



City of Hamilton
PUBLIC WORKS COMMITTEE

Meeting #: 18-009
Date: July 12, 2018
Time: 9:30 a.m.
Location: Council Chambers, Hamilton City Hall
71 Main Street West

Lauri Leduc, Legislative Coordinator (905) 546-2424 ext. 4102

	Pages
1. APPROVAL OF AGENDA	
(Added Items, if applicable, will be noted with *)	
2. DECLARATIONS OF INTEREST	
3. APPROVAL OF MINUTES OF PREVIOUS MEETING	
3.1 June 18, 2018	4
4. DELEGATION REQUESTS	
5. CONSENT ITEMS	
5.1 Minutes of Various Advisory Committees	
5.1.a Hamilton Cycling Committee - February 7, 2018	15
5.1.b Hamilton Cycling Committee - March 7, 2018	18
5.1.c Glanbrook Landfill Coordinating Committee - March 26, 2018	21
5.2 Sewer Use By-law Program Annual Update (PW18059) (City Wide)	25
5.3 Electric Buses (PW18061) (City Wide)(Outstanding Business List Item)	34
5.4 Autonomous(Self Driving) Buses (PW18062) (City Wide)(Outstanding Business List Item)	38

6. PUBLIC HEARINGS / DELEGATIONS**7. STAFF PRESENTATIONS**

- 7.1 Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8, 9) 40

Note: Due to bulk, the Feasibility Study for the Mountainbrow Multi-Use Trail conducted by the IBI Group is only available online.

- 7.2 Transit Complement Control Update (PW18057) (City Wide) 457
(presentation to be distributed)

8. DISCUSSION ITEMS

- 8.1 Hamilton Water Financial Plan (PW18051) (City Wide) (Tabled at the June 18, 2018 meeting) 460

- 8.2 Public Transit Infrastructure Fund (PTIF) - Debt Financing Re-appropriation (PW18054) (City Wide) 487

- 8.3 DARTS 2017 Variance Funding (PW18055) (City Wide) 497

- 8.4 Sam Lawrence Park Master Plan 255 and 371 Concession Street (PW18056) (Ward 7) 500

- 8.5 Standardization of Hamilton Water Equipment, Parts, Supplies and Services (PW18058) (City Wide) 505

- 8.6 Extension of Senior Project Manager, Master Plan (PW18060) (City Wide) 515

- 8.7 Waterfront (Bayfront) Trail Repair (PW18063) (City Wide) (Outstanding Business List) 519

- 8.8 Capital Lifecycle Renewal - Strategic Renewal of Facilities (PW18065) (City Wide) (Outstanding Business List Item) 530

- 8.9 Fallen Fire Fighters Memorial (PW18052) (City Wide) 576

9. MOTIONS**10. NOTICES OF MOTION**

11. GENERAL INFORMATION / OTHER BUSINESS

11.1 Amendments to the Outstanding Business List

11.1.a Items to be marked as completed and removed from the Outstanding Business List:

Item A - Review and Update Option 4 - Strategic Renewal and New Construction Strategy (every five years) (Addressed in Item 8.8 of this agenda)

Item Q - Self-Driving Buses (Addressed in Item 5.4 of this agenda)

Item R - Electric Buses (Addressed in Item 5.3 of this agenda)

Item T(b) - Emergency Shoreline Protection Works (Addressed in Item 8.7 of this agenda)

12. PRIVATE AND CONFIDENTIAL

13. ADJOURNMENT



PUBLIC WORKS COMMITTEE

MINUTES 18-009

9:30 a.m.

Monday, June 18, 2018

Council Chambers

Hamilton City Hall

71 Main Street West

Present: Councillor L. Ferguson (Chair)
Councillor T. Jackson (Vice Chair)
Councillors C. Collins, S. Merulla, D. Conley, A. VanderBeek
T. Whitehead and R. Pasuta

Also Present: Mayor Eisenberger
Councillor J. Farr

THE FOLLOWING ITEMS WERE REFERRED TO COUNCIL FOR CONSIDERATION:

- 1. Proposed Permanent Closure and Sale of a Portion of Public Unassumed Alley Abutting 102 Francis Street, Hamilton (PW18049) (Ward 3) (Item 6.2)**

(Merulla/Whitehead)

That the application of the owner of 102 Francis Street, Hamilton, to permanently close and purchase a portion of the unassumed alleyway abutting the West side of 102 Francis Street, Hamilton, ("Subject Lands"), as shown on Appendix "A", attached to Report PW18049, be approved, subject to the following conditions:

- (a) That the applicant makes an application to the Ontario Superior Court of Justice, under Section 88 of the Registry Act, for an order to permanently close the Subject Lands, if required by the City, subject to:
 - (i) The General Manager of Public Works, or designate, signing the appropriate documentation to obtain any required court order; and
 - (ii) The documentation regarding any required application to the Ontario Superior Court of Justice being prepared by the applicant, to the satisfaction of the City Solicitor;

- (b) That the applicant be fully responsible for the deposit of a reference plan in the proper land registry office, and that said plan be prepared by an Ontario Land Surveyor, to the satisfaction of the Manager, Geomatics and Corridor Management Section, and that the applicant also deposit a reproducible copy of said plan with the Manager, Geomatics and Corridor Management Section;
- (c) That, subject to any required application to the Ontario Superior Court of Justice to permanently close the Subject Lands being approved:
 - (i) The City Solicitor be authorized and directed to prepare all necessary by-laws to permanently close and sell the alleyway, for enactment by Council;
 - (ii) The Real Estate Section of the Planning and Economic Development Department be authorized and directed to sell the closed alleyway to the owners of 102 Francis Street, Hamilton, as described in Report PW18049, in accordance with the City of Hamilton Sale of Land Policy By-law 14-204;
 - (iii) The City Solicitor be authorized to complete the transfer of the Subject Lands to the owners of 102 Francis Street, Hamilton pursuant to an Agreement of Purchase and Sale or Offer to Purchase as negotiated by the Real Estate Section of the Planning and Economic Development Department;
 - (iv) The City Solicitor be authorized and directed to register a certified copy of the by-laws permanently closing and selling the alleyway in the proper land registry office;
 - (v) The Public Works Department provide any required notice of the City's intention to pass the by-laws and/or permanently sell the closed alleyway pursuant to City of Hamilton Sale of Land Policy By-law 14-204;
- (d) That the applicant enters into agreements with any Public Utility requiring easement protection.

CARRIED

2. Proposed Permanent Closure and Sale of a Portion of Road Allowance Abutting 357 Wilson Street East, Ancaster (PW18048) (Ward 12) (Item 6.3)

(Whitehead/Conley)

That the application of the owner of 357 Wilson Street East, Ancaster, to permanently close and purchase a portion of road allowance abutting 357 Wilson Street East, Hamilton ("Subject Lands"), as shown on Appendix "A", attached to Report PW18048 be approved, subject to the following conditions:

- (a) That the City Solicitor be authorized and directed to prepare any necessary by-laws to permanently close and sell the Subject Lands, for enactment by Council;
- (b) That the Real Estate Section of the Planning and Economic Development Department be authorized and directed to sell the closed highway to the owners of 357 Wilson Street East, Hamilton, shown on Appendix "A", as described in report PW18048 in accordance with the City of Hamilton Sale of Land Policy By-law 14-204;
- (c) The City Solicitor be authorized to complete the transfer of the subject lands to the owners of 357 Wilson Street East, Ancaster pursuant to an Agreement of Purchase and Sale as negotiated by the Real Estate Section of the Planning and Economic Development Department;
- (d) That the City Solicitor be authorized and directed to register a certified copy of the by-laws permanently closing and selling the highway in the proper land registry office;
- (e) That the Public Works Department provide any required notice of the City's intention to pass the by-laws and/or permanently sell the closed highway pursuant to the City of Hamilton Sale of Land Policy By-law 14-204;
- (f) That the applicant enters into agreements with any Public Utility requiring easement protection;
- (g) That the applicant be fully responsible for the deposit of a reference plan in the proper land registry office, and that said plan be prepared by an Ontario Land Surveyor to the satisfaction of the Manager, Geomatics and Corridor Management Section, and that the applicant also deposit a reproducible copy of said plan with the Manager, Geomatics and Corridor Management Section.

CARRIED

3. Cannon Street Bi-Directional Cycle Track Pilot Project (PED18136) (Wards 2 and 3) (Item 8.2)

(Merulla/Eisenberger)

- (a) That the Cannon Cycle Track pilot project (Hess Street to Sherman Avenue) be confirmed and that the facility be recognized as a permanent cycling infrastructure;
- (b) That the allocation of the remaining Cannon Cycle Track pilot project funds (4041417125) for the enhancement of the existing cycle track separators in conjunction with the Cannon Street resurfacing project be approved.

CARRIED

**4. William Connell Winter Wonderland Park Development Concept (PW18046)
(City Wide) (Item 8.1)****(Whitehead/Eisenberger)**

- (a) That Council approve the single source procurement to Baker Turner Inc., pursuant to Procurement Policy #11 – Non-competitive Procurements, for the detailed design work for the creation of a winter destination at William Connell Park;
- (b) That the General Manager of Public Works, or his designate be authorized to negotiate, enter into and execute a contract and any ancillary documents required to give effect thereto with Baker Turner Inc, in a form satisfactory to the City Solicitor;
- (c) That the detail design work in the amount of \$100,000, be funded through the previously approved \$200,000 upset limit (\$100,000 for 2017 and \$100,000 for 2018 from Ward 8 Area Rating Reserve 108058), be approved;
- (d) That when and if the toboggan hill at William Connell is constructed and functioning, staff be directed to remove Garth Street Reservoir from the list of approved and maintained toboggan hill locations and replace it with William Connell Park.

CARRIED**5. John Rebecca Park – Donation, 76 John Street North, Hamilton (PW18050)
(Ward 2) (Item 8.3)****(Eisenberger/Collins)**

- (a) That the Director of Environmental Services be authorized to negotiate, enter into and execute a contract and any ancillary documents required to give effect thereto with the Patrick J. McNally Charitable Foundation for the receipt of a donation in the amount of \$1 million dollars which shall be used to fund the construction of John Rebecca Park, with content acceptable to the General Manager of Finance and Corporate Services and in a form satisfactory to the City Solicitor;
- (b) That the donation amount of \$1 million dollars from the Patrick J. McNally Charitable Foundation be placed into capital budget account number 4401856615 to be used for the construction of John Rebecca Park;
- (c) That the associated operating impacts from park development, totalling \$121,540 and 0.73 FTE be added to the Operating Budget base in 2019;
- (d) That the Mayor send a letter of thanks, on behalf of the City, to the Patrick J. McNally Charitable Foundation for its gracious donation.

CARRIED

6. Bus Shelter at McMaster University (Item 9.1)**(Collins/Eisenberger)**

WHEREAS, transit is vital to the health and well-being of a city, and;

WHEREAS, McMaster University is a vital institution in our community and many of its students, faculty and staff rely on public transit, and;

WHEREAS, new bus shelters are required for helping to deliver a safe and comfortable passenger experience, and;

WHEREAS, McMaster University and the McMaster Student Union have expressed an interest in working in partnership with the City in facilitating more bus shelters on campus,

THEREFORE BE IT RESOLVED:

- (a) That \$50,000 from the Ward 1 2017 area rating discretionary account be allocated for the refurbishment and placement of oversized HSR shelters, formerly located at CF Lime Ridge, to McMaster Campus and for the re-location of existing Ward 1 shelters on McMaster Campus; and,
- (b) That the Mayor and City Clerk be authorized and directed to execute any required agreement(s) and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

CARRIED

7. Installation of Rainbow Crosswalks (Added Item 10.1)**(Eisenberger/VanderBeek)**

WHEREAS, Hamilton is home to people with diverse cultures, religions and ethnicities, and;

WHEREAS, Hamilton is also home to people of the LGBTQ community, and;

WHEREAS, Hamilton takes pride in promoting a safe and welcoming community for all individuals, and;

WHEREAS, installing rainbow crosswalks is a clear and visible sign of the community's support and has been done in cities across the world, and;

WHEREAS, members of the Hamilton LGBTQ Advisory Committee have expressed their support for the installation of rainbow crosswalks near McMaster University and City Hall, and;

WHEREAS, funding for the four rainbow crosswalk installations, in the amount of \$6000 per location, is available in the Traffic Department's Crosswalk Budget,

THEREFORE BE IT RESOLVED:

That staff be directed to install rainbow crosswalks at the following four locations:

- (i) Stirling Street and Forsyth Avenue (in two directions)
- (ii) Main Street West at Summers Lane (in two directions)

CARRIED

FOR INFORMATION:

(a) APPROVAL OF THE AGENDA (Item 1)

The Committee Clerk advised of the following changes to the agenda:

1. ADDED DELEGATION REQUESTS (Item 4)

- 4.1 Dr. Lynda Lukasik, Environment Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project
- 4.2 Elise Desjardins, Cycle Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project

2. ADDED NOTICE OF MOTION (Item 10)

- 10.1 Installation of Rainbow Crosswalks

(VanderBeek/Whitehead)

That the Agenda for the June 18, 2018 meeting of the Public Works Committee be approved, as amended.

CARRIED

(b) DECLARATIONS OF INTEREST (Item 2)

There were no declarations of interest.

(c) APPROVAL OF MINUTES OF PREVIOUS MEETING (Item 3)**(i) June 4, 2018 (Item 3.1)****(Conley/VanderBeek)**

That the Minutes of the June 4, 2018 Public Works Committee meeting be approved, as presented.

CARRIED**(d) DELEGATION REQUESTS (Item 4)****(i) Dr. Lynda Lukasik, Environment Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project (Added Item 4.1)****(Whitehead/VanderBeek)**

That the delegation request from Dr. Lynda Lukasik, Environment Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project, be approved for today's meeting.

CARRIED**(ii) Elise Desjardins, Cycle Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project (Added Item 4.2)****(Whitehead/VanderBeek)**

That the delegation request from Elise Desjardins, Cycle Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project, be approved for today's meeting.

CARRIED**(e) CONSENT ITEMS (Item 5)****(i) Hamilton Water Financial Plan (PW18051) (City Wide) (Item 5.1)****(Whitehead/VanderBeek)**

That Report PW18051 respecting the Hamilton Water Financial Plan, be TABLED to the July 12, 2018 meeting of the Public Works Committee.

CARRIED**(f) PUBLIC HEARINGS / DELEGATIONS (Item 6)****(i) Suzanne Mammel, Hamilton-Halton Homebuilders' Association respecting Water Main Approval Issues and Recommendations for Master-water/wastewater Servicing Studies (Item 6.1)**

Ms. Suzanne Mammel with the Hamilton-Halton Homebuilders' Association addressed the Committee respecting Water Main Approval Issues and Recommendations for Master-water/wastewater Servicing Studies.

Ms. Mammel expressed the concerns of Homebuilders' Association with watermain design standards and how applications are reviewed and approved. She is also concerned about the impact approvals have on project timelines, construction costs and ongoing maintenance and replacement costs to taxpayers.

(Whitehead/VanderBeek)

That the delegation from Suzanne Mammel, Hamilton-Halton Homebuilders' Association respecting Water Main Approval Issues and Recommendations for Master-water/wastewater Servicing Studies, be received.

CARRIED

Chair Ferguson relinquished the Chair to Vice Chair Jackson in order to second the following motion.

(Whitehead/Ferguson)

That staff be directed to report back to the Public Works Committee with a response to the concerns raised by the Hamilton-Halton Homebuilders' Association, an outline of how long it takes for water main approvals to be processed and what issues affect how long it takes for the applications to be processed and approved.

CARRIED

Chair Ferguson assumed the Chair.

(ii) Proposed Permanent Closure and Sale of a Portion of Public Alley Unassumed Abutting 102 Francis Street, Hamilton (PW18049) (Ward 3) (Item 6.2)

Chair Ferguson advised that notice of the proposed permanent closure and sale of a Portion of Public Unassumed Alley Abutting 102 Francis Street in Hamilton was given as required under the City's By-law #14-204 – the Sale of Land Policy By-law.

The Committee Clerk advised no individuals registered to speak to the matter.

The Chair asked if there were any members of the public in attendance who wished to come forward to speak to the matter. No individuals came forward.

For disposition of this matter refer to Item 1.

(iii) Proposed Permanent Closure and Sale of a Portion of Road Allowance Abutting 357 Wilson Street East, Ancaster (PW18048) (Ward 12) (Item 6.3)

Chair Ferguson advised that notice of the proposed permanent closure and sale of a Portion of Road Allowance Abutting 357 Wilson Street East in Ancaster was given as required under the City's By-law #14-204 – the Sale of Land Policy By-law.

The Committee Clerk advised no individuals registered to speak to the matter.

The Chair asked if there were any members of the public in attendance who wished to come forward to speak to the matter. No individuals came forward.

For disposition of this matter refer to Item 2.

(iv) Dr. Lynda Lukasik, Environment Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project (Added Item 6.4)

Dr. Lynda Lukasik with Environment Hamilton addressed the Committee about Report PED18136 respecting the Cannon Street Bi-directional Cycle Track Pilot Project.

Dr. Lukasik expressed her support for the staff recommendation to make the Cannon Street bike lane permanent. She outlined the health and environmental benefits that cycling has as well as her desire that remaining pilot project funds be allocated to enhance the existing cycle track separators.

(Conley/VanderBeek)

That the delegation from Dr. Lynda Lukasik, Environment Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project, be received.

CARRIED

(v) Elise Desjardins, Cycle Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project (Added Item 6.5)

Ms. Elise Desjardins with Cycle Hamilton addressed the Committee about Report PED18136 respecting the Cannon Street Bi-directional Cycle Track Pilot Project.

Ms. Desjardins expressed her support for the staff recommendation to make the Cannon Street bike lane permanent. She stated that the bike lane is important because it is inter-connected to other cycling lanes and it improves mobility.

(Whitehead/Merulla)

That the delegation from Elise Desjardins, Cycle Hamilton, respecting Item 8.2 on today's agenda about the Cannon Street Bi-directional Cycle Track Pilot Project, be received.

CARRIED

(Merulla/Eisenberger)

That Item 8.2 being Report PED18136 respecting the Cannon Street Bi-Directional Cycle Track Pilot Projects be moved up in the agenda to be considered at this time.

CARRIED

For disposition of this matter refer to Item 3.

(g) DISCUSSION ITEMS (Item 8)

(i) William Connell Winter Wonderland Park Development Concept (PW18046) (City Wide) (Item 8.1)

At the request of the Chair, let the record show that the main motion CARRIED unanimously, with all members present.

For disposition of this matter refer to Item 4.

(h) NOTICES OF MOTION (Item 10)

(i) Rainbow Crosswalk Installations (Added Item 10.1)

Mayor Eisenberger introduced a notice of motion respecting the Installation of Rainbow Crosswalks.

(Eisenberger/VanderBeek)

That the Rules of Order be waived to allow for the introduction of a motion respecting the Installation of Rainbow Crosswalks.

CARRIED

For disposition of this matter refer to Item 7.

(i) GENERAL INFORMATION/OTHER BUSINESS (Item 11)**(i) Changes to the Outstanding Business List (Item 11.1)****(a) Item requiring a revised due date:****(Whitehead/Conley)**

That the following change to the Outstanding Business List, be approved:

Glen Carey Delegation (respecting a berm on his property)

Current due date: June 18, 2018

Revised due date: September 6, 2018

CARRIED**(ii) Update from the General Manager of Public Works (Added Item 11.2)**

Dan McKinnon, General Manager of the Public Works Department, provided an update to the Committee about the following matters:

- Thank you to the outgoing General Manager of Engineering Services, Gary Moore and welcome to the new GM, Gord McGuire
- Thank you to the outgoing General Manager of Roads and Traffic, Betty Mathews-Malone and welcome to the new GM, Ed Soldo
- A new feature called ParkFinder was recently launched on the City's website
- The feature allows residents to easily locate a park or a particular park amenity
- The idea for the on-line tool came out of the Department's Cutting Edge of Leadership Program

(j) ADJOURNMENT (Item 13)**(Whitehead/Merulla)**

That there being no further business, the Public Works Committee be adjourned at 10:55 a.m.

CARRIED

Respectfully submitted,

Councillor L. Ferguson, Chair
Public Works Committee

Lauri Leduc
Legislative Coordinator
Office of the City Clerk



Hamilton

HAMILTON CYCLING COMMITTEE (HCyC) MINUTES

Wednesday, February 7, 2018

5:45 p.m.

Room 192, 1st Floor

City Hall

71 Main Street West, Hamilton

Present: Chair: Sharon Gibbons
Vice-All: Kevin Love (regrets)
Members: Brad Tyleman Jeff Axisa Pierre Barras
 Kate Berry Ann McKay Bob Corsini

Absent with Regrets: Jason Copple, Linda Meerveld, Brandon Curtas, Greg Blunsdon, Cora Muis

Council: Mayor Eisenberger (regrets), Councillor Green (regrets)

Also Present: PED staff (Daryl Bender)

- 1. CHANGES TO THE AGENDA/ INTRODUCTIONS**
- 2. DECLARATIONS OF INTEREST**
- 3. APPROVAL OF MINUTES OF PREVIOUS MEETING**

(Moved/Seconded)

HCyC meeting minutes, dated August 2, 2017, were approved.
HCyC meeting minutes, dated September 20, 2017, were approved.
HCyC meeting minutes, dated November 1, 2017, were approved.
HCyC meeting minutes, dated January 3, 2018, were approved.

- 4. CONSENT ITEMS**
none
- 5. PRESENTATIONS**
none

6. DISCUSSION ITEMS

6.1 Correspondence

Mobility Lab – The Evergreen Foundation is hosting a meeting Feb 15 and Kate and/or Ann plan to attend to represent the HCyC.

Smart Cities Challenge – This national program shared information and Bob volunteered to review the Challenge details for the HCyC.

Provincial Government: CycleON 2.0 – HCyC members were notified that the Province's cycling Action Plan is posted for public review.

Burlington Cycling Committee – The City of Burlington is initiating a Cycling Master Plan update.

Hamilton Bike Routes map award – This City map was recognized by a computer software company and is featured in their annual calendar.

6.2 Updates from HCyC reps on committees

Cycle Hamilton – This community organization plans to organize a cycle ride in the spring with the Mayor and is investigating expected cycling ridership volumes in cities comparable in size to Hamilton.

Hamilton Cycling Stakeholders meeting – City staff are developing an on-line calendar so the public can easily review the impressive list of cycling activities and events in the Hamilton area. Education programs are also being reviewed. Their next meeting is planned for April.

Tourism – The City and the Regional Tourism Office (RTO3) have created a working group to review opportunities to cooperate.

Jane's Ride: A Trail of Two Cities – The HCyC continues to plan this community bike ride for May 5, 2018 with the Burlington Cycling Committee.

6.3 Maintenance

Mild weather has prompted the need for additional street sweeping.

6.4 Budgets

Plans for 2018 special events allocated in their budget (\$4000) include "Jane's Ride: A Trail of Two Cities" promotions, a cycling lecture, and a screening of a new cycling documentary.

6.5 Discussion

Provincial OMCC funding – Staff explained that a Report to Councillors is being prepared that will describe how the \$3.7 million of Provincial funds plus additional City funds are planned to be spent in the next three years.

Annual Update to PWC – The presentation to PWC on Jan. 15 was well received by Councillors. The HCyC members thanked Sharon & Jeff for a job well done!

6.6 Building the Network and Councillor Outreach

Staff provided a brief summary of projects planned for 2018 including:

W 1 - Emerson Ave. bicycle lanes (design)

W 2 - Hunter St. bicycle lanes (by GO Centre)

W 3 - Gage Ave, Delaware Ave./Maplewood Ave. bicycle lanes

W 4 - Melvin Ave. bicycle lanes

W 4/5 - King St @ RHVP. bicycle lanes

W 7 - Upper Wentworth St. bicycle lanes (at Queensdale Ave)

W 8 - Rymal Rd. bicycle path (at Garth St)

W 10 - Frances Ave (review)

W 13 - Governor's Rd. bicycle path/ Creighton Rd. bicycle lanes

W15 - Centre Rd./ Sydenham Rd. paved shoulders

6.7 Other Bicycle Infrastructure Projects

TDM (Transport Demand Management) activities – City staff are working with BIAs to encourage cycling usage and investigating opportunities to pilot additional projects to promote walking & cycling to schools, primarily for elementary students.

HamBur Loop – The City is working with the Regional Tourism Office (RTO3) to complete this cycling route in 2018, which will require signage only along existing cycling routes.

Planning – Staff notified HCyC members of the completed EA (Environmental Assessment) on the King St bridge in Dundas.

6.8 Public Education

Winter Bike-to-Work Day – February 9 in Gore Park

Toronto Bike Show – Sharon is arrange the volunteer schedule to staff the information table. Staff will ensure materials for free distribution will be provided.

7. **GENERAL INFORMATION & OTHER BUSINESS**

Announcements

Winter Bike-to-Work Day – February 9, 2018

Winter Cycling Conference – February 2018 in Moscow, Russia

There is a project to publish a children's book called **Yellow Bicycle** – a local initiative

Ontario Bike Summit – April 17-18, 2018

8. **ADJOURNMENT**

(Moved/Seconded)

That, there being no further business, the meeting be adjourned at 7:45 p.m.



Hamilton

HAMILTON CYCLING COMMITTEE (HCyC) MINUTES

Wednesday, March 7, 2018

5:45 p.m.

Room 192, 1st Floor

City Hall

71 Main Street West, Hamilton

Present: Chair: Sharon Gibbons
 Vice-All: Kevin Love
 Members: Brad Tyleman Cora Muis Pierre Barras
 Greg Blunsdon Ann McKay Bob Corsini

Absent with

Regrets: Linda Meerveld, Brandon Curtas, Kate Berry, Jeff Axisa

Council: Mayor Eisenberger (regrets), Councillor Green (regrets)

Also Present: PED staff (Rachel Johnson, Daryl Bender), Joey Coleman

1. **CHANGES TO THE AGENDA/ INTRODUCTIONS**
2. **DECLARATIONS OF INTEREST**
3. **APPROVAL OF MINUTES OF PREVIOUS MEETING**

(Moved/Seconded)

HCyC meeting minutes, dated February 7, 2018, were approved.

4. **CONSENT ITEMS**
none
5. **PRESENTATIONS**
none

6. **DISCUSSION ITEMS**

6.1 Correspondence

Education of children – Cora will review any updates on the Provincial website.

Mobility Lab – The Evergreen Foundation is planning to organize an event in the vicinity of the Hughson St/ Hunter St intersection in conjunction with planned bicycle lanes and pedestrian prioritization.

Smart Cities Challenge – Bob summarized this national program and Rachel will investigate with other City staff.

Provincial Government: CycleON 2.0 – HCyC members shared input they plan to submit personally and City staff shared the planned submission from Public Health staff.

Committee Membership – Jason is resigning from the HCyC.

Burlington Cycling Committee – The City of Burlington is initiating a Cycling Master Plan update.

6.2 Updates from HCyC reps on committees

Cycle Hamilton – This community organization is hosting their Annual General Meeting March 26 and Provincial Minister McMahon will be the guest speaker.

Hamilton Cycling Stakeholders meeting – City staff have created the “go to” page for all Hamilton cycling events:

www.hamilton.ca/CyclingEvents . The group plans to meet again in April.

Tourism – The City and the Regional Tourism Office (RTO3) have created a working group for cycling tourism, meeting in mid March.

Jane’s Ride: A Trail of Two Cities – The HCyC continues to plan this community bike ride for May 5, 2018 with the Burlington Cycling Committee, including web promotions.

6.3 Maintenance

It was expressed that the temporary speed humps are slippery when wet.

6.4 Budgets

Plans for 2018 include distributing more of the blue bicycle lights with the City logo and generic red-rear bicycle lights. The Committee is considering changes to the design of the street banner “Share the Road”.

6.5 Discussion

Provincial OMCC funding – Staffed notified all that the City has completed the arrangements to receive \$3.7 million of Provincial funds to help finance City cycling projects during the next three years.

Bicycles Counter-theft – HCyC members volunteered to work with the Hamilton Police to develop a campaign to help reduce theft and educate residents to help prevent theft. Coordination with other City promotions that already reach all homes were suggested.

6.6 Building the Network and Councillor Outreach

Staff provided a brief summary of projects planned for 2018 including:

- W 1 - Emerson Ave. bicycle lanes (design)
- W 2 - Hunter St. bicycle lanes (by GO Centre)
- W 3 - Gage Ave., Delaware Ave./Maplewood Ave. bicycle lanes
- W 4 - Melvin Ave. bicycle lanes
- W 4/5 - King St @ RHVP. bicycle lanes
- W 7 - Upper Wentworth St. bicycle lanes (at Queensdale Ave)
- W 8 - Rymal Rd. bicycle path (at Garth St)
- W 10 - Frances Ave (review options)
- W 13 - Governor’s Rd. bicycle path, Creighton Rd. bicycle lanes

W15 - Centre Rd./ Sydenham Rd. paved shoulders

6.7 Other Bicycle Infrastructure Projects

TDM (Transport Demand Management) activities – City staff printed cards that promote annual cycling activities in Hamilton and are investigating opportunities to pilot additional projects to promote walking & cycling to schools, primarily for elementary students.

HamBur Loop – The City is planning to complete this cycling route in 2018, which will only require signage along existing cycling routes.

Planning – Staff notified HCyC members of the study underway to improve Active Transport (walking and cycling) along Road 56 between Rymal Rd and Binbrook.

6.8 Public Education

Winter Bike-to-Work Day – February 9. It was a success with about 100 people gathering in Gore Park, with good media coverage.

Toronto Bike Show – March 2 - 4. Thanks to all who helped staff the information table. The free materials available described fun and convenient cycling in Hamilton, and was well-received by the public.

Why We Cycle – June 7. The planning for this event goes well.

Cycling Lecture – June 18. City staff are helping organize this important event that will showcase Hamilton's cycling vision.

7. **GENERAL INFORMATION & OTHER BUSINESS**

Announcements

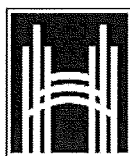
TVO program discussion 'Vision Zero' – This recent television program addressed cycling safety concerns very well.

Ontario Bike Summit – April 17-18, 2018

8. **ADJOURNMENT**

(Moved/Seconded)

That, there being no further business, the meeting be adjourned at 7:45 p.m.



Hamilton

MINUTES

Glanbrook Landfill Coordinating Committee

Monday March 26, 2018

4:30 p.m.

Glanbrook Landfill

Present:

Members: Allan Freeman
Brian Smith
Nigel Warren
Andy Fevez

Also Present:

Emil Prpic, Manager of Recycling and Waste Disposal
Rob Conley, Senior Project Manager, Landfills
Tim Robinson, Landfill Technologist
Ron Wright, Waste Management of Canada Corporation
Paul Widmeyer, Ministry of the Environment and Climate Change

Regrets:

Councillor Brenda Johnson
Frank Falcone, Project Manager, Landfills
Joshua Diamond, Niagara Peninsula Conservation Authority

1. CHANGES TO THE AGENDA

None

2. DECLARATIONS OF INTEREST

None to declare

3. APPROVAL OF MINUTES OF PREVIOUS MEETING

3.1 Glanbrook Landfill Coordinating Committee Meeting Minutes, dated
September 25, 2017

FEVEZWARREN

CARRIED

4. CONSENT ITEMS

There are no consent items.

5. PRESENTATIONS

There are no presentations.

6. DISCUSSION ITEMS

6.1 Operations Update

Staff reported the in-bound tonnages for 2017, electricity production from the Landfill Gas to Energy Facility and out-bound finished compost tonnages.

	2017	2016
Municipal Solid Waste (tonnes)	146,892	139,380
Leaf and Yard Waste (tonnes)	17,761	15,527
Electricity Production (Kwh)	16,970,399	16,659,350
Outbound Compost (tonnes)	16,947.34	17,177.01

Staff reported that the Gas Plant and Engine Availability was 98.03% for 2017.

Staff reported that landfilling continued in Stages 1 and 2 in 2017. Staff are working to the 215-metre elevation and will continue until late 2018 and then move to the prepared Stage 3.

The City of Hamilton will be holding the annual spring compost distribution events as follows:

- Saturday April 28, 2018 at the Shaver Road Public Works Yard and Joe Sams Leisure Park
- Saturday May 5, 2018 at the Jones Road Public Works Yard and Dundas Public Works Yard
- Saturday May 12, 2018 at the Rymal Road Public Works Yard and the Rennie Brampton Public Works Yard

Staff advised that the operations contract to operate the landfill will be issued within the next few weeks. This will be a 10-year contract to commence on March 1, 2020.

6.2 Capital Projects

Stage 3 excavation, leachate collection system and gas collection header work began in October, 2017. The Contractor, Tervita, was able to get most of the excavation and installation of several manholes completed. The work was

suspended mid-January, 2018 due to the adverse weather. The anticipated date of completion is now late summer.

MOVED/SECONDED

CARRIED

7. OTHER BUSINESS & GENERAL INFORMATION

- Staff reported that the Niagara Pennsula Conservation Authority will be performing the sampling in 2018 for the benthic and macroinvertebrate study in the Buckhorn Creek and Welland River. The results will be reported to the Committee when they are complete.
- Staff reminded the Committee members that the City will be looking for members this fall after the municipal election.
- Allan Freeman reported that he is aware of City of Hamilton Committee members receiving an honorarium for attending meetings. He is requesting that the City provide a small honorarium to Members. The City will consider the request.

8. ADJOURNMENT

That, there being no further business the meeting adjourned at 5:00pm.

MOVED/SECONDED

CARRIED



INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Sewer Use By-law Program Annual Update (PW18059) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Debbie Saunders (905)546-2424, Extension 5953 Cari Vanderperk (905)546-2424, Extension 3250
SUBMITTED BY:	Andrew Grice Director, Hamilton Water Public Works
SIGNATURE:	

Council Direction:

Not applicable

Information:

Public Works Committee at its meeting of April 7, 2014, approved the Proposed New Sewer Use By-law (PW13061a), which was then subsequently enacted by Council and came into force on May 1, 2014. At the time, Hamilton Water made a commitment to provide an information report, outlining the status of the Sewer Discharge Permit Program, as well as other general Sewer Use By-law Program highlights, to the Public Works Committee on an annual basis.

As the Sewer Use By-law (“By-law”) has reached the 4th year in enactment, staff have completed the first Sewer Discharge Permit (“Permit”) renewal cycle. The new method of administering the By-law requires Permits to be reviewed and re-issued every 3 years. ICI facilities that were originally given their first permits in 2014 have now been reissued a new permit that will be valid for the next 3 years. The efficiencies of the new system are significant since staff are able to process Permits in a much shorter time period with increased consistency, accountability and with the ability to now recover administrative fees for processing. In 2017 the Sewer Discharge Permit Program generated approximately \$7.1M in revenue. In February 2017 EME issued their first Part 1 ticket under the By-law; recently approved by the Attorney General in 2016,

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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)**Page 2 of 9**

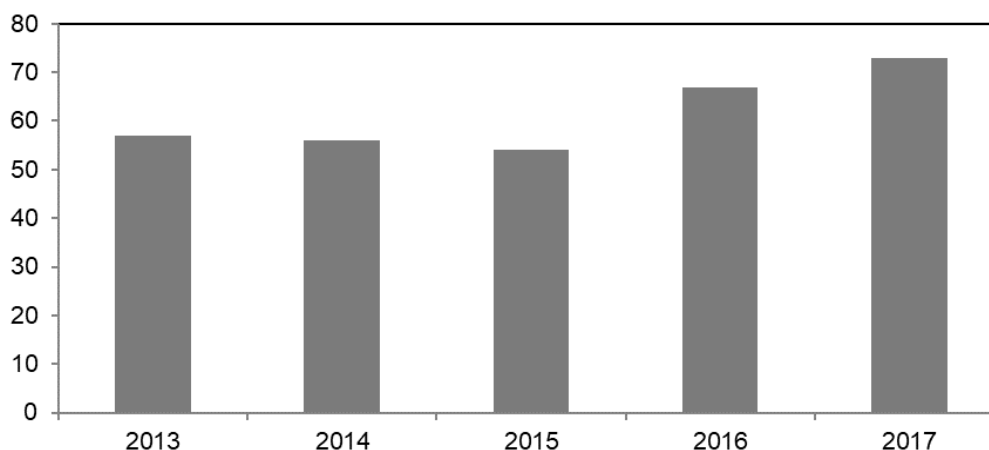
providing staff with this enforcement tool. This report serves to provide an update to Committee on the progress and successes of the Sewer Use By-law Program for 2017.

The Environmental Monitoring and Enforcement's (EME) mandate/mission is to protect the City's sewer infrastructure, wastewater treatment facilities and the natural environment by the effective administration and enforcement of the Sewer Use By-law.

Sewer discharge permits: One of the major changes to the Sewer Use By-law was the conversion from Sewer Discharge Agreements to Sewer Discharge Permits. The former Agreement format is now fully redundant and all known non-compliant dischargers have a Permit. Staff administer various permit types by approving applications and processing quarterly invoices.

Typically, permits are issued to IC&I facilities whose discharges do not meet the requirements of the Sewer Use By-law but can be treated effectively at the Woodward Wastewater Treatment Plant and will not adversely affect the condition of the sewer system. Permits are a regulatory tool that allow the City to apply conditions and controls to IC&I facility discharges to the sewer and recover costs associated with conveyance and treatment. There are currently 6 different types of Permits that can be issued by an Officer, which are explained in detail below. Each discharger must apply to the City with specific details about the discharge which is assessed by EME and Plant Operations staff and only issued once all requirements are met. With the exception of Compliance Permits, each permit is typically issued for a 3-year cycle. Prior to the expiry date, if a permit is still required, the discharger must re-apply.

In 2017, EME managed 73 Permits vs 66 Permits the previous year. EME staff did an excellent job converting all former Agreements into Permits over the past 3 years. The cycle will continue as Permits expire every 3 years and dischargers will be required to apply for a new one.

Active SDP/Agreement files (2013 - 2017)

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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)**Page 3 of 9**

Overstrength Permit

If a discharger cannot meet the requirements of the Sewer Use By-law for treatable parameters (BOD, TSS, phosphorus, TKN and Oil & Grease (animal/vegetable) they can opt to pay the City to treat their waste if they don't have real estate or expertise to install their own treatment system.

Surcharge Permit

If water is discharged to the sewer but has not been purchased from our potable water system a Surcharge Permit is required to recover the cost of conveying and treating that water.

Compliance Permit

Provides a discharger with certain controlled exemptions to the By-law for a limited time period, to plan and implement treatment works that will bring their discharge into compliance. Once the permit expires, the discharger is continually monitored until it is verified that compliance was attained. In 2017 there were 3 active Compliance Permits: 2 have since expired and 1 new one was added.

Chlorides Permit

If a discharger cannot meet the requirements of the Sewer Use By-law for Chlorides; a Chlorides Permit lays out the necessary conditions based on a sewer impact study that the discharger is required to conduct. Also, the study will determine the life span of the sewer and the discharger may be required to pay the City to replace the sewer if it does not last its expected lifespan.

Conditional Permit

Controls and applies conditions to discharges from landfill leachate collection systems, or where a higher level government authority is required.

Temporary Permit

Controls and applies conditions for any of the above discharges that do not exceed a period of 6 months – tank discharges, site excavations, etc. There has been an increase in the number of temporary permits issued as there are more new construction locations in the City.

2017 Financials

	Amount Forecasted	Actual Expenditures	% Spent
Operating Budget	\$1,780,060	\$1,683,107	94%

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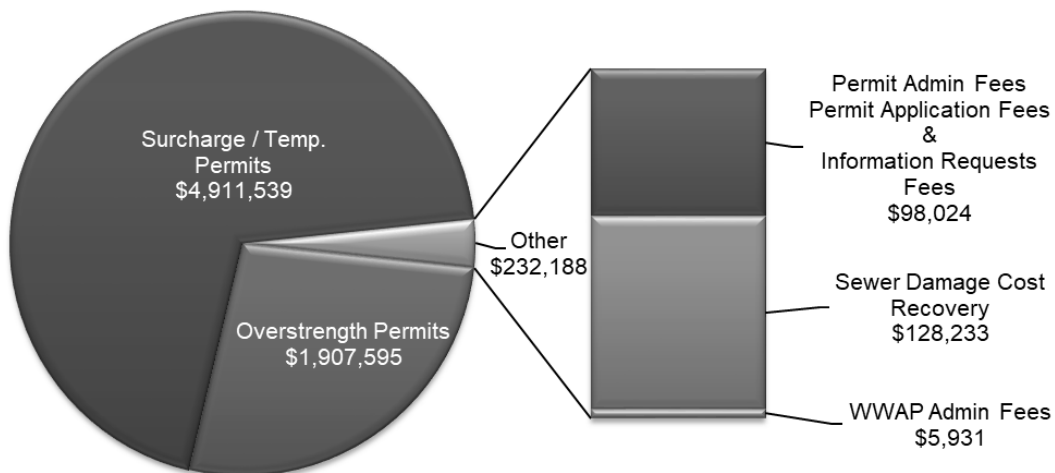
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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)
Page 4 of 9

Annual Revenue (~\$7 Million)

In 2017, Sewer Discharge Permits generated approximately \$7.1 million in annual revenue, which accounts for the recovery of costs associated with conveying and treating overstrength and surcharge wastewater. This includes approximately \$98,000 for permit administration, application and information request fees being invoiced. The chart below shows a breakdown of the Annual EME Unit Cost Recovery Efforts. It is also worth noting that \$128,233 in sewer damage associated with legacy wastewater effluent discharged to the City sewer has been recovered as a result on ongoing monitoring and enforcement.

EME Unit Annual Cost Recovery Efforts (2017) ~ \$7M



Spill Response

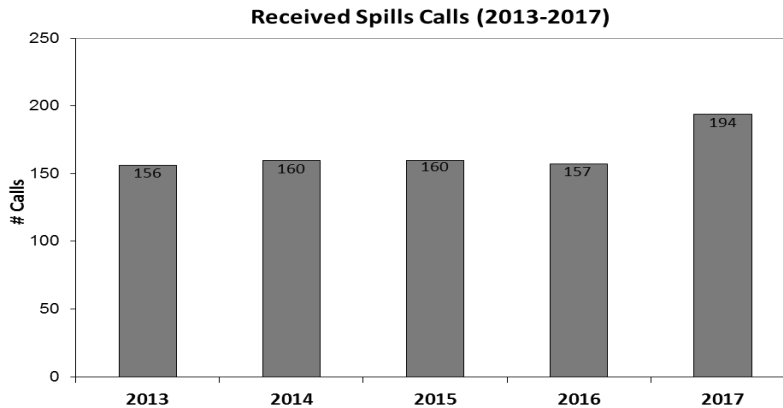
The number of spills calls received had remained remarkably consistent until 2017. The 22% increase could be attributed to increased awareness from internal stakeholders receiving spills training and public education. Improvements to customer service were made to the Spills Reporting Line by adding an additional recorded script so that callers reporting spills are provided with further direction. Spills were recorded in the INFOR module for all of 2017 as the use of the decade old Spills Database ended late 2016. Further program development, such as response time metrics and costing per incident is planned for 2018 implementation, to help staff track and measure the Spills Response Program more effectively.

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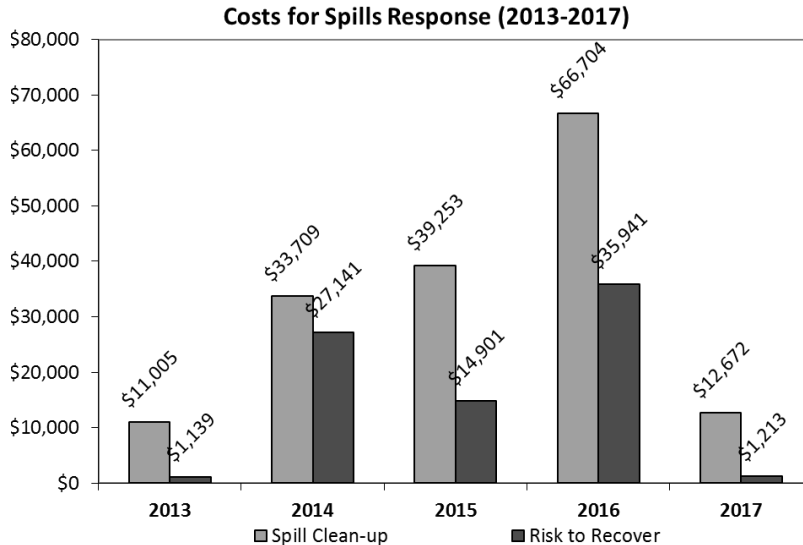
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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)
Page 5 of 9



Spills Clean-Up Costs Recovered Staff endeavours to ensure spills to the City's sewer infrastructure and natural environment are remediated to our satisfaction. This includes having staff investigate the source of the spill and holding the responsible party accountable. In 2017, approximately 10% of the \$12,672 spent on spill clean-up was recovered through Risk Management. Cost recovery efforts are continuous and in some cases yield results. A new corporate-wide Spills Contract was written with clear, specific terms and subsequently awarded in 2017. This resulted in savings, due to a reduction in average cost of spill clean-up and disposal as noted in the chart below.



Wastewater Abatement Program (WWAP)

The Wastewater Abatement Program has now been imbedded in the Sewer Use By-law Assessment Report Document, which has increased the program's profile. It appears to be gaining popularity and more dischargers are inquiring about it. The application

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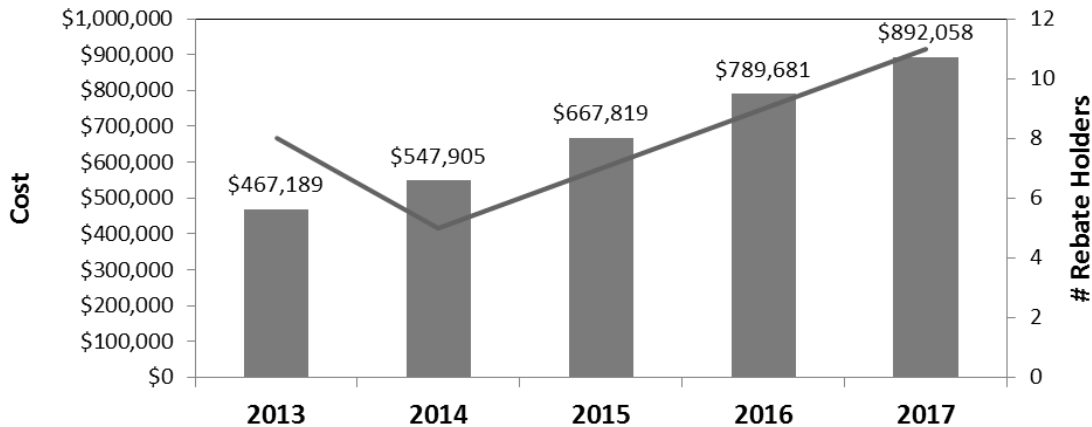
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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)
Page 6 of 9

process has become more simplified over the past few years, but certainly more rigorous in its approach. Staff have taken measures to ensure no discharger receives a rebate if they are not in compliance with the Sewer Use By-law or if they are in any type of monetary arrears to the City.

WWAP Summary (2013-2017)



General Property Assessments (GPA)

In 2017, EME did 175 Inspections which includes a combination of IC&I and Pollution Prevention (P2) locations. The inspection could be a complex industrial facility or a multiunit property with a variety of business types. The City has approximately 7900 non-residential dischargers and currently only 8% of these locations have been historically assessed and are regularly monitored by EME. Once the assessment is complete, each parcel of land is assigned a risk level, (high, medium or low) in INFOR. The GIS mapping module uses the risk level assigned in INFOR and applies a colour (red=high; yellow=medium; green=low) to the map layer, which provides a visual representation of risk to the sewer system. 2017 was the first full year that the risk layer colour coding was applied. The long-term goal is to assess all 7900 dischargers, assign a risk rating for each one, and ultimately ensure our treatment and conveyance costs are being recovered appropriately.

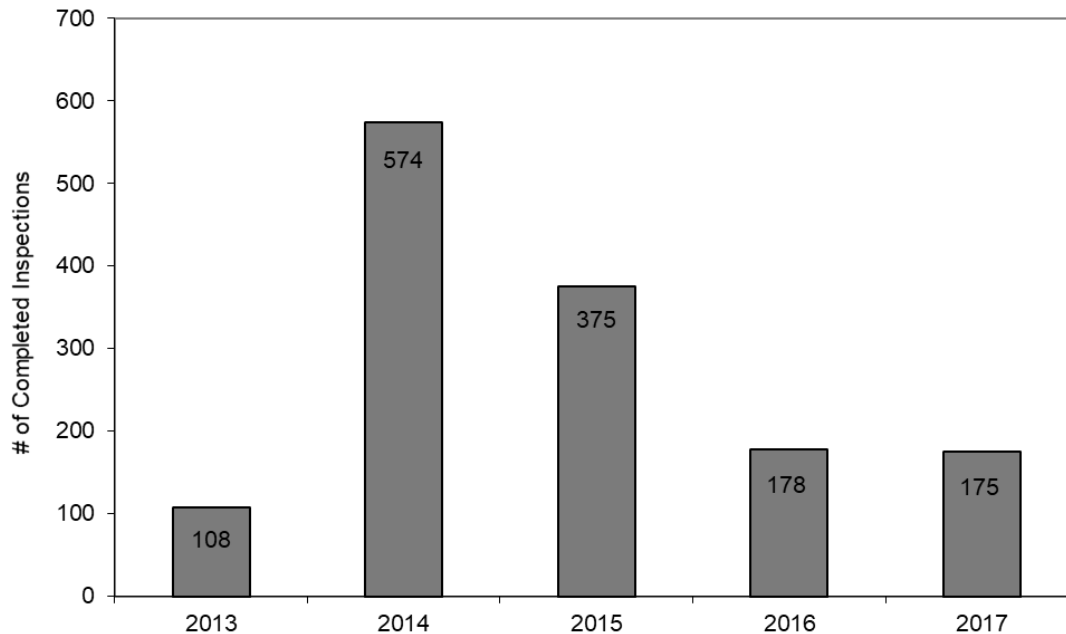
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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)
Page 7 of 9

Completed Property Inspections (2013 - 2017)



Enforcement Action

As part of the Fats, Oils & Grease (FOG) Program, EME has been visiting the restaurant and food services sector in order to ensure compliance. The Officer can assess whether or not the restaurant requires a grease control device (GCD) by completing a Risk Matrix; if needed, they are given 1.5 to 2 years to install one. Since 2014, 41 restaurants without GCD's were given notice to have one installed: to date, only 3 are still outstanding. They have been given a formal order to comply and staff will be following up with them to ensure that installation is complete by the end of 2018. Proper enforcement of this program will result in less sewer maintenance costs, fewer sewer back-ups and overflows, and fewer odour complaints.

EME was trained in-house with the assistance of Legal Services and Municipal Law Enforcement Staff on how to issue Part 1 tickets. Procedures and workflows were completed and the first ticket was issued in February 2017. The chart below shows the Enforcement Action that has been taken and includes Notice of Violations (NOV's), Charges and Orders issued by EME.

It is EME's philosophy to work with dischargers on achieving compliance, leaving enforcement action as a last resort.

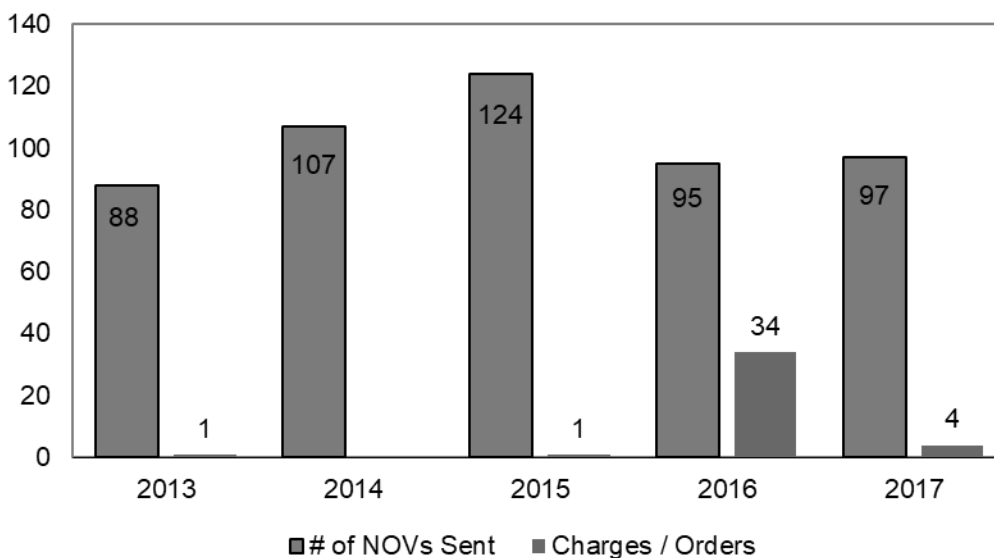
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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)
Page 8 of 9

Enforcement Action (2013-2017)



Phase 2 Sewer Use By-Law Update

In the 4th Quarter of 2017 EME staff hired a consultant to prepare for Phase 2 of the By-law update. The changes that were made to the SUB in 2014 were administrative in nature, and did not consider the list of parameters, prohibited substances or specific limits. This high-level study will consist of a comprehensive and scientific review of the parameters and limits to ensure they are appropriate and effective for the upgrades to the Woodward Wastewater Treatment Plant. The study will also address the Hamilton Harbour Remedial Action Plan: *“Urban Runoff Hamilton Harbour Report”*. This report recommended that the SUB limits be reviewed by evaluating the inclusion of a total phosphorous limit discharged to the storm sewer. The By-law amendment is scheduled to take place in 2019 with appropriate public consultation.

Mount Hope Community Odours

The odour that emanates from the decomposition of products used for the de-icing operations at the John C. Munro Hamilton International Airport has been a source of many residential complaints in the area. EME actively worked with the airport, community, Councillor and our Hamilton Water counterparts in Wastewater Collection and Customer Service & Community Outreach (CS&CO) to address the odour concerns. An outreach plan was executed for residents in the Mount Hope area by providing mailing and website updates. The community assisted City Staff by participating in a data gathering survey to understand if odour complaints in the area are driven by overland air emissions that may emanate from the airport property, sanitary sewer infrastructure or private plumbing deficiencies. A well-attended community

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SUBJECT: Sewer Use By-law Program Annual Update (PW18059) (City Wide)**Page 9 of 9**

meeting was held in February 2018 to update residents and business owners. The airport provided information on their work plan to install a treatment system on site to help mitigate odours. The Ward 11 Councillor community website was updated with City and Airport presentations along with direction on odour reporting to the responsible authority.

Looking Forward to 2018

EME will undertake many improvements and initiatives in 2018; here are a few of the highlights:

Drinking Water: In 2018, EME will be taking on the responsibility of collecting drinking water sampling from the distribution system. This transition is being undertaken to improve efficiencies within the Compliance & Regulations Section. Staff training is underway and by mid-2018 EME will fully assume this role, in addition to their existing wastewater sampling services.

Sewer Damage: Officers issue Compliance Permits when dealing with companies that are not able to meet the SUB parameter limits. Allowing time to resolve a problem by issuing a Compliance Permit is not always successful and then the decision to charge a company must be made. In some cases, sewer damage is evident and can be attributed to legacy discharges. EME is working with Legal Services on these claims to recover costs from the responsible parties. Council is made aware and direction is provided as these situations arise.

Conclusion

The Environmental Monitoring & Enforcement Unit continues to be recognized as leaders in the Municipal Sewer Use Enforcement industry. With the addition of drinking water to the Monitoring program the sampling team will increase their profile within the City. Staffing resources have been optimized to ensure existing wastewater sampling service levels are met to support the Permit Program and provide sampling support to the Division and others when required. Storm water monitoring is another area where future demand for staffing resources is forecast.

Over the last decade, many Industries both large and small in the City have made significant capital investments, upwards of \$50M in total, to achieve compliance with the Sewer Use By-law. The excellent work of the EME unit and effective administration of the Sewer Use By-law has contributed significantly to the successful operation of the wastewater treatment plants. The quality of effluent leaving the plants, as well as that of our biosolids has been stable and much better as a result of this great work.

The strategic investment that City Council made over 10 years ago by adding resources to this business unit, and support of ongoing changes to the Sewer Use By-law has been instrumental in their success. The community trusts and values the program to protect the operations of the wastewater plants and ultimately the natural environment.

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INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Electric Buses (PW18061) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Mark Selkirk (905) 546-2424, Extension 5968
SUBMITTED BY:	Jason VanderHeide Acting Director of Transit Public Works Department
SIGNATURE:	

Council Direction:

At the March 19, 2018 Public Works Committee meeting, staff were directed to investigate, and possibly test, battery electric buses in preparation for future procurement, and report back to Public Works Committee.

Information:

The primary objective of this report is to determine whether it is timely to introduce battery electric buses (“e-buses”) into service in Hamilton. Also to consider the potential impact of e-buses on factors external to the Hamilton Street Railway (HSR): the City, its citizens and the power grid.

Electrification of transit buses has been evolving for many years in various forms. Trolleybuses have been operating with electrical components all over the world for decades. Hybrid buses with electrical components have been common and abundant for several years, and fuel cell in smaller demonstration fleets around the world.

Although it may seem their arrival on the Canadian market was rather sudden, today’s battery e-buses are the result of several generations of vehicle technology, which has been extended to include electric trains, tramways, trolley buses, diesel-electric hybrid buses and fuel cell buses. The key challenge for e-buses has always been the energy storage system (ESS), in particular, developing a battery chemistry that meets the operational requirements of e-buses. While there is certainly improvement expected with the current offering, today’s batteries already allow e-buses to compete with the cost of traditional diesel buses on a lifecycle basis.

The world market for electric and hybrid-electric buses amounted to nearly 15,000 units

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SUBJECT: Electric Buses (PW18061) (City Wide) - Page 2 of 4

in 2014. Sales are expected to grow at a compounded annual growth rate of 19.6% over the period 2015 - 2020. At the end of 2015, China alone was expected to operate approximately 500,000 plug-in hybrid electric and pure-electric vehicles.

Based on the information available at the time this report was prepared, electric buses could be used in service in Hamilton and could perform as reliably as the rest of the fleet of Compressed Natural Gas (CNG) and diesel buses but will require thorough planning, training, and resources to ensure the City of Hamilton derives the full benefits of their use.

Municipalities in Alberta, namely Edmonton and St. Albert, as well as in Montreal, Quebec, have had e-buses generate environmental and potential economic benefits. An e-bus operating today will emit approximately 38-44% less CO₂ (from the power generators) than its diesel equivalent. It is also expected that the economic benefits of using e-buses relative to using CNG or diesel buses will grow in the future as the cost of operating fossil fuel powered buses will outpace that of e-buses due to CNG/diesel fuel price increases, to rising carbon cost, and to electricity prices continuing to progress at a slower pace.

E-buses are a cleaner choice for the environment than the current fleet. Investment in electric vehicles improves street level air quality in the city, and in the atmosphere. The electric transportation modal shift is expected to accelerate as the cost of batteries decreases and electric vehicle performance improves. For every 1,000 battery-powered buses on the road, about 500 barrels a day of diesel fuel will be displaced from the market, according to BNEF (Bloomberg New Energy Finance) calculations.

Two charging technologies are available for this project: (rapid) en-route charging (pantographs installed at transit centres provide a quick charge to the buses - 5 minutes) and (slow) trickle charging (buses are charged at the garage overnight and/or between runs). The use of en-route charged e-buses presents risks that are different than those of operating trickle-charged buses. With the former, the charging infrastructure required can be restrictive in terms of route planning flexibility as the cost of moving the charging equipment once in place is high. With trickle-charged buses, an electricity grid failure where the garage is located may cripple the e-bus fleet for the duration of the failure (unless a sufficiently large backup generator is installed). The current range of trickle charged e-buses can also limit the routes that can be assigned to those buses.

While electric motors have long been used in industry, batteries as a main source of energy made their entry in the transit market less than 10 years ago with the advent of diesel-electric hybrid buses. From a reliability perspective, they have performed very well.

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SUBJECT: Electric Buses (PW18061) (City Wide) - Page 3 of 4

Batteries installed on diesel-electric hybrid buses have in fact exceeded industry expectations in terms of their life and degradation performances. The HSR has had up to 30 diesel/electric buses in service for over a decade, and have only purchased two replacement battery packs due to failure or substandard service.

But new battery chemistries are reaching the market, sometimes without the benefit of a proven track record. This represents a risk for the HSR, but at least one manufacturer has expressed a willingness to offer innovative financing terms for their buses that might make it possible to shift the risk of ownership of the energy storage system to the manufacturer.

Handling batteries in the maintenance garage or in the context of accidents requires that operators, first responders and maintenance staff know the risks associated with the battery chemistry selected when e-buses are purchased, and that all personnel be trained accordingly to mitigate such risks.

Adopting a new technology invariably presents operational risks as well. If nothing else, time is required for staff to adapt to the new vehicles. The adaptation period will be longer for maintenance staff as technicians will have to learn to deal with issues currently unfamiliar to them.

The current shorter range of e-buses compared to diesel buses theoretically implies that more e-buses may be required to provide a level of service equivalent to diesel buses. Using the latest generation of e-buses will also have an impact on the image of Hamilton as being a progressive, environmentally conscious city.

The introduction of a small fleet of e-buses at HSR can likely be accommodated by the current capacity of the electricity grid in Hamilton. However, if e-buses are introduced in large numbers, portions of the electricity grid in Hamilton may need to be upgraded to ensure there is sufficient power at the locations where the large fleet would be charged.

As well as the environmental benefits, operational costs can be mitigated through the use of e-buses. The fuel cost to operate per km; the e-bus = \$.12 - \$.18, Diesel = \$.51 - \$.53. Longer term operating cost benefits include motor replacement at approximately \$10k/motor = \$20K every six years vs two engines/transmissions = \$45K. There are a number of other potential savings with brakes being the most frequent service on a conventionally powered bus. E-buses use electrical regeneration to slow the vehicle down to reduce the use of the brake system, therefore extending its life.

The City has entered into a GHG competition and if successful, the ability to use the GHG funds (if awarded to us), along with either PTIF funding (new, expansion buses), or GHG funds and current capital replacement dollars (50/50) to take diesel buses out of service and replace them with e-buses. The GHG funds would effectively put the buses at the same cost to the City, with the reduction in operating and fuel costs recognized through the Operating budget. Zero emissions, reduction in noise, and increase in customer acceptance (noise reduction, internal and external).

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SUBJECT: Electric Buses (PW18061) (City Wide) - Page 4 of 4

In 1985 the Hamilton Street Railway piloted a program to use Compressed Natural Gas(CNG) as a propulsion fuel in place of diesel fuel to reduce emissions and operating costs. For the subsequent two decades, development of that technology was slow paced, and not widely implemented across Canada. Also, cars and trucks of that era were not widely converted to CNG or propane as a fuel, so subsequently there was a lack of infrastructure to support its growth. In 2013, Council made a decision to stop procurement of diesel powered buses and revert to CNG bus procurement for the same reasons identified in 1985. Since the Council decision, Transit has mitigated fuel costs, and there has not been any measurable increase in maintenance costs operating the less expensive, cleaner CNG fuel.

The entire world has a level of infrastructure in place to be able to operate battery electric cars and buses with charging stations possible at one's residence as well as a growing number of public charging stations. E-bus technology has the advantage of this global infrastructure and a rapidly developing technology that will increase its operating range and dependability while maintaining sustainable operating costs.

As directed, staff has contacted the three e-bus manufacturers that have current CMVSS approval, and have made arrangements for late Q3/early Q4 testing of each bus for a period of up to one week. The charging stations will be provided on a stand-alone basis and the buses will not be in revenue service, but will mirror existing routes.

As we get closer to the dates of the testing, staff will report back to Council with information specific to each of the vehicles we will be testing, the dates and times that these vehicles will be operational as well as the routes that they will be operating on. Staff will develop a strategy to ensure that the vehicles are utilized on a wide number of routes to allow customers the opportunity to experience a ride on an electric vehicle. Staff will also be developing a communication strategy to keep customers informed.

Appendices and Schedules Attached

None

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INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Autonomous(Self Driving) Buses (PW18062) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Mark Selkirk (905) 546-2424, Extension 5968
SUBMITTED BY:	Jason VanderHeide Acting Director of Transit Public Works Department
SIGNATURE:	

Council Direction:

At the March 19, 2018 Public Works Committee meeting, staff were directed to investigate the feasibility of using driverless/autonomous buses in the City of Hamilton and report back to Public Works Committee.

Information:

An autonomous vehicle by definition (also known as a driverless car, self-driving car, robotic car) is a vehicle that is capable of sensing its environment and navigating without human input.

The technology has been used in rail vehicles operating in dedicated rights of way for some time, the technology is in its infancy and there are still many unknowns for use on “road vehicles.” Based on the level of interest and investment in autonomous road vehicle technology, numerous industry sources estimate that highly automated vehicles will be commercialized and available for purchase within a decade’s time, thus triggering Council’s request for this review.

Staff conducted research on the use of autonomous vehicles (AVs) in the transit industry and determined that at this time there are too many unknowns to prepare a business case or a strategic plan with regards to AVs.

While a key argument for AVs is that their ability to monitor their environment surpasses what a human can detect, their ability to understand complex situations is currently lacking. Most of the vehicles presently being tested simply come to a halt when an obstacle comes before them, but in the example of a piece of light plastic waste that has blown onto the road, abruptly stopping could be significantly less safe than colliding with

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SUBJECT: Autonomous (Self-Driving) Buses (PW18062) (City Wide) - Page 2 of 2

the obstacle. This limitation encroaches on a key unknown of how AVs will weigh factors in cost benefit analysis when a collision with one thing or another is unescapable. A uniform challenge for AV manufacturers has been managing inclement weather, with snowy conditions being particularly disruptive to performance. Should this barrier not be addressed, it would significantly limit the viability of AVs in Canadian climates. In a similar capacity, bright lights and reflective surfaces have been proven to be capable of disorienting an AV system, as demonstrated with a highly publicized crash of a Tesla vehicle on auto pilot that failed to identify a white truck in its path.

AV technology to date is associated with electrically powered vehicles. In its current state of development if AV technology was to be deployed on buses this would require charging stations at transit terminals. Electric bus technology has yet to reach a point where a full day's worth of revenue service could be achieved with a single charge. This requirement for recharging may result in increased operational cost and also additional run time/buses would need to offset the time required for charging.

On October 13, 2015, the Government of Ontario filed Reg. 306/15 under the Highway Traffic Act, permitting testing of AVs on select Ontario highways, provided applicants adhere to all specifications and restrictions set out. This came into effect January 1, 2016, and the first large scale applicants were approved in November of the same year.

There are numerous challenges to the adoption of AV technology for our conventional bus service. AV technology is still in its infancy but could be realized on public roads in many different ways. To this end, a committee will be formed with key staff from the appropriate departments to ensure that the City of Hamilton is prepared once AV technology has a conventional transit application. This committee will be tasked to monitor testing that is occurring in other municipalities, trends in their respective disciplines in AV technology, as well as developing a strategic plan for implementation. Regular updates from this Committee will be provided to Council.

Appendices and Schedules Attached

None

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CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Environmental Services Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)
WARD(S) AFFECTED:	Ward 6, 7,8, 9
PREPARED BY:	Louise Thomassin (905) 546-2424, Extension 1303
SUBMITTED BY:	Craig Murdoch, B.Sc. Director Environmental Services Public Works Department
SIGNATURE:	

RECOMMENDATION

- (a) That the implementation strategy for the Mountainbrow Multi-Use Trail identified in Report PW18053 be received;
- (b) That staff be directed to include the multi-use project initiatives for consideration in future capital budget processes, as part of larger projects or as stand-alone projects, within the implementation windows identified in the Mountainbrow Trail Feasibility Study.

EXECUTIVE SUMMARY

On May 30th of 2016 at the Public Works Committee (Report 16-010) an amended motion was carried to direct staff to undertake a Feasibility Study for a multi-use trail that would run along the top of the Niagara Escarpment and connect Wards 6, 7, 8 and 9.

In response to the amended motion, Landscape Architectural Services staff retained a consultant to prepare a feasibility study for the Mountainbrow Multi-Use Trail to outline the recommended trail route, the implementation strategy and to provide high-level costing.

The purpose of Report PW18053 is to present the recommendations and to seek authorization to begin implementation planning for the Mountainbrow Multi-Use Trail

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)**Page 2 of 9**

according to the timelines, route plan and route details recommended in the Mountainbrow Multi-Use Trail Feasibility Study, see Appendix A attached to Report PW18053.

Alternatives for Consideration – See Page 8**FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: There are no immediate financial impacts of Report PW18053, as the recommendation is to refer the projects to future capital budget processes for consideration.

The Mountainbrow Multi-Use Trail feasibility study estimates that the capital budget requirements to develop the multi-use trail will be approximately \$9 million over a 20+ year period. The estimate is a high-level order of magnitude cost for the construction of the multi-use trail and associated amenities where applicable. The estimate does not include design fees, permit fees or any road reconstruction work that may be required, but these can be expected to add an additional 12-15% on top of the cost of the projects.

Funds for the design and construction of the multi-use trail will need to be allocated during the capital budget process in the open space development capital program; roads program portfolio, alternative transportation portfolio or growth planning portfolio depending on the project initiative leader.

As initiatives are brought forward for consideration as part of the capital budget process, operating pressures will be identified on the detail sheets as part of the submission.

Staffing: No additional staffing is required as a result of the recommendations of Report PW18053. If additional FTE's are required to maintain the new trail, that will be identified as part of the capital budget submission.

Legal: Legal will be required to advise on and help prepare land agreements for any parcels of land not owned by the City that the recommended route proposes to traverse.

HISTORICAL BACKGROUND

In 2015, Mountainbrow Boulevard between Oakcrest Drive and Mohawk Road East in Ward 6 was reconstructed to upgrade sewer and watermain as part of the capital asset renewal program. Prior to the reconstruction, that portion of road had no facilities for cyclists or pedestrians. The multi-use trail running through the open space on the north

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)**Page 3 of 9**

side of the road was proposed as a solution to respond to the affected community's desires to have a facility that offered a recreational amenity for multi-modal users.

The existing trail is a three (3) to four (4) meter wide asphalt pathway and includes benches, rest areas, a water fountain, road-side parallel parking, decorative fencing and solar pathway lighting. Since its installation, the multi-use trail has become a popular recreational asset and has garnered positive feedback from residents, City staff and Councillors.

The success of the multi-use trail in Ward 6 fostered a desire to connect the existing portion of trail to neighbouring wards while staying as close to the escarpment edge as possible to take advantage of views and to connect to the existing trail systems bisecting the Niagara Escarpment. The vision for the project was supported by Council through the approval of the direction to staff to undertake the study.

At Public Works Committee (Report 16-010) on May 30, 2016, the following amended motion was carried for the Plan for an Escarpment Multi-Use Path (Wards 6, 7,8 and 9) (Item 9.1):

WHEREAS, the Niagara Escarpment, a designated UNESCO World Biosphere Reserve and an internationally recognized landform that is the cornerstone of Ontario's Greenbelt; and

WHEREAS, the Niagara Escarpment segment traversing through the City of Hamilton, having unique views and vistas, is a treasured resource for current and future generations; and

WHEREAS, the City has the unique opportunity to develop a continuous pathway along the Escarpment Brow;

THEREFORE BE IT RESOLVED:

- (a) That staff be directed to report back to the Public Works Committee with a concept plan for a continuous multi-use path traversing from Ridge Road to Scenic Drive and that this plan include elements that enhance the unique views and vistas along this pathway;
- (b) That the concept plan identify features to be incorporated within the road right-of-way as well as the City's park system;
- (c) That the plan also identifies planning and development timelines along with cost estimates.

In the 2017 Capital Budget, the Landscape Architectural Services section allocated funds to retain a consultant to complete the Feasibility Study for the Mountainbrow

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)**Page 4 of 9**

Multi-Use Trail and in June of 2017 IBI Group was retained. Their mandated scope was for the Mountainbrow Multi-Use Trail was to:

- identify the recommended route, types of facilities and applicable amenities;
- provide a framework to guide the construction of the new trail segments and the reconstruction of existing trail infrastructure; and
- provide high level costing for each trail segment initiative.

The result is a recommended route that is approximately 25 km in length and spans Wards 6, 7, 8 and 9 to connect the Iroquoia Heights Conservation Area in Ward 8 to the Devil's Punch Bowl in Ward 9. The recommended route includes a mix of facility types such as sidewalk and on street separate bike lane; however, the predominant facility type is a multi-use pathway.

A multi-year implementation strategy was developed and the recommended route is partitioned into project initiatives. The prioritization and grouping of the project initiatives are based on the following factors:

Connectivity. Trail segments are scored higher if they provide a connection to one or more other trail segments and fill an existing gap.

Key Destinations

Trail segments are scored higher where key destinations, such as stair connections and major parks are located along the route.

Safety

Trail segments are scored higher if their implementation would remedy an existing safety concern.

Population and Employment Density; and Potential Demand

Trail segments are scored higher in areas where there is a higher population and where existing and forecasted employment areas are located.

Project Cost and Project Complexity

'Quick win' projects may proceed sooner than projects that would require significant capital funding and infrastructure work, such as road or bridge reconstruction in areas with limited available space.

Each project initiative outlines the anticipated level of effort, the timeline for implementation and identifies the staff group to lead its implementation. City staff identified to lead project initiatives were consulted to ensure implementation targets were in-line with existing capital budget forecasting, typical life-cycle replacement costs for that City Section and any pre-identified projects.

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)
Page 5 of 9

The Mountainbrow Multi-Use Trail Feasibility Study is a high-level plan and only the first step of the implementation process. Each project initiative will need to undertake additional public consultation, conduct relevant studies, acquire relevant permits and go through detailed design prior to tendering and construction. Further to this, as the timeline for implementation of the recommended route is 20+ years, it will be imperative that project initiatives slotted later in the implementation timeline be re-confirmed based on any new available information and discussions with stakeholders.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The following legislative requirements will affect all or some of the multi-use trail project initiatives:

Conservation Authorities Act: some of the trail initiatives do cross through Conservation Areas regulated by the Hamilton Conservation Authority and the legislation is administered by the Ministry of Natural Resources and Forestry. As per the Conservation Authorities Act proposed development within these areas will require a permit.

Niagara Escarpment Planning and Development Act: some of the trail initiatives are within or located in proximity to the area of development control regulated by the Niagara Escarpment commission and the legislation is administered by the Ministry of Natural Resources and Forestry. As per the Niagara Escarpment Planning and Development Act proposed development within these areas will require a permit.

The following policy implications will affect all or some of the multi-use trail project initiatives:

City of Hamilton's Natural Heritage System: some of the trail initiatives are located within or in proximity to Core Areas and Linkages identified in the City of Hamilton's Official Plan – Natural Heritage System mapping. The identification of Core Areas and Linkages are based on requirements of the Provincial Policy Statement. The following may be required to develop within these areas: an Environmental Impact Statement, watershed studies, and natural areas inventories, Environmental Assessments, Linkage Assessment Report or other similar studies.

City of Hamilton's Cultural Heritage and Archaeology: each of the trail initiatives will require the project lead to confirm with the City's Cultural Heritage Planners to determine if the site requires an Archaeological Assessment. The City's Cultural Heritage and Archaeology policy takes its direction from the Provincial Policy Statement.

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)**Page 6 of 9**

The above-mentioned policies and legislation will need to be verified with the authorities having jurisdiction to determine requirements for development at the time of implementation.

RELEVANT CONSULTATION

The following internal groups were consulted and are in support of the recommendations:

Ward 6 Councillor
 Ward 7 Councillor
 Ward 8 Councillor
 Ward 9 Councillor
 Natural Heritage Planning – Planning and Economic Development
 Cultural Heritage Planning – Planning and Economic Development
 Alternative Transportation – Planning and Economic Development
 Infrastructure Planning – Planning and Economic Development
 Growth Planning – Planning and Economic Development
 Forestry and Horticulture – Public Works
 Parks & Cemeteries – Public Works
 Real Estate – Planning and Economic Development
 Design Engineering – Public Works
 Asset Management – Public Works
 Healthy Environments – Public Health Services
 Traffic Engineering – Corporate Assets and Strategic Planning
 Information Technology – Corporate Services

The following external groups were consulted and are in support of the recommendations:

Hamilton Conservation Authority
 Niagara Escarpment Commission
 Hillfield Strathallan College
 St-Joseph's Hospital
 Infrastructure Ontario
 Bruce Trail Conservancy – Iroquoia Bruce Trail Club
 Hamilton Burlington Trails Council
 Hamilton Naturalist Club
 SoBi Hamilton
 Ministry of Tourism, Culture and Sport
 IBI Group

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ANALYSIS AND RATIONALE FOR RECOMMENDATION

The following provides the rationale for proceeding with the implementation of a continuous multi-use trail referred to as the “Mountainbrow Trail” that will run along the top of the Niagara Escarpment and connect four (4) wards:

The existing Mountainbrow Trail section is heavily used and its continuation will support the City’s and Province’s strategic plan to provide an environment that offers active living options to increase levels of physical activity.

Since its installation in 2015, the existing Mountainbrow trail that runs along the north edge of Mountainbrow Boulevard between Oakcrest Drive and Mohawk Road East has received positive feedback from residents, Councillors and City staff. The high levels of utilization and demand for similar facilities to be installed in connecting wards is evidence that trails located in strategic locations are successful and support the City’s and Province’s vision to support active lifestyles by providing the necessary infrastructure.

Some of the existing road sections and open space sections are aging and will require capital investment to renew infrastructure and address any safety, maintenance and accessibility concerns within the next 10-year capital budget forecast.

There are portions along the recommended Mountainbrow route where infrastructure renewal is planned within the 10-year capital budget forecast as part of on-going lifecycle replacements, particularly as it relates to road reconstruction projects. The inclusion of a multi-use path and additional amenities where appropriate into these road reconstruction projects would improve cost efficiencies while providing accessible, safe and attractive routes for trail users.

During the field assessments conducted for the Feasibility Study, sections along the Mountainbrow route were flagged where maintenance, accessibility and safety concerns would need to be addressed regardless of whether a new multi-use trail would be implemented or would not be implemented. As noted above, bundling project work improves cost efficiencies and the inclusion of an accessible facility will add value to the experience of the end user.

The implementation of a formalized trail will help protect the unique natural features along the recommended route, such as the Niagara Escarpment by keeping trail users along a designated path.

The recommended Mountainbrow route will run parallel, and at times through the Niagara Escarpment. The provision of a formalized route will deter trail users from creating new pathways and help prevent the degradation of the environment. The project initiatives further offer the opportunity to include environmental enhancement

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)**Page 8 of 9**

measures where appropriate, such as erosion control measures to protect slope stability and plant native species and remove invasive species to increase the vegetative buffer and improve its integrity. Awareness of the natural environment through educational signage and interpretive panels can highlight the value of the environment and further foster a civic duty to protect the unique natural heritage of the Niagara Escarpment.

ALTERNATIVES FOR CONSIDERATION

The alternative is to not proceed with the recommended route outlined in the Mountainbrow Multi-Use Trail Feasibility Study, beyond the initiatives that are already identified in the Recreational Trails Master Plan and/or Cycling Master Plan.

This option is not recommended by staff as neither the Recreational Trails Master Plan nor the Cycling Master Plan has the provision for a continuous, connected route designed to take advantage of views and the natural heritage along the top of the escarpment. Further challenges to this alternative option include:

- the need to address requests from residents and stakeholders to provide an amenity like the existing portion of the Mountainbrow route located between Oakcrest Drive and Mohawk Road East;
- the need to address safety and accessibility concerns where pedestrian and/or cyclist facilities do not exist; and
- the need to address environmental degradation along the top of the escarpment where informal trail creation and usage exists.

The Mountainbrow Multi-Use Trail Feasibility Study offers a solution to address these requests and / or concerns over a phased implementation strategy that is weighted based on need, pre-identified infrastructure projects and economic and environmental constraints.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**Community Engagement & Participation**

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Healthy and Safe Communities

Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.

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SUBJECT: Mountainbrow Trail Feasibility Study (PW18053) (Wards 6, 7, 8 & 9)

Page 9 of 9

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” – Mountainbrow Multi-Use Trail Feasibility Study

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Hamilton



FEASIBILITY STUDY PRESENTATION

JULY 12, 2018



AGENDA

BACKGROUND

- Mandate of Feasibility Report
- Mountainbrow Project Vision

REPORT CONTENT

- Information Gathering Process
- Stakeholder Engagement
- Recommended Route Map
- Implementation Strategy – Prioritization Analysis & Implementation Phasing
- High Level Costing
- Quick Guide

RECAP & NEXT STEPS



REPORT MANDATE

In 2017, Consultant retained to prepare a Feasibility Report to:

1. IDENTIFY the recommended route, facility type and the amenities;
2. PROVIDE a framework to guide construction of new segments and reconstruction of existing infrastructure; and
3. PROVIDE high level costing for each trail segment.



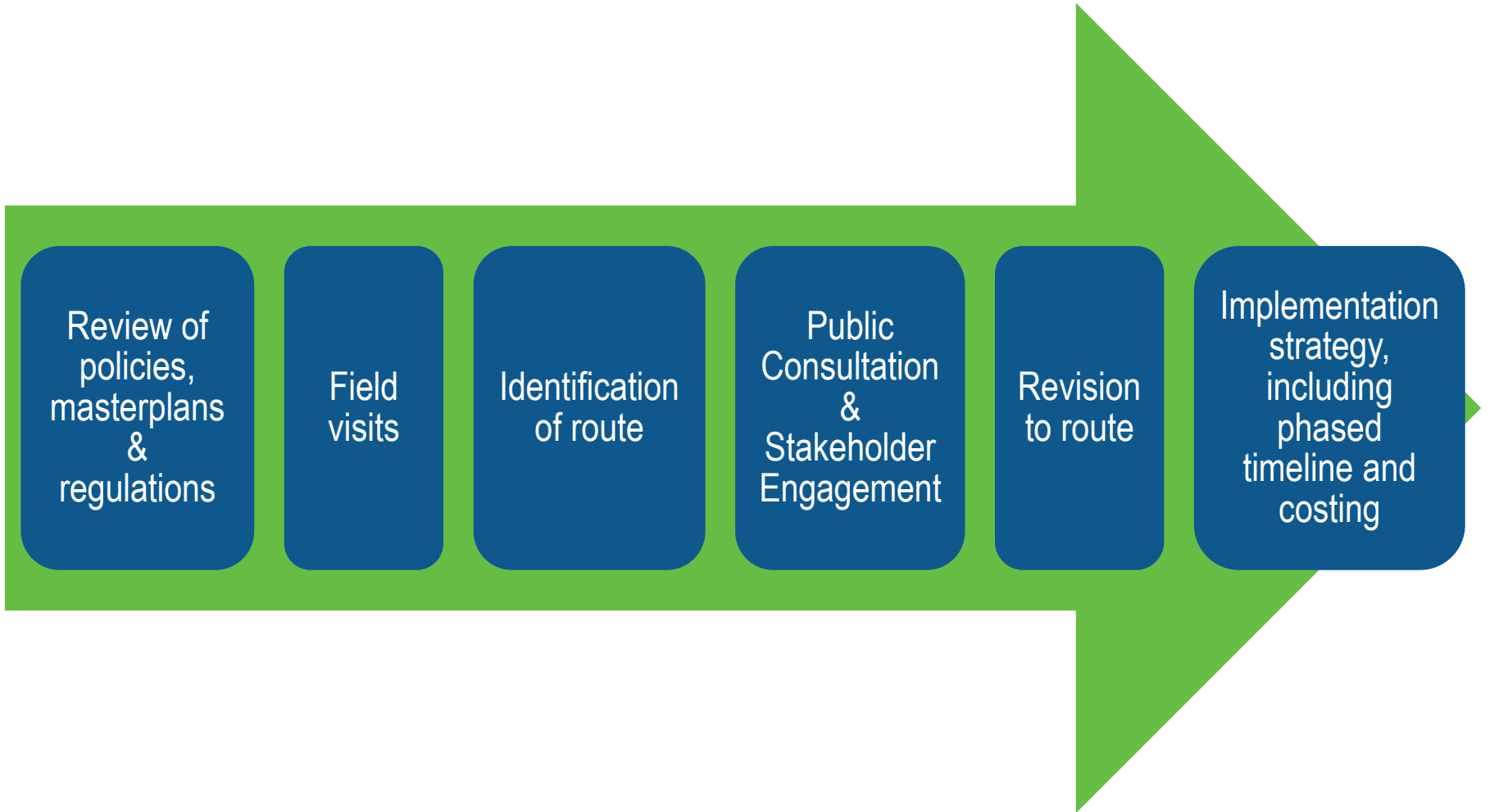
PROJECT VISION

PROJECT VISION: The Mountainbrow Trail will be a recreational trail that follows the edge of the Niagara Escarpment as closely as possible to take advantage of views and provide connectivity between wards.



Mountainbrow Trail (image courtesy IBI Group)

PROCESS





INTERNAL STAKEHOLDERS

City of Hamilton Staff:

- Alternative Transportation
- Cultural Heritage
- Engineering Services
- Forestry
- Growth Management
- Healthy & Safe Communities
- Natural Heritage
- Parks and Cemeteries
- Real Estate
- Traffic Engineering



Hamilton

Councillors 6, 7, 8 and 9



EXTERNAL STAKEHOLDERS

Outside Organizations:

- Bruce Trail Conservancy – Iroquoia
Bruce Trail Club
- Hamilton-Burlington Trails Council
- Hamilton Naturalist Club
- Hillfield Strathallan College
- Mohawk College
- SoBi Hamilton
- St-Josephs Hospital

Provincial Bodies:

- Hamilton Conservation Authority
- Ministry of Infrastructure (Infrastructure Ontario)
- Ministry of Tourism, Culture and Sport
- Niagara Escarpment Commission



Niagara Escarpment Commission
An agency of the Government of Ontario



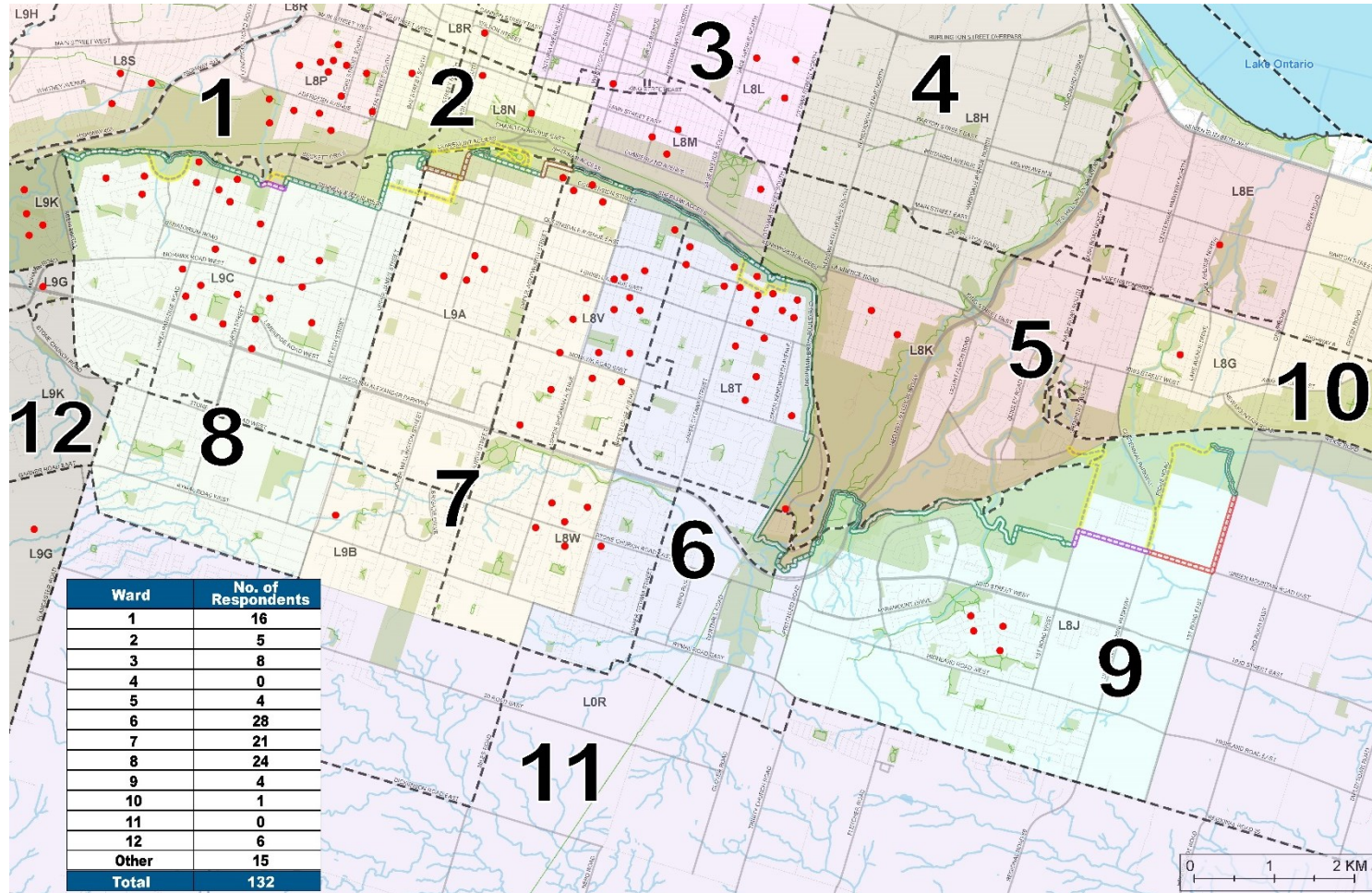
MOHAWK
COLLEGE





PIC (images courtesy IBI Group)

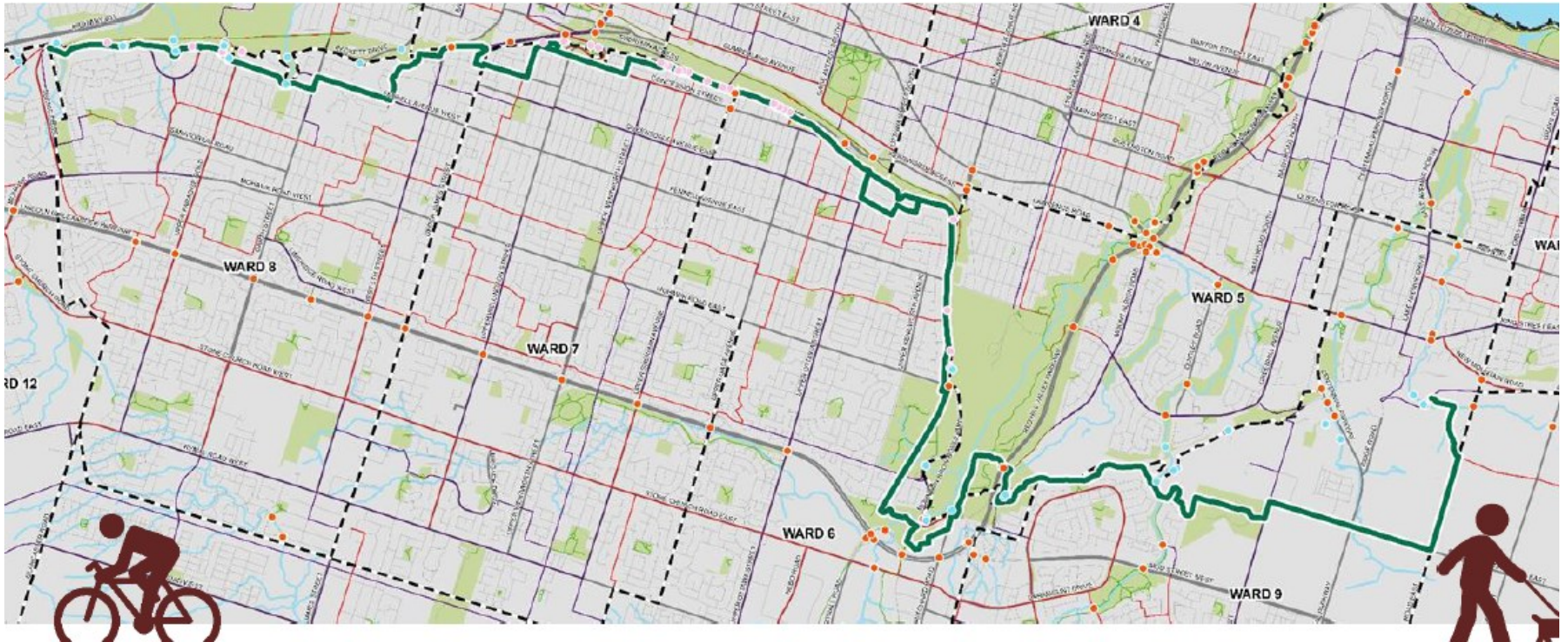
RESIDENTS - SURVEY





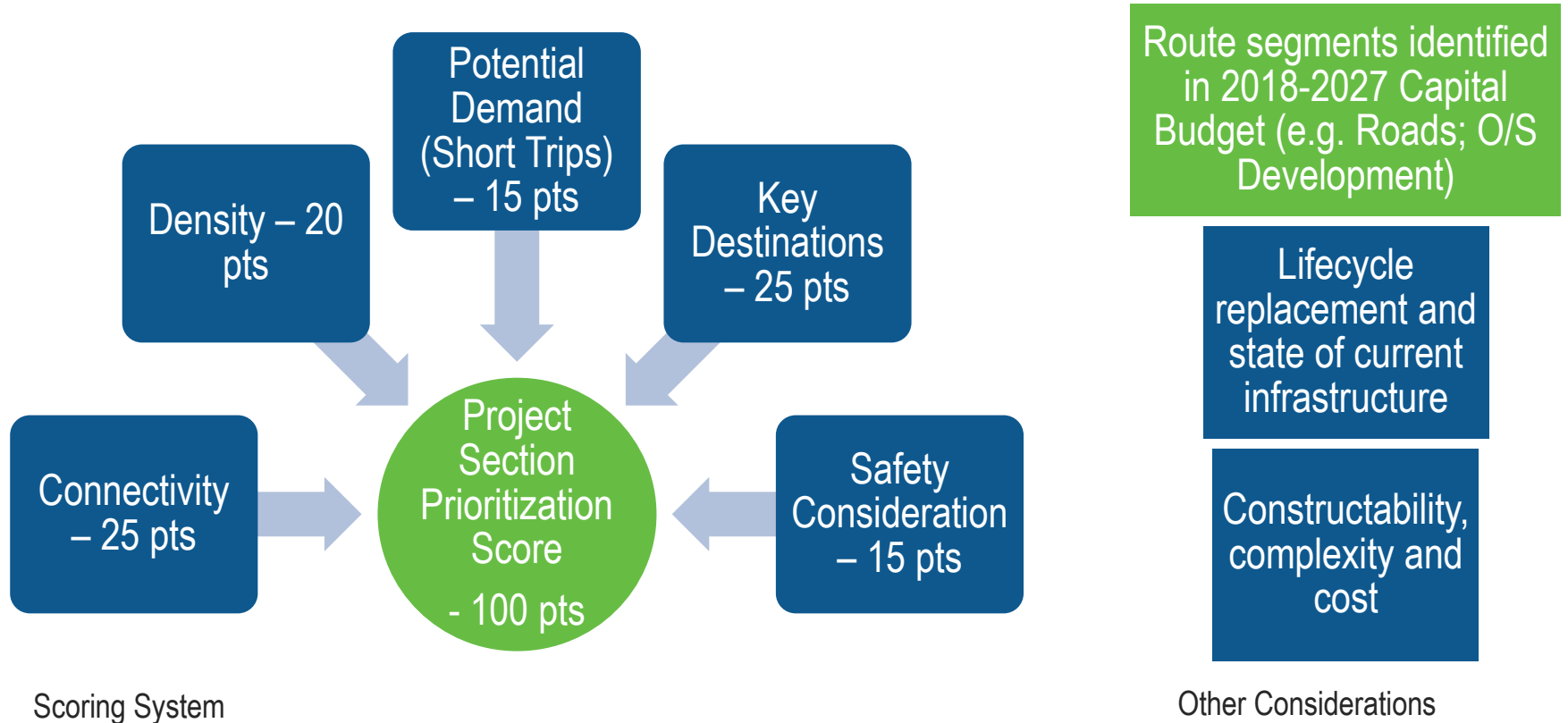
RECOMMENDED ROUTE

- Over 25 km connected route
- Connections to vista, views waterfalls and parks
- Connections to Bruce Trail, Chedoke Radial Trail, Red Hill Valley Trail, Dofasco, East Mountain Trail Loop etc



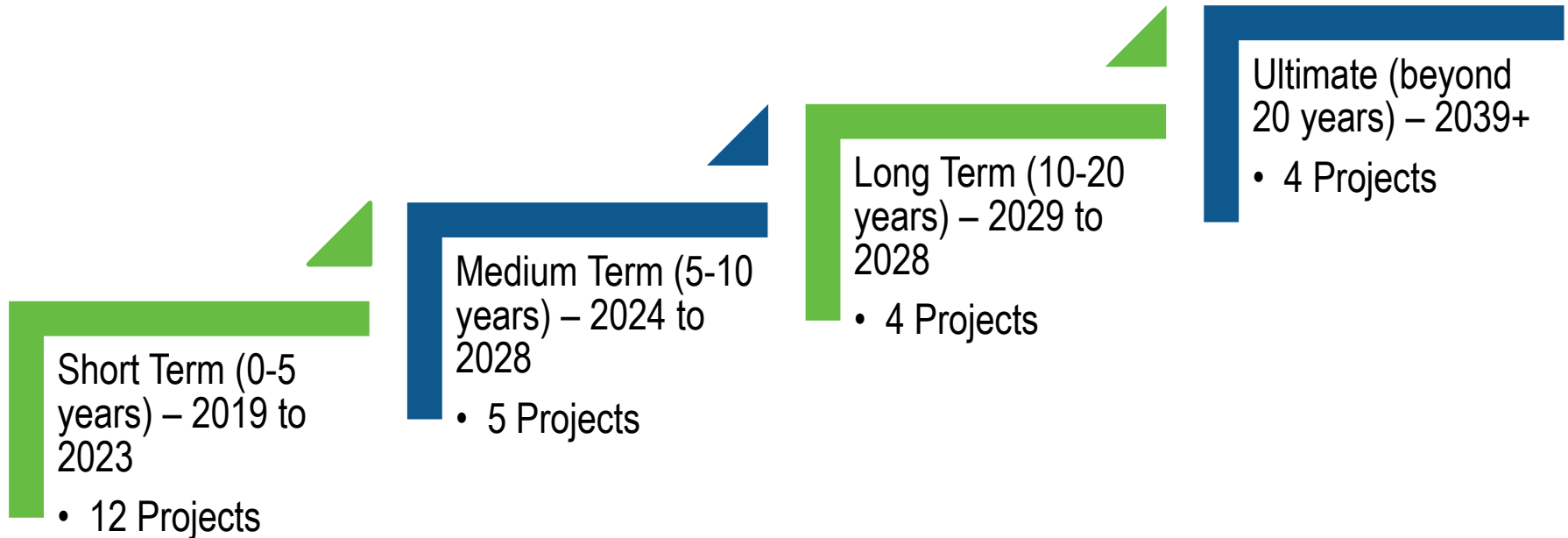
PRIORITIZATION ANALYSIS

Scoring system considered in combination with realities of forecasted works and context:

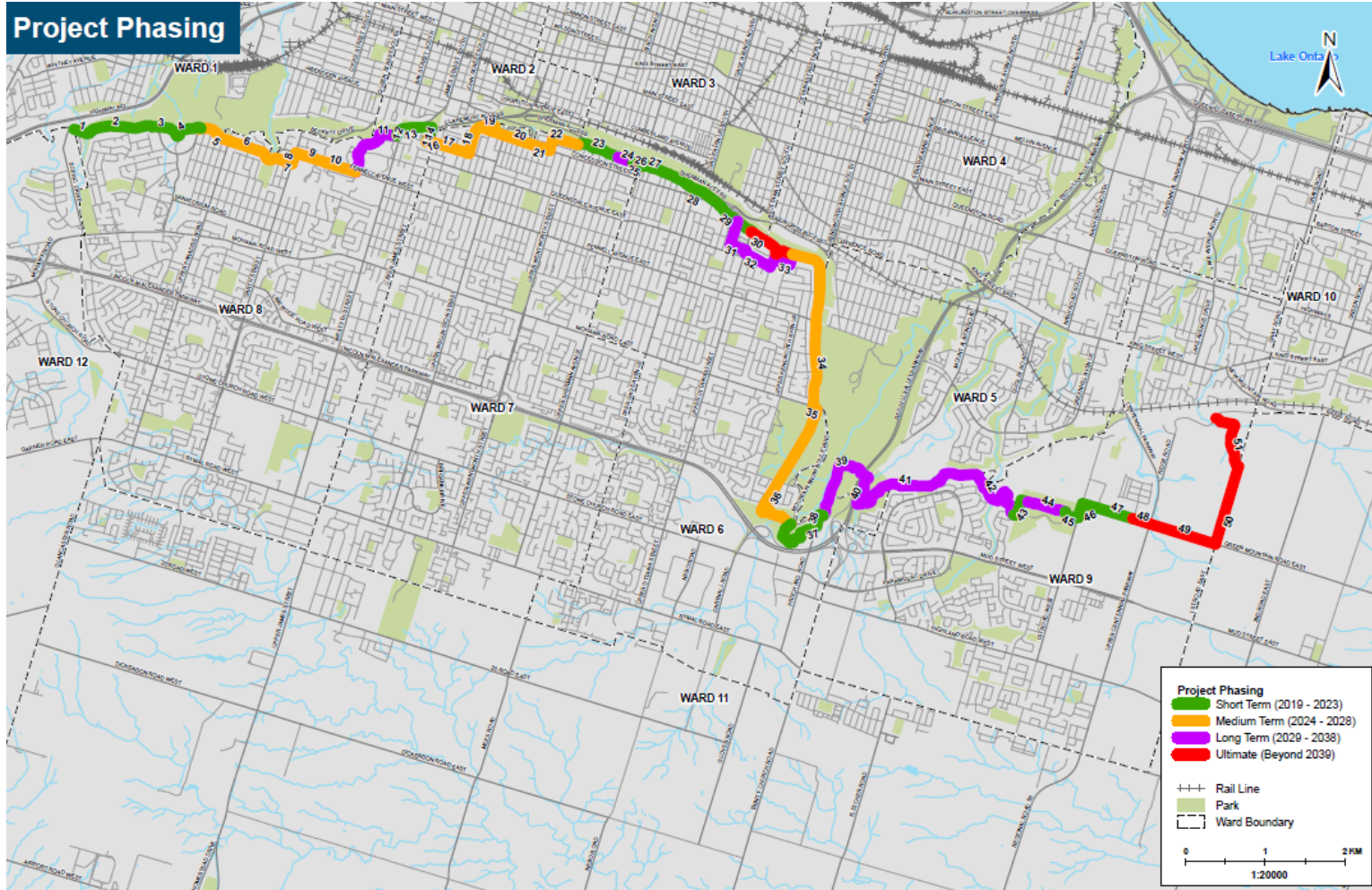


IMPLEMENTATION PHASING

- Identified 25 projects and identified project timelines based on prioritization analysis, pre-identified works, cost and constructability.
- Projects are planned over a 20+ year timeline:



PHASING MAP & DISTRIBUTION



HIGH LEVEL COSTING

- Total high level project cost: \$9 million over 20+ year period.
- High level order of magnitude inclusions and exclusions:

Estimate includes:

- Removal of existing facilities and installation of multi-use trail, including restoration
- Amenities where applicable such as: benches, lighting, fencing, water fountains etc.
- Wayfinding signage and branding

Estimate does **NOT** include:

- Potential road reconstruction costs or road crossing requirements
- Design fees, including required studies and permitting costs (anticipate that these may add an additional 12-15% on top of project costs)

- Example of ‘quick guide’ as a tool for Capital Budget Project Forecasting:

Project Segment	Project Group	Project Horizon (yrs) ¹	Project Limits	Length (km)	Estimated Cost	Costs Included										Implementation Responsibility ²
						New Trail	New Trail	New Bike lanes	New Signed Cycling Route	New Sidewalk	Paved Shoulders	Intersection Upgrade	Amenities	New Lighting	Wayfinding & Branding	
1	A	0-5	Scenic Drive	0.26	\$200,000.00	✓							✓	✓	✓	ES
2	A	0-5	Scenic Drive	0.76	\$600,000.00	✓							✓	✓	✓	ES
3	B	0-5	Sanatorium Road	0.37	\$290,000.00	✓							✓	✓	✓	D
4	C	0-5	Bruce Trail	0.35	\$180,000.00								✓		✓	LAS
5	D	5-10	Scenic Drive	0.43	\$250,000.00		✓						✓		✓	ES
6	D	5-10	Scenic Drive	0.60	\$340,000.00			✓		✓				✓	✓	ES
7	D	5-10	Scenic Drive/Denlow Avenue	0.28	\$93,000.00			✓		✓					✓	ES
8	E	5-10	Garth Street	0.14	\$410,000.00		✓					✓			✓	LAS
9	E	5-10	Fennell Avenue West	0.41	\$270,000.00		✓								✓	LAS
10	E	5-10	Fennell Avenue West	0.38	\$250,000.00		✓								✓	LAS
11	F	10-20	Juravinski Drive/St. Joseph's Hospital Lands	0.88	\$580,000.00	✓								✓	✓	LAS
12	G	0-5	Claremont Access Spur I	0.06	\$37,000.00	✓								✓	✓	AT
13	G	0-5	Claremont Access Spur II	0.43	\$340,000.00	✓							✓	✓	✓	AT
14	H	0-5	Southam Park	0.09	\$79,000.00	✓							✓		✓	LAS
15	H	0-5	Tanner Street	0.19	\$4,000.00					✓					✓	AT/ES

PROJECT VISION: The Mountainbrow Trail will be a recreational trail that follows the edge of the Niagara Escarpment as closely as possible to take advantage of views and provide connectivity between wards.



