment in crossings of the CN rail line and the QEW.



Advance Planning Initiative #7 Elgin Promenade: The Elgin Promenade is a separate City design initiative currently underway. Building on this work a continuous connection would be created between the western terminus of the Centennial Bikeway and the Waterfront Trail in Spencer Smith Park. It is anticipated that much of this link would be accomplished through wayfinding signage and markings. The Elgin Promenade will be a pedestrian priority and cycling corridor at Elgin Street from Brant to Martha Streets. It extends through four existing parking lots and one laneway, and will connect City Hall, the Performing Arts Centre, and the Centennial Bikeway.



Advance Planning Initiative #8 Beachway Park: The Niagara branch of the Waterfront Trail heads in a southeasterly direction from the downtown area through Spencer Smith Park and Beachway Park before crossing into Hamilton at the Burlington Lift Bridge. This trail and the waterfront are a very popular destination for trail and beach enthusiasts. Halton Region, in collaboration with the City and Conservation Halton is embarking on a master planning process to review all aspects of the park including the trail system with a key component of this study focusing on trail routing and design. Recommendations from the Community Trails Strategy will inform the Beachway



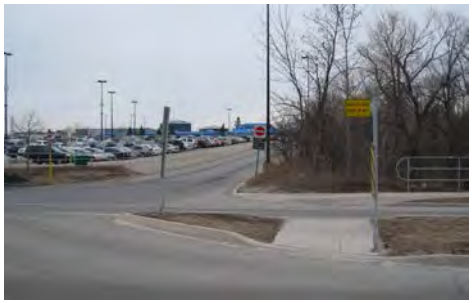
Master Plan currently underway. Trail design recommendations in the Beachway Park Master Plan should address high user volumes and potential user conflicts. As recommended in the Cycling Master Plan, Lakeshore Road will include bike lanes when it is reconstructed, and this should help to alleviate some of the cyclist volume on the main trail in Beachway Park.



With this in mind it is recommended that the main trail design in Beachway Park:

- Be designed to the Primary Multi-use standard; with a minimum 4.0 m wide trail bed that is hard surfaced with asphalt or concrete;
- Include a painted centre line on the trail surface for the entire length of the trail, or as a minimum at curves to separate users based on direction of travel;
- Include strategically placed signage to remind users that it is a shared path, that slower users should stay to the right of the trail surface, and remind users of the speed limit. Signage should be placed at conflict points including locations where beach access routes from parking lots to the beach intersect with the main trail;
- In addition signage and other supplementary brochures and maps should advise cyclists that the Lakeshore Road bike lanes (once constructed) are an efficient and preferred route for cyclists travelling through the City; and
- Acknowledge and consider the need for a multi-use trail on the south side of the Lift Bridge for a direct connection to Hamilton Waterfront Trail.

Advance Planning Initiatives #9 (Aldershot GO), 10 (Burlington GO) and 11 (Appleby GO): As part of ongoing planning work related to Mobility Hubs in Burlington, trail connections along with new public open spaces should continue to be part of discussions with Metrolinx and GO. Planning initiative 10 - Burlington GO is closely linked with Planning Initiative 12 - QEW crossing in the Brant Street area). Further details regarding the potential QEW crossing at Brant Street are discussed under Advance Planning Initiative #12.



Advance Planning Initiative #12 QEW crossing - Brant Street Area): This initiative examines the potential to develop a dedicated pedestrian / cyclist crossing of the QEW in the vicinity of Brant Street, as recommended in the Cycling Master Plan. A link in this location would close a gap between the western terminus of the Hydro Corridor Multi-use Trail, neighbourhoods on the south side of the QEW and the downtown. As part of the investigations for the Community Trails Strategy, the following three alternatives were examined in the field:







- Alternative 1 - crossing over the QEW by way of a grade-separated pedestrian / cyclist bridge within the hydro corridor (as recommended in the Cycling Master Plan);
- Alternative 2 - crossing below the QEW utilizing the existing CN railway tunnel; and
- Alternative 3 - providing pedestrian / cyclist enhancements within the Brant Street right-of-way.

Based on field investigations site investigation the project team concluded that Alternative 1 is not likely feasible due to the angle and span of the crossing, elevation of the highway and the network of overhead hydro wires, which are relatively low in relation to the elevated highway. Field investigations indicated that Alternative 2 would require a crossing of the double railway track at some point between the Burlington GO station and North Service Road. Although accomplishing this connection will be challenging it should continue to be included as a medium / long term opportunity. Investigations suggest that Alternative 3 may be the most feasible in the short / medium term and would involve continued discussion with Halton Region and discussions with MTO. For Alternative 3 the preferred facility type is a 2-way multi-use trail / active transportation pathway above the curb (i.e. separated from vehicle traffic) on the east side of Brant Street. Currently there is an asphalt splash zone abutted by a concrete sidewalk, totalling close to 5.0 m width. Removing the sidewalk and replacing the entire zone with asphalt would provide enough room for the 2-way multi-use trail with a buffer between the trail and back of curb. The space available for the multi-use trail narrows

nearer the ramp terminal and a physical barrier (e.g. Jersey barrier) could be considered for a separator between vehicular traffic and trail users. In addition improvements would be required where the trail crosses intersections and at ramp terminal for the QEW.

This recommendation is inconsistent with the Cycling Master Plan and warrants further investigation and consultation with the Region and MTO.

Planning Initiative #13 Bronte Creek Provincial Park to Lowville Park: The provision of a natural hiking trail / footpath connecting Bronte Creek Provincial Park and Lowville Park was previously identified as a potential connection and was to be explored through the Community Trails Strategy. Development of this link would strengthen the connection between the urban and rural parts of the city, and link the Bruce Trail with the Waterfront Trail creating a potential multi-day destination-hiking loop entirely within the City of Burlington. As part of the investigation of this potential link it was determined that the majority of land north of Dundas Street is privately owned and would require extensive negotiations with individual landowners to secure a route; a process similar to the Bruce Trail with regard to the securing and maintaining access / easement agreements.



Establishing a trail alignment would also require extensive study to mitigate impacts to sensitive environmental features in the Bronte Creek corridor and discussions / negotiations with Ontario Parks would also be required to determine the feasibility of a trail south of No. 1 Sideroad. Additionally crossings of significant barriers such as the railway and Highway 407 would need to resolved. Further investigations and planning could take place for this route, which would include a link to the Bruce Trail at Walker's Line, with a view to having a stronger understanding of the feasibility for implementation over the long term.

Identifying Future Priorities

The priorities identified in the previous sections are intended to form the basis for future community trail development in the short-term for the City of Burlington (i.e. the Build Projects and Advance Planning Initiatives). Build Projects can proceed through design and construction in the short term, and the Advance Planning Initiatives require further investigations related to design feasibility and approvals, consultations, and in some cases would involve environmental assessments. By working through the feasibility and planning challenges in the short term, Advance Planning projects should be ready for implementation in the medium and longer term.

Moving forward and as opportunities arise, the City is encouraged to use principles, similar to those that were used throughout the study process, to identify future priorities for the medium to long-term. Some of the principles which should be considered when confirming future priorities include:

- When possible, implementation of proposed community trails should be scheduled to be part of major infrastructure development or improvement projects (e.g. linkages identified on Regional Roads, installation of major utilities, improvements at creek corridors);
- Consideration of priority preferences of City staff, and public / stakeholder representatives;
- Construct routes in areas of new development as planning, design and construction progresses;
- Provide major trail spine connections between key destinations within the community and to future intensification areas / mobility hubs;
- Close gaps in the existing network;
- Build where demand is demonstrated or anticipated to be the highest;
- Build where there is higher local interest and where funding is available and / or where partnerships have been established; and
- Aim to generate local routes / loops that improve access to key local destinations.

Designing and constructing multi-use trails as part of other major infrastructure projects is fundamental to implementation so that opportunities are not missed and potential cost efficiencies can be realized by implementing the

trail(s) along with other infrastructure. During the development of the Community Trails Strategy current capital forecasts were reviewed included where applicable in the implementation strategy. Forecasts are expected to change and will require ongoing discussions and prioritization from City and Regional Council. Staff responsible for implementing the trail network should regularly monitor the capital forecast to be aware of opportunities to ensure that trails are implemented where appropriate.

Recommendation 6: The prioritization principles should be used by City staff to identify new trail linkages and determine the appropriate timing for their implementation.

Medium and Long Term Projects

Medium and long priorities were also identified as illustrated and numbered in **Map 6.0.** The following section provides details of each project and is intended as a starting point to guide future discussions and investigations for each project. The project numbers presented below correspond with the numbered project on Map 6.0. Note that the numbers do not reflect any prioritization of the medium and long term projects.

CITY OF Burlington
Ontario Canada

MAP 6.0
PROPOSED MEDIUM AND LONG TERM PROJECTS
MAY 2015
CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY

Legend

Existing Trails
- Existing Multi-Use Trail (Within Road Right-of-Way)[1]
- Existing Off-Road Multi-Use Trail (Outside of Road Right-of-Way)[2,3]
- Existing Off-Road Trail (Outside of Road Right of Way) Trail and Surface Type Varies

Other Regional Trails / Routes[3,4]
- Existing Bruce Trail and Side Trail[4]
- Waterfront Trail / Trans Canada Trail
- Greenbelt Cycling Route

Proposed Trails and Critical On-Road Connections[5,6]
- Proposed Multi-Use Trail Connection (Within Road Right-of-Way)
- Proposed Multi-Use Trail Connection (Outside of Road Right-of-Way)
- Proposed On Road Connections - Proposed in Community Trails Strategy
- Proposed On Road Connections Per Cycling Master Plan[7]
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)
- Proposed Bridge
- Existing Mid-Block Crossing of Collector or Arterial (eg. Mid-Block Pedestrian Signal or Median Island)
- Mid-Block Crossing Locations Suggested for Improvement (eg. Mid-Block Pedestrian Signal or Median Island)
- Rail Crossings and Connections into Mobility Hubs as per City of Burlington Official Plan Review: Mobility Hubs Opportunities and Constraints Study (May 2014)
- Future Trail Conections

Proposed Phasing
- Medium Term
- Long Term
- Medium and Long Term Projects

Key Community Destinations
- Emergency Services
- Schools
- City Hall
- Library
- Hospital
- Transit Hub
- Community Centre
- Other Key Destinations

Other
- Roadway
- Active Railway
- Municipal Boundary

Land Ownership
- City of Burlington Parks
- Railways
- Major Utility Corridors
- Royal Botanical Gardens
- Conservation Halton Lands

MMM GROUP

TOWN OF MILTON
DERRY RD.
KILBRIDE ST.
MILBURROUGH LINE
TWISS RD.
NO. 8 SIDE RD.
BRITANNIA RD.
CITY OF HAMILTON
CITY OF BURLINGTON
TOWN OF MILTON
CEDAR SPRINGS RD.
COLLING RD.
NO. 4 SIDE RD.
BELL SCHOOL LINE
NO. 2 SIDE RD.
TREMAINE RD.
NO. 1 SIDE RD.
WALKER'S LINE
APPLEBY LINE
407 ETR
GUELPH LINE
CITY OF BURLINGTON
TOWN OF OAKVILLE
COOTES TO ESCARPMENT STUDY BOUNDARY
DUNDAS ST.
UPPER MIDDLE RD.
MAINWAY
CITY OF HAMILTON
CITY OF BURLINGTON
NO. 6 HWY
SNAKE RD.
WATERDOWN RD.
HWY 403
KING RD.
BRANT ST.
QUEEN ELIZABETH WAY
PLAINS RD. W
PLAINS RD. E
FAIRVIEW ST.
BURLOAK DR.
NORTH SHORE BLVD. W
NORTH SHORE BLVD. E
MAPLE AVE.
LAKESHORE RD.
BURLINGTON BAY
LAKE ONTARIO

Medium and Long Term Projects
Note: Numbers to not reflect the order of medium and long term projects. Please refer to Section 2.2.1 for a detailed description of each project.

1. Old York Rd. and West Hydro Corridor
2. Plains Rd. and Howard Rd.
3. LaSalle Park Rd. Multi-Use Trail
4. Belhaven Cres. Trail Connection
5. Masonry Crt. & St. Matthews Ave. GO Station Connection
6. Shadeland Ave. & Gallagher Rd. GO Station Connection
7. Former Regional Landfill Area Multi-Use Trails
8. Northwest Utility Corridor
9. Marley Rd Connection
10. Fairview St. Trail Connection to Mapleview Mall
11. Downtown Hydro Corridor Extension
12. Central Park Trails
13. QEW & 403 Hydro Corridor
14. Brant St. (North Service Rd. to Fairview St.)
15. Upper Middle Rd. Trail Extension to Kerncliff Park
16. Dundas St. (Guelph Line to Kerns Rd.)
17. Brant St. (Dundas St. to Tyandaga Park Dr.)
18. Northwest Gas Corridor (Cavendish Dr. to Brant Hills Community Centre)
19. Guelph Line (Dundas St. to Upper Middle Rd.)
20. Ireland Park Connection to Northwest Gas Corridor
21. Headon Forest Connection to Hydro Corridor Multi-Use Trail
22. Palmer Park Connection
23. Hydro Corridor Connection to Dundas St.
24. Tremaine Rd. (Dundas St. to Hwy 407)
25. Appleby Line (Dundas St. to Dryden Ave.) with bridge Connection to Millcroft Park
26. Orchard Community Multi-Use Trails
27. Mainway (Lampman Park to Burloak Dr.)
28. Burloak Dr. (Upper Middle Rd. to Harvester Rd.)
29. Trail Connection (New St. to Sherwood Forest Park)
30. New St. (Nelson Park to Burloak Dr.) & Burloak Dr. to Sheldon Creek Trail

Legend Notes:
1. Includes routes owned and/or managed by the City of Burlington and / or Halton Region.
2. Includes routes owned and/or managed by the City of Burlington or other agencies including Halton Region, Conservation Halton, Royal Botanical Gardens.
3. Portions of Regional Trails / Routes may be coincident with City – owned / managed trails and / or cycling routes.
4. Uses may be restricted on some trails. For example, cycling is not permitted on the Bruce Trail outside of Conservation Halton lands, the Royal Botanical Gardens and the Bruce Trail on privately owned lands. Some existing trails are located on private land through access agreements with private landowners.
5. Achieving proposed connections may be subject to agreement / easement with landowner(s), and / or agreements resulting from Planning approvals and condition of approval.
6. Conceptual trail alignments have been investigated during the network development for the Community Trails Strategy and will require additional review / investigation when implementing individual routes.
7. This map illustrates only proposed on-road connections that are considered critical to the continuity of the community trails network. For further details regarding the existing and planned on-road cycling network, please refer to the City of Burlington Cycling Master Plan, and the Halton Region Active Transportation Master Plan (pending approval 2015).

City Parks
1. Bayview Park
2. Beachway Park
3. Burloak Waterfront Park
4. Hidden Valley Park
5. LaSalle Park
6. Lowville Park
7. City View Park
8. Paletta Lakefront Park
9. Sherwood Forest Park
10. Spencer Smith Park

Community Parks
11. Brant Hills Park
12. Central Park
13. Ireland Park
14. Kilbride Park
15. Maple Park
16. Millcroft Park
17. Mountainside Park
18. Nelson Park
19. Norton Community Park
20. Orchard Community Park
21. Tansley Woods Park

Other
22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area

0 0.75 1.5 3 4.5 6 Kilometers

1	Old York Road and West Hydro Corridor
Location	West Burlington in the area east of Highway 6 and north of Highway 403
Description	▶ Provides future trail connections in the west part of the city ▶ Provides a future trail connection to the City's new park block on the east side of Old York Road and adjacent to the hydro corridor
Recommendations	▶ Secondary multi-use trail outside of the road right-of-way, in the hydro corridor that runs east – west, and a Secondary multi-use trail parallel to Old York Road ▶ On-road connection (i.e. paved shoulder) on Old York Road from Lemonville Road north to the hydro corridor trail ▶ Requires future investigations regarding routing in valley areas and trail bridges across creeks
Total Length, (Cost Based on Unit Pricing)	▶ 2.5km off-road ($750,000) (does not include bridges – number of bridges and costs to be determined through future investigations) ▶ 1.6km on-road ($176,000)

2	Plains Road and Howard Road
Location	Plains Road West, west of LaSalle Park Road and Howard Road from Plains Road West to Hidden Valley Park
Description	▶ Provides a connection from the Plains Road corridor to Hidden Valley Park and the Hidden Valley trail system
Recommendations	▶ Primary multi-use trail within the road right-of-way along Plains Road West from LaSalle Park Road and Howard Road from Plains Road West to Hidden Valley Park ▶ Remove existing narrow asphalt walkway on Howard and portion of Lemonville Road and replace with Primary multi-use trail
Total Length, (Cost Based on Unit Pricing)	▶ 0.8km off-road ($220,000)

3	LaSalle Park Road Multi-Use Trail
Location	LaSalle Park Road from North Shore Boulevard to main entrance to LaSalle Park near the marina
Description	▶ Provides a connection from the sidewalks and cycling route along North Shore Boulevard to the LaSalle Park waterfront
Recommendations	▶ Primary multi-use trail within the road right-of-way along LaSalle Park Road
Total Length, (Cost Based on Unit Pricing)	▶ 0.4km off-road ($110,000)

4	Belhaven Crescent Trail Connection
Location	Belhaven Crescent south of North Shore Boulevard
Description	▶ Provides a connection from the sidewalk and cycling route on North Shore Boulevard to the trails at the waterfront in LaSalle Park, on the east side of the park, utilizing a former road allowance owned by the City
Recommendations	▶ Secondary multi-use trail within unopened road allowance from end of paved roadway to connect to existing trails in LaSalle Park ▶ On road connection (i.e. signed route) along Belhaven Crescent from North Shore Boulevard to end of paved roadway)
Total Length, (Cost Based on Unit Pricing)	▶ 0.1km off-road ($20,000) ▶ 0.1km on-road ($1,500)

5	Masonry Court and St. Matthews Avenue to Aldershot GO Station
Location	Area bounded by Waterdown Road, Plains Road West and St. Matthews Avenue
Description	▶ Connections to the Aldershot GO Station that include o access from Plains Road West, through the existing pedestrian opening in the noise attenuation barrier o a connection to Waterdown Road. Note that a sidewalk pedestrian sidewalk already exists and only an on-road connection for cyclists is required o formalizing / defining a preferred pedestrian and cycling route to the tunnel below the tracks to the north side of the tracks
Recommendations	▶ Primary multi-use trail within the road right-of-way along Masonry Court. Further investigation will be required to determine if this is feasible or necessary given that a pedestrian sidewalk already exists. If it is determined that a multi-use trail is not necessary, it is recommended that cyclists be accommodated on-road with bike lanes (preferred) or a signed route with Sharrow markings. For the purposes of costing this link, the unit cost for bike lanes with reconstruction was assumed. ▶ Primary multi-use trail outside of the road right of way from the parking lot entrance to the tunnel below the tracks. Further investigation will be required (i.e. as part of future parking lot expansions to the east of the existing parking lot. This route would connect with the proposed multi-use connection through City-owned open space at the north end of Gallagher Road ▶ On road connection (i.e. signed route) on St. Matthews Avenue from Plains Road West to the pedestrian opening in the noise attenuation barrier
Total Length, (Cost Based on Unit Pricing)	▶ 0.4km off-road within road right-of-way ($120,000) ▶ 0.7km off-road outside road right-of way ($175,000) ▶ 0.3km on road ($4,500)

6	Shadeland Avenue and Gallagher Road to Aldershot GO Station Connection
Location	Shadeland Avenue and Gallagher Road to the Aldershot GO Station
Description	▶ Route creates a feeder connection to the Aldershot GO station for neighbourhoods south of Plains Road West and west of the QEW, and users traveling on North Shore Boulevard ▶ The existing signalized crossing of Plains Road West enables a safe and efficient crossing, this route also passes by Holy Rosary School and Aldershot Park ▶ Pedestrians would use existing sidewalks and cyclists would be directed to use the road up to the proposed multi-use trail at the end of Gallagher Road
Recommendations	▶ Secondary multi-use trail thorough Grove Park at the north end of Gallagher Avenue to the proposed secondary multi-use trail connection through future parking lot expansion. ▶ On-road connection (i.e. signed route) along Shadeland Avenue and Gallagher Road from North Shore Boulevard to the north end of Gallagher Road
Total Length, (Cost Based on Unit Pricing)	▶ 0.5km off-road outside of road right-of-way ($100,000) ▶ 1.4km on-road ($21,000)

7	Former Regional Landfill Area Multi-Use Trails
Location	Area bounded by the North Service Road, Waterdown Road, the hydro corridor to the north and Bayview Park
Description	▶ Route provides future trail connections and potential destination trails in the area west of Bayview Park
Recommendations	▶ Secondary off road multi-use trail connection from Bayview Park to a trail loop / network surrounding the former Region of Halton Landfill, with connections to Waterdown Road and the North Service Road ▶ Land ownership includes private property, utility corridors, City and Regional lands requiring collaboration between land owners and potential partnership opportunities ▶ Future investigations to assess feasibility should also consider the potential for this space to accommodate a mountain bike destination trail network, which could help to mitigate some of the pressure on other areas within the City for mountain biking ▶ Requires future investigations regarding routing in valley areas and trail bridges across creeks
Total Length, (Cost Based on Unit Pricing)	▶ Off-road 6.7km ($1,340,000)

8	Northwest Utility Corridor
Location	Area bounded by the Bruce Trail to the north, Waterdown Road to the west, the QEW to the south, and Kerns Road to the east
Description	▶ Provides connectivity from the Kerncliff area westerly to Waterdown Road and potential destination / loop trails in the vicinity of the former Region of Halton landfill site (refer to project # 8)
Recommendations	▶ Secondary off-road multi-use trail routes in several utility corridors as part of future expansion of the trail network in the west part of the City ▶ Requires future investigations regarding routing in valley areas and trail bridges across creeks ▶ Collaboration with Conservation Halton will be required for portions of land in their ownership ▶ Consultation and approvals from utility corridor owners will be required for routes on land in their jurisdiction and / or ownership
Total Length, (Cost Based on Unit Pricing)	▶ 8.2km off-road ($1,640,000)

9	Marley Road Connection
Location	Marley Road from King Road to the Francis Road Bikeway
Description	▶ Connection between the existing facilities on King Road and the Francis Road Bikeway ▶ Pedestrians would use existing sidewalks and cyclists would be directed to use the road
Recommendations	▶ On-road connection (i.e. signed route)
Total Length, (Cost Based on Unit Pricing)	▶ 0.4km on-road ($6,000)

10	Fairview Street Trail Connection to Mapleview Mall
Location	Fairview Street from Maple Avenue to the end of proposed Downtown Hydro Corridor Multi-use Trail
Description	▶ Provides a link between the existing facilities on Maple Avenue and the proposed multi-use trail in the Downtown Hydro Corridor (Refer to Priority Build Project #4)
Recommendations	▶ Primary off-road multi-use trail within the road right-of-way ▶ Investigate option to (i) remove sidewalk from Maple Avenue at Fairview Street, east to the junction with the proposed multi-use trail where the Upper Hager Creek corridor meets Fairview Street vs. (ii) widening the existing sidewalk and signing it as a shared use facility (i.e. a length of approximately 200m)
Total Length, (Cost Based on Unit Pricing)	▶ 0.3km off-road ($82,500)

11	Downtown Hydro Corridor Extension
Location	Elgin Street, Brock Park and Nelson Avenue
Description	▶ Provides a connection between the south limit of the proposed Downtown Hydro Corridor Multi-use Trail (Refer to Priority Build Project #4) and Spencer Smith Park ▶ Using the signalized intersection at Nelson Avenue and Lakeshore Road provides a safer crossing of Lakeshore Road than Brock Avenue which is unsignalized. This entrance also brings users into a main park entrance
Recommendations	▶ Primary off road multi-use trail in Brock Park from the north west corner of the park nearest the hydro corridor, connecting to the existing trail in the centre of the park ▶ On-road connection (i.e. signed route) on Nelson Avenue from the rear entrance to the Art Gallery of Burlington to Lakeshore Road ▶ Future feasibility assessment to also review mid-block trail crossing of Elgin Street (i.e. requirements for signage, potential pavement markings etc.)
Total Length, (Cost Based on Unit Pricing)	▶ 0.1km off-road ($25,000) ▶ 0.1km on-road ($1,500)

12	Central Park Trails
Location	Central Park
Description	▶ Provides a connection from sidewalk and cycling facilities on Guelph Line to the community facilities / buildings in the park. ▶ The existing trail connects to Mayzel Road and there is no trail connection from Edith Avenue, however a well-worn path from the west end of Edith Avenue through the middle of the soccer field indicates demand for a formalized facility
Recommendations	▶ Complete secondary multi-use trail connections within Central Park to connect (i) park access points from surrounding streets such as Cornick Drive, Courtland Drive and Edith Avenue to the community facilities, and (ii) existing trails in the northeast portion of the park to the community facilities, may also require upgrading portions of the existing trails within the park and completing a connection to Guelph Line
Total Length, (Cost Based on Unit Pricing)	▶ 1.3km off road ($260,000)

13	QEW and 403 Hydro Corridor
Location	Area bounded by the QEW, Plains Road / CN railway and Brant Street
Description	▶ Provides a trail connection and trail opportunity for residents in this neighbourhood which is isolated from other neighbourhoods by significant physical barriers (QEW, CN railway and Brant Street) ▶ Would add to trail opportunities in Leighland Park ▶ This area is being used informally by area residents as evidenced by the well-worn pathway leading from the park into the stormwater management area
Recommendations	▶ Secondary multi-use trail on top of the berm flanking the stormwater management facilities ▶ Requires collaboration with Halton Conservation ▶ The existing gate / fence at Brant Street would need to be modified to allow access from Brant Street
Total Length, (Cost Based on Unit Pricing)	▶ 1.1km off road ($220,000)

14	Brant Street - North Service Road to Fairview Street
Location	Brant Street from the North Service Road to Fairview Street
Description	▶ Provides a connection below the QEW in vicinity of the QEW, Hwy 403 and Hwy 407 junction ▶ Site investigations during the development of the Community Trails Strategy revealed that crossing the QEW as recommended in the Cycling Master Plan may not be achievable due to existing conditions within and immediately surrounding the hydro corridor just east of Brant Street, refer also to Planning Initiative #12 for details regarding constraints and the potential solution ▶ Bike lanes already exist from Fairview Street to Churchill Avenue, cyclists would be directed to use the road and pedestrians would use the existing sidewalks
Recommendations	▶ Primary multi-use trail within the road right-of-way on the east side of Brant Street from Churchill Avenue to the North Service Road ▶ Further consultation with MTO and Halton Region required
Total Length, (Cost Based on Unit Pricing)	▶ 0.7km off-road ($192,500) within the Brant Street right-of-way

15	Upper Middle Road Trail Extension to Kerncliff Park
Location	Upper Middle Road west of Brant Street
Description	▶ Includes Upper Middle Road west of Brant Street and a portion of the unopened road allowance running southwesterly from Havendale Boulevard to Kerns Road ▶ Completes the multi-use trail in the Upper Middle Road right-of-way which traverses the entire urban part of the City, currently ending at Brant Street ▶ Completion of this route also provides an alternate route to access City View Park, eliminating the need to drive to the main access off Kerns Road , and provides connections to trails in Kerncliff Park via the unopened road allowance running southwest of Havendale Boulevard
Recommendations	▶ Primary multi-use trail within the road right-of-way along the north boulevard of Upper Middle Road ▶ Secondary multi-use trail in the Upper Middle Road road right-of-way from Havendale Boulevard and Secondary multi-use trail the outside of the road right-of-way in the unopened road allowance running southwest from Havendale Boulevard ▶ Future investigations should include consideration for a minor staging area / trail head within the Upper Middle Road right-of way immediately west of Havendale Boulevard

Total Length, (Cost Based on Unit Pricing)	▶ 0.7km off-road within the Upper Middle Road right-of-way ($192,500) ▶ 1.0km off-road outside of the road right of way, in the unopened road allowance running southwest from Havendale Boulevard ($200,000)

16	Dundas Street - Guelph Line to Kerns Road
Location	The Dundas Street corridor from Guelph Line west to Kerns Road
Description	▶ Provides a connection along Dundas Street from below the Niagara Escarpment to City View Park and provides an alternate route to access the Bruce Trail using Cedar Springs Road, reducing potential conflicts where the trail currently crosses Dundas Street
Recommendations	▶ Primary multi-use trail within the road right-of-way (Regional) along Dundas Street, requiring coordination with Regional plans. Refer also to ongoing work underway by the Region of Halton for this section of Dundas Street ▶ On-road connection (i.e. Paved Shoulder / facility behind the curb) on Cedar Springs Road from Dundas Street to the Bruce Trail
Total Length, (Cost Based on Unit Pricing)	▶ 3.5km off–road ($962,500) within the Dundas Street right-of-way ▶ 0.3km on-road ($33,000)

17	Brant Street - Dundas Street to Tyandaga Park Drive
Location	Brant Street from Dundas Street to Tyandaga Park Drive
Description	▶ Forms part of a north-south spine connection in the central part of the city and is a continuation of the trail already established along portions of Brant Street ▶ Creates a connection to the existing multi-use trail along Upper Middle Road and the future multi-use trail along Dundas Street
Recommendations	▶ Primary multi-use trail within the road right-of-way along Brant Street, requiring coordination with Regional plans
Total Length, (Cost Based on Unit Pricing)	▶ 2.1km off-road ($577,500) within the Brant Street right-of-way

18	Northwest Gas Corridor - Cavendish Drive to Brant Hills Community Centre
Location	Area bounded by Dundas Street, Hwy 407, Brant Street and Guelph Line
Description	▶ Provides a link between existing trails in the Brant Hills Community Centre area and the proposed facility in the Guelph Line right-of way ▶ Provides the opportunity for Brant Hills residents to access the Community Centre using the Community Trails System rather than by car ▶ Formalizes a footpath that has developed in the gas corridor over a number of years
Recommendations	▶ Secondary multi-use trail in the gas corridor ▶ On road connection (i.e. signed route) along Cavendish Drive from the gas corridor to Guelph Line
Total Length, (Cost Based on Unit Pricing)	▶ 1.1km off-road ($275,000) ▶ 0.8km on-road ($12,000)

19	Guelph Line - Dundas Street to Upper Middle Road
Location	Guelph Line from Upper Middle Road to Dundas Street
Description	▶ Connects the existing multi-use trails along Upper Middle Road and the proposed multi-use trail along Dundas Street ▶ Provides a link between the proposed gas corridor trail (Project #19) and the proposed trails in the vicinity of Ireland Park (Project #21)
Recommendations	▶ Primary multi-use trail within the road right-of-way along Guelph Line, requiring coordination with Regional plans
Total Length, (Cost Based on Unit Pricing)	▶ 1.9km off-road ($522,500) within the Guelph Line right-of-way

20	Ireland Park Connection to Northwest Gas Corridor
Location	Gas corridor east of Guelph Line at Hwy 407 to Ireland Park
Description	▶ Completes an east-west link that connects the north part of the city to the existing Hydro corridor trail ▶ Results in multiple trail loop options in the area bounded by Dundas Street, Walkers Line, Upper Middle Road and Guelph Line
Recommendations	▶ Secondary multi-use trail in the gas corridor from Ireland Park to Guelph Line ▶ Users would be directed to the signalized intersection at Longmeadow Road
Total Length, (Cost Based on Unit Pricing)	▶ 0.7km off-road ($140,000)

21	Headon Forest Connection to Hydro Corridor Multi-Use Trail
Location	Creek corridor west of Headon Road at Cleaver Park
Description	▶ Provides a connection between the existing trails in Cleaver Park, C.H. Norton Public School and the existing multi-use in the Hydro corridor ▶ Formalizes footpaths along both sides of the creek between the Hydro corridor and Headon Road, creating an opportunity to direct user traffic, close redundant trails and rehabilitate / naturalize degraded areas
Recommendations	▶ Woodland mulch trail ▶ Requires future investigations regarding routing and trail bridge across creek ▶ Close redundant footpaths and establish native vegetation in areas to be closed
Total Length, (Cost Based on Unit Pricing)	▶ 0.5km off-road ($37,500)

22	Palmer Park Connection
Location	Along edge of existing woodlot from Mainway to Upper Middle Road through Lansdown Park and Palmer Park
Description	▶ Creates a new connection for pedestrians to Lester B. Pearson High School. ▶ Provides a new connection to the existing facilities along Mainway and Upper Middle Road. ▶ Provides trail access to sport facilities in Palmer and Lansdown Parks.
Recommendations	▶ Secondary multi-use trail ▶ Future investigation will be required to determine pedestrian road crossing needs at Palmer Drive. ▶ Requires future investigations regarding routing into the valley areas and trail bridge across creek
Total Length, (Cost Based on Unit Pricing)	▶ 1.2km off-road ($240,000)

23	Hydro Corridor Connection to Dundas Street
Location	Naturalized area between Saunders Crescent and Singleton Common south of Dundas Street and north of the Hydro Trail
Description	▶ Provides a link from the Hydro corridor multi-use trail to Dundas Street and provides an alternate route to the proposed trail route along the edge of the Millcroft Golf Course. ▶ Utilize existing signals at Berwick Drive and Weslock Common to cross Dundas Street
Recommendations	▶ Secondary multi-use trail
Total Length, (Cost Based on Unit Pricing)	▶ 0.2km off-road ($40,000)

24	Tremaine Road (Dundas Street to Hwy 407)
Location	West side of Tremaine Road from Dundas Street to HWY 407 and small portion west of Tremaine Road and south of Hwy 407
Description	▶ Provides a future connection to Dundas Street and future development on the west side of Tremaine Road
Recommendations	▶ Primary multi-use trail within the road right-of-way along Tremaine Road, requiring coordination with Regional plans ▶ Further investigation regarding multi-use trail connections into new development areas will be required to determine their location and alignment
Total Length, (Cost Based on Unit Pricing)	▶ 1.2km off-road within the Tremaine Road right-of-way ($330,000) - ▶ 0.4km off-road ($80,000)

25	Appleby Line - Dundas Street to Dryden Avenue with bridge Connection to Millcroft Park
Location	East side of Appleby Line from Dundas Street to Dryden Avenue
Description	▶ Connects Orchard Community to Millcroft Park and Pathfinder Park, providing multiple trail loop opportunities ▶ Utilizes existing signalized intersection at Dryden Avenue and Appleby Line ▶ Pedestrians would use existing sidewalks and cyclists would be directed to use the road along Bunton Crescent
Recommendations	▶ Primary multi-use trail within the road right-of-way along Appleby Line, requiring coordination with Regional plans ▶ Secondary multi-use trail outside of the road right-of-way from the existing trail in Pathfinder Park to Bunton Crescent ▶ On-road connection (i.e. signed route) along Bunton Crescent ▶ Utilize the existing signalized crossing at Dryden Avenue ▶ On-road signed connection along the Canadian Tire plaza entrance road – will require future investigations and discussions with the plaza owner ▶ Secondary multi-use trail to connect proposed pedestrian bridge ▶ Further investigation will be required for the pedestrian bridge over the railway line into Millcroft Park
Total Length, (Cost Based on Unit Pricing)	▶ 1.4km off-road along Appleby Line ($385,000) ▶ 0.2km off-road ($40,000) – from Pathfinder Park to Bunton Crescent ▶ 0.3km on-road ($4,500) – along Bunton Crescent ▶ 0.2km on-road ($3,000) – through Canadian Tire plaza entrance ▶ 0.2km off-road ($40,000) – from the Canadian Tire plaza entrance to the proposed pedestrian bridge

26	Orchard Community Multi-Use Trails
Location	Existing gas corridor from Twelve Mile Trail to Pathfinder Park and through the woodlot from Pathfinder Park to Blue Spruce Avenue.
Description	▶ Completes the east/west trail link through gas corridor ▶ Provides connections to Pathfinder Park, Emerson Park, Orchard Park Public School and St. Christopher Catholic Elementary School ▶ Provides a complete trail link north/south from Upper Middle Road to Pathfinder Park and multiple trail loop opportunities
Recommendations	▶ Secondary multi-use trail from Twelve Mile Trail to Sutton Drive ▶ Secondary multi-use trail from Orchard Road to Pathfinder Park ▶ Woodland mulch trail along creek corridor from Blue Spruce Avenue to the gas line corridor ▶ Further investigations will be required for the two proposed bridge crossings
Total Length, (Cost Based on Unit Pricing)	▶ 0.2km off-road ($40,000) ▶ 0.2km off-road ($40,000) ▶ 0.7km off-road ($52,500)

27	Mainway - Lampman Park to Burloak Drive
Location	North side of Mainway from Tansley Woods Park and Lampman Park to Burloak Drive
Description	▶ Completes the existing facilities east along Mainway to Burloak Drive ▶ Provides a link to the existing facilities north along Appleby Line ▶ Provides future connections into the new development area north of Mainway
Recommendations	▶ Primary multi-use trail within the road right-of-way on the north side of Mainway between the railway and Lampman Avenue ▶ Primary multi-use trail within the road right-of-way on the south side between Lampman Avenue and Burloak Drive
Total Length, (Cost Based on Unit Pricing)	▶ 1.7km off-road ($467,500) ▶ 1.6km off-road ($440,000)

28	Burloak Drive - Upper Middle Road to Harvester Road
Location	Along east side of Burloak Drive from Upper Middle Road to Harvester Road
Description	▶ Provides a strong link to the east side of the City allowing residents to cross over the QEW/403. ▶ Connections to Sherwood Forest Park, Bronte Creek Provincial Park, the Orchard community, and the proposed multi-use trail along Mainway
Recommendations	▶ Primary multi-use trail within the road right-of-way along Burloak Drive, requiring coordination with Regional plans
Total Length, (Cost Based on Unit Pricing)	▶ 3.4km off road ($935,000) – within the Burloak Drive right-of-way

29	Trail Connection - New Street to Sherwood Forest Park
Location	Along existing creek from New Street to Sherwood Forest Park
Description	▶ Provides a direct link to Sheldon Park and Sherwood Forest Park for local residents. ▶ Provides local residents with connection to Centennial Bikeway
Recommendations	▶ Woodland mulch trail ▶ Further investigations required to determine the preferred side of the creek for the trail, and crossings of Deerhurst Drive and Sheldon Park Drive (i.e. at grade road crossings or cross under the road via bridges at the creek)
Total Length, (Cost Based on Unit Pricing)	▶ 1.1km off-road ($82,500)

30	New Street (Nelson Park to Burloak Drive) and Burloak Drive to Sheldon Creek Trail (Oakville)
Location	Burlington / Oakville boundary to Nelson Park
Description	▶ The existing trail along Sheldon Creek in Oakville ends at Burloak Drive ▶ Creating this link results in a strong inter-municipal route connecting several major parks including Burlington's Sherwood and Nelson Parks with Oakville's Shell Park ▶ Provides a trail connection opportunity in the southeast part of the City where there are limited opportunities for multi-use trails outside of the road right-of-way ▶ Forms a trail loop in the southeast part of the City using the trail on Burloak Drive, Centennial Bikeway trails through Nelson Park and trail along New Street. ▶ A wide boulevard on the west side of Burloak Drive from junction with the Sheldon Creek trail in Oakville ▶ A wide boulevard on both sides of New Street, with several park destinations on the north side of New Street (e.g. Fothergill Park, Frontenac Park, and Nelson Park) ▶ During field investigations several cyclists were observed using the sidewalk on the north side of New Street
Recommendations	▶ Primary multi-use trail within the road right-of-way, in the west boulevard of Burloak Drive and the north boulevard of New Street ▶ Provide mid-block pedestrian improvements to assist users crossing Burloak Drive where Oakville's Sheldon Creek trail meets Burloak Drive
Total Length, (Cost Based on Unit Pricing)	▶ 3.8km off-road ($1,045,000)

V2.2.2 Establishing a System of Community Trails

Moving Forward on Multiple Fronts

The management of the Community Trails Network will be based on current best practices and processes established by the City and its partners. It involves a multi-faceted approach and involves significant collaboration among departments and staff within those departments with a role in planning, design, implementation and maintenance of trail facilities so that the delivery and management of the Community Trail system becomes an integral part of day to day business practice in the City. Some facets include:

- Establishing a process for ongoing communication between internal departments responsible for the planning, design and implementation of community trails;
- Engaging in ongoing discussions with other agencies (e.g. Halton Region, Niagara Escarpment Commission, Bruce Trail Conservancy, Conservation Halton, municipal neighbours etc.) to ensure that connections that make up part of the network in their respective jurisdictions and future opportunities are explored and planned for;
- Adhering to current development and maintenance practices and updating and documenting these practices as necessary based on lessons learned and demand for various routes;
- Adhering to land management plans being developed for public lands (e.g. Cootes to Escarpment areas);
- Adhering to the Municipal Class Environmental Assessment process for relevant building initiatives, where applicable;
- Applying Accessibility for Ontarians with Disabilities Act regulations and standards in trail and design, signage and maintenance practices;
- Engaging in ongoing communication and consultation with public representatives and local stakeholders to explore outreach and promotional opportunities;
- Continuing to participate as a member of the Hamilton / Burlington Trails Council as a guiding force behind the development of online mapping, future routing decisions, promotion and outreach, including the development of promotional materials; and
- Using the route prioritization criteria to confirm high priority initiatives and prioritize opportunities as they arise.

Keeping track of these initiatives and maintaining momentum for the implementation of trails in the City will require significant effort. Many municipalities that have successful trail systems and trail outreach and promotion programs rely on a member of staff to oversee and coordinate efforts on multiple fronts. In some cases this position is solely related to trails, in other cases the coordinator is responsible for both the off-road trail system and the on road cycling network (i.e. Active Transportation Coordinator). Some key responsibilities of the Trail Coordinator would include:

- Coordinating and liaising internally with staff involved in trail planning, design and management;
- Monitoring and tracking implementation of the trail network;
- Preparing and delivering an annual report to Council on the status of implementation liaising with outside agencies;
- Overseeing or directly managing and regularly updating the trail infrastructure database;
- Developing and delivering trail promotion and outreach programs and materials;
- Liaising with outside agencies and interest groups regarding trail development and management at a local and regional level;
- Staying current with industry best practices and trends related to trail planning, design and operation; and
- Managing future updates to the Community Trails Strategy.

Recommendation 7: The City should investigate creating a Trail Coordinator position. This position could be dedicated entirely to the off-road Community Trail Network, or could be combined with coordination responsibilities for the on-road Cycling Network.

Using the GIS Database as a Tool for Implementation

The Community Trails Network was developed using the City and Region's GIS database. The digital database is intended to be used as a facility management tool and could be integrated into the City's asset management program. The database is associated with mapping information and includes a number of attributes for both the existing and proposed network linkages. The GIS information can be viewed in various interfaces and formats being used by staff such as Latitude Geocortex. City staff is encouraged to use the database as a tool when confirming the feasibility of community trail linkages, facility types and scheduling implementation. The tool will help provide operations staff with quick access to the location and characteristics of features within the network. This will enable more proactive planning of trail maintenance, will help to track work completed and can also be used to provide input to future budgeting. As improvements or additions are made to the network, the database should be updated and the database should be kept current so it can be effectively used as a tool for asset planning and management. The trails GIS database should be managed so it remains up to date. The responsibility for managing the system could be added to the role of an existing staff member that has a mandate to coordinate with Transportation, Geomatics, Parks and Open Space, Asset Management and Roads and Parks Maintenance. Some of these responsibilities include:

- Monitoring of the database on a regular basis with regular updates from staff implementing new trails;
- Receiving comments from the public and staff on trail locations that require attention and entering the data into the database;
- Coordinating work orders with staff from Roads and Parks Maintenance to ensure that areas of concern are rectified;
- Identification and tracking of key locations of concern so that maintenance can be proactive as opposed to reactive;
- Tracking work orders and updating the Community Trails Network as new segments are added;
- Tracking of actual costs for capital and maintenance work;
- Fully integrating the GIS database so it can be set up as an asset management tool connected to the City's work order system;
- Assisting staff with the identification of priorities and budgets for upcoming projects and providing background materials for staff reports to Council; and

- Coordinating with the Creative Services Department and Geomatics to use information in the database to (a) create mapping tools to serve staff in their day to day work, and (b) form the basis of mapping products used by the public to navigate the system and promote the City more broadly as a destination for visitors.

Recommendation 8: The City should use the GIS database developed during the Community Trails Strategy as the starting point for a network implementation and asset management tool. Data generated should be incorporated into the existing municipal database and also used to inform the development of promotion and outreach materials (e.g. maps) where appropriate.

Planning for Community Trails

Community Trails in Established Neighbourhoods & Intensification Areas

Upgrades to existing trails or the implementation of new trails in established neighbourhoods or in areas that are destined for future intensification can be very challenging. Given the City of Burlington is "growing in place", future trail development will likely occur in established neighbourhoods, intensification areas or those lands found within mobility hub areas. Despite defining trail development objectives through a consultative process in strategic guiding documents such as the Community Trails Strategy and the proposed linkage's location on public lands, there may be some push-back from residents as the network is developed at the neighbourhood level. Though it may not be possible to mitigate all concerns, engaging residents and stakeholders in an open public consultation process in the early detail design stages of an implementation project often helps to alleviate many concerns. Part of this conversation includes providing information about the positive impacts of trails on the neighbourhood and City such as healthy lifestyle opportunities, social and community benefits as well as the positive impact on property values. Engaging residents early in the process also allows them to contribute to the development of the solution and ultimately take some ownership for it.

Consultation that should be undertaken as a proposed trail linkage moves to the design and development stage includes:

1. Using public engagement goals to "Inform and Consult", by notifying adjacent landowners early in the process and taking time to respond or understand concerns
2. Using public engagement goals to "Consult and Involve" Participation in the design process is encouraged through design workshops to determine solutions / outcomes
3. Emphasizing the benefits of community trails for communities including themselves and their children
4. Emphasizing successful examples and effective solutions where similar problems have been overcome



Community Trails and the Environmental Assessment Process

Ontario's Municipal Engineers Association (MEA) Class Environmental Assessment Document applies to municipal infrastructure project including roads, water and wastewater. Projects undertaken by municipalities can vary greatly in terms of their environmental impact and can generally fit into three Class EA schedules as summarized in **Table V2.6**.

Table V2.6 – Class EA Schedule Description

Schedule A or A+	Schedule B	Schedule C
▶ Generally includes normal or emergency agency operational and maintenance activities; and ▶ The environmental effects of these activities are usually minimal and, therefore, these projects are pre-approved.	▶ Generally includes improvements and minor expansions to existing facilities; and ▶ There is the potential for some adverse environmental impacts and therefore the proponent is required to proceed through a screening process including consultation with those who may be affected.	▶ Generally includes the construction of new facilities and major expansions to existing facilities; and ▶ These projects proceed through the environmental assessment planning process outlined in the Class EA.

For additional details regarding the classification of Environmental Assessment requirements related to project type and cost, refer to **Appendix 1 – Project Schedules** of the **MEA Document**.

Trail development is not normally subject to the Class EA process, for instance the construction of multi-use pathways within existing rights-of-way is pre-approved with no lower or upper financial limit. However there may be some instances or elements of trail projects where the need to complete and EA should be considered these steps are required such as:

- Culvert repair and replacement where the capacity of the culvert is not increased beyond the maximum municipal standard or the capacity to adequately drain the areas, whichever is greater and where there is no change in the drainage area. If culvert replacement and repairs do not result in an increased capacity and there is no change in the drainage areas, a Class EA is not likely required.
- New water or roadway crossing to accommodate a connection to an existing or proposed trail "may" require a Schedule B Class EA if the total estimated construction value of the crossing is less than $2.7M.
- The City should first consult with the Ministry of Natural Resources and Conservation Halton for trail projects that involve minor "water crossings" (e.g. drainage ditches) to determine whether a Schedule B Class EA is warranted.
- Reconstruction of water crossing where the reconstructed facility will be for the same purpose, use, capacity and at the same location, where capacity refers to the hydraulic capacity (pre-approved, no upper or lower financial limit).
- Reconstruction of a water crossing where the reconstructed facility will not be for the same purpose, use, capacity and at the same locations, where capacity refers to the hydraulic capacity (Schedule B where the construction cost is less than $2.7M).

Where trail routes identified in the Community Trails Strategy are within the study area for municipal infrastructure projects such as road widenings, stream channel realignments, municipal water and sewer lines, etc., that are subject to the EA process, the planning, design and implementation of the trail should be considered an integral component of these projects. Therefore, when an EA is being scoped, the Community Trails Strategy must be consulted and where appropriate the need to address trail development must form part of the project description for the EA.

Community Trails in New Development Areas

Where trails are planned for new communities or new development areas, no additional consultation is anticipated above and beyond what is being undertaken as part of what has been specified for the subdivision planning and approvals process. It is expected that developers will work through the planning and approvals process with City staff and approval agencies and that the details of the proposed routes and their construction will take place as part of that process.

Recommendation 9: Where trail routes identified in the Community Trails Strategy are within the study area for municipal infrastructure projects such as road widenings, stream channel realignments, municipal water and sewer lines, etc., the planning, design and implementation of the trail should be considered an integral component of these projects.

Recommendation 10: When an Environmental Assessment is being scoped, the Community Trails Strategy must be consulted and where appropriate the need to address trail development must form part of the project description for the Environmental Assessment.

Recommendation 11: Staff should review the suggested approaches for ongoing public participation for trails proposed in established neighbourhoods / intensification areas / mobility hubs and determine an appropriate approach on a project-by –project basis.

Land Acquisition & Securement

Although a significant portion of the network is proposed on lands that fall under public ownership, there are some areas where trail connections are desired / proposed where no public land is available at this time or the land is under the ownership of another public agency. Desired connections can also be found on lands that are privately owned. In these locations, natural space or parklands may be available which could be explored in the future for potential trail development. The City should work with staff, stakeholders and local agencies to explore these opportunities as they become part of the fabric of municipally owned lands. There are other lands within the urban area where land has already been urbanized, yet a future community trail connection is desired and no public land exists. To realize full build-out of the network and to complete the connections across these lands, the City may need to acquire permission for access or develop a strategy to secure ownership. Some of these parcels have been identified in other strategic planning

documents e.g. the Mobility Hubs Strategy and the City's Strategic Plan. A range of strategies are available, each with advantages and disadvantages which relate to the ease of achieving an agreement, cost and level of control that can be exerted by the City. Since the conditions associated with each parcel of land are unique, each of the potential techniques should be considered at the early stages of the process for an individual parcel so that an appropriate and effective technique can be tailored to each individual situation.

Techniques range from:

- Bequests where owners are encouraged to donate all or portions of lands of interest for tax benefits, to
- "Hand-shake" agreements that are renewed on a regular basis;
- Easement agreements that are linked to the land title;
- Outright purchase by the City; and
- Expropriation, in exceptional circumstances.

Recommendation 12: The City should develop an easement agreement and acquisition strategy for the lands or corridors required for Community Trail connections on privately owned lands.

Maintaining Community Trails

A critical component of service delivery is the maintenance and monitoring of facilities. Trails should be treated like any other municipal asset and any plans to move forward with implementation must be accompanied by a parallel effort to maintain them in good condition. Many jurisdictions have established programs and strategies to build the trail system, however the number that have established formalized maintenance programs is much lower. Research was undertaken a number of years ago to document and assess maintenance practices, issues and priorities to gain a better understanding of basic maintenance costs (Municipal Trail Maintenance Survey – 2004). The results were supplemented by additional research completed in 2011 on municipal investments in trail construction and maintenance. Some highlights from the information gathered included:

- Very few municipalities maintain their trail systems in the winter and of those that do none reported maintaining their trails for the full duration of the winter season. The majority of winter maintained trails are asphalt "spine" routes that have high user volumes or are main connections to important destinations such as community centres, schools, libraries, commercial centres with key services such as grocery stores etc.
- Several municipalities reported having defined maintenance standards for trails based on the specific trail type. Those that did not currently have the standards were typically working towards developing them.
- The majority have developed call-in hotlines for areas requiring emergency repair or areas where garbage containers were heavily used. None of the hot-lines were trail specific. A growing number of municipalities have started to develop trail specific online reporting opportunities.
- In most cases the greatest limitation reported was a lack of resources (i.e. budget and staff).
- Most reported conducting an annual safety audit which was done as part of their annual safety and security audit for parks and recreation facilities.
- Trail maintenance costs range depending on the type of trail and location. Costs to maintain highly urbanized trails range from $1,000.00 - $5,000.00 / km / year, (excluding winter maintenance and dependent on the type and condition of the trail); whereas costs to maintain rural trails were significantly lower (less than $100.00 /km/year to $350.00/km/year. Typical maintenance activities reported included grooming and topping up mulch and granular trails, minor surface repairs on asphalt trails such as fixing potholes and crack sealing, mowing trail clear zones, managing vegetation in clear zones, sign refurbishment and replacement, trash collection, and minor repairs to structures.
- Major repairs such as the removal and replacement of asphalt, widening hard surface trails and replacement of structures such as boardwalks and bridges were typically allocated under capital budget streams.

Proposed maintenance guidelines and suggested practices have been identified in Appendix C and should be reviewed, considered and adapted as necessary by the City of Burlington for their trail maintenance practices. The maintenance of trail facilities will continue to be the responsibility of Roads and Parks Maintenance.

Recommendation 13: Roads and Parks Maintenance staff should collaborate with the staff responsible for the implementation of the Community Trails Strategy to review the maintenance guidelines, and update current practices and policies as appropriate.

Signage

Appendix C – Section C.4.1 includes a detailed discussion of trail signage as an important component of Community Trail system, which enables users to easily, efficiently and confidently navigate the trail network. Signage also forms part of the user experience and the City's Park Wayfinding Signage Guidelines have established a strong brand to build upon as part of creating that experience. The Park Wayfinding Signage Guidelines provided design concepts for some members of the trail sign family, and some elements of the sign family have been implemented at various points throughout the trail network. Appendix C recommends the addition of several sign types into the family and provides design concepts for each.

Like the trail infrastructure itself, trail signage throughout the City is representative of a several decades of installation, with different styles and in various states of repair. Moving forward, an inventory of existing trail signs should be completed, noting sign types, their location and condition. This should be followed by the development and implementation of a program to prioritize and systematically upgrade and replace old trail signs.

Recommendation 14: An inventory of existing signs in the trail network should be completed, followed by a systematic approach to replace old trail signs.

Trail Lighting

As noted in Appendix C – Section 2.5, very few municipalities make the decision to light their entire trail system for a variety reasons including user safety, energy consumption, and cost. However, there may be some locations along trails where lighting is appropriate and a decision on whether or not to light segments of the network should be made on a location-specific basis. Important celebratory spaces, heavily used commuter routes and connections to multi-modal hubs are among candidates considered by municipalities that light portions of their trail networks.

Recommendation 15: The City should consider a pilot project to light a trail corridor and develop a full cost-benefit analysis as part of determining if certain trail corridors should receive lighting.

E-Bikes and the Parks By-Law

E-Bikes are a relatively new phenomenon in Canada. They are an attractive form of transportation for several reasons; they are affordable both in terms of the initial purchase cost and cost to operate; they are small, light and can be easily maneuvered; they are easy to park and can travel along very narrow corridors. Growing in popularity, they are now regularly seen in urban environments traveling in bike lanes, trails and pathways and on sometimes on sidewalks. Although they are defined in provincial legislation, their use is not clearly regulated and municipalities are challenged to address where they should be permitted and how to enforce improper use. Many municipalities are challenged by simply trying to define various types of e-bikes and develop rules regarding their use.

The City of Burlington does not permit motorized vehicles in parks except for park roads or driveways designed for such (Parks By-Law 35-1976). E-bikes are considered a motorized vehicle and are therefore prohibited from using multi-use paths or trails in parks, though this is not clearly stated in the By-Law. The By-Law should be updated and this process should include consideration for the following:

- Preparing definitions for, and adding e-bikes to the list of restricted vehicles in Section 4c of the By-law (both e-bikes / "Vespa"-type scooters and electric assist bicycles);
- Allowing the use of e-bikes by police and emergency services in the line of duty so these can be used for use for patrols and emergency access;
- Allowing the use of e-bikes by municipal staff while performing duties, should the City wish to use e-bikes for some duties in the future rather than full sized service vehicles or gators;
- Monitoring evolving best practices related to e-bikes, including any changes in legislation at the provincial level given this is a new issue that many municipalities are challenged to resolve; and
- Considering an increase in the speed limit on multi-use trails from 10mph/16km/hr to 20km/hr.

Recommendation 16: Parks By-law 35-1976 should be updated to clearly prohibit the use of e-bikes on the off-road trail system.

V2.2.3 Supporting the Infrastructure: Network Promotion & Outreach

The development of a city-wide Community Trails Network should not be limited to the implementation of infrastructure. The success and increased use of the system will be further enhanced through ongoing trail promotion, outreach and education also known as soft infrastructure. Those responsible for the Strategy's implementation are encouraged to work with the City's Communication staff along with representatives from external public agencies at the Regional and Provincial level to explore promotion and outreach opportunities that encourage proper and safe use of the trail system.

An Overview of Promotion & Outreach Objectives

Developing promotion, outreach and marketing materials that can be used to educate and inform community trail users should be guided by the Five "Es"– **Engineering**, **Education**, **Encouragement**, **Evaluation** and **Enforcement.** A more detailed description of the objectives of the Five E's is presented in **Table V2.7**. The concept of using this Five "E" approach has been the basis for the development of many trail and active transportation promotion and outreach strategies and programs. It was most recently adapted and used for the Ontario Cycling Strategy (#CycleON) and the Ontario Traffic Manual (OTM) Book 18: Cycling Facilities.

Table V2.7 – Summary of Five "E" Approach Objectives

Engineering	Education	Encouragement	Enforcement	Evaluation
Objective: The way trails and trail amenities are planned, designed and constructed.	**Objective:** Providing different user groups with the information needed to help them safely and comfortably use trails. Could also include information on how to safely and confidently interact with other user groups.	**Objective:** A means of promoting the use of the trail system for both recreational as well as day to day trips / activities.	**Objective:** A means of assessing whether the user understand and adheres to the rules and regulations set out by the Province, City and other jurisdictions / public agencies.	**Objective:** The application of monitoring techniques to review the success of linkages and to determine necessary adjustments and improvements that need to be made to increase use.

The City and its partners should strive to prepare and implement initiatives within each of these areas of focus. The initiatives should not be solely led by the City but should be a collaborative effort between local stakeholders, public agencies, interest groups and outside agencies where appropriate. Some potential priority initiatives for consideration by the City have been identified in Table V2.8.

Priority Promotion & Outreach Initiatives

Table V2.8 – Potential Promotion & Outreach Initiatives

Engineering	
Priority Initiative: Establish Consistent Messages Regarding Facility Designs	
Objectives: Ensure that facility designs are supported by appropriate educational materials so users understand how to properly use them.	Next Steps: ▶ Reference should be made to the design guidelines outlined in Appendix C, complemented by existing provincial bikeway design guidelines / standards – OTM Book 18, TAC Bikeway Traffic Control Guidelines, OTM Book 15: Pedestrian Crossing Treatments and the Provincial Built Environment Standards – where necessary. These guidelines should be used by those involved in the development of promotion and outreach materials to educate and inform existing and potential users of the different design alternatives. ▶ As standards and guidelines are updated, any educational materials that have been developed also be updated so consistent messages are being provided to users.

Education	
Priority Initiative: Prepare Trail Mapping	
Objectives: Mapping can be one of the most overlooked opportunities to educate people about local trail opportunities. Maps inform users regarding where the routes are located and can also be a method of distributing information about appropriate trail user etiquette and in some cases "rules of the trail". Maps can be expensive to first create, however they can be updated as the network grows which makes the initial investment pay for itself with time. Once completed, the document can be used as a tool to communicate effective information to residents and visitors about the trail system and can be used to promote local destinations. To assist in offsetting the cost of producing the maps, the City could explore selling advertising space to local businesses and interest groups. Other municipalities have found great success in this cost-balancing technique and many businesses understand and value the benefits which can be realized with the promotion of trails.	Next Steps: ▶ Adapt the GIS database in the City's system and undertake research to identify the target audience as well as potential funding and partnership opportunities. ▶ Internally discuss the user groups that the map is intended to target – helps to identify relevant routes and information. ▶ Engage with local businesses, stakeholders and the public to discuss the development and design of the mapping and to consider the use of advertising space as a method of cost recovery. ▶ Coordinate efforts with outside agencies such as surrounding municipalities, Halton Region, public health, tourism and Conservation Halton. Consider combined mapping to avoid duplication in the market and save money on design, production and distribution. ▶ Determine the locations to make the map available. ▶ Discuss messaging to be included on the mapping. ▶ Determine the timing of development, printing, launch and distribution.
Estimated Cost: For initial development consider allocating $50,000.00 with $25,000.00 allocated for updates as necessary.	

Encouragement	
Priority Initiative: Explore Community Based Social Marketing (CBSM)	
Objectives: The use of CBSM techniques can lead to more awareness and use of the community trail system. CBSM isn't just a marketing initiative; it can be directed at changing behaviours over time through direct contacts, prompts, pledges and changing social norms. CBSM evolved as a combination of social psychology and social marketing to further drive a change in behaviour. It can be applied to transportation as it relates to individual travel plans and at a smaller scale it can help to influence travel choices and can be applied to help promote the use of the community trails system.	Next Steps: The City should explore the following CBSM opportunities: ▶ Use community events to talk to residents one-on-one supported by community groups and committees. ▶ Staff could attend community event to promote the system and bring portable displays illustrating the routes. ▶ Using forms of media to provide updates on the implementation of the system and to launch other public campaigns regarding education and stewardship. ▶ Creating prompts which remind residents about the trail system and its benefits e.g. maps, brochures, car magnets, key chains, etc.
Estimated Cost: Consider allocating $10,000.00 annually towards the promotion of trails through the City's Creative Services department and other strategic prompts / programs.	

Enforcement	
Priority Initiative: Identify Trail Ambassadors	
Objectives: Developing programs to support the implementation of the trail system requires a collaborative effort between a number of individuals and groups and should not be the sole responsibility of City staff. From these interest groups and public agencies, pathway ambassadors should be identified to help support by-law enforcement officers and police to promote safe and comfortable use of the trail facilities. The ambassadors would be responsible for walking and riding the routes, handing out trail brochures, providing assistance to users and monitoring the condition of the facilities.	Next Steps: ▶ Engage with Road and Parks Maintenance staff and by-law officers to discuss areas where trail ambassadors could support day to day enforcement. ▶ Canvas local interest groups and public agencies to identify potential pathway ambassadors / volunteers. ▶ Confirm a list of trail ambassadors and establish a set of roles and responsibilities for these individuals. ▶ Provide ambassadors with a confirmed schedule and reporting structure / mechanism to document input gathered and next steps moving forward. ▶ Announce ambassadors to the community and engage their support at local events to gather input on user satisfaction.
Estimated Cost: City to explore a number of options including volunteer based time commitment, summer / seasonal student position responsibilities or small scale incentives i.e. tickets to local events.	

Evaluation	
Priority Initiative: Use Trail Counter Technology	
Objectives: The City should further explore the use of trail counter technology, either on its own, or in partnership with an outside agency such as Conservation Halton to collect trail user data. Gathering regular data regarding trail usage can help to establish base line levels of use, measure increases in use with facility improvements, support the investment in trails and also help to inform the selection of priorities for implementation.	Next Steps: ▶ The City has purchased and installed trail counters at the Waterfront Trail in Beachway Park and on the Centennial Bikeway at Martha Street. The City should continue to collect information regularly and consider expanding the trail counter program to other neighbourhoods.
Estimated Cost: Initial cost per unit was approximately $8,000. Costs do not include staff time needed to collect and assess data, though this could be offset using volunteer time or time from a student / intern.	

Recommendation 17: The City should work with local stakeholders and public agencies to continually explore and deliver education, encouragement, enforcement and evaluation initiatives.

V2.2.4 How will the Strategy be Funded?

Moving forward, the implementation of community trail priorities and programs will be driven by available budget and resources considered by Council on an annual basis. The implementation budget should be clearly laid out in an annual report prepared for Council by staff based on the priorities and objectives identified in the plan, additional opportunities that arise and planning and design initiatives which are complementary to other ongoing work. The following sections provide an overview of the network and program costing established for the Community Trails Strategy as well as potential partnership and funding opportunities which could be explored at the local, regional, provincial and federal level to support implementation.

How was the Costing Developed?

The network costing was developed based on a set of unit costs derived from recent design and construction projects within Ontario. Appendix D lists the unit costs for the construction of various elements of the Community Trails Network. For reference purposes, the appendix also includes unit costs for amenities that may be considered on a project by project basis. Unit costs (in 2015 dollars) are based on the typical or normal / average conditions for construction but do not include:

- The cost of property acquisition, utility relocation, driveway / entrance restorations, permits or approvals for construction;
- Annual inflation, which include increased costs of labour, materials, fuel, etc.;
- Professional services and / or staff time for detailed design; and
- Applicable taxes.

What is the Investment?

Based on the assumptions noted above, and the costs outlined in Appendix E, costing has been developed for the Community Trails Network. As summarized in Table V2.9, the estimated cost to implement the short-term building and rehabilitation projects as well as the short-term promotion and outreach initiatives is $3,897,500. Further information regarding the links along Regional roads is contained in the City of Burlington Cycling Master Plan. The budget associated with the implementation of the network will depend on achieving economies of scale through future capital plans as well as City priorities. In addition, the costs do not reflect potential savings that could be realized through:

- Infrastructure funding programs such as federal and provincial infrastructure programming;
- Routes that are developed with funding of partial funding available through various subsidies and grant programs;
- Partnerships with outside organizations and agencies including but not limited to Halton Region, Conservation Halton, the Bruce Trail Conservancy, the Trans Canada Trail Association etc;

- Routes developed by others that could be used as community trail facilities (e.g. service accesses, along utility corridors, etc.);
- Facilities that are built by developers through the land development approval process and use of Development Charges; and
- Routes that have already been identified as part of future capital improvement projects at the City and Regional level.

When a linkage moves forward to the construction phase, a more detailed design assignment will be required. This assessment will help to determine site specific conditions and design specifications. Cost estimates can be refined and developed based on this assessment to inform future budgeting for the City.

Table V2.9 – Summary of Estimated Short-Term Implementation Costs for the Community Trails Strategy

Short-Term Building Projects			
Facility Types	Unit Cost	Total Length (km)	Total Cost ($)
Proposed Trail Connection Outside Road Right-of-Way (Primary Multi-use Trail – 4.0m width)	$300,000	3.9	$1,170,000
Proposed Trail Connection Outside Road Right-of-Way (Primary Multi-use Trail - 3.0m width)	$250,000	0	$0
Proposed Trail Connection Within Road Right-of-Way (Primary Multi-use Trail)	$275,000	6.3	$1,732,500
Proposed Trail Connection Outside Road Right-of-Way (Granular Secondary Multi-use Trail)	$150,000	2.8	$420,000
Proposed Trail Connection Outside Road Right-of-Way (Woodland Mulch Trail)	$75,000	0	$0
Short-Term Infrastructure Renewal Projects			
Project	Unit Cost	Total Length (km)	Total Cost ($)
Spencer Smith Park Promenade	$15,000	0.6	$9,000
Francis Road Bikeway	$250,000	1.4	$350,000
LaSalle Park Trail Connection	$200,000	0.5	$100,000

Short-Term Promotion & Outreach Initiatives	
Prepare Trail Mapping	$50,000
Community Based Social Marketing	$50,000
Explore and Establish a Trail Ambassador Program	n/a
Expand Trail Counter Program	$16,000
Total	$3,897,500

Highlighting Funding Opportunities

When exploring costing for network priorities, the City should identify additional opportunities for financial support. **Table V2.10** provides an overview of some of the potential funding sources that the City is encouraged to explore as it moves forward with the implementation of the network.

Recommendation 18: In addition to capital funding, the City should explore other funding sources and cost-sharing opportunities to support the implementation of the Community Trails Network and supporting outreach and promotional initiatives.

Table V2.10 – Summary of Partnership & Funding Alternatives

Funding Opportunities	Additional Details
Federal / Provincial Gas Tax	▶ For the federal program please refer to: http://www.infrastructure.gc.ca/plan/gtf-fte-eng.html ▶ For the provincial program please refer to: http://www.mto.gov.on.ca/english/service-commitment/gas-tax-program.shtml
Transport Canada's MOST (Moving on Sustainable Transportation)	▶ For details on the MOST program and the projects that fall in-line with their funding alternatives please refer to: http://data.tc.gc.ca/archive/eng/programs/environment-most-aboutmost-685.htm
ecoMobility (TDM) Grant Program	▶ For details on the ecoMobility Grant Program please refer to: http://data.tc.gc.ca/archive/eng/programs/environment-ecomobility-menu-eng-144.htm

Funding Opportunities	Additional Details
Federation of Canadian Municipalities Green Municipal Fund	▶ For additional details regarding the Green Municipal Fund and potential funding alternatives please refer to: http://www.fcm.ca/home/programs/green-municipal-fund.htm
Healthy Communities Fund	▶ For additional details regarding the Healthy Communities Fund please refer to: http://www.mhp.gov.on.ca/en/healthy-communities/hcf/default.asp
Trans Canada Trail Funding and Federal Fund Matching	▶ For additional information regarding trail funding alternatives please refer to: http://old1.tctrail.ca/trail_funding.php
Federal and Provincial Infrastructure / Stimulus Programs	▶ For Federal Government infrastructure stimulus fund details please refer to: http://www.bcfontario.ca/english/isf/guide.html ▶ For Provincial Government infrastructure stimulus fund details please refer to: http://www.moi.gov.on.ca/en/infrastructure/stimulus.asp
Ontario Trillium Foundation	▶ For details regarding potential funding alternatives please refer to: http://grant.otf.ca/
Corporate Environmental Funds (Shell and MEC)	▶ For additional details regarding MEC's fund to preserve recreationally significant landscapes please refer to: http://www.mec.ca/AST/ContentPrimary/Community/CommunityContributions/LandAcquisition.jsp
Corporate Donations	▶ Money or service in kind and have been contributed by a number of large and small corporations over the years
Ontario Trails Strategy Funding	▶ As part of the Ontario Sport and Recreation Communities Fund: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006918
Ontario Cycling Strategy Funding	▶ For additional details regarding the #CycleON strategy please refer to: http://www.mto.gov.on.ca/english/pubs/cycling/index.shtml

Funding Opportunities	Additional Details
Tourism Development Fund	▶ For additional details regarding the Tourism Development fund please refer to: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/OSAPQA005130
Service Club Support	▶ Lions, Rotary and Optimist clubs who often assist with highly visible projects at the community level
Private Citizen Donations and Bequests	▶ Provides tax benefits for donors

Using Development Charges to Fund the Trails Network

The new City of Burlington's Development Charges by-law came into effect on July 1, 2014, and enables the City to collect fees from developers that are used to offset the cost of providing public infrastructure to meet the City's growth needs. Within the by-law Parks and Recreation is listed as one of the 7 categories of services that comprise the Development Charge collections, and a portion of these fees collected can be used for the implementation of multi-use trails. Currently $776,000 was identified in the 2014 Development Charges for trails. After deductions for benefit to existing development the funding provided for trails in 2018 to 2021 is $475,000.

Recommendation 19: Staff should monitor the application of the new Development Charges By-law to ensure that it includes sufficient provisions to enable the use of Development Charge funds to build new and improve Community Trails in locations where the need is a result of community growth, and consider modifications to the Development Charges By-law, if necessary when it is next updated.

V2.3 Tracking Implementation & Next Steps

V2.3.1 Monitoring Implementation: Developing & Applying Performance Measures

Implementation of the Community Trails Strategy includes initiatives for the short, medium and long term. The process of collecting data to evaluate aspects of user behaviour and to document changes and trends will help to monitor effectiveness of proposed strategies, recommendations and initiatives as they relate to the strategy vision, goals and objectives. Performance measures are a tool that should be explored and used to monitor user preference for types of trails, levels of use and other factors. Data can be used to inform staff when making adjustments to infrastructure and programming prioritization and to adjust them appropriately to meet the needs of residents and visitors. When gathering data, caution must be used. Relying on immediate responses to a given improvement may not reflect accurate results. An intended timeframe should be established to ensure that awareness and communication initiatives are in place to assist in changing travel patterns and habits. It is recommended that information be collected regularly and at the same time of year / same season so that trends can be studied.

Data collection through evaluation / monitoring programs and on-going public consultation (e.g. user surveys and public attitudes surveys conducted every 5 years), will help to inform and assist in preparing a list of updated priorities while measuring the success of the plan's implementation. A component of measuring implementation successes and objectives is to establish a set of performance measures and targets. A suggested set of performance measures can be found in Appendix F.

The performance measures and data collection for the community trails system could be undertaken through a number of alternatives. The City could explore engaging student interns or hiring summer students to collect data. Additionally Trail Ambassadors could be engaged on a volunteer basis for unique linkages within the network e.g. engaging a representative from the Bruce Trail Conservancy to collect data along the Bruce Trail. The physical collection of data by staff and volunteers could also be supplemented with additional data collected through electronic / trail counting technology as described earlier in this chapter - see Evaluation Priority Initiative.

Recommendation 20: Using the list of potential performance measures outlined in Appendix F as a starting point, staff should develop and implement measures to monitor usage and evaluate the success of the Community Trails Network.

V2.3.2 Updating the Trails Strategy

The Community Trails Strategy is intended to be used as a flexible blueprint for future trail development and as a tool / guide for City staff moving forward. The Strategy can be adapted to accommodate future priorities and opportunities that were not present when it was being developed. In order for the Strategy to remain current, be available as an effective tool and reflect municipal, regional, provincial and federal plans, it will need to be updated on a regular basis. Updates to the strategy can occur in a number of different forms including:

- Regular / semi-annual updates of the community trails GIS database / network management tool;
- A regular staff report to Council on the status of the implementation of the Community Trails Strategy as it relates to implementation, the initiation / completion of priorities and future opportunities. Timing for this report should be (i) annual, or (ii) combined with the Council report on the status of the implementation of the cycling network (as recommended in the Cycling Master Plan);
- A complete update to the network portion of the Community Trails Strategy in 5 years including the addition of the Community Trails network as a schedule in the City's Official Plan; and
- A comprehensive update to the entire Community Trails Strategy through a full public process at least every 10 years. Understanding that the Community Trails network and Cycling network are intimately related to one another, and part of the a comprehensive active recreation and active transportation network in Burlington, the review cycle for the Community Trails Strategy and Cycling Master Plan should be coordinated, even though the Community Trails Strategy and Cycling Master Plan should remain as separate policy documents.

Recommendation 21: The Community Trails Network should be updated as necessary with a full network revision completed every 5 years. A complete review and update of the Community Trails Strategy should be completed through a broad public process at least every 10 years.

Recommendation 22: The review cycle for the Community Trails Strategy and Cycling Master Plan should be coordinated, even though the Community Trails Strategy and Cycling Master Plan should remain as separate policy documents.

V2.3.3 Conclusion

The Burlington Community Trails Strategy has been developed to be used as a guide / blueprint by City staff and those responsible for the implementation of trails and trail related amenities and to support future trail development City-wide. This long-term strategy is meant to be a flexible and adaptable tool and provides guidance on immediate priorities and the ultimate development of a connected City-wide network of trail facilities.

The Strategy aims to build on current City processes and practices as well as successes and lessons learned from previous work completed within the City, Region and other parts of Ontario. Recommendations related to the planning, design and implementation of trail facilities have been designed to provide the City with strategic alternatives.

The network, planning and design guidance that forms this trails strategy was developed to respond to the goals, objectives and ambitions of the City, the Region as well as local stakeholders, interest groups, public agencies as well as residents and visitors – the users of the network. It is their input over the course of the study which has contributed significantly to the development of the Community Trails Strategy.

V2.4 Summary of Recommendations

Table V2.11 – Summary of Community Trails Strategy Recommendations

R#	Recommendation	Page No.
R1	The route selection principles should be reviewed at the time detailed route feasibility assessments for the Community Trail linkages are being completed, when changes to the network routing are being considered and when new route opportunities are identified.	V2-5
R2	The proposed Community Trails Network should be used as a blueprint for future network development and to inform next steps and municipal priorities related to trail development.	V2-8
R3	It is recognized that from time to time new network opportunities may arise that were not known at the time the Community Trails Strategy was developed. Potential changes to the network should be evaluated on an on-going basis and the Community Trails Strategy should be updated accordingly.	V2-8
R4	The Community Trails network should be included as a schedule in the Official Plan, with the provision that modifications to the network routing can be justified at the Department Director level without the need for an Official Plan Amendment.	V2-8
R5	The Trail Design Guidelines contained in Appendix C should be adopted as a reference guide by City staff involved with the planning, design and implementation of the Community Trail network.	V2-10
R6	The prioritization principles should be used by City staff to identify new trail linkages and determine the appropriate timing for their implementation.	V2-30
R7	The City should investigate creating a Trail Coordinator position. This position could be dedicated entirely to the off-road Community Trail Network, or could be combined with coordination responsibilities for the on-road Cycling Network.	V2-48

R#	Recommendation	Page No.
R8	The City should use the GIS database developed during the Community Trails Strategy as the starting point for a network implementation and asset management tool. Data generated should be incorporated into the existing municipal database and also used to inform the development of promotion and outreach materials (e.g. maps) where appropriate.	V2-50
R9	Where trail routes identified in the Community Trails Strategy are within the study area for municipal infrastructure projects such as road widenings, stream channel realignments, municipal water and sewer lines, etc., the planning, design and implementation of the trail should be considered an integral component of these projects.	V2-53
R10	When an Environmental Assessment is being scoped the Community Trails Strategy must be consulted and where appropriate the need to address trail development must form part of the project description for the Environmental Assessment.	V2-53
R11	Staff should review the suggested approaches for ongoing public participation for trails proposed in established neighbourhoods / intensification areas / mobility hubs and determine an appropriate approach on a project-by –project basis.	V2-53
R12	The City should develop an easement agreement and acquisition strategy for the lands or corridors required for Community Trail connections on privately owned lands.	V2-54
R13	Roads and Parks Maintenance staff should collaborate with the staff responsible for the implementation of the Community Trails Strategy to review the maintenance guidelines, and update current practices and policies as appropriate.	V2-55
R14	An inventory of existing signs in the trail network should be completed, followed by a systematic approach to replace old trail signs.	V2-56
R15	The City should consider a pilot project to light a trail corridor and develop a full cost-benefit analysis as part of determining if certain trail corridors should receive lighting.	V2-56

R#	Recommendation	Page No.
R16	Parks By-law 35-1976 should be updated to clearly prohibit the use of e-bikes on the off-road trail system.	V2-57
R17	The City should work with local stakeholders and public agencies to continually explore and deliver education, encouragement, enforcement and evaluation initiatives.	V2-62
R18	In addition to capital funding, the City should explore other funding sources and cost-sharing opportunities to support the implementation of the Community Trails Network and supporting outreach and promotional initiatives.	V2-65
R19	Staff should monitor the application of the new Development Charges By-law to ensure that it includes sufficient provisions to enable the use of Development Charge funds to build new and improve Community Trails in locations where the need is a result of community growth, and consider modifications to the Development Charges By-law, if necessary when it is next updated.	V2-67
R20	Using the list of potential performance measures outlined in Appendix F as a starting point, staff should develop and implement measures to monitor usage and evaluate the success of the Community Trails Network.	V2-69
R21	The Community Trails Network should be updated as necessary with a full network revision completed every 5 years. A complete review and update of the Community Trails Strategy should be completed through a broad public process at least every 10 years.	V2-69
R22	The review cycle for the Community Trails Strategy and Cycling Master Plan should be coordinated, even though the Community Trails Strategy and Cycling Master Plan should remain as separate policy documents.	V2-70



Community Trails Strategy

CITY OF Burlington

Report | Appendices

May 2015

MMM GROUP



Appendix A

Summary of Background Information



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A. Summary of Key Policies & Plans

A.1 Supportive Policies & Plans at all Levels of Government

A.1.1 Federal Policies & Plans

Transport Canada

Transport Canada released a report in 2005 titled "Strategies for Sustainable Transportation Planning: a review of practices and options". The purpose of this report was to provide a foundation on which to build a set of guidelines to incorporate sustainable transportation principles into municipal transportation plans. Proposed principles include the creation of policies related to walking and cycling that can be used to develop effective and implementable transportation plans to promote sustainable transportation on a federal level. Strategies and policies within the report which address sustainable transportation include:

Integration with Land Use Planning

Encourage desirable land use form and design (e.g. compact, mixed-use, pedestrian/bike-friendly) through transportation plan policies.