Mountainbrow Trail (image courtesy of City of Hamilton Landscape Architectural Services)

RECAP CONT.

The Mountainbrow Multi-Use Trail Feasibility Study is the **FIRST** step to realizing this vision.

The Feasibility Study **IS:**

- A framework that provides a recommended route, highlights key stakeholders and potential permits that may be required
- A tool to help guide and inform City of Hamilton staff when preparing Capital Budget Portfolio's
- A consolidation of the opinions expressed by external and internal stakeholders on the project and specific project sections.

The Feasibility Study is **NOT:**

- The final route. Detailed planning and further stakeholder engaged is required for each project.

THANK YOU



mountain browtrail

FEASIBILITY MASTER PLAN





Acknowledgments & Notes

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- City of Hamilton Staff
- IBI Group
- Hamilton Ward 6 Councillor
- Hamilton Ward 7 Councillor
- Hamilton Ward 8 Councillor
- Hamilton Ward 9 Councillor
- Niagara Escarpment Commission
- Ministry of Tourism, Culture and Sport
- Infrastructure Ontario
- Hamilton Conservation Authority
- Bruce Trail Conservancy - Iroquoia Bruce Trail Club
- Hamilton-Burlington Trails Council
- Hamilton Naturalist Club
- Hillfield Strathallan College
- St. Joseph's Hospital
- Hamilton Health Services
- SoBi Hamilton
- Hamilton Residents

Notes:

Except where noted, all images were supplied by IBI Group and the City of Hamilton has been given permission for their use.

Ward boundaries shown on all maps in this report are based on 2018 ward boundary lines. Ward boundary lines will be changing in 2019.

Table of Contents

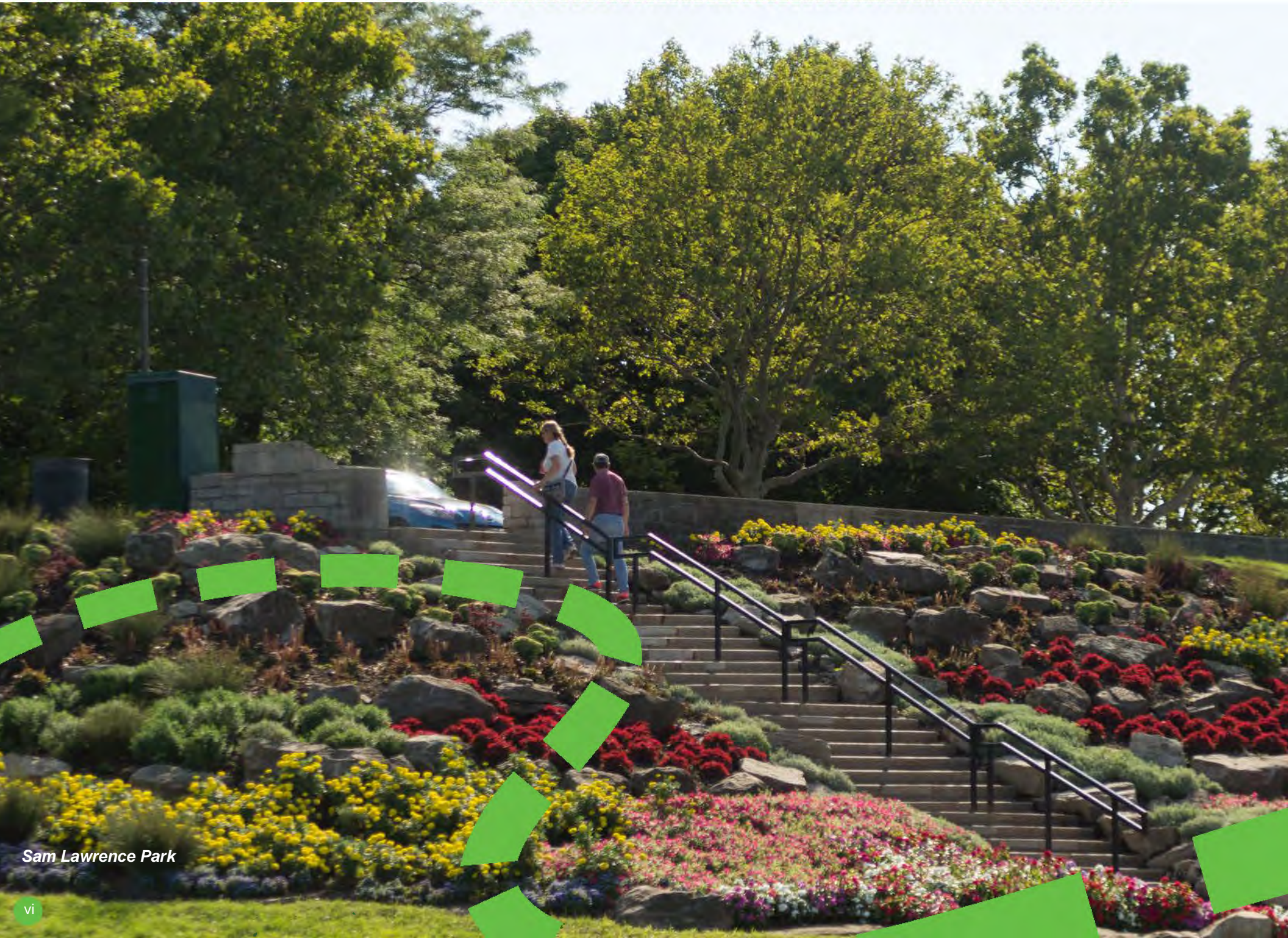
1.0	Executive Summary	1	5.1	Overview of Public & Stakeholder Engagement Process	40	9.0	Summary of Recommendations & Next Steps	301
2.0	Introduction	3	5.2	Summary of Public Input	44	9.1	Project Summary	302
2.1	Study Overview	3	6.0	Implementation Strategy	53	9.2	Overall Budget and Implementation Timeline	304
2.2	Vision Statement & Mandate	4	6.1	Recommended Mountain Brow Trail Route	54	9.3	Next Steps	305
2.3	Goals and Objectives	6	6.2	Facility Types	56	10.0	References	307
2.4	Process	7	6.3	Considerations for Trail Prioritization	58	11.0	Appendices	309
3.0	Context	11	6.4	Project Sheets	64	A	PIC #1 Notices	
3.1	Planning Context	11	7.0	Design Considerations & Branding	275	B	PIC #1 Boards	
3.1.1	Policy Framework & Relevant Plans	12	7.1	Trail Branding & Wayfinding	276	C	PIC #1 Surveys (PIC#1 & Online)	
3.1.2	Contextual Integration	14	7.2	Regulatory Signage	282	D	PIC #1 Summary Report	
3.2	Stakeholders & Partnerships	20	7.3	Trail Amenities	284	E	PIC #2 Boards	
3.3	Benefits of Trail Development	26	7.3.1	Seating and Rest Areas	284	F	High-Level Review of Cycling Facility Selection	
3.4	Opportunities & Constraints	28	7.3.2	Public Art	286	G	Trail Link Priority Analysis	
4.0	Existing Infrastructure	31	7.3.3	Bicycle Parking, SoBi Integration	286	H	Trail Potential Demand	
4.1	Field Methodology	32	8.0	High Level Costing	291	I	Blue Sky Ideas	
4.2	Summary of Findings	34	8.1	Projected Costs	292			
5.0	Public & Stakeholder Engagement	39	8.2	Funding Opportunities	298			

List of Exhibits

Exhibit 1	Existing Mountain Brow Trail	5	Exhibit 11	Respondents' top three (3) trail activities	45	Exhibit 18	Feedback on alternate routes - Mountain Brow Boulevard vs Upper Ottawa Street-Edgewood Avenue-Oakcrest Drive	47
Exhibit 2	Study Process	7	Exhibit 12	Respondent feedback on trail use	45	Exhibit 19	Feedback on alternate routes - First Road East-Dofasco Trail vs Upper Centennial Parkway-Ridge Road	47
Exhibit 3	Map showing Project Stakeholders	25	Exhibit 13	Respondents feedback on level of comfort using various facility types for the Mountain Brow Trail	46	Exhibit 20	Feedback on alternate routes - Mountain Brow Boulevard vs Ottawa Street-Edgewood Avenue-Oakcrest Drive	47
Exhibit 4	Sam Lawrence Park	26	Exhibit 14	Respondents' investment preference	46	Exhibit 21	PIC#2 Schedule	49
Exhibit 5	Canadian Pacific Railway at Devil's Punch Bowl	33	Exhibit 15	Respondent "Wish List" of trail improvements	46	Exhibit 22	Summary of Stakeholder Feedback	50
Exhibit 6	Views of the lower city from the Brow	36	Exhibit 16	Feedback on alternate routes - Sanatorium Road vs Scenic Drive	47	Exhibit 23	Preferred Route Map	54
Exhibit 7	PIC #1 Schedule	40	Exhibit 17	Feedback on alternate routes - Denlow Avenue-Garth Street vs Scenic Drive-Fennell Avenue	47	Exhibit 24	Context Plan	55
Exhibit 8	City of Hamilton tweet advertising the Mountain Brow Trail Survey	41						
Exhibit 9	Distribution of respondents	44						
Exhibit 10	Demographics of respondents	44						

List of Exhibits

Exhibit 25	Summary of Facility Types	56	Exhibit 35	Interpretive signage along Hamilton Beach Trail	279	Exhibit 43	Amenities	285
Exhibit 26	Trail Impact Score	61	Exhibit 36	Wayfinding sharrows	280	Exhibit 44	SoBi Station	286
Exhibit 27	Recommended Project Phasing	62	Exhibit 37	Wayfinding sharrows	280	Exhibit 45	Map showing recommended location of amenities	288
Exhibit 28	Recommended Project Grouping Map	63	Exhibit 38	City of Toronto Waterfront Trail incorporating blue and green centreline, pavement marking decorations and blue and white stop bars	281	Exhibit 46	Summary of unit costs	293
Exhibit 29	Project Section Reference Map	67	Exhibit 39	Sample branded pavement marking applications	281	Exhibit 47	Projected cost breakdown by Project Section	294
Exhibit 30	Project Sheet Key	68	Exhibit 40	Examples of regulatory signs	282	Exhibit 48	Mountain Brow Trail Context Plan	303
Exhibit 31	Mountain Brow Branding	276	Exhibit 41	Examples of signage for on-road cycling facilities	282	Exhibit 49	Project Phasing Map	304
Exhibit 32	Existing Trailhead at the Red Hill Valley Trail	277	Exhibit 42	Regulatory and Trail Etiquette Signage	283			
Exhibit 33	Mountain Brow Signage	278						
Exhibit 34	Conceptual Mountain Brow Route Sign Assemblies	278						



Sam Lawrence Park

1.0 EXECUTIVE SUMMARY

The primary purpose of this study is to develop a concept plan for a continuous multi-use path traversing from Scenic Drive to Ridge Road to be known as the Mountain Brow Trail. This study provides a framework for the reconstruction and renovation of the existing trail segments, the extension of the trail into undeveloped areas, and possible integration with existing and proposed pedestrian and cycling infrastructure along the route. The recommended trail route was developed through a combination of field investigations, public and stakeholder consultations and research.

This study focuses on the identification and development of the Mountain Brow Trail, a continuous route that meets the following vision:

The Mountain Brow Trail will be developed as a recreational trail that follows the escarpment edge as closely as possible to take advantage of views and provide connectivity between wards. The trail shall include a mixture of facility types with a preference towards accessible off-road, multi-use trails that are wide enough for pedestrians and cyclists.

Over the course of the study, a route was developed and refined based on an iterative process consisting of field visits, public consultation, feasibility assessment and stakeholder input. Following the mandate, the majority of the route follows the Niagara Escarpment edge, except where challenging site conditions and spatial constraints limit implementation opportunities. The recommended route was also informed by the Recreational Trails Master Plan, the Cycling Master Plan, the Transportation Master Plan and the Mountain Brow Vista Study and Management Plan, to maximize connections and take advantage of existing and planned viewsheds.

Although the primary facility type along most of the proposed route is multi-use path or trail, other facility types were also identified to address site-specific challenges, roadway context and ensure connectivity. Overall, the route will consist of a combination of multi-use paths and trails; sidewalks and signed cycling routes along quiet streets; sidewalks and bicycle lanes along urban roads where necessary; and, paved shoulders in rural areas.

The recommended trail route has been divided into fifty-one (51) segments, based on existing conditions, roadway context (i.e. speed limit, volume, etc.), access

to destinations and major intersection crossings. However, the 51 segments have been further grouped into twenty-six (26) project groups for implementation purposes. Each of the 26 project groupings has been assigned a project phase that clearly identifies the anticipated project timeline. The phasing provides for the construction of the length of the trail over a twenty-year period, prioritized based on potential trail impact, safety, feasibility and project costs, among other factors.

In addition to defining the route, this study identifies Mountain Brow Trail-specific branding and wayfinding elements to help create a cohesive trail identity, and identifies amenities to be considered along the length of the route. These elements will help to define the Mountain Brow Trail as a unique trail destination.

Once complete, the Mountain Brow Trail will be a continuous and connected multi-use route that will provide significant recreational opportunities for the city's residents. The route connects multiple wards, provides access to many community destinations and facilities, and will provide a unique experience that showcases the role of the Niagara Escarpment in Hamilton's geography.



2.0 INTRODUCTION

2.1 Overview

The Mountain Brow Feasibility Study began in the fall of 2017 as a collaborative effort between the City of Hamilton and IBI Group to assess the feasibility of a continuous and integrated recreational trail along the upper edge of the escarpment from the west terminus at Iroquoia Heights Conservation Area in Ward 8, to the east terminus of Devil's Punch bowl in Ward 9. The recommended trail route spans four wards and has the potential to be a city wide tourist destination, offering connections to natural vistas, recreational amenities and heritage destinations across the area that is locally known as the Mountain Brow.

In determining the recommended trail route, the study involved conducting a comprehensive review of the area context; existing site conditions; relevant documents, policies, legislation, master plans and studies; best practices in trail design; public safety; and a public engagement process.

This feasibility study is an extension of the City of Hamilton Recreational Trails Master Plan (RTMP) 2007 & 2016 update.



1.1 Study Overview & Process

View of the lower city from the Jolley Cut

2.2 Vision Statement and Mandate

Vision Statement

The vision was developed through consultation with internal City of Hamilton staff and external stakeholders, including the communities along the Mountain Brow.

The existing section of the Mountain Brow Trail in Ward 6 from Oakcrest Drive to Mohawk Road East is an important community asset that provides a precedent example of the desired trail characteristics. The trail width, lighting, fencing and site furniture shall be applied to all sections of the recommended trail where feasible and appropriate.

The Mountain Brow Trail vision is as follows:

The Mountain Brow Trail will be developed as a recreational trail that follows the escarpment edge as closely as possible to take advantage of views and provide connectivity between wards. The trail shall include a mixture of facility types with a preference towards accessible off-road, multi-use trails that are wide enough for pedestrians and cyclists.



Sam Lawrence Park

Mandate

The study mandate is to determine the feasibility of the trail from the west terminus at Iroquoia Heights Conservation Area in Ward 8, to the east terminus of Devil's Punch Bowl in Ward 9.

A feasible trail route is to be illustrated at a conceptual level and project sections are to be identified for future capital budgets. The study aims to develop a design program including the development of a thematic vision for the trail, branding, identification of the trail facility types and accompanying facilities, the approximate location of the recommended trail location, along with high level costing.

Considerations of user safety, existing conditions, visibility, maintenance, Crime Prevention Through Environmental Design (CPTED), and innovative low-impact development technology opportunities guided the route selection and are noted as considerations on individual project sheets for future work.

Trail sections and site improvements were analyzed for cost, safety, connectivity, anticipated usership, and projected neighbourhood growth patterns to identify phasing opportunities and rank trail sections by priority for future construction. Locations and implementation priorities for landscape improvements, equipment, site furniture

and viewpoints along the escarpment are identified on individual project sheets for future consideration.



Exhibit 1 - Existing Mountain Brow Trail



View of the lower city from the Cliffview Lookout

2.3 Goals and Objectives

Goals and objectives for the trail were identified as a means of achieving the study mandate.

The goals and objectives are drawn directly from the Recreational Trails Master Plan (RTMP), which include:

Goals:

- Develop a trail facility that is a recreational tourist destination (RTMP Economic Benefits);
- Encourage physical connectivity between wards by increasing continuity along the Brow (RTMP Social Benefits);
- Enhance area stewardship; achieve greater awareness of the existing natural heritage features that are located along the escarpment (RTMP

Environmental/Ecological Benefits);

- Preserve and enhance vistas (RTMP Environmental/Ecological Benefits)

Objectives:

- Provide an identifiable and attractive recreational route to experience the brow;
- Provide branding and wayfinding to enhance the user experience and to create a sense of identity;
- Develop responsible connections to the natural heritage features through thoughtful trail design;
- Provide strategic facilities for passive activities, e.g. lookout points, rest areas, etc.;
- Encourage trail connections to the

City's current and future recreational and active transportation network.

While the goals and objectives remained the same, the process refined these options further with a shift towards determining feasibility. This shift was achieved through field verification, public engagement, stakeholder feedback, safety considerations, data analysis and re-assessing the subsequent opportunities and constraints.

It is these goals and objectives that directed the development of the recommended route for the Mountain Brow Trail.



Park Signage

2.4 Process

This study employed a multi-step process to select the recommended Mountain Brow Trail route. This process is presented in Exhibit 2 and an overview of each step is provided in this chapter.



Exhibit 2 - Study Process



Bruce Trail

Conduct Field Surveys & Review Background Documentation

Early in the process (Summer/Fall 2017), multiple site visits were conducted by the team to assess existing conditions along the route and document the findings. The results of the field surveys are further discussed in Chapter 4.2 Summary of Findings.

The information gathered from the field surveys along with thorough review of relevant documents, including the Mountain Brow Vista Study and Management Plan (2018), Recreational Trail Master Plan, Cycling Master Plan, and Niagara Escarpment Mapping, among others, is the primary means of informing the preliminary

route and developing a list of opportunities and constraints.

Identify Opportunities & Constraints

Through field analysis, consultation with stakeholders and public engagement, the team identified opportunities and constraints to inform the recommended Trail route. Existing conditions, forecasted capital projects, safety issues, infrastructure and stakeholder input are some of the opportunities and challenges identified. Further information on the opportunities and challenges are identified in Chapter 3.4 Opportunities and Constraints.

Prepare Preliminary Route Mapping

Based on preliminary analysis and background review, a preliminary recommended route was mapped and presented for comment at the first round of public consultations in November 2017. This mapping offered alternatives for the public to provide feedback on for further review and consideration by the team.

Seek Public Feedback

In November 2017, the project team conducted four (4) public information centres and created an online survey to engage the public and gain feedback. The goal of the sessions and survey was to collect information in order to



Claremont Access Spur

further refine the route, identify potential opportunities and constraints, and gain a general understanding of how residents use the existing sections of trail and identify their priorities. Further information regarding public engagement is discussed in Chapter 5 - Public and Stakeholder Engagement and Appendix I - Blue Sky Ideas

Undertake Data Analysis & Route Revision

Following the close of the on-line survey in January 2018, the project team began the task of analyzing the information gathered from public engagement and preparing a summary that was used to inform further refinement of the route. Alternatives were eliminated or validated, and a new revised

recommended route was prepared to be presented to the public as an update. For further information regarding the data analysis and public engagement including the route alternatives, please refer to Chapter 5 - Public & Stakeholder Engagement.

Provide Update to Public

In March 2018, the project team presented the revised recommended route to the public in an open house setting. The route was identified as being “preferred” with minor exceptions. Further comments from the public were taken into consideration in the preparation of the final recommended route and noted on the individual project sheets, as applicable.

Prepare Study Master Plan Document

Draft & Final Report and Presentation to Council

Through a series of drafts, this study master plan document was prepared by the project team, vetted through municipal staff and presented to council for adoption in July 2018.

Using this sequential process, a preferred route for the recommended Mountain Brow Trail - both desired and feasible within the scope of this study - is generated and communicated in a manner that accounts for environmental and economic realities and community desires.



Albion Falls

3.0 CONTEXT

3.1 Planning Context

In addition to the Recreational Trails Master Plan, the context for this report includes policy direction provided by a number of City of Hamilton planning documents. The Urban Hamilton Official Plan guides all development within the urban area of the City, supported by Secondary Plans and Policies, as well as area-specific design guidelines and a variety of other influences that extend beyond the limits of the City, such as the Niagara Escarpment Commission Plan.

The Mountain Brow Trail feasibility study is a complex undertaking that involves the interests of a wide variety of stakeholders, a range of infrastructure, and many important environmentally sensitive and culturally significant places. As a result, a review of the on-site and documented contextual conditions is critical in order to gain an accurate understanding of existing conditions and planned efforts.

The contextual review explored connections to existing recreational trails, the lower city centre and surrounding neighbourhoods; proximity to natural features, vistas, current and forecasted development, and open space along the Brow; the impact on/of existing property ownership and forecasted (future) infrastructure plans; as well as feedback through public engagement.

In addition to the planning context, as it relates to master plans, the Official Plan and policies, the review of current best practices in design and accessibility of trails in Ontario further define the parameters of the Mountain Brow Trail and help to identify the scope of the study.



3.1.1 Relevant Plans and Policy Framework

Urban and Rural Hamilton Official Plans

The Urban and Rural Hamilton Official plans are the primary sources of direction for all Urban and Rural land use designations in Hamilton, and “guide development by identifying where and under what circumstances specific types of land uses can be located” (City of Hamilton website). High level parent policies dictating elements such as the urban structure, road classifications, and natural heritage features are supported further by Secondary Plans and other more area-specific plans, guides, policies and by-laws.

With particular focus on open space land use designations, Section B of the Urban Hamilton Official Plan designates a large portion of the Mountain Brow Trail study within natural and general open space areas (Schedule B – Natural Heritage System). Objectives of these designations include ensuring that parks and open spaces are retained, linked wherever possible and enhanced to include provisions for accessibility. Likewise, the Rural Hamilton Official Plan Chapter B notes the use of lands designated as open space shall be utilized for both active and passive recreational uses, community or recreational facilities, and other open space uses.

Natural Heritage & Open Space Systems

Sections of the recommended Mountain Brow Trail route directly interact with the Niagara Escarpment and other areas holding natural heritage significance and therefore fall under Natural Heritage policy. Lands designated as Natural Open Space often have significant environmental features and are intended to be preserved in their natural state. Section B – Urban Hamilton Official Plan outlines that where appropriate, limited recreational activities or uses may be permitted, including trails, picnic areas, and forest and conservation management.

In addition to the parks hierarchy outlined in Policy B.3.5.3.4, there are two open space



Devil's Punch Bowl

categories not considered 'parks' but are used for both active and passive recreational activities and contribute to the City's open space system and are relevant to the Mountain Brow Trail. They include:

- a) General Open Space (golf courses, urban farms, community gardens, pedestrian and bicycle trails, walkways, picnic areas, beaches, squares and core spaces); and,
- (b) Natural Open Space (woodlots, slopes, creek/ravine corridors, the Niagara Escarpment, environmentally sensitive areas and areas of wildlife habitat).

Environmental Impact Statements (EIS) and archaeological reviews may be required in areas under these designations and should be considered in the planning stages.

Other area specific policies – namely neighbourhood secondary plans- further these guides and provide policy on a case-by-case basis. Two such plans with direct relevance to the development of the Mountain Brow Trail include the Nash Neighbourhood and Chedmac Secondary Plans; these plans establish land use and development standards for their respective areas.

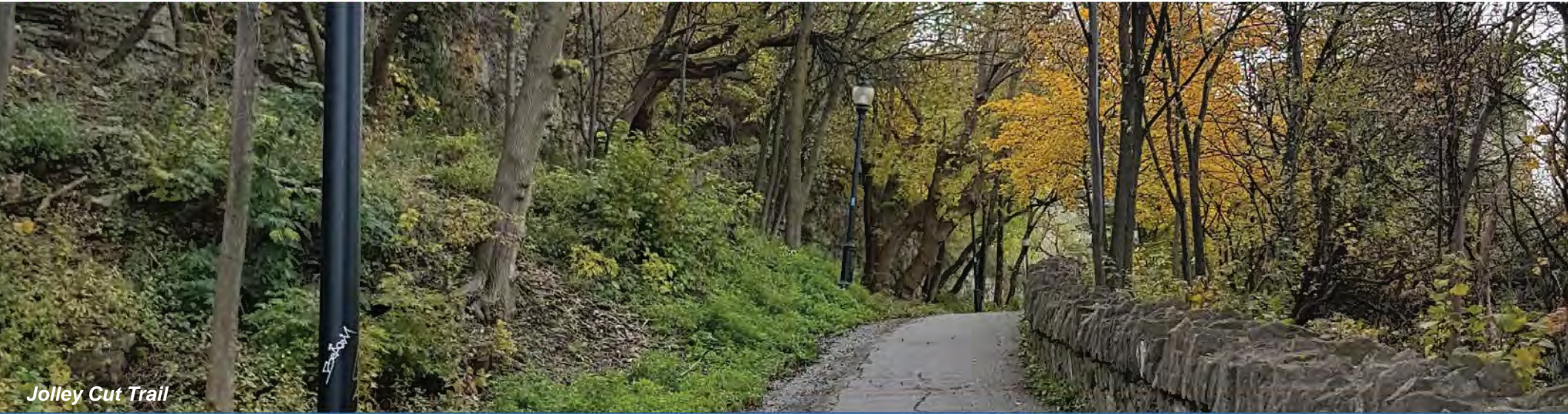
Nash Neighbourhood Secondary Plan

The lands covered by the Nash Neighbourhood Secondary Plan study area contain the former West Quarry Landfill site, the East Quarry Landfill site, small infrastructure and a number of natural and built heritage features including

environmentally sensitive areas and the Niagara Escarpment. Certain areas within the Nash Neighbourhood area are already approved for development, including the Heritage Green Community Park and the lands at the north-east corner of Mud Street West and First Road West. Within the established Heritage Green Neighbourhood Secondary Plan, the Nash Neighbourhood area is designated as a Special Policy Area 'B', which will require a subsequent secondary plan prior to further development.

Chedmac Secondary Plan

The Chedmac Secondary Plan encompasses areas surrounding the Chedoke Hospital to the west, generally bound by Mohawk Road West to the south, Sanatorium Road to the east, San Pedro Drive to the North and



Jolley Cut Trail

Magnolia Drive to the west (Ch. B – Hamilton Secondary Plans). The Secondary Plan provides goals and objectives of the area and outlines specific development guides for low and medium density residential use, parks and open space designations, of which there are three (3) - institutional development, utilities, and transportation designation.

Of particular note, the Secondary Plan highlights the opportunity for an open space linkage from the existing neighbourhood to the recreational facilities located within the Chedmac Planned Area.

3.1.2 Contextual Integration

Recreational Trails Master Plan (RTMP)

The City of Hamilton produced a comprehensive Master Plan in 2007 outlining a plan for a multi-use, recreational trail system throughout the city. The 2016 update was done to reflect on what had been installed, respond to the installations and revisit planned infrastructure projects and recommended new trail connections. Various trail corridors along the edge of the escarpment were identified in the update, laying the groundwork for the idea of a continuous trail connection across the brow - the Mountain Brow Trail.

The goals and objectives of this Feasibility

Study speak to eight (8) of the ten (10) RTMP objectives:

- Guiding the development of a comprehensive multi-purpose trail system.
- Collaborative trail management and development standards that meet varying commuting needs and opportunities in a manner consistent with municipal land use, transportation, cultural heritage and sustainable development policies.
- Design methods intended to create trail gateways and scenic vistas to enhance a positive public image of the City of Hamilton and to improve the local user and tourist experience.
- Preservation and conservation of wooded areas and sensitive ecological habitat.



View of the lower city from the Claremont Spur

- Significant natural features such as the wetlands streams will be protected by new trail development.
- Consideration of applicable City of Hamilton policies, by-laws, documents, guidelines and recommendations.
- Trail facilities developed to serve expanding residential communities.
- Trail safety and security in the community associated with trails.

Many of the features of the recommended Mountain Brow Trail are mentioned as built and natural features in Wards 6, 7, 8 and 9 (See RTMP Table 2: Summary of Individual Ward Characteristics). These features include the Niagara Escarpment and Bruce Trail, the existing portion of the Mountain Brow Trail, Sam Lawrence Park, Mountain

Brow Park, Juravinski General Hospital, St. Joseph's Healthcare Campus, numerous waterfalls, Heritage Green Sports Park and Devil's Punch Bowl Conservation Area. The report also refers to recreational trail design opportunities that align or intersect with the Mountain Brow Trail at various locations. The opportunities identified are the connections along Mountain Brow Boulevard from Mohawk Road East to Limeridge Road, the connection from Mount Albion Pedestrian Bridge to Red Hill parking lot at Mud Street, and the connection from Mud Street West to Green Mountain Road through the Heritage Green Sports Park.

Within the 2007 initiatives to be completed, there is a proposed facility between Mud Street and Mountain Brow Boulevard

(Initiative 6-2) and proposed multi-use trail initiatives known as the Heritage Green Link and First Road West Link (Initiatives 9-2 and 9-3). Neither of the 2007 initiatives were completed at the time of the 2016 update (See RTMP Table 3: Summary of 2007 Initiatives). Additional initiatives were proposed in the updated plan such as the Mountain Brow Boulevard Trail (Initiative 6-7), Heritage Green Sports Park Link, and Devil's Punchbowl Link (Initiatives 9-5 and 9-6) (see RTMP Table 4: Summary of 2015 Trail Initiatives).

For the development of trails, the RTMP emphasizes the consideration of trail users and associated needs (pedestrians, cyclists, wheelchair users), and general trail design parameters which evaluate criteria related



Viewing platform at Mountain Brow West Park

to operating space, design speed, stopping distance, alignment and clear zone. The network design must include analysis of:

- Accessibility requirements, with attention paid to conforming to the requirements of the Accessibility for Ontarians with Disabilities Act (AODA).
- Personal security and using Crime Prevention through Environmental Design (CPTED) principles.
- Trail lighting and safety using cost-effective methods (e.g. solar lighting) and focusing on areas of high use (“commuter routes”) and adjacent to stairs.
- Trail hierarchy and surfacing (see RTMP Table 7: Trail Hierarchy and Surfacing).
- Trail crossings, particularly at major or

minor roads, active railways, bridges, underpasses and tunnels.

- Trail structures, such as gates and barriers, bollards, and switchbacks and stairs.
- Trail signage to provide simplified route identification and to improve wayfinding and trail stewardship.
- Trailheads at primary and secondary entrances, and trail amenities (rest areas and bicycle parking).
- Public art along trails at major destinations, as advocated by the Public Art Master Plan (2008).
- Trails in natural areas and environmental buffers that allow the public to experience nature, but must be balanced with the protection of the environment and

sensitive ecological elements.

- Creating new trails in established neighbourhoods, which involve various levels of consultation with the public and stakeholders.
- Lease agreements and land acquisition, including easements.
- Insurance, risk liability and risk management, during construction and maintenance phases; and
- Public outreach and trail promotion through community based social marketing; trail maps, signs and brochures; partnerships with business, local developers and other agencies; and other education, outreach and stewardship activities.



View of the lower city from Arkledun Avenue

The Mountain Brow Feasibility Study also follows the RTMP Implementation Plan, which involves developing a trail implementation strategy. This has been accomplished by establishing priorities for the route implementation, developing a system to establish those trail priorities, employing interdepartmental collaboration, and designing a comprehensive strategy. The strategy incorporates flexibility in the anticipation of modifications as the trail development evolves through design reviews, detailed design implementation, and monitoring and maintenance. The RTMP also identifies the need for outreach, promotion and potential funding sources; managing trails and maintenance expectations; and establishing a trail maintenance plan. This information is

presented in Chapter 6.0 Implementation Strategy.

Public Art Master Plan

Section 2.12 of the RTMP highlights considerations for public art involvement with trails throughout the City, as directed by the City of Hamilton Public Art Master Plan (2016). As outlined by the Master Plan, public art is created by artists or in collaboration with artists through a public process and existing in publicly accessible Municipally owned property.

The Public Art Master Plan identifies fourteen (14) priority project sites, for which installation will take place from 2017-2023, and eighty-five (85) secondary sites, which will be considered if resources (staff and

funding) become available. The selection is based on the plan's associated evaluation matrix (scoring out of 100). Sam Lawrence Park is the only location along the Mountain Brow Trail identified as a priority project site. The secondary list includes, in order of priority, the Niagara Escarpment Stairs at Wentworth (Wentworth stairs), the Niagara Escarpment Stairs at Margate and Mountain Brow (Kenilworth stairs), Cliffview Park, Mud Street and Red Hill Valley Trail Entrance.

Mountain Brow Vista Study & Management Plan

The Mountain Brow Vista Study and Management Plan (Vista Study) report was created to identify existing and potential vistas along the Brow and to create a long-



Bruce Trail

term management plan. The established vista locations were vetted by the Niagara Escarpment Commission (NEC) as the lands along the Escarpment edge (within Wards 6, 7 & 8) remain under their jurisdiction. The Vista Study is closely tied to the objectives of the NEC, from which the Mountain Brow Trail will take measures to protect the Escarpment ecology and heritage while providing safe recreational opportunities along the escarpment.

In all, eighty-seven (87) vistas were identified as part of the study, of which:

- Forty-one (41) are existing views, and no actions are needed to maintain them now or in the future;
- Twenty-nine (29) are existing views, which will need remedial improvements

- and will require maintenance; and
- Seventeen (17) are new locations which may require moderate to intensive improvements to the ecology and site access.

The geographical scope of the Vista Study forms a large portion of the recommended route for the Mountain Brow Trail. The study extends from Scenic Park (Ward 8), at the west end, to Matt Broman Park (Ward 6), at the east end. The recommended Mountain Brow Trail continues south along Mountain Brow Boulevard into Ward 9. Recommendations from the Vista Study include monitoring the 41 existing views, upgrading and establishing the other forty-six (46) views, as necessary, and co-locating amenities (e.g. benches and waste receptacles) with the established views.

The Vista study advocates setting the highest priority to locations of cultural heritage significance (such as Sam Lawrence Park, and Cliffview Park) and those that have had long standing access to vistas (Juravinski Hospital and Cancer Care Center, and Mountain Brow Reserve).

The recommendations of the Vista Study were taken into consideration in the development of the recommended route and location of amenities. Lookout locations have been identified as destinations within each project segment (Chapter 6.4 Project Sheets).



View of the lower city from Sam Lawrence Park

Cycling Master Plan (2009 & Planned 2018 Update)

The City's Cycling Master Plan is intended to guide the development and operation of cycling infrastructure across the City of Hamilton for the next twenty years. It identifies cycling facilities of various types (shared routes, bike lanes, paved shoulders, cycle tracks and multi-use paths) and provides a prioritization for route implementation over time.

The Mountain Brow Trail is primarily intended to be a recreational facility. Nonetheless, integration with existing and recommended cycling facilities identified in the Cycling Master Plan is critical to provide a seamless user experience.

In particular, the Cycling Master Plan identifies several routes that will “feed” into the Mountain Brow Trail route from the lower city, providing opportunities to expand the potential use of the trail and extend the benefits of the trail to a larger group of residents.

Some recommended key connections from the lower city into the Mountain Brow Trail include:

- **Claremont Access**

A bi-directional multi-use facility is currently being studied along the Claremont Access, which will improve connectivity and safety between downtown Hamilton and the mountain, including the Mountain Brow Trail. This project has received provincial funding

and is anticipated to be built in 2020.

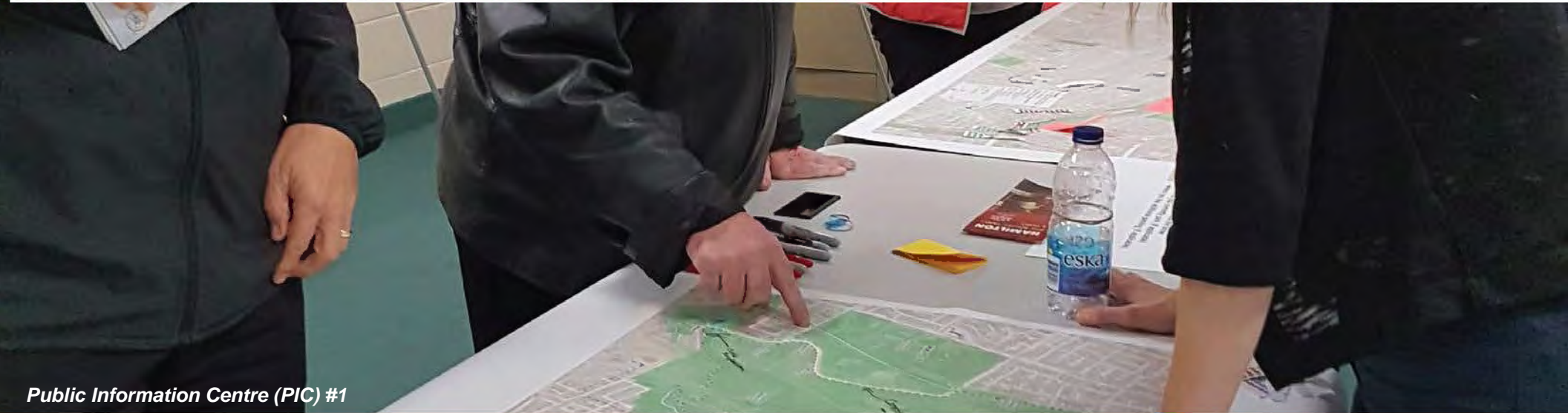
- **Henderson Lift**

A connection is recommended from Lower to Upper Sherman over the long-term horizon.

- **Greenhill Avenue Connection**

A connection is recommended along an old service road, passing by Glover Falls, while maintaining the connection between Greenhill Avenue and First Road West.

Additionally, the Mountain Brow Trail will overlap and tie into existing and proposed corridors identified in the Cycling Master Plans, providing opportunities for partnerships in implementation.



Public Information Centre (PIC) #1

3.2 Stakeholders and Partnerships

As articulated in the City of Hamilton Recreational Trails Master Plan, creating trail networks within established neighbourhoods can be a challenge for many reasons. Overcoming these challenges requires coordination at all levels, as well as extensive consultation with a range of parties – most notably the public.

The cooperation between levels of government, relevant authorities, organizations and land owners will help to address the challenges of determining a feasible route for the Mountain Brow Trail.

In addition to the residents of the communities along the Mountain Brow Trail, there are a number of key local

stakeholders of particular note to trail development:

Municipal Council

As the City of Hamilton moves forward with the development of the Mountain Brow Trail corridor, Council will have an important role in supporting both the overall Feasibility Master Plan and individual projects.

City of Hamilton Internal Departments

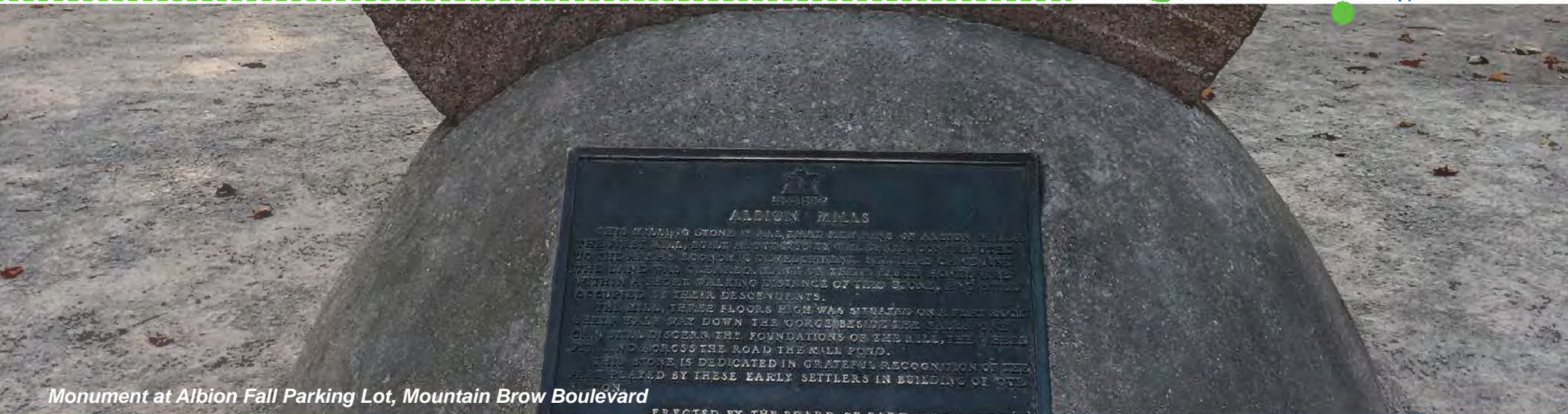
Although the Mountain Brow Trail Feasibility Master Plan is primarily led by the Landscape Architectural Services (LAS) Section with support from Engineering Services, the delivery and implementation of the trail will require involvement by other sections (buy-ins,

and in some cases approvals), as well as support from a number of other internal stakeholders at the City of Hamilton. Certain projects shall be implemented through road reconstruction projects and other active transportation initiatives - in these cases, the projects will be lead by other City sections with support from LAS.

In particular, the following departments, divisions and sections will be key partners:

1. Public Works

- Environmental Services
 - Landscape Architectural Services
 - Forestry & Horticulture
 - Parks and Cemeteries



Monument at Albion Fall Parking Lot, Mountain Brow Boulevard

Landscape Architectural Services will lead the delivery and implementation of certain trail segments, and will support projects spearheaded by other City of Hamilton Sections.

The Forestry & Horticulture Section will be involved in the decision making for any tree planting or removal requirements.

The Parks and Cemeteries Section will have a role in the coordination and budget for on-going maintenance work and issues.

- Engineering Services
 - Asset Management
 - Construction

Certain segments of the trail overlap

with planned capital road works led by Engineering Services, so the trail will need to be scoped and bundled with these planned improvements to ensure efficiency, limit impacts to residents during construction and to maintain consistency in the design elements.

2. Planning and Economic Development

- Transportation Planning and Parking
 - Alternative Transportation

The Alternative Transportation Section will assist with the segments of the trail that overlap or tie into existing or planned cycling facilities (per the Cycling Master plan). In cases where the trail development may impact the supply

of parking, the group will provide input related to parking needs.

- Growth Management
 - Infrastructure Planning

Where sections of the trail pass through developing and forecasted communities, the Growth Management division will help to ensure that trail portions are delivered as part of planned development. The priority for particular trail segments will be influenced by future growth initiatives.

- Planning and Chief Planner
 - Development Planning, Heritage & Design

Through the Development Planning,



Southam Park

Heritage & Design Section, input from Natural Heritage planners will be important for areas of the recommended trail that are adjacent to, or fall within, natural core areas and linkages. This section will also assist in determining Environmental Impact Study (EIS) requirements.

Additionally, the City’s Cultural Heritage planners will be engaged in dictating any requisite archaeological studies, particularly in areas adjacent to watercourses.

3. Economic Development
- Real Estate

Real Estate is responsible for property acquisition or potential agreements

between the City of Hamilton and property owners to allow the trail to traverse across non-city owned land. They will be working in coordination with the Legal Section.

4. Corporate Services
• City Solicitor
- Legal

The Legal Section is responsible for property acquisition or potential agreements between the City of Hamilton and property owners to allow the trail to traverse across non-city owned land. They will be working in coordination with the Real Estate Section.

5. Healthy and Safe Communities
• Public Health Services, Health - Environments

Public Health can play a role as the trail develops in the promotion and awareness of the Mountain Brow Trail as a key community asset that supports healthier, active lifestyles.

Niagara Escarpment Commission (NEC)

Where the trail development falls in close proximity to the Niagara Escarpment edge, individual projects may require a permit from the NEC.

There are different designations, including escarpment natural area, that will dictate the



Cliffview Park

types of facilities that can be implemented in the zone.

Hamilton Conservation Authority (HCA)

Where the trail will pass through lands either under the authority of or owned by the HCA, the appropriate permit must be obtained. The HCA will have approval over the trail configuration in these situations and specific land agreements may be required.

Various Trail Organizations

There are several intersecting and nearby trails in the proximity of the Mountain Brow Trail that have active organizations. In particular, the Bruce Trail Conservancy and the Hamilton Burlington Trails Council should

be actively included in the development of the Mountain Brow Trail, particularly in locations where the integration of Bruce side trails into the City's multi-use trail network are being recommended.

Environmental Clubs

The Hamilton Naturalists' Club is actively engaged and has provided suggestions for potential interpretative signage themes to animate the Mountain Brow Trail and to educate trail users about the natural local environment, as well as explore the environmental context in which the trail exists.

Hillfield Strathallan College (HSC)

HSC has expressed great interest in the trail

development as it runs along the frontage of the institutional property. The potential exists to connect the Mountain Brow Trail into the HSC campus.

Mohawk College

As one of the City's largest employers and home to over 30,000 students the College is located along the recommended trail and is a potential stakeholder in its development, particularly for segments of the trail along the frontage of the Fennell Campus.

Hamilton Health Sciences & St. Joseph's Healthcare Hamilton

The recommended route passes through the St. Joseph's Healthcare Hamilton's West 5th Campus and across from the Juravinski



SoBi Station (Source: "Hub 23 Rail Trail at Emerson" by Reaperexpress, licensed under CC BY-SA 4.0)

Hospital and Cancer Centre. These health organizations have vetted the recommended route option but will need to be further consulted on the trail development.

Infrastructure Ontario/Ministry of Infrastructure

The Ministry of Infrastructure's involvement in the implementation of the trail will be inherent as the owner of the lands on which St. Joseph's Healthcare resides, and through which the recommended route is proposed. The recommended route has been reviewed by Infrastructure Ontario, who manages the parcel on behalf of the Ministry of Infrastructure, but further discussions and agreements will be required.

Utilities

At various locations along the recommended route, utilities conflict with the preferred layout of the trail. For future work, coordination will be required to create optimal conditions for both parties.

SoBi Hamilton

The non-profit Bike Share operator in Hamilton, SoBi, has expressed interest to expand its operations to support this project. Since the funding of such an expansion is a challenge, partnerships would be needed. In support of a potential future network expansion, suggested locations to be considered for future bike share stations have been identified on project sheets and is also discussed in Chapter 7.3 - Trail

Amenities.

Private Land Owners

Existing residents and developments having direct interaction with the trail have been key influences on developing the recommended route outlined in this study and will remain as such throughout the trail design and implementation process.

An overview of key project stakeholders overlaid onto the project route is shown in Exhibit 3.

Note that many stakeholders will have more high-level and generalized input and are therefore not shown specifically on the map.

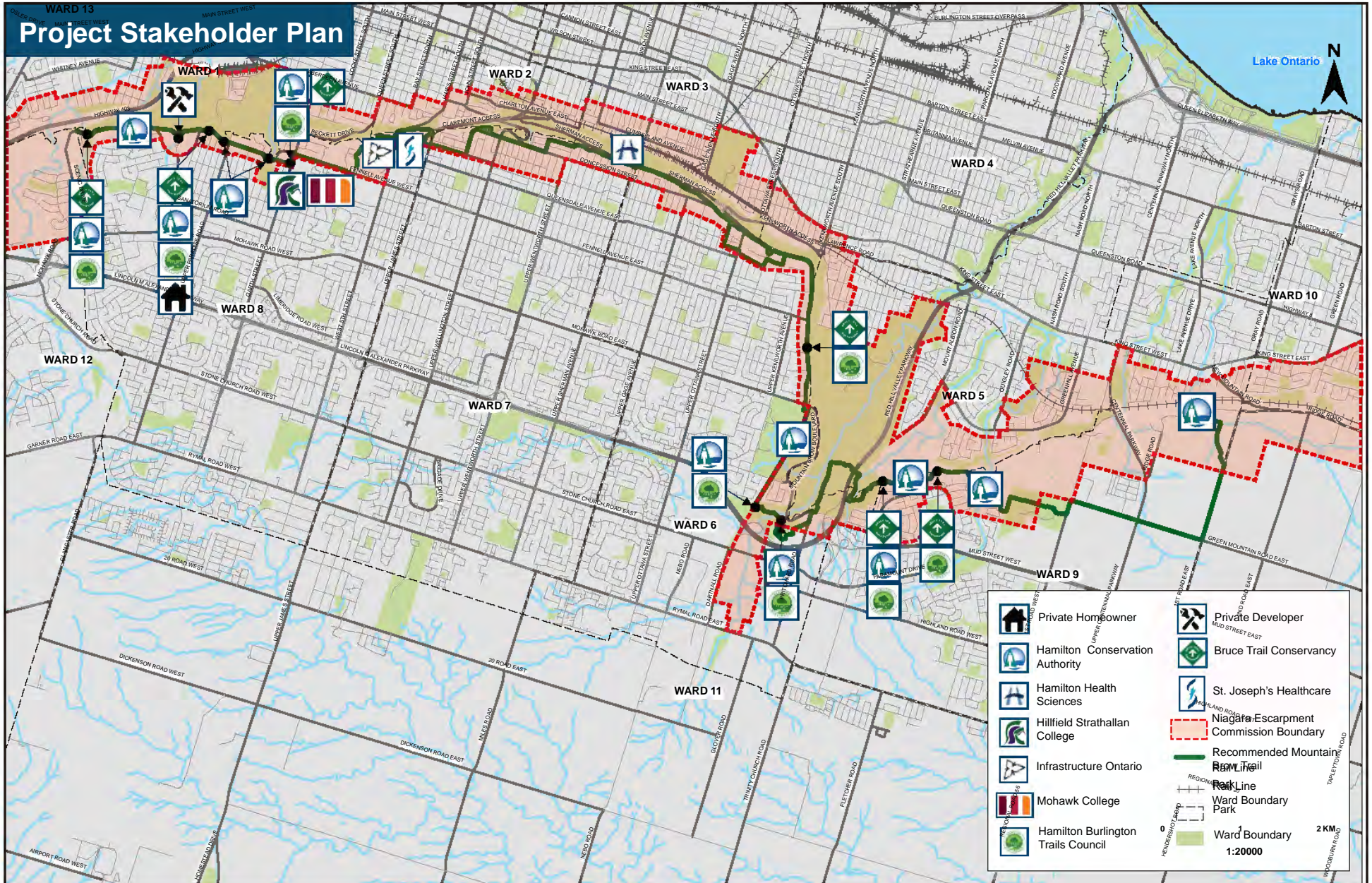
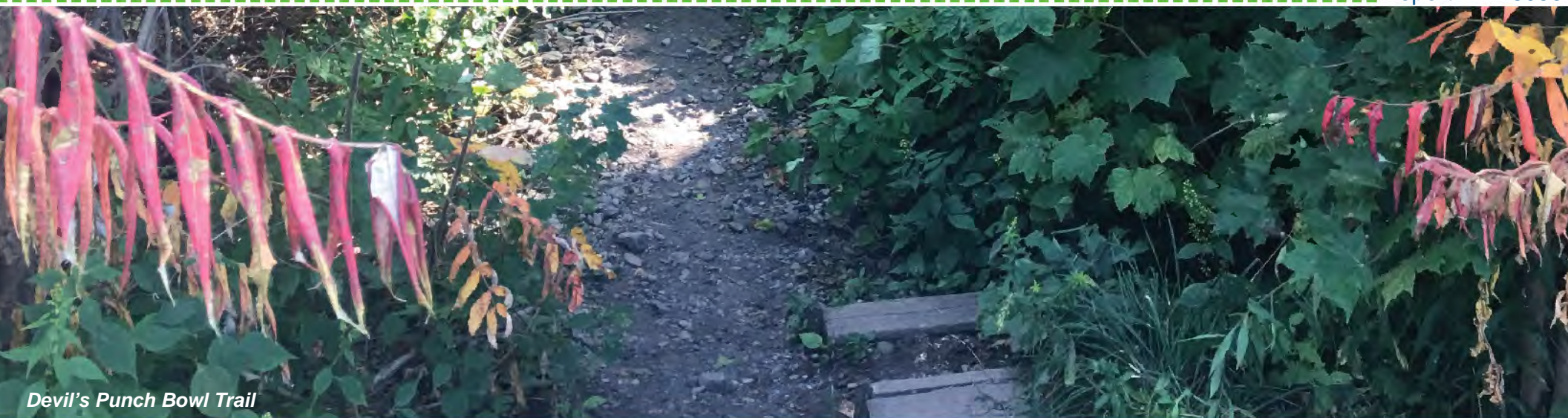


Exhibit 3 - Map showing project stakeholders



Devil's Punch Bowl Trail

3.3 Benefits of Trail Development



Exhibit 4 - Sam Lawrence Park

According to the Ontario Trails Strategy (2005), an increasing number of communities are recognizing that developing quality places is an important factor in where people choose to live, work, and invest. Trails are an ideal opportunity to create such places, as they contribute directly toward healthy lifestyles, social communities, environmental stewardship and economic prosperity.

By promoting active living and alternative modes of transportation, trails attract a range of recreational tourists including cyclists, runners, dog walkers, environmental tourists (bird-watchers, nature-viewers) and other active-minded users; revitalizing businesses, creating jobs, and increasing public revenue.



Heritage Green Sports Park

The strategy also suggests that the development of trails has a positive effect on property values. Living near trails offers pleasing views, quiet streets, convenient recreational opportunities, and often is synonymous with enhanced environmental quality.

Trails help connect people of all ages to the places they live, work and play, and provide an ideal setting for walking, bicycling and other modes of physical activity (P. Troped, 2011). Investments in recreational and active transportation opportunities provide people with affordable transportation options that increase their access to employment, education, recreation, and consumer opportunities for vulnerable populations including seniors, children, Canadians with

lower incomes and people with disabilities. (Bergeron & Cragg, 2009)

By developing the Mountain Brow Trail, the community is investing in a healthy lifestyle that is attractive, economically stable, and environmentally conscious. The trail facility will enhance the user's quality of life and value of space, while the ecological, mental health, recreational and physical health benefits can have positive effects on the local and extended community.



Mountain Brow Trail at Mountain Brow Boulevard

3.4 Opportunities & Constraints

Through the process of identifying potential trail connections, reviewing the feasibility of trail segments, and meeting with the public and stakeholders, various project opportunities and constraints were identified for the Mountain Brow Trail.

Examples of Opportunities

- a) Naturally occurring views & vistas
- b) Wide existing road widths with low speeds
- c) Wide boulevards
- d) Existing parks
- e) Existing parking lots
- f) Natural destination features such as waterfalls
- g) Existing trails

- h) Current or future roadworks and active transportation projects that provide opportunity to include trail in right of way design or provide opportunity for connections

Examples of Constraints

- a) Difficult road crossings such as the Kenilworth Traffic Circle, Scenic Drive & Garth Street and Centennial Parkway
- b) Protection of natural heritage features and existing street trees
- c) Safety concerns near escarpment edge
- d) Spatial constraints due to existing natural features, built features and existing infrastructure
- e) Additional permitting required on regulated land

- f) Private ownership of desirable Brow lands
- g) Commercial areas where trail implementation may require removal of on-street parking
- h) Configuration of some residential areas inhibit implementation of a multi-use trail. Alternate facility types recommended in these areas
- i) Rural road cross-section inhibits implementation of a multi-use trail. Alternate facility types recommended in these areas
- j) Steep grades limit universal accessibility in some areas

The escarpment is a naturally occurring feature that people are instinctively



Claremont Access Spur

attracted to, which creates the potential for the Mountain Brow Trail to be a destination, similar in profile to the Waterfront Trail. Some constraints may be overcome through design solutions, while others have ecological or structural limitations that require deviation from the Escarpment edge. Together, the opportunities and constraints inform the recommended route put forward in this document.



Bruce Trail



4.0 EXISTING INFRASTRUCTURE

In addition to new trail links to be developed as part of the Mountain Brow Trail, there are a number of existing trail pieces that will form a portion of the route. Much of the emphasis of this project is the inventory and documentation of existing assets, both as a way to emphasize the current assets of the corridor, and also to identify areas for upgrade in the formation of the Mountain Brow Trail. This section documents the process used to review existing trail assets, and provides a summary of key findings.



Bruce Trail

4.1 Field Methodology

Existing infrastructure was assessed through a series of site visits to inform the local community context, natural environment and conditions of existing assets. Assessments were generally geared toward determining whether or not a trail facility would be feasible at particular locations along the study route. The investigation was to identify steep slopes, erosion issues, alternate route opportunities, informally established paths, spatial constraints, segments that would require upgrades, segments in which the existing infrastructure will be maintained, proposed facilities based on existing constraints, and existing adjacent features (vistas, bridges, waterfalls, parks, and parking lots and lay-bys). Photographs were taken for documentation and future review.

- August 15th 2017**
A review of the route was conducted to examine high-use areas and/or areas that may pose future design and construction issues, as well as to review opportunities and constraints in detail. The review began at the existing trail at Sanatorium Road & Scenic Drive, followed by locations at the Ministry of Infrastructure owned land (St. Joseph's Hospital), Southam Park, Mountain Park Avenue, Red Hill Valley Recreational Trail under the Red Hill Valley Parkway to Albion Road, Heritage Green Sports Park area and the Devil's Punch Bowl area.
- September 12th 2017**
The Centennial Parkway area was

examined to explore east-to-west trail connection opportunities given the constraint of the speed of travel and slope of Centennial Parkway. Starting at the Battlefield Park car park and walking south towards the escarpment on the east side of Centennial Parkway, areas north and south of the rail corridor were explored, including existing sections of the Bruce Trail.

Following this, the study route was explored from the Ministry of Infrastructure owned land (St. Joseph's Hospital) east along the Claremont Access towards Southam Park, and from Southam Park entering the Bruce Trail adjacent to the Claremont Access towards the Jolley Cut.



View of Claremont Access from Southam Park

- **September 19th 2017**

The review began at the Devil's Punch Bowl car park, exploring the Bruce Trail area north of the viewing area heading west towards Centennial Parkway looking for desirable recreational opportunities. The next segment of study began at the north end of First Road West to explore the Bruce Trail and escarpment terrain that is identified in the Secondary Plan as trail connection. Moving farther west, the team visited Upper King's Forest Park on the west side of Albion Falls to review vistas and feasibility of trail routes through this area.

The team continued west towards the west terminus at Scenic Drive, with periodic stops to explore the existing

conditions, to observe changes in pavement (width and surface treatment), and to observe traffic movements, particularly at Inverness Avenue and Upper James Street.

- **November 17th 2017**

West 5th Street to Concession Street - via the Claremont Access Spur, Claremont Access, Arkledun Ave and Jolley Cut - was presented as an opportunity to connect the trail to the lower city. Concerns were raised about cyclists being able to use the Jolley Cut Pedestrian portion where stairs and a path connect Concession Street and Arkledun Avenue. The site review confirmed an existing bike trough - a channel alongside a stairway to facilitate

walking a bicycle up or down the stairway. This area serves as a potential linkage to Downtown Hamilton and the lower city; however, it is not included in the recommended route.



Exhibit 5 - Canadian Pacific Railway at Devil's Punch Bowl



Viewing platform at Cliffview Park

4.2 Summary of Findings

- The trail presents an opportunity to implement, or at least support, measures recommended by other Hamilton plans such as the Recreational Master Plan, Public Art Master Plan, Cycling Master Plan and the Mountain Brow Vista Study and Management Plan, each of which has identified locations for trail establishment and improvement, public art installations and vista establishment and maintenance. Further review and future report updates will be required for the integration of the trail route with the features of the plans mentioned.
- The Mountain Brow Trail aspires to incorporate branded trail features and amenities (trailheads, fence, benches, lighting, pavement markings), as well as establish and maintain the identity of the trail apart from other trails within the Hamilton trail network. Some portions require simple upgrades to paving, fencing and/or lighting, typically in areas where there is sufficient open space; while others within the road right-of-way (ROW) require more in-depth analysis of the interactions between pedestrians, cyclists and vehicular traffic.
- The recommended trail overlaps with a number of other existing trails such as the Bruce Trail, Escarpment Rail Trail and the Red Hill Valley Trail. While a separate facility with deliberate intersections was preferred, existing conditions would not allow the implementation of the trail within the constraints of typical trail infrastructure. Therefore, the recommended route takes advantage of existing infrastructure that enhances the experience for users who already use these trails, allows safe passage for its users, consolidates maintenance efforts and reduces overall construction costs. This integration will need to be considered in the Design Considerations and Branding initiative (Chapter 7.0) in coordination with the branding of the other trails.
- Existing conditions in some areas present challenges for safe access (e.g. steep slopes falling from the edge, eroding escarpment edge,



Juravinski Drive

traffic patterns). Ecologically sensitive areas will not allow for an accessible, safe multi-use trail without endangering the local environment, and the cost of infrastructure to implement the trail at the Brow fall beyond the typical budgets allotted to trail development. The trail will need to deviate from the Escarpment edge for portions of the trail.

- Multiple facility types will need to be established to maintain a continuous trail along the full length of the corridor. This is necessary in locations that present challenges due to spatial constraints, neighbourhood context and natural heritage features where a full multi-use facility would not be an appropriate application. These facility types were

chosen based on road right-of-way width, road characterization, roadway speed limit and existing infrastructure, and are presented in Chapter 6.2 Facility Types. The specific facility designation is shown in detail in Chapter 6.4 Project Sheets.

- The implementation of the Mountain Brow Trail will require coordination with a number of stakeholders to navigate permitting requirements (e.g. Hamilton Conservation Authority, Niagara Escarpment Commission, City of Hamilton), lease agreements and/or easements (Infrastructure Ontario, Utility Companies), trailheads and trail signage (Trail Organizations, Environmental Clubs and City of Hamilton Internal Departments), and implementation

design and schedule (City of Hamilton Internal Departments). (See also Chapter 3.2 Stakeholder and Partnerships).

- The implementation of the trail will require coordination with stakeholders whose properties or interests lie within the sphere of influence of the recommended route (i.e. the route traverses the property, the property is adjacent to the route, the entity would like to participate in trail design and/or implementation). Such entities include Hillfield Strathallan College, Mohawk College, Hamilton Health Services and St. Joseph's Healthcare, SoBi Hamilton, Hamilton-Burlington Trails Council, Hamilton Naturalists' Club and private Land Owners (See also Chapter 3.2



View of the lower city from Cliffview Park

Stakeholder and Partnerships).

- In select locations, direct routes would require large up front investments, permitting requirements, coordination and ongoing maintenance investments. With reasonable alternative routes available, these large investments currently do not present benefits to justify the cost of the establishment of the Mountain Brow Trail. However, these projects are not without merit and may be explored should a future cost-benefit analysis prompt further investigation into the implementation of these direct routes.

Such projects are discussed as blue sky ideas (Appendix I) for future consideration should the implementation become feasible.

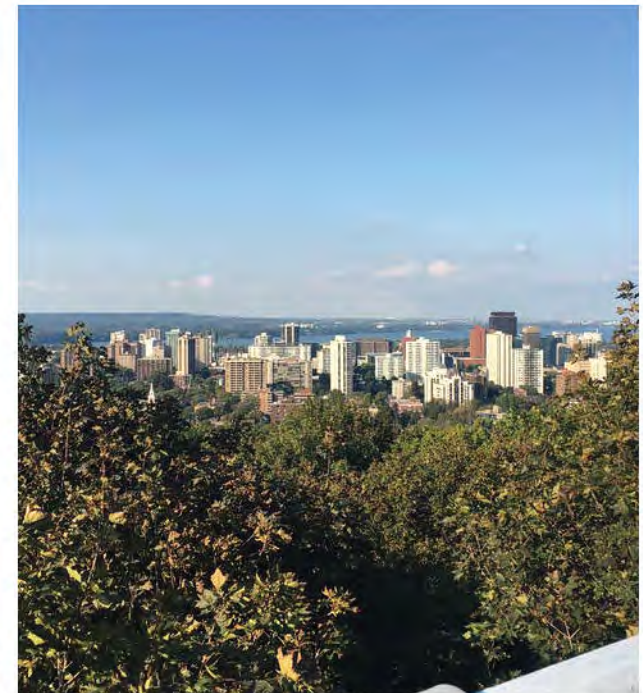


Exhibit 6 - Views of the lower city from the Brow



Mountain Brow Trail at Mountain Brow Boulevard



PIC Meeting Materials

5.0 PUBLIC & STAKEHOLDER ENGAGEMENT

Public & stakeholder engagement was an important element in the development of the Mountain Brow Trail Feasibility Master Plan. With the trail viewed as an opportunity to connect communities and wards across the Mountain, input from residents, council, city staff, other relevant agencies and interested parties about the development of the trail is critical to project success. This section summarizes engagement activities completed as part of the Master Plan process.



PIC #1

5.1 Overview of Public & Stakeholder Engagement Process

Public Information Centre #1

Two rounds of Public Information Centre (PIC) sessions were held in conjunction with the development of this study.

Four PIC sessions were held in round 1; one were scheduled as summarized in Exhibit 7. for each ward that the trail is recommended to traverse. The dates and times for the PICs

<u>Ward 6</u>	<u>Ward 7</u>	<u>Ward 8</u>	<u>Ward 9</u>
Monday, November 13, 2017	Wednesday, November 15, 2017	Tuesday, November 21, 2017	Wednesday, November 22, 2017
6:00pm-8:30pm	6:00pm-8:30pm	7:00pm-9:00pm	6:00pm to 8:30pm
Open House with a presentation from 7:00pm-7:30pm	Open House with a presentation from 7:00pm-7:30pm	Open House with a presentation from 7:30pm-8:00pm	Open House with a presentation from 7:00pm-7:30pm
Sherwood Library Meeting Room, 467 Upper Ottawa St.	Sherwood Library Meeting Room, 467 Upper Ottawa St.	Chedoke Multi-Use Bocce Club, 91 Chedmac Dr,	Winterberry Heights Church, 300 Winterberry Dr,
Hamilton L8T3T3	Hamilton L8T3T3	Hamilton, ON L9C 7R5	Stoney Creek, ON L8J 3Y1

Exhibit 7 - PIC #1 Schedule



Formal presentations at Ward 6 PIC & Ward 8 PIC (PIC #1)



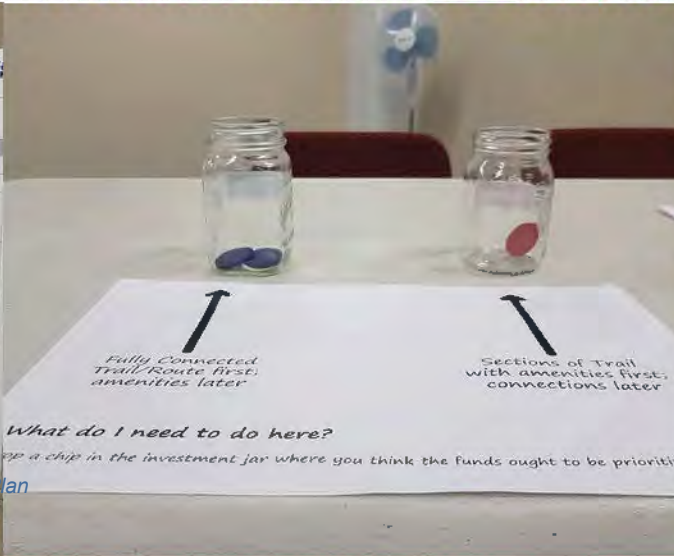
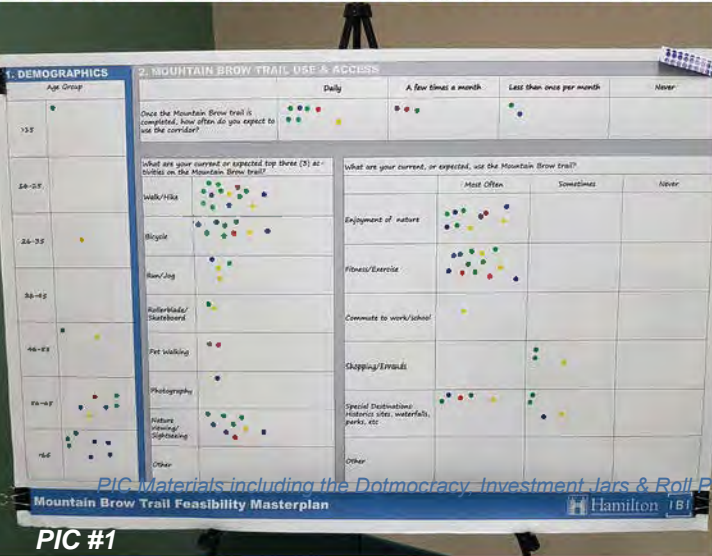
In round 1, the PICs were advertised 1-2 weeks prior to the date of the PIC through the City of Hamilton's website, the City of Hamilton's Twitter Feed and through the local paper – Hamilton Mountain News (Wards, 6, 7 & 8) and Stoney Creek News (Ward 9). The City of Hamilton's Manager of Landscape Architectural Services also did an interview with Cable 14 News on November 30, 2017, providing a summation of the sessions and informing the public that a future session was pending. Residents of properties directly abutting the recommended trail alignment received mailed notices about the PIC. The advertisement and the notice sent to participants is included in Appendix A.

For all of the sessions, City of Hamilton and IBI Group staff (hosts) were on hand to review information and discuss the project with individuals on a one-on-one basis or in small groups (2-3) of participants. This took place as participants entered, in an effort to promote engagement as quickly as possible and one-on-one interactions that could support discussion of individual concerns. Once a quorum of participants were in attendance, the group was assembled for the scheduled presentation, which outlined the objectives of the sessions, the recommended trail route, identified areas of interest (opportunities and constraints), and informed participants about the steps that will follow. For Ward 7 the presentation was withheld - the small number of participants

made it more suitable for one-on-one discussions with facilitators for the length of the session.



Exhibit 8 - City of Hamilton tweet advertising the Mountain Brow Trail Survey



In addition to the formal presentation, participants were guided to one of four stations (any order) to participate in:

1. **Dotmocracy** – a facilitation method that allows participants to respond to questions using sticky ‘dots’ to vote. In a dot matrix questionnaire (Appendix B), consisting of 10 questions, users were asked to place one or more sticky dots in response to individual questions as instructed. This allowed users to show how they currently use the existing trail, how they expect to use the completed trail and improvements they would like to see implemented as part of the completed Mountain Brow Trail. The hosts often walked through the process with participants to clarify or explain any issues that were unclear, or to

foster additional feedback not necessarily requested by the questionnaire.

2. **Investment Jar** – Two (2) mason jars were placed where users were asked to make a choice between potential investment strategies for the completion of the trail using poker chips dropped in the strategy of choice. Users were asked to indicate their preference for either:
 - i. a fully connected trail route experience, with amenities instituted later on; or
 - ii. sections of trail installed with full amenities, leaving connections to be made later.
3. **Roll Out Plan** – the extent of the Mountain Brow Trail was printed out on two (2) large sheets and laid out on a

table, where users were asked to identify – using dots - where they lived, where they usually access the trail, where they park and where they would like additional parking, based on a preset colour system. They were also asked to mark the route they take to their preferred access point(s) using markers.

4. **Alternate Routes** – Route options were presented across seven (7) boards - a context plan, the recommended route (including alternate routes) broken down into five (5) sections, and a comments board. Users were asked to indicate the preference for the recommended alignment or the alternate route in the locations indicated. Comments, suggestions and concerns were



Formal presentation at Ward 6 PIC (PIC #1)

written onto sticky notes and left on the comments board (Appendix B).

Users were also encouraged to use sticky notes to leave additional comments on the roll-out plan.

Attendees were requested to sign in, and though not mandatory, a total of 39 residents were recorded as having attended across the four (4) PICs, with PICs in Ward 6 and 8 being the most well-attended (20 and 14 persons respectively).

For users who were not able to attend any of the consultation events, an online survey (Appendix C), was made available to allow participation from as many residents as possible. Similar to the PICs, the online

survey was advertised through the City of Hamilton's website, Twitter Feed and advertised in local papers. From this process, ninety-two (92) respondents completed the full, or a portion of the Mountain Brow Trail Survey. Some residents also directly emailed responses to the City Project Manager. Results are a composite of the three methods of resident feedback.



Southam Park

5.2 Summary of Public Input

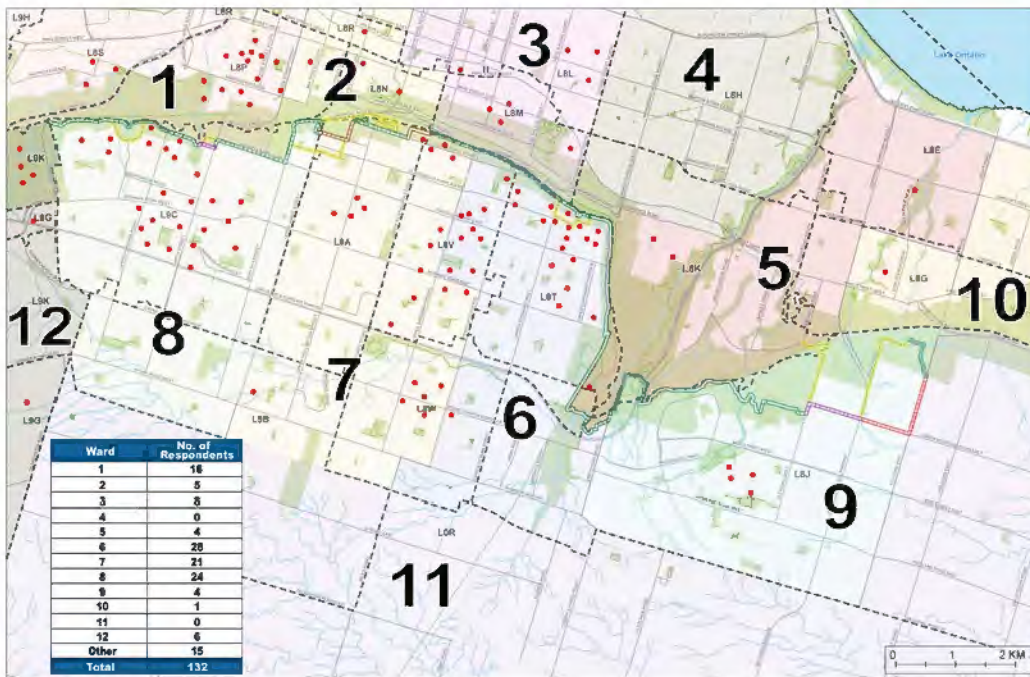


Exhibit 9 - Distribution of respondents

Demographics

Respondents represented a wide cross-section of Hamilton Wards having vested interests in the development of the new trail (Exhibit 9). There was a fairly even spread across age groups, with the exception of those under 15 years old as shown in Exhibit 10.

	Online Survey	PIC Meetings	Total	Total %
<15	0	1	1	1%
16 - 25	11	0	11	10%
26 - 35	23	1	24	21%
36 - 45	19	0	19	17%
46 - 55	19	4	23	20%
56 - 65	12	9	21	18%
65+	8	8	16	14%
Total Responses	92	23	115	100%

Exhibit 10 - Demographics of respondents

Trail Use and Access

Most respondents expect to use the trail daily (25%) or a few times per month (52%), with the top three activities being walking/hiking (28%), bicycling (20%) and nature viewing/sightseeing (15%) (refer to Exhibit 11). The majority of respondents use sections of existing trail along the Brow for fitness/exercise (32%), enjoyment of nature (28%) and for access to special destinations: historic sites, waterfalls, parks, etc. (20%) (Refer to Exhibit 12). Throughout the year, the majority of respondents use the trails in the evenings (39%) on weekdays and in the mornings (34%) or afternoons (31%) on weekends.

The majority of the respondents arrive at the existing trails through walking/running (45%), driving (27%) or biking/rollerblading/skateboarding (18%), spend 30 minutes to 2 hours (62% 30 minutes – 1 hour; 32% 1-2 hours) and travel 1-10 kilometers (67% 1-5 kilometers; 24% 6-10 kilometers).

Overall, respondents were comfortable using the different types of facilities that are recommended along the Mountain Brow Trail, as shown in Exhibit 13

Trail Improvements

Respondents generally prioritized installing a fully connected trail within a shorter timeframe, with amenities added over time

(66%), over installing segments of trail installed within a shorter timeframe, with full amenities installed first, connecting those segments over a longer period of time (34%) (Exhibit 14).

Respondents were asked to indicate their top three (3) wish list improvements for the Mountain Brow Trail (refer to Exhibit 15). The top three responses were scenic views/lookout points (13%), year-round maintenance (12%) and lighting (10%). Other amenities mentioned, but not listed, included free 2-3 hour parking, washrooms, and pedestrian bridges at key locations, such as Kenilworth Access, Upper Centennial Parkway and the Jolley Cut.

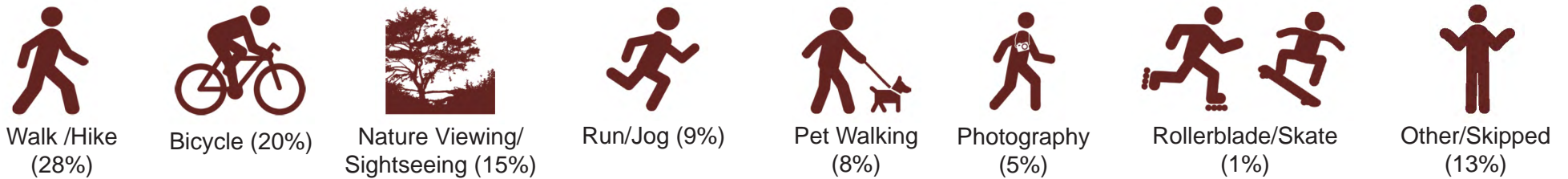


Exhibit 11 - Respondents' top three (3) trail activities

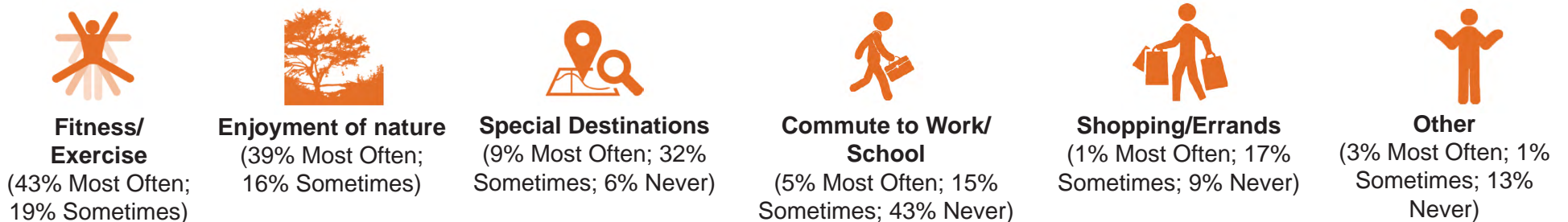
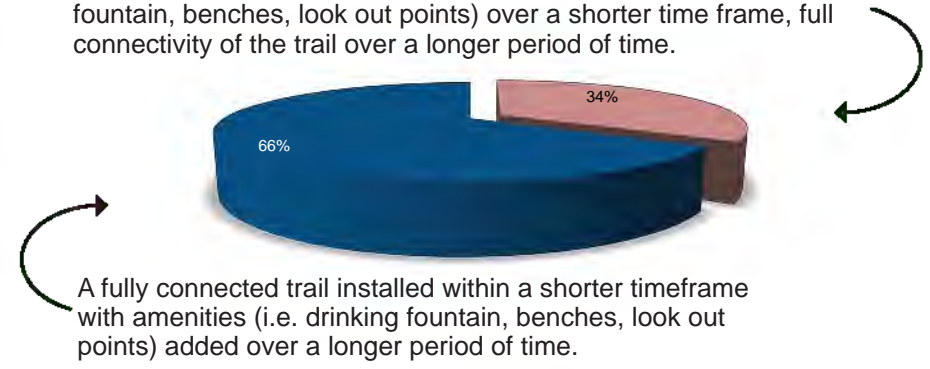


Exhibit 12 - Respondent feedback on trail use



Exhibit 13 - Respondents feedback on level of comfort using various facility types for the Mountain Brow Trail

Segments of the trail installed with full amenities (i.e. drinking fountain, benches, look out points) over a shorter time frame, full connectivity of the trail over a longer period of time.



A fully connected trail installed within a shorter timeframe with amenities (i.e. drinking fountain, benches, look out points) added over a longer period of time.

Exhibit 14 - Respondents' investment preference

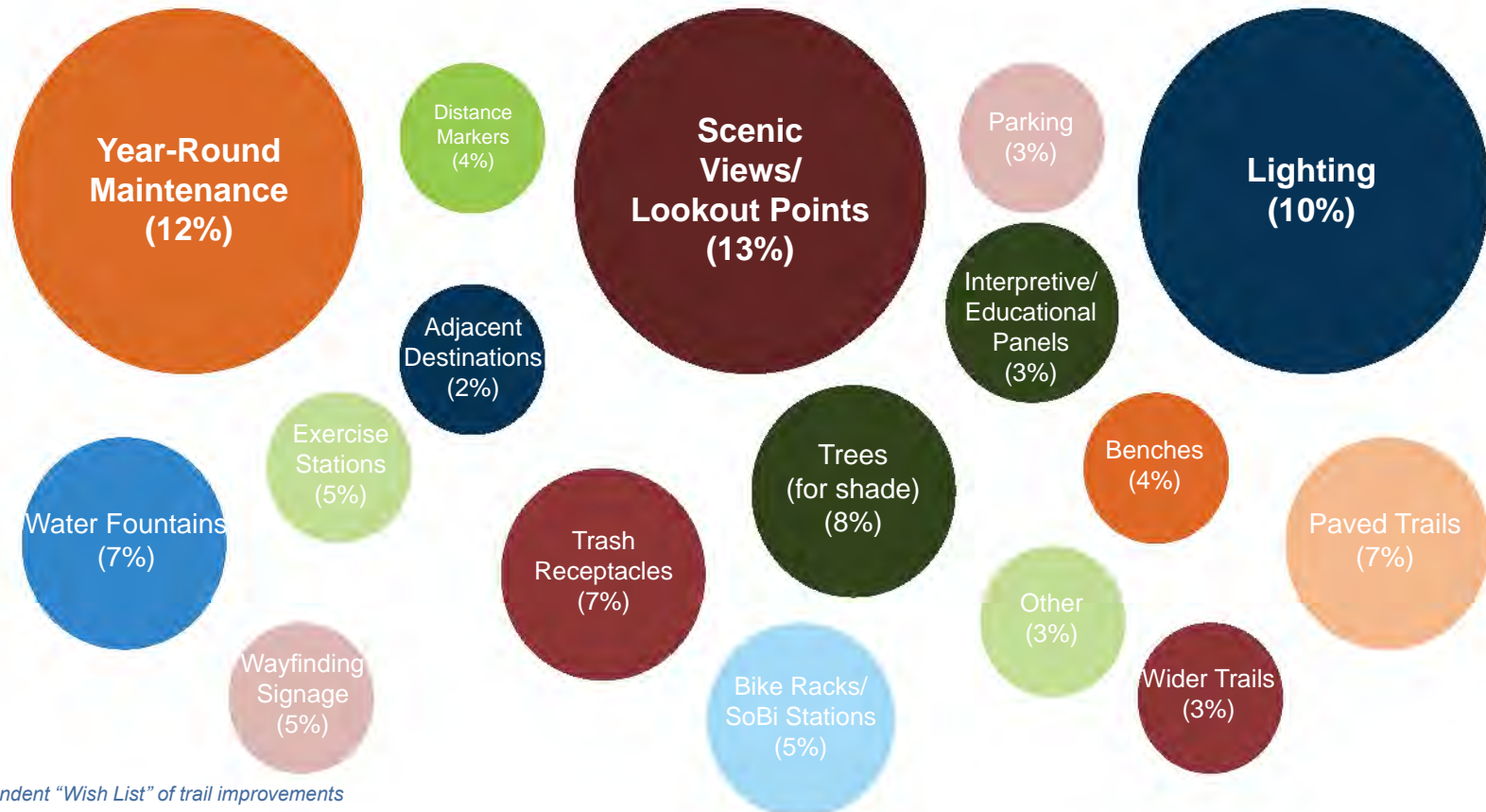
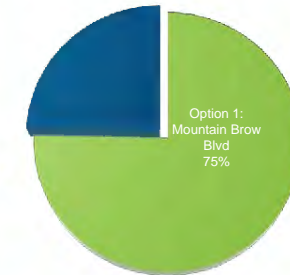


Exhibit 15 - Respondent "Wish List" of trail improvements

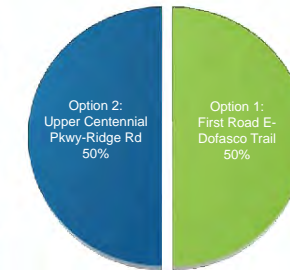
Online respondents were also asked to identify the Ward that should be prioritized for development first or to select a continuous/connected trail that spans all the wards. 62% were in favour of a continuous/connected trail, 18% prioritized the segment in Ward 8, 10% prioritized the segment in Wards 6 & 7, and 2% prioritized the segment in Ward 9.

Exhibits 16-20 show respondents' choices for the recommended route or alternate routes in five (5) locations. Respondents were in favour of the recommended route in two (2) locations – Sanatorium Road (57%) (Exhibit 16), and Mountain Brow Boulevard (75%) (Exhibit 18). Respondents preferred the alternate route of Scenic Drive/Fennell Avenue (76%) to Denlow Avenue/Garth Street (24%) (Exhibit 17). There was no clear preference for either First Road East/Dofasco Trail (50%) versus Upper Centennial Parkway/Ridge Road (50%) (Exhibit 19), or Claremont Drive/Inverness Avenue (47%) versus Claremont Access/Jolley Cut (44%) (Exhibit 20).



Mountain Brow Boulevard vs Upper Ottawa Street-Edgewood Avenue-Oakcrest Drive

Exhibit 18 - Feedback on alternate routes - Mountain Brow Boulevard vs Upper Ottawa Street-Edgewood Avenue-Oakcrest Drive



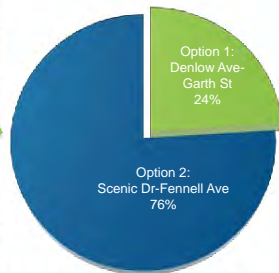
First Road East-Dofasco Trail vs Upper Centennial Parkway-Ridge Road

Exhibit 19 - Feedback on alternate routes - First Road East-Dofasco Trail vs Upper Centennial Parkway-Ridge Road



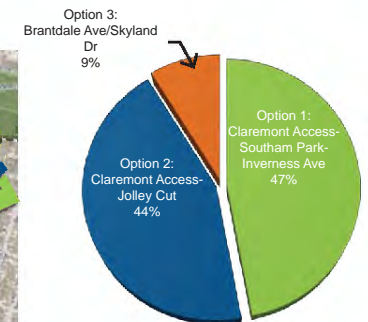
Scenic Drive vs Sanatorium Road

Exhibit 16 - Feedback on alternate routes - Sanatorium Road vs Scenic Drive



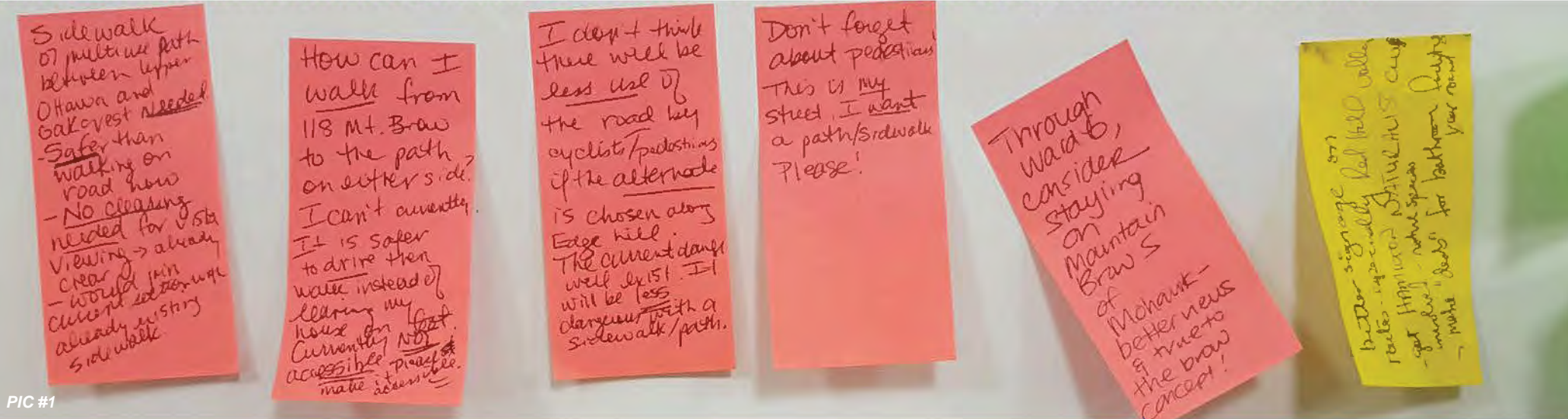
Denlow Avenue-Garth Street vs Scenic Drive-Fennell Avenue

Exhibit 17 - Feedback on alternate routes - Denlow Avenue-Garth Street vs Scenic Drive-Fennell Avenue



Claremont Access-Southam Park-Inverness Avenue vs Claremont Access-Jolley Cut vs Brantdale Ave-Skyland Drive

Exhibit 20 - Feedback on alternate routes - Claremont Access-Southam Park-Inverness Avenue vs Claremont Access-Jolley Cut vs Brantdale Ave-Skyland Drive



PIC #1

General Input

Outside of the formal survey, City of Hamilton & IBI Group staff at the PIC #1 noted specific input from residents.

General feedback received included:

- Support for a trail that emphasizes the Brow’s natural beauty and unique views. This was accompanied by a desire to emphasize trail alternatives that stayed as close to the Brow as possible.
- Desire for the trail to be respectful of the community context, particularly from a privacy and access perspective; on the other hand, many residents expressed the desire for a continuous multi-use trail (rather than varying facility types) in order

to maintain a consistent, high quality ‘trail experience’ along the full corridor.

- Residents expressed desires for the trail route to include high level transformational changes such as grand pedestrian bridges where key vista locations coincide with difficult road crossings; road repurposing to provide Hamilton’s version of the High Line (Manhattan, New York); and, proposing trail routes that remain close to the Brow despite the current state of ownership and/or those within sensitive natural areas.

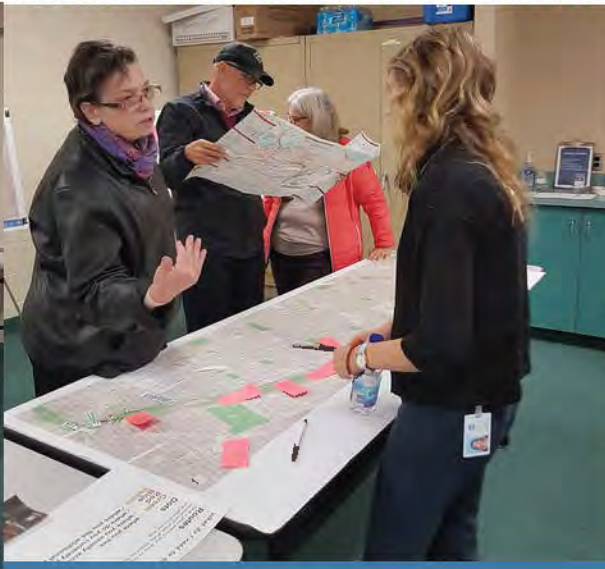
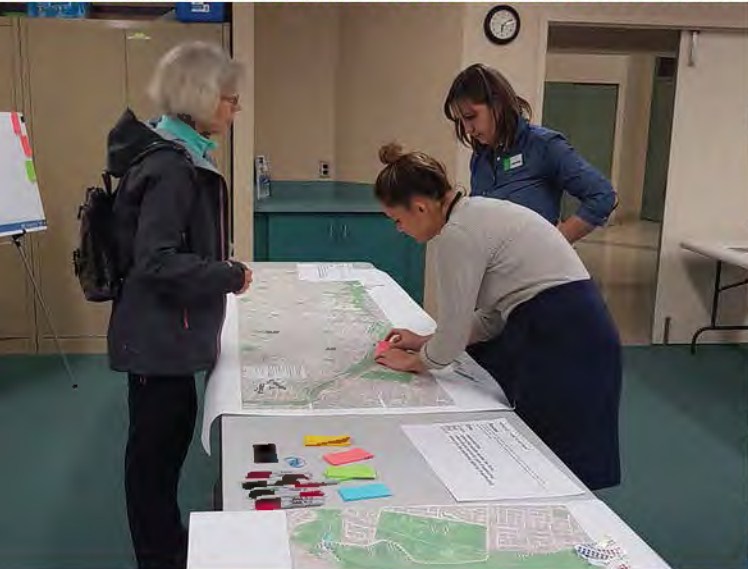
While these ideas have merit from a long term visioning perspective for Hamilton Mountain Brow as a destination, these

ideas are not immediately feasible based on the prioritization criteria used in the study and have not been included in the recommended route.

- Desire to use the trail project to improve safety for pedestrians and cyclists, for example where sidewalks are currently missing.
- Desire for trail etiquette education to address safety concerns about multiple users on a single path.

Public Information Centre #2

Findings from PIC#1 were presented in a subsequent meeting (PIC #2, Exhibit 21), where twenty-four (24) residents were in attendance. Councillors and residents from Wards 6,7 and 8 were represented.



Like PIC #1, participants were engaged one-on-one or in small groups with facilitators to have updates explained and to provide feedback.

A formal presentation was made once a quorum was in attendance. The recommended route was presented and any additional feedback was noted for inclusion in the study. Issues on maintenance, particularly snow removal, were discussed at length. These issues raised by residents are noted on the appropriate Project Sheets (see Chapter 6.4 - Project Sheets)

PIC #2 Schedule

Tuesday, March 27, 2018

6:00pm-8:30pm

Open House with a presentation from
7:00pm-7:30pm

Westmount Recreation Centre, Room 'D',
35 Lynbrook Dr,
Hamilton, ON L9C 2K6

Exhibit 21 - PIC#2 Schedule

Stakeholder Feedback

Throughout the development of the feasibility study, various stakeholders were asked to provide feedback on the recommended route, alternate routes, existing site conditions and how the route may interact with their interests. Exhibit 22 shows an excerpt of the feedback received throughout the process. This information has been instrumental in the selection of the recommended trail and the Implementation Strategy (see Chapter 6.0).

STAKEHOLDER	COMMENT
Niagara Escarpment Commission (NEC)	Green infrastructure is desirable, e.g. porous pavements, use recycled aggregate, erosion control/ prevention, solar lighting.
	Minimize impact of urban growth on Escarpment Environment (pg.35 Niagara Escarpment Plan-NEP).
	Permitted uses are NOT approved uses and must meet ALL development criteria listed in NEP (pg.50), if we are encroaching on Escarpment Lands.
	Development application will need to occur in future if we will be impacting Bruce Trail.
Ministry of Tourism, Culture and Sport (MTCS)	Provided documentation to determine if site has archaeological potential, marine archaeological potential, or potential for built heritage and cultural heritage landscape. This can be flagged at preliminary planning stages if there appears to be great potential.
Hamilton Conservation Authority (HCA)	HCA regulated properties adjacent to proposed route: Paramount Heights area, Felker's Falls, Mount Albion area and Karst (not adjacent to lands but do connect into the East Mountain Trail Loop), portions of the East Mountain Trail Loop, Iroquois Heights Conservation Area (at west terminus).
Hamilton Conservation Authority (HCA) (cont'd)	Idea to set up counters in key areas.
	Would like to see vistas enhanced ('City of Vistas'), but also ensure safety close to edge of escarpment to prevent user/ nature conflict.
	HCA manages the Dofasco 2000 trail and has an agreement with Dofasco that would need to be considered if linking to this trail.
	The property owned by HCA at the corner of First Road East and Green Mountain Road is under review. It is one of many sites being considered for a water retention area and is undergoing an Environmental Review. HCA should be contacted when trail is being considered near this land.
Bruce Trail Conservancy/ Iroquoia Bruce Trail Club	Cyclist speed is an issue and may be handled by using side by side gates. Also noted that having points of interest along the trail would be beneficial.
	Show other trails on the map and their connections (e.g. Bruce Trail)
	Concerns regarding speeding cyclists on the Jolley Cut and Red Hill Valley, suggest installing dodgeways every 300 feet to slow down cyclists coming down hills.
	Consider opportunity to have bridges over Red Hill Valley Parkway and over Upper Centennial Parkway from Victory Ridge subdivision to a connection on Ridge Road
	Planning to blaze a trail along Ridge Road from the Devil's Punch Bowl parking lot and heading west to a side access on the north side of Ridge Road that connects to the main trail.
Hillfield Strathallan College (HSC)	Of paramount concern is the impact on mountain commuter traffic routes and crossings. Of more direct concern for HSC is Garth-Fennell/Beckett Drive and/or Garth/Denlow intersections. Any institution of a specific pedestrian or 'preferred signal' mechanism at these respective intersections, particularly at peak traffic times, will further exacerbate the current traffic situation.

Exhibit 22 - Summary of Stakeholder Feedback

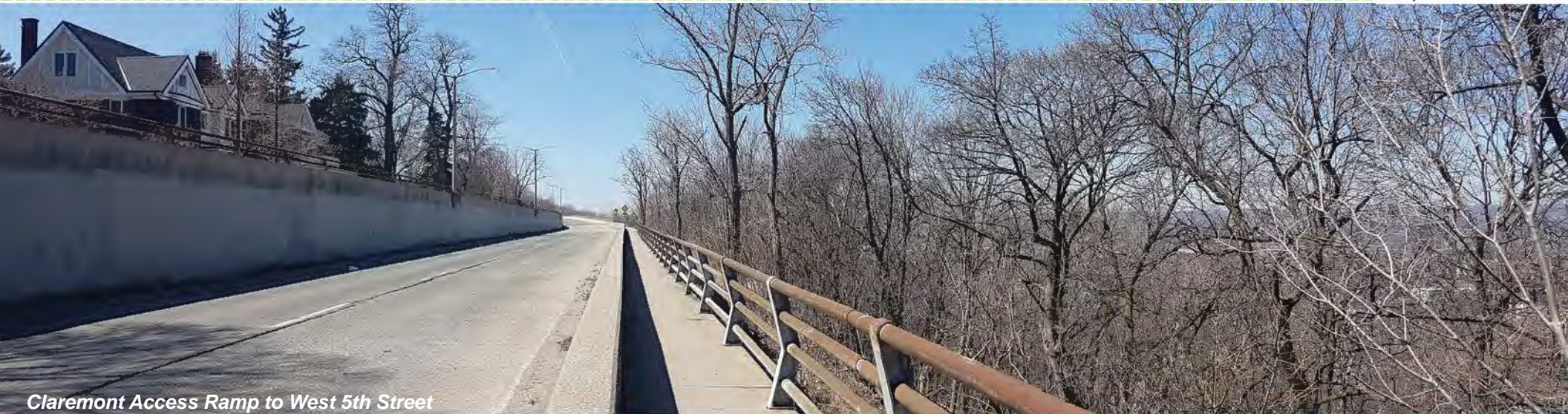
STAKEHOLDER	COMMENT
Hamilton Naturalist Club (HNC)	<p>Recommends installing interpretive signs in key areas, particularly about bird migration along the escarpment, Hamilton area wildlife and the Carolinian Region in general. Place signage at lower levels for youth.</p> <p>Include interpretive signage with a couple of themes (escarpment geology and ecology; ribbon of green; head of lake; bird migration; encouraging stewardship; mental/ physical/ spiritual benefits).</p>
Infrastructure Ontario (IO)	The right-of-way that is within the hospital lands is owned by Ministry of Infrastructure (MOI) and managed by IO. IO has authority to grant an easement on the land but will require permission from St. Joseph's Healthcare Hamilton who leases the land. IO and St. Joseph's are open to discuss the potential of a proposed route and potential agreements/ easements.
City of Hamilton	
Landscape Architectural Services (LAS)	<p>Confirm if visual impact assessment will be required from NEC for locations that are to have lights.</p> <p>Include and tie into vista's (where applicable) indicated on 'Mountain Brow Vista Study and Management Plan' dated September 2016.</p>
Planning and Economic Development	<p>Explore connection trail to the Elfrida Growth Area and include Growth Area on Map.</p> <p>Chedoke Radial Trail to Fennell Avenue West: Natural Heritage Planning staff is concerned with the portion of the route that has been proposed adjacent to Scenic Drive and Sanatorium Road. This trail would involve the crossing of the watercourse and would be located within Core Areas (Significant Woodland and Hamilton Escarpment Environmentally Significant Area).</p> <p>A connection has been proposed from Glover Mountain Road to Greenhill Avenue. The trail would be within Core Areas (Significant Woodland and Felker's Falls Escarpment Environmentally Significant Area (ESA). An Environmental Impact Statement (EIS) would need to be completed if a new trail is proposed within this area.</p>
Forestry and Horticulture	<p>Include and tie into vistas indicated on Mountain Brow Vista Study and Management Plan (September 2016).</p> <p>Ensure 'Public tree Bylaw', 15-125 and the Tree Protection and Sustainability Policy is adhered to and the recommendations are in keeping with the overall mandate of the bylaw and policy to preserve and increase overall tree canopy.</p> <p>Any resulting development/ construction that may impact a public tree are to be provided to Forestry and Horticulture for comment.</p>
Parks & Operations	<p>There have been requests to add lighting to Mountain Brow Park. Future lighting will need to be explored.</p> <p>The fencing has been partially replaced from Mountain Brow West Park to Mountain Brow Drive park. Due to slope failure etc, the fence will need to be installed further from the Brow and will impact the placement of a future trail. Coordination will need to occur and options will need to be identified for pinch points.</p>
Alternative Transportation	Difficult crossings/ grade highlighted on Bikeways Map: Scenic Drive at Garth Street; Mountain Brow Boulevard at Oakcrest Drive; steep section at Albion Falls.



View of the lower city from the Jolley Cut

6.0 IMPLEMENTATION STRATEGY

The Mountain Brow Trail is currently in different stages of development and requires varying levels of effort, resources and capital investment. Portions of the trail are complete (such as the portion of Ward 6, East Mountain Trail Loop and Red Hill Valley) and require only branding be applied. The completed portion in Ward 6 has become the aesthetic precedent for the length of the trail. With this in mind, this document section provides a breakdown of the recommended trail in terms of the existing infrastructure, and levels of effort, resources and capital investment required to establish each indicated portion of the trail as a part of the larger Mountain Brow Trail System.



Claremont Access Ramp to West 5th Street

6.1 Recommended Mountain Brow Trail Route

The recommended route for the Mountain Brow Trail is a result of detailed analysis of the length of the preferred trail route as well as an exploration of alternatives, consultation with various stakeholders and public engagement. While the full implementation of the length of the trail is preferred, implementation through phasing allows for (i) the City to gradually acquire the appropriate capital inputs to fund the effort; (ii) inter-agency coordination on projects that overlap or are adjacent; (iii) the prioritization of the various portions of the recommended trail route according to the existing conditions and required input; and (iv) ensures a cohesive trail design despite multiple project phases.

The recommended route for the trail is presented in the Preferred Route Map (Exhibit 23), and further detailed in the enlarged map (Exhibit 24, page adjacent).