Environment & Health

- Identify strategies to mitigate the air quality impacts of transportation activities.
- Identify strategies to mitigate noise impacts of transportation activities.
- Identify ways that transportation systems influence the achievement of the community's economic or social objectives. Provide support in the plan's strategic directions.
- Recognize the importance of ensuring access to opportunities for mobility challenged and marginalized persons, new Canadians, youth and the elderly. Set goals and objectives for reducing the need to travel, improving transit mobility, and preserving minimum levels of service on roadways. Identify related strategies.
- Address the transportation needs of persons with disabilities, notably with regard to public transit service and barrier-free design in public rights-of-way.
- Recognize the public health impacts of transportation activity arising through road safety, pollution and physical activity levels. Identify effective strategies to strengthen positive impacts and lessen negative ones.

- Recognize the impact of transportation-related death and injury on quality of life and the economy. Set goals and objectives for multimodal road safety. Identify effective road safety strategies.

Modal Sustainability

- Identify strategies, policies, facilities and services to increase walking, cycling, other active transportation, transit, ridesharing and teleworking.
- Recognize synergies and tensions among different modes (e.g. potential for multimodal cycling-transit trips, potential for modal shift from transit to ridesharing). Address possible implications for transportation objectives.
- Include objectives, strategies, policies, facilities and services to make transit operations more sustainable.

The publishing of this document and the recommended policies and strategies identified within it illustrate the federal government's commitment to developing national standards and practices which will help to improve conditions for walking and cycling throughout the City.

Federation of Canadian Municipalities

The Federation of Canadian Municipalities (FCM) has considered itself the national voice for municipal government since 1901 representing 1,775 members which fall within the federal jurisdiction. Members include Canada's largest cities, small urban and rural communities, and 18 provincial and territorial municipal associations. The organization fosters sustainable communities enjoying a high quality of life by promoting strong, effective and accountable municipal government.

FCM has recently developed the "Communities in Motion: Bringing Active Transportation to Life Initiative". This document is a key resource for all Canadian municipalities which sets out goals for promoting active transportation options, eliminating barriers to different travel mode choices and promoting active transportation modes such as walking and cycling as part of everyday life. With regard to the provision of on and off-road walking and cycling facilities, the document notes that "some pedestrians and cyclists stick to city streets to reduce travel time and distance. Others, however, prefer less stressful off-road routes that let them connect with nature. Lighting on trails improves safety and security, wayfinding systems help people get where they're going, bike ramps let cyclists get up and down staircases with ease, and dedicated bridges help everyone cross waterways, ravines and railway lines.

Off-road routes are also important for recreation, and many communities are expanding their trails systems to boost tourism (FCM Communities in Motion). As such, the document promotes the design and development of walking and cycling facilities including both on and off-road alternatives.

A.1.2 Provincial Policies & Plans

Provincial Policy Statement 2014

The Ontario Provincial Policy Statement (PPS) is a legislative document which provides policy direction on matters of provincial interest with regard to land-use planning and development. Recently updated and effective as of April 30, 2014 this document provides high-level directives to municipalities throughout Ontario regarding the strategic development of land uses with the overall goal of increasing the quality of life of Ontario residents. The policies found in the PPS are based on three key goals / objectives including the protection of resources of provincial interest, public health and safety and the quality of the natural and built environment.

The PPS strongly supports the development of trail and active transportation / recreation facilities as a means of building strong and healthy communities. More specifically, section 1.5 addresses the design and development of public spaces, recreation, trails and open space.

Active transportation is clearly defined in the PPS and is a key component when designing and developing multi-modal transportation systems. The Province strongly supports the implementation of active transportation facilities before other modes of travel to achieve more efficient development patterns to optimize land use. This can be done by integrating cycling and pedestrian facilities, including trails, into the design of community hubs and by providing active transportation and recreation alternatives for day to day trips. The Province's strong support for active transportation and recreation provides the high-level policy support required by the City to explore potential partnership and funding opportunities in the future.

Bill 51

Bill 51 was approved in January of 2007 and informed changes to the Planning Act, which provides the legislative framework for land use planning in Ontario. The document outlined changes to the planning process that are intended to support intensification, sustainable development and the protection of green space by giving municipalities greater power, flexibility and tools to use land, resources and infrastructure more efficiently.

The changes to the Planning Act as a result of Bill 51 are consistent with Ontario's recent policy shift towards sustainable land use development and planning, as demonstrated through the suite of Provincial Plans guiding development in the Greater Golden Horseshoe including the Greenbelt Plan, Metrolinx's The Big Move, and the Places to Grow Plan. For instance, the Planning Act permits municipalities to require environmentally sustainable design for both individual buildings and entire neighbourhoods. It also adds "the promotion of development that is designed to be sustainable to support public transit to be oriented to pedestrians" as a matter of Provincial interest.

Municipal Act (2001)

The Municipal Act (2001) gives municipalities flexibility when dealing with local circumstances. It also requires these municipalities to react quickly to local, economic, environmental or social changes. It recognizes municipalities as responsible and accountable governments with respect to matters within their jurisdictions. The Municipal Act sets out policies pertaining to municipalities' jurisdiction over municipal highways and the maintenance of those highways, which has an impact on the design and development of cycling facilities.

Highway Traffic Act

Bicycles

Bicycles in Ontario are recognized as a vehicle, as defined in the Ontario Highway Traffic Act (HTA), and are permitted to operate on public roadways with the same rights and responsibilities as a motor vehicle. However, bicycles are not permitted on controlled access freeways such as the 400 series highways and / or on any roadway, trail or sidewalk designated for "no cycling" by a municipal bylaw. The Highway Traffic Act contains a number of policies relating to bicycles, including bicycle lanes on municipal roadways, vehicles interacting with bicycles, bicycles being overtaken, and regulating or prohibiting bicycles on highways.

The Municipal Act in Ontario provides municipalities with the authority to regulate vehicle type, direction of travel and other uses of municipal roads and highways, including cycling along roadway shoulders. With regard to "Kings Highways", the current HTA restricts vehicle travel on shoulders of provincial highways, including cyclists (given the HTA defines a bicycle as a vehicle). In 2014 the MTO proposed amendments to the HTA which, when passed, will permit cycling on shoulders of Kings highways in Ontario, with the exception of 400 series and high speed limited access highways.

E-Bikes

Electric or power assisted bicycles (e-bikes) in Ontario are defined as a bicycle and are permitted everywhere bicycles are permitted, unless restricted by a municipal bylaw.

"E-bikes are allowed to travel anywhere bicycles are permitted to travel. Any municipal by-law prohibiting bicycles from highways under their jurisdiction also apply to e-bikes. Municipalities may also pass by-laws specific to e-bikes that prohibit them from municipal roads, sidewalks, bike paths, bike trails, and bike lanes under their jurisdiction.

E-bikes, like bicycles, are not allowed on controlled-access highways such as 400 series highways, the Queen Elizabeth Way, the Queensway in Ottawa or the Kitchener-Waterloo Expressway, or on municipal roads, including sidewalks where bicycles are banned under municipal by-laws."

In Ontario operators of e-bikes are not required to have a driver's license, license plate, or liability insurance. However unlike standard bicycles, e-bike operators must be 16 years of age or older and must wear an approved bicycle or motorcycle helmet.

Most municipalities in the GTHA permit e-bikes for on-road cycling facilities, but prohibit them for off-road multi-use trails, except when being used by police, emergency service and municipal staff while performing their duties. Newmarket is one known exception in the GTHA; where electric-assist bicycles are being allowed on multi-use trails as part of a 2-year pilot project. Unlike the heavier e-bike / scooter, the electric-assist bicycle works like a traditional bicycle except it gives users a little help when traveling up hills. Users must pedal to make the bicycle move unlike the e-bike / scooter that requires only the flip of a switch for power.

The City of Burlington does not permit motorized vehicles in parks except for park roads or driveways designed for such (Parks By-Law 35-1976). E-bikes are considered a motorized vehicle and are therefore prohibited from using multi-use paths or trails in parks. Volume 2 includes additional discussion and recommendations regarding E-bikes, specifically as they relate to parks and the By-Law 35-1976.

Ministry of Health Promotion

The former Ministry of Health Promotion was integrated into the Ministry of Health and Long-Term Care in 2011 and serves as the lead Ministry for trails in Ontario. It is this ministry which ultimately has the responsibility for the coordination of recreational trail issues, policy development and planning. The Ministry of Health and Long-Term Care mission is to:

- Champion health promotion in Ontario, and inspire individuals, organizations, communities and governments to create a culture of health and wellbeing.
- Provide programs, services, tools and incentives that will enhance health and wellbeing.
- Make healthy choices easier.
- Harness the energy and commitment of other ministries, other levels of government, community partners, the private sector, the media and the public to promote health and well-being for all Ontarians.
- To make Ontario a leader in health promotion within Canada and internationally.

The Ministry of Health Promotion drafted a vision for Ontario's trails which states that:

"A world class system of trails that capture the uniqueness and beauty of Ontario's vast open spaces and natural and built cultural/heritage resources. People and places are connected through quality, diverse, safe, accessible and environmentally sensitive urban, rural and wilderness experience trails for recreational enjoyment, active living and tourism development."

Accessibility for Ontarians with Disabilities Act (AODA) (2005)

The Accessibility for Ontarians with Disabilities Act, (AODA, 2005) states that "The people of Ontario support the right of persons of all ages with disabilities to enjoy equal opportunity and to participate fully in the life of the province." The stated goal of the AODA is "to make Ontario accessible for people with disabilities by 2025." Ontario Regulation 191/11 made under the Accessibility for Ontarians with Disabilities Act, 2005 is the standard that applies to pathways and trails. (http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_110191_e.htm).

Compliance with the requirements of the Act will help remove barriers in outdoor spaces for people with disabilities. The standards and criteria contained in the regulation apply to new construction and extensive renovation of trails and exterior paths of travel. They do not apply to on-road cycling facilities.

This regulation makes Ontario the first jurisdiction in Canada to develop, implement and enforce accessibility standards which can be applied to both private and public sectors. These standards are the criteria that businesses in Ontario should follow to identify, remove and prevent barriers to accessibility. The Accessibility Standards for the Design of Public Spaces are the most relevant standards that can be applied to trail planning, design and construction. When designing and implementing trail facilities for the City of Burlington, the technical requirements should be utilized to ensure that the needs of all user groups are accommodated and satisfying the requirements of the AODA to the greatest extent possible, given the context of each trail's location, the surrounding environment and type of trail experience that is desired.

Section C.2.3 in Appendix C includes a summary of key technical requirements for design of Recreational Trails as stated in Ontario Regulation 191/11.

The City of Burlington Accessibility Design Standards complements the AODA and provides specific guidance on the design of the interior and exterior environment. Where conflict exists between the requirements of these standards and provincial or federal legislation enacted by the federal or provincial governments, the most accommodating requirements apply.

A more detailed summary of regarding the Burlington Accessibility Design Standards is located in section A.1.4.

Ontario Trails Strategy

The Provincial government developed the Ontario Trails Strategy in response to the increasing popularity of trail activities and infrastructure, the need for government leadership, the need to protect provincial investment in trails and the need to mitigate significant provincial trail issues or challenges. The Ontario Trails Strategy is a long-term plan that will establish a strategic direction for government and stakeholders involved in the planning, management, promotion and use of trails, toward a healthier and more prosperous Ontario. Developed in collaboration with other ministries and stakeholders, the strategy supports continued cooperation among governments and the not-for-profit and private sectors. There are five strategic directions that are outlined in the Ontario Trails Strategy:

- Improving collaboration among stakeholders;
- Enhancing the sustainability of Ontario's trails;
- Enhancing the trail experience;
- Educating Ontarians about trails; and
- Fostering better health and a strong economy through trails.

A number of goals and strategies have also been identified to support each of the five strategic directions. The Ontario Trails Strategy recommends that trail organizations develop common standards to guide the development and use of trails. This would help the trail system evolve to meet the particular needs of new users.

Trail organizations also need more effective tools and better ways of distributing information to Ontarians. As these challenges require coordination at all levels, the provincial government and the public, not-for-profit and private sectors will continue to collaborate on priorities, roles and responsibilities, timeframes, and methods to strengthen and enhance existing and future trails in Ontario.

Transit Supportive Guidelines (2012)

In 1992, the Ontario Ministries of Transportation and Municipal Affairs and Housing published the Transit-Supportive Land Use Planning Guidelines document. The focus of the document was to provide guidelines for the development of transit-friendly land use and urban design.

More recently, the MTO undertook an update to the guidelines in order to support continued progress in the development of more compact, transit-supportive communities.

The updated 2012 report documents the most current thinking on transit-supportive urban planning and design in addition to current best practices in transit planning and the delivery of custom-oriented transit service throughout the Province of Ontario.

The document builds upon the policies, plans and initiatives developed by the Ministry over the past 10 + years including the Growth Plan for the Greater Golden Horseshoe (2006) and the updated Provincial Policy Statements (2005).

The MTO document consists of over 50 guidelines and approximately 450 specific strategies to guide urban planners, transit planners, developers etc. in creating an environment supportive of transit and transit ridership. The document also supports the development of pedestrian and cycling connections throughout urban and rural communities to help enhance transit infrastructure and usage.

Specific guidelines and strategies can be identified throughout the document which references the application of a complete street approach when designing transportation facilities including the provision of safe and accessible pedestrian and cycling connections to and from transit stops and stations.

Ontario Cycling Strategy – #CycleON (2014)

In 2014 the Ministry of Transportation Ontario finalized the Ontario Cycling Strategy – #CycleON. The strategy acknowledges the importance of developing cycling facilities to help reduce GHG emissions, ease gridlock, enhance the economy, increase tourism and increase the quality of life of the residents of Ontario.

The strategy was developed based on increasing demand from local municipalities for direction from the province on the design and development of cycling facilities. The document also addresses a number of recommendations found in the 2012 Coroner's Report on Accidental Cycling Deaths in Ontario from January 1st 2006 to December 31st 2010.

The province's vision is to ultimately "develop a safe cycling network that connects the province, for collision rates and injuries to continue to drop, and for everyone from the occasional user to the daily commuter to feel safe when they get a bicycle in Ontario." The strategy is intended as a guide to ensure that this vision is achieved.

The Cycling Strategy outlines a provincial plan include recommended cycling infrastructure, education and legislation changes and enhancements including a set of proposed changes to The Highway Traffic Act. The proposed changes are currently in the second reading with the Standing Committee at the Legislative Assembly, and it is anticipated that they will move forward later in 2015.

#CycleON is part of a number of provincial documents which are used to help promote and strategically develop sustainable transportation infrastructure province-wide. As an additional component of the strategy the MTO identified a short-term action plan which is intended to be implemented by the MTO in partnership with other ministries. The action plan is intended to be updated on an annual basis and be used as a means of tracking the implementation of the strategy.

A.1.3 Halton Region

Halton Region Transportation Master Plan – "The Road to Change" (2010 – 2031)

In 2011, Halton Region developed a 20-year plan which outlines the Region's transportation infrastructure and program priorities as well as a set of tools which can be used to achieve them in a safe, effective, and cost efficient manner.

The Halton Region Transportation Master Plan is a strategic plan which supports the development of a sustainable and multi-modal transportation network that considers all modes of travel (automobiles, transit, cycling, walking, etc.) up to the year 2031.

The Halton Region Transportation Master Plan identifies five guiding principles that are intended to guide "the Road to Change"; these include:

- Balanced Needs – provide choice for the travel needs of residents;
- Healthy Communities – support a health and active lifestyle;
- Economic Vitality – transportation will be a major contributor to the Regions prosperity;
- Sustainability – balance economic, social, and environmental goals; and
- Well-Maintained Infrastructure – keep the Region's Infrastructure in a good state of repair.

The Transportation Master Plan identifies the active transportation (AT) opportunities available throughout Halton Region. The plan's AT component is guided by the overall goal of providing a year-round, well-connected, safe, and functional transportation network that is available to all members of the community.

Halton Region Official Plan (2006)

The Halton Region Official Plan was created in 2006 as a guide for Regional Council. The plan sets out various goals, objectives and policies that are intended to help manage growth and direct physical change throughout the Region, taking into consideration the effects on the social, economic and natural environment.

Halton Region's vision is led by two planning concepts: land stewardship and healthy communities. The Region continually advocates for these two concepts while maintaining sustainable development as the primary objective of land use decisions.

Regional Official Plan Amendment #38 (ROPA #38) was adopted by Regional Council in 2009 and approved with modifications by the Ministry of Municipal Affairs and Housing in 2011. The Official Plan is currently under appeal at the Ontario Municipal Board.

ROPA #38 sets out a Regional transportation goal – "to develop a balanced transportation system that: (a) reduces dependency on automobile use, (b) includes a safe, convenient, accessible, affordable and efficient public transit system that is competitive with the private automobile and (c) promotes active transportation". This goal will be supported and reflected by on-going active transportation infrastructure development throughout the

Region's local municipalities including the City of Burlington.

Citizens' Priorities – Halton Region's Action Plan (2011 – 2014)

The Citizens' Priorities Action Plan for Halton Region is a working plan that sets out the Regional Council's delivery plan from 2011 to 2014. This plan is attuned to the citizens' priorities in developing a set of key initiatives and key actions for their future. The many citizens' priorities included safe communities, public engagement, sustainable communities, and the promotion of healthy living. The Action Plan put for Transportation Actions which involved the construction of 25 kilometres of multi-use paths and bike lanes along Regional Roads and proactivity of public consultation efforts during the anticipated Region's Active Transportation Master Plan study process. Also, the Action Plan developed annual actions in order to guide the implementation of the programs and services that are important to the Region's citizens.

Halton Region Active Transportation Master Plan (anticipated 2015)

The Region's Active Transportation Master Plan is in the final stages of development. It includes goals and policies to improve the pedestrian and walking environment across Halton Region. A key component of the Plan is a pedestrian and cycling network.

In Burlington the network includes existing and future sidewalks within Regional road rights-of way, cycling facilities (i.e. bike lanes, cycle tracks etc.), and multi-use trails along many Regional roads in the urban area. In the rural area the network is predominantly on-road, consisting of paved shoulders, signed cycling routes and bike lanes.

A.1.4 City of Burlington

City of Burlington The Strategy for Greenways and Trails on Burlington Public Lands

In 1994 the City of Burlington undertook their first trails related master plan study. The plan focused on establishing a City-wide greenways and trails concept in the urban and rural areas of the City. The Strategy was intended to establish a system of trails within environmentally sensitive areas, in parks and open spaces.

It is also intended to provide connections to other local and regional destinations, on private lands where there was an agreement with the landowner, as part of new planning initiatives and the expansion of communities and that responds to public demand.

The strategy identified 25 key recommendations and a proposed City-wide trails network which were intended to guide future trail development. The design of trail facilities was also considered through the development of a set of design principles which was included in the strategy report.

City of Burlington Cycling Master Plan

The City of Burlington completed the Cycling Master Plan in 2009 in order "to guide the City in creating a network of on-road bikeways and multi-use pathways throughout Burlington, along with the creation of supportive policies, practices, and programs to encourage more people to cycle."

The Burlington Cycling Master Plan recommends a set of design guidelines geared towards improving access to cycling facilities and routes; such as the 'bicycle priority street' or 'bicycle boulevard'. The plan also recognizes that a number of the major off-road trails within the City form a critical part of the cycling network.

These guidelines have been an effective reference document for other community studies to incorporate cycling features and facilities. The plan also recommends five network guiding principles which are used to encourage cycling participation including: coherence, safety, directness, comfort, and attractiveness.

The cycling network as proposed in the 2009 Cycling Master Plan is illustrated on the following page.


CITY OF BURLINGTON
CYCLING MASTER PLAN
Map 3: Proposed Burlington Cycling Network
City Hall
Hospital
Attractions
Community Centre and Library
Sports and Recreation
Transit / GO Station
Schools
Bikeway Type
Existing Bike Lane
Existing Signed Route
Existing Multi-Use Path
Proposed Bike Lane
Proposed Cycle Track
Proposed Bicycle Priority Street
Proposed Paved Shoulder
Proposed Multi-Use Path
Proposed Barrier Crossings
Highway Interchange Crossing
Grade-Separated Crossing
Intersection Improvement
Notes:
1. "Proposed" includes routes already approved by City for construction and routes considered as additions to the network in this study.
Note: Provide paved shoulders on rural City roadways north of Highway 5 / 407 if Average Annual Daily Traffic (AADT) exceeds 2,500 vehicles per day.
Note: Improved access from cycling network to GO Stations will be examined in detail in future studies.
Note: Proposed pedestrian/cycling bridge cantilevered off east side of Burlington Canal Lift Bridge.
N
Kilometers
0
0.45
0.9
1.8
L:\jobs\2008\16-08946-001\TP\ Burlington Cycling Master Plan\GIS\Maps\April 2009\Open House Maps\650006?0_Map_3.mxd

City of Burlington Official Plan

The City of Burlington Official Plan outlines a set of policies which are used to promote effective land use management and growth City-wide. The plan is the guiding document for the City and plays an integral role in the planning of rural and urban areas throughout the City.

The Official Plan is divided into nine parts including, a focus on policy framework, functional policies, land use policies for urban planning areas, land use policies for rural planning areas and implementation tools. The Plan outlines that the main intent of transportation policies "integrates, diverse transportation system for all residents and businesses that is safe, convenient, affordable, efficient and energy-conserving".

The development and maintenance of walking and trails for pedestrian and bikeways for cyclists is noted as an essential part of urban and rural development in the City.

The Plan also makes reference to the protection of areas with significant ecological values including the waterfront. This is reflected through one of the Official Plan's policies: "The City will consider opportunities to incorporate a Waterfront Trail as part of the overall design of the shoreline protection works".

The Plan recommends the use of public spaces, trails and parklands for the development of active and passive recreation opportunities.

In 2012 an Official Plan Review was initiated. The scope included the review and study of several areas that relate to the Community Trails Strategy including the following work plans:

- Movement and Connectivity (to review and update Official Plan policy related to movement and connectivity in the City. This work is to be undertaken in conjunction with the Transportation Master Plan update);
- Mobility Hubs (to incorporate strategic policy in the Official Plan regarding the role of mobility hubs);
- Nodes and Corridors (to develop policies to support the long term transformation from suburban to urban environments and to identify means of integrating these areas with existing residential neighbourhoods);
- Community Infrastructure (to develop policies related to lands, buildings and structures that support the quality of life for people, in order to support the City's role in ensuring the adequate provision and distribution of these resources).

City of Burlington Parks, Recreation and Cultural Assets Master Plan

Adopted in December 2009, the Parks, Recreation and Cultural Assets Master Plan is intended to provide the City of Burlington with a strategic direction and specific recommendations for the implementation of parks, recreation and cultural services over a twenty year period. The Master Plan outlines the importance of integrating community trails into parks and recreational areas. Specific strategies are provided that highlight the need to grow and enhance trail networks and amenities as well as fully integrating community trails with the Cycling Master Plan. In addition, it is recommended that the City of Burlington use the Parks, Recreation and Cultural Assets Master Plan to support the following:

- Development of a comprehensive and contemporary trail network for growing and varying use;
- Support the Active Transportation Plan / Cycling Master Plan;
- Support fitness, wellness and community development benefits; and
- Benefits to people of all background and abilities.

Burlington – Our Future – Strategic Plan Summary 2011 – 2014

In 2011, the City of Burlington developed a Strategic Plan to define priorities and actions plans for the next four years. The plan outlines three strategic directions to promote vibrant neighbourhoods, prosperity and excellence in government. To improve local neighbourhoods and enhance the natural environment, the plan outlines the following objectives:

- Ensure that neighbourhoods and commercial area, including the downtown, are safe and accessible places to live and gather for activities.
- Increase the number of people who cycle, walk and use public transit for recreation and transportation.

The Plan anticipates "livable" neighbourhoods with fewer cars on the road and increased number of people engaging in alternate modes of transportation such as walking or cycling. The City of Burlington is preparing an update to the strategic plan for 2015-2018.

City of Burlington Accessibility Design Standards

The Accessibility Design Standards address accessibility requirements for the design and construction of new facilities as well as the retrofit of existing facilities owned, leased or operated by the City of Burlington. The standard has been developed for use by people responsible for the designing and constructing the built environment, and is based on the premise that universal design recognizes the broad diversity of people who use City facilities. Though the majority of the standard focuses on buildings and the interior environment, several sections are dedicated to exterior spaces including

- access from parking areas to buildings;
- landscaping material;
- exterior furnishings;
- signage; and
- outdoor recreational facilities such as trails and footbridges, pathways, rest areas, playground and waterfront areas.

Community Action Plan for Life

In fall 2008 Walk and Bike for Life, a not for profit organization initiated the Community Action Plan for Life for the City of Burlington to engage citizens in local active transportation issues and provide them with the tools and resources to walk and cycling in their community.

To develop the Community Action Plan for Life, Walk and Bike for Life undertook several consultation activities including public meeting and community workshop for Burlington residents, local community groups, the Burlington Cycling Committee, local councilors and representatives from GO transit and Burlington transit.

Participants of the consultation events provided recommendation for the City of Burlington to improve cycling and walking conditions includes interest in physically separated bike facilities, pedestrian pathways, trip-end facilities for cyclists and education programs. The document outlines next steps regarding roles and responsibilities, community engagement and infrastructure to advance initiatives for a walkable and bikeable City.

City of Burlington Transportation Master Plan Update

In early 2014 the City of Burlington reinitiated the development of their Transportation Master Plan Update. Originally initiated in 2013, the master plan is intended to be the blueprint for the development of an integrated transportation network City-wide. The master plan update will be developed to respond to public and stakeholder input which will be gathered using an array of consultation activities.

The intent of the master plan update is to clearly set-out strategic priorities and recommendations as they relate to transportation in order to support the City's strategic objectives of growing in place and improving the overall quality of life within the city. The master plan update is anticipated to be completed in 2015 and will include considerations for active transportation and recreation through direct links to recommendations in the Community Trails Strategy and Cycling Master Plan.

City of Burlington Pedestrian Charter

In 2009, as part of a Regional initiative between the Region of Halton, Active Halton and local municipalities, the City of Burlington endorsed a municipal Pedestrian Charter. By supporting this Charter and its strategic principles, the City indicated their commitment to work with others to help create a culture wherein people choose to walk. The City of Burlington Pedestrian Charter addresses key topics such as accessibility to streets, squares, buildings and public transit, well-designed and managed spaces and places for people, better walking routes and well connected networks, land use and planning that supports walking, as well as community safety. Through leadership and promotion the City aims to create a "Culture of Walking" within Burlington.

City of Burlington Mobility Hubs Opportunities and Constraints Study

As part of the City of Burlington's ongoing Official Plan Review the City is undertaking a mobility hub opportunities and constraints study. The purpose of the study will be to set out a high-level vision for the City's major mobility hubs (Burlington GO and Downtown Burlington) and the two major transit station areas (Appleby GO and Aldershot GO).

The study considers the transportation corridors which connect these areas. The high level vision will be supported by a set of design principles to address consistent and successful design practices and implementation approaches for these key community / transportation hubs. City staff has undertaken public consultation to inform the findings of this study. City staff will then determine Official Plan Directions informed by the study, further consultation and research. The importance of both on and off-road active transportation and recreation linkages which connect with these areas of intensification and redevelopment will be reflected in the study report as well as the recommendations / network connections identified in the Community Trails Strategy.

The importance of both on and off-road active transportation and recreation linkages which connect with these areas of intensification will be reflected in the study report as well as the recommendations / network connections identified in the Community Trails Strategy.

Cootes to Escarpment EcoPark System

The City of Burlington along with eight other local government and non-profit organizations in the Burlington-Hamilton area have engaged in a collaborative initiative aimed at preserving the valuable and cultural heritage of the Cootes to Escarpment EcoPark System.

Their vision for the Cootes to Escarpment EcoPark System is that it will be known internationally as a protected, permanent and connected natural lands sanctuary from the Harbour to the Escarpment that promotes ecosystem and human health within Ontario's Greenbelt. Together, the partner organizations own or manage almost 1,900 hectares of natural lands in this area, and are working together to protect, connect and restore the natural lands, and to deliver sustainable recreation and education opportunities.

A.1.5 Regional Agencies

Conservation Halton

Conservation Halton is a community-based environmental agency that protects, restores, and manages the local ecosystems and natural resources within its watershed. The conservation authority works in partnership with local municipalities and was established under the Conservation Authorities Act of Ontario.

Conservation Halton's roles and responsibilities include the management of water and, forest resources, as well as lifelong education and recreation. The Authority owns and operates more than 4,000 hectares of natural lands within eight conservation areas and management areas across Halton Region. Conservation areas include: Mountsberg, Crawford Lake, Robert Edmondson, Kelso, Hilton Falls, Rattlesnake Point, Glen Eden and Mount Nemo. Of these only Mount Nemo is located within the Burlington municipal boundary. There are a considerable number of trails found within each of the conservation areas and maps available for each.

Trail alignments and connections to conservation areas will be considered when developing the trail network for the City of Burlington.

Conservation Halton Strategic Plan (2009-2013) – Towards a Healthy Watershed

Conservation Halton's Strategic Plan identifies current and long-term priorities that are intended to guide environmental protection. A key goal of the plan includes ensuring that the watershed`s health will be maintained or enhanced while also meeting the current and future needs of local communities. Recommendations are identified which help to support the goal.

The Plan focuses on five main themes: environment, parks, education, community, and governance. The plan also outlines a number of objectives and action items which support these goals and are to be used to effectively protect and manage an area of natural significance.

Niagara Escarpment Commission

The Niagara Escarpment Plan (NEP) provides strategic direction on the maintenance of the Niagara Escarpment as well as lands within its vicinity to ensure that a continuous natural environment is maintained and development occurs that is compatible with that natural environment.

The Niagara Escarpment Commission undertook a comprehensive review of the NEP in 2005. The plan is updated on an ongoing basis, the last of which was completed in 2012. The development of trails within the NEP Area is guided by this document and subsequent updates and must be consistent with Section 3.3 of the Greenbelt Plan.

Trails, with the exception of motorized vehicle trails, are referenced throughout the document and are typically grouped under "non-intensive recreation". The plan stipulates that "adequate public access to the escarpment should be provided by such means as parking areas, walkways or pedestrian trails (e.g. the Bruce Trail)" (page 26).

The plan supports the development of new trail facilities in areas found within the Niagara Escarpment including key areas in the City of Burlington. The plan states that future trail development is to be "located and designed so as not to adversely affect adjoining private landowners." As various trail routes in the Community Trails Strategy are designed and implemented the NEC should be consulted as required regarding trails that are proposed in areas under their jurisdiction.

A.1.6 Surrounding Municipal Policies & Plans

Town of Milton

Town of Milton Trails and Cycling Master Plan (2014)

The 2014 Town of Milton Trails and Cycling Master Plan Update was approved by Council in 2014. The update which addresses trails and cycling will create and improve opportunities through the Town for active transportation and recreation for residents and visitors. The master plan update was developed based on an overall study goal identified by the Town's Engineering and Community Services department to implement a network of connected and continuous trails. This goal is supported by a number of objectives including building upon existing / planned facilities, identifying user needs, and establishing recommendations and strategic priorities.

The system builds upon the routes on the ground now, including those implemented as part of the 2007 plan, as well as those routes previously identified as part of the 2007 long-term implementation plan.

An important component of this plan is the recommended trail and cycling network which envisions seamless trail connections with each of the municipalities that share a common boundary with Milton. The network connections illustrated in the Milton master plan were used to inform investigation of routes in north Burlington for the Community Trails Strategy.

Town of Oakville

Town of Oakville Active Transportation Master Plan (2009)

In 2009, the Town of Oakville developed their Active Transportation (AT) Master Plan. The Plan assessed current cycling and walking conditions, needs and opportunities and outlined recommendations to improve and expand the Town's AT network. The AT vision for the Town of Oakville is "to develop a pedestrian and cycling supportive community that encourages active transportation for both utilitarian and recreational travel."

Using this plan as a guide, the Town of Oakville is working towards developing an AT network of both on and off-road facilities that meets the needs of existing and future users. One of the Town's overall goals is to become the most livable community in Canada.

Since the plan's adoption a number of detailed design studies and AT related projects and initiatives have been undertaken and / or developed.

Switching-Gears – Town of Oakville Transportation Master Plan

The Town recently completed an update to the 2007 Transportation Master Plan. The update – Switching Gears – was completed to ensure that the Town plans a transportation system that supports the anticipated growth of the community that is also in alignment with other key studies that have been completed since the last iteration of the TMP e.g. Town's Active Transportation Master Plan and other relevant regional policies and plans. The overall goal of the TMP is to develop a more balanced transportation system that provides a variety of sustainable transportation options and is intended to be a transportation blueprint for the Town up to 2031. The TMP has a significant focus on the use of the active transportation master plan as the guiding document for future on and off-road route development.

City of Hamilton

Hamilton Recreational Trails Master Plan (2007)

In December 2007, the City of Hamilton adopted the Hamilton Recreational Trails Master Plan. The Trails Master Plan is intended "to be utilized as a working tool / document providing comprehensive and valuable information in order to make informed decisions on a system wide basis".

The plan provides recommendations for a proposed multi-use off-road recreational trail system throughout the City that links to both on and off-road facilities.

The Master Plan also highlights an implementation strategy for the development of trail facilities and implementation of infrastructure including site furniture, lighting, trailheads and interpretive signage. Since the plan's adoption several off-road multi-use trail related projects and initiatives have been undertaken and / or developed.

City of Hamilton Cycling Master Plan – Shifting Gears (2010)

The City's Cycling Master Plan was approved by Council in 2009 and finalized in 2010. It is an update to the City's first cycling master plan completed in 1999.

The master plan is intended to guide the development and operation of cycling facilities for the City of Hamilton for the next 20 years. The City's vision for cycling is to provide residents and visitors with a transportation system that offers a choice of different transportation alternatives with an emphasis on active transportation, public transit and carpooling. The master plan focuses on development new on-road facilities, connecting wherever possible to existing or planned off-road facilities and aims to accommodate different user groups including commuter, utilitarian and recreational cyclists.

The cycling master plan was used to identify key inter-municipal connections as well as examples of potential active recreation successes.

City of Hamilton Transportation Master Plan

The City's Transportation Master Plan was completed in 2007 and identifies policies and strategies for the development of a City-wide transportation network over the next 30 years. Considered as part of this plan are all forms of transportation including roads, transit, cycling and walking facilities, public parking and potential marine and aviation facilities. The plan is organized into three major areas including travel demand forecasting, the development of transportation policy papers and the development of the comprehensive master plan report.

The plan identifies key directives with regard to active transportation and recreation including a proposed cycling network strategy and pedestrian network strategy. The connections identified in the master plan help to inform key inter-municipal connections.

A.2 Support from Local Stakeholders & Organizations

A.2.1 Federal Organizations

Trans Canada Trails Association

The Trans Canada Trail Association is a not-for-profit, registered charity. Its mission is to promote and assist in the development and use of trails in every province and territory. They also provide funding to local trail builders to support the development of trails. Today, more than 16,500 kilometres of trail have been developed. When completed, the Trail will stretch 22,000 kilometres from the Atlantic to the Pacific to the Arctic Oceans, linking 1,000 communities and all Canadians.

A.2.2 Provincial Organizations

Ontario Trails Council

The Ontario Trails Council (OTC), a not-for-profit organization that promotes the development of trails in Ontario. The Trillium Trail Network (TTN) is an initiative of the OTC and represents an opportunity for trails to link together between regions and communities in Ontario. The TTN consists of OTC members who register their trail as part of the network. The Trillium Trail Network is designed to be a province-wide network of trails which works to:

- Make Ontario a more attractive place to live and visit;
- Promote trail travel and tourism;
- Increase the number of trails available for use;
- Improve trail management as TTN trails will work to implement accepted trail standards;
- Promote ecological conservation;
- Provide access to local history and community culture; and
- Promote accessibility and use to persons with a disability.

A.2.3 Other Organizations & Stakeholders

There are a number of key local stakeholders and outside trail and cycling groups and two Advisory Committees of Council which advise on trail initiatives, are involved in the promotion and in some cases the maintenance of off-road facilities throughout the City of Burlington. Their commitment to increasing awareness regarding the use of trails throughout the community will help to further promote increased trail use and will help to inform the implementation of the Community Trails Strategy. Local groups and stakeholders include:

- City of Burlington Cycling Advisory Committee;
- Burlington Accessibility Advisory Committee;
- Tourism Burlington;
- Hamilton-Burlington Trails Council;
- Iroquoia Bruce Trail Club;
- Waterfront Regeneration Trust; and
- Niagara Escarpment Commission.

Appendix B

Consultation Record





Community Trails Strategy

The City of Burlington is developing a **Community Trails Strategy** that will carry out the City's vision for a linked open space system. The study will build on the City's existing trail system and address the following key objectives:



- Engage the public and stakeholders
- Develop design guidelines for future projects
- Develop a plan that will result in a connected network of trails throughout Burlington
- Continue the trail signage program
- Prepare a phased implementation plan
- Identify maintenance standards for trails
- Establish a strategy to promote Burlington's trails and encourage public use

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MMM GROUP

City of Burlington Community Trails Strategy
2011 Community Survey Results:
Summary of Key Points Related to Community Trails

The 2011 Community Survey was conducted by the Foundation Research Group on behalf of the City of Burlington. It is based on a random and representative sample of 752 Burlington residents aged 18 or older, and results were compared to previous iterations of the survey conducted in 2003, 2006 and 2008. Despite some changes from 2008 residents remain pleased with life in Burlington and the strong majority of residents of the City of Burlington consider the city to be an excellent or very good place to live (87%). This represents an increase of 5 percentage points since the last study conducted in 2008. As compared with 2008, more importance is being placed on all services, particularly, parking, community centres and arenas, and usage has dramatically increased for most services since 2008.

The following are some key points from the 2011 Community Survey that relate specifically to off-road paths. This information was used as background to inform the development of the Community Trails Strategy. It is noteworthy that some of the opinions in the 2011 Community Survey that relate to off-road paths were reiterated by the public during consultation for the Community Trails Strategy.

- Residents aged 18-34 were significantly more likely than those aged 55+ to make use of off-road multi-use paths, and residents aged 35-54 were significantly more likely than those aged 55+ to make use of off-road multi-use paths
- Residents aged 18-34 were significantly more likely than those aged 35-54 or 55+ to give a high importance rating to off-road multi-use paths
- Those aged 35-54 were significantly more satisfied with off-road multi-use paths when compared to those residents aged 55 or older (70%, compared to 58%)
- Regarding use of multi-use trails, 9% indicated they use them at least once a day, 23% indicated at least once a week, 21% indicated at least once a month, 13% indicated at least once a year, and 35% indicated they never use multi-use paths
- Most users of off-road multi-use paths were dissatisfied (41%) with the lack of paths in their area/ward, while non-users were more concerned with paths not being used (11%) or a lack of awareness of bike paths (8%)
- Regarding maintenance of off road multi-use paths, 27% rated it to be excellent, with 51% rating it as good, 19% fair, 2% poor, and 1% very poor
- The following responses were reasons given for those respondents who gave multi-use paths a poor rating - not enough bike paths in my area (41%), bike paths don't connect/don't go anywhere (22%), bike paths are not cleared or maintained (20%), other/unqualified (17%)
- When asked if the City should be spending more less or the same for off-road bike paths the following responses were received – spend more (18%), spend the same amount (60%), spend less (21%), don't know (2%)
- Regarding work/leisure/transportation habits - 89% reported they never walk to work, a combined total of 78% reported that they walk for leisure four to six times per week and two or three times per week, 94% reported that they never ride a bike to work and 51% reported that they never ride a bike for leisure or exercise.

For a complete summary of the 2011 Community Survey, please refer to

http://cms.burlington.ca/AssetFactory.aspx?did=17775

AGENDA

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY:
COUNCILLOR FOCUS GROUP SESSIONS

Please refer to your individually scheduled time slot for date, location and time.

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1) Introductions & Background / Overview of Study

The study team will provide a brief study overview including the goals and objectives and study process.

Duration: 3-5 minutes (approx.)

2) Discussion

The intent of the discussion will be to gather input on the status of existing trails in the City and how they could be improved in the future. A list of questions has been included on the following page which will be used to guide the discussion and to help you prepare for the session. Ideally we would hope to cover all of these questions during the discussion, however we also recognize that you may wish to focus more on some topics than others. We will also have a large city map illustrating the existing trails if there are specific locations that you would like to refer to during the discussion.

Duration: 20-25 minutes (approx.)

3) Next Steps /Wrap-Up

The wrap-up will include a summary of next steps including the anticipated date of study completion.

Duration: 2 minutes (approx.)

Questions:

1. What is your opinion of the existing trails (a) in your ward, (b) throughout the City? What is the citizens' opinion of trails in Burlington?

2. In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance) etc.? Similarly, are there barriers to developing trails in the future or concerns you have with the existing trail system? (These may be specific to your ward or elsewhere in the City).

3. Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow.

4. Do you have any suggestions on how to integrate trails with other modes of transportation such as public transit?

5. Are you satisfied with the current level of maintenance for trails during the winter months? (i.e.: Should the level of service be adjusted in other areas in order to put more emphasis on trails)?

6. How do you think trails should be promoted or what educational materials do you think should be developed to encourage more people to use trails more often?

MMM GROUP

City of Burlington Community Trails Strategy
Councillor Focus Group Sessions

To:	**Ingrid Vanderbrug** **City of Burlington Project Manager**	**Date and Time:**	**Monday January 27th, 2014** **9:00 a.m. – 12:00 p.m.**
From:	**Claire Basinski & Jay Cranstone, MMM Group**	**Job No.:**	**14-13063**
Subject:	**City of Burlington Community Trails Strategy** ***Councillor Focus Group Sessions***	**CC:**	Dave McLaughlin, MMM Group

Meeting Attendees:

Councillors:		**MMM Group Attendees:**
Jack Dennison	Ward 4	Jay Cranstone
Blair Lancaster	Ward 6	Claire Basinski
Marianna Meed-Ward	Ward 2	
Paul Sharman	Ward 5	
Rick Craven	Ward 1	
John Taylor	Ward 3	
Mayor Rick Goldring		

Over the course of the month of January and February the study team undertook a set of meetings with local councillors and the Mayor of Burlington to gather input on the status of trails in the City and potential future opportunities for trail improvements.

The study team allocated thirty minute sessions to consult with each councillor and the Mayor. A list of questions was prepared to facilitate discussion between the focus group and the study team and was provided to each of the Councillors and the Mayor in advance of the schedule meetings.

The following is a summary of the questions asked and the responses received.

Question	Responses
1. What is your opinion of the existing trails (a) in your ward, (b) throughout the City? What is the citizens' opinion of trails in Burlington?	Change is reflective of society but there are positive facilities that currently exist (e.g. Guelph Line is a success). The term 'road diet' is not positive or popular but residents seem to be interested in the approach and the outcomes. Trails need to be well marked and are well used in Ward 6. Improvements can be made to existing trails through the use of marker signs. Potential cyclist and pedestrian conflicts could be dangerous. As a solution the City should designate space for cyclists, widen existing trails or provide clearer signage. How the City will address different trail users, such as those who participate for recreational purposes or utilitarian purposes. The concern for safety in rural areas was also indicated. The City should address how improved

Question	Responses
	comfort and safety within these areas. Interest in the implementation of more trails and increase connectivity. Hydro lands / corridors should always be considered as an opportunity to develop trails but assessments should be undertaken to determine suitability. The existing signage strategy should be emphasized and consistency between with the City and waterfront signage should be ensured. Trails should promote and provide connections to historic sites in Burlington. She also noted that greater connectivity between different transportation modes is needed. Need to provide facilities which accommodate a balance of cyclists of all ages and abilities. Cyclists use routes in rural areas (often with narrow roadways) such as Walkers Line but there needs to be more connectivity to surrounding areas and trail facilities such as the Bruce Trail and connections to Oakville. Trails in Burlington are in good condition and provide connections to key locations. Citizens appreciate the access to the existing trails. Need to address the challenges and highlight the opportunities when moving forward and interest in exploring new opportunities to surrounding areas such as the City of Hamilton – e.g. Hamilton Bridge – as well as trails in established neighbourhoods. On-road bike lanes and paved trails in hydro corridors should not be considered trails or for recreational pursuits like those found in natural areas. Interest was expressed in preserving and expanding the trail along the lakeshore due to the proximity to areas of natural significance. When moving forward the City should consider developing trails similar to the approach taken by the Bruce Trail. Private land ownership can be an issue when developing trails and should be addressed through this plan, whether it is an approach to acquire additional lands or engage in partnership with existing landowners for trail development.
2. In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance etc.)? Similarly, are there barriers to developing trails in the future or concerns you have with the existing trail system? (There may be specific to your ward	**Opportunities** • Develop area specific mapping rather than focusing on one large area • developing facilities that will help to promote cycling to increase the number of cyclists within the City • Highlight park access • North side of Upper Middle Rd. through hydro corridor – specifically the north vs. the south side which is much more comfortable • North of Highway 407– the City should consider implementing sidewalks or paved shoulders • Zimmerman Park • Health and fitness benefits are a primary draw and should be

Question	Responses
or elsewhere in the City).	emphasized • Emphasize multi-use trails for a range of different trail users; • Should consider widening trails or establishing dedicated space for wheeled activity; • Should look into supplementing pavement markings with coloured space for on-road cyclists; • Need for organization of user groups so they can mobilize their efforts; • Identify conflict zones so they can be mitigated; • Plan for / establish critical linkages from bordering communities; • Should consider establishing connections along north service and south service road as well as Harvester – multi-use trails?; • Provide connections to areas of employment where possible; and • There are natural areas and green spaces that should be used for future trail development in the City. • New street cycle paths; • Cootes to Escarpment Connection; • Potential to implement New St. as a spine route that links to smaller routes; • Priority project on Brant St.; • Trails that are developed on abandoned railway lands; and • Connections to Hamilton. • Connectivity to the beach; • Rural trail systems along creeks and in natural areas (e.g. Bronte Creek); • One of the highlights of the community is the Bruce Trail connection; and • Potential to develop a loop route through the City • Future trails within woodlots such as Brant Hills / Cavendish Park. • Direct linkages to the Bruce Trail from Upper Middle line at the end of the culs-de-sac. • Connection between KernCliff and City View Parks – the connection is too steep right now • Lowville park • Connection between Bronte Creek Provincial Park and Lowville Park – would require additional discussions with Conservation Halton • Cootes to Escarpment • The Bruce Trail is currently underutilized and should be further promoted. They should consider promoting meeting areas and organized walks to highlight key areas of the trail. There are a number of people who park along the roadway to access the trail. The provision of safe staging areas should be addressed **Barriers** • With the removal / moving of mailboxes there may be increased need for pedestrian access. Not appropriate as it stands now. • Exposure to rural areas is currently quite low improvements / additional routes are needed; Rural residents are not interested in having cyclists visit rural areas. • North Shore / Plain Rd. is not a cyclist friendly route due to catch basin design and vehicle frequency

Question	Responses
	• QEW crossing – multiple areas are grade separated but this is still a barrier. There are still concerns with the use of overpasses during winter; • One of our biggest issues is the weather. How can we make cycling and trail use relevant in all seasons?; and • Private land ownership and land owner agreement is still a barrier for future trail development the City should consider developing a bylaw which addresses this issue. • Issues within the downtown core with regard to continuity of facilities; • Highway crossings (ideal route may be to consider the use of Brant St.) • Challenge for recreational cyclists trying to connect to downtown • Railway tracks
3. Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow.	• Markham • Mississauga • Oakville • Haldimand County – Has a mix of rural and urban roadways with some shoulders but not as much traffic. The County has trails in areas which highlight natural features and accommodate users with staging areas (e.g. Grand River). In addition, schools and community destinations are used and major key locations to be connected to.Ottawa – trail related policies are included in municipal plans which help to support urban planning strategic priorities. • Minneapolis, Minnesota – Organized space to connect neighbourhoods with the downtown core through trail use and cycling • Erin Mills – Good example of planning • Britain and China – Good example of private access to farms using off-road trails • Saskatoon – Trails are found within natural areas and highlights the key features • Ottawa trail system – Well-connected with variations between the landscapes that the trail passes through. The City has effectively designed underpasses and overpasses for pedestrians and cyclists. Community is a strong example of trail friendly development
4. Do you have any suggestions on how to integrate trails with other modes of transportation such as public transit?	Increasing trail connectivity residents will be encouraged to use of other modes of transportation. Separation and barriers should be required between different modes of transportation (e.g. planters used in Vancouver to separate transportation modes).The highway is currently a barrier the City should try to achieve one north-south connection to integrate trails with other modes of transportation. She also expressed support for families and younger children riding on sidewalks. A pedestrian / cyclist bridge may be a critical piece to integrate all modes of transportation. Concern was raised regarding the high cost of bridges vs. less expensive feeder routes.

Question	Responses
	The City should take the time to gather information and undertake performance measures to capture good metrics. Emphasis should be placed on low cost / no cost items first. As part of the plan key priorities should be established that would guide future development of the network. Building trail infrastructure into the Development Charges Bylaw. Off-road trails should be integrated with key transit hubs. The City is experiencing a cultural shift where transit ridership is increasing and the public are using smaller vehicles. Accessibility is becoming a key concern as the number of seniors is increasing in Ward 5. Important to integrate community hubs with the design of mobility hubs. Important to establish a balance of on and off-road connections which would help to integrate trails with other modes of transportation. The City should place emphasis on utilitarian use of trails as a mode of transportation as the history has been to focus on recreational pursuits. A long term project (2015) to reconstruct New St. to accommodate a multi-use path in place of a sidewalk. Information needs to be provided on trail etiquette to the community based on area and user specific target audiences.
5. Are you satisfied with the current level of maintenance for trails during the winter months (i.e.: Should the level of service be adjusted in other areas in order to put more emphasis on trails)?	RPM currently maintains trail during winter months. Winter is a deterrent for trail use in general. Concern with grates on on-road routes. People appreciate the asphalt surface type. Not a one size fits all approach to trail maintenance. When determining the approach to maintenance the City should consider key characteristics such as the volume of use on the trail, the typical users, whether it is used as a utilitarian connection or for tourism, etc. The City should consider establishing a hierarchy for rout maintenance based on these considerations. The focus should be on City trails and not external trails such as the Bruce Trail or conservation authority trails. Their maintenance is good. All routes need to have some level of consistency with maintenance to facilitate continuity of the route. Trail maintenance priorities are inconsistent and hinder connectivity. Trails are now considered a tertiary maintenance priority which needs to be reconsidered. When determining priority the demand for the route should be considered (e.g. routes for commuters, seniors and youth). Critical areas for maintenance include roads, sidewalks and hydro corridors. Trails are important part of the socio-economic and natural fabric of the city. Transition areas (e.g. on-road to off-road facilities) need to be well maintained. Trail maintenance in winter months is currently not a priority but the City should undertake an assessment to change this. In addition,

Question	Responses
	sidewalks and pathways should be considered priority for winter maintenance to facilitate connectivity. The City should focus on improving the network and maintaining those improvements. When exploring maintenance of trail facilities there should be enhanced maintenance with priorities based on snow clearing the trails that are paved. The City should consider whether it is necessary to undertake yearly reviews of maintenance or to move forward with a more permanent approach. The demand for the use of the trails as it stands now does not warrant improvement to maintenance, however, people still require the use of sidewalks. This should be a priority over trail connections.
6. How do you think trails should be promoted or what educational materials do you think should be developed to encourage more people to use trails more often?	Use social media, trails / bike maps (at events and venues), mail outs and stakeholders to distribute educational and promotional information related to trail use information. Important to educate people so they understand different user groups and how to participate safely. Materials should be developed that communicate to share the road or share the path concept in a clear manner. The following potential outreach activities to encourage people to use trails more often: • Education about cyclist on sidewalks; • Improving signage, wayfinding and etiquette; • Initiating and organizing RBG walking tours (advertisement of existing programs) and trail tours organized in the summer months; • Use existing database and future feedback as a potential means of improving; and • Performance measures and targets should be explored to assess the value of implementing facilities. • Trail mapping and electronic materials (an app that displays the routes and information); • Digital signage (trailheads and signage at trail end) should be considered to build off of the existing signage approach for the City; and • More trail events (as opposed to roadway) to encourage people to use trails • Safety campaigns (sense of reality vs. safety); • Initiative regarding increased awareness; • Initiatives which encourage a cultural shift regarding children and design (environment of congestion); and • Initiatives which promote a shift away from cars (promotion by area) The importance of a realistic integration between trails and other modes of transportation and using incentives (bus passes, parking, etc.) to encourage people to use trail. The City should also focus on providing Council and the public with evidence to support the investment in sustainable modes to further promote their importance in the community. Events and promotional initiatives will also help to bolster the number of pedestrians and cyclists including bike valet events and organized trail walks. The plan should explore the development of additional trails that enhance natural areas within the City. The information presented should be clearly defined with maps that are divided into clear sections for each of the areas

Question	Responses
	of the municipality. There should be both hard copies and electronic copies available to accommodate a range of needs and the City should explore additional promotion and outreach initiative such as the development of a map and organized trail walks / rides to promote the use of trails.

AGENDA

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY: STAKEHOLDER FOCUS GROUP SESSION

Location: Rooms 305/307, City Hall, 426 Brant St., Burlington
Date: Monday January 27th, 2014
Time: 2:30 – 4:30 p.m.

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1) Welcome & Introductions

Ingrid Vanderbrug (City of Burlington Community Trails Strategy Project Leader) will welcome participants. Participants will each briefly introduce themselves, the organization they represent, the organization's role with respect to trails and key goals they would like the Community Trails Strategy to achieve.

Duration: 15 minutes (all timings are approximate)

2) Study Background Presentation

The study team will provide a short presentation regarding the study goals and objectives, study process and work completed to date. The presentation will be followed by a brief question and answer period. Participants will be encouraged to hold more detailed questions (e.g. related to trail network routes etc.) until the Focus Group Session when study team representatives will be circulating between the stations.

Duration: 20 minutes

3) Focus Group Session

The Focus Group Session will include two stations. Participants will be divided into two groups and both groups will have the opportunity to work at each station. Members of the study team will be available at each of the stations to answer questions or to help facilitate the discussions. A description of each of the proposed stations is presented below:

Station 1: Network Opportunities & Barriers: Participants will be provided with a map of existing trails in the City and known connections to surrounding municipalities. They will be asked to review the information presented and to provide their

comments on the existing network, opportunities and barriers to future trail development, missing links and potential network improvements to help enhance route connectivity and continuity.

Station 2: Group Discussion of Key Topics: Participants will be asked to address other important opportunities and issues related to the development, operation and promotion of trails in the City around the following questions / themes:

1. Do you agree or disagree that it is important to develop trails throughout the City? Should the City spend less, the same amount or more money on trail development?
2. Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow.
3. In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance) etc.?
4. How should trails be integrated with other modes of transportation such as public transit?
5. Who are the community partners that help to promote trails in Burlington today? Are there ways that they could be engaged more effectively? Are there other partners who should be involved?
6. How should the City promote and market trails (i.e. how is this being done today and what needs to be done in the future)? Are there educational initiatives that might encourage more use?

Duration: 70 minutes

4) Meeting Wrap-up, Q&A and Next Steps

At the end of the Focus Group Session, there will be an opportunity for participants to ask the study team any final questions. The study team will explain how the input received will be used to prepare the community trails network and inform the development of the strategy. Following the Focus Group Session, the study team will prepare a summary of findings that will be forwarded to City representatives and all participants.

Duration: 15 minutes

MMM GROUP

City of Burlington Community Trails Strategy
Stakeholder Focus Group Session

To:	**Ingrid Vanderbrug** **City of Burlington Project Manager**	**Date and Time:**	**MondayJanuary27th, 2013** **2:30 p.m. – 4:30 p.m.**
From:	**Claire Basinski&Jay Cranstone, MMM Group**	**Job No.:**	**14-13063**
Subject:	**City of Burlington Community Trails Strategy** ***Stakeholder Focus Group Session- Meeting Notes***	**CC:**	Dave McLaughlin, MMM Group Marion Rabeau, City of Burlington

Meeting Attendees:

Stakeholders:
Adam Brylowski (AB)
Ken Lawday (KL)
Fabio Cabarcas (FC)
Michael Baran (MB)
Cynthia Graham (CG)
Wayne Terryberry (WT)
Pam Belgrade (PB)
Tys Theysmeyer (TT)
Stirling Todd (ST)
Nick Maandag (NM)
Igor Hoogendoorn (IH)
Werner Plessyl (WP)

MMM Group:
Jay Cranstone (JC)
Claire Basinski (CB)

City of Burlington:
Ingrid Vanderbrug (IV)
Rob Peachey (RP)

Not in Attendance:
Deborah Herbert (DH)
Marlaine Koehler (MK)
Pat O'Reilly (PO)
Terrance Glover (TG)
Janice Olbina (JO)
Susan Biggs (SB)

On Monday January 27th, 2013from 2:30 to 4:30 p.m. the City of Burlington Community Trails Strategy(CTS) Team held their first stakeholder focus group session. IV welcomed everyone to the session and each participant was asked to introduce themselves, the group that they represent and some initial ideas regarding what they are hoping the CTS will achieve. The following is a summary of their responses:

AB – Bruce Trail Conservancy - interest in developing connections to Kerncliff Park.
KL – Iroquoia Bruce Trail Club –additional direction from the City of Burlington regarding the future design and development of trail facilities including route maintenance.
CG – City of Hamilton – looking for additional partnership opportunities to connect trail systems between the City of Burlington and the City of Hamilton.
NM – Halton District School Board –additional directive as an adjacent landowner on how to connect systems to form accessible school routes.
MB - Niagara Escarpment Commission –the CTS must take the Niagara Escarpment Plan into consideration. The Niagara Escarpment Plan identifies various planning zones. Planning, design and implementation activities within designated zones are to be guided by policies in the Plan.
WT – Hamilton / Burlington Trails Council –the strategy should provide additional linkages between Hamilton

and Burlington as well as information for people to easily access if they would like to use trails or cycle between the two cities.

TT - Royal Botanical Gardens –additional connectivity to the RBG as well as additional trail linkages within the RBG.

FC – Halton Region Public Health –to work collaboratively with the City of Burlington to clearly document the link between trail development and active lifestyles.

ST – Region of Halton –more integration of the waterfront parks as well as the regional forest tracts into the City's trail system.

IH – International Mountain Bike Association (IMBA) – must consider the challenge of developing a trail strategy that clearly outlines the different users of trail systems including those that do not typically have the greatest representation.

The focus group session was developed to provide attendees with background information developed to inform the study. Following the introduction the consulting team delivered a study overview presentation, which included the study process and key dates, information gathered to date, study objectives, the strategy vision and goals, a summary of the network development process, an overview of potential route selection criteria and examples of existing trail conditions found throughout the city.

The session was also used to gather input from stakeholders regarding potential challenges and opportunities associated with trail development in the City of Burlington. After the presentation participants were broken into two working groups and asked to provide input on several topics related to the future of trails in Burlington. The following is a summary of highlights from the presentation as well as the working group session.

Agenda Item	Discussion
1. Study Background Presentation	**JC** provided attendees with an overview presentation of key study background information as noted above. The consultant team is currently in the "information gathering" stage of the study process. The strategy is intended to build on previously completed plans and initiatives including the City's Cycling Master Plan to identify potential recreational and commuter trail linkages. Following the presentation attendees provided several comments: • The study team should explore improving existing linkages such as the Francis Road Bikeway prior to developing new routes. • There is clear support for the development of asphalt trails such as the Centennial Bikeway • Other GTA municipalities such as the City of Brampton and the Town of Oakville are good local examples of municipalities that provide strong trail connections to their natural areas. • A primary consideration is that trails need to be functional. Trail maintenance should be a key consideration to ensure comfort and safety. Aesthetics items such as nice landscaping should be a secondary consideration. • The CTS needs to define different trail types and match these different trail types with appropriate user groups. JC noted that the study team will identify a hierarchy of trail types which will be defined in part by the different user groups that they are intended to be developed for.
2. Focus Group Sessions	Following the presentation, participants were divided into two groups and were asked to engage in two different activities. The activities were both designed to gather input regarding the existing trail conditions as well as future challenges and opportunities which may need to be considered when exploring future trail initiatives. The following is a description of each of the activities: • **Activity #1:** Attendees were engaged in a roundtable discussion regarding key trail related issues and opportunities in the City of Burlington. The discussion was framed around 6 questions / themes that were provided to attendees in advance of the session. • **Activity #2:** Attendees were provided with a map of existing off-road conditions and were asked to document any comments they had regarding existing trail conditions and future opportunities for consideration when developing the network.

Agenda Item	Discussion
	The following is a summary of key discussion points from each of the activities. **<u>Activity #1: Question and Answer Roundtable</u>** **Question 1:** **Do you agree or disagree that it is important to develop trails throughout the City? Should the City spend less, the same amount or more money on trail development?** • Attendees identified the following reasons why the development of trails is important – they help to: o Create healthy communities and lifestyles. o Contribute to increased real estate values and contribute to economic investment and local tourism e.g. maximizing on the increasing number of "staycations" and access to local camping areas. o Provide access to key community destinations for recreational purposes e.g. natural and cultural areas. o Provide transportation alternatives and realistic activities for the aging population as well as youth. o Expose users to outdoor experiences which have significant emotional benefits. • Another, more local example of some the potential economic impacts that trails can generate is the rail trail in Hamilton which has had a positive influence the real estate value of adjacent properties. • Developing trail facilities is supported at all levels of government including the provincial and federal level through the Ontario Trails Strategy, #CycleON: Ontario's Cycling Strategy and other healthy community initiatives. • There is the potential to use trail activities and trail development to promote potential partnerships with interest groups, businesses and local stakeholders such as the Burlington Hamilton Trails Council. • The demand is increasing for alternative modes of transportation. Connections to key community destinations within the City of Burlington should be provided through continuous and strategically placed on and off-road trails. Multi-use trails should be considered "the roads of the future" as is done in Europe. Communities should be designed in a similar fashion to reflect this (e.g. Sweden, Norway, Netherlands, etc.). • The greatest barrier to the development, implementation and use of trails and other active transportation / recreation facilities is the mindset of the residents of Canada. People need to be more aware of how active forms of transportation and recreation can be integrated into day to day activities. • In order for people to get more involved in active transportation and recreation there must be some education about the viability of trail use for recreational and utilitarian opportunities and the benefits that can be experienced from engaging in these activities. • Some key terms that were noted for consideration when developing trails included: o Connectivity o Continuity o User Experience o Visibility & Signage o Development, design and implementation **Question 2:** **Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow.** European: • Netherlands / Sweden / Norway – the design and maintenance of trails and cycling facilities is a good model as it considers weather that is similar to what we experience in Canada. • Salzburg – trails are used to highlight natural assets such as the river.

Agenda Item	Discussion
	The difference between many of the European examples and what we are experiencing in Canada is the different in the level of cultural acceptance of cycling and active forms of transportation and recreation. The design of on and off-road cycling facilities should be integrated into day-to-day land-use and community planning and decision making. North American: • Hilton Head – trails are developed with an asphalt surface and provide accessibility for all trail users. • Bruce Trail / Waterfront Trail - organized trail walks and / or rides which help to encourage people to use the trail system. • Toronto – Their cycling strategy outlines clear maintenance goals and objectives. • The City should explore investing in and / or developing a bike share program similar to what was developed for Bixi (Toronto) or in Kitchener, ON. • National Parks – the design of trail facilities in national parks is a prime example of the design and implementation of stairs / slopes which adhere to accessibility standards. The landscape and facilities included in the parks are also well maintained. • Indianapolis – excellent way of using multi-use trail systems to highlight cultural heritage. • Ajax, ON – Well marked / maintained trails that go beyond what is typically done for trails in Ontario. • Quebec – Marketing and education geared towards children is well promoted, and facilities are designed with barriers to separate trail users from motorized vehicles. • Where possible, trails should be developed in environmental areas or environmentally sensitive areas such as the NEC planning zones. **Question 3:** **In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance) etc.?** • The City should consider more land use planning techniques to integrate trails into the development or retrofitting of local neighbourhoods / subdivisions. • There are a number of funding opportunities that are available to support the development of trail facilities. The City should explore these opportunities as the network is developed. • The City should explore the development of memorial trails on lands that are privately owned. • The City should explore the application of corporate recognition along trails to encourage additional partnership opportunities. • There are sections of the Waterfront Trail that require some retrofitting. Consideration should be given to updating the trail from gravel to hard-surface. • The City should explore additional connections into the City of Hamilton by identifying a connection over the lift bridge (south side). • At key trail terminus and start points amenities need to be designed differently (trail hubs / staging areas). Consideration should be made for the implementation of trail signage and the location of amenities. When developing the strategy the City should consider potential location of trail hubs and trail amenities. • Gaps and missing links in the system need to be connected. The City should adopt the philosophy of no dead end trails. • Additional linkages should be explored in areas of natural and cultural significance. • Trail development should be based on partnerships. The City should explore partnerships with the Halton Region and Regional Health to develop education and promotional programs in support of trail use. • The City should explore other trail support programs and opportunities such as the Pan-Am Path (Waterfront Trail) and the Discovery Trail program.

Agenda Item	Discussion
	Some specific locations where additional linkages or potential improvements should be explored as part of the trails strategy were noted as part of this exercise. They included: • Additional linkages between the RBG to the transit terminal at Waterdown Rd. • Signage along Old Snake Road going north-south is inconsistent and should be investigated. • Dundas / Appleby have challenges and should be explored as potential locations for additional improvements. • North and south of Dundas – amenities to make locations walk / cycling friendly. • Northern and more rural areas within the City do not have the demand for connectivity. • Spencer Smith Park. **Question 4:** **How should trails be integrated with other modes of transportation such as public transit?** *****Please see some additional suggestions which were provided in responses given to question #3. Other suggestions included: • Accessibility should be a key consideration when developing initiatives that promote the use of different modes of transportation. Accessible information should be provided at trailheads and key transportation destinations e.g. transit hubs. • Trails should help to promote the use of other modes of transportation such as transit. Locating transit stops at the access points for trails may be a way to encourage people to use transit and trails more. There is not enough information available at transit or GO stations e.g. maps. • Parks and open spaces that can be accessed by other modes of transportation should be the location of future urban trail connections. • In the rural areas where destination trails are prevalent there is no transit accessibility. If trails are developed in the rural areas there should be some consideration for how people are able to access them. **Question 5:** **Who are the community partners that help to promote trails in Burlington today? Are there ways that they could be engaged more effectively? Are there other partners who should be involved?** • BIAs – downtown and rural (potential for funding and financing) • Hamilton Burlington Trails Council • Halton Outdoor Clubs and Naturalists • Trail and Recreation Outfitters (Sail / MEC) • Halton Economic Development and Health Units • Additional Outreach and Interest Groups - recreational clubs / associated clubs, school boards, youth groups, Active 2010 • Private entities and partnerships • YMCA / YWCA • Regional Tourism Offices **Question 6:** **How should the City promote and market trails (i.e. how is this being done today and what needs to be done in the future)? Are there educational initiatives that might encourage more use?** • When developing promotion and outreach materials the City should always use common language and should promote trail or active transportation related information using one location (online hub). There should also be consistency between the different websites. • The City should explore the development of promotion and outreach initiatives that encourage the use of new technologies such as smart phone apps, social media, etc.

Agenda Item	Discussion
	• The City should engage in discussions with the Region and surrounding municipalities regarding the development of up-to-date mapping. Where possible, consistent messaging should be provided. • The City and its partnerships should ensure that the signage that is implemented is consistent and not confusing for users. • The City should explore future cooperative ventures between local stakeholders, interest groups, private entities, surrounding municipalities, school boards, etc. • The City should explore coordination and collaboration with the Province to maximize on potential provincial initiatives such as the Ontario Trails Council, Share the Road Coalition, Waterfront Regeneration Trust, etc. **Activity #2: Existing Conditions Mapping Review** The groups were encouraged to provide suggestions, comments and considerations regarding the potential opportunities and challenges associated with developing a City-wide trails network. The following is a summary of the comments which were provided on the map of existing conditions: • The strategy should clearly address areas where suggested highway crossings are to be considered. With regard to crossing the highway barriers found in Burlington e.g. the QEW, would transit have the capacity to transport trail users over QEW as a short term solution? • The City should look to the Region's Greenland Securement Strategy for additional direction and potential funding sources. • Those engaging in mountain biking should be provided with a dedicated location to cycle off-road. The City of Hamilton has identified this as a clear need for residents and visitors. IMBA members receive insurance stewardship though their lease agreement which should be considered when identifying future trails with different user groups. There was a group in Waterdown that was trying to organize their efforts but it did not end up manifesting into an organized group. The City should look to the example at Christie Lake Conservation Area. • The City should consider implementing clearer mapping and signage to connect their parks and major destinations. Good signage is paramount in developing the strategy, it shows what is official and what is not. The City has developed a strong family of signage which was developed in house, and could be complemented by additional tourism signage which would be supplementary to existing City signage and used in Hamilton, Burlington and all other applicable trail connections. • Parents are very safety conscious about children walking to school. Some schools have started "Walk to School" programs to train and educate children. This should be considered further as part of the strategy. • When developing within the Niagara Escarpment Plan zones consideration must be given to the compatibility of uses. The NEC doesn't want conflict with the natural environment when trails are being developed, often a reason why trails are not welcomed in some locations. • Additional routing considerations that were proposed include: o The City of Toronto has developed key nodes for destination cycling trails such as the Sunnyside Bike Park and Marie Curtis Park. o The trail connections between Kerncliff Park and City View Park and their uses are somewhat unclear. Additional dialogue with the City may be required. o Conservation Halton properties should be reviewed for potential trail development including the agreement forest areas. o Major community development in Waterdown will have an impact on the use of the Bruce Trail-trail use will increase. o Trail users should be educated on how to safely and comfortably use the trails. o No current access to Bronte Creek north of Dundas Road (Hwy 5). Should be considered as a potential connection. o Lowville Park- if linked to existing trails, it could be a great staging area.

Agenda Item	Discussion
	○ There are key locations in the rural areas where trails are to be considered including the Nelson Quarry (long term), Bronte Creek, etc. ○ Conservation Halton lands should be shown on maps as they are considered a key destination. ○ North Shore/Waterfront Trail from King Road to LaSalle Park has no shoulder just a bike lane. Is there a potential improvement that could be explored here? ○ Walkers Line at the Salem Pioneer Cemetery-people stop to access the trails but they typically get ticketed. This does not help to promote the use of trails or cycling. ○ Explore potential trails on private lands as well as within Regional Forests. ○ Look at connections through Cedar Springs. There is quite a bit of private property but there may be some potential for trail development. ○ Bruce Trail crossing at Dundas Road is dangerous and busy. • Bus stops should be placed at trail heads or vice versa to facilitate trail connectivity with other modes of transportation. ○ Do not end trails at private properties, this leads to trail users trespassing. ○ Be cautious of farm machinery • Downtown Burlington's population will double in the next 20 years, how do we meet this demand? Downtown needs more connectivity; people are cutting through private property and require formal but direct connections. • The City should consider developing a trail connection up the west side of the municipality within the rural area. There is increasing demand for this.
3. Meeting Wrap-up and Next Steps	**IV** and **JC** concluded the meeting by thanking the attendees and encouraging them to stay involved over the course of the study. Participants were reminded that they are welcome to provide comments at any time during the study. Contact information for IV and JC were noted. **IV** noted that a second session with the stakeholder group will be scheduled later on in the study (tentatively April) to present the study findings and draft recommendations to the group for their review and comment.
4. Post Meeting Note	After the meeting Tourism Burlington provided some additional comments via email. They are included below: 1. Do you agree or disagree that it is important to develop trails throughout the City? Should the City spend less, the same amount or more money on trail development? • Yes it is important for numerous reasons – improve physical activity levels of residents, connect various attractions and amenities, create sense of neighbourhood & community pride, reduce impact on environment due to increased use of other transportation modes • They should spend more on trail connections, amenities, signage, marketing and communication. 2. Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow. • Ajax – beautiful, well marked and maintained http://www.ajax.ca/en/exploreoutdoors/trails.asp • Niagara area • Whitby - http://www.whitby.ca/en/residents/trails.asp • Salzburg, Austria http://www.salzburg.info/en/arrival_traffic/bicycle • Stockholm, Sweden http://www.visitstockholm.com/en/To-Do/Tips/Biking-in-Stockholm/ 3. In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance) etc.?

Agenda Item	Discussion
	• Connecting existing trails – removing orphans • Creating safe travel transition north of Dundas St. • Integration with other modes of transportation – GO, Burlington Transit, - signage, marketing, maps etc. (see more detail below) • Increased marketing of trails to promote year round use – social media expansion, trails app (expansion of GeoTrail- RBG??) 4. How should trails be integrated with other modes of transportation such as public transit? • Signage from GO stations and lots to trails • Maps of City with all trails, modes of transportation, etc. at transportation hubs, on transit vehicles in transit shelters, recreation facilities, schools • Marketing review and inclusion of alternate modes of transporation in all messages for all partners • Integration with other initiatives Greenbelt, OntariobyBike etc. 5. Who are the community partners that help to promote trails in Burlington today? Are there ways that they could be engaged more effectively? Are there other partners who should be involved? • Partners – you had a great mix at this initial meeting – here is a quick list to cross reference: • City, neighbouring municipalities, Region, School Boards, Hamilton Halton Brant Regional Tourism Association, • Conservation Halton/Hamilton, NEC, Bruce Trail Conservacy, Waterfront Trust, Trans Canada Trail, Bronte Creek, Greenbelt, • Cycling Committee, Halton Outdoor Club, Burlington Runners Club, VR Pro, Hamilton Naturalists Club, OntariobyBike (Welcome Cyclist), Share the Road • Private Outfitters, Equestrain groups/farms (see CH site) We didn't really have a lot of time to discuss items in the session. It may have generated more information if you had of put topic areas up on flip chart individually and then had groups rank the most important items on each list. 6. How should the City promote and market trails (i.e. how is this being done today and what needs to be done in the future)? Are there educational initiatives that might encourage more use? (City of Burlington items not listed here) Tourism Burlington Website • Cycling http://www.tourismburlington.com/see-do/sport-recreation/cycling/ • Hiking http://www.tourismburlington.com/see-do/sport-recreation/hiking/ • Walking Tours http://www.tourismburlington.com/see-do/history-museums/walking-tours/ • Water Sports http://www.tourismburlington.com/see-do/sport-recreation/water-sports/ • Winter Sports http://www.tourismburlington.com/see-do/sport-recreation/winter-sports/ • Birding http://www.tourismburlington.com/see-do/sport-recreation/birding/ • http://www.tourismburlington.com/wp-content/uploads/2013/04/Burlington-Birding-Map.pdf • Scenic Routes - http://www.tourismburlington.com/see-do/day-trips-drives/2/ • http://www.tourismburlington.com/wp-content/uploads/2013/04/Scenic-Beach-Drive-Burlington-to-Hamilton.pdf Blog

Agenda Item	Discussion
	• Outdoor Adventure Getaway http://www.tourismburlington.com/special-offers/girls-getaways/outdoor-adventure-getaway/ • Cycling Friendly Community http://www.tourismburlington.com/burlington-ontario-a-cycling-friendly-community/ Visitor Guide – 50,000 copies distributed across Ontario, locally • Map with trails in centre • Feature on Cycling in 2013-4 guide • Content under See & Do features activities for naturalists, adventurers Tear Map – 30,000 copies distributed locally (hotels, attractions, gas stations etc.) • Map with trails (as above) Videos – Leisure video posted on youtube shows various trails throughout year with people doing variety of activities Social Media – promote various activities along the trails throughout year Transit, Trails & Tourism map – partner in this collaborative piece – redesign 2014 Region of Halton • Website – in process of being redesigned - welcome video from Regional Chair – trails mentioned http://www.halton.ca/discovering_halton/ • Outdoor Adventure - http://www.halton.ca/cms/one.aspx?portalId=8310&pageId=9941 • Halton Cycling Map - http://www.halton.ca/cms/one.aspx?portalId=8310&pageId=12599 RTO#3 – Hamilton, Halton, Brant Regional Tourism Association (HHBRTA) http://theheartofontario.com/ • HamBurl Cycling Experience – development of trail connections and marketing, signage – collaborative project with Hamilton, Burlington and HHBRTA • Outdoor Adventure Campaign – promotion of Grand River, Niagara Escarpment, Bruce Trail paddling, hiking, cycling, climbing, camping - participation in Sportsman Show, creation of brochure, microsite etc. – Tourism Burlington, Conservation Halton, Region of Halton and RBG are all contributing partners in this campaign New Marketing Initiatives • Signage expansion – corporate wayfinding, trails, regional TODS • Tourism App – inclusion of trails if integration possible • Website updating and links • Photos/videos – updating and messaging – fun, interactive • Social Media – develop clear messages, various hashtags –blogs (local bloggers) – cross market • School curriculum – suggest trail use to match curriculums • Neighbourhood walks/events on trails • Cooperative ventures with partners – expansion of GeoTrail?, joint marketing at shows, (HHBRTA)

AGENDA

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY:
ADVISORY COMMITTEE FOCUS GROUP SESSION

Representation From:

Burlington Accessibility Advisory Committee
Burlington Cycling Committee
Burlington Road Safety Committee
Burlington Sustainable Development Committee

Location:	Room 247, City Hall
Date:	Monday January 27th, 2014
Time:	7:00 – 8:30 p.m.

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1) Welcome & Introductions

Ingrid Vanderbrug (City of Burlington Community Trails Strategy Project Leader) will welcome participants. Participants will briefly introduce themselves, the committee they represent, the committee's role with respect to trails and key goals they would like the Community Trails Strategy to achieve.

Duration: 10 minutes (all timings are approximate)

2) Study Background Presentation

The study team will provide a short presentation regarding the study goals and objectives, study process and work completed to date. The presentation will be followed by a brief question and answer period. Participants will be encouraged to hold more detailed questions (e.g. related to trail network routes etc.) for discussion under agenda items 3 and 4.

Duration: 15 minutes

3) Review Network Mapping (Opportunities & Barriers)

Participants will be provided with a map of existing trails in the City and known connections to surrounding municipalities. They will be asked to review the information presented and provide comments on the existing network, opportunities and barriers to future trail development, missing links and potential network improvements to help enhance route connectivity and continuity. The comments will be recorded directly on the map and will be used by the study team to develop recommendations related to future network improvements and additions.