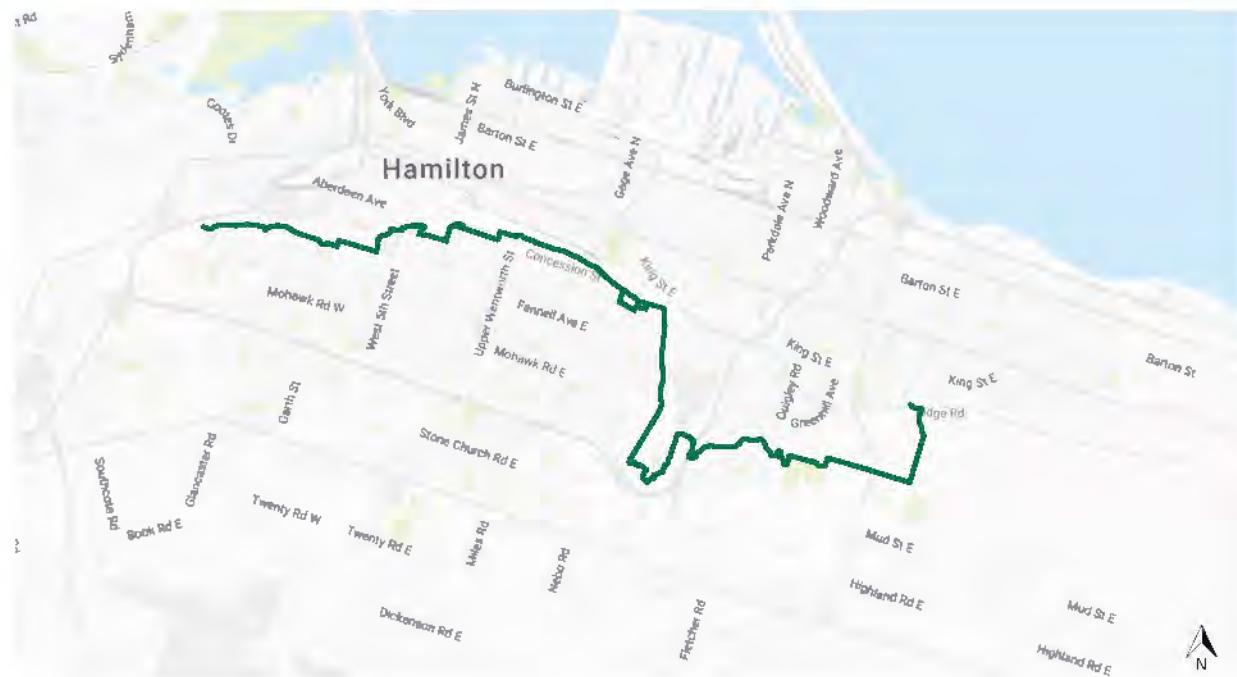


Exhibit 23 - Preferred Route Map (Base Map Source: Snazzy Maps, licensed by CC0 1.0)

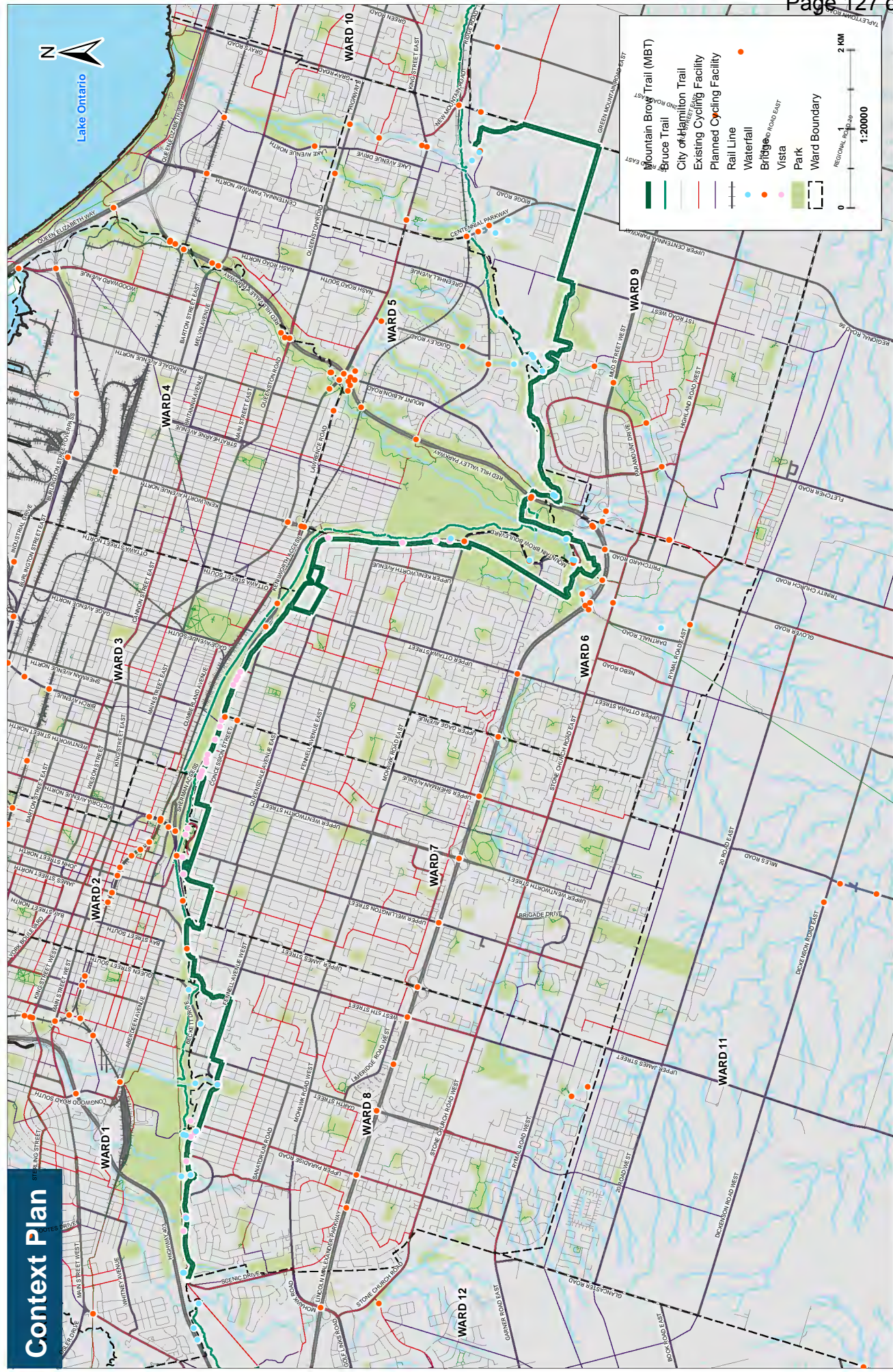


Exhibit 24 - Context Plan



View of the lower city from the Jolley Cut

6.2 Facility Types

Multi-Use Path vs. Multi-Use Trail

Within this report, differentiation is made between multi-use **paths** and multi-use **trails**. **Paths** refer to facilities adjacent to roadways. These facilities are often asphalt or concrete surfaces. **Trails** are off-road facilities usually located within parks, forests and open spaces or outside of a roadway right-of-way. The Mountain Brow Trail will aim for an asphalt surface; however, a review of surfacing will need to be completed for environmentally sensitive areas.

One of the most important elements in fulfilling the mandate of the Mountain Brow Trail is providing a continuous, high quality facility. Although a multi-use trail is the preferred facility type along the Mountain Brow Trail, certain sections of the route cannot accommodate an off-road facility, so a total of four primary facility types are anticipated as part of the full route.

Based on the current trail concept, the estimated breakdown of the trail will be: 74% multi-use path/trail, 13% sidewalk and bicycle lane, 7% sidewalk and signed cycling route, and 6% paved shoulder. An illustration and description of each of these facility types is provided in Exhibit 25.

In identifying the facility type for segments located along or within the boulevard of a

roadway, the facility selection considered Ontario's Traffic Manual (OTM) Book 18 considerations, including the volume and speeds of motor vehicle traffic. A memo summarizing the application of OTM Book 18's pre-selection nomograph to road segments with recommended cycling facilities is included in Appendix F.



View of the lower city from the Claremont Access ramp



Multi-Use Trail/Path (Preferred Treatment)

Multi-use trails/paths are located off-road, either in the boulevard or through green space. Both pedestrians and cyclists can use these facilities.



Bike Lane & Sidewalk

Along some sections of the route, the facility will consist of a sidewalk for pedestrians and an on-road bike lane for cyclists. Bike lanes are travel lanes dedicated exclusively for use by cyclists through a combination of pavement markings and signage.



Sidewalk & Signed Cycling Route

In quiet residential sections of the route, the facility will consist of a standard sidewalk for pedestrians and a signed route for cyclists. Along low volume and low speed roadways, signed bicycle routes can provide comfortable neighbourhood connections.



Paved Shoulder

Where the route passes through rural sections of the City, a paved shoulder may be used to make these connections. Along roads with a rural cross-section, a paved shoulder provides space for use by both pedestrians and cyclists.



Red Hill Trail

6.3 Considerations for Trail Prioritization

The prioritization of each trail segment depends on the key criteria noted below:

Potential Trail Impact

In order to assess the potential impact of a trail link, a unique GIS-based prioritization tool was developed. This tool examined the following five criteria to come up with an estimated trail impact score, ranging from 0 (low impact) to 100 (high impact):

Connectivity – One of the desired purposes of the trail is to help to connect to existing and planned pieces of cycling and trail infrastructure in order to create a fulsome network that encourages trail use for recreation and transportation purposes. This factor evaluates the number and type of network connections that are made by a

particular link, as well as identifies whether it is a new or upgraded existing link.

Key Destinations – At the most basic level, trail access is about providing recreational opportunities, including access to important destinations such as parks, schools, recreation centres, vistas, waterfalls etc. This analysis evaluates the number & types of destinations served by a particular trail link.

Safety – Safety remains an important consideration in the development of a practical and user friendly recreational experience. The state of existing infrastructure, and areas with aging infrastructure in particular, should help determine trail prioritization. Also, whether the trail connects an existing ‘gap’ in a

sidewalk network or mitigates inaccessible slopes should be considered prioritization opportunities.

Population & Employment Density – Population and employment density can support additional active transportation trips. Areas of higher population and employment density often have built form and land use patterns that support active transportation. In addition, the simple matter of proximity of people to the trail is likely related to higher usage.

Potential Demand - Most residents indicated that their use of the trail would be for trips between 1 and 5 km. As a result, this analysis will consider areas where there is currently a higher rate of non-commute walking and cycling trips, based



View of the lower city from Devil's Punch Bowl

on data available through the Transportation Tomorrow Survey.

Full details of the Trail Impact Score methodology are presented in Appendix G, the result of each criteria is shown in Appendix H, and the summary of trail impact scores is shown in Exhibit 26.

Project Cost

The anticipated project cost and the anticipated funding source is a key factor in the prioritization of various trail links. For example, some projects are identified as part of road reconstruction project, and are already flagged for life-cycle replacement costs in the 10-year budget forecast (refer to Coordination with other City Initiatives/ On-going Development below). In other

instances, the trail will be a standalone project and has not yet been identified in a City section's 10-year budget portfolio and as such will need to be planned through the capital budget annual review process. (see Chapter 9.0 – High Level Costing By Initiative)

Construction Complexity, Land Ownership & Permitting Needs

In addition to project cost, sections of trail that require construction or upgrades directly adjacent to the escarpment edge may present constructibility challenges and require additional permitting, cost, risk mitigation and contingencies, which requires additional time built into the project delivery timelines. In some instances, the Mountain

Brow Trail link is recommended along property that is not currently owned by the City of Hamilton, in which case agreements such as easements or transfers will require negotiation.

Coordination with other City Initiatives / On-going Development

Many of the trail segments identified along the Mountain Brow Trail will overlap with other initiatives, whether it is an on-road cycling link that is identified in the Cycling Master Plan, or a trail that will be constructed as part of a capital roads project. In these instances, the anticipated timelines will drive the timing and priority of the trail segments. Similarly, some portions of the trail are tied to future development, and will be implemented



Red Hill Valley Parkway Underpass

as development occurs to maximize cost savings and build in conjunction with anticipated usage.

Network Build-out & Connectivity

As the trail is phased in over time, it is desirable to balance a number of competing considerations:

- It is desirable to build contiguous sections of trail to expand the reach of the existing segments.
- It is desirable to build portions of the trail across each ward in order to build support and momentum for the trail across the Mountain.
- It is desirable to bundle sections of project delivery for cost savings in construction.

These factors together contributed to the grouping of trail projects into the following project horizons:

- Short-term (0-5 years) - 2019-2023
- Medium-Term (5-10 years) - 2024-2028
- Long-Term (10-20years) - 2029-2038
- Ultimate (Beyond 20 years) - 2039+

Exhibit 27 shows the breakdown of the projects by project segment and the anticipated project phasing.

As part of the project phasing, the fifty-one (51) individual trail segments were organized into 26 manageable projects for economies of scale, to expedite delivery and reduce construction impacts to local communities.

Exhibit 28 more clearly illustrates the project

groupings and facility types along the trail (see also Chapter 6.4 - Project Sheets).

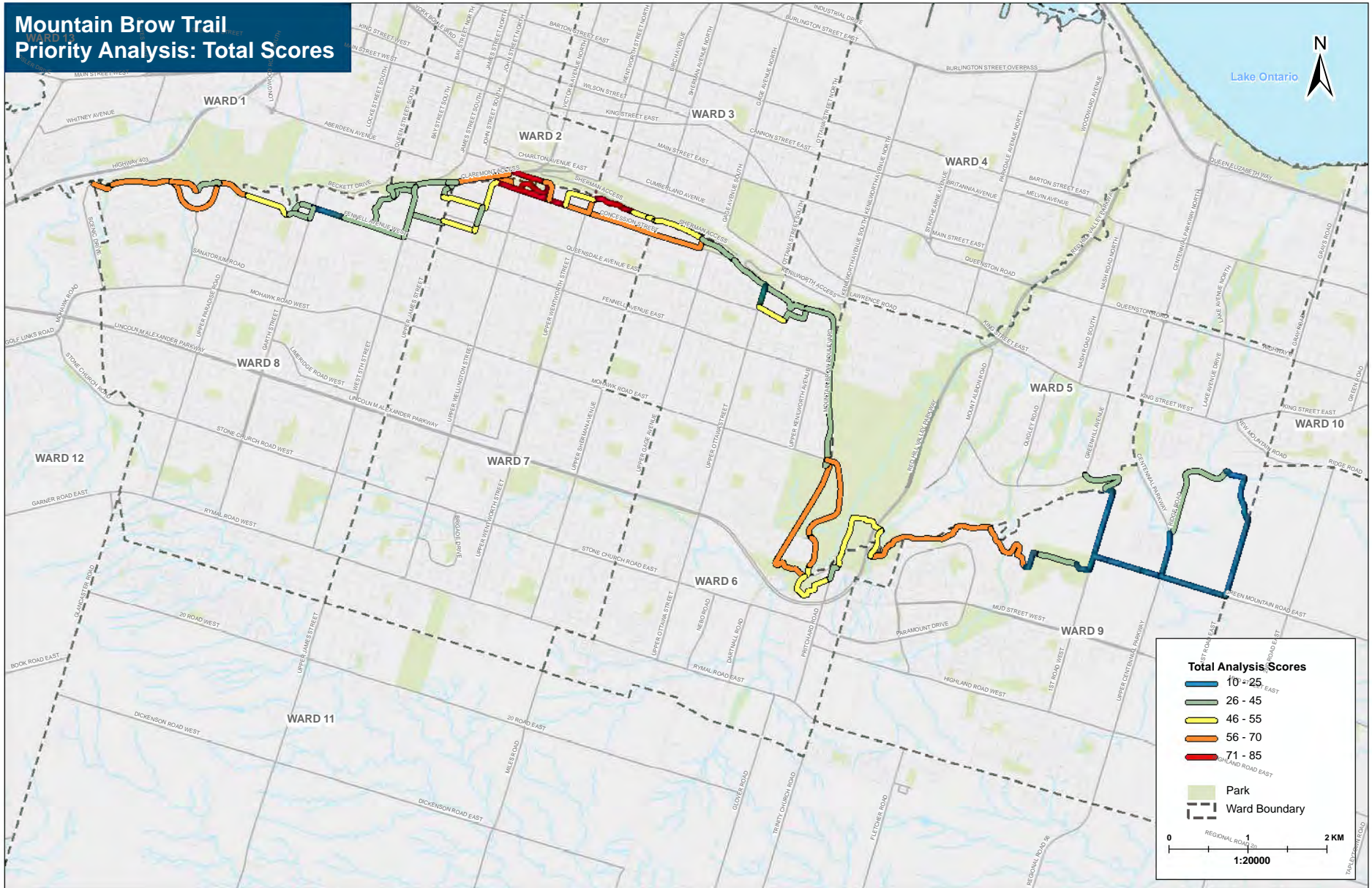


Exhibit 26- Trail Impact Score - refer also to Appendix G

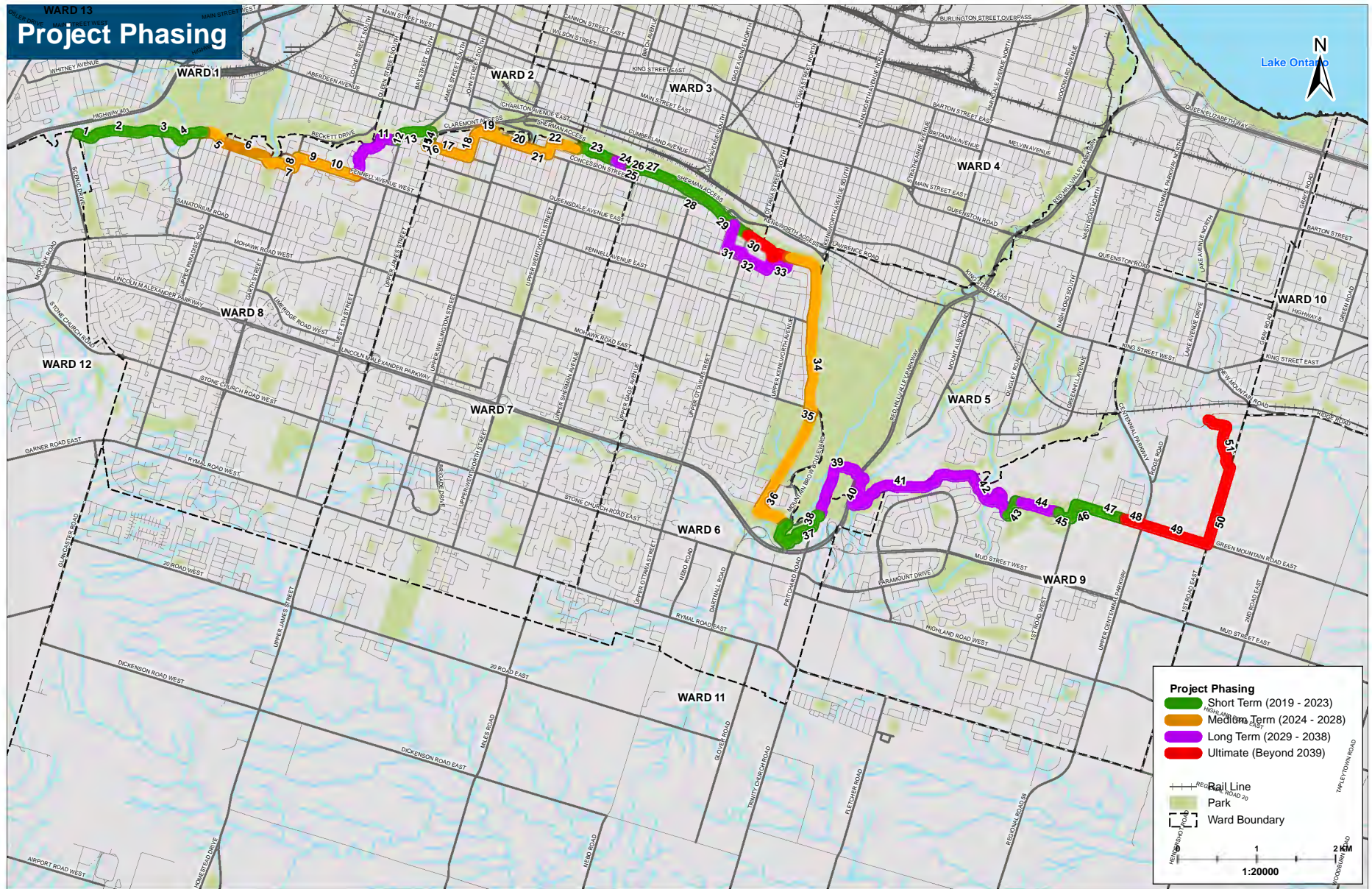


Exhibit 27 - Recommended Project Phasing

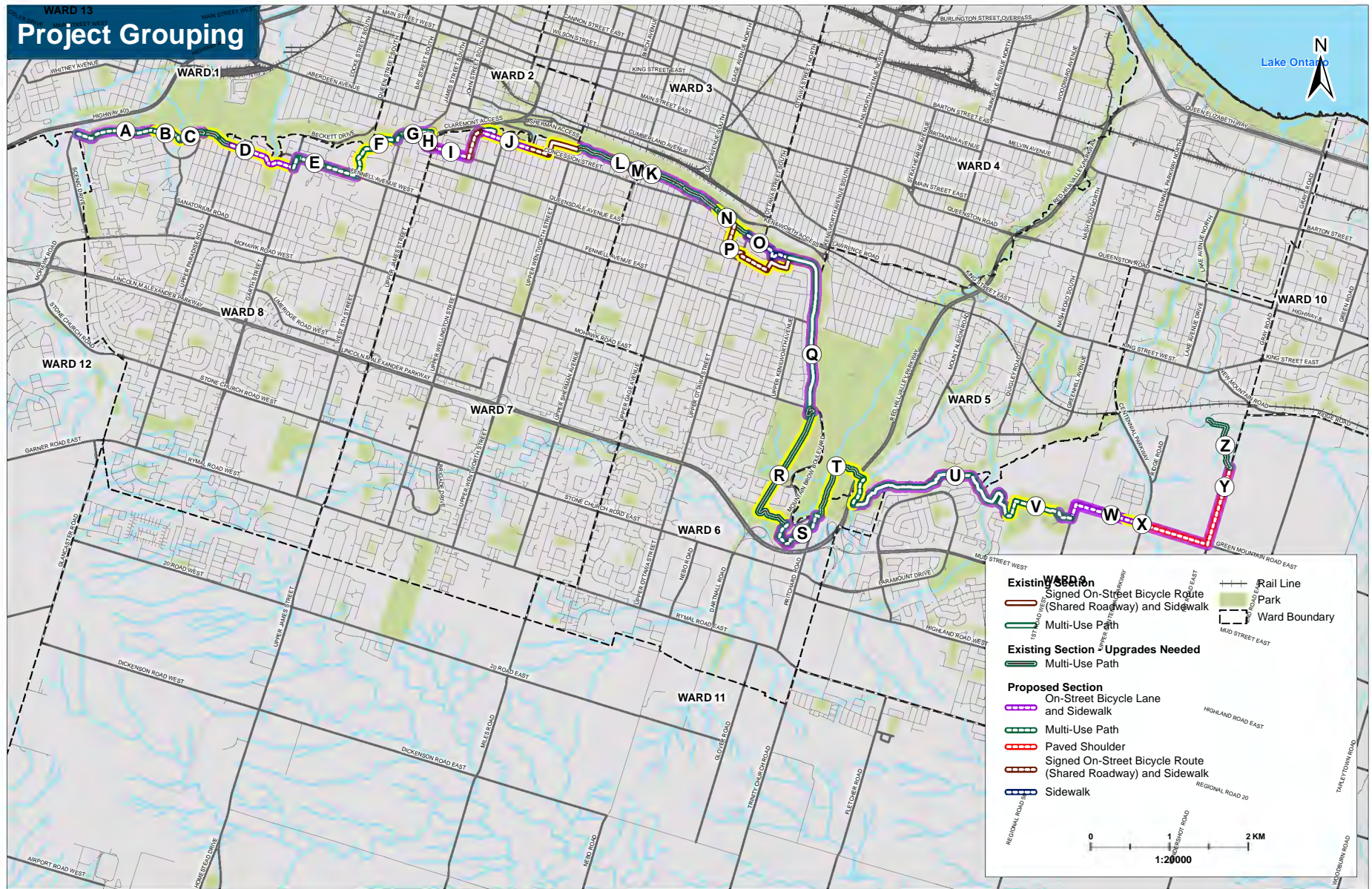
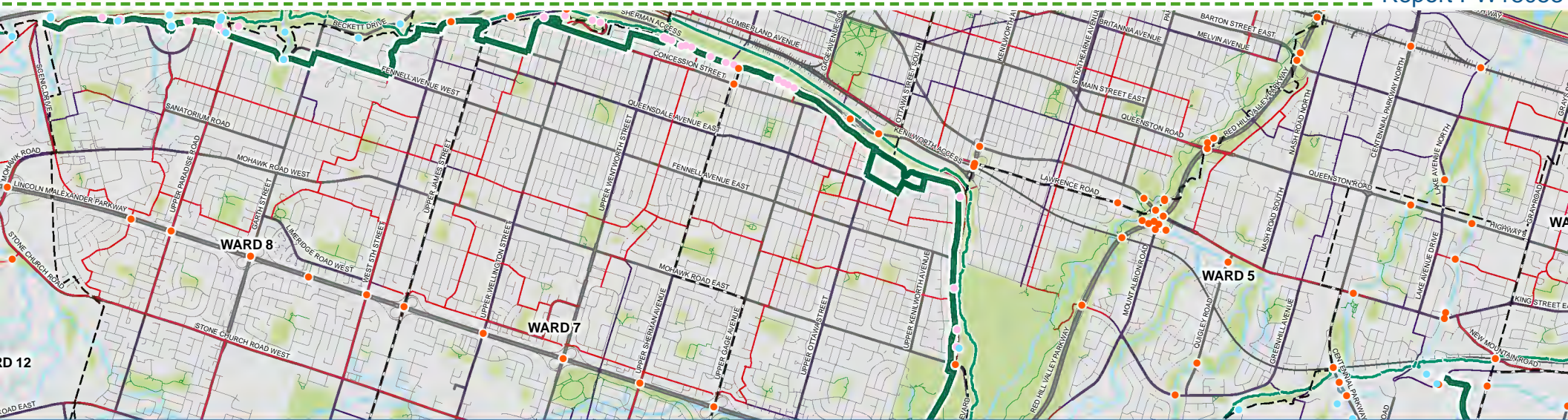


Exhibit 28 - Recommended Project Grouping Map



6.4 Project Sheets

The following sections present detailed information for each section of the Mountain Brow Trail.

The Mountain Brow Trail has been divided into fifty-one (51) segments, and summarized in the following project sheets.

Each project sheet is spread across four pages and provides a variety of information related to that portion of the trail.

This information includes:

General Information

Project Section Number & Project Section Title

– refers to a defined portion of the trail. Project Section Numbers increase as the Trail moves from West to East as shown in the Project Section Reference Map (Exhibit 29). Project

Section Titles describe the highlighted sections. The information is further clarified in the Section Map and Contextual Reference Map (See Project Sheet Key, Exhibit 30)

Section Facility Status – graphically shows the type of facility proposed and the condition it is in.

Cross Section – shows the relationship between the existing facilities and proposed facilities. Sections are not drawn to scale and are graphic representations only

Section Ward – the ward in which the highlighted segment is located. The Mountain Brow Trail will run through wards 6-9

Related Projects - Project segments in

the same project group with the highlighted project sheet

Context

Average Annual Daily Traffic (AADT)

Traffic volume statistics compiled and dissected according to the project portions. This data forms part of High-Level Review of Cycling Facility Selection (Appendix F). As noted in the review, some data has been assumed based on land use context and road classification

Speed (km/h)

– Posted speed limits along streets within the municipal boundaries of the City of Hamilton. Speed limit assumptions are taken (and noted) where signs have not been erected. According to City of Hamilton Speed Limit Policy (October 2001):

- urban arterials will have a typical speed limit of 60km/h if the road has a sidewalk on at least one side of the road
- collector roads and local roads (other roads) will have typical speed limits of 50km/hr. 40km/h will be considered where conditions warrant such measures
- rural roads that are contiguous to schools will have maximum speed limits 20km/h lower than the speed limit on adjacent sections. The lowest maximum speed limit is 40km/h
- school areas (urban arterials and rural roads) will have lower posted speed limits based on a variety of factors (this may be full time or during defined school hours)

Number of Lanes – details the number of vehicular travel lanes along the indicated portion of the roadway. This detail is not applicable to portions of the trail that are not adjacent to an existing roadway, i.e. portions of the trail that are off-road, or within parks or open spaces.

Right-of-Way (R.O.W.) Width – the maximum width, in metres, as defined in the Urban Hamilton and Rural Hamilton Official Plans. Width is determined based on the Road Characterization.

Road Characterization – Type of road as determined by the City of Hamilton Functional Road Classification system - Major Arterial, Minor Arterial, Collector

and Local Roads. Where the classification system is not applicable, an alternate characterization is used (Private Local Roads and Trails) where appropriate.

Project Location – The proposed or existing location of the highlighted portion of the trail, as follows:

- Open Space (typically, other agencies will also have jurisdiction over this land)
- Municipal Park
- City Right of Way
- Private Land

Destination – Locations along, or adjacent to (up to 2km), the specified portion of the trail that participants use, including parking facilities (lots or lay-bys), vistas, parks, and landmarks

Cultural Areas of Interest – Identification of Cultural Heritage Designations, Buildings, and/or Landmarks of special interest.

Facilities

Existing Facility - The type of facility that exists along the highlighted segment

Proposed Facility – Chapter 6.2 defines the types of facilities proposed to be implemented along the Mountain Brow Trail. The facilities types are

- Multi-Use Paths (MUP): a 3.0m wide (typical) path; usually adjacent to, or within, a roadway right-of-way
- Multi-Use Trail (MUT): a 3.0 wide, off-road facility usually located within parks,

forests and open spaces or outside of a roadway right-of-way

- Bike Lanes and Sidewalk
- Shared Routes and Sidewalk
- Paved Shoulder

Existing Facility Width – the width of the existing facility for the extent of the segment shown

Proposed Facility Width – the width of the proposed facility for the extent of the segment shown

Segment Length – the length of the proposed facility highlighted on the specific project sheet

Average Slope – the general incline of the segment highlighted. This value is useful in identifying accessibility concerns

Facility Location - location of trail in relation to the adjacent roadway.

- North side of roadway
- South side of roadway
- East side of roadway
- West side of roadway
- Not applicable in all cases

Status – some portions of the Mountain Brow Trail currently exist or are planned. The status values are:

- Planned Future: the trail does not exist, but the segment has been identified as a project in the capital budget forecast
- Proposed Future: the trail does not exist and a plan and/or funds are required to

design and construct this portion of the trail.

- Upgrades needed: the trail exists but is in need of repair to the surface type, trail width or to address accessibility concerns
- Existing: the trails exists and requires no immediate maintenance or repairs. This portion only requires the implementation of wayfinding and Mountain Brow Trail (MBT) branded signage. Any proposed trail portions will link to these existing segments

Alternate Route – whether or not a potential secondary option is available for users to access, usually for accessibility reasons, after which users may return to the formal Mountain Brow Trail route.

Trail Impact Score – score generated from a matrix using the criteria explained in the Trail Link Priority Analysis (See Appendix G Trail Priority Analysis). The highest scores indicate that the highlighted segment should take precedence in the design and construction of the trail within the Project Horizon indicated.

Signage – recommendations for signage (wayfinding, branding, or trailhead) to foster a unique experience along the Mountain Brow Trail.

Lighting – highlights existing street lighting infrastructure. Recommendations for additional infrastructure or study, as needed,

are included.

Site Furnishings – recommendations for site furniture, including benches, bike racks, and other amenities.

Implementation

Project Horizon – the anticipated term for the detailed design and implementation of the highlighted segment of the trail: short-term, medium-term, long-term or ultimate (See Chapter 6.3 Considerations for Trail Prioritization)

Implementation Responsibility – the entity that will be responsible for funding the design and implementation of the highlighted portion of the trail.

High Level Cost Estimate – a preliminary estimate of the construction cost of the highlighted portion of the trail. This information is a starting point for future budget allocation.

Surface – the material of the existing, or proposed, surface (e.g. granular, paved – asphalt or concrete, natural ground) along the trail

Land Ownership – the entity(s) that owns or has responsibility for the highlighted portion of the trail

Stakeholders – the entity(s) that has regulatory jurisdiction, own land(s) on or adjacent to the highlighted portion of the trail, have projects or planned projects that

may overlap with the Mountain Brow Trail development, or have a vested interest in the sustainable development of the trail

Permits and Studies – required permits or studies to be obtained or completed in order to facilitate construction of the highlighted portion of the trail

Archaeological Potential – whether or not the highlighted portion lies within the Archaeological Potential designated areas as defined in the Urban Hamilton Official Plan, Volume 1, Appendix F-4

Maintenance – maintenance considerations based on typical life-cycles of specified materials.

Public Engagement Recommendation – recommendations for future public engagement

Rationale, Comments and Feasibility Considerations

Additional information related to the highlighted portion of the trail that is useful in the consideration of the trail development.

The Project Sheet Key is illustrated in Exhibit 30 on page 68.

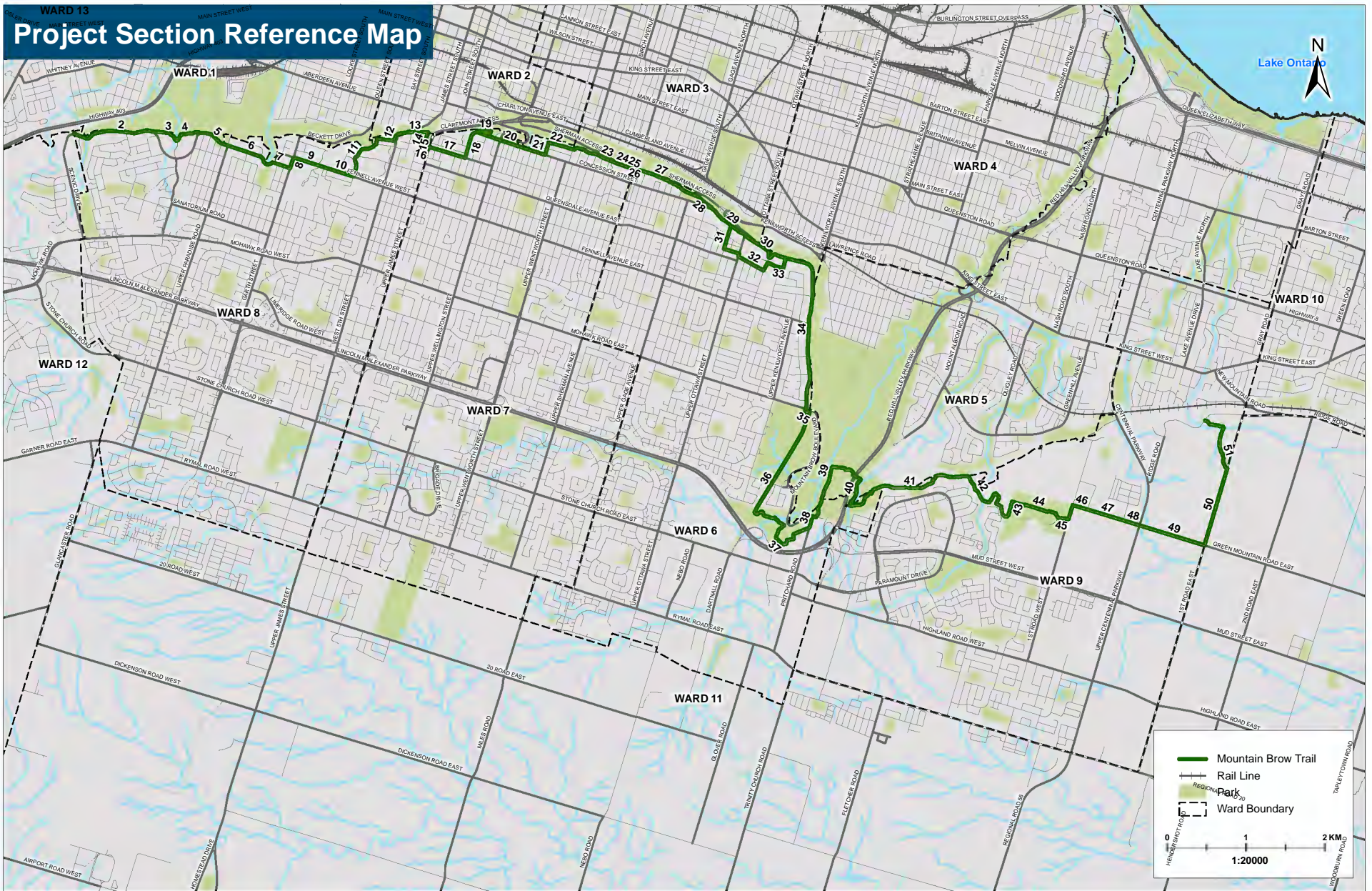


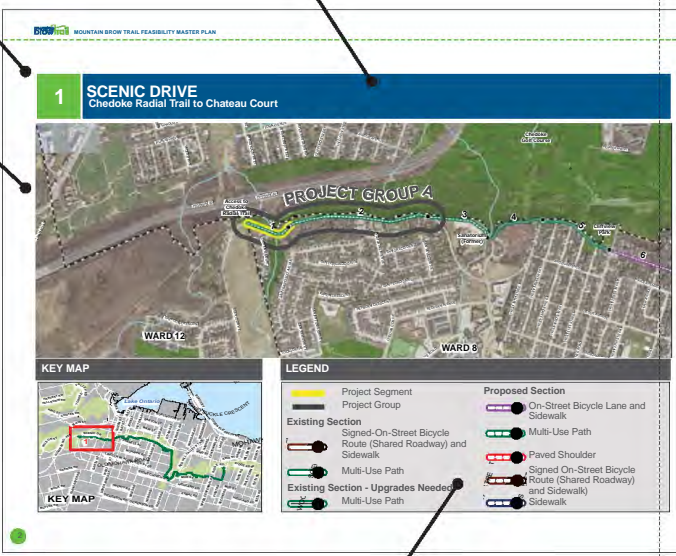
Exhibit 29- Project Section Reference Map

Project Section No.

Contextual Reference Map
Displays current section in relation to the adjacent sections of the trail including facility type

Section Map
Current section represented graphically

Project Section Title



Legend


Section Ward Project Group

Related Projects

Existing Facility Type

Proposed Facility Type

Quick reference symbol identifying level of change recommended to the route



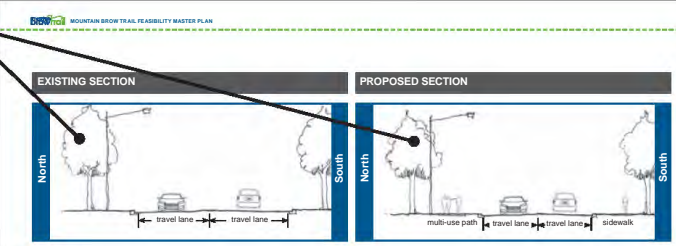
Cross Section
(where applicable)
Shows physical relationship between existing & proposed street components at key locations

Facilities Information
Recommended design description

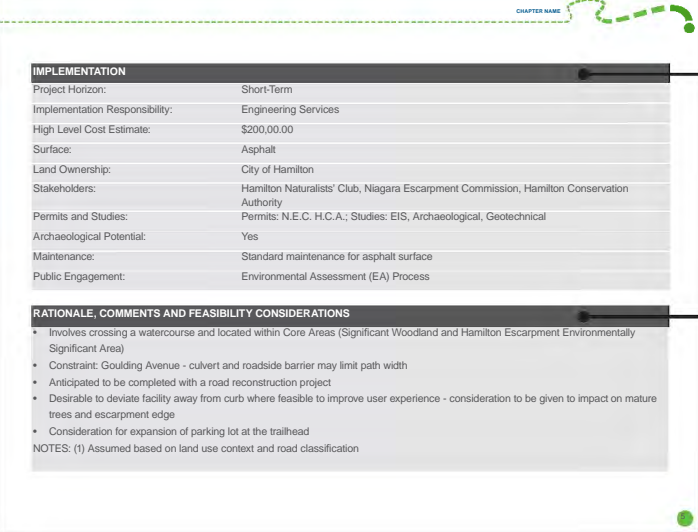
Section Context
Current Conditions

Implementation Information
Section particulars and requirements for implementation. Stakeholders.

Comments / Considerations



EXISTING SECTION		PROPOSED SECTION	
Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	67
Proposed Facility Width:	3.0-4.0m	Signage:	Trailhead, Branding
Segment Length:	260m	Lighting:	Existing street lighting may be adequate. Further study required. Application of MBT branded fixture may be desirable
Average Slope:	2.75%	Site Furnishings:	Accessible benches recommended at strategic views and trailheads. Bike rack recommended at Chedoke Radial Trailhead Parking
Facility Location:	North		



IMPLEMENTATION	
Project Horizon:	Short-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$200,00.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C. H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Environmental Assessment (EA) Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Involves crossing a watercourse and located within Core Areas (Significant Woodland and Hamilton Escarpment Environmentally Significant Area)
- Constraint: Gouling Avenue - culvert and roadside barrier may limit path width
- Anticipated to be completed with a road reconstruction project
- Desirable to deviate facility away from curb where feasible to improve user experience - consideration to be given to impact on mature trees and escarpment edge
- Consideration for expansion of parking lot at the trailhead

NOTES: (1) Assumed based on land use context and road classification

Exhibit 30 - Project Sheet Key

Multi-Use Path vs. Multi-Use Trail

Paths refer to facilities adjacent to roadways. These facilities are often asphalt or concrete surfaces. **Trails** are off-road facilities usually located within parks, forests and open spaces or outside of a roadway right-of-way. These facilities are often asphalt or a granular surface, but may be natural ground in environmentally-sensitive areas. The Mountain Brow Trail will aim for an asphalt surface; however, a review of surfacing will need to be completed for environmentally sensitive areas.

Section Facility Status

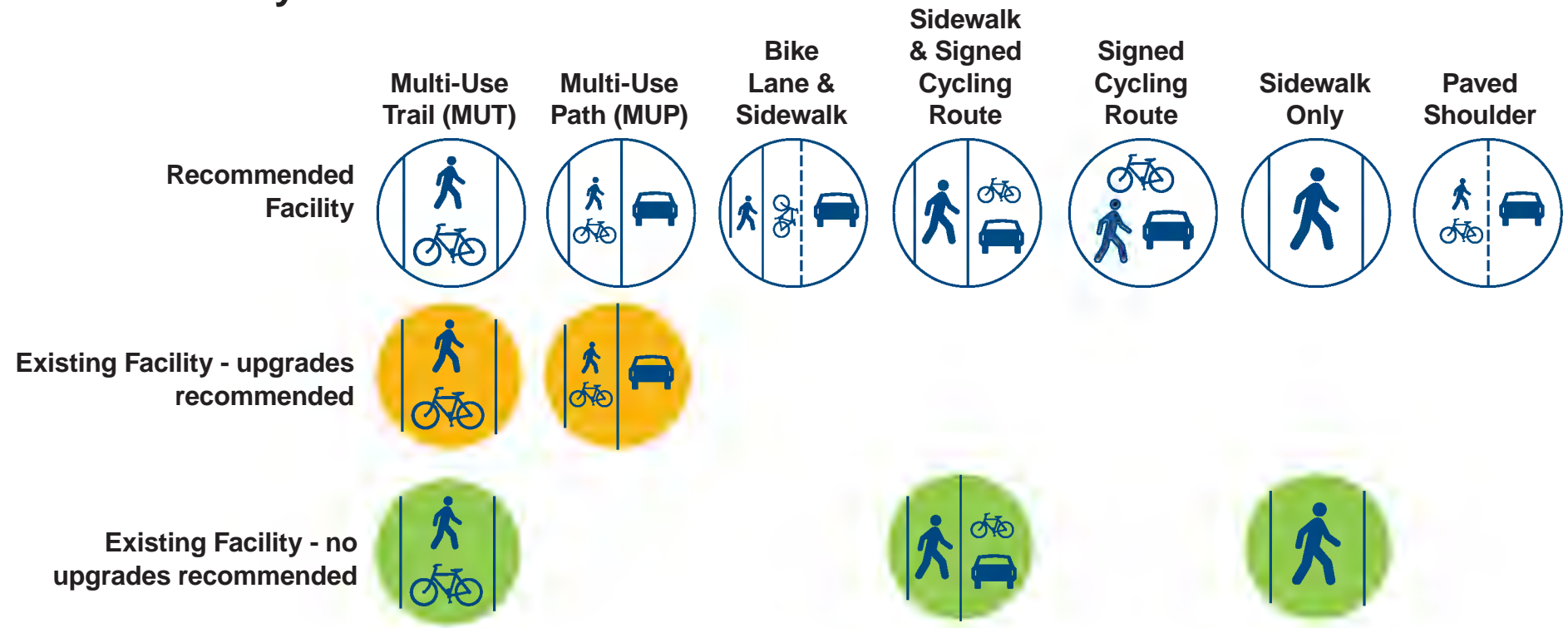


Exhibit 30 - Project Sheet Key (continued)

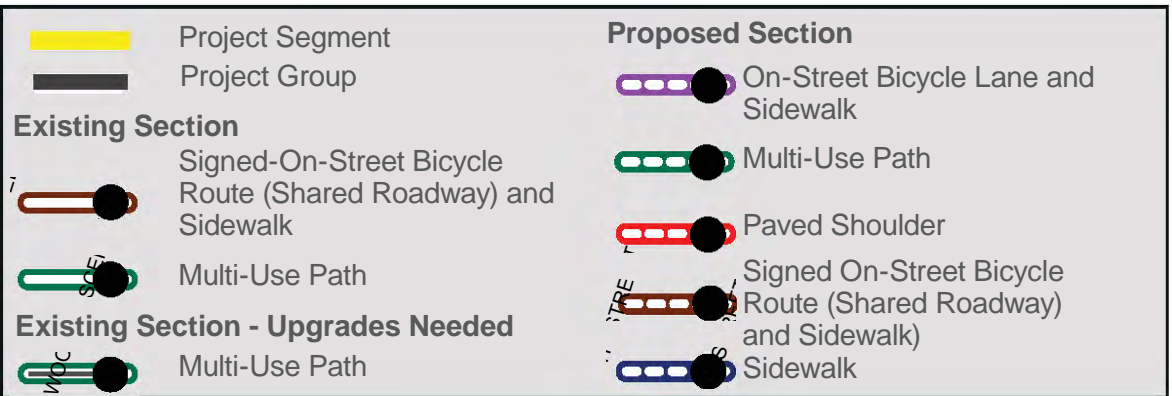
1 SCENIC DRIVE Chedoke Radial Trail to Chateau Court



KEY MAP



LEGEND



1 **SCENIC DRIVE**
Chedoke Radial Trail to Chateau Court

WARD	PROJECT GROUP	RELATED PROJECTS
8	A	2



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE PATH



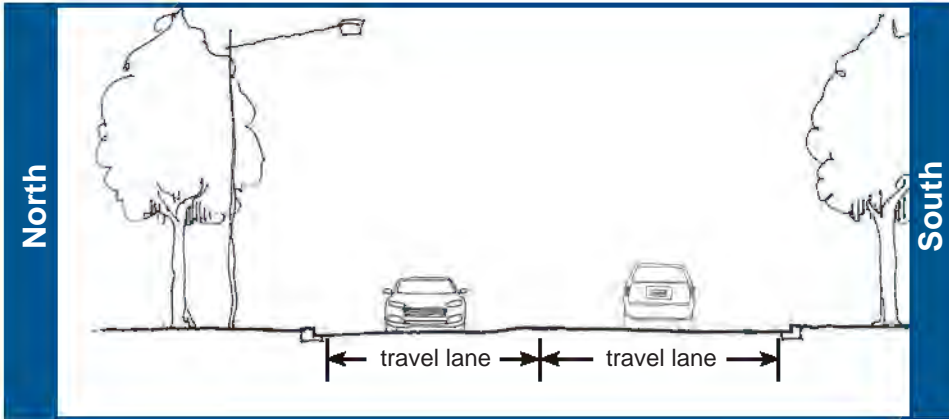
CONTEXT

AADT:	9000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destinations:	Vistas 83 to 87; Princess Falls; Lower Princess Falls; Chedoke Radial Trail; Iroquoia Heights Conservation Area; Bruce Trail
Cultural Areas of Interest:	Iroquoia Heights Conservation Area

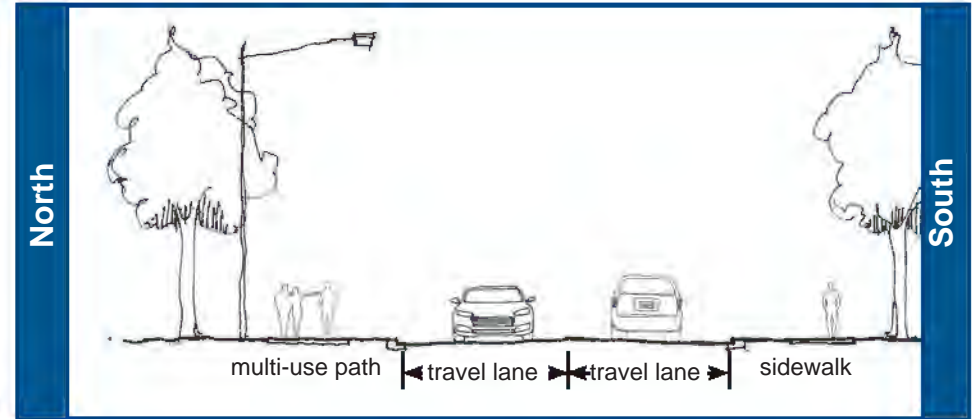
1

SCENIC DRIVE
Chedoke Radial Trail to Chateau Court

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	67
Proposed Facility Width:	3.0-4.0m	Signage:	Trailhead, Branding
Segment Length:	260m	Lighting:	Existing street lighting may be adequate. Further study required. Application of MBT branded fixture may be desirable
Average Slope:	2.75%	Site Furnishings:	Accessible benches recommended at strategic views and trailheads. Bike rack recommended at Chedoke Radial Trailhead Parking
Facility Location:	North		

1

SCENIC DRIVE
Chedoke Radial Trail to Chateau Court**IMPLEMENTATION**

Project Horizon:	Short-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$200,00.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C. H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Environmental Assessment (EA) Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Involves crossing a watercourse and located within Core Areas (Significant Woodland and Hamilton Escarpment Environmentally Significant Area)
- Constraint: Goulding Avenue - culvert and roadside barrier may limit path width
- Anticipated to be completed with a road reconstruction project
- Desirable to deviate facility away from curb where feasible to improve user experience - consideration to be given to impact on mature trees and escarpment edge
- Consideration for expansion of parking lot at the trailhead

NOTES: (1) Assumed based on land use context and road classification

2

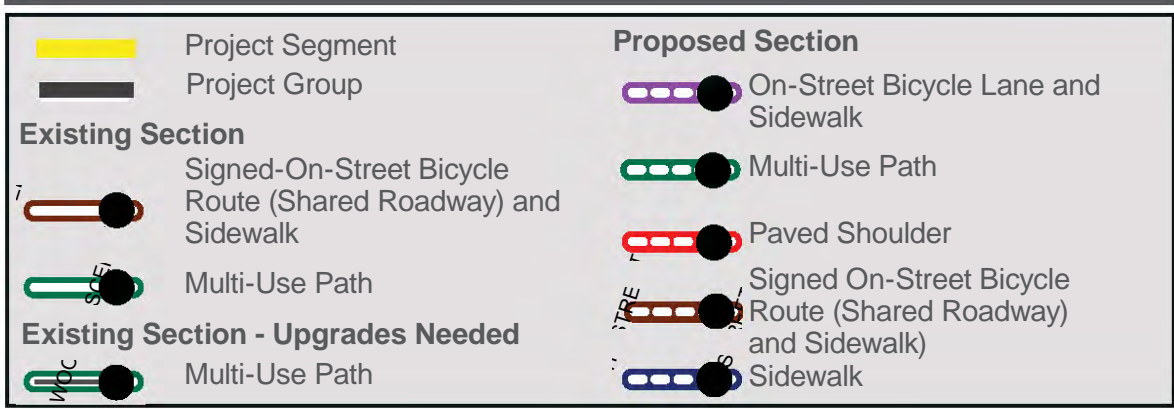
SCENIC DRIVE Chateau Court to Sanatorium



KEY MAP



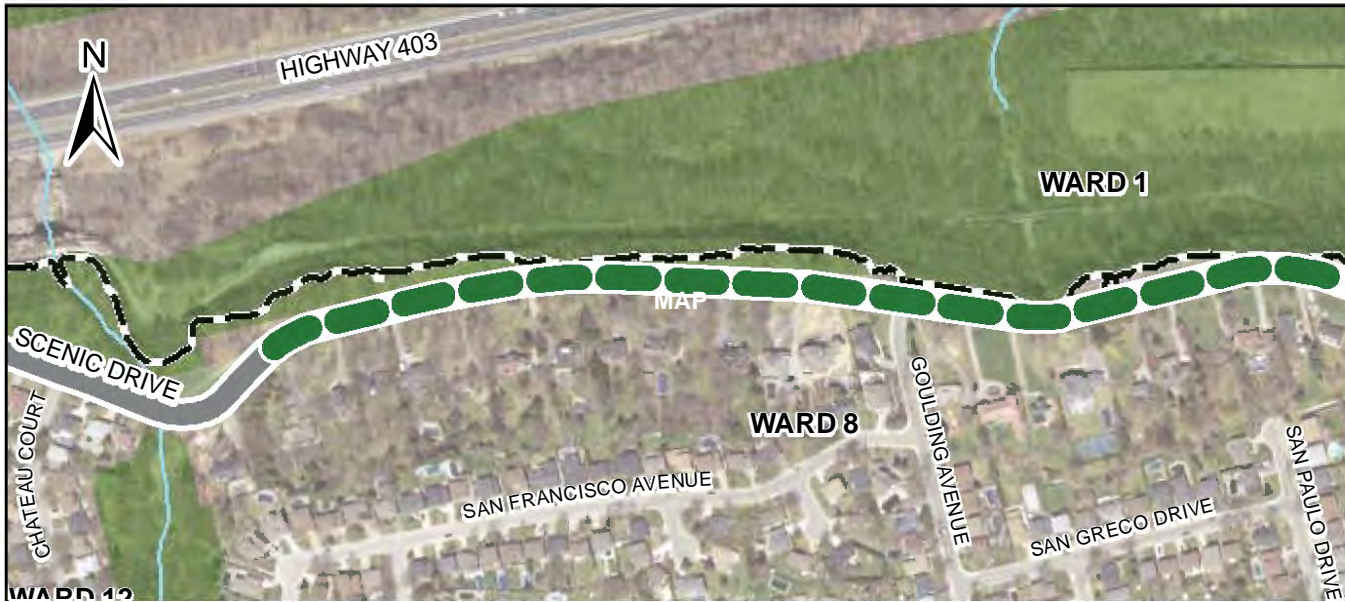
LEGEND



2

SCENIC DRIVE
Chateau Court to Sanatorium

WARD	PROJECT GROUP	RELATED PROJECTS
8	A	1



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE PATH



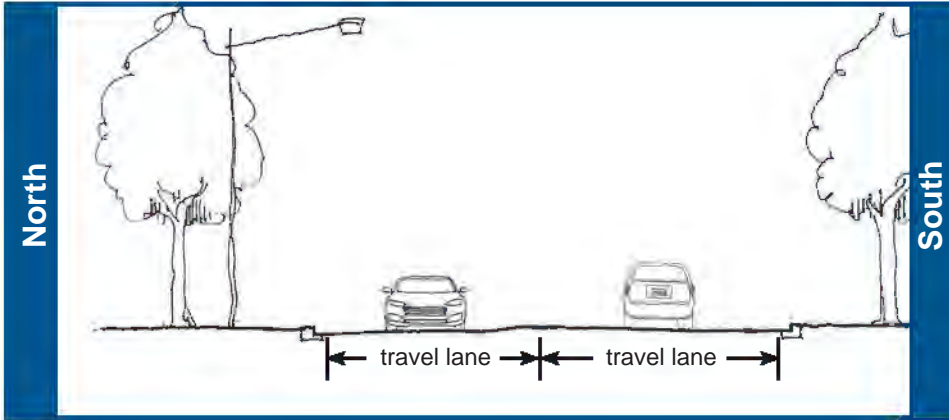
CONTEXT

AADT:	9000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	26.231m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	Vistas 77 to 82; Mountain View Waterfall; Scenic Park (Langs Park)
Cultural Areas of Interest:	Cultural Heritage Landscape Designation for Scenic Park

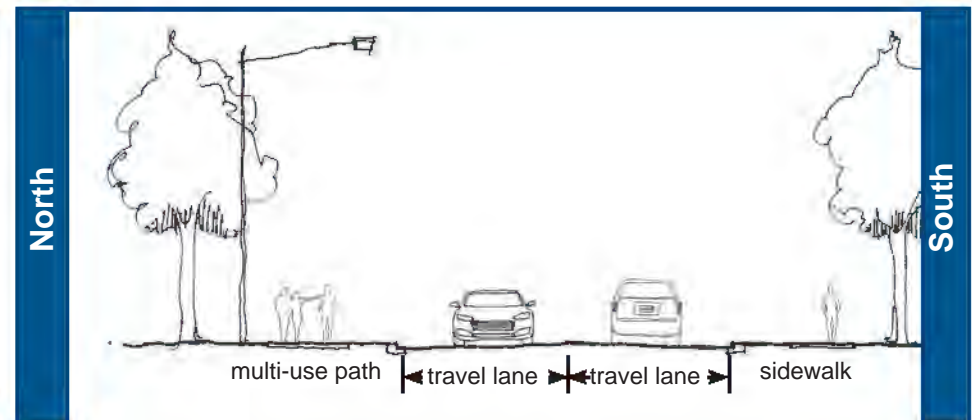
2

SCENIC DRIVE
Chateau Court to Sanatorium

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	65
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	760m	Lighting:	Existing street lighting may be adequate. Further study required. Application of MBT branded fixture may be desirable
Average Slope:	1.41%	Site Furnishings:	Accessible benches recommended at strategic views
Facility Location:	North		

2

SCENIC DRIVE

Chateau Court to Sanatorium

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$600,00.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C. H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Anticipated to be completed with a road reconstruction project
- Scenic Drive at Sanatorium Road is constrained by the proximity to the Escarpment edge
- Desirable to deviate facility away from curb where feasible to improve user experience - consideration to be given to impact on mature trees and Escarpment edge
- Existing parking lay-bys generally under-utilized

NOTES: (1) Assumed based on land use context and road classification

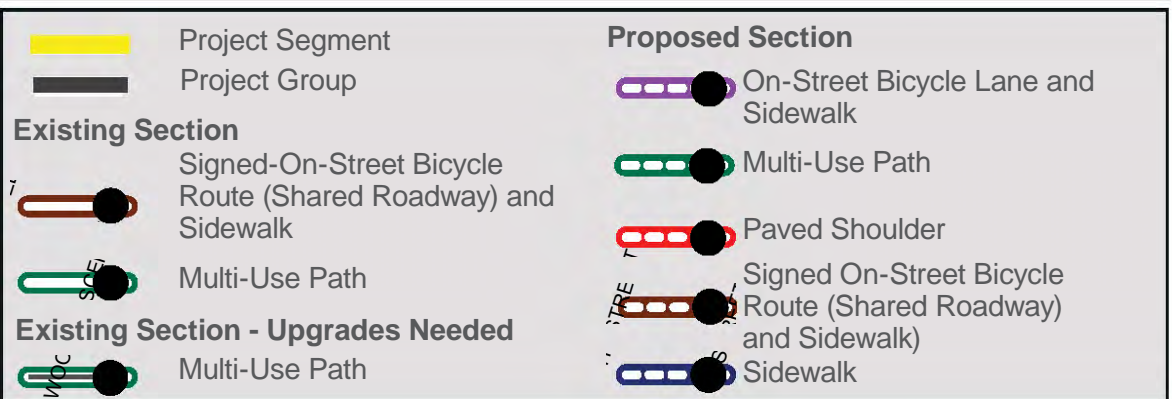
3 SANATORIUM ROAD



KEY MAP



LEGEND



3	SANATORIUM ROAD	WARD	PROJECT GROUP	RELATED PROJECTS
		8	B	



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL

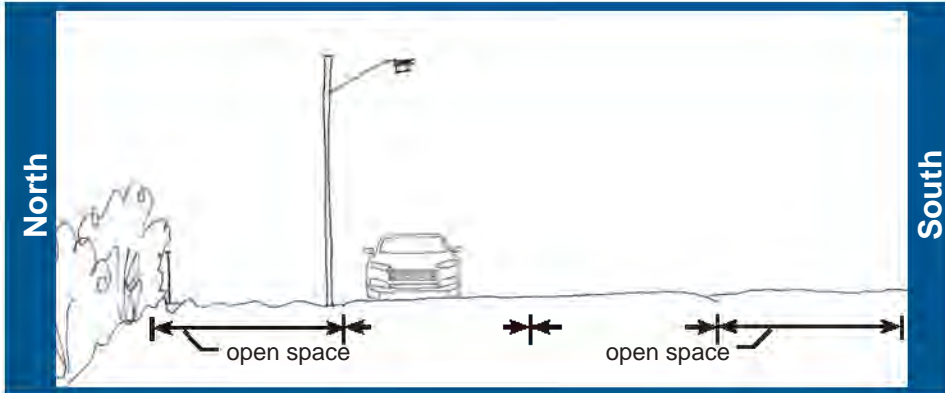


CONTEXT

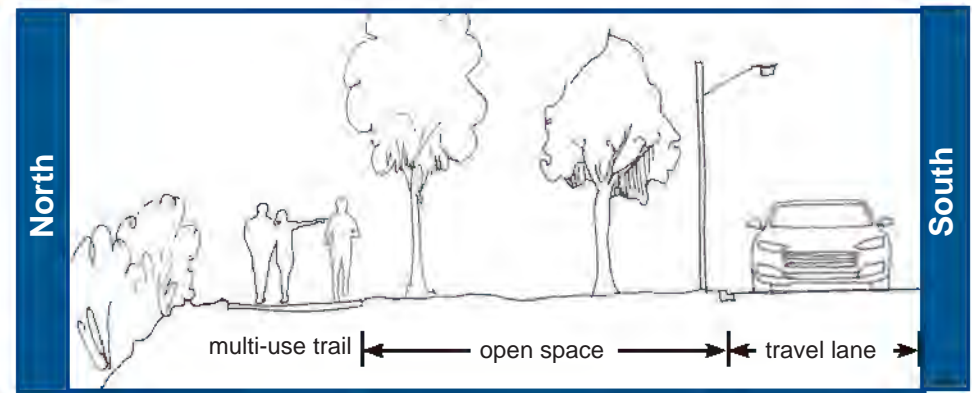
AADT:	N/A	
Speed (km/h):	N/A	
No. of Lanes:	N/A	
R.O.W. Width:	N/A	
Road Characterization:	Trail	
Project Location:	Private Land	PROPOSED FACILITY: MULTI-USE TRAIL
Destination:	Bruce Trail	
Cultural Areas of Interest:	Sanatorium (Former)	

3 SANATORIUM ROAD

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Proposed Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	Scenic Drive
Existing Facility Width:	N/A	Trail Impact Score:	75
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	370m	Lighting:	None recommended
Average Slope:	3.26%	Site Furnishings:	None recommended
Facility Location:	As close to escarpment edge as feasible		

3 SANATORIUM ROAD

EXISTING FACILITY: NONE

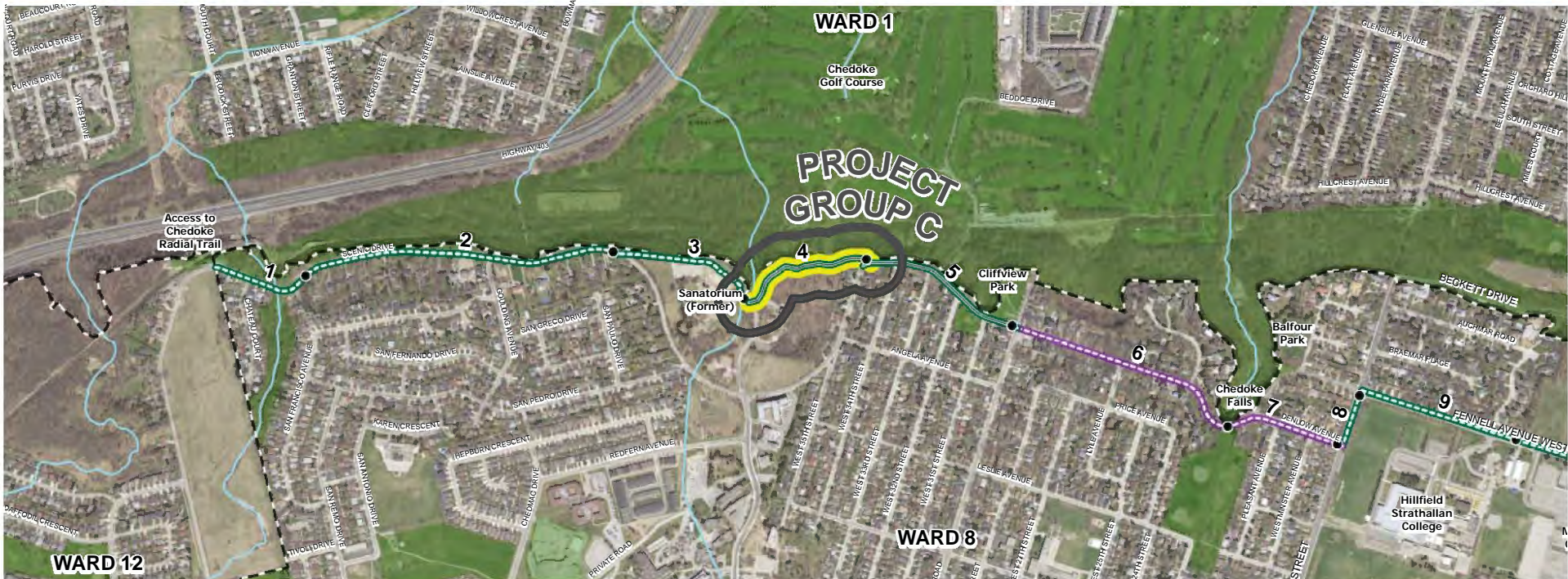
IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Developer (in consultation with City of Hamilton)
High Level Cost Estimate:	\$290,000.00
Surface:	Asphalt
Land Ownership:	Private Developer
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority, Bruce Trail Conservancy
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Fence and surface repairs due to erosion of Escarpment edge
Public Engagement:	Site Plan Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Sanatorium Road was chosen to facilitate the public's desire to stay as close to the Escarpment edge as possible
- Future planned facility along Scenic Drive provides accessible alternative to Project Segments 3 & 4
- Public desire for a parking node

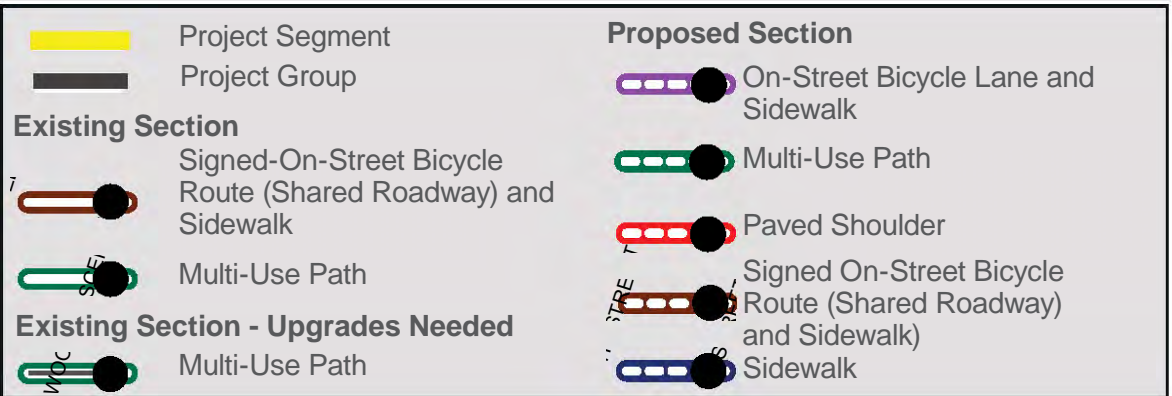
4 BRUCE TRAIL Sanatorium Road to Scenic Drive



KEY MAP



LEGEND



4 BRUCE TRAIL
Sanatorium Road to Scenic Drive

WARD	PROJECT GROUP	RELATED PROJECTS
1 8	B	



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



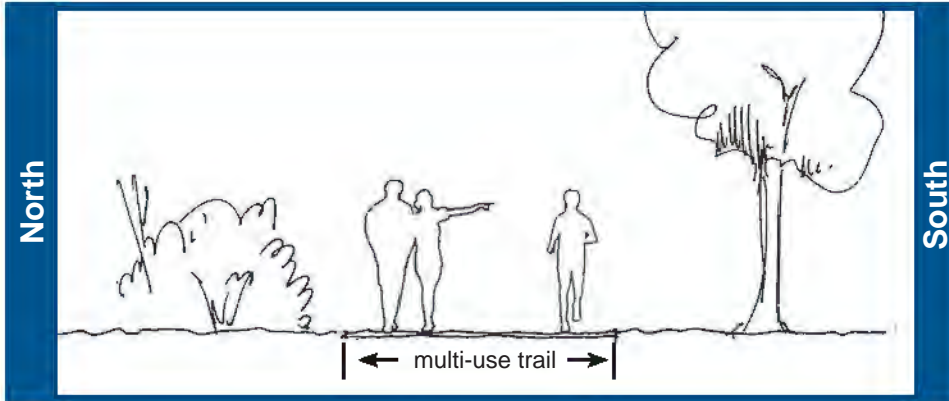
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Vista 76, Sanatorium Falls, Bruce Trail
Cultural Areas of Interest:	Cross of Loraine

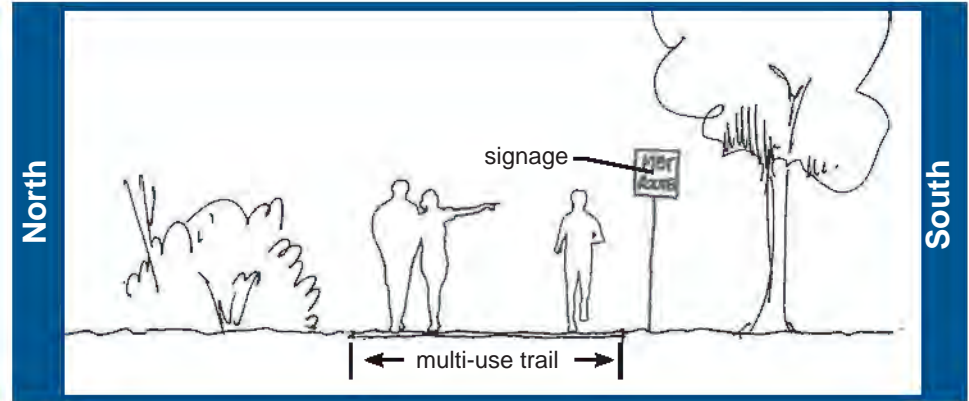
4

BRUCE TRAIL
Sanatorium Road to Scenic Drive

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail (Granular & Natural Ground)	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	Scenic Drive
Existing Facility Width:	2.0m	Trail Impact Score:	45
Proposed Facility Width:	2.4m minimum; 3.0m preferred	Signage:	Wayfinding, Branding
Segment Length:	350m	Lighting:	One spotlight existing - natural area - lighting not desirable
Average Slope:	5.23%	Site Furnishings:	Existing lookout to be upgraded to incorporate MBT-branded benches and fencing
Facility Location:	Per existing		

4

BRUCE TRAIL
Sanatorium Road to Scenic Drive

EXISTING FACILITY: NONE

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$180,000.00
Surface:	Granular
Land Ownership:	City of Hamilton, Private Landowner
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority, Bruce Trail Conservancy
Permits and Studies:	Permits: N.E.C. H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for granular surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

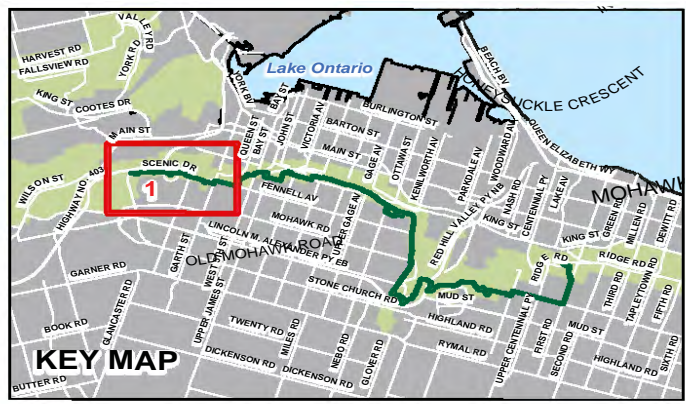
- Existing conditions include woodlot and narrow access, making an asphalt trail challenging and perhaps undesirable. Trail to remain granular with branding and amenity upgrades.
- Public expressed a desire for winter maintenance in this area; however, the City provides maintenance only for asphalt trails.
- Future planned facility along Scenic Drive provides accessible alternative to Project Segments 3 & 4

5

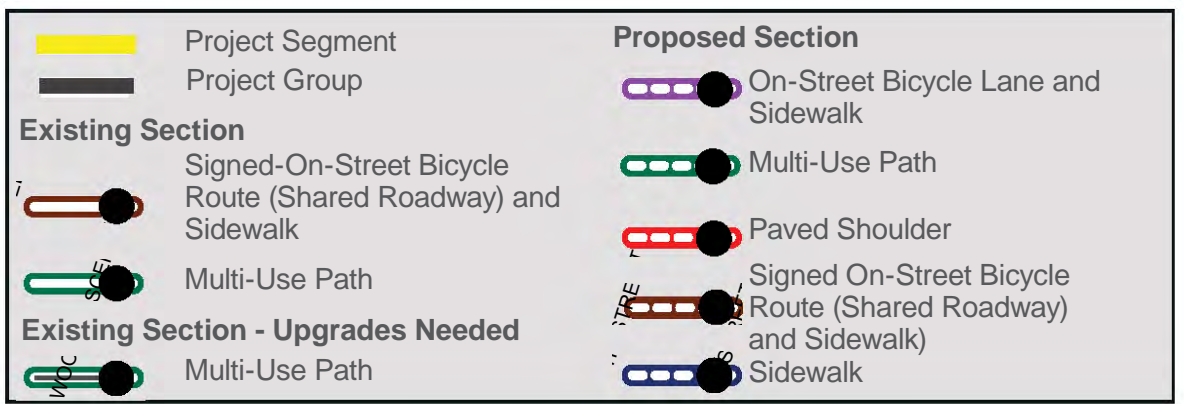
SCENIC DRIVE
Bruce Trail to Upper Paradise (Cliffview Park)



KEY MAP



LEGEND



5

SCENIC DRIVE
Bruce Trail to Upper Paradise (Cliffview Park)

WARD	PROJECT GROUP	RELATED PROJECTS	
8	D	6	7



EXISTING FACILITY: MULTI-USE PATH

PROPOSED FACILITY: MULTI-USE PATH



CONTEXT

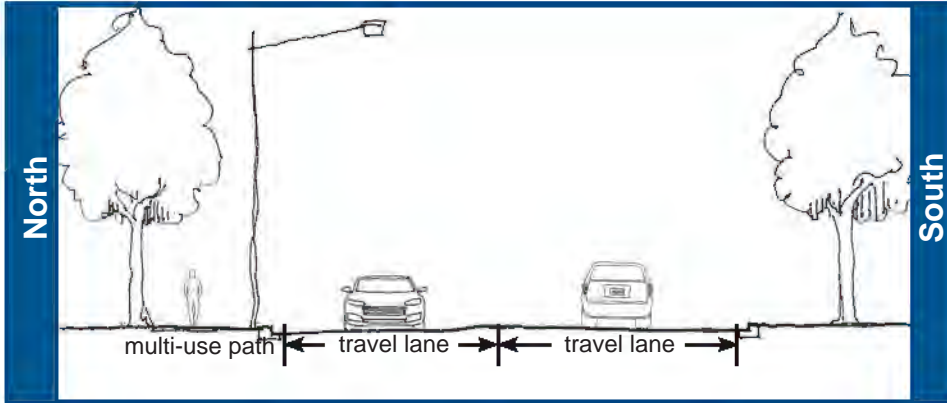
AADT:	9000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Collector
Project Location:	
Destination:	Vistas 71 to 75; Westcliffe Falls; Cliffview Falls; Cliffview Park Chedoke Stairs; Chedoke Civic Golf Cours
Cultural Areas of Interest:	Cultural Heritage Landscape Designation for Cliffview Park

4/5

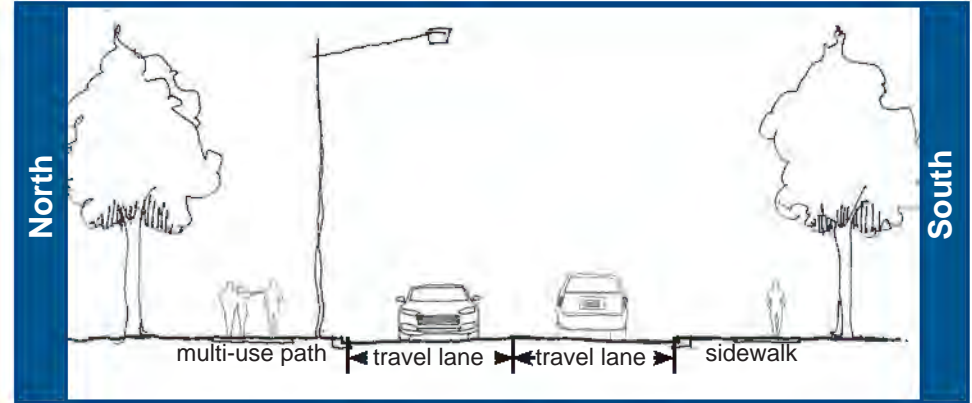
5

SCENIC DRIVE
Bruce Trail to Upper Paradise (Cliffview Park)

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Path	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Path - Upgrades	Alternate Route:	No
Existing Facility Width:	2.0m	Trail Impact Score:	55
Proposed Facility Width:	3.0-4.0m	Signage:	Trailhead, Wayfinding, Branding
Segment Length:	430m	Lighting:	Application of MBT branded fixture recommended
Average Slope:	2.64%	Site Furnishings:	Existing lookout at Cliffview Falls. Bike racks, water fountains/bottle fillers and benches desirable at Chedoke Stairs
Facility Location:	North		

5

SCENIC DRIVE**Bruce Trail to Upper Paradise (Cliffview Park)****IMPLEMENTATION**

Project Horizon:	Medium-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$250,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority, Bruce Trail Conservancy
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence and asphalt surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Anticipated to be completed with a road reconstruction project
- Public expressed interest in washroom facilities at Chedoke Stairs

NOTES: (1) Assumed based on land use context and road classification

6

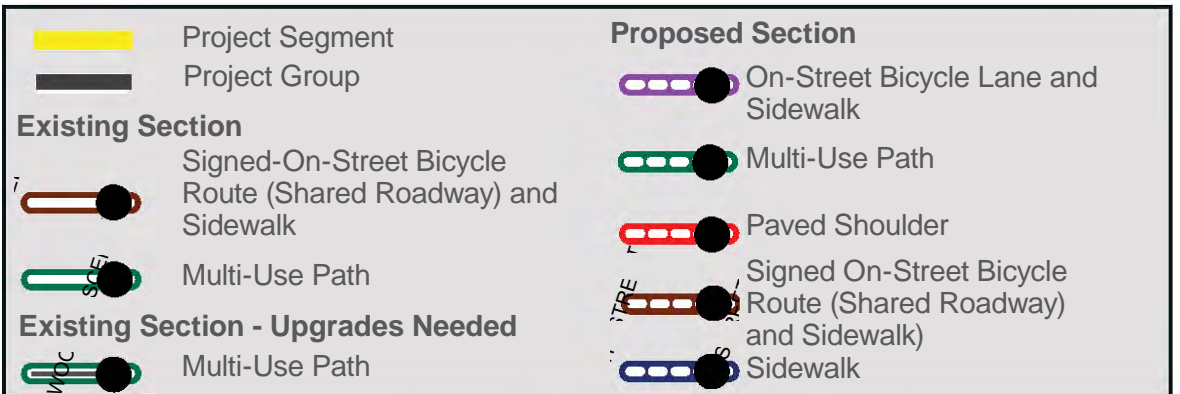
SCENIC DRIVE
Upper Paradise to Chedoke Falls



KEY MAP



LEGEND



6	SCENIC DRIVE Upper Paradise to Chedoke Falls	WARD	PROJECT GROUP	RELATED PROJECTS	
		8	D	5	7



EXISTING FACILITY: NONE

PROPOSED FACILITY: BIKE LANES AND SIDEWALK



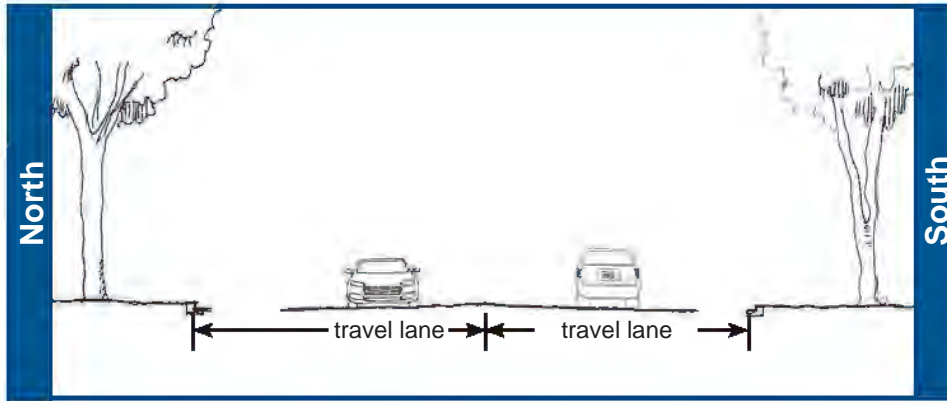
CONTEXT

AADT:	9000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Vistas 70 to 71; Cliffview Park; Cliffview Falls; Chedoke Stairs; Chedoke Civic Golf Course;
Cultural Areas of Interest:	Balfour House (Chedoke Estate), Ontario Heritage Trust Easement for Balfour Park, Cultural Heritage Designation for Calquhoun Park

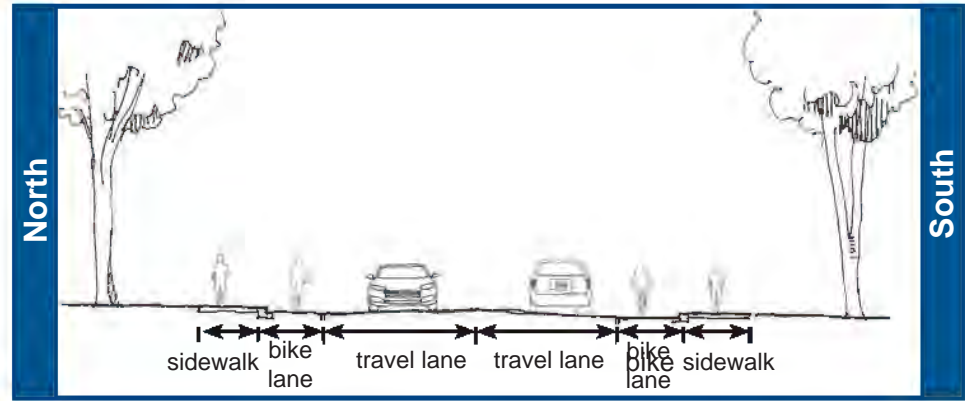
6

SCENIC DRIVE
Upper Paradise to Chedoke Falls

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Bike Lanes and Sidewalk	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	55
Proposed Facility Width:	1.8m sidewalk; 1.8m -2.0m buffered bike lane	Signage:	Wayfinding, Branding
Segment Length:	600m	Lighting:	Standard street lighting
Average Slope:	2.17%	Site Furnishings:	None recommended
Facility Location:	Both sides		

6

SCENIC DRIVE
Upper Paradise to Chedoke Falls**IMPLEMENTATION**

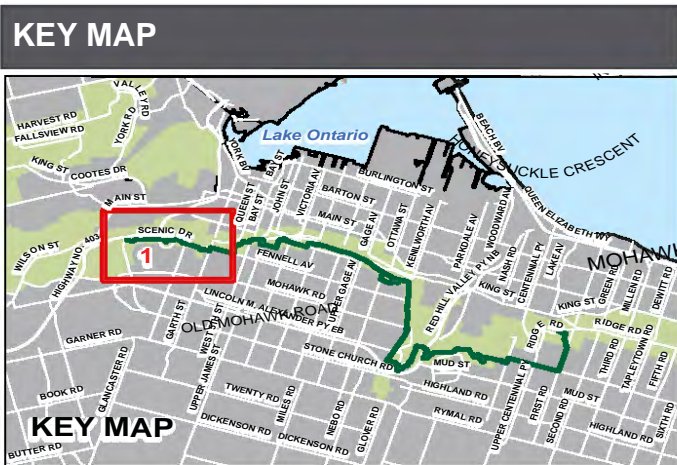
Project Horizon:	Medium-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$340,000.00
Surface:	Concrete (sidewalk); Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority, Bruce Trail Conservancy
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete and asphalt surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Anticipated to be completed with a road reconstruction project
- Need to consider intersection upgrades for cyclists at Upper Paradise Road to facilitate transition from multi-use path to bike lanes
- Proposed facilities are consistent with public feedback

Notes: (1) assumed based on land use context and road classification

7 SCENIC DRIVE/DENLOW AVENUE Chedoke Falls to Garth Street



7 **SCENIC DRIVE/DENLOW AVENUE**
Chedoke falls to Garth Street

WARD	PROJECT GROUP	RELATED PROJECTS	
8	D	5	6



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: BIKE LANES AND SIDEWALK



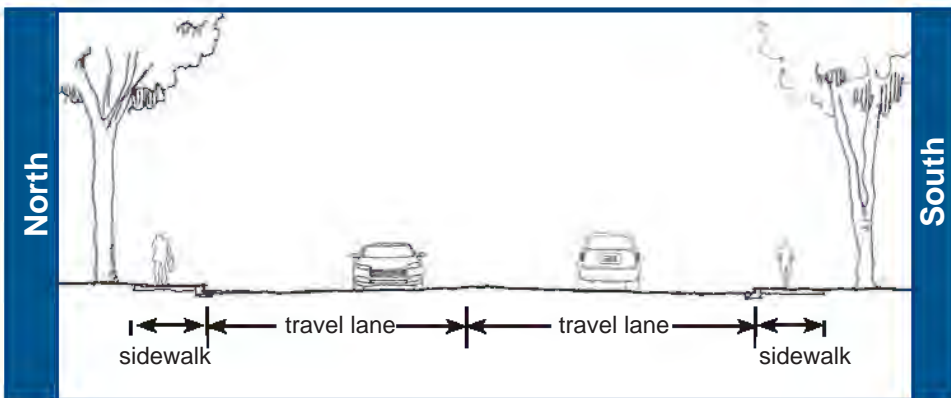
CONTEXT

AADT:	6000 ¹
Speed (km/h):	30
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Vista 69 to 70, Balfour House, Chedoke Falls, Calquhoun Park, Balfour Park, Hillfield Strathallen College
Cultural Areas of Interest:	Balfour House (Chedoke Estate), Ontario Heritage Trust Easement for Balfour Park, Cultural Heritage Designation for Calquhoun Park

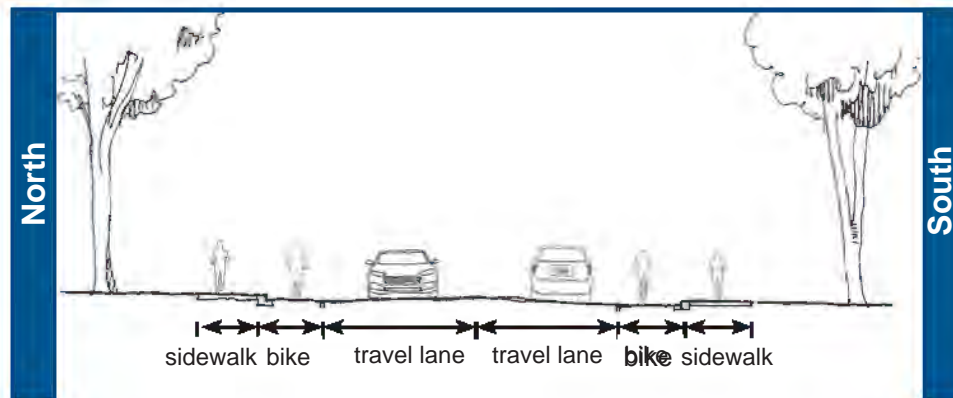
7 SCENIC DRIVE/DENLOW AVENUE

Chedoke Falls to Garth Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk (partial)	Status:	Proposed Future
Proposed Facility:	Bike Lanes and Sidewalk	Alternate Route:	Scenic Drive
Existing Facility Width:	1.2-1.8m	Trail Impact Score:	50
Proposed Facility Width:	1.8m sidewalk; 1.8m -2.0m buffered bike lane	Signage:	Wayfinding, Branding
Segment Length:	280m	Lighting:	Standard street lighting
Average Slope:	2.52%	Site Furnishings:	None recommended
Facility Location:	Both sides		

7

SCENIC DRIVE/DENLOW AVENUE
Chedoke Falls to Garth Street**IMPLEMENTATION**

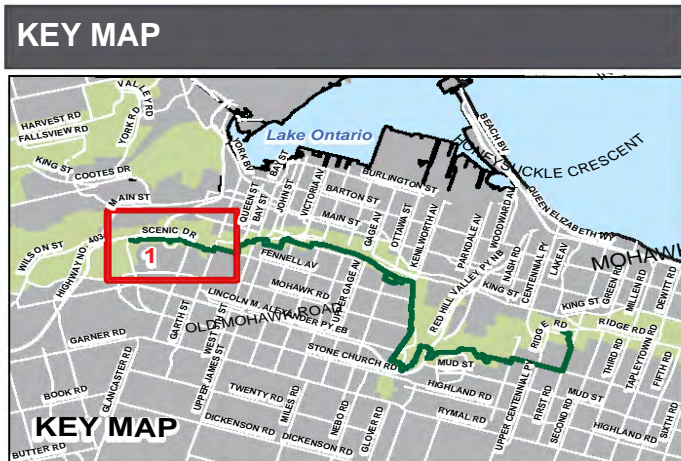
Project Horizon:	Medium-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$93,000.00
Surface:	Concrete (sidewalk); Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Naturalists' Club, Niagara Escarpment Commission, Hamilton Conservation Authority, Bruce Trail Conservancy, Hillfield Strathallan College
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete and asphalt surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Anticipated to be completed with a road reconstruction project
- Need to evaluate crossing opportunities at Garth Street; consider the need for a formalized crossing through a pedestrian crossover or signal application (coordinate with Garth and Fennell signal due to proximity). If not feasible, consider alternative trail route along Scenic Drive to Garth and Fennell

NOTES: (1) 2016 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

8 GARTH STREET Denlow Avenue to Fennell Avenue West



8

GARTH STREET

Denlow Avenue to Fennell Avenue West

WARD

8

PROJECT GROUP

E

RELATED PROJECTS

9 10



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: MULTI-USE PATH



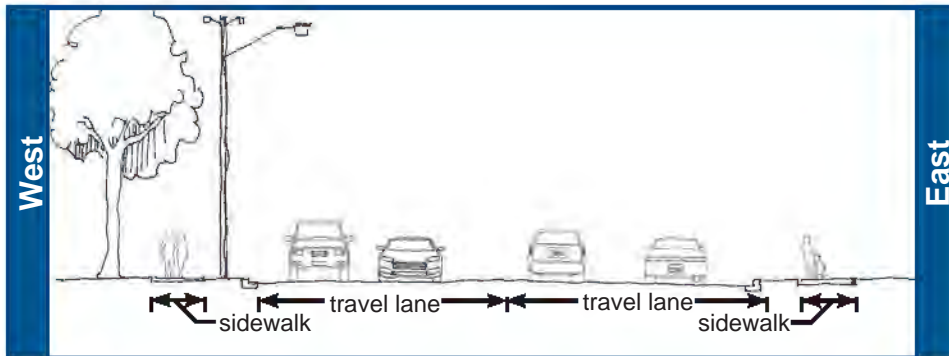
CONTEXT

AADT:	23000 ¹
Speed (km/h):	50
No. of Lanes:	4
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Hillfield Strathallan College
Cultural Areas of Interest:	

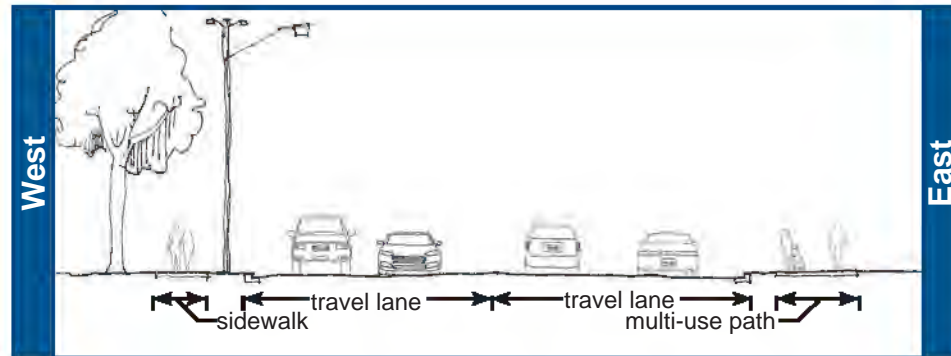
8

GARTH STREET
Denlow Avenue to Fennell Avenue West

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalks	Status:	Proposed Future
Proposed Facility:	Multi-Use Path	Alternate Route:	Scenic Drive
Existing Facility Width:	1.2-1.8m	Trail Impact Score:	47
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	140m	Lighting:	Existing street lighting
Average Slope:	2.52%	Site Furnishings:	None recommended
Facility Location:	East		

8

GARTH STREET

Denlow Avenue to Fennell Avenue West

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$410,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hillfield Strathallan College
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

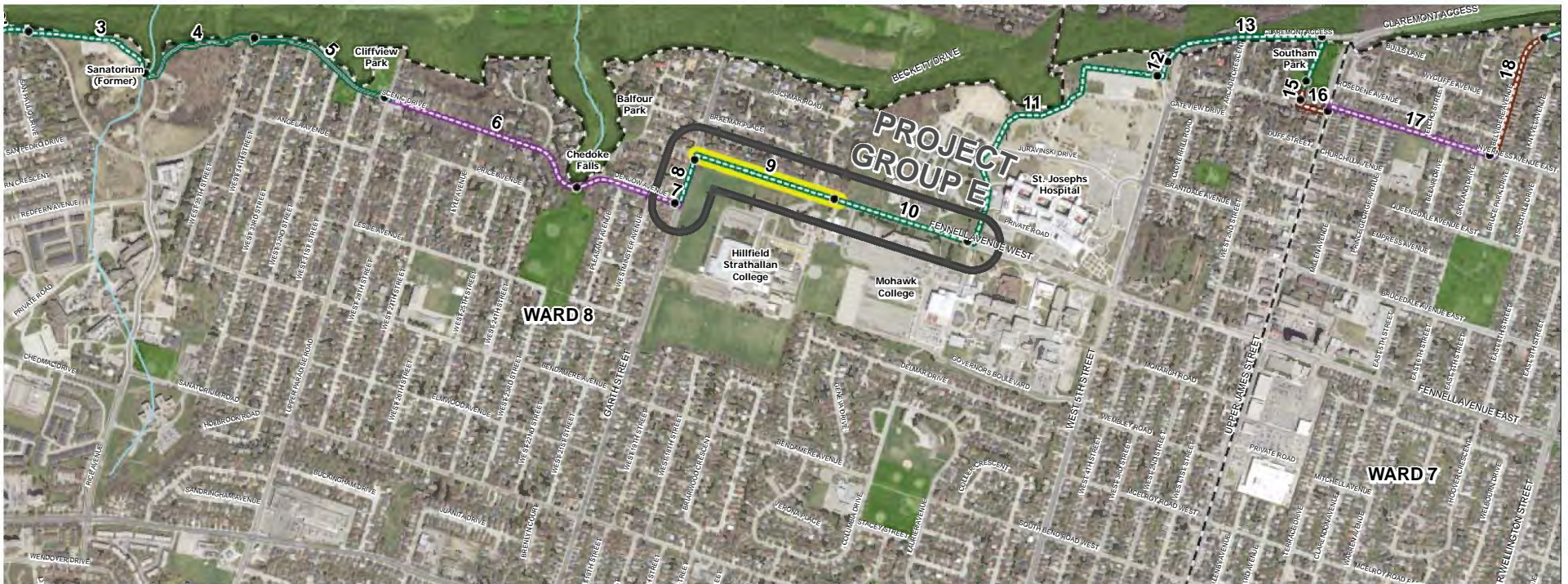
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Need to evaluate crossing opportunities at Garth Street; consider the need for a formalized crossing through a pedestrian crossover or signal application (coordinate with Garth and Fennell signal due to proximity)

NOTES: (1) 2016 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

9

FENNEL AVENUE WEST
Garth Street to Auchmar Road



KEY MAP



LEGEND



9

FENNELL AVENUE WEST

Garth Street to Auchmar Road

WARD	PROJECT GROUP	RELATED PROJECTS	
8	E	8	10



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: MULTI-USE PATH



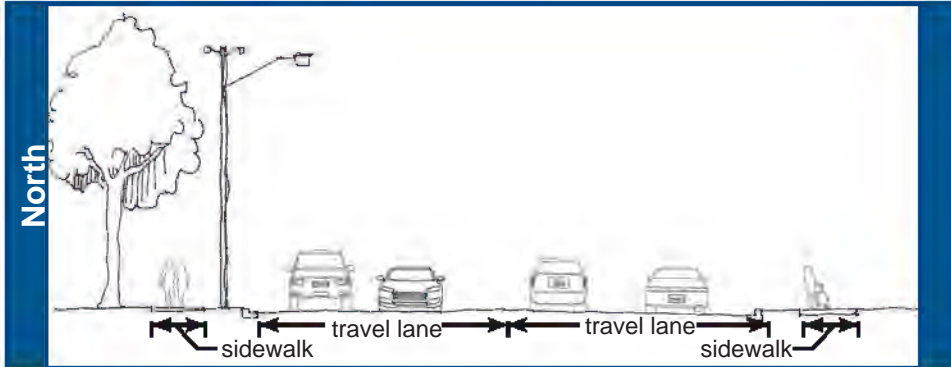
CONTEXT

AADT:	15000 ¹
Speed (km/h):	50
No. of Lanes:	4
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Hillfield Strathallan College, Mohawk College
Cultural Areas of Interest:	

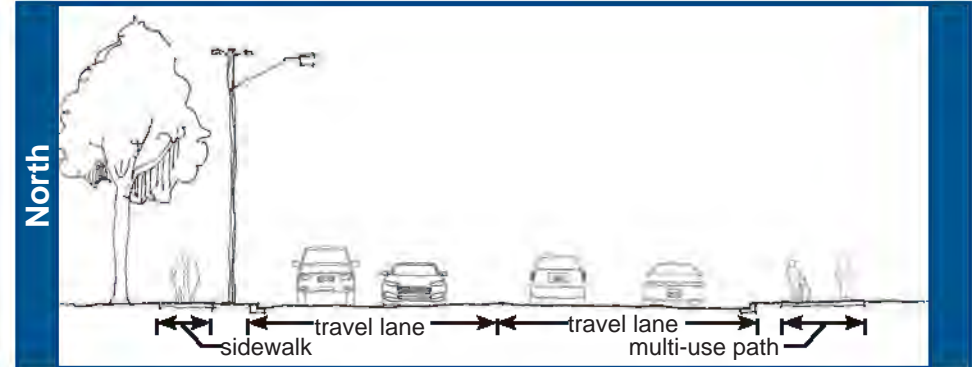
9

FENNEL AVENUE WEST
Garth Street to Auchmar Road

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	1.5-1.8m	Trail Impact Score:	40
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	410m	Lighting:	Existing street lighting may be sufficient, further study required
Average Slope:	2.52%	Site Furnishings:	None recommended
Facility Location:	South		

9

FENNELL AVENUE WEST
Garth Street to Auchmar Road**IMPLEMENTATION**

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$270,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hillfield Strathallan College
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

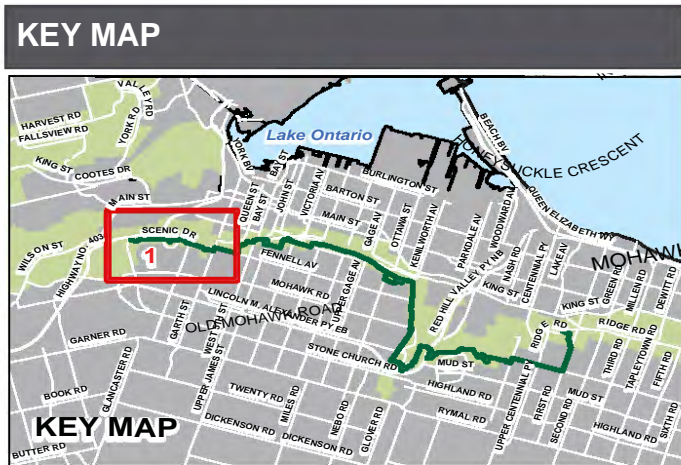
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Consideration of the location of existing utilities and trees within the span of the recommended trail
- Public expressed desire to prioritize cycling facilities from the Garth Street and Scenic Drive intersection, along Fennell Avenue and West 5th Street to the Brow or to the Mountain Climber transit stop at West 5th Street and Brantdale Avenue
- Consider trail connection to Hillfield Strathallan College, pending stakeholder involvement

NOTES: (1) 2016 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

10 FENNEL AVENUE WEST

Auchmar Road to Juravinski



10

FENNEL AVENUE WEST

Auchmar Road to Juravinski

WARD	PROJECT GROUP	RELATED PROJECTS	
8	E	8	9



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: MULTI-USE PATH



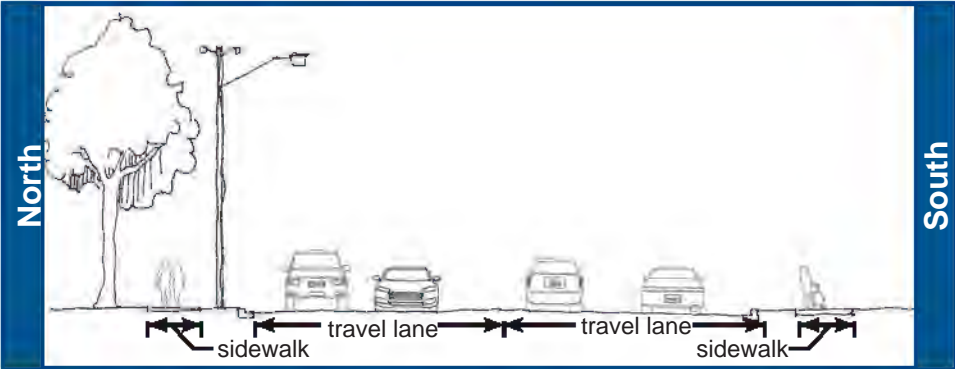
CONTEXT

AADT:	15000 ¹
Speed (km/h):	50
No. of Lanes:	4
R.O.W. Width:	35.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Mohawk College, St. Joseph's West 5th Campus
Cultural Areas of Interest:	

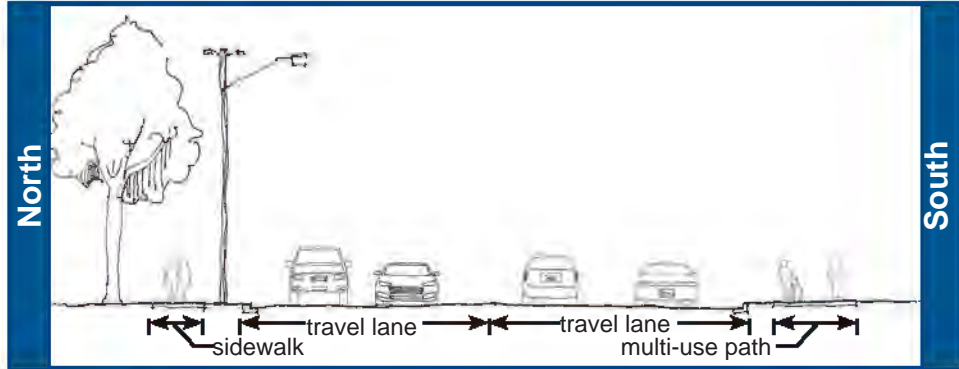
10 FENNEL AVENUE WEST

Auchmar Road to Juravinski

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	1.5-1.8m	Trail Impact Score:	28
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	380m	Lighting:	Existing street lighting may be sufficient, further study required
Average Slope:	2.03%	Site Furnishings:	None recommended
Facility Location:	South		

10

FENNEL AVENUE WEST

Auchmar Road to Juravinski

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$250,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hillfield Strathallan College
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

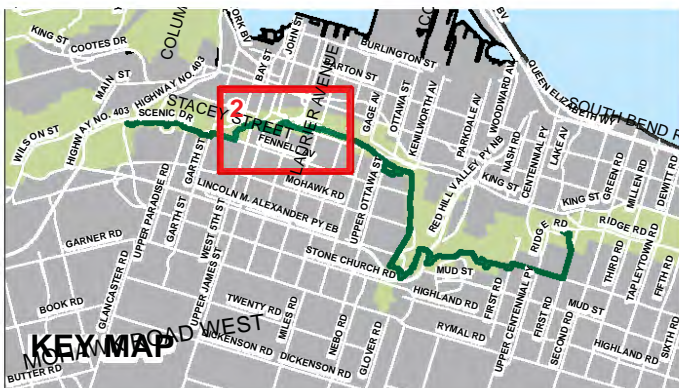
- Consideration of road crossing from the south side of Fennell Avenue West to Juravinski Drive
- Consideration of the location of existing utilities and trees within the span of the recommended trail
- Public expressed desire to prioritize cycling facilities from the Garth Street and Scenic Drive intersection, along Fennell Avenue and West 5th Street to the Brow or to the Mountain Climber transit stop at West 5th Street and Brantdale Avenue
- Consider upgrading trail connection to Mohawk College, pending stakeholder involvement

NOTES: (1) 2016 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

11 JURAVINSKI DRIVE St. Joseph's Hospital Lands



KEY MAP



LEGEND

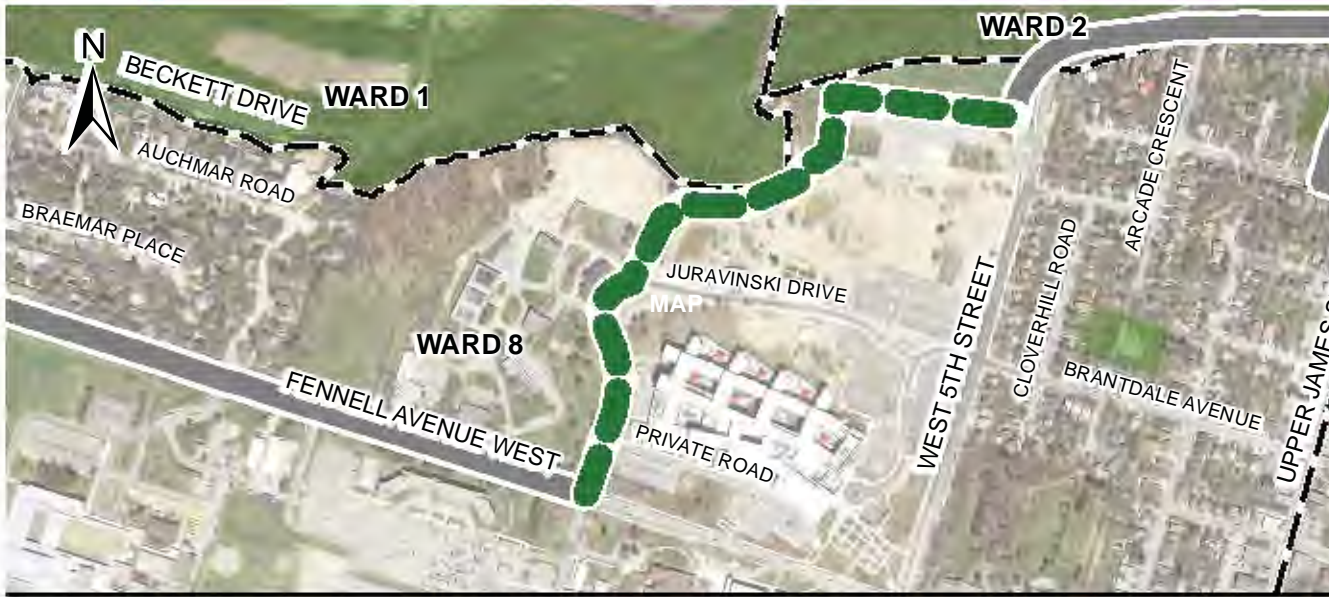
	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