Duration: 30 minutes

4) Group Discussion of Key Topics

Following the network mapping exercise, meeting attendees will engage in a roundtable discussion focused on the following questions / topics related trail implementation. Participants are encouraged to review these questions in advance and come prepared to discuss their ideas with the rest of the group.

1. Do you agree or disagree that it is important to develop trails throughout the City? Should the City spend less, the same amount or more money on trail development?
2. Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow.
3. In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance) etc.?
4. How should trails be integrated with other modes of transportation such as public transit?
5. Who are the community partners that help to promote trails in Burlington today? Are there ways that they could be engaged more effectively? Are there other partners who should be involved?
6. How should the City promote and market trails (i.e. how is this being done today and what needs to be done in the future)? Are there educational initiatives that might encourage more use?

Duration: 30 minutes

5) Meeting Wrap-up and Next Steps

At the end of the Focus Group session, there will be an opportunity for participants to ask the study team any final questions. The study team will explain how the input received will be used to prepare the community trails network and inform the development of the Community Trails Strategy. Following the session, the study team will prepare a summary of findings that will be forwarded to City representatives and all focus group participants.

Duration: 5 minutes

MMM GROUP

City of Burlington Community Trails Strategy
Advisory Committee Focus Group Session

To:	**Ingrid Vanderbrug** **City of Burlington Project Manager**	**Date and Time:**	**MondayJanuary27th, 2013**
From:	**Claire Basinski & Jay Cranstone, MMM Group**	**Job No.:**	**14-13063**
Subject:	**City of Burlington Community Trails Strategy** ***Advisory Committee Focus Group Session***	**CC:**	Dave McLaughlin, MMM Group Rob Peachey, City of Burlington Marion Rabeau, City of Burlington

Meeting Attendees:

Stakeholders:

Chris Goff (CG)	Burlington Cycling Committee
Brad Slade (BS)	Burlington Cycling Committee
Marilyn Caldwell (MC)	Burlington Cycling Committee
Gwen Piller (GP)	Burlington Accessibility Advisory Committee
Margaret Small (MS)	Burlington Sustainable Development Committee
David Oliver (DO)	Burlington Road Safety Committee
David Cherry (DC)	Burlington Sustainable Development Committee
Marilyn Turner (MT)	Burlington Accessibility Advisory Committee
Dave Fisher (DT)	Burlington Accessibility Advisory Committee

MMM Group:
Jay Cranstone (JC)
Claire Basinski (CB)

City of Burlington:
Ingrid Vanderbrug (IV)
Judy Lytle (JL)

On Monday January 27th, 2014 from 7:00 to 8:30 p.m., the City of Burlington Community Trails Strategy study team undertook a focus group session with representatives from Advisory Committees of Council that have an interest in trails. Representatives from the Accessibility Advisory Committee, the Cycling Committee, the Sustainable Development Committee and the Road Safety Committee were in attendance.

The session included a presentation from the consultant team as well as a working group session which focused on two major topics:

(1) Using a map of the existing off-road trail network participants discussed potential challenges and opportunities associated with the design, implementation and development of existing and future trail facilities.
(2) A group discussion about the value of investing in trails, promoting the trail system and ways to encourage more people to use the trails more often.

In advance of the meeting invitees were provided with a draft meeting agenda which included the questions for their review and consideration in advance of the meeting. The following is a summary of comments documented.

Agenda Item	Discussion
1. Welcome & Introductions	IV welcomed everyone to the session and each participant was asked to introduce themselves, the group that they represent and provide some initial ideas regarding what they are hoping the CTS will achieve. The following is a summary of their responses: • DC – Sustainable Development Committee – Provide a connection between land-use and transportation planning for community development with a focus on sustainable transportation as a means of improvement. • BS – Cycling Advisory Committee – new member of the committee. Looking to learn more and provide input where possible. • MC – Cycling Advisory Committee – Recommendations included in the strategy should be connected with relevant OP initiatives. The strategy should also help to promote the development of a sustainable and interconnected trail and transportation system City-wide. • DO – Road Safety Committee – Roads and multi-use trails need to be more effectively designed to be connected – missing links and gaps should not be acceptable. • MT – Accessibility Advisory Committee – Connectivity by developing both recreational and utilitarian trails. • GP – Accessibility Advisory Committee – looking to establish walkable communities with a focus on basic and consistent maintenance as opposed to complex design. • DF – Accessibility Advisory Committee – When designing trails the City should consider people of all abilities and levels of mobility not just those in wheelchairs. • CG – Cycling Committee – More cycling connections including multi-use trails should be explored throughout the City. • JL – Accessibility Advisory Committee Coordinator – Throughout the strategy's development consideration should be given to those with varying levels of accessibility.
2. Study Background Presentation	JC provided the group with an overview presentation including: • Background information regarding the Community Trails Strategy. • An overview of the history of trail development City-wide. • A description of the study objectives and the strategy vision, goals and route selection criteria. • An overview of some of the key findings from the MindMixer online engagement tool. • A brief overview of existing trail conditions and facilities. Following the presentation attendees provided a number of comments: • Accessibility should be a strong consideration when developing trails including but not limited to those who require mobility devices. • The strategy should identify a hierarchy of trail types with clear directives on who the intended user group(s) and types of trip are. • The City should focus on developing direct north / south connections. • The strategy should explore the identification of potential staging areas at key points along the trail. The strategy should also identify potential design considerations for trail amenities. • The vision for the CTS should highlight some on-road linkages which provide direct connections to trail facilities but the primary on-road reference should be the Cycling Master Plan. • The City should explore additional partnerships with local interest groups and stakeholders including but not limited to the Hamilton Burlington Trails Council. • The strategy should include some details regarding potential encouragement and education initiatives or strategies to help promote the use of trails. • The trails network should include consideration for a range of different trail facilities e.g. varying surface types, design concepts, etc. • Trails should be integrated into the overall transportation network. The City should explore connectivity between trails and transit facilities and other emerging mobility hubs. • Funding and partnership opportunities should be explored by the city to help support the development of trail facilities.

Agenda Item	Discussion
3. Review Network Mapping	• The attendees were separated into two groups and asked to provide their questions, comments and suggested additions to a map of existing off-road connections. Groups were given approximately 45 minutes to discuss and document their comments. Members of the study team facilitated discussions in each of the groups. The following is a summary of the key discussion points: • Connections need to be provided to the northern villages and hamlets in rural Burlington. • Make more use of Intersection Pedestrian Signals. • Make trail connections clearer to all users. • Provide security on trails in evenings (i.e. Lighting – Solar Power & LED). • Not all trails need to be paved: there should be a variation in surface types. • People will walk if areas are attractive; some sidewalks can be rather bleak. • There is a large disconnect between the north and south. • Northern Hydro Corridor Trail • Explore a connection from the end of the existing trail at Appleby Line to the eastern Burlington city limits. This segment would include a rail crossing. • The trail missing trail link between Berwick Drive and Millcroft Park Drive is planned but requires various approvals. Project is slated for development in 2014, however, further approvals and feasibility assessments would be required to move forward with this initiative. • Trails need to be cleared sooner during winter. • Crossings at Guelph Line and Upper Middle Road require additional signage for trail users to better navigate these crossings. • Existing multi-use trail along Bronte Creek from Upper Middle Road to Dundas Street (Highway #5) changes to a normal sidewalk through a residential portion along Twelve Mile Trail. • Centennial Trail crossings at Walkers Line and Appleby Line have Intersection Pedestrian Signals. Centennial Trail may be used more if lighting was incorporated. • There is no signage in Central Park. • There is a large disconnect between neighbourhoods north and south of the QEW. Pedestrian connections need to be made at the main road crossings of the QEW (i.e. Brant St., Guelph Line, Walkers Line and Appleby Line.) • There is a potential to go under the CN rail lines around Brant Street. • Downtown area requires signage to direct people safely to existing trails. • Existing trails through the hydro corridor between Maple Avenue and Brant Street from south of Fairview Street to the north side of Elgin Street require upgrades. • North Shore Boulevard E. from King Road to LaSalle Park is a tough road for pedestrians. Trail connections through this section could be made for pedestrians along King Road from North Shore Boulevard to Townsend Road and then along Townsend Road to LaSalle Park. There are no existing sidewalks along Townsend Road. • High-rise apartment buildings are currently being constructed in the area south of Plains Road from Waterdown Road to Daryl Drive. This intensification will increase the number of seniors in this area and should be considered when designing the roadways and adjacent facilities. • A connection should be made to between the Bruce Trail with Lowville Park. • Provide trail connection along Kerns Road from Kerncliff Park to the North Service Road. • Consideration should be made for the extension of the separated bike like and sidewalk along the North Service Road from Kerns Road to Skyview Drive. • There are existing bike lanes along Maple Avenue, but cyclists tend to use the sidewalks along here. The City should look into the width of the sidewalk system to see if the design is appropriate to accommodate all potential users. Alternatively, the City should consider revising the by-law that permits cyclists on sidewalks.

Agenda Item	Discussion
	• Trail crossing at Walker's Line along the Centennial Trail could be designed better. • Connections need to be made to key community destinations (e.g. Mapleview Mall) as well as mobility hubs to increase connectivity between the trail system and other modes of transportation, more specifically, transit. Pedestrian connections need to be made to the three GO Stations (Aldershot, Burlington, Appleby). • Downtown pedestrian space is in conflict with cyclists. • Considerations should be made for the visually impaired. • The strategy should consider the use of trails by e-bikes and should be clear about the restrictions or requirements. • The City should explore potential education and partnerships opportunities with school boards. An improved sense of safety could be generated by implementing educational programs for trail users of all ages and abilities. • Missing links and gaps are a safety issue that can put vulnerable trail users (pedestrians-including those using mobility devices, children in strollers, skateboarders, rollerbladers, cyclists) directly into situations in which they are at higher risk from traffic. Trails provide a welcome separation from traffic, decreasing risk.
4. Group Discussion of Topics	Following the mapping activity the group had a discussion that was centred on a set of questions that were sent to attendees in advance of the meeting. The responses have been documented below and have been organized based by question. **Question 1:** **Do you agree or disagree that it is important to develop trails throughout the City? Should the City spend less, the same amount or more money on trail development?** • There was general agreement that it is important to encourage the development and use of trails throughout the city. A long-term strategy which guides future development will help to achieve this. • Increasing the number of trails can lead to more opportunities to be active day-to-day and may help with overall community sustainability and health. • Attendees noted that driving is not considered a community draw / attraction, and trails are an asset that can be promoted for local tourism and economic investment. • Attendees also noted that trail improvements may also result in an increase in residential property values. • Where possible the funding of trail facilities should take priority over other municipal commitments. There should be a focus on active transportation and recreation as opposed to cars. **Question 2:** **Are there trails in other communities that you think should be a model for Burlington to follow? Please tell us where they are and why you think they are a model to follow.** • Brampton – The linkages are completely connected which seems to be a result of the integration of facilities during the planning stages of the city including older neighbourhoods and new development areas. The trails were also developed to follow existing creeks and waterways. • Ottawa, ON – The trail system has been developed to provide connections to existing natural features and to key destinations across the municipality. **Question 3:** **In your opinion what are the top 3 to 5 opportunities for improving trails in Burlington (e.g. new routes, improvements to existing routes, maintenance) etc.?** • The City should consider using existing green space and park facilities as feeder routes to existing trail facilities. • The City should also consider the use of park spaces for future trails in order to provide more direct access to transit stops / routes for those with mobility challenges. • The natural gas pipeline corridor that runs along Upper Middle Rd. has some missing pieces which could be obtained for trail development through future land agreements.

Agenda Item	Discussion
	• The City should explore additional connections to the new mobility hubs. • People would like the opportunity to use active transportation and recreation to get to work or to run day to day errands. Connections should be made that provide access to areas of employment and retail. • Intersections can also be a large barrier for those that have mobility challenges. Trail crossings should be a key consideration when developing the network. • The City should consider implementing more signage in advance of the trail facilities to increase visibility and attract attention to the trail. For example, locations where major trails cross arterial roads are a potential location to increase the visibility of the system and help promote their use e.g. name the major trails and enhance entry / exit points for the trail (potential marketing opportunity). **Question 6: How should the City promote and market trails (i.e. how is this being done today and what needs to be done in the future)? Are there educational initiatives that might encourage more use?** • Marketing and awareness should be considered a focus of the strategy to help promote the use of trail facilities in the City of Burlington. There should be a range of outreach options that are coordinated by the Communications Department including more interactive brochures, email blasts, social media etc. • Other events or means of promoting trails that could be considered or further promoted include Car free Sundays (Alton village), opening ceremonies for new facilities, posting videos on YouTube / showing in libraries, Jane's Walks etc. • The City should consider developing programs that target people of all ages and abilities specifically seniors and school aged children. • Bold initiatives are required, which make the facilities more appealing and connected (infrastructure and marketing).
5. Meeting Wrap-up Next Steps	• IV and JC concluded the meeting by thanking the attendees and encouraging them to stay involved over the course of the study. Participants were reminded that they are welcome to provide comments at any time during the study. Contact information for IV and JC were noted. • IV noted that a second session with the stakeholder group will be scheduled later on in the study (April) to present the study findings and draft recommendations to the group for their review and comment.



Public Open House #1

February 06, 2014



Community Trails in the City of Burlington

The City is developing the **Community Trails Strategy** to guide trail design, development and maintenance. The strategy will address a set of objectives and will be guided by a long-term vision supported by community goals.

Study Objectives:

Develop:

- A vision for a linked open space system connecting the City's parks and open spaces
- Priorities to address missing links in the trail system
- Recommendations for off-road trail improvements
- Priorities and recommendations to support the Cycling Master Plan
- Standard construction details for trail facilities and amenities
- A strategy and cost estimates for long-term implementation

Strategy Vision:

Community Trails in the City of Burlington are designed and developed as a means of connecting residents and visitors to open spaces, parks, community destinations and surrounding communities for recreational and day to day activities. The network is made up of off-road routes which reflect current design standards and unique municipal characteristics

Strategy Goals:

1. Build upon existing on and off-road connections
2. Improve connectivity
3. Bridge gaps and missing links
4. Accommodate a range of trail user groups
5. Review accessibility of trails
6. Identify municipal processes for trail development
7. Identify funding and partnership opportunities



Who are the Trail Users?

Typical Users:

Cyclists:

- Various age groups, different levels of skill, different styles of bicycles (road, hybrid, BMX, mountain etc.)

Pedestrians:

- Walkers
- Hikers
- Runners / Joggers
- People using personal mobility devices





Other Users:

- In-line skaters
- Skateboarders
- Cross-country skiers
- Snowshoers,
- etc.





Users take trips for different purposes…

Recreational



Who am I?
I use trails for fitness or leisure
I use trails for fun (walk my dog, run with friends etc.)
I use trails to get to community destinations
I like to use major community trails and trails in my neighbourhood

Utilitarian



Who am I?
I use trails to get to and from work, to run errands etc.
I use routes year round depending on the weather
I use on and off-road routes, and often pick the most direct route

Touring



Who am I?
I like to take long trips over long distances
I plan my trips in advance
I spend money on food and accommodation
I like routes that connect major attractions and points of interest



A History of Trails in Burlington

The City of Burlington has a long history of developing trails!



Developed the Strategy for Greenways & Trails on Burlington Public Lands

(1994)



Implemented a key portion of the Waterfront Trail along the Burlington Waterfront

(late 1990's – present)



Adopted the 2008 Official Plan which includes policies related to trails and cycling (2008)



Adopted the Cycling Master Plan which includes on-road routes and major off-road trails

(2009)



Implemented the Hydro Corridor and Centennial Multi-use Paths (2010)



Prepared a Transit, Trails & Tourism Map promoting Burlington's Multi-use Paths

(2010)

1994 **Today**

TRAILS TRAILS TRAILS TRAILS



How will the Strategy & Network be Developed?

Project Starts:
November 2013

We are here

Project Ends:
June 2014

Phase 1: Project Initiation & Building the Foundation

- Engage the Public & Study Team Members
- Assemble and Review Background Information

Phase 2: Inventory & Assessment

- Prepare study vision & criteria to select routes
- Identify Potential Trail Linkages and Investigate in the field
- Review trail standards

Phase 3: Collecting Feedback

- Gather input from and engage the public
- Public Open House 1
- Analyze public input

Phase 4: Developing the Strategy

- Prepare Draft Trails Network
- Identify Facility Types & design guidelines
- Prepare a strategy for implementation

Phase 5: Finalizing the Strategy

- Present network and strategy to the public
- Public Open House 2
- Develop & submit the draft report
- Finalize the strategy & present to Council

Step 1: Map Existing Trails

Step 2: Identify Criteria to Select Routes

Step 3: Identify Potential Trail Routes

Step 4: Investigate Routes in the Field

Step 5: Prepare Draft Trail Route Network

Step 6: Refine Trail Network and Identify Trail Types

Step 7: Select Network Priorities & Prepare Phasing Plan

Step 8: Identify the Network Cost & Funding Options

Developing the Community Trails Network: An Eight-Step Process



Developing the Network & Selecting the Routes

What characteristics / criteria are being considered when developing the network?

Is the network… **Cost Effective** to construct and maintain**?**

Are the routes… **Linked?**

Are the routes… **Accessible?**

Are the trails in **Context with the trail location?**

Are the routes designed and located to maximize … **Safety?**

Is the network… **Expandable?**

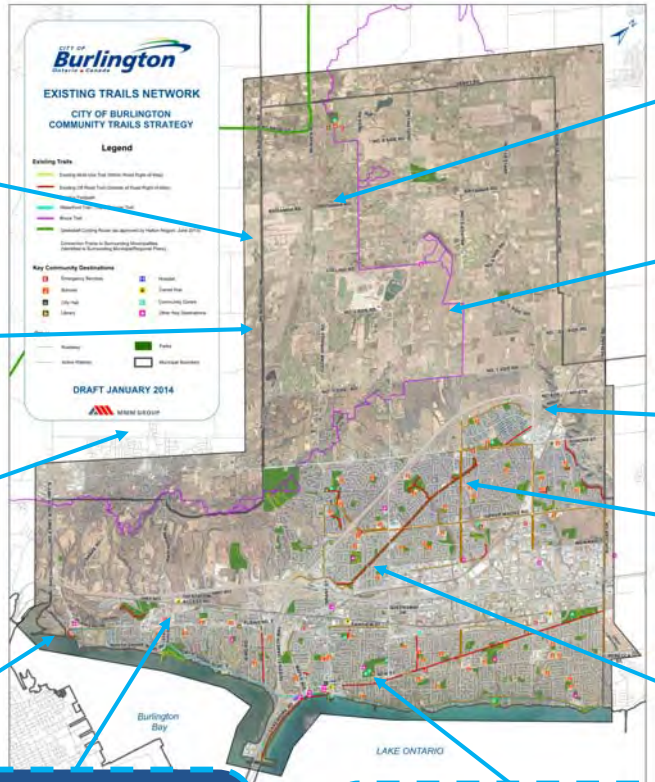
Does the network provide a **Diverse** experience**?**

Are the trails **Well Designed?**

Are the routes **Conveniently** located**?**

Is the system… **Visible?**

Are the routes… **Connected?**



TRAILS TRAILS TRAILS TRAILS



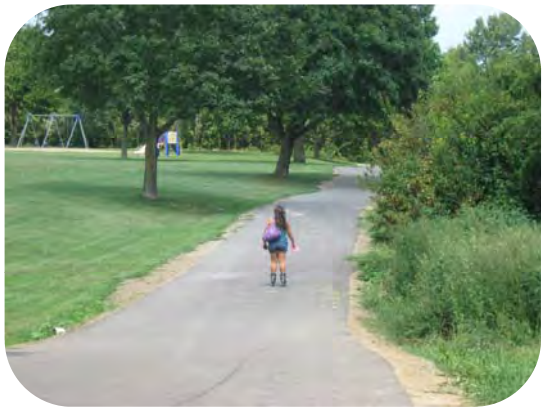
What do trails look like in Burlington?



Waterway Crossings



Woodland Granular Trail



Multi-use through Neighbourhood Parks



Trail Signage & Wayfinding



Trail Access Control in the Urban area (bollards)



Public Art – Trail Bench



Boardwalk Connection



Paved Trail in Urban Area



Mulch Trail in Natural Area

Trail Guidelines and Design Standards

As part of the development of the Community Trails Strategy existing guidelines and standards for trail design and construction in Burlington are being examined and updated to meet current industry standards. If guidelines and design standards for common elements of the trail system do not currently exist, new ones will be developed.

TRAILS TRAILS TRAILS TRAILS

CITY OF Burlington
Ontario Canada

EXISTING TRAILS NETWORK

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY

Legend

Existing Trails

- Existing Multi-Use Trail (Within Road Right-of-Way)
- Existing Off Road Trail (Outside of Road Right-of-Way)
- Existing Footpath
- Waterfront Trail / Trans Canada Trail
- Bruce Trail
- Greenbelt Cycling Route (Future)
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)

Key Community Destinations

- Emergency Services
- Hospital
- Schools
- Transit Hub
- City Hall
- Community Centre
- Library
- Other Key Destinations

Other

- Roadway
- Parks
- Active Railway
- Municipal Boundary

DRAFT JANUARY 2014

MMM GROUP

TOWN OF MILTON
DERRY RD.
KILBRIDE ST.
MILBUROUGH LINE
McNIVEN RD.
TWISS RD.
NO. 8 SIDE RD.
GUELPH LINE
WALKER'S LINE
APPLEBY LINE
BELL SCHOOL LINE
CITY OF BURLINGTON
TOWN OF MILTON
BRITANNIA RD.
CITY OF HAMILTON
CITY OF BURLINGTON
COLLING RD.
NO. 4 SIDE RD.
NO. 2 SIDE RD.
CEDAR SPRINGS RD.
NO. 1 SIDE RD.
407 ETR
TREMAINE RD.
CITY OF OAKVILLE
DUNDAS ST.
UPPER MIDDLE RD.
MAINWAY
BURLOAK DR.
NO. 6 HWY. N
SNAKE RD.
WATERDOWN RD.
HWY 403
QUEEN ELIZABETH WAY
KING RD.
BRANT ST.
QUEENSWAY DR.
FAIRVIEW ST.
GO STATION ACCESS RD.
PLAINS RD. W
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LASALLE PARK RD.
NORTH SHORE BLVD. E
MAPLE AVE.
JAMES ST.
NEW ST.
LAKESHORE RD.
GREAT LAKES BLVD.
REBECCA ST.
Burlington Bay
LAKE ONTARIO

City Parks

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20. Orchard Community Park
21. Tansley Woods Park

Other

22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area



How to Stay Involved!

How else can you participate?

- Visit the study webpage at www.burlington.ca/trails to receive study updates and review study materials
- Attend future public engagement and consultation activities. A second Public Open House is anticipated for April 2014
- Contact members of the study team with any questions, ideas or comments that you have about the study

Ingrid Vanderbrug
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Parks and Recreation
Community Services Division
426 Brant Street, P.O. Box 5013
Burlington, ON, L7R 3Z6
T: (905) 335-7600 ext. 7832
E: ingrid.vanderbrug@burlington.ca

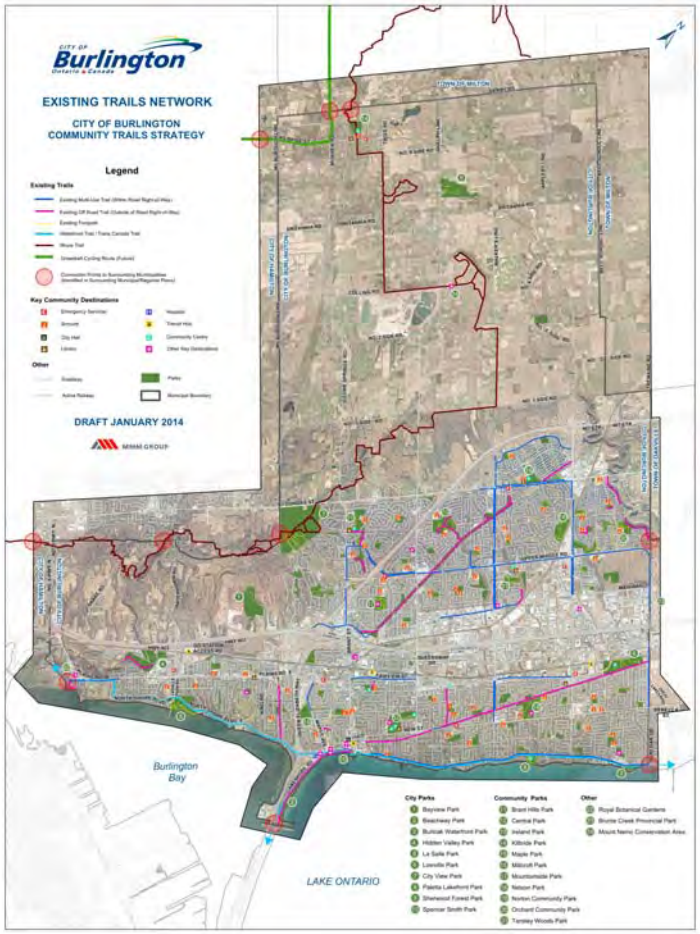
Jay Cranstone
Senior Project Manager
Landscape Architecture
MMM Group Limited
582 Lancaster Street West
Kitchener, ON N2K 1M3
T: (519) 743-8134 ext. 2236
E: Cranstonej@mmm.ca



Community Trails: Interactive Display Board #1

Current State

Based on the current trails in the City what are potential opportunities or barriers to trail development and use? Please use a pen and note them on the map provided.



***Please use the large map if you need more room for your comments**

Need for Change

How satisfied are you with existing trails in the City of Burlington? Use the scale below and mark your level of satisfaction where 1 indicates being not satisfied at all and 5 indicates completely satisfied.

1 2 3 4 5

Not Satisfied — **Completely Satisfied**

Do you think that the existing trails meet the needs of the City and its residents? Use the scale below to mark your opinion of how trails meet your current and future recreation and transportation needs where 1 indicates it does not meet your needs at all and 5 indicates it completely meets your needs.

1 2 3 4 5

Does not Meet Needs — **Meets Needs Completely**

TRAILS TRAILS



Community Trails: Interactive Display Board #2

What is Holding us Back?

The following are some reasons people commonly note for not using trails. How much of an influence do these have on your use of trails in Burlington?

Factors	Strong Influence	Moderate Influence	Not at All
I don't know where the trails are			
Trails are not connected			
Trails are not convenient to where I want to go			
I don't know if the trail is accessible			
Trails are not maintained well enough			
Lack of trail signage and / or route information			
Other: If there are other reasons that prevent you from using trails in the City please add them to the box on the right.			

What do we Need / Want to Preserve?

What elements of community trails would you like to see kept the same? Please provide your suggestions below.



Focus Group Session #2

External Stakeholders

Tuesday May 6th, 2014
2:30 p.m. – 4:30 p.m.



Focus Group Session #2

City of Burlington Advisory Committees

Tuesday May 6th, 2014
7:00 p.m. – 8:30 p.m.



How is the Community Trails Strategy being Developed?

Project Start:
November 2013

Project End:
June 2014

We are here

Phase 1: Project Initiation & Building the Foundation

- Engage the Public & Study Team Members
- Assemble and Review Background Information

Phase 2: Inventory & Assessment

- Prepare study vision & criteria to select routes
- Identify Potential Trail Linkages and Investigate in the field
- Review trail standards

Phase 3: Collecting Feedback

- Gather input from and engage the public
- Public Open House 1
- Analyze public input
- Further field investigations

Phase 4: Developing the Strategy

- Prepare Draft Trails Network
- Identify Facility Types & design guidelines
- Identify priorities for implementation and prepare implementation strategy

Phase 5: Finalizing the Strategy

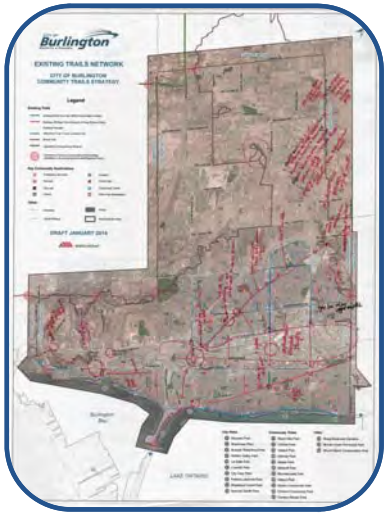
- Present network and strategy to the public
- Public Open House 2
- Develop & submit the draft report
- Finalize the strategy & present to Council

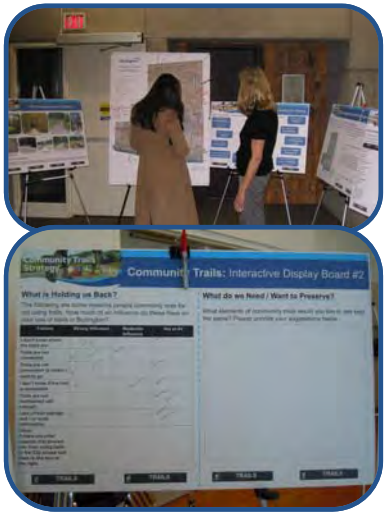


How have we reached out to stakeholders and the public so far?

Meeting with Councillors	Focus Group Sessions (Stakeholders & Committee Members)	Public Open Houses	Individual Stakeholder Meeting	MindMixer Questionnaires
Monday January 27th, 2014	Monday January 27th, 2014	4 Locations in February 2014	April 16, 2014	3 MindMixer Discussion Boards

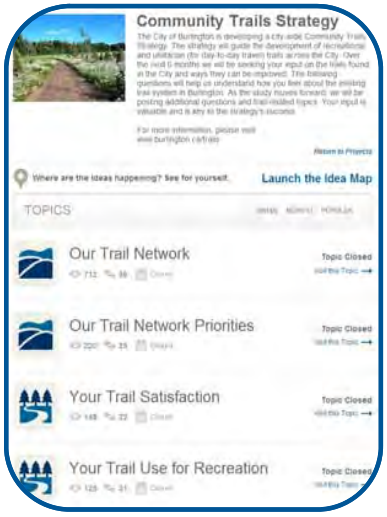






Close to nature.
Close to home.
THE BRUCE TRAIL CONSERVANCY

CONSERVATION HALTON





What have we heard to date?

Meetings with Councillors

- Off-road focus
- Mitigating user conflicts
- Consistent maintenance practices
- Respond to different socio-demographic trends in the City
- Specific areas for consideration: Bronte Creek, LaSalle Park, Kerncliff Park, City View Park, Lowville Park, crossings of the QEW.

Focus Group Sessions (Stakeholders & Committee Members)

- Incorporate land-use planning techniques that integrate trails
- Connect missing links
- Identify key north-south connections
- Trail maintenance should be consistent and clear
- Identify clear implementation partnerships
- Identify bold initiatives and programs to promote trail use

Public Open Houses

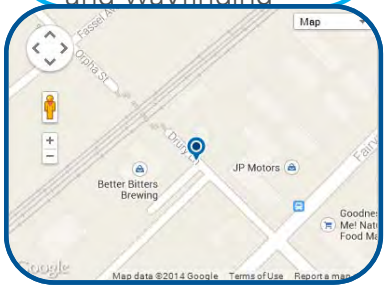
- More trail infrastructure and AT facilities
- Additional signage and wayfinding
- Formalization of existing local community trails
- Some inconsistent messaging requires further clarification
- Hydro Corridor trails need additional connectivity
- Fix / upgrade older trails
- Additional maintenance for trail use in the winter

Individual Stakeholder Meeting

- Conservation Halton, Iroquoia Bruce Trail Club, Bruce Trail Conservancy
- Enthusiastic to engage in partnerships and discussions regarding trail development
- Clearer communication and signage practices where appropriate
- Closure of rogue trails or the design of specific mountain biking trails (based on future discussions)

MindMixer Questionnaires

- 65% support the funding of trails and trail initiatives
- The majority of respondents currently use trails for recreational activities as opposed to day-to-day transportation
- Emphasis on additional signage and wayfinding





How will the trail network be developed?

Developing the Community Trails Network: An Eight-Step Process

Step 1: Map Existing Trails

Step 2: Identify Criteria to Select Routes

Step 3: Identify Potential Trail Routes

Step 4: Investigate Routes in the Field

Step 5: Prepare Draft Trail Route Network

Step 6: Refine Trail Network and Identify Trail Types

Step 7: Select Network Priorities & Prepare Phasing Plan

Step 8: Identify the Network Cost & Funding Options











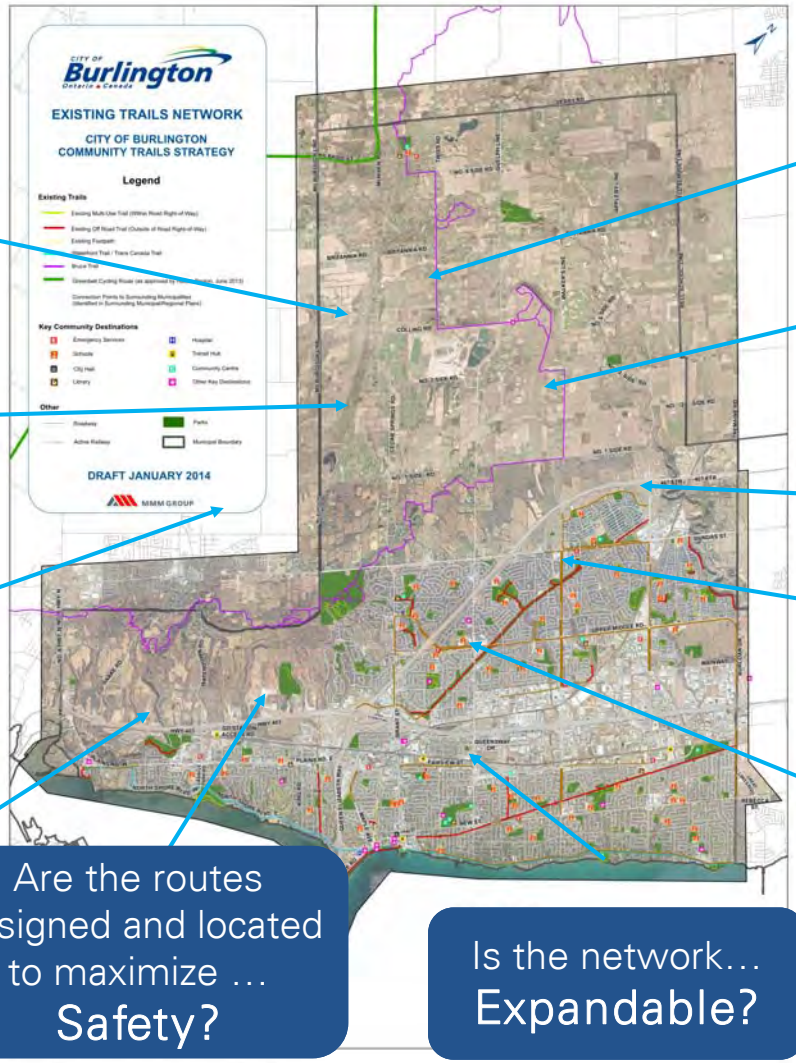
Selecting the Routes

Is the network… **Cost Effective** to construct and maintain?

Are the routes **Linked** to form a continuous network?

Are the routes… **Accessible?**

Are the trails in **Context** with the trail location?



Are the routes designed and located to maximize … **Safety?**

Is the network… **Expandable?**

Is the system… **Visible?**

Are the routes **Connected** to important destinations?

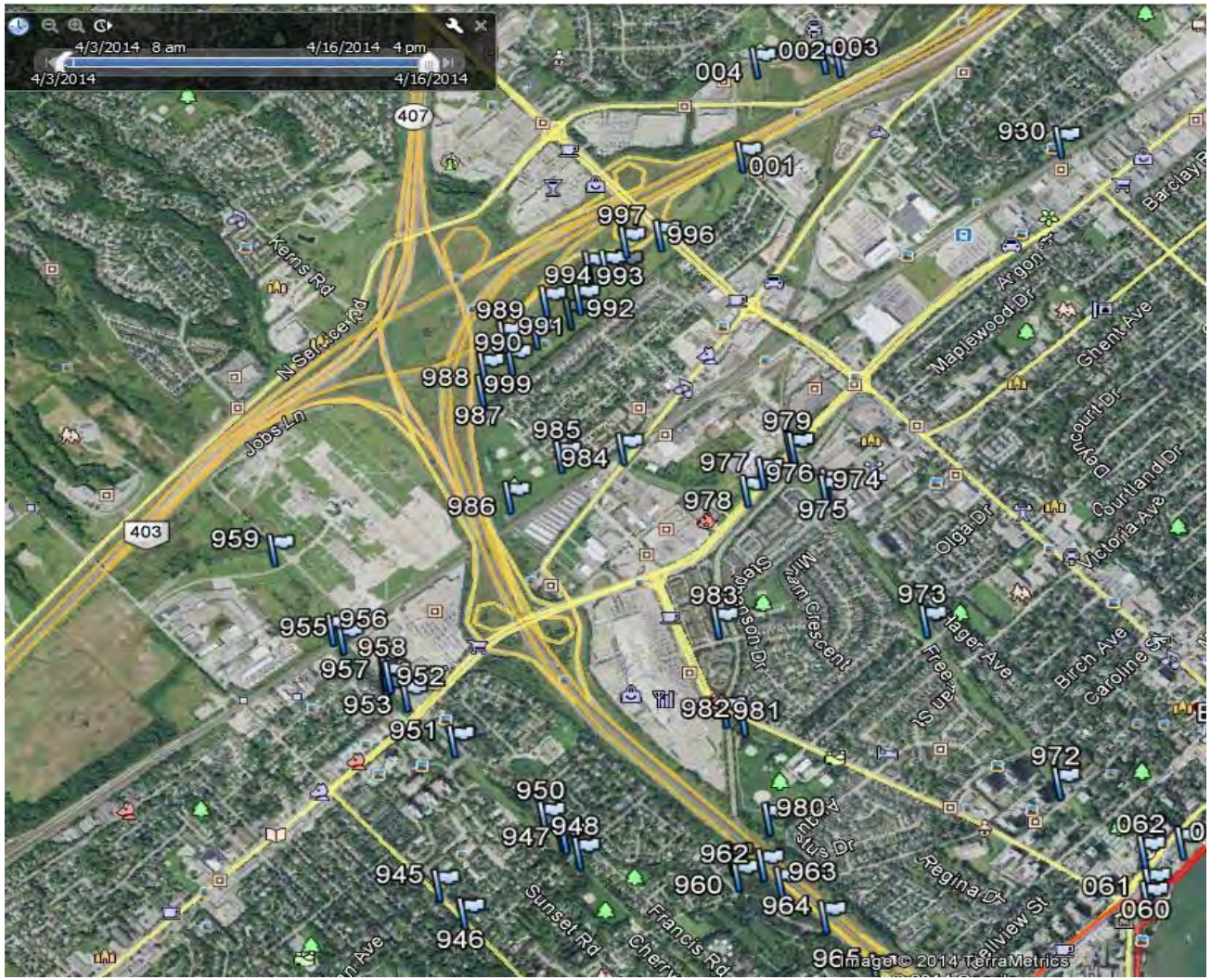
Are the routes **Conveniently** located?

Are the trails **Well Designed?**

Does the network provide a **Diverse** experience?

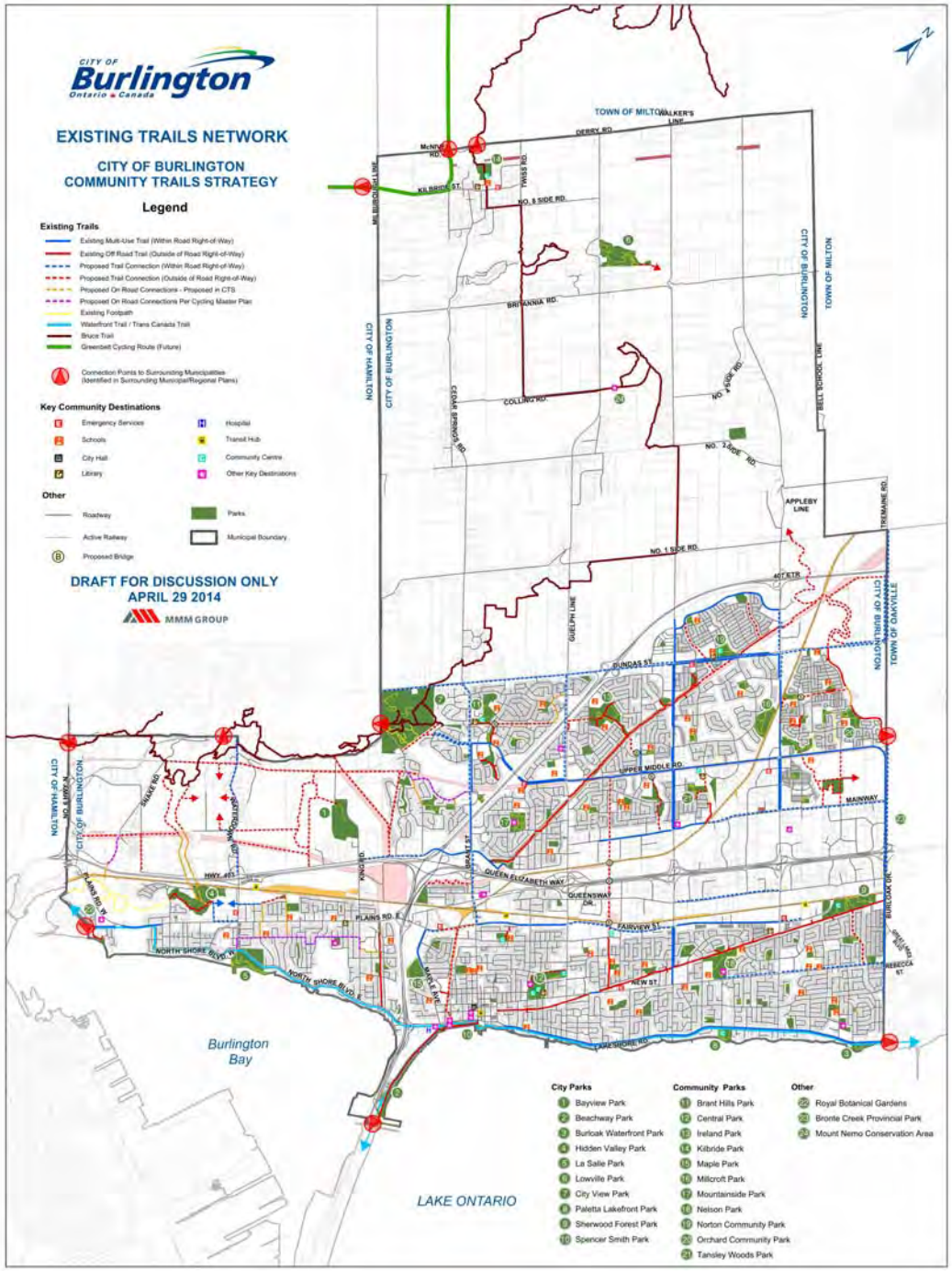


Network Investigations



- Fall 2013 – Spring 2014
- Desktop review using digital mapping, Google Earth etc.
- Across entire city, with focus on the urban area
- 170 GPS waypoints
- 850 photos





Legend

Existing Trails

- Existing Multi-Use Trail (Within Road Right-of-Way)
- Existing Off Road Trail (Outside of Road Right-of-Way)
- Proposed Trail Connection (Within Road Right-of-Way)
- Proposed Trail Connection (Outside of Road Right-of-Way)
- Proposed On Road Connections - Proposed in CTS
- Proposed On Road Connections Per Cycling Master Plan
- Existing Footpath
- Waterfront Trail / Trans Canada Trail
- Bruce Trail
- Greenbelt Cycling Route (Future)

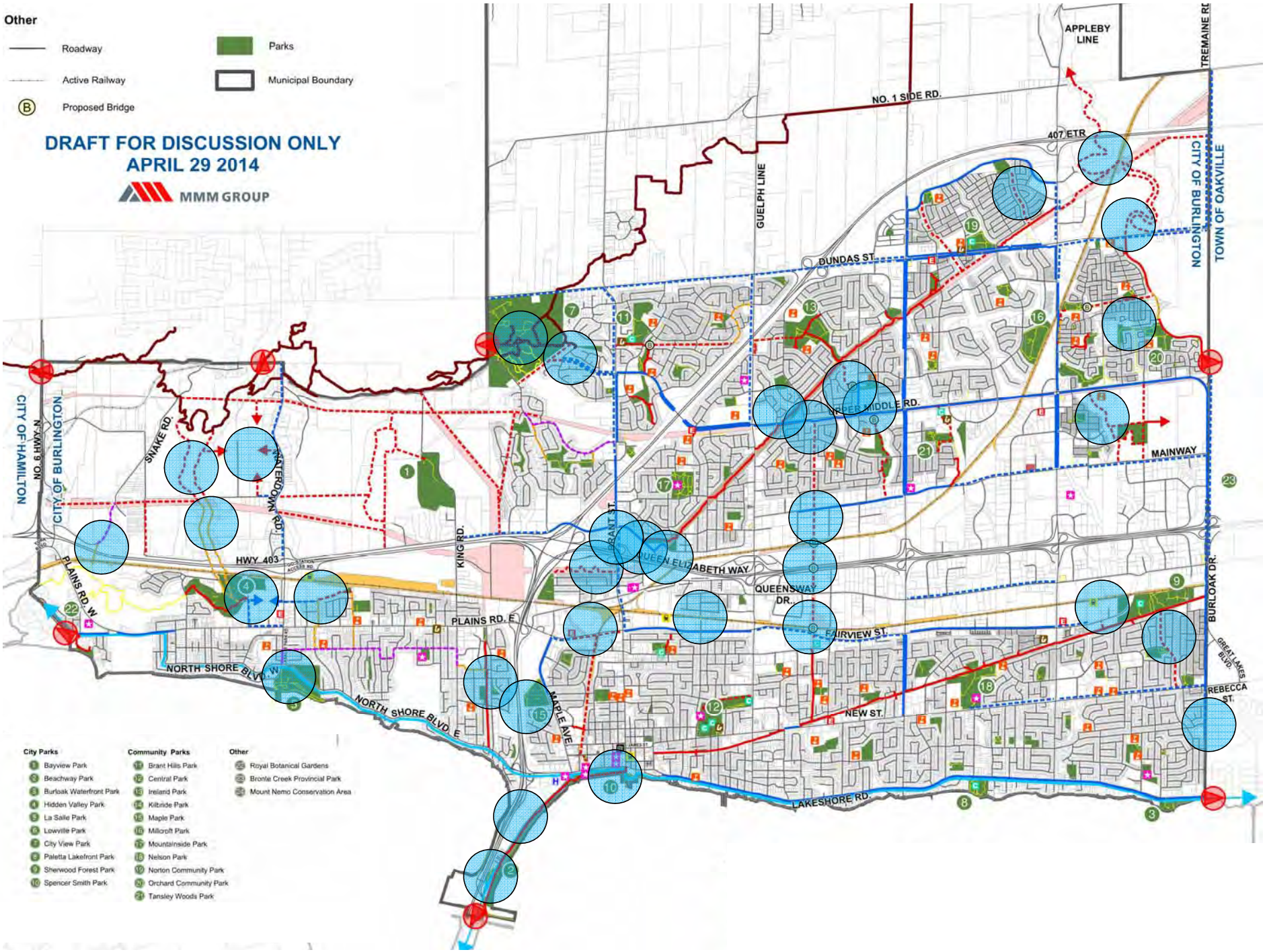
Connection Points to Surrounding Municipalities
(Identified in Surrounding Municipal/Regional Plans)

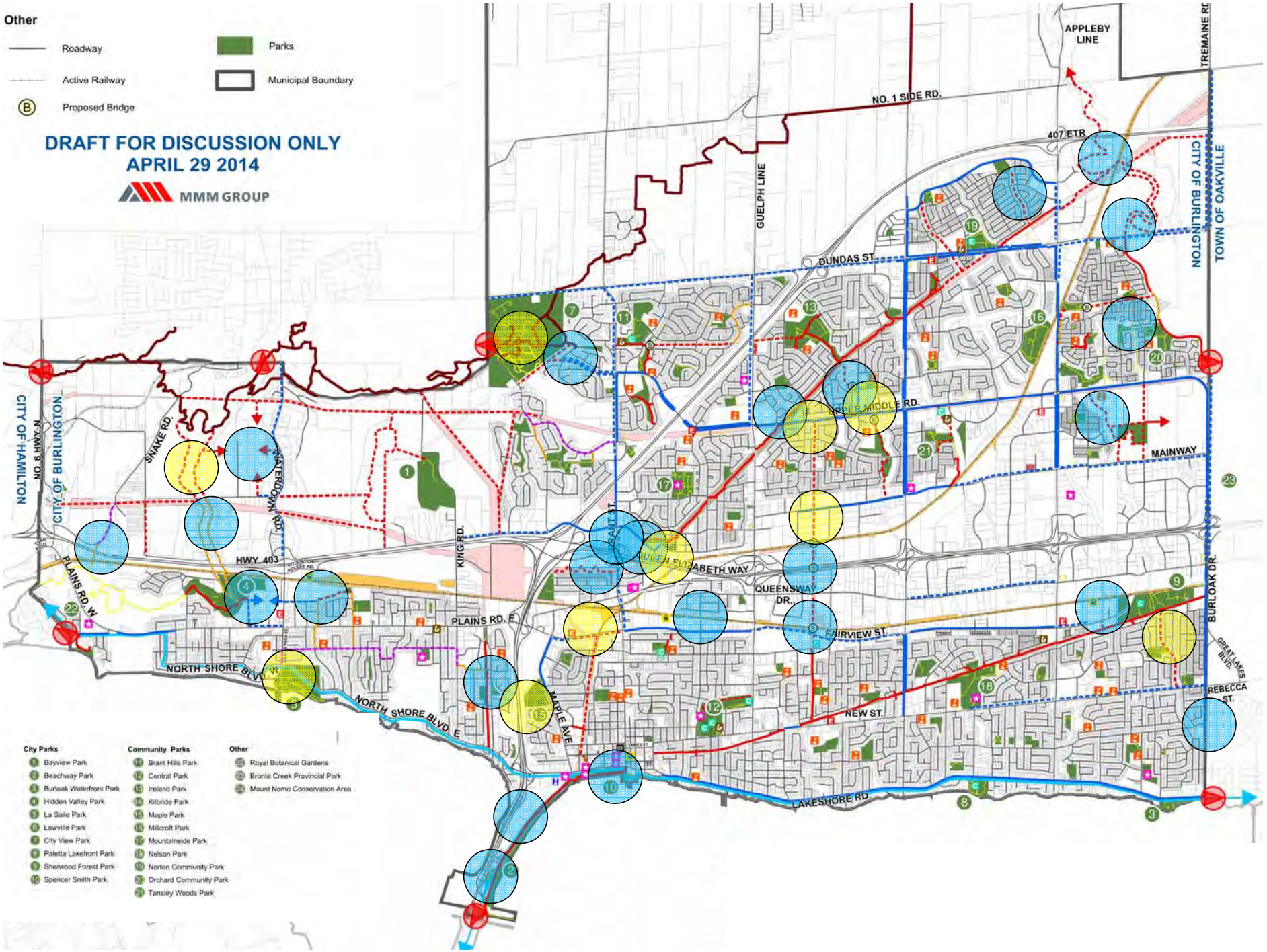
Key Community Destinations

- Emergency Services
- Hospital
- Schools
- Transit Hub
- City Hall
- Community Centre
- Library
- Other Key Destinations

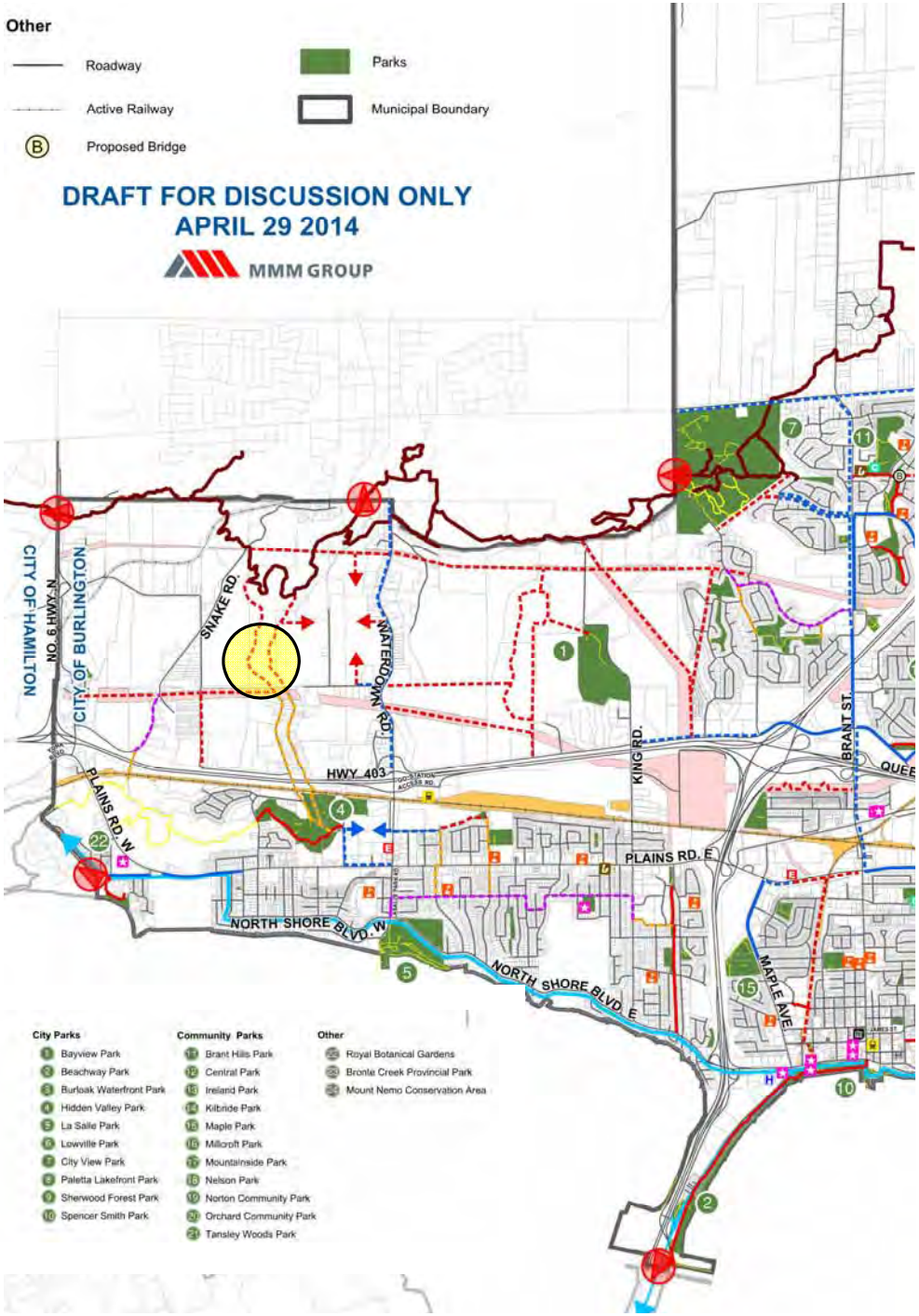
Other

- Roadway
- Parks
- Active Railway
- Municipal Boundary
- Proposed Bridge


Other
Roadway
Active Railway
Proposed Bridge
Parks
Municipal Boundary
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APRIL 29 2014
MMM GROUP
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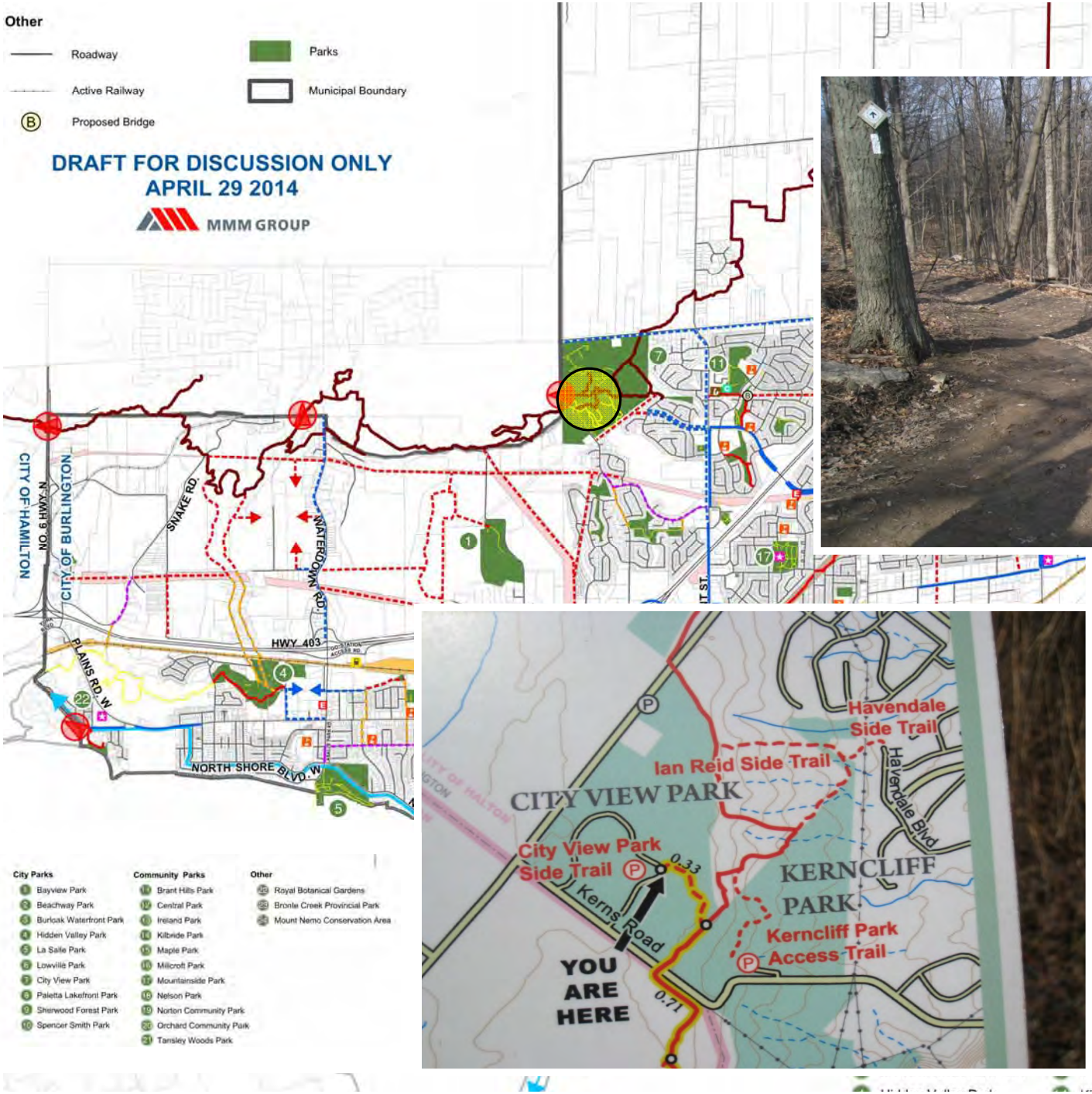





La Salle Park




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Havendale Side Trail
Ian Reid Side Trail
CITY VIEW PARK
Havendale Blvd
City View Park Side Trail
0.33
Kerns Road
KERNCLIFF PARK
Kerncliff Park Access Trail
YOU ARE HERE
0.71


Trail Goes Through Private Property
NOTICE
NEIGHBOURS HAVE REQUESTED
DOGS MUST BE LEASHED
YOUR COOPERATION IS APPRECIATED
An access point for the
BRUCE TRAIL
USE AT YOUR OWN RISK



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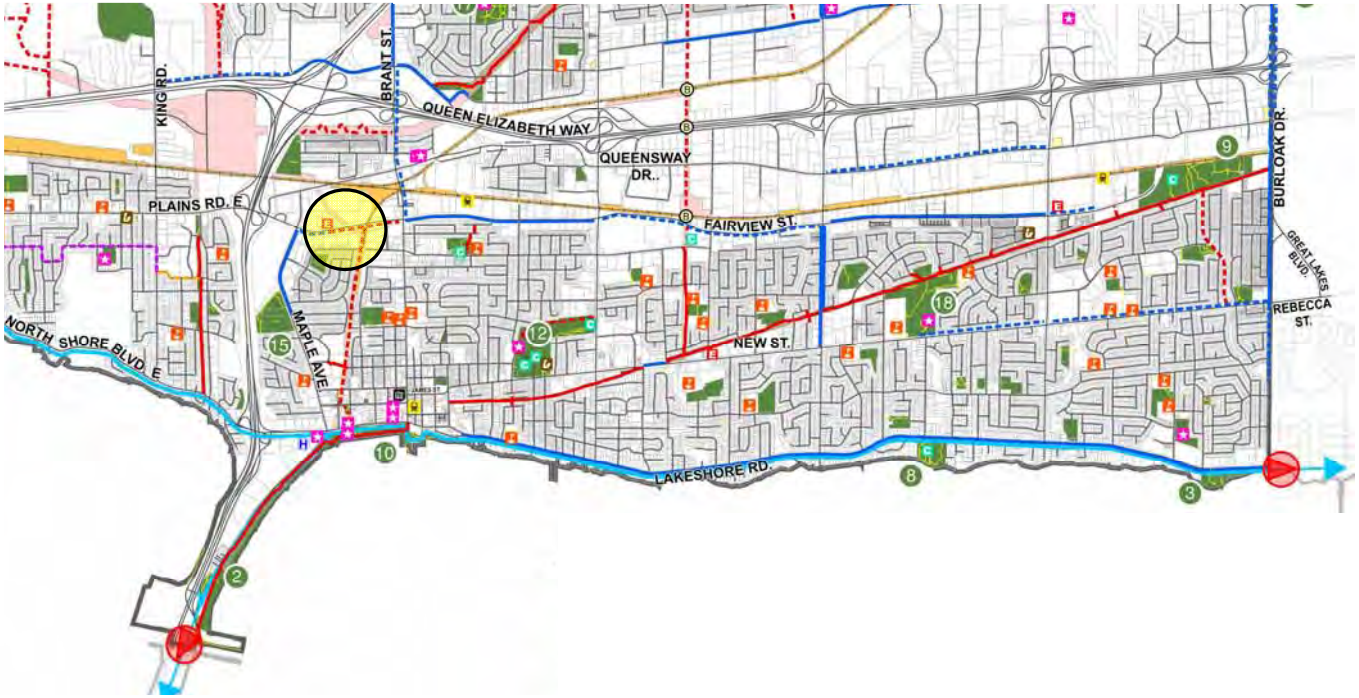


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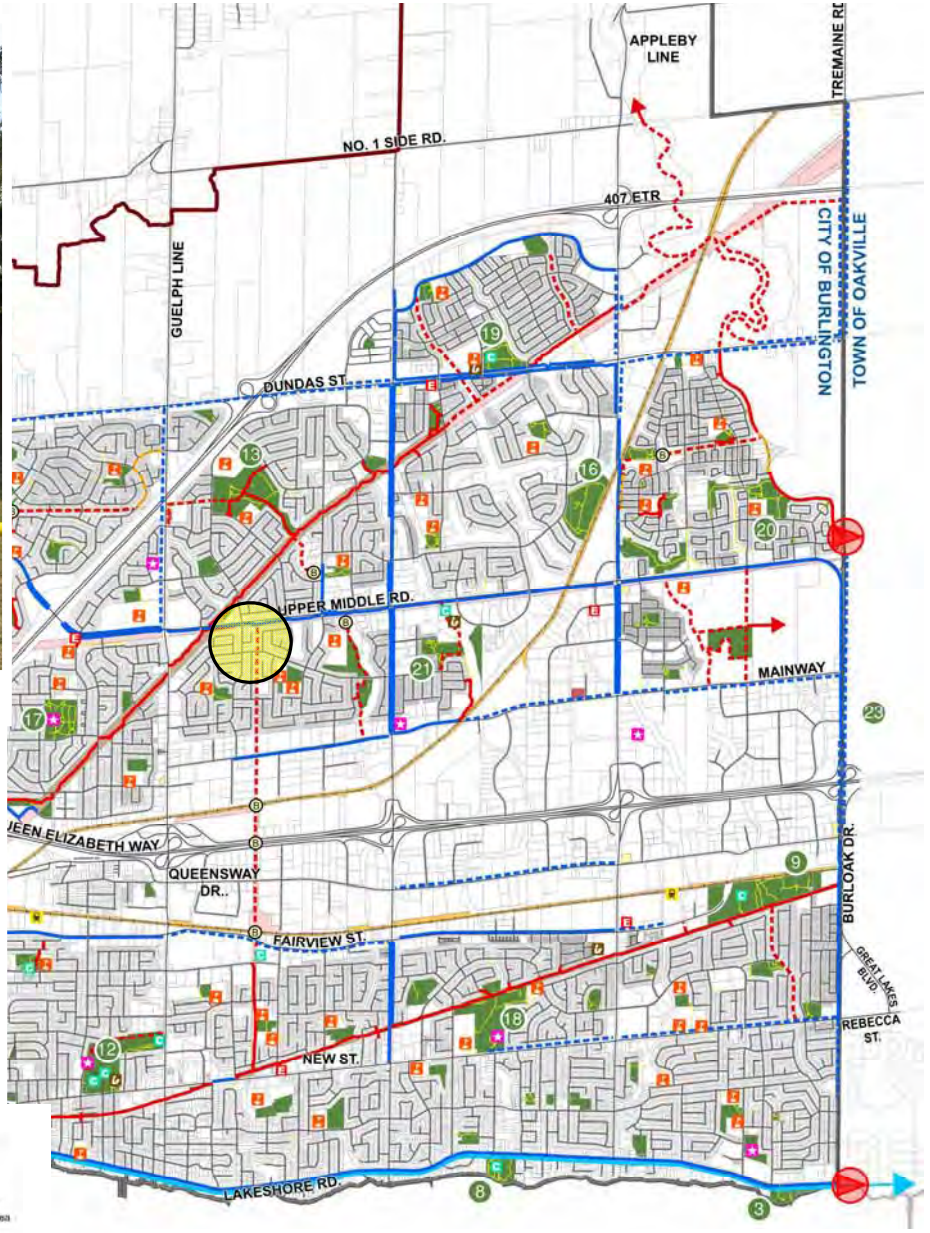



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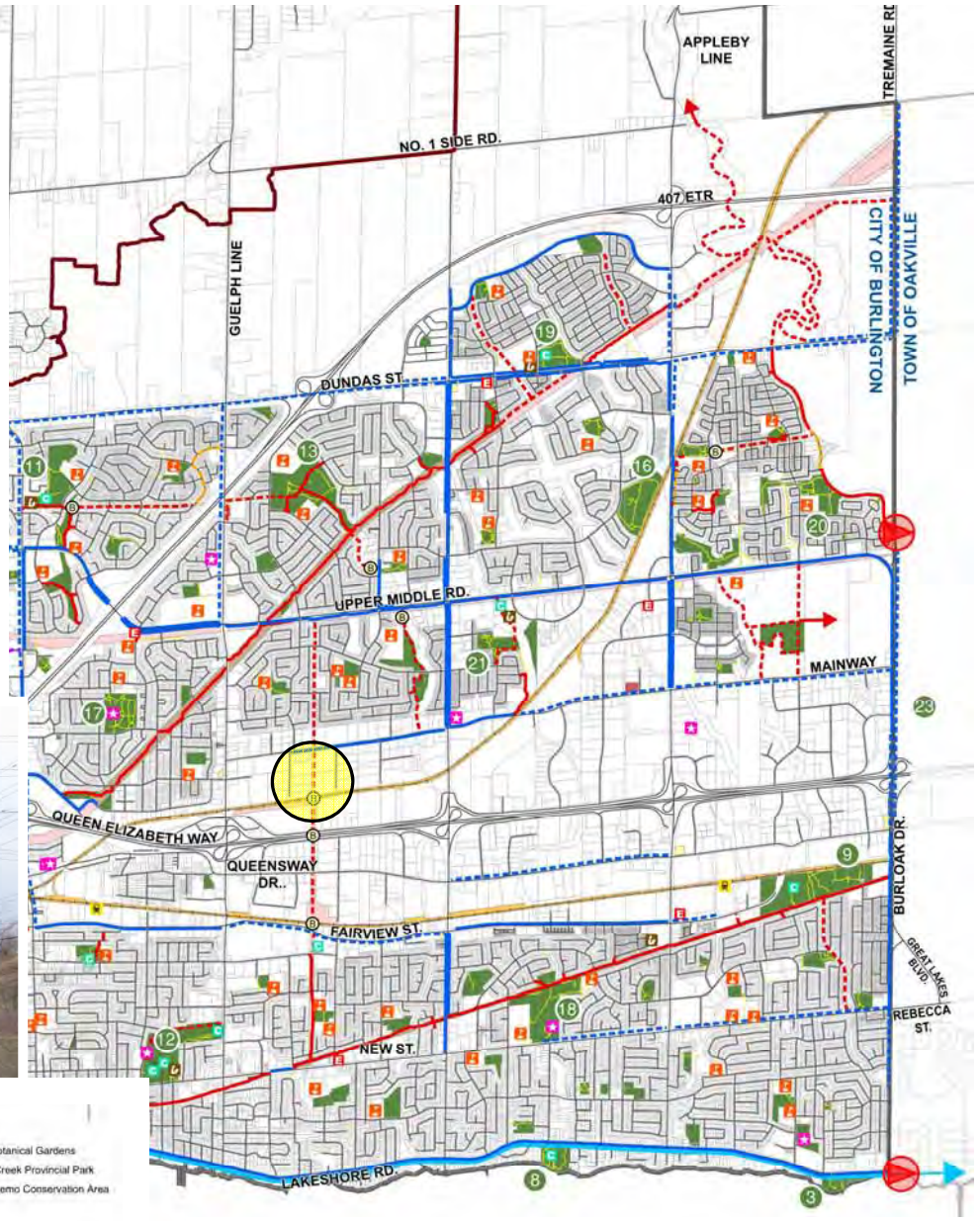
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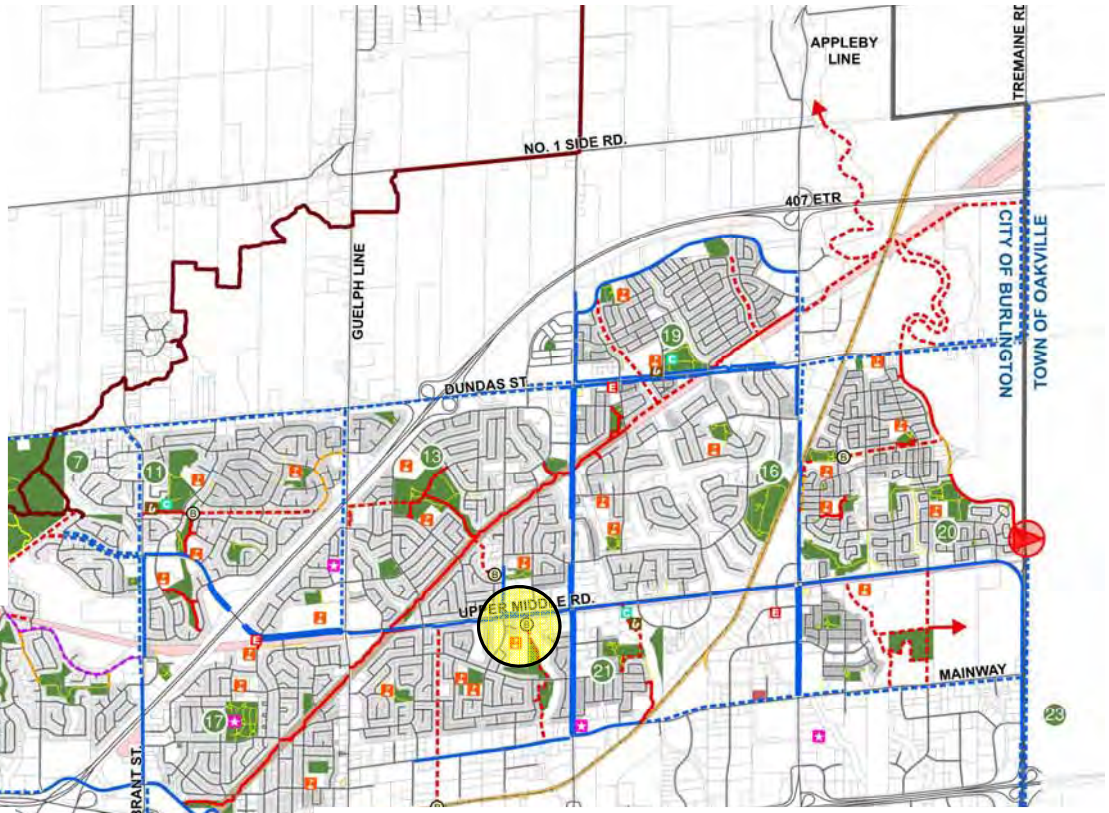
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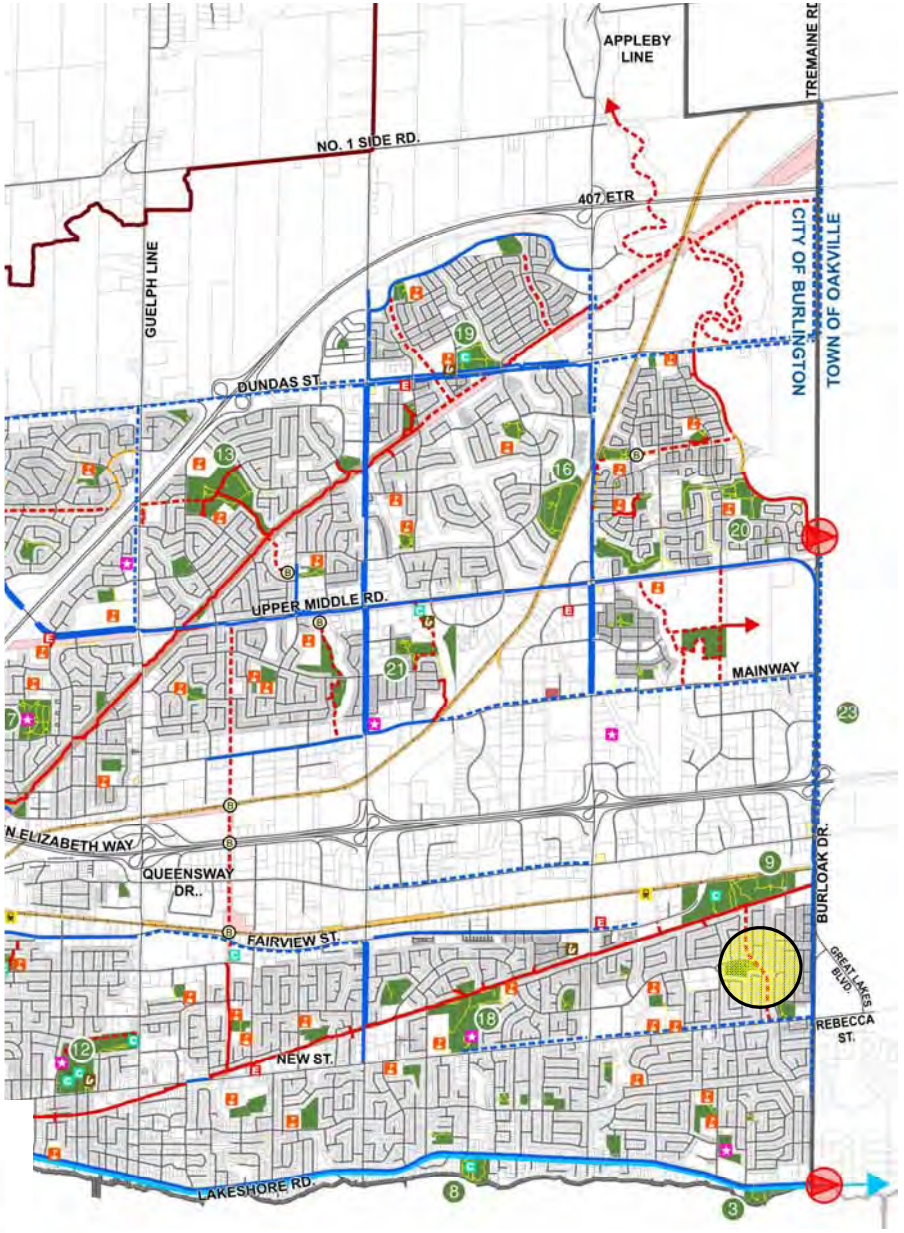

APPLEBY LINE
NO. 1 SIDE RD.
407 ETR
GUELPH LINE
DUNDAS ST.
CITY OF BURLINGTON
TOWN OF OAKVILLE
UPPER MIDDLE RD.
MAINWAY
BRANT ST.
QUEEN ELIZABETH
MAPLE AVE.
SNAKE RD.
WATERDOWN RD.
CITY OF BURLINGTC
TY OF HAMILTON
N HWY 6 ON











City Parks

1. Bayview Park
2. Beachway Park
3. Burloak Waterfront Park
4. Hidden Valley Park
5. La Salle Park
6. Lowville Park
7. City View Park
8. Paletta Lakefront Park
9. Sherwood Forest Park
10. Spencer Smith Park

Community Parks

11. Brant Hills Park
12. Central Park
13. Ireland Park
14. Kilbride Park
15. Maple Park
16. Millcroft Park
17. Mountainside Park
18. Nelson Park
19. Norton Community Park
20. Orchard Community Park
21. Tansley Woods Park

Other

22. Royal Botanical Gardens
23. Bronte Creek Provincial Park
24. Mount Nemo Conservation Area



How to Stay Involved!

How else can you participate?

- Visit the study webpage at www.burlington.ca/trails to receive study updates and review study materials
- Attend the second public open house scheduled for May 22nd, 2014 for additional network details and strategy recommendations
- Review the Community Trails network and submit questions, ideas or comments to the study representatives

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E: Cranstonej@mmm.ca



Thank you! Questions??

City of Burlington Community Trails Strategy
Councillor Focus Group Session #2

To:	**Ingrid Vanderbrug** **City of Burlington Project Manager**	**Date and Time:**	**Tuesday May 6th, 2014** **10:00 a.m. – 11:30 a.m.**
From:	**Claire Basinski & Jay Cranstone, MMM Group**	**Job No.:**	**14-13063**
Subject:	**City of Burlington Community Trails Strategy** ***Councillor Focus Group Session #2***	**CC:**	Dave McLaughlin, MMM Group

Meeting Attendees:

Councillors:

Jack Dennison (JD)	Ward 4
Blair Lancaster (BL)	Ward 6
Marianna Meed-Ward (MMW)	Ward 2
Rick Craven (RC)	Ward 1
John Taylor (JT)	Ward 3

MMM Group Attendees:
Jay Cranstone (JC)
Claire Basinski (CB)

Regrets:
Paul Sharman
Mayor Rick Goldring

On Tuesday May 6th, 2014 the City of Burlington Community Trails Strategy study team undertook a second set of focus group sessions with the City's Councillors. The intent of the session was to review the draft Community Trails Network and route priorities and discuss potential revisions, additions or improvements in advance of the public information centre scheduled for May 22nd, 2014.

The session was a drop-in format with no formal presentation. The Councillors were encouraged to engage in one-on-one discussions with members City staff and the consultant team regarding the network and where necessary were asked to mark-up the maps with their comments. The following is a summary of the input received during the session.