11

JURAVINSKI DRIVE

St. Joseph's Hospital Lands

WARD	PROJECT GROUP	RELATED PROJECTS
8	F	



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL



CONTEXT

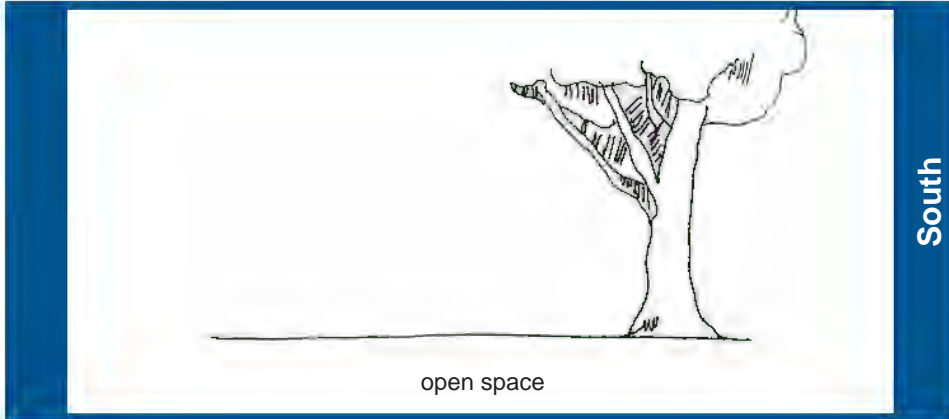
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Publicly Owned Land
Destination:	St. Joseph's West 5th Campus, Bruce Trail, Century Manor
Cultural Areas of Interest:	Century manor

11

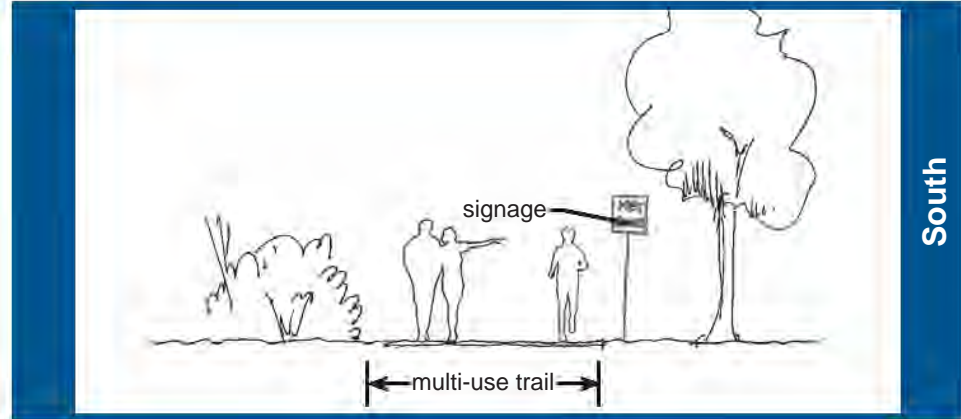
JURAVINSKI DRIVE
St. Joseph's Hospital Lands

EXISTING SECTION

PROPOSED SECTION



South



South

FACILITIES

Existing Facility:	Sidewalk (partial), None (partial)	Status:	Proposed Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	1.8m (sidewalk)	Trail Impact Score:	41
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	880m	Lighting:	Application of MBT branded fixtures recommended
Average Slope:	3.11%	Site Furnishings:	None recommended
Facility Location:	To be confirmed		

11

JURAVINSKI DRIVE

St. Joseph's Hospital Lands

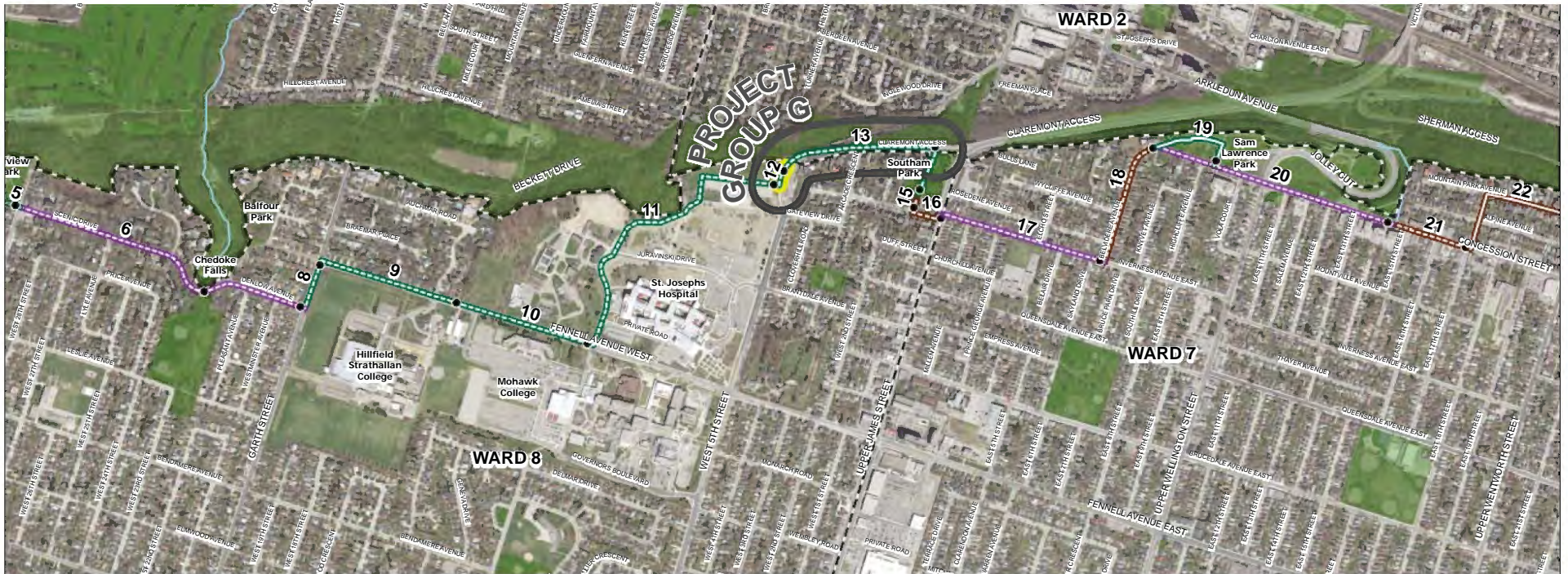
IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$580,000.00
Surface:	Asphalt
Land Ownership:	Ministry of Infrastructure (Owner)/St. Joseph's Healthcare (Tenant)
Stakeholders:	Infrastructure Ontario, St. Joseph's Healthcare Hamilton, Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Maintenance agreement between City and Landowner may be required
Public Engagement:	Per LAS standard practice

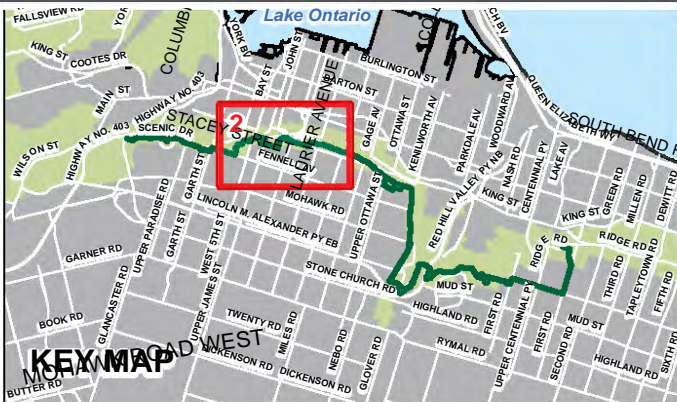
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Dependent upon agreement with Infrastructure Ontario and St. Joseph's Healthcare.
- Alternative route along Fennell Avenue to West 5th Street was explored. Proposed route is more consistent with study mandate.
- Existing sidewalk on Juravinski Drive to be incorporated into the design
- Potential for abandoned roads to be re-purposed.
- Proposed paths to be located as close to the Escarpment as feasible

12 CLAREMONT ACCESS SPUR I



KEY MAP



LEGEND



12 CLAREMONT ACCESS SPUR I

WARD	PROJECT GROUP	RELATED PROJECTS
8	G	13



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: MULTI-USE PATH

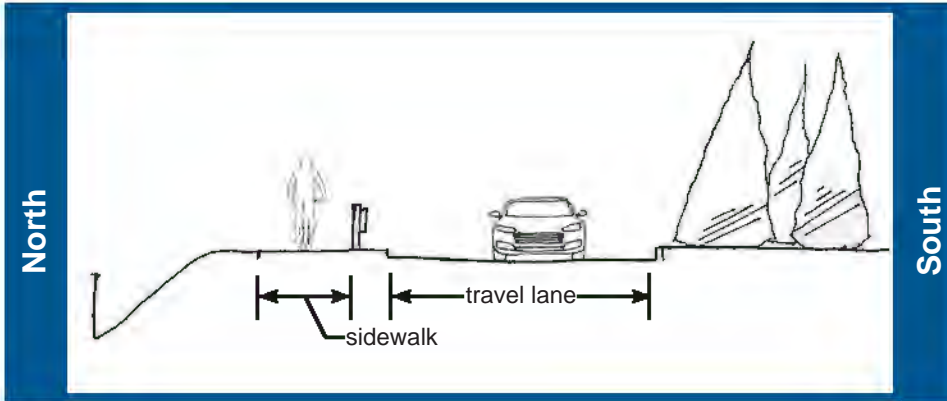


CONTEXT

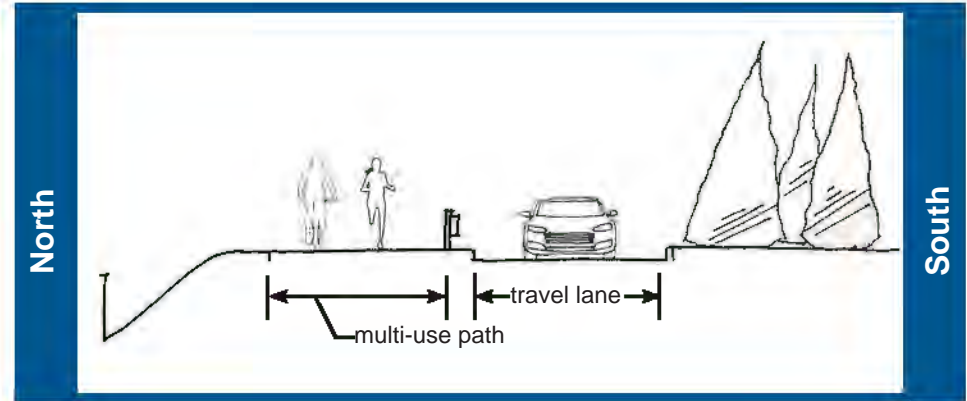
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Publicly Owned Lands
Destination:	St. Joseph's West 5th Campus, Bruce Trail
Cultural Areas of Interest:	Century manor

12 CLAREMONT ACCESS SPUR I

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk (west side)	Status:	Proposed Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	1.8m	Trail Impact Score:	20
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	55m	Lighting:	None recommended
Average Slope:	2.03%	Site Furnishings:	None recommended
Facility Location:	West		

12 CLAREMONT ACCESS SPUR I

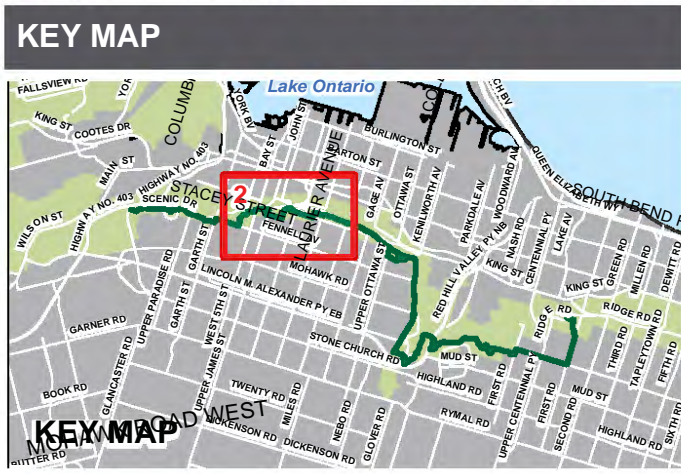
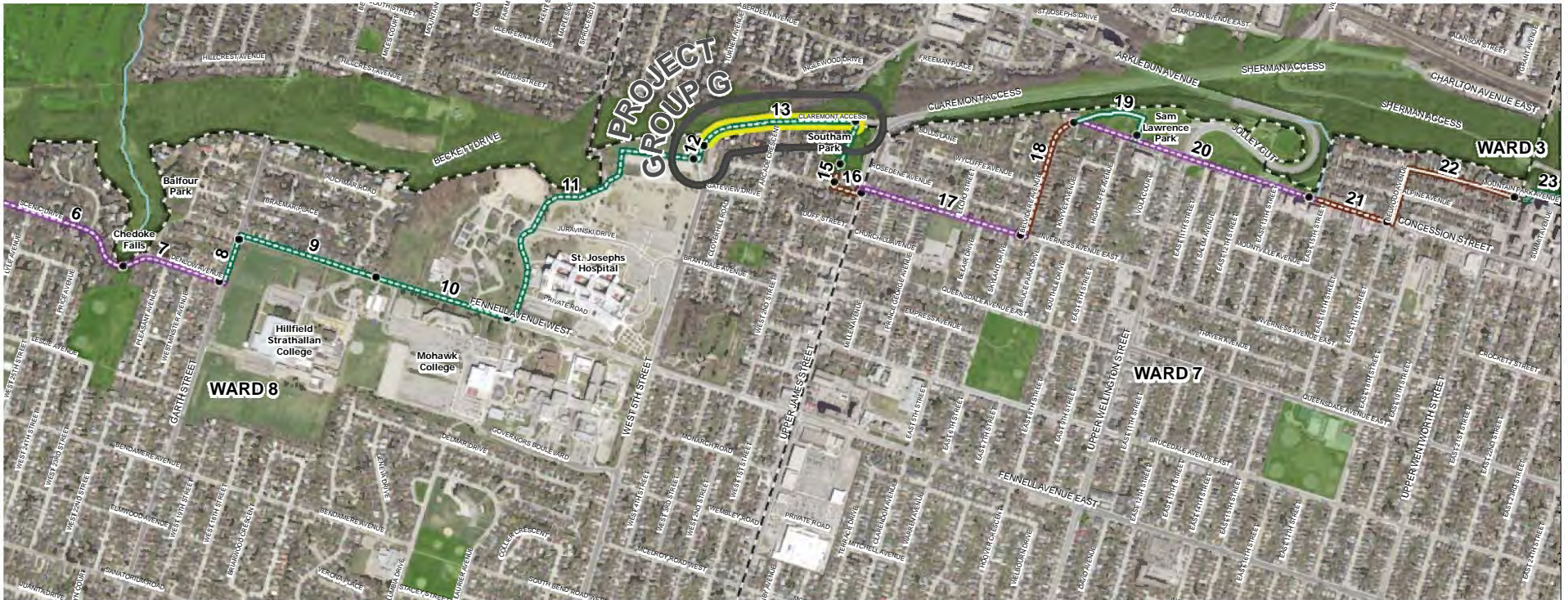
IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$37,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Infrastructure Ontario, St. Joseph's Healthcare Hamilton
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	On-going

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- A multi-use facility is currently in design development for construction in a short-term time frame
- Public expressed interest in road closure in favour of park space
- A potential blue sky idea has been identified at this location. Refer to Appendix I for details

13 CLAREMONT ACCESS SPUR II



13 CLAREMONT ACCESS SPUR II

WARD

2

8

PROJECT GROUP

G

RELATED PROJECTS

12



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: MULTI-USE PATH

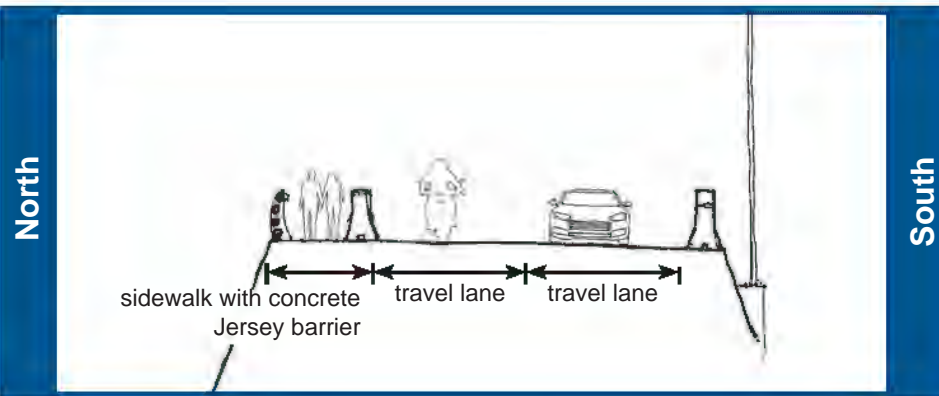


CONTEXT

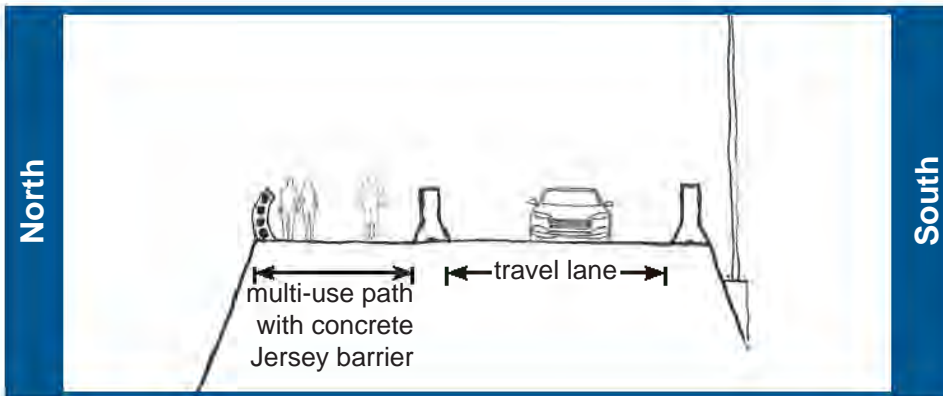
AADT:	10000 ¹
Speed (km/h):	60
No. of Lanes:	2
R.O.W. Width:	45.720m
Road Characterization:	Major Arterial
Project Location:	City R.O.W.
Destination:	St. Joseph's West 5th Campus, Bruce Trail, Southam Park, James Street Stairs, Claremont cycling facility (future)
Cultural Areas of Interest:	Southam Park is a Cultural Heritage Landscape

13 CLAREMONT ACCESS SPUR II

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk (north side only)	Status:	Planned Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	1.2-1.5m	Trail Impact Score:	35
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	430m	Lighting:	None recommended
Average Slope:	6.22%	Site Furnishings:	Potential location for water fountain/bottle fillers at James Street stairs
Facility Location:	North		

13 CLAREMONT ACCESS SPUR II

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$340,000.00 ²
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence, asphalt surface, and concrete barriers
Public Engagement:	

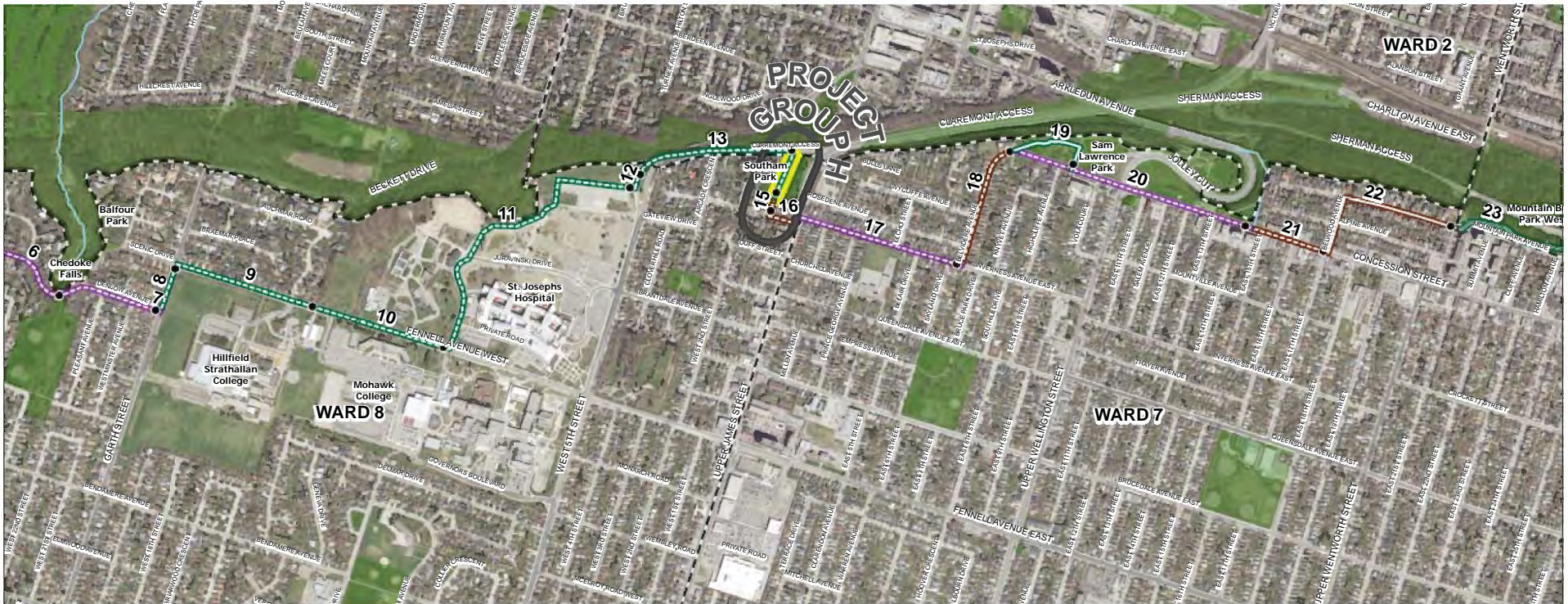
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- A multi-use facility is currently in design development for construction in a short-term time frame
- To maintain connectivity to Southam Park the stairs will need to be repaired, and to facilitate accessibility a ramp will need to be installed
- Public expressed interest in road closure in favour of park space
- A potential blue sky idea has been identified at this location. Refer to Appendix I for details
- Provides connection to James Street stairs, consider the need for wayfinding and/or rest area to highlight Mountain Brow Trail route

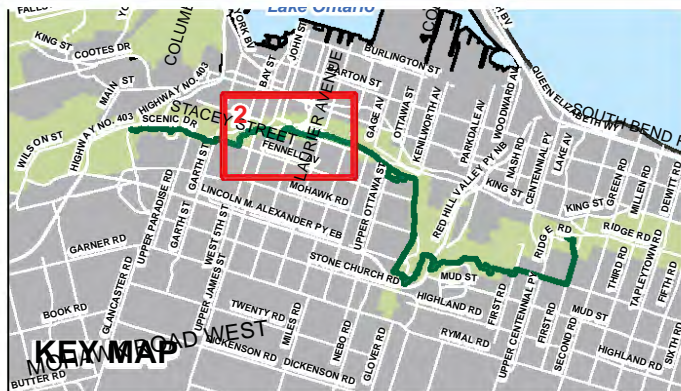
NOTES: (1) assumed based on land use context and road classification

(2) Unique implementation strategy, further detailed costing required

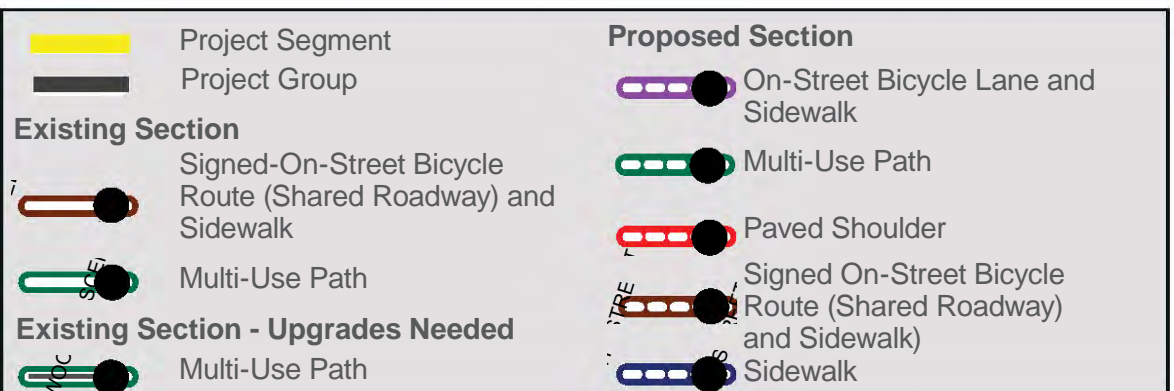
14 SOUTHAM PARK



KEY MAP



LEGEND



14 SOUTHAM PARK

WARD

PROJECT GROUP

RELATED PROJECTS

2

8

H

15



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL

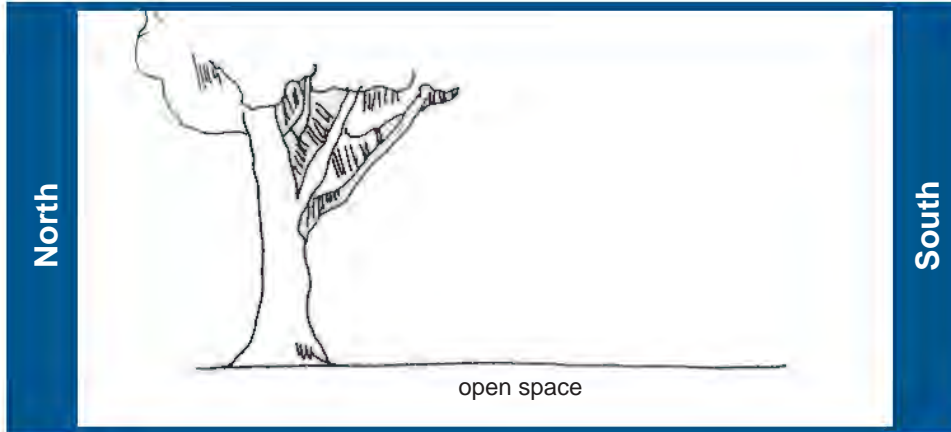


CONTEXT

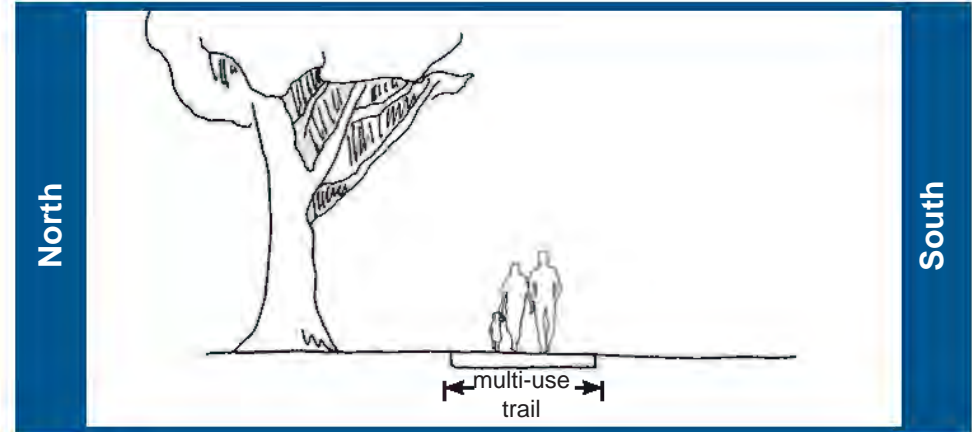
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	Southam Park, James Street Stairs, Claremont cycling facility (future)
Cultural Areas of Interest:	Southam Park is a Cultural Heritage Landscape

14 SOUTHAM PARK

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Proposed Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	30
Proposed Facility Width:	3.0-4.0m	Signage:	Trailhead, Wayfinding, Branding
Segment Length:	150m	Lighting:	Lighting typically not provided in municipal parks
Average Slope:	N/A	Site Furnishings:	Accessible benches and bike racks recommended
Facility Location:	N/A		

14 SOUTHAM PARK

IMPLEMENTATION

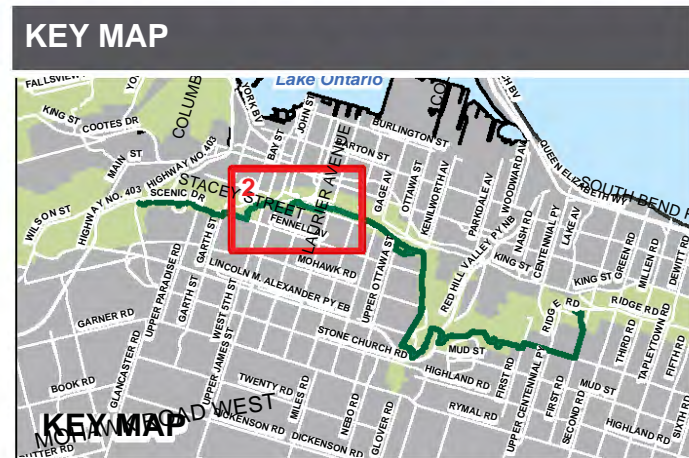
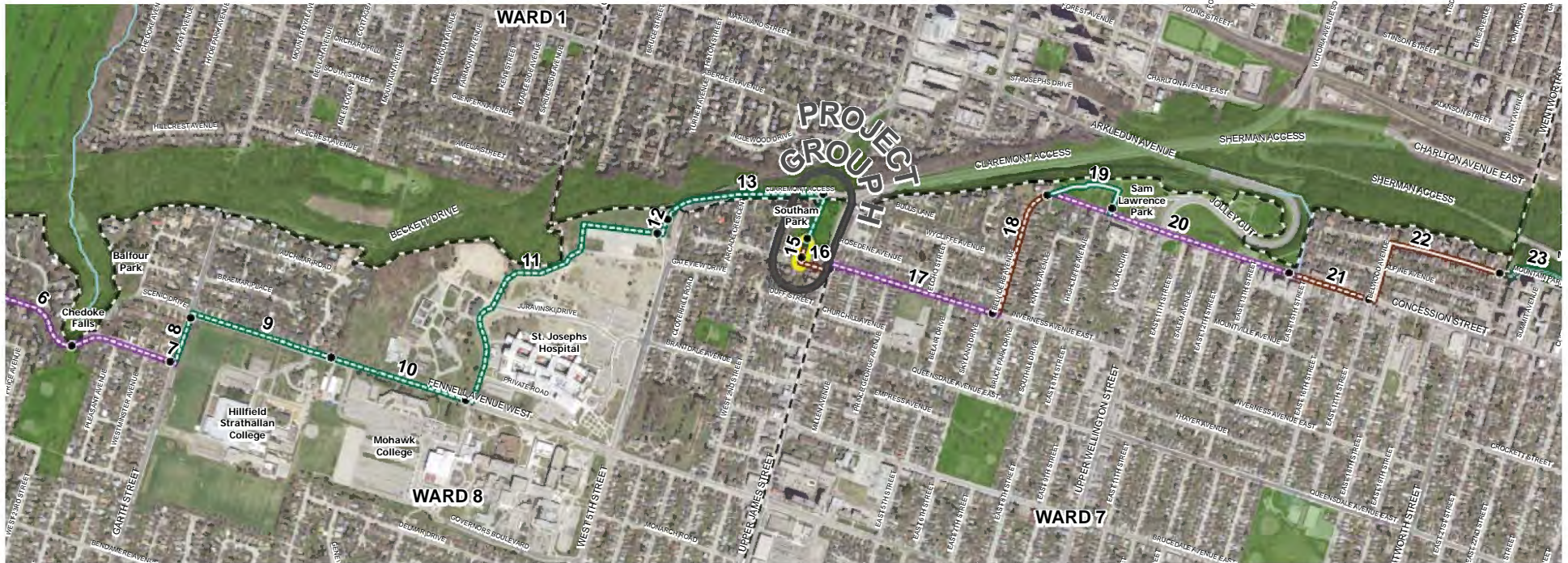
Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$79,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Provides connection to James Street stairs, consider the need for wayfinding and/or rest area to highlight Mountain Brow Trail route

15 TANNER STREET

Southam Park to Inverness Avenue West



15

TANNER STREET
Southam Park to Inverness Avenue West

WARD

8

PROJECT GROUP

H

RELATED PROJECTS

14



EXISTING FACILITY: NONE

PROPOSED FACILITY: SIGNED CYCLING ROUTE (INTERIM)



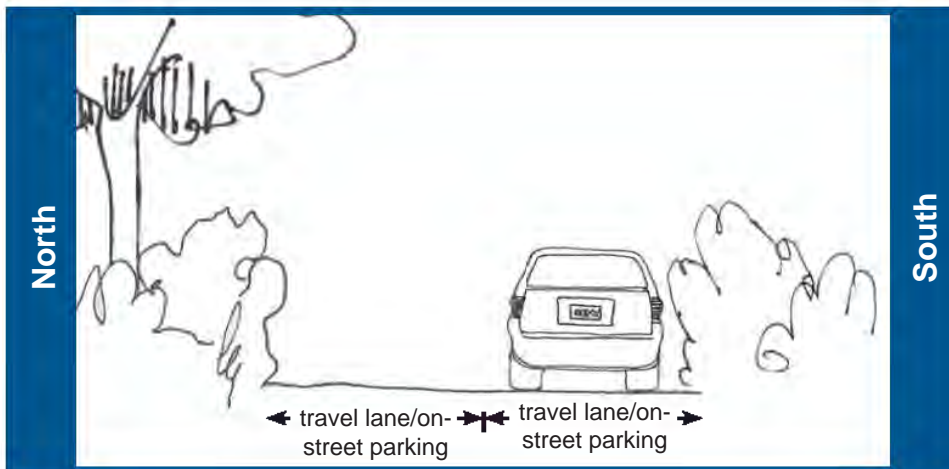
CONTEXT

AADT:	<3000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Local
Project Location:	City R.O.W.
Destination:	Southam Park, James Street Stairs, Claremont cycling facility (future)
Cultural Areas of Interest:	Southam Park is a Cultural Heritage Landscape

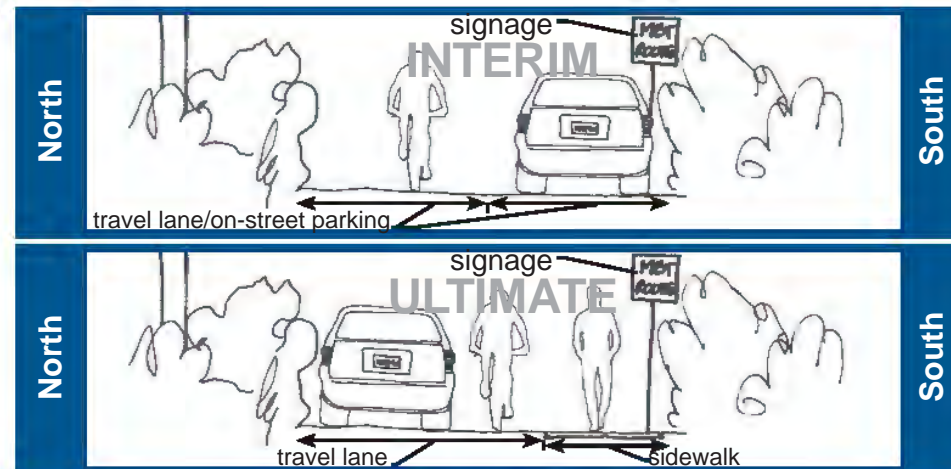
15 TANNER STREET

Southam Park to Inverness Avenue West

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Signed Cycling Route (Interim) + Sidewalk (Ultimate)	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	47
Proposed Facility Width:	1.0m	Signage:	Wayfinding, Branding
Segment Length:	35m	Lighting:	Further study required
Average Slope:	4.00%	Site Furnishings:	None recommended
Facility Location:	South		

15

TANNER STREET

Southam Park to Inverness Avenue West

IMPLEMENTATION

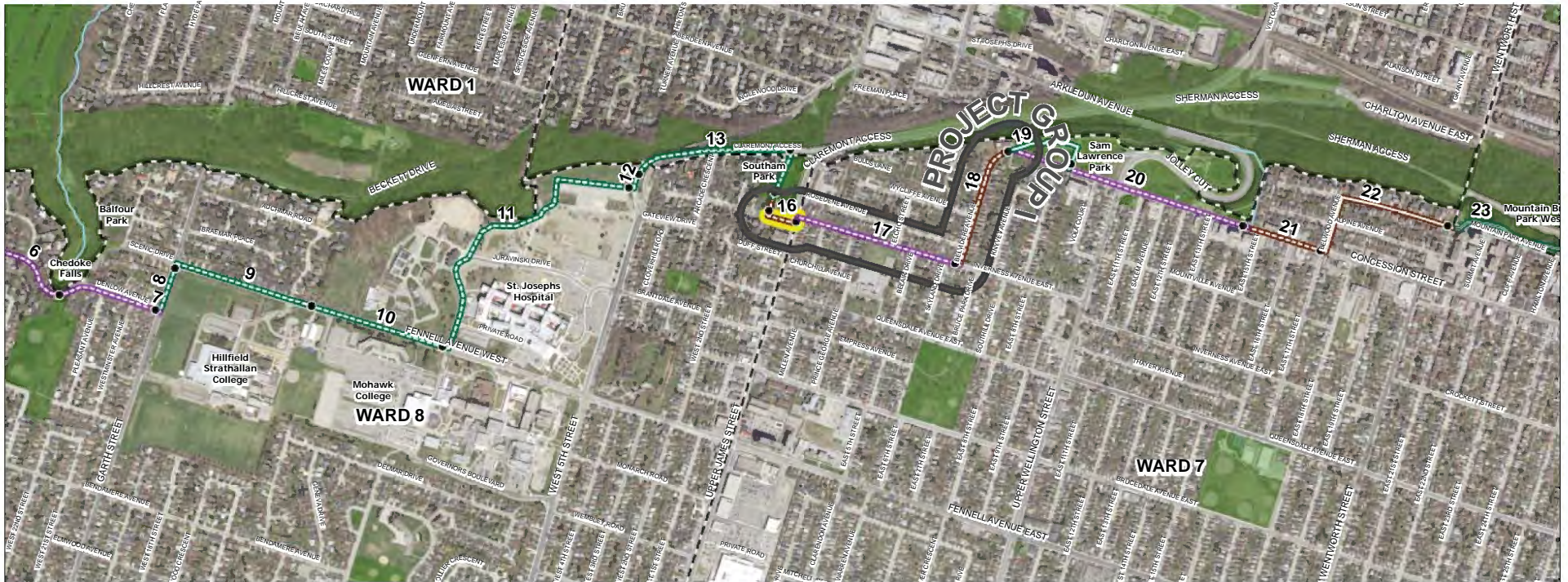
Project Horizon:	Short-Term
Implementation Responsibility:	Alternative Transportation (interim), Engineering Services (ultimate)
High Level Cost Estimate:	\$4,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

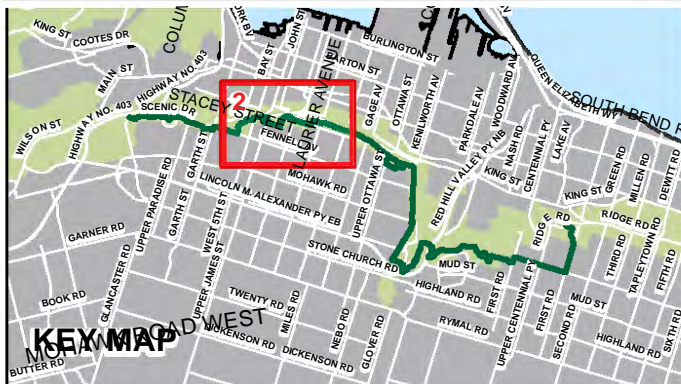
- Segment provides short connection between Southam Park and Inverness Avenue West; Limited right of way and road volumes
- Consider the addition of sidewalks along this corridor as a longer-term initiative when the road is reconstructed

NOTES: (1) assumed based on land use context and road classification

16 INVERNESS AVENUE WEST Tanner Street to Upper James Street



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk)
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

16

INVERNESS AVENUE WEST

Tanner Street to Upper James Street

WARD

8

PROJECT GROUP

I

RELATED PROJECTS

17 18



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE



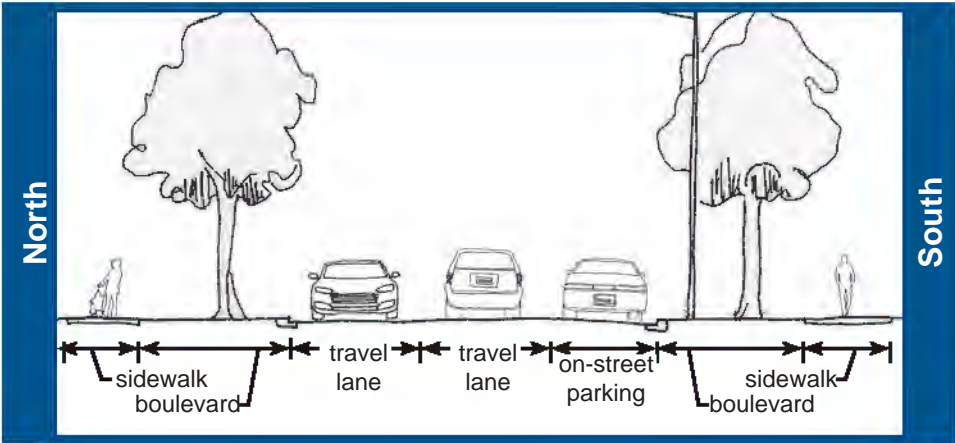
CONTEXT

AADT:	N/A
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Local
Project Location:	City R.O.W.
Destination:	Southam Park, James Street Stairs, Claremont cycling facility (future)
Cultural Areas of Interest:	Southam Park is a Cultural Heritage Landscape

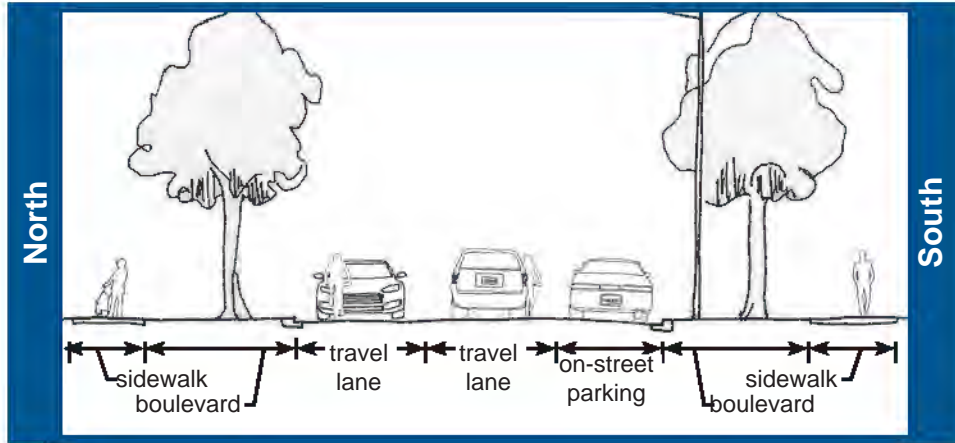
16 INVERNESS AVENUE WEST

Tanner Street to Upper James Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Sidewalk and Signed Cycling Route	Alternate Route:	No
Existing Facility Width:	1.5m	Trail Impact Score:	35
Proposed Facility Width:	1.5m (no upgrades needed)	Signage:	Wayfinding, Branding
Segment Length:	100m	Lighting:	Existing Street Lights
Average Slope:	1.43%	Site Furnishings:	None recommended
Facility Location:	North and South		

16

INVERNESS AVENUE WEST

Tanner Street to Upper James Street

IMPLEMENTATION

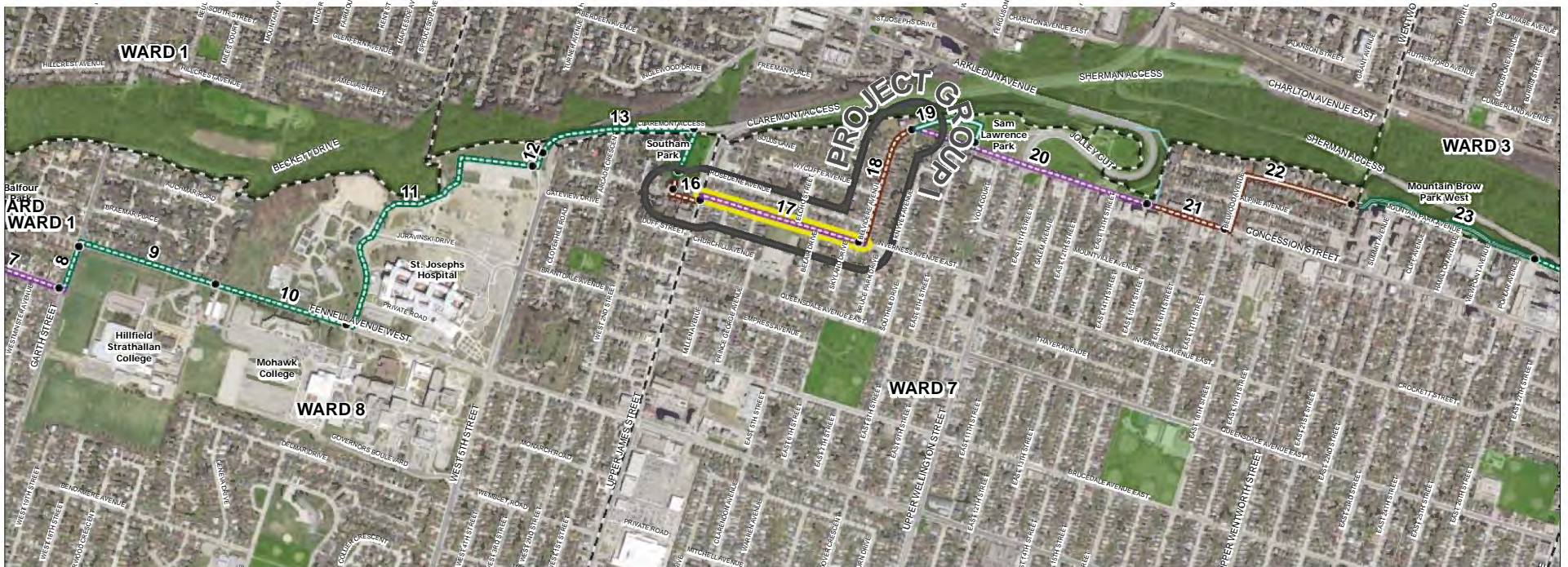
Project Horizon:	Medium-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$2,000.00
Surface:	N/A
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	Yes
Maintenance:	N/A
Public Engagement:	N/A

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

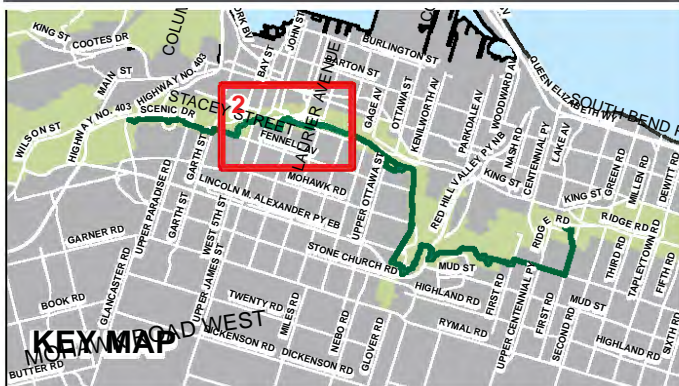
- Review of signalized intersection at Upper James Street to identify potential upgrades for cyclists

17 INVERNESS AVENUE EAST

Upper James Street to Belvidere



KEY MAP



LEGEND



17

INVERNESS AVENUE EAST

Upper James Street to Belvidere

WARD

7 8

PROJECT GROUP

I

RELATED PROJECTS

16 18



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: BIKE LANES AND SIDEWALK



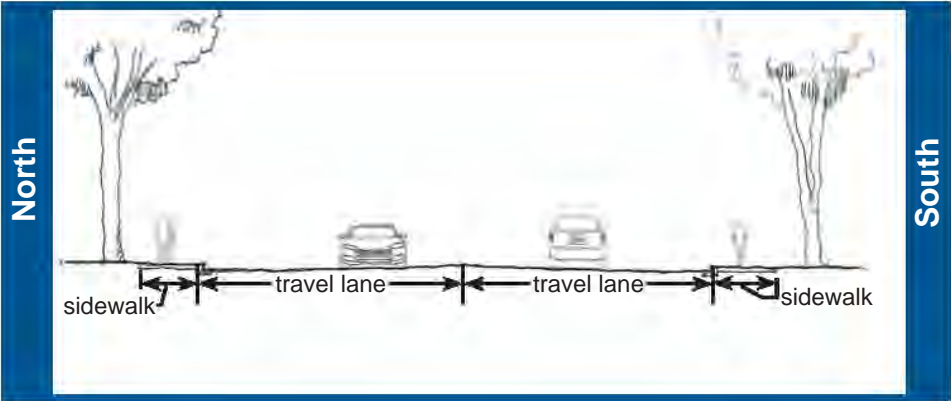
CONTEXT

AADT:	3000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	Southam Park, Sam Lawrence Park
Cultural Areas of Interest:	Southam Park, Sam Lawrence Park

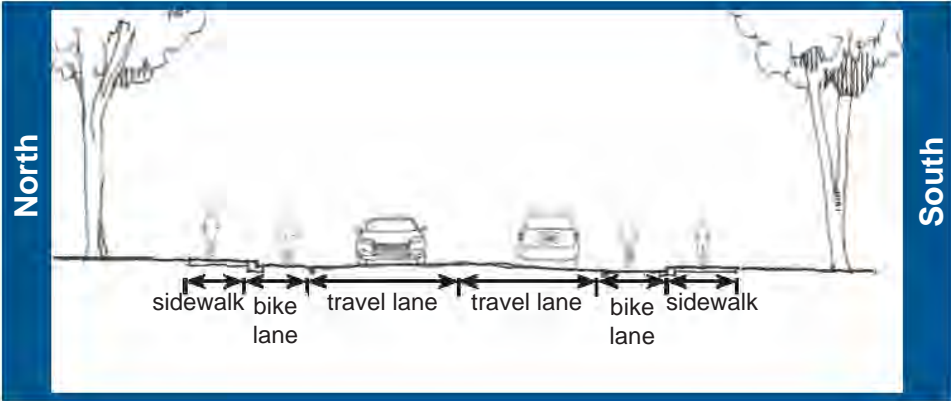
17 INVERNESS AVENUE EAST

Upper James Street to Belvidere

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Bike Lanes and Sidewalk	Alternate Route:	No
Existing Facility Width:	1.5m (sidewalk only)	Trail Impact Score:	53
Proposed Facility Width:	1.5m (sidewalk - no upgrades); 1.8-2.0 buffered bike lanes	Signage:	Wayfinding, Branding
Segment Length:	470m	Lighting:	Existing Street Lights
Average Slope:	1.43%	Site Furnishings:	None recommended
Facility Location:	Both sides		

17

INVERNESS AVENUE EAST

Upper James Street to Belvidere

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$29,000.00
Surface:	Concrete (sidewalk) (existing) and Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	No
Maintenance:	Standard maintenance for concrete surface and pavement marking
Public Engagement:	EA Process

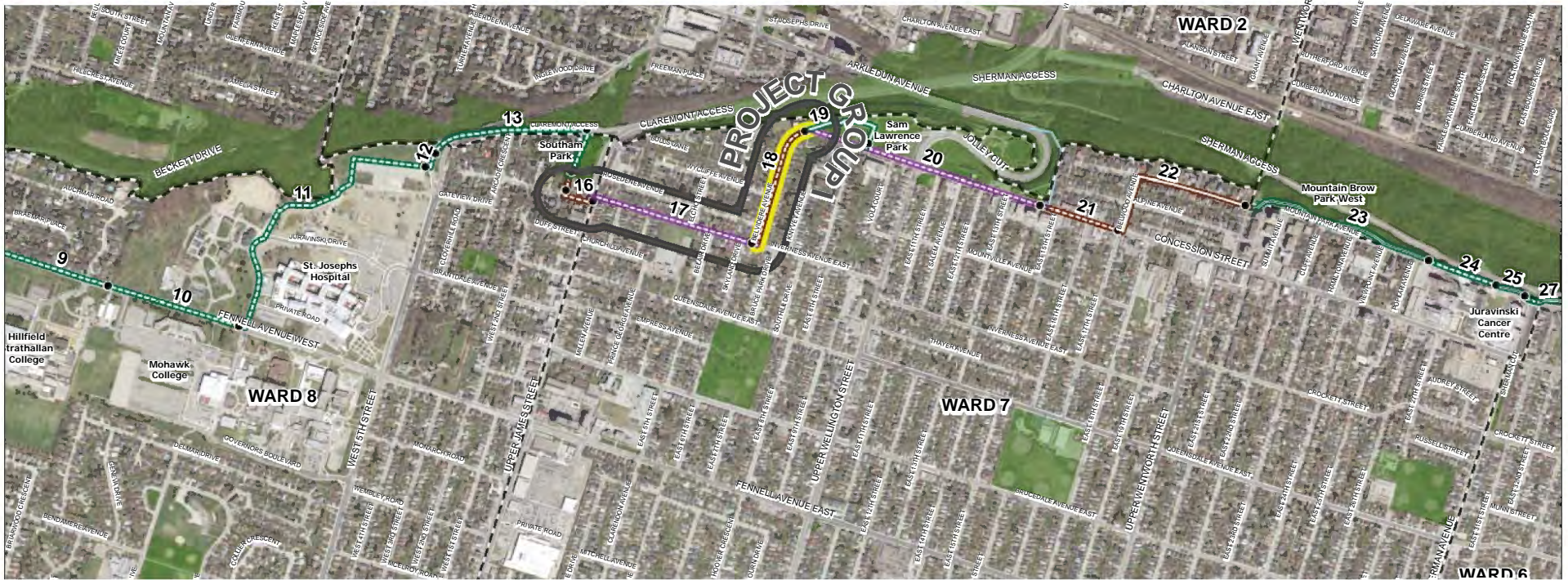
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Few constraints in this segment; sufficient curb-to-curb width to stripe bike lanes

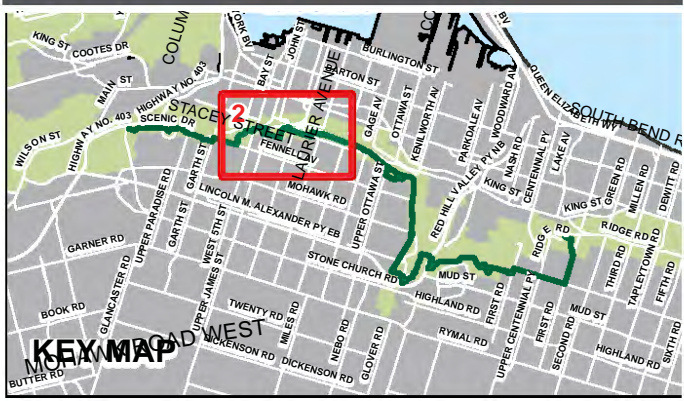
NOTES: (1) count year - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

18 BELVIDERE AVENUE

Inverness Avenue East to Concession Street



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk)
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

18

BELVIDERE AVENUE

Inverness Avenue East to Concession Street

WARD	PROJECT GROUP	RELATED PROJECTS	
7	I	16	17



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE



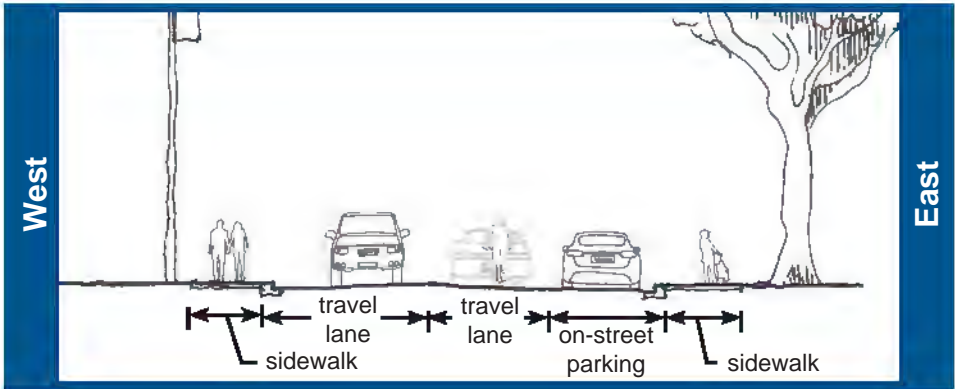
CONTEXT

AADT:	<3000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Local
Project Location:	City R.O.W.
Destination:	Sam Lawrence Park
Cultural Areas of Interest:	Sam Lawrence Park is identified as a cultural heritage landscape

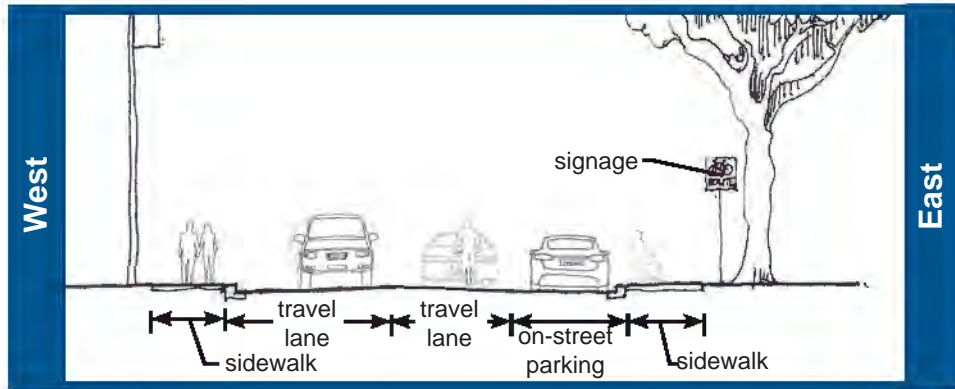
18 BELVIDERE AVENUE

Inverness Avenue East to Concession Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Sidewalk and Signed Cycling Route	Alternate Route:	No
Existing Facility Width:	1.5m (sidewalk only)	Trail Impact Score:	55
Proposed Facility Width:	1.5m (sidewalk - no upgrades required)	Signage:	Wayfinding, Branding
Segment Length:	370m	Lighting:	Existing Street Lights
Average Slope:	1.43%	Site Furnishings:	None recommended
Facility Location:	Both sides		

18

BELVIDERE AVENUE

Inverness Avenue East to Concession Street

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$8,000.00
Surface:	Concrete (sidewalk)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	No
Maintenance:	Standard maintenance for concrete surface
Public Engagement:	

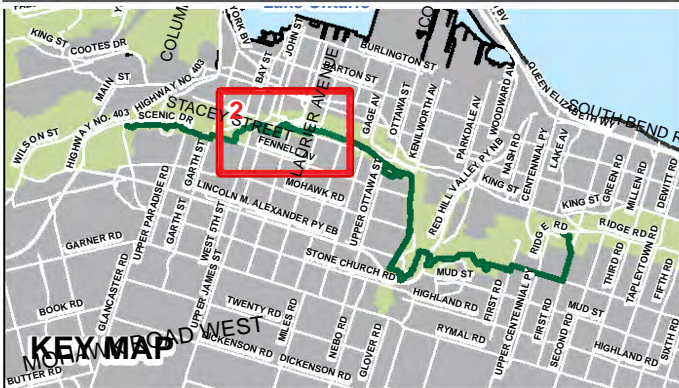
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

NOTES: (1) assumed based on land use context and road classification

19 SAM LAWRENCE PARK - MULTI-USE PATH



KEY MAP



LEGEND



19 SAM LAWRENCE PARK - MULTI-USE PATH

WARD	PROJECT GROUP	RELATED PROJECTS
7	J	20 21 22



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL

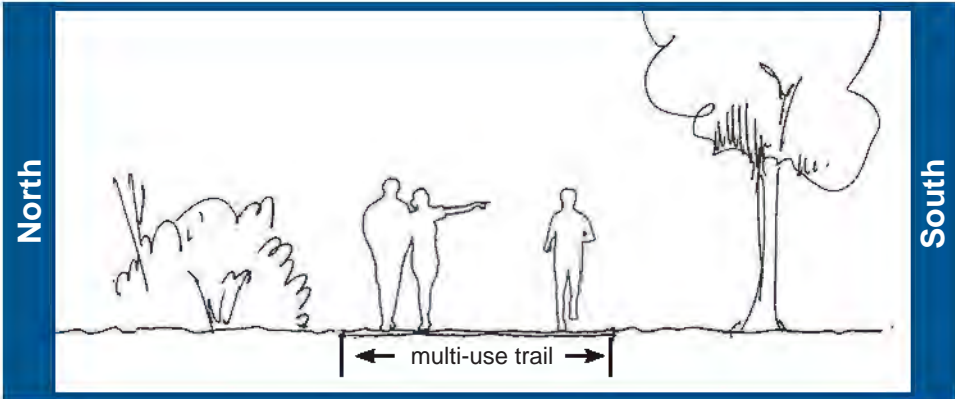


CONTEXT

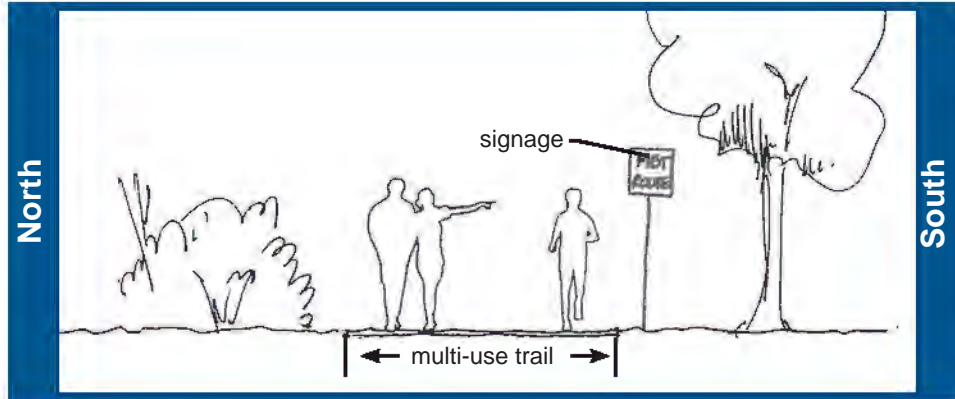
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	Vista 65 to 68, Sam Lawrence Park
Cultural Areas of Interest:	Sam Lawrence Park is identified as a cultural heritage landscape

19 SAM LAWRENCE PARK - MULTI-USE PATH

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Existing
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	2.5m	Trail Impact Score:	65
Proposed Facility Width:	2.5m	Signage:	Wayfinding, Branding
Segment Length:	260m	Lighting:	Existing Park Lighting
Average Slope:	4.82%	Site Furnishings:	No additional furnishings recommended
Facility Location:	N/A		

19 SAM LAWRENCE PARK - MULTI-USE PATH

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$3,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

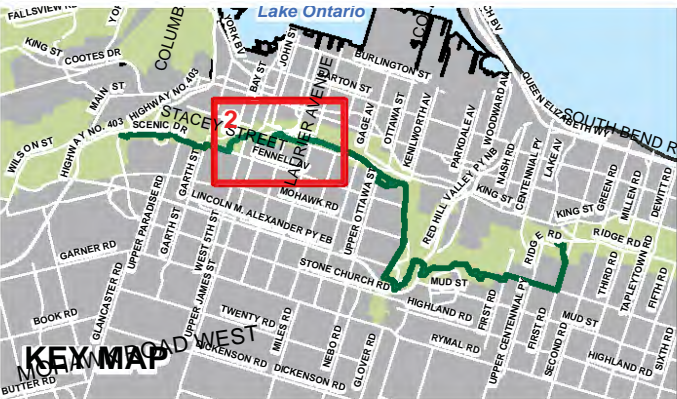
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- This segment serves as a secondary route into Sam Lawrence Park, and serving the four (4) vista locations identified in the Mountain Brow Vista Study at this location
- Intended as a pedestrian-only facility

20 CONCESSION STREET Belvidere Avenue to East 13th Street



KEY MAP



LEGEND

	Project Segment		Proposed Section On-Street Bicycle Lane and Sidewalk
	Project Group		Multi-Use Path
	Existing Section Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed Multi-Use Path		Sidewalk

20

CONCESSION STREET

Belvidere Avenue to East 13th Street

WARD

7

PROJECT GROUP

J

RELATED PROJECTS

19

21

22



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: BIKE LANE AND SIDEWALK (INTERIM)



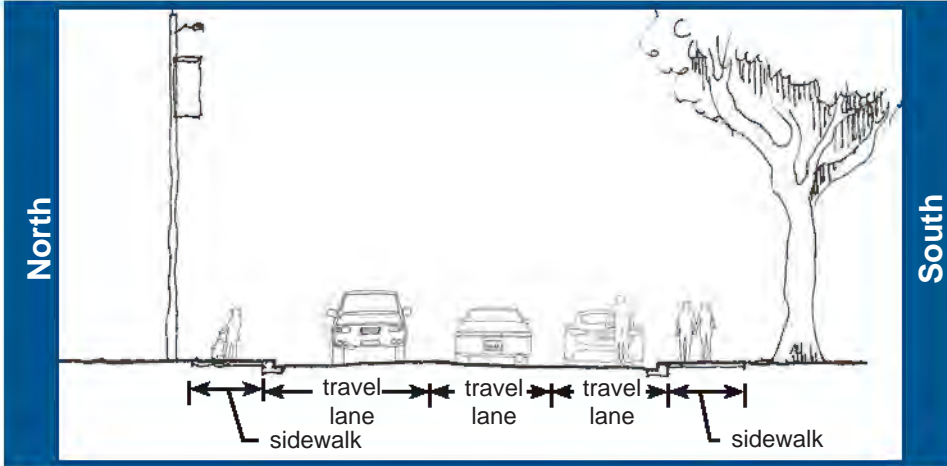
CONTEXT

AADT:	1000-4000 ^{1,2}
Speed (km/h):	50
No. of Lanes:	2 changing to 3 at Upper Wellington Street
R.O.W. Width:	20.117-36.576m
Road Characterization:	Local to Minor Arterial
Project Location:	Open Space
Destination:	Vista 65 to 68, Sam Lawrence Park, Bruce Trail, Jolly Cut, Concession Street shopping area
Cultural Areas of Interest:	Sam Lawrence Park is identified as a cultural heritage landscape

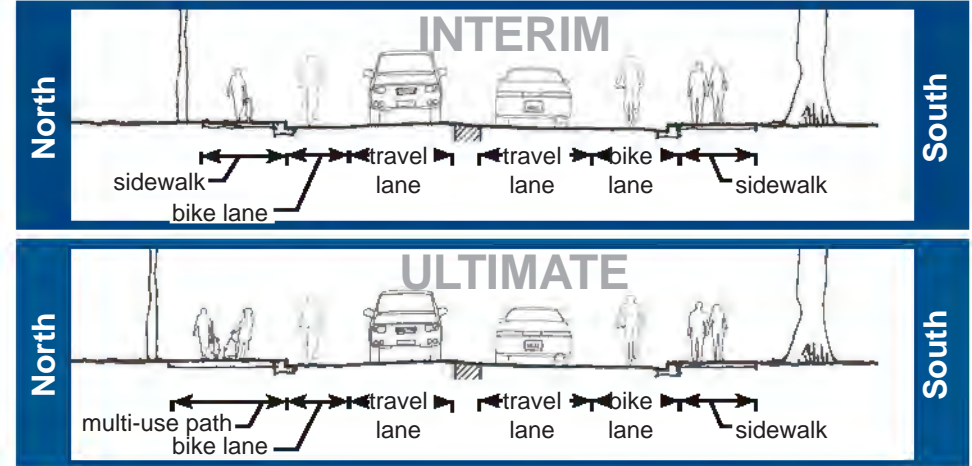
20

CONCESSION STREET
Belvidere Avenue to East 13th Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Bike Lane and Sidewalk (interim) + Multi-Use Path (ultimate)	Alternate Route:	No
Existing Facility Width:	1.5m (sidewalk)	Trail Impact Score:	80
Proposed Facility Width:	1.5m (sidewalk - no upgrades required); 1.8-2.0m buffered bike lane; 3.0m multi-use path	Signage:	Wayfinding, Branding
Segment Length:	690m	Lighting:	Existing street lighting may be adequate. Application of MBT branded fixtures may be desirable
Average Slope:	1.43%	Site Furnishings:	Consideration for accessible benches, bike racks and public art
Facility Location:	Both sides (bike lane and sidewalk); North (MUP)		

20

CONCESSION STREET

Belvidere Avenue to East 13th Street

IMPLEMENTATION

Project Horizon:	Medium-Term (bike lane & sidewalk); Ultimate (multi-use path)
Implementation Responsibility:	Alternative Transportation, Landscape Architectural Services
High Level Cost Estimate:	\$49,000.00 (bike lane & sidewalk)
Surface:	Concrete (sidewalk) (existing) and Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	Concession Street Business Improvement Area
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Lane reconfiguration to accommodate on-road cycling facilities will be an interim measure; pursue implementation of multi-use path on north side as longer-term strategy; re-location of utility poles necessary for multi-use path implementation

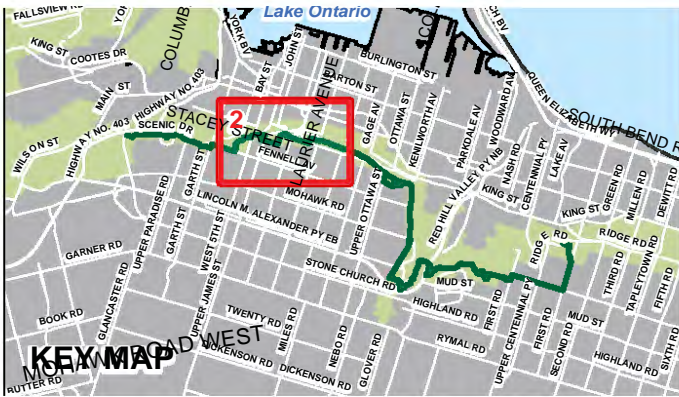
NOTES: (1) 2016 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

(2) Concession Street: Belvidere Ave to Upper Wellington Street (AADT 1000; Local Road); Upper Wellington St to E 13th St (AADT 4000; Minor Arterial)

21 CONCESSION STREET East 13th Street to Bellwood Avenue



KEY MAP



LEGEND



21

CONCESSION STREET

East 13th Street to Bellwood Avenue

WARD

7

PROJECT GROUP

J

RELATED PROJECTS

19

20

22



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE (INTERIM)



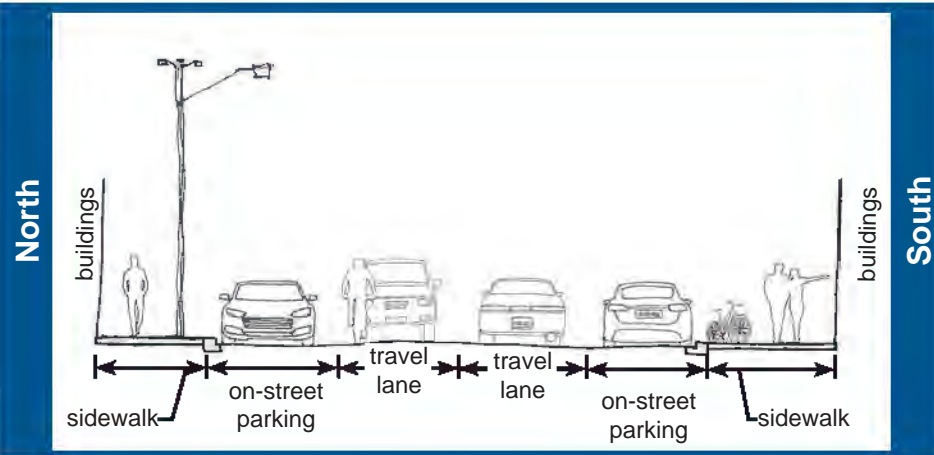
CONTEXT

AADT:	4000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	Open Space
Destination:	Sam Lawrence Park, Bruce Trail, Jolly Cut, Concession Street shopping area
Cultural Areas of Interest:	

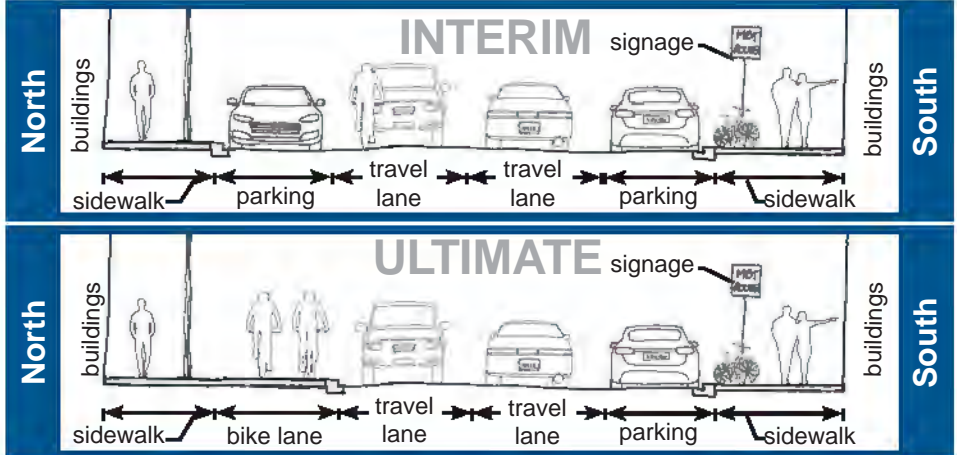
21

CONCESSION STREET
East 13th Street to Bellwood Avenue

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Sidewalk and Signed Cycling Route (interim); Multi-Use Path (ultimate)	Alternate Route:	No
Existing Facility Width:	1.8m (sidewalk only)	Trail Impact Score:	60
Proposed Facility Width:	1.8m (sidewalk - no upgrades required) + 3.0m multi-use path	Signage:	Wayfinding, Branding
Segment Length:	230m	Lighting:	Existing street lights
Average Slope:	1.43%	Site Furnishings:	No additional amenities required
Facility Location:	Both sides (sidewalk and signed route); North (MUP)		

21

CONCESSION STREET

East 13th Street to Bellwood Avenue

IMPLEMENTATION

Project Horizon:	Medium-Term (sidewalk & signed route); Ultimate (multi-use path)
Implementation Responsibility:	Alternative Transportation, Engineering Services
High Level Cost Estimate:	\$5,000.00
Surface:	Concrete (sidewalk) (existing) and Asphalt (signed route)
Land Ownership:	City of Hamilton
Stakeholders:	Concession Street Business Improvement Area
Permits and Studies:	Studies: Archaeological; Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

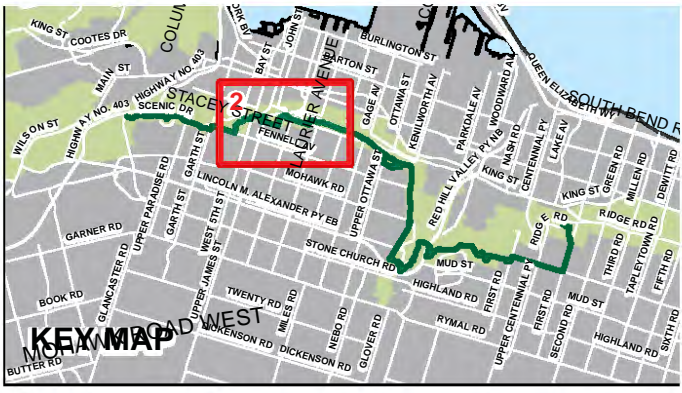
- Signed on-road cycling facilities and sidewalks will be an interim measure; pursue implementation of multi-use path on north side as longer-term strategy through removal of on-street parking on north side only
- Existing sidewalk to remain in interim and ultimate conditions, i.e. multi-use path adjacent to sidewalk on north side

NOTES: (1) 2016 - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

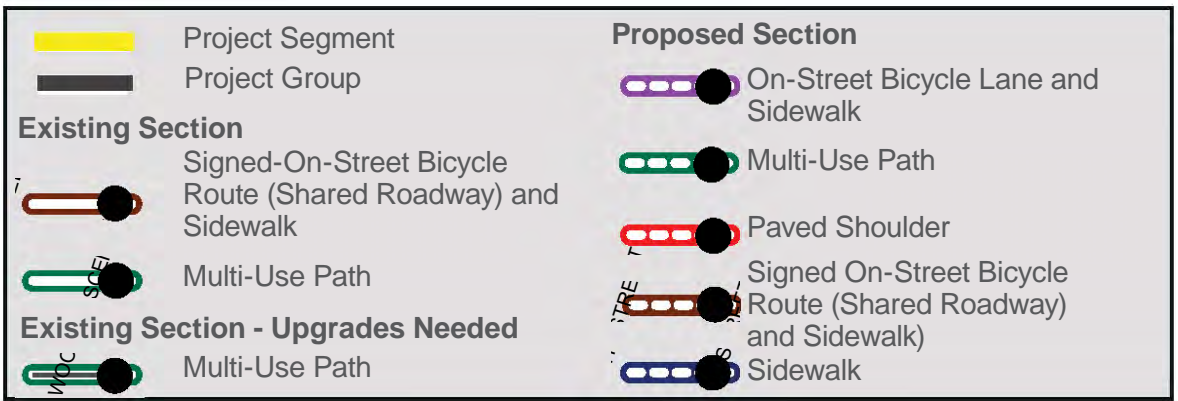
22 BELWOOD AVENUE/MOUNTAIN PARK AVENUE Concession Street to Upper Wentworth Street



KEY MAP



LEGEND



22

BELWOOD AVENUE/MOUNTAIN PARK AVENUE

Concession Street to Upper Wentworth Street

WARD

7

PROJECT GROUP

J

RELATED PROJECTS

19 20 21



EXISTING FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE



CONTEXT

AADT: <3000 ¹

Speed (km/h): 50

No. of Lanes: 2

R.O.W. Width: 20.117m

Road Characterization: Local

Project Location: City R.O.W.

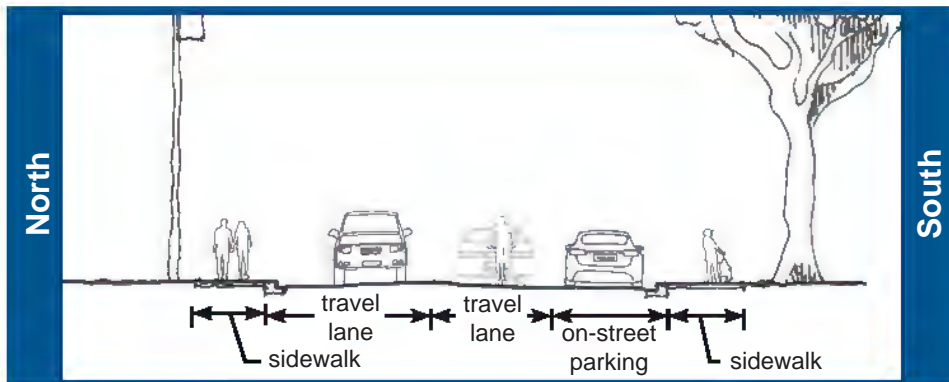
Destination: Concession Street shopping area, Mountain Brow Park West, Wentworth Stairs

Cultural Areas of Interest:

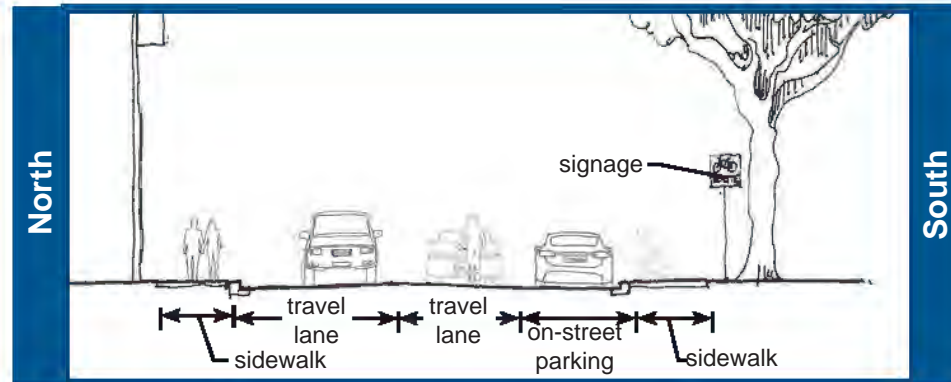
22

BELWOOD AVENUE/MOUNTAIN PARK AVENUE
Concession Street to Upper Wenworth Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk and Signed Cycling Route	Status:	Proposed Future
Proposed Facility:	Sidewalk and Signed Cycling Route	Alternate Route:	No
Existing Facility Width:	1.5m (sidewalk only)	Trail Impact Score:	40
Proposed Facility Width:	1.5m (sidewalk only)	Signage:	Wayfinding, Branding
Segment Length:	480m	Lighting:	Existing Street Lights
Average Slope:	1.43%	Site Furnishings:	None recommended
Facility Location:	Both Sides		

22

BELWOOD AVENUE/MOUNTAIN PARK AVENUE

Concession Street to Upper Wentworth

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$5,000.00
Surface:	Concrete (sidewalk)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete surface
Public Engagement:	N/A

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

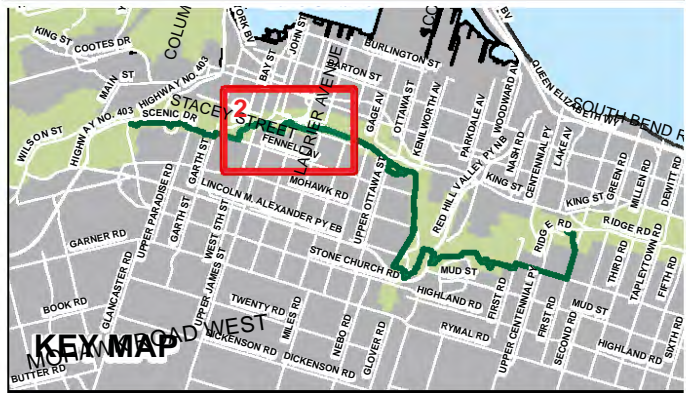
- Consider the addition of sidewalk on the east side of Belwood Avenue as a longer term project during future road reconstruction (cost has not been included)
- Public has expressed the desire for more timed parking to make it safe for recreational users
- Evaluate trail improvements at the Mountain Park Avenue & Upper Wentworth Street intersection to facilitate cyclist access on and off the trail

NOTES: (1) assumed based on land use context and road classification

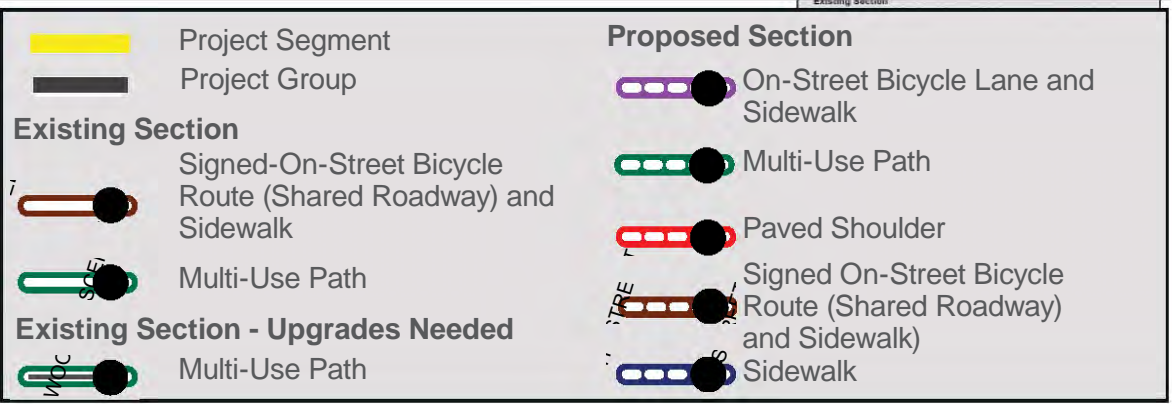
23 MOUNTAIN BROW PARK WEST Upper Wentworth Street to Poplar Avenue



KEY MAP



LEGEND



23 PROJECT GROUP MOUNTAIN BROW PARK WEST Upper Wentworth Street to Poplar Avenue	WARD	PROJECT GROUP	RELATED PROJECTS
	3 7	K	25 27 28



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



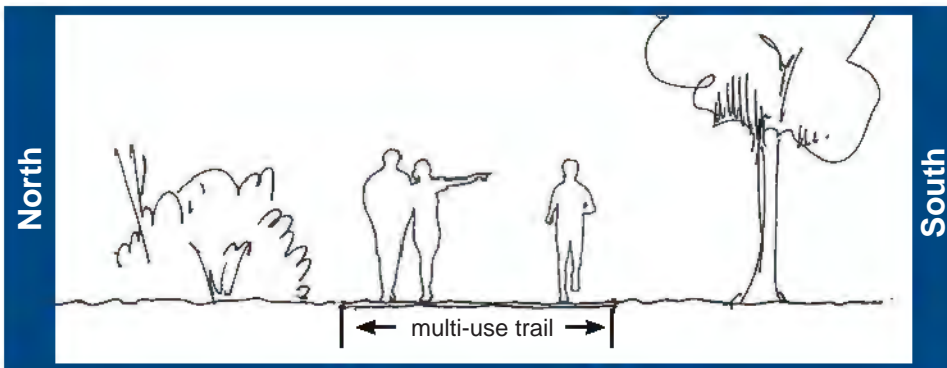
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	Vistas 59 to 64, Mountain Brow Park West, Wentworth Stairs, Juravinski Hospital & Cancer Centre
Cultural Areas of Interest:	Historic Mountain Park Theatre, Historic East End Railway

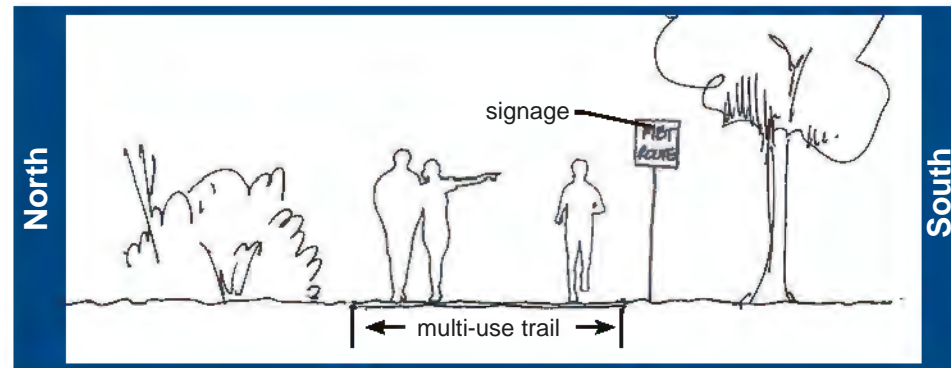
23

MOUNTAIN BROW PARK WEST
Upper Wentworth Street to Poplar Avenue

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	2.5-2.7m	Trail Impact Score:	70
Proposed Facility Width:	3.0-4.0m	Signage:	Trailhead, Wayfinding, Branding
Segment Length:	560m	Lighting:	Existing street lights. Application of MBT branded fixtures may be desirable, consultation with NEC required
Average Slope:	4.55%	Site Furnishings:	Application of MBT branded benches and fencing may be desirable. Consideration for bike racks and public art
Facility Location:	North		

23

MOUNTAIN BROW PARK WEST

Upper Wentworth Street to Poplar Avenue

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$460,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence and asphalt surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

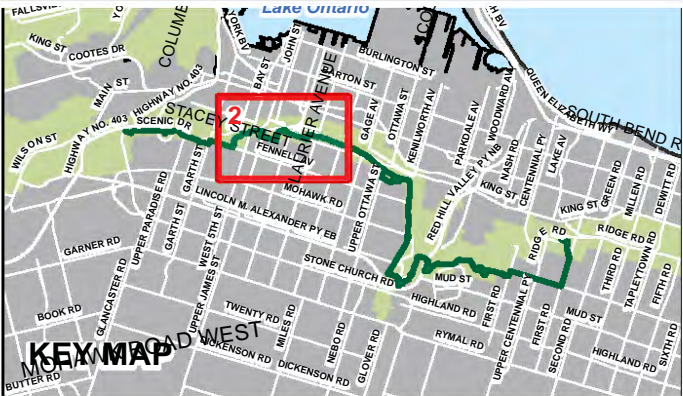
- Historical fence replacements due to slope failure in this location to Mountain Drive Park. Design and installation must examine preventative and mitigation measures.
- Public expressed desire to upgrade fencing for consistency and safety; Widen Wentworth stairs for cyclist access; Consider washroom facilities at stairs (Wentworth Stairs)
- Evaluate trail improvements at the Mountain Park Avenue & Upper Wentworth Street intersection to facilitate cyclist access on and off the trail
- Parking facilities should be evaluated as part of this project.

24 MOUNTAIN BROW PARK WEST

Poplar Avenue to Juravinski Hospital and Cancer Centre



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

24

MOUNTAIN BROW PARK WEST

Poplar Avenue to Juravinski Hospital and Cancer Centre

WARD

3 7

PROJECT GROUP

L

RELATED PROJECTS



EXISTING FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE

PROPOSED FACILITY: MULTI-USE PATH



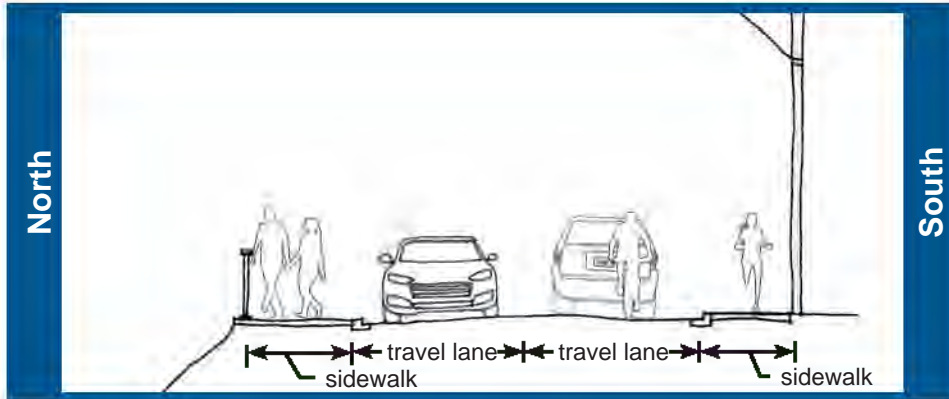
CONTEXT

AAADT:	<3000 ¹
Speed (km/h):	N/A
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Vistas 57 to 58, Mountain Brow Park West, Wentworth Stairs, Juravinski Hospital & Cancer Centre
Cultural Areas of Interest:	

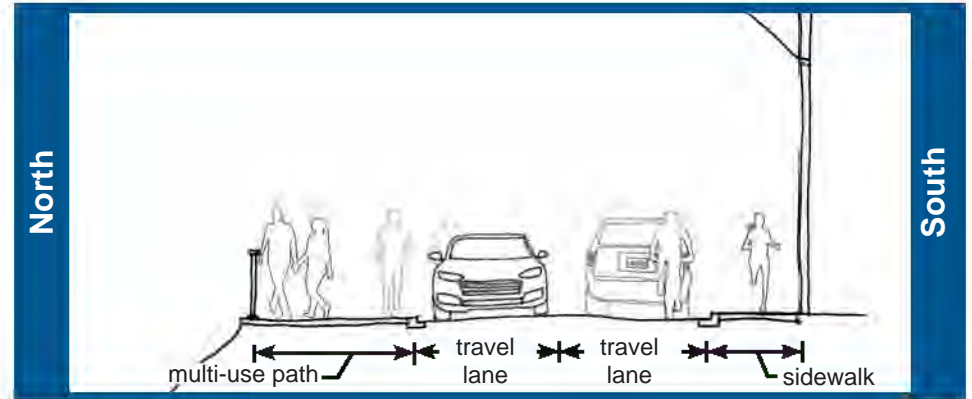
24

MOUNTAIN BROW PARK WEST
Poplar Avenue to Juravinski Hospital and Cancer Centre

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk and Signed Cycling Route	Status:	Proposed Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	1.5m (sidewalk only)	Trail Impact Score:	52
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	200m	Lighting:	Existing Street Lights
Average Slope:	52.14%	Site Furnishings:	None recommended
Facility Location:	North		

24

MOUNTAIN BROW PARK WEST

Poplar Avenue to Juravinski Hospital and Cancer Centre

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$150,000.00 ²
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Juravinski Hospital and Cancer Center
Permits and Studies:	Permits: N.E.C.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence and asphalt surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- While a multi-use path would be preferred for continuity, the existing facility works reasonably well
- Historical fence replacements due to slope failure in this location to Mountain Drive Park. Design and installation must examine preventative and mitigation measures.
- Asphalt surface repairs due to tree root heaving;

NOTES: (1) assumed based on land use context and road classification

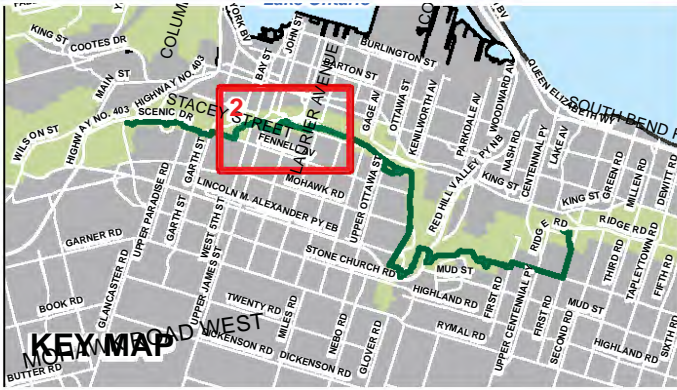
(2) Some additional challenges and costs associated with bridges and constrained cross-sections not accounted for

25 MOUNTAIN BROW PARK WEST

Juravinski Hospital and Cancer Centre



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

25

MOUNTAIN BROW PARK WEST

Juravinski Hospital and Cancer Centre

WARD

3

7

PROJECT GROUP

K

RELATED PROJECTS

23

27

28



EXISTING FACILITY: MULTI-USE PATH

PROPOSED FACILITY: MULTI-USE PATH



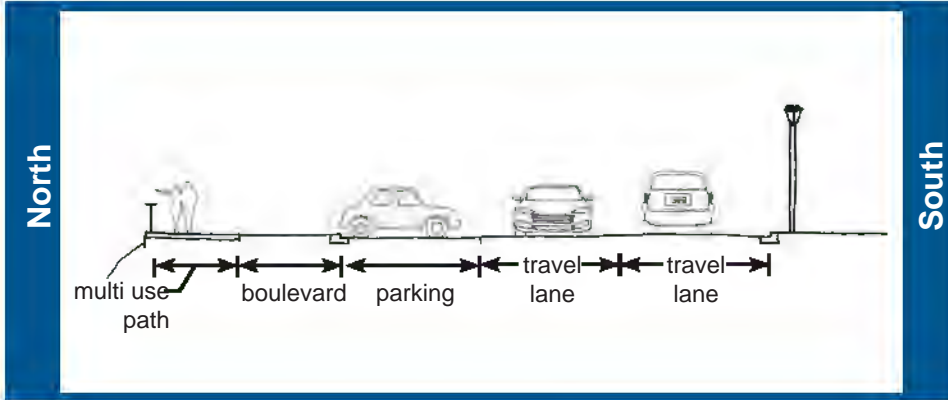
CONTEXT

AADT:	<3000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	Municipal Park
Destination:	Vistas 55 to 56, Mountain Brow Park West, Wentworth Stairs, Juravinski Hospital & Cancer Centre
Cultural Areas of Interest:	

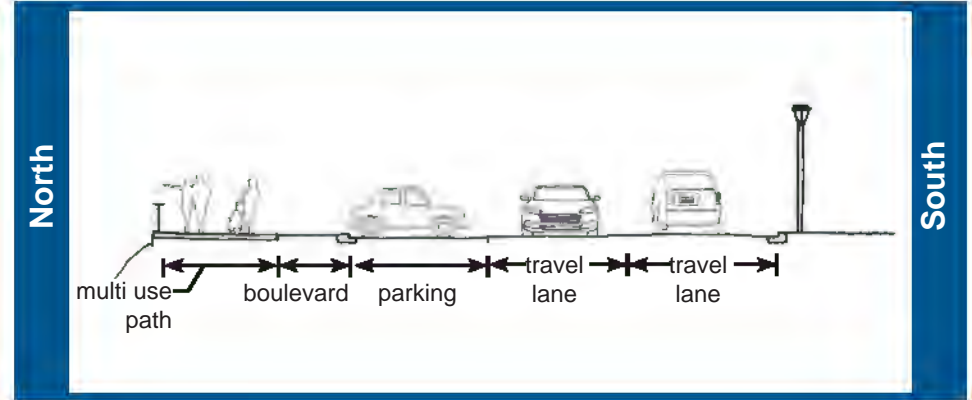
25

MOUNTAIN BROW PARK WEST
Juravinski Hospital and Cancer Centre

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Path	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Path - Upgrades	Alternate Route:	No
Existing Facility Width:	2.0m	Trail Impact Score:	40
Proposed Facility Width:	2.4 minimum; 3.0m preferred	Signage:	Wayfinding, Branding
Segment Length:	90m	Lighting:	Existing street lights
Average Slope:	8.06%	Site Furnishings:	Application of MBT branded furniture
Facility Location:	North		

25

MOUNTAIN BROW PARK WEST

Juravinski Hospital and Cancer Centre

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$52,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Juravinski Hospital and Cancer Centre
Permits and Studies:	Permits: N.E.C.; Studies: Archaeological; Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence, and concrete and asphalt surfaces
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

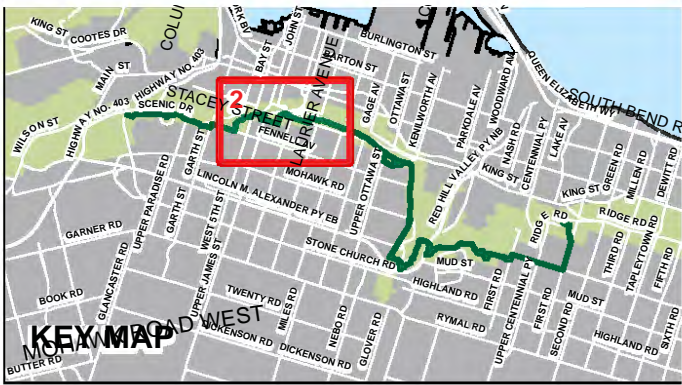
- Project segment 23 is very similar to segments 25, 27 & 28, but phased implementation would likely be required due to cost
- Historical fence replacements due to slope failure in this location to Mountain Drive Park. Design and installation must examine preventative and mitigation measures.
- Parking facilities should be evaluated as part of this project.