Comments Provided
• Dundas Street and Bruce Trail Crossing is critically important • Connections should be made to the Eagle Heights development • Signed Route should be considered for Hidden Valley Park • Waterdown Road may be redeveloped in the future • Accessible connections should be made to the new DeRullo development (900 units) • Forest Glenn will be repaved and the network should take into consideration the possibility of a separating part of the surface due to the high amount of pedestrian traffic. However, the local residents do not want to see change • The Region's dump and hydro corridors are considered good opportunities for future trail development and have support locally • Penny lane trail should be reviewed as a potential connection • The QEW crossing – underpass on north-shore boulevard is not wide enough for bike lanes and the Plains Road crossing is not considered ideal for pedestrians and cyclists

Comments Provided
• Multi-use trail that are considered part of the main corridor should be paved e.g. the west end extension of the hydro corridor trails. However, there may be opportunities for additional secondary granular surface trails. • Should consider the implementation of footpaths within the Regional Landfill site in the long-term. • Downtown connections should be a focus for the strategy including upgrades to the Francis Road Bikeway, hydro corridor and drainage channels. These connections could be identified as potential recreational opportunities including dog walking. • Consider identifying a potential connection along the rail line between Brant Street and King Road to link communities – considered for the long-term. • Additional consideration for the hydro corridor – Cumberland extension as a key north-south connection with some investment this could be achieved. • The Region is undertaking some improvements to the Burloak interchange. • The more connections the better – the strategy should focus on strategic phasing which identified low-hanging fruit to target in the short-term. • Spencer Smith Park requires a redesign of the space to decrease conflicts between users including the possibility of the separation of users through the implementation of planters, coloured pavement marking or other context specific design treatments. There is not possibility of widening the space so the existing width must be used in a more creative way e.g. what they have done in Hamilton with 6.0m of pavement. • The strategy should consider the implementation of signage and wayfinding in the downtown core to guide people to key routes / linkages. • The Cumberland – mid-town crossing should be considered a high priority for all potential user groups. • Bronte Creek to Lowville Park connection the majority of the land is privately owned (70%) and should be considered a long-term priority based on on-going discussions. • Should explore the possibility of a connection along No. 1 sideroad to the Bruce Trail • The Bruce Trail should be promoted within the community for short trips to key destinations to help enhance its ability to influence vibrant neighbourhoods. • The connection within the Regional landfill should be considered a priority for a connection to Bayview. • The Bruce Trail should be used as a connection into Bronte Creek Provincial Park along with the Avalon Drive Cul-de-Sac. • The strategy should address potential staging areas and amenity space for trail entry points / connections. • There are not enough trails in the rural areas of the City – additional connections should be explored. • Strategy for Killbride Park and connections with a viewing area to creeks and access to the community should be investigated. • There is high demand from the youth for mountain bike connections e.g. Nelson – with a beginner trail or course. There should be appropriate risk management strategies for these trails where appropriate. • Look into opportunities in Cavendish Park and Duncaster Park. • The naturalization of trails should be considered a design option for natural footpaths and rural linkages. • Should focus on trails parallel to Ferguson and Jenn Avenue. • There have been minimal inquiries and requests regarding the extension of the Hydro Corridor south into the Millcroft Area. • Headon Forest area has an informal pathway with a local neighbourhood connection. This should be formalized as it is already well used on the North side of the creek within the area. • Alton connection should also be considered a priority in the short-term with additional linkages to be explored to Ireland Park to the south. • Should explore the development and implementation of signage and marking for cyclists and pedestrians. The implementation of different surface types of trails can strategically be used to accommodate specific users that are appropriate for specific areas in the City.

AGENDA

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY:
STAKEHOLDER FOCUS GROUP SESSION #2

Location: Rooms 305 & 307 City Hall
Date: Tuesday May 6th, 2014
Time: 2:00 – 4:00 p.m.

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1) **Welcome & Introductions**

2) **Focus Group Presentation**

   a) **Study Update**

   b) **Consultation Review & Key Themes**

   c) **Overview of Network Mapping & Priority Links**

3) **Roundtable Discussion: Review of Draft Community Trails Network**

4) **Meeting Wrap-up and Next Steps**

MMM GROUP

City of Burlington Community Trails Strategy
Stakeholder Focus Group Session #2

To:	**Ingrid Vanderbrug** **City of Burlington Project Manager**	**Date and Time:**	**Tuesday May 6th, 2014** **2:00 p.m. – 4:00 p.m.**
From:	**Claire Basinski&Jay Cranstone, MMM Group**	**Job No.:**	**14-13063**
Subject:	**City of Burlington Community Trails Strategy** ***Stakeholder Focus Group Session #2***	**CC:**	Dave McLaughlin, MMM Group

Meeting Attendees:

Stakeholders:
Wayne Terryberry (WT)
Pam Belgrade (PB)
Tys Theysmeyer (TT)
Stirling Todd (ST)
Igor Hoogendoorn (IH)

MMM Group:
Jay Cranstone (JC)
Claire Basinski (CB)

City of Burlington:
Ingrid Vanderbrug (IV)

Not in Attendance:
Deborah Herbert (DH)
Marlaine Koehler (MK)
Pat O'Reilly (PO)
Terrance Glover (TG)
Janice Olbina (JO)
Susan Biggs (SB)
Werner Plessyl (WP)
Nick Maandag (NM)
Adam Brylowski (AB)
Ken Lawday (KL)
Fabio Cabarcas (FC)
Michael Baran (MB)
Cynthia Graham (CG)

On Tuesday May 6th, 2014 the Community Trails Strategy Study team met with the project stakeholders for the second time to review the draft Community Trails network and to discuss network priorities and initiatives moving forward.

The meeting was held in the afternoon and included a brief presentation / overview of the work completed to date, the consultation activities and input received as well as highlights from the network development process. During and following the discussion attendees were encouraged to provide their thoughts and input on the proposed network.

Meeting attendees were encouraged to mark-up the mapping provided. Comments received will be reviewed and the proposed network and priorities will be updated for the second public information centre scheduled for May 22nd, 2014. The following is a summary of the comments which were received during the focus group session.

Comment Received
• In the short-term there may be some issues with the Eagle Heights development as it is currently at the OMB and may have some potential development limitations (environmental) • The strategy should not proposed the implementation of asphalt trails in wooded areas • Trails in conservation areas are typically granular surface and are traditionally cleared in the winter. Trails within these areas are not suggested to be upgraded to an accessible trail due to the existing topography. • Accessibility may be accommodated for some trails with the proposed signage at trailheads. • Trails should be designed to be inclusive where possible with common sense applied for realistic design solutions. • At McMaster University there is an all-terrain wheelchair that can be used to assess the trails for accessibility limitations or issues. • Liability considerations should be reviewed based on the location of the trail e.g. North Shore Boulevard. If there is no insurance available there is limited direction on how to address liability issues. • City View and Kerncliff Park should have a management plan developed based on ongoing discussions between the different land owners. • Additional opportunities for mountain biking on lands found under Conservation Halton's jurisdiction should be explored. • The network should identify loop routes as a significant opportunity for various trip lengths. • Potential to explore additional trail opportunities in abandoned areas within the city e.g. Old Quarry or land fill. The connection between Bayview Park and the Canada Brick should be a possible focus for an off-road connection. An example of a closed landfill which is now used for trails / recreational uses is Beare Road adjacent to Rouge Park (Toronto) or McLennan Park (Kitchener)– a City run park with a management plan. • No cyclists are permitted in RGB – linkages to the RGB trails should not encourage people to bring / use their bikes on these trails, however, additional opportunities such as Kerncliff and City View park should be explored based on other management plans / agreements e.g. Clappison – Conservation Halton. • Should explore linkages that promote cycling and hiking tourism within the City / Region based on partnerships with the Trails Council in the future. • Explore the development of a Regional tourism map to promote walking and cycling. • Should work with other partners to explore the development of inter-regional connections. • Strategies for future development should be identified to meet current demand by all potential user groups. • Agencies for future partnerships and funding sources should be explored to highlight potential management and maintenance alternatives as well as infrastructure development. • Should explore potential connections on the other side of Highway 6 along the York Road trail • Trails identified in the hydro corridor in the west end of the City may not be possible considering the existing topography – additional research may be required. • The strategy should not encourage the use of Waterdown Road as the traffic volumes are too high. York Road may be a better alternative or separation would be required. • Should explore the implementation of trail amenities and staging areas at key locations throughout the network in partnership with local agencies and interest groups. • The strategy should look into connections within the Cootes to Escarpment eco-park system. The mapping should reflect the boundary. Future management plans should be explored where appropriate. • Additional trail considerations including enforcement and patrolling may increase comfort and safety along with other trail design features e.g. lighting. There are limited resources but it is an important element of trail function and liability. Specific locations may be appropriate for trail lighting, however the full lighting of trails is not encouraged due to a perceived or false sense of safety. • In the short-term trail markers should be used at intervals along the trail or at key locations. • Additional trail design and promotion considerations should be explored including an adopt-a-trail program or maintenance strategies / plans by local volunteers in partnership with the City.

AGENDA

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY:
ADVISORY COMMITTEE FOCUS GROUP SESSION #2

Representation From:

Burlington Accessibility Advisory Committee
Burlington Cycling Committee
Burlington Road Safety Committee
Burlington Sustainable Development Committee

Location:	Rooms 305 & 307 City Hall
Date:	Tuesday May 6th, 2014
Time:	7:00 – 8:30 p.m.

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1) **Welcome & Introductions**

2) **Focus Group Presentation**

   a) **Study Update**

   b) **Consultation Review & Key Themes**

   c) **Overview of Network Mapping & Priority Links**

3) **Roundtable Discussion: Review of Draft Community Trails Network**

4) **Meeting Wrap-up and Next Steps**

MMM GROUP

City of Burlington Community Trails Strategy
Advisory Committee Focus Group Session #2

To:	**Ingrid Vanderbrug** **City of Burlington Project Manager**	**Date and Time:**	**Tuesday May 6th, 2014** **7:00 p.m. – 8:30 p.m.**
From:	**Claire Basinski & Jay Cranstone, MMM Group**	**Job No.:**	**14-13063**
Subject:	**City of Burlington Community Trails Strategy** ***Advisory Committee Focus Group Session #2***	**CC:**	Dave McLaughlin, MMM Group

Meeting Attendees:

Stakeholders:

Chris Goff (CG)	Burlington Cycling Committee
Gwen Piller (GP)	Burlington Accessibility Advisory Committee
Margaret Small (MS)	Burlington Sustainable Development Committee

MMM Group:
Jay Cranstone (JC)
Claire Basinski (CB)

City of Burlington:
Ingrid Vanderbrug (IV)

Regrets:

Brad Slade (BS)	Burlington Cycling Committee
Marilyn Caldwell (MC)	Burlington Cycling Committee
David Oliver (DO)	Burlington Road Safety Committee
David Cherry (DC)	Burlington Sustainable Development Committee
Marilyn Turner (MT)	Burlington Accessibility Advisory Committee
Dave Fisher (DT)	Burlington Accessibility Advisory Committee

On Tuesday May 6th, 2014 the Community Trails Strategy Study team met with the project committee members for a second time to review the draft Community Trails Network and to discuss network priorities and initiatives moving forward. The meeting was held in the evening and included a brief presentation / overview of the work completed to date, the consultation activities and input received as well as highlights from the network development process.

During and following the discussion attendees were encouraged to provide their thoughts and input on the proposed network. Meeting attendees were encouraged to mark-up the mapping provided. Comments received will be reviewed and the proposed network and priorities will be updated for the second public information centre scheduled for May 22nd, 2014.

The following is a summary of the comments which were received during the focus group session.

Comment Received
• The strategy should link / reinforce sustainable development recommendations identified in the State of the Environment Report developed and presented to Council – where appropriate. • The strategy should also review and reflect approach from the Mount Nemo Study – where additional protection is required within the area and partnerships with the NEC will be required. • The strategy should address the different design concepts for trails including trail amenities • Strategy should include design alternatives for rails with trails treatment for consideration by the City in select locations e.g. long term Brant Street QEW crossing alternative. Example of low volume low speed rail line which could have an abutting trail would be in Guelph, ON • Proposed linkages should be phased / scheduled to dovetail with future intensification areas • Will the strategy identify accessible treatments to cross rail tracks? Would require considerable effort to cross these linkages in a mobility assisted device • Should identify linkages in the east end as there is a large senior's population e.g. Spruce Street or New Street • Retail areas should be a considered a key destination and should be linked by trails • New Street should be improved to accommodate pedestrians and cyclists who want to connect to key shopping areas • Is the implementation of Fairview trail feasible? The desire line provides clear directive and there is increasing demand. Should be considered as a short or medium term project based on availability

Tell us what you think about trails in the City of Burlington

Community Trails Strategy

The City is developing a city-wide Community Trails Strategy (CTS).

Trails are part of an integrated system, providing residents and visitors with transportation and recreation opportunities.

In early 2014, public meetings were held jointly with the ongoing Transportation Master Plan (TMP) to get your input on transportation and trails in the city. This public meeting is for the CTS only, with public meeting dates for the TMP to be scheduled at a future date. The purpose of the CTS public meeting will be to give you information about the findings to date and to gather your feedback on the draft CTS.

For more information about the CTS, please visit: www.burlington.ca/trails

How can YOU get Involved?

Attend the upcoming interactive public meeting to review the draft trails network, implementation priorities and key strategy recommendations. There will be a brief presentation, followed by an open-house where you can review the study materials and engage in one-on-one discussions with study team members.

Meeting date and location

Thursday, May 22 | 7 to 9 p.m.
Presentation | 7:15 p.m.
Burlington Art Centre
1333 Lakeshore Rd.
Rotary Lakeshore Room



Public Open House #2
Display Boards

May 22, 2014



Welcome & Where are we Now?

Project Starts:
November 2013

Project Ends:
June 2014

Phase 1: Project Initiation & Building the Foundation

- Engage the Public & Study Team Members
- Assemble and Review Background Information

Phase 2: Inventory & Assessment

- Prepare study vision & criteria to select routes
- Identify Potential Trail Linkages and Investigate in the field
- Review trail standards

Phase 3: Collecting Feedback

- Gather input from and engage the public
- Analyze public input

Hold first Round of Public Open Houses with Transportation Master Plan

Phase 4: Developing the Strategy

- Prepare Draft Trails Network
- Identify Facility Types & design guidelines
- Prepare a strategy for implementation

We are here

Phase 5: Finalizing the Strategy

- Present network and strategy to the public
- Develop & submit the draft report
- Finalize the strategy & present to Council

Hold second Public Open House

How can you help finalize the strategy?

Thank you very much for attending the second Public Open House

We are looking for your input on the proposed Community Trails network…please review the display boards presented and provide your comments or ask the Study Team any questions you have.



Developing a Community Trails Strategy: The Principles

What the plan is…

- A long-range, Flexible Blueprint for Trails
- A set of Tools to Facilitate Implementation

What the plan is not…

- Prescriptive / Set-in Stone
- Intended only as a City Initiative

Vision

Community Trails in the City of Burlington are designed and developed as a means of connecting residents and visitors to open spaces, parks, community destinations and surrounding communities for recreational and day to day activities. The network is made up of off-road routes which reflect current design standards and unique municipal characteristics

Objectives

1. Build upon existing on and off-road connections
2. Improve connectivity
3. Bridge gaps and missing links
4. Accommodate a range of trail user groups
5. Review accessibility of trails
6. Identify municipal processes for trail development
7. Identify funding and partnership opportunities

Developing a Community Trails Network – For Who & for What?



User Groups:

- Various Types of Cyclists (Road, Hybrid, BMX, Mountain, etc.)
- Walkers, Hikers & Runners
- Users with Personal Mobility Devices
- In-line skaters
- Skateboards, Cross-Country skiers

Recreational	Utilitarian	Touring









Developing the Network & Selecting the Routes

How was the Network Developed?

Step 1: Map existing Trails

Step 2: Identify Criteria to Select Routes

Step 3: Identify Potential Trail Routes

Step 4: Investigate Routes in the Field

Step 5: Prepare Draft Trail Route Network

Step 6: Refine Trail Network and Identify Trail Types

We are here

Step 7: Select Network Priorities & Prepare Phasing Plan

Step 8: Identify the Network Cost & Funding Options

Criteria used to establish the network included…

Is the network… **Cost Effective** to construct and maintain?

Are the routes… **Linked?**

Are the routes designed and located to maximize … **Safety?**

Are the routes… **Connected?**

Is the system… **Visible?**

Are the routes… **Accessible?**

Are the routes **Conveniently** located?

Are the trails in **Context** with the trail location?

Is the network… **Expandable?**

Does the network provide a **Diverse** experience?

Are the trails **Well Designed?**



Network Opportunities & Considerations





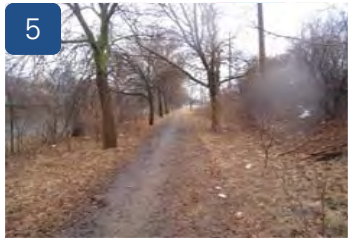


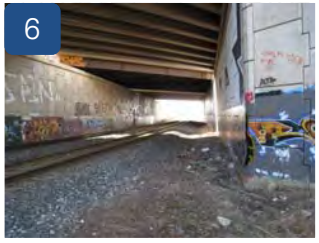










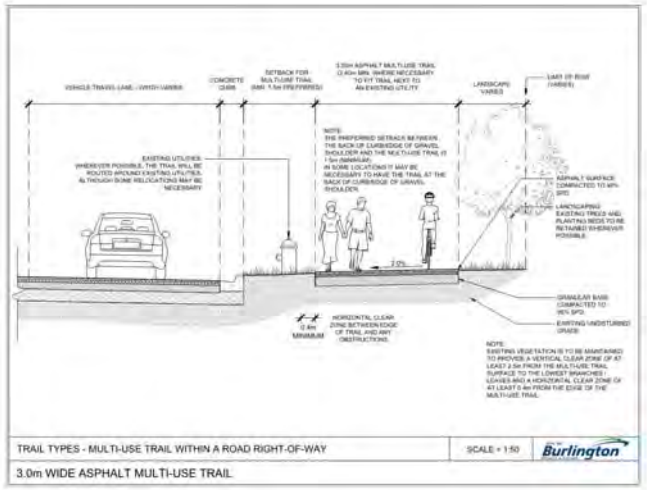




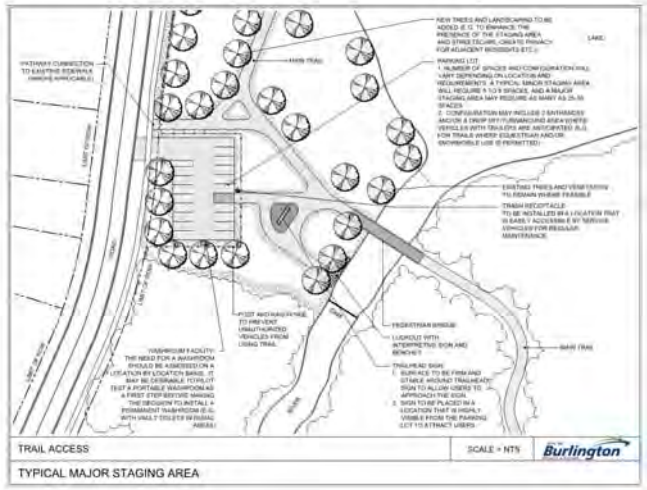


How Will the Trails in Burlington be Designed?

1

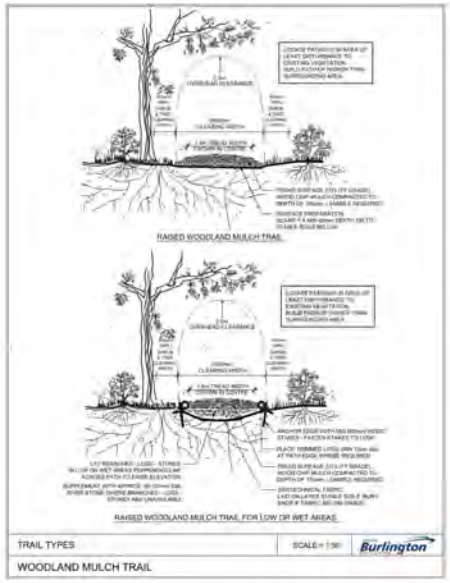


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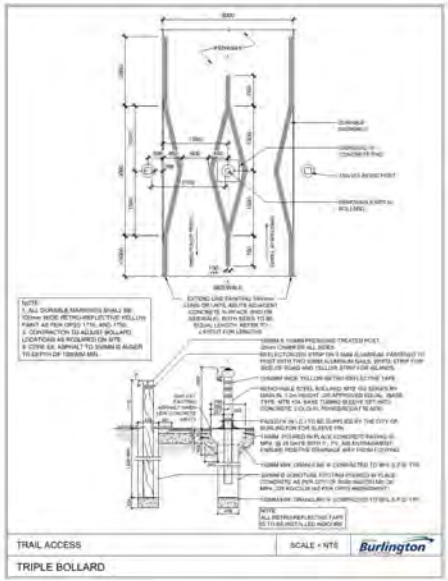


4

The Community Trails Strategy includes a review of the City's existing design guidelines for trails, with updates and additions where needed. Illustrated are a few of the guidelines that are being considered.

1. Asphalt Multi-use Trail in a Roadway Boulevard
2. Trail Staging Area
3. Trail Sign Layout
4. Mulched / Woodchip Trail in a Natural Setting
5. Triple Bollard

5





Promoting Community Trails in Burlington

Engineering


Source: MMM Group

The way facilities and amenities are planned, designed, constructed and maintained.

- Update existing City design standards to incorporate on and off-road facilities
- Enhance guidelines for trail facility maintenance
- Update the Strategy in a timely manner and address opportunities and challenges as they arise

Education


Source: City of Toronto

Providing users with important information regarding how and where to safely use active transportation infrastructure.

- Develop a tourism and promotion map or update existing City-wide promotional mapping
- Enhance existing trail promotion online to incorporate up to date trail information or materials
- Coordinate with Tourism Burlington, public departments and local school board partners for opportunities to provide user education

Encouragement



Promoting the use of the active transportation network as well as active forms of transportation on a daily basis.

- Partner with local agencies e.g. Bruce Trail & Conservation Halton to establish trail hikes
- Explore the use of an Adopt-a-Trail program to promote local stewardship
- Explore partnerships with local businesses to enhance the use of trails to access key community destinations

Enforcement


Source: Metroparkstoledo.com

Ensuring the users of the trail network understand and adhere to the rules and regulations.

- Develop trail patrols with help from local interest groups and staff
- Collection of data to help identify potential problem areas throughout the trail network
- Work with enforcement officials to enhance enjoyment for all users

Evaluation


Source: Credit Valley Conservation

Monitoring the success of facilities and programs and making the necessary adjustments and improvements.

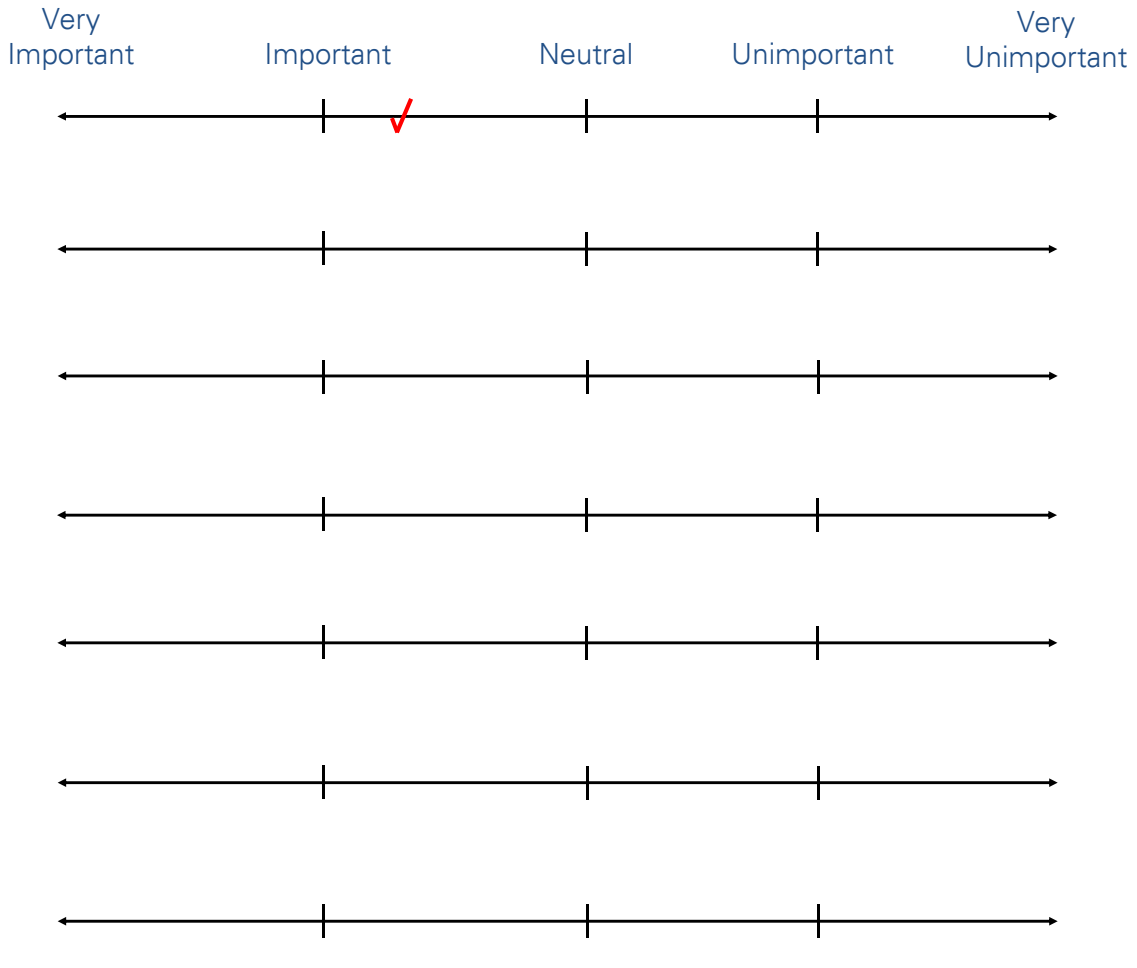
- Complete trail counts
- Encourage ongoing communication with user groups to understand where and how the trails are being used, and where improvements need to be made
- Establish performance measures and ongoing communication of Strategy successes

How will the trails be built, properly used, promoted, and evaluated?



Promoting Community Trails in Burlington

Use a check mark - to rank the importance of each of the promotional / outreach initiatives below:



Public events related to trails, cycling and / or active transportation

Access to educational materials regarding safe and proper use of off-road trails and on-road cycling facilities

Opportunities to provide feedback during the implementation of the Strategy

Regular communication with enforcement officials regarding the enjoyment of the trails network

Opportunities to take part in organized trail hikes / learning experiences i.e. learn to hike "The Bruce"

Regular communication from the City and Region regarding the implementation of the network, the status of specific projects or other Strategy achievements

Enhanced mapping and route information in a variety of formats (e.g. print, signage, interactive online mapping etc.)



How to Stay Involved!

How else can you participate?

1. Visit the study webpage at www.burlington.ca/trails to receive study updates and review study materials

2. Contact members of the study team with any questions, ideas or comments that you have about the study

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Burlington, ON, L7R 3Z6
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E:
ingrid.vanderbrug@burlington.ca

Completing the Study…What's Next?

PIC #2 → Document Comments from the PIC → Update Community Trails Network & Implementation Priorities → Prepare Final Strategy Report & Present to Council → Presentation to Council



Public Open House #2
Presentation

Thursday May 22nd, 2014
7:00 p.m. – 9:00 p.m.



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Developing a Community Trails Network
For Who & for What?

Types of User Groups:

- Various Types of Cyclists (Road, Hybrid, BMX, Mountain, etc.)
- Walkers, Hikers & Runners
- Users with Personal Mobility Devices
- In-line skaters
- Skateboards, Cross-Country skiers









Types of Trips:

Recreational



Utilitarian



Touring

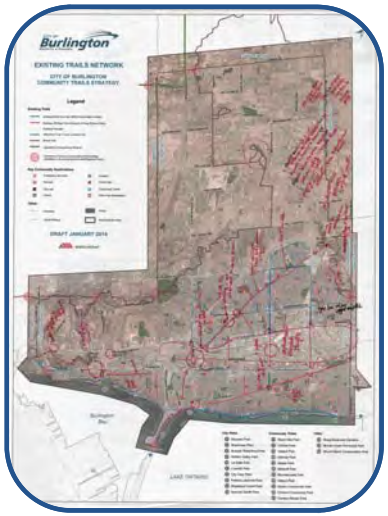


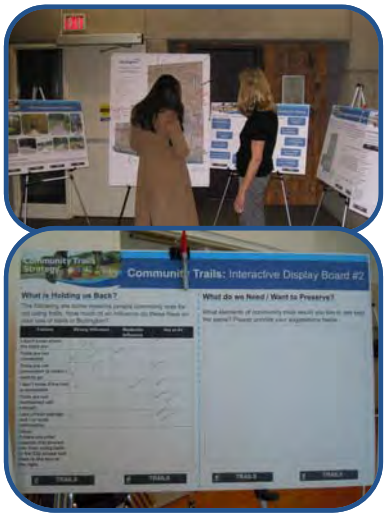


How have we reached out to stakeholders and the public?

Meeting with Councillors	Focus Group Sessions (Stakeholders & Committee Members)	Public Open Houses	Individual Stakeholder Meeting	MindMixer Questionnaires
January 27th, 2014, May 6, 2014	January 27th, 2014, May 6 , 2014	4 Locations in February 2014, May 22, 2014	April 16, 2014	3 MindMixer Discussion Boards

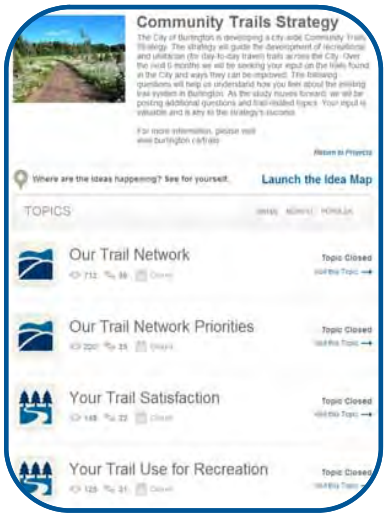






Close to nature.
Close to home.
THE BRUCE TRAIL CONSERVANCY

CONSERVATION HALTON





What have we heard to date?

Meetings with Councillors

- Off-road focus
- Mitigating user conflicts
- Consistent maintenance practices
- Respond to different socio-demographic trends in the City
- Specific areas for consideration: Bronte Creek, LaSalle Park, Kerncliff Park, City View Park, Lowville Park, crossings of the QEW.

Focus Group Sessions (Stakeholders & Committee Members)

- Incorporate land-use planning techniques that integrate trails
- Connect missing links
- Identify key north-south connections
- Trail maintenance should be consistent and clear
- Identify clear implementation partnerships
- Identify bold initiatives and programs to promote trail use

Public Open Houses

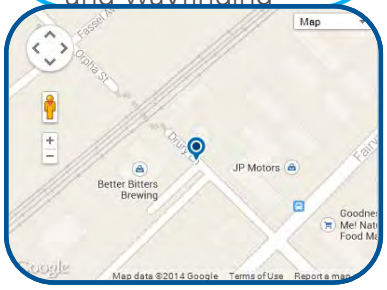
- More trail infrastructure and AT facilities
- Additional signage and wayfinding
- Formalization of existing local community trails
- Some inconsistent messaging requires further clarification
- Hydro Corridor trails need additional connectivity
- Fix / upgrade older trails
- Additional maintenance for trail use in the winter

Individual Stakeholder Meeting

- Conservation Halton, Iroquoia Bruce Trail Club, Bruce Trail Conservancy
- Enthusiastic to engage in partnerships and discussions regarding trail development
- Clearer communication and signage practices where appropriate
- Closure of rogue trails or the design of specific mountain biking trails (based on future discussions)

MindMixer Questionnaires

- 65% support the funding of trails and trail initiatives
- The majority of respondents currently use trails for recreational activities as opposed to day-to-day transportation
- Emphasis on additional signage and wayfinding





Suggested Network Considerations

- Trail connection through the pipeline corridor in Orchard area
- Formalize trail through Hydro Corridor (north-south, aligning with Cumberland)
- Create pedestrian crossing over QEW/403 at Brant St.
- Natural trails should be explored along the small creeks
- Bridge missing link in the northern hydro corridor trail (Millcroft G.C.)
- Francis Rd. bikeway requires maintenance and upgrades
- Create an alternative connection to LaSalle Park
- Create access to Bronte Creek north of Dundas Street
- Provide trail connection from Lowville Park to the Bruce Trail
- Provide trail connection along Kerns Rd. from Kerncliff Park to the North Service Rd.
- Conflicts between users on Waterfront Trail need to be mitigated (e.g. Spencer Smith Park)
- Winter maintenance on trails is needed
- Additional consideration for wayfinding and signage
- Place benches along the trail rather than just at the beginning and end



How will the Trails Network be Developed?

Developing the Community Trails Network: An Eight-Step Process

Step 1: Map Existing Trails

Step 2: Identify Criteria to Select Routes

Step 3: Identify Potential Trail Routes

Step 4: Investigate Routes in the Field

Step 5: Prepare Draft Trail Route Network

Step 6: Refine Trail Network and Identify Trail Types

Step 7: Select Network Priorities & Prepare Phasing Plan

Step 8: Identify the Network Cost & Funding Options











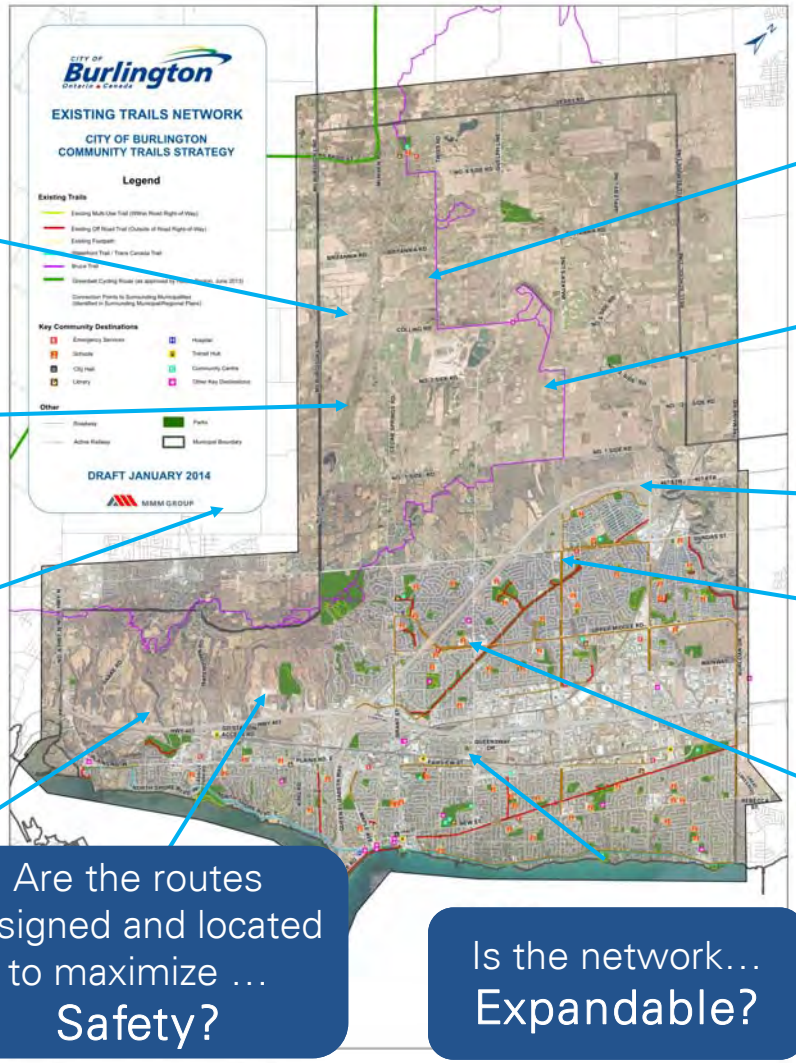
Selecting the Routes

Is the network… **Cost Effective** to construct and maintain?

Are the routes **Linked** to form a continuous network?

Are the routes… **Accessible?**

Are the trails in **Context** with the trail location?



Are the routes designed and located to maximize … **Safety?**

Is the network… **Expandable?**

Is the system… **Visible?**

Are the routes **Connected** to important destinations?

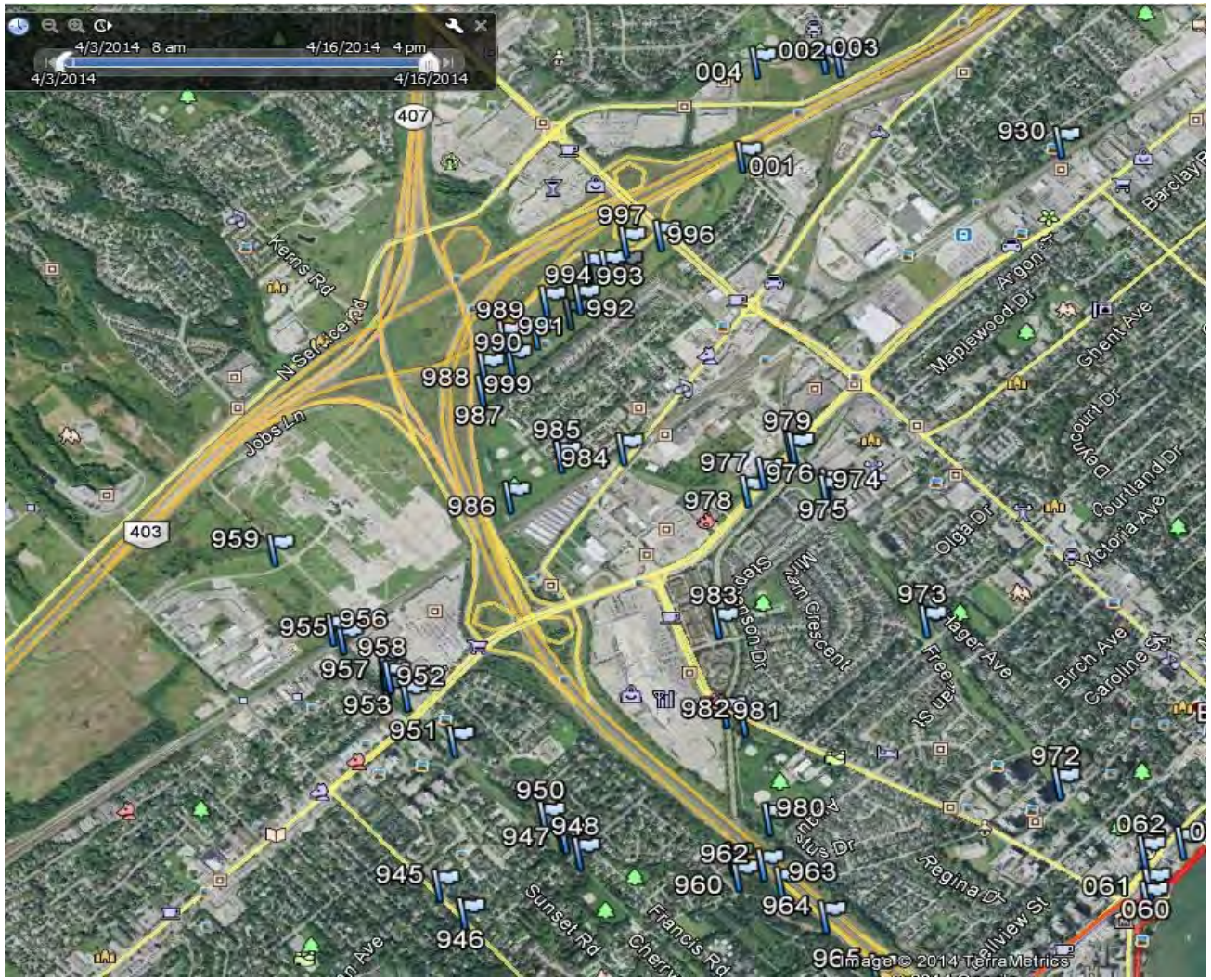
Are the routes **Conveniently** located?

Are the trails **Well Designed?**

Does the network provide a **Diverse** experience?

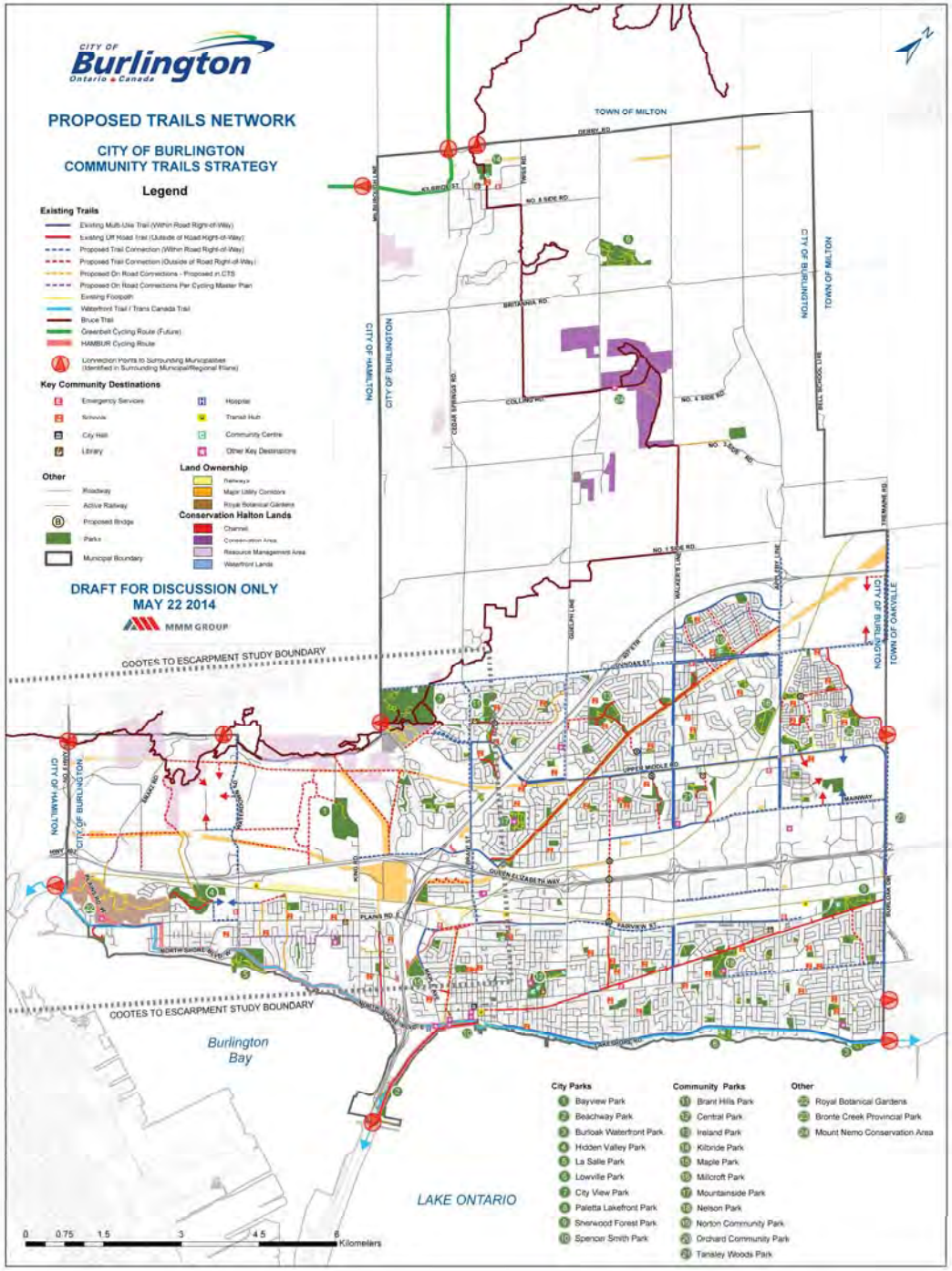


Network Investigations



- Fall 2013 – Spring 2014
- Desktop review using digital mapping, Google Earth etc.
- Across entire city, with focus on the urban area
- 170 GPS waypoints
- 850 photos





PROPOSED TRAILS NETWORK

CITY OF BURLINGTON COMMUNITY TRAILS STRATEGY

Legend

Existing Trails

- Existing Multi-Use Trail (Within Road Right-of-Way)
- Existing Off Road Trail (Outside of Road Right-of-Way)
- Proposed Trail Connection (Within Road Right-of-Way)
- Proposed Trail Connection (Outside of Road Right-of-Way)
- Proposed On Road Connections - Proposed in CTS
- Proposed On Road Connections Per Cycling Master Plan
- Existing Footpath
- Waterfront Trail / Trans Canada Trail
- Bruce Trail
- Greenbelt Cycling Route (Future)
- HAMBUR Cycling Route
- Connection Points to Surrounding Municipalities (Identified in Surrounding Municipal/Regional Plans)

Key Community Destinations

- Emergency Services
- Hospital
- Schools
- Transit Hub
- City Hall
- Community Centre
- Library
- Other Key Destinations

Other

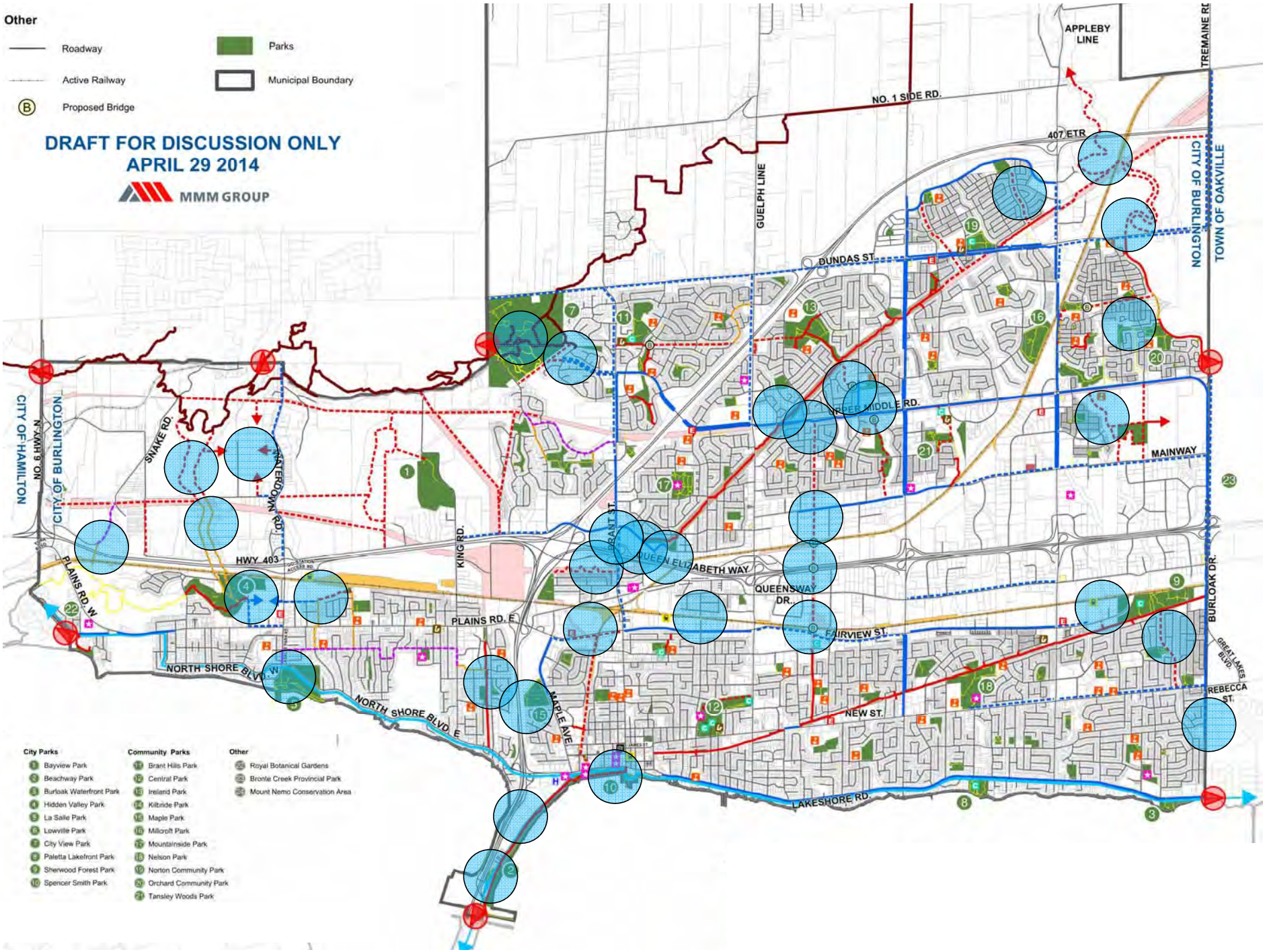
- Roadway
- Active Railway
- Proposed Bridge
- Parks
- Municipal Boundary

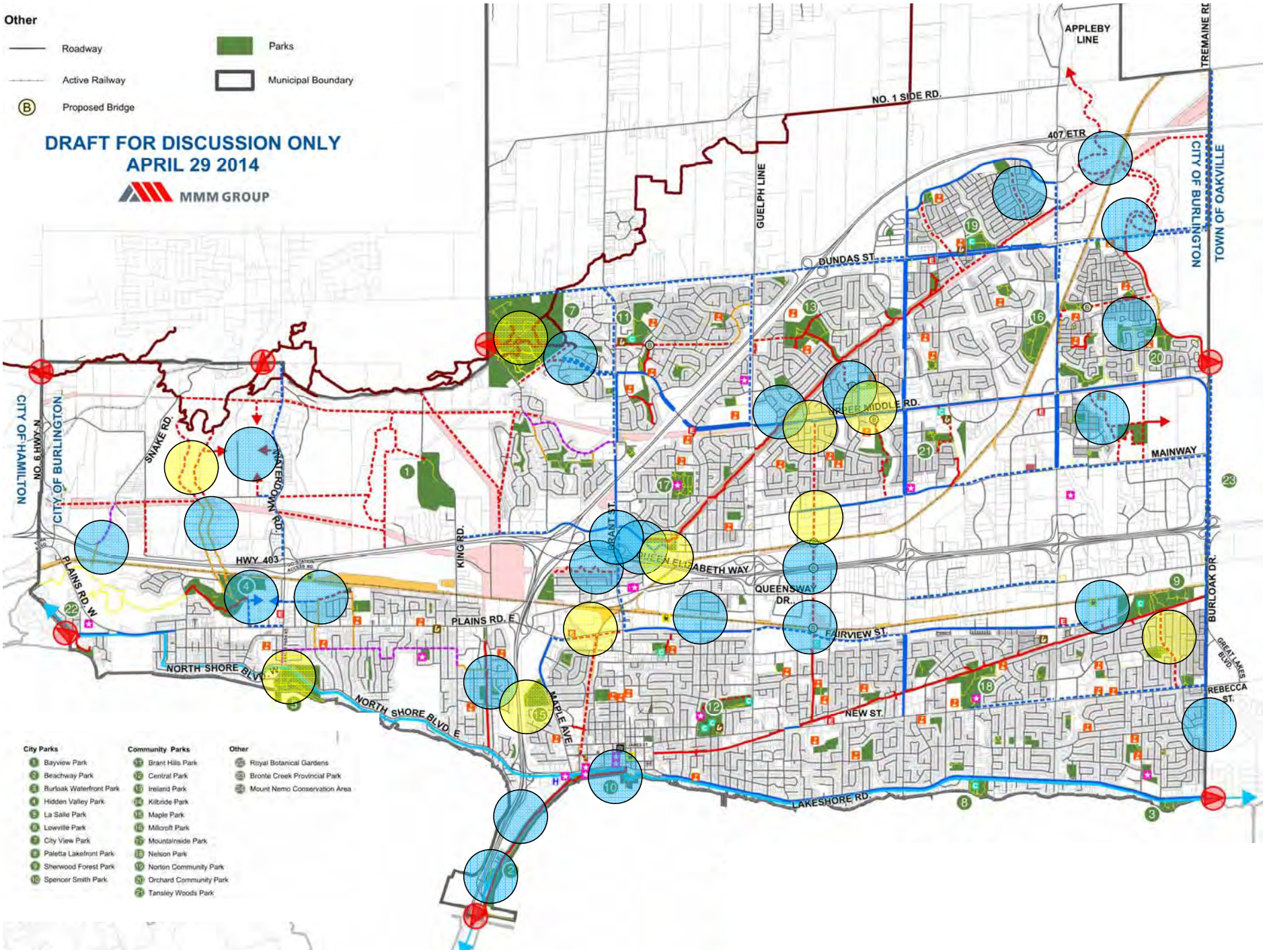
Land Ownership

- Railways
- Major Utility Corridors

Conservation Halton Lands

- Channel
- Conservation Area
- Resource Management Area
- Waterfront Lands

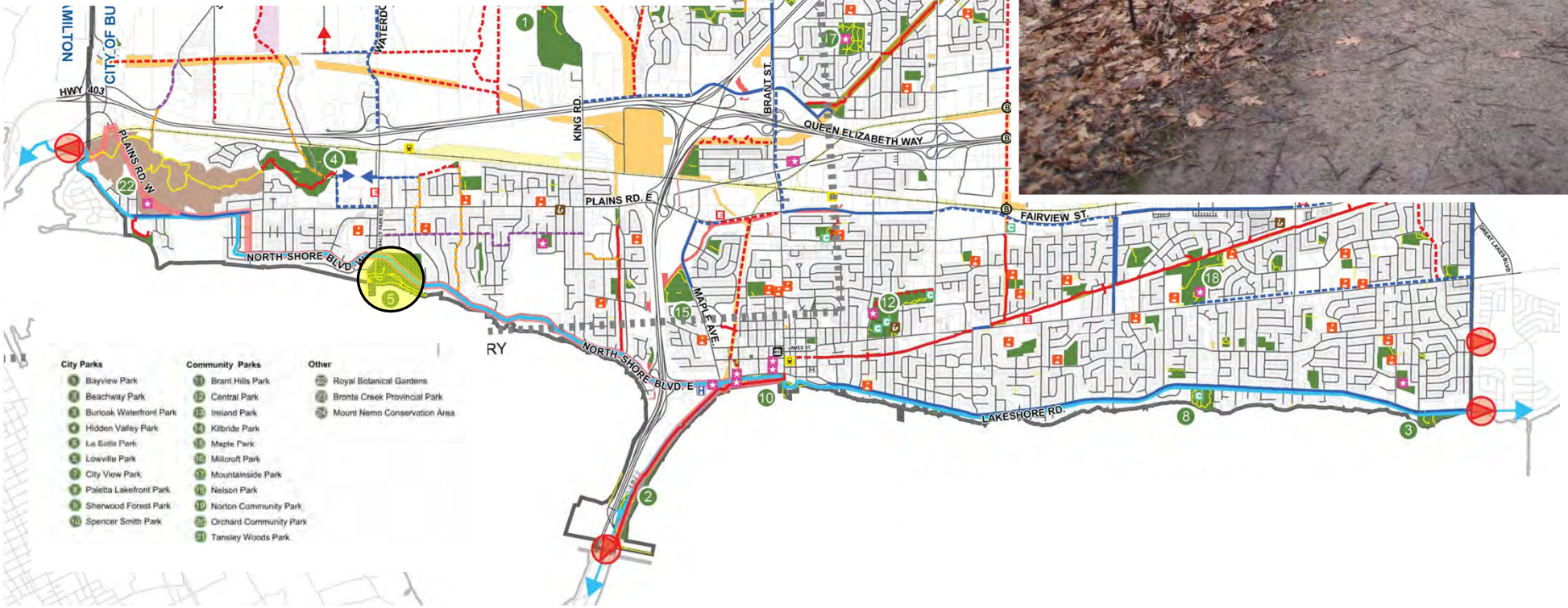

Other
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WATERDOWN RD.
HWY 403
KING RD.
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REBECCA ST.
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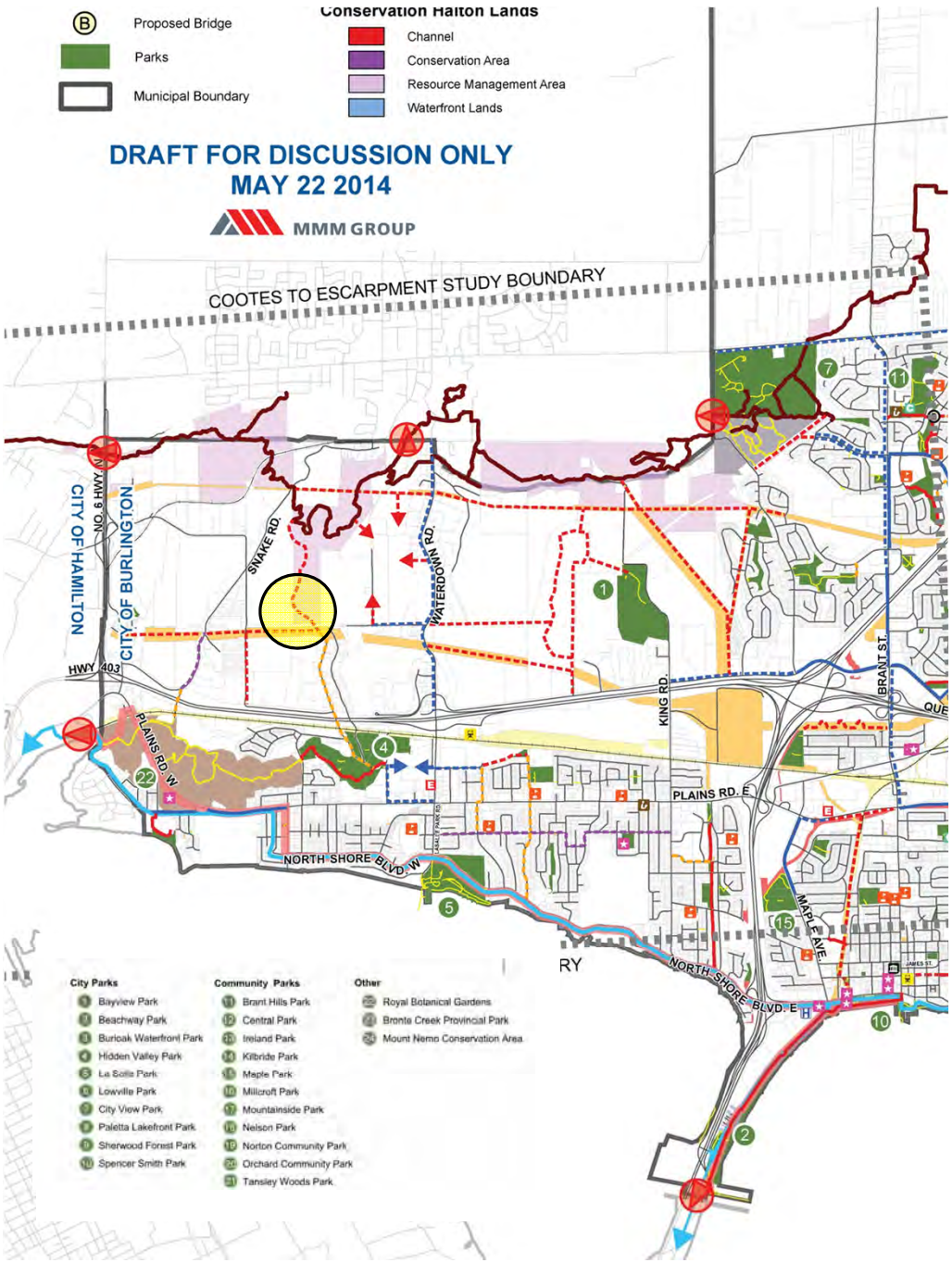

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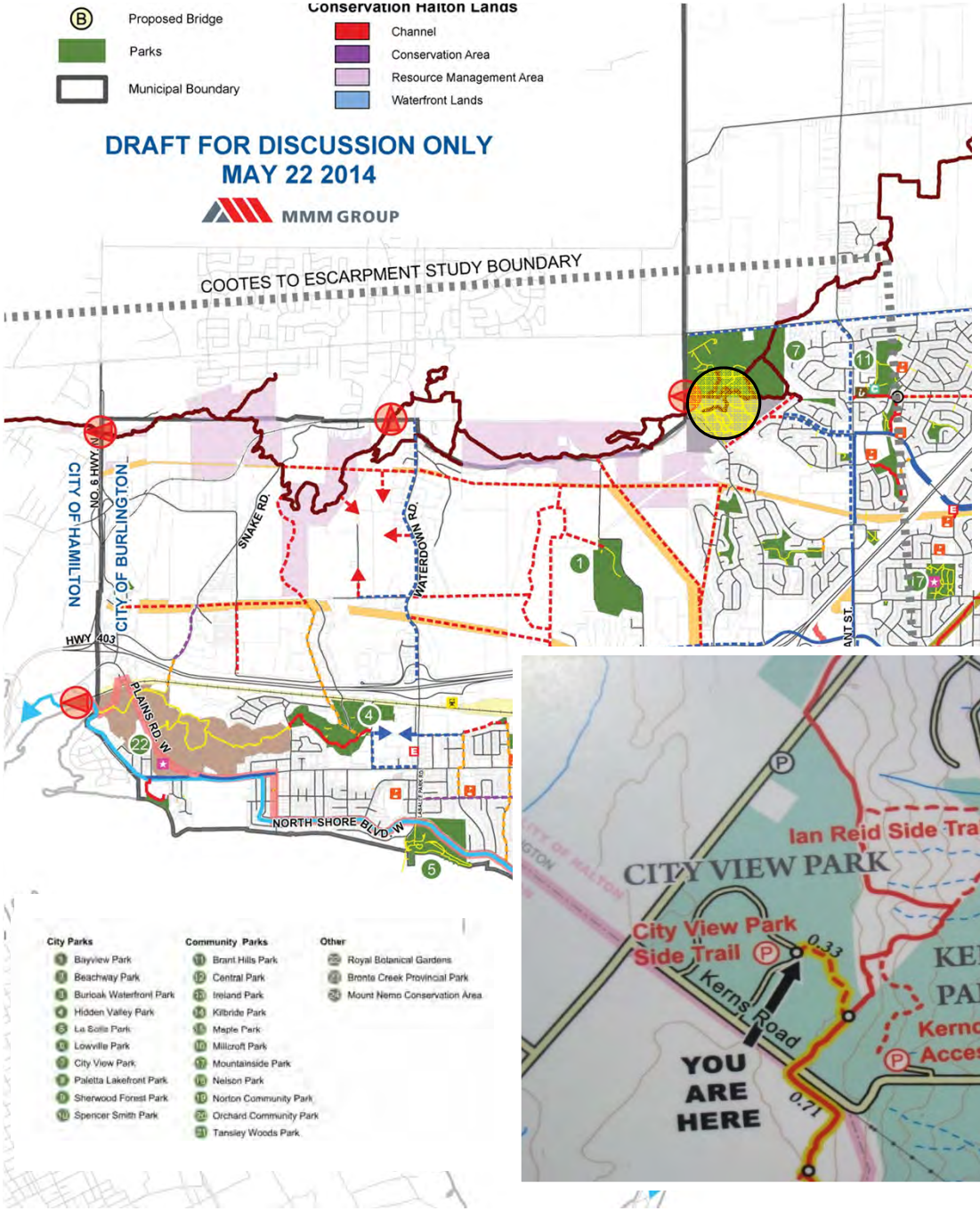



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MAY 22 2014
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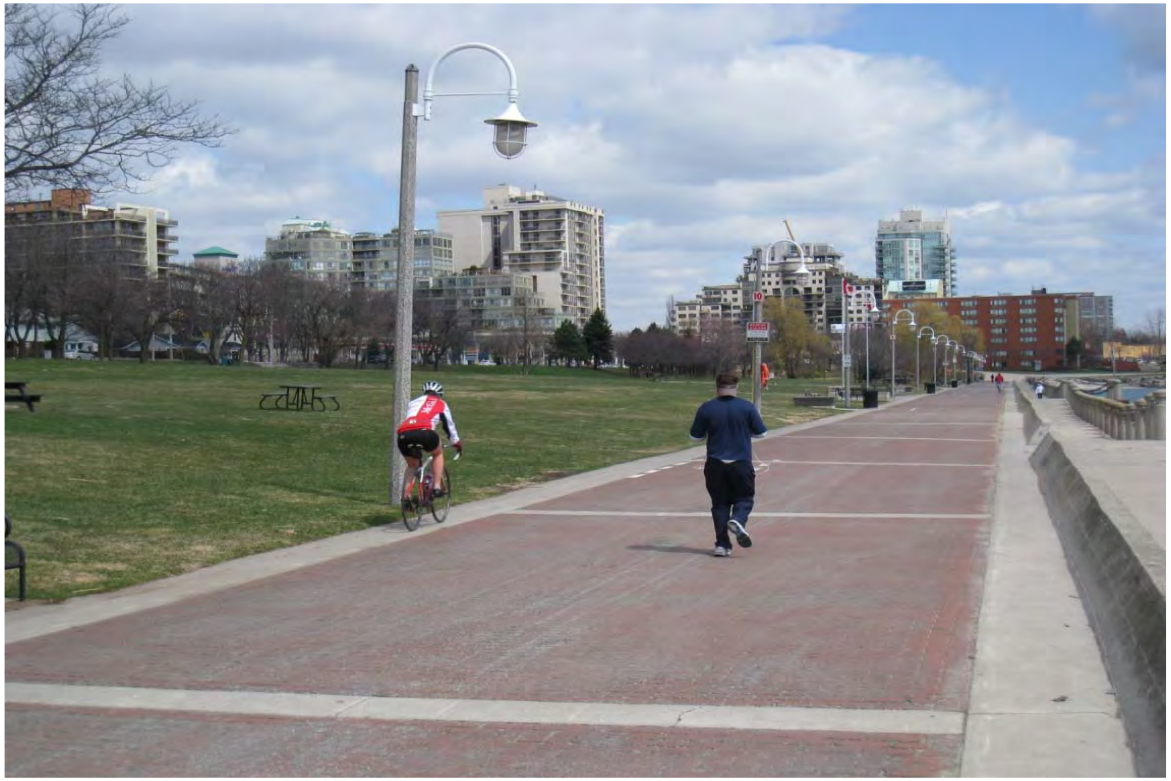
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Kerns Road
KERNCLIFF PARK
Kerncliff Park Access Trail
YOU ARE HERE
0.71

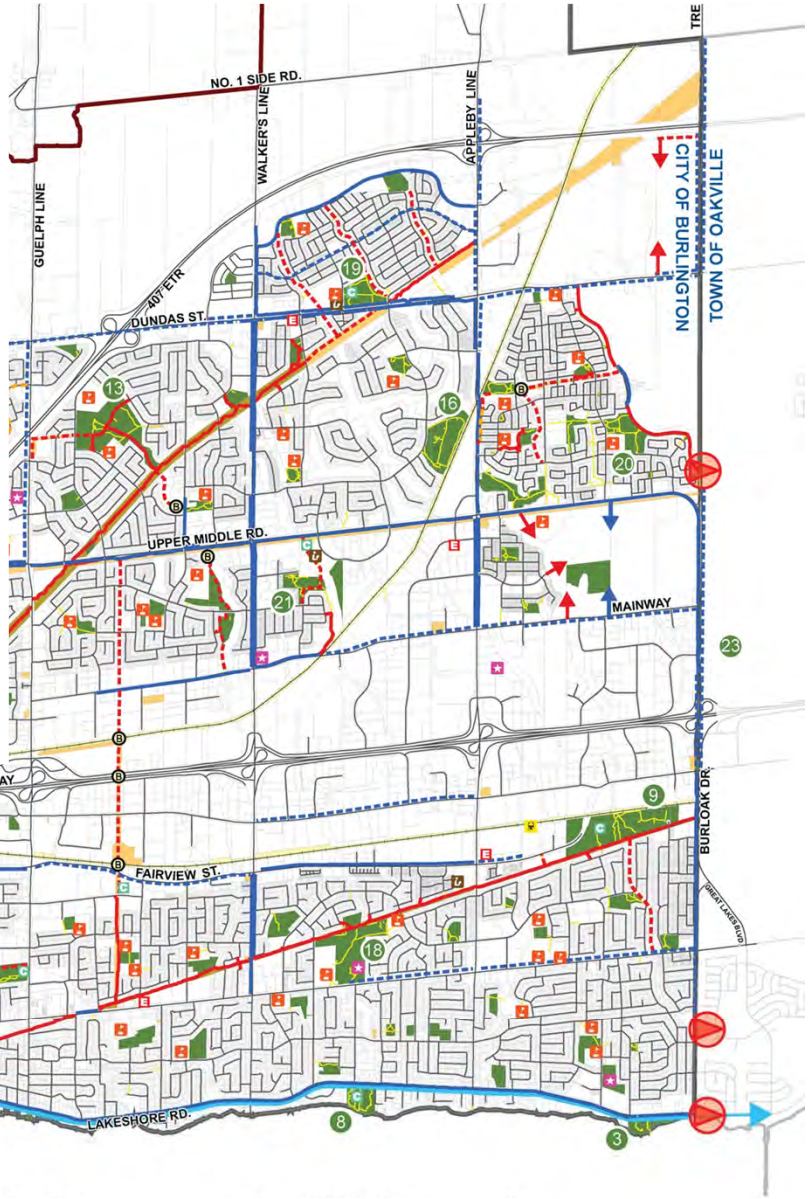

Trail Goes Through Private Property
NOTICE
NEIGHBOURS HAVE REQUESTED
DOGS MUST BE LEASHED
YOUR COOPERATION IS APPRECIATED
An access point for the
BRUCE TRAIL
USE AT YOUR OWN RISK






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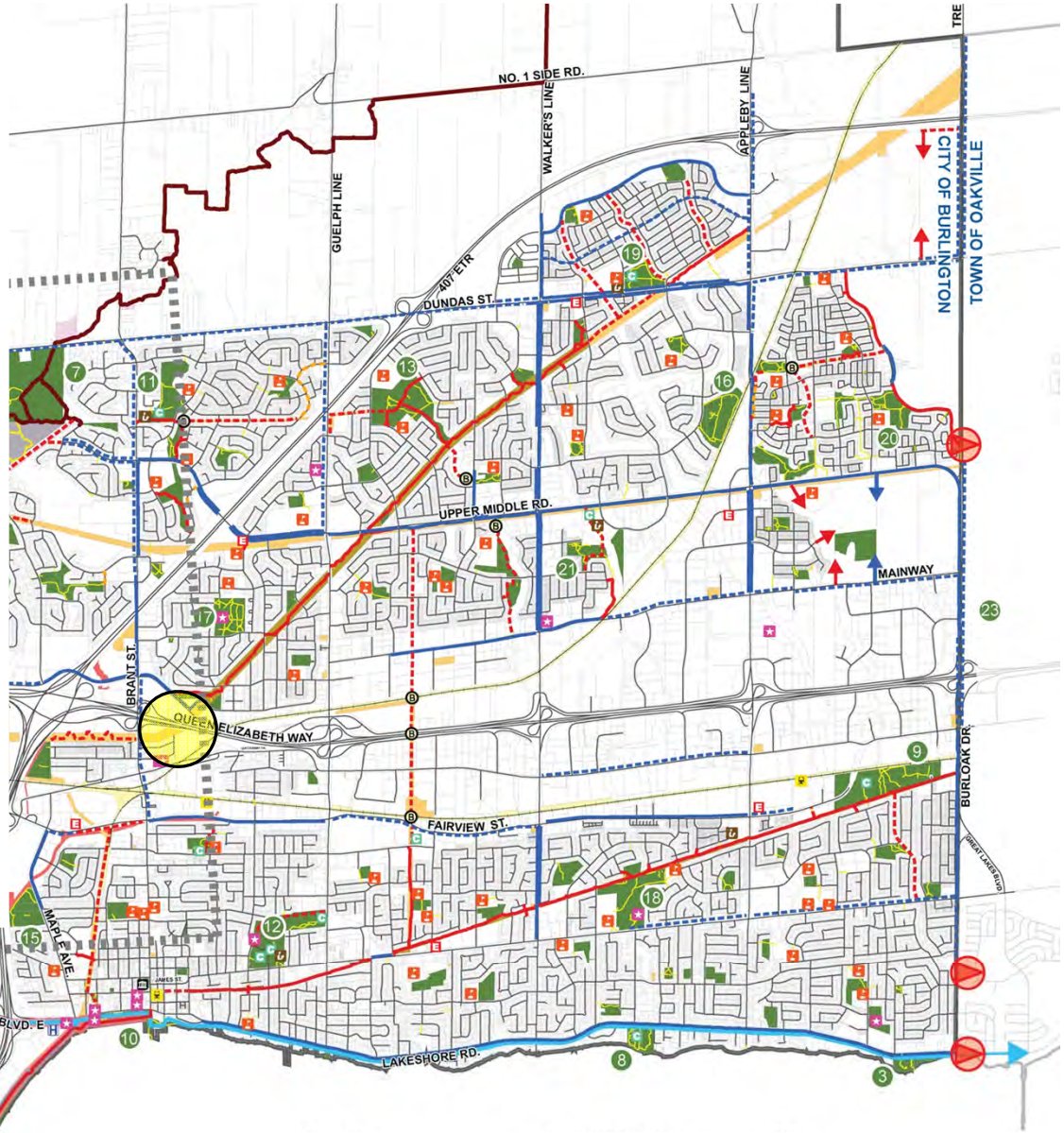







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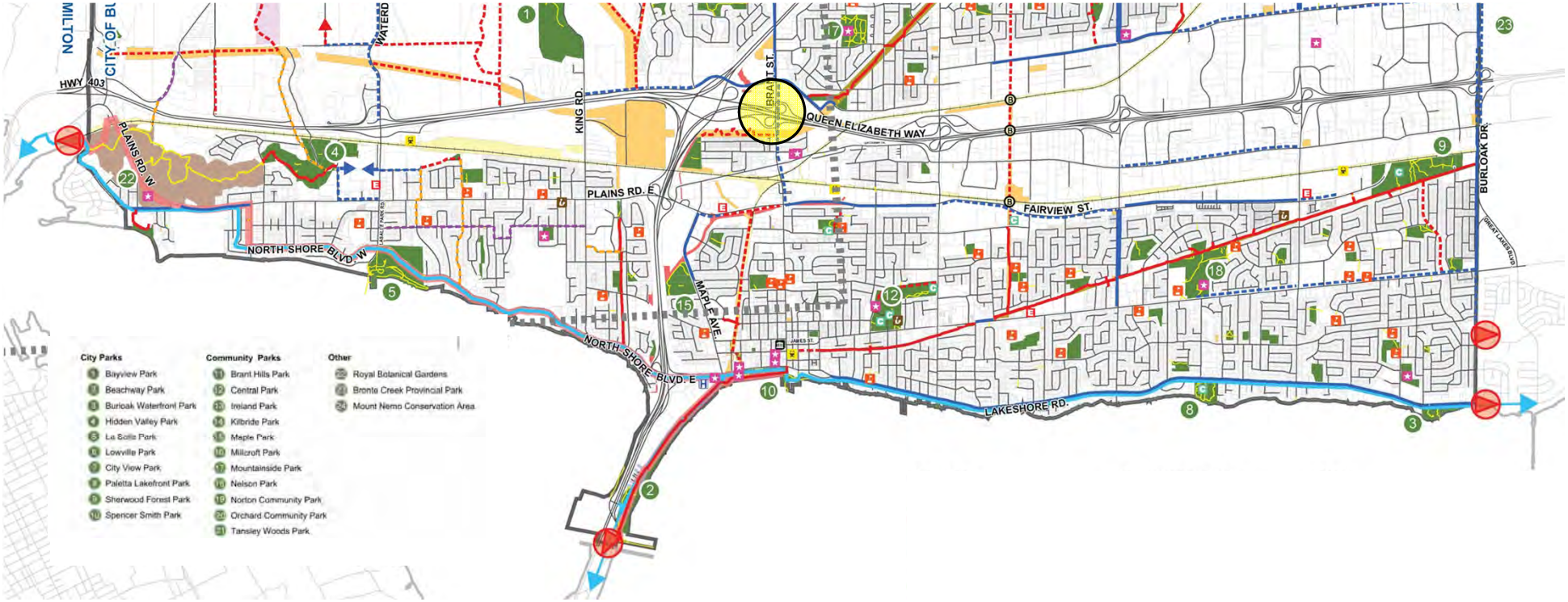

DANGER
HIGH SPEED TRAINS


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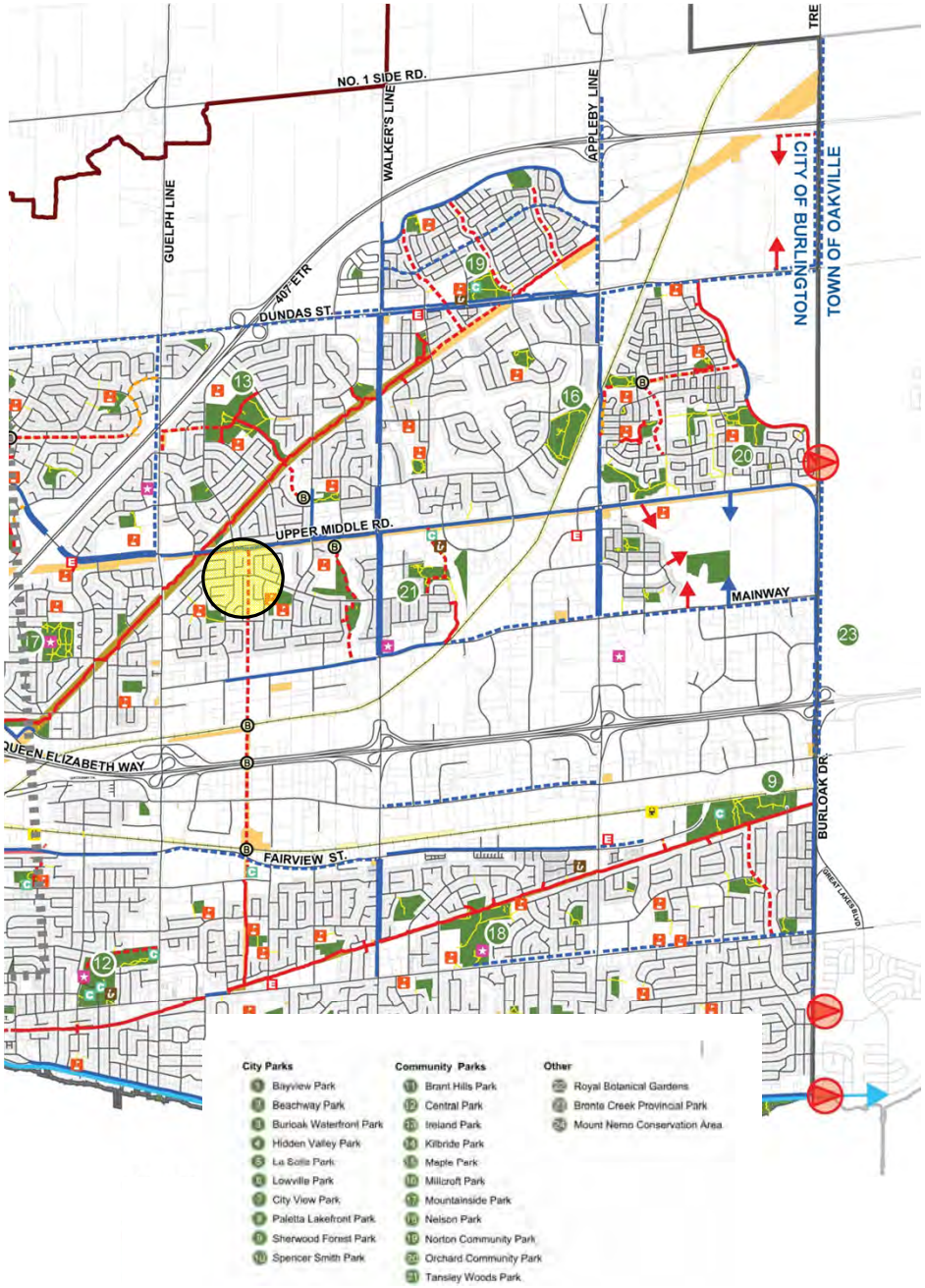





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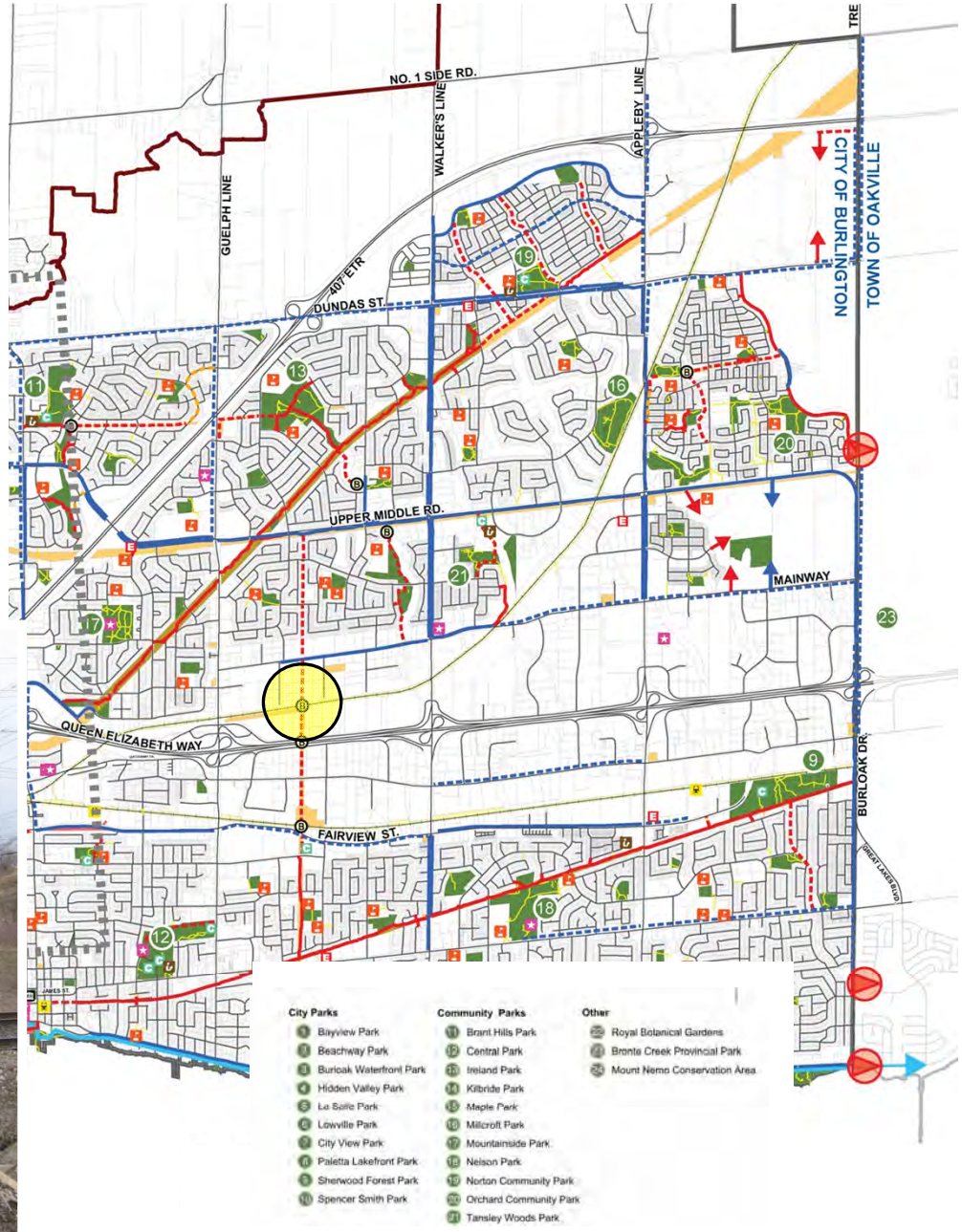





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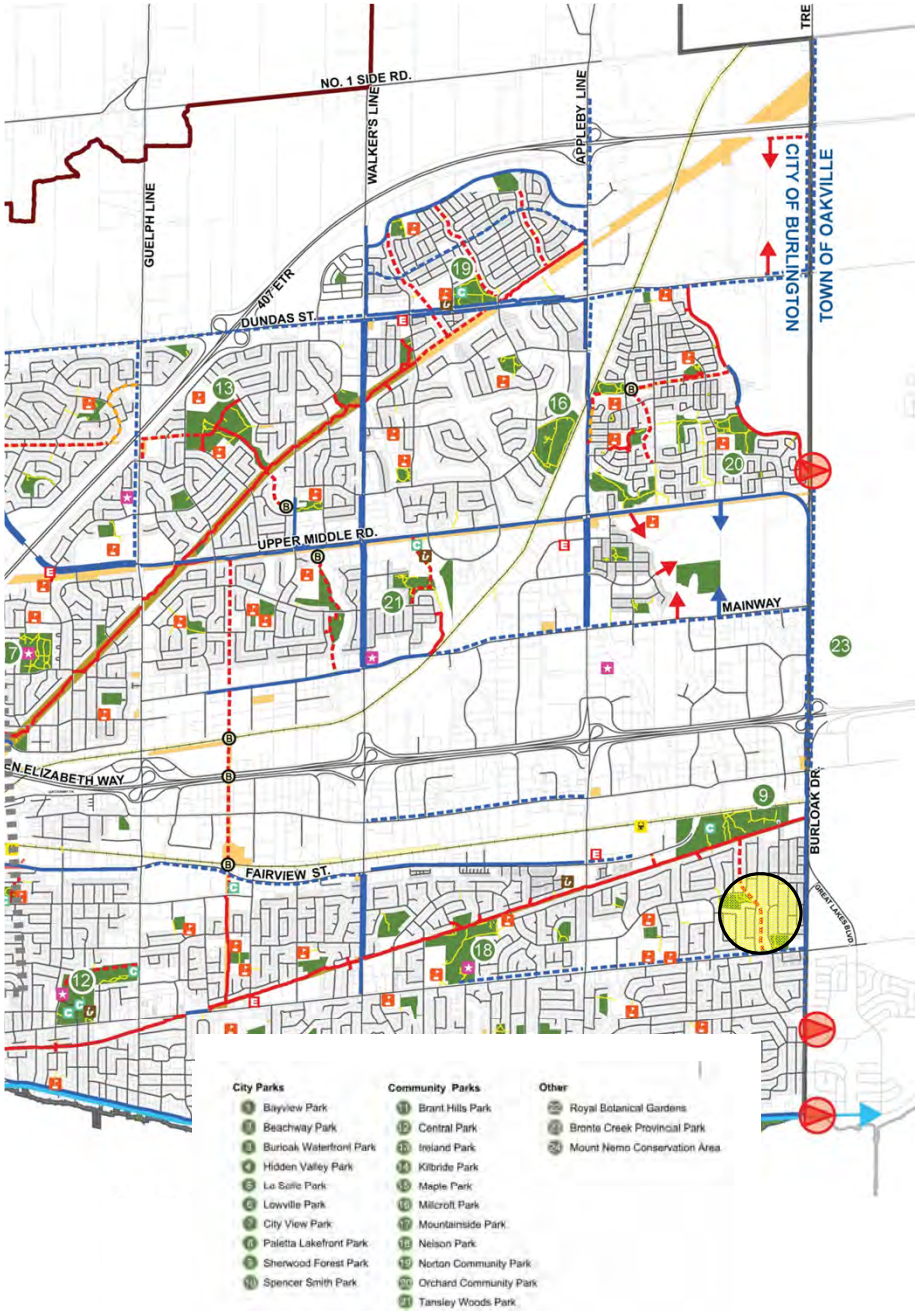



VDY


BRANT ST.
QUEEN ELIZABETH WAY
FAIRVIEW ST.
BURLOAK DR.
GREAT LAKES BLVD
JAMES ST.
City Parks
1 Bayview Park
2 Beachway Park
3 Burloak Waterfront Park
4 Hidden Valley Park
5 La Salle Park
6 Lowville Park
7 City View Park
8 Paletta Lakefront Park
9 Sherwood Forest Park
10 Spencer Smith Park
Community Parks
11 Brant Hills Park
12 Central Park
13 Ireland Park
14 Kilbride Park
15 Maple Park
16 Millcroft Park
17 Mountainside Park
18 Nelson Park
19 Norton Community Park
20 Orchard Community Park
21 Tansley Woods Park
Other
22a Royal Botanical Gardens
22b Bronte Creek Provincial Park
22c Mount Nemo Conservation Area

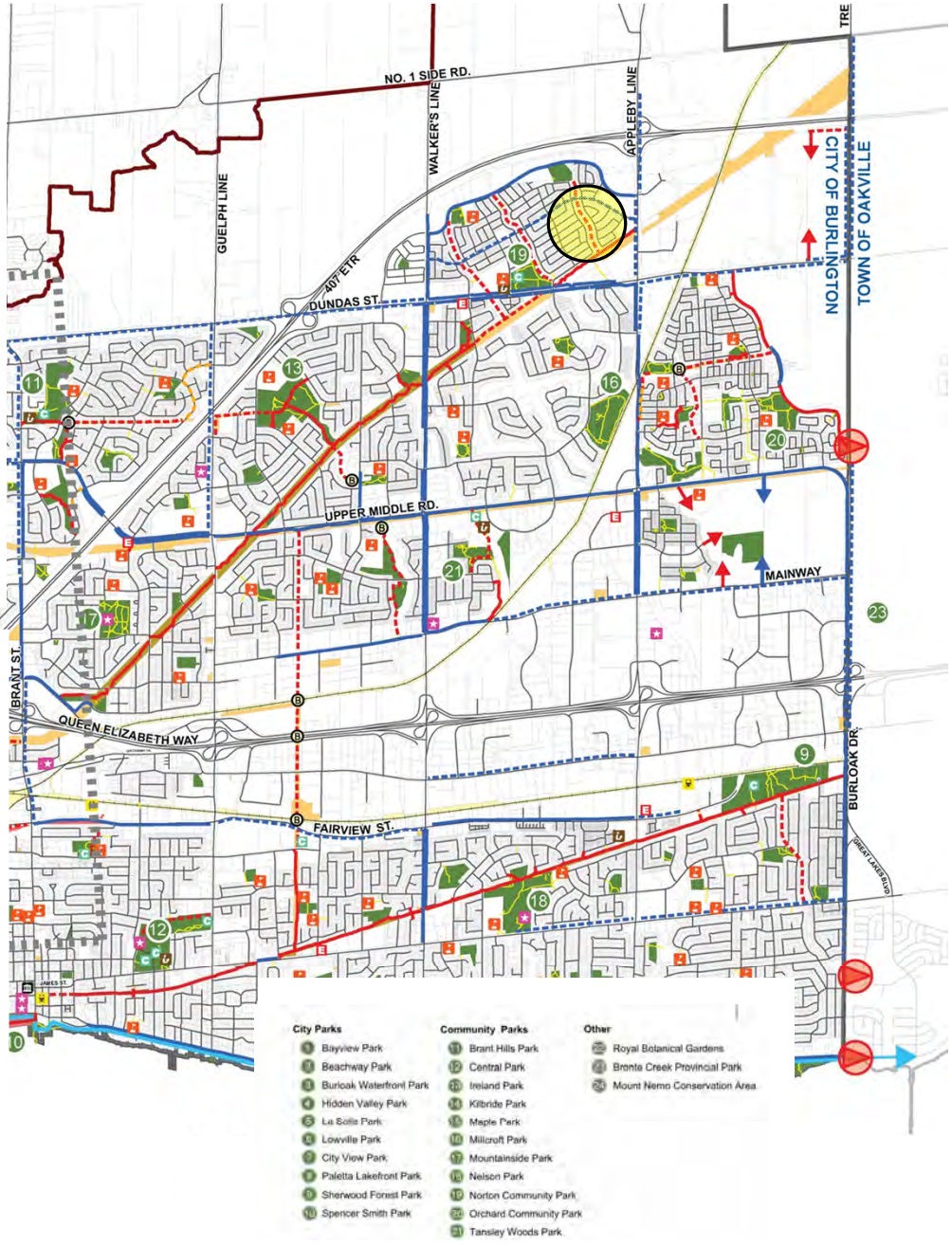




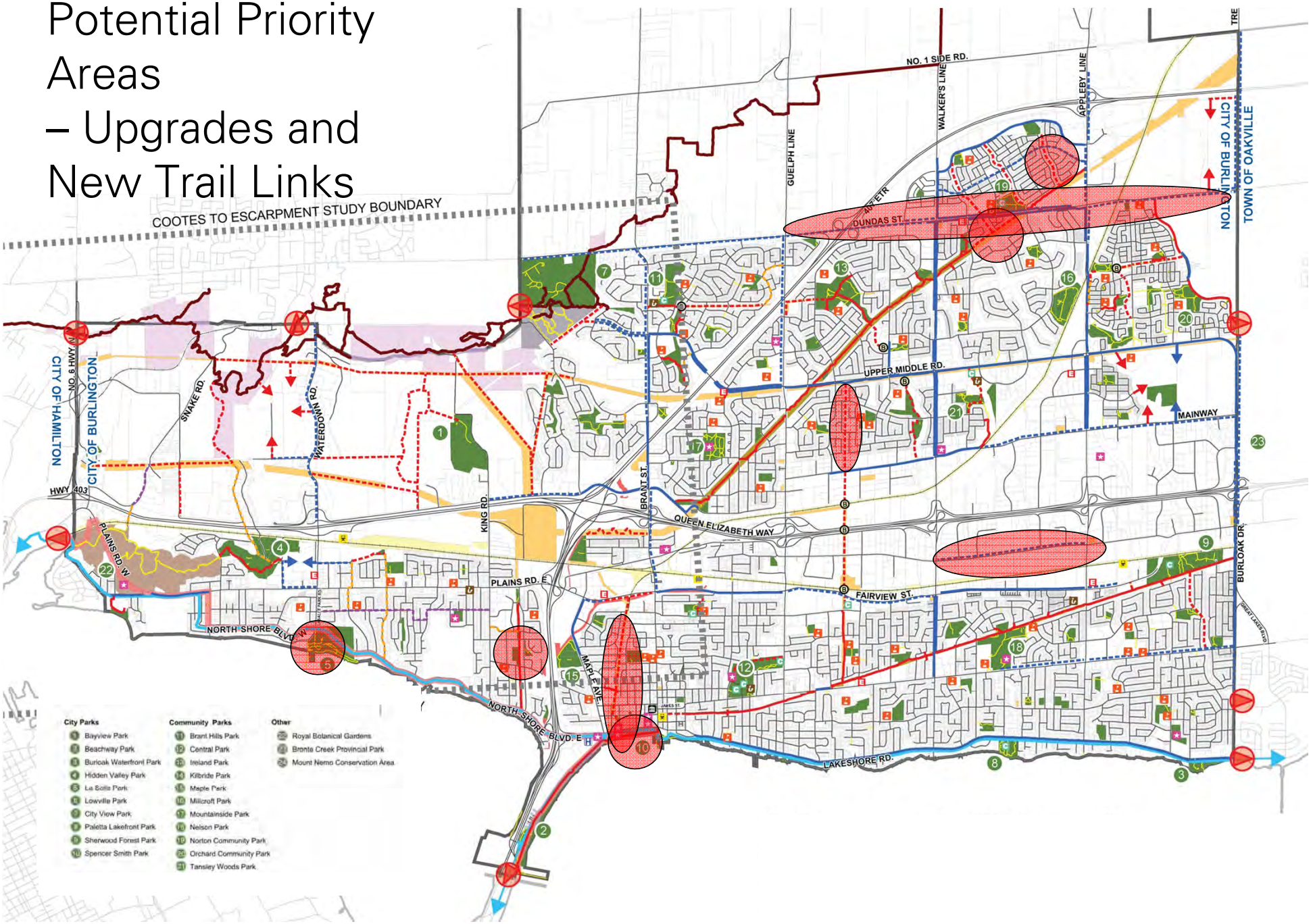

NO. 1 SIDE RD.
GUELPH LINE
WALKER'S LINE
APPLEBY LINE
CITY OF BURLINGTON
TOWN OF OAKVILLE
407 ETR
DUNDAS ST.
UPPER MIDDLE RD.
MAINWAY
EN ELIZABETH WAY
FAIRVIEW ST.
BURLOAK DR.
City Parks
1 Bayview Park
2 Beachway Park
3 Burloak Waterfront Park
4 Hidden Valley Park
5 La Salle Park
6 Lowville Park
7 City View Park
8 Paletta Lakefront Park
9 Sherwood Forest Park
10 Spencer Smith Park
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18 Nelson Park
19 Norton Community Park
20 Orchard Community Park
21 Tansley Woods Park
Other
22 Royal Botanical Gardens
23 Bronte Creek Provincial Park
24 Mount Nemo Conservation Area



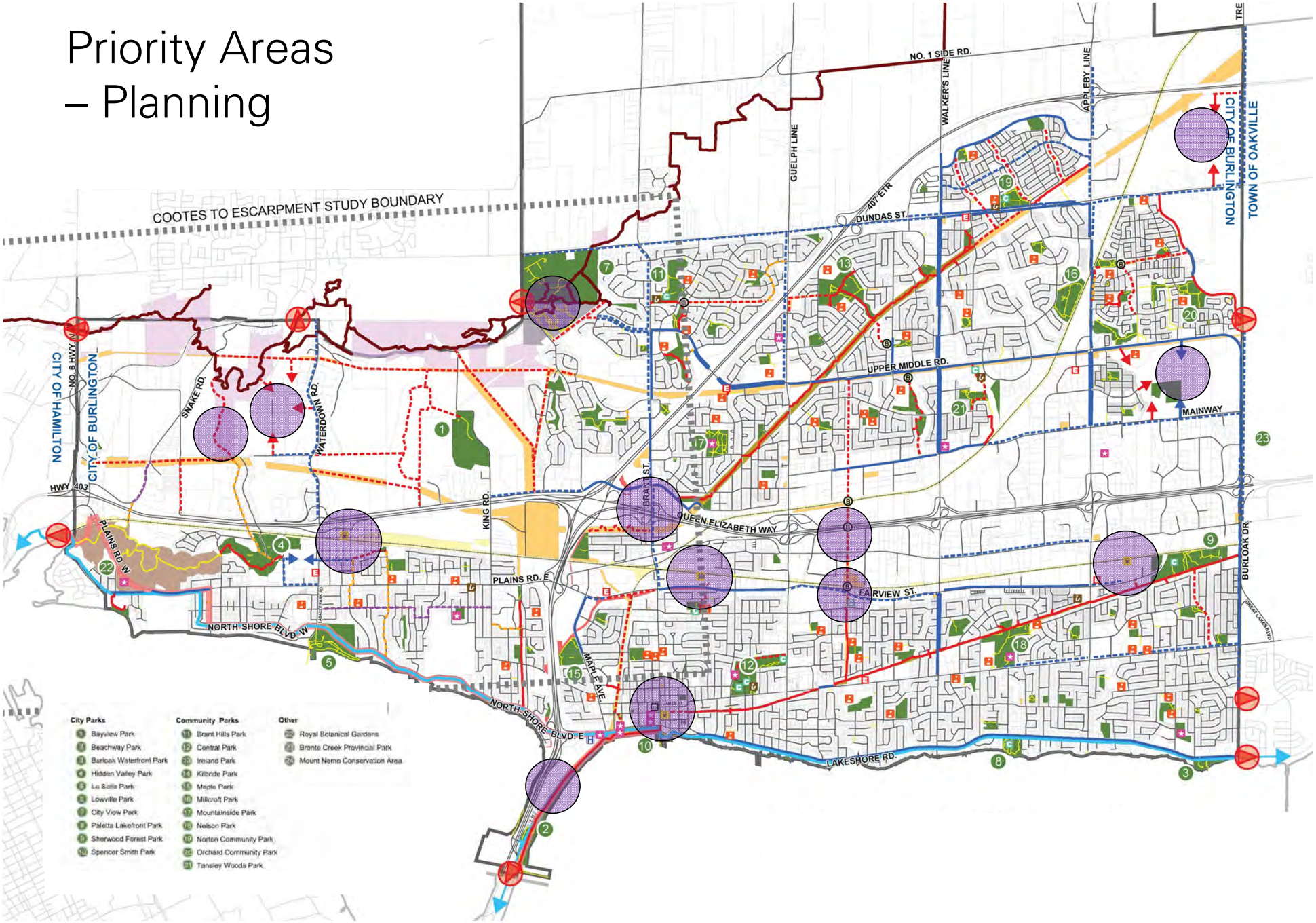



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Potential Priority Areas – Upgrades and New Trail Links



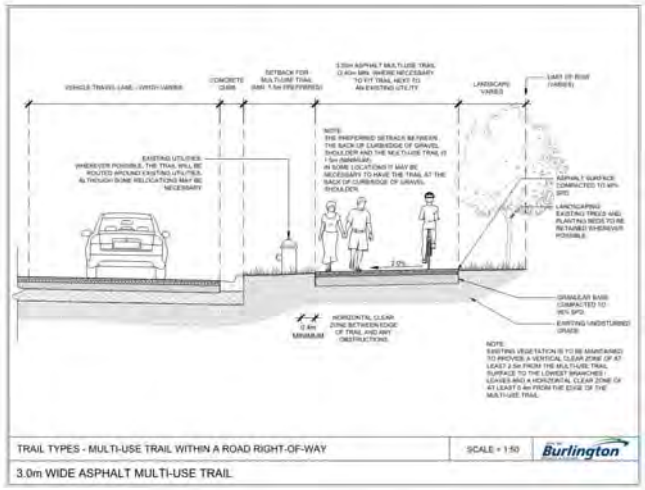
Priority Areas – Planning





How Will the Trails in Burlington be Designed?

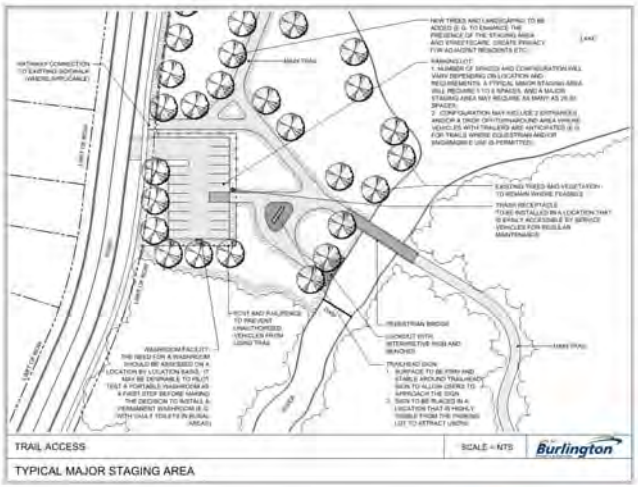
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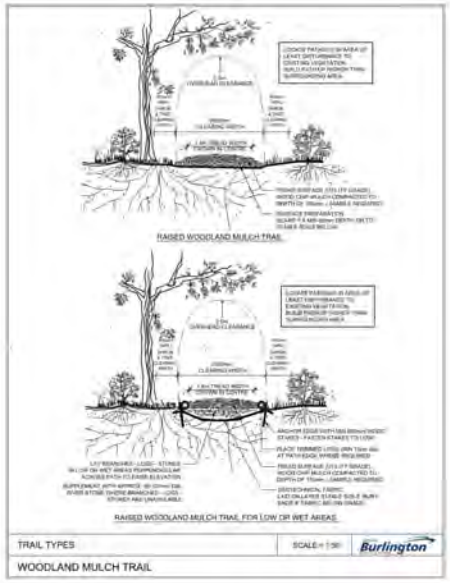


The Community Trails Strategy includes a review of the City's existing design guidelines for trails, with updates and additions where needed. Illustrated are a few of the guidelines that are being considered.

1. Asphalt Multi-use Trail in a Roadway Boulevard
2. Trail Staging Area
3. Mulched / Woodchip Trail in a Natural Setting
4. Trail Bollard at a multi-use trail entry point
5. Trail Sign Layout

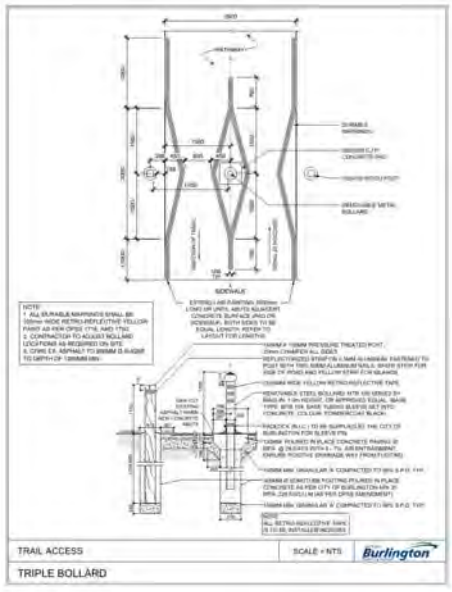
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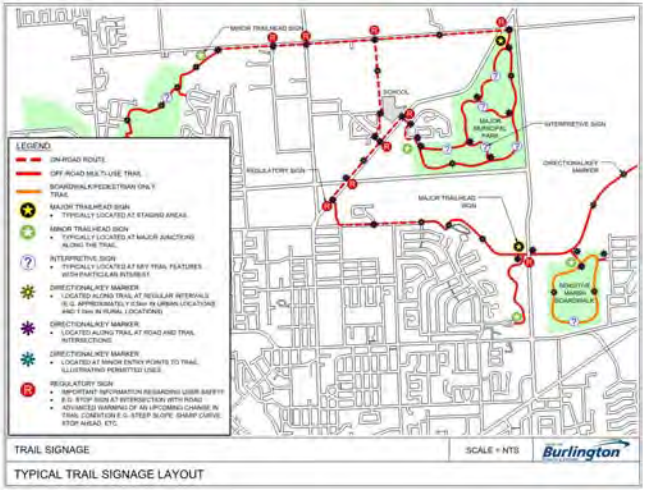




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5



What will be Addressed in the Strategy Report?

- Trail Standards
- Trail Crossings
- Signage Program / Strategy
- Accessibility
- Opportunities for Expansion
- Conflict Considerations
- Connectivity Considerations
- Supporting Facilities
- Related Studies
- Maintenance Standards
- Communication and Promotion of Trail System



Promoting Community Trails in Burlington

Engineering



The way facilities and amenities are planned, designed, constructed and maintained.

Education



Providing users with important information regarding how and where to safely use active transportation infrastructure.

Encouragement



Promoting the use of the active transportation network as well as active forms of transportation on a daily basis.

Enforcement



Ensuring the users of the trail network understand and adhere to the rules and regulations.

Evaluation



Monitoring the success of facilities and programs and making the necessary adjustments and improvements.

How will the trails be built, properly used, promoted, and evaluated?



How to Stay Involved!

How else can you participate?

1. Visit the study webpage at www.burlington.ca/trails to receive study updates and review study materials

2. Contact members of the study team with any questions, ideas or comments that you have about the study

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Completing the Study…What's Next?

PIC #2 → Document Comments from the PIC → Update Community Trails Network & Implementation Priorities → Prepare Final Strategy Report & Present to Council → Presentation to Council



Thank you! Questions??



Let's Talk Burlington!

Mindmixer Results

Posting 1: December 18, 2013 – January 25, 2014

Let's Talk Burlington! Trails Strategy Mindmixer Results

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
Cast your vote and use comment feature to share your thoughts. Posted : December 18, 2013-January 25, 2014					
1.0	Please rank how satisfied you are with the current trails in the City of Burlington	Very Satisfied	5/28 (18%)		the Francis road trail is a disgrace if you are going to put any funding into trails put it there> The trail is well used but is as narrow as 60 cm in areas do to lack of maintenance and sub contracting maintenance of the trail.Fix up this before you spent any more money on the centennial trail
		Somewhat Satisfied	11/28 (39%)		I don't need them for transportation, but I enjoy the nearby trail, but parts of it is blocked off and the trail could be improved for safety reasons.
		Neutral	4/28 (14%)		There simply are no enough. New subdivisions seem to be a little better planned in this regard though.
		Somewhat Dissatisfied	6/28 (21%)		I think satisfaction depends upon the area and the trail itself. Some being maintained better than others with more accessibility than others. The hydro corridor from Ontario Street at Brock Street going North is well used but is not a paved trail. This area I am very dissatisfied with as it is well used by children and students to travel to school, dog walkers, persons travelling south to the lake, etc... A proper paved path or trail with lighting would be beneficial for many in the community especially with the development of new condominiums in this area. I am satisfied with other more established trails with in Burlington which appear to be maintained regularly and recently updated with seating and new crossings at roads. Presently a neutral view of trails due to the winter weather having made sidewalks treacherous and inaccessible for many. At this time my neutral view is that I would much rather have my sidewalks safe and navigable than my trails.
		Very Dissatisfied	2/28 (7%)		
2.0	Please rank how important trails are for your day-to-day recreational activities.	Very Important	22/28 (78.5%)		Looking outside of Halton, but nearby, Brampton does what you suggest. When I lived in Brampton there were trails running from the North end to the South end of the City and from East to West. Parks, parkettes and trails were always incorporated into the subdivisions.
		Somewhat Important	2/28 (7%)		There are not nearly enough natural trails in the City the small creeks that meander through the City should have trails beside them so that they can be enjoyed, instead of locked chain link fences or locked chain linked gates. Oakville is a good example of utilizing these natural recourses. Also trails should be a mandatory part of any new subdivision
		Neutral	0/28 (0%)		I use the trail system for exercise, and nature photography. I also like to get my service animal off the heavily salted sidewalks when possible. Well groomed or ploughed paths are accessible to me where the dog can easily walk on the snow which is much safer for the pads of his paws. Heavily salted sidewalks hurt the dogs paws, and freeze his pads. The snow is warmer than frozen concrete sidewalks and provides insulation against the frozen ground. I just have to stop every once in a while to pull out the little snow balls between his toes. Down side of a long haired dog... but I try and keep his fur cut short on his paws during the winter as a preventative measure to snow balls in his toes...lol.
		Somewhat Unimportant	1/28 (4%)		
		Very Unimportant	3/28 (11%)		

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
3.0	Please rank how important trails are for your daily transportation i.e. getting to work, school or other destinations.	Very Important	12/28 (43%)		If this topic is to cut funding for trail you are out dead wrong. The francis road trailway has had no maintenance at all except for the section of the trail that is sponsored by a family. The centennial and other main trail have had thousands of dollars of upgrades and yet you have not spent a dollar on the francis road trail in the past 8 years. Get your priorities straight no cuts to trails funding
		Somewhat Important	6/28 (21%)		Since I live just east of downtown I use the Centennial Path almost daily to get to where I need to be by walking or cycling.
		Neutral	4/28 (14%)		The lights where trail cross major roads (e.g. Appleby Line)need to coordinated/time with the traffic lights so they don't impede traffic and cause gridlock.
		Somewhat Unimportant	0/28 (0%)		From my experience, they already are. The lights crossing Appleby require a trail user to activate them, and even then they have to wait :30 to 1:30 for the timing on the other lights to sync before proceeding. Motorists have to wait 30 seconds (5 second yellow + 25 second red) which is much less than a typical signalized intersection. Having to wait at a stop light for 15-30 seconds is not gridlock.
		Very Unimportant	8/28 (28.5%)		Agree with OASIS Burlington. Trails should be maintained the same as sidewalks in the city. They are only useful for recreation or for commuting if they are cleared of snow in winter and properly maintained year-round.
					The city of burlington does not care about the francis road trailway there has been no maintenance since i moved to the area 8 years ago
					I would use the trails more often in the winter if they were kept clear and safer for pedestrian travel. Having difficulty with physical mobility and a service animal which must be walked several times a day safety is an important factor for me. Winters such as this one with snow and ice limit where I can walk due to snow and ice, though I enjoy several trail systems with my service animal at other times of year for exercise and photography. Accessibility of the trail system is crucial for me to be able to use them due to balance and stability difficulties; I imagine this is a problem for others as well.
					I wish they would plough the hydo line trails as we use them everyday
					The trails in Burlington have been a big part of my family becoming more active. In the Orchard we enjoy the trail the runs east to west through the woodlot to Orchard Park and onto Bronte Creek Trail. We then travel from Bronte Creek Trail up to Dundas where there are a number of unmarked trail systems to explore. Going South on Bronte Creek Trail we can walk into Bronte Creek Provincial Park. We would like to see the City work with Bronte Creek to maintain or improve foot access to the Park - even if a charge is introduced for foot traffic. In the summer we may then bike down Burloak Drive to the Centennial Trail and across the city to Spencer Smith Park. Burlington should be proud of its trail system and further improvement would be welcome. When I bicycled into Oakville their trails were not as great as ours. There were no curb cuts and poor signage.
					I live in the Orchard and I use the Bronte Creek trail to get my Plan B CSA pick up on Wednesday nights (drop site is located on twelve mile creek rd). I also use the Bronte Creek trail to bike into Bronte Park 1-2/wk in the summer. I've used the centenial trail to get to summer festivals too... Overall, I don't use trails for daily transportation, but I do use them for transportation sometimes, particularly when I'm biking with my 3 yr old son.

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
					I use the trails often to bike with my kids as well. The trail that runs from St. Christopher's school to Orchard Rd. is a great ride with young children. It would be nice (and fairly easy) to have this connected along the pipeline easement. from the Bronte Creek trail, all the way to Pathfinder Park and through to Appleby Line so that it would be a convenient access for all Orchard residents to walk/bike to shops, school and services.
4.0	Please rank how important the funding of a community trails network is to you and/or your family	Very Important	15/28 (53.5%)		I would love the opportunity to allow my children a safe way to commute to the activities available to us. We currently refrain from riding our bikes as often as we would like due to traffic (even on the sideroads!) so would love to see the trails be able to take us to other places around the city. They don't have to be manicured, just functional.
		Somewhat Important	5/28 (18%)		I believe that existing trails do need to be maintained and safe for all persons who use them. I do not believe that unnecessary funds should be spent for upgrading trails for cosmetic reasons. Trails should receive funding to be functional, maintained and safe for all users but not funding to be artistically pleasing to the eye. @Bruce... Trails for some are an option for commute. Those who walk and cycle in our community and do not own a car. Trails often offer a shorter and more direct route, and can seriously impact your day.
		Neutral	1/28 (3.5%)		While I think the existing trails are well maintained and useful for exercise, I do not think they will seriously impact our needs for other reasons or options to commute.
		Somewhat Unimportant	0/28 (0%)		
		Very Unimportant	2/28 (71%)		



Let's Talk Burlington!

Mindmixer Results

Posting 2: January 22 – March 5, 2014

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
Please use the map to share your ideas for trail improvements in Burlington. You can identify missing links, connection opportunities and point out problem areas as well as features that you like. TIP: When adding an idea, you can zoom into a more specific location and then pin on the map, so that we can see the area you are referring to. *Existing Trails Legend* *Dark Blue Line – Existing Multi-Use Trail (Within Road Right-of-Way)* *Magenta Line – Existing Off Road Trail (Outside of Road Right-of-Way)* *Orange Line – Existing Footpath* *Light Blue Line – Waterfront Trail/Trans Canada Trail* *Brown Line – Bruce Trail* *Green Line – Greenbelt Cycling Route (Future)* *Posted January22- March 5, 2014*					
5.0	What are some of the opportunities for our trial network			Dury Ln- north of Fairview St	**Make this area pedestrian friendly** The top portion of Drury Lane is not pedestrian friendly. There aren't any sidewalks between Fairview and the CNR pedestrian bridge to the north. Also the auto shops in the area spill into the roadway and there aren't any landscape features to delineate or encourage pedestrian friendly areas.
				No location specified	**Place some benches along the trails instead of the beginning** Most people would probably prefer to stop and rest along the trails rather than at the beginning and end.
				QEW and Burloak Dr.	**Protected bike lane for Burloak or better mutli use trail** Provide safe lane(s) so families can bike to Bronte Park. It's free to visit without a car but it is life threatening to get there without a car. Burloak is used mostly for overflow when the QEW backs up. There is undeveloped space to the North of QEW and a road diet to the south should fix it.
				QEW and South Service Rd (south of Heritage Road)	**Put in2 overpasses for bikes/pedestrians** Placing these at the narrow sections reduces costs and connects with secondary bike lanes. Also avoids the chaos and danger at the major interchanges. they are un-safe to traverse with the family.
				Francis Road Bikeway (south of Warwick Dr and West of Francis Rd)	**Increase with of trail** Increase width of the trail to its original width and update the entrance at the Marley road end of segment. *This segment has overgrown do to lack of maintenance and the width is inconsistent. The width of the trail is as little as 60 cm wide is some locations in this segment
				New St (west of Dynes Rd)	**Change Road Crossing** There is no proper road crossing at this location and is not accessible for persons with disabilities.
				Central Park	**Accessible Trail within Central Park** Persons with personal mobility devices can not access all of the park without driving from parking lot at library to parking lot off Guelph Line. This is a large park with event opportunity and parking lots at opposite ends. As a newcomer to Burlington I did not even know they were the same park.
				Waterfront Trail at Martha St.	**Connect Trail to something** Trail ends.... trails should connect rather than just end at a street. There is no connection to downtown, waterfront path, parks, etc...

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
				Richmond Rd and Maple Ave	**Removal of Bike on Sidewalk Bylaw Signage to Ride on Hydro line Trail (footpath) or On Road Bike Lane** Trail ends/starts at Richmond Rd. to Fairview Street. From Richmond Road to Lakeshore is on-road bike lane which is not used. Bikes ride on sidewalk, adults on bikes and older youths attending skate/bike park should use bike lanes. Sidewalks unsafe for persons with disabilities in many areas, adults with bikes are disrespectful when sharing the sidewalk right of way with personal mobility devices. By-law should be revoked for persons over 13 and alternate route appropriately signed for those not wishing to ride within the road right of way.
				Ontario St (North of Brock Ave)	**Expand footpath into a Community Trail.** Well used footpath constructed into accessible community path. Downtown streets narrow and difficult to accessibly navigate in winter and summer with parking and poor sidewalks. Improve access to downtown waterfront trails, and events, additional parking for events and pedestrian, cycling access to waterfront off sidewalks. Footpaths used by pedestrians, students, dog walkers, etc... Alternate route to Fairview, Mapleview mall, downtown, schools, BAC, St. Lukes, Beach, waterfront, spencer smith, Brant Museum, Hospital, shopping, heritage railway station (Fairview)...etc...
				End of Old Burloak Dr	**Parking** provide some parking so that people other than the immediate neighborhood can
				Deerhurst Dr & Mathewman Cres	**Creek Trails** Make trails beside the creeks and following the creeks *I think this is great idea but will be difficult to implement as the City has not required developers to provide setback/buffer blocks along creek corridors for trails. Placing trails beside the creeks and in the flood plains will subject them to seasonal flooding and erosion and high maintenance costs. *I like this idea and it has been incorporated into planning subdivisions in other municipalities depending on grade and land ownership.
				Fairview St and Taylor Cres	**Plant trees on the North side to hide all the ugly industrial buildings and Junk piles** Plant some trees *Wouldn't that make your walk more visually pleasing? Try getting the tax payers to agree to raising their taxes for you to make your walk more visually pleasing.... LOL I'd vote NO! I would rather have my taxes raised for accessibility and winter maintenance of trails.
				Sundial Rd & Whitehorn Dr.	**Lots of trails in the area** They need to link together.

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
				No location specified	**Opportunity is knocking** I am an avid mountain biker and trail Stewart. Burlington/Waterdown has an abundance of existing trails, sadly most are marked "no cyclists". Exploring the possibility of more multi-use trails, like Dundas Valley, Christie Lake and Halton Hills have done would open economic opportunities and enhance the quality of life for citizens of Burlington. With 3 bicycle retailers, MEC and SAIL in Burlington alone working with these retailers, the region, the city and trail associations like the Bruce Trail (BTA) this can be achieved. Presently my group of riding friends numbering in the 100's rides very seldom in the Burlington area as most trails must be accessed illegally. A concerted effort must be made to increase access for riders of all disciplines to the amazing and challenging trail network we have. * support your idea, but not Burlington's by-law of allowing cyclists on sidewalks. As a person with a mobility device I have been run down on the sidewalk and multiuse paths. Surprise, surprise, by adults, not kids. Kids are courteous... Adults aren't. There needs to be education both on the part of the cyclist AND the driver on how to SHARE the road and multi-use paths. I know cyclists who ride properly who have been hit by vehicles and cyclists who dress the part who don't know how to ride. The opportunity is knocking and we must work together to make this work for "all" of us that use the roads and trails.
				Bronte Creek Trails (Avalon Dr.)	**Keep the trail natural** This trail is absolutely beautiful, next to a provincial park and needs to be kept that way. The news of a chain link fence being erected is disgraceful. I am looking forward to the walk and talk with Paul Sharman...
				Hydro corridor by Brock Ave & Elgin St.	**Bike Trails that take you somewhere rather than a parking lot** I know the power lines are not really a trail, but it is a cut through for people that are using to get to the lake, hospital, beach, etc. But, it ends now in a parking lot. Biking with kids is a challenge on the roads in Burlington. Trails would be a great answer for us - but any trail from the downtown we would like to access has us ending or starting in a parking lot.



Let's Talk Burlington!

Mindmixer Results

Posting 3: April 3 – April 21, 2014

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
We are opening up the map again, so that we can continue to receive your ideas and comments. Some of the areas we'd like to hear more about are: *What trails do you use now?* *How do you use the trails e.g: walking, biking, walking the dog, rollerblading, etc?* *Have you experienced any conflicts with other users on the trail? If so, please tell us where and a little about the situation.* *Are you satisfied with the extent of lighting on trails in the City? (The current practice is to light trails in some key locations and adjacent to lit sports facilities) recognizing that the cost to light a trail is approximately $130,000 to $160,000/km?* *Are there specific locations where you think trail signs are needed i.e: directional signage, messages about trail use and etiquette, areas where there are potential safety concerns etc.* *Any other comments or ideas you have about existing or future trails in Burlington that you would like to share.* *TIP: When adding an idea, you can zoom into a more specific location and then pin on the map, so that we can see the area you are referring to.* *Existing Trails Legend* *Dark Blue Line – Existing Multi-Use Trail (Within Road Right-of-Way)* *Magenta Line – Existing Off Road Trail (Outside of Road Right-of-Way)* *Orange Line – Existing Footpath* *Light Blue Line – Waterfront Trail/Trans Canada Trail* *Brown Line – Bruce Trail* *Gray Line- City of Burlington Boundary* *Green Line – Greenbelt Cycling Route (Future)*				
Posted April 3- April 21, 2014					
6.0	What are the priorities for our trail network?			Brant St & Elgin St	**Post the trails and cycling map in multiple places on the City web page.** I can only find it by searching "map". As a new user or a visitor, I would give up searching. You would think we could find it by going to the "For residents" then "walking cycling and driving" for one good spot. Add to that the Environment page has many locations for transportation. Someone in communications has to do a better job of getting residents to the great work that has been done already.
				Tyandaga Park Dr	**Cyclist Reminder** Post signs near entrances to the Centennial & Hydro Corridor paths reminding cyclists to warn pedestrians when they are approaching. This also ensures that pedestrians aren't startled when a cyclist rings their bell or calls "On Your Left", and both groups of users can share the path safely.
				Upper Middle Rd & Walkers Line	**Paths at Intersections** Here is an example of how bicycle paths can be set up at intersections to ensure that cyclists are visible to traffic using the intersection. https://www.youtube.com/watch?v=FlApbxLz6pA
				Appleby Line & Corporate Dr.	**Fix the multi-use paths on Appleby & Upper Middle** Ground has heaved quite a bit and users have to continually shift from sidewalk to path. Upper Middle the path was taken out when the new underpass was constructed and replaced with a wider sidewalk. The path surrounding is also in bad shape. Appleby Line near the Ironstone condo, the path has also been removed. Is it a multi-use path or isn't it?

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
				Garland Cres	**Complete the Orchard multi-use path** Pipeline easement between Orchard Rd. and Pathfinder is last segment that needs to be completed on this excellent path. I see lots of families using this path to go to Emerson Park / St. Christopher's School. Connecting it to Orchard Park school and beyond to Appleby Line behind Pathfinder Park makes it a very convenient alternative for active transportation and recreation in the neighbourhood.
				No location specified	**Conflicts with Trail Users... What are they?** While walking with an assistive device or service animal I have: a) been run off the sidewalk on Maple Avenue both when using an assistive device and / or a service animal cyclists do not move off the sidewalk for persons with disabilities. b) my service animal blinded by LED strobe lights, and verbally assaulted for my service animal blocking the said bicycle (spencer smith park at night) c) my service dog has been physically hit by skateboarders on Maple Avenue sidewalk d) my service dog has had to physically block adults cyclists on Maple Avenue sidewalk when there is on road bike lanes I currently stay off the trails and sidewalks as much as possible due to safety concerns, but would like to be able to use them more as my service animal does have to be walked several times a day. *Burlington Bylaws allow adults to cycle on sidewalks... Even when there are on street bike lanes. Children are courteous and do go around you on the grass, it is the adults who don't. There are areas along Maple Avenue Sidewalk which are blocked on once side by trees, hedges and bushes, fences, limiting the width of travel which is why my Service Animal is trained to "Block" the width of the sidewalk to protect me from falling. Yes - These are conflict issue because there is a lack of courtesy, not because people don't know better, because people don't think before acting. People are not consciously engaged in the moment of doing an action. If you tell this story... An adult cyclist knocks over or forces a disabled person off the sidewalk the majority would say that's terrible. But it is the average adult cycles on the sidewalk not thinking they are riding to close to the disabled

	Questions 1-4:	Answers	Statistics Percentage	Location on Map	Comments
					person forcing them off the sidewalk or to lose their balance and fall or trip and hurt themselves. *I have a hard time believing that this kind of behaviour is typical of people who cycle on sidewalks. Most of those who do so do it because they do not feel safe on the roads with fast moving cars. I call myself an experienced cyclist and there are times that even I don't feel comfortable on roads like Appleby Line - at night or when there are bad conditions. When using the sidewalks or MUPs I am extra careful of pedestrians - to the extent where I've fallen off my bike ensuring that I didn't get in the pedestrian's way. No cyclist on the sidewalk is looking to knock people over. Not many people know that service animals are trained to block the path of the sidewalk. I certainly wasn't aware of that. That lack of understanding might have contributed to the encounters you have described. Most people when passing by anyone on the sidewalk, give the courtesy of leaving one side free. It's possible your dog's blocking the sidewalk is being misinterpreted.
				No location specified	**Use energy efficient lighting** As I am now retired I do not know whether all municipalities are using energy efficient lighting. Brampton, approximately 15 years ago started using lower wattage bulbs in traffic lights to save money. This initiative came about by asking City Staff for recommendations on how to save money in the operating budget.



Let's Talk Burlington!

Mindmixer Results

Posting 4: May 23 – May 29, 2014

Please review the draft proposed trail network (presented at the Public Meeting held on May 22, 2014) and share your comments. TIP: When adding a comment you can zoom into a location and then pin on the map.					
Posted May 23- May 29,2014					
7.0	Do you have any comments about the longterm draft proposed trail network?			Sherwood Creek woodlot	**Connect the two proposed trails here** behind the woodlot to create a continuous trail south connecting the two halves of Sutton Drive. Would also work with the potential trail crossing further south as shown in the Cycling Master Plan.
				Dryden Ave & Orchard Rd	**Work with Holly's Pride** to obtain access to complete the trail on the pipeline easement. They have leased the land from Enbridge, but it is a grassy field and would not be any less usable to them with a path in it, plus they would get the city to maintain it for them.
				North of Sherwood Forest Park	**Consistency with the Mobility Hubs plan** The Mobility Hubs plan had proposed potential trails from Harvester north along the creekbed to connect with a possible crossing of the 403/QEW. This would greatly improve access to the GO stations.

Appendix C

Trail Designers' Toolbox



Appendix C – Trail Design Guidelines – Table of Contents

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C.0 Community Trails Design Guidelines

C.1 How to use the Guidelines

These guidelines should be treated as a reference for the development and construction of off-road community trails found within the City of Burlington. Although they are meant to provide guidance for a range of typical municipal-wide conditions, they are not intended to address every condition encountered. This toolkit should be used as a reference guide by City staff who are involved with the planning, design and implementation of the community trail network.

The guidelines include general information on different trail users and their needs. Where appropriate, summary tables are provided which highlight recommended design treatments and considerations when designing key features of the community trails network. The guidelines represent current and accepted design practices in North America. They incorporate ongoing research and experience by the consulting team and other trail design professionals.

The information in this appendix is not meant to be prescriptive nor is it intended to replace sound professional judgement. The intent is to have regard for the individual guidelines while considering the context of individual site conditions to arrive at the most appropriate solution. In some cases an interim solution may be appropriate where the desired long-term solution cannot be achieved in the short or mid-term. However, the interim solution should meet users' needs to the greatest extent possible without compromising user safety. The City should also have regard to the Accessibility for Ontarians with Disabilities Act (O. Reg.191/11) (http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_110191_e.htm).

Important Note: When using these guidelines, it may also be appropriate to consult additional guidelines on a case-by-case basis. Other useful references include but are not limited to:

- City of Burlington Cycling Master Plan (2009)
- City of Burlington Accessibility Design Standards
- Trail Ontario Traffic Manual (OTM) Book 18 (Cycling Facilities)
- OTM Book 15 (Pedestrians)
- Transportation Association of Canada Bikeway Traffic Control Guidelines
- Accessibility for Ontarians with Disabilities Act, 2005, Amending O. Reg. 191/11. Part IV. 1 Design of Public Spaces Standards (Accessibility Standards for the Built Environment)

C.2 Trail Design Considerations

C.2.1 Designing for Different Users & Trip Types

Designing trails is not a one-size-fits-all approach. Although there are many standardized design concepts, there are also numerous elements that need to be considered including new construction versus upgrading existing trails; trail location; context (urban, rural or suburban); level of separation (on vs. off-road); width; surface type; level of use; seasonal vs. year round use; trail gradient; accessibility; degree of difficulty; length; ownership; sustainability and ability to maintain; access points; transition points / linkages; context sensitive conditions; natural heritage systems and features; road crossings; and signage.

The types of users of the trail system also have an influence on guidelines. The following sections describe the main trail user groups and some of the key design parameters that are considered in the development of these design guidelines. The primary users of the City of Burlington's Community Trails network are expected to be pedestrians (walkers, hikers, joggers / runners), cyclists, and users with mobility devices (see section V1.3.1). There are also additional user groups such as in-line skaters, skateboarders and in some cases cross-country skiers that are anticipated to use the trail system in select locations during different seasons. It is important to note that where multiple user groups are anticipated, adequate and proper signage related to safe interactions should be implemented. Additional design considerations / factors for pedestrians and cyclists are documented below.



Pedestrians

Walkers

Walkers have a wide range of interests and motives i.e. leisure, relaxation, socializing, exploring, making contact with nature, meditation, fitness, dog walking etc.. Walkers can be defined by their trip type including recreational or utilitarian (to work, school or most frequent activity). Utilitarian Walkers typically walk within urban areas and tend to use sidewalks, walkway links between streets, parking lots and plazas as well as trails where they are convenient, well designed and properly maintained. Trails can provide a convenient "short cut" to traveling the sidewalk network to get to their destination.

Ninety-five percent of all pedestrian trips are less than 2.5 km in length, though it is reasonable to expect that some walkers whose trips are motivated by exercise / health fitness might make trips that are between 5 and 10 km in length.

Hikers

Hikers are often considered the elite of the recreational walking group and may challenge themselves to cover long distances and be willing to walk on sections of a rural roadway shoulder considered less safe or less interesting by occasional leisure walkers. They take trips that may range between 5 and 30 km in length, may be more keenly interested in natural features, are often more adept at map reading, are more self-sufficient than leisure walkers, may expect fewer amenities and are often attracted to challenging terrain and rural areas.



Joggers / Runners

Although the primary motivation for joggers and runner may be fitness, they may share more in terms of profile characteristics with distance hikers than they do with leisure walkers. This group typically is accomplished, goal-oriented, enjoys travelling on trails at higher speeds for distances between 3 and 15 km or more, often avoiding hard surfaces such as asphalt and concrete and many prefer to run on granular, natural (earth) and turf surfaces which can provide a more cushioning effect.

Cyclists

The mechanical efficiency of the bicycle allows users of all ages to travel greater distances at a higher rate of speed than pedestrians, and distances covered vary widely from a few kilometers to well over a hundred depending on the fitness level and motivation on the individual cyclist. The average travel speed for a cyclist on a trail is in the range of 15-20 km/h and 18-30 km/h on a road, with speeds in excess of 50 km/h while traveling downhill on roads and some hard surface trails. Based on the City Parks By-law 35-1976 the maximum permitted speed is 16km/hr. Where excessive speed is a potential issue on trails, speed limits and warnings should be posted to discourage fast riding and aggressive behaviour. Some bicycles are designed to travel easily over stone dust and gravel surfaces (e.g. all-terrain, hybrid or mountain bikes), whereas, narrow-tired touring and racing bicycles require well-compacted granular surfaces or hard surface pavements such as asphalt. The following additional factors should be considered when designing for cyclists:

- Cyclists have the right to access the public roadway system, with the exception of the 400 series and major provincial highways or where prohibited by law.
- Some cyclists tend to prefer off-road trails, often shared with pedestrians; these facilities offer the less experienced and less confident cyclist a more comfortable environment.
- Cyclists that travel longer are more likely to focus a significant portion of their route on the roadway network, and often seek out quieter and scenic routes.

When using roads, cyclists generally travel 0.5-1.0m from the curb or other obstructions because of the possibility of accumulated debris, uneven longitudinal joints, catch basins, steep cross slopes, or concern over hitting a pedal on the curb or handlebar on vertical obstacles. However, when cyclists use or cross a public roadway, they are considered vehicles under the highway traffic act (HTA) and are expected to follow the same rules of the road as motorized vehicles.



Burlington Multi-use Pathway
source: tourismburlington.com

C.2.2 General Design Parameters

When designing multi-use trails careful consideration should be given to the physical, aesthetic and environmental requirement for each trail type. In many instances design criteria related to operational space, design speed, alignment and clear zone are often governed by the needs of the fastest user group on the majority of the trail, that being the cyclist. Not all trails need to be designed to meet the requirements for cyclists; however, when trails are being designed it is prudent to consider design parameters for the cyclist along with the AODA Design of Public Spaces Standard for trail design. When considering single or speciality uses where part of the trail experience involves the location such as hiking on a on nature trail or maneuvering through challenging conditions, such as BMX or mountain biking, a number of the parameters outline below do not apply. In these instances, designers should consult directly with the user group and / or design manuals that are specific for that use.

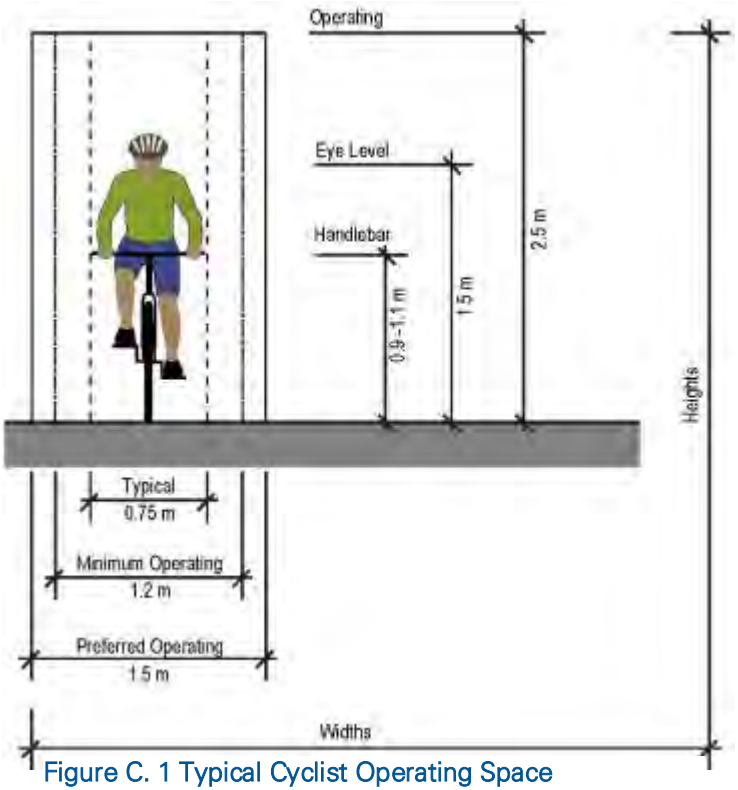


Figure C. 1 Typical Cyclist Operating Space
Source: based on information from the AASHTO Guide for the Planning, Design and Operation of Bicycle Facilities, 2012.

The following sections describe the basic design parameters recommended for cycling. Figure C.1 illustrates the typical cyclist operating space. Generally an operating width of 1.2m to 1.5m is sufficient to accommodate forward movement by most cyclists; however, for additional considerations regarding the operating space of cyclists refer to Ontario Traffic Manual Book 18 section 2.2.

A trail user's operating space is a measurement of the horizontal space that is required. In the case of in-line skating and cycling, the space includes room required for side to side body motion used to maintain balance and generate momentum. Table C.1 outlines minimum and preferred operating space.

Table C.1 Minimum and Preferred Operating Space for Trail Users. Source MMM Group

Operating Condition	Minimum (metres)	Preferred (metres)
One-way Travel (one wheelchair user)	1.0	1.5
One-way Travel (two pedestrians)	1.5	2.0
One-way Travel (one cyclist)	1.2 (in constrained locations)	1.5+
One-way Travel (one in-line skater)	2.3	3.0
Two-way travel (two cyclists)	3.0	3.0+
Two-way Travel (two wheelchair users)	2.4	3.0+

Horizontal clear distance is the space beside the trail bed that should be kept clear of protruding objects. Vertical clear distance is the space above the head of the user while using the trail (e.g. pedestrians walking or cyclists mounted on their bicycle). **Table C.2** provides a minimum and preferred horizontal and vertical clear distance.

Table C.2 Minimum and Preferred Horizontal and Vertical Clear Distance for Trails. Source MMM Group

Clearance Condition	Minimum (metres)	Preferred (metres)
Horizontal clearance to stationary objects	0.3	$\geq$1.0
Vertical clearance to stationary objects	2.5	3.0

Slope refers to both the measured fall over a given distance along the centreline (referred to as longitudinal slope) and perpendicular to the centreline (referred to as cross slope). Cross slope can be configured so that all runoff is directed to one side of the trail, or so that there is centre crown and runoff is directed to each side of the trail. **Table C.3** provides guidance regarding longitudinal and cross slope.

Table C.3 Guidance Regarding Longitudinal and Cross Slope for Recreational Trails. Source MMM Group

Longitudinal Grade or Slope for Recreational Trails	
0% to 5%	▶ Preferred
5% to 10%	▶ Try to avoid grades over 5% for off-road trails where possible. Where steeper slopes are necessary "trail hardening" should be considered. ▶ Consider introducing level rest areas every 100m to 150m of horizontal distance and install signing to alert users of upcoming steep grades. ▶ Consider design strategies such as switchbacks when slopes approach 10%.
10% to 15%	▶ Consider the use of structure such as steps, step and ramp combinations, or stairways or consider locating the trail elsewhere.
15% or over	▶ 15% represents the maximum possible longitudinal slope for a sustainable trail surface. Where slopes approach or exceed 15% significant washouts become an ongoing issue. Structures such as steps, step and ramp combinations and stairways should be employed. Otherwise, an alternative location for the pathway should be sought.
Cross Slope for Recreational Trails	
1-2%	▶ Minimal, acceptable on hard surfaced trails, may not provide adequate drainage on granular surfaced trails.
2%	▶ Will provide adequate drainage on hard and granular surfaced trails.
Greater than 2%	▶ Excessive cross slopes can be difficult and potentially dangerous for some levels of physical ability as it can result in difficulty maintaining balance. ▶ Cross slopes greater than 5% result in difficulties for most user groups and may also result in significant erosion.

Design speed is used to determine trail width, minimum curve radius, horizontal alignment and banking or super elevation on curves to ensure that trail users have adequate space and time to safely approach and navigate sharper curves along the trail. The design speed for the recreational cyclist is generally considered adequate for all self-propelled trail users including pedestrians, in-line skaters, skateboarders, scooter users and those using mobility devices such as wheelchairs. The average recreational cyclist can maintain speeds of up to 18-25 km/h on multi-use pathways. Given that cyclists tend to travel more slowly on granular surfaces a lower design speed can be selected when designing granular surfaced trails.

The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Planning Design and Operation of Bicycle Facilities provides the following guidance regarding the design speed for multi-use trails.

- For most trails in relatively flat areas (i.e. longitudinal slopes of less than 2%) a design speed of 30km/hr is generally sufficient except on inclines where higher speeds occur. The design speed should not be lower than 23km/hr except in locations where the context and user types support a lower speed.
- In hilly areas with sustained steeper grades design speed should be selected based on anticipated downhill travel speeds, to a suggested maximum of 48km/hr.

Suggested centreline radii for a range of design speeds at a maximum 20 degree lean angle are presented in **Table C.4.** Lean angle refers to how far from upright/perpendicular a cyclist typically leans into a corner to prevent falling outward.

Note that these design speeds exceed the 16km/hr. maximum speed limit permitted on trails according to the current City Parks **By-law 35-1976**. Information presented in **Table C.4** is provided for the trail designer's reference, for example in cases where additional width or a wider radius should be considered for user safety (e.g. trail curve at the bottom of a hill). Cautionary signing should also be used in these instances to warn of upcoming steep grades and sharp curves.

Table C.4 Suggested Centreline Radii based on Design Speed for Multi-use Trails at a 20 Degree Lean Angle (Source: MMM Group and (AASHTO) Guide for the Planning Design and Operation of Bicycle Facilities, 2012)

Design Speed (km / h)	Suggested minimum radius
16	6
19	8
25	15
30	18
32	22
40	35
48	50

When horizontal curves are sharp (i.e. a very small radius), facility widening should be considered to compensate for the tendency of cyclists to track toward the outside of the curve. Table C.5 provides additional widening requirements for curves on multi-use trails where the radii are less than the recommended minimum for the design speed selected. Stop sight distances for off-road multi-use trails are typically governed by the distance required for cyclists since pedestrians and other trail users can typically stop more quickly than cyclists, regardless of the trail configuration.

Table C.5 Additional Widening Requirements for Curves on Multi-use Trails (Source MMM Group)

Radius (m)	Additional Widening (m)
0 – 7.5	1.2
7.5 – 15	0.9
15 – 22.5	0.6
22.5 – 30	0.3

C.2.3 Accessibility

Approximately one in seven Canadians lives with a disability. Mobility, agility and pain-related disabilities are by far the most common, each accounting for approximately 10% of reported disabilities nationally. Disability increases with age - 3.3% among children, to 9.9% among working-age adults (15 to 64), and 31.2% among seniors 65 to 74 of age. Disability rates are highest among older seniors (75 and over), with fully 53.3% in this age group reporting a disability.

The Accessibility for Ontarians with Disabilities Act, (AODA, 2005) states that "The people of Ontario support the right of persons of all ages with disabilities to enjoy equal opportunity and to participate fully in the life of the province." The stated goal of the AODA is "to make Ontario accessible for people with disabilities by 2025." Ontario Regulation 191/11 made under the Accessibility for Ontarians with Disabilities Act, 2005 is the standard that applies to pathways and trails. (http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_110191_e.htm).



Source: GAATES Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces, 2014

Compliance with the requirements of the Act will help remove barriers in outdoor spaces for people with disabilities. The standards and criteria contained in the document apply to new construction and extensive renovation of trails and exterior paths of travel. They do not apply to on-road cycling facilities.

This regulation makes Ontario the first jurisdiction in Canada to develop, implement and enforce accessibility standards which can be applied to both private and public sectors. These standards are the criteria that businesses in Ontario should follow to identify, remove and prevent barriers to accessibility. The Accessibility Standards for the Design of Public Spaces are the most relevant standards that can be applied to trail planning, design and construction. When designing and implementing trail facilities for the City of Burlington, the technical requirements should be utilized to ensure that the needs of all user groups are accommodated and satisfying the requirements of the AODA to the greatest extent possible, given the context of each trail's location, the surrounding environment and the desired trail experience.

In addition to the requirement for municipalities to consult with the public, persons with disabilities and their local municipal accessibility advisory committees during design development for trails, Sections 80.6 to 80.9 of the legislation outline technical requirements for Recreational Trails. Sections 80.10 through 80.14 describe the requirements for Beach Access Routes and include items such as boardwalks and ramps. Sections 80.21 through 80.31 describe the requirements for Exterior Paths of Travel, which encompass outdoor sidewalks and walkways that serve a functional purpose and not a recreational experience (e.g. a sidewalk or walkway to a washroom building within a park). The requirements for both Beach Access Routes and Exterior Paths of Travel are more prescriptive and stringent than those for Recreational Trails.

Some of the key technical requirements for the design of Recreational Trails include:

- Minimum trail clear width of 1.0m;
- Minimum trail head room clearance of 2.1m above trail;
- A firm and stable trail surface;
- Where there are openings in the trail surface they shall not allow passage of an object greater than 20mm in diameter, and openings must be oriented perpendicular to the path of travel;
- When the trail is located adjacent to water or a drop-off, edge protection is required to prevent users from slipping off the trail;

- Where gates, bollards or some other form of trail entrance is used, the opening must be at least 850mm to allow passage for users with mobility devices. A maximum width of 1000mm is also recommended to prevent entrance by unauthorized motorized vehicles;
- Trail head signage that can be easily understood and detectable by users of all abilities, so that users can make an informed personal decision about which trails they will use. Key items to be communicated in the trail head signage are trail length, type of surface, average and minimum trail width, average and maximum running slope and cross slope, and the location of amenities. Text used on signs must use sans serif fonts and a high tonal contrast with the background.

This section of the Act also recognizes exceptions where accessibility requirements are not achievable. These include one or more of the following:

- The requirements, or some of them, would likely affect the cultural heritage value or interest of a property identified, designated or otherwise protected under the Ontario Heritage Act, places designated as National Historic Sites, or historic places marked or commemorated under the Historic Sites and Monuments Act.
- The requirements, or some of them, might damage, directly or indirectly, the cultural heritage or natural heritage resources on a property included in the list of United Nations Educational, Scientific and Cultural Organization's (UNESCO) World Heritage sites.
- There is a significant risk that the requirements, or some of them, would adversely affect water, fish, wildlife, plants, invertebrates, species at risk, ecological integrity or natural heritage values, whether the adverse effects are direct or indirect.
- It is not practicable to comply with the requirements, or some of them, because existing physical or site constraints prohibit modification or addition of elements, spaces or features that would be required to meet accessibility requirements.

The City of Burlington Accessibility Design Standards complements the AODA and provides specific guidance on the design of the interior and exterior environment. Where conflict exists between the requirements of these standards and provincial or federal legislation enacted by the federal or provincial governments, the most accommodating requirements apply.

A more detailed summary of regarding the Burlington Accessibility Design Standards is located in section A.1.4. in Appendix A.

Representatives of the Burlington Accessibility Advisory Committee participated in stakeholder meetings during the development of the Community Trails Strategy, and some members also provided input at the Public Information Centres, as did several members of the public who use mobility devices. As required by the legislation, the City will also need to consult with persons with disabilities and Accessibility Advisory Committee representatives during design development for individual trails. Although the legislation does not prescribe an approach for consultation with accessibility representatives, the following suggestions should be considered.

- Before developing a new recreational trail or redeveloping an existing one, the City must consult with the public, including people with disabilities and the Accessibility Advisory Committee;
- Consult with the Accessibility Advisory Committee early in the design process to understand the opportunities and challenges with the proposed trail's location, and to determine if the trail can be designed to be accessible or if any of the exceptions noted above apply;
- Work collaboratively with the Accessibility Advisory Committee to consider developing signage/content to clearly indicate trail accessibility conditions, which allow users with mobility-assisted devices to make an informed decision about using a particular trail.

C.2.4 Trail Surface and Base Materials

There are a number of options for recreational trail surfaces and bases. There is no one material that is appropriate in all locations. Material selection during the design stage must be considered in the context of the anticipated users, level of accessibility and location. Table C.6 describes a range of potential trail surface types including their application, advantages and disadvantages.

Table C.6 Comparison of Trail Surface Types

Type	Advantage	Disadvantage
Concrete	▶ Smooth surface, can be designed with a variety of textures and colours, providing flexibility for different urban design treatments. ▶ Long lasting, easy to maintain. ▶ The preferred surface material for accessibility.	▶ High cost to install. ▶ Older style trowelled expansion joints can create discomfort for users with mobility aids. (Note: The City of Burlington sidewalk standard (S-121) specifies saw cutting the contraction joints which mitigates this concern as it eliminates step joints and provides a smoother surface for users with mobility devices and other sidewalk users. This standard applies to new sidewalks and sidewalk replacements, however many older sidewalks have trowel joints. Where concrete surfaces are selected as the material of choice in locations such as trails within road rights-of-way, some park settings where concrete/coloured concrete is selected for aesthetic or other reasons etc., the sawn joint appropriately satisfies accessibility requirements). ▶ Must be installed by skilled trades people. ▶ Is not flexible; Cracking can lead to heaving and shifting, sometimes creating large step joints.

Type	Advantage	Disadvantage
Unit Pavers	▶ Smooth surface, available in a variety of patterns and colours to meet urban design needs ▶ Long lasting, can be easily repaired by lifting and relaying.	▶ High cost to install. ▶ Users with mobility aids may find textured surface difficult to negotiate. (**Note:** The City no longer uses unit pavers for new projects due to accessibility concerns) ▶ Must be installed by skilled trades people.
Asphalt	▶ Smooth surface, moulds well to surrounding grades, and is easily negotiated by a wide range of trail user groups. Relatively easy to install by skilled trades. ▶ Retains heat and dries more quickly in comparison to other materials, allowing for easier use during the winter months.	▶ Moderate-high cost to install. ▶ Must be installed by skilled trades people. Has a lifespan of 15-20 years depending on the quality of the initial installation. Poor base preparation can lead to significant reduction in lifespan. ▶ Patterned and coloured surface treatments are available. Similar to unit pavers, users with mobility aids may find it difficult to use because of the surface texture. (**Note**: In Burlington there are examples of patterned asphalt, but these will be replaced with smooth surfaces when upgraded). ▶ Cracking and "alligatoring" or ravelling occurs near the edges, grass and weeds can invade cracks and speed up deterioration. ▶ Must be appropriately disposed of after removal.

Type	Advantage	Disadvantage
Granulars	▶ Granular 'A': Similar characteristics to Granular 'B', with smaller maximum particle size. Excellent for trail bases, may be appropriate for trail surfacing of rail trails in rural areas and woodlands. Easy to spread and re-grade where surface deformities develop.	▶ Subject to erosion on slopes. ▶ Some users have difficulty negotiating surface due to range in particle size and uneven sorting of particles that can take place over time with surface drainage.
	▶ Stone dust (Screenings): Mixture of fine particles and small diameter crushed stone. Levels and compacts very well, and creates a smooth, firm and stable surface that most trail users can negotiate easily. Easy to spread and re-grade where surface deformities develop. Inexpensive and easy to work with. Widely used and accepted as the surface of choice for granular surfaced trails. ▶ Screenings can be mixed with binding agents to increase stability and erosion resistance. For example, the Toronto and Region Conservation Authority recently experimented with the addition of pine resin to limestone screenings as an alternative to asphalt for trails in Rouge Park. ▶ Crushed 3/8" Limestone. This surfacing material has been used successfully by some municipalities where finer stone dust has washed out.	▶ Subject to erosion on slopes ▶ Manual wheelchair users have reported that stone shards picked up by wheels can be hard on hands, and some motorized wheelchair users have reported that stone shards and dust adds to wear and tear on their equipment. ▶ May not be suitable as a base for hard surfaced trails in some locations.

Type	Advantage	Disadvantage
Mulches and Wood Chips	▶ Bark or wood chips, particle size ranges from fine to coarse depending on product selected, soft under foot, very natural appearance that is aesthetically appropriate for woodland and natural area settings. ▶ May be available at a very low cost depending on source, and easy to work with. (Note: The City's current practice is to use mulch generated from trees/branches chipped by City operations to top up woodland trails. Although not an accessible surface, this is an appropriate and sustainable approach for woodland trails.)	▶ Breaks down over time, therefore requires "topping up". ▶ Source of material must be carefully researched to avoid unintentional importation of invasive species (plants and insects). ▶ Some user groups and people who use personal mobility devices like wheelchairs, scooters and walkers have difficulty negotiating the softer surface; this surface can be used to discourage some uses such as cycling. ▶ Generally does not meet AODA requirements with the exception of some commercially available products such as Fibar Engineered Wood Fiber™ that meet accessibility requirements for playground surfacing. Although cost prohibitive on a broad scale these products could be selectively used for accessible trails in natural settings where a woodchip surface is preferred for environmental and/or aesthetic reasons. A granular base, topped with mulch is also another option for creating a stable trail surface in woodland settings.

Type	Advantage	Disadvantage
Earth / Natural Surface	▶ Using existing soil from the trail corridor. Only cost is labour to clear and grub out vegetation and regard to create appropriate surface. Appropriate for trails in natural areas provided that desired grades can be achieved and that soil is stable (do not use organic soils).	▶ Subject to erosion on slopes. ▶ Different characteristics in different locations along the trail can lead to soft spots. ▶ Some user groups will have difficulty negotiating surface. ▶ Depending on location, soil type and compaction, natural surfaces may not meet the AODA requirement for a firm and stable surface.
Soil Cement and Soil Binding Agents	▶ Soil Cement = mixture of Portland Cement and native/parent trail material. When mixed and sets it creates a stable surface that can be useful for "trail hardening" on slopes, particularly in natural settings. ▶ Soil Binding Agents = mix of granulars and polymers that create a solid, yet flexible surface that may be appropriate for "trail hardening" on slopes in natural areas. ▶ Limits volume and weight of materials to be hauled into remote locations.	▶ Useful for specific locations only. ▶ Soil binding agents tend to be expensive and have been met with mixed success. ▶ May not meet AODA requirements.

Type	Advantage	Disadvantage
Wood	▶ Attractive, natural, renewable material that creates a solid and level travel surface. Choose rough sawn materials for deck surfacing for added traction.	▶ Requires skill to install, particularly with the substructure. ▶ Wood gradually decomposes over time, this can be accelerated in damp and shady locations, and where wood is in contact with soil. ▶ Expensive to install. ▶ Can be slippery.

Trail Bases

In addition to Granular 'A' there are a number of materials that can be used for trail bases. The following are some common base materials:

- Pit Run - Mixed granular material "straight from the pit" containing a range of particle sizes from sand to cobbles. It is excellent for creating strong sub bases, and is relatively inexpensive.
- Granular 'B' – It has similar characteristics to Pit Run, but with regulated particle sizes that are coarser than Granular 'A'. Granular 'B' Type I is an uncrushed product and Granular 'B' Type II is crushed. Both are useful for creating strong, stable and well drained sub bases and bases.
- Clear stone: Crushed and washed granular, particles of uniform size, with no sand or fine particles. It makes excellent bedding for trail drainage structures and retaining wall backfill. When properly leveled and rolled it makes an excellent base for asphalt trails.
- Crusher Run – Is a crushed limestone product with mixed particle sizes and limestone fines (e.g. 19 mm to limestone fines), and is excellent for bases.

- Recycled Concrete – Is composed of crushed reclaimed concrete that is produced to the same gradation as 19 mm Crusher Run or Granular 'A'. It makes a suitable base for trails; however it may contain a small amount of recycled asphalt, thus may not be suitable for use in sensitive environments.

C.2.5 Route Lighting

Lighting multi-use pathways must be carefully considered. Very few municipalities make the decision to light their entire trail system for a number of reasons:



Trail lighting near Cleaver Park / Headon Road.
Source: MMM Group

- A false sense of security that may be created with lighting;
- Inability of the human eye to adapt to the high contrast resulting from brightly lit and dark shadowed areas adjacent to one another, which makes it difficult for trail users to see beyond the lit area;
- Challenges from a surveillance perspective – including the need for additional patrols and trail designs that will support patrol vehicles;
- Energy consumption (Note that higher efficiency options such as LED lighting is being tested by some municipalities for pedestrian and trail lighting);
- Excessive light pollution, especially in residential rear yards and adjacent to natural areas, although proper shielding can be used to control light spillage;
- Challenges associated with lighting trails on properties that are not owned by the City (e.g. city-managed trails on conservation authority property);
- Potential detrimental effects to flora in natural areas such as woodlands;
- A tendency for vandals to target light bulbs, even with fixtures that are designed to protect bulbs;
- Staff time and material cost to monitor, maintain lamp fixtures and replace broken and burned out bulbs, and the risk to the City associated with burned out or broken bulbs that aren't promptly replaced; and

Lighting multi-use pathways must be carefully considered. Very few municipalities make the decision to light their entire trail system.

- Cost – the initial installation can be prohibitive. General budget figures range from $130,000 to $160,000 per kilometre including cabling, transformers, power supply and fixtures.

However, there may be some locations along trails where lighting is appropriate. The decision on whether or not to light segments of the network should be made on a location-specific basis. Some potential locations for consideration include:

- Important promenades and celebratory spaces;
- Multi-use trails within roadway rights-of-way (generally assumed to be lit to the same level as sidewalks);
- Trails within parks that provide a direct connection / access to lit sport facilities;
- Heavily used commuter routes (as demanded by users and verified using trail counts);
- Direct connections to multi-modal nodes and mobility hubs;
- Connections between streets / walkway blocks with sidewalks;
- School routes; and
- Locations where there are numerous requests for lighting and this is supported by similar results through public consultation.

Where it has been determined that lighting is appropriate, the quality and intensity of lighting should be consistent with prevailing standards that fit the setting being considered.

C.2.6 Natural Heritage Features and System

ROPA #38 identifies a Natural Heritage System (NHS) Designation which will be implemented at the local level. The NHS land use designation permits non-intensive recreation uses such as trails. For trails proposed in an area identified as part of the Natural Heritage System lands, additional considerations should be taken into account to ensure that such uses have minimal impact.

Additional sensitivity is needed at the time of the development of a new trail or the formalization of an existing trail. All efforts should be made to ensure that natural features are preserved to the maximum degree possible. To that end, the ultimate trail location, width and specifications may need to be tailored to suit a given environment. In order to determine the trail location, field studies may be required to identify any constraints that should be considered such as:

- wildlife habitat;
- endangered and threatened species;
- sensitive creek crossing locations; and
- vegetation or trees.

Field studies may also identify appropriate mitigation measures and recommend appropriate trail design. Such field studies, or any trail siting or design work, should be undertaken with representatives from the City, The Region of Halton and Conservation Halton.