NOTES: (1) assumed based on land use context and road classification

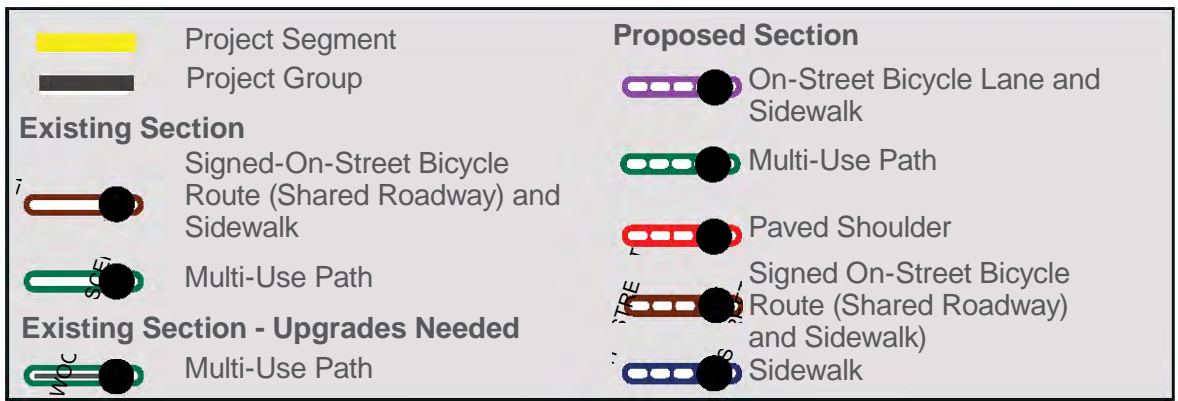
26 MOUNTAIN BROW PARK AVE BRIDGE (Over Sherman Cut)



KEY MAP



LEGEND



26	MOUNTAIN BROW PARK AVE BRIDGE (Over Sherman Cut)	WARD	PROJECT GROUP	RELATED PROJECTS
		7	M	



EXISTING FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE

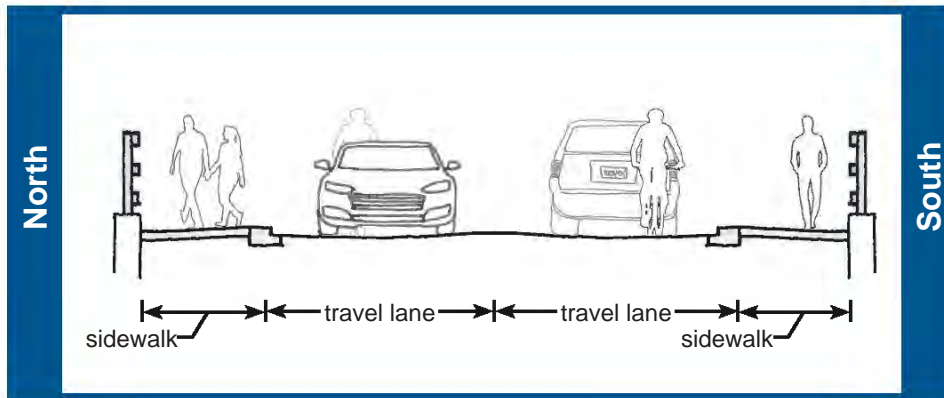
PROPOSED FACILITY: MULTI-USE PATH

CONTEXT

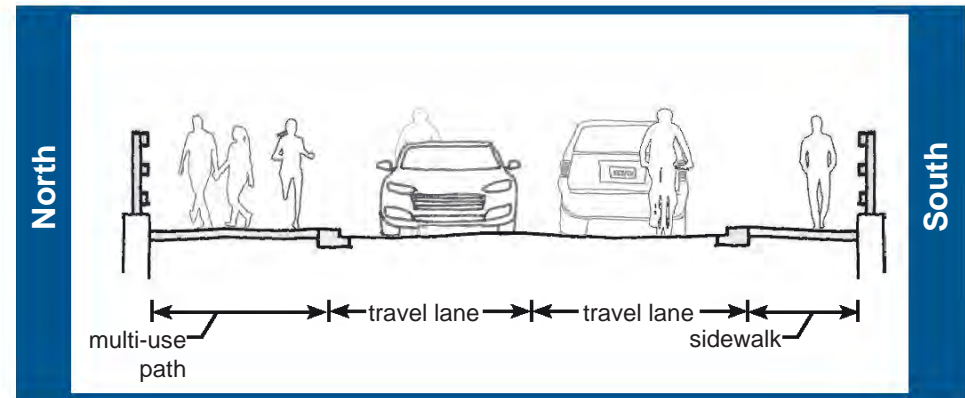
AADT:	<3000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Mountain Brow Park West, Wentworth Stairs, Juravinski Hospital & Cancer Centre, Mountain Drive Park
Cultural Areas of Interest:	

26 MOUNTAIN BROW PARK AVE BRIDGE (Over Sherman Cut)

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk and Signed Cycling Route	Status:	Proposed Future
Proposed Facility:	Multi-Use Path	Alternate Route:	No
Existing Facility Width:	2.0m (sidewalk only)	Trail Impact Score:	50
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	30m	Lighting:	Existing street lights
Average Slope:	34.50%	Site Furnishings:	None recommended
Facility Location:	North		

26

MOUNTAIN BROW PARK AVE BRIDGE

(Over Sherman Cut)

IMPLEMENTATION

Project Horizon:	Ultimate
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$21,000.00 ²
Surface:	N/A
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete surface and highway
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Requires bridge deck reconstruction - may not be feasible within 20-year timeline
- While a multi-use path would be preferred for continuity, the existing facility works reasonably well

NOTES: (1) assumed based on land use context and road classification

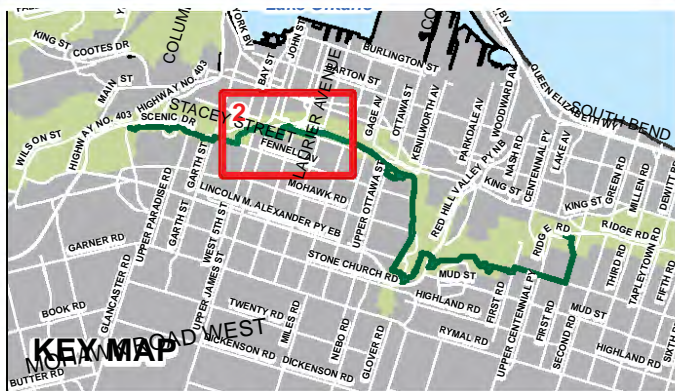
(2) Some additional challenges and costs associated with bridges not accounted for

27 MOUNTAIN BROW PARK WEST

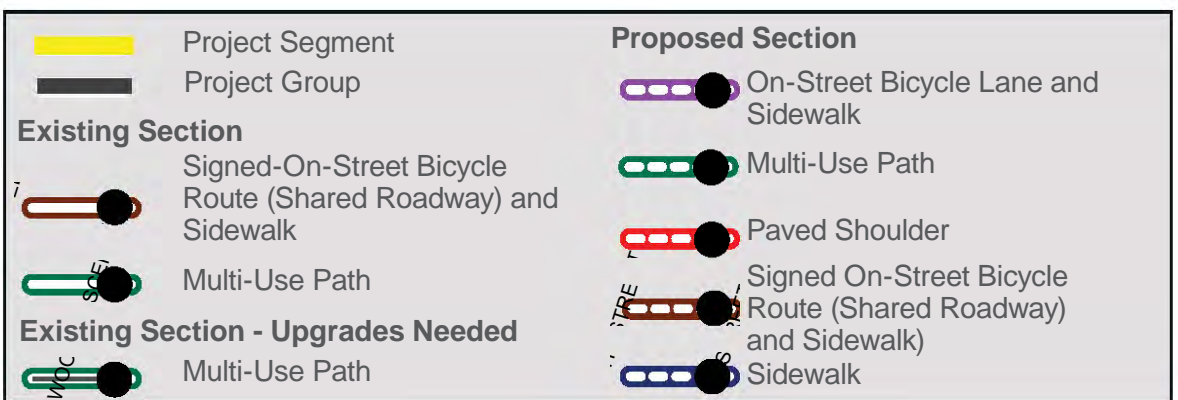
Upper Sherman to Mountain Drive Park



KEY MAP



LEGEND



27

MOUNTAIN BROW PARK WEST

Upper Sherman to Mountain Drive Park

WARD

3 7

PROJECT GROUP

K

RELATED PROJECTS

23 25 28



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



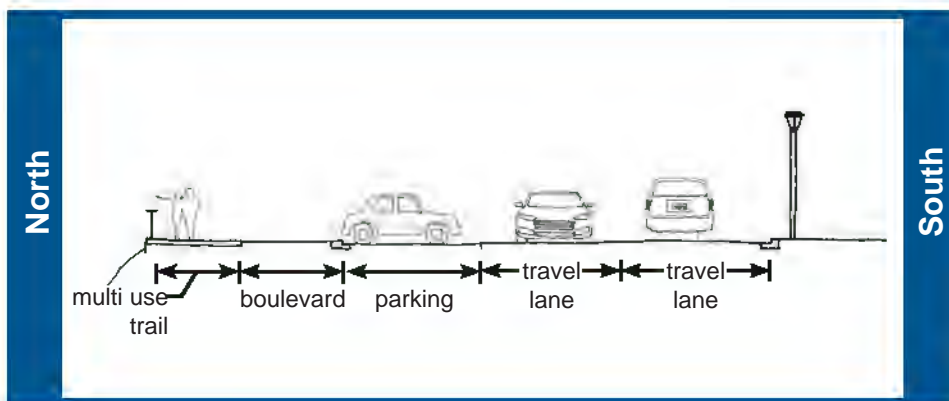
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	Vistas 47 to 54, Mountain Brow Park West, Wentworth Stairs, Juravinski Hospital & Cancer Centre
Cultural Areas of Interest:	

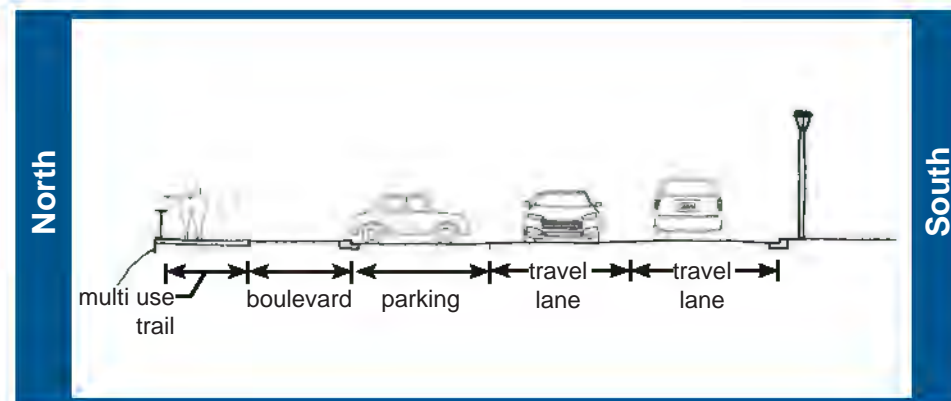
27

MOUNTAIN BROW PARK WEST
Upper Sherman to Mountain Drive Park

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	2.5m	Trail Impact Score:	40
Proposed Facility Width:	3.0m-4.0m	Signage:	Wayfinding, Branding
Segment Length:	640m	Lighting:	Application of MBT branded fixtures may be desirable, consultation with NEC required
Average Slope:	N/A	Site Furnishings:	Accessible benches recommended at vistas
Facility Location:	North		

27

MOUNTAIN BROW PARK WEST

Upper Sherman to Mountain Drive Park

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$530,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Asset Management, Design Engineering, Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence, stone retaining wall and asphalt surface
Public Engagement:	Maintain the trail as close to the Escarpment edge for as long as possible

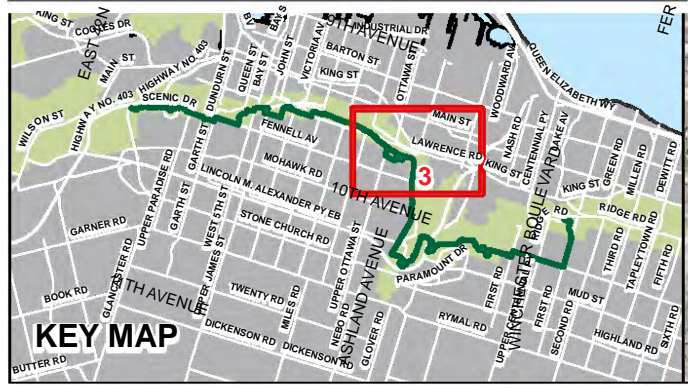
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Historical fence replacements due to slope failure in this location. Design and installation must examine preventative and mitigation measures.
- Consideration of MBT-branded fencing to replace stone wall for safety
- Consideration for the implementation of multi-use facilities on the south side should be considered as well

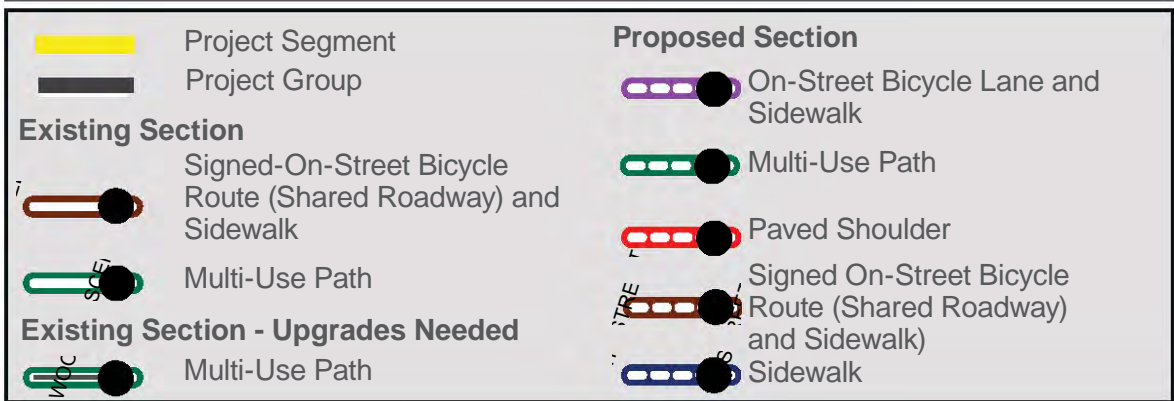
28 MOUNTAIN DRIVE PARK



KEY MAP



LEGEND



28 MOUNTAIN DRIVE PARK

WARD

6

PROJECT GROUP

K

RELATED PROJECTS

23 25 27



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL

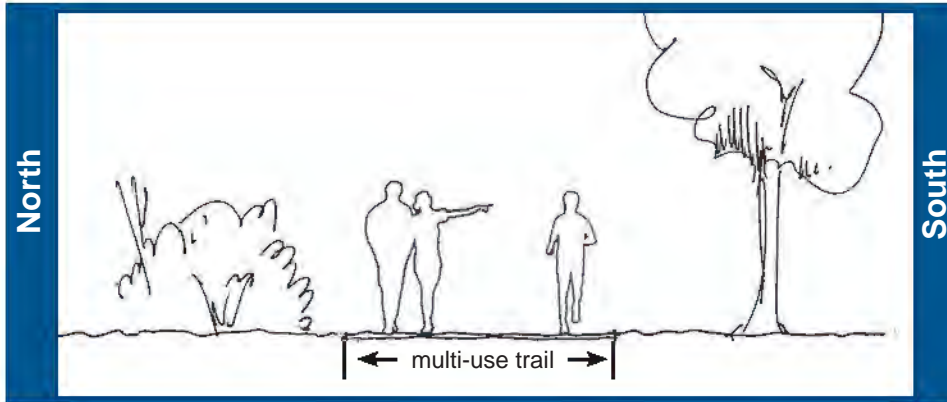


CONTEXT

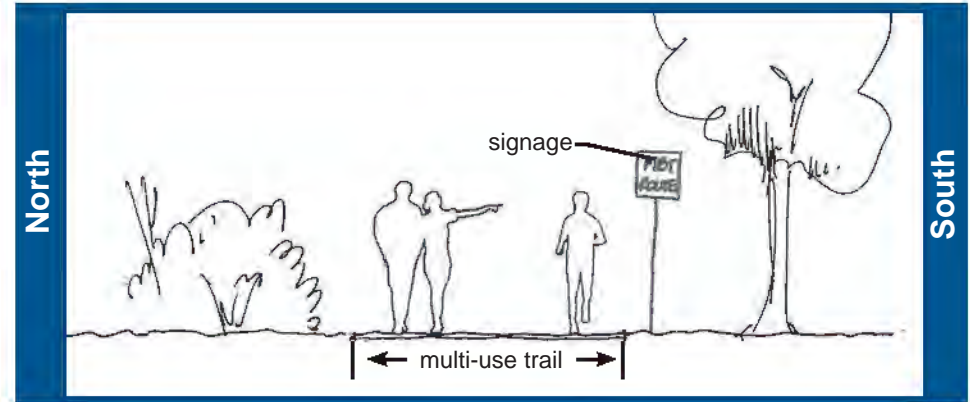
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	Vistas 44 to 46, Mountain Brow Park West, Wentworth Stairs, Juravinski Hospital & Cancer Centre
Cultural Areas of Interest:	988 Concession Street is a Designated property across from Mountain Drive Park

28 MOUNTAIN DRIVE PARK

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	3.0m	Trail Impact Score:	40
Proposed Facility Width:	3.0m	Signage:	Trailhead, Wayfinding, Branding
Segment Length:	500m	Lighting:	Currently no park lighting provided in accordance with standard practice. MBT branded fixtures may be desirable. Further study required
Average Slope:	2.16%	Site Furnishings:	Accessible benches and bike racks recommended at 30m intervals
Facility Location:	North		

28 MOUNTAIN DRIVE PARK

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$310,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

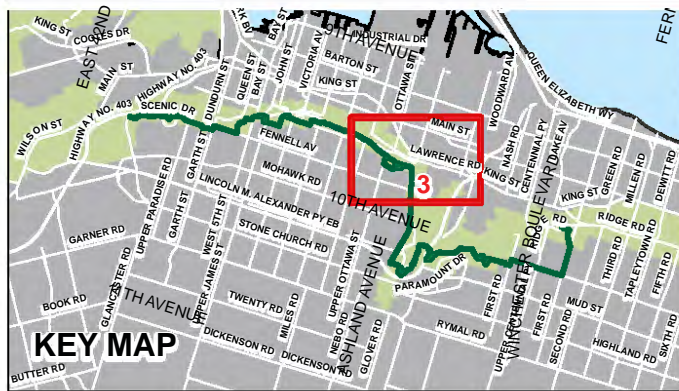
- Historical fence replacements due to slope failure in this location. Design and installation must examine preventative and mitigation measures.
- Public expressed the desire to enhance the washroom

29 MOUNTAIN BROW BOULEVARD

Mountain Drive Park to Upper Ottawa Street



KEY MAP



LEGEND



29

MOUNTAIN BROW BOULEVARD

Mountain Drive Park to Upper Ottawa Street

WARD

3

6

PROJECT GROUP

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RELATED PROJECTS



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



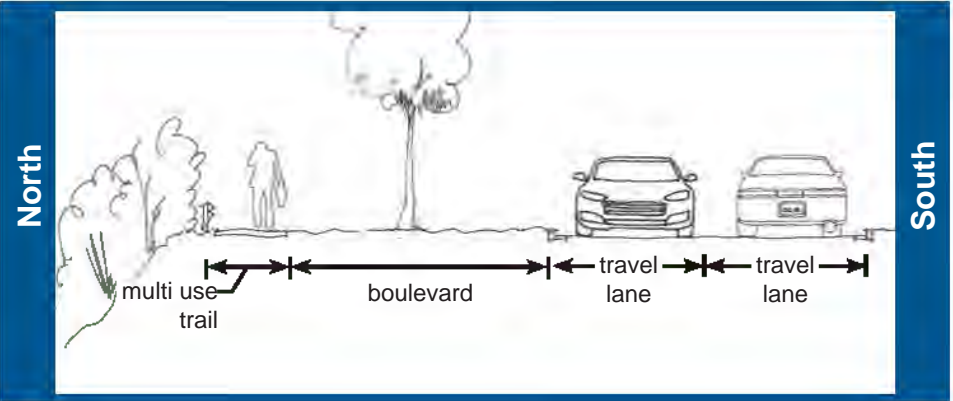
CONTEXT

AADT:	N/A
Speed (km/h):	40
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Vistas 41 to 43, Mountain Drive Park
Cultural Areas of Interest:	

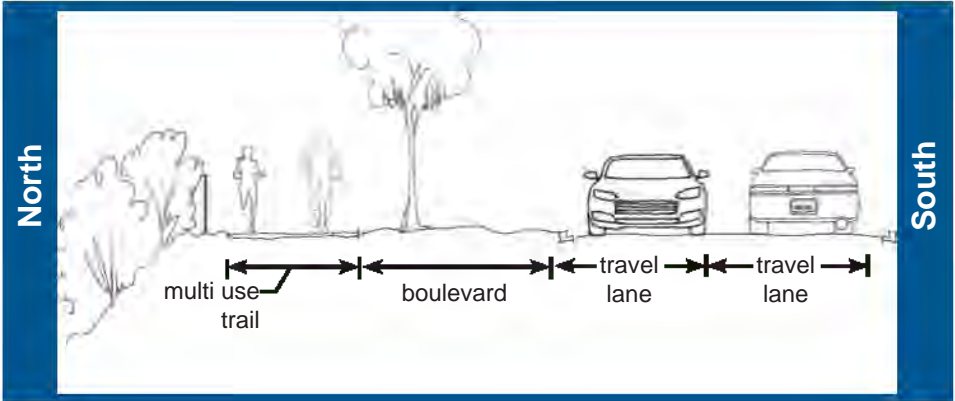
29 MOUNTAIN BROW BOULEVARD

Mountain Drive Park to Upper Ottawa Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	1.5m	Trail Impact Score:	37
Proposed Facility Width:	3.0-4.0m	Signage:	Wayfinding, Branding
Segment Length:	530m	Lighting:	Existing street lighting may be adequate. Application of MBT branded fixture may be desirable
Average Slope:	N/A	Site Furnishings:	Accessible benches recommended at vistas
Facility Location:	North		

29

MOUNTAIN BROW BOULEVARD

Mountain Drive Park to Upper Ottawa Street

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$440,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence and asphalt surface
Public Engagement:	EA Process

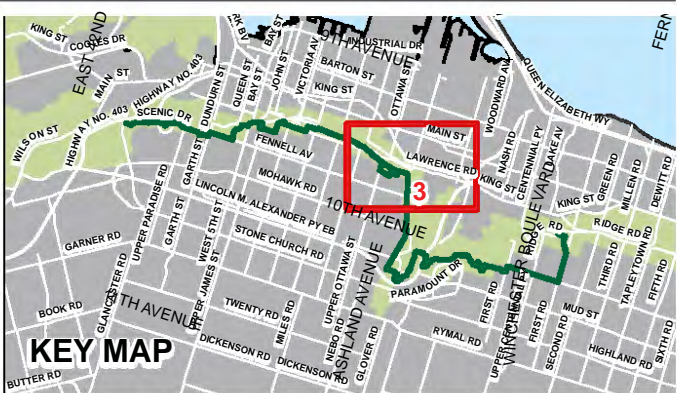
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Anticipated to be completed with a road reconstruction project
- Historical fence replacements due to slope failure in this location. Design and installation must examine preventative and mitigation measures.
- Guardrail will be replaced with MBT fencing

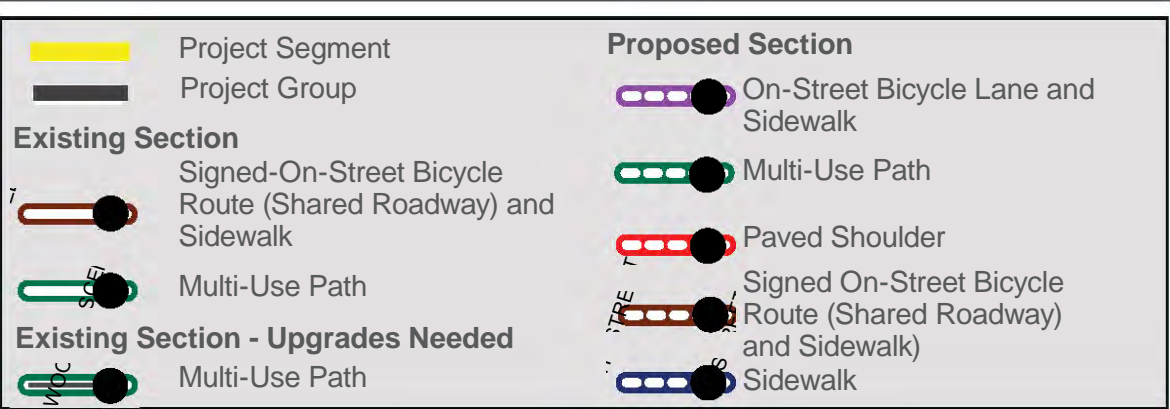
30 MOUNTAIN BROW BOULEVARD Upper Ottawa Street to Oakcrest Drive



KEY MAP



LEGEND



30

MOUNTAIN BROW BOULEVARD

Upper Ottawa Street to Oakcrest Drive

WARD

6

PROJECT GROUP

0

RELATED PROJECTS



EXISTING FACILITY: NONE

PROPOSED FACILITY: SIDEWALK ONLY



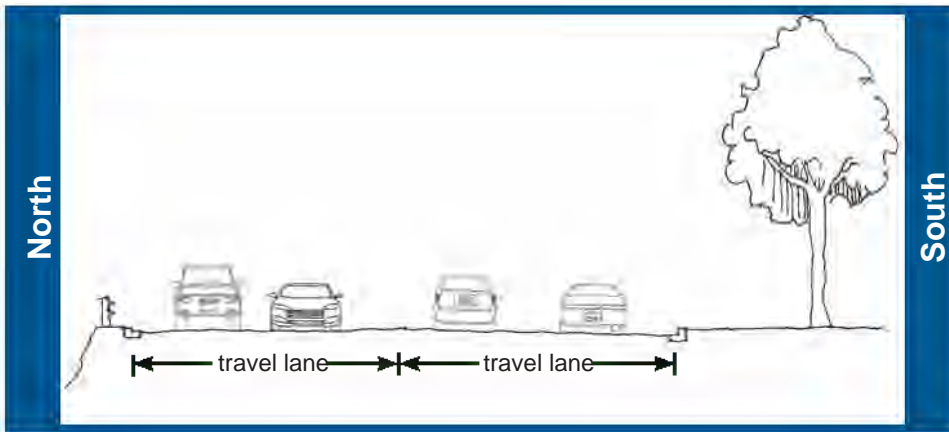
CONTEXT

AADT:	4000-22000 ¹
Speed (km/h):	40
No. of Lanes:	4
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Mountain Drive Park, Mountain Brow Trail (existing)
Cultural Areas of Interest:	

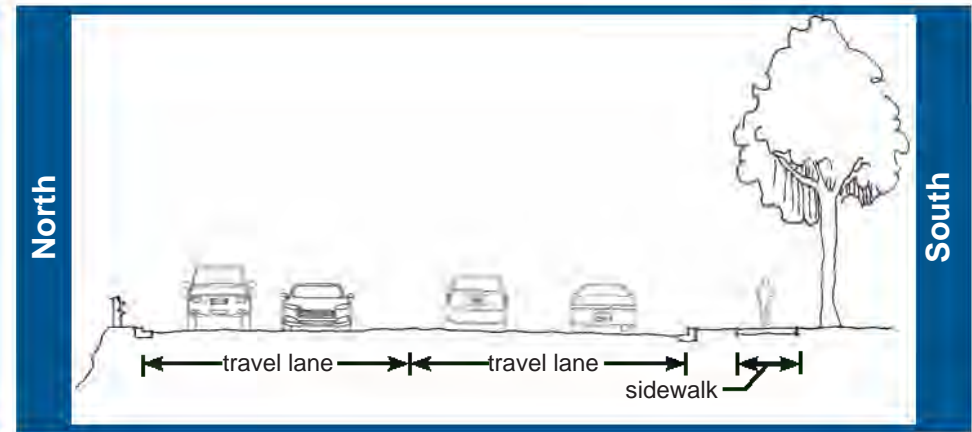
30

MOUNTAIN BROW BOULEVARD Upper Ottawa Street to Oakcrest Drive

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Proposed Future
Proposed Facility:	Sidewalk Only	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	40
Proposed Facility Width:	1.8m	Signage:	Wayfinding, Branding
Segment Length:	680m	Lighting:	Existing Street Lighting
Average Slope:	1.42%	Site Furnishings:	None Recommended
Facility Location:	South		

30

MOUNTAIN BROW BOULEVARD

Upper Ottawa Street to Oakcrest Drive

IMPLEMENTATION

Project Horizon:	Ultimate
Implementation Responsibility:	Engineering Services
High Level Cost Estimate:	\$130,000.00
Surface:	Concrete
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete surface
Public Engagement:	EA Process, Additional extensive stakeholder engagement recommended

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- This project has been previously examined on two occasions and the decision was made not to install sidewalk based on public feedback. Further public consultation is required.

NOTES: (1) Mountain Brow Boulevard: Upper Ottawa St to Kenilworth Access (AADT 22000, 2015 count; Kenilworth Access to Oakcrest Drive (AADT 4000, 2013 count)

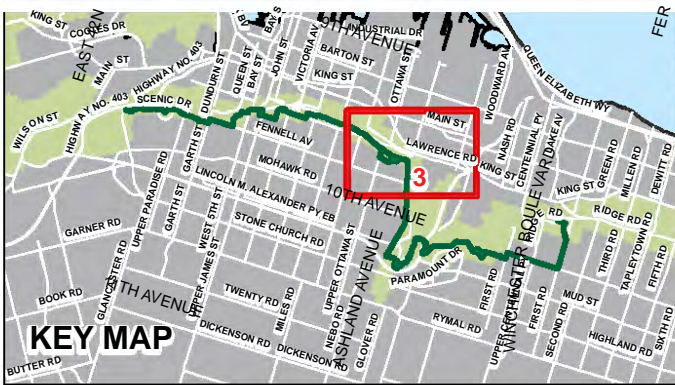
31

RENDELL BOULEVARD/MULOCK AVENUE

Mountain Brow Boulevard to Upper Ottawa Street



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

31

RENDELL BOULEVARD/MULOCK AVENUE

Mountain Brow Boulevard to Upper Ottawa Street

WARD

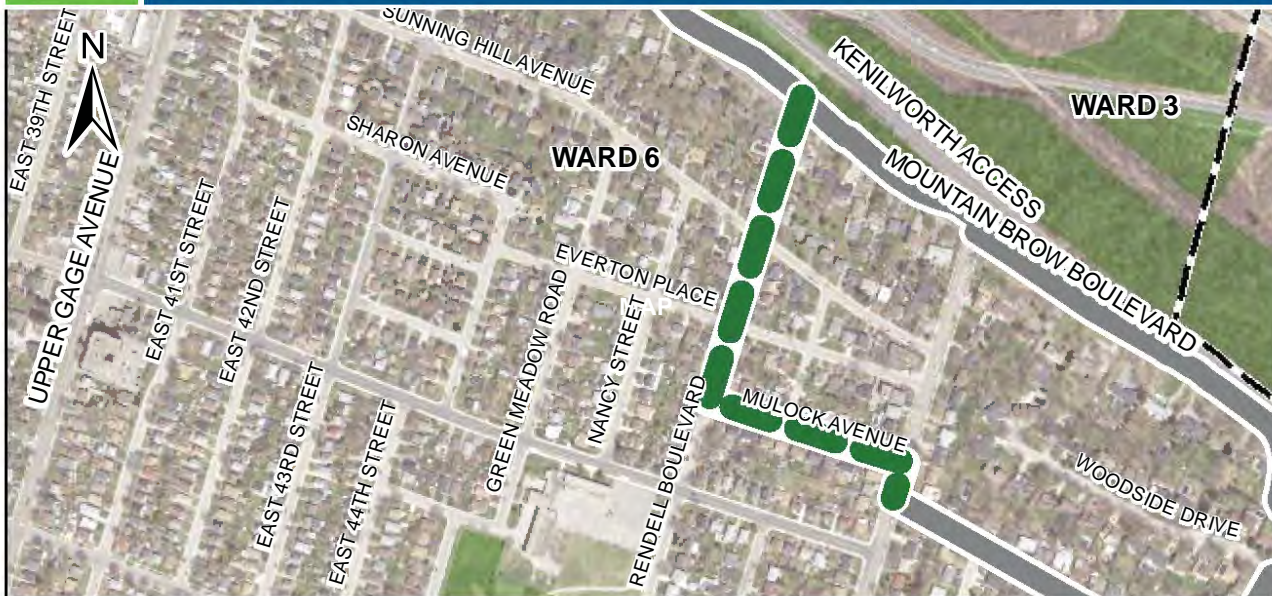
6

PROJECT GROUP

P

RELATED PROJECTS

32 33



EXISTING FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE



RENDELL BOULEVARD



MULOCK AVENUE

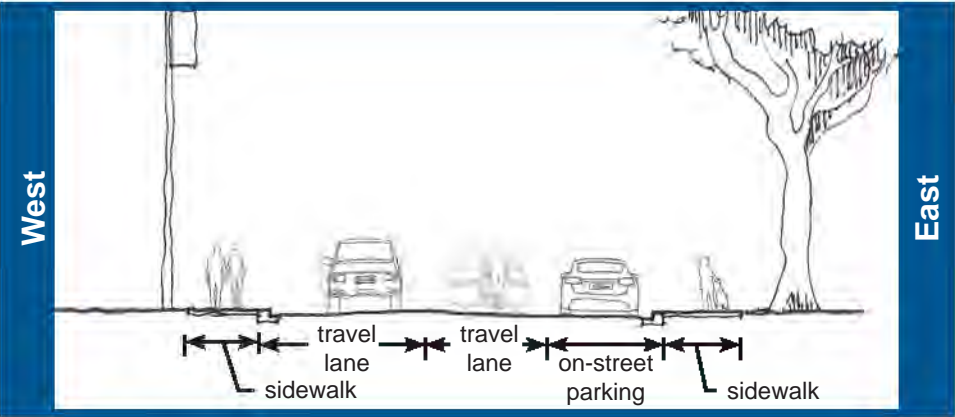
CONTEXT

AADT:	<3000 ¹
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Local
Project Location:	City R.O.W.
Destination:	Highview Park, Mountain Drive Park, Mountain Brow Trail (existing)
Cultural Areas of Interest:	

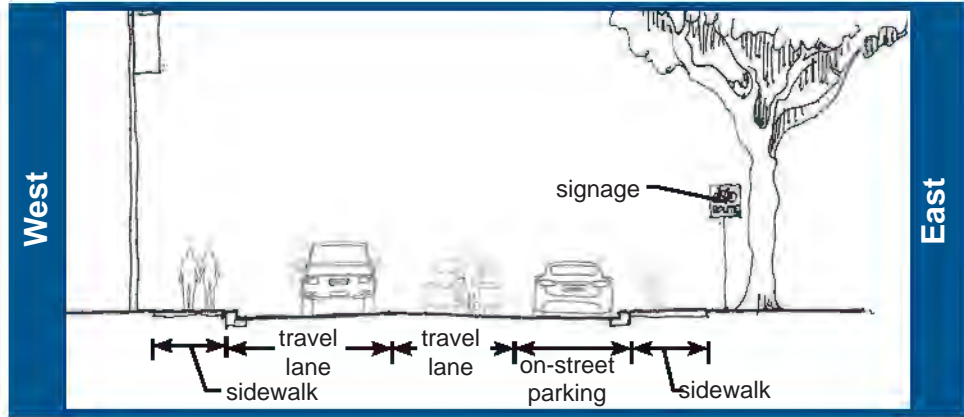
31 RENDELL BOULEVARD/MULOCK AVENUE

Mountain Brow Boulevard to Upper Ottawa Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk and Signed Cycling Route (Rendell Boulevard)	Status:	Existing (Rendell Boulevard) Proposed Future (Mulock Avenue)
Proposed Facility:	Sidewalk and Signed Cycling Route	Alternate Route:	No
Existing Facility Width:	1.2-1.5m (Rendell Boulevard)	Trail Impact Score:	30
Proposed Facility Width:	1.2-1.5m	Signage:	Wayfinding, Branding
Segment Length:	540m	Lighting:	Existing Street Lighting
Average Slope:	N/A	Site Furnishings:	None Recommended
Facility Location:	Both sides		

31

RENDELL BOULEVARD/MULOCK AVENUE

Mountain Brow Boulevard to Upper Ottawa Street

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$6,000.00
Surface:	Concrete (sidewalk)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	No
Maintenance:	Standard maintenance for concrete surface
Public Engagement:	EA Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

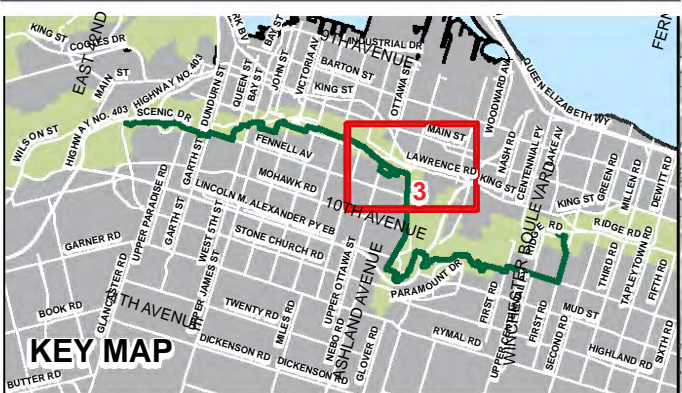
- This route was chosen because the facilities could not be accommodated along Mountain Brow Boulevard without major infrastructural investment. The route along Rendell Boulevard is an existing cycling route
- As an alternative to this route, Upper Ottawa may be considered if a lane reconfiguration can be implemented to accommodate bike lanes. Upper Ottawa provides a more direct connection for cyclists from the end of the trail along Mountain Brow Boulevard and eliminates the route jog. This connection requires a road diet which is not recommended by Traffic Engineering at this time
- A raised median island, or similar treatment, is needed to facilitate transition between Mulock Avenue and Edgewood Avenue across Upper Ottawa Street (cost not included)
- Queensdale Avenue is identified in the Cycling Master Plan and may be considered as an alternate route to Mulock Avenue

NOTES: (1) assumed based on land use context and road classification

32 EDGEWOOD AVENUE Upper Ottawa Street to High Street



KEY MAP



LEGEND



32

EDGEWOOD AVENUE

Upper Ottawa Street to High Street

WARD

6

PROJECT GROUP

P

RELATED PROJECTS

31

33



EXISTING FACILITY: SIDEWALK

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE



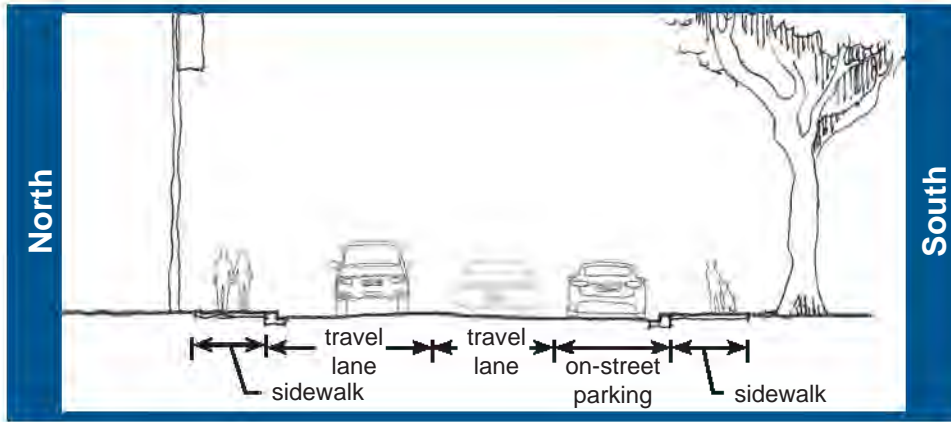
CONTEXT

AADT:	<3000 ¹
Speed (km/h):	40
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Local
Project Location:	City R.O.W.
Destination:	Sherwood Secondary School, Mountain Brow Trail (existing)
Cultural Areas of Interest:	

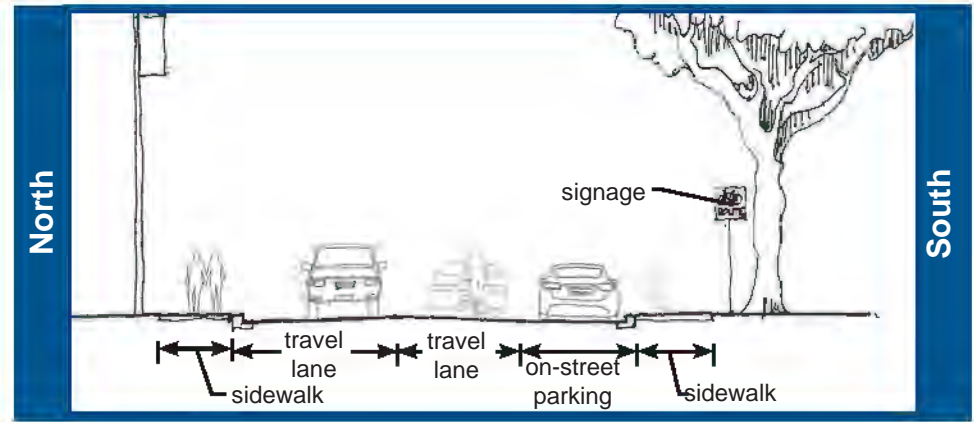
32

EDGEWOOD AVENUE
Upper Ottawa Street to High Street

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk	Status:	Proposed Future
Proposed Facility:	Sidewalk and Signed Cycling Route	Alternate Route:	No
Existing Facility Width:	1.5m	Trail Impact Score:	51
Proposed Facility Width:	1.5m (sidewalk - no upgrades)	Signage:	Wayfinding, Branding
Segment Length:	360m	Lighting:	Existing Street Lighting
Average Slope:	1.79%	Site Furnishings:	None Recommended
Facility Location:	Both sides		

32

EDGEWOOD AVENUE

Upper Ottawa Street to High Street

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Alternative Transportation
High Level Cost Estimate:	\$320,000.00
Surface:	Concrete
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	No
Maintenance:	Standard maintenance for concrete surface
Public Engagement:	Per Alternative Transportation standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- This route was chosen because the facilities could not be accommodated along Mountain Brow Boulevard without major infrastructural investment.
- A raised median island, or similar treatment, is needed to facilitate transition between Mulock Avenue and Edgewood Avenue across Upper Ottawa Street

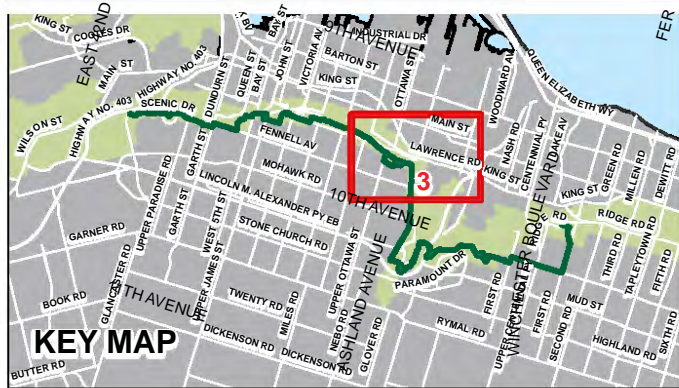
NOTES (1) = assumed based on land use context and road classification

33

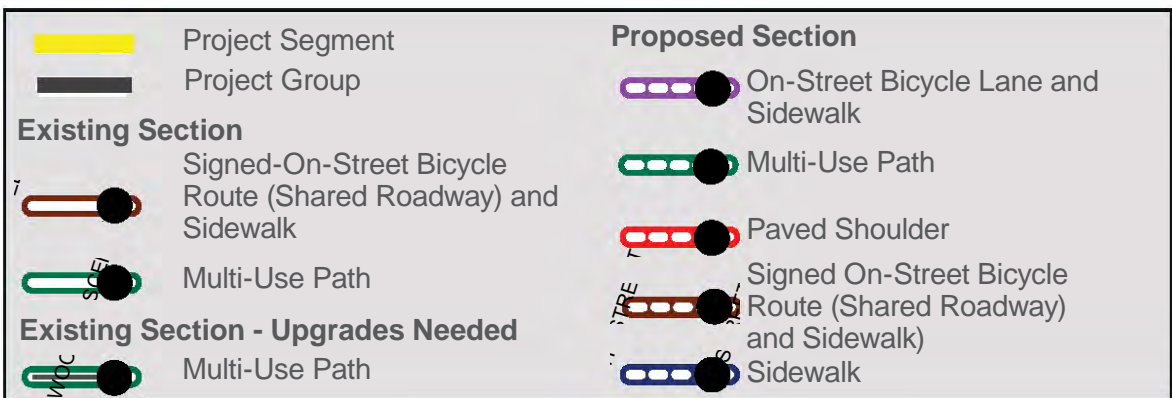
HIGH STREET/WOODSIDE DRIVE/OAKCREST Edgewood Avenue to Mountain Brow Boulevard



KEY MAP



LEGEND



33

HIGH STREET/WOODSIDE DRIVE/OAKCREST

Edgewood Avenue to Mountain Brow Boulevard

WARD

6

PROJECT GROUP

P

RELATED PROJECTS

31 32



EXISTING FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE

PROPOSED FACILITY: SIDEWALK AND SIGNED CYCLING ROUTE



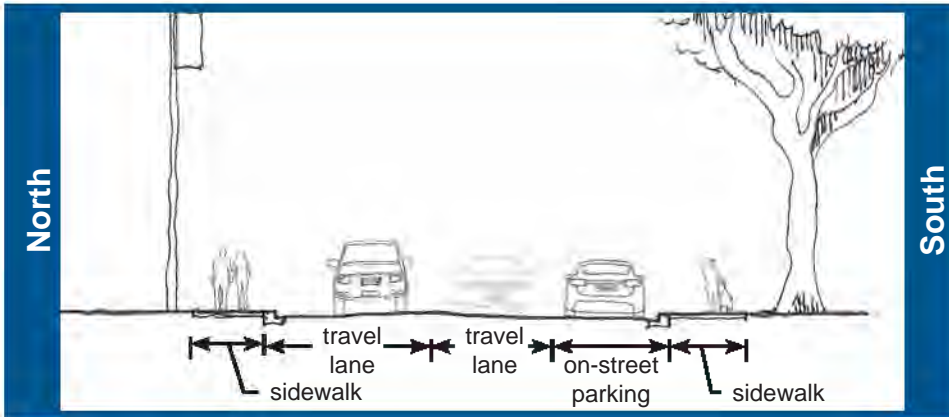
CONTEXT

AADT:	<3000'
Speed (km/h):	40
No. of Lanes:	2
R.O.W. Width:	20.117m
Road Characterization:	Local
Project Location:	City R.O.W.
Destination:	Sherwood Secondary School, Mountain Brow Trail (existing)
Cultural Areas of Interest:	

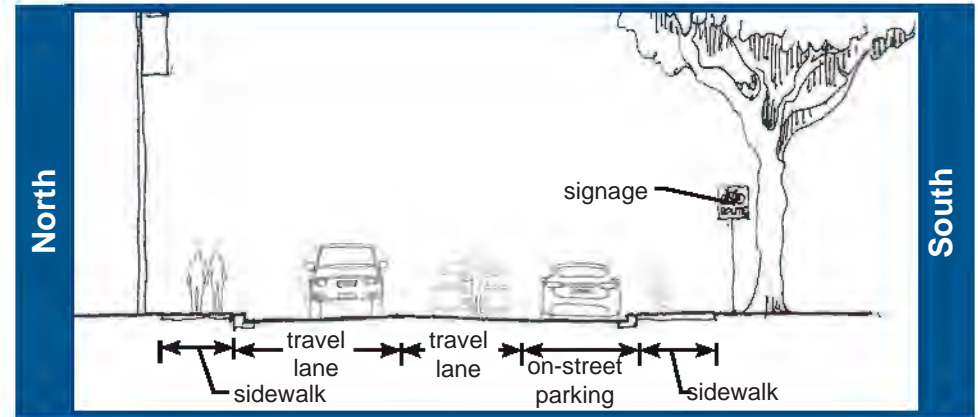
33

HIGH STREET/WOODSIDE DRIVE/OAKCREST Edgewood Avenue to Mountain Brow Boulevard

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Sidewalk and Signed Cycling Route	Status:	Existing
Proposed Facility:	Sidewalk and Signed Cycling Route	Alternate Route:	No
Existing Facility Width:	1.5m (sidewalk)	Trail Impact Score:	31
Proposed Facility Width:	1.5m (sidewalk - no upgrades)	Signage:	Wayfinding, Branding
Segment Length:	465m	Lighting:	Existing Street Lighting
Average Slope:	1.79%	Site Furnishings:	None Recommended
Facility Location:	Both sides		

33

HIGH STREET/WOODSIDE DRIVE/OAKCREST

Edgewood Avenue to Mountain Brow Boulevard

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$5,000.00
Surface:	Concrete
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	N/A
Archaeological Potential:	No
Maintenance:	Standard maintenance for concrete surface and pavement marking
Public Engagement:	N/A

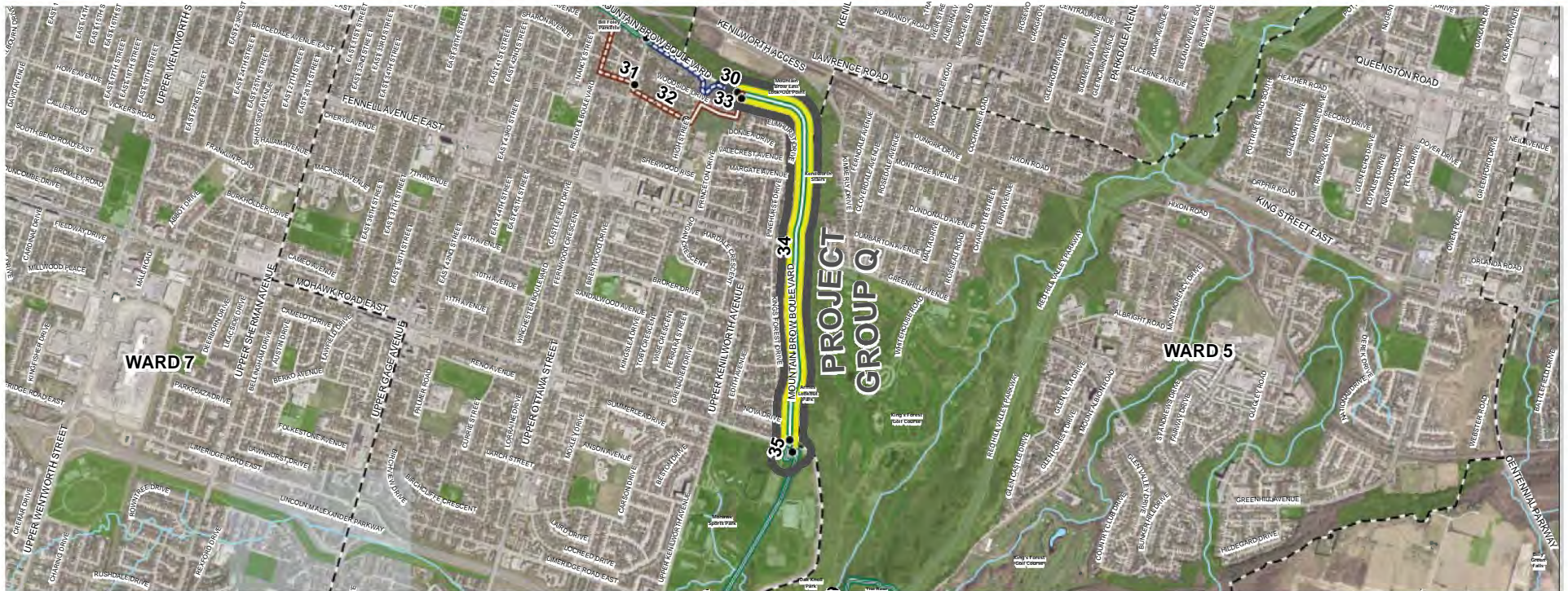
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- This route was chosen because the facilities could not be accommodated along Mountain Brow Boulevard without major infrastructural investment.
- The route shown is per the existing Cycling Master Plan (2009)

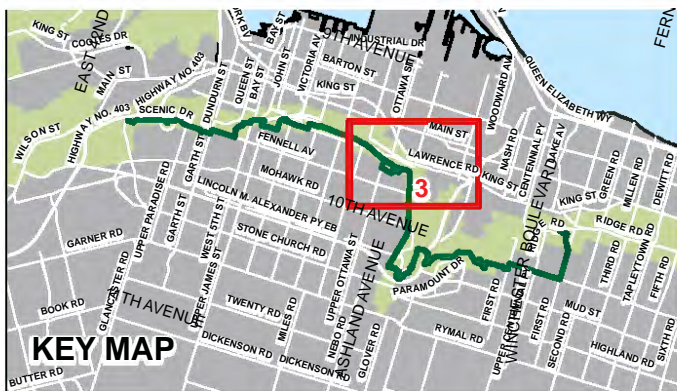
NOTES (1) = assumed based on land use context and road classification

34 EXISTING MOUNTAIN BROW TRAIL

Oakcrest Drive to Mohawk Road East



KEY MAP



LEGEND



34

EXISTING MOUNTAIN BROW TRAIL

Oakcrest Drive to Mohawk Road East

WARD

6

PROJECT GROUP

Q

RELATED PROJECTS

35



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



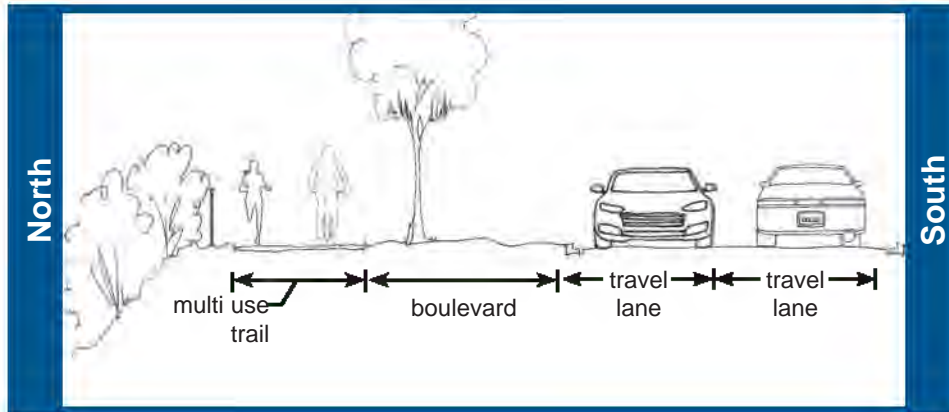
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Vistas 1 to 40, Mountain Brow East Lookout Point, Kenilworth Stairs, Escarpment Rail Trail, Armes Lookout, Matt Broman Park, Mohawk Sports Park, Mohawk 4-Ice Centre
Cultural Areas of Interest:	

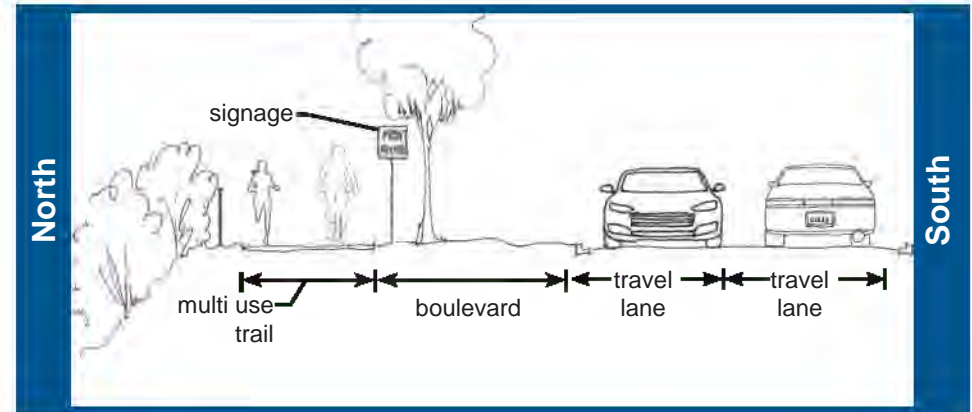
34

EXISTING MOUNTAIN BROW TRAIL Oakcrest Drive to Mohawk Road East

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Existing
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	3.0m	Trail Impact Score:	35
Proposed Facility Width:	3.0m	Signage:	Trailhead, Branding
Segment Length:	2160m	Lighting:	Existing Solar Lights
Average Slope:	1.92%	Site Furnishings:	No additional site furnishing
Facility Location:	North and East		

34

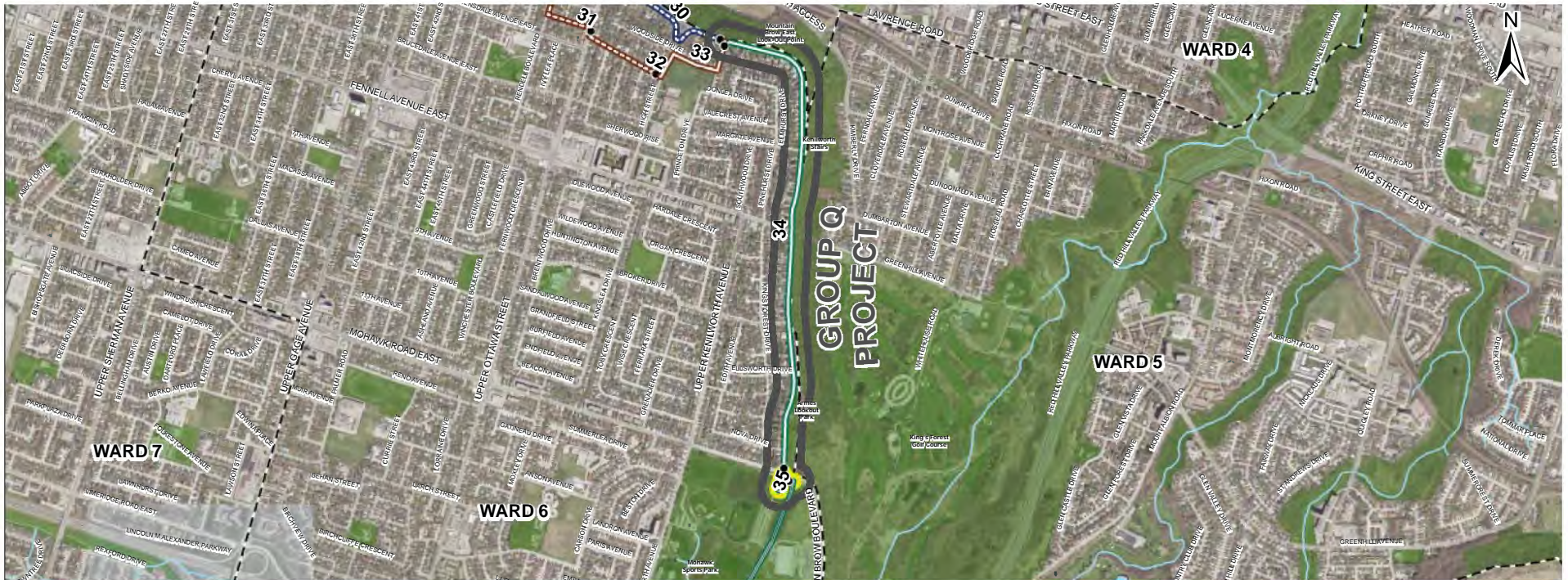
EXISTING MOUNTAIN BROW TRAIL
Oakcrest Drive to Mohawk Road East**IMPLEMENTATION**

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$22,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for fence and asphalt surface
Public Engagement:	N/A

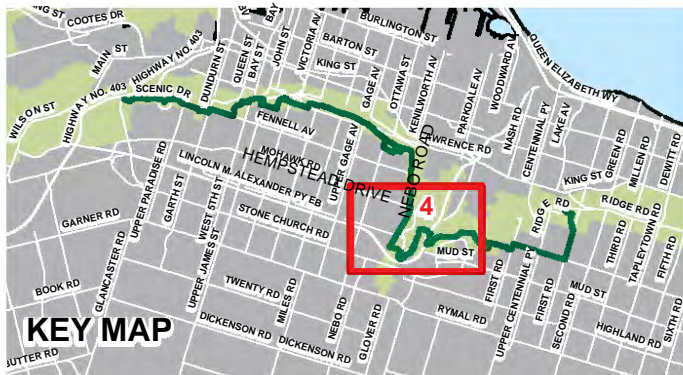
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Site furnishing and lighting fixtures in this location are considered the MBT Standard.
- Public expressed desire for washroom facilities at Kenilworth Stairs

35 EXISTING ESCARPMENT RAIL TRAIL ACCESS



KEY MAP



LEGEND

	Project Segment		Proposed Section On-Street Bicycle Lane and Sidewalk
	Project Group		Multi-Use Path
	Existing Section Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed Multi-Use Path		Sidewalk

35 EXISTING ESCARPMENT RAIL TRAIL ACCESS

WARD

6

PROJECT GROUP

Q

RELATED PROJECTS

34



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL

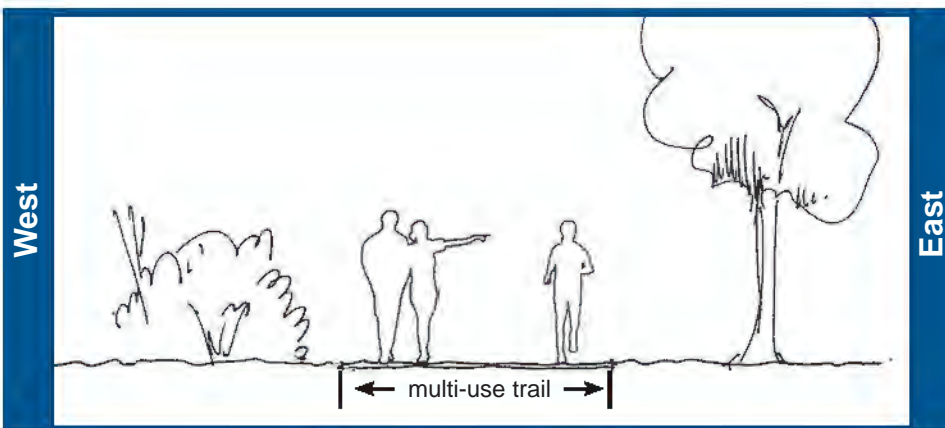


CONTEXT

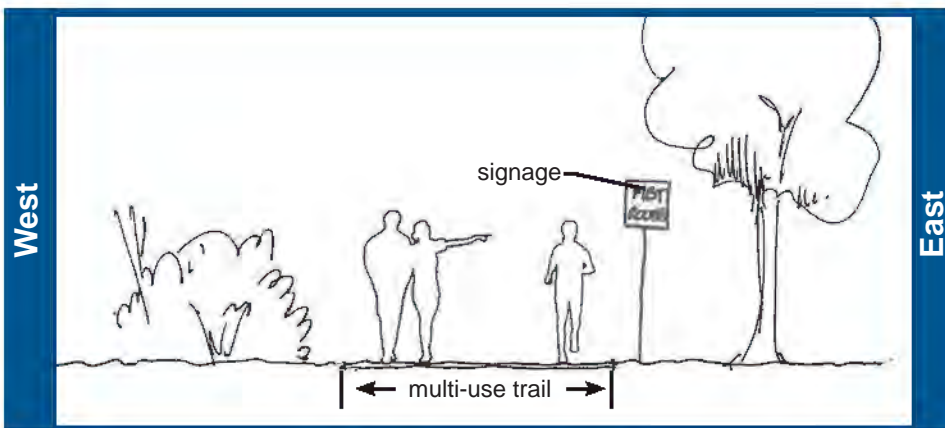
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	City R.O.W.
Destination:	Matt Broman Park, Escarpment Rail Trail, Mohawk Sports Park, Mohawk 4-Ice Centre
Cultural Areas of Interest:	

35 EXISTING ESCARPMENT RAIL TRAIL ACCESS

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Existing
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	4.0m	Trail Impact Score:	30
Proposed Facility Width:	4.0m	Signage:	Trailhead, Branding
Segment Length:	170m	Lighting:	No existing lighting. Natural area - lighting not desirable
Average Slope:	N/A	Site Furnishings:	None recommended
Facility Location:	N/A		

35 EXISTING ESCARPMENT RAIL TRAIL ACCESS

IMPLEMENTATION

Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$2,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	N.E.C.
Permits and Studies:	N/A
Archaeological Potential:	No
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

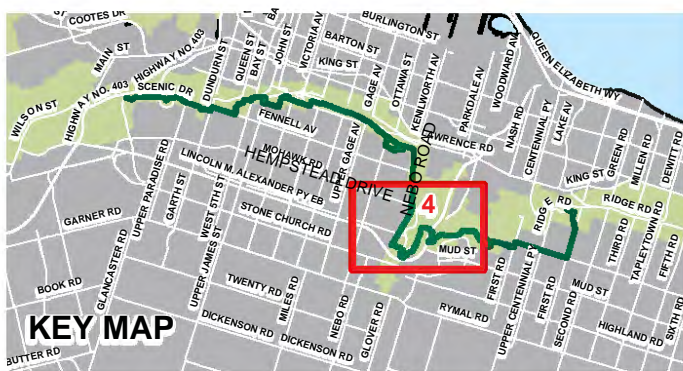
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- This route was chosen because Mountain Brow Boulevard (Mohawk Road East to Arbour Road) presents challenges beyond the scope of typical trail development; should a future road construction project be initiated along Mountain Brow Boulevard, the Mountain Brow Trail should be considered as part of that construction

36 EXISTING ESCARPMENT RAIL TRAIL Mohawk Road East to Arbour Road



KEY MAP



LEGEND



36

EXISTING ESCARPMENT RAIL TRAIL

Mohawk Road East to Arbour Road

WARD

6

PROJECT GROUP

R

RELATED PROJECTS



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



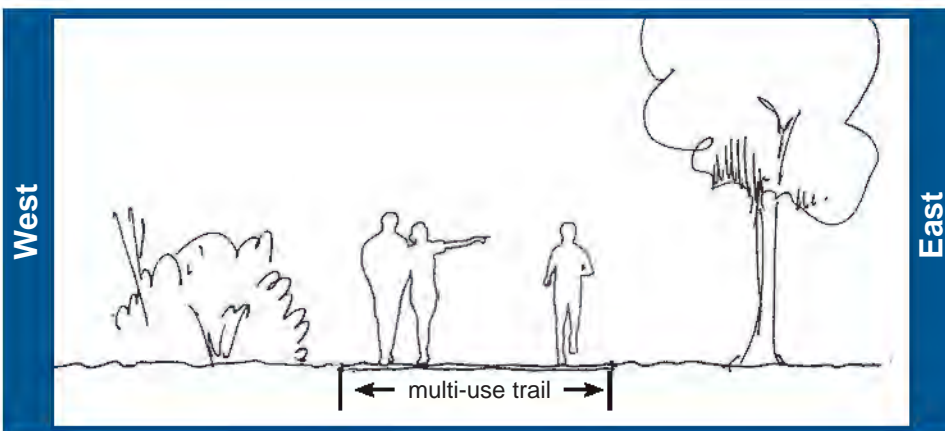
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Matt Broman Park, Escarpment Rail Trail, Mohawk Sports Park, Mohawk 4-Ice Centre, Albion Falls
Cultural Areas of Interest:	

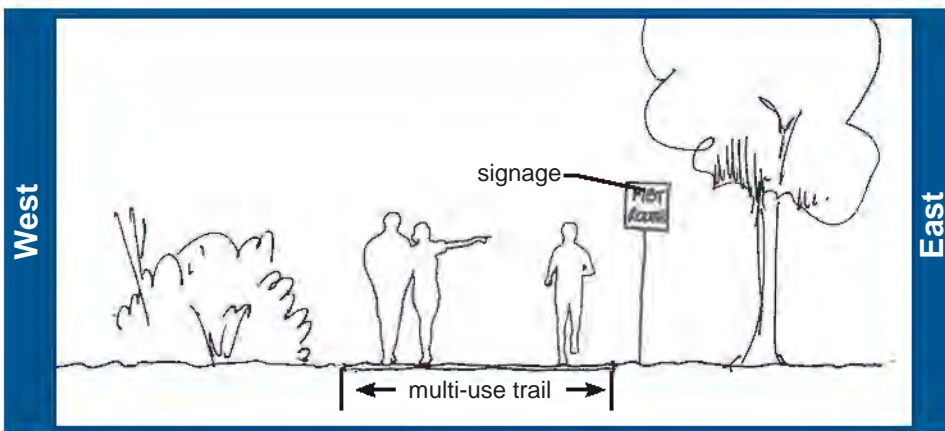
36 EXISTING ESCARPMENT RAIL TRAIL

Mohawk Road East to Arbour Road

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	3.5m	Trail Impact Score:	45
Proposed Facility Width:	3.5m	Signage:	Wayfinding, Branding
Segment Length:	1930m	Lighting:	No existing lighting. Natural area - lighting not desirable
Average Slope:	8.44%	Site Furnishings:	None recommended
Facility Location:	N/A		

36

EXISTING ESCARPMENT RAIL TRAIL

Mohawk Road East to Arbour Road

IMPLEMENTATION

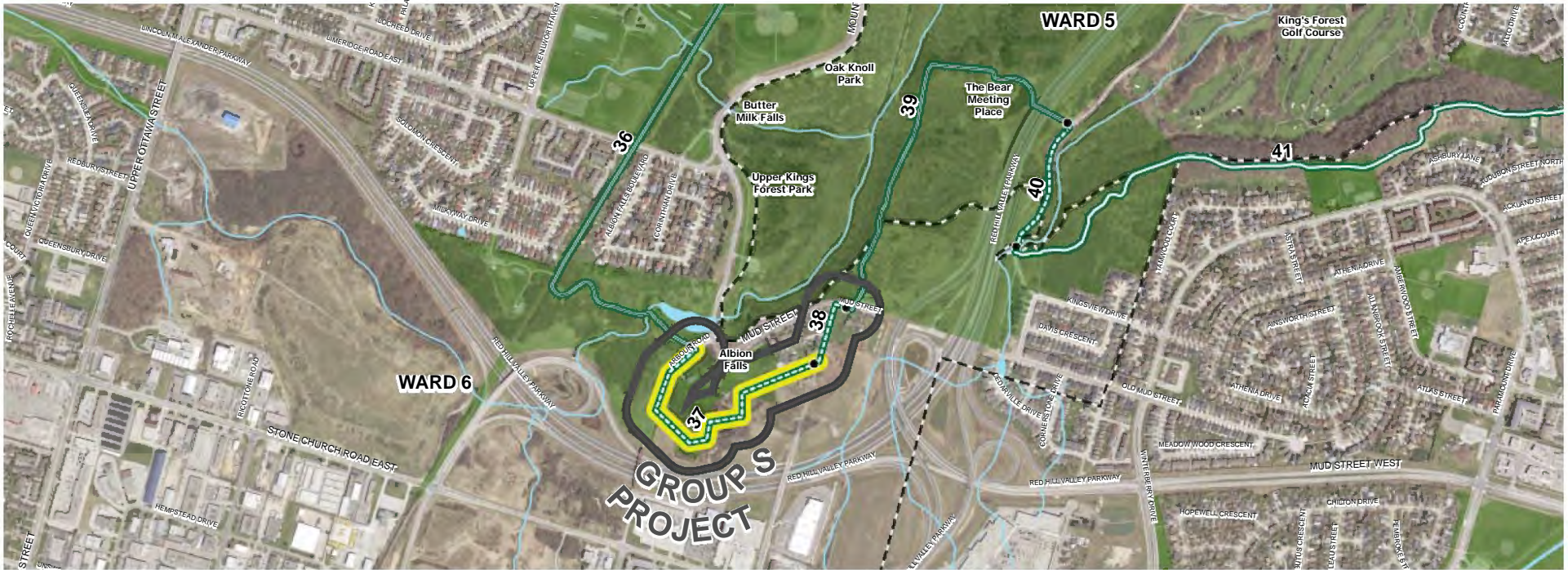
Project Horizon:	Medium-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$410,000.00
Surface:	Granular/Partially Paved (existing); Asphalt (proposed)
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Conservation Authority, N.E.C.
Permits and Studies:	Permits: H.C.A.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt and granular surfaces
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

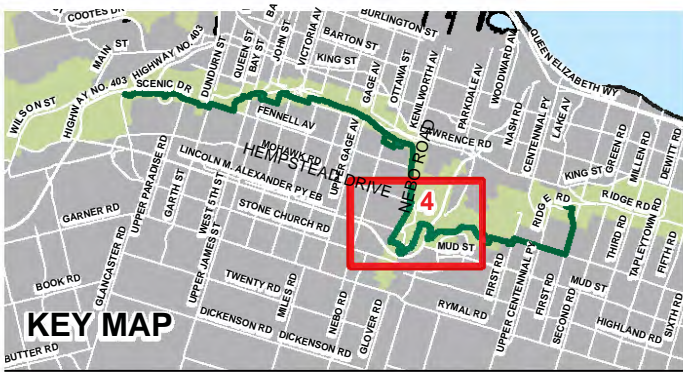
- This route was chosen because Mountain Brow Boulevard (Mohawk Road East to Arbour Road) presents challenges beyond the scope of typical trail development; should a future road construction project be initiated along Mountain Brow Boulevard, the Mountain Brow Trail should be considered as part of that construction

37 FUTURE MOUNTAIN BROW TRAIL

Arbour Road to Pritchard



KEY MAP



LEGEND



37

FUTURE MOUNTAIN BROW TRAIL

Arbour Road to Pritchard

WARD

6

PROJECT GROUP

S

RELATED PROJECTS

38



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL



CONTEXT

AADT: N/A

Speed (km/h): N/A

No. of Lanes: N/A

R.O.W. Width: N/A

Road Characterization: Trail

Project Location: Open Space

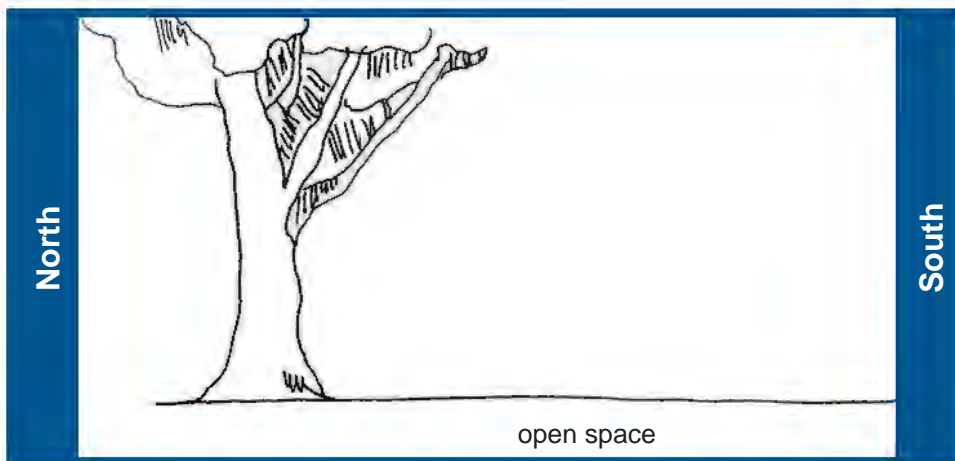
Destination: Escarpment Rail Trail, Albion Falls, Red Hill Valley Trail, East Mountain Trail Loop

Cultural Areas of Interest:

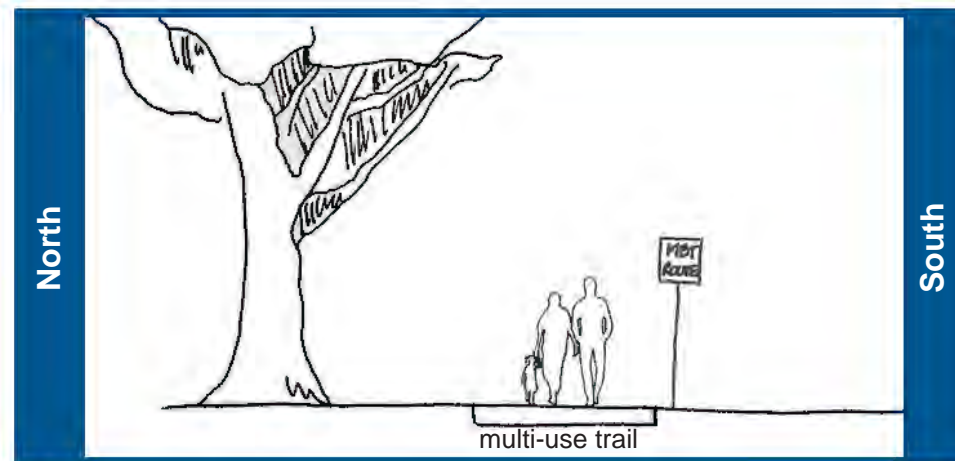
37

FUTURE MOUNTAIN BROW TRAIL Arbour Road to Pritchard

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	34
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	775m	Lighting:	No existing lighting. Natural area - lighting not desirable
Average Slope:	8.44%	Site Furnishings:	None recommended
Facility Location:	N/A		

37

FUTURE MOUNTAIN BROW TRAIL

Arbour Road to Pritchard

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$570,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

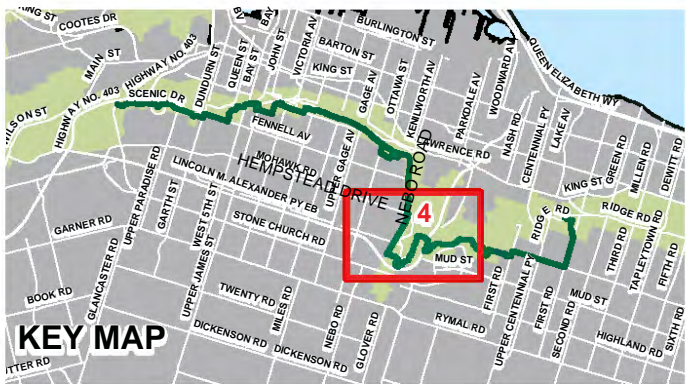
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Trail implementation anticipated in 2018; wayfinding and branding to be completed as separate phase of work

38 PRITCHARD ROAD



KEY MAP



LEGEND



38 PRITCHARD ROAD

WARD

6

PROJECT GROUP

S

RELATED PROJECTS

37



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL

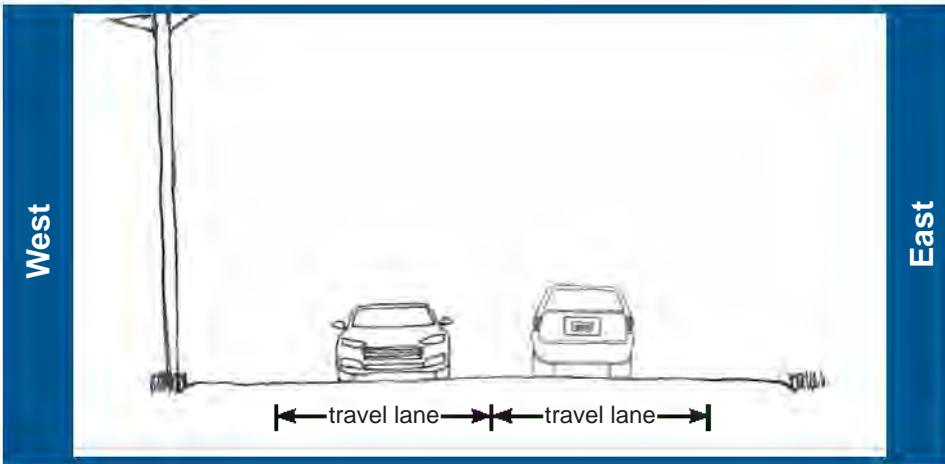


CONTEXT

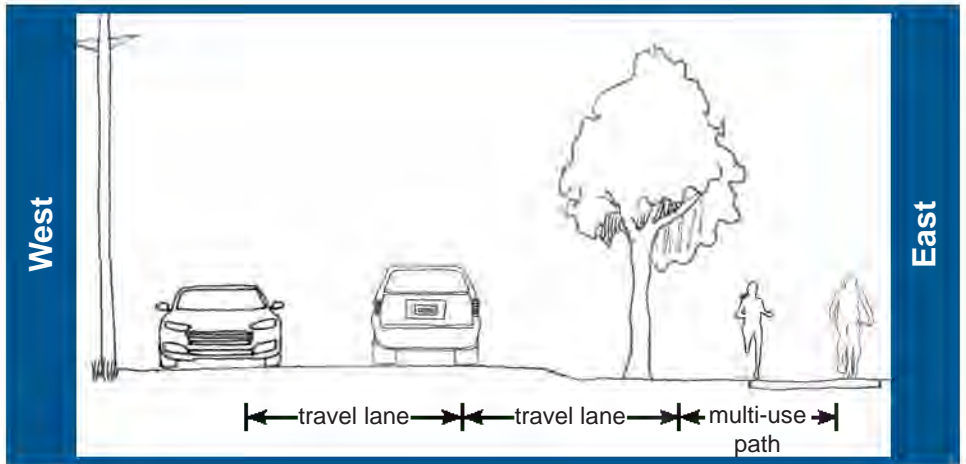
AADT:	N/A
Speed (km/h):	50
No. of Lanes:	2
R.O.W. Width:	36.576m
Road Characterization:	Minor Arterial
Project Location:	City R.O.W.
Destination:	Albion Falls, Red Hill Valley Trail, East Mountain Trail Loop
Cultural Areas of Interest:	

38 PRITCHARD ROAD

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	30
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	200m	Lighting:	Existing street lighting may be adequate. Further study required. MBT branded fixtures may be desirable
Average Slope:	8.44%	Site Furnishings:	None recommended
Facility Location:	West		

38 PRITCHARD ROAD

IMPLEMENTATION

Project Horizon:	Short-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$150,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

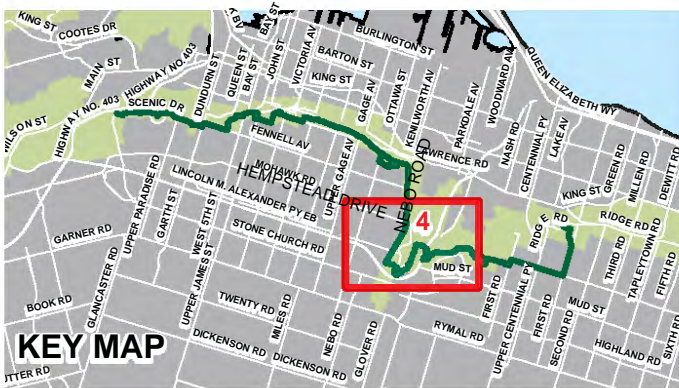
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Trail implementation anticipated in 2018; wayfinding and branding to be completed as separate phase of work

39 RED HILL VALLEY TRAIL



KEY MAP



LEGEND



39 RED HILL VALLEY TRAIL

WARD	PROJECT GROUP	RELATED PROJECTS
6	T	40



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL

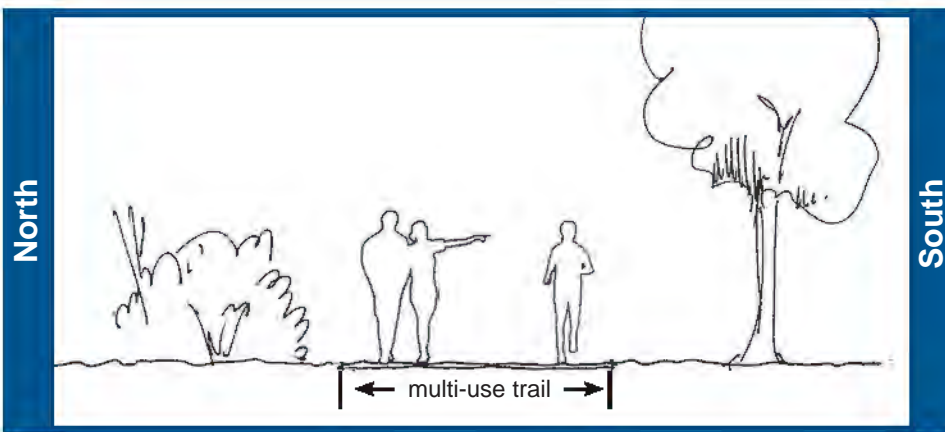


CONTEXT

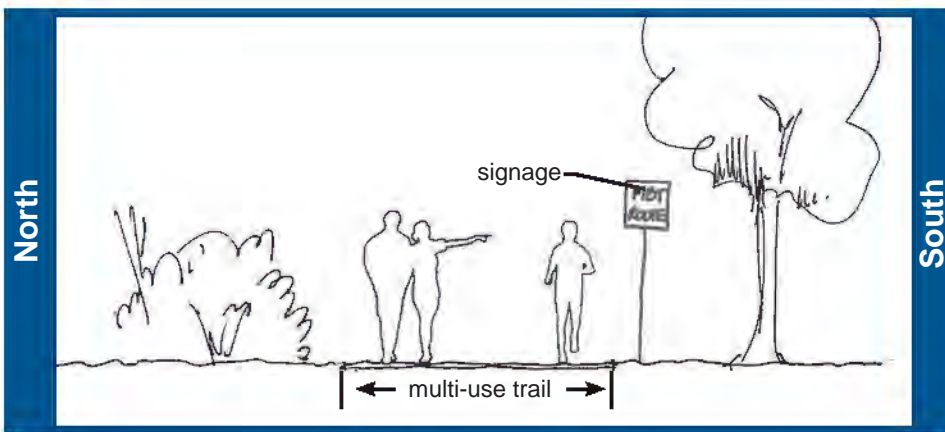
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Pritchard Falls, Albion Falls, Upper Kings Forest Park, Red Hill Valley Trail
Cultural Areas of Interest:	

39 RED HILL VALLEY TRAIL

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	4.0m	Trail Impact Score:	45
Proposed Facility Width:	4.0m	Signage:	Wayfinding, Branding
Segment Length:	1130m	Lighting:	No existing lighting; natural area - lighting is not desirable
Average Slope:	12.11%	Site Furnishings:	None recommended
Facility Location:	N/A		

39 RED HILL VALLEY TRAIL

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$150,000.00
Surface:	Granular
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Repairs to granular surface due to erosion, especially in steep slope locations
Public Engagement:	Per LAS standard practice

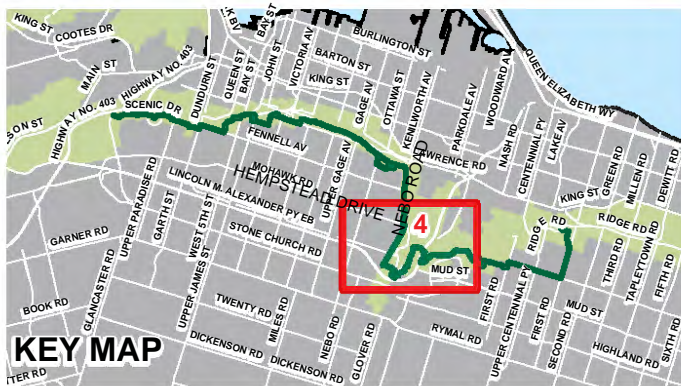
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Existing conditions include woodlot and narrow access, making an asphalt trail challenging and perhaps undesirable; steep slopes prohibit formalized trail and require stabilization efforts; trail to remain granular with wayfinding and branding upgrades

40 FORMER MOUNT ALBION ROAD



KEY MAP



LEGEND



40 FORMER MOUNT ALBION ROAD

WARD

PROJECT GROUP

RELATED PROJECTS

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39



EXISTING FACILITY: DECOMMISSIONED ROADWAY

PROPOSED FACILITY: MULTI-USE TRAIL

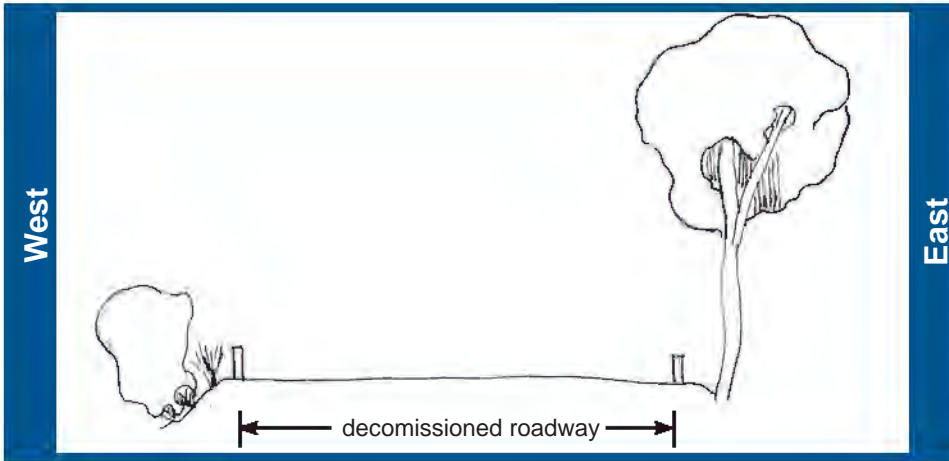


CONTEXT

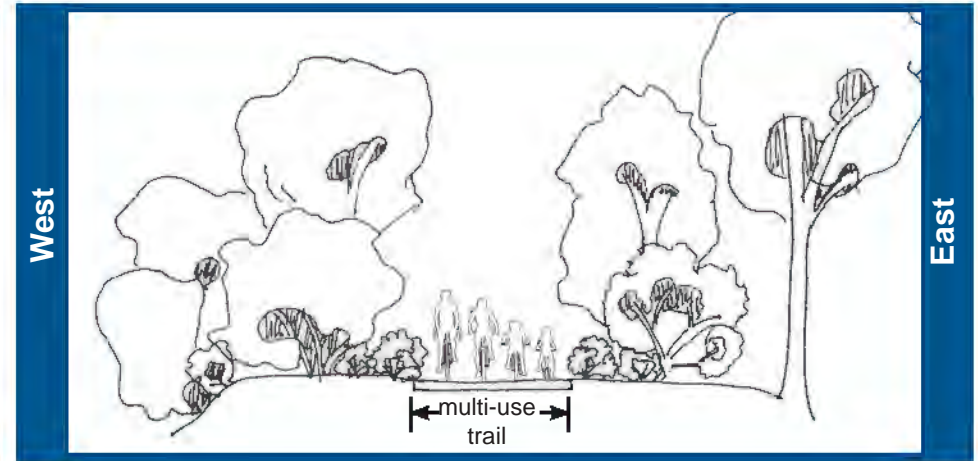
AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Upper and Middle Glendale Falls, Albion Falls, East Mountain Trail Loop
Cultural Areas of Interest:	

40 FORMER MOUNT ALBION ROAD

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Decommissioned Roadway	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	9.0m (road width)	Trail Impact Score:	32
Proposed Facility Width:	4.0m	Signage:	Trailhead, Wayfinding, Branding
Segment Length:	370m	Lighting:	Natural area - no lighting recommended
Average Slope:	7.00%	Site Furnishings:	None recommended
Facility Location:	N/A		

40 FORMER MOUNT ALBION ROAD

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$190,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: EIS, Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

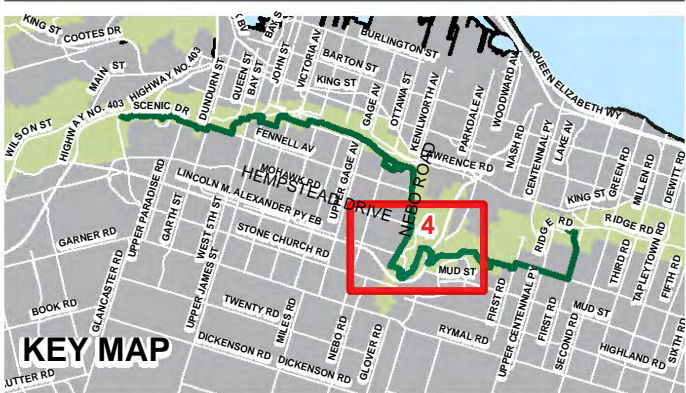
- Existing decommissioned road - potential for restoration efforts to provide trail and increase permeable surfaces.

41 EXISTING EAST MOUNTAIN TRAIL LOOP

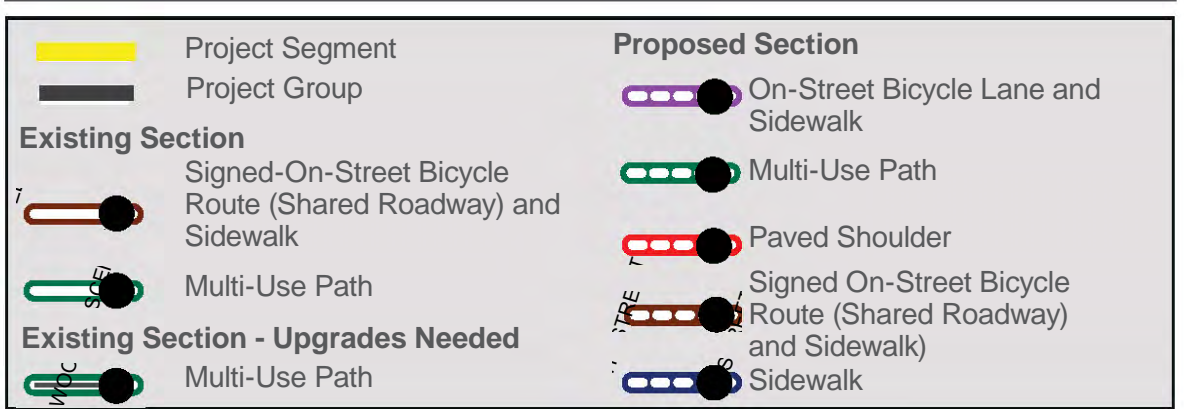
Multi-Use Trail



KEY MAP



LEGEND



41

EXISTING EAST MOUNTAIN TRAIL LOOP

Multi-Use Trail

WARD

PROJECT GROUP

RELATED PROJECTS

5 6 9

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42



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



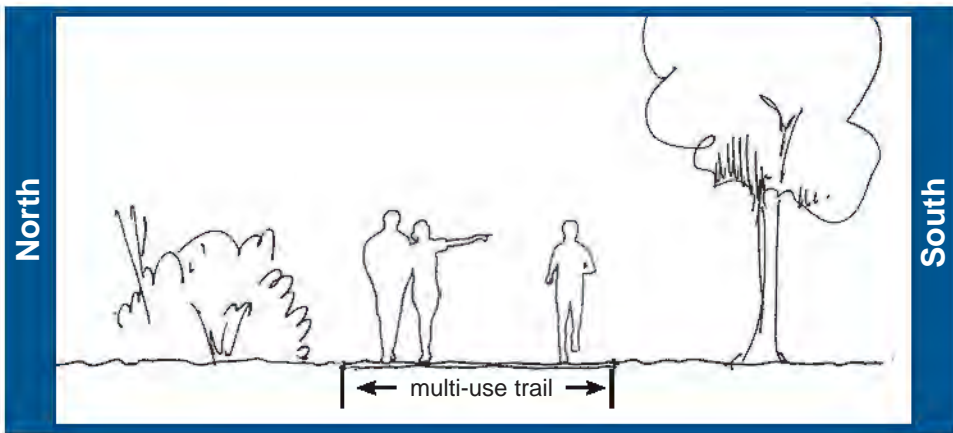
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Albion Falls, Red Hill Valley Trail, East Mountain Trail Loop, Paramount Park, Albion Estates Park, Felker's Falls Conservation Area
Cultural Areas of Interest:	

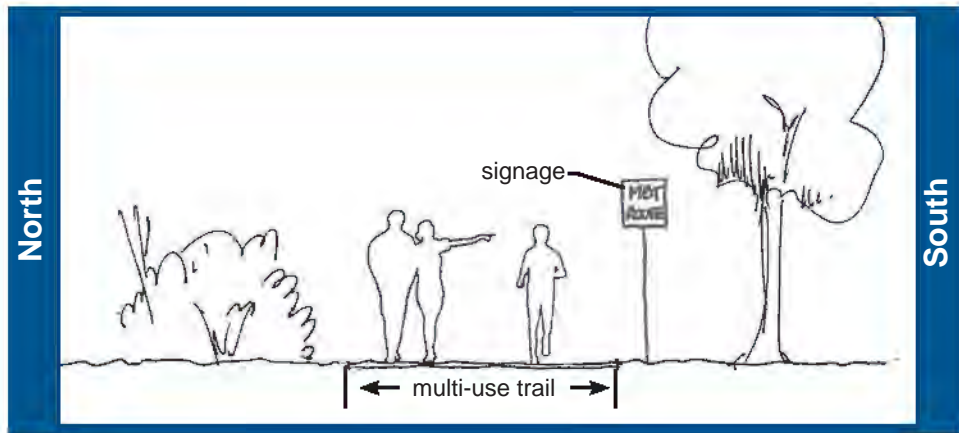
41 EXISTING EAST MOUNTAIN TRAIL LOOP

Multi-Use Trail

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Existing
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	4.0m	Trail Impact Score:	35
Proposed Facility Width:	4.0m	Signage:	Wayfinding, Branding
Segment Length:	1750m	Lighting:	No existing lighting - adjacent to residential area. Lighting may not be desirable
Average Slope:	3.20%	Site Furnishings:	None recommended
Facility Location:	N/A		

41

EXISTING EAST MOUNTAIN TRAIL LOOP

Multi-Use Trail

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$18,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton, Hamilton Conservation Authority
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A.
Archaeological Potential:	No
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

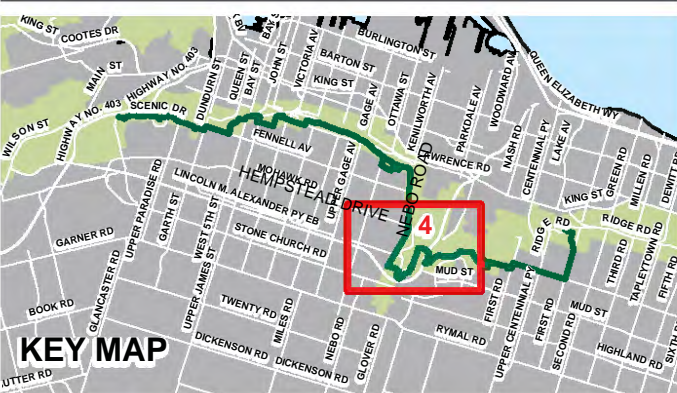
- Wayfinding and branding upgrades for this segment

42 EXISTING MOUNTAIN BROW MULTI-USE TRAIL

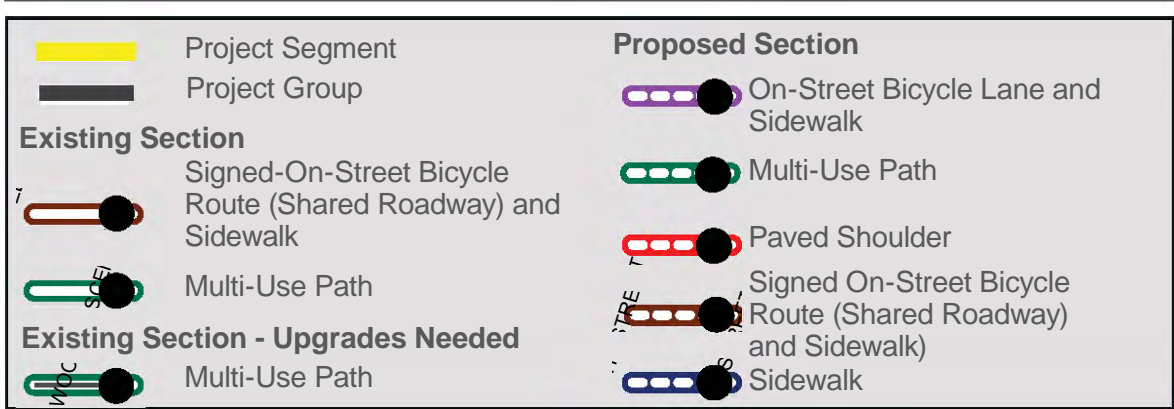
Felker's Falls



KEY MAP



LEGEND



42

EXISTING MOUNTAIN BROW MULTI-USE TRAIL

Felker's Falls

WARD

9

PROJECT GROUP

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RELATED PROJECTS

41



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



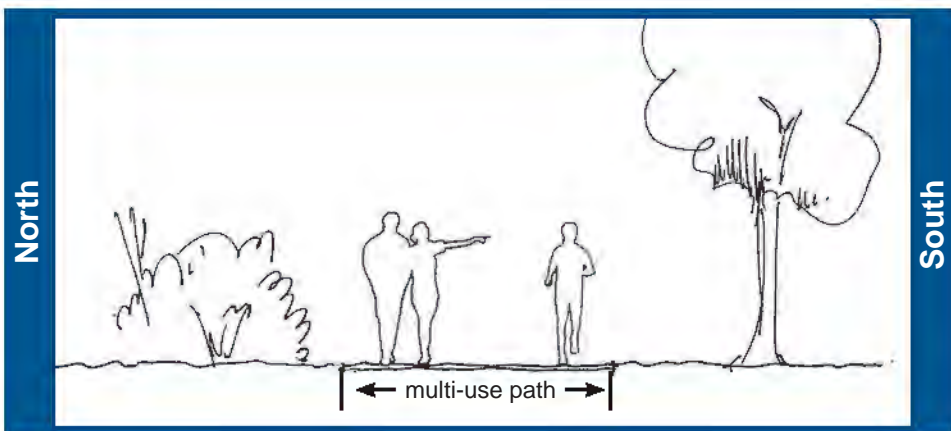
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

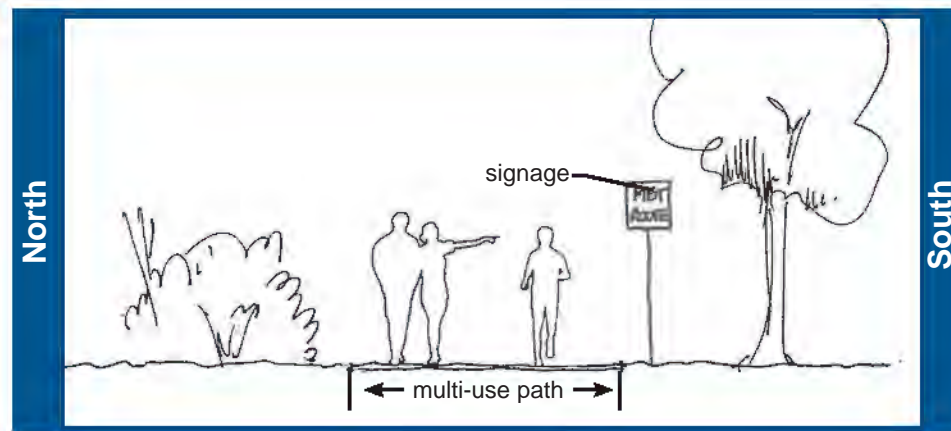
42

EXISTING MOUNTAIN BROW MULTI-USE TRAIL
Felker's Falls

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Existing
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	3.0m	Trail Impact Score:	35
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	945m	Lighting:	No existing lighting - adjacent to residential area. Lighting is not desirable
Average Slope:	7.29%	Site Furnishings:	None recommended
Facility Location:	N/A		

42

EXISTING MOUNTAIN BROW MULTI-USE TRAIL

Felker's Falls

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$10,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton, Hamilton Conservation Authority
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A.;
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

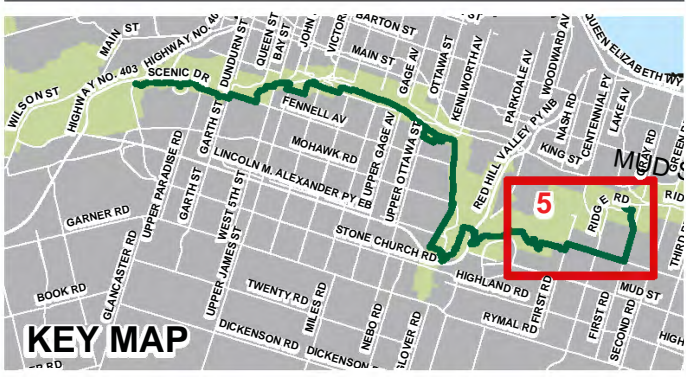
- Wayfinding and branding upgrades for this segment

43 HERITAGE GREEN SPORTS PARK

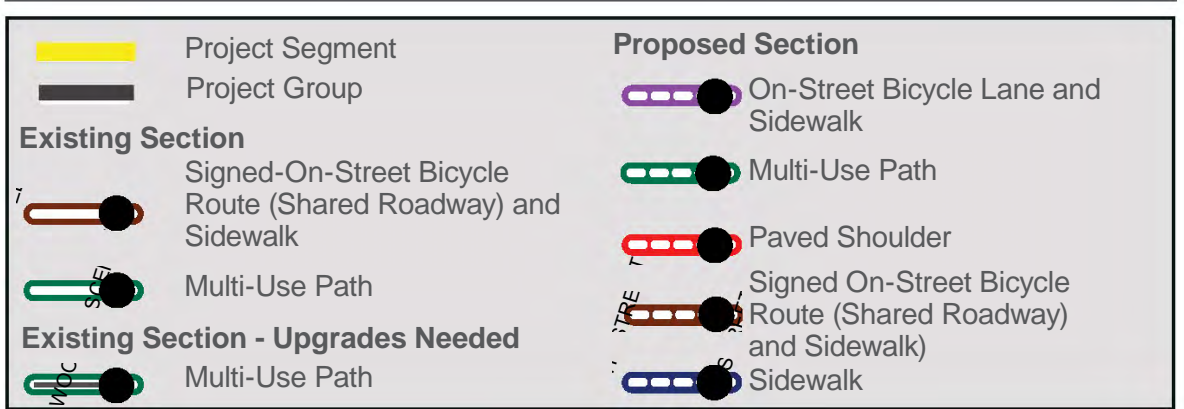
Future Multi-Use Trail



KEY MAP



LEGEND



43

HERITAGE GREEN SPORTS PARK

Future Multi-Use Trail

WARD

9

PROJECT GROUP

V

RELATED PROJECTS

44



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL



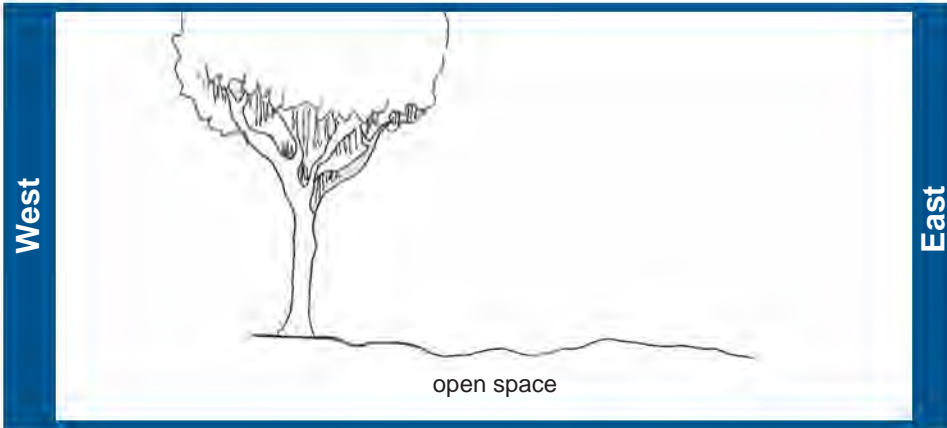
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

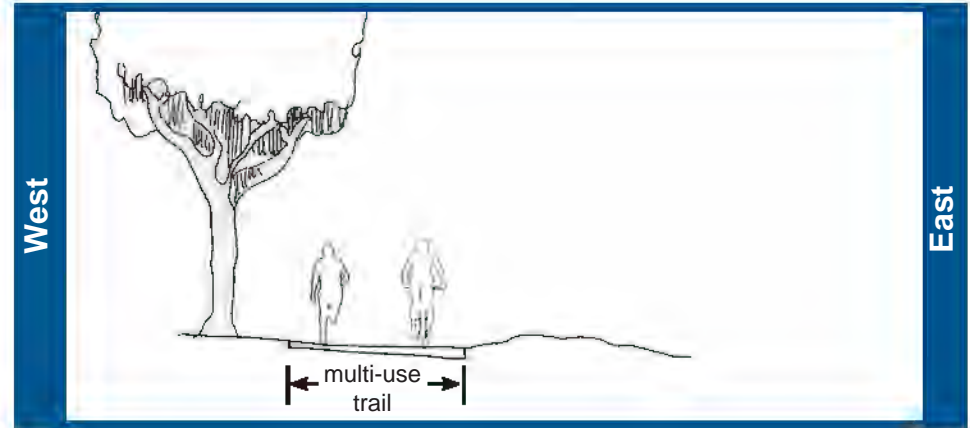
43

HERITAGE GREEN SPORTS PARK Future Multi-Use Trail

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	22
Proposed Facility Width:	3.0	Signage:	Trailhead, Wayfinding, Branding
Segment Length:	317.72	Lighting:	No lighting required
Average Slope:	9.01	Site Furnishings:	None recommended
Facility Location:	N/A		

43

HERITAGE GREEN SPORTS PARK

Future Multi-Use Trail

IMPLEMENTATION

Project Horizon:	Short-Term (trail), long-term (signage)
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$240,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission, Hamilton Conservation Authority
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

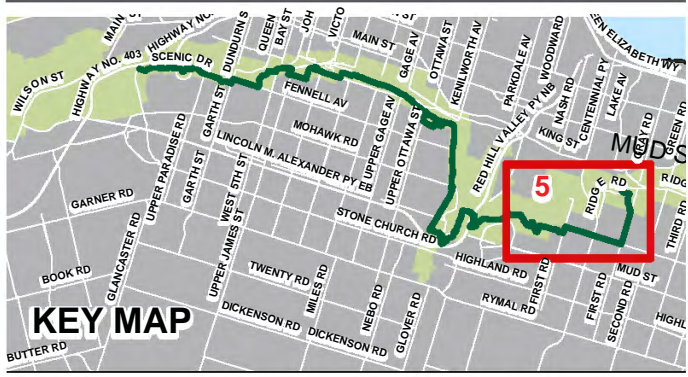
- Trail implementation anticipated in the short-term; wayfinding and branding to be completed as separate phase of work

44 HERITAGE GREEN SPORTS PARK

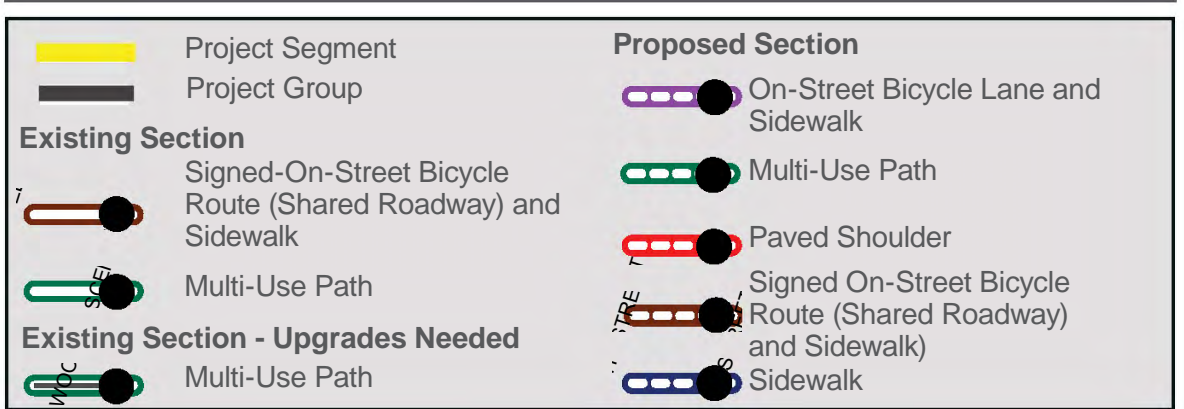
Existing Multi-Use Trail



KEY MAP



LEGEND



44

EXISTING HERITAGE GREEN SPORTS PARK

Existing Multi-Use Trail

WARD

9

PROJECT GROUP

V

RELATED PROJECTS

43



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL



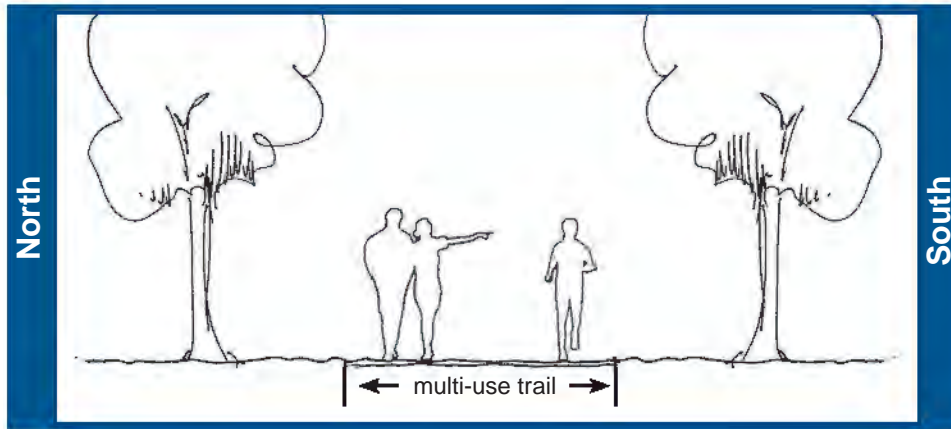
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

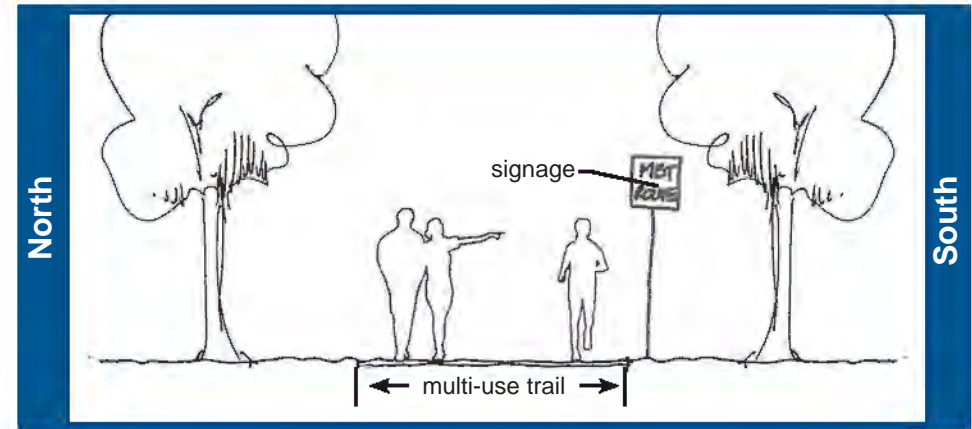
44

HERITAGE GREEN SPORTS PARK
Existing Multi-Use Trail

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Existing
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	3.0m	Trail Impact Score:	23
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	500m	Lighting:	Existing Park Lights
Average Slope:	2.46%	Site Furnishings:	None recommended
Facility Location:	N/A		

44

HERITAGE GREEN SPORTS PARK
Existing Multi-Use Trail**IMPLEMENTATION**

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$5,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C.;
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	N/A

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

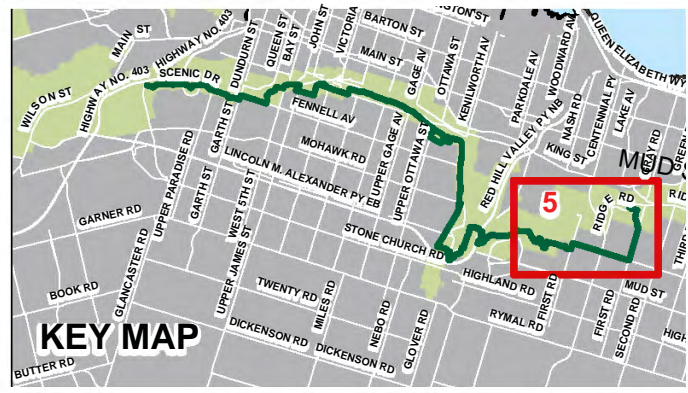
- Wayfinding and Branding upgrades for this segment

45 HERITAGE GREEN SPORTS PARK

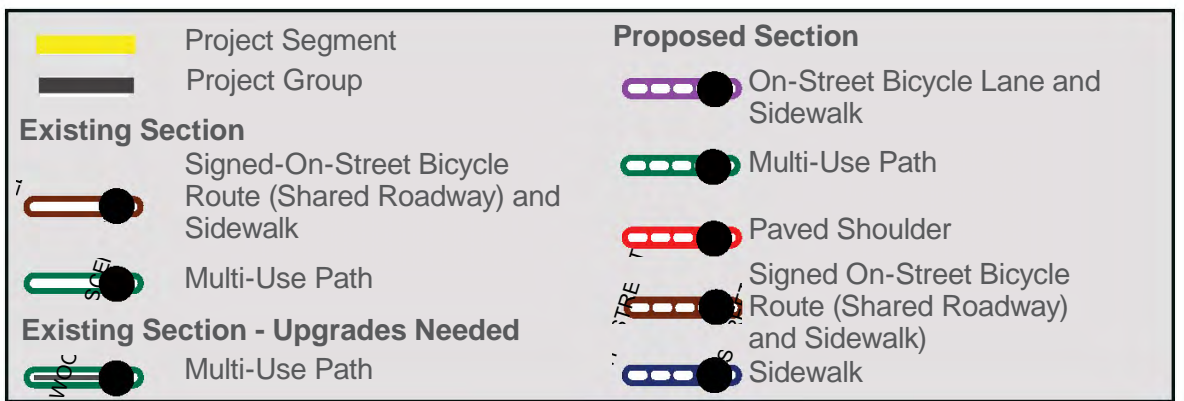
Future Multi-Use Trail Link



KEY MAP



LEGEND



45 **HERITAGE GREEN SPORTS PARK**
Future Multi-Use Trail Link

WARD
9

PROJECT GROUP
W

RELATED PROJECTS
46 **47**



EXISTING FACILITY: NONE

PROPOSED FACILITY: MULTI-USE TRAIL

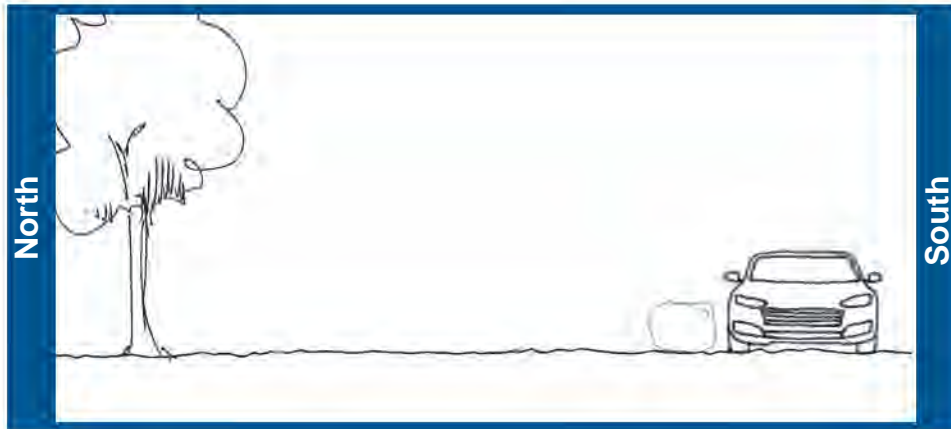
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Municipal Park
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

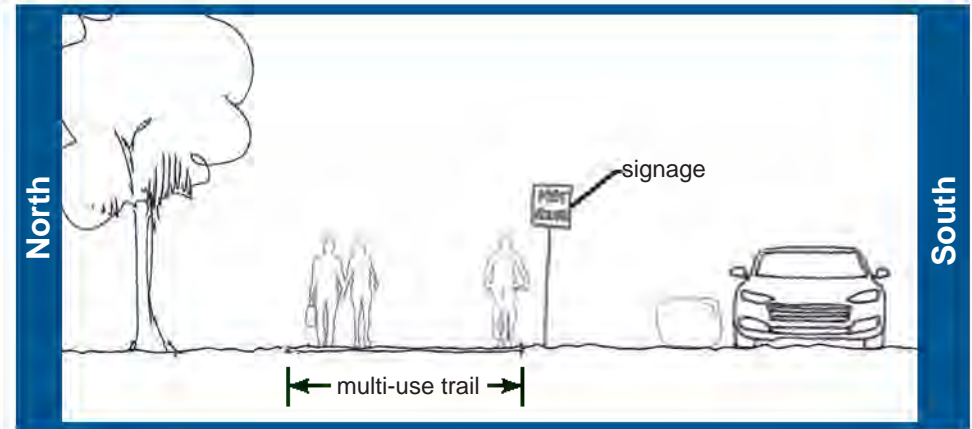
45

HERITAGE GREEN SPORTS PARK Future Multi-Use Trail Link

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Proposed Future
Proposed Facility:	Multi-Use Trail	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	20
Proposed Facility Width:	3.0m	Signage:	Wayfinding, Branding
Segment Length:	200m	Lighting:	No lighting required
Average Slope:	3.49%	Site Furnishings:	None recommended
Facility Location:	N/A		

45

HERITAGE GREEN SPORTS PARK

Future Multi-Use Trail Link

IMPLEMENTATION

Project Horizon:	Short-Term (trail), long-term (signage)
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$150,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

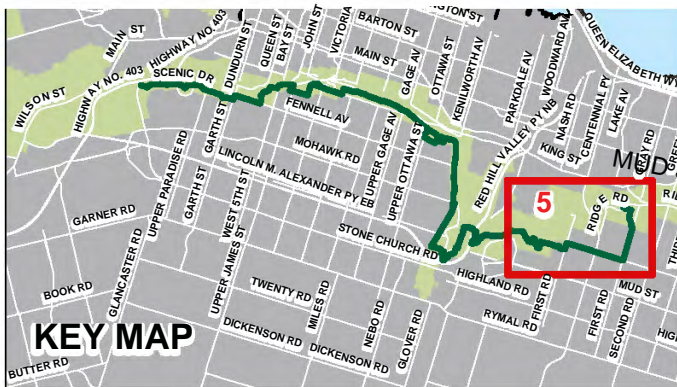
- Trail implementation anticipated in the short-term; wayfinding and branding to be completed as separate phase of work

46 FIRST ROAD WEST/GREEN MOUNTAIN ROAD WEST

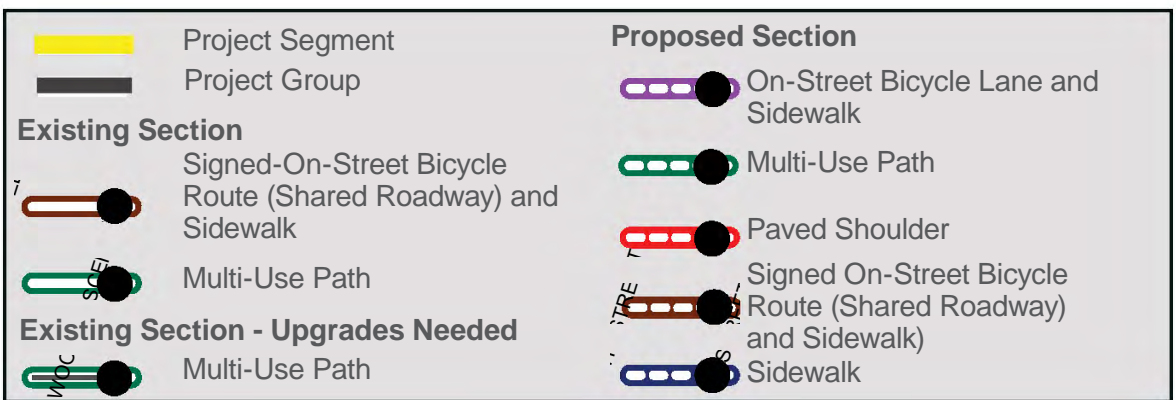
Heritage Green Sports Park to 200m East of First Road West



KEY MAP



LEGEND



46

FIRST ROAD WEST/GREEN MOUNTAIN ROAD WEST

Heritage Green Sports Park to 200m East of First Road West

WARD

9

PROJECT GROUP

W

RELATED PROJECTS

45 47



EXISTING FACILITY: NONE

PROPOSED FACILITY: BIKE LANES AND SIDEWALK



CONTEXT

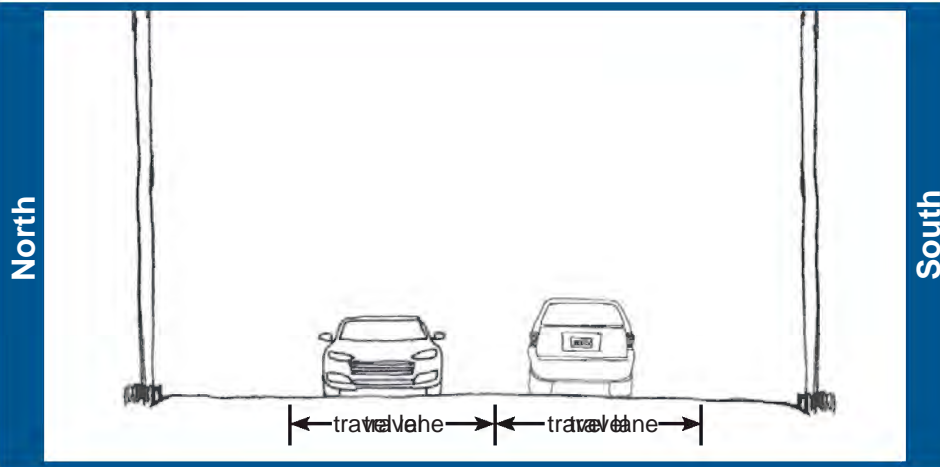
AADT:	N/A
Speed (km/h):	60
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

46

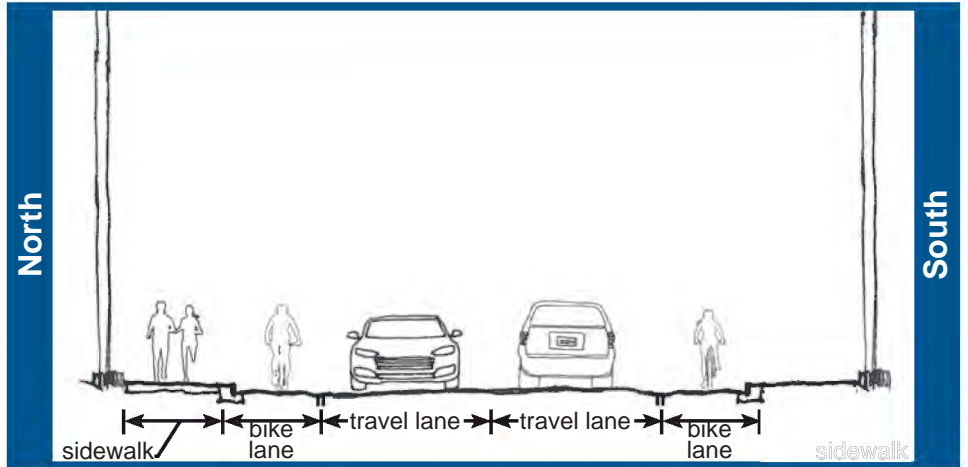
FIRST ROAD WEST/GREEN MOUNTAIN ROAD WEST

Heritage Green Sports Park to 200m East of First Road West

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Bike Lanes and Sidewalk	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	30
Proposed Facility Width:	1.8m sidewalk; 1.8-2.0m buffered bike lane	Signage:	Wayfinding, Branding
Segment Length:	390m	Lighting:	Future street lights
Average Slope:	4.03%	Site Furnishings:	None recommended
Facility Location:	Both sides		

46

FIRST ROAD WEST/GREEN MOUNTAIN ROAD WEST

Heritage Green Sports Park to 200m East of First Road West

IMPLEMENTATION

Project Horizon:	Short-Term (bike lanes & sidewalk), long-term (signage)
Implementation Responsibility:	Growth Management
High Level Cost Estimate:	\$130,000.00
Surface:	Concrete (sidewalk); Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete and asphalt surface
Public Engagement:	Site Plan Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

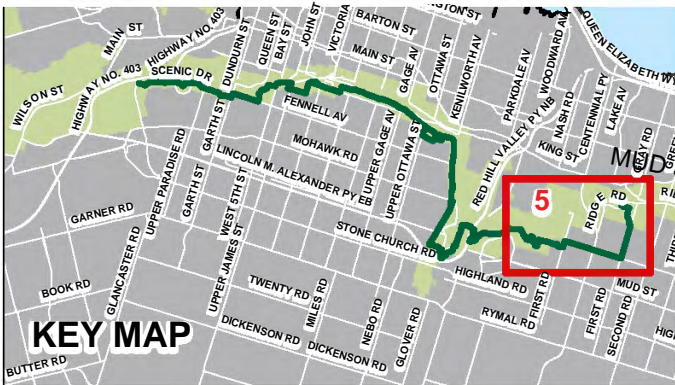
- Implementation will occur through the development process and will depend on coordination with utilities - installation requires road widening and relocation of utility poles.
- The route was selected based on challenges of land ownership and difficult terrain closer to the escarpment

47

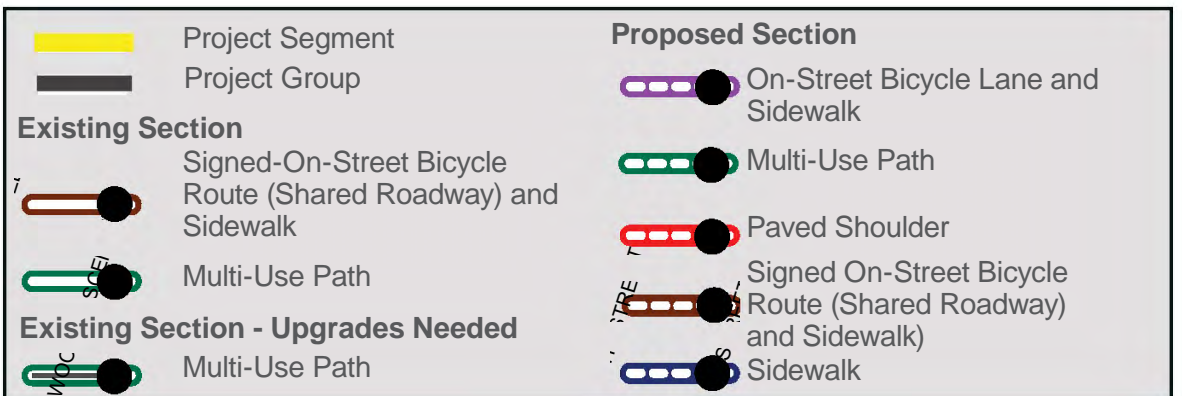
GREEN MOUNTAIN ROAD WEST 200m East of First Road West to Morrissey Boulevard



KEY MAP

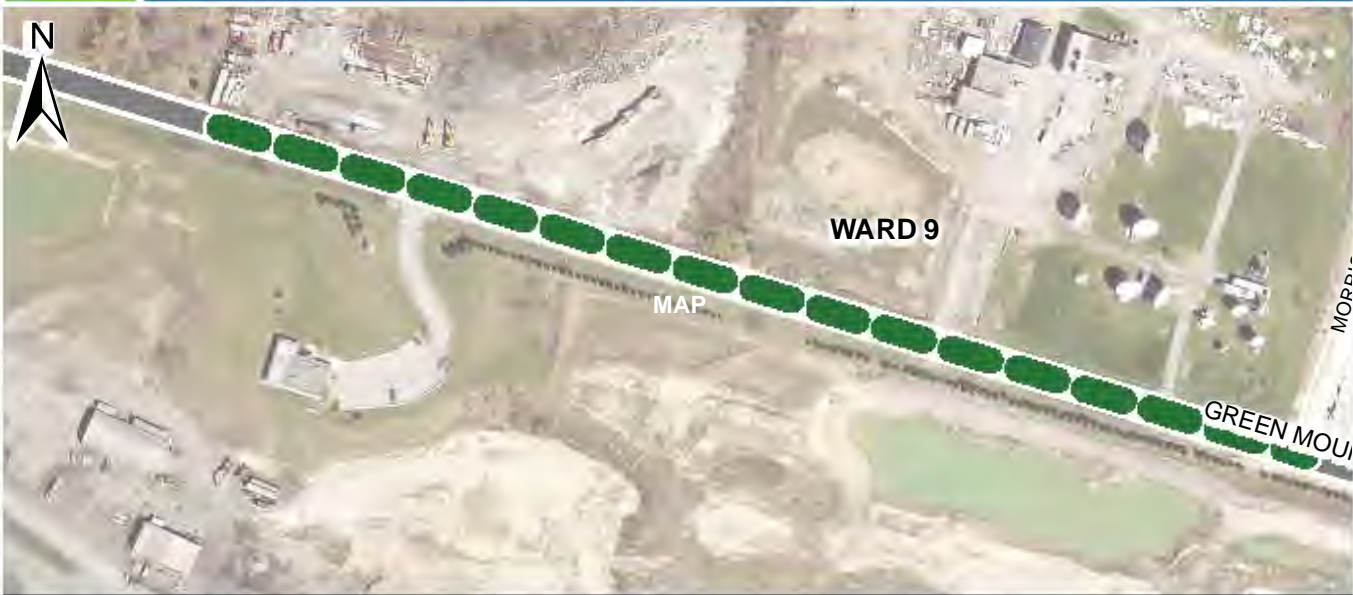


LEGEND



47 GREEN MOUNTAIN ROAD WEST
200m East of First Road West to Morrisey Boulevard

WARD	PROJECT GROUP	RELATED PROJECTS	
9	W	45	46



EXISTING FACILITY: NONE

PROPOSED FACILITY: BIKE LANES AND SIDEWALK

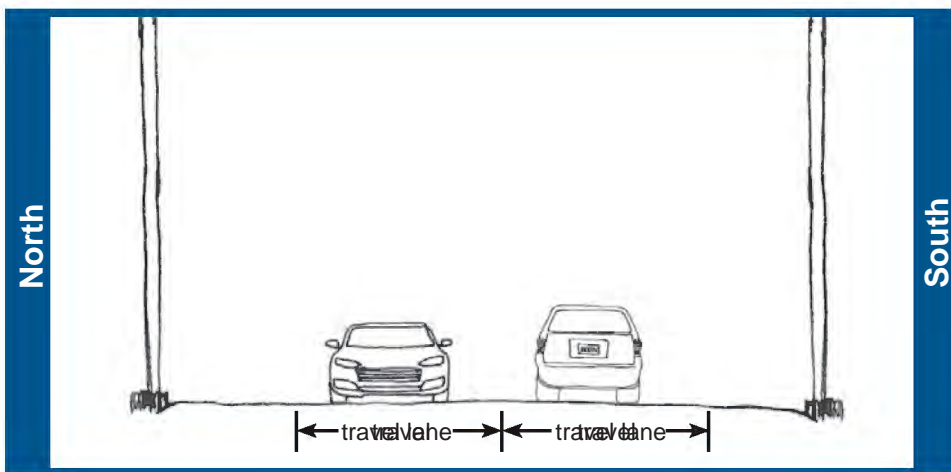
CONTEXT

AADT:	600 ¹
Speed (km/h):	60
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

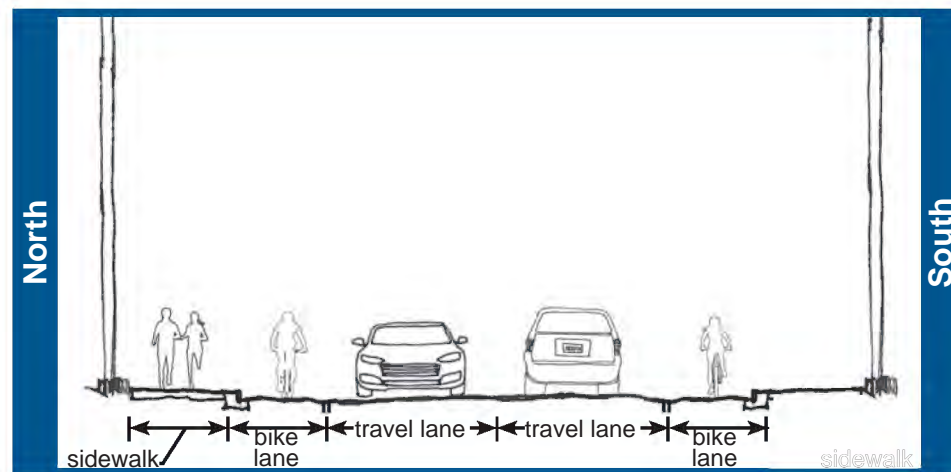
47

GREEN MOUNTAIN ROAD WEST
200m East of First Road West to Morrissey Boulevard

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Bike Lanes and Sidewalk	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	30
Proposed Facility Width:	1.8m sidewalk; 1.8-2.0m buffered bike lane	Signage:	Wayfinding, Branding
Segment Length:	455m	Lighting:	Existing street lights
Average Slope:	4.11%	Site Furnishings:	None recommended
Facility Location:	Both sides		

47

GREEN MOUNTAIN ROAD WEST

200m East of First Road West to Morrisey Boulevard

IMPLEMENTATION

Project Horizon:	Short-Term (bike lanes & sidewalk), long-term (signage)
Implementation Responsibility:	Growth Management
High Level Cost Estimate:	\$150,000.00
Surface:	Concrete (sidewalk); Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete and asphalt surface
Public Engagement:	Site Plan Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Implementation will occur through the development process and will depend on coordination with utilities - installation requires road widening and relocation of utility poles.
- The route was selected based on challenges of land ownership and difficult terrain closer to the escarpment

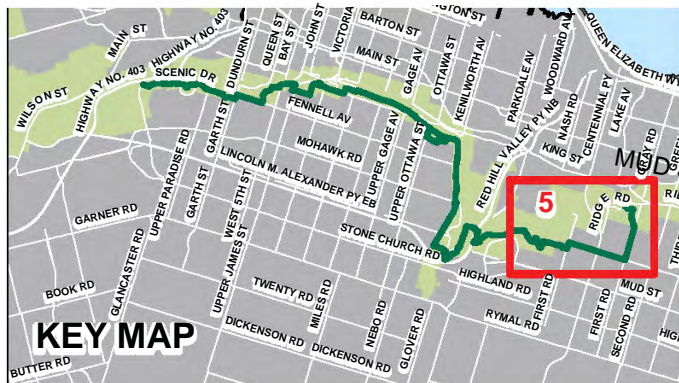
NOTES: (1) 2008 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

48

GREEN MOUNTAIN ROAD WEST Morrisey Boulevard to Upper Centennial



KEY MAP



LEGEND

	Project Segment		Proposed Section On-Street Bicycle Lane and Sidewalk
	Project Group		Multi-Use Path
	Existing Section Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed Multi-Use Path		Sidewalk

48

GREEN MOUNTAIN ROAD WEST

Morrisey Boulevard to Upper Centennial

WARD

9

PROJECT GROUP

X

RELATED PROJECTS



EXISTING FACILITY: NONE

PROPOSED FACILITY: BIKE LANES AND SIDEWALK



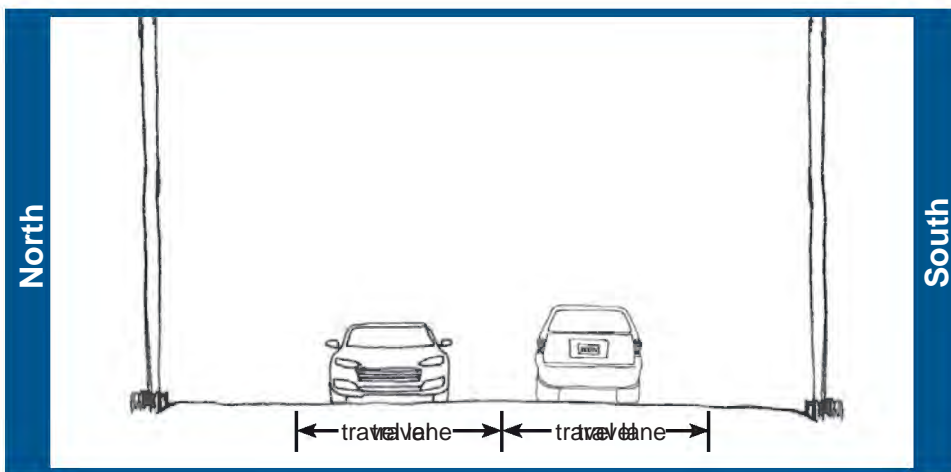
CONTEXT

AADT:	600 ¹
Speed (km/h):	60
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	East Mountain Trail Loop, Felker's Falls Conservation Area, Heritage Green Sports Park
Cultural Areas of Interest:	

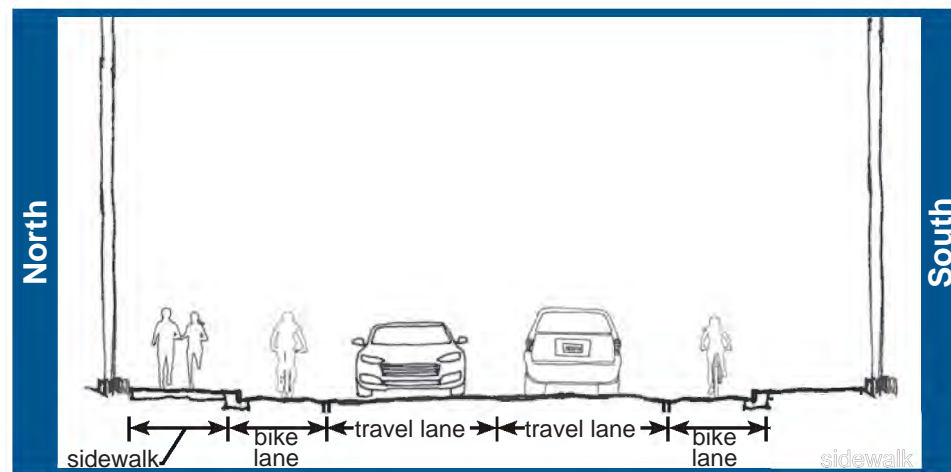
48

GREEN MOUNTAIN ROAD WEST
Morrisey Boulevard to Upper Centennial

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Proposed Future
Proposed Facility:	Bike Lanes and Sidewalk	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	20
Proposed Facility Width:	1.8m sidewalk: 1.8-2.0m buffered bike lane	Signage:	Wayfinding, Branding
Segment Length:	230m	Lighting:	Future street lights
Average Slope:	4.11%	Site Furnishings:	None recommended
Facility Location:	Both sides		

48

GREEN MOUNTAIN ROAD WEST

Morrisey Boulevard to Upper Centennial

IMPLEMENTATION

Project Horizon:	Ultimate
Implementation Responsibility:	Growth Management
High Level Cost Estimate:	\$76,000.00
Surface:	Concrete (sidewalk); Asphalt (bike lane)
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for concrete and asphalt surface
Public Engagement:	Site Plan Process

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- Public expressed desire to consider opportunities for a bridge overpass to cross Upper Centennial Parkway near the brow;
- The route was selected based on challenges of land ownership and difficult terrain closer to the escarpment

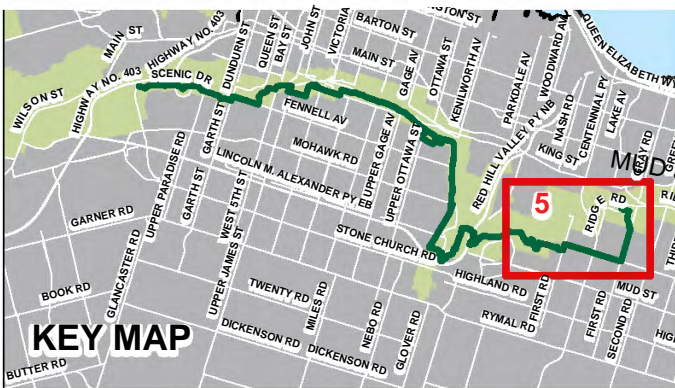
NOTES: (1) 2008 count based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

49 GREEN MOUNTAIN ROAD EAST

Upper Centennial Parkway to First Road East



KEY MAP



LEGEND



49 GREEN MOUNTAIN ROAD EAST
Upper Centennial Parkway to First Road East

WARD
9

PROJECT GROUP
Y

RELATED PROJECTS
50



EXISTING FACILITY: NONE

PROPOSED FACILITY: PAVED SHOULDER



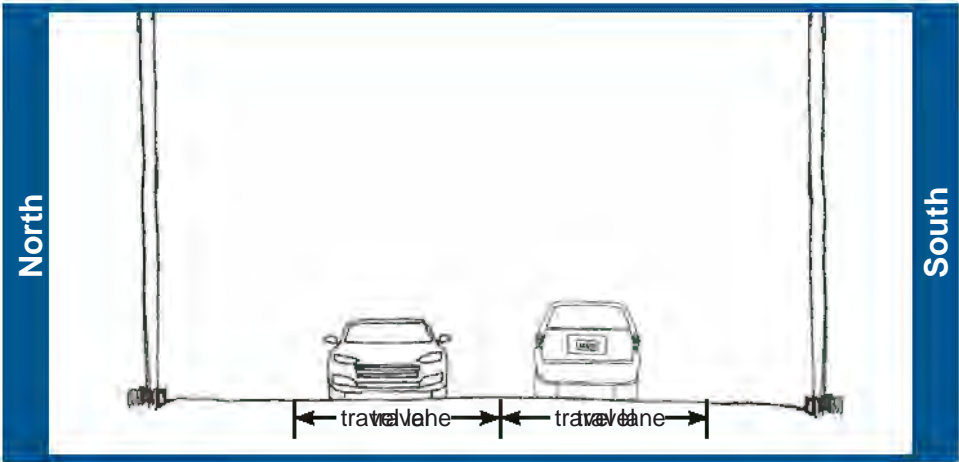
CONTEXT

AADT:	1500 ¹
Speed (km/h):	60
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	Heritage Green Sports Park, Dofasco Trail, Devil's Punch Bowl
Cultural Areas of Interest:	

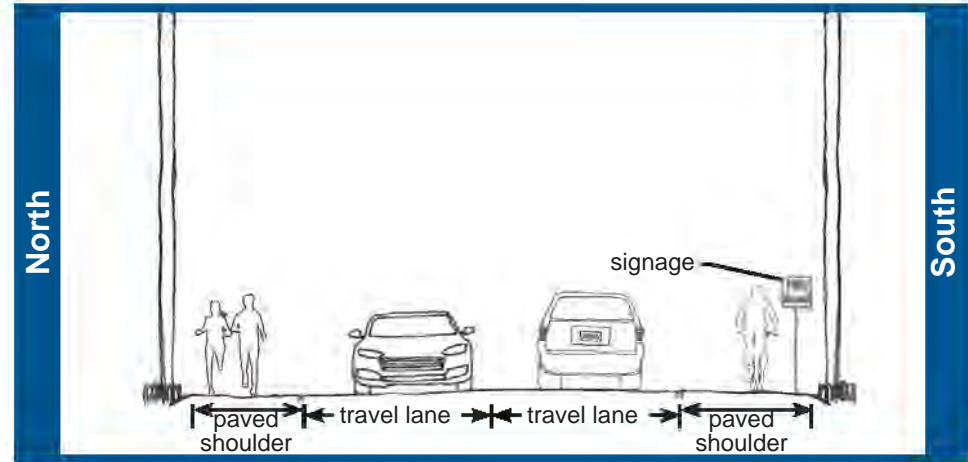
49 GREEN MOUNTAIN ROAD EAST

Upper Centennial parkway to First Road East

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Paved Shoulder	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	23
Proposed Facility Width:	2.0m minimum	Signage:	Wayfinding, Branding
Segment Length:	855m	Lighting:	Rural Road - no street lights
Average Slope:	4.11%	Site Furnishings:	None recommended
Facility Location:	Both sides		

49

GREEN MOUNTAIN ROAD EAST

Upper Centennial Parkway to First Road East

IMPLEMENTATION

Project Horizon:	Ultimate
Implementation Responsibility:	Landscape Architectural Services (Growth Management if part of land development process)
High Level Cost Estimate:	\$130,00.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	N/A
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface and pavement marking
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- The route was selected based on challenges of land ownership and difficult terrain closer to the escarpment
- Should roadway cross-section be urbanized consider a full 3.0-4.0m wide multi-use path

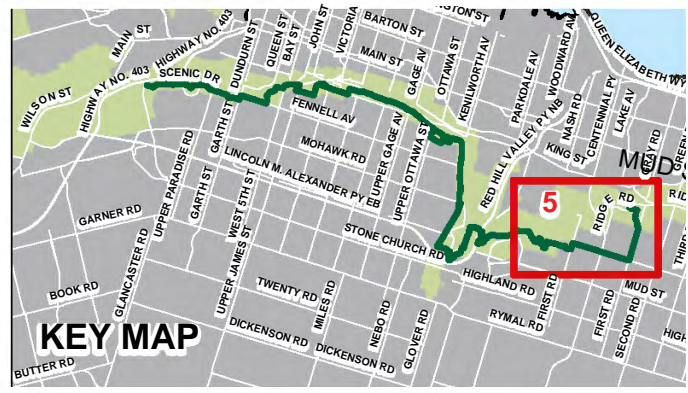
NOTES: (1) 2008 count - based on City count adjusted to AADT based on peak hour volume assuming 10% conversion

50 FIRST ROAD EAST

Green Mountain Road East to Dofasco Trail



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

50

FIRST ROAD EAST

Green Mountain Road East to Dofasco Trail

WARD

9

11

PROJECT GROUP

Y

RELATED PROJECTS

49



EXISTING FACILITY: NONE

PROPOSED FACILITY: PAVED SHOULDER



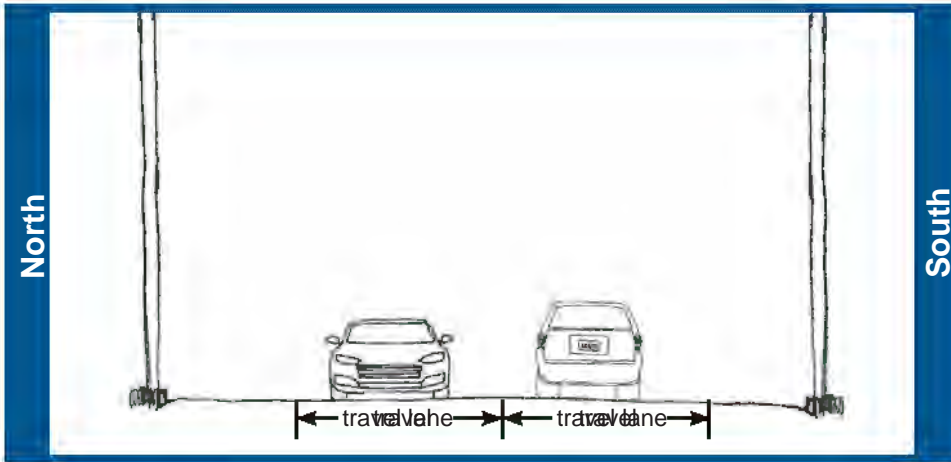
CONTEXT

AADT:	N/A
Speed (km/h):	60
No. of Lanes:	2
R.O.W. Width:	26.213m
Road Characterization:	Collector
Project Location:	City R.O.W.
Destination:	Dofasco Trail, Devil's Punch Bowl
Cultural Areas of Interest:	

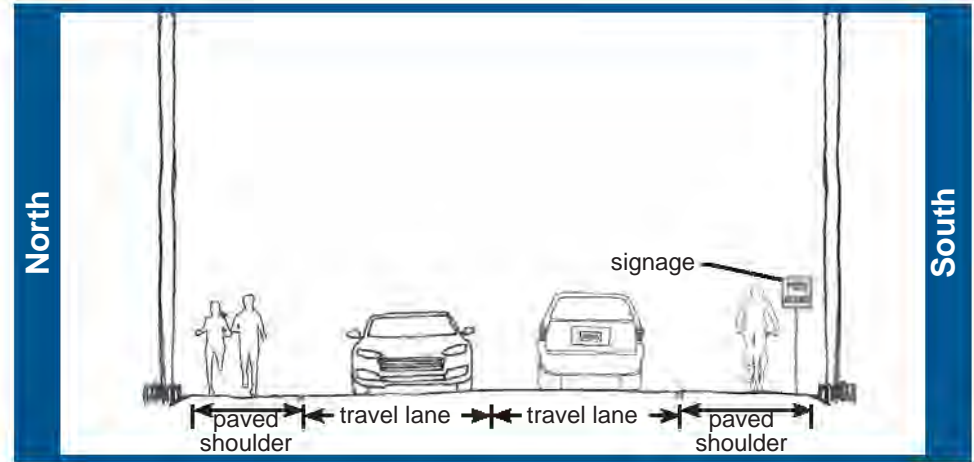
50

FIRST ROAD EAST
Green Mountain Road East to Dofasco Trail

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	None	Status:	Planned Future
Proposed Facility:	Paved Shoulder	Alternate Route:	No
Existing Facility Width:	N/A	Trail Impact Score:	30
Proposed Facility Width:	2.0m minimum	Signage:	Wayfinding, Branding
Segment Length:	1020m	Lighting:	Rural Road - no street lights
Average Slope:	4.11%	Site Furnishings:	None recommended
Facility Location:	Both sides		

50

FIRST ROAD EAST

Green Mountain Road East to Dofasco Trail

IMPLEMENTATION

Project Horizon:	Ultimate
Implementation Responsibility:	Landscape Architectural Services (Growth Management if part of land development process)
High Level Cost Estimate:	\$150,000.00
Surface:	Asphalt
Land Ownership:	City of Hamilton
Stakeholders:	Hamilton Conservation Authority
Permits and Studies:	Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for asphalt surface and pavement marking
Public Engagement:	Per LAS standard practice

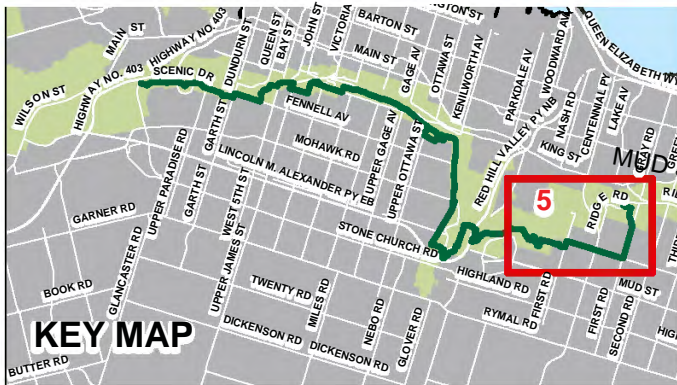
RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- This section has the potential to tie into HCA lands and into the planned Elfrida community; public also expressed desire to consider extending the trail through HCA Lands, if feasible
- The route was selected based on challenges of land ownership and difficult terrain closer to the escarpment
- Should roadway cross-section be urbanized consider a full 3.0-4.0m wide multi-use path

51 DOFASCO TRAIL First Road East to Ridge Road



KEY MAP



LEGEND

	Project Segment		Proposed Section
	Project Group		On-Street Bicycle Lane and Sidewalk
	Existing Section		Multi-Use Path
	Signed-On-Street Bicycle Route (Shared Roadway) and Sidewalk		Paved Shoulder
	Multi-Use Path		Signed On-Street Bicycle Route (Shared Roadway) and Sidewalk
	Existing Section - Upgrades Needed		Sidewalk
	Multi-Use Path		

51

DOFASCO TRAIL
First Road East to Ridge Road

WARD	PROJECT GROUP	RELATED PROJECTS
9	11	Z



EXISTING FACILITY: MULTI-USE TRAIL

PROPOSED FACILITY: MULTI-USE TRAIL

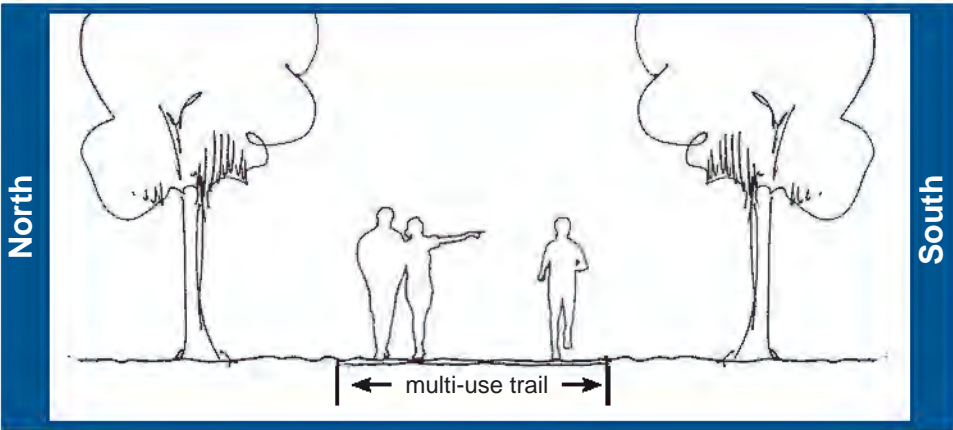
CONTEXT

AADT:	N/A
Speed (km/h):	N/A
No. of Lanes:	N/A
R.O.W. Width:	N/A
Road Characterization:	Trail
Project Location:	Open Space
Destination:	Dofasco Trail, Devil's Punch Bowl, Bruce Trail
Cultural Areas of Interest:	

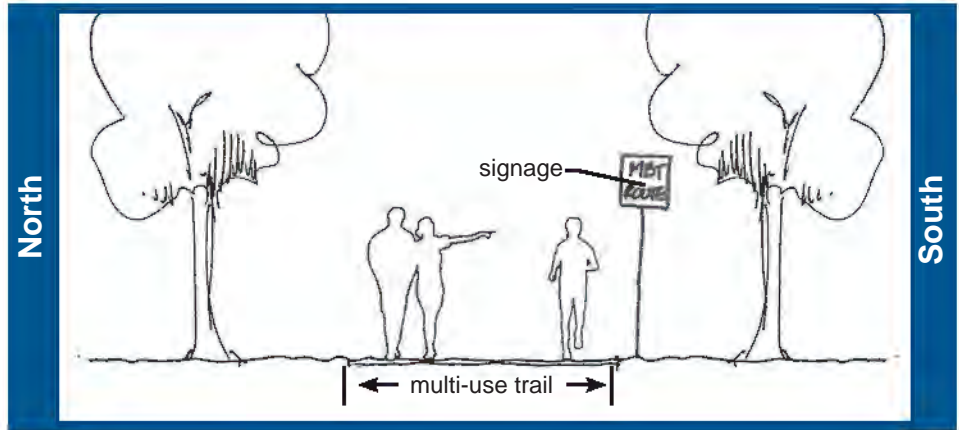
51 DOFASCO TRAIL

First Road East to Ridge Road

EXISTING SECTION



PROPOSED SECTION



FACILITIES

Existing Facility:	Multi-Use Trail	Status:	Upgrades Needed
Proposed Facility:	Multi-Use Trail - Upgrades	Alternate Route:	No
Existing Facility Width:	1.0-2.0m	Trail Impact Score:	9
Proposed Facility Width:	3.0m	Signage:	Trailhead
Segment Length:	830m	Lighting:	No existing lighting. Natural area - lighting is not desirable
Average Slope:	4.11%	Site Furnishings:	None recommended
Facility Location:	N/A		

51

DOFASCO TRAIL

First Road East to Ridge Road

IMPLEMENTATION

Project Horizon:	Long-Term
Implementation Responsibility:	Landscape Architectural Services
High Level Cost Estimate:	\$110,000.00
Surface:	Granular
Land Ownership:	Hamilton Conservation Authority
Stakeholders:	Hamilton Conservation Authority, Niagara Escarpment Commission
Permits and Studies:	Permits: N.E.C., H.C.A.; Studies: Archaeological, Geotechnical
Archaeological Potential:	Yes
Maintenance:	Standard maintenance for granular surface and pavement marking
Public Engagement:	Per LAS standard practice

RATIONALE, COMMENTS AND FEASIBILITY CONSIDERATIONS

- A formal crossing at Ridge Road to the Devil's Punchbowl will be required
- The route was selected based on challenges of land ownership and difficult terrain closer to the escarpment
- Public expressed desire to establish public transit connections to Devil's Punch Bowl (Ridge Road)



Devil's Punch Bowl

7.0 DESIGN CONSIDERATIONS & BRANDING

The Recreational Trails Master Plan (RTMP) recommends a network design that considers, among other elements, trail lighting, trail signage, trailheads and trail amenities (seating and rest areas, and bicycle parking), and public art along trails (See Chapter 3.1.2 Contextual Integration). In order to create a destination trail, these elements have been examined to create a consistent theme, or brand for the length of the trail. This section presents the recommended amenity and branding concept for the Mountain Brow Trail.



Interpretive signage at Hamilton Waterfront Trail

7.1 Trail Branding & Wayfinding

One of the most important elements of the Mountain Brow Trail is ensuring that sections of the trail are built with a consistent brand and visual identity. This will help to create a cohesive, continuous and attractive facility.

As part of the feasibility master plan, an overall brand for the project has been developed. The colours and logo identified through the trail brand (Exhibit 31) can be translated to a variety of wayfinding signage & pavement marking applications.

The following wayfinding & branding signage elements should be considered for the Mountain Brow Trail, in accordance with the Recreational Trails Master Plan:

- **Orientation & Trailhead Signage** – Trailheads provide mapping of the trail, additional network information (trail

distances, key features), and rules and regulations for the overall network. They serve as a landmark for trail users.

- **Route Confirmation & Directional Signs** – These signs assist trail users in locating and following along a particular cycling facility, which may require turns. They also confirm to users that they are still on a specific cycling route, particularly on longer sections.
- **Interpretive Signage** – Interpretive signage is typically placed at locations along trails that signify a historical feature, environmental feature, or feature that is culturally significant to Canadian or local heritage.

These components are discussed in more detail in the following summaries.



Full Standard Logo



Modified Logo



Simplified "Brow" Depiction

Exhibit 31 - Mountain Brow Trail Branding

Orientation & Trailhead Signage

Trailheads along the Mountain Brow Trail will be used to mark major trail access points and to provide a significant amount of information to users.

Applications on the Mountain Brow Trail

Trailheads will typically be considered at the start/end of the Mountain Brow Trail, and at intersections with major roads or other major trails or cycling infrastructure. Locations for potential trailheads are included in the project sheets (refer to Chapter 6.0 - Implementation Strategy).

Sample locations include:

- Scenic Drive at the Chedoke Radial Trailhead – An additional trailhead can be added in this location to indicate the terminus of the Mountain Brow Trail on the opposite end of the trailhead parking lot.
- Southam Park – A trailhead could be added to the park to alert potential users of the intersection of the recommended Claremont access trail to the presence of the Mountain Brow Trail. Ideally this trailhead would be visible from the Claremont access trail.
- Sam Lawrence Park – A trailhead

can be added in close proximity to the existing parking lot to mark the Mountain Brow Trail through this area.

- Mountain Drive Park and/or Bill Foley Parkette - A trailhead can be added to one of these parks to reinforce the re-branding of these existing trail links as part of the Mountain Brow Trail.
- Mountain Brow Boulevard / Mohawk Road East / Escarpment Rail Trail and Red Hill Valley Trail – At these important trail intersections, a trailhead can provide clarity on the trail intersections and routing.
- Heritage Green Sports Park – A trailhead in the sports park can help to raise the awareness of the trail for visitors to the sports facilities.
- First Road East / Dofasco Trail Intersection – Depending on land ownership, there may be opportunity to create a trailhead at this location, including parking area.
- Devil's Punch Bowl

Additional Considerations

Trailhead signage is customarily introduced at formal 'trailheads' which typically include some amenities such as parking (for motor

vehicles and/or bicycles), gateways, visitor kiosks, water fountains, trash / recycling receptacles etc. (refer to Chapter 7.3 – Amenities). Exhibit 32 shows an existing trailhead at the Red Hill Valley Trail.



Exhibit 32 - Existing trailhead at the Red Hill Valley Trail

Route Confirmation & Directional Signs

Route confirmation signs will be used along the Mountain Brow to confirm that users are still on the Mountain Brow Trail route. Directional signs can also be applied as needed to provide guidance to access the trail from other cycling routes or intersecting trails. (Exhibits 33 and 34)

Applications on the Mountain Brow Trail

Route confirmation can be placed along the Mountain Brow Trail with consistent spacing of:

- 400-800m (urban areas), or
- 2 km (rural areas)

Directional signs can be provided from other routes as needed.

Conceptual route confirmation and trail marker signs for a variety of applications (conventional, naturalized areas, within roadway boulevard) are shown in Exhibit 33.

Conceptual sign assemblies are shown in Exhibit 34. These examples depict (from left to right):

- Directional signage indicating access to the Mountain Brow Trail (from another trail or cycling facility)
- Signed cycling route that is part of the branded Mountain Brow Trail route
- Directional sign where users must make a right turn to stay on the Mountain Brow Trail



Exhibit 33 - Mountain Brow Signage (Dimensions in millimeters)



Exhibit 34 - Conceptual Mountain Brow Route Sign Assemblies

Interpretive Signage

Interpretive signage along the Mountain Brow Trail can help to highlight some of the natural themes and features encountered along the trail through education panels, or other interactive signage types.

Applications on the Mountain Brow Trail

The City of Hamilton can engage and work with trail stakeholders including the Bruce Trail Conservancy and the Hamilton Naturalists Club, among others, on the development and identification of locations and formats for interpretive signage along the Mountain Brow Trail.

Preliminary suggestions for themes for interpretive signage include:

- **Escarpment Geology & Ecology** – Present information on karst, caves, sinks and geology unique to the escarpment.
- **“Ribbon of Green”** – Explore the escarpment as a connector, extending all the way from New York through Southern Ontario, north to Manitoulin Island, and beyond into Wisconsin.

- **Head of the Lake** – Emphasize the ecological significance of Hamilton’s unique situation at the head of Lake Ontario.
- **Bird Migration** – Document the unique patterns of bird migration through the area.
- **Encouraging Stewardship** – Point out the variability and density of trees along the escarpment and across the City, as well as the importance of these trees

and other natural environments for human and ecological health.

- **“Greenbathing”** – Articulate the mental, physical and spiritual benefits of time spent outdoors and engaging in recreational activity.
- A sample application of existing interpretive signage along the Hamilton Beach Trail is shown in Exhibit 35.



Exhibit 35 - Interpretive signage along Hamilton Beach Trail (Hamilton Waterfront Trust (HWT))

In addition to signage, the use of pavement markings to guide users and to help build the visual identity are encouraged. Sample applications are discussed below.

Wayfinding Sharrows

A shared lane pavement marking or “sharrow” is a pavement marking that is composed of a bicycle symbol and two white chevrons. These are conventionally used to indicate an appropriate operating position for cyclists on shared routes; however, they can also be used for wayfinding applications with the use of modified arrows.

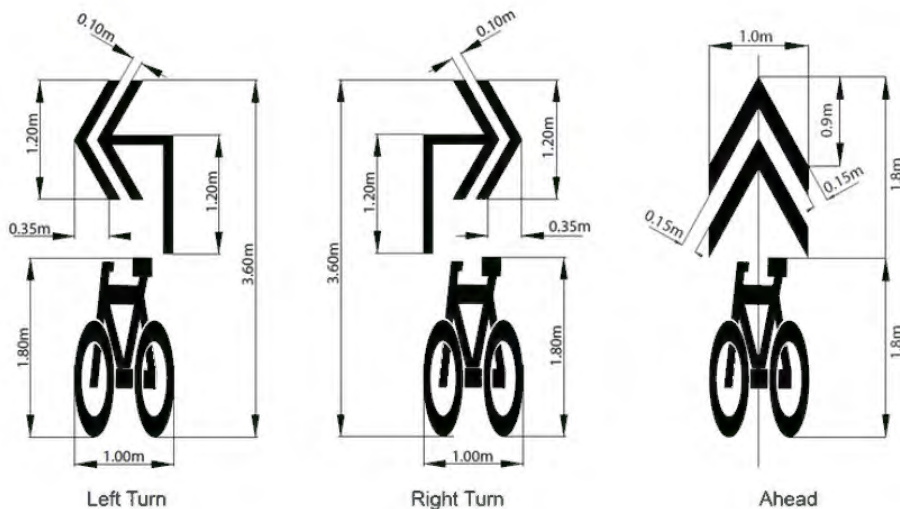


Exhibit 36 - Wayfinding sharrows (Source: City of Toronto Wayfinding Strategy)

Applications on the Mountain Brow Trail

The use of wayfinding sharrows along the Mountain Brow Trail is recommended where the trail route is located along quiet streets to indicate connections between off-road trail sections, or where the cyclist routing differs from the pedestrian route.

Sample locations along the Mountain Brow Trail where wayfinding sharrows may be helpful include:

- Transition between Inverness & Belvidere – to guide cyclists from the bike lane on Inverness onto/from the

shared route along Belvidere

- Connection along Belwood & Mountain Park Avenue between Concession Street & the trail beginning at Mountain Brow West Park – to improve wayfinding along this quiet street connection
- Along Rendell Boulevard, Mulock Avenue, Edgewood Avenue, High Street, Woodside Drive, Oakcrest Drive – to improve wayfinding along this cycling connection

Details for the wayfinding sharrows are shown in Exhibit 36, with a sample application depicted in Exhibit 37.



Exhibit 37 - Wayfinding sharrows (Source: NACTO Urban Bikeway Design Guide)

Branded Trail Pavement Markings

Various trail markings can be customized to highlight trail branding, for example:

- Trail dividing centre line
- Stop or Yield Trail Markings
- Decorative Pavement Markings

A sample application of branded trail pavement markings is shown in Exhibit 38.

Applications on the Mountain Brow Trail

For multi-use trail facilities along the Mountain Brow Trail, a two-colour dividing line can be applied - made-up of 100mm solid or dashed lines in Mountain Brow Trail blue and green (refer to logo). Solid dividing lines should be considered where the trail is too narrow to permit passing and 15m in advance of an intersection. Dashed dividing lines may be applied as needed where path usage is anticipated to be heavy to help control passing.

In addition to a coloured centre line, asphalt trail sections can be stamped with the Mountain Brow Trail logo in circular stamp pattern. A sample MBT branded trail application is shown in Exhibit 39.

Specific decorative pavement markings may be considered along project segments in areas of high potential usage on a project-by-project basis.



Exhibit 38- City of Toronto Waterfront Trail incorporating blue and green centreline, pavement marking decorations and blue and white stop bars (Source: Google Maps)



Exhibit 39 - Sample branded pavement marking applications



Ministry of Infrastructure Lands, Fennell Avenue

7.2 Regulatory Signage

In addition to wayfinding signage, regulatory signage should be applied consistent with practices along other City trails and cycling infrastructure. This signage will vary substantially depending on the route context, but may include:

- Traffic Control Signage associated with trail crossings, which may include stop (OTM Ra-1) or yield signs (OTM Ra-2) -

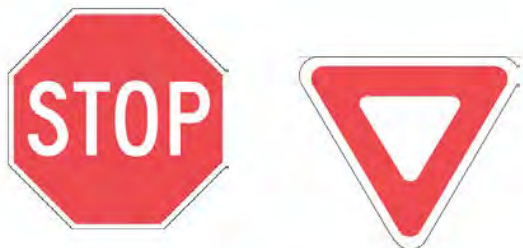


Exhibit 40- Examples of regulatory signage (OTM Ra-1, OTM Ra-2)

refer to Exhibit 40

- Signage for on-road facilities, which may include designated bike lane signage (i.e. TAC RB-91), vehicles turn to yield turning cyclists (i.e. TAC RB-37) and bicycle route and share the road signage (OTM M511 & OTM Wc-19) - refer to Exhibit 41
- Signage alerting users to sensitive or protected areas (e.g. wetlands, woodlots),

and other items such as invasive plants (e.g. poison ivy, giant hogweed) and private lands.

Beyond regulatory signage, other signs such as trail etiquette signs and those pertaining to municipal bylaw 01-219 (prohibiting the use of motorized vehicles on the trail), should be considered on an as-needed basis.



Exhibit 41 - Examples of signage for on-road cycling facilities (TAC RB-19, TAC RB-37, OTM Wc-19)



Exhibit 42 - Regulatory (Rb-73) and Trail Etiquette Signage



Rest Area at Mountain Brow Boulevard

7.3 Trail Amenities

The level and quality of trail amenities should be in keeping with the trail context. In the project sheets, desirable amenities have been identified on a project by project basis. Where applicable, amenities may include:

- Urban open space lighting
- Signage
- Fencing
- Benches (City standard)
- Waste/Recycling Containers
- Drinking fountains
- Tree planting
- Connections to existing viewing platforms

The following sections outline recommendations for the type of amenities preferred for applications along the Mountain Brow Trail.

7.3.1 - Seating and Rest Areas

While recreational trails provide the opportunity for active uses (walking, jogging, cycling), they also provide an opportunity for passive recreation for users who prefer the facilities as an opportunity to get to a specific destination or to take a break during those active uses.

Rest areas are usually outfitted with benches at a minimum; however, for high-use or popular areas, viewing platforms, benches, drinking fountains, lighting and/or

waste and recycling receptacles may also be installed in response to user habits and to foster the inclination of trail users to sit or gather in these locations. Considering the development of specific Escarpment vistas and the need for ecological sensitivity, designated rest areas direct users to an established facility to alleviate the tendency to create informal vistas and gathering areas. These areas should be designed for accessibility, user comfort and safety.

To support the trail branding initiative (see Chapter 7.1 Trail Branding and Wayfinding), the consistent use of the same amenity products allows users to readily identify the trail.

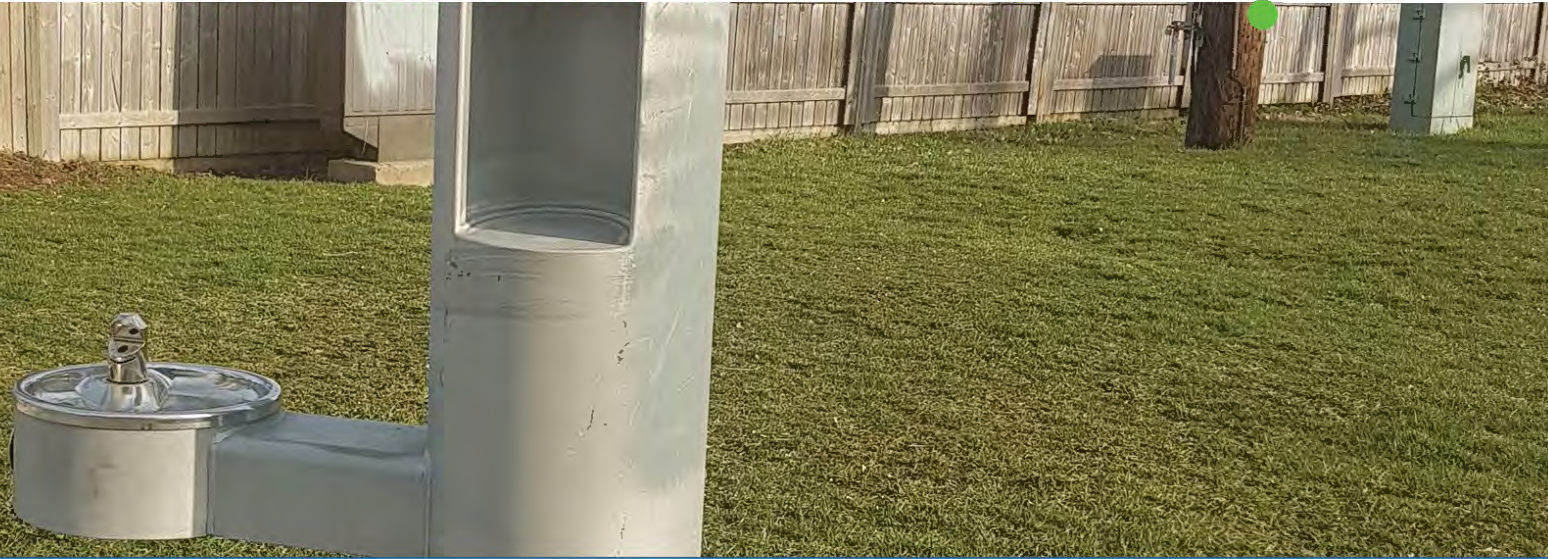
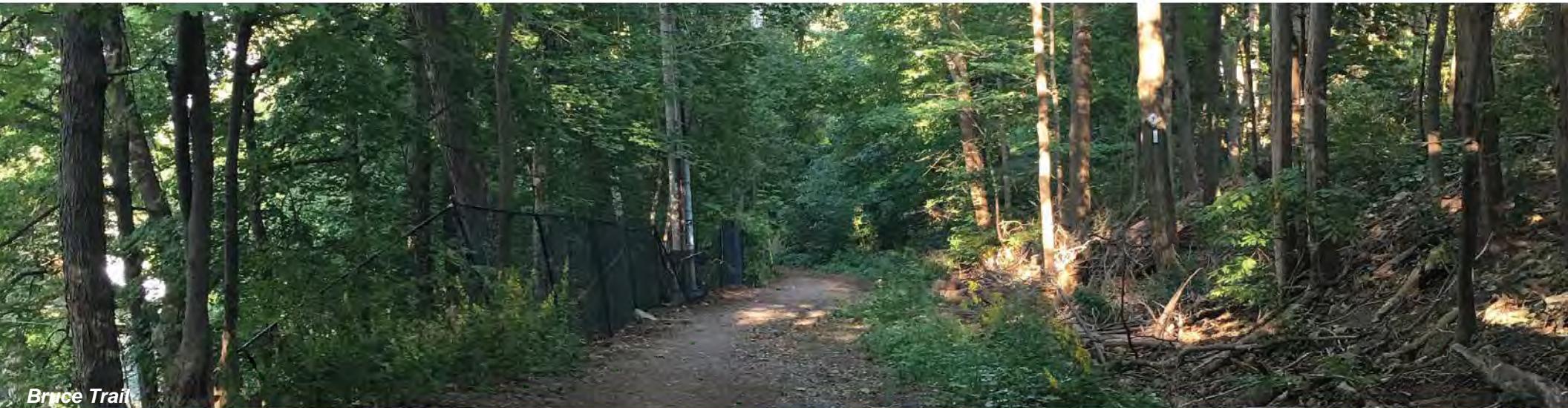
Mountain Brow West Park

Exhibit 43 shows some of the amenities already installed on the precedent section of the Mountain Brow Trail (benches, drinking

fountains, waste receptacles, solar lights) that would be preferred for use along future sections of the trail that are constructed.



Exhibit 43 - Amenities (from left to right): bench and waste receptacle, solar lights, fencing, and drinking fountain



Bruce Trail

7.3.2 – Public Art:

Section 2.12 of the RTMP highlights considerations for public art involvement with trails throughout the City as directed by the City of Hamilton Public Art Master Plan (2016). As outlined by the Master Plan, public art is created by artists or in collaboration with artists through a public process and existing in publicly accessible City of Hamilton owned property.

The Public Art Master Plan identifies fourteen (14) priority project sites, for which installation will take place from 2017-2023, and eighty-five (85) secondary sites, which will be considered should resources (staff and funding) become available. The selection is based on the

plan’s associated evaluation matrix (scoring out of 100). Sam Lawrence Park is the only location along the Mountain Brow Trail identified on the priority list, while the secondary list, in order of priority, includes the Niagara Escarpment Stairs at Wentworth (Wentworth stairs), the Niagara Escarpment Stairs at Margate and Mountain Brow (Kenilworth stairs), Cliffview Park, Mud Street and Red Hill Valley Trail Entrance.

7.3.3 – Bicycle Parking, SoBi Integration

With the increased connectivity and access to points of interest, bicycle parking and access to the SoBi Bike Share program will become an important element to allow users to get to various sites, and also

provides an option to enjoy the trail.



Exhibit 44 - SoBi Station (Source: “Hub 23 Rail Trail at Emerson” by Reaperexpress, licensed under CC BY-SA 4.0)



View of the lower city from Jolley Cut

The following list of locations identifies potential sites for amenities, and is based on comments that were included on the comment sheets returned from the public engagement process and analysis by the study team. The sites are recommended and do not include sites where further study into AODA recommendations may be required.

The following list highlights the potential sites (illustrated in Exhibit 45):

Scenic Drive at the Chedoke Radial Trailhead Parking Lot

Scenic Drive at Goulding Ave Lay-by

Sanatorium Road Parking

Bruce Trail at Scenic Drive

Cliffview Falls/Cliffview Park

Scenic Drive at Chedoke Falls

Claremont Access Spur

Southam Park

Sam Lawrence Park

Concession Street

Mountain Brow Park West

Mountain Drive Park

Mountain Brow Boulevard

Former Mount Albion Road

Existing Mountain Trail Loop

Existing Mountain Brow Multi-Use Trail (Felker's Falls)

Existing and Future Heritage Green Sports Park

Dofasco Trail

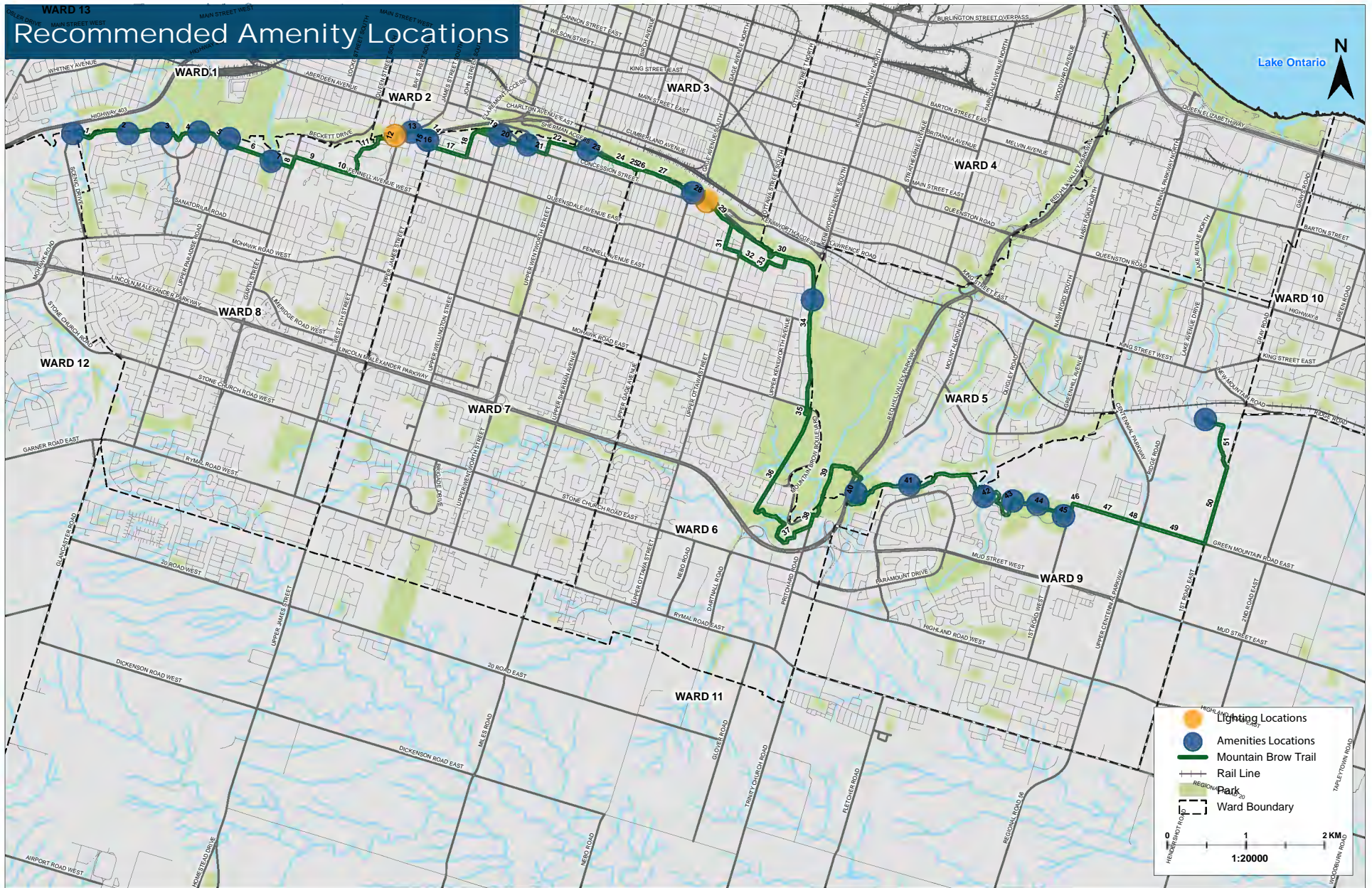


Exhibit 45 - Map showing recommended locations of amenities (bike racks, seating, drinking fountains and rest areas) and lighting



SoBi Bicycle (Source: "Social Bicycle in Hamilton by Reaperexpress, licensed under CC BY-SA 4.0)



Red Hill Valley Trail

8.0 HIGH LEVEL COSTING

The recommended Mountain Brow Trail route is over twenty-five (25) kilometres in length. The feasibility study was spearheaded by the Landscape Architectural Services Section and partnering with Engineering Services at the City of Hamilton in coordination with multiple stakeholders (see Chapter 3.2 Stakeholders and Partnerships). The implementation will be carried out by various City of Hamilton Sections and project budgets and timelines will be assigned through the capital budget process. High-level costing and funding opportunities are provided to guide the budgeting for detailed design and implementation of individual sections of the trail.



View of the lower city from Cliffview Park

8.1 Projected Costs

In order to scope the delivery of the Mountain Brow Trail, high level segment costs for each project link have been identified. High-level cost estimates are useful to present an overview of potential project costs, and to assist in supporting the allocation of funds to specific projects.

High level cost estimates were derived for each project segment by identifying the corresponding implementation strategy for the facility and supporting elements (i.e. fencing, lighting, wayfinding etc.), and applying these unit costs to the segment length. Exhibit 46 shows the unit costs used for developing these estimates. These unit cost estimates incorporate a 25% contingency and 25% for engineering

and construction administration, but do not account for inflation.

Exhibit 47 shows the high-level cost estimate for each segment of the trail, including identifying the elements that were costed for each segment and the estimated total cost of the trail implementation, as recommended. Note that these costs do not account for all site specific conditions and may not address major infrastructure upgrades such as bridges or overpasses, and should be considered as a reference only. As each project segment moves towards implementation, refined cost estimates based on the design should supersede these estimates. The total estimated cost

to construct the length of the Mountain Brow Trail is CAD \$9,111,000 (2018 dollars).

The implementation of the trail is feasible by engaging the following tools:

- Engaging multiple potential funding opportunities (see Chapter 8.2 Funding Opportunities)
- Sharing project design and implementation costs with other departments, and
- Phasing the trail over time to allow for year-over-year budgeting processes.

Pedestrian & Cycling Facility	Description	Per km cost
Signed Routes & Sidewalks		
Signed Bike Route - with existing sidewalk	Provide signed and marked cycling route	\$20,000
Signed Bike Route - add sidewalk on one side	Add sidewalk to one side of the streets and provide a signed and marked cycling route	\$210,000
Sidewalk & Bike Lanes		
Stripe bike lanes on existing road - with existing sidewalk	Sign and mark bike lanes to wide roadway (no changes to other pavement markings / travel lanes)	\$60,000
Stripe bike lanes on existing road - add new sidewalk on both sides	Sign and mark bike lanes to wide roadway (no changes to other pavement markings / travel lanes) and add sidewalks on both sides	\$330,000
Lane reconfiguration to add buffered bike lanes	Reconfigure existing travel / parking lanes to accommodate buffered bike lanes	\$70,000
Multi-use Trails		
Remove existing sidewalk and construct boulevard multi-use trail	Remove existing concrete sidewalk; construct new 3.0 m wide asphalt trail; assume 30% utility pole relocations	\$660,000
Construct paved multi-use trail with pedestrian lighting	Construct new 3.0 m wide asphalt trail; assume 30% utility pole relocations, includes lighting	\$740,000
Construct paved multi-use trail without lighting	Construct new 3.0 m wide asphalt trail; assume 30% utility pole relocations, does not include lighting	\$500,000
Upgrades to existing facilities		
Widen existing paved multi-use trail	Widen existing 2.0 - 2.5m multi-use trail to 3.0m-4.0m paved multi-use trail	\$210,000
Upgrade existing granular trail to paved multi-use trail	Upgrade existing granular trail to 3.0-4.0m paved multi-use trail	\$330,000
Upgrade and widen existing granular trail	Widen existing 2.0 - 2.5m granular trail to 3.0m-3.5m	\$130,000
Add lighting along existing multi-use trail	Add solar lighting along existing trail	\$240,000
Add amenities along existing or new multi-use trail	Add decorative fencing, drinking fountains, bollards, and benches along trail	\$375,000
Wayfinding / Branding Only	Add wayfinding to existing facilities	\$10,000
Add sidewalk only	Add a sidewalk to an existing shared route	\$190,000
Retrofit paved shoulder to existing rural road	Provide grading, sub-base, base and asphalt to accommodate paved shoulder on existing rural road (in conjunction with mill & overlay project)	\$150,000
Additional Costs - Complex Intersections		Each
New signalized intersection or major upgrade to existing signal	Add new signalized intersection or retrofit/upgrade existing signalized intersection	\$315,000

Project Segment	Project Group	Project Horizon (yrs) ¹	Project Limits	Length (km)	Estimated Cost	Costs Included										Implementation Responsibility ²
						New Trail	New Trail	New Bike lanes	New Signed Cycling Route	New Sidewalk	Paved Shoulders	Intersection Upgrade	Amenities	New Lighting	Wayfinding & Branding	
1	A	0-5	Scenic Drive	0.26	\$200,000.00	✓							✓	✓	✓	ES
2	A	0-5	Scenic Drive	0.76	\$600,000.00	✓							✓	✓	✓	ES
3	B	0-5	Sanatorium Road	0.37	\$290,000.00	✓							✓	✓	✓	D
4	C	0-5	Bruce Trail	0.35	\$180,000.00								✓		✓	LAS
5	D	5-10	Scenic Drive	0.43	\$250,000.00		✓						✓		✓	ES
6	D	5-10	Scenic Drive	0.60	\$340,000.00			✓		✓			✓	✓		ES
7	D	5-10	Scenic Drive/Denlow Avenue	0.28	\$93,000.00			✓		✓				✓		ES
8	E	5-10	Garth Street	0.14	\$410,000.00		✓					✓			✓	LAS
9	E	5-10	Fennell Avenue West	0.41	\$270,000.00		✓								✓	LAS
10	E	5-10	Fennell Avenue West	0.38	\$250,000.00		✓								✓	LAS
11	F	10-20	Juravinski Drive/St. Joseph's Hospital Lands	0.88	\$580,000.00	✓							✓	✓		LAS
12	G	0-5	Claremont Access Spur I	0.06	\$37,000.00	✓							✓	✓		AT
13	G	0-5	Claremont Access Spur II	0.43	\$340,000.00	✓							✓	✓	✓	AT
14	H	0-5	Southam Park	0.09	\$79,000.00	✓							✓		✓	LAS
15	H	0-5	Tanner Street	0.19	\$4,000.00				✓						✓	AT/ES

Exhibit 47 - Projected cost breakdown by Project Section

Project Segment	Project Group	Project Horizon (yrs) ¹	Project Limits	Length (km)	Estimated Cost	Costs Included										Implementation Responsibility ²
						New Trail	New Trail	New Bike lanes	New Signed Cycling Route	New Sidewalk	Paved Shoulders	Intersection Upgrade	Amenities	New Lighting	Wayfinding & Branding	
16	I	5-10	Inverness Avenue West	0.10	\$2,000.00				✓			✓		✓	AT	
17	I	5-10	Inverness Avenue East	0.47	\$29,000.00			✓						✓	AT	
18	I	5-10	Belvidere Avenue	0.37	\$8,000.00				✓					✓	AT	
19	J	5-10	Sam Lawrence Park - Multi-Use Path	0.26	\$3,000.00									✓	LAS	
20	J	5-20+	Concession Street	0.69	\$49,000.00			✓						✓	LAS, AT	
21	J	5-20+	Concession Street	0.23	\$5,000.00				✓					✓	ES	
22	J	5-10	Bellwood Avenue/Mountain Park Avenue	0.48	\$5,000.00									✓	LAS	
23	K	0-5	Mountain Brow Park West	0.56	\$460,000.00		✓					✓	✓	✓	LAS	
24	L	10-20	Mountain Brow Park West	0.20	\$150,000.00	✓								✓	ES	
25	K	0-5	Mountain Brow Park West	0.09	\$52,000.00		✓					✓		✓	LAS	
26	M	20+	Mountain Park Avenue Bridge over Sherman Cut	0.03	\$21,000.00	✓								✓	ES	
27	K	0-5	Mountain Brow Park West	0.64	\$530,000.00		✓					✓	✓	✓	LAS	
28	K	0-5	Mountain Drive Park	0.50	\$310,000.00							✓	✓	✓	LAS	
29	N	0-5	Mountain Brow Boulevard	0.53	\$440,000.00		✓					✓	✓	✓	ES	
30	O	20+	Mountain Brow Boulevard	0.68	\$130,000.00					✓				✓	ES	

Exhibit 47 - Projected cost breakdown by Project Section (continued)

Project Segment	Project Group	Project Horizon (yrs) ¹	Project Limits	Length (km)	Estimated Cost	Costs Included								Implementation Responsibility ²	
						New Trail	New Trail	New Bike lanes	New Signed Cycling Route	New Sidewalk	Paved Shoulders	Intersection Upgrade	Amenities		New Lighting
31	P	10-20	Rendell Boulevard/Mullock Avenue	0.55	\$6,000.00				✓					✓	AT
32	P	10-20	Edgewood Avenue	0.36	\$320,000.00				✓			✓		✓	AT
33	P	10-20	High Street/Woodside Drive/Oakcrest	0.46	\$5,000.00									✓	LAS
34	Q	5-10	Existing Mountain Brow Trail	2.16	\$22,000.00									✓	LAS
35	Q	5-10	Existing Escarpment Rail Trail Access	0.17	\$2,000.00									✓	LAS
36	R	5-10	Existing Escarpment Rail Trail	1.93	\$410,000.00		✓							✓	LAS
37	S	0-5	Future Mountain Brow Trail	0.77	\$570,000.00	✓								✓	LAS
38	S	0-5	Pritchard Road	0.20	\$150,000.00	✓								✓	LAS
39	T	10-20	Red Hill Valley Trail	1.13	\$150,000.00									✓	LAS
40	T	10-20	Former Mount Albion Road	0.37	\$190,000.00	✓								✓	LAS
41	U	10-20	Existing East Mountain Trail Loop	1.75	\$18,000.00									✓	LAS
42	U	10-20	Existing Mountain Brow Multi-Use Trail at Felker's Falls	0.95	\$10,000.00									✓	LAS

Exhibit 47 - Projected cost breakdown by Project Section (continued)

Project Segment	Project Group	Project Horizon (yrs) ¹	Project Limits	Length (km)	Estimated Cost	Costs Included										Implementation Responsibility ²
						New Trail	New Trail	New Bike lanes	New Signed Cycling Route	New Sidewalk	Paved Shoulders	Intersection Upgrade	Amenities	New Lighting	Wayfinding & Branding	
43	V	0-20	Future Heritage Green Sports Park Multi-Use Trail	0.32	\$240,000.00	✓									✓	LAS
44	V	10-20	Existing Heritage Green Sports Park Multi-Use Trail	0.50	\$5,000.00										✓	LAS
45	W	0-20	Heritage Green Sports Park	0.20	\$150,000.00	✓									✓	LAS
46	W	0-20	First Road West/Green Mountain Road West	0.39	\$130,000.00			✓		✓					✓	GM
47	W	0-20	Green Mountain Road West	0.46	\$150,000.00			✓		✓					✓	GM
48	X	20+	Green Mountain Road West	0.23	\$76,000.00			✓		✓					✓	GM, ES
49	Y	20+	Green Mountain Road East	0.85	\$130,000.00						✓				✓	GM/LAS
50	Y	20+	1st Road East	1.02	\$150,000.00						✓				✓	GM/LAS
51	Z	10-20	Dofasco Trail	0.82	\$110,000.00										✓	LAS
TOTAL (2018 Dollars)				27	\$9,111,000.00											

Notes:

1. Project Horizons

- Short-term (0-5yrs) - 2019-2023
- Medium-term (5-10 yrs) - 2024-2028
- Long-term (10-20 yrs) - 2029-2038
- Ultimate (20+ years) - 2039+

2. Implementation Responsibility

- AT - Alternative Transportation
- D - Developer
- ES - Engineering Services
- GM - Growth Management
- LAS - Landscape Architectural Services



Bruce Trail

8.2 Funding Opportunities

In addition to conventional funding, there are opportunities to pursue unique funding sources for the Mountain Brow Trail. A variety of potential funding sources are summarized in this section for reference.

Federation of Canadian Municipalities Green Municipal Fund

The Federation of Canadian Municipalities (FCM) Green Municipal Fund program funds capital projects encouraging modal shift or fleet fossil fuel and greenhouse gas (GHG) emissions reduction. Modal shift is the change in travel patterns from one type of mode to a more sustainable one (e.g. a change in the number of people using public transit instead of cars). The Mountain Brow project is an eligible project as this active transportation project demonstrates the potential to reduce vehicle kilometres traveled in single occupancy vehicles by

encouraging alternative modes of travel through the provision of a critical east-west pedestrian and cycling corridor on the escarpment.

More information regarding the application, deadline, and the approval process for the Green Municipal Fund can be found here:

<https://fcm.ca/home/programs/green-municipal-fund/apply-for-funding/application-and-approval-processes-and-deadlines.htm>

Hamilton Future Fund

The City of Hamilton manages the Hamilton Future Fund, which provides funding opportunities to eligible projects that provide permanent community benefit, improve the economic prosperity of Hamiltonians, and have specific, measurable results. Applications are not currently available on

the City's website, but City staff can connect with the Board of Governors of the Hamilton Future Fund to determine eligibility and when applications will be accepted.

More information regarding the application, and the Hamilton Future Fund can be found here:

<https://www.hamilton.ca/community-funding-grant-programs/hamilton-future-fund/hamilton-future-fund>

Heritage Green Community Trust

The Heritage Green Community Trust distributes grants to qualifying recipients or organizations who provide services to residents within the former City of Stoney Creek town boundary, as well as those within 3km of the Terrapure Environmental Stoney Creek Regional Facility.

Grants are awarded annually to support



View of the lower city from Cliffview Park

community-based programs relating to health and social services, art and culture, education, conservation and recreation.

<https://www.heritage-green.org/trust-grants/>

Municipal GHG Challenge Fund

The Province of Ontario's Municipal GHG Challenge Fund is a program funded by the proceeds from Ontario's carbon market that aims to support community-led action on climate change.

If the City of Hamilton has or demonstrates a commitment to creating a record of a community-wide greenhouse gas inventory, emission reduction targets, and a strategy/plan to reduce emissions within 18 months, the Mountain Brow project may be eligible for up to \$10 million.

Applications for the Municipal GHG Challenge Fund are currently closed, but

it is recommended that staff investigate if the City of Hamilton has created or is in the process of creating a GHG inventory, emission reduction targets, and a strategy/plan to reduce emissions. If the City is creating a plan or currently has one, it is recommended that staff connect with the Province of Ontario to learn when applications will be accepted.

More information regarding the Municipal GHG Challenge Fund can be found here:

<http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR017538>

Commuter Cycling Program

In December 2017, the Province of Ontario announced that 120 municipalities would be receiving \$93 million for new bike lanes and other cycling infrastructure as part of

the Commuter Cycling Program. Of the committed \$93 million, the City of Hamilton is receiving \$3.7 million.

City staff can connect with City of Hamilton Transportation Planning staff to determine if it is possible to utilize a portion of the \$3.7 million for the Mountain Brow project.

The City of Hamilton's Alternative Transportation section is also investigating the possibility of securing a sustainable funding source from the Province of Ontario where municipalities would receive an annual contribution towards bike lanes and other cycling infrastructure.

More information regarding the Commuter Cycling Program and Ontario Cycling Strategy can be found here:

<https://www.ontario.ca/page/cycling-ontario>



View of the lower city

9.0 SUMMARY OF RECOMMENDATIONS AND NEXT STEPS

The primary purpose of the Mountain Brow Trail Feasibility Study is to provide a framework for the reconstruction and renovation of the existing trail segments, the extension of the trail into undeveloped areas, and possible integration with existing and proposed pedestrian and cycling infrastructure along the route. The trail serves to fulfill the Hamilton Recreational Trails Master Plan mandate of creating planned, connected, diverse, inspiring, accessible, safe and sustainable recreational opportunities for all of the City's residents and visitors. Once complete, the trail will address the needs of users (including accessibility and safety), enhance the Niagara Escarpment while promoting conservation, and support the City's vision to be the best place for family living.



Jolley Cut Path

9.1 Project Summary

This report summarizes the work completed as part of the Mountain Brow Trail Feasibility Master Plan.

To develop this Feasibility Master Plan, various data gathering exercises were completed including field and site reviews, policy and plan reviews, public engagement sessions, stakeholder engagement and project mapping. An iterative study process was used to select and refine project segments based on resident and stakeholder input, feasibility considerations, environmental constraints and other City initiatives and projects. The resulting recommended trail route is intended to fulfill the vision for the Mountain Brow Trail identified during project initiation.

The Mountain Brow Trail will be developed as a recreational trail that follows the escarpment edge as closely as possible to take advantage of views and provide connectivity between wards. The trail shall include a mixture of facility types with a preference towards accessible off-road, multi-use trails that are wide enough for pedestrians and cyclists.

Through the development of the Master Plan, each project segment was reviewed to identify numerous attributes including the proposed facility type, width, amenities, lighting, permitting, stakeholders and roadway context etc. An implementation strategy was developed and discussed, including high-level cost estimates.

In addition, trail branding has been developed, including wayfinding and amenities in an effort to create a cohesive and connected trail system. Potential blue sky ideas associated with trail implementation have also been summarized in the appendix of this Master Plan to guide potential future major capital investments.

This report provides a framework for trail implementation, determined through a multi-stage design process. It provides the foundation for the ultimate development of a 25km connected trail link across the Mountain Brow. The recommended trail route is presented in Exhibit 48.

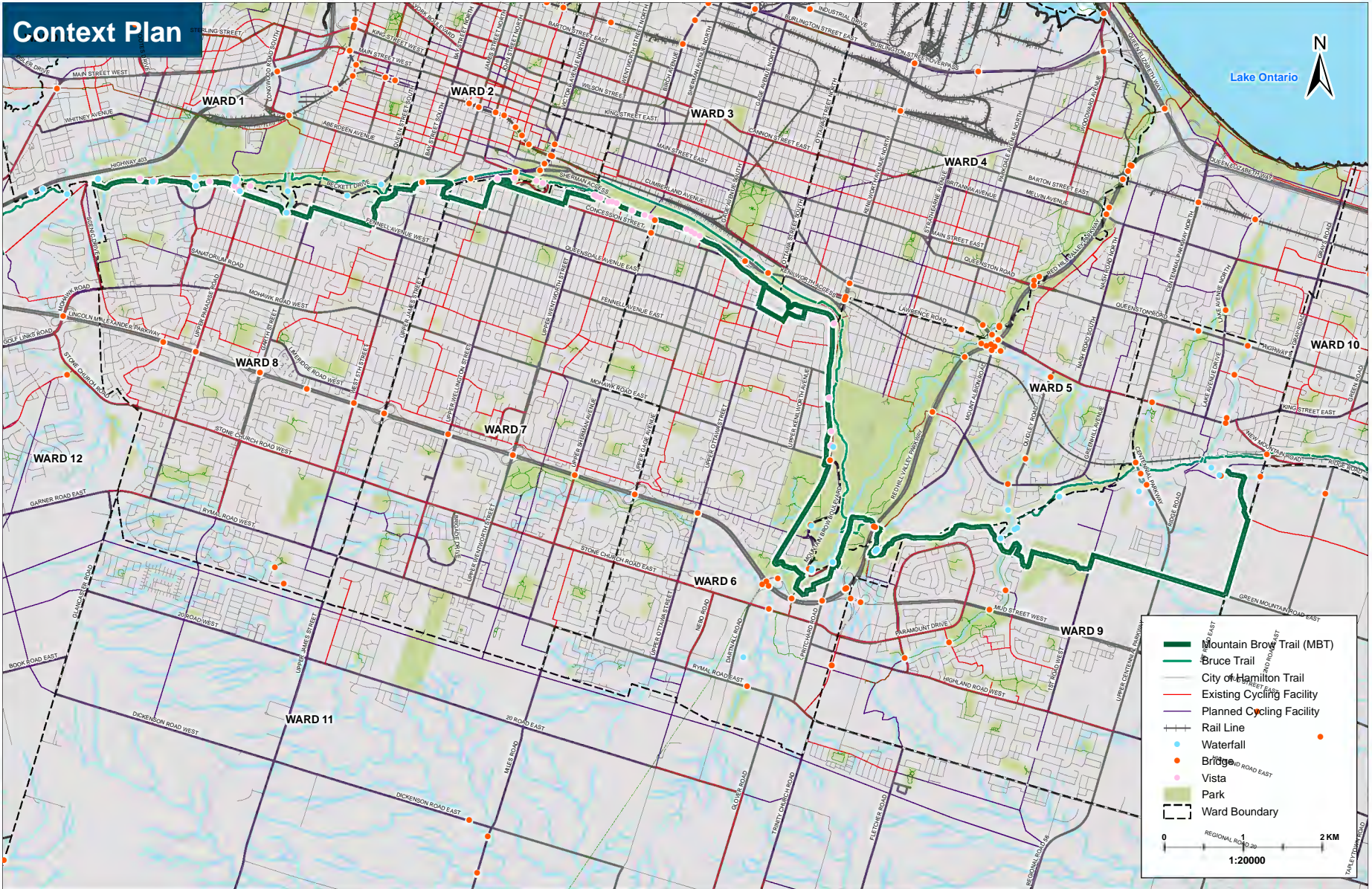


Exhibit 48 - Mountain Brow Trail Context Plan



Claremont Access Spur

9.2 Overall Budget & Implementation Timeline

Based on the cost estimates prepared for each section of the trail, the total anticipated cost of the Mountain Brow Trail is \$9,111,000.

As noted in Chapter 6.3, project segments have been grouped into four phases for implementation:

- Short-term (0-5 years) - 2019-2023
- Medium-Term (5-10 years) - 2024-2028
- Long-Term (10-20years) - 2029-2038
- Ultimate (Beyond 20 years) - 2039+

Although the project horizons extend beyond twenty years, opportunities to accelerate implementation to provide a connected trail by 2039 should be explored as opportunities arise.

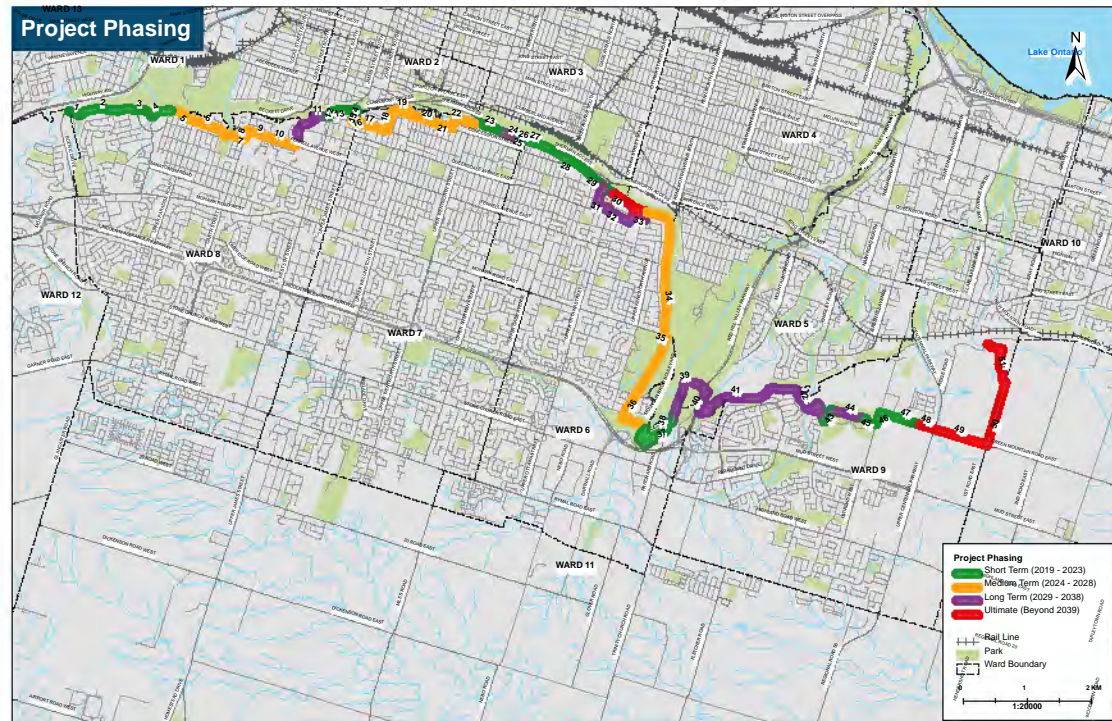


Exhibit 49 - Project Phasing Map - see also Exhibit 27, page 62



Sam Lawrence Park

9.3 Next Steps

The Mountain Brow Feasibility Study has provided the framework for the design and implementation of the trail using the principles of the Recreational Trails Master Plan. The study marks the first step in a multi-step process for route implementation, which will generally include pre-design steps such as consultation and permitting, preliminary design, followed by detailed design, and tendering and construction. Accordingly, this study provides the starting point for more detailed engagement, exploration and investigation into each trail segment or group.

In order to realize the implementation of the trail, the following steps will be required:

- Coordination with city agencies for planned and forecasted city initiatives, including planned road reconstruction projects;
- Year-over-year budgeting, planning and implementation for project segments;
- Identification of funding sources to finance the selected segment(s) or group(s) of the trail, and future trail segments;
- Coordination with stakeholders, including residents, during design development, to facilitate further refinement of the trail alignment;
- Further studies in locations where failing infrastructure (existing or potential) is a concern, where inaccessible slopes need to be mitigated, where the interaction between trail and roadway users is a concern, or where other studies and permits have been identified in the project sheets; and
- Periodic review of the Feasibility Master Plan (every 3-5 years) to evaluate segments of the trail implemented and to plan and coordinate future projects.



Jolley Cut - Arkledun Avenue Stairs and Bike Trough

10.0 REFERENCES

1. Recreational Trails Master Plan (2007, 2016). City of Hamilton & Seferian Design Group
2. Urban Hamilton Official Plan (2013). City of Hamilton
3. Rural Hamilton Official Plan (2012). City of Hamilton
4. Park and Open Space Development Guide (2015). City of Hamilton
5. Niagara Escarpment Plan (2017). Niagara Escarpment Commission
6. Mountain Brow Vista Study and Management Plan (2016). City of Hamilton & Dillon Consulting Limited
7. Ontario Trails Strategy (2005). Ontario Ministry of Health Promotion
8. Public Art Master Plan (2016). City of Hamilton
9. Hamilton's Cycling Master Plan: Shifting Gears 2009, Municipal Class Environmental Assessment (2009). City of Hamilton & Ecoplans Limited.
10. Illustrated Technical Guide to the Accessibility Standard for the Design of Public Spaces. Global Alliance on Accessible Technologies and Environments
11. Step Forward: Hamilton Pedestrian Mobility Plan (2012). City of Hamilton & G. O'Connor Consultants Inc.
12. The Power of Trails for Promoting Physical Activity in Communities. A Research Brief. Princeton, NJ: Active Living Research, a National Program of the Robert Wood Johnson Foundation (2011). Phil Troped
13. Making the Case for Active Transportation: Bulletin #8 Role for Municipal Decision Makers, Canadian Fitness and Lifestyle Research Institute, Ottawa, Ontario (2009). K. Bergeron & S. Cragg,



Southam Park

11.0 APPENDICES

- A. PIC #1 Notices
- B. PIC #1 Boards
- C. PIC #1 Surveys (PIC#1 & Online)
- D. PIC #1 Summary Report
- E. PIC #2 Boards
- F. High-Level Review of Cycling Facility Selection
- G. Trail Link Priority Analysis
- H. Trail Potential Demand
- I. Blue Sky Ideas



FEASIBILITY MASTER PLAN

APPENDIX A

PIC #1 NOTICES



Public Works Department
Environmental Services Division
Landscape Architectural Services Section
905-546-2424 ext 1303 (Telephone)
905-546-4435 (Facsimile)

October 27th, 2017

**NOTICE OF PUBLIC INFORMATION CENTRE
FOR PROPOSED MOUNTAIN BROW MULTI-USE
PATHWAY FEASIBILITY STUDY**

Dear Resident,

Please join City staff at a Public Information Centre (PIC) to discuss the Mountain Brow Multi-Use Pathway Feasibility Study. The proposed multi-use path will begin at the Iroquoia Heights Conservation Area and terminate at the Devil's Punch Bowl.

The City is seeking the input of residents in Wards 6, 7, 8 and 9 and will be hosting meetings to share information specific to each Ward. The purpose of the Public Consultation is to receive feedback regarding, but not limited to the following:

- the location of the proposed pathway and alternate routes;
- key destination points;
- desired amenities and connections;
- usage frequency and purpose; and
- timelines and priorities.

The meeting information for each ward is as follows:

Ward 06			
<i>Date:</i>	Monday, November 13 th , 2017	<i>Time:</i>	6:00pm to 8:30pm
<i>Location:</i>	Sherwood Library 467 Upper Ottawa St Hamilton, ON L8T 3T3	<i>Format:</i>	Open house Presentation from 7:00pm to 7:30pm
Ward 07			
<i>Date:</i>	Wednesday, November 15 th , 2017	<i>Time:</i>	6:00pm to 8:30pm
<i>Location:</i>	Sherwood Library 467 Upper Ottawa St Hamilton, ON L8T 3T3	<i>Format:</i>	Open house Presentation from 7:00pm to 7:30pm

Ward 08

<i>Date:</i>	Tuesday, November 21 st , 2017	<i>Time:</i>	7:00pm to 9:00pm
<i>Location:</i>	Chedoke Bocce (connected to Chedoke Twin Pad Arena) 91 Chedmac Drive Hamilton, ON L9C 7R5	<i>Format:</i>	Open house Presentation from 7:30pm to 8:00pm

Ward 09

<i>Date:</i>	Wednesday, November 22 nd , 2017	<i>Time:</i>	6:00pm to 8:30pm
<i>Location:</i>	Winter Heights Salvation Army Church, Fellowship Room 300 Winterberry rive Stoney Creek, ON L8J 3Y1	<i>Format:</i>	Open house Presentation from 7:00pm to 7:30pm

To find more information online regarding the project, you can visit the City of Hamilton's website at <https://www.hamilton.ca/parks-recreation/creating-new-parks/new-park-development> and navigate to the MountainBrow Multi-Use Path Feasibility Study.

We want your feedback!

If you are unable to attend the PIC please contact Louise Thomassin at the e-mail address or telephone number listed in the signature below to provide your comments. We encourage you to also complete the online survey that will be available on the MountainBrow Multi-Use Pathway project page.

Please provide your feedback by Wednesday, December 11th 2017.

Sincerely,

Louise Thomassin, Landscape Architect
Landscape Architectural Services
(905) 546-2424 ext. 1303
louise.thomassin@hamilton.ca



FEASIBILITY MASTER PLAN

APPENDIX B

PIC #1 BOARDS

1. DEMOGRAPHICS		2. MOUNTAIN BROW TRAIL USE & ACCESS				
Age Group		Daily	A few times a month	Less than once per month	Never	
>15		Once the Mountain Brow trail is completed, how often do you expect to use the corridor?				
16-25		What are your current or expected top three (3) activities on the Mountain Brow trail?		What are your current, or expected, use the Mountain Brow trail?		
		Walk/Hike		Most Often	Sometimes	Never
26-35		Bicycle		Enjoyment of nature		
		Run/Jog		Fitness/Exercise		
36-45		Rollerblade/ Skateboard		Commute to work/school		
46-55		Pet Walking		Shopping/Errands		
		Photography		Special Destinations: Historics sites, waterfalls, parks, etc		
56-65		Nature viewing/ Sightseeing		Other		
>65		Other				

2. MOUNTAIN BROW TRAIL USE & ACCESS					
When do you currently use, or when would you like to use, the Mountain Brow trail?					
		Spring	Summer	Fall	Winter
Weekdays?	Morning				
	Afternoon				
	Evening				
	Never				
Weekends?	Morning				
	Afternoon				
	Evenings				
	Never				
How do you currently get to the Mountain Brow trail?					
	Walk/Run				
	Bike/ Rollerblade/ Skateboard				
	Public Transit				
	Drive				
	Other				
Once you arrive, what distance do you usually travel along the Mountain Brow trail?					
	<1km				
	1-5km				
	6-10km				
	>10km				
On average, how much time do you spend on the Mountain Brow trail?					
	<30mins				
	30mins- 1hr				
	1-2hrs				
	>2hrs				
Are you comfortable using:					
		Yes		No	
	Signed On-Street Bicycle Routes?				
	On-Street Bicycle Lanes & Sidewalks?				
	Multi-Use Paths?				
	Paved Shoulders?				