As per the City's Official Plan Parkland Dedication policies, please note that lands required for drainage and shoreline protection purposes, lands susceptible to flooding, steep valley slopes, hazard lands and other lands unsuitable for development, are not accepted as parkland conveyance.

C.3 Community Trail Design Alternatives

C.3.1 Trail Hierarchy

A hierarchy of trail types should be considered when developing the network and the selection of preferred designs should be confirmed by City staff based on a detailed assessment of existing characteristics. Four general trail types comprise the network; the Primary Multi-use Trail, Secondary Multi-use Trail, Woodland Mulch Trail and Hiking / Foot Trail. Each of these is described below and these are supplemented by design details inserted throughout this appendix. These design details include current City of Burlington details, with some suggested alterations, and a number of new details developed for the Community Trails Strategy.

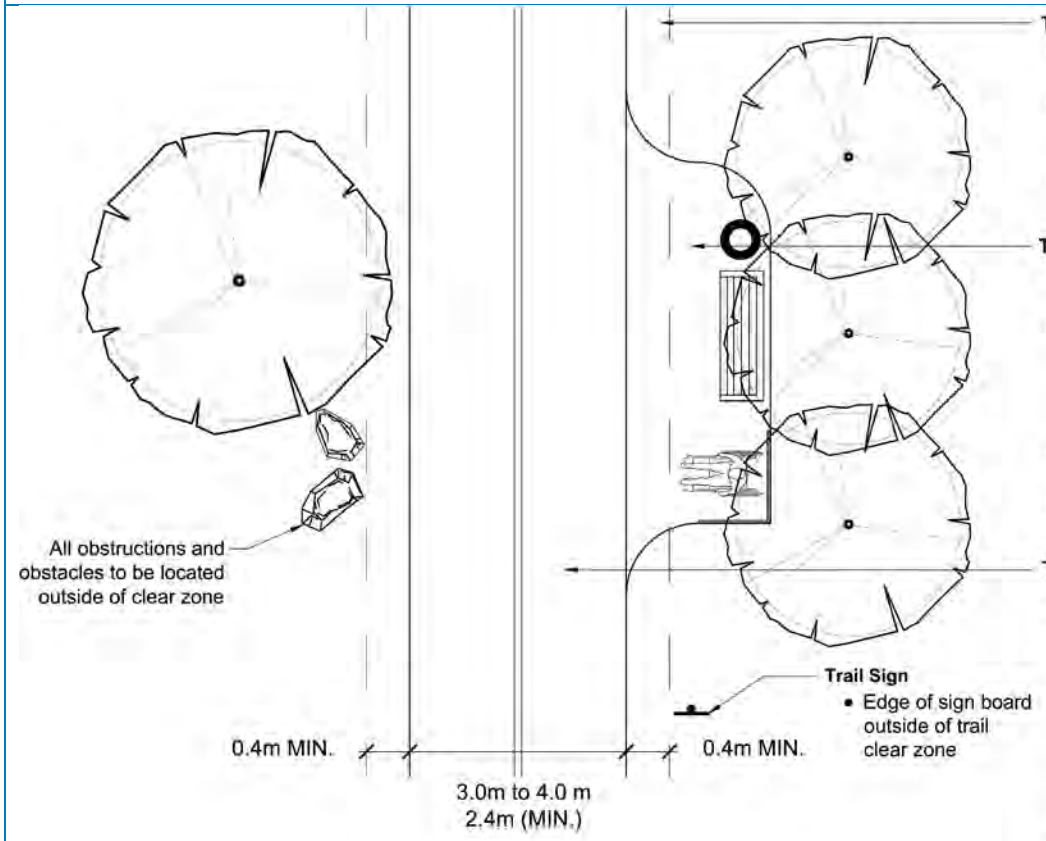
There are a number of locations throughout the network where it is not possible to achieve an off-road trail connection and an on-road connection will be necessary. These are illustrated on Map 2.0 in Volume 2: Proposed Trails Network. In these locations pedestrians would be directed to use sidewalks where they exist, and cyclists would be directed to use the road (e.g. on-road signed cycling route, Sharrow route, bike lane, paved shoulder, Cycle track etc.). The cycling facility type should be assessed and confirmed by City staff using the facility selection tool and design concepts presented in Ontario Traffic Manual Book 18 – Cycling Facilities.

In many cases on-road links are accomplished using a route identified in the City of Burlington's Cycling Master Plan. However there are a number of locations requiring on-road connections that were not part of the Cycling Master Plan network, specifically these locations are:

- Cavendish Drive and Coventry Way from the proposed trail in the gas line corridor to Guelph Line
- Cavendish Drive from the trail entrance to Cavendish Park to Upper Middle Road
- Westbury Avenue from Westbury Park to Tyandaga Park Drive
- Bunton Crescent from Pathfinder Park to the trail access from Bunton Crescent to Appleby Line
- Marley Road from the Francis Road Bikeway to King Road
- Shadeland Avenue and Gallagher Road from North Shore Boulevard to the end of Gallagher Road

- St. Matthews Avenue from Plains Road to the walkway connection to the Aldershot GO Station
- Howard Road and Lemonville Road from the Hidden Valley Multi-use Trail to Sumach Drive
- Lemonville Road from York Road to the north end of Lemonville Road.

Primary Multi-use Trail



Trail Clear Zone
- Horizontal clear zone 0.4m where achievable
- All obstructions and obstacles to be located outside of horizontal clear zone
- Vertical clear zone 2.5m minimum where achievable

Trail Rest Area (Optional)
- At 500m intervals along trail (approximately)
- Include bench/seating opportunity and resting space for wheelchair. Curb stop required when rest area is located next to a slope or other potential hazard.
- May include trash receptacle and/or bicycle parking
- All amenities located outside of trail clear zone

Trail Surface
- 3.0m to 4.0m (2.4m minimum)
- Hard surface
- Meets or exceeds minimum accessibility requirements
- Supports maintenance vehicles
- 100mm wide painted yellow centre line (optional-consider for high use areas), sharp curves and poor sight lines
- Create cross slope along trail to prevent water pooling on surface
- Suggested minimum curve radius 15.0m

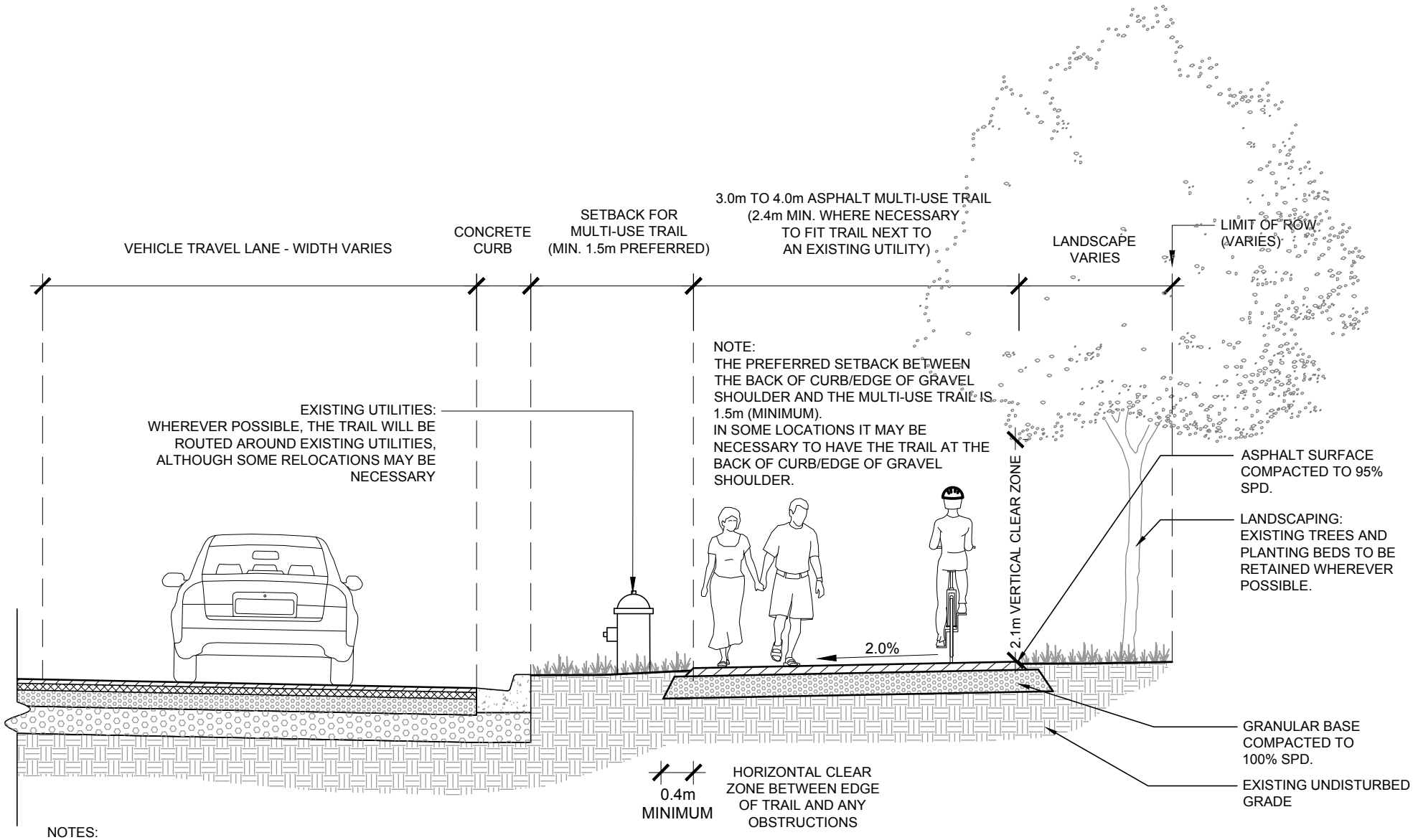
Surface Type

Hard surface (e.g. asphalt, concrete).

Maintenance Requirements

Highest level of maintenance may be considered for 4-season maintenance, depending on location (e.g. primary school route).

General Description & Connectivity	Typical Location	General Design Characteristics
▶ Key connectors in the urban areas, ▶ Important transportation / commuter routes connecting schools and key community destinations and employment areas. ▶ Key recreational routes (e.g. trails along the waterfront in Spencer Smith Park and Burlington Beach area)	▶ Located within or outside of the road right-of-way in continuous linear corridors. ▶ Linear utility corridors and off-road linear corridors outside of the road right-of-way can create ideal opportunities. ▶ To maintain route continuity, crossings of barriers such as major roadways, railways and waterways shall be considered in the early planning stages. ▶ In developed neighbourhoods it may be necessary to divert short segments of the Primary Multi-use Trail onto the road with other cycling facilities (i.e. a cycle-track or bike lane accompanied by a sidewalk). Diversion onto the road should not be permitted in new community planning areas to encourage connectivity using a consistent facility type.	▶ Minimum 3.0m in width, 4m in some locations (e.g. hydro corridors), hard-surfaced with asphalt or concrete. ▶ Shall be designed to meet or exceed minimum accessibility requirements. ▶ A candidate for winter maintenance, and other uses during winter months are encouraged (e.g. cross country skiing). ▶ Typically designed to the highest standards to accommodate high volumes of use, destination oriented traffic, widest range of use abilities and important links to major community facilities. ▶ Supports pedestrian convenience and walkability and a range of active transportation opportunities. ▶ Candidate for lighting (e.g. where use / demand is high, for example along frequently used commuter routes). ▶ Cross reference with the following design details: o Primary multi-use trail within a road right-of-way, o Primary multi-use trail outside of a road right-of-way.



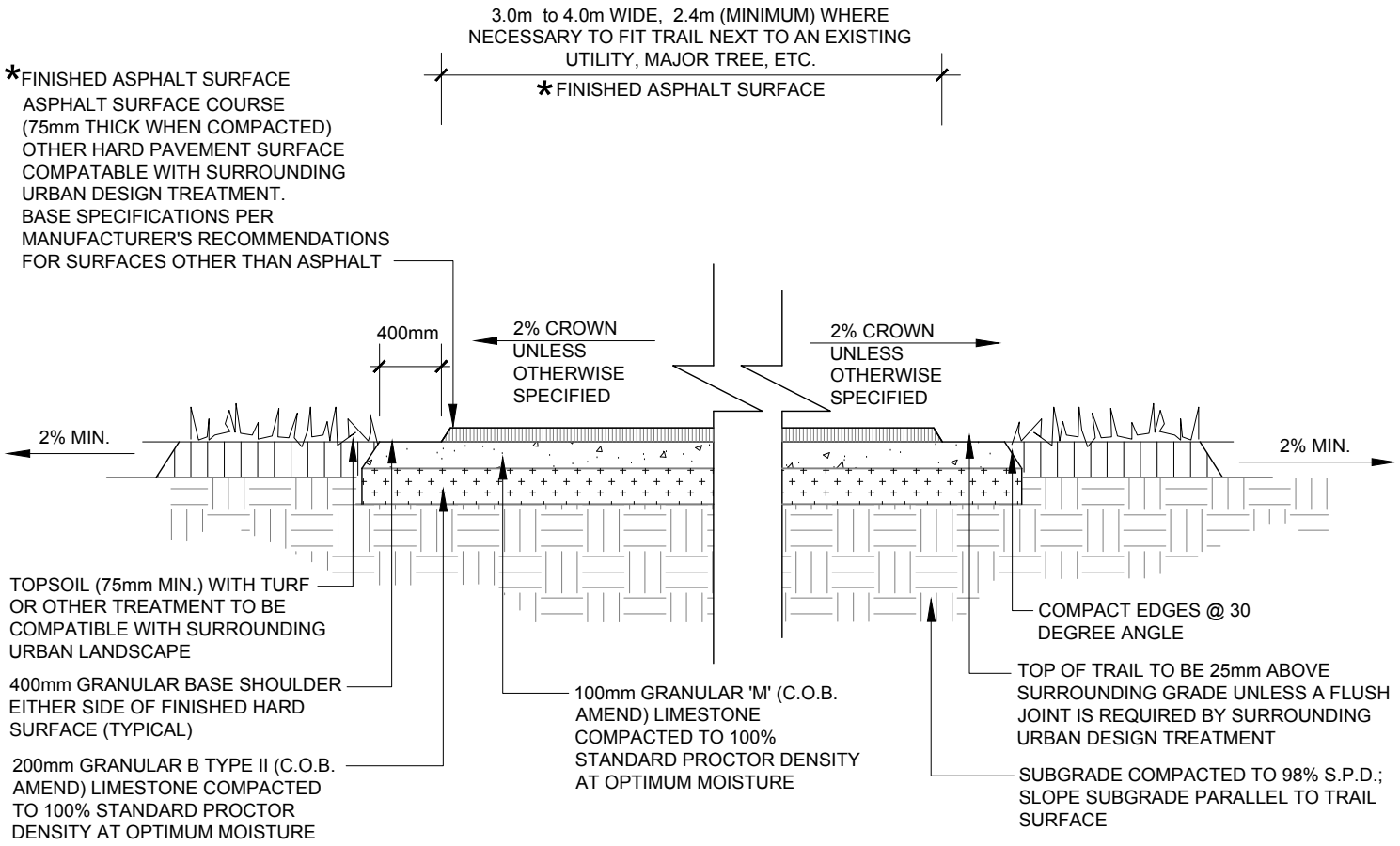
NOTES:

1. EXISTING VEGETATION IS TO BE MAINTAINED TO PROVIDE A VERTICAL CLEAR ZONE OF AT LEAST 2.5m FROM THE MULTI-USE TRAIL SURFACE TO THE LOWEST BRANCHES / LEAVES AND A HORIZONTAL CLEAR ZONE OF AT LEAST 0.4m FROM THE EDGE OF THE MULTI-USE TRAIL.
2. REFER TO PRIMARY MULTI-USE TRAIL OUTSIDE OF A ROAD RIGHT-OF-WAY FOR BASE AND ASPHALT DETAILS.

PRIMARY MULTI-USE TRAIL WITHIN A ROAD RIGHT-OF-WAY

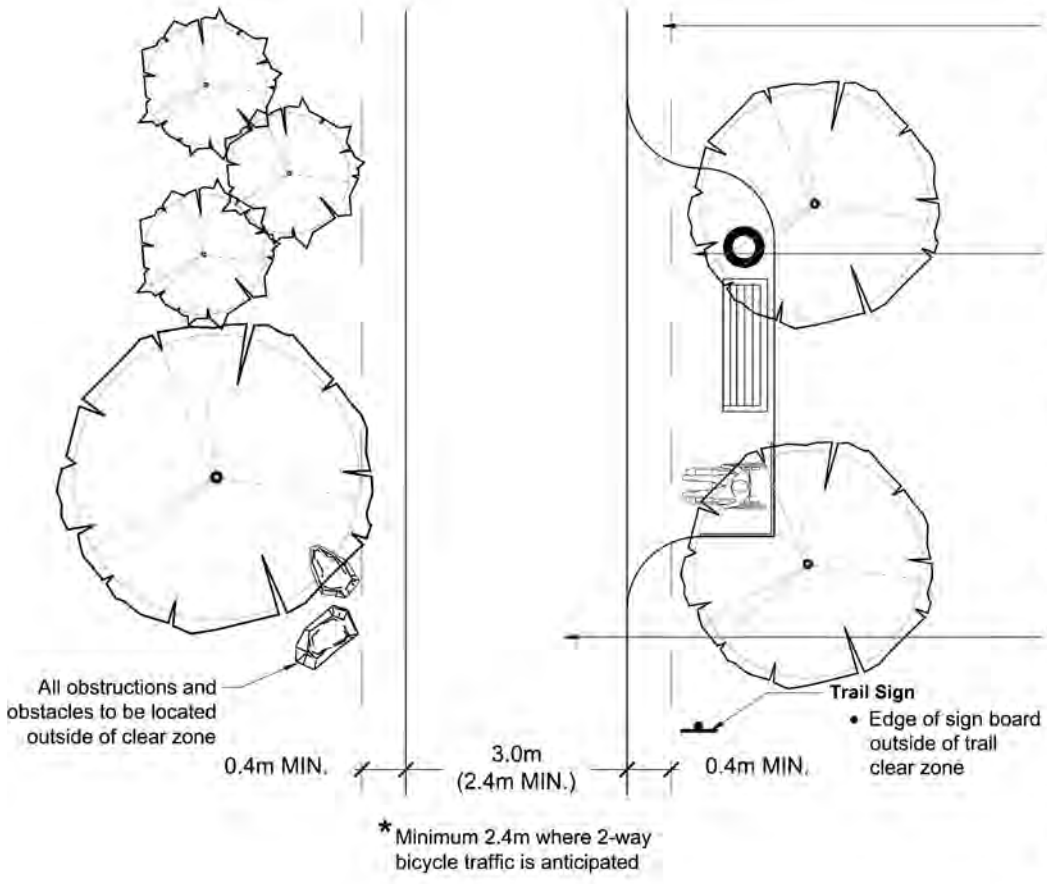
SCALE = 1:50

CITY OF Burlington Ontario Canada



PRIMARY MULTI-USE TRAIL WITHIN OR OUTSIDE OF A ROAD RIGHT-OF-WAY	SCALE = 1:40	CITY OF Burlington Ontario Canada

Secondary Multi-use Trail



Trail Clear Zone
- Horizontal clear zone 0.4m where achievable
- All obstructions and obstacles to be located outside of horizontal clear zone
- Vertical clear zone 2.5m minimum where achievable

Trail Rest Area (Optional)
- At 500m-1000m intervals along trail (approximately), higher density in heavily used areas, near seniors' centres, day cares etc.
- Include bench/seating opportunity and resting space for wheelchair. Curb stop required when rest area is located next to a slope or other potential hazard.
- May include trash receptacle and/or bicycle parking
- All amenities located outside of trail clear zone

Trail Surface
- 3.0m (2.4m minimum)
- Hard or granular surface
- Meets or exceeds minimum accessibility requirements wherever possible and practical.
- Create cross slope along trail to prevent water pooling on surface
- Suggested minimum curve radius 15.0m

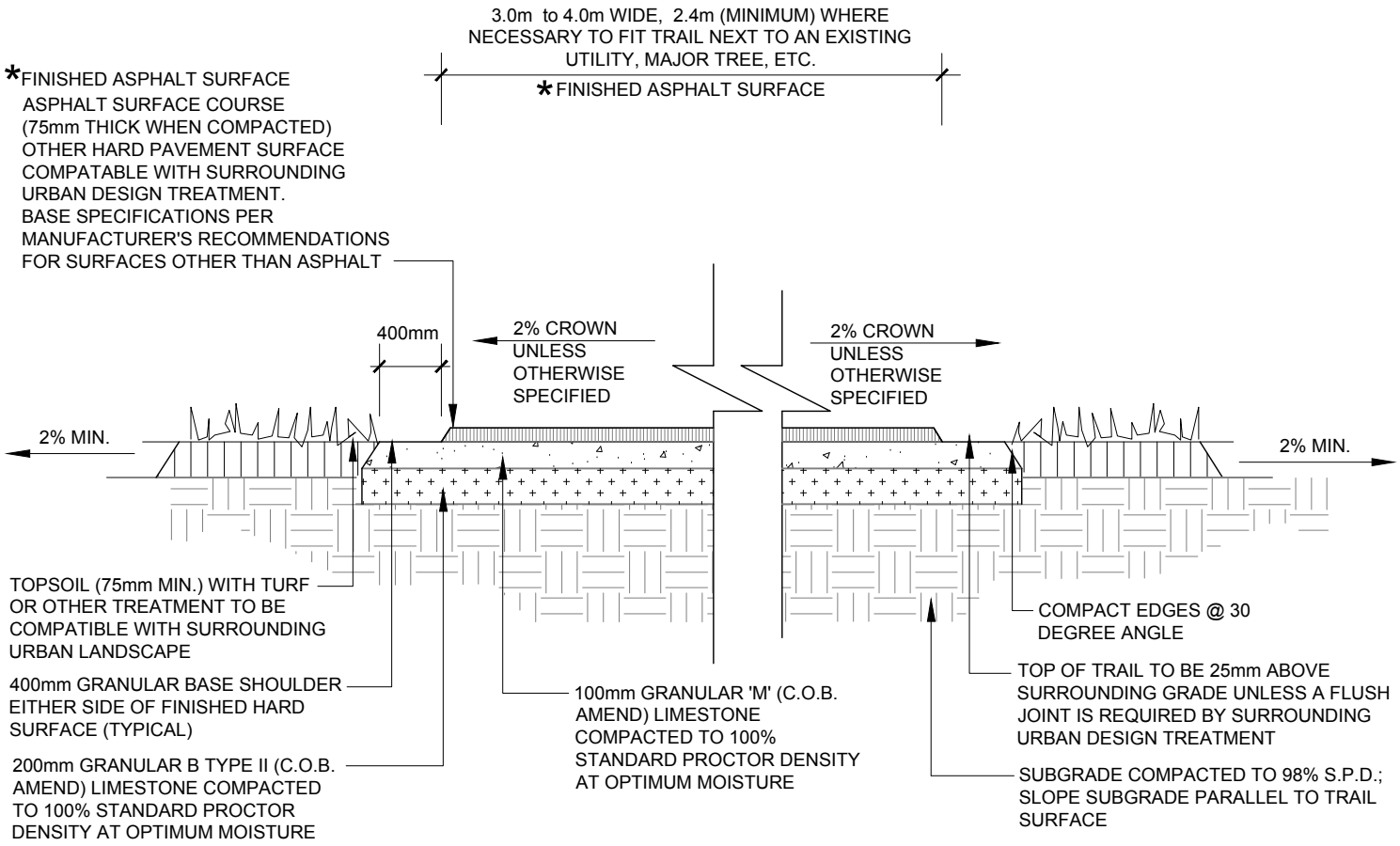
Surface Type

Hard surface or granular (e.g. compacted stonedust/ screenings

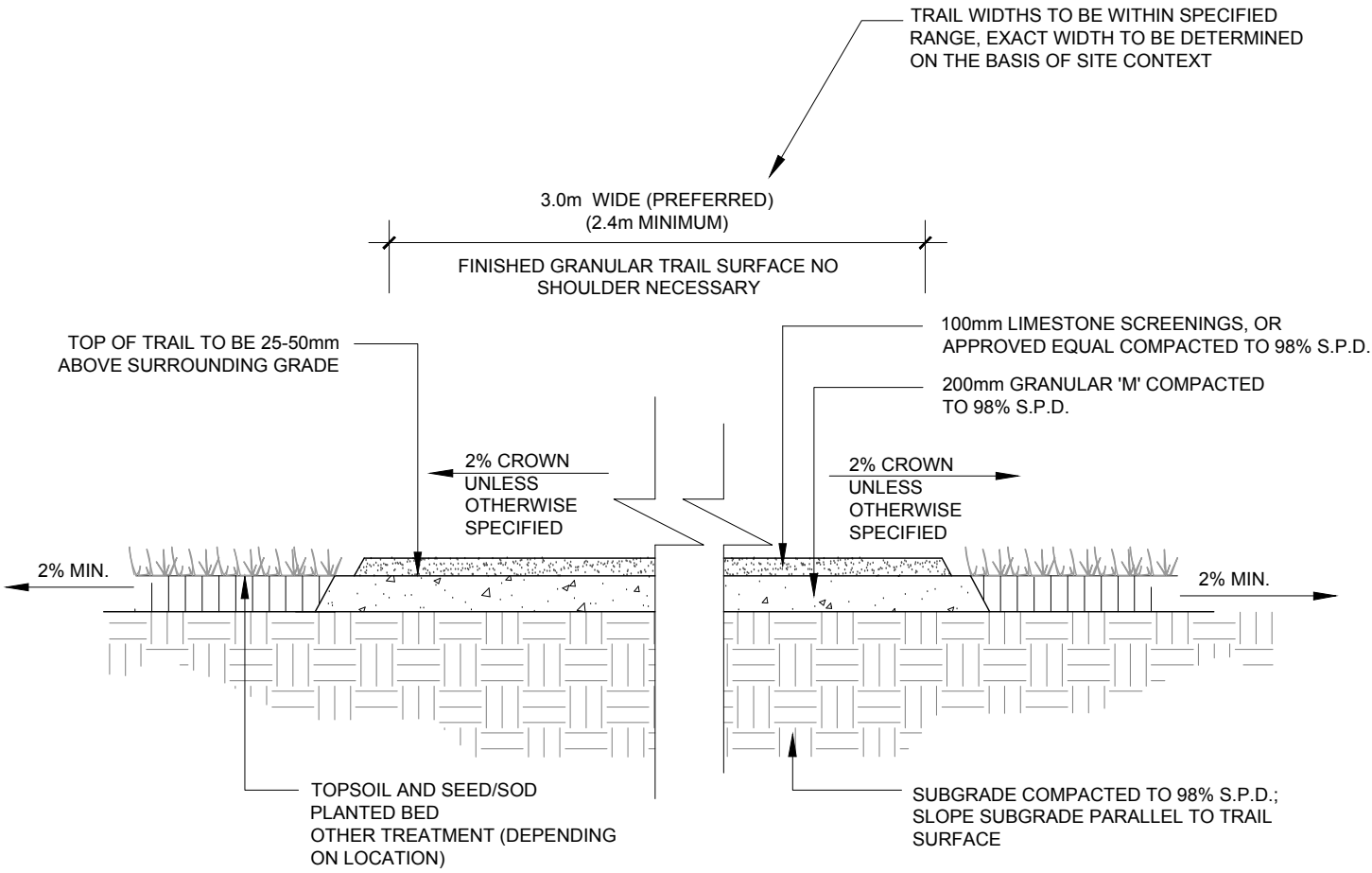
Maintenance Requirements

3-season maintenance

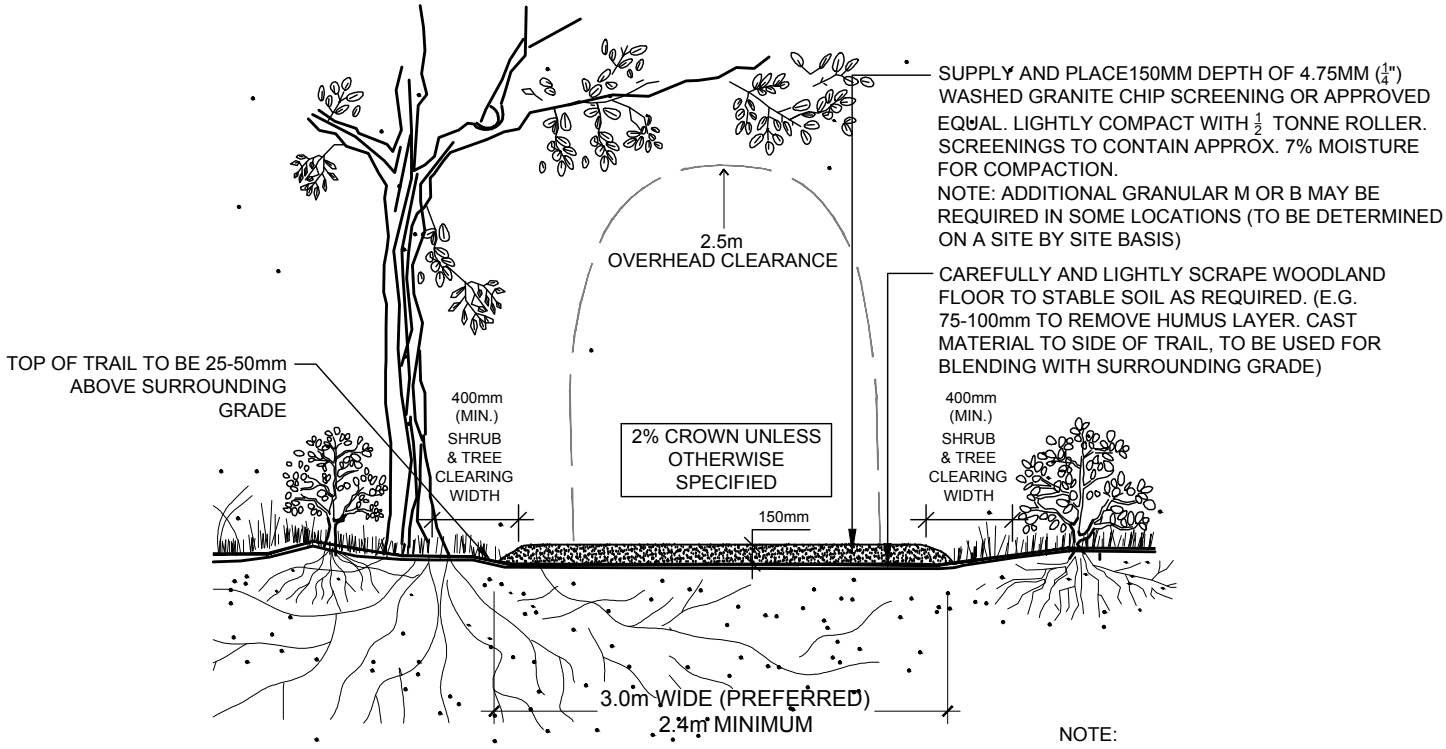
General Description & Connectivity	Typical Location	General Design Characteristics
▶ Performs a City wide function and may be used as a transportation route during the spring, summer and fall seasons. ▶ Used to provide additional connections to local municipalities, neighbourhoods, parks, community facilities, natural areas, schools and conservation areas.	▶ Located outside of the road right-of-way in continuous linear corridors. ▶ Crossings of barriers such as roadways, railways and waterways considered in the early planning stages to identify locations where a minor realignment is necessary. ▶ In new development areas diversion onto the road should only be permitted in select areas. ▶ Developed neighbourhoods will require short connections between off-road segments by utilizing on-road connections. ▶ On lower volume roads such as residential streets these connections can be made with sidewalks for pedestrians and shared space for cyclists (i.e. signed route or signed route with Sharrow markings on the roadway).	▶ Minimum 2.4 m wide, 3.0 m is preferred. ▶ Selection of surface (hard surface vs. granular) is based on the setting. For example most new trails developed in parks are 2.4m wide; trails in natural settings such as woodlands are granular surfaced. (e.g. stonedust), in some locations a boardwalk may be required. ▶ These facilities are designed to meet or exceed minimum accessibility requirements where practical and feasible. Where this is not possible they are appropriately designed for a moderate to high volume of use and wide range of users. ▶ 3-season use for pedestrian and cycling uses. Typically not a candidate for winter maintenance, and other uses during winter months are encouraged (e.g. cross country skiing). ▶ Cross reference with the following design details: o Secondary multi-use trail (asphalt) in a park setting, o Secondary multi-use trail (granular) in a park setting, o Secondary multi-use trail in a woodland setting.



SECONDARY MULTI-USE TRAIL (ASPHALT) IN A PARK SETTING	SCALE = 1:40	CITY OF Burlington Ontario Canada

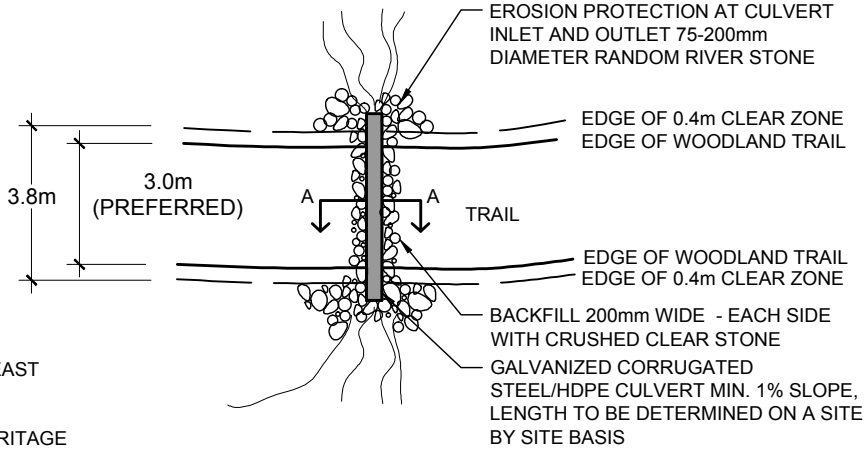


SECONDARY MULTI-USE TRAIL (GRANULAR) IN A PARK SETTING	SCALE = 1:40	CITY OF Burlington Ontario Canada

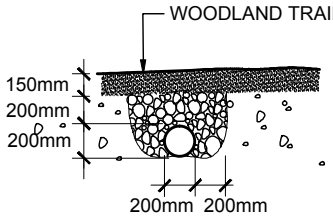


NOTE:
1. PATHWAYS ARE 3m WIDE UNLESS OTHERWISE NOTED ON DRAWINGS.

WOODLAND GRANULAR TRAIL



PLAN



NOTES:
1. MIN. 200mm COMPACTED GRANULAR COVER FOR SIDES & TOP
2. END COLLARS MAY OR MAY NOT BE REQUIRED (DETERMINED ON A SITE BY SITE BASIS)

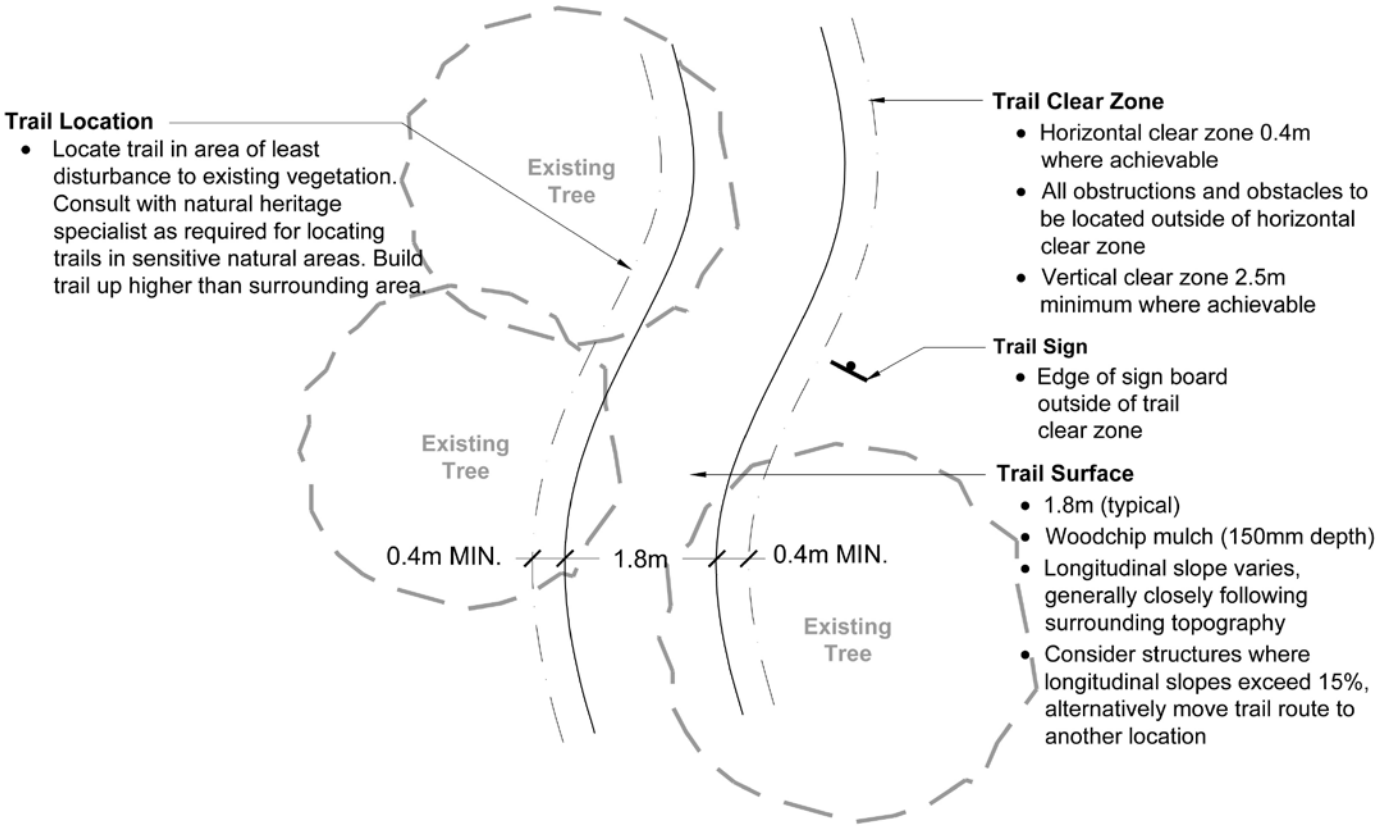
SECTION A - A

WOODLAND TRAIL CULVERT

NOTES:
1. LOCATE TRAIL IN AREA OF LEAST DISTURBANCE TO EXISTING VEGETATION.
2. CONSULT WITH NATURAL HERITAGE SPECIALIST AS REQUIRED FOR LOCATING TRAILS IN SENSITIVE NATURAL AREAS.
3. DISCUSS METHOD AND LOCATION FOR DISPOSAL OF BRANCHES AND TREES REMOVED TO ACCOMMODATE TRAIL. (E.G. DISPOSE OFF-SITE, CHIP ON-SITE, USE FOR BRUSH PILE HABITAT ON-SITE, USE FOR CLOSURES OF UNAUTHORIZED TRAILS)
4. GEOTECHNICAL FABRIC (OPTIONAL) MAY BE APPLIED BELOW GRANULAR TRAIL BED ON A SITE SPECIFIC BASIS TO PROVIDE STABILITY OVER SHORT SECTIONS OF UNSTABLE SOILS. IF LARGE SECTIONS OF UNSTABLE SOILS ARE ENCOUNTERED, AN ALTERNATE DESIGN (E.G. BOARDWALK) OR AN ALTERNATE TRAIL ALIGNMENT SHOULD BE CONSIDERED.

SECONDARY MULTI-USE TRAIL IN A WOODLAND SETTING	SCALE = 1:50	CITY OF Burlington Ontario Canada

Woodland Mulch Trail



Surface Type

Granular or Woodchip surface

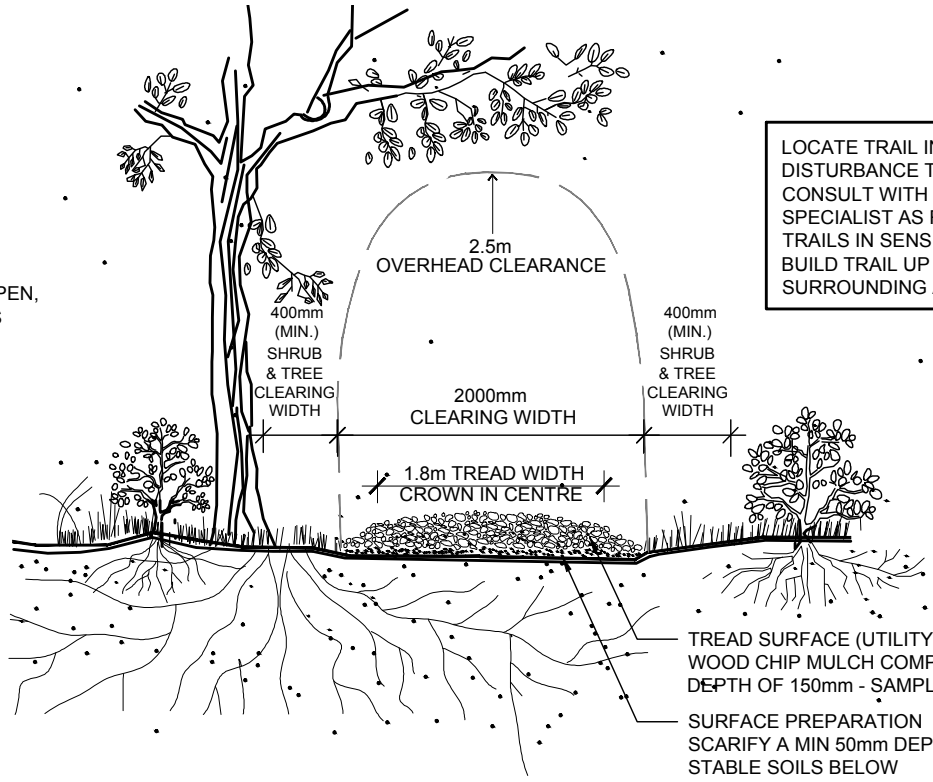
Maintenance Requirements

Seasonal maintenance only, or as-required

General Description & Connectivity	Typical Location	General Design Characteristics
▶ Woodland Mulch Trails are located within natural heritage features. Usually connected to a secondary or primary multi-use trail route, they may also be stand-alone destination routes. ▶ Although the majority of these routes have been planned, in some cases they may be the result of formalizing footpaths that have evolved from (i.e. a desire line between two locations).	▶ Located in natural areas, often in natural areas such as woodlots, valley lands and wetlands. ▶ Depending on the setting the alignment may need to be developed and / or refined through consultation with natural heritage specialists.	▶ Typically 1.8m in width with a woodchip surface, with adjustments as needed depending on location. For example a narrower width may be required to minimize impacts on vegetation or sensitive habitat. ▶ Note: in open and sunny locations such as meadows woodchips are not recommended for surfacing due to weed growth. In these locations a granular or natural earth surface should be considered. ▶ May include sections of boardwalk in areas where trail hardening is needed. ▶ Cross reference with the following detail: Woodland Mulch Trail

NOTE:
NOT FOR USE IN OPEN, SUNNY LOCATIONS

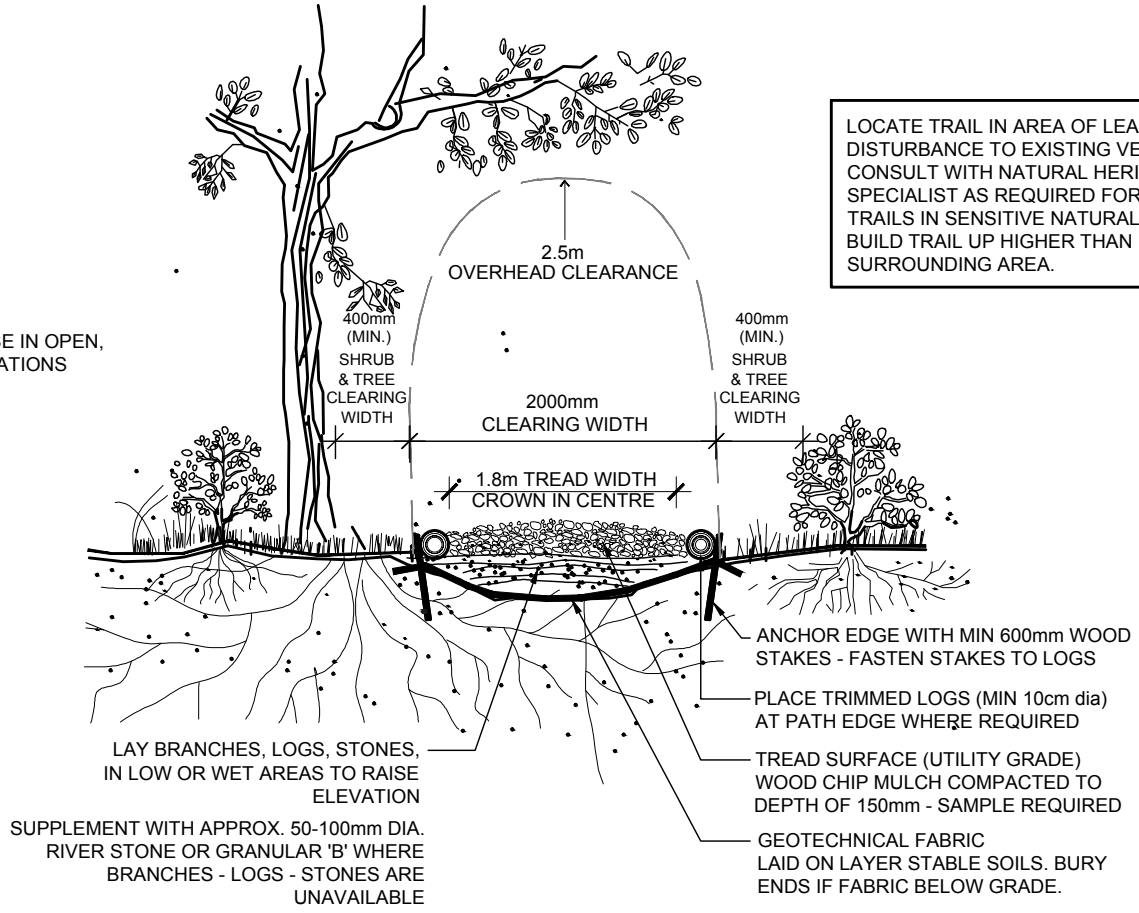
LOCATE TRAIL IN AREA OF LEAST DISTURBANCE TO EXISTING VEGETATION. CONSULT WITH NATURAL HERITAGE SPECIALIST AS REQUIRED FOR LOCATING TRAILS IN SENSITIVE NATURAL AREAS. BUILD TRAIL UP HIGHER THAN SURROUNDING AREA.



RAISED WOODLAND MULCH TRAIL

NOTE:
NOT FOR USE IN OPEN, SUNNY LOCATIONS

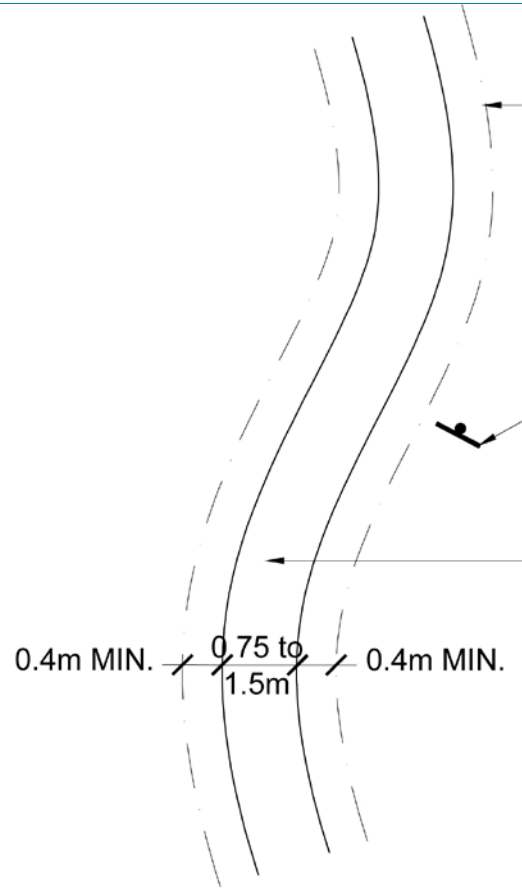
LOCATE TRAIL IN AREA OF LEAST DISTURBANCE TO EXISTING VEGETATION. CONSULT WITH NATURAL HERITAGE SPECIALIST AS REQUIRED FOR LOCATING TRAILS IN SENSITIVE NATURAL AREAS. BUILD TRAIL UP HIGHER THAN SURROUNDING AREA.



RAISED WOODLAND MULCH TRAIL FOR LOW OR WET AREAS

WOODLAND MULCH TRAIL	SCALE = 1:50	CITY OF Burlington Ontario Canada

Hiking / Foot Trail



Trail Clear Zone

- Horizontal clear zone 0.4m where achievable
- All obstructions and obstacles to be located outside of horizontal clear zone
- Vertical clear zone 2.5m where achievable

Trail Sign

- Edge of sign board outside of trail clear zone

Trail Surface

- 0.75 to 1.5m (typical)
- Earth, or woodchip surface, may include granular (i.e. for zones that require trail hardening/protection from erosion)
- Longitudinal slope varies, generally closely following surrounding topography
- Consider structures where longitudinal slopes exceed 15%, alternatively move trail route to another location

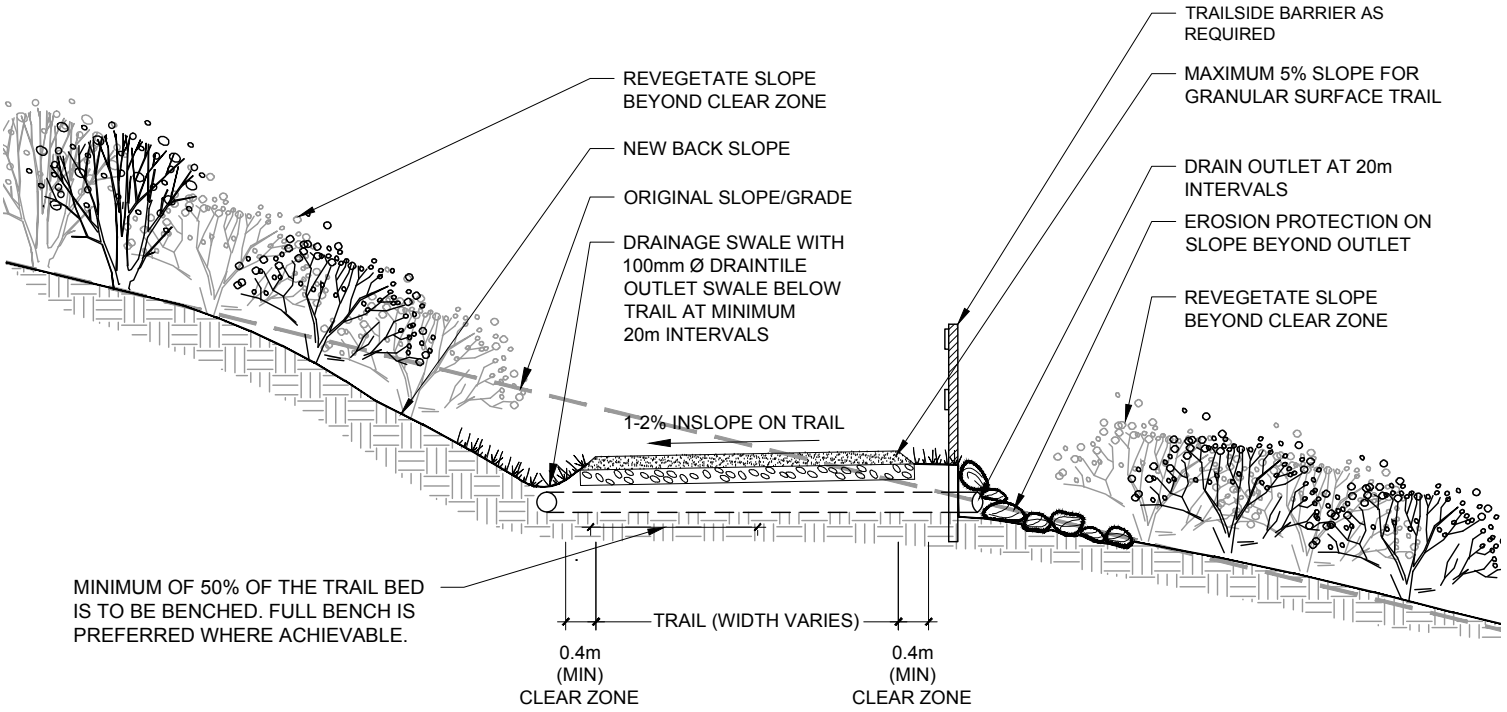
Surface Type

Natural, woodchip or granular surface

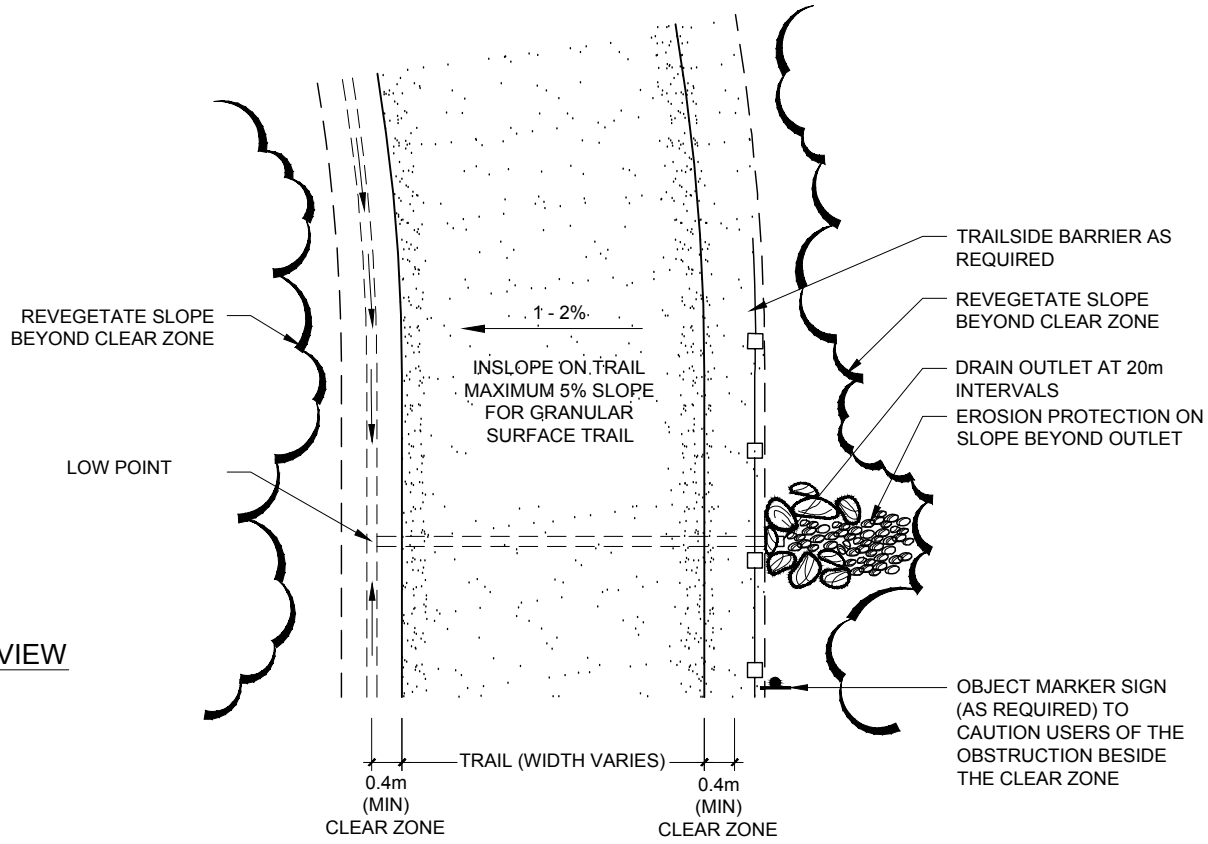
Maintenance Requirements

Seasonal maintenance only, or as-required

Description & Connectivity	Location	Design Characteristics
▶ Hiking / Foot Trails are located in natural heritage features and sensitive natural areas or are the result of formalizing routes that were not planned or designed by the City These often have evolved from use (i.e. a "desire-line" between two locations, short cuts between trails, footpaths to unauthorized locations etc.) or have been created by a group such as a hiking club that has an established arrangement with the land owner (e.g. Bruce Trail on Conservation Halton lands or privately-owned lands)	▶ Often located in natural areas such as woodlots, valley lands and wetlands. ▶ Note: There are many locations throughout the city where informal / unauthorized trails developed over time, created from "desire-lines". These are not recognized as official trails and should be systematically closed and revegetated.	▶ Typically 0.75 to 1.5 m in width with a natural earth or woodchip surface. May include a granular surface or a boardwalk in areas where trail hardening is needed.



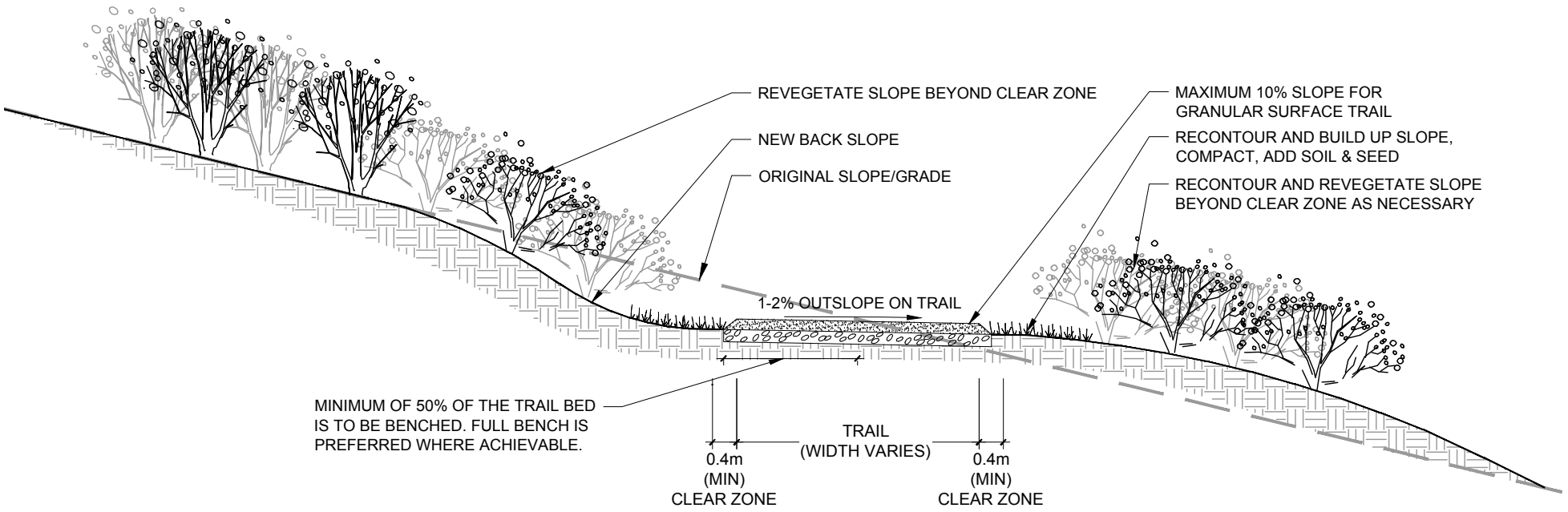
SECTION



PLAN VIEW

NOTES:
1. THIS DETAIL CAN BE APPLIED TO PRIMARY, SECONDARY AND WOODCHIP TRAILS (WHERE APPROPIATE).

TRAIL ON SLOPE - INSLOPE WITH DRAINAGE PIPE	SCALE = 1:75	CITY OF Burlington Ontario Canada



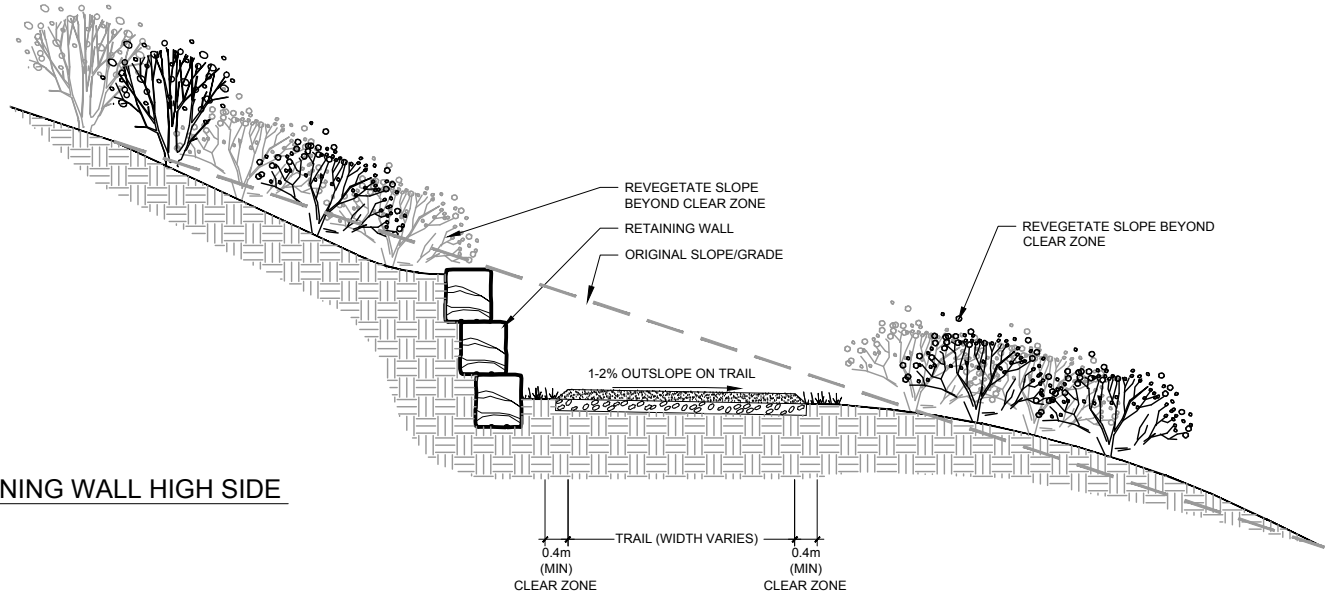
NOTES:
1. THIS DETAIL CAN BE APPLIED TO PRIMARY, SECONDARY AND WOODCHIP TRAILS (WHERE APPROPIATE).

TRAIL ON SLOPE - OUTSLOPE

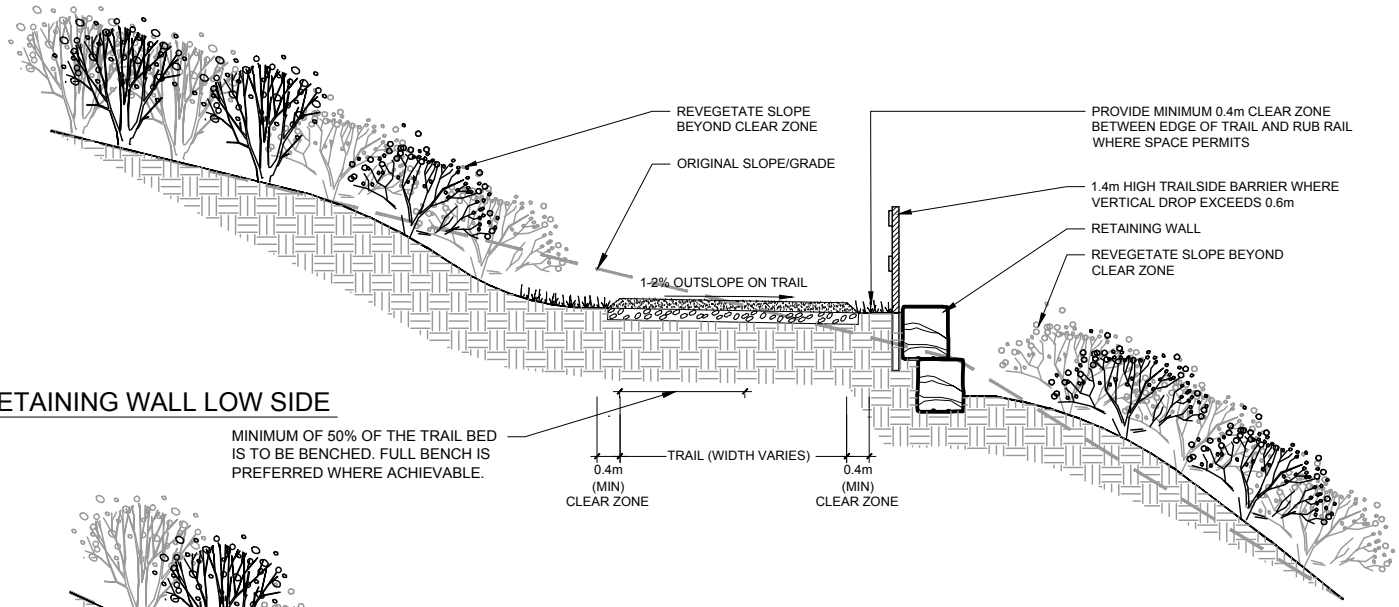
SCALE = 1:75

CITY OF Burlington Ontario Canada

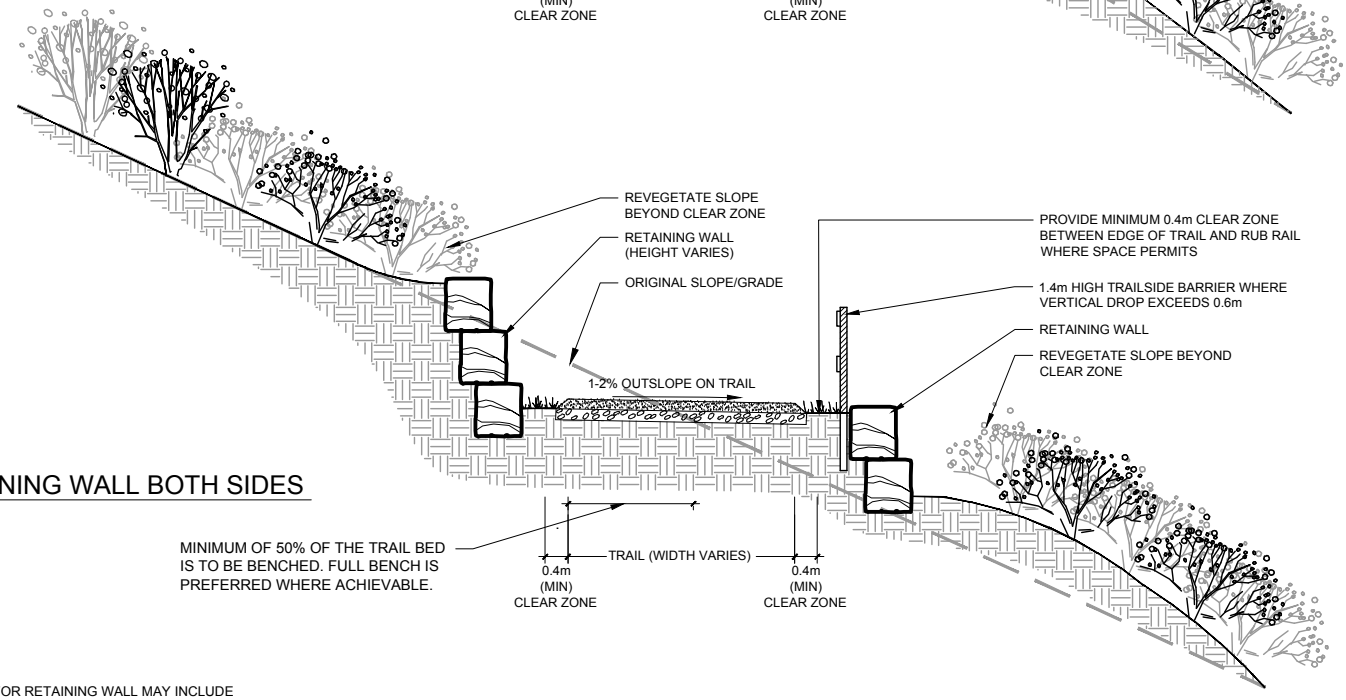
RETAINING WALL HIGH SIDE



RETAINING WALL LOW SIDE



RETAINING WALL BOTH SIDES



NOTE:
MATERIAL FOR RETAINING WALL MAY INCLUDE PRECAST CONCRETE, NATURAL STONE, WOOD TIMBER OR WOOD CRIB WITH LIVE STAKES/BRUSH MATTRESSES.

TRAIL ON SLOPE - RETAINING WALLS

SCALE = 1:100

CITY OF Burlington Ontario Canada

C.3.2 Trail Crossings

Off-road trail routes intersect roadways throughout the city in numerous locations. Depending on the location, in particular the characteristics of the road to be crossed, there are different approaches to the road crossing. Generally, a more modest design treatment is recommended for lower order roads than higher order roads (i.e. local neighbourhood streets vs. Regional arterials). The following sections provide guidelines for the range of crossing approaches, and locations proposed for higher order crossings are illustrated on **Maps 2.0 through 5.0 in Volume 2** of this report.

At-Grade Mid-block Crossings

Simple Crossings of Minor Roads

When designing crossings of lower volume, and / or lower speed roads the following design features should be included:

- Creation and maintenance of an open sight triangle at each crossing point;
- Access barriers to prevent unauthorized motorized users from accessing the pathway (i.e. refer to City of Burlington Triple Bollard detail);
- Curb ramps with Tactile Walking Surface Indicators (TWSI) on both sides of the road;
- Advisory signing along the roadway in advance of the crossing point to alert motorists of the upcoming crossing; signing along the pathway to alert users of the upcoming roadway crossing;
- Advisory signing on the trail to inform users they must stop and wait for a gap in traffic before crossing;
- Alignment of the crossing point to achieve as close to possible a perpendicular crossing of the roadway, to minimize the time that users are in the traveled portion of the roadway;
- In locations where the trail continues directly on the opposite side of the road, provide a concrete or asphalt ramp in the boulevard between the sidewalk and roadway, and curb ramps (designed per AODA requirements) on both sides of the road;
- In locations where the trail does not continue on the opposite side of the road, provide a concrete or asphalt ramp in the boulevard between the sidewalk and roadway and a curb ramp if the trail also serves as an access point for maintenance vehicles to enter (e.g. some parks, storm water management facilities, hydro corridors etc.); and

- In locations where the trail does not continue on the opposite side of the road and there is no need for maintenance vehicle access, do not provide a curb ramp, In these locations the trail would terminate at the sidewalk.

Pavement markings, to delineate a crossing, should not be considered at uncontrolled trail intersections with roads (i.e. free flowing vehicular traffic that is not controlled by a stop or yield sign or traffic signal). At uncontrolled intersections trail users are required to wait for a gap in traffic before crossing at these locations. Pavement markings designed to look like a pedestrian cross over may give trail users the false sense that they have the right-of-way over motor vehicles, which is contrary to the Highway Traffic Act.

In some locations signing on the trail may not be enough to get trail users to stop before crossing the road. Under these circumstances or in situations where the sight lines for motorists are reduced and/or where there is a tendency for motorists to travel faster than desirable, the addition of other elements into the trail crossing may be necessary. Changing the trail alignment may help to get trail users to slow and stop prior to crossing. Changes to the streetscape may also provide a cue and traffic calming effect for vehicles.

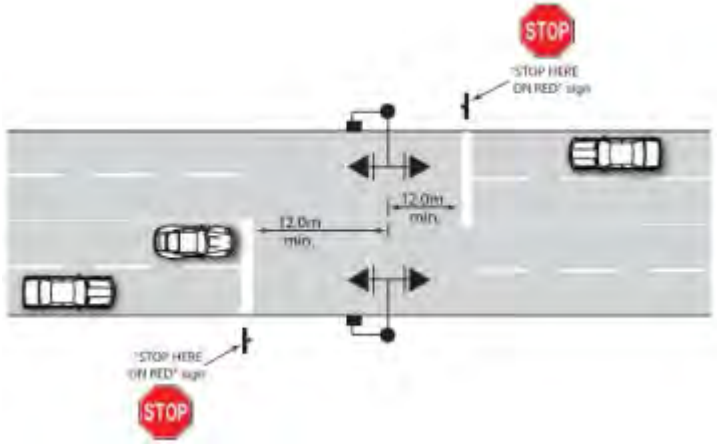
Median Refuge Island Crossings for Collector Roads

Typically applied on Collector roads, refuge islands are medians placed in the centre of the roadway separating opposing lanes of traffic. They allow trail users to cross one direction of traffic at a time, using the refuge island as a resting area. Refuge islands are particularly suited for roadways with multiple lanes since the cognitive requirements to select a gap in traffic travelling in two directions in multiple lanes is considerably higher than that required to cross two lanes of traffic. Typical design details for refuge islands include:

- Minimum of 6 m in length;
- Width of at least 1.8 m wide, but 2.4 m is preferred to accommodate wheelchairs in a level landing 1.2 m wide. The 2.4 m width will also accommodate bicycles in the refuge;
- Curb ramps are provided to allow access to the roadway and island for users with mobility devices, and Tactile Walking Surface Indicators (TWSI) should be placed at the bottom of the curb ramps;

- The pathway is constructed of concrete. Users with low vision or complete visual impairment can better detect the change in texture and contrast in colour supplemented by the detectable warning devices to locate the refuge island;
- Appropriate tapers are required to diverge traffic around the island based on the design speed of the roadway;
- The pathway can be angled so that pedestrians are able to view oncoming traffic as they approach the crossing; and
- Illumination should be provided on both sides of the crossing.

Signage associated with the pedestrian refuge island can include "Keep Right" and "Object Marker" warning signs installed on the island facing traffic, and "Pedestrian Crossing Ahead" warning signs installed on the roadway approaching the crossing. "Wait for Gap" warning signs can be installed on the far side of the crossing and on the refuge island if pedestrians are failing to cross in a safe manner.



Midblock Pedestrian Signal
Source: Ontario Traffic Manual Book 15

Pavement markings should not be provided unless the crossing is controlled by signals, stop or yield signs, or controlled by a school crossing guard. When designing the space, railings are not recommended as they are a hazard in potential collisions and some users may walk or ride into traffic to avoid having to weave through the railings.

Pedestrian Signals for Arterial Roads

Midblock Pedestrian Signals may be considered when a multi-use path or trail crosses a high volume and / or multi-lane arterial road, a grade separation is not practical or if the nearest signalized crossing is far enough away from the trail crossing that it is too inconvenient for trail users to travel to. The pedestrian signal is intended to assist pedestrians crossing major streets and is a more positive and effective pedestrian crossing device the pedestrian crossover (PXO) that many municipalities have phased out. A midblock pedestrian signal includes the application of an accessible pedestrian signal as per AODA requirements.

Ontario Traffic Manual Book 15 (2010) provides more details regarding the application of Midblock Pedestrian Signals and Intersection Pedestrian Signals, including guidance for using the warrant calculation to justify their installation. Many practitioners have been challenged in the past by the warrant justification as it is partially dependant on being able to demonstrate pedestrian demand at the crossing point (i.e. a minimum number of pedestrian crossings over a given time period). One of the challenges with this system is that pedestrian demand may not be sufficient if the trail has not been built yet, and it may remain low even after the trail has been built as users may choose alternative routes where they can cross busy roads more easily, even if they have to go out of their way.

Ontario Traffic Manual 15 is currently being revised. The final draft contains more extensive guidance regarding pedestrian crossings; including AODA requirements for the Design of Public spaces, a number of other options for crossing designs, and also includes connectivity for pedestrians as one of the criteria to support the need for a crossing. It is anticipated that the revised manual will be published before the end of 2015.

Multi-use Trail Crossings at Controlled Intersections

There are a number of design alternatives which could be used to ensure the safe crossing of pedestrians and cyclists on trails at controlled intersections. One of the design alternatives that have recently emerged is the cross-ride. The cross-ride allows the cyclist to pass through the intersection without having to dismount and walk, and also includes a zone for both pedestrians and cyclists, helping to reduce conflict between the two when passing through the intersection.

Recently implemented in communities such as the City of Mississauga, this design features is included in OTM Book 18: Cycling Facilities. Some potential design applications for both stop controlled and signalized intersections are presented on the following page.