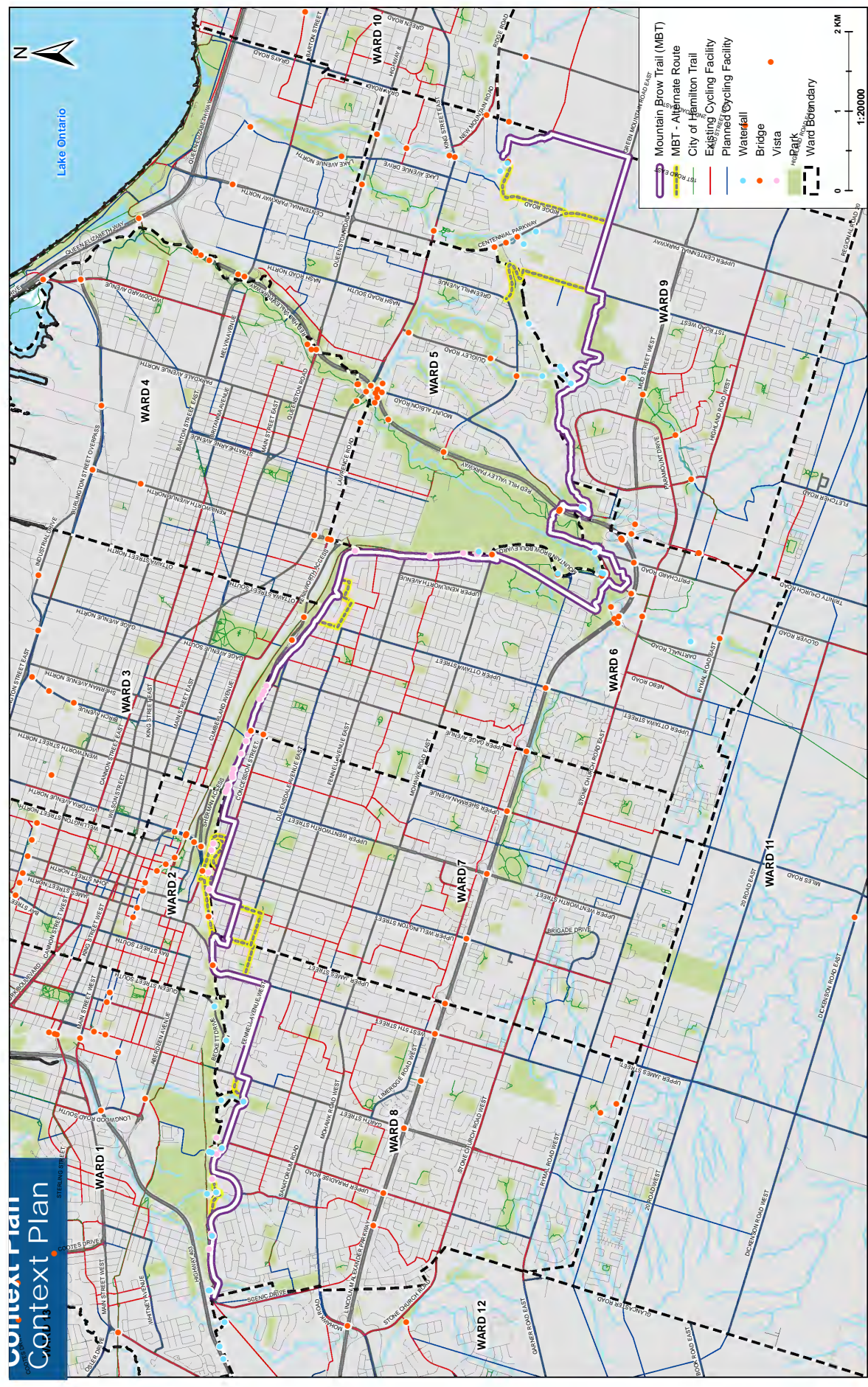
3. MOUNTAIN BROW TRAIL IMPROVEMENTS

Identify your top THREE wish list improvements for the Mountain Brow trail:

Distance Markers		Other improvements (leave your sticky notes below):
Lighting		
Trees (for shade)		
Benches		
Scenic Views/ Lookout Points		
Wayfinding Signage		
Water Fountains		
Exercise Stations		
Interpretive/ Educational Panels		
Year-Round Maintenance		
Adjacent Destinations: coffee shops, plazas, etc		
Parking		
Trash Receptacles		
Bike Racks/ SoBi Stations		
Wider Trails		
Paved Trails		

Activity Checklist

- Mountain Brow Map Sections 1-5
- Dot Matrix Survey ← You are here
- Access Point Map (Table)
- Investment Survey



Context Plan
Context Plan



Mountain Brow Trail Feasibility Masterplan

WHAT'S GOING ON HERE?

In May 2016 the City of Hamilton updated the Recreational Trails Master Plan, originally published in 2007, as the City responded to the growth and new infrastructure developing within the city and surrounding communities. The Recreational Trails Master Plan is based on an overall vision to implement a connected and continuous trails network. Goals to achieve the vision are outlined in the report along with supporting objectives. The objectives are:

PLANNED:	Trails will be considered an integral component of all community planning and development.
CONNECTED:	Trails will serve to connect the urban and rural communities of Hamilton, both internally and externally, and will link key destinations. Improved wayfinding will be incorporated into the trails network.
DIVERSE:	The trail system will be designed to appeal to a wide range of users, abilities and interests.
INSPIRING:	Trails will promote and encourage use and enjoyment of the City's natural, cultural and recreational features.
ACCESSIBLE:	Where possible, the trail system will provide opportunities for four-season use, and will include a core network of trails that are accessible to people of all ages and abilities.
SAFE:	Safety, security and user comfort will be considered in the design and management of the trail system.
SUSTAINABLE:	The trail system will be developed and managed in a manner that preserves the environment, is financially responsible, and encourages opportunities

WHAT'S ALL THIS FOR?

The City of Hamilton is developing a vision to create a Mountain Brow Trail that will run continuous along 'The Brow' from the Iroquoia Heights Conservation Area in Ward 08 to the Devil's Punch Bowl in Ward 09 (that's more than 10km!). This discussion follows the Mountain Brow Vista Study and Management Plan, which focused on the establishment of new views and reinforcement of existing views along the Escarpment, while protecting and enhancing the natural environment. Now, we explore how the community uses the existing trail portions and how it might be used in the future.

We need your feedback to ensure that the development of the trail will meet user needs.

WHAT DO I NEED TO DO?

The following boards show the trail in five (5) sections, detailing where existing and proposed trails are located. Alternate routes to the proposed trail have also been proposed at various locations. Your input is needed to determine which of the proposed alternate routes are preferred. Use a sticky dot to indicate your preference in the table located on each map.

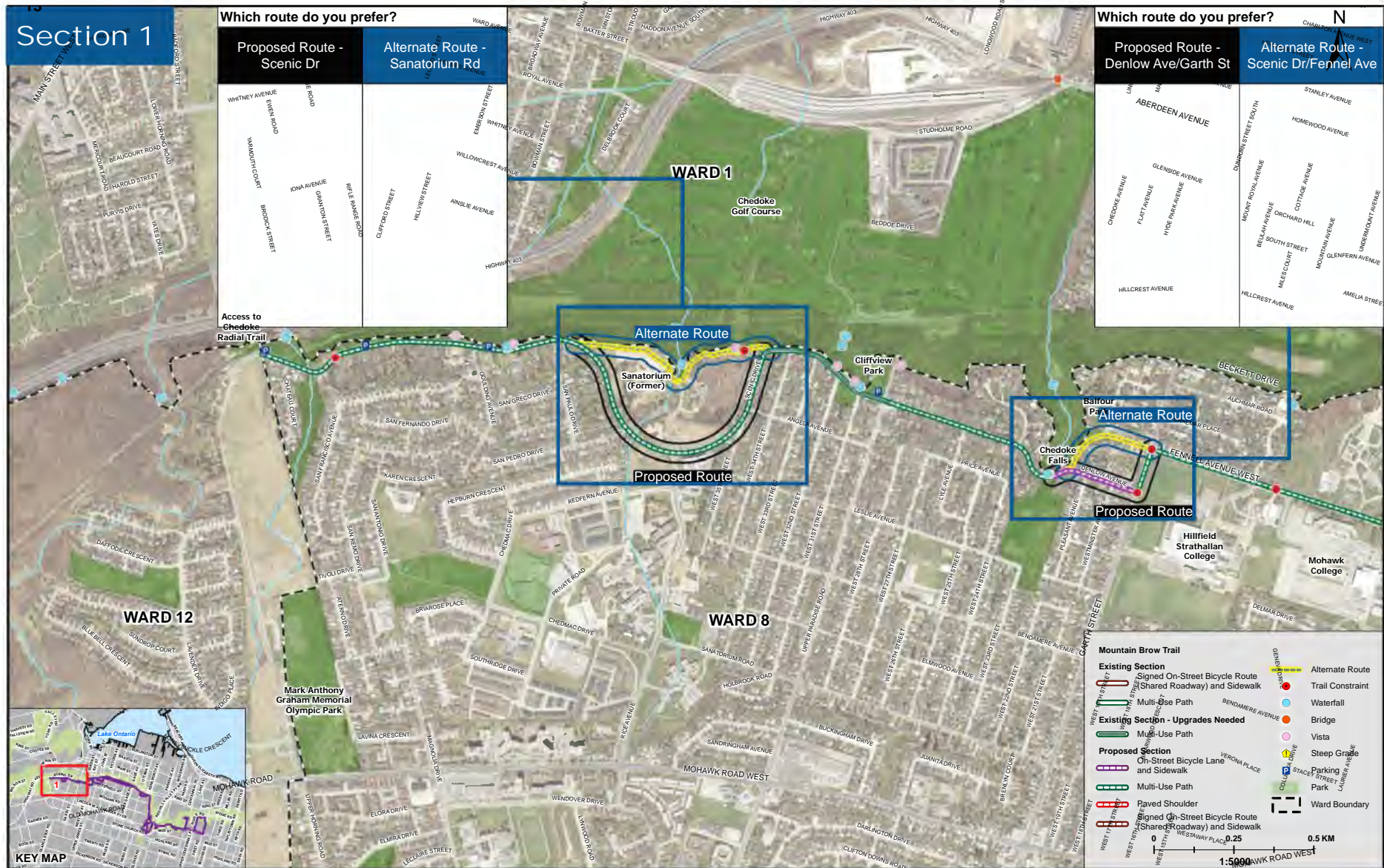
Do you need help finding one of the locations? One of us is nearby to assist you.

Do you have additional comments? Feel free to attach a sticky note on the Comments board at the end.

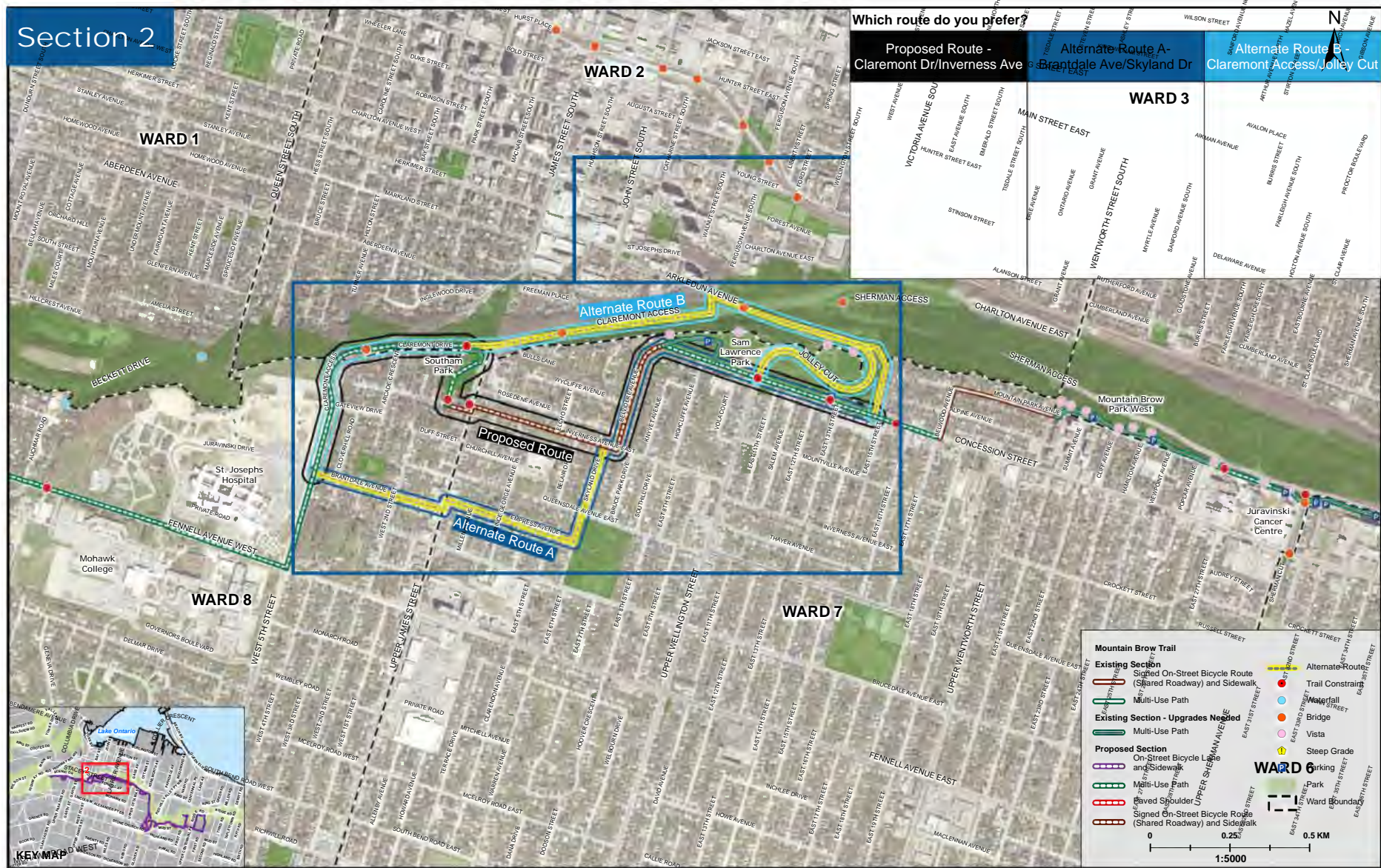
Thank you for your participation!

Activity Checklist

- Mountain Brow Map Sections 1-5 ← You are here
- Dot Matrix Survey
- Access Point Map (Table)
- Investment Survey



Mountain Brow Trail Feasibility Masterplan



Mountain Brow Trail Feasibility Masterplan





Mountain Brow Trail Feasibility Masterplan

Section 4



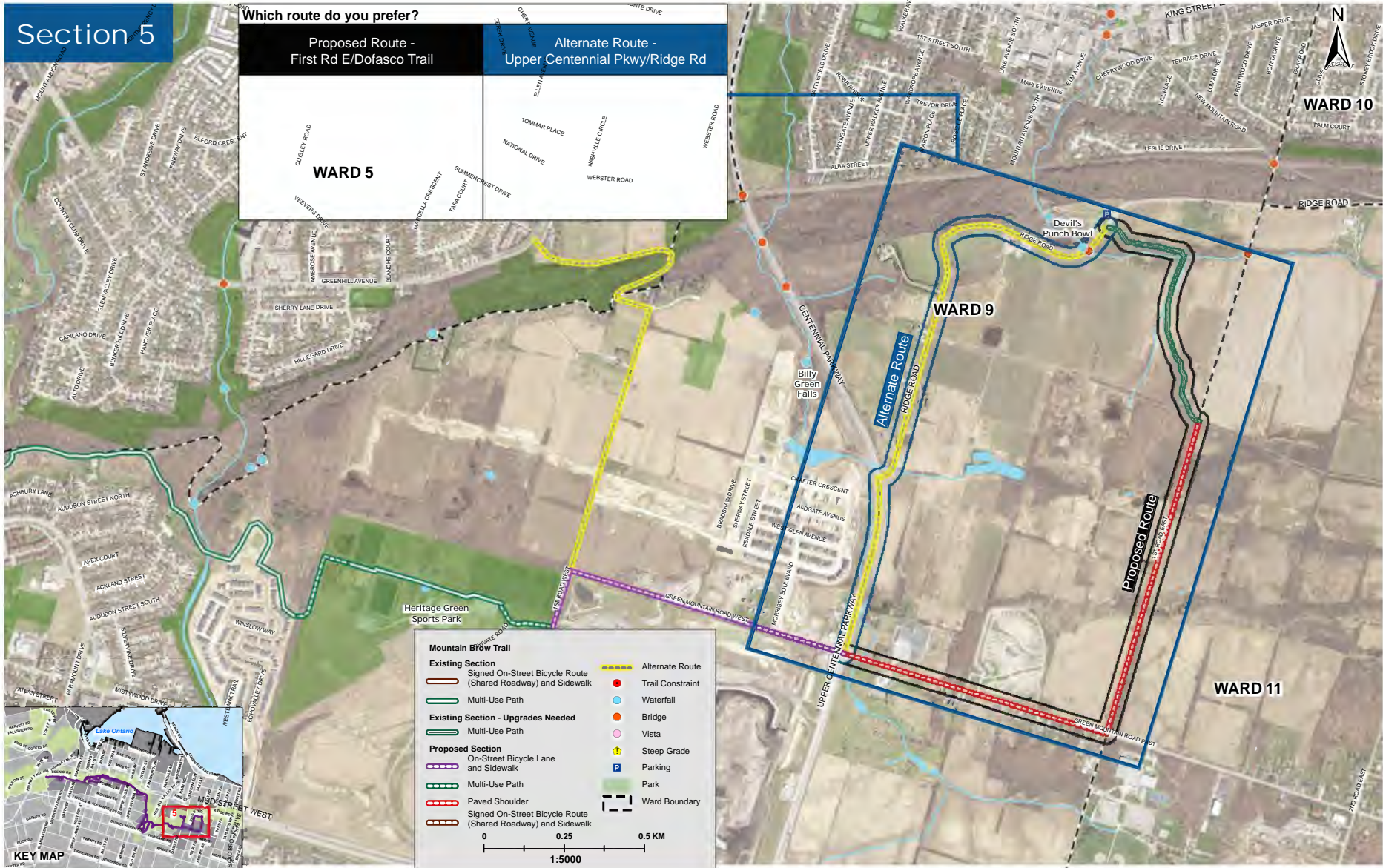
Mountain Brow Trail Feasibility Masterplan



Section 5

Which route do you prefer?

Proposed Route - First Rd E/Dofasco Trail	Alternate Route - Upper Centennial Pkwy/Ridge Rd
<p>WARD 5</p>	



Comments?

Please feel free to let us know your thoughts. Take a sticky note and leave it here when you are through.



FEASIBILITY MASTER PLAN

APPENDIX C

PIC #1 SURVEYS (PIC & ONLINE)

Mountain Brow Trail Survey

In May 2016 the City of Hamilton updated the Recreational Trails Master Plan, originally published in 2007, as the City responded to the growth and new infrastructure developing within the city and surrounding communities. The Recreational Trails Master Plan is based on an overall vision to implement a connected and continuous trails network. Goals to achieve the vision are outlined in the report along with supporting objectives. The objectives are:

PLANNED: Trails will be considered an integral component of all community planning and development.

CONNECTED: Trails will serve to connect the urban and rural communities of Hamilton, both internally and externally, and will link key destinations. Improved wayfinding will be incorporated into the trails network.

DIVERSE: The trail system will be designed to appeal to a wide range of users, abilities and interests.

INSPIRING: Trails will promote and encourage use and enjoyment of the City's natural, cultural and recreational features.

ACCESSIBLE: Where possible, the trail system will provide opportunities for four-season use, and will include a core network of trails that are accessible to people of all ages and abilities.

SAFE: Safety, security and user comfort will be considered in the design and management of the trail system.

SUSTAINABLE: The trail system will be developed and managed in a manner that preserves the environment, is financially responsible, and encourages opportunities

The City of Hamilton is developing a vision to create a Mountain Brow Trail that will run continuously along 'The Brow' from the Iroquoia Heights Conservation Area in Ward 08 to the Devil's Punch Bowl in Ward 09 (that's more than 10km!!). This discussion follows the Mountain Brow Vista Study and Management Plan, which focused on the establishment of new views and reinforcement of existing views along the Escarpment, while protecting and enhancing the natural environment. Now, we explore how the community uses the existing trail portions and how it is hoped to be used in the future.

We need your feedback to ensure that the development of the trail will meet user needs.

Mountain Brow Trail Survey

Please answer all questions to the best of your ability.

1. What are the first three digits of your postal code?

2. Please identify your age group .

- <15
- 16 - 25
- 26 - 35
- 36 - 45
- 46 - 55
- 56 - 65
- 65+

3. Once the Mountain Brow Trail is completed, how often do you expect to use the corridor?

- Daily
- A few times per month
- Less than once per month
- Never



Mountain Brow Trail Survey

4. What are your top 3 activities on the Mountain Brow trails? (Please select up to three activities)

Please select up to three activities.

- Walk/Hike
- Bicycle
- Run/jog
- Rollerblade/skate
- Pet Walking
- Photography
- Nature viewing/Sightseeing

Other (please specify)

5. Why do you use the Mountain Brow trails?

	Most often	Sometimes	Rarely	Never
Enjoyment of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fitness/Exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commute to work/school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shopping/errands	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Special destinations: historic sites, waterfalls, parks, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(please specify below)

6. When do you use the Mountain Brow trails from Monday to Friday?

	Spring	Summer	Fall	Winter
Morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Afternoon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. When do you use the Mountain Brow trail on the weekend?

	Spring	Summer	Fall	Winter
Morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Afternoon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Never	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Once you arrive, what distance do you usually travel along the Mountain Brow trail?

- < 1 KM
- 1 - 5 KM
- 6 - 10 KM
- 10 + KM

9. On average, how much time do you spend on the Mountain Brow trail during each visit?

- < 30 mins
- 30 mins - 1 hour
- 1 - 2 hours
- 2 + hours

10. Are you comfortable using the following (please click on term to be directed to the definition):

	Yes	No
<u>On-Street Signed Cycling Route (Shared Roadway) and Sidewalk</u>	<input type="radio"/>	<input type="radio"/>
<u>On-Street Bicycle Lane and Sidewalk</u>	<input type="radio"/>	<input type="radio"/>
<u>Paved Shoulder</u>	<input type="radio"/>	<input type="radio"/>
<u>Multi-Use Path</u>	<input type="radio"/>	<input type="radio"/>

11. Please select up to three wish list improvements for the Mountain Brow Trail.

Please select up to three options.

- Distance markers
- Lighting
- Trees (for shade)
- Benches
- Scenic views/lookout points
- Wayfinding signage
- Water fountains
- Exercise Stations
- Interpretive/Educational Panels
- Year-Round maintenance
- Adjacent Destinations: coffee shops, plazas, etc
- Parking
- Trash Receptacles
- Bike Racks/SOBi stations
- Wider Trails
- Paved Trails

Other (please specify)

12. Are you in favour of alternate routes at the following locations: (please click on each location to view the various options on the corresponding map). Please select options 1, 2 or 3 (where applicable).

	Option 1	Option 2	Option 3
Options: <u>1. Scenic Drive</u> or <u>2. Sanatorium Road</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Options: <u>1. Denlow Ave/Garth St</u> or <u>2. Scenic Dr/Fennell Ave</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Options: <u>1. Claremont Dr/Inverness Ave</u> or <u>2. Brantdale Ave/Skyland Dr</u> or <u>3. Claremont Access/Jolley Cut</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Options: <u>1. Mountain Brow Blvd</u> or <u>2. Upper Ottawa/Edgewood Ave/Oakcrest Dr</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Options: <u>1. First Rd E/Dofasco Trail</u> or <u>2. Upper Centennial Pkwy/Ridge Rd</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mountain Brow Trail Survey

13. How do you currently get to the Mountain Brow Trail?

Walk/Run
 Bike/Rollerblade/Skateboard
 Public Transit
 Drive
 Other (please specify)

14. For this potential investment, what is your priority for the Mountain Brow Trail within a shorter timeframe?

A fully connected trail installed within a shorter timeframe with amenities (i.e. drinking fountain, benches, look out points) added over a longer period of time.
 Segments of the trail installed with full amenities (i.e. drinking fountain, benches, look out points) installed over a shorter time frame, fully connecting segments of the trail over a longer period of time.

15. Which section(s) of the trail would you like to be prioritized for development first? [Click here to view the Context Map](#)

Ward 6
 Ward 7
 Ward 8
 Ward 9
 All of the above – I would like a continuous/connected trail

Mountain Brow Trail Survey

16. You indicated that you drive to your access point(s), **where do you usually park?**

Scenic Drive Parking Lot (Chedoke/Bruce Trail Intersection)
 Scenic Drive Laybys
 Sanatorium Rd
 Cliffview Park Parking Lot
 Sam Lawrence Park Parking Lot
 Concession Street Parking Lot
 Mountain Brow West Park Parking Lots
 Mountain Park Ave Laybys
 Bill Foley Parkette
 Kenilworth Stairs Layby
 Mountain Brow Blvd Laybys (Broker Dr)
 Armes Lookout Park
 Mohawk Sports Park
 Escarpment Rail Trail Parking Lot
 Oak Knoll Park
 Albion Falls Parking Lot (Mtn Brow Blvd/Upper Kings Forest Park)
 Albion Falls Parking Lot (Arbour Rd)
 Red Hill Trail South Parking Lot (Mud St @ Pritchard Rd)
 Paramount Park
 Felker's Falls Parking Lot
 Heritage Green Sports Park
 Devil's Punch Bowl Parking Lot
 Other (please specify)



Hamilton

Mountain Brow Trail Survey

17. If you have any other comments or feedback, please leave your comments below. (optional)



FEASIBILITY MASTER PLAN

APPENDIX D

PIC #1 SUMMARY REPORT



IBI GROUP
200 East Wing – 360 James Street North
Hamilton ON L8L 1H5 Canada
tel 905 546 1010 fax 905 546 1011
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Memorandum

To/Attention City of Hamilton **Date** March 28, 2018
From IBI Group
Subject Mountain Brow Trail Feasibility Master Plan
Public Consultation Summary

Introduction

The City of Hamilton & IBI Group are developing a Feasibility Master Plan for the Mountain Brow Trail, a proposed recreational trail that will follow the escarpment edge as closely as possible from the east terminus of Iroquoia Heights Conservation Area in Ward 8 to the west terminus of Devil's Punch Bowl in Ward 9. Roughly 25 km in length and spanning 4 wards, the trail will take advantage of views and provide connectivity between wards.

A major component of the feasibility study is public involvement. As part of the engagement process, the City of Hamilton hosted four (4) Public Information Centres (PIC) and an online survey to present the preliminary layout of the trail and garner feedback on how the existing portions of the trail are being used, and how they may be used in the future.

This memo summarizes the consultation process and findings.

Consultation Summary

Four PICs were held, one in each ward where the trail is proposed. The dates and times for the PICs were scheduled as summarized in Exhibit 1.

Exhibit 1- PIC Schedule

<p>Ward 6 Monday, November 13, 2017 6:00pm-8:30pm Open House with a presentation from 7:00pm-7:30pm Sherwood Library Meeting Room, 467 Upper Ottawa St. Hamilton L8T3T3</p>	<p>Ward 7 Wednesday, November 15, 2017 6:00pm-8:30pm Open House with a presentation from 7:00pm-7:30pm Sherwood Library Meeting Room, 467 Upper Ottawa St. Hamilton L8T3T3</p>
<p>Ward 8 Tuesday, November 21, 2017 7:00pm-9:00pm Open House with a presentation from 7:30pm-8:00pm Chedoke Multi-Use Bocce Club, 91 Chedmac Dr. Hamilton, ON L9C 7R5</p>	<p>Ward 9 Wednesday, November 22, 2017 6:00pm to 8:30pm Open House with a presentation from 7:00pm-7:30pm Winterberry Heights Church, 300 Winterberry Dr, Stoney Creek, ON L8J 3Y1</p>

IBI Group is a group of firms providing professional services and is affiliated with IBI Group Architects

IBI GROUP MEMORANDUM

2

Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

The PICs were advertised 1-2 weeks prior to the date of the PIC through the City of Hamilton's website, the City of Hamilton's Twitter Feed and through the local paper – Hamilton Mountain News (Wards, 6, 7 & 8) and Stoney Creek News (Ward 9). City of Hamilton's Manager of Landscape Architectural Services also did an interview with Cable 14 News on November 30, 2017. Residents of properties directly abutting the proposed trail alignment also received mailed notices about the PIC. The advertisement is included in **Appendix A** and the notice sent to participants is included in **Appendix B**.

For all of the PICs, City of Hamilton and IBI Group staff were on hand to review information and discuss the project with participants. The PICs were scheduled to begin with a presentation outlining the objectives of the sessions, the proposed trail route, and identified areas of interest (opportunities and constraints), explaining definitions of any terms and processes used throughout the development process, and informing participants about the steps that will follow¹.

Formal presentations at PIC #1 & PIC #3



In addition to the formal presentation, participants were guided to one of four stations (any order) to participate in:

- Dotmocracy** - a dot matrix questionnaire which allowed users to describe how they currently use the existing trail, how they expect to use the completed trail and improvements they would like to see implemented as part of the Mountain Brow Trail project.
- Investment Jar** – users were asked to indicate their preference for either:
 - a fully connected trail route experience, with amenities instituted later on; or

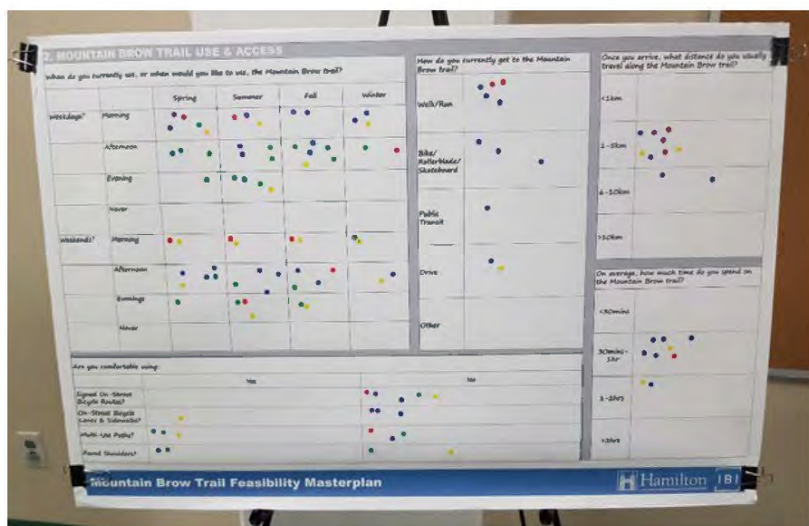
¹ For Ward 7, the presentation was withheld, since the small number of participants allowed for one-on-one discussions with facilitators. The presentation for Ward 9 was also withheld, since there were no participants.

Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

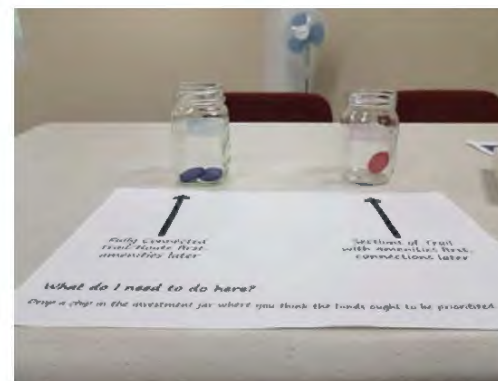
- ii. sections of trail installed with full amenities, leaving connections to be made later.
- 3. **Roll Out Plan** – users were asked to identify – using dots - where they lived, where they usually access the trail, where they park and where they would like additional parking. There were also asked to mark the route they take to their preferred access point(s) using markers.
- 4. **Alternate Routes** – consisted of a context plan, the trail broken into five (5) sections and a comments board. Users were asked to indicate their preference for the proposed alignment or an alternate route in five (5) locations

Users were also encouraged to use sticky notes to leave additional comments on the comments board or on the roll-out plan.

PIC Materials including the Dotmocracy, Investment Jars & Roll Plan



Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

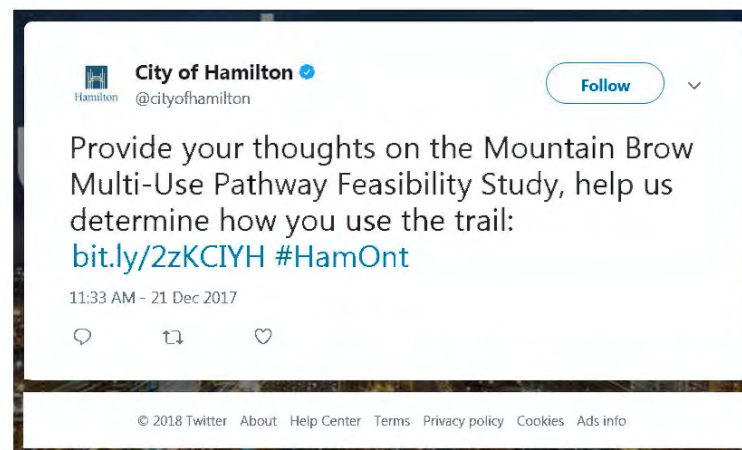


Attendees were asked to sign in, but it was not mandatory. In total, 39 residents were recorded as having attended across the four (4) PICs, with PICs in Ward 6 and 8 being the most well-attended (20 and 14 respectively).

For users who were not able to attend any of the consultation events, an online survey was made available to allow participation from as many residents as possible. Similarly to the PICs, the online survey was advertised through the City of Hamilton's website, Twitter Feed and advertised in local papers. From this process, ninety-two (92) respondents completed, or took a portion of, the Mountain Brow Trail Survey. Some residents also directly emailed responses to Project Manager. Results are a composite of the three methods of resident feedback.

A copy of the online survey is included in **Appendix C**.

City of Hamilton tweet advertising the Mountain Brow Trail Survey



Summary of Feedback

The results summarize below reflect the combined input from the PICs and the online surveys.

Demographics

There was a fairly even spread across age groups, with the exception of those under 15 years old as shown in Exhibit 2

Exhibit 2 Demographics of respondents

	Online Survey	PIC Meetings	Total	Total Percentage
<15	0	1	1	1%
16 - 25	11	0	11	10%
26 - 35	23	1	24	21%
36 - 45	19	0	19	17%
46 - 55	19	4	23	20%
56 - 65	12	9	21	18%
65+	8	8	16	14%
Total Responses		23	115	

Trail Use and Access

Most respondents expect to use the trail daily (25%) or a few times per month (52%), with the top three activities being walking/hiking (28%), Bicycling (20%) and nature viewing/sightseeing (15%) (refer to Exhibit 3). The majority of respondents use sections of existing trail along the brow for fitness/exercise (32%), enjoyment of nature (28%) and for access to special destinations: historic sites, waterfalls, parks, etc. (20%) (refer to Exhibit 4). Throughout the year, the majority of respondents use the trails in the evenings (39%) on weekdays and in the mornings (34%) or afternoons (31%) on weekends.

Exhibit 3 Respondents' top three (3) trail activities

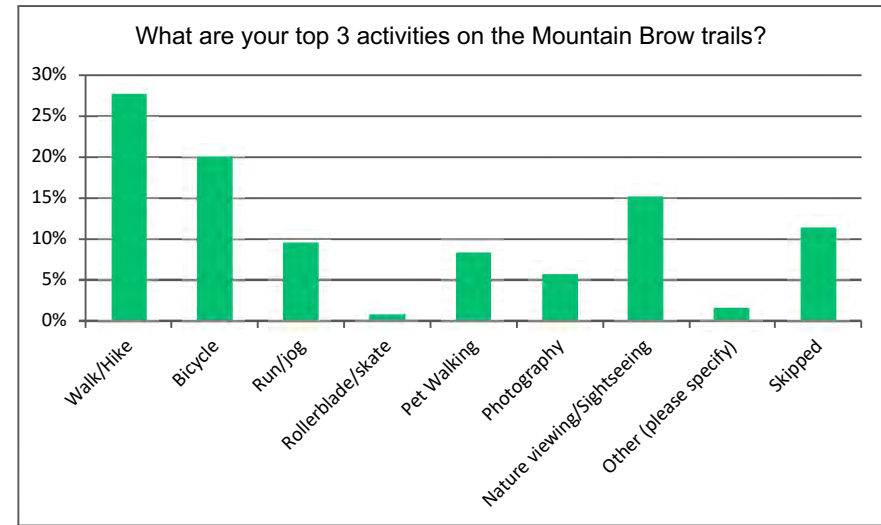
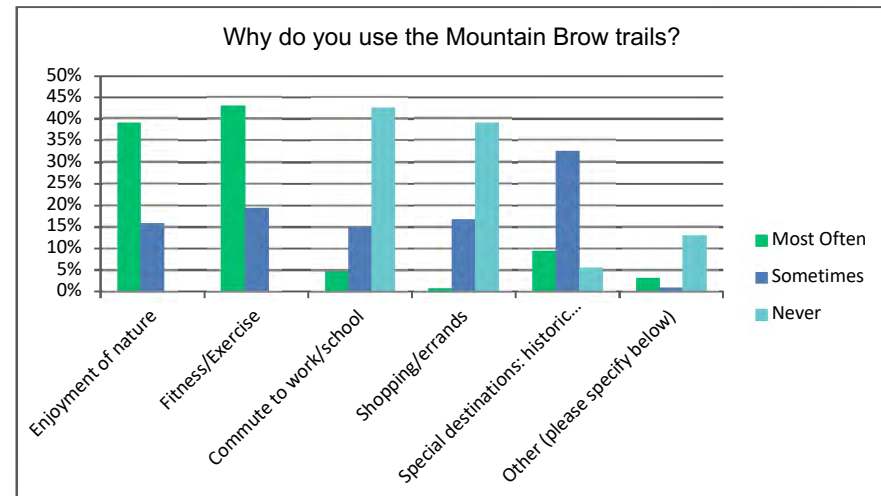


Exhibit 4 Respondents feedback on trail use

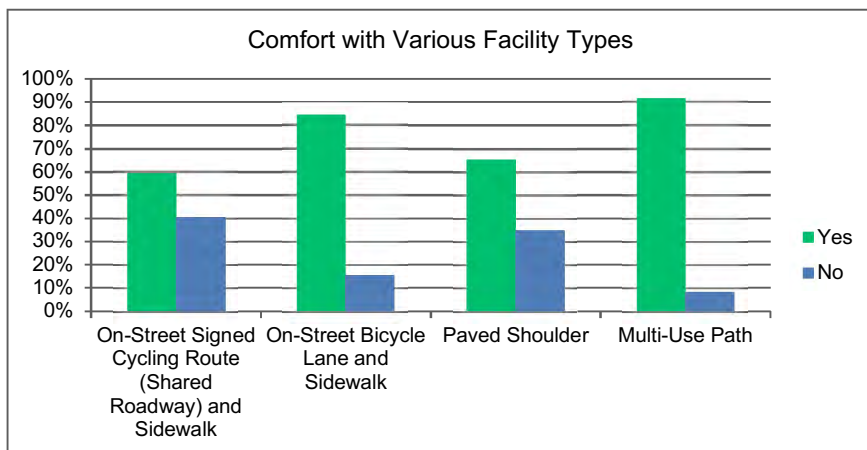


The majority of the respondents arrive at the existing trails walking/running (45%), driving (27%) or biking/rollerblading/skateboarding (18%), spend 30 minutes to 2 hours (62% 30 minutes – 1 hour; 32% 1-2 hours) and travel 1-10 kilometres (67% 1-5 kilometres; 24% 6-10 kilometres).

Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

Overall, respondents were comfortable using the different types of facilities that are proposed to be used along the Mountain Brow Trail, as shown in Exhibit 5.

Exhibit 5 - Feedback on the different facility types proposed for the Mountain Brow Trail

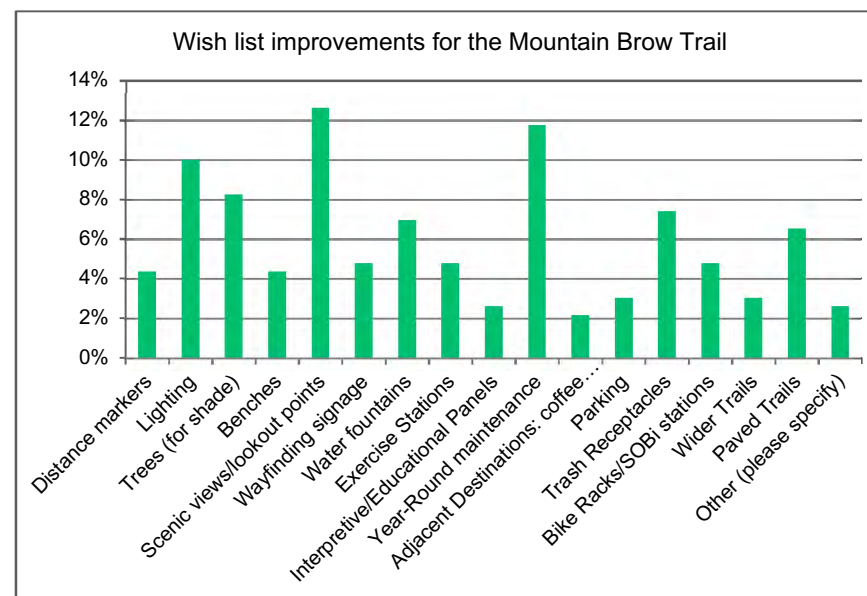


Trail Improvements

Respondents were asked to indicate their top three (3) wish list improvements for the Mountain Brow Trail (refer to Exhibit 6). The top three responses were scenic views/lookout points (13%), year-round maintenance (12%) and lighting (10%). Other amenities mentioned, but not listed, included free 2-3 hour parking, washrooms, and pedestrian bridges at key locations, such as Kenilworth Access, Upper Centennial Parkway and the Jolleycut.

Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

Exhibit 6 - Respondents' "Wish List" of trail improvements



Respondents are generally in favour of installing the length of the proposed trail when given the choice to install:

- a. a fully connected trail within a shorter timeframe, with amenities added over time (66%); or
- b. segments of trail installed within a shorter timeframe, with full amenities installed first, full connecting those segments over a longer period of time (34%).

Online respondents were also asked to identify the Ward which should be prioritized for development first or to select a continuous/connected trail that spans all the wards. 62% were in favour of a continuous/connected trail, 18% prioritized the segment in Ward 8, 10% prioritized the segment in Wards 6 & 7 and 2% prioritized the segment in Ward 9.

Exhibit 7-11 show respondent's choices for the proposed route or alternate routes in five (5) locations. Respondents were in favour of the proposed route in two (2) locations – Sanatorium Road (57%), and Mountain Brow Boulevard (75%). Respondents preferred the alternate route of Scenic Drive/Fennell Avenue (76%) to Denlow Avenue/Garth Street (24%). There was no preference for either First Road East/Dofasco Trail (50%) versus Upper Centennial Parkway/Ridge Road (50%), or Claremont Drive/Inverness Avenue (47%) versus Claremont Access/Jolley Cut (44%).

Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

Mountain Brow Trail Feasibility Master Plan Public Consultation Summary –

Exhibit 7 Feedback on Alternate Routes – Sanatorium Road vs Scenic Drive



Exhibit 8 Feedback on Alternate Routes - Denlow Avenue vs Scenic Drive

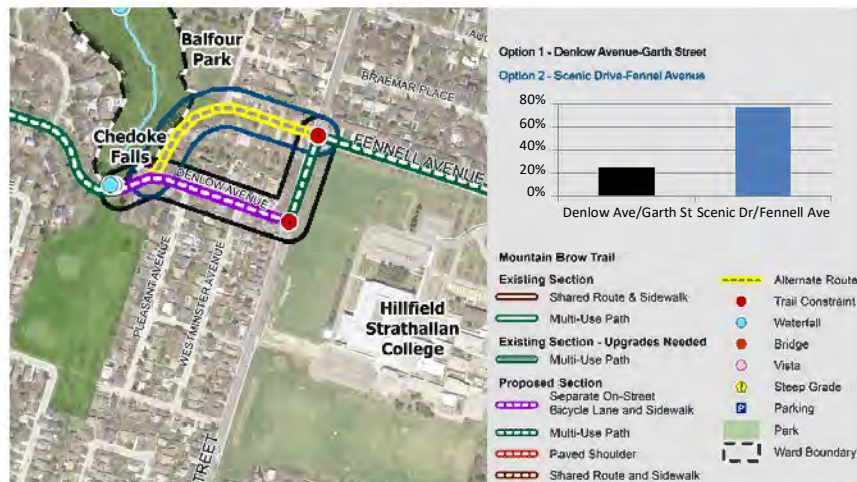


Exhibit 9 Feedback on Alternate Routes - Claremont Drive vs Brantdale Avenue vs Claremont Access

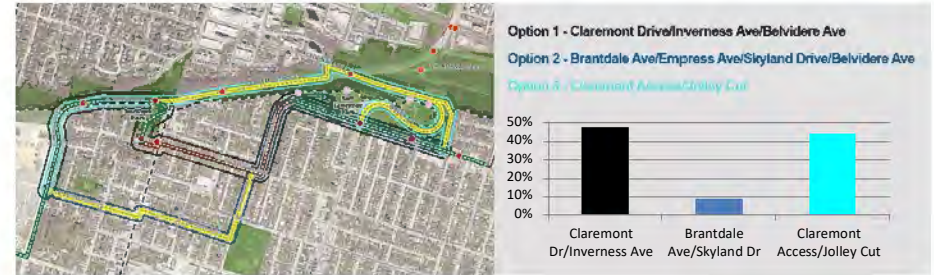


Exhibit 10 Feedback on Alternate Routes - Mountain Brow Boulevard vs Upper Ottawa Street

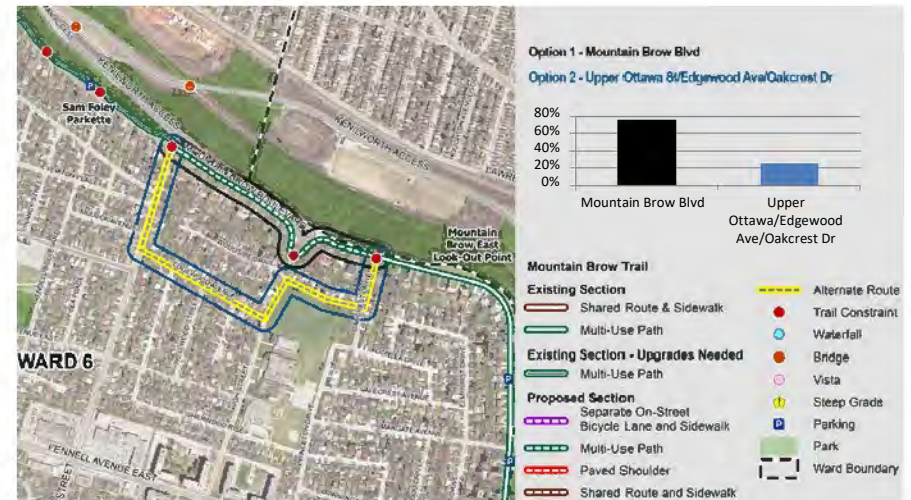
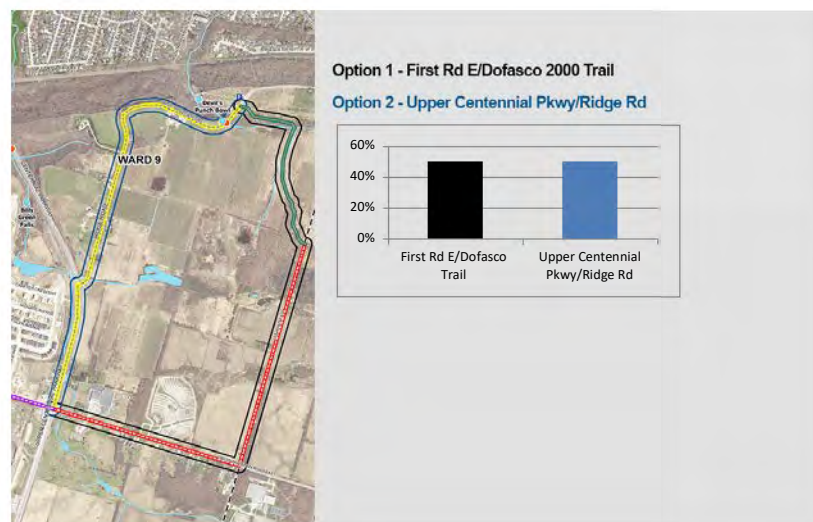


Exhibit 11 Feedback on Alternate Routes - First Road vs Upper Centennial Parkway



General Input

Outside of the formal survey, City of Hamilton & IBI Group staff at the PIC noted specific input from residents. General feedback received included:

- Support for a trail that emphasizes the brow’s natural beauty and unique views; This was accompanied by a desire to emphasize trail alternatives that stayed as close to the brow as possible
- Desire for the trail to be respectful of the community context, particularly from a privacy and access perspective; On the other hand, many residents expressed the desire for a continuous multi-use trail (rather than varying facility types) in order to maintain a consistent, high quality ‘trail’ experience’ along the full corridor
- Residents expressed a desire for the trail route to include high level transformational changes such as grand pedestrian bridges where key vista locations coincide with difficult road crossings, road closures to provide Hamilton’s version of the High Line (New York) as well as proposed trail routes that remain close to the brow in areas that are currently in private ownership and/or are in sensitive natural areas. While these ideas have merit from a long term visioning perspective for Hamilton Mountain Brow as a destination, these ideas are not immediately feasible based on the prioritization criteria used in the study and have not been included in the primary or alternative routes at this time.
- Desire to use the trail project to improve safety for pedestrians and cyclists, for example where sidewalks are currently missing

- Desire for trail etiquette education to address safety concerns about multiple users on a single path

Conclusion

In general, the community supports the development of the Mountain Brow Trail. They have expressed issues of feasibility, maintenance and safety, which will be investigated as the design of the trail progresses in future stages of work. Respondents have also made additional suggestions about the nature of the trail vision, the routing, and amenities, which will be investigated as part of the feasibility study.

Most respondents are eager to see the progression of the project, and to understand with more certainty issues around property ownership, preserving mature plant material, path and roadway safety as well as the trail’s proximity to the Brow of Hamilton Mountain.



FEASIBILITY MASTER PLAN

APPENDIX E

PIC #2 BOARDS



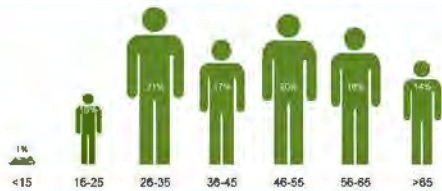
The vision for the Mountain Brow Trail is to develop a recreational trail that follows the escarpment edge as closely as possible to take advantage of views and provide connectivity between wards. The path shall include a mixture of facility types with a preference towards accessible off-road multi-use paths/trails wide enough for pedestrians & cyclists.

The City of Hamilton is developing a vision to create a Mountain Brow Trail that will run continuous along 'The Brow' from the Iroquoia Heights Conservation Area in Ward 08 to the Devil's Punch Bowl in Ward 09 (that's more than 2.5km!!). This discussion follows the Mountain Brow Vista Study and Management Plan, which focused on the establishment of new views and reinforcement of existing views along the Escarpment, while protecting and enhancing the natural environment.

Four Public Information Centres (PICs) were facilitated for each of the four wards through which the Mountain Brow Trail is proposed to traverse (November 2017). An online survey was also made available to allow participation from as many residents as possible (November to December 2017). The following boards are the result of the combined input from the those surveys.

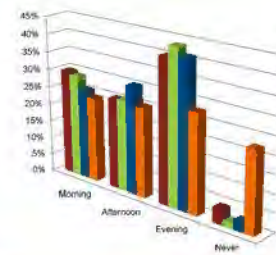
Public Feedback - PIC #1 & Online Survey

Demographics

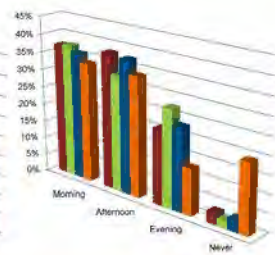


When do you use the Mountain Brow trail ...

... from Monday to Friday?

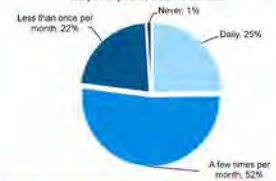


... on the weekend?

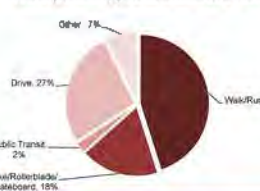


Trail Use:

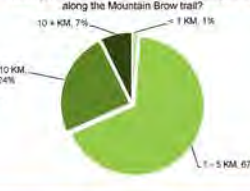
Once the Mountain Brow Trail is completed, how often do you expect to use the corridor?



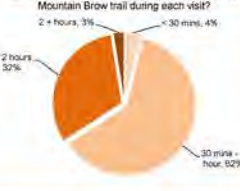
How do you currently get to the Mountain Brow Trail?



Once you arrive, what distance do you usually travel along the Mountain Brow trail?



On average, how much time do you spend on the Mountain Brow trail during each visit?



What are your top 3 activities on the Mountain Brow Trails?



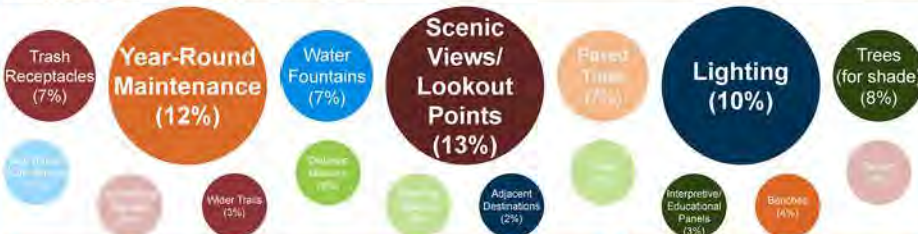
What is your priority for the Mountain Brow Trail?

A fully connected trail installed within a shorter timeframe with amenities (i.e. drinking fountain, benches, look out points) added over a longer period of time.

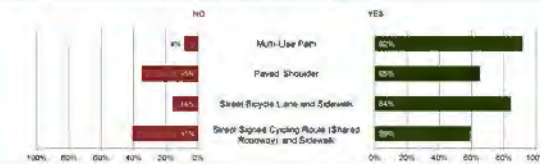


Segments of the trail installed with full amenities (i.e. drinking fountain, benches, look out points) over a shorter time frame, full connectivity of the trail over a longer period of time.

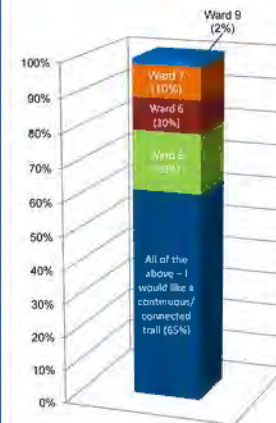
Wish List Improvements for the Mountain Brow Trail:



Are you comfortable using the following:



Section(s) to be prioritized? (online survey)



Why do you use the trails?



Fitness/Exercise
(43% Most Often; 19% Sometimes)



Enjoyment of nature
(39% Most Often; 16% Sometimes)



Special Destinations
(9% Most Often; 32% Sometimes; 6% Never)



Commute to Work/School
(5% Most Often; 15% Sometimes; 43% Never)



Shopping/Errands
(1% Most Often; 17% Sometimes; 9% Never)



Other
(3% Most Often; 1% Sometimes; 13% Never)

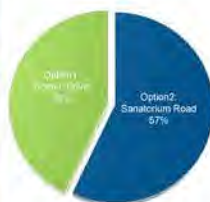
Mountain Brow Trail Feasibility Masterplan

Public Feedback

Alternate Routes



Scenic Drive vs Sanatorium Road



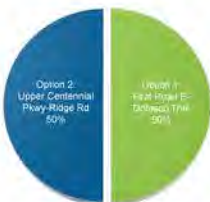
Mountain Brow Boulevard vs Upper Ottawa Street-Edgewood Avenue-Dakcrest Drive



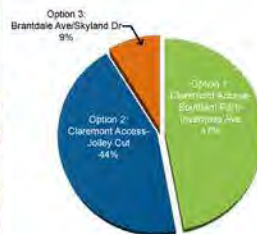
Denlow Avenue-Garth Street vs Scenic Drive-Fennell Avenue



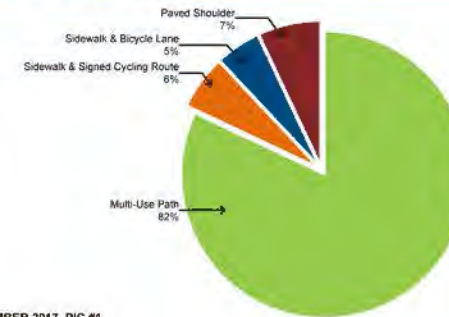
First Road East-Dofasco Trail vs Upper Centennial Parkway-Ridge Road



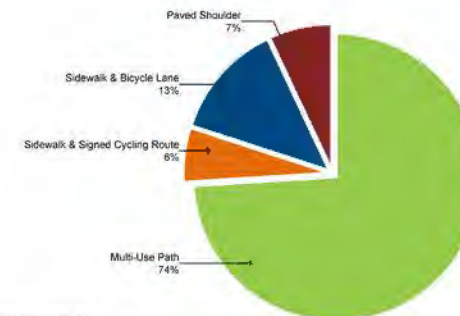
Claremont Access-Southam Park-Inverness Avenue vs Claremont Access-Jolley Cut vs Brantdale Ave-Skyland Drive



Facility Types - Progression

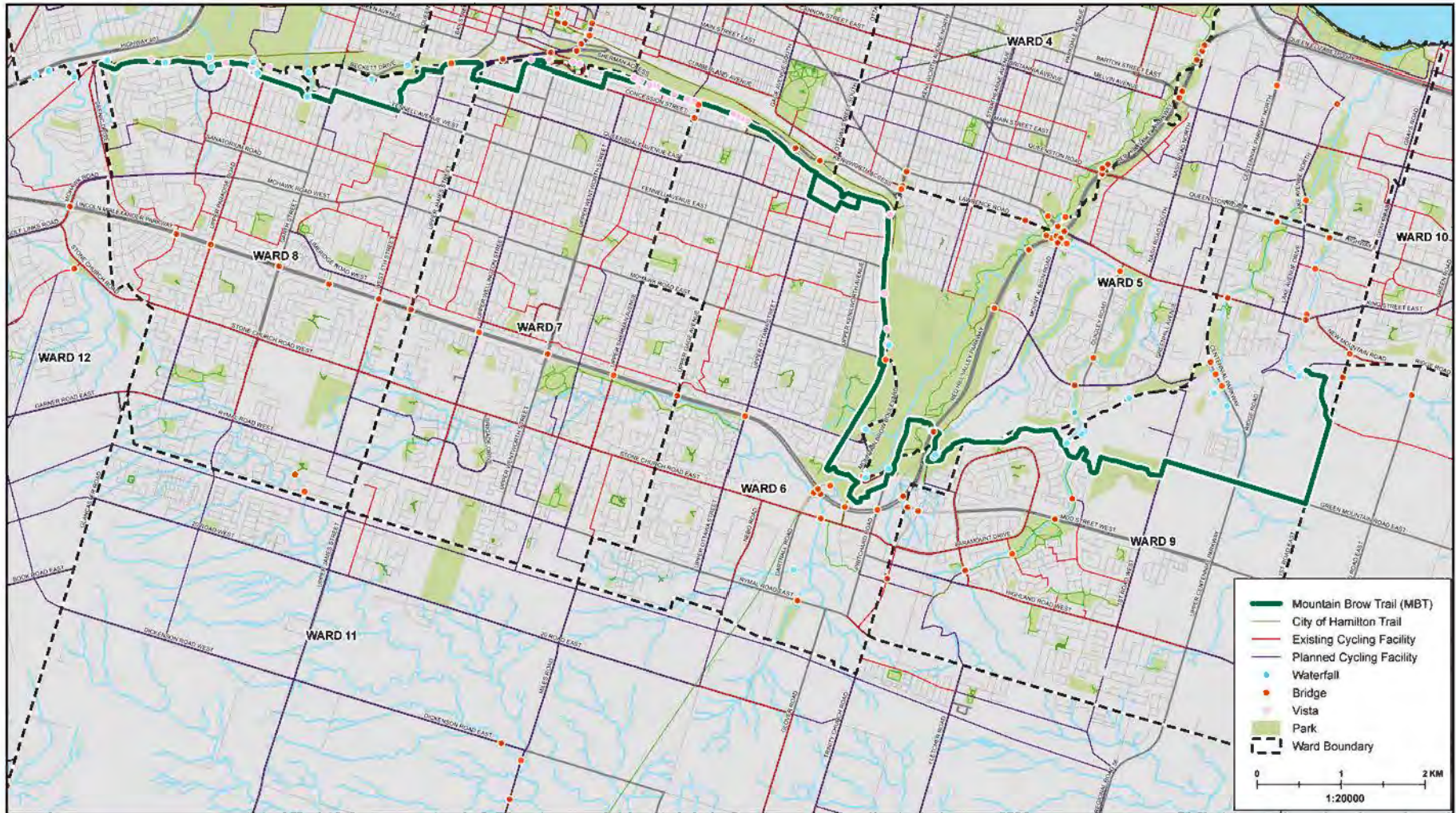


NOVEMBER 2017, PIC #1



MARCH 2018, PIC #2

Context Plan



Mountain Brow Trail Feasibility Masterplan



Section 1



Section 2



Mountain Brow Trail Feasibility Masterplan

Section 3



Mountain Brow Trail Feasibility Masterplan



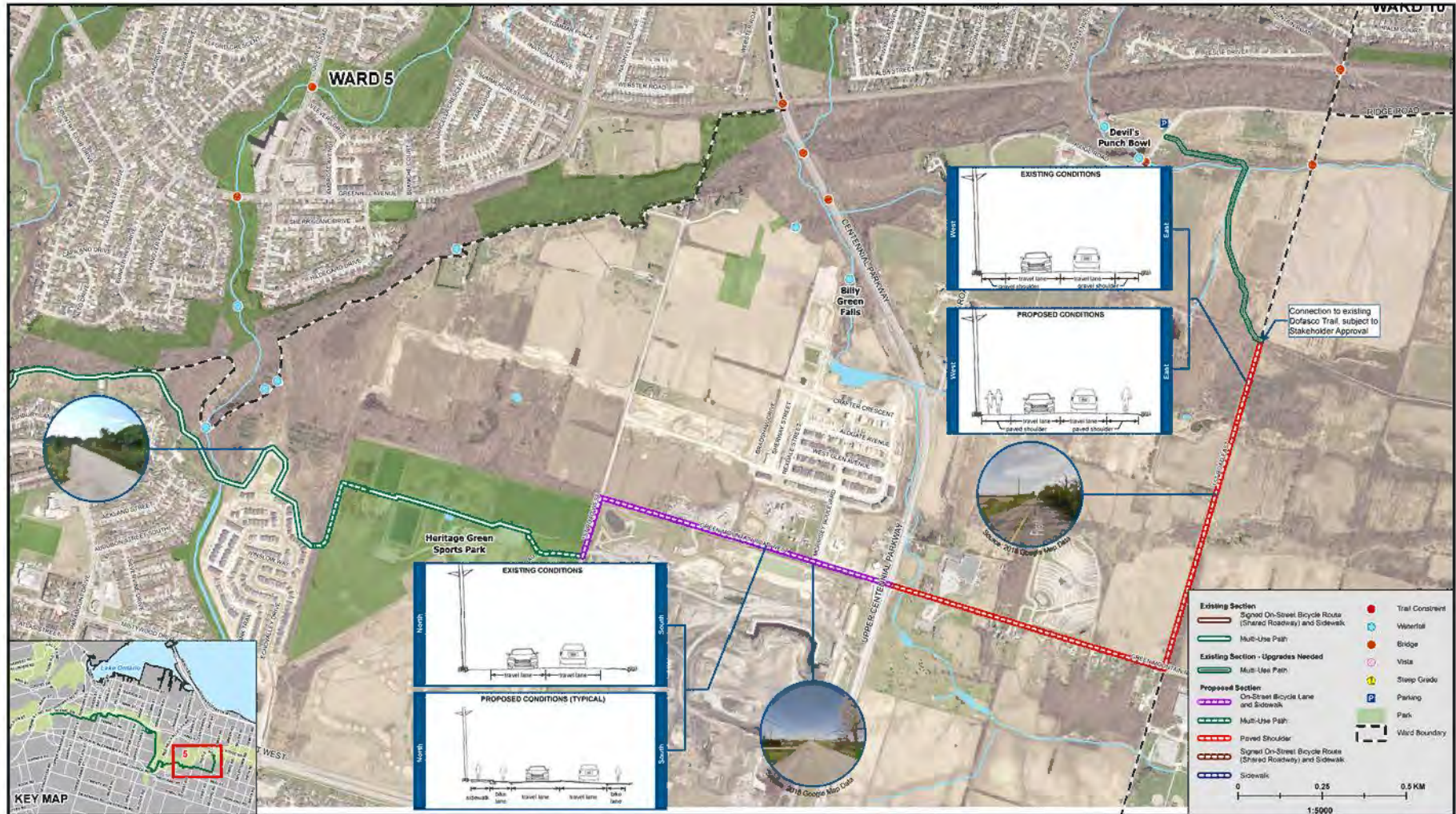
Section 4



Mountain Brow Trail Feasibility Masterplan



Section 5



Mountain Brow Trail Feasibility Masterplan



FEASIBILITY MASTER PLAN

APPENDIX F

HIGH LEVEL REVIEW OF CYCLING FACILITY SELECTION



IBI GROUP
200 East Wing – 360 James Street North
Hamilton ON L8L 1H5 Canada
tel 905 546 1010 fax 905 546 1011
ibigroup.com

IBI GROUP MEMORANDUM

Memorandum

To/Attention File **Date** February 20, 2018
From Zibby Petch **Project No** 112318
cc Project Team
Subject High-level Review of Cycling Facility Selection

The review focuses on proposed sections of the trail which are located on-road or within the boulevard of an existing roadway (excludes locations of existing facilities). The pre-selection is based on posted speed, rather than operating speed, since this data was not available at the time of review. Closer to implementation, a review of any locations of noted speeding or higher operating speeds should be completed to inform updates to the results below. The data source for traffic volumes is the City's internal traffic records and/or assumed AADTs, based on road context. Where possible/known, the year of the count is indicated.

Results of the review are summarized in Exhibit 2.

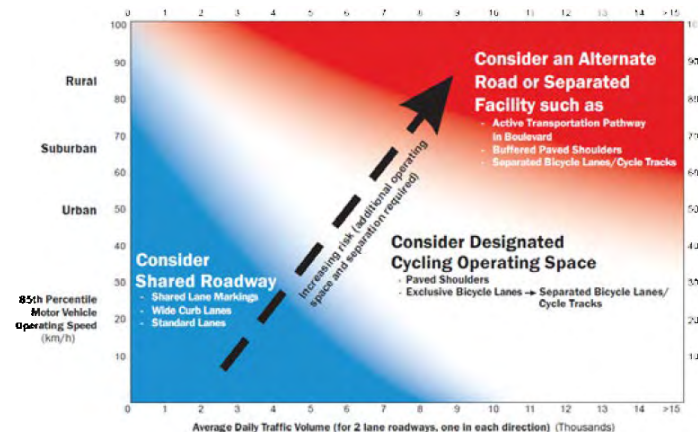
Introduction & Background

In support of the Mountain Brow Trail Feasibility Study, various road corridors have been identified for the addition of cycling/pedestrian facilities. As part of the feasibility review, a high level review of the appropriateness of various cycling facilities in the context of roadway volumes & speeds has been completed. A more detailed review of each corridor will be necessary as each project moves forward to implementation.

Results of the High-Level Review

The review draws on the Bicycle Facility Type Selection process outlined in OTM Book 18, and represents the first step in the facility type selection (pre-selection). The review was completed to identify whether the proposed facility type meets or exceeds the recommendations of the pre-selection nomograph (refer to Exhibit 1).

Exhibit 1 – Desirable Cycling Facility Pre-Selection Nomograph



Source: OTM Book 18, p. 30

Exhibit 2 – Summary of Results of Facility Selection Review

Road	From	To	Road Characterization	Posted Speed	Approx. Volume*	Lanes (Total)	Adjusted Volumes	Pre-Selection Facility Class	Proposed Facility Type	Meets or exceeds?	Notes
Scenic Drive	W of Chateau Court	W 35 th Street	Collector	50km/hr (assumed)	Not available - 9000 (a)	2	N/A	Designated	Multi-use Trail	√	Volumes likely lower than assumed
Scenic Drive	W 35 th Street	Upper Paradise Road	Collector	50km/hr (assumed)	Not available - 9000 (a)	2	N/A	Designated	Multi-use Trail	√	Volumes likely lower than assumed
Scenic Drive	Upper Paradise Road	Denlow Avenue	Minor Arterial	50km/hr (assumed)	9000 (a)	2	N/A	Designated	Bike Lane	√	
Denlow Avenue	Scenic Drive	Garth Street	Local	30km/hr	6000 (c – 2016)	2	N/A	Shared or Designated	Bike Lane	√	
Garth Street	Denlow Avenue	Fennell Avenue West	Minor Arterial	50km/hr (assumed)	23000 (c-2016)	4	11500	Designated or Separated (preferred)	Multi-use Trail	√	
Fennell Avenue West	Garth Street	West 5 th Street	Minor Arterial	50km/hr (assumed)	15000 (c-2016)	4	7500	Designated or Separated (preferred)	Multi-use Trail	√	
West 5 th Street	Fennell Avenue West	Claremont Access	Major Arterial	50km/hr (assumed)	18000 (c-2016)	Varies (3-5)	N/A – assume worst case	Separated	Multi-use Trail	√	
Claremont Access	West 5 th Street	Southam Park	Major Arterial	70km/hr	Not available	2 (one-way)	N/A	Separated	Multi-use Trail	√	Assumed AADT of 10,000 based on class of road (likely lower than assumed)
Inverness Avenue East	Upper James Street	Belvidere Avenue	Collector	40km/hr	3000 (c-2014)	2	N/A	Shared	Bike Lane	√	Consistent with facility type identified per Cycling Master Plan (justification for higher order facility)
Belvidere Avenue	Inverness Avenue East	Concession Street	Local	50km/hr (assumed)	<3000 (a)	2	N/A	Shared	Signed Route	√	
Concession Street	Belvidere Avenue	Upper Wellington Street	Local	40 km/hr	1000 (c-2016)	2 (4 approaching Jolley Cut)	N/A – assume worst case	Shared or Designated	Bike Lane with future Multi-use Trail	√	
Concession Street	Upper Wellington Street	E 13 th Street	Minor Arterial	40 km/hr	4000 (c-2016)	3	4000 (c-2016)	Designated	Bike Lane with future Multi-use Trail	√	
Concession Street	E 13 th Street	E 16 th Street	Minor Arterial	40 km/hr	4000 (c-2016)	2 (short section of 3 lanes from E 13 th Street to E 15 th Street)	N/A – assume worst case	Shared or Designated (preferred)	Bike Lane with future Multi-use Trail	√	Consider extending 40 km/hr speed limit to Upper Wellington
Concession Street	E 16 th Street	Belwood Avenue	Minor Arterial	40 km/hr	4000 (c-2016)	2 – with Parking Lay-bys	N/A	Shared or Designated (preferred)	Signed route future Multi-use Trail	√	
Belwood Avenue	Concession Street	Mountain Park Avenue	Local	50km/hr (assumed)	<3000 (a)	2	N/A	Shared	Signed Route	√	
Mountain Park Avenue	Belwood Avenue	Upper Wentworth Street	Local	50km/hr (assumed)	<3000 (a)	2	N/A	Shared	Signed Route	√	
Mountain Brow Boulevard	Upper Ottawa Street	Kenilworth Access	Minor Arterial	40km/hr	22000 (c-2015)	4	11,000	Designated or Separated (preferred)	None	X	Because desired facility type is challenging to provide, filter out this option as part of the preferred route.

Road	From	To	Road Characterization	Posted Speed	Approx. Volume*	Lanes (Total)	Adjusted Volumes	Pre-Selection Facility Class	Proposed Facility Type	Meets or exceeds?	Notes
Mountain Brow Boulevard	Kenilworth Access	Oakcrest Drive	Minor Arterial	40km/hr	4000 (c-2013)	2	N/A	Shared or Designated	None	X	Because desired facility type is challenging to provide, filter out this option as part of the preferred route.
Upper Ottawa Street	Edgewood Avenue	Mountain Brow Boulevard	Major Arterial	50 km/hr	14000 (c-2006)	4	6930 (c-2006)	Designated	Bike Lane	√	Kenilworth Access was recently removed from the City's Truck Routes so potential for reduced truck volumes on Upper Ottawa (more support for road diet)
Edgewood Avenue	Upper Ottawa Street	High Street	Local	40km/hr	<3000 (a)	2	N/A	Shared	Signed Route	√	
High Street	Edgewood Avenue	Woodside Drive	Local	40 km/hr	<3000 (a)	2	N/A	Shared	Signed Route	√	
Woodside Drive	High Street	Oakcrest Drive	Local	40 km/hr	<3000 (a)	2	N/A	Shared	Signed Route	√	
Oakcrest Drive	Woodside Drive	Mountain Brow Boulevard	Local	40 km/hr	<3000 (a)	2	N/A	Shared	Signed Route	√	
1 st Road West	Heritage Green Sports Park	Green Mountain Road West	Collector	60km/hr	Not available	2 -Rural	N/A	Designated	Bicycle Lane	√	Facility type is assumed based on an estimated volume of 5000 (typical rural collector) Volumes likely to grow in the future as a result of on-going development in the area; facility type should be considered in the context of future projected volumes
Green Mountain Road West	1 st Road West	Upper Centennial Parkway	Collector	60km/hr	600 (c-2008)	2 - Rural	N/A	Shared or Designated	Bicycle Lane	√	Volumes likely to grow in the future as a result of on-going development in the area; facility type should be considered in the context of future projected volumes
Upper Centennial Parkway	Green Mountain Road West	Ridge Road	Major Arterial	70km/hr	14000 (c – 2015)	4 - Rural	7000	Separated	Paved Shoulder	X	Because desired facility type is challenging to provide, filter out this option as part of the preferred route. Volumes likely to grow in the future as a result of on-going development in the area; facility type should be considered in the context of future projected volumes
Ridge Road	Upper Centennial Parkway	Devil's Punch Bowl	N/A – Rural Road	50km/hr	1000 (c-2015)	2 - Rural	N/A	Shared or Designated	Paved Shoulder	√	Volumes likely to grow in the future as a result of on-going development in the area; facility type should be considered in the context of future projected volumes
Green Mountain Road East	Upper Centennial Parkway	1 st Road East	N/A – Rural Road	60km/hr	1500 (c-2008)	2 - Rural	N/A	Shared or Designated	Paved Shoulder	√	Volumes likely to grow in the future as a result of on-going development in the area; facility type should be considered in the context of future projected volumes
1 st Road East	Green Mountain Road East	Dofasco 2000 Trail	N/A – Rural Road	60km/hr	Not available	2 - Rural	N/A	Designated	Paved Shoulder	√	Facility type is assumed based on an estimated volume of 5000 (typical rural collector) Volumes likely to grow in the future as a result of on-going development in the area; facility type should be considered in the context of future projected volumes

Source of Traffic Volumes:

(a) = assumed based on land use context & road classification

(c) = count – based on City count adjusted to AADT based on peak hour volume assuming 10% conversion



FEASIBILITY MASTER PLAN

APPENDIX G

TRAIL LINK PRIORITY ANALYSIS

CRITERION	RATIONALE	EVALUATION OVERVIEW	CALCULATION	MAX SCORE (/100 TOTAL PTS)
Connectivity	One of the desired purposes of the trail is to help to connect to existing and planned pieces of cycling and trail infrastructure in order to create a fulsome network that encourages trail use for recreation and transportation purposes. This factor evaluates the number and type of network connections that are made by a particular link.	Trail segments were evaluated against existing/proposed cycling facilities as well as existing/proposed trail segments and assigned a points total. More points were assigned based on the type of connection, i.e. a connection to an existing facility scores more points than a connection to a proposed facility.	The following points were assigned based on connectivity point totals. Draft thresholds: <ul style="list-style-type: none"> • Connection to an existing trail segment = 10 pts • Connection to an existing cycling network segment = 5 pts • Connection to a planned trail or cycling segment = 2 pts Cumulative to a max score of 25 pts.	25 pts
Density	Population and employment density can support additional active transportation trips. Areas of higher population and employment density often have built form and land use patterns that support active transportation. In addition, the simple matter of proximity of people to the trail is likely related to higher usage.	Trail segments were evaluated against aggregated population and employment densities at the zonal level. Trail segments were buffered 250m and assigned a weighted density based on how much each buffered polygon fell within a certain zone.	The following points were assigned based on weighted population and employment densities. Draft thresholds: <ul style="list-style-type: none"> • >= 40 People & Jobs/Hectare = 20 pts • >= 30 People & Jobs/Hectare = 15 pts • >= 20 People & Jobs/Hectare = 10 pts • >= 10 People & Jobs/Hectare = 5 pts • < 10 People & Jobs/Hectare = 0 pts 	20 pts
Potential Demand (Short Trips)	Most residents indicated that their use of the trail would be for trips between 1 and 5 km. As a result, this analysis will consider areas where there is currently a higher rate of non-commute walking and cycling trips.	Trail segments were evaluated against existing walking and cycling short trips from the Transportation Tomorrow Survey (TTS) zone level. Trail segments were buffered 250m and assigned a weighted trip total based on how much each buffered polygon fell within a certain area.	The following points were assigned based on weighted short trip totals for trips within or between the zones directly abutting the trail. Draft thresholds: <ul style="list-style-type: none"> • >= 300 Walking/Cycling Trips = 15 pts • >= 200 Walking/Cycling Trips = 10 pts • >= 100 Walking/Cycling Trips = 5 pts • < 100 Walking/Cycling Trips = 0 pts 	15 pts
Key Destinations	At the most basic level, trail access is about providing recreational opportunities, including access to important destinations. In order to promote walking and cycling as a viable mode, major attractions must be served effectively. This analysis can evaluate the number of destinations served by a particular trail link.	Trail segments were evaluated against their proximity to key destinations within a 250m radius (e.g. bridges, waterfalls, vistas, BIAs) and assigned a point total. More points were assigned based on the destination type, e.g. trails in proximity to major parks will score more highly than in proximity to other types of destinations.	The following points were assigned based on key destination point totals. Draft thresholds: <ul style="list-style-type: none"> • Major park = 10 pts • Secondary park = 5 pts • Schools, hospitals & rec centres = 8 pts • Other destinations (existing vistas, waterfalls, BIAs, arenas, places of Amusement, golf courses, libraries, museum/galleries, public art) = 5 pts Cumulative to a max score of 25 pts.	25 pts
Safety Considerations	Safety remains an important consideration in the development of a practical and user friendly recreational experience. This analysis evaluates whether the trail will fill an existing sidewalk gap, since the presence of sidewalks is an important safety indicator. Streets with no sidewalks have been associated with 2.6 times more pedestrian collisions. Streets with sidewalk on one side are still overrepresented (1.2 times as many collisions) ¹	Trail segments were evaluated against the sidewalk network to identify whether the proposed section of the mountain brow trail will address a sidewalk gap.	The following points were assigned based on safety consideration point totals: <ul style="list-style-type: none"> • Proposed trail addresses a sidewalk gap = 10 pts 	15 pts

¹ Knoblauch, R.L., Tustin, B.H., Smith, S.A., and Pietrucha, M.T., Investigations of Exposure Based on Pedestrian Areas: Crosswalks, Sidewalks, Local Streets AND Major Arterials, Report No. FHWA/RD-88/038, Federal Highway Administration, September 1988.

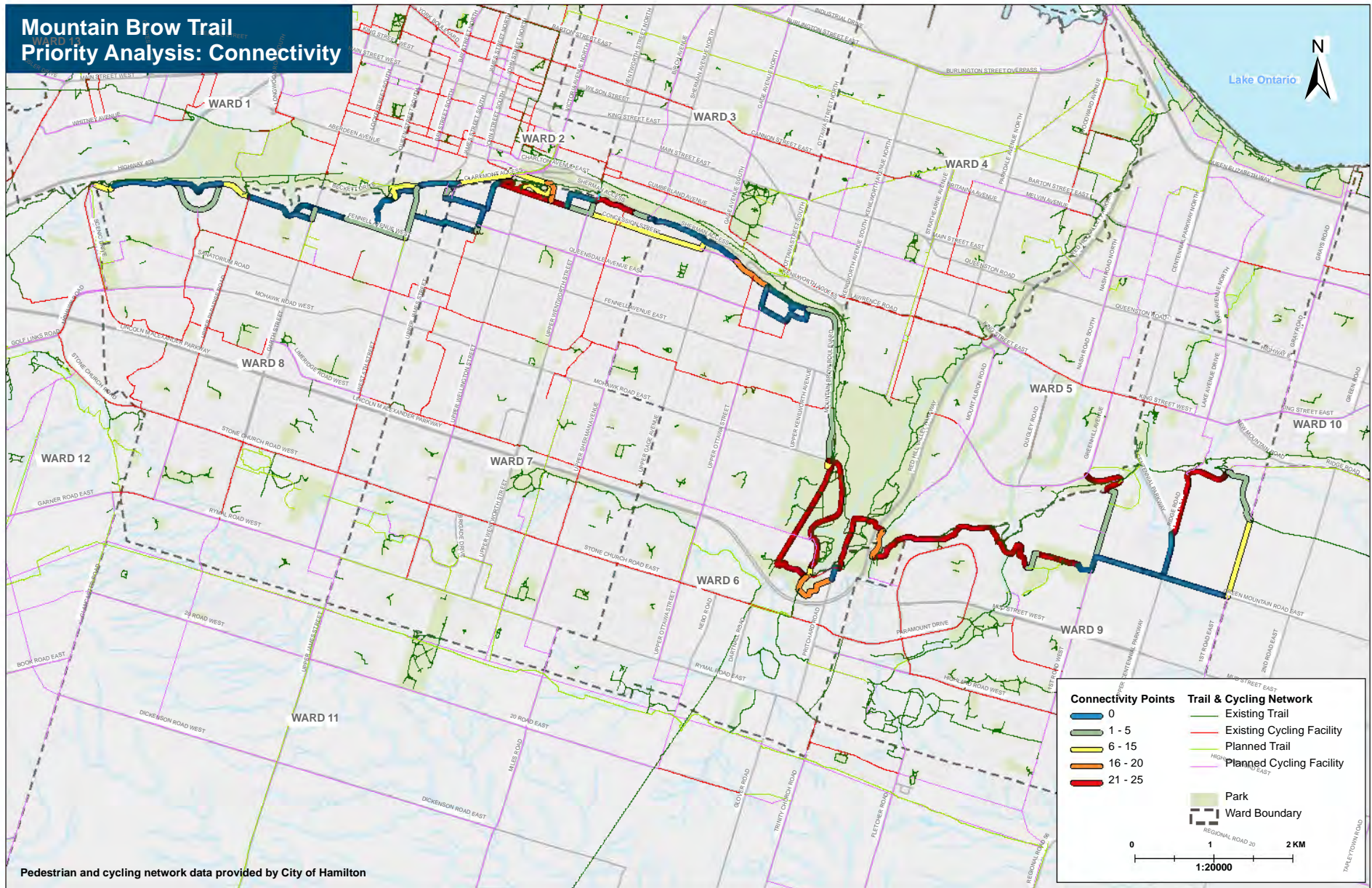


FEASIBILITY MASTER PLAN

APPENDIX H

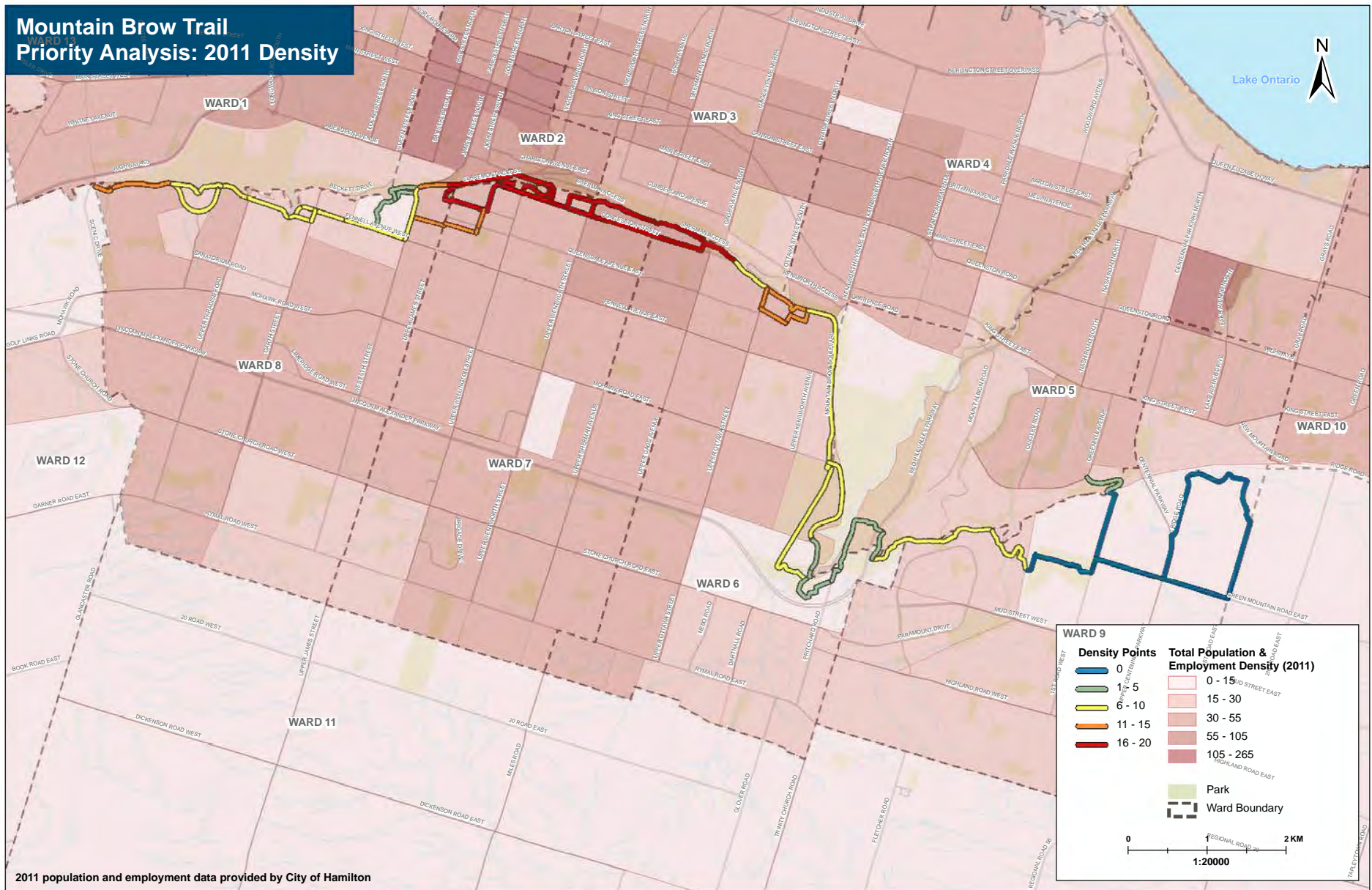
TRAIL POTENTIAL DEMAND

Mountain Brow Trail Priority Analysis: Connectivity

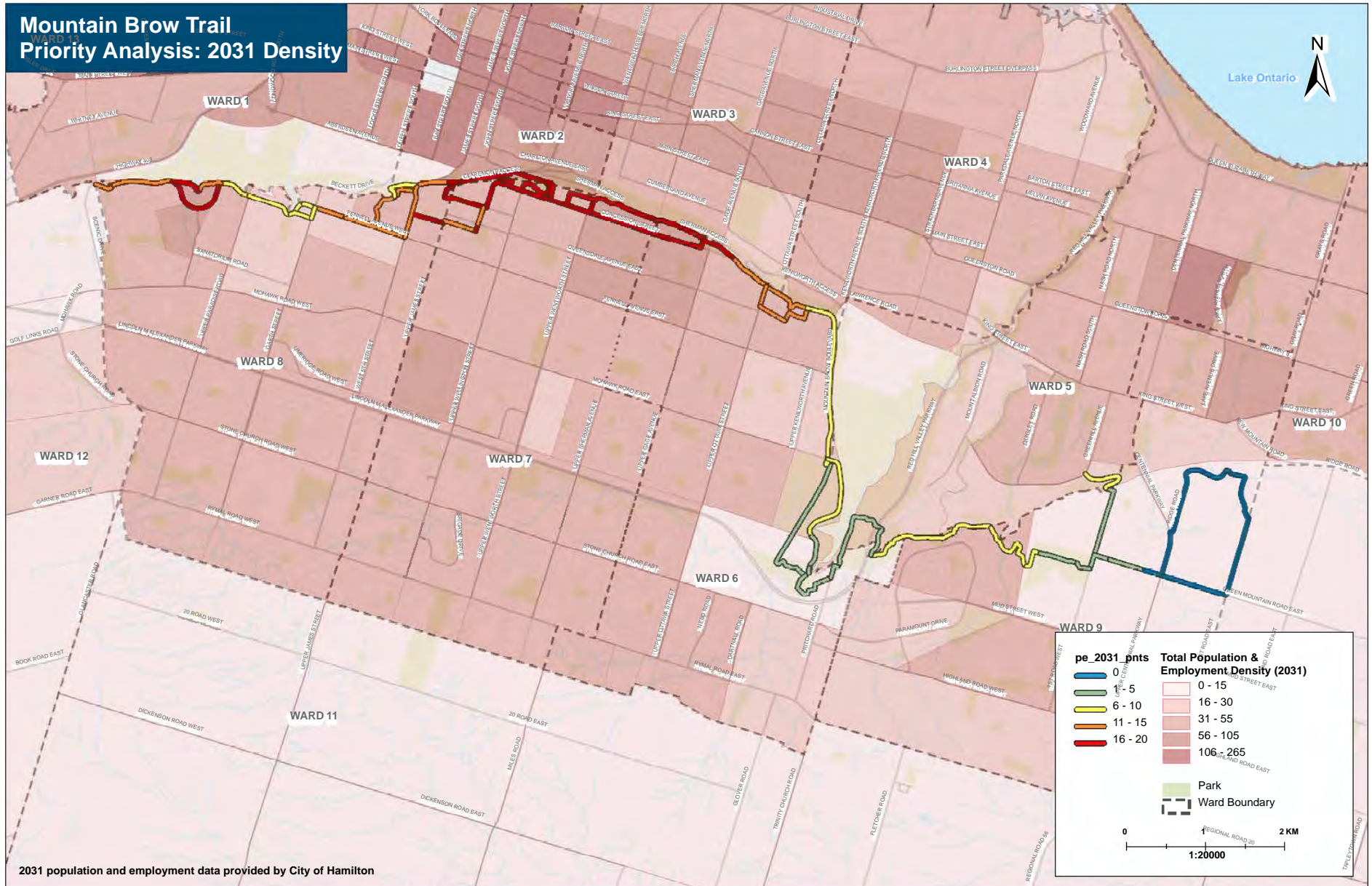


Pedestrian and cycling network data provided by City of Hamilton

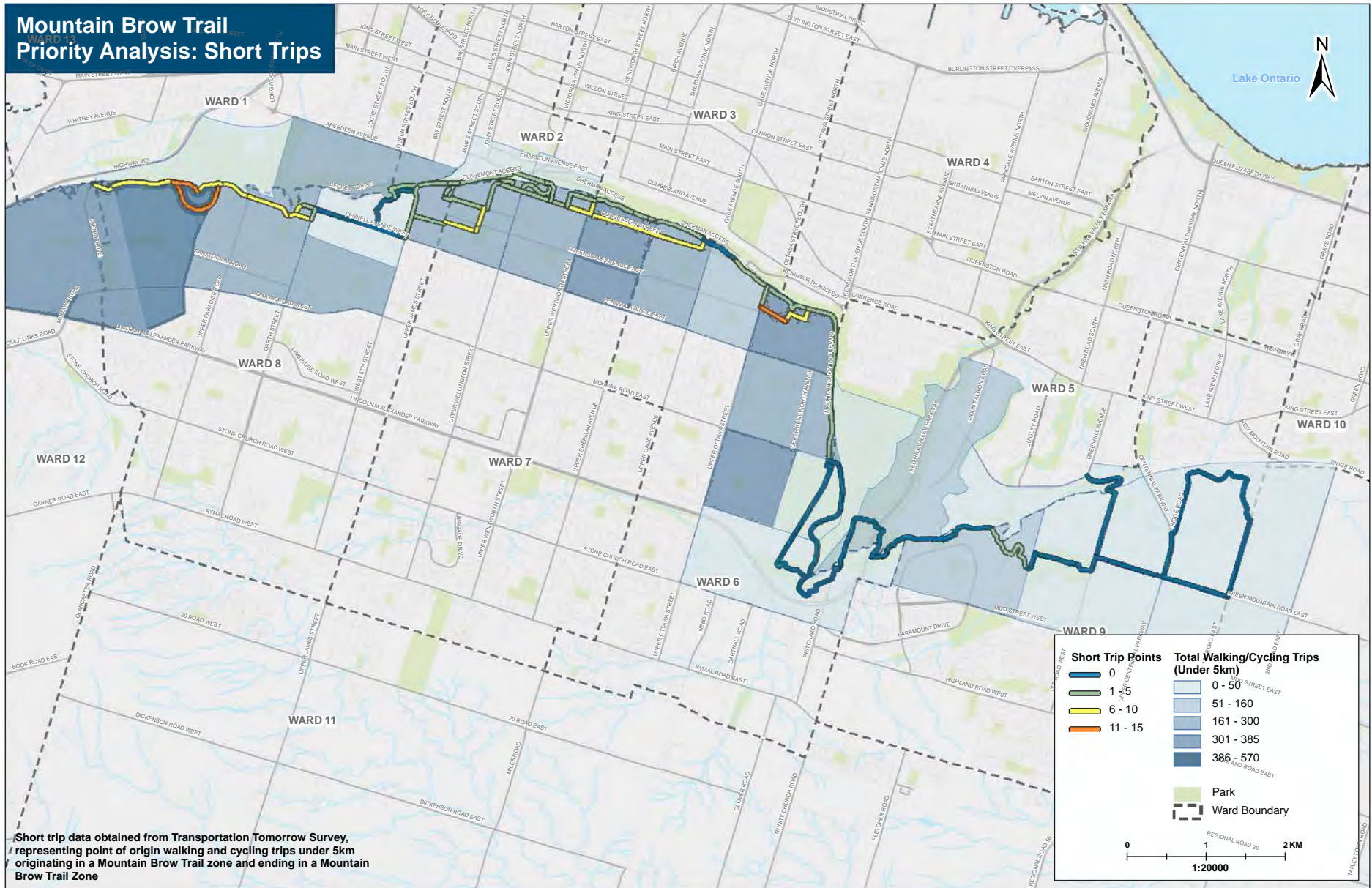
Mountain Brow Trail Priority Analysis: 2011 Density



Mountain Brow Trail Priority Analysis: 2031 Density

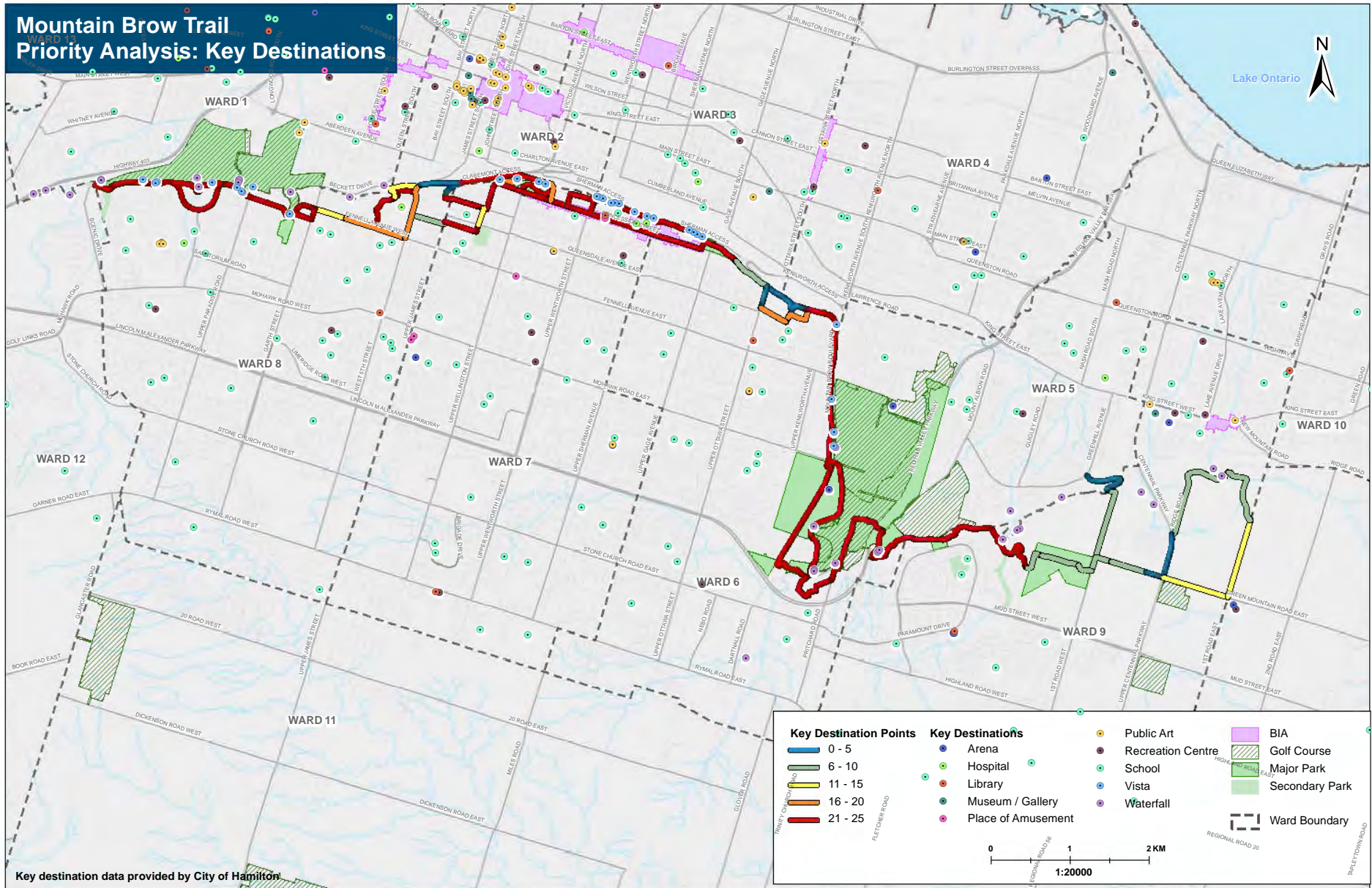


Mountain Brow Trail Priority Analysis: Short Trips

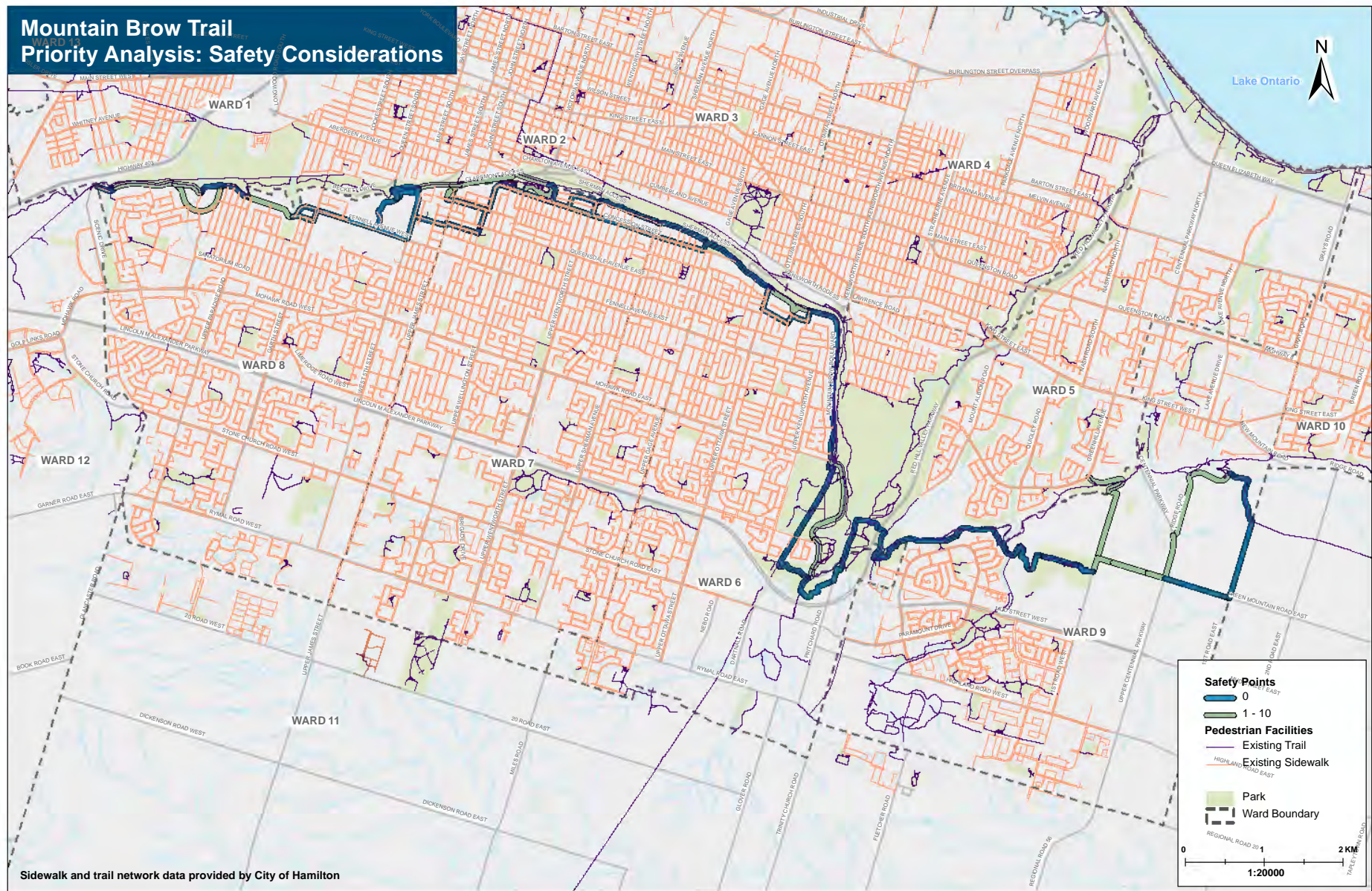


Short trip data obtained from Transportation Tomorrow Survey, representing point of origin walking and cycling trips under 5km originating in a Mountain Brow Trail zone and ending in a Mountain Brow Trail Zone

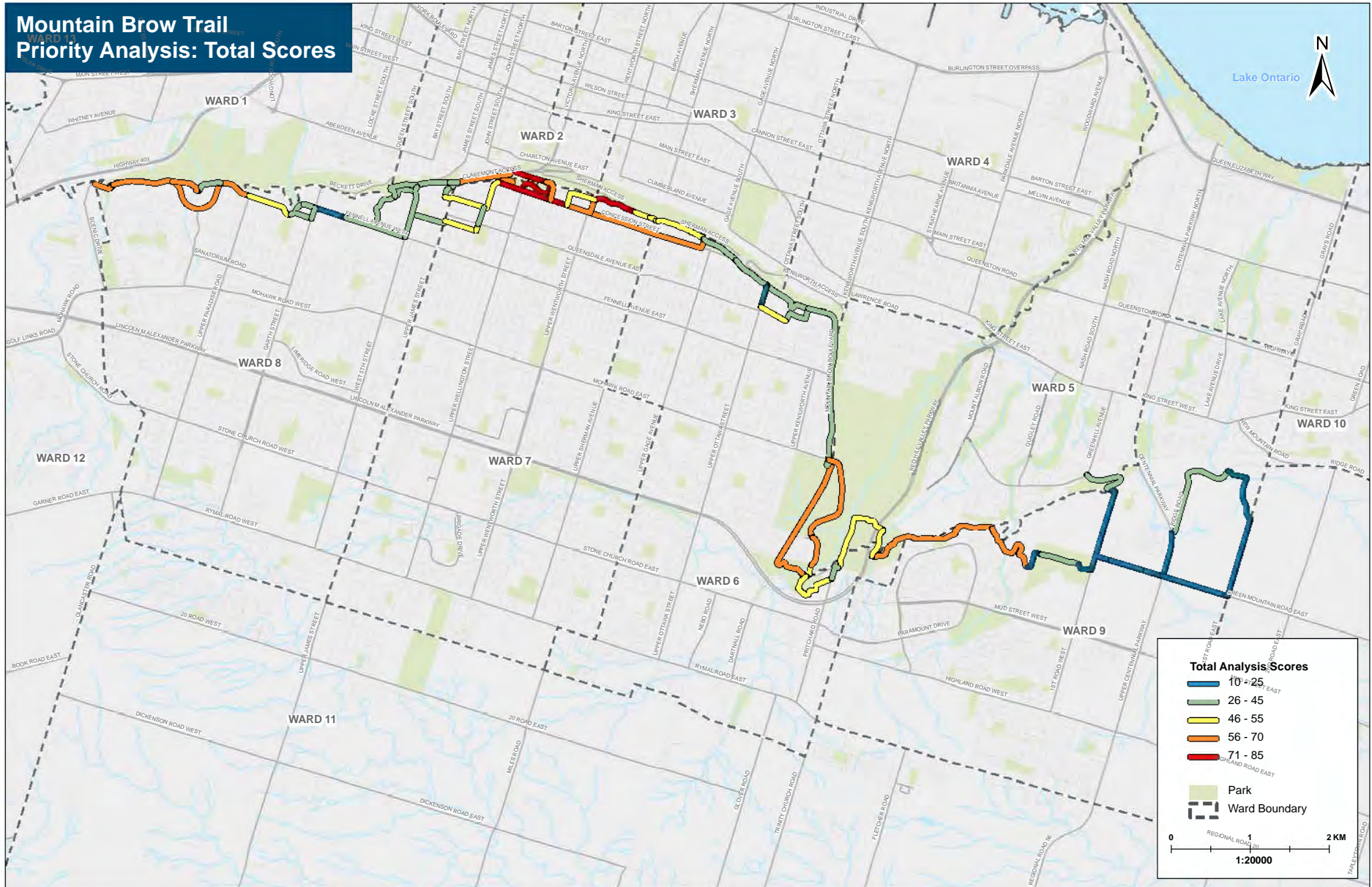
Mountain Brow Trail Priority Analysis: Key Destinations



Mountain Brow Trail Priority Analysis: Safety Considerations



Mountain Brow Trail Priority Analysis: Total Scores





mountain
browtrail

FEASIBILITY MASTER PLAN

APPENDIX I

BLUE SKY IDEAS

BLUE SKY IDEAS

Throughout the public and stakeholder consultation, a number of ideas for blue sky ideas along the Mountain Brow Trail emerged. These ideas are highly desirable from the perspective of creating a unique and exciting trail concept; however, there are significant funding and feasibility challenges to be overcome in their delivery, and further cost-benefit analysis is needed. At this point, we are not pursuing any of these projects as they would require significant partnership. These are blue sky ideas only - that is, they are creative brainstorming ideas without any constraints. As a result, these concepts have not been included in the identified trail routing at this time, but should be considered for further study if funding opportunities arise and as further stages of work are carried out along the corresponding sections of the trail. The following projects emerged as blue sky ideas, applicable at various points along the Mountain Brow Trail Route:

- Claremont Greenway
- Kenilworth Access
- Albion Falls Crossing
- Signature Upper Centennial Bridge
- Elfrida Growth Area

Claremont Greenway

The Claremont Access Spur re-imagined

Trail Sections #12, #13

This concept involves closing the spur between West 5th Street and Claremont Access to motor vehicles to provide a public space that could be converted into a linear park and provide a unique experience and lookout over the lower city. Through the on-going design of the multi-use facility along the Claremont Access, it is already envisaged that this section of the access would be reduced to one lane of traffic. This idea takes the concept one-step further to create a memorable attraction along the Mountain Brow Trail.