SIGNAGE



Rb-71 (OTM)
300 x 450
SHARED PATHWAY



Rb-72a & Rb-72b (OTM)
300 x 450
PATHWAY ORGANIZATION



Rb-73 (OTM)
300 x 450
YIELD TO PEDESTRIANS



Wc-15 (OTM)
600 x 600
PEDESTRIAN AND BICYCLE CROSSING AHEAD

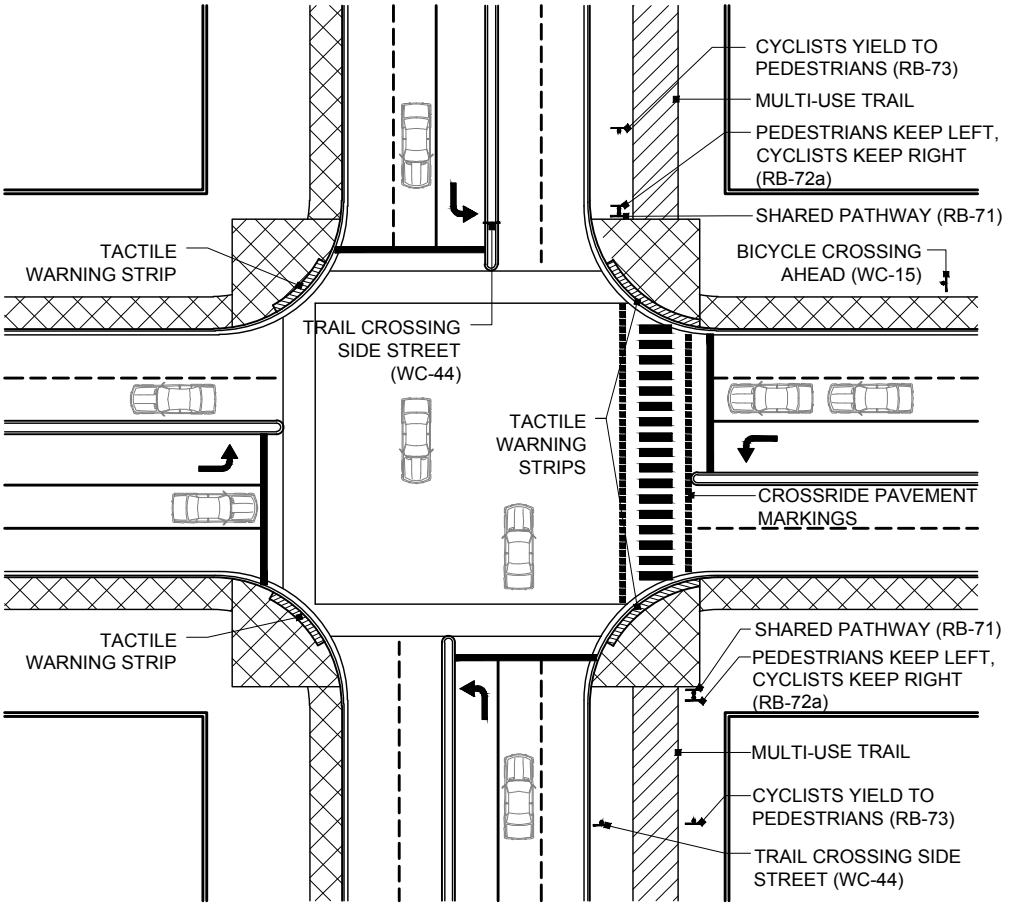


Wc-44L & Wc-44R (TAC)
300 x 450
BICYCLE TRAIL CROSSING SIDE STREET

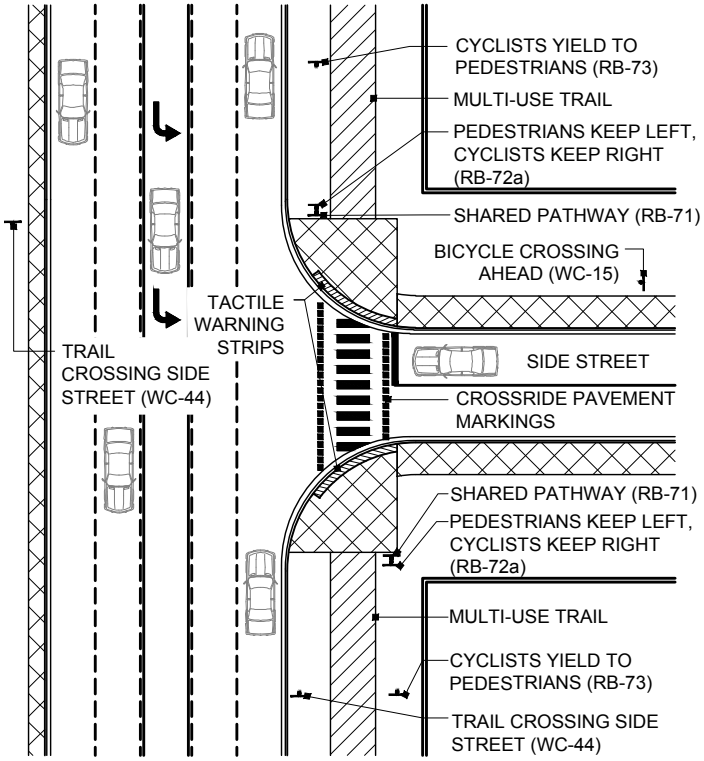


Wc-44T (TAC)
300 x 600
TRAIL CROSSING TAB

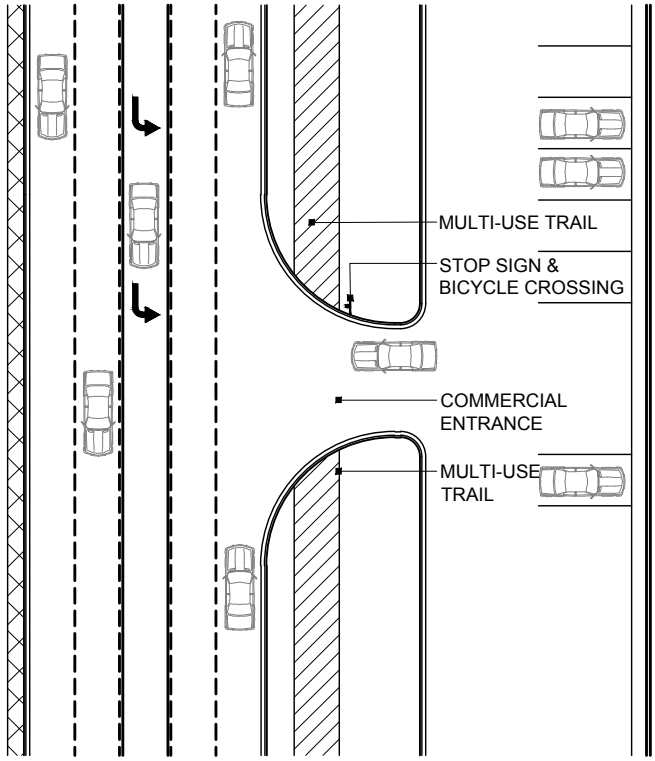
NOTE: REFER TO ONTARIO TRAFFIC MANUAL BOOK 18 - CYCLING FACILITIES FOR MID-BLOCK CROSS RIDE DESIGN AND ADDITIONAL INFORMATION ON THE APPLICATION OF CROSS RIDES



SIGNALIZED INTERSECTION WITH CROSSRIDE

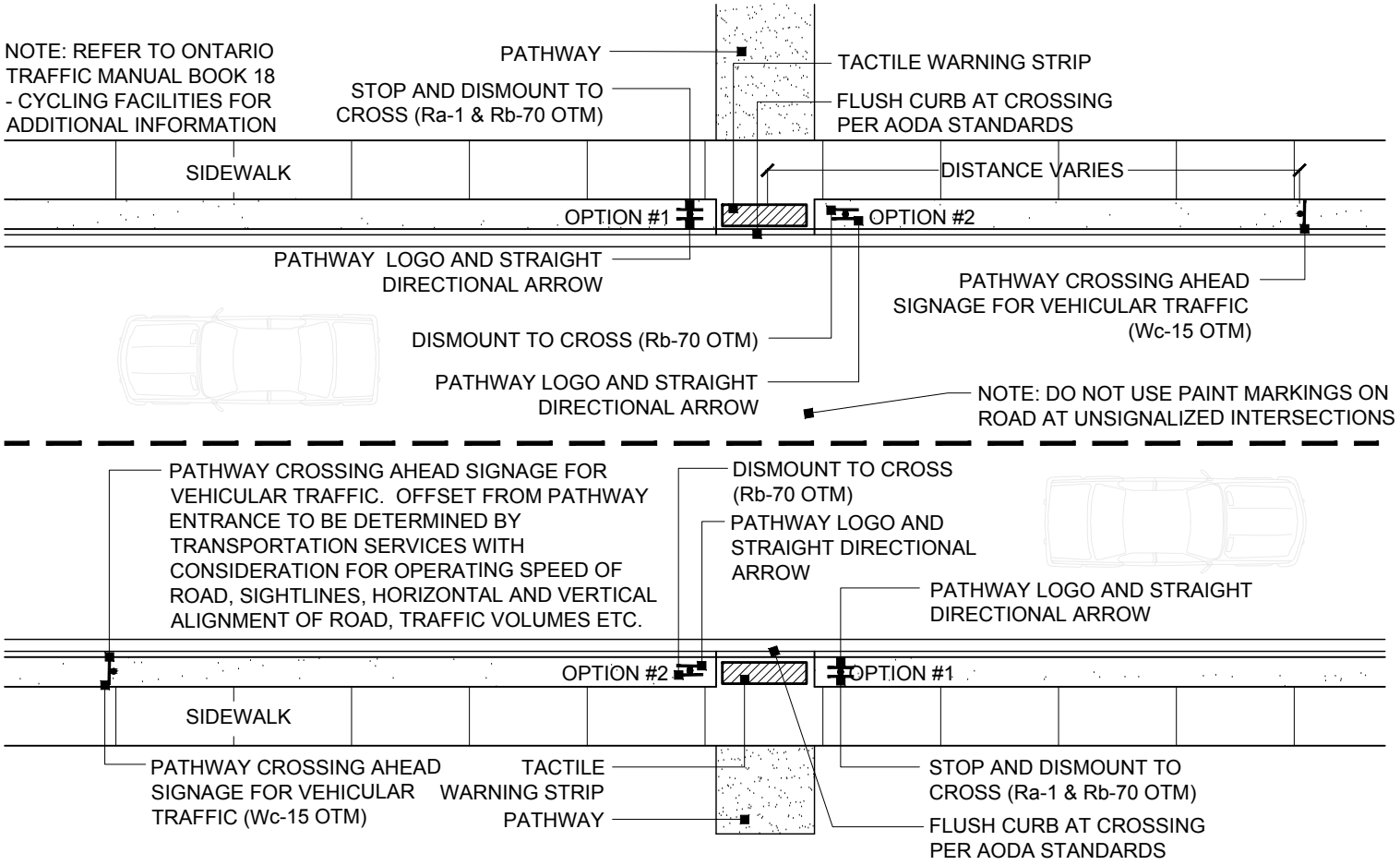


UNSIGNALIZED INTERSECTION WITH CROSSRIDE



COMMERCIAL DRIVEWAY CROSSING

CROSSRIDES - SCHEMATIC	SCALE = NTS	CITY OF Burlington Ontario Canada



SIGNAGE



Ra-1 (OTM)
600 x 600
STOP SIGN



Rb-70 (OTM)
300 x 300
DISMOUNT AND WALK

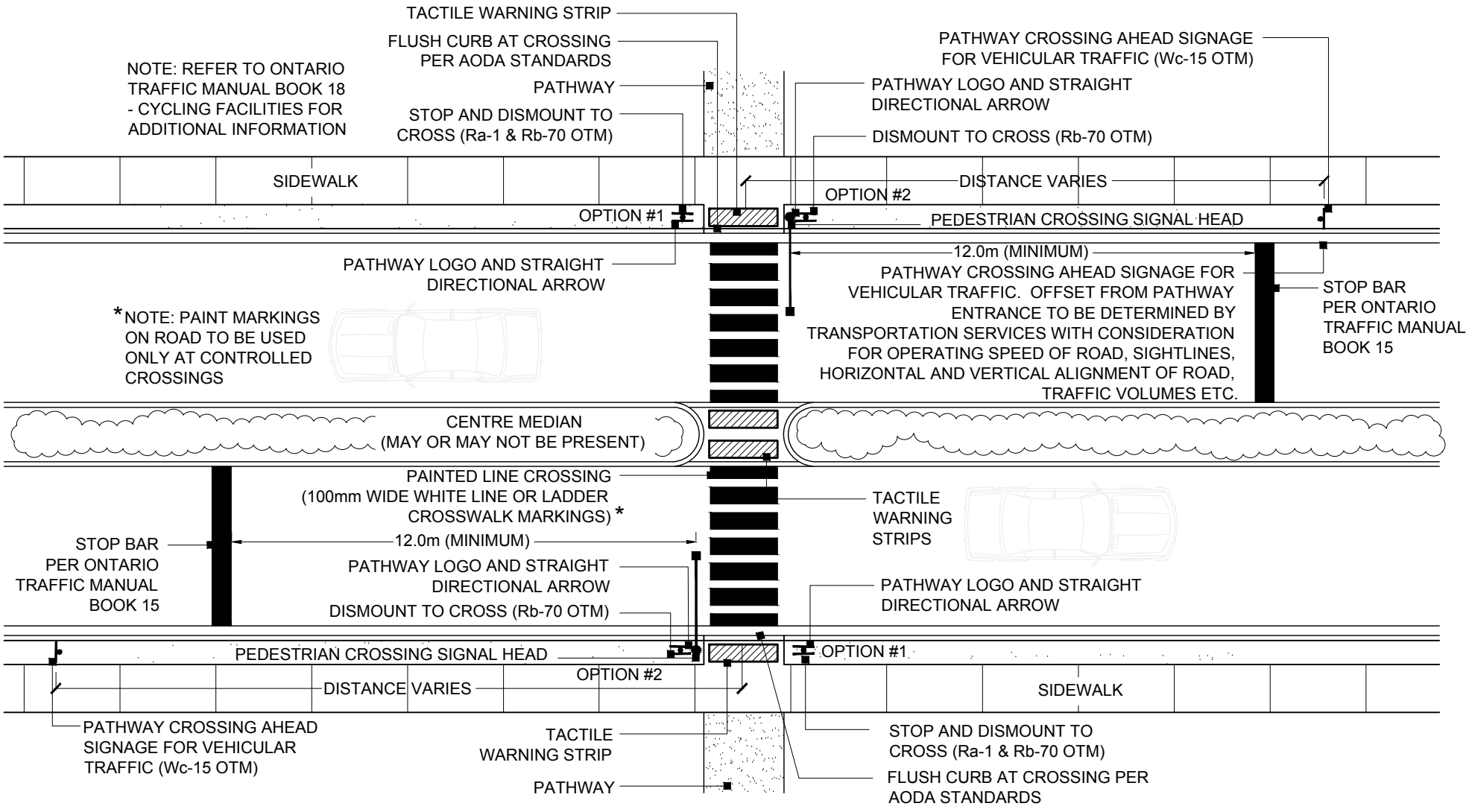


Wc-15 (OTM)
600 x 600
PEDESTRIAN AND BICYCLE CROSSING AHEAD

UNCONTROLLED MID-BLOCK CROSSING

SCALE = NTS

CITY OF Burlington Ontario • Canada



SIGNAGE



Ra-1 (OTM)
600 x 600
STOP SIGN



Rb-70 (OTM)
300 x 300
DISMOUNT AND WALK

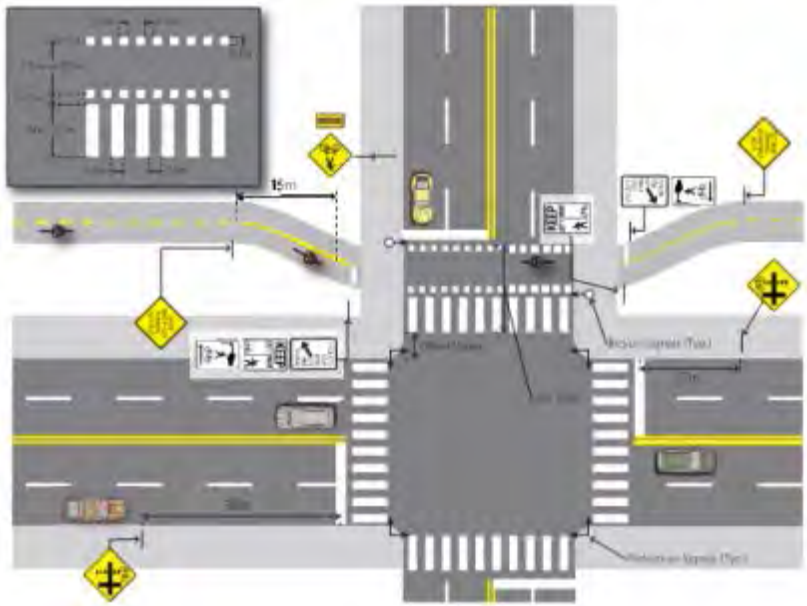


Wc-15 (OTM)
600 x 600
PEDESTRIAN AND BICYCLE CROSSING AHEAD

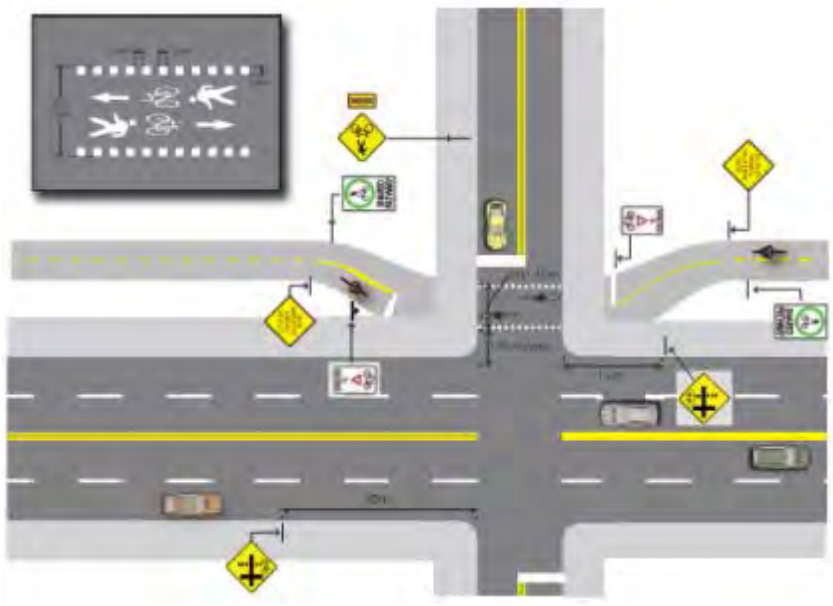
CONTROLLED MID-BLOCK CROSSING

SCALE = NTS

CITY OF Burlington Ontario • Canada



Separate Pedestrian and Cyclist Crossride (Signalized)
Source: Ontario Traffic Manual Book 18



Mixed Pedestrian and Cyclist Crossride (Unsignalized)
Source: Ontario Traffic Manual Book 18

Crossings at Active Railways

In order to establish a pathway crossing of an active rail line, proponents must submit their request directly to the railway company. Submissions need to identify the crossing location and its basic design. Designs should be consistent with Draft RTD-10, Road/Railway Grade Crossings: Technical Standards and Inspection, Testing and Maintenance Requirements (2002) available from Transport Canada. In the event that an agreement cannot be reached on some aspect of the crossing, then an application may be submitted to the Canadian Transportation Agency, who may mediate a resolution between the parties.

Grade Separations

Bridges

Where possible, the trail network should make use of existing bridges (e.g. pedestrian bridges, vehicular bridges and abandoned road/railway bridges). In cases where this is not possible a new structure will be needed and the type and design of a structure needs to be assessed on an individual basis. Proposed locations are illustrated on Maps 2.0 through 5.0 in Volume 2 of this report. A few design considerations include:

- Prefabricated steel truss bridge as a practical, cost effective solution;
- A wood structure constructed on site in locations where crossing distances are short;
- Railings, if the height of the bridge deck exceeds 60 cm above the surrounding grade. On multi-use trail bridges the height of the railing needs to be a minimum of 1.4 m and should include features such as appropriately placed rub rails to prevent bicycle pedals and handlebars from becoming entangled;
- Decking that is laid perpendicular to the path of travel rather than parallel, with spaces between decking members of no more than 20mm. This prevents narrow tires from getting caught and also meets AODA requirements;
- A longitudinal slope of 5% or less;
- Determine the type of maintenance vehicle that may need to use the bridge so the structure can be designed appropriately;
- A hard surface apron in locations where there is the potential for erosion of the approaches, and for Recreational Trails that are designed to be accessible. The apron helps to prevent the formation of a rut/step where the end of the bridge meets the trail.

Locations for proposed bridges are illustrated on Maps 2.0 through 5.0 in Volume 2 of this report.

Underpasses and Tunnels

Often an underpass or tunnel is the only way to cross significant barriers such as elevated railways and multi-lane highways. Designing trails through underpasses and tunnels can be challenging because of the confined space. Underpasses should be wide enough to accommodate all trail users whether they are traveling by foot, bicycle, in-line skates, wheelchair or other forms of active transportation. Where feasible, it is suggested that trail widths through underpasses be equal to or greater than that of the approaching trail (typically minimum 4.0m). The guidelines provided below outline key considerations for the development of an underpass crossing:

- For shorter length underpasses, a vertical clearance of 2.5m is usually sufficient;
- For longer structures a vertical clearance of 3.0m should be considered;
- If service and/or emergency vehicles are to be accommodated within the underpass, an increase in vertical clearance may also need to be provided;
- Underpasses and tunnels can be a security concern and also present maintenance challenges. To address these issues, tunnels should be well lit with special consideration made to security, maintenance and drainage. Approaches and exits should be clear and open to provide unrestricted views into and beyond the end of the structure wherever possible;



Active Rail Line Crossing – Newmarket. Source: MMM Group


Trail Bridge - Brampton. Source: MMM Group


Trail Bridge – Sherwood Park, Burlington Source: MMM Group

- Abutments should be appropriately painted/marked with reflective hazard markings; and
- Ideally, the transition between the multi-use pathway and underpass crossing should be level and provide for accessibility. In the case where an underpass crosses beneath ground-level travel/road ways, ramps should be provided to allow a transition down to the lower grade under the passage, with grade or alignment changes being taken up by the access ramps wherever possible.

For additional details regarding the design of trail underpasses and tunnels please refer to **Section 4.0 – Physically Separated Facilities** in **Ontario Traffic Manual Book 15.**

C.4 Additional Design Considerations

C.4.1 Trail Signage

Trail signage is an important component of the wayfinding system. Signage should be organized into a "family" of signs, each with a different function and together these function to enable users to easily, efficiently and confidently navigate the trail network. The wayfinding system goes beyond the physical expression of signs in the landscape; it is a comprehensive system built around a brand that is a key part of the customer experience. A strong brand is visually appealing, bold, immediately recognizable and enduring. Once created the brand is also used on products such as maps, banners for promotional programs, events, information on websites etc..

Burlington's Park Wayfinding Signage guidelines approved in 2013 established a strong brand and provided design concepts for some members of the trail sign family. These guidelines were reviewed and used as the basis for additional trail signage recommendations in the Community Trails Strategy. These recommendations included some modifications to the Multi-use Pathway Wayfinding trailhead sign and directional marker as well as design concepts for some additional members of the sign family and some guidance on their placement throughout the network.

The Accessibility for Ontarians with Disabilities Act, Design of Public Spaces Standards (Ontario Reg. 191/11) includes the following requirements for the design of trail signage.

Trailhead signage must provide information on:

- Trail length;
- Type of surface;
- Average and minimum trail width;
- Average and maximum running slope and cross slope; and
- The location of amenities, so that users can make an informed choice about whether or not to use the trail.

In addition signage needs to be designed so that text has high contrast with any background colours/graphics, and characters need to use sans serif fonts to assist with visual recognition.

Table C.7. provides a general description of sign types within the family and individual design details inserted in this section provide further information on their construction and implementation.

Table C.7 Summary of City of Burlington Signage / Wayfinding Family

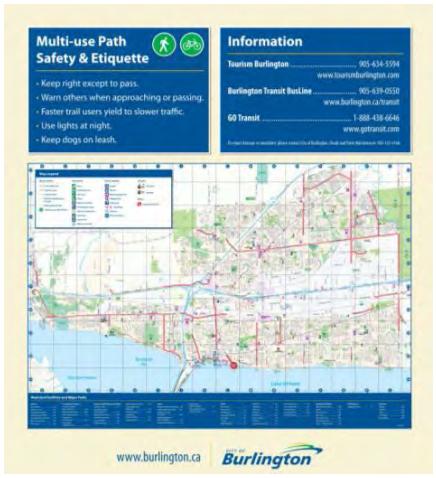
Family Sign Type	Example
Trailhead Signs ▶ Typically located at key entry and destination points and major network junctions. ▶ Provide orientation to the network through mapping and trail network information. ▶ May be used to introduce interpretive themes. and rules and regulations. ▶ Useful landmark where network nodes are visible from a distance. ▶ May be used as a sponsorship opportunity to offset cost of signs. ▶ Should include user etiquette to clearly articulate which trail uses are permitted, regulations and by-laws that apply, as well as trail etiquette, safety and emergency contact information. Note, at trailheads user etiquette is incorporated into the trailhead sign, in other locations it can be integrated with access barriers. ▶ Must meet the requirements for trailhead signs as per Section 80.9 (1) 8 of the AODA Design of Public Spaces Standards ▶ Signage should clearly indicate that the trail is a Recreational Trail, either incorporated into the trailhead sign or as a stand-alone sign at trail entry points where necessary. Refer also to section C.7.3 for additional discussion regarding liability.	   

Table C.7 Summary of City of Burlington Signage / Wayfinding Family

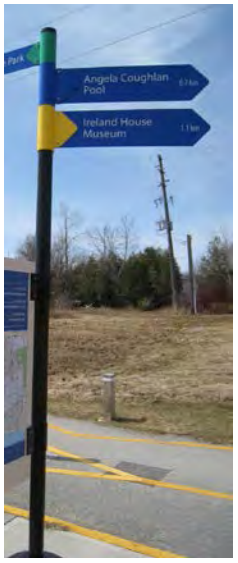
Family Sign Type	Example
Trail Markers ▶ Used at trail intersections to indicate directions to nearby points of interest, other trails and important destinations. ▶ Provides a visual cue to users that assures them they are on the designated trail route. ▶ Can be used as needed where trail alignment changes significantly. ▶ Where the trail network needs to follow the road network (i.e. there are no opportunities to create an off-road link) markers are used to assist users in following the route through road intersections and along the street network to the next segment of the off-road route. Source: MMM Group (all photos)	   

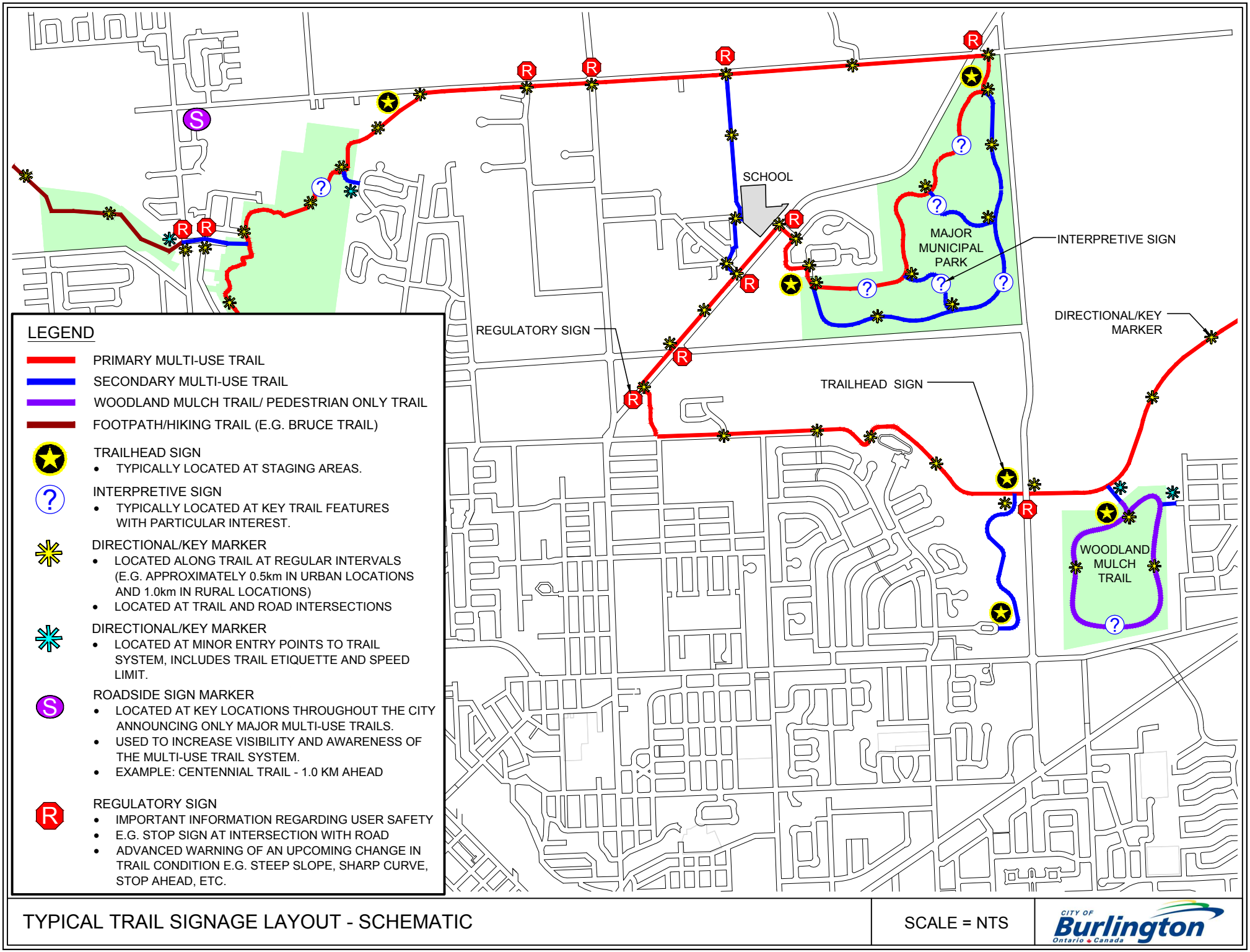
Table C.7 Summary of City of Burlington Signage / Wayfinding Family

Family Sign Type	Example
Regulatory, Warning & Information ▶ Required throughout the system. Where traffic control signs are needed (stop, yield, curve ahead etc.), it is recommended that recognizable traffic control signs be used (refer to the TAC Bikeway Control Guidelines or OTM Book 18). ▶ Provides important information to trail users about changes in trail condition. ▶ Warning signs are used to highlight route conditions that may pose a potential safety or convenience concern to network users.	

Table C.7 Summary of City of Burlington Signage / Wayfinding Family

Family Sign Type	Example
Interpretive ▶ Should be located at key trail features having a story to be told. These features may be cultural, historical, or natural. Interpretive signs should be highly graphic and easy to read. ▶ Consider highly visible locations to minimize the potential for vandalism.	  

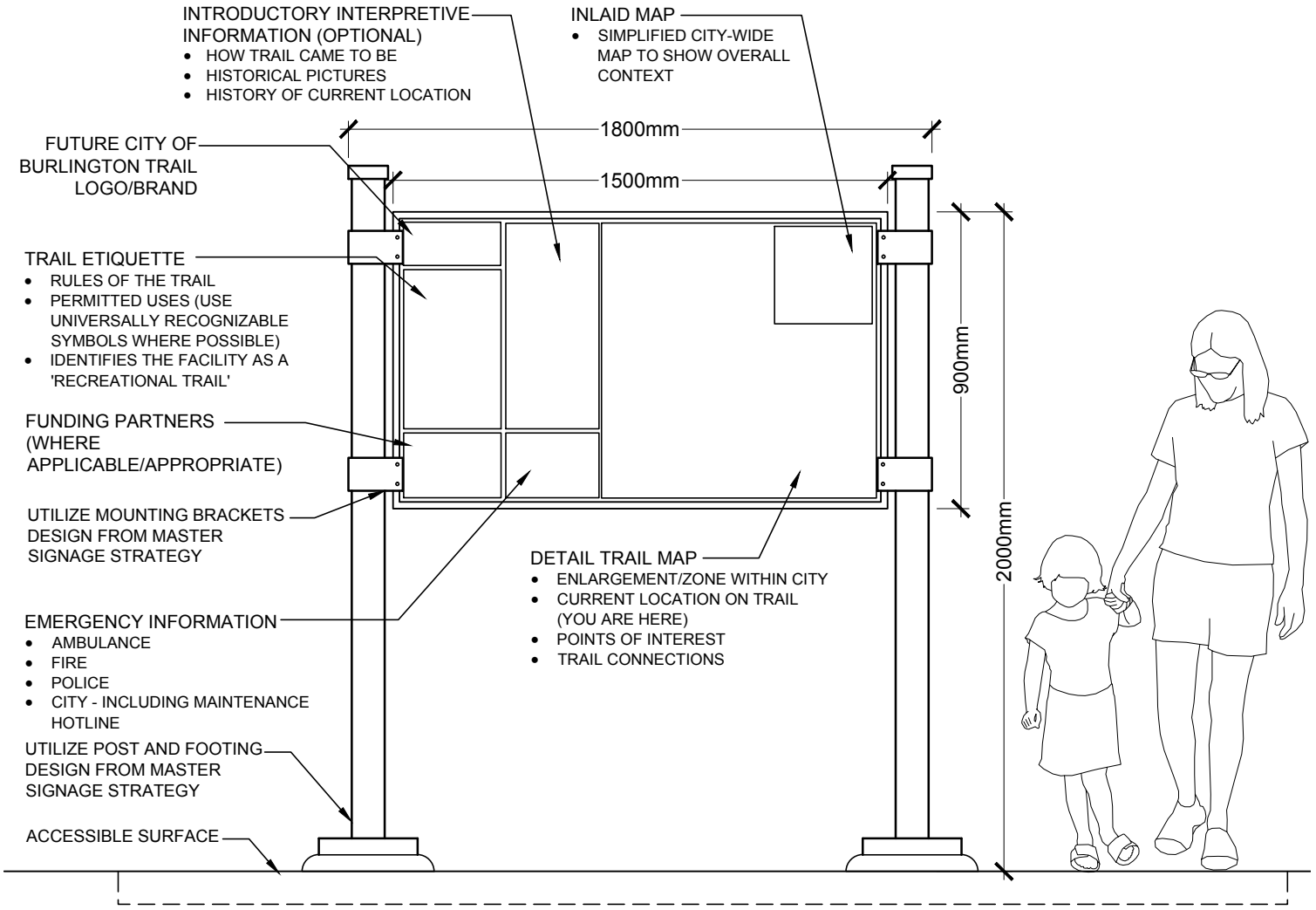
Source: MMM Group (all photos unless otherwise noted)



TYPICAL TRAIL SIGNAGE LAYOUT - SCHEMATIC

SCALE = NTS

CITY OF Burlington Ontario • Canada



FUNCTION:

- PROVIDES ORIENTATION TO OVERALL TRAIL SYSTEM BY WAY OF MAPPING AND IMPORTANT INFORMATION.
- LISTS THE PERMITTED USES OF THE TRAIL AND EMERGENCY CONTACT INFORMATION.
- MAY ALSO PROVIDE THE HISTORY BEHIND THE TRAIL OR REGION.
- SIZE AND CAN ALSO ACT AS AN IDENTIFIER TO PASSING PEDESTRIANS AND VEHICLES.

TYPICAL LOCATION:

- TYPICALLY LOCATED AT STAGING AREAS.
- IN CASES WHERE IT IS ASSOCIATED WITH A PARKING AREA THE TRAILHEAD SIGN IS USUALLY IN THE TRANSITION AREA BETWEEN THE PARKING LOT AND TRAIL.

TYPICAL SIGN ELEMENTS:

- MAY OR MAY NOT HAVE A ROOF STRUCTURE.
- TRAIL ETIQUETTE DENOTING GUIDELINES FOR TRAIL USERS.
- EMERGENCY CONTACT INFORMATION (IE. 911 OR MAINTENANCE ISSUES).
- IMAGERY OF DESTINATION POINTS ALONG TRAIL.
- QUICK RESPONSE CODES CAN BE SCANNED BY MOBILE PHONE DEVICES THAT WILL PROVIDE INSTANT ACCESS TO A DESIGNATED WEBSITE. WEBSITES CAN BE EASILY MODIFIED SO THAT INFORMATION (MAPPING, EVENTS, PROGRAMS, ETC.) ARE CURRENT.
- LOGOS: CITY, SPONSORS/CO-OWNERS (WHERE APPLICABLE).
- POST AND MOUNTING SYSTEM TO MATCH CHARACTER ESTABLISHED IN MASTER SIGNAGE STRATEGY.
- ENSURE TERM 'RECREATIONAL TRAIL' IS INCORPORATED INTO SIGNAGE AT ENTRY POINTS.

IMPORTANT NOTES FOR AODA COMPLIANCE:

- CHARACTERS THAT USE A SANS SERIF FONT
- HIGH CONTRAST BETWEEN BACKGROUND AND TEXT FOR EASY READABILITY. A MINIMUM LIGHT REFLECTIVE VALUE OF 70% IS RECOMMENDED TO MEET AODA REQUIREMENTS.
- SIGN TO BE PLACED ON AN ACCESSIBLE SURFACE.

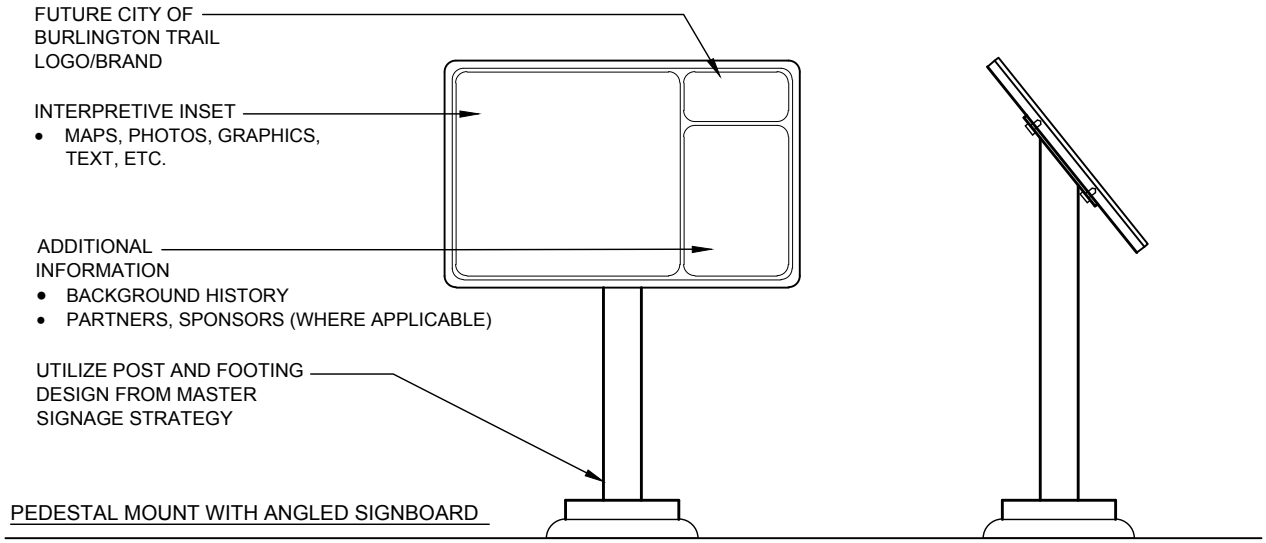
KEY TYPICAL INFORMATION

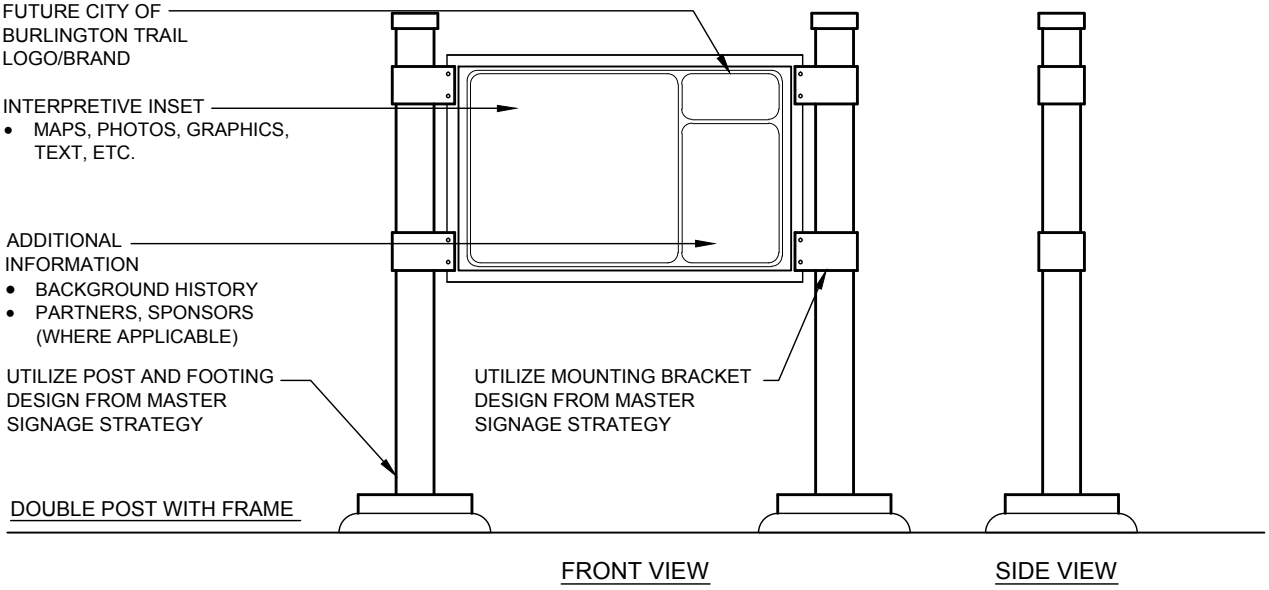
- TOTAL LENGTH OF TRAIL (APPLIES TO LINEAR TRAILS OR TRAIL LOOPS)
- AVERAGE AND MAXIMUM LONGITUDINAL SLOPE
- AVERAGE AND MAXIMUM CROSS SLOPE
- TRAIL WIDTH, AND LOCATION AND WIDTH FOR ANY NARROW "PINCH" POINTS
- TRAIL SURFACE MATERIAL
- LOCATION OF AMENITIES (E.G. REST AREAS, WASHROOMS, ETC.)

TRAILHEAD SIGN - DETAILS

SCALE = 1:20

CITY OF Burlington Ontario Canada





FUNCTION:

- PROVIDES TRAIL USERS WITH INFORMATION ABOUT A KEY TRAIL FEATURE WHICH MAY BE CULTURAL, HISTORICAL OR NATURAL.
- INTERPRETIVE SIGNS SHOULD BE HIGHLY GRAPHIC AND EASY TO READ.
- SIGNS CAN INCLUDE A SIGNIFICANT AMOUNT OF INFORMATION AND DETAIL WHERE APPROPRIATE.
- OFFER THE POTENTIAL TO PARTNER WITH LOCAL GROUPS FOR THE DEVELOPMENT OF TEXT AND GRAPHICS.

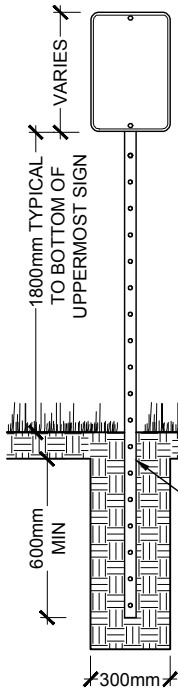
TYPICAL LOCATION:

- TYPICALLY LOCATED AT KEY TRAIL FEATURES WHICH HAVE PARTICULAR INTEREST.
- SHOULD BE PLACED IN A HIGHLY VISIBLE OR HIGH TRAFFIC LOCATION TO DISCOURAGE VANDALISM.
- WHERE THE SIGN IS INTERPRETING A SENSITIVE FEATURE OR RARE SPECIES, DO NOT PLACE THE SIGN DIRECTLY BESIDE KNOWN LOCATION OF THE FEATURE/SPECIES TO AVOID POTENTIAL DAMAGE OR LOSS.



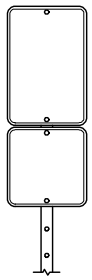
EXAMPLE INTERPRETIVE INSET

INTERPRETIVE SIGN	SCALE = 1:20	CITY OF Burlington Ontario Canada



NOTE:
1. WHERE 2 OR MORE SIGNS ARE LOCATED, SIGNS SHALL BE STACKED VERTICALLY.
2. SIGNS SHALL BE PLACED A MINIMUM OF 0.3m OFF OF TRAIL EDGE
3. HEIGHT TO BOTTOM OF UPPERMOST SIGN TO BE CONSISTENT THROUGHOUT TRAIL. TYPICAL HEIGHT OF 1800mm IS RELATIVE TO THE TRAIL SURFACE.

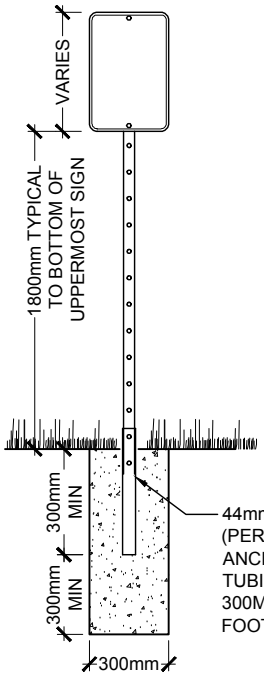
50MM TELESPAR TUBING (PERFORATED) BURIED DIRECTLY INTO GROUND.



REFER TO SIGN PRIORITY FOR DETAILS

SIGNAGE FACE
STANDARD ENGINEERING GRADE SHEETING
HOLES - METRO PUNCH

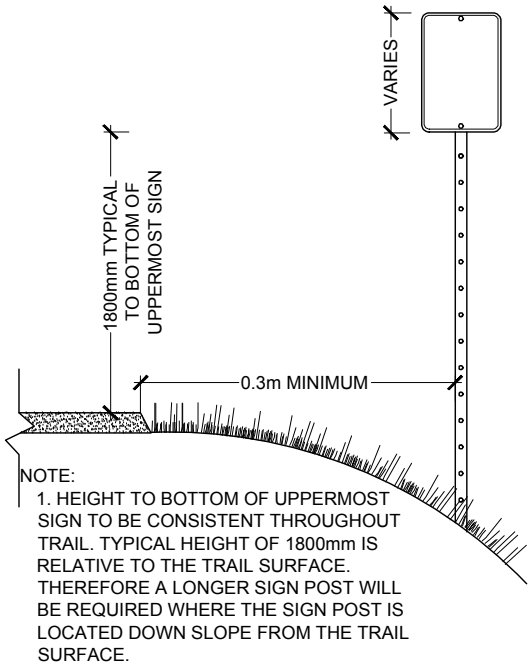
MOUNTING
THE SIGN FACE MUST BE SECURED TO A POST WITH TWO GALVANIZED 12MM HEX BOLTS AND NUTS WITH FLAT WASHERS ON BOTH SIDES



44mm TELESPAR TUBING (PERFORATED) SIGN POST ANCHOR. 50MM TELESPAR TUBING (PERFORATED) IN 300MM CONCRETE FOOTING.

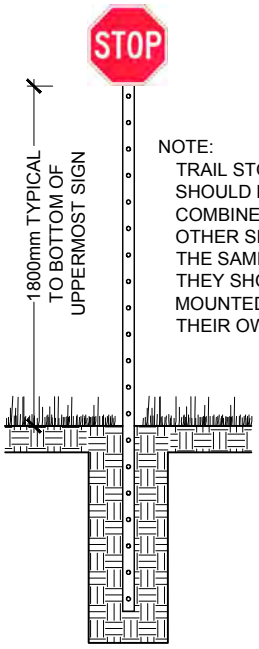
SIGN MOUNTING DIRECTLY INTO GROUND

SIGN MOUNT WITH CONCRETE FOOTING

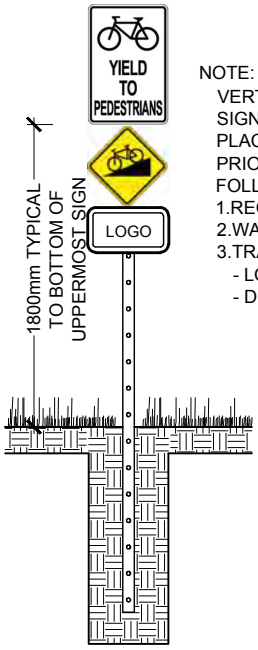


NOTE:
1. HEIGHT TO BOTTOM OF UPPERMOST SIGN TO BE CONSISTENT THROUGHOUT TRAIL. TYPICAL HEIGHT OF 1800mm IS RELATIVE TO THE TRAIL SURFACE. THEREFORE A LONGER SIGN POST WILL BE REQUIRED WHERE THE SIGN POST IS LOCATED DOWN SLOPE FROM THE TRAIL SURFACE.

SIGN MOUNT DOWN SLOPE OF TRAIL



NOTE:
TRAIL STOP SIGNS SHOULD NOT BE COMBINED WITH OTHER SIGNS ON THE SAME POST, THEY SHOULD BE MOUNTED ON THEIR OWN POST



NOTE:
VERTICAL SIGNAGE PLACEMENT BY PRIORITY IS AS FOLLOWS:
1.REGULATORY
2.WARNING
3.TRAIL
- LOGO
- DIRECTIONAL

SIGN PRIORITY

FUNCTION:

- USED TO ALERT TRAIL USERS ABOUT UPCOMING OBSTACLES OR CHANGES ALONG THE TRAIL.
- REGULATORY AND WARNING SIGNS FOLLOW THE SAME CONVENTIONS AS ROADWAY SIGNS RECOMMENDED BY THE TRANSPORTATION ASSOCIATION OF CANADA (TAC).

OTHER NOTES:

- MOUNT ON EXISTING POLES. ALSO CONSIDER SIMPLE MOUNTING SYSTEMS (E.G. TELESPAR POST)
- SIMPLER MOUNTING SYSTEMS CAN HELP WITH KEEPING COSTS DOWN.
- ANY LETTERING ON REGULATORY SIGNAGE SHOULD BE A MINIMUM HEIGHT OF 100mm.
  (LETTERING CAN BE SMALLER ON CUSTOM INFORMATION SIGNS)

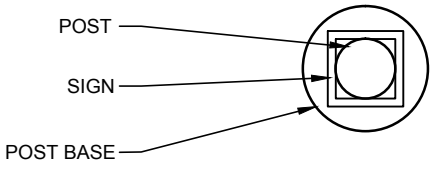
TYPICAL LOCATION:

- PLACED IN ADVANCE OF AN UPCOMING HAZARD.
- USED TO MARK THE ACTUAL LOCATION OF THE HAZARD.
- CONSULT WITH LOCAL ENGINEERING/TRAFFIC DEPARTMENTS FOR THE PLACEMENT OF ANY SIGNS ALONG ROADWAYS. (E.G. ADVANCED WARNING FOR MOTORISTS APPROACHING TRAIL CROSSING AHEAD)
- TRAIL CROSSING AHEAD SIGNAGE FOR VEHICULAR TRAFFIC. OFFSET DISTANCE FROM TRAIL ENTRANCE TO BE DETERMINED BY TRANSPORTATION SERVICES, WITH CONSIDERATION FOR OPERATING SPEED OF ROAD, SIGHTLINES, HORIZONTAL AND VERTICAL ALIGNMENT OF ROAD, TRAFFIC VOLUMES ETC.

REGULATORY, WARNING AND CUSTOM INFORMATION SIGNS

SCALE = NTS

CITY OF Burlington Ontario Canada



PLAN VIEW

FUNCTION:

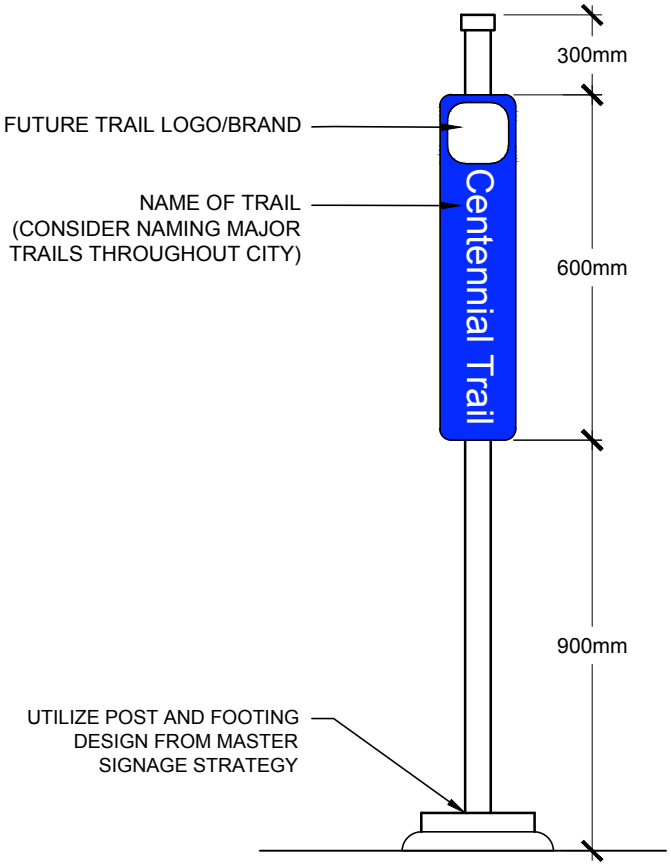
- ROUTE MARKER: PROVIDES A SIMPLE VISUAL MESSAGE TO TRAIL USERS THAT THEY ARE ON THE DESIGNATED ROUTE.

TYPICAL LOCATION:

- ALSO PLACED AT REGULAR INTERVALS ALONG LONG, UNINTERRUPTED SECTIONS OF TRAIL.

SIGN STRUCTURE:

- UTILIZE POST FROM MASTER SIGNAGE STRATEGY.
- FOUR SIDED SIGN WITH NAME OF TRAIL AND FUTURE TRAIL LOGO/BRAND MOUNTS TO POST.



MARKER SIGNAGE ALONG TRAIL

FUNCTION:

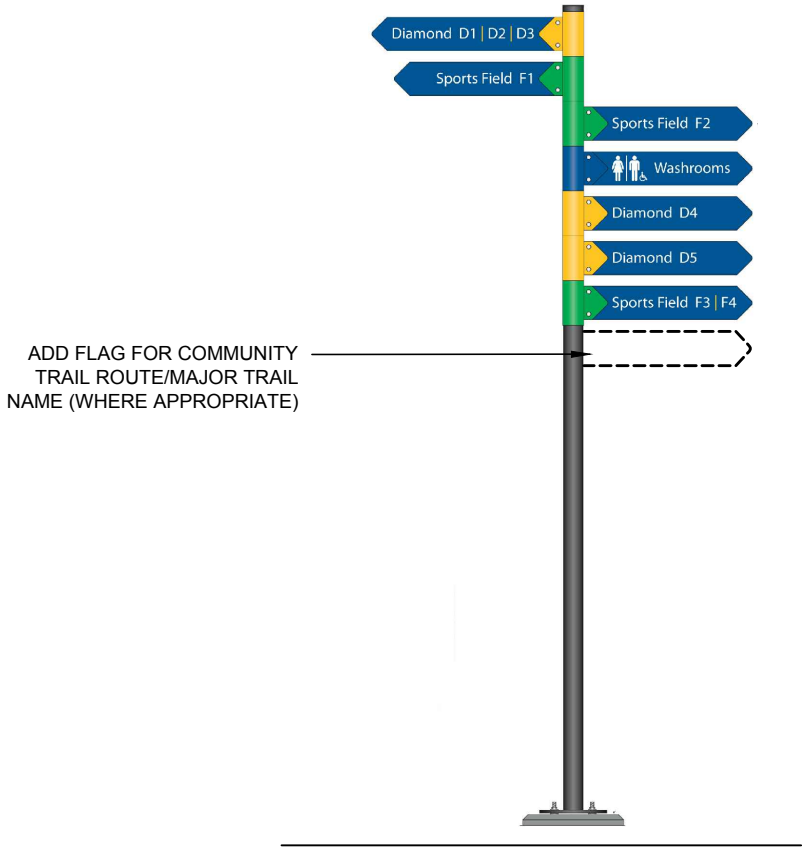
- DIRECTIONAL SIGN: USED TO CUE TRAIL USERS FOR GIVEN DESTINATIONS ALONG THE TRAIL AND DISTANCES TO GIVEN DESTINATIONS.

TYPICAL LOCATION:

- TYPICALLY LOCATED AT TRAIL INTERSECTIONS WHERE THE TRAIL IS LOCATED IN PARKS AND OPEN SPACES (I.E. OUTSIDE OF THE ROAD RIGHT-OF-WAY)

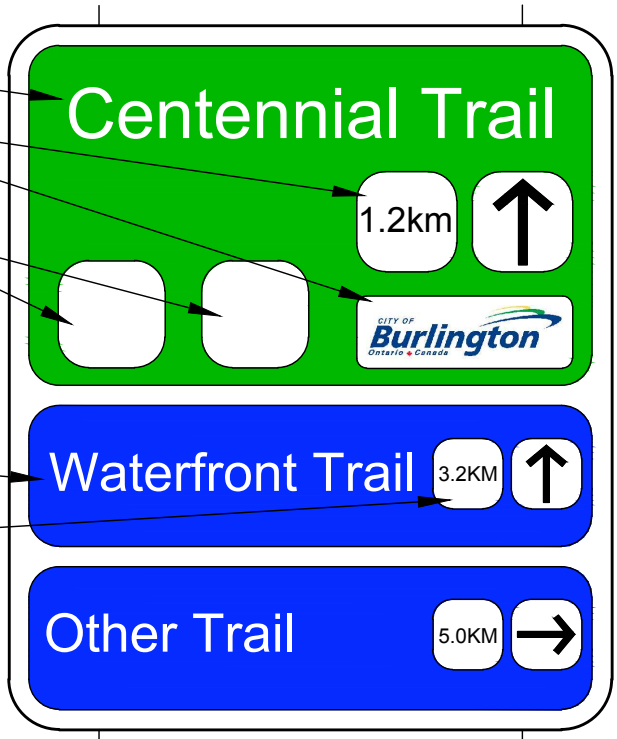
SIGN STRUCTURE:

- UTILIZE DIRECTIONAL SIGNAGE PROPOSED WITHIN THE MASTER SIGNAGE STRATEGY.



TRAIL DIRECTIONAL SIGN

TRAIL DIRECTIONAL AND MARKER SIGNS - TRAIL OUTSIDE OF ROAD RIGHT-OF-WAY	SCALE = NTS	CITY OF Burlington Ontario Canada



FUNCTION:

- ROADSIDE SIGN MARKER: PROVIDES A SIMPLE VISUAL MESSAGE TO ALERT MOTORISTS AND PEDESTRIANS OF A MAJOR TRAIL ROUTE WITHIN THE AREA.

TYPICAL LOCATION:

- TYPICALLY LOCATED ALONG ROADWAY APPROXIMATELY 1KM AWAY FROM MAJOR TRAILS.

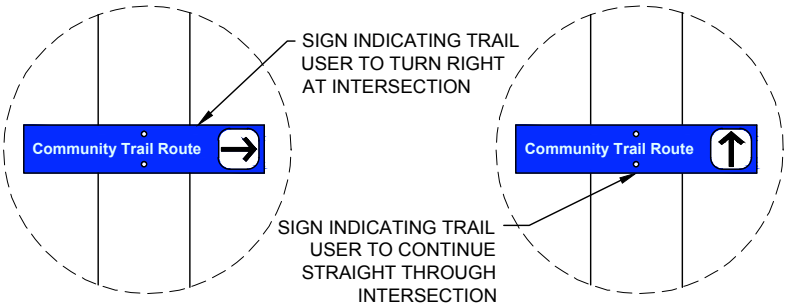
SIGN STRUCTURE:

- 600mm X 600mm ALUMINUM SIGN PLATE ATTACHED TO EXISTING POST OR FASTEN TO NEW POST FROM THE MASTER SIGNAGE STRATEGY.

NOTE:

- DEPENDING ON PROXIMITY TO OTHER TRAILS, THE LENGTH OF THE SIGNAGE PLATE CAN BE INCREASED TO INCLUDE MORE TRAILS.
- NAMING MAJOR TRAILS THROUGHOUT THE CITY SHOULD BE CONSIDERED TO ASSIST IN BOTH USER AND SIGNAGE IDENTIFICATION.

ROADSIDE SIGN MARKER



ENLARGEMENTS

FUNCTION:

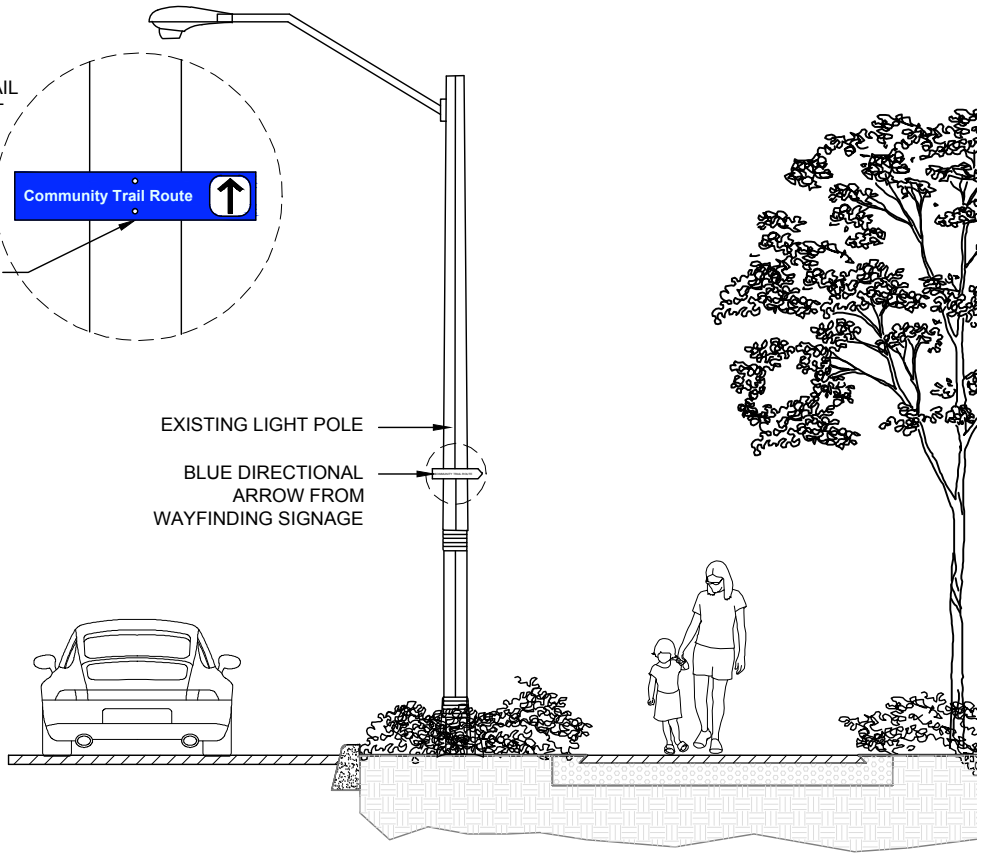
- DIRECTIONAL SIGN: USED TO CUE TRAIL USERS FOR GIVEN DESTINATIONS ALONG THE TRAIL AND DISTANCES TO GIVEN DESTINATIONS.

TYPICAL LOCATION:

- TYPICALLY LOCATED AT TRAIL INTERSECTIONS WHERE TRAIL ROUTE MUST FOLLOW THE ROADWAY NETWORK.

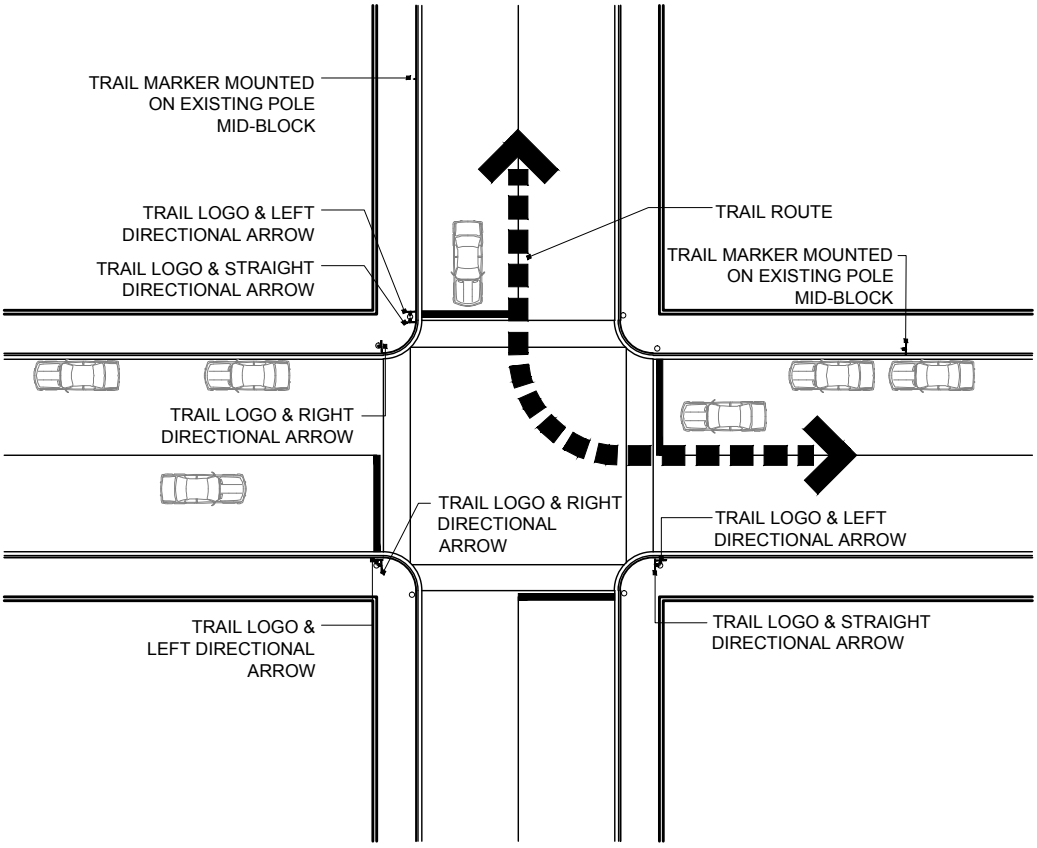
SIGN STRUCTURE:

- UTILIZE BLUE DIRECTIONAL SIGNAGE PROPOSED WITHIN THE MASTER SIGNAGE STRATEGY AND FASTEN TO EXISTING POLES/POSTS.

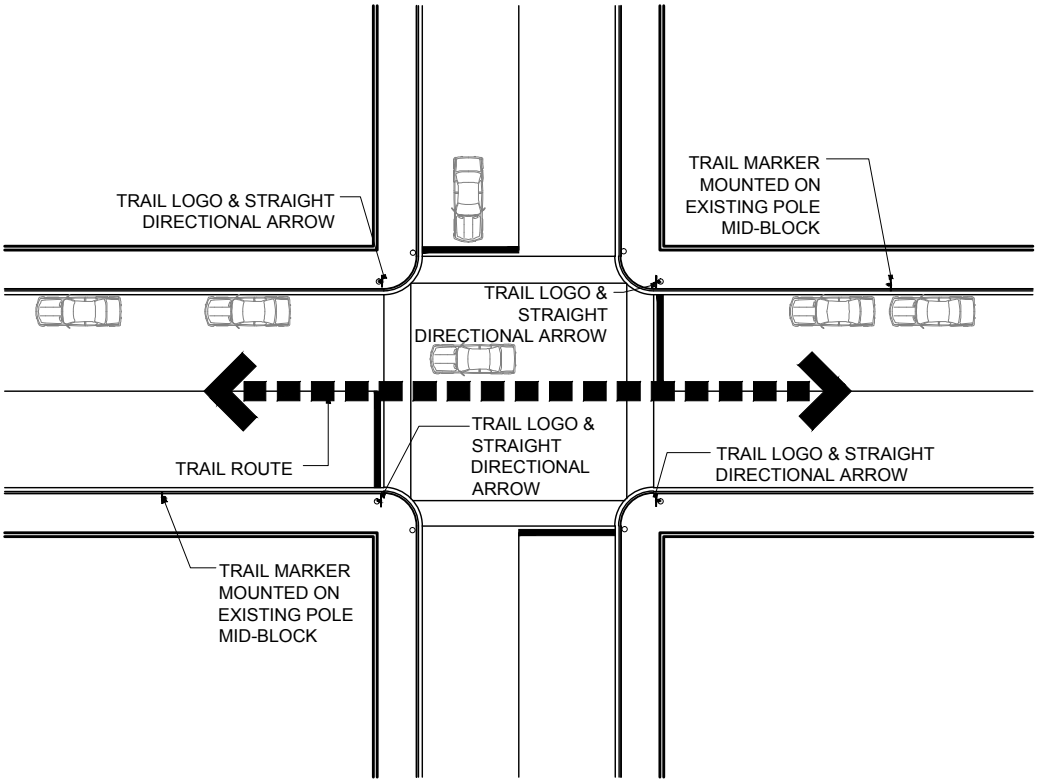


TRAIL DIRECTIONAL SIGNAGE - TRAILS WITHIN ROAD RIGHTS-OF-WAY

TRAIL DIRECTIONAL AND MARKER SIGNS - TRAIL WITHIN THE ROAD RIGHT-OF-WAY	SCALE = NTS	CITY OF Burlington Ontario Canada



TRAIL ROUTE TURNS AT INTERSECTION



TRAIL ROUTE RUNS STRAIGHT THROUGH INTERSECTION

TRAIL DIRECTIONAL SIGNAGE AT URBAN INTERSECTIONS	SCALE = NTS	CITY OF Burlington Ontario Canada

C.4.2 Trail Structures

Gate and Barrier Systems

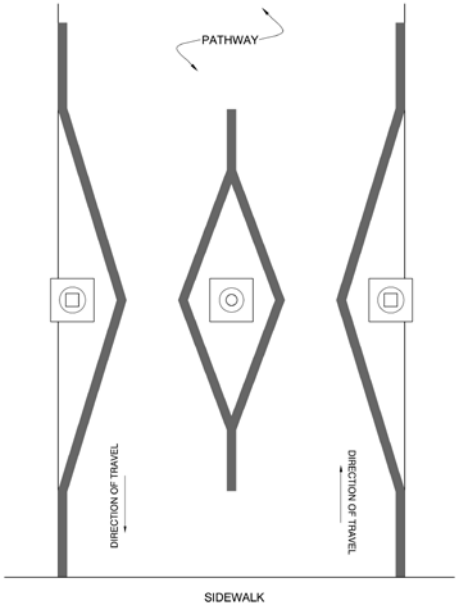
Access barriers are intended to allow free flowing passage by permitted users, and prohibit access by others. Barriers typically require some mechanism to allow access by service and emergency vehicles. Depending on site conditions, it may also be necessary to provide additional treatments between the ends of the access barrier and limit of the multi-use pathway right of way to prevent bypassing of the barrier altogether. The Accessibility for Ontarians with Disabilities Act, Design of Public Spaces Standards, (Ontario Reg. 191/11) states that the entrance to a Recreational Trail must provide a clear opening of between 850 mm and 1000 mm whether the entrance includes a bollard, gate or some other form of entrance design.

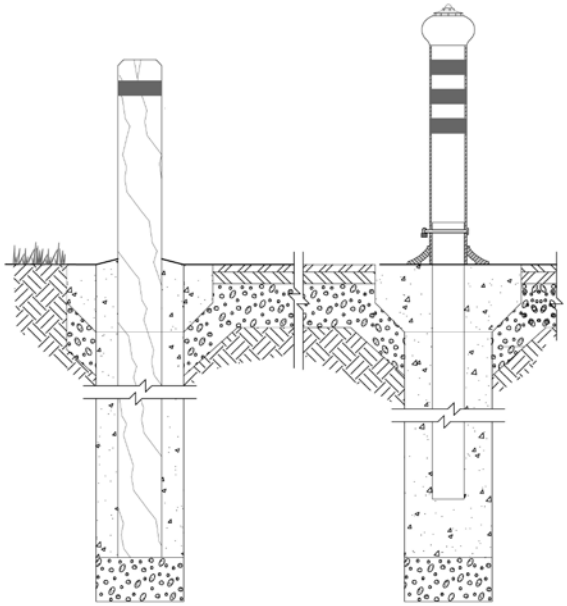
Each access point should be evaluated to determine if additional treatments are necessary. Additional treatments can consist of plantings, boulders, fencing or extension of the barrier treatment depending on the location. There are many designs for trail access barriers in use by different trail organizations; some are more successful than others. Three types of these barriers are described in detail below.

Bollards

The bollard is the most simple and least costly barrier, and can range from permanent, direct buried wood or metal posts, to more intricately designed cast metal units that are removable by maintenance staff. An odd number of bollards (usually one or three) are placed in the multi-use pathway bed to create an even number of "lanes" for users to follow as they pass through the barrier. Although the removable bollard system provides flexibility to allow service vehicle access, they can be difficult to maintain as the metal sleeves placed below grade can be damaged by equipment and can become jammed with gravel and debris from the trail bed.

The City of Burlington has developed a typical design for the application of trail bollards along major trail linkages within the City. When designing future trail linkages this concept should be implemented where applicable or adapted as necessary.





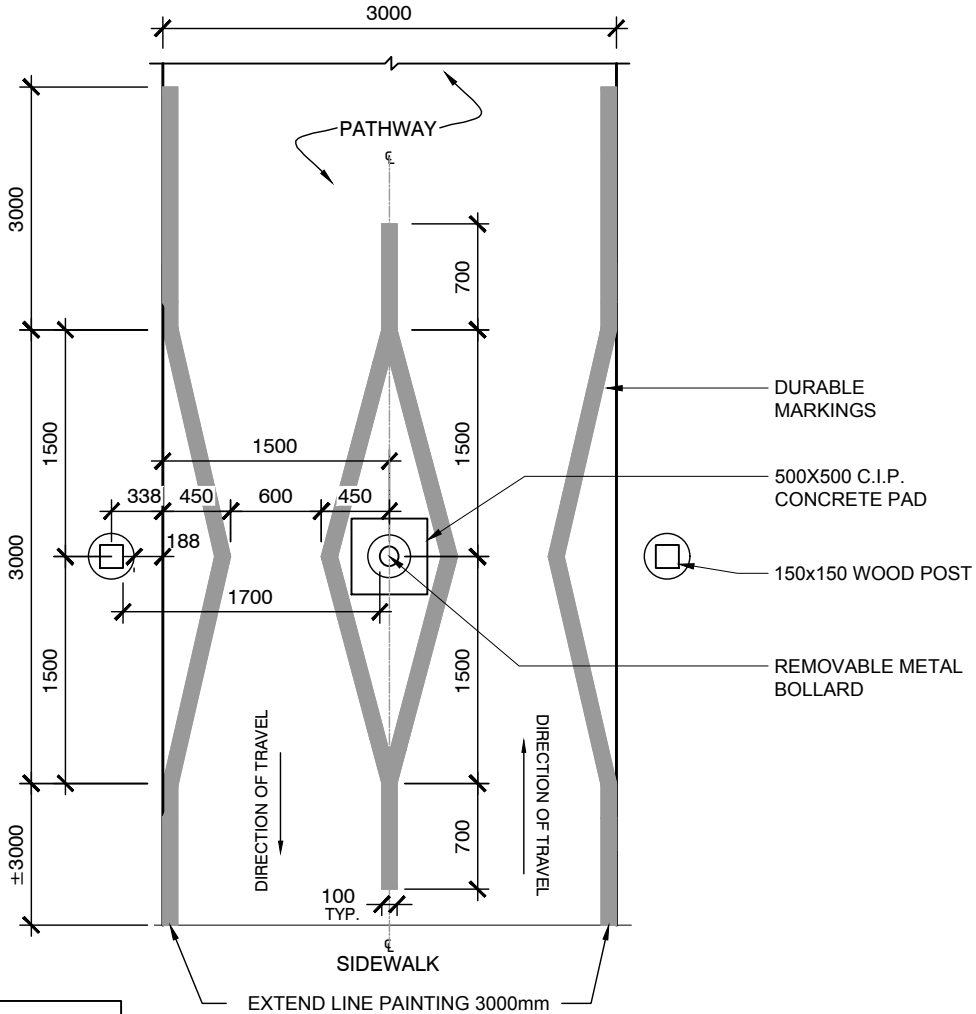


City of Burlington Design Concepts for Bollard Application for Multi-use Trails
Photo Source: City of MMM Group

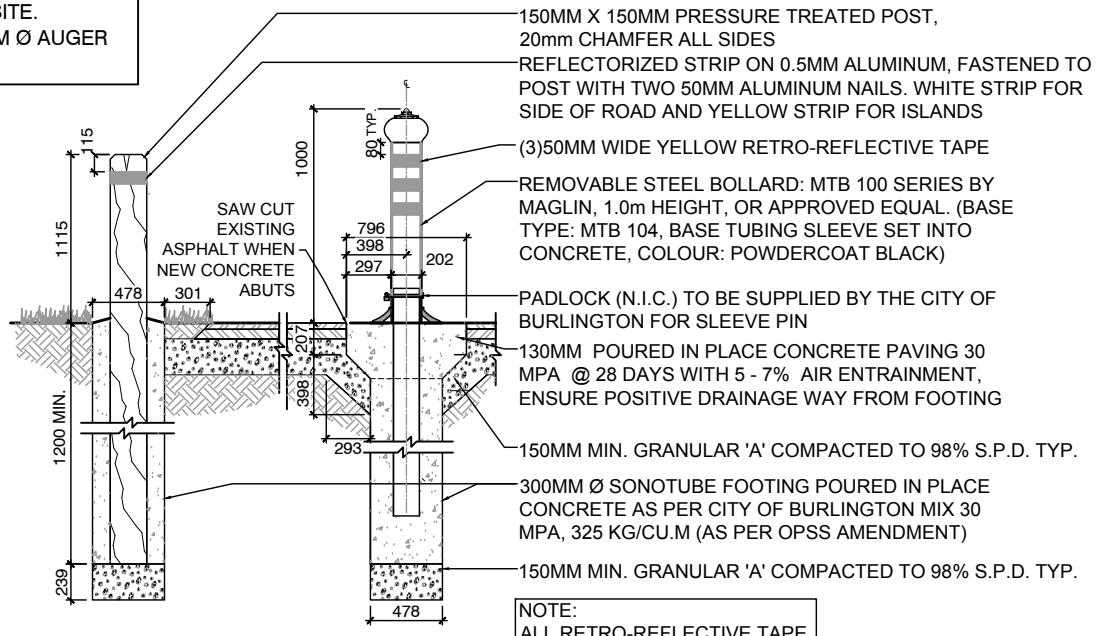
Swing Gates

The single swing gate combines the ease of opening for service vehicle access, with the ease of passage of the bollard. Gates also provide a surface/support for mounting signage. The swing gate should provide a permanent opening to allow permitted users to flow freely through the barrier. The width of the permanent opening must be carefully considered so that it will allow free passage by wheelchairs, wide double strollers, bicycle trailers and electric scooters, yet not allow passage by unauthorized vehicles such as snowmobiles and all-terrain vehicles.

The offset gate is similar to the single swing gate, except that barriers are paired and offset from one another. Although they can be effective in limiting access by unauthorized users and can be easily opened by operations staff, some groups



NOTE:
1. ALL DURABLE MARKINGS SHALL BE 100mm WIDE RETRO-REFLECTIVE YELLOW PAINT AS PER OPSS 1716, AND 1750.
2. CONTRACTOR TO ADJUST BOLLARD LOCATIONS AS REQUIRED ON SITE.
3. CORE EX. ASPHALT TO 350MM Ø AUGER TO DEPTH OF 1200MM MIN.

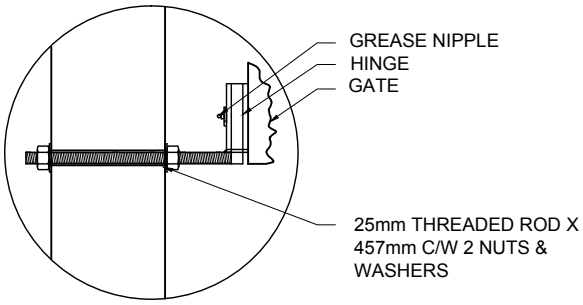


NOTE:
ALL RETRO-REFLECTIVE TAPE IS TO BE INSTALLED INDOORS

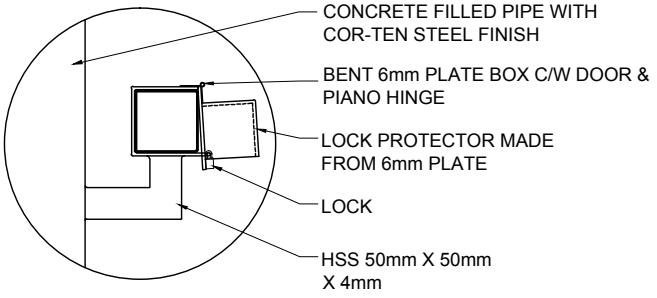
TRIPLE BOLLARD	SCALE = NTS	CITY OF Burlington Ontario Canada

including cyclists, especially cyclists pulling trailers and wheelchair users, can have difficulty negotiating the offset swing gate if the spacing between the gates is not adequate. **Offset gates are not recommended**. In urban areas the single swing gate or bollard is quite effective for most applications. For large parks, park service access/pathway routes, more rural settings and locations where unauthorized access is an ongoing problem, a more robust single swing gate should be considered.

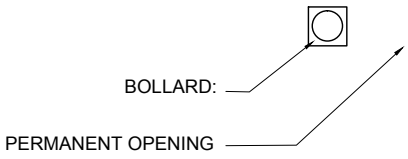
Offset Swing Gate (not recommended)	Single Swing Gate
	
Example of an offset swing gate in Welland, ON. Offset gates are not recommended because they can be challenging for bicycles with trailers, wide strollers and some mobility devices to navigate. Photo Source: MMM Group	Example of a heavy duty single swing gate suitable for rural area trails, Leamington ON. This gate restricts entry by unauthorized vehicles and its robust design resists vandalism. Photo Source: MMM Group

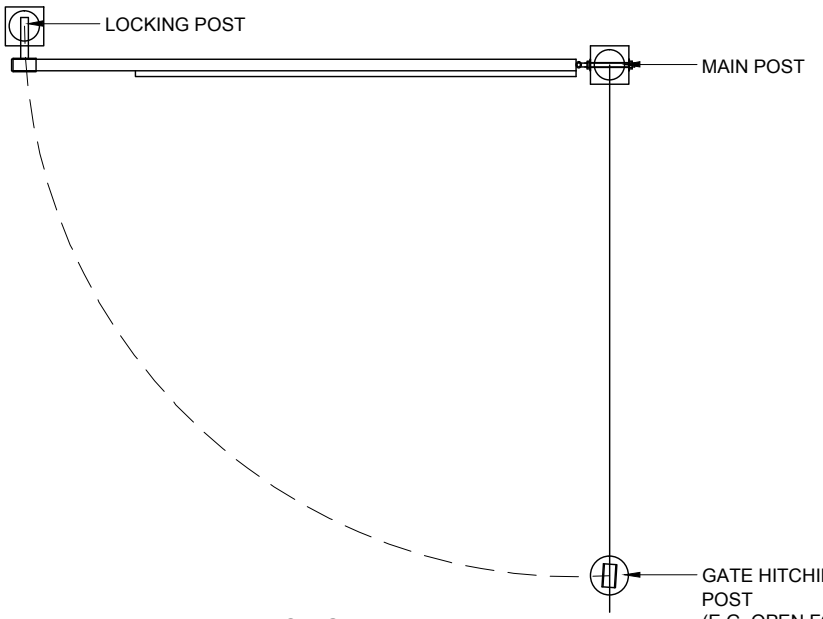


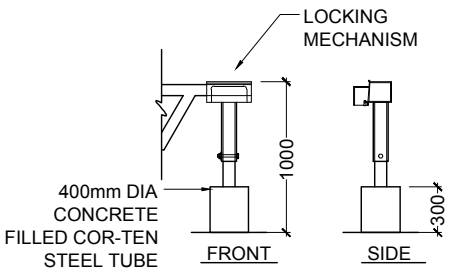
HINGE DETAIL



LOCK MECHANISM DETAIL

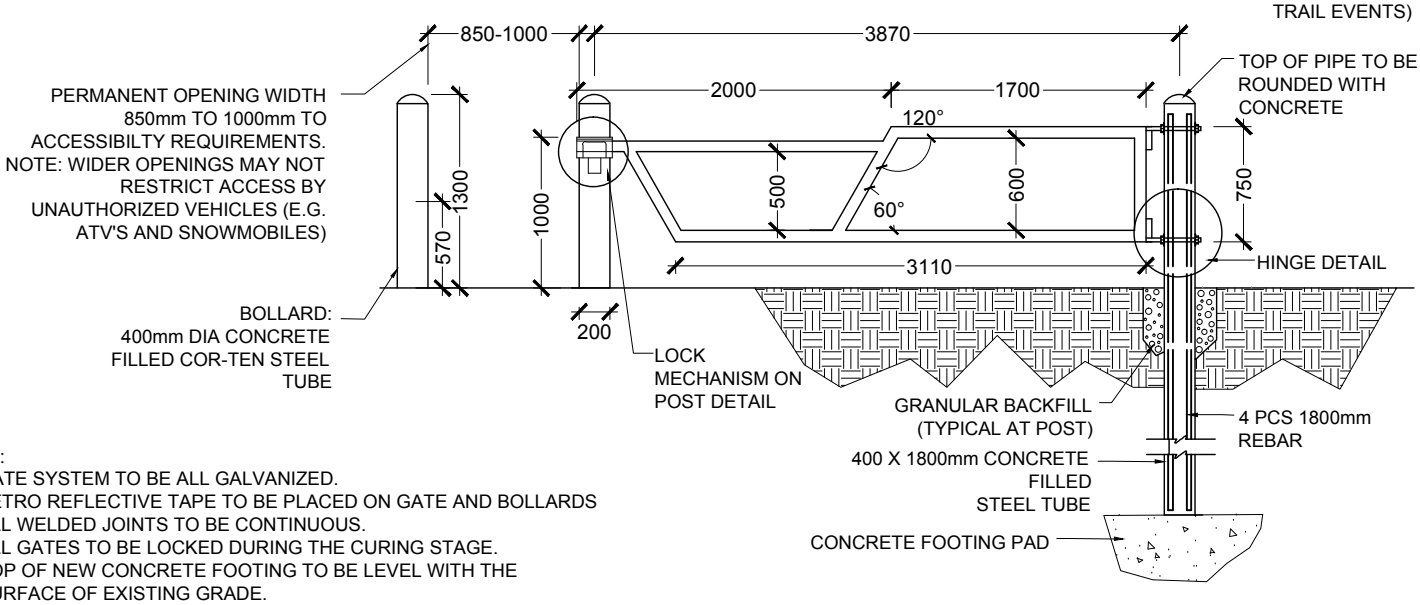






HITCHING POST

PLAN VIEW OF GATE



ELEVATION OF GATE

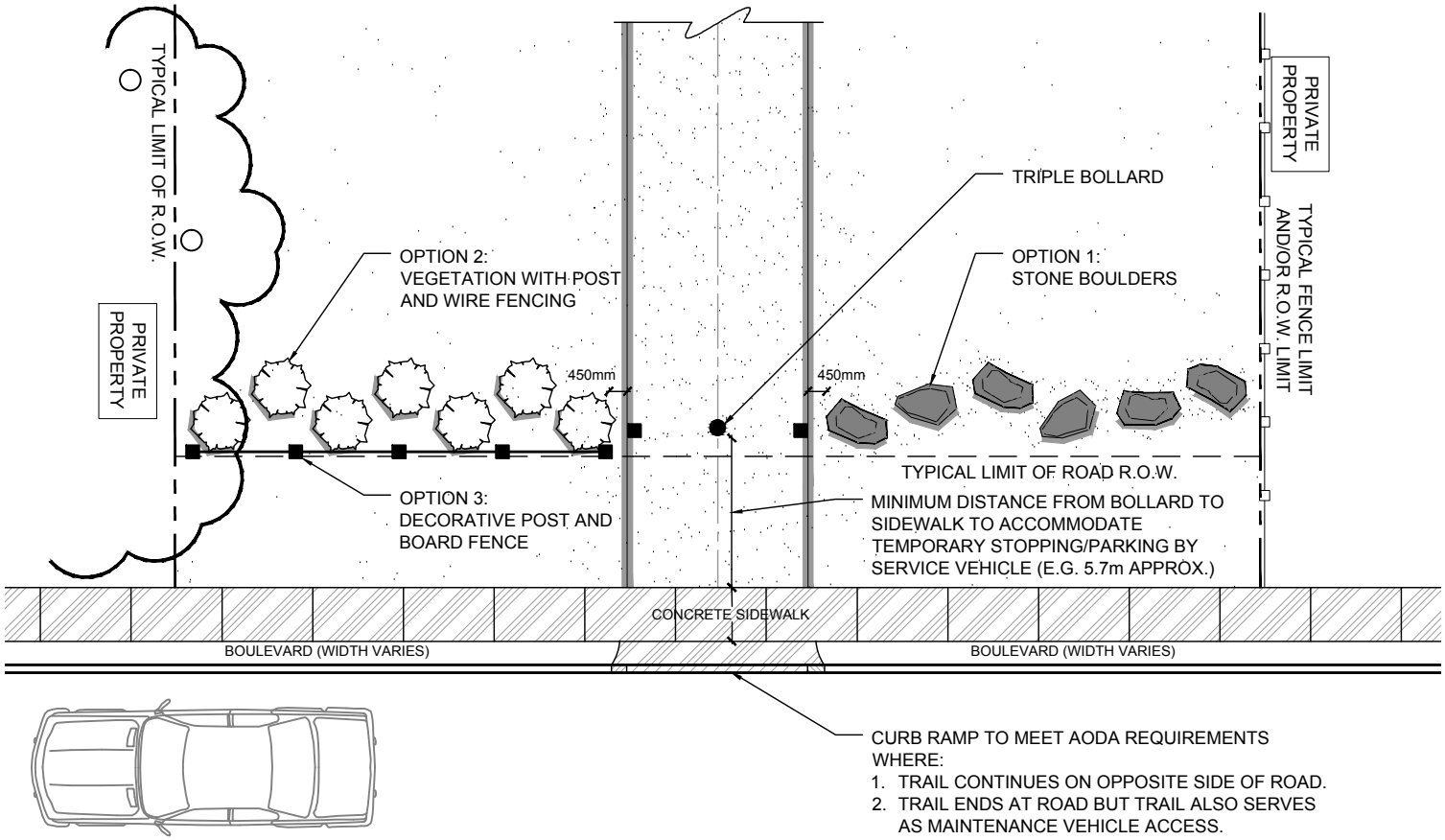
NOTES:

- GATE SYSTEM TO BE ALL GALVANIZED.
- RETRO REFLECTIVE TAPE TO BE PLACED ON GATE AND BOLLARDS
- ALL WELDED JOINTS TO BE CONTINUOUS.
- ALL GATES TO BE LOCKED DURING THE CURING STAGE.
- TOP OF NEW CONCRETE FOOTING TO BE LEVEL WITH THE SURFACE OF EXISTING GRADE.
- ALL HARDWARE TO BE GALVANIZED.
- ALL DIMENSIONS IN mm (MILLIMETERS).
- ALL METAL COMPONENTS SHALL CONFIRM TO RELEVANT OPSS.

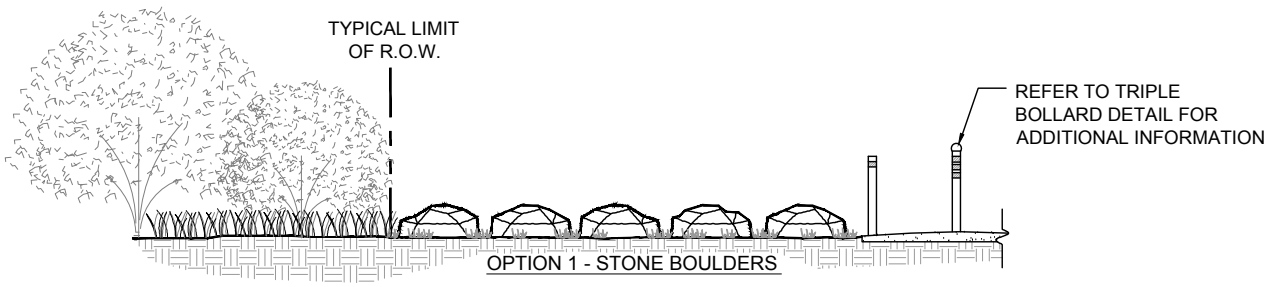
HEAVY-DUTY SWING GATE FOR RURAL LOCATIONS

SCALE = 1:50

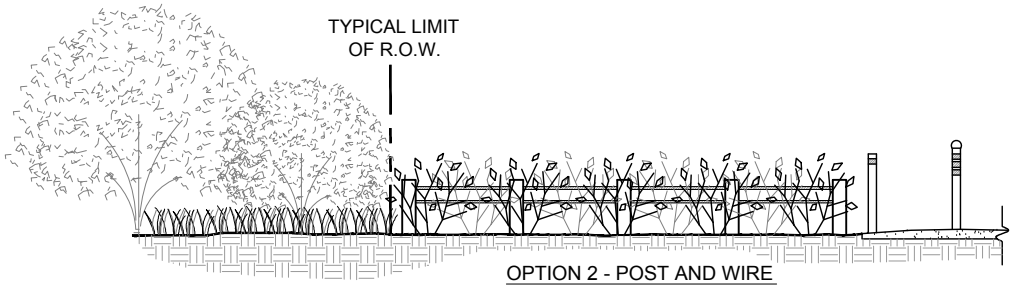
CITY OF Burlington Ontario Canada



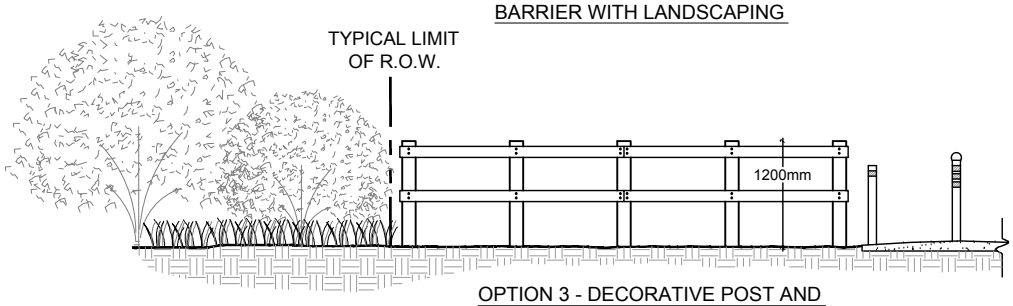
TYPICAL TRAIL ACCESS WITH REMOVABLE BOLLARD - PLAN VIEW



OPTION 1 - STONE BOULDERS

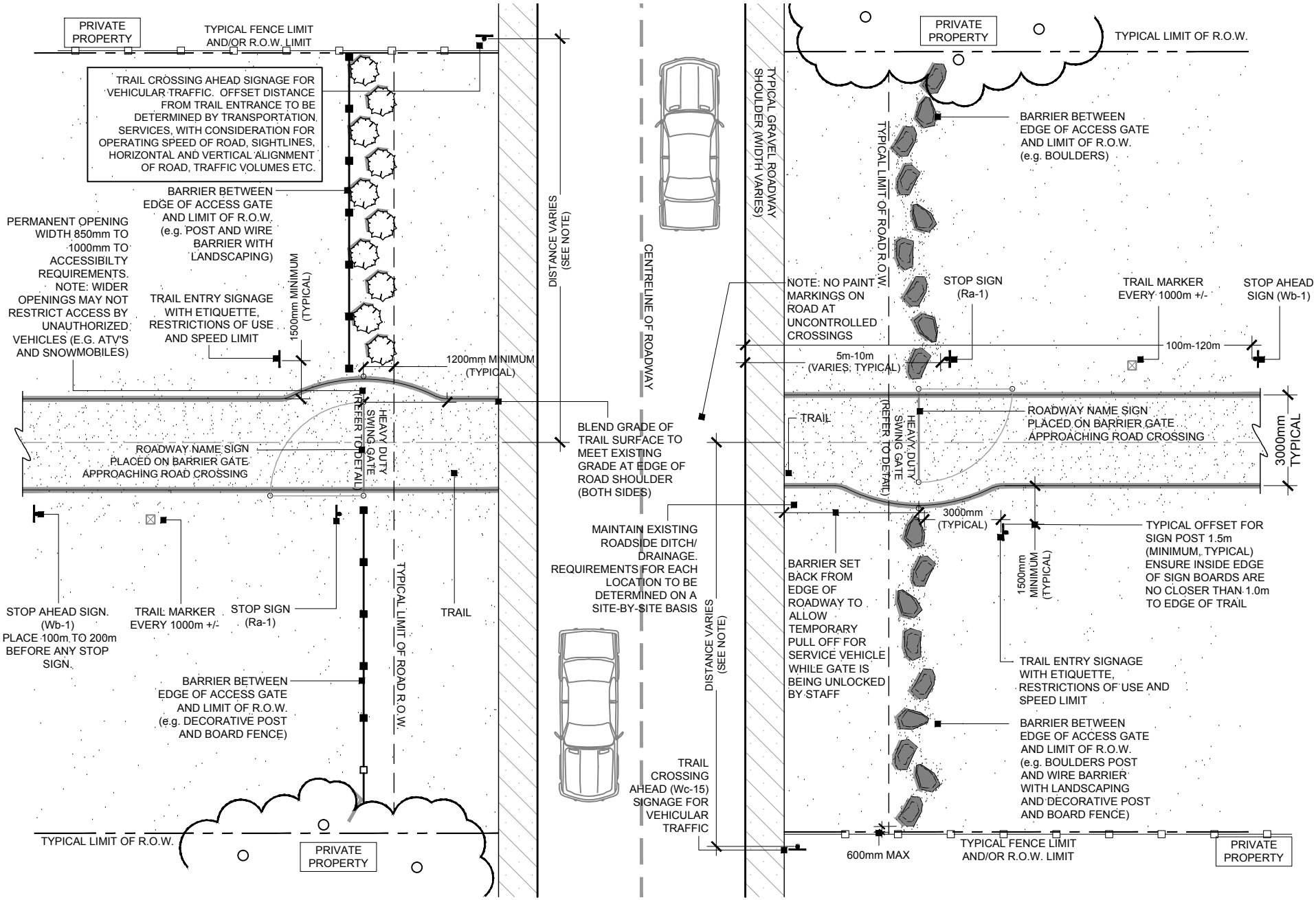


OPTION 2 - POST AND WIRE
BARRIER WITH LANDSCAPING



OPTION 3 - DECORATIVE POST AND
BOARD FENCE

TYPICAL TRAIL ENTRANCE IN AN URBAN SETTING	SCALE = NTS	CITY OF Burlington Ontario Canada



RURAL ROAD CROSSING

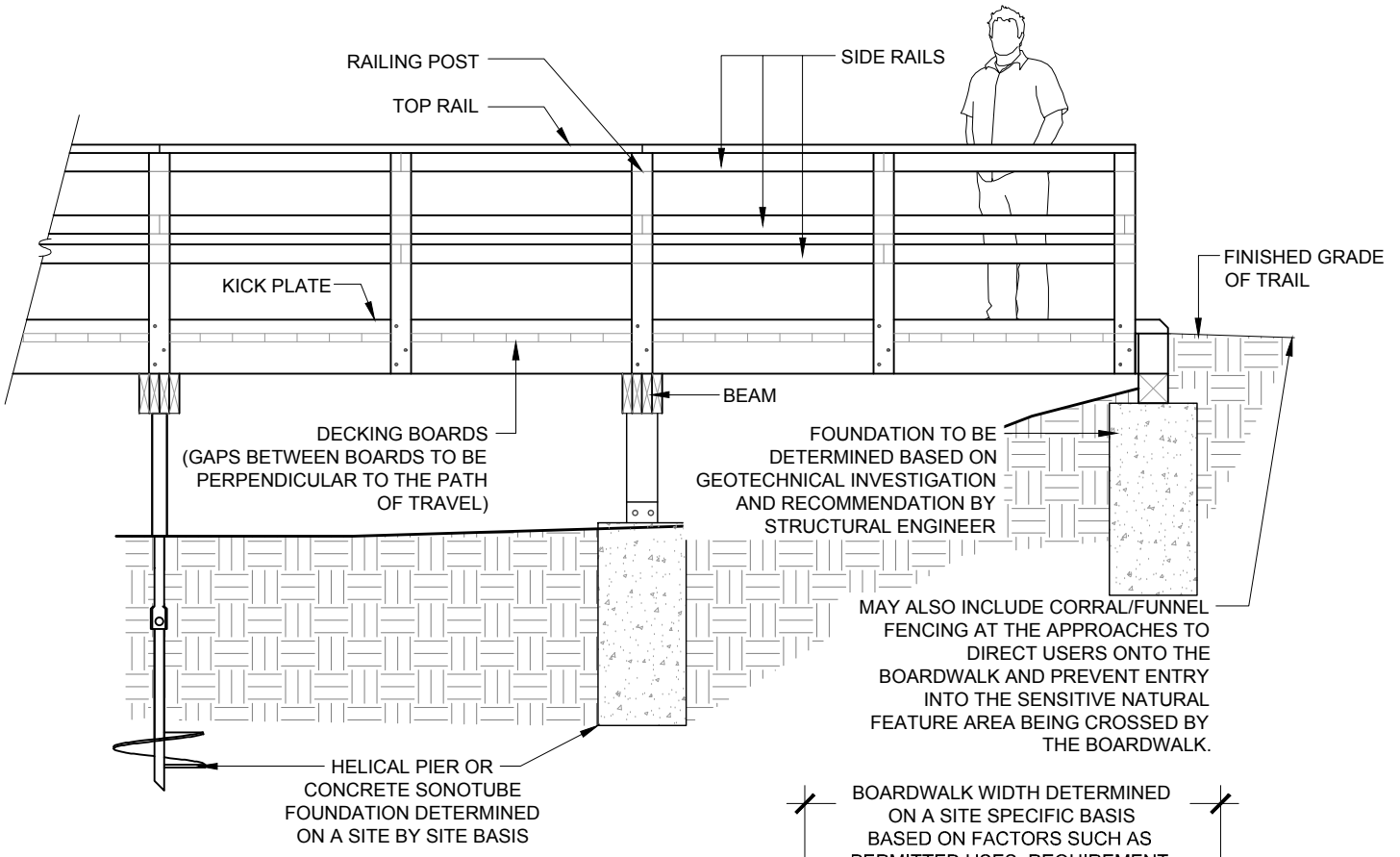
SCALE = 1:200

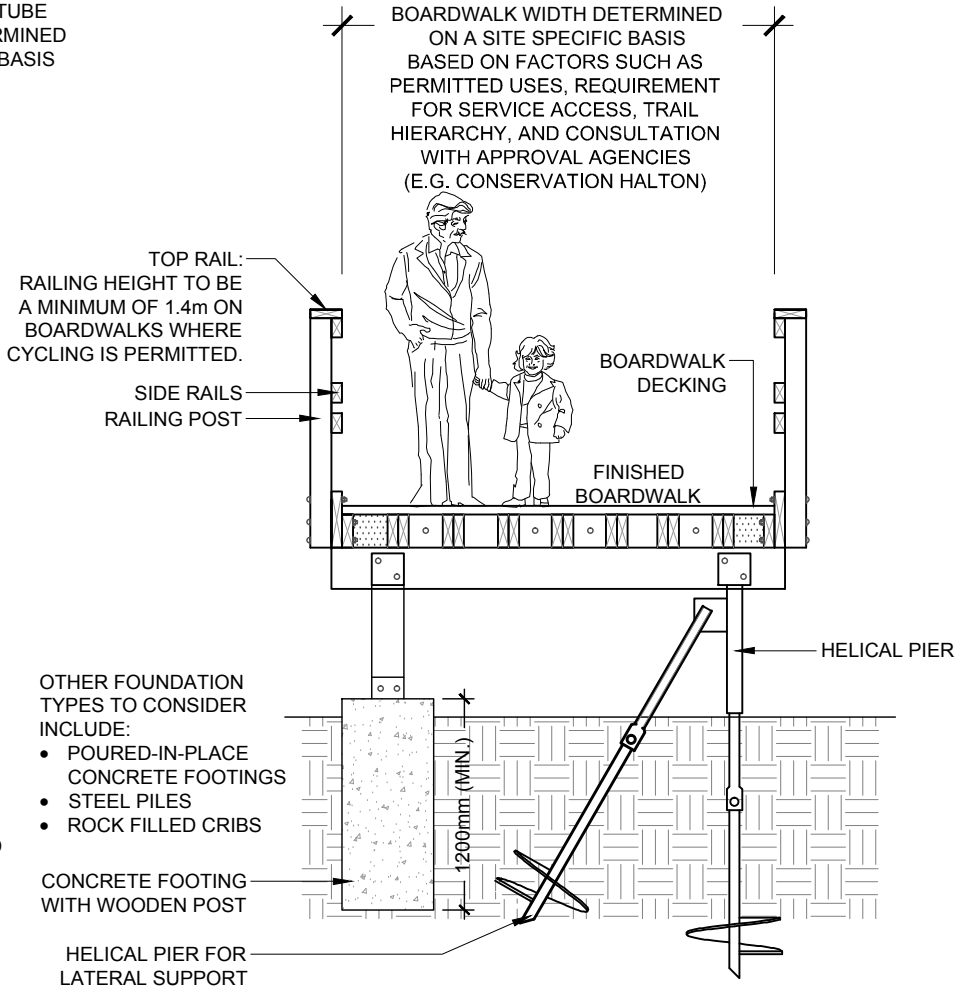
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Boardwalks

Where multi-use pathways and trails pass through sensitive environments, such as marshes, swamps, or woodlands with a large number of exposed roots, an elevated trail bed or boardwalk is usually required to minimize impacts on the natural heritage feature. If these areas are left untreated, trail users tend to walk around obstacles such as wet spots, gradually creating a wider, often braided trail through the surrounding vegetation. Low profile boardwalks have been successfully employed by trail managers across Ontario. In some cases, the simple construction method provides a great opportunity for construction by supervised volunteers where precast "deck blocks" have been used for the foundation of the boardwalk. Where the trail is in a high profile or high use location, or where the trail surface must be greater than 60cm above the surrounding grade, a more substantial design and installation is necessary. This is likely to include engineered footings or abutments, structural elements and railings. A professional who is trained in structural design and approval requirements should be retained for these types of applications.

Low Profile Boardwalk	Elevated Boardwalk
	
Low profile boardwalk with curb, Cape Jourimain Nature Centre, NB. The curb prevents users from slipping over the edge and openings in the curb allow for drainage from the boardwalk surface. Photo Source: MMM Group	Boardwalk Aurora, ON. A railing is required when boardwalks pass over or travel along water, and when there is a significant elevation change between the boardwalk surface and surrounding grade (e.g. 60 cm or more). Decking installed perpendicular to the path of travel is required for AODA compliance. Photo Source: MMM Group





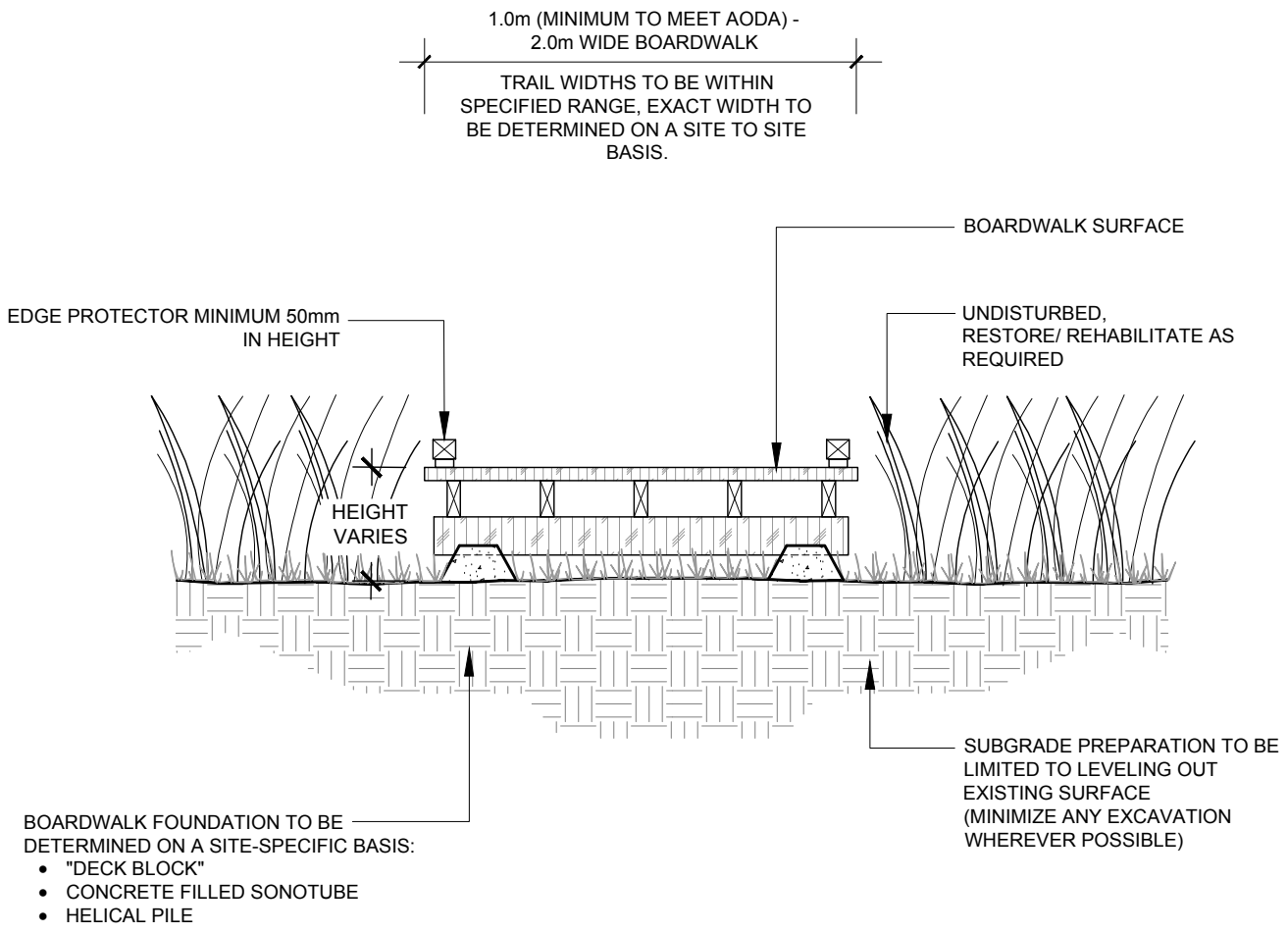
NOTE:

- THIS DETAIL CAN BE USED IN SEASONALLY WET AREAS AND LOCATIONS WITH PERMANENT STANDING WATER. IT CAN ALSO BE USED IN UPLAND SETTINGS (E.G. HUMMOCKY SENSITIVE WOODLOTS, AREAS WITH FRAGILE, SHALLOW SOILS OVER BEDROCK ETC.) WHERE IT IS DESIRABLE TO HAVE THE TRAIL RAISED ABOVE THE SURROUNDING GRADE AS ONE STRATEGY TO KEEP USERS ON THE TRAIL AND CONTROL USER IMPACTS.
- HEIGHT ABOVE GRADE SHOULD BE DETERMINED BASED ON CONSIDERATION OF FACTORS SUCH AS WATER LEVELS (WHERE APPLICABLE), TOPOGRAPHY, INCLUDING ELEVATION AND SLOPE OF THE SURROUNDING LAND AT THE TRAIL APPROACHES, WILDLIFE MOVEMENT NEEDS, ETC.. ADDITIONAL STUDIES MAY BE REQUIRED TO UNDERSTAND HOW THESE AND OTHER FACTORS INFLUENCE THE DESIGN.
- BOARDWALK HEIGHT SHOULD BE CONSIDERED WHEN DESIGNING SHOULD A RAILING NOT BE DESIRED.
- THE LAYOUT AND DESIGN OF THE LOOKOUT STRUCTURES ARE TO BE CREATED ON A SITE SPECIFIC BASIS.
- GEOTECHNICAL ASSESSMENT REQUIRED.
- DESIGN TO BE APPROVED BY A STRUCTURAL ENGINEER.

HEAVY-DUTY BOARDWALK - SCHEMATIC

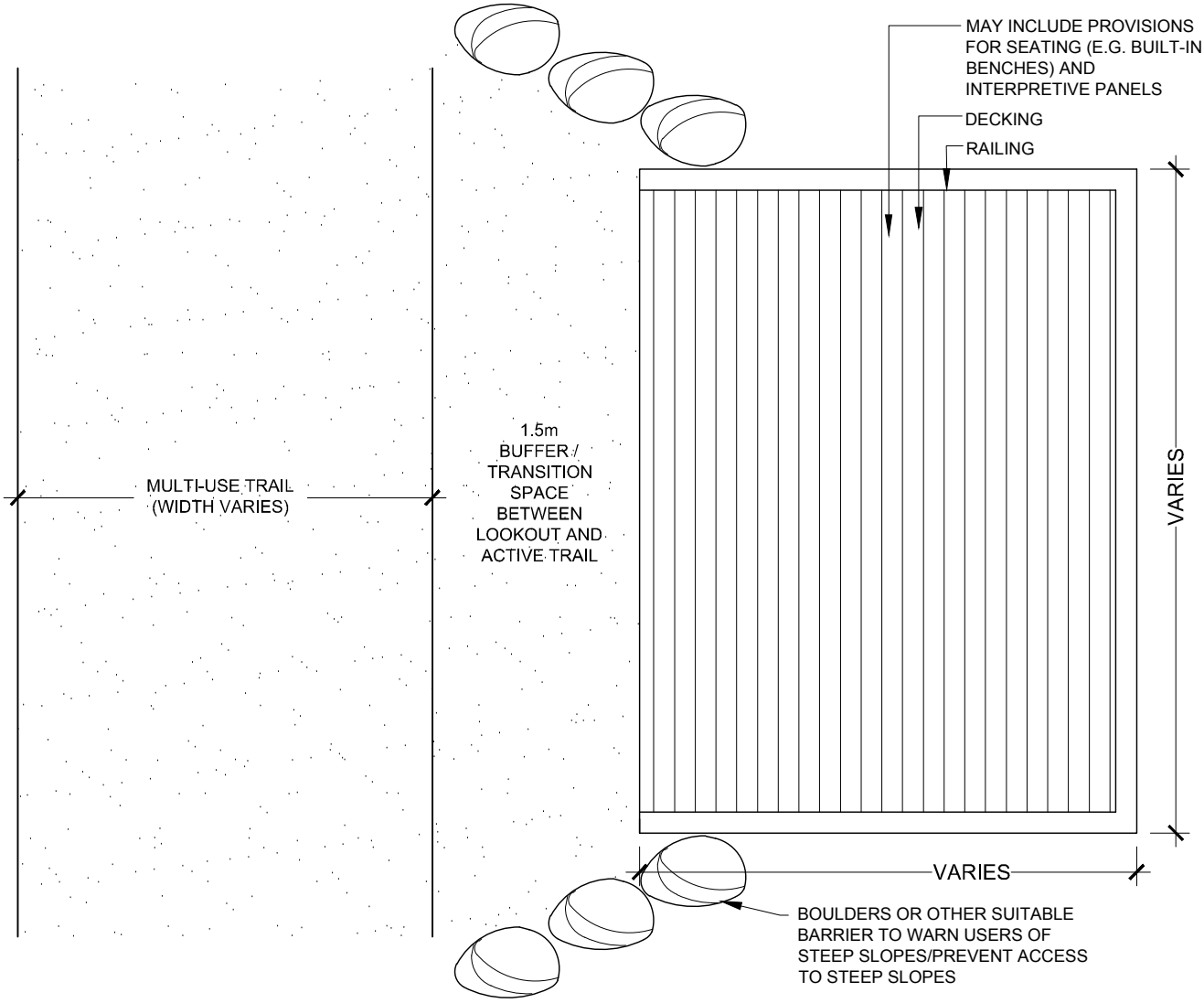
SCALE = 1:40

CITY OF Burlington Ontario Canada

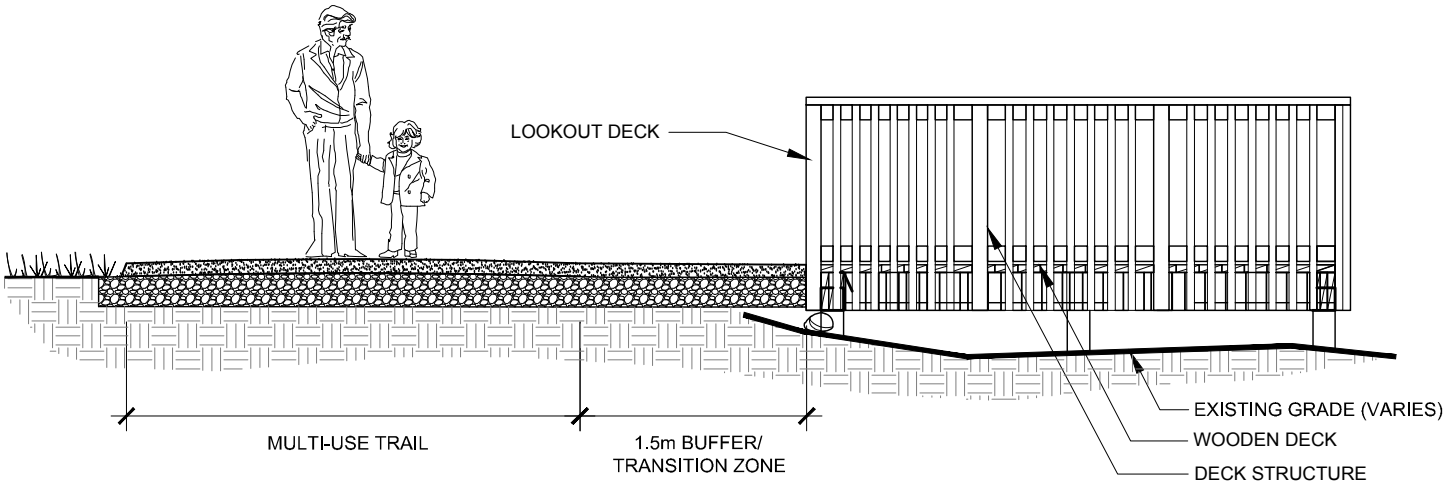


NOTE:
1. WHERE HEIGHT BETWEEN BOARDWALK SURFACE AND SURROUNDING GRADE EXCEEDS 600mm A CONCRETE SONOTUBE OR HELICAL PILE FOUNDATION AND 1.4m SAFETY RAILING WILL BE REQUIRED.

LOW - PROFILE BOARDWALK SCHEMATIC	SCALE = 1:40	CITY OF Burlington Ontario Canada



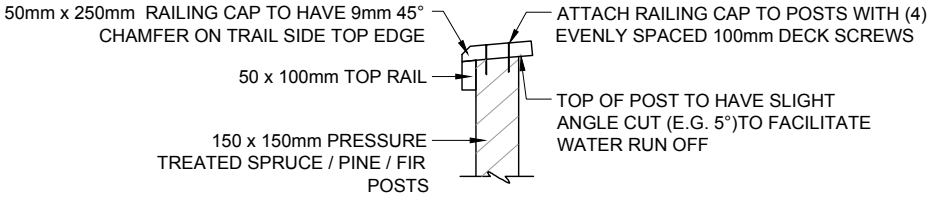
PLAN VIEW



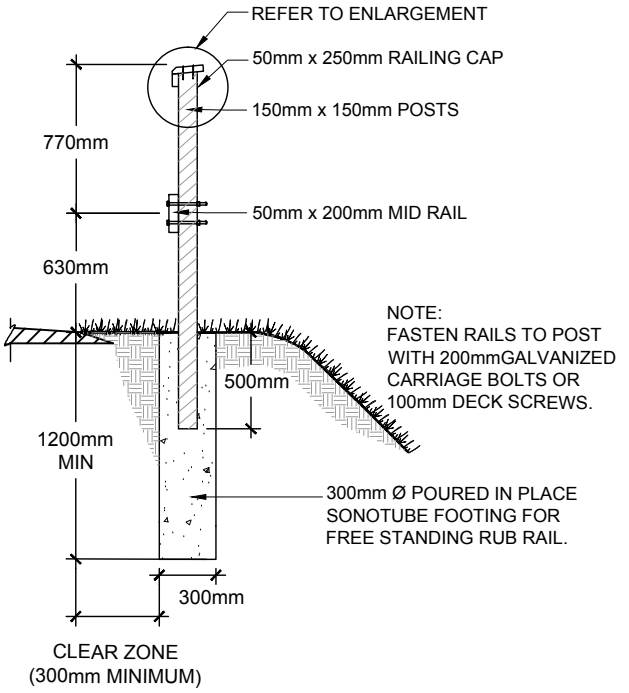
SECTION

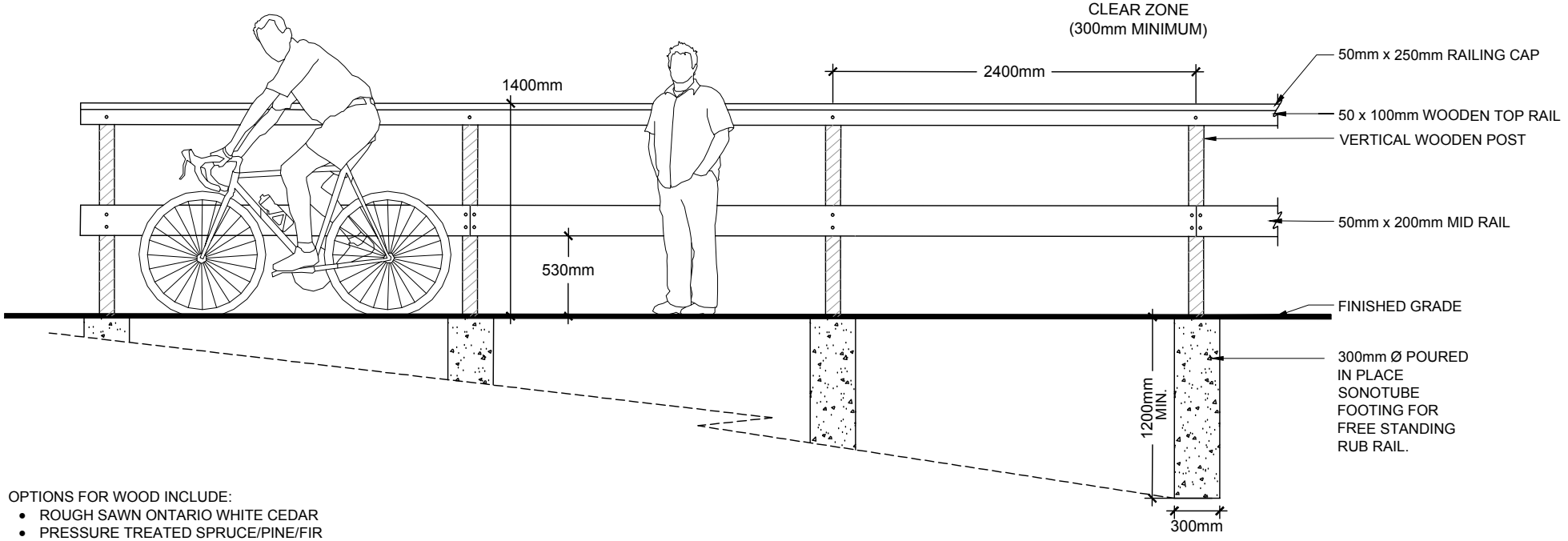
NOTES:
1. THE LAYOUT AND DESIGN OF THE LOOKOUT STRUCTURES ARE TO BE CREATED ON A SITE SPECIFIC BASIS.
2. GEOTECHNICAL ASSESSMENT REQUIRED.
3. DESIGN TO BE APPROVED BY A STRUCTURAL ENGINEER.

TRAIL LOOKOUT STRUCTURE - SCHEMATIC	SCALE = 1:50	CITY OF Burlington Ontario Canada



ENLARGEMENT





OPTIONS FOR WOOD INCLUDE:

- ROUGH SAWN ONTARIO WHITE CEDAR
- PRESSURE TREATED SPRUCE/PINE/FIR

1.4m TRAILSIDE SAFETY BARRIER

SCALE = 1:40

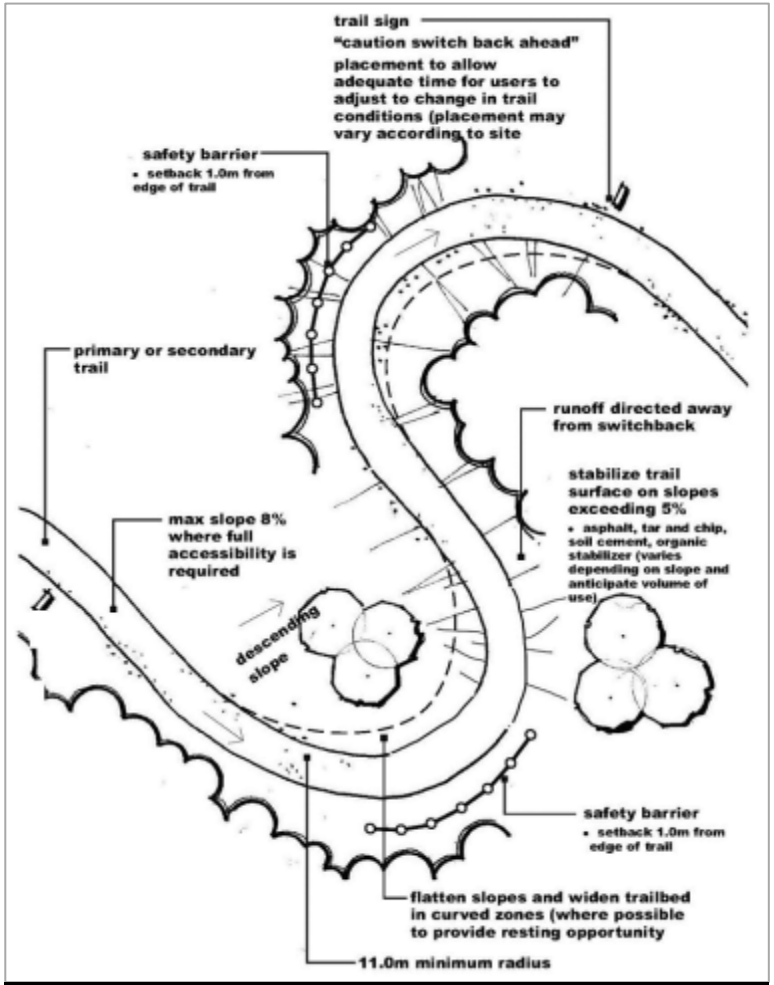
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Switchbacks

Pedestrian and some self-propelled users are capable of ascending grades of 30% or more whereas some users are limited to grades of less than 10%. Once trail slopes exceed the 5% accessible threshold and slopes are long (i.e. more than 30m) it is important to consider alternative methods of ascending slopes including switchbacks.

Where construction is feasible, switchbacks are generally preferred because they allow wheeled users to maintain their momentum, and there is less temptation to create shortcuts, as might be the case where stairways are used. Switchbacks are constructed with turns of about 180 degrees and are used to decrease the grade of the trail. A properly constructed switchback also provides outlets for runoff at regular intervals, thus reducing the potential for erosion.

Switchbacks typically require extensive grading and are more suited to open locations where construction activity will not cause major disruption to the surrounding environment. They can be difficult to implement in wooded areas without significant impacts to surrounding trees. The graphic to the right illustrates a typical switchback design concept.



Typical Switchback. Source ESG International

Low Impact Switchback	Engineered Switchback
	
Crothers Forest, Toronto. This switchback is part of the mountain bike trail system designed to International Mountain Bike (IMBA) standards. Photo Source: MMM Group	Switchback at The Rocks Provincial Park, NB. The robust design solution for this trail provides an accessible access to the park's main attraction and which averages over 150,000 visitors a year. Photo Source: MMM Group

C.5 Trip End Facilities & Staging Areas

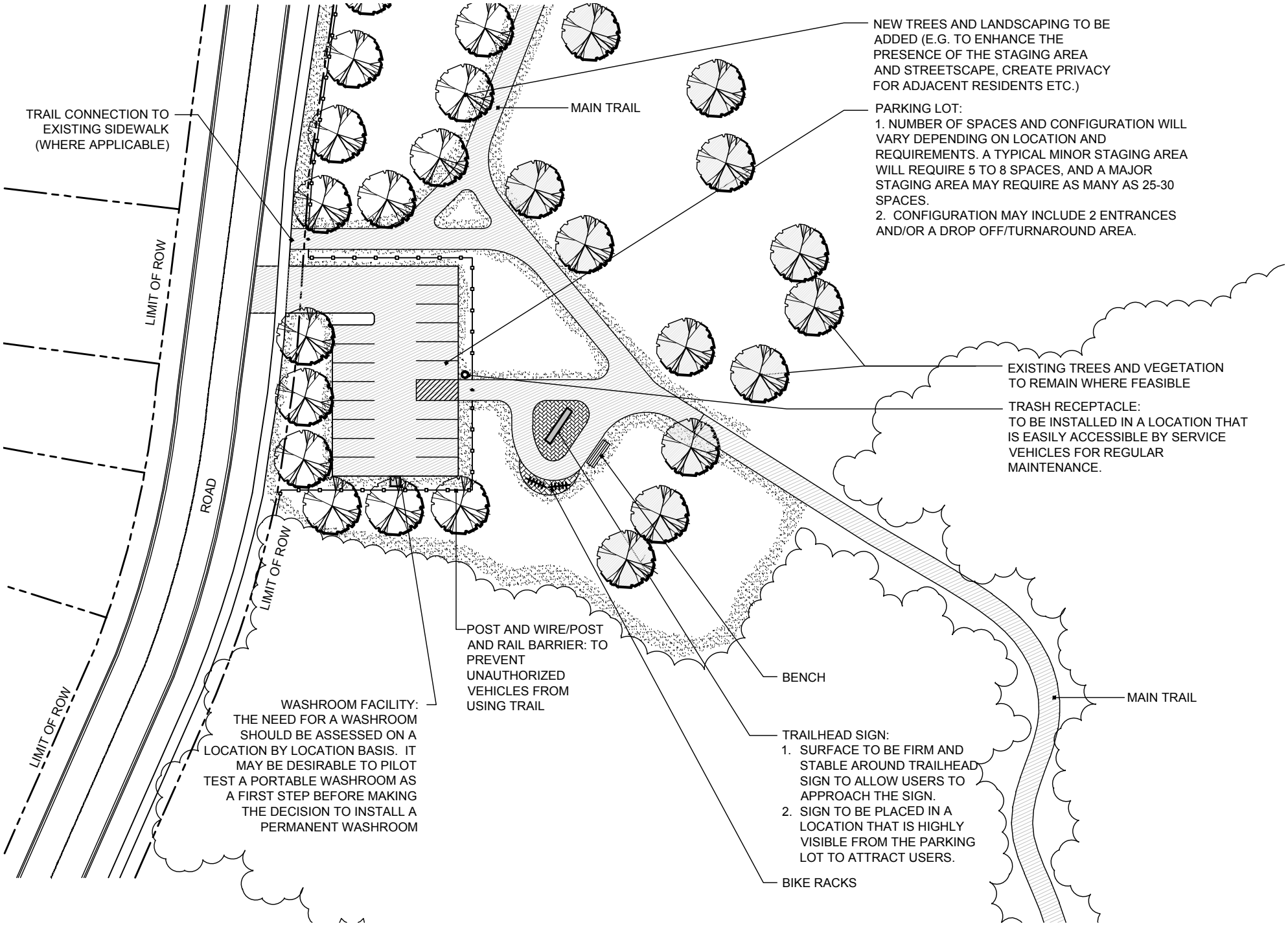
Network continuity, connectivity and feasibility are further enhanced through the implementation of end-of-trip facilities and staging areas. In some cases, amenities can influence a user's decision whether or not to make a trip using an active mode of transportation.

Amenities provided at staging areas can vary so the facility can fit within the space available. Basic elements include:

- Parking (can be as few as 5-8 spaces);
- Trailhead signage;
- Waste receptacles;
- Trail barriers;
- Seating / rest area; and
- Washrooms – determined on a location-by-location basis. Portable washrooms, particularly at minor rural staging areas can be a cost effective method that serves basic user needs.

Typical elements for major staging areas include:

- Parking for cars and bicycles;
- Trailhead signage;
- Trail barriers;
- Seating / rest areas / covered shelters;
- Picnic area with tables;
- Waste receptacles;
- Lighting;
- Potable water;
- Washrooms;
- Drop off / loading area for service vehicles, event trailers etc.



TYPICAL ELEMENTS OF A MAJOR STAGING AREA - SCHEMATIC

SCALE = NTS

CITY OF Burlington Ontario Canada

In the urban areas of the city, staging areas can be easily integrated into many of the existing parks, community centres and tourist destinations. Sherwood Park and Hidden Valley Park are two examples of large city parks that provide facilities to serve both park and trail users.

In rural areas, minor staging areas may play a key role in the marketing package for trail use and tourism. If properly implemented and promoted they can also help to reduce the tendency for trail users to park on rural roadsides to access trails.

C.6 Closures & Rehabilitation

From time to time it will be necessary to temporarily close sections of trails or entire route to public access. Situations such as inundation by water, culvert washout or general trail construction are typical reasons for temporary trail closures. As these situations arise, users must be informed well in advance of the closure. If the closure is planned advance notices should be placed at all access points for the affected section(s). In the event of an emergency closure, notices must be placed at these locations immediately following the discovery of the problem.

Signing and temporary barricades, notification in community newspapers, and the City's webpage are possible methods of informing users of about temporary trail closures. Permanent trail closures may also be required at some point in the life cycle of the trail, especially in the case of trails in woodlots and other natural settings. It is important when closing a trail to rehabilitate the landscape to match the surrounding conditions, inform trail users that it has been closed, and to provide reasons for the closure. Depending on the location, appropriate rehabilitation measures in natural/naturalized settings may include:

- Slope stabilization, using engineered materials and methods for severely eroded slopes;
- Terracing, using locally collected low-tech materials for eroded slopes of moderate and low severity;
- Live staking using locally collected cuttings from appropriate species;

- Plantings with appropriate native species (may include plants salvaged from nearby sites);
- The application of erosion blankets and mulches, and/or seeding with mixes that are appropriate for the site in which they are to be applied;
- Scarification of the surface of the trail to be closed and covering it with forest litter (leaves, branches, and limbs) in a naturalistic manner which can help to reinforce the message that the trail is closed, reduce erosion, and supply nutrients to plants during establishment;
- Erecting signage explaining the reason(s) for the closure, directing them to the new route and adding "Water Me" signs for newly planted trees.


Source: http://brucetrail.org/pages/volunteer

C.7 Maintaining the Facilities

The maintenance costs and liabilities involved with the installation of a City-wide trails network must be acknowledged. Poor quality trails and other infrastructure can present a risk to users and the City. Effective route and system design can decrease maintenance costs and deter liability risks.

The trails network and amenities should be inspected on a regular basis as a minimum through an annual review including structures such as bridges and culverts. These inspections will identify hazardous conditions as well as issues related to maintenance, repairs and events of vandalism. As mandated by provincial legislation, all major bridges and culverts under the ownership and responsibility of the City are to be inspected every two years, and all maintenance/repairs as identified are to be carried out.

Trails should be inspected each spring prior to the anticipated peak season when high use is expected. The following section provides an overview of more detailed maintenance procedures for on-road routes and off-road trail routes that the City of Burlington should consider for maintaining existing and future facilities.

C.7.1 General Maintenance & Operations

Many jurisdictions have formalized programs to plan and construct trail systems, however the number that have formal programs for trail maintenance is lower. The general objectives of a trail monitoring and maintenance plan are to:

- Provide users with safe, dependable and affordable levels of service;
- Preserve infrastructure assets;
- Manage risk;
- Protect the natural environment;
- Enhance the appearance and health of the community;
- Provide a reference framework against which to measure performance;
- Provide the basis of a peer review that is comparable with other municipalities; and
- Provide citizens and Council with a reference for expectations.

The first step in implementing a maintenance and management program is to determine its scope. Trail plans, maps, inventories, trail logs, traffic count information and condition surveys are all valuable sources of information for developing maintenance management programs. The maintenance program template outlined below is based on current best practices from municipalities across Ontario and other jurisdictions in Canada. Tasks have been grouped according to the frequency with which they would typically be performed, specifically:

- Immediately (within 24 to 48 hours);
- Regularly (weekly/biweekly/monthly);
- Seasonally;
- Annually;
- Every 3 to 5 years; and
- Every 10 to 20 years.

The City should review the list of tasks in **Table C.8** and consider the addition of tasks not already included in the maintenance program.

C.7.2 Off-Road Trail Maintenance

Table C.8 – Maintenance Considerations for Off-road Trails

Timeline	Maintenance Considerations
Immediate	▶ As a minimum, mark, barricade and sign the known hazard areas to warn trail users, or close the trail completely until the problem can be corrected. ▶ Remove vegetation and/or windfalls, downed branches etc., where traffic flow on the trail is being impaired or the obstruction is resulting in a sight line issue. Remove hazard trees that have been identified and branches protruding into the trail clear zone and deemed a potential hazard to users. ▶ Repair or replace items that have been vandalized or stolen/removed if it results in a potential hazard to users (e.g. warning signs that have been stolen or obstructed, bridge railings, broken boardwalk decking etc.). ▶ Repair of obstructed drainage systems causing flooding that poses a hazard to trail users or that is resulting in deterioration which in turn poses an immediate safety hazard.
Regularly (weekly /biweekly / monthly)	▶ Trail patrols/inspections should review the trail conditions to assess conditions and prioritize maintenance tasks and monitor known problem areas. This includes monitoring trail areas and structures that are prone to erosion after severe storms and taking appropriate action where necessary. ▶ Mow grass along edges of trails (in open, urban settings only). Depending on trail location this may be done weekly, biweekly or monthly and the width can vary according to the location (typically 0.5 to 1.0m). This helps to keep the clear zone open and can slow the invasion of weeds into granular trail surfaces. Not all trails will have mown edges. In woodland and wetland areas, pruning and brushing is typically the only vegetation maintenance needed. ▶ Garbage pickup and removal of illegally dumped material. ▶ Repair of partially obstructed drainage systems causing intermittent water backups that do not pose an immediate safety hazard, but if left unchecked over time will adversely affect the integrity of the trail and/or any other trail infrastructure or the surrounding area.

Timeline	Maintenance Considerations
Seasonally	▶ Patching/minor regrading of trail surfaces as necessary including topping up granular trail surfaces at approaches to bridges. ▶ Culvert cleanout where required.
Annually	▶ Conduct an annual safety inspection. This task is not necessarily specific to trails and may be included with general annual safety audits for parks and other recreation facilities. ▶ Evaluate support facilities/trailside amenities to determine repair and/or replacement needs. ▶ Examine trail surface to determine the need for patching and grading. ▶ Topping up of wood chip trails and grading/grooming the surface of granular trails as needed. ▶ Pruning/vegetation management for straight sections of trail and areas where branches may be encroaching into the clear zone, obstructing signs etc. This task is more of a preventative maintenance procedure. Cuttings may be chipped on site and placed appropriately or used as mulch for new plantings. Remove branches from the site unless they can be used for habitat (i.e. brush piles in a woodlot setting), or used as part of the rehabilitation of closed trails. Where invasive species are being pruned removed, branches and cuttings should be disposed of in an appropriate manner. ▶ Inspect and secure all loose side rails, bridge supports, decking (ensuring any structural repairs meet the original structural design criteria). ▶ Repair or replace damaged or missing informational signage. Note that regulatory signage should be repaired or replaced immediately as noted above.
3 to 5 Years	▶ Clean and refurbish signs, benches and other trailside amenities.
10 to 20 + Years	▶ Resurface asphalt trails when necessary. This assumes an average service life of approximately 20 years for asphalt trails. ▶ Major renovation or replacement of large items as needed such as bridges, kiosks, gates, parking lots, benches etc.

Trail maintenance logs and inspection reports are a vital component of trail management and risk management. These must be used to document activities and demonstrate that the trail maintenance program for the City is being appropriately carried out.

Maintenance logs should be updated when features are repaired, modified, replaced, removed, or when new features are added. Accurate logs also become a useful resource for determining maintenance budgets for individual items and tasks, and in determining total maintenance costs for the entire trail. In addition, they are a useful source of information during the preparation of tender documents for trail contracts, and to show the location of structures and other features that require maintenance.

Considerations for Winter Maintenance of Trails

Very few municipalities in Ontario maintain their entire off-road trails networks during winter months. For those municipalities that do offer winter maintenance services on trails, only certain routes are maintained and these tend to be primary routes hard-surfaced routes that serve a commuter function to key destinations such as schools and community centres or are heavily used by tourists and visitors. Many users actually prefer that trails are not maintained in winter so that activities such as cross country skiing and snowshoeing can be accommodated.

The following are some general criteria that are being used in other jurisdictions to identify candidates for winter maintenance of off-road trails.

A. Trail Function and Location

- The function of the trail from a community connectivity and transportation standpoint. For example Primary trails that provide direct access to community centres, schools, and other pedestrian generators such as senior's homes, shopping and key commercial areas are candidates for winter maintenance.
- A linear facility that provides city-wide connectivity by virtue of its location, length and connectivity.
- Trails that are not merely alternate or short-cut routes when there is a nearby sidewalk or trail that is already being maintained in winter. If the trail is not available for winter use, the length of the detour required should be explored further. Although these should be examined on a case-by-case individual basis, 250m could be considered as a threshold guideline.

- The trail connects dead end streets or cul-de-sacs where alternative routes do not exist.
- Consideration is given to neighbouring land use(s) and how this relates to pedestrian origins, destinations and pedestrian generators.
- Consideration is given to trails that have historically received winter maintenance, but winter maintenance has never been formally adopted.

B. Trail Design and Condition

Trails that are being considered for winter maintenance trail should meet a minimum requirement for:

- Surface drainage to prevent ponding of water on the trail surface;
- A minimum width so there is adequate access and buffer space for winter maintenance equipment;
- A hard surface (e.g. asphalt or concrete) so the trail can be easily cleared without damaging the landscape beyond the trail edge;
- Operator safety so that there are no hazards on or adjacent to the trail such as a steep slope or sharp drop off that could pose a danger for operators.

C.7.3 Liability

A risk management program contributes to trail user safety, aids in trail / asset preservation, is cost effective in the long run, and helps to meet community expectations for a comparable level of service to other public amenities. Liability can be significantly reduced through the provision of adequate resources and coordinated programs for good network design, construction, monitoring, maintenance and repairs.

The Occupier's Liability Act establishes that a person who enters "Recreational Trails reasonably marked by notice as such" willingly assumes normal risks associated with their activity and the use of trail lands, and accepts some responsibility for their own actions.

For someone to successfully sue for damages three criteria must exist:

- They must be owed a duty;
- The duty must be breached; and
- They must have suffered damage resulting from this breach.

Duty Owed: Trail users are entitled to have a reasonable expectation trails are as safe as is reasonably possible. The decision of what is considered "reasonably possible" will be decided by the courts, and based on whether or not the duty was breached (i.e. the construction and / or maintenance of the trail were carried out in a negligent fashion). Negligence is the failure to use the degree of care that an ordinary prudent person would use under the given circumstances.

If a trail is constructed within a road allowance or within a highway, the Municipal Act establishes a duty of care owed not only to the users of the trail, but also the users of the roadway.

With this in mind, the following are considerations for a comprehensive risk management program:

- Identify exposure to risk through inspections, review of past experience, surveys etc.;
- Review current policies and procedures with the exposure to risk in mind;
- Develop enhancements / refinements to current policies and procedures, and develop new policies and procedures to deal with risks.
    - A written policy for trail maintenance and inspections that conforms to acceptable standards, appropriate, and achievable for the City should be developed and followed by all those responsible for trail maintenance and inspections
    - This will involve training for all those tasked with maintenance and inspections. Conform to acceptable standards
    - Avoid using description such as "safe" or "safer" for on or off-road routes when promoting use. Industry practices suggest that users prefer to assess their own capabilities or level of comfort.

- Implement changes according to refined and / or new policies (i.e. "do what you say you are going to do").
    - Note: if the trail owner (City) is aware or ought to be aware of an unusual danger there is an obligation to warn of the danger, or remove it, but there is no obligation to stop dangers from showing up on the trail (e.g. it is not possible to stop ice storms that result in tree limbs falling onto the trail, but it is prudent to erect temporary warning signs altering users to the condition and / or temporarily closing the trail).
    - If hazards cannot be removed they should be isolated with a barrier or notified by clear warning signs.
    - Sign trails and use the term Recreational Trail in the signage, when describing and promoting trails through maps, literature, programs etc.
- Monitor results through regular inspections, tracking incidents, accidents, complaints and claims. Document the physical conditions and operations. All reports of hazardous conditions should be promptly and thoroughly investigated.
- Use the knowledge gained from monitoring to further refine policies.
- Maintain proper insurance coverage as a safeguard against having to draw payment for damages from the public treasury.

Appendix D

Trail Unit Cost Summary



Appendix D
Unit Price Schedule
City of Burlington Community Trails Strategy

ITEM	DESCRIPTION	UNIT	ESTIMATED COST (based on 2015 unit prices)	COMMENTS/ASSUMPTIONS
1.0 GENERAL TRAIL AND ACTIVE TRANSPORTATION FACILITIES				
Active Transportation Paths and Multi-Use Trails				
Note. Unit price items highlighted in blue were used to estimate implementation costs for the proposed network in the Community Trails Strategy.				
1.1	Two Way Primary Multi-use trail within road right-of-way	linear KM	$250,000.00	3.0m wide hard surface trail (asphalt) within road right of way (assuming no utility relocations). Refer to detail for **Primary Multi-use Trail within a Road Right-of-Way** in Appendix C.
1.2	Two Way Primary Multi-use trail within road right-of-way on one side with removal of existing sidewalk	linear KM	$275,000.00	3.0m wide hard surface trail (asphalt) within road right of way on one side of road in place of 1.5m concrete sidewalk (includes crushing of existing sidewalk and compacting for trail base). Refer to detail for **Primary Multi-use Trail within a Road Right-of-Way** in Appendix C.
1.3	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	m^2	$150.00	Coloured Impressed Concrete
1.4	Hard Surfaced Off-Road Primary Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (i.e. New, Park)	linear KM	$250,000.00	3.0m wide hard surface trail (asphalt) within park setting (normal conditions) 75mm asphalt depth. Refer to detail for **Primary Multi-use Trail within or outside of a Road Right-of-Way** in Appendix C.
1.5	Hard Surfaced Off-Road Primary Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (i.e. New, hydro corridor)	linear KM	$300,000.00	4.0m wide hard surface trail (asphalt) within hydro corridor setting (normal conditions) 75mm asphalt depth. Refer to detail for **Primary Multi-use Trail within or outside of a Road Right-of-Way in Appendix C**.
1.6	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (i.e. Upgrade existing granular surface)	linear KM	$100,000.00	Includes some new base work (25% approx.), half of the material excavated is removed from site. Add asphalt surface.
1.7	Hard Surfaced Off-Road Secondary Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	linear KM	$200,000.00	2.4 to 3.0m wide hard surface trail (asphalt) within park setting (normal conditions) 75mm asphalt depth. Refer to detail for **Secondary Multi-use Trail (Asphalt) in a Park Setting** in Appendix C.
1.8	Granular Surfaced Off-Road Secondary Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	linear KM	$150,000.00	2.4 to 3.0m wide, compacted stone dust surface normal site conditions, within park setting. **Refer to detail for Secondary Multi-use Trail (Granular) in a Park Setting** and **Secondary Multi-use Trail in a Woodland Setting** in Appendix C.
1.9	Granular Surfaced Off-Road Secondary Multi-Use Trail Outside of Road Right-of-Way in an Rural Setting (i.e. New)	linear KM	$200,000.00	2.4 to 3.0m wide, compacted stone dust surface in complex site conditions (includes cost of clearing and grubbing). **Refer to detail for Secondary Multi-use Trail (Granular) in a Park Setting, and Secondary Multi-use Trail in a Woodland Setting** in Appendix C.
1.10	Upgrade existing granular surface trail to meet 3.0m wide compacted granular trail standard	linear KM	$50,000.00	Includes some new base work (25% approx.) and an average of 20 regulatory signs per kilometre
1.11	Off-Road Multi-Use Trail Outside of Road Right-of-Way on Abandoned Rail Bed in a Rural Setting	linear KM	$130,000.00	3.0m wide, compacted stone dust surface, includes signage along trail and gates at road crossings
1.12	Granular Surfaced Secondary Multi-use Trail in a Woodland Setting	linear KM	$120,000.00	2.4m wide, compacted stone dust surface

1.13	Woodchip Surfaced Off-Road Multi-Use Trail with logs beside the trail and geotextile fabric below the mulch (suitable for trails in areas with moist soils)	linear KM	$75,000.00	1.8m wide multi-use trail ($75 / linear metre). Mulch is available from local sources and is supplied free of charge to the municipality (e.g. from park and hydro tree pruning), logs along the side of the trail are available locally and free of charge to the municipality. For instance logs may come from trees that have to be removed to accommodate the trail. Minor grading only is required to level out the trail bed prior to adding the fabric and mulch. Refer to detail for **Woodland Mulch Trail** in Appendix C.
1.14	On-road Paved Shoulder Cycling Route on a rural cross section road, in conjunction with a road reconstruction or resurfacing project	linear KM	$110,000.00	Price for two sides of the road,1.5m paved shoulder.
1.15	On-road Bike Lane, in conjunction with the construction of a new road or reconstruction/widening of an existing road	linear KM	$300,000.00	Price for both sides of the road, assumes 1.5m bike lanes on both sides of the roadway (i.e. 1.5m x 2 sides = 3.0m). Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other improvements
1.16	On-road Signed Route	linear KM	$15,000.00	Price for two sides of the road, assumes one sign on average every 330m (i.e. 6 signs per kilometre)
2.0 STRUCTURES AND CROSSINGS				
2.1	Pedestrian Boardwalk (Light-Duty)	linear KM	$1,500,000.00	Structure on footings, 3.0m wide with railings
2.2	Self weathering steel truss bridge	m²	$2000 - $2500	Footings/ abutments additional, assume $30,000 per side for spread footings; $50,000 - $90,000 per side for piles
2.3	Retrofit / Widen Existing Pedestrian / Trail Bridge	m²	$2,500.00	Price assumes modifications to existing abutments
2.4	Grade separated cycling/overpass of major arterial/highway	each	$1,000,000- $8,000,000	Requirements and design vary widely, use price as general guideline only
2.5	Metal stairs with hand railing and gutter to roll bicycle	vertical M	$3,000.00	1.8m wide, galvanized steel
2.6	Pathway Crossing of Private Entrance	each	$1500 - $2000	Adjustment of existing curb cuts to accommodate 3.0m multi-use pathway
2.7	Pathway / Road transition at unsignalized intersection (crossride)	each	$5,000.00	Typically includes warning signs, curb cuts and minimal restoration (3.0m pathway)
2.8	Pathway / Road transition at existing signalized intersection (crossride)	each	$25,000.00	Typically includes installation of 4 signal heads, 2 poles, 2 foundations, 2 controller connectors and 2 arms.
2.9	At grade mid-block crossing	each	$5,000.00	Typically includes pavement markings on pathway, warning signs, curb cuts and minimal restoration. Does not include median refuge island.
2.1	Median Refuge	each	$20,000.00	Average price for basic refuge with curbs, no pedestrian signals

2.11	Mid-block Pedestrian Signal	each	$75,000-$100,000	Varies depending on number of signal heads required
2.12	At grade railway crossing	each	$120,000.00	Flashing lights, motion sensing switch (C.N. estimate)
2.13	At grade railway crossing with gate	each	$300,000.00	Flashing lights, motion sensing switch and automatic gate (C.N. estimate)
2.14	Below grade railway crossing	each	$500,000-$750,000	3.0m wide, unlit culvert style approx. 10 m long for single elevated railway track
2.15	Multi use tunnel under 4 lane road	each	$1,000,000-$1,200,000	Guideline price only for basic 3.3 m wide, lit.
2.16	Retaining Wall	face m²	$600.00	
3.0 BARRIERS AND ACCESS CONTROL FOR MULTI-USE TRAILS OUTSIDE OF THE ROAD RIGHT-OF-WAY				
3.1	Lockable gate (2 per road crossing)	each	$5,000.00	Heavy duty gates (e.g. equestrian supported step over gate). Price for one side of road - 2 required per road crossing. Typically only required in rural settings or city boundary areas
3.2	Metal offset gates	each	$1,200.00	"P"-style park gate
3.3	Removable Bollard	each	$750-$850	Decorative style bollard per City of Burlington standard
3.4	Berming/boulders at road crossing	each	$600.00	Price for one side of road (2 required per road crossing)
3.5	Granular parking lot at staging area (15 car capacity-gravel)	each	$35,000.00	Basic granular surfaced parking area (i.e. 300mm granular B sub-base with 150mm granular A surface), with precast bumper curbs. Includes minor landscaping and site furnishings, such as garbage receptacles and bike racks.
3.6	Page wire fencing	linear M	$20.00	1.5m height with peeled wood posts
3.7	Chain link fencing	linear M	$100.00	Galvanized, 1.5m height

Appendix D
Unit Price Schedule
City of Burlington Community Trails Strategy

4.0 SIGNAGE				
4.1	Regulatory and caution Signage (off-road pathway) on new metal post	each	$150-$250	300mm x 300mm metal signboard c/w metal "u" channel post
4.2	Signboards for interpretive sign	each	$500-$800	Does not include graphic design. Based on a 600mm x 900mm typical size and embedded polymer material, up to 40% less for aluminum or aluminum composite panel
4.3	Staging area kiosk	each	$2,000-$10,000	Wide range provided. Price depends on design and materials selected. Does not include design and supply of signboards
4.4	Signboards for staging area kiosk sign	each	$1,500-$2,000	Typical production cost, does not include graphic design (based on a 900mm x 1500mm typical size and embedded polymer material). Up to 40% less for aluminum or aluminum composite panel
4.5	Pathway directional sign	each	$500-$750	Bollard / post (100mm x100mm marker), with graphics on all 4 sides
4.6	Pathway marker sign	each	$250.00	Bollard / post (100mm x100mm marker), graphics on one side only
4.7	Pathway marker sign	linear KM	$1,500.00	Price for both sides of the path, assumes one sign on average, per direction of travel every 0.5 km

Appendix D
Unit Price Schedule
City of Burlington Community Trails Strategy

5.0 OTHER				
5.1	Major rough grading (for multi-use pathway)	m^3	$10-$25	Varies depending on a number of factors including site access, disposal location etc.
5.2	Clearing and Grubbing	m^2	$2.00	
5.3	Bicycle rack (Post and Ring style)	each	$150-$250	Holds 2 bicycles , price varies depending on manufacturer (includes installation)
5.4	Bicycle rack	each	$1,000-$1,200	Holds 6 bicycles, price varies depending on manufacturer (includes installation)
5.5	Bicycle Locker	each	$3,000.00	Price varies depending on style and size. Does not include concrete mounting pad
5.6	Bench	each	$2,000-2,500	Price varies depending on style and size. Includes concrete mounting pad with side bay to meet accessibility standards
5.7	Safety Railings/Rubrail	linear M	$100-$120	1.4m height basic post and rail style
5.8	Small diameter culvert	linear M	$150-$250	Price range applies to 400mm to 600mm diameter PVC or CSP culverts for drainage below trail
5.9	Pathway Lighting	linear M	$130-$160	Includes cabling, connection to power supply, transformers and fixtures
5.10	Relocation of Light / Support Pole	each	$4,000.00	Adjustment of pole offset (distance between pole and roadway)
5.11	Relocation of Signal Pole / Utility Box	each	$8,000.00	Adjustment of pole offset (distance between pole and roadway)
5.12	Flexible Bollards	each	$100.00	Should be placed at 10m intervals where required
5.13	Pavement Markings	linear M	$1.00	

NOTES:
1. Unit Prices are for functional design purposes only, include installation but exclude contingency, design and approvals costs (unless noted) and reflect 2015 dollars, based on projects in southern Ontario.
2. Estimates do not include the cost of property acquisitions, signal modifications, utility relocations, major roadside drainage works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and
3. Assumes typical environmental conditions and topography.
4. Unit price items highlighted in blue were used to estimate the implementation cost for the proposed network in the Community Trails Strategy.
5. Applicable taxes and permit fees are additional.

Appendix E

Network Costing



Appendix E
Burlington Community Trails Strategy
Summary of Implementation Costs

	Short Term		Medium Term		Long Term		Total	
Linkage Type	**Length (km)**	**Estimated Cost**	**Length (km)**	**Estimated Cost**	**Length (km)**	**Estimated Cost**	**Total Length (km)**	**Total Estimated Cost**
Multi-use Trail (within the Road Right-of-Way) [1,2,5,6]	6.3	$1,732,500	12.7	$3,492,500	11.2	$3,080,000	30.2	$8,305,000
Off-road Trail (Outside of the Road Right-of-Way) [3,4,5,6]	9.2	$2,049,000	7.6	$1,615,000	21.3	$4,222,500	38.1	$7,886,500
On-road Connections (Proposed in the Community Trails Strategy) [6]	0.0	$0	1.8	$27,000	1.4	$21,000	3.2	$48,000
On-road Connections (Per the 2009 Cycling Master Plan) [6]	0.0	$0	0.7	$39,000	1.6	$176,000	2.3	$215,000
Promotion and Outreach Activities	n/a	$116,000	n/a	n/a	n/a	n/a	n/a	$116,000
TOTAL	**15.5**	**$3,897,500**	**22.8**	**$5,173,500**	**35.5**	**$7,499,500**	**73.8**	**$16,570,500**

Notes

1. Length and estimated costs include multi-use trail with City and Halton Region rights-of-way.
2. Length and estimated costs in Halton Region rights-of-way as follows: (i) Short term 6.3 km, $1,732,500; (ii) Medium term 8.2 km, $2,255,000; (iii) Long term 5.3 km $1,457,500.
3. Includes proposed Primary, Secondary and Woodland Mulch trails as illustrated in the Community Trails Network.
4. Length and estimated costs include the Infrastructure Renewal plus New / Enhanced and Growth projects in the Short Term category.
5. Does not include length or estimated costs for Advance Planning Projects.
6. Does not include costs for individual items such as road crossing improvements, bridges, property acquisitions or utility relocations as these vary significantly depending on site conditions.

Appendix F

Trail Performance Measures



Appendix F- Potential Performance Measures

Performance Measure	Indicator		Data Source	Location of Monitoring Activity	Frequency of Measurement	Baseline Information
	Definition	Measurement				
Network Planning and Design						
Use	Existing Users	Percent of all trips using the trail network Number of trail users on key corridors Distance travelled to use trail Number of residents within 2.5km radius of a Primary trail	Traffic Counts Census Data (2011) Automated Trail Counters or stationary staffed survey	City-wide High-volume corridors Trail heads	Annual Review, same time of year for successive surveys	Halton Region Planning Services and Halton Region Health Department 2007-2010 baseline information for trail and cycling facilities
Provisions	Building the Network	Number of kilometres of trail facilities added	GIS Database & Tracking Tool	City-wide	On-going through implementation or through Annual Reporting / "report card"	
	End-of-Trip Facilities	Number of amenities for trail facilities Number of trail access points / staging areas	GIS Database & Tracking Tool On-site survey	City-wide	On-going inventory Annual Review	
Investment	Municipal Funding	Dollars invested in trails per thousand residents	City Budget Reports	City-wide	Annual Review	
Comfort & Convenience	City-wide Destinations	Number of key city destinations found along trail routes such as community centres, entertainment and cultural / heritage destinations, commercial nodes etc. User satisfaction surveys.	City Staff or Trail Ambassadors	City-wide	Annual Review	

Promotion and Outreach, Education and Encouragement						
Partnerships & Recognition	Supporting Events & Businesses	Number of events organized for trail promotion. Level of participation / number of participants for organized events. Level of participation in volunteer programs related to trails (e.g. Adopt a Trail program)	Parks & Recreation (internal survey) Local Agencies - Conservation Halton Halton, Bruce Trail, etc. City Staff or Trail Ambassadors	N/A	Seasonally	
Outreach & Provision	Educational Materials Provided	Creation of trail specific newsletters Availability / Number of maps distributed Creation of educational brochures Consistency of mapping for existing facilities and signage	Local Agencies - Conservation Halton Halton, Bruce Trail, IMBA, etc. City and Region	City-wide	Annual Review	