This concept draws on inspiration from New York City's High-Line Project, which is an underutilized rail spur line transformed into a linear park and rail trail.

Concept images of the Greenway illustrate how the spur may be adapted to a more recreational use.



Existing Claremont Access & Project Location



Precedent: The High Line, Manhattan, New York
(Source: "The High Line NYC" by La Citta Vita)



Concept Image: Claremont Greenway, looking east



Exhibit 37 - Concept Image: Claremont Greenway, looking east from the ramp

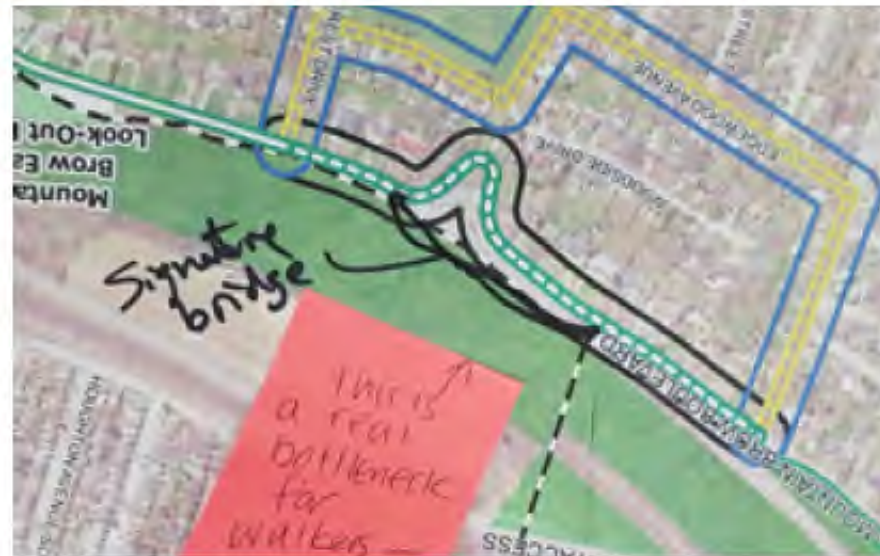
Kenilworth Access

Traffic Circle Flyover

Trail Sections #30, #31, #32, #33

This concept involves the construction of a signature multi-use pedestrian and cycling bridge over the Kenilworth Access Traffic Circle to allow cyclists and pedestrians to bypass the many vehicular travel lanes in this area. This would be a significant bridge structure, as the span is likely to be almost 200m in an area of significant environmental constraints, and must achieve significant height in order to provide enough clearance for both trucks and buses to pass beneath the bridge.

While there are limited examples of similar bridges specifically over a traffic circle, there are comparable large-scale pedestrian and cycling overpasses, such as the “Hovenring” Floating Circular Bridge. This bridge, located in Eindhoven, Netherlands was estimated to have cost about 6.3 million euros.



Kenilworth Access (PIC #1 Feedback)



Precedent: “Hovenring” - Eindhoven, Netherlands
 (Source: Federation of European Cyclists)

Albion Falls Crossing

Cable Bridge

Trail Section #36

Many residents identified the desire to maintain the trail routing along Mountain Brow Boulevard south and east of Mohawk Road in lieu of following the Escarpment Rail Trail. This route is recognized as desirable, but previous projects to explore a trail along this section have been met with challenges (specifically traffic challenges, lack of space, grade differences, and blind corners/ turns) that make this route not feasible within the context of this study. In the vicinity of Albion Falls, the public expressed a desire to see a unique crossing, such as a cable suspension bridge or zip-lining facility.

The cable suspension bridge over Montmorency Falls in Quebec is provided as a notable example.



Exhibit 40 - Precedent: Cable suspension bridge at Montmorency Falls, Quebec (Source: "Chute Montmorency Pain de sucre" by Pierre cb) ; Inset: PIC#1 Feedback about Albion Falls Crossing

Signature Upper Centennial Bridge

Major City Viewpoint

Trail Sections #46 - #51 (alternative routing)

This concept involves the addition of a signature bridge across Centennial Parkway. With sweeping views of the lower city, this bridge would act both as a landmark marking the Mountain Brow Trail route across the parkway and a major attraction to the area. Should the bridge be pursued, the routing of the Mountain Brow Trail could be more direct, staying closer to the Brow on the west side of the Bridge, but land ownership may be a challenge on the east side of the bridge.

A local inspiration project comparable to this bridge would be the bridge across the QEW / Red Hill Valley Parkway bridge, which provides a high quality connection but also provides a signature bridge defining the corridor for those passing along the highway.



Precedent: QEW / Red Hill Valley Multi-use Bridge; Inset: Project Location & PIC Feedback

Elfrida Growth Area

Trail extension to Elfrida

Trail Section #N/A

With the expansion of the Elfrida Growth Area, the City of Hamilton recognizes the potential for a connection by extending the trail at the east terminus. Should opportunities arise to pursue this additional routing, it would likely connect to the recommended route via First Road East.

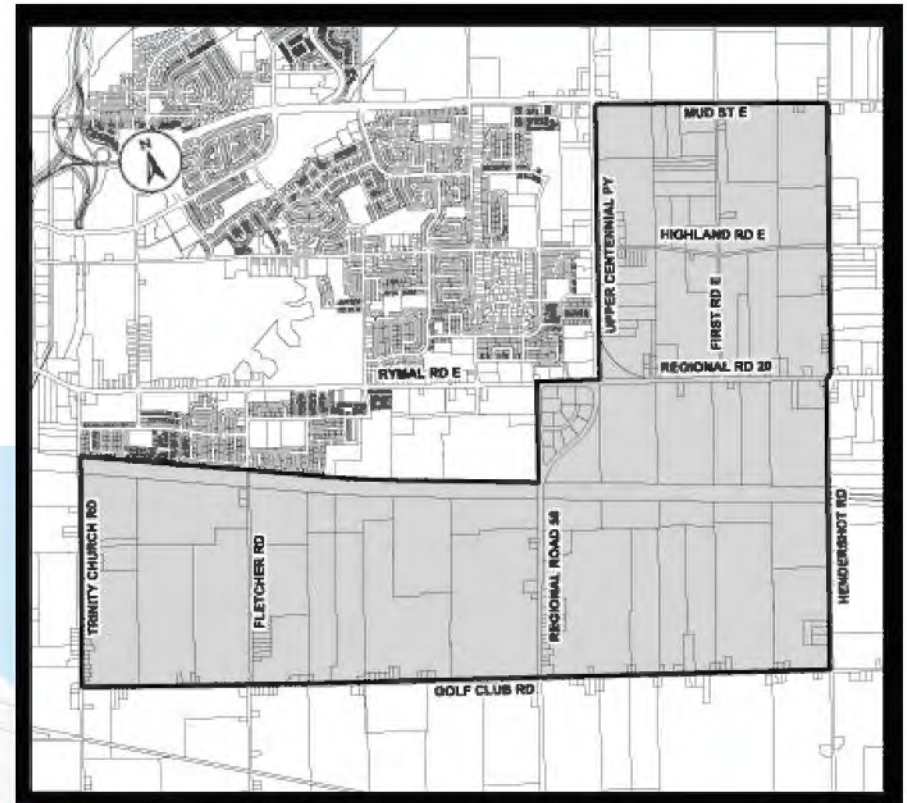
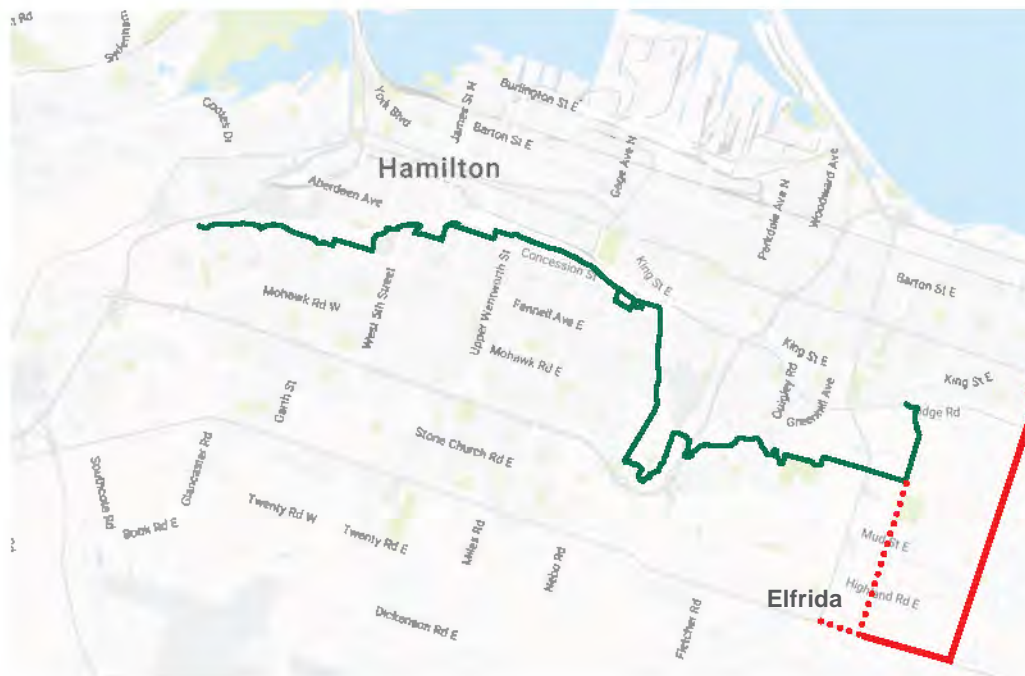


Exhibit 42 - Elfrida Growth Area connection (Base Map Source: Snazzy Maps, licensed by CC0 1.0)



View of the lower city



INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Transit Specific Complement Control Update (PW18057) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Nancy Purser (905) 546-2424, Extension 1876
SUBMITTED BY:	Jason VanderHeide Acting Director of Transit Public Works Department
SIGNATURE:	

Council Direction:

Not applicable.

Information:

Transit Specific Complement Control Policy (TSCCP)

During the fall of 2017 Hamilton Street Railway (HSR) experienced a peak in service cancellations. Data demonstrated that absenteeism had been rising consistently over the past five years, and the HSR was increasingly relying on overtime to maintain service levels. Staff presented to Council a draft of the Transit Specific Complement Control Policy (TSCCP) which would allow the General Manager of Public Works the authority to exceed the Council approved complement for transit operators by up to 12 per cent, as needed, to ensure that HSR has enough operators to run full service every day, while significantly reducing the reliance on overtime to maintain service levels.

At the time of Council approval of the TSCCP on November 8, 2017, the council approved bus operator complement was 484.3. The TSCCP allowed for a maximum of 12 per cent, or an additional 58 FTE to 542.3. Recruiting new operators has been the HSR's top priority since approval of this policy.

HSR's recruitment practice is to establish a pool of candidates from a mass recruitment which typically takes 10 weeks and occurs once annually. At the time of the approval of the TSCCP there were 26 candidates remaining from the February 2017 recruitment of which 25 were still interested in the position. On November 30, 2017, HSR commenced another operator recruitment and received a total of 918 applications, 739 applicants were invited to participate in the assessment stage, 511 completed the assessment of

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SUBJECT: Transit Specific Complement Control Update (PW18057)(City Wide)**Page 2 of 3**

which 256 were successful and invited to an interview which netted 78 successful applicants into our operator pool.

The operator training program is designed to accommodate 8 students per class, or 2 students per instructor, and takes 5 weeks, which includes the mandated Ministry of Transportation (MTO) Driver Certification Program (DCP). From the time we post for an operator position to the time that they are available for service is approximately 5 months in total. Maintaining an operator pool improves our ability to get operators in service quicker. In order to increase the overall operator complement numbers quicker, additional instructors were brought into the training department to increase class sizes from 8 to 15, or 3 students per instructor which is the maximum allowed under the DCP.

Since October 30, 2017, HSR has conducted 6 training classes with an additional 5 scheduled for the remainder of the year for a total of 99 planned students. To date of the 59 students that were scheduled to train, 52 have passed and are HSR operators. Included in the forecast of 99 planned students is the additional 20 FTE required for the service HSR will be adding in September for year 3 of the 10 year Local Transit Strategy which was approved by Council as part of the 2018 Budget. Another Bus Operator recruitment is currently underway to maintain the operator pool.

As shown in figure 1, the bus operator position is very fluid. Movement occurs on a continual basis with operators advising of retirements and resignations. Annually a forecast is created based on average turnover and any service enhancements council has approved.

The budgeted complement for Bus Operators is 484.3 FTE. As of May 31, 2018, the actual has reached 533 which is 10.1% per cent (or 49 FTE) above budgeted complement.

Since the end of November 2017, while 52 have been added, the net increase in operators is only 29. To date 23 employees have left the bus operator role via retirement, resignation, termination or promotion. The three (3) year average turnover for this position is 30. At the same time; the number of employees now off on a long term absence has increased from 40 (2017 year-end) to 49 (June 2018).

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SUBJECT: Transit Specific Complement Control Update (PW18057)(City Wide)
Page 3 of 3

Figure1 shows the forecasting table used to determine hiring requirements.

Workforce Planning	ACTUAL					PROJECTED							
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Total
Complement Control Policy	507	512	517	516	528	533	532	543	556	561	560	561	507
Beginning FTE	507	512	517	516	528	533	532	543	556	561	560	561	507
Less: Long Term Absences	40	45	50	50	50	49	49	49	49	49	49	49	49
Available FTE	467	467	467	466	478	484	483	494	507	512	511	512	458
New Hires In Service	6	8	7	15	13		14	14	9		6	6	98
Retirements		(1)	(2)	(1)	(3)	(1)	(1)		(2)	(1)	(2)	(2)	(16)
Trainees Terminated			(1)	(1)	(1)		(1)	(1)	(1)		(1)	(1)	(8)
Terminations/Resignations	(1)	(2)	(5)	(1)	(4)		(1)		(1)		(2)		(17)
Net Change	5	5	(1)	12	5	(1)	11	13	5	(1)	1	3	57
FTE Available for Service	472	472	466	478	483	483	494	507	512	511	512	515	515
Budget	484	484	484	484	484	484	484	484	504	504	504	504	504
Variance	(12)	(12)	(18)	(6)	(1)	(1)	10	23	8	7	8	11	11
Ending FTE	512	517	516	528	533	532	543	556	561	560	561	564	564
Over complement	28	33	32	44	49	48	59	72	57	56	57	60	60
% per TSCCP	6%	7%	7%	10%	11%	10%	13% *	15% *	12%	12%	12%	12%	12%

* The higher level in staffing is required to ensure Operators are available to provide the added 34,000 in service beginning on September 2, 2018 per Year 3 of the 10 year local transit strategy

The staffing level continues to be monitored on a weekly basis, adjusting the forecast as needed based on updated information. With increased management oversight of the absence reporting process, the hiring of a full time dedicated Attendance Management Administrator (AMA) and continuing to work with Human Resources we are seeing a reduction in absenteeism. The AMA is taking a lead role in determining the root cause of absenteeism to better understand the spike as well as monitoring data and trends on an ongoing basis.

The week of October 22, 2017, 780 hours of service was cancelled. Since that time the cancelled service hours have continually declined. For the month of May 2018 there was only 28 hours of cancelled service due to no operator being available. For the first two weeks of June 2018 there has been no cancelled service due to no operator being available. This accomplishment is a direct result of the TSCCP. While the use of overtime has diminished over the last couple of months; we are now at a complement level that will allow us to make a marked reduction on our reliance of overtime to make service.

Ensuring HSR can sustain the achievement of no cancelled service remains a priority. The TSCCP allows the flexibility needed to provide scheduled service at straight time pay instead of the past practice of relying on overtime pay. As we are now at a complement control level that is producing a sustained level of zero service cancellation; as we progress through the remainder of the year we anticipate that the reduction in overtime costs, proposed with the original policy, of \$786,624 will be realized on an annualized basis. Staff will bring back a report during the 2019 budget process showing the data to validate this policy and the impacts on overtime and attendance.

Appendices and Schedules Attached

None

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8.1



CITY OF HAMILTON
Public Works Department
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	June 18, 2018
SUBJECT/REPORT NO:	Hamilton Water Financial Plan - (PW18051) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	George Giovinazzo 905-546-2424, Extension 1192
SUBMITTED BY:	Mark Bainbridge Director, Water & Wastewater Planning Public Works
SIGNATURE:	

RECOMMENDATION

- (a) That the “Hamilton Water Financial Plan” as prescribed by Ontario Regulation 453/07 be approved by a resolution that the Hamilton drinking water systems have the resources necessary to operate successfully over the next ten years based on current projections;
- (b) That the “Hamilton Water Financial Plan” be released for public review, and submitted to the Ontario Ministry of Municipal Affairs and Housing in response to Ontario Regulation 453/07 under the *Safe Drinking Water Act, 2002*;
- (c) That Appendix “A” attached to Report (PW18051) respecting the “Hamilton Water Financial Plan” be approved.

EXECUTIVE SUMMARY

The Hamilton Water Division of Public Works has developed a Hamilton Water Financial Plan (Financial Plan) to comply with Ontario’s legislative requirements under the *Safe Drinking Water Act, 2002* and Ontario Regulation (O.Reg.) 453/07 entitled “Financial Plans”. This requirement is also referenced in the City license issued under O.Reg. 188/07 entitled “Licensing of Municipal Drinking Water Systems”. The first Financial Plan was created in 2009 to respond to new legislation, and a second Financial Plan was created in 2013 for licensing renewal. An updated Financial Plan is again required as part of the reoccurring drinking water licensing renewal process.

The Financial Plan update is required to provide a current forward-looking financial view of at least six years into the future of our drinking water systems. The Hamilton Water

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SUBJECT: Hamilton Water Financial Plan - (PW18051) - (City Wide) - Page 2 of 7

Financial Plan exceeds this minimum requirement and is based on the standard City budgeting practice of a 10-year forecast. The details of the financial plan, however, are different than financial information and budgets as it reflects a full accrual perspective. The Financial Plan conforms to accounting standards and principles applied to municipal governments effective as of 2009. The full accrual basis of accounting reports tangible capital assets and the amortization expense of these assets over their useful life.

The completed plan must be approved by a Council resolution. This statement of agreement reflects an acknowledgement that the City's water systems are being provided with the appropriate financial resources to successfully continue operation over the next 10-year time frame. Submission of the Financial Plan to the Provincial Ministry of Municipal Affairs and Housing will take place in 2018 once Council endorsement is received; this is required to meet our licensing requirements.

Data produced from this work reflects available information generated through existing City processes, as well as calculated future projections, based on an understanding of water system assets and their lifecycles. Council is presented with the following three financial statements:

1. Statement of Financial Position (Balance Sheet)
2. Statement of Operations (Income Statement)
3. Statement of Cash Flow

Each statement noted above is provided in Appendix "A" detailing the relevant financial figures. Together these statements meet the provincial requirement to develop a financial plan under O.Reg 453/07.

The resulting Financial Statements produced through this process indicates that there are suitable financial resources allocated to our water systems over the 10-year time period based on planned capital expenditures and the cost to operate the system.

The Province, through the *Infrastructure for Jobs and Prosperity Act, 2015* recently enacted O.Reg 588/17 – "Asset Management Planning for Municipal Infrastructure". The intent of O.Reg 588/17 and O.Reg 453/07 are complementary in that they encourage asset management planning which includes financially sustainable asset renewal and replacement. As a point of clarification, the two regulations differ in their planning horizons and in their reporting requirements. The Financial Plan produced for this report meets all of the requirements of O.Reg 453/07.

Alternatives for Consideration – See Page 7

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Appendix A provides information on the current status of the water infrastructure financial position. The information provided should be used as the basis for future planning and decision making in terms of guiding the collection of revenue reflecting the true cost of ownership and operation. Data can also be used to more effectively plan the pace of necessary expenditures at a strategic level.

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SUBJECT: Hamilton Water Financial Plan - (PW18051) - (City Wide) - Page 3 of 7

Staffing: NA

Legal: Appendix A outlines the financial planning requirements described in O.Reg 453/07 under the *Safe Drinking Water Act, 2002*. These requirements have implications for the City of Hamilton in obtaining Municipal Drinking Water System licensing required to maintain municipal control over water operations. Approval of Appendix A is required prior to filing information with Provincial authorities in order to successfully retain licences to provide drinking water services under the current program of legislation.

HISTORICAL BACKGROUND

The recommendations contained within this report have City wide implications.

After the release of O.Reg 453 in 2007, City staff in conjunction with financial consultants, engineering consultants, and other internal stakeholders undertook a process that was applied again in 2013 and 2018 for license renewal. This work identified the information and effort needed to develop the municipal financial statements. The result was a document that met the need to address the municipal accounting principles that reflect a full accrual accounting methodology.

The update in 2018 includes data reflecting the capital and operating status of all piping and facility assets, which make up the water treatment and distribution systems in the City of Hamilton. This requirement is part of the provincial response to recommendations formulated as a result of water contamination events in Walkerton, Ontario during May 2000.

The concept of the Hamilton Water Financial Plan is premised on principles that are also reflected in our corporate mission to be fiscally and socially responsible. This work is consistent with strong asset management practices and affirms continued development of improved processes to support future decision making. It ties closely to the annual budget and will become a tool to assist in developing strategic directions for management of the City's water infrastructure.

The updated Financial Plan will be provided to the Provincial Ministry of Municipal Affairs and Housing and will also be made available to the public. A notice will be posted to make residents aware that a financial plan is available, documentation must be provided without charge, and posted on the municipality's website.

The work undertaken includes a series of regulated financial statements for Hamilton water system infrastructure. It aligns with the requirements outlined in O. Reg 453/07 Financial Plans, as summarized below:

1. Details of the proposed or projected financial position of the drinking water system itemized by:
 - a. total financial assets;
 - b. total liabilities;
 - c. net debt;

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SUBJECT: Hamilton Water Financial Plan - (PW18051) - (City Wide) - Page 4 of 7

- d. non-financial assets that are tangible capital assets, tangible capital assets under construction, inventories of supplies and prepaid expenses; and,
 - e. changes in tangible capital assets that are additions, donations, write downs and disposals.
2. Details of the proposed or projected financial operations of the drinking water system itemized by:
 - a. total revenues, further itemized by water rates, user charges and other revenues,
 - b. total expenses, further itemized by amortization expenses, interest expenses and other expenses,
 - c. annual surplus or deficit, and
 - d. accumulated surplus or deficit.
 3. Details of the drinking water system's proposed or projected gross cash receipts and gross cash payments itemized by:
 - a. operating transactions that are cash received from revenues, cash paid for operating expenses and finance charges,
 - b. capital transactions that are proceeds on the sale of tangible capital assets and cash used to acquire capital assets,
 - c. investing transactions that are acquisitions and disposal of investments,
 - d. financing transactions that are proceeds from the issuance of debt and debt repayment,
 - e. changes in cash and cash equivalents during the year, and
 - f. cash and cash equivalents at the beginning and end of the year.
 4. Details of the extent to which the information described in subparagraphs 1, 2 and 3 relate directly to the replacement of lead service pipes as defined in section 15.1- 3 of Schedule 15.1 to Ontario Regulation 170/03 (Drinking Water Systems), made under the *Act*.

The process in assembling the data in preparation for the "Hamilton Water Financial Plan" has been completed with the intent of using the information in our efforts to prepare for O-Reg. 588/17 reporting. Although the work completed for creating the financial plan has provided information that will feed into O-Reg 588. There will still be additional effort required to comply with the obligations of this new regulation. The regulation will specifically require an asset management plan and policy which should outline action that may be required to address vulnerabilities as they relate to the City's infrastructure desired level of service.

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SUBJECT: Hamilton Water Financial Plan - (PW18051) - (City Wide) - Page 5 of 7

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The development of a drinking water quality management Operational Plan and accreditation of the Operating Authority are license requirements in conjunction with the creation of the financial plan. These components are monitored and maintained through the development of a Drinking Water Quality Management System (DWQMS) which is audited by an independent Accreditation Body. The DWQMS Operational Plan and its DWQMS Policy originally approved by Council on June 27, 2007 (PW07095) and again on June 24 2015 (PW15046) contain procedures that include reviewing the adequacy of infrastructure for delivering safe drinking water. This infrastructure review process has a direct relationship to financial resource allocation and will benefit from the holistic and strategic perspective that has been developed under the Hamilton Water Financial Plan. The objective of these related works is to provide tools for the efficient and effective management of infrastructure. Together these processes look to support critical asset investments to reduce the risks associated with service delivery, as well as optimize the cost of ownership. The licensing process requires that these financial plans be produced and endorsed by Council on a reoccurring basis and that this financial plan represents the City's third such submission for a valid drinking water license.

Legislative policies affecting or impacting this Report include:

- *Ontario Safe Drinking Water Act, 2002*
- *Ontario Infrastructure for Jobs and Prosperity Act, 2015*

RELEVANT CONSULTATION

In 2018 staff undertook a process of engaging internal groups within the Public Works and Corporate Services Departments to identify existing resources and limitations that would impact the development of the Hamilton Water Financial Plan.

A process of coordinating several meetings to engage staff in the Financial Services Division, Financial Planning Administration and Policy Division, Engineering Services Division, and the Hamilton Water Division was launched to collect information and leverage staff knowledge to provide input into the process. Staff were engaged based on interests and expertise related to existing accounting practice and corporate reporting of financial information returns, current development of water related budgets, water system licensing requirements, water system infrastructure, and relationship with sustainable asset management practice. These early meetings provided information from which project outcomes were developed forming the basis of information that would support the updated financial statements for this third municipal water system license term.

Once accepted by City Council, the information contained in this Financial Plan is required to be available to members of the public and submitted to the Province of Ontario.

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SUBJECT: Hamilton Water Financial Plan - (PW18051) - (City Wide) - Page 6 of 7

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The Financial Plan created for City of Hamilton water infrastructure includes three key statements described below:

1. Statement of Financial Position:

This statement highlights four key figures that describe the financial position of the City of Hamilton at the reporting date:

- (a) The cash resources of the government are its cash and cash equivalents.
- (b) The net debt position of the government is calculated as the difference between its liabilities and financial assets.
- (c) The non-financial assets of the government are assets that are, by nature, normally for use in service provision and include purchased, constructed, developed, or leased tangible capital assets, inventories of supplies, and prepaid expenses.
- (d) The accumulated surplus or deficit of the government is calculated as the sum of the net debt of the government and its non-financial assets. This indicator represents the net assets of the government.

2. Statement of Operations:

This statement reports the surplus or deficit from operations in the accounting period. The statement displays the cost of City services provided in the period, the revenues recognized in the period and the difference between them. It measures, in monetary terms, the extent to which a government has maintained its net assets in the period.

3. Statement of Cash Flow:

The statement of cash flow reports the change in cash and cash equivalents in the accounting period, and how the City of Hamilton financed its activities in the period and met its cash requirements.

Financial Plan Conclusions

The three financial statements created under this project meet the legislated requirement of O-Reg. 453/07 and indicate there are the necessary financial resources allocated to the drinking water systems over the next 10-year time period based on the planned capital expenditures and the predicted cost to operate. The City of Hamilton will be required to submit the content of Appendix "A" to the Ministry of Municipal Affairs and Housing in 2018 and release for public review soon after approval by council.

The production of this financial plan was carried out with the intent to build and assemble the information and data required to allow financial analysis to be carried out for planning horizons beyond 50 years. It should be noted that when the financial analysis looks farther than 10 years into the future the results suggest that current levels of service

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SUBJECT: Hamilton Water Financial Plan - (PW18051) - (City Wide) - Page 7 of 7

cannot be achieved when maintaining the fixed assumptions used in this report regarding water user rate structures and debt financing principles.

ALTERNATIVES FOR CONSIDERATION

The approval of this Financial Plan by a Council resolution, and subsequent submission to the Ministry of Municipal Affairs and Housing is a legislated requirement under the *Safe Drinking Water Act, 2002* and the related O.Reg. 453 entitled “Financial Plans”. Council has the option to not submit an approved financial plan but in so doing will remove our ability to maintain a municipal drinking water systems license. Implications of this course of action could entail potential charges from the Ministry of the Environment or loss of municipal control over water system operation in Hamilton.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**Community Engagement & Participation**

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Healthy and Safe Communities

Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance

Hamiltonians have a high level of trust and confidence in their City government.

APPENDICES AND SCHEDULES ATTACHED

Appendix A - Hamilton Water Financial Plan

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Prepared By:



City of Hamilton

Hamilton Water Financial Plan:

Interim Report of the 10 Year Water System Financial Plan
and Financial Statements

GMBP File: 617107

May 25, 2018



Hamilton

May 28, 2018
Our File: 717107

City of Hamilton
77 James Street North, Suite 400
Hamilton, ON, L8R 2K3

Attn: Mr. Bert Posedowski

Re: City of Hamilton – Water Financial Plan Development – Category 32

Dear Mr. Posedowski:

GM BluePlan Engineering Limited is pleased to submit the final draft of our interim report for the above noted project. The enclosed report describes the water system financial plan and financial statements as detailed under Regulation 453/07 - Financial Plans made under the Safe Drinking Water Act, 2002.

We appreciate the efforts of staff throughout the City of Hamilton over the course of this project.

Yours truly,

GM BLUEPLAN ENGINEERING LIMITED



Nick Larson, MEPP, P.Eng.

Table of Contents

1.0 Introduction	1
2.0 Background	2
3.0 Approach	3
3.1 Financial Plan Documentation	5
4.0 Sources of Information	6
5.0 Financial Statements	8
6.0 Summary and Conclusions.....	13
7.0 Glossary of Terms	14
7.1 Statement of Financial Position	14
7.2 Statement of Operations	16
7.3 Statement of Cash Flows.....	17

1.0 Introduction

In 2017 GM BluePlan (GMBP) was retained by the City of Hamilton to prepare:

- 1) A 10 year Financial Plan with associated Financial Statements for the City of Hamilton's water system to support a regulatory compliance issue specific to the water licensing requirements defined within the Drinking Water Quality Management System (DWQMS) and more specifically detailed under *Regulation 453/07 - Financial Plans* made under the Safe Drinking Water Act, 2002 (SDWA).
- 2) Long Term Financial Plans for the water, wastewater and stormwater systems to support Asset Management (AM) processes in the City of Hamilton. The Long Term Financial Plans will provide a long range understanding of the revenues and expenditures that are required to achieve the City's desired levels of service (LOS) for the water, wastewater and stormwater systems. This understanding is a requirement of *Regulation 588/17 – Asset Management Planning for Municipal Infrastructure* made under the Infrastructure for Jobs and Prosperity Act, 2015. A short description of the practical differences between Regulation 437/07 and 588/17 is explained in Section 2.0 Background.

This interim report provides a Financial Plan and Financial Statements for the water systems to support the City's application for an updated drinking water license per *Regulation 453/07*. It also documents the approach and sources of information used to generate the Financial Statements. A subsequent report will be prepared at a later date when the Long Term Financial Plans for the water, wastewater and stormwater systems have been completed.

2.0 Background

Regulation 588/17 – Asset Management Planning for Municipal Infrastructure made under the Infrastructure for Jobs and Prosperity Act, 2015 was implemented on January 1, 2018. The new regulation will require municipalities to develop a strategic asset management policy by July 2019. The policy must include the process by which the asset management plan is to be considered in the development of the municipality's budget or of any long-term financial plans of the municipality that take into account municipal infrastructure assets. The policy must also outline actions that may be required to address the vulnerabilities that may be caused by climate change to the municipality's infrastructure assets, in respect of such matters as operations, such as increased maintenance schedules, levels of service, and lifecycle management.

A strategic asset management plan for core municipal assets must be developed by July 2021 and all other assets by July 2023. The regulation defines the core assets as water, wastewater, stormwater, roads, bridges and culverts. The 2021 asset management plan must include the current LOS and performance of each asset group and the cost to sustain the LOS. The asset management plan must include the proposed LOS and performance measures for a 10 year projection and the cost to achieve the proposed LOS by July 2024. In the case that the cost required to achieve proposed LOS is greater than the available funding, an explanation of how the municipality will manage the risks associated with not undertaking any of the lifecycle activities previously identified. The asset management plan must also include the financial plans related to the municipality's water assets including any financial plans prepared under the Safe Drinking Water Act, 2002.

Regulation 453/07 - Financial Plans made under the Safe Drinking Water Act, 2002 mandates that a Financial Plan be prepared in order to obtain a municipal drinking water license. The Financial Plan required as part of *Regulation 453/07* is represented as a series of financial statements for a minimum time period of 6 years.

The most significant practical differences between the Financial Plan mandated through *Regulation 453/07* and the financial planning that is required to support *Regulation 588/17* are summarized as follows:

- *Regulation 453/07* Financial Plans are not required to align with the current or desired LOS.
- *Regulation 453/07* Financial Plans are mandated to be manifested as a series of three financial statements. *Regulation 588/17* does require financial statements, but rather provides more flexibility to use financial planning processes to support the development of an asset management plan to achieve the desired LOS.

3.0 Approach

The approach to completing the 10 year Financial Plan and the development of the Financial Statements for the water system followed the methodology that was used to develop the previous two 10 year Financial Plans for the water system in 2009 and 2013. It aligns with the requirements outlined in *Regulation 453/07 - Financial Plans*, as summarized below:

- 1) Details of the proposed or projected financial position of the drinking water system itemized by,
 - a) total financial assets,

- b) total liabilities,
 - c) net debt,
 - d) non-financial assets that are tangible capital assets, tangible capital assets under construction, inventories of supplies and prepaid expenses, and
 - e) changes in tangible capital assets that are additions, donations, write downs and disposals.
- 2) Details of the proposed or projected financial operations of the drinking water system itemized by,
- a) total revenues, further itemized by water rates, user charges and other revenues,
 - b) total expenses, further itemized by amortization expenses, interest expenses and other expenses,
 - c) annual surplus or deficit, and
 - d) accumulated surplus or deficit.
- 3) Details of the drinking water system's proposed or projected gross cash receipts and gross cash payments itemized by,
- a) operating transactions that are cash received from revenues, cash paid for operating expenses and finance charges,
 - b) capital transactions that are proceeds on the sale of tangible capital assets and cash used to acquire capital assets,
 - c) investing transactions that are acquisitions and disposal of investments,
 - d) financing transactions that are proceeds from the issuance of debt and debt repayment,
 - e) changes in cash and cash equivalents during the year, and
 - f) cash and cash equivalents at the beginning and end of the year.
- 4) Details of the extent to which the information described in subparagraphs 1, 2 and 3 relates directly to the replacement of lead service pipes as defined in section 15.1- 3 of Schedule 15.1 to Ontario Regulation 170/03 (Drinking Water Systems), made under the Act.

3.1 Financial Plan Documentation

In accordance with SDWA regulations, the Financial Plan will be represented in the following Financial Statements:

1) *Statement of Financial Position (Balance Sheet)*

This statement highlights four key figures that describe the financial position of the City's water system at the reporting date, including the cash resources, net debt position, non-financial assets and accumulated surplus or deficit.

In support of this Statement of Financial Position, two additional statements were prepared. The financial statements listed below illustrate the change in one of these four key aspects of the water system's financial position.

2) *Statement of Operations (Income Statement)*

3) *Statement of Cash Flow*

These statements coincide with the Financial Plan requirements for water systems licensing based on the specific requirements of Section 4(iii) of Regulation 453/07. A further description of these statements are included in *Section 5 - Financial Statements* of this report.

A minimum reporting period of 6 years is required for the statements under the regulation. The information developed in this project includes these financial statements covering a period of 10 years. This is consistent with and supports the City's budget process which covers a 10 year period.

The report that will be submitted at a later date will document the Long Term Financial Plan that aligns with the forecasted infrastructure lifecycle expenditures needs (both capital and operating) to achieve the desired LOS of the systems. The Long Term Financial Plans for water, wastewater, and stormwater systems will assist Hamilton in long-term, strategic planning to move to a sustainable funding program for the financing of its infrastructure. The approach to the analysis is not summarized in this interim report.

4.0 Sources of Information

The City's financial data and business processes were reviewed by members of the consulting team to determine the availability of information required to develop the 10 year Financial Plan and the Financial Statements. City staff were engaged throughout the project to inform any assumptions or interpretation of data required to develop the 10 year Financial Plan and Financial Statements.

The major assumptions that were made include:

- Fixed and variable water rate increases of 4.5% per annum.
- Operating expenditures increases of 3% per annum.
- Water use efficiency would increase at the same rate of population increase resulting in no increase to total water demand.
- Demand for ICI customers was determined from 2018 revenue.
- The City provided the loan repayment schedule on existing loans. New loans followed the same rules regarding serviceability of debt.

Table 1 summarizes the information that was used to generate the 10 year Financial Plan for the water system.

Table 1: Information sources used to develop the financial statements.

Input	Source of Data
Base Financial Data	<ul style="list-style-type: none"> • 2018 5 Year Actuals vs Budget spreadsheet • 2018 Rate Budget Book
Current Demands and Future Demand Estimates	<ul style="list-style-type: none"> • DC Report and Bylaws for population forecast • 2018 Rate Budget Book for water consumption demand
Water Rates	<ul style="list-style-type: none"> • 2018 Rate Budget Book for the fixed and volumetric rates
Revenues	<ul style="list-style-type: none"> • 2018 Rate Budget Book for the non-metered revenues
Operations and Maintenance Costs	<ul style="list-style-type: none"> • 2018 Rate Budget Book for the operating expenses • 2018 5 Year Actuals vs Budget spreadsheet
Development Charges Information	<ul style="list-style-type: none"> • DC Report and Bylaws • 2018 Rates DC Reserve Forecast spreadsheet
Capital Plan	<ul style="list-style-type: none"> • 2018 Rate Budget Book
Amortization Data	<ul style="list-style-type: none"> • 2017 TCA Information
Project Funding Sources	<ul style="list-style-type: none"> • 2018 Rate Budget Book
Debt Service Information	<ul style="list-style-type: none"> • Debtrow 53-159 Existing Outstanding Future Forecast spreadsheet • 2018 External Debt 2017 Budget Forecast spreadsheet

5.0 Financial Statements

This section describes and presents the three Financial Statements that comprise the 10 year Financial Plan for the water system.

The Financial Position statement highlights four key figures that describe the financial position of the water system at the reporting date.

- The cash resources are cash and cash equivalents.
- The net debt position is calculated as the difference between liabilities and financial assets.
- The non-financial assets are assets that are, by nature, normally for use in service provision and include purchased, constructed, developed or leased tangible capital assets, inventories of supplies and prepaid expenses.
- The accumulated surplus or deficit is calculated as the sum of the net debt and non-financial assets. This indicator represents the net assets of the water system.

The two remaining statements illustrates the change in one of these aspects of the water system's financial position.

- The *statement of operations* reports the surplus or deficit from operations in the accounting period. The statement displays the cost of water services provided in the period, the revenues recognized in the period and the difference between them. It measures, in monetary terms, the extent to which an organization has maintained its net assets in the period.
- The *statement of cash flow* reports the change in cash and cash

equivalents in the accounting period, and how the water system financed its activities in the period and met its cash requirements.

The following financial statements representing the 10 year Financial Plan for the Water System are included below:

- 1) Statement of Financial Position
- 2) Statement of Operations
- 3) Statement of Cash Flow

In addition a Glossary of Terms follows the Financial Statements providing further explanations of the meaning and interpretation of specific categories or line item terms in the statements. These should be read in conjunction with the respective statements.

1. Statement of Financial Position for the Water System

**City of Hamilton - Water Infrastructure Statement
 of Financial Position
 As at December 31 (in thousands of dollars)**

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Financial Assets										
Cash and cash equivalents	\$199,264	\$189,878	\$189,112	\$181,083	\$194,835	\$195,988	\$208,981	\$190,672	\$209,766	\$205,031
Accounts receivable - rate revenues	\$8,015	\$8,376	\$8,753	\$9,147	\$9,558	\$9,988	\$10,438	\$10,907	\$11,398	\$11,911
Accounts receivable - other revenue sources	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Investments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$207,279	\$198,254	\$197,865	\$190,229	\$204,393	\$205,976	\$219,419	\$201,580	\$221,164	\$216,942
Liabilities										
Accounts payable - wages	\$630	\$648	\$668	\$688	\$709	\$730	\$752	\$774	\$797	\$821
Accounts payable - other payables	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
DC reserve (Deferred revenue)	\$23,419	\$17,832	\$1,704	\$2,007	\$6,520	\$17,038	\$23,499	\$11,001	\$9,231	\$6,426
Short term debt	\$8,433	\$12,745	\$17,306	\$9,052	\$16,420	\$8,868	\$9,374	\$9,898	\$27,952	\$8,824
Long term debt	\$53,847	\$62,686	\$72,487	\$71,342	\$68,051	\$59,202	\$56,971	\$54,216	\$51,715	\$54,254
Total	\$86,328	\$93,912	\$92,164	\$83,090	\$91,701	\$85,837	\$90,596	\$75,889	\$89,696	\$70,325
Net Financial Assets (Liabilities)	\$120,951	\$104,342	\$105,701	\$107,139	\$112,692	\$120,139	\$128,823	\$125,691	\$131,468	\$146,616
Non-financial Assets										
Tangible capital assets										
TCA used in production	\$776,581	\$846,992	\$948,681	\$1,007,832	\$1,065,738	\$1,118,990	\$1,187,512	\$1,281,163	\$1,363,728	\$1,456,337
Work in progress	\$34,533	\$46,480	\$25,961	\$35,303	\$36,632	\$38,757	\$32,645	\$36,576	\$36,235	\$21,875
Less accumulated amortization	-\$365,327	-\$392,201	-\$420,996	-\$450,990	-\$481,893	-\$513,541	-\$546,451	-\$580,830	-\$616,570	-\$654,096
Total TCA	\$445,787	\$501,270	\$553,646	\$592,145	\$620,477	\$644,206	\$673,706	\$736,909	\$783,393	\$824,116
Inventories of supplies	\$1,203	\$1,239	\$1,276	\$1,315	\$1,354	\$1,395	\$1,436	\$1,480	\$1,524	\$1,570
Prepaid expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$446,990	\$502,510	\$554,923	\$593,459	\$621,831	\$645,601	\$675,143	\$738,388	\$784,917	\$825,686
Accumulated Surplus	\$567,941	\$606,851	\$660,623	\$700,598	\$734,524	\$765,739	\$803,966	\$864,079	\$916,385	\$972,302

2. Statement of Operations for the Water System

**City of Hamilton - Water Infrastructure Statement
of Financial Position
As at December 31 (in thousands of dollars)**

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Revenues										
Rate revenues	\$96,181	\$100,509	\$105,032	\$109,758	\$114,697	\$119,859	\$125,253	\$130,889	\$136,779	\$142,934
Less provision for bad debt	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Interest earned on cash and cash equivalents	\$2,000	\$1,993	\$1,899	\$1,891	\$1,811	\$1,948	\$1,960	\$2,090	\$1,907	\$2,098
Earned DC revenue	\$9,752	\$16,078	\$30,319	\$13,089	\$4,094	\$818	\$5,207	\$24,509	\$14,133	\$15,530
Other revenues	\$6,617	\$6,740	\$6,999	\$7,184	\$7,431	\$7,620	\$7,823	\$8,054	\$8,266	\$8,507
Total Revenues	\$114,550	\$125,320	\$144,249	\$131,923	\$128,034	\$130,245	\$140,243	\$165,542	\$161,085	\$169,068
Operating Expenses										
Total EMPLOYEE RELATED COST	\$15,109	\$15,562	\$16,029	\$16,510	\$17,005	\$17,515	\$18,041	\$18,582	\$19,140	\$19,714
Total MATERIAL AND SUPPLY	\$4,812	\$4,956	\$5,105	\$5,258	\$5,416	\$5,578	\$5,746	\$5,918	\$6,096	\$6,279
Total VEHICLE EXPENSES	\$513	\$528	\$544	\$561	\$577	\$595	\$613	\$631	\$650	\$669
Total BUILDING AND GROUND	\$6,840	\$7,045	\$7,257	\$7,475	\$7,699	\$7,930	\$8,168	\$8,413	\$8,665	\$8,925
Total CONSULTING	\$13	\$13	\$13	\$14	\$14	\$15	\$15	\$15	\$16	\$16
Total CONTRACTUAL	\$12,135	\$12,499	\$12,874	\$13,260	\$13,658	\$14,067	\$14,489	\$14,924	\$15,372	\$15,833
Total AGENCIES and SUPPORT PAYMENTS	\$62	\$64	\$66	\$68	\$70	\$72	\$75	\$77	\$79	\$81
Total RESERVES / RECOVERIES	\$5,724	\$5,895	\$6,072	\$6,254	\$6,442	\$6,635	\$6,834	\$7,039	\$7,250	\$7,468
Total COST ALLOCATIONS	\$9,130	\$9,404	\$9,686	\$9,977	\$10,276	\$10,585	\$10,902	\$11,229	\$11,566	\$11,913
Total FINANCIAL	\$1,125	\$1,158	\$1,193	\$1,229	\$1,266	\$1,304	\$1,343	\$1,383	\$1,425	\$1,467
Total Operating Expenses	\$55,463	\$57,126	\$58,840	\$60,605	\$62,424	\$64,296	\$66,225	\$68,212	\$70,258	\$72,366
Net Operating Revenue	\$59,087	\$68,194	\$85,408	\$71,317	\$65,610	\$65,948	\$74,017	\$97,330	\$90,826	\$96,702
Less amortization of tangible assets	-\$25,527	-\$26,875	-\$28,794	-\$29,995	-\$30,902	-\$31,648	-\$32,910	-\$34,379	-\$35,740	-\$37,526
Earnings Before Interest	\$33,561	\$41,319	\$56,614	\$41,323	\$34,708	\$34,300	\$41,107	\$62,951	\$55,086	\$59,176
Less Interest on short term debt	\$0	\$0	-\$16	-\$209	-\$17	-\$179	\$0	\$0	\$0	-\$408
Less Interest on long term debt	-\$2,020	-\$2,409	-\$2,826	-\$2,842	-\$2,773	-\$2,518	-\$2,502	-\$2,468	-\$2,420	-\$2,498
Annual Surplus (Deficit)	\$31,540	\$38,910	\$53,772	\$38,271	\$31,918	\$31,603	\$38,605	\$60,483	\$52,667	\$56,270
Accumulated Surplus at beginning of year	\$536,401	\$567,941	\$606,851	\$662,327	\$702,606	\$734,136	\$765,361	\$803,596	\$863,718	\$916,032
Accumulated Surplus at end of year	\$567,941	\$606,851	\$660,623	\$700,598	\$734,524	\$765,739	\$803,966	\$864,079	\$916,385	\$972,302

3. Statement of Cash Flow for the Water System

**City of Hamilton - Water Infrastructure Statement
of Financial Position
As at December 31 (in thousands of dollars)**

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Cash from Operations										
Earnings before interest expenses	\$33,561	\$41,319	\$56,614	\$41,323	\$34,708	\$34,300	\$41,107	\$62,951	\$55,086	\$59,176
Plus amortization of tangible capital assets	\$25,527	\$26,875	\$28,794	\$29,995	\$30,902	\$31,648	\$32,910	\$34,379	\$35,740	\$37,526
Total	\$59,087	\$68,194	\$85,408	\$71,317	\$65,610	\$65,948	\$74,017	\$97,330	\$90,826	\$96,702
Cash from the Movement of Balance Sheet Account										
Accounts payable - increase/(decrease)	\$0	\$19	\$19	\$20	\$21	\$21	\$22	\$23	\$23	\$24
Pensions and other employee benefits - increase/(decrease)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
DC reserve - increase/(decrease)	\$456	-\$5,587	-\$17,832	\$0	\$6,908	\$10,508	\$6,453	-\$12,507	-\$1,779	-\$2,814
Accounts receivable - (increase)/decrease	-\$197	-\$361	-\$377	-\$394	-\$412	-\$430	-\$449	-\$470	-\$491	-\$513
Inventory - (increase)/decrease	\$0	-\$36	-\$37	-\$38	-\$39	-\$41	-\$42	-\$43	-\$44	-\$46
Prepaid expenses - (increase)/decrease	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$260	-\$5,965	-\$18,227	-\$412	\$6,477	\$10,059	\$5,983	-\$12,997	-\$2,291	-\$3,349
Proceeds of New Debt										
Short term loans	\$11,392	\$14,956	\$20,829	\$765	\$10,146	\$0	\$0	\$0	\$18,309	\$0
DC debt	\$0	\$0	\$1,704	\$2,179	\$0	\$0	\$0	\$0	\$0	\$0
Long term loans	\$12,176	\$16,301	\$17,720	\$7,143	\$5,100	\$18	\$7,143	\$7,143	\$7,143	\$11,363
Total	\$23,568	\$31,257	\$40,253	\$10,087	\$15,246	\$18	\$7,143	\$7,143	\$25,451	\$11,363
Capital Finance										
Interest costs	-\$2,020	-\$2,409	-\$2,842	-\$3,052	-\$2,790	-\$2,697	-\$2,502	-\$2,468	-\$2,420	-\$2,906
Repayment of short-term debt	-\$9,446	-\$11,618	-\$16,726	-\$9,386	-\$2,882	-\$8,030	\$0	\$0	\$0	-\$18,309
Repayment of DC debt	\$0	\$0	\$0	-\$172	-\$387	-\$379	-\$370	-\$361	-\$352	-\$343
Repayment of long-term debt	-\$5,615	-\$6,486	-\$7,462	-\$7,920	-\$8,287	-\$8,390	-\$8,868	-\$9,374	-\$9,898	-\$9,643
Total	-\$17,081	-\$20,514	-\$27,030	-\$20,529	-\$14,346	-\$19,496	-\$11,740	-\$12,203	-\$12,669	-\$31,202
Acquisition of Tangible Capital Assets										
New project investments	-\$66,570	-\$82,358	-\$81,170	-\$68,493	-\$59,235	-\$55,377	-\$62,410	-\$97,582	-\$82,224	-\$78,249
Total	-\$66,570	-\$82,358	-\$81,170	-\$68,493	-\$59,235	-\$55,377	-\$62,410	-\$97,582	-\$82,224	-\$78,249
Cash Surplus (Deficit)	-\$736	-\$9,386	-\$765	-\$8,030	\$13,752	\$1,153	\$12,993	-\$18,309	\$19,093	-\$4,735
Cash and cash equivalents, start of year	\$200,000	\$199,264	\$189,878	\$189,112	\$181,083	\$194,835	\$195,988	\$208,981	\$190,672	\$209,766
Cash and cash equivalents, end of year	\$199,264	\$189,878	\$189,112	\$181,083	\$194,835	\$195,988	\$208,981	\$190,672	\$209,766	\$205,031

6.0 Summary and Conclusions

The intent of this interim report was to provide a Financial Plan for the City's water system to meet the regulatory requirement under the Safe Drinking Water Act, Regulation 453/07 - Financial Plans. The Financial Statements in this report have been developed using readily available information. Where information was not available reasonable assumptions were made to fill any gaps.

The Financial Statements indicate that suitable financial resources are allocated to the system over the next 10 years based on the planned capital expenditures and the cost to operate the system.

The next phase of this project will be to develop Long Term Financial Plans for the water, wastewater and stormwater systems. The Long Term Financial Plans will support a long term understanding of the revenues and expenditures that are required to achieve the City's desired LOS for the water, wastewater and stormwater systems.

The preliminary review of the long term infrastructure expenditure needs indicates that the capital expenditures that are required to maintain the current LOS provided by the systems are significantly higher than the current level of planned capital expenditures. The Long Term Financial Plan will be used to understand the revenues that would be required to fund the capital expenditures to both maintain current LOS and achieve the desired LOS. The Long Term Financial Plan will also examine options for collecting revenues.

Additional conclusions will be able to be drawn after the development of the Long Term Financial Plan.

7.0 Glossary of Terms

7.1 Statement of Financial Position

Financial Assets - assets that could be used to discharge existing liabilities or finance future operations and are not for consumption in the normal course of operations. Financial assets include cash, investments, accounts receivable, etc.

Physical assets (such as inventories of supplies, tangible capital assets), and leased assets are not financial assets. Control of such assets creates an opportunity to produce or supply goods and services, rent to others, use for administrative purposes or for the development, construction or repair of other tangible capital assets. Control of such assets does not give rise to a present right to receive cash or another financial asset.

Assets, such as prepaid expenses, for which the future economic benefit is the receipt of goods or services rather than the right to receive cash or another financial asset, are not financial assets. Similarly, certain deferred liabilities are not financial liabilities when the outflow of economic benefits associated with them is in the nature of goods or services rather than a contractual obligation to pay cash or another financial asset.

Liabilities - present obligations of a local government to others arising from past transactions or events, the settlement of which is expected to result in the future sacrifice of economic benefits. Liabilities have three essential characteristics:

- They embody a duty or responsibility to others, leaving a local government little or no discretion to avoid settlement of the obligation;
- The duty or responsibility to others entails settlement by future transfer or use of assets, provision of goods or services, or other form of economic

settlement at a specified or determinable date, on occurrence of a specified event, or on demand;

- The transactions or events obligating the local government have already occurred.

Net Debt - a term used to describe the first indicator of a government's financial position. The net assets of a government represent the net economic resources recognizable by the government. The two dimensions of the government's financial position are combined to calculate this second indicator of a government's financial position, called its accumulated surplus or deficit.

Net debt is measured as the difference between a government's liabilities and financial assets. This difference bears directly on the government's future revenue requirements and on its ability to finance its activities and meet its liabilities and contractual obligations. Net debt provides a measure of the future revenues required to pay for past transactions and events. The extent of a government's net debt and the financial ability of the government to service that debt is an important test of the sustainability of that government. It is possible, however, that a government's financial assets could exceed its liabilities. In such circumstances, this indicator of a government's financial position would be called "net financial resources" and it would provide a measure of the net financial assets on hand that can provide resources to finance future operations.

A government's net debt is an important indicator of a government's financial position, highlighting the financial affordability of future government service provision. A net debt position represents a "lien" on the ability of the government to apply financial resources and future revenues to provide services. Non-financial assets are added to net debt to calculate the other indicator of a government's financial position — its accumulated surplus or deficit. Non-financial

assets are "prepaid service potential". Reporting a government's recognized non-financial resources as part of its financial position provides information necessary for a more complete understanding of a government's debt position, financial position and future operating requirements.

Non-financial Assets - tangible capital assets and other assets such as prepaid expenses and inventories of supplies. Non-financial assets are acquired, constructed or developed assets that are normally employed to deliver local government services, may be consumed in the normal course of operations and are not for sale in the normal course of operations.

Certain non-financial resources are, however, not given accounting recognition in government financial statements. For example, all government intangibles, and all natural resources and Crown lands that have not been purchased by the government, are not given accounting recognition in government financial statements.

Accumulated Surplus or Deficit - calculated as the sum of the net debt of the government and its non-financial assets. This indicator represents the net assets of the government. The accumulated surplus or deficit of a government, or its net assets, is the residual interest in its assets after deducting its liabilities.

7.2 Statement of Operations

Revenues - including gains, can arise from: taxation; the sale of goods; the rendering of services; the use by others of local government economic resources yielding rent, interest, royalties or dividends; or receipt of contributions such as grants, donations and bequests. Revenues do not include borrowings, such as proceeds from debt issues or transfers from other local governmental units in a local government reporting entity.

Expenses - including losses, are decreases in economic resources, either by way of outflows or reductions of assets or incurrence of liabilities, resulting from the operations, transactions and events of the accounting period. Expenses include transfer payments due where no value is received directly in return. Expenses include the cost of economic resources consumed in, and identifiable with, the operations of the accounting period. For example, the cost of tangible capital assets is amortized to expenses as the assets are used in delivering local government programs. Expenses do not include debt repayments or transfers to other local governmental units in a local government reporting entity.

Surplus - a term used to describe the difference between the revenues and expenses in the period.

7.3 Statement of Cash Flows

The statement of cash flow should report how a government generated and used cash and cash equivalents in the accounting period and the change in cash and cash equivalents in the period. The statement of cash flow should report the cash and cash equivalents at both the beginning and end of the accounting period.

The statement of cash flow should report cash flows during the period classified by:

- Operating
- Capital
- Investing
- Financing activities



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
 Transit Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Public Transit Infrastructure Fund (PTIF) - Debt Financing Re-appropriation (PW18054) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Tanya Detmar (905) 546-2424 Extension 1855
SUBMITTED BY:	Jason VanderHeide Acting Director of Transit Public Works Department
SIGNATURE:	

RECOMMENDATION

That debt financing related to Public Transit Infrastructure Fund (PTIF) projects be re-appropriated as outlined in Appendix "A" to Report PW18054.

EXECUTIVE SUMMARY

In August 2016, the Government of Canada announced it was providing Ontario with \$1,486,680,000 under the new Public Transit Infrastructure Fund (PTIF) and would cover up to 50 per cent of the funding needed for projects supported under this Agreement that will make public transit more efficient and inclusive for people in Ontario. The Ontario funding was allocated provincially on the basis of transit ridership.

In October 2016, Council authorized Transit staff to submit an application to the Province that contained 14 projects totalling \$72,978,408 to be considered for Federal funding under PTIF (for details refer to Report FCS16083). Subsequently in spring 2017, the City was approved to receive a federal contribution of up to \$36,489,204 towards the 14 projects listed in the application with the City to match the federal funding commitment.

Council approved a financing strategy to fund the City's matching contribution of \$36,489,204 through the Tax Supported Capital Budget (refer to Report FCS17099) as follows:

- \$29,327,204 Tax Supported debt with annual debt charges of \$3.6M over 10 years
- \$7,162,000 debt funded from Development Charges

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OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

**SUBJECT: Public Transit Infrastructure Fund (PTIF) - Debt Financing
Re-appropriation (PW18054) (City Wide) - Page 2 of 6**

To receive PTIF funding, the City was required to enter into a Transfer Payment Agreement (TPA) between the City and the Province. Section C of the TPA, allows the City to submit project modification requests as it relates to project completion dates, costs and scope. Additionally, the City was advised that it could request funding reallocations between projects and request consideration of new project submissions. The City submitted its modification submission in the amount of \$12,650,000 which reallocated funding for seven of the 14 projects (refer to Appendix "A" of Report PW18054). The City's submission reflected a decrease in required funding for four projects and an increase in required funding for three projects, as well as, identifying three new projects:

HAM-015 – Transit Network Review

HAM-016 – Exterior Upgrades to Mountain Transit Centre

HAM-017 – Upgrade Operator Seats

The funding reallocation requests associated with the modifications are contained fully within the approved PTIF funding allocation of \$72,978,408.

On March 21, 2018, the Province approved the City's modification request to reallocate funding for the aforementioned seven projects. The three new projects have not yet received final approval from Infrastructure Canada, however, staff anticipate a decision is imminent.

Because of the project modification requests approval, the City's debt financing plan, as it relates to PTIF projects, requires re-appropriation relative to the changes associated with the 10 project modification requests. Note that no new debt is incurred with the approval of the project modifications; it is solely a re-appropriation of the original debt financing to align with the approved revised City's PTIF program.

This report seeks the authority to reallocate debt financing as shown in Appendix "A" of Report PW18054.

Alternatives for Consideration – Page 5

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: No new debt will be incurred because of the recommended re-appropriation of the approved PTIF debt financing.

Staffing: N/A

Legal: The Transfer Payment Agreement (TPA) has been executed between the City and the Province. An amended Sub-Schedule C1 is required upon final approval of the remaining project modification requests and will be forwarded by the Province.

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**SUBJECT: Public Transit Infrastructure Fund (PTIF) - Debt Financing
Re-appropriation (PW18054) (City Wide) - Page 3 of 6**

HISTORICAL BACKGROUND

In October 2016, Council authorized Transit staff to submit an application to the Province that contained 14 projects to be considered for Federal funding under the Public Transit Infrastructure Fund program (PTIF). The application was submitted on October 18, 2016 and the City was approved to receive a federal contribution of up to \$36,489,204 towards the 14 projects listed in the application providing the funding does not exceed 50% of the projects' total eligible expenditures and the projects are completed by March 31, 2018.

Council approved a financing strategy to fund the City's matching contribution of \$36,489,204 through the Tax Supported Capital Budget (refer to Report FCS17099) as follows:

- \$29,327,204 Tax Supported debt with annual debt charges of \$3.6M over 10 years
- \$7,162,000 debt funded from Development Charges

In June 2017, Council approved that delegated authority be granted to the Director of Transit, to submit project modifications to Infrastructure Canada on behalf of the City (refer to Report PW17051).

Following Provincial and Council approvals, Transit staff began actively working on the 14 projects to achieve substantial completion by the March 31, 2018 deadline. On January 4, 2018, the Province announced the deadline for substantial completion was extended to March 31, 2020 and staff is now working towards this date.

The following provides an update for each project in terms of completion:

Project Complete

HAM-002 Fleet Expansion

HAM-004 Automatic Passenger Counters

HAM-008 Rymal Sidewalks

HAM-010 HVAC upgrades at Mountain Transit Centre

Project 50% Complete

HAM-007 Vehicle Hoists

HAM-009 Radios

Project 25% Complete

HAM-006 End-of-Line Rehabilitation

HAM-011 Passenger Technology & Software Upgrades

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**SUBJECT: Public Transit Infrastructure Fund (PTIF) - Debt Financing
Re-appropriation (PW18054) (City Wide) - Page 4 of 6**

Project below 25% Complete

HAM-001 Maintenance and Storage Facility
 HAM-003 Transit Shelter/Stop Improvements
 HAM-005 Transit Signal Priority
 HAM-012 Garage Doors at Mountain Transit Facility
 HAM-013 Bus Wash Racks
 HAM-014 Support Fleet

As a result of early project progress, staff have a solid understanding of costs, scope and deadlines for each project. This information, along with favourable tendering results, has resulted in balances that can be reallocated to existing projects as well as the potential to invest in new project opportunities in the PTIF program.

The TPA provides municipalities the ability to modify projects through a prescribed modification process outlined in Section C of the Agreement. Through this process the City can request modifications to projects in terms of cost, scope and deadlines. It also provides the ability to submit new project requests.

On November 23, 2017, the Province advised final project modification requests, including fund reallocation and new project submissions were required by December 15, 2017.

As such, Transit staff prepared and submitted a modification request that included the following project changes:

Project	Change to budget
HAM-001 Maintenance & Storage Facility	-\$6,650,000
HAM-004 Automatic Passenger Counter's	-\$2,100,000
HAM-005 Transit Priority	-\$2,350,000
HAM-006 Transit Capital Infrastructure	+\$2,700,000
HAM-007 Transit Fleet Hoists	+\$4,000,000
HAM-010 HVAC	-\$1,550,000
HAM-011 Customer Service Software	+\$795,000
HAM-015 Transit Network Review*	+\$800,000
HAM-016 Exterior Upgrades to Mountain Transit Centre*	+\$3,900,000
HAM-017 Upgrade Operator Seats*	+\$455,000

*new project submission

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**SUBJECT: Public Transit Infrastructure Fund (PTIF) - Debt Financing
Re-appropriation (PW18054) (City Wide) - Page 5 of 6**

The cost changes associated with the modifications request submission do not exceed the approved PTIF funding allocation totalling \$72,978,408 as per Appendix “A” to Report PW18054.

On March 21, 2018, the Province advised that all project modification requests to reallocate the funds for existing projects have been approved. Project modifications seeking new project status have yet to be confirmed however the Province has advised a decision from Infrastructure Canada will be received shortly.

Because of the project modification requests approval, the City’s debt financing plan, as it relates to PTIF projects, requires re-appropriation relative to the changes associated with the 10 project modification requests. Note that no new debt is incurred with the approval of the project modifications; it is solely a re-appropriation of the original debt financing to align with the approved revised City’s PTIF program

This report seeks the authority to re-appropriate debt financing as shown in Appendix “A” of Report PW18054.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The City’s Debt Management Policy requires Council approval for the issuance of debentures. Report PW18054 requests Council’s approval of previously approved debt financing of PTIF funded projects.

PTIF funding will support the Ten Year Local Transit Strategy which aligns with a number of key policy documents including:

- Hamilton Transportation Master Plan (2007)
- The Big Move Regional Transportation Plan (2008)
- Improving Health by Design in the Greater Toronto-Hamilton Area – A report of Medical Officers of Health in the GTHA (2014) and,
- Urban Hamilton Official Plan (2009)

RELEVANT CONSULTATION

Financial Planning & Policy Division staff provided guidance regarding required debt financing re-appropriations.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Not applicable.

ALTERNATIVES FOR CONSIDERATION

Not applicable.

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**SUBJECT: Public Transit Infrastructure Fund (PTIF) - Debt Financing
Re-appropriation (PW18054) (City Wide) - Page 6 of 6**

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance

Hamiltonians have a high level of trust and confidence in their City government.

APPENDICES AND SCHEDULES ATTACHED

Appendix A – Public Transit Infrastructure Fund Financial Summary

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Public Transit Infrastructure Fund Financial Summary

PTIF Project Description	Project ID	Account	Pre-appropriation (FCS16083)	Appropriation Out	Appropriation In	Post-appropriation
Transit Maintenance & Storage Facility	5301785701	42001 - Federal Grant	\$ 14,325,000	-\$3,325,000		\$ 11,000,000
		48475 - DC Res DevChrg Cap	\$ 4,942,000			\$ 4,942,000
		48476 - DC Non Res DevChrg Cap	\$ 2,220,000			\$ 2,220,000
		49002- Debenture Proceeds	\$ 7,163,000	-\$3,325,000		\$ 3,838,000
		Total Project Budget:	\$ 28,650,000	-\$6,650,000	\$ -	\$ 22,000,000
Automated Passenger Counters	5301784710	42001 - Federal Grant	\$ 2,150,000	-\$1,050,000		\$ 1,100,000
		49002- Debenture Proceeds	\$ 2,150,000	-\$1,050,000		\$ 1,100,000
		Total Project Budget:	\$ 4,300,000	-\$2,100,000	\$ -	\$ 2,200,000
Transit Priority Measures	5301755700	42001 - Federal Grant	\$ 1,925,000	-\$1,175,000		\$ 750,000
		49002- Debenture Proceeds	\$ 1,925,000	-\$1,175,000		\$ 750,000
		Total Project Budget:	\$ 3,850,000	-\$2,350,000	\$ -	\$ 1,500,000
HVAC Upgrades - 2200 Upper James	5301751701	42001 - Federal Grant	\$ 1,100,000	-\$775,000		\$ 325,000
		49002- Debenture Proceeds	\$ 1,100,000	-\$775,000		\$ 325,000
		Total Project Budget:	\$ 2,200,000	-\$1,550,000	\$ -	\$ 650,000
Transit Capital Infrastructure	5301749701	42001 - Federal Grant	\$ 1,650,000		\$ 1,350,000	\$ 3,000,000
		49002- Debenture Proceeds	\$ 1,650,000		\$ 1,350,000	\$ 3,000,000
		Total Project Budget:	\$ 3,300,000		\$ 2,700,000	\$ 6,000,000
Replace Transit Fleet Bus Hoists	5301751500	42001 - Federal Grant	\$ 1,513,000		\$ 2,000,000	\$ 3,513,000
		49002- Debenture Proceeds	\$ 1,512,000		\$ 2,000,000	\$ 3,512,000
		Total Project Budget:	\$ 3,025,000	\$ -	\$ 4,000,000	\$ 7,025,000
Customer Service Software	5301785708	42001 - Federal Grant	\$ 803,000		\$ 397,000	\$ 1,200,000
		49002- Debenture Proceeds	\$ 802,000		\$ 398,000	\$ 1,200,000
		Total Project Budget:	\$ 1,605,000	\$ -	\$ 795,000	\$ 2,400,000
Transit Network Review	5301884801	42001 - Federal Grant	\$ -		\$ 400,000	\$ 400,000
		49002- Debenture Proceeds	\$ -		\$ 400,000	\$ 400,000
		Total Project Budget:	\$ -	\$ -	\$ 800,000	\$ 800,000
Exterior Upgrades to MTC	5301885801	42001 - Federal Grant	\$ -		\$ 1,950,000	\$ 1,950,000
		49002- Debenture Proceeds	\$ -		\$ 1,950,000	\$ 1,950,000
		Total Project Budget:	\$ -	\$ -	\$ 3,900,000	\$ 3,900,000
Upgrade Operator Seats	5301885802	42001 - Federal Grant	\$ -		\$ 228,000	\$ 228,000
		49002- Debenture Proceeds	\$ -		\$ 227,000	\$ 227,000
		Total Project Budget:	\$ -	\$ -	\$ 455,000	\$ 455,000
Fleet expansion as per Ten Year Local Transit Strategy, 2017 (5) and 2018 (11) fleet including modal split.	5301783700	42001 - Federal Grant	\$ 5,190,000			\$ 5,190,000
		49002- Debenture Proceeds	\$ 5,190,000			\$ 5,190,000
		Total Project Budget:	\$ 10,380,000	\$ -	\$ -	\$ 10,380,000
Transit shelter and bus stop rehabilitation and replacement.	5301785602	42001 - Federal Grant	\$ 3,522,000			\$ 3,522,000
		49002- Debenture Proceeds	\$ 3,521,000			\$ 3,521,000
		Total Project Budget:	\$ 7,043,000	\$ -	\$ -	\$ 7,043,000
Sustainable transportation/transit connections - installation of sidewalks and landing pads on Rymal Road East	5301785704	42001 - Federal Grant	\$ 1,513,000			\$ 1,513,000
		49002- Debenture Proceeds	\$ 1,512,000			\$ 1,512,000
		Total Project Budget:	\$ 3,025,000	\$ -	\$ -	\$ 3,025,000
Radio system replacement - switch from analogue to digital	5301784700	42001 - Federal Grant	\$ 1,500,000			\$ 1,500,000
		49002- Debenture Proceeds	\$ 1,500,000			\$ 1,500,000
		Total Project Budget:	\$ 3,000,000	\$ -	\$ -	\$ 3,000,000
Garage Door Replacement (32) at Mountain Transit Centre	5301749700	42001 - Federal Grant	\$ 660,000			\$ 660,000
		49002- Debenture Proceeds	\$ 660,000			\$ 660,000
		Total Project Budget:	\$ 1,320,000	\$ -	\$ -	\$ 1,320,000
New wash racks at Mountain Transit Centre	5301785700	42001 - Federal Grant	\$ 440,000			\$ 440,000
		49002- Debenture Proceeds	\$ 440,000			\$ 440,000
		Total Project Budget:	\$ 880,000	\$ -	\$ -	\$ 880,000
Support fleet - 10 vehicles to accommodate growth	5301783701	42001 - Federal Grant	\$ 200,000			\$ 200,000
		49002- Debenture Proceeds	\$ 200,000			\$ 200,000
		Total Project Budget:	\$ 400,000	\$ -	\$ -	\$ 400,000
Total			\$ 72,978,000	-\$ 12,650,000	\$ 12,650,000	\$ 72,978,000

42001 - Federal Grant	-\$6,325,000	\$ 6,325,000
49002- Debenture Proceeds	-\$6,325,000	\$ 6,325,000
	-\$12,650,000	\$12,650,000

			GrossCosts	Subsidies	OtherExte
City Wide	5301785701	Maintenan*	28,650.00	14,325.00	
City Wide	5301783700	Fleet expa*	10,380.00	5,190.00	
City Wide	5301785602	Transit she*	7,043.41	3,521.70	
City Wide	5301784710	Automated*	4,300.00	2,150.00	
City Wide	5301755700	Transit Pric*	3,850.00	1,925.00	
City Wide	5301749701	Infrastructu*	3,300.00	1,650.00	
City Wide	5301751500	Vehicle hoi*	3,025.00	1,512.50	
City Wide	5301785704	Sustainabl*	3,025.00	1,512.50	
City Wide	5301784700	Radio syst*	3,000.00	1,500.00	
City Wide	5301751701	HVAC upg*	2,200.00	1,100.00	
City Wide	5301785708	Passenger*	1,605.00	802.50	
City Wide	5301749700	Garage Do*	1,320.00	660.00	
City Wide	5301785700	New wash*	880.00	440.00	
City Wide	5301783701	Support fle*	400.00	200.00	
		Subtotal - PTIF	72,978.41	36,489.20	-

NetCosts DevCharg Reserves OtherInter FundingReceiv Federal Grants Reserves From Operations

14,325.00	7,162.00			7,163.00	-	-	-
5,190.00				5,190.00	-	-	-
3,521.70				3,521.70	-	-	-
2,150.00				2,150.00	-	-	-
1,925.00				1,925.00	-	-	-
1,650.00				1,650.00	-	-	-
1,512.50				1,512.50	-	-	-
1,512.50				1,512.50	-	-	-
1,500.00				1,500.00	-	-	-
1,100.00				1,100.00	-	-	-
802.50				802.50	-	-	-
660.00				660.00	-	-	-
440.00				440.00	-	-	-
200.00				200.00	-	-	-
36,489.20	7,162.00	-	-	29,327.20	-	-	-

Debt

7,163.00
5,190.00
3,521.70
2,150.00
1,925.00
1,650.00
1,512.50
1,512.50
1,500.00
1,100.00
802.50
660.00
440.00
200.00
29,327.20



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
 Transit Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	DARTS 2017 Variance Funding (PW18055) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Jason VanderHeide (905) 546-2424, Extension 2390
SUBMITTED BY:	Jason VanderHeide Acting Director of Transit Public Works Department
SIGNATURE:	

RECOMMENDATION

That the General Manager of Public Works be authorized to pay DARTS an additional \$250,228 from account 12607-006100 for services provided for the year 2017, over and above those funds approved within the 2017 Transit Division budget.

EXECUTIVE SUMMARY

DARTS is a not-for-profit, charitable organization that provides the City's specialized door-to-door transportation services to persons with disabilities who are unable to use conventional transit service, under an agreement with the City. DARTS uses best efforts to provide the service in the most efficient and effective manner. City staff monitors DARTS' performance on a monthly basis to ensure adherence to the best effort philosophy.

Results for 2017 are as follows:

	Trips	Net Expenditures	Comment
Budget	709,706	\$16,781,198	Increase in trips in accordance with Council approved service level enhancements
Actual	674,476	\$17,031,426	
Variance	(35,230)	\$250,228	DARTS year-end

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SUBJECT: DARTS 2017 Variance Funding (PW18055) (City Wide)-Page 2 of 3

In 2017 DARTS provided an additional 23,982 customer trips above the 650,494 trips delivered in 2016. However, in 2017 DARTS provided 35,230 fewer trips than forecasted. Due to the shortfall on delivered trips throughout 2017 the budgeted average cost of \$25 per trip for all service provided by DARTS and their sub-contractors increased to an average cost of \$27 per trip.

There are four (4) driving factors for the variance:

1. Fleet transition

The continuation of the fleet transition, retirement of buses and the transferring trips from buses to accessible vans and hybrid vans prior to the final three (3) months of 2017 was contemplated as part of the 2017 budget. The retirement of all buses was not realized due to a delay in the delivery of the replacement vehicles.

2. Vehicle type cost per trip

Cost per trip is dependent on the type of vehicle used for the trip. Estimations for the 2017 budget underestimated the number of higher cost trips, leading to a higher overall cost for trips provided.

3. Vehicle leasing

Due to the term of the Master Operating Agreement, vehicles were leased for three (3) years, as opposed to five (5), increasing the value of the lease payments.

4. Dwell times

Dwell times have increased due to less flexibility with wheelchairs on new vehicle types. This is expected to improve as drivers get used to the new vehicles.

As a not-for-profit, charitable organization, DARTS maintains no reserves to deal with budget variances.

Alternatives for Consideration - See Page 3

FINANCIAL - STAFFING - LEGAL IMPLICATIONS

Financial: The recommendation has no 2018 cost implications, as the expenditure and associated liability was recorded in the 2017 year-end financial statements of the City.

Staffing: None

Legal: Approval of the recommendation has no legal implications, although failure to approve funding of the variance may be cause for cancellation of the agreement between the City and DARTS.

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SUBJECT: DARTS 2017 Variance Funding (PW18055) (City Wide)-Page 3 of 3

HISTORICAL BACKGROUND

Under the terms of the contract between the City and DARTS, Council has authority over budget and service levels.

DARTS is accountable for delivering the agreed level of service within the approved budget. City staff takes these variances into account in providing an assessment of financial performance.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

There are no policies affecting the proposal.

RELEVANT CONSULTATION

Consultation has been undertaken with the Finance and Administration Division of Corporate Services.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The overall 2017 financial position for the Transit Division includes the DARTS variance of \$250,228. A liability payable to DARTS is accrued for 2017 year-end, and approval of this recommendation will allow the City to reimburse DARTS.

ALTERNATIVES FOR CONSIDERATION

Non-acceptance of the recommendation will effectively serve to cancel the agreement between the City and DARTS, as DARTS maintains no reserves to deal with a net expenditure variance; as such, there are no alternatives to the recommendation.

ALIGNMENT TO THE 2016 - 2025 STRATEGIC PLAN**Healthy and Safe Communities**

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Our People and Performance

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APPENDICES AND SCHEDULES ATTACHED

None

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CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Environmental Services Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Sam Lawrence Park Masterplan 255 and 371 Concession Street (PW18056) (Ward 7)
WARD(S) AFFECTED:	Ward 7
PREPARED BY:	John Vandriel (905) 546-2424 extension 3662
SUBMITTED BY:	Craig Murdoch, B.Sc. Director, Environmental Services Public Works Department
SIGNATURE:	

RECOMMENDATION

That staff acquire and work with an external consultant to undertake a design masterplan for Sam Lawrence Park, to consider existing and future use and condition of the park specifically considering escarpment degradation and lifecycle of current infrastructure, to be funded in the amount of \$250,000 from Ward 7 Area Rating Reserve Account #108057 to the Sam Lawrence Park Project Id #4401656603.

EXECUTIVE SUMMARY

The purpose of this report is to seek authorization to proceed with consultation and design toward a masterplan for Sam Lawrence Park, as shown in Appendix "A" attached to Report PW18056, and to approve the allocation of funds to complete the masterplan.

A capital project was approved in 2016 for evaluation of geotechnical conditions related to the safety of a walkway at the park. In the context of recent and ongoing changes to the escarpment face due to falling rocks and the changing stability of the escarpment, the walkway locations at the park as well as the condition of the retaining walls should be evaluated for ongoing health and safety of the public. The current state of the park continues to be safe for visitors and staff with the exception of one walkway that is temporarily barricaded; however, staff recommend undertaking a masterplan to anticipate future degradation, and to determine if the current park state meets the needs of the public.

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SUBJECT: Sam Lawrence Park Masterplan, 255 and 371 Concession Street
(PW18056) (Ward 7) - Page 2 of 4

In addition to the approved project for geotechnical study, consultation with the Councillor for Ward 7, and preliminary site reconnaissance, staff notes that several features in the park are in need of upgrade. As such, the City has the opportunity to examine existing and future use of Sam Lawrence Park, through a design masterplan process.

Alternatives for Consideration – See Page 4

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: The costs for the masterplan process are anticipated to not exceed the \$250,000 identified in Report PW18056, to be funded in the amount of \$250,000 from Ward 7 Area Rating Reserve Account 108057 to the Sam Lawrence Park Project Id #4401656603.

Staffing: There are no staffing implications related to the masterplan; however, if changes are recommended to the park, the operational requirements may change. Those will be identified in future capital budget requests as operational impacts.

Legal: There are no legal implications for this masterplan.

HISTORICAL BACKGROUND

Sam Lawrence Park's major site features (stone walls, pathways, benches, lighting, and flower gardens) were originally constructed in the 1950s and 1960s under the direction of landscape architect K. Matt Broman. In 1989, Landscape Architectural Services (then Parks Division) retained J.L. McDermott to prepare a design concept for the park. During 1990 to 1994, Sam Lawrence Park underwent a major upgrading that included repairing the stone walls, installing new walkways, site lighting, site furniture, and redeveloping the major rock garden.

Today, many of the park's features that were upgraded decades ago are in decline due to weathering and vandalism. As such, the time is right to explore the park's existing and future uses. Hamilton's changing urban landscape and population growth warrant undertaking a design masterplan for Sam Lawrence Park.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

Sam Lawrence Park is currently designated and zoned a P3 City-wide Park. Changes to the park will require approvals from the Niagara Escarpment Commission due to its location and designations as Urban Area and Escarpment Natural Area in the Niagara Escarpment Plan.

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SUBJECT: Sam Lawrence Park Masterplan, 255 and 371 Concession Street
(PW18056) (Ward 7) - Page 3 of 4

RELEVANT CONSULTATION

The following internal stakeholders were consulted and have no concerns with the direction to undertake a design masterplan:

- Ward 7 Councillor
- Public Works - Parks and Cemeteries Operations
- Public Works - Forestry and Horticulture
- Planning and Economic Development - Cultural Heritage
- Planning and Economic Development - Transportation Planning

Consultation with the public and stakeholder groups will be sought for input during the design masterplan process, in addition to extensive consultation with various City departments.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The park sits on the Niagara Escarpment, a designated United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Biosphere Reserve and an internationally recognized landform that is the cornerstone of Ontario's Greenbelt. Considered one of the jewels of Hamilton's parks system, it offers spectacular views and vistas of the lower city, Hamilton Harbour, and the Dundas Valley. The park is considered a unique and treasured geological, historical, cultural, and environmental resource for current and future generations. Undertaking a design masterplan will seek to restore prominence of this important public space and reimagine its role in Hamilton's park system for subsequent decades.

A design masterplan for Sam Lawrence Park should be undertaken for the following reasons:

- The City's changing urban landscape and population growth are putting pressure on open spaces, particularly those with city-wide prominence.
- Many of the park's existing features are in decline due to age, weathering and vandalism.
- A design masterplan has not been undertaken in almost 30 years.
- The Mountain Brow Path feasibility study identifies pathway connections through Sam Lawrence Park, so the masterplan will look at opportunities to enhance these connections.

City staff believe that acquiring an external consultant to undertake a design masterplan represents an optimal use of resources to achieve the project's intended outcomes (Value for Money approach, as specified in Report PW17063).

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SUBJECT: Sam Lawrence Park Masterplan, 255 and 371 Concession Street
(PW18056) (Ward 7) - Page 4 of 4

ALTERNATIVES FOR CONSIDERATION

An alternative to the recommendation of Report PW18056 would be to not direct staff to undertake a masterplan for Sam Lawrence Park. If this alternative were to proceed, the park will continue in its current state and use. By not undertaking a masterplan now, any degradation to the existing features of the park from rock fall or other causes will require a reactionary response to park management and may affect park uses. As such, alterations or future changes in use to the site will be rendered on a piecemeal basis and not as part of a larger, comprehensive undertaking. As costs increase every year, from inflation and other factors, the required funding for the project may increase as well. This alternative is not recommended. A masterplan can help to predict and plan for future needs and inform future budget requests.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

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Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

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Culture and Diversity

Hamilton is a thriving, vibrant place for arts, culture, and heritage where diversity and inclusivity are embraced and celebrated.

APPENDICES AND SCHEDULES ATTACHED

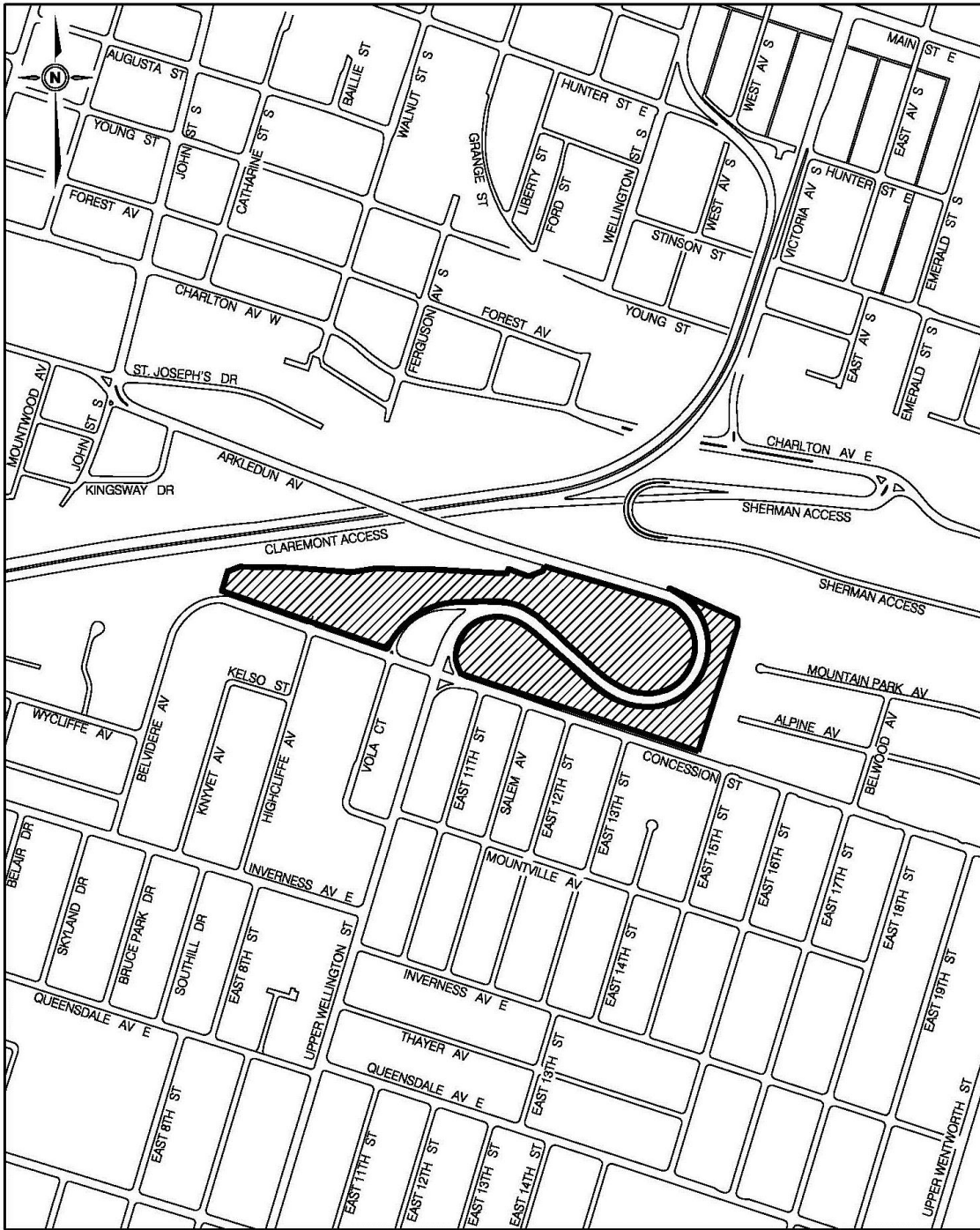
Appendix “A” - Sam Lawrence Park Location Map

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Sam Lawrence Park Location Map



 Proposed Works

City of Hamilton
Ward 7
Sam Lawrence Park
Park Re-Development

CITY OF HAMILTON
Public Works Department
General Manager, Dan McKinnon

May 2018



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Standardization of Hamilton Water Equipment, Parts, Supplies and Services (PW18058) - (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Corinne LaPlante (905) 546-2424, Extension 1929
SUBMITTED BY:	Mark Bainbridge Acting Director, Hamilton Water Public Works Department
SIGNATURE:	

RECOMMENDATION

- (a) That the standardization of the products, services and suppliers identified in Appendices A, B and C to Report PW18058 pursuant to Procurement Policy #14 - Standardization be approved as the single source of supply for the listed equipment, parts, supplies and services for the Hamilton Water Division;
- (b) That the General Manager of Public Works, or his designate, be authorized to negotiate, enter into and execute any required Contract and any ancillary documents required to give effect thereto with those suppliers identified in Appendices A, B and C to Report PW18058 with content acceptable to the General Manager of Public Works, and in a form satisfactory to the City Solicitor;
- (c) That the General Manager of Public Works, or his designate, be authorized, in the event that a supplier identified in Appendices A, B and C to Report PW18058 undergoes a name change, to amend any Contracts executed and any ancillary documents as required in a form satisfactory to the City Solicitor.

EXECUTIVE SUMMARY

The Hamilton Water Division has a multitude of complex systems that consume a high volume of equipment, parts, supplies and services in order to maintain the facilities in a state of operability and good repair. This satisfies a number of goals related to legislative compliance, continuity of operation, health and safety, cost-efficiency, productivity and return on investment.

When facilitating the design and construction of new infrastructure, Hamilton Water strives to ensure that all equipment, parts, supplies and services that are identified in

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SUBJECT: Standardization of Hamilton Water Equipment, Parts, Supplies and Services (PW18058) (City Wide) - Page 2 of 4

Appendices A, B, and C are originally procured through the competitive bidding process.

The supplier base for upgrading, repairing and retrofitting existing water and wastewater infrastructure is wide spread and complex. Procurement Policy #14 provides guidelines for standardization that streamline the process to purchase the materials, services and equipment required to service existing infrastructure and maintain regulatory compliance of our water and wastewater systems.

Purchasing equipment, parts, supplies and services through Policy #14 will ensure the compliance with current Procurement Policies, provide transparency of the procurement process, and control cost of replacement components. It will also further reduce the amount of staff time required to prepare Procurement Policy #11s (single or sole source) for all of the suppliers listed in Appendices A, B and C.

Through a variety of sources including trade shows, periodicals, other municipalities, sales representatives and industry organizations, the market place will be monitored for new industry practices and suppliers to ensure the recommended brands and sources of supply contained in this report remain current and in the City's best interest and in compliance with the Procurement Policy.

The Procurement Policy requires an annual approval for each vendor when:

- There is only one source for supply of particular goods and/or services in the open market (sole source);
- A single source for the supply of a particular good and/or service is being recommended because it is more cost effective or beneficial for the City (single source).

The purpose of this report is to seek approval for the standardization of Hamilton Water equipment, parts, supplies and services as outlined in Appendices A, B and C.

Alternatives for Consideration – See Page 4

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Appendices A, B and C list the products and services recommended for standardization. In 2018, the combined expenditures relative to these vendors are forecasted to be approximately \$2,051,000.00. Adequate budget was approved for these procurements in 2018 and is similarly anticipated to be included in the 2019 rates-supported operating and maintenance budgets.

Staffing: The approval of the recommendations contained within this report significantly reduce the amount of time spent on administrative work procuring goods and services.

Legal: N/A

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SUBJECT: Standardization of Hamilton Water Equipment, Parts, Supplies and Services (PW18058) (City Wide) - Page 3 of 4

HISTORICAL BACKGROUND

Hamilton Water infrastructure includes the Woodward Water Treatment Plant, Woodward Wastewater Treatment Plant, Dundas Wastewater Treatment Plant, the Environmental Laboratory and 170 outstations, which represent more than 35,000 individual pieces of equipment and includes a vast number of individual components. Asset replacement value is estimated to be approximately \$3 billion.

The supplier base for upgrading, repairing and retrofitting existing water and wastewater infrastructure is wide spread and complex. Suppliers must use various strategies and networks of distribution to have equipment, parts, supplies and services available to their customers. This includes suppliers with exclusive distribution rights to geographical areas, various levels of pricing according to whether the supplier has redistribution rights, or whether the supplier is considered a service provider or an end user.

Hamilton Water has previously undertaken Original Equipment Manufacturer (OEM) approval under Procurement Policy #11 for equipment, parts, supplies and services. In most cases there is no known aftermarket for parts and supplies available, or the OEM representative is the only source of specialized testing equipment and knowledge.

By allowing the standardization of equipment, parts, supplies and services Hamilton Water can ensure they have inventory of the specific makes and models required to allow for direct replacements (like for like) without having to modify electrical or piping configurations for equipment, as may be the case if aftermarket products were purchased. Modifications in most cases can be expensive as they may require additional parts, labour, and engineering drawings.

By standardizing equipment, parts, supplies and services under the Procurement Policy #14, staff reduce the number units in the inventory as the equipment can be quickly procured when required. This streamlines repairs and maintenance work and reduces down time which has a direct impact on our customers.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The City of Hamilton Bylaw #17-064 - Procurement Policy, Policy #14, Section 4.14, allows for standardization.

RELEVANT CONSULTATION

These recommendations are the result of consultations with the Procurement Section of the Financial Services Division.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The selection of parts and supplies to replace existing equipment or components that have reached the end of their service life has been given considerable attention. Hamilton Water seeks to improve the efficiency and productivity of operations and create a positive work environment. Front-line employees who use the equipment know

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SUBJECT: Standardization of Hamilton Water Equipment, Parts, Supplies and Services (PW18058) (City Wide) - Page 4 of 4

from experience what kinds of equipment are best suited for work, including those aspects which maintain an ease of operation, stable functionality and acceptable health and safety standard. Providing components that are not compatible or have questionable reliability may distract staff from performing the work safely and exposing them to unnecessary hazards.

ALTERNATIVES FOR CONSIDERATION

An alternative to the recommendations in this report is to revert back to completing Procurement Policy #11 forms for each and every vendor included in the Appendices of this report; however, it is not recommended as this practice requires an inordinate amount of staff time to complete; whereas the recommendations in this report achieves the same objective.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**Community Engagement & Participation**

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Built Environment and Infrastructure

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APPENDICES AND SCHEDULES ATTACHED

Appendix A - Parts, Supplies, Equipment and Services for the City of Hamilton Environmental Laboratory.

Appendix B - Parts, Supplies, Equipment and Services for Plant Operations and Plant Maintenance Technical Services.

Appendix C - Parts, Supplies, Equipment and Services for Additional Hamilton Water Sections.

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**Parts, Supplies, Equipment and Services for the
 City of Hamilton Environmental Laboratory**

Services	Account #	Dept Id.	Est. Annual \$ 2018	Annual \$ 2017	Annual \$ 2016	Annual \$ 2015
The Makeup Air Unit (Engineered Air) is the sole unit that provides exhaust for all laboratory chemical hoods. Airon has been providing this service and now has an intimate history of the needs and complexity until a replacement unit can be provided under separate contract.	55916	510310	\$ 60,000.00	\$ 58,612.00	\$ 50,000.00	\$ 45,000.00
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 9,300.00	\$ 9,300.00	\$ 10,150.00	\$ 7,900.00
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 22,000.00	\$ 16,666.49	\$ 21,720.50	\$ 14,347.24
	54920	510250	\$ 54,000.00	\$ 49,944.00	\$ 58,648.77	\$ 49,701.34
On site ISO 17025 Laboratory Assessments and Provider of specialized standards utilized by the Environmental Laboratory to maintain ISO 17025 Accreditation	53132	510250	\$ 25,000.00	\$ 22,400.00	\$ 22,617.03	\$ 18,555.00
Provider of specialized standards and consumables utilized by the Environmental Laboratory to maintain ISO 17025 Accreditation	53051	510250	\$ 25,000.00	\$ 19,324.04	\$ 24,155.75	\$ 11,317.20
Provider of OEM parts, supplies and service for equipment utilized by the Environmental Laboratory	53051	510250	\$35,000.00	NA	NA	NA
Providing on-site calibration services for the laboratory certified thermometers and digesters	54920	510250	\$ 6,024.00	\$ 5,694.00	\$ 5,331.00	\$ 5,592.00
Maintenance and Upgrades to laboratory information management system (LIMS) database	53251	5161669075	\$ 16,000.00	\$ 15,922.00	\$ 21,002.87	\$ 18,629.16
	54920	5161669075	\$ 30,000.00	\$ 8,487.00	\$ 14,090.00	\$ 14,090.00
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 7,500.00	\$ 5,625.00	\$ 6,948.50	\$ 4,206.00
	54920	510250	\$ 13,000.00	\$ 12,056.00	\$ 11,705.40	\$ 10,963.50
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 12,500.00	\$ 11,482.16	\$ 9,036.16	\$ 10,312.44
	54920	510250	\$ 3,210.20	\$ 3,210.20	\$ 1,689.00	\$ 922.00
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 2,500.00	\$ -	\$ 2,580.00	\$ 35.00
Provider of analytical testing services for the Environmental Laboratory's surplus analysis	55916	510250	\$ 60,000.00	\$ 109,074.00	\$ 52,434.50	\$ 96,284.50
Provider of specialized standards utilized by the Environmental Laboratory to maintain ISO 17025 Accreditation	53051	510250	\$ 13,000.00	\$ 12,894.50	\$ 11,075.20	\$ 11,127.70
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 12,000.00	\$ 8,000.00	\$ 10,953.20	\$ 10,166.00
	54920	510250	\$ 8,500.00	\$ 7,795.00	\$ 7,295.00	\$ 6,995.00
Provider of pre-cleaned, pre-labelled Laboratory Bottles for all analytical analysis including regulatory drinking water	53051	510250	\$ 45,000.00	\$ 44,404.30	\$ 41,582.93	\$ 42,476.17
OEM spare parts, supplies and services for existing equipment utilized by the Environmental Laboratory	53051	510250	\$ 18,000.00	\$ 14,689.40	\$ 14,896.80	\$ 16,533.26
	54920	510250	\$ 12,000.00	\$ 11,150.84	\$ 9,545.00	\$ 11,964.22
Provider of specialized standards utilized by the Environmental Laboratory to maintain ISO 17025 Accreditation	53132	510250	\$ 23,342.00	\$ 23,342.00	\$ 20,679.45	\$ 20,803.48
			\$ 512,876.20	\$ 470,072.93	\$ 428,137.06	\$ 427,921.21

USD

Parts, Supplies, Equipment and Services for the
Plant Operations and Plant Maintenance and Technical Services

Vendor Name	Manufacturer	Service	Distributor	Goods	Services	Account #	Dept ID.	Est. Annual \$ 2018	Annual Spent 2017	Annual Spent 2016	Annual Spent 2015
SUEZ TREATMENT SOLUTIONS INC.	x	x	x	Climbing Bar Screens (formerly Inflico Degremont)	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	53051	510320	\$ -	\$ 175,067.83	\$ 1,662.09	\$ 46,366.12
SYNTEC PROCESS EQUIPMENT LTD. Singer Valve	x	x	x	Singer Pressure Reducing Valves (PRV), Val-Matic, Red Valve, Trueline, Tidelflex, Netzsch Pumps	OEM spare parts to maintain existing equipment utilized by Plant Operations.	53051 55916	510320	\$ 66,723.19	\$ 75,000.96	\$ 25,853.27	\$ -
T.D. ROOKE ASSOCIATES LIMITED Gratec SPX Flow	x	x	x	Gratec LIGHTNING (SPX Flow) Mixers process systems, including mixers, drives, controllers, etc. and Flowserve Pumps (Worthington Pumps in Main Pump House)	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	53051	510320	\$ -	\$ 55,300.28	\$ -	\$ 27,370.12
Technical Standards & Safety Authority (TSSA)				Providing safety management consultation for businesses and industries in Ontario.	Quality Assessed Facility (QAF) program: to ensure that each piece of equipment is thoroughly examined for the necessary approvals and compliance with the Technical Standards and Safety Act 2000, applicable regulations and codes.	55926	510320	\$ 1,200.00	\$ 1,113.00	\$ -	\$ -

Parts, Supplies, Equipment and Services for the
Plant Operations and Plant Maintenance and Technical Services

Vendor Name	Manufacturer	Service	Distributor	Goods	Services	Account #	Dept ID.	Est. Annual \$ 2018	Annual Spent 2017	Annual Spent 2016	Annual Spent 2015
TRANSCAT INC		x		Providing on-site calibration services to the instrumentation testing equipment.	OEM services to maintain existing equipment utilized by Plant Operations.	54720	510320	\$ 17,966.00	\$ 15,847.54	\$ 15,288.22	\$ 24,867.20
WAJAX INDUSTRIAL COMPONENTS		x	x	Moyno Pumping Systems, including pumps, motors, drives, etc. and other miscellaneous equipment and parts for these Moyno Pump Systems.	OEM spare parts and services to maintain existing equipment utilized by Plant Operations.	53051	510320	\$ 163,724.90	\$ 14,323.32	\$ 17,184.17	\$ -
Moyno Inc	x										
XYLEM CANADA COMPANY		x	x	ITT Flygt process systems, including pumps, mixers, drives, controllers, etc. and other miscellaneous equipment and parts for these ITT systems.	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	54915	510320	\$ 265,218.40	\$ 302,944.69	\$ 224,549.46	\$ 17,171.22
ITT Flygt	x										
Niagara AX	x	x	x	Building automation system	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	54915	510320	\$ -	\$ -	\$ -	\$ 41,456.27
Brenntag		x	x	Tonnars, 68 kg chlorine cylinders	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	54915	510320	\$ -	\$ -	\$ -	\$ 222,967.61
Abba Parts	x	x	x	Pumps vertical turbines (HD002) (HD016) Gould's, HSMPS impellers and parts	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	53051	510320	\$ -	\$ -	\$ -	\$ -
Troy-Ontor Inc		x	x	Auma actuators	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	53051	510320	\$ 10,103.18	\$ -	\$ -	\$ -
Auma Actuators Inc	x										
Siemens Canada	x	x	x	Siemens High voltage low voltage	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	55916	510320	\$ -	\$ -	\$ -	\$ -
Active scale	x	x	x	Active scale	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	55916 53051	510320	\$ -	\$ -	\$ -	\$ -
Westech	x	x	x	Varec and Westech gas equipment	OEM spare parts, equipment and services to maintain existing equipment utilized by Plant Operations.	53051	510320	\$ 5,013.00	\$ -	\$ -	\$ -
								\$ 1,645,746.77	\$ 1,707,498.58	\$ 1,202,898.52	\$ 881,924.73

Parts, Supplies, Equipment and Services for
Additional Hamilton Water Sections

Vendor Name	Manufacturer	Service	Distributor	Goods	Services	Account #	Dept Id.	Est. Annual \$ 2018	Annual \$ 2017	Annual \$ 2016	Annual \$ 2015
E.H. Wachs	X	X	X	ERV-750 Valve Exerciser - Automated Valve Operator, VMT2 Valve and Hydrant Maintenance Trailer, WACHS Vital (valve data collection) software system, WACHS Hydrant Cutter	OEM spare parts, equipment and services to maintain existing equipment utilized by Water Distribution and Wastewater Collection	58550	510285	\$ 30,000.00	\$ 29,749.58	\$ 36,130.61	\$ 73,159.29
Evans Utility & Municipal Products	X	X	X	Meter spacers of various sizes and red hed reducers, parts to assemble or create Fire Hydrant Meters (i.e. 2.5" Female Swivel by 3" MIPT Adapter), fabricated stands for Fire Hydrant Meters.	OEM spare parts, equipment and services to maintain existing equipment utilized by Customer Service and Community Outreach	53051	510220	\$ 20,000.00	\$ 4,847.00	\$ -	\$ -
Images Puppet Productions Inc.	X	X	X	Images Puppet Productions was hired to create 3 puppet shows with support from Hamilton Water staff which included music creation, puppet creation, educational messaging, props and show recordings.	Equipment and services to maintain existing equipment utilized by Customer Service and Community Outreach	55916	510215	\$ 30,000.00	\$ 23,446.00	\$ 19,650.00	\$ 16,350.00
Industrial Scientific Corporation	X	X	X	OEM Ventis MX4 gas detectors and accessories	OEM spare parts, equipment and services to maintain existing equipment utilized by Water Distribution and Wastewater Collection	55916	510280	\$26,520.73	\$ -	\$ -	\$ -
						55916	510275	\$ 8,580.23	\$ -	\$ -	\$ -
						55916	510320	\$ 11,978.52	\$ -	\$ -	\$ -
						53445	510260	\$ 5,076.24	\$ -	\$ -	\$ -
Kronos Inc.	X	X	X	Kronos In Touch 9000 terminals	OEM spare parts, equipment and support services to maintain existing equipment utilized by Hamilton Water.	53251	510200	\$ 10,000.00	\$ 30,000.00	\$ -	\$ -
Pipeline Repair Services Inc.		X		Specialized pipeline repair services (6" to 36" linestop is a temporary isolation point)	OEM spare parts, equipment and services to maintain existing equipment utilized by Water Distribution and Wastewater Collection	55916	510280	\$ 40,000.00	\$ 42,120.00	\$ -	\$ -
Van Essen Instruments - Canada	X	X	X	Water level and water quality dataloggers, including communication devices and cables.	OEM spare parts and services to maintain existing equipment utilized by Sustainable Initiatives	53051	510305	\$ 30,000.00	\$ 11,050.11	\$ 10,516.13	\$ 9,592.34
Voicenet Interactive Inc	X	X		An emergency notification system where our data is stored within Canada on Canadian servers. - this is a new vendor this year. Change from ERMS to Voicenet due to Canadian Privacy requirements.	To provide mass outbaound calling in the event of adverse water quality incidents and preventative measures i.e. Frozen Water Services, Backwater Valve Maintenance etc. to 150,000 Hamilton users.	55916	510230	\$ 10,000.00	\$ -	\$ -	
								\$ 274,311.44	\$ 141,212.69	\$ 66,296.74	\$ 99,101.63



CITY OF HAMILTON
Public Works Department
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Extension of Senior Project Manager, Master Plan (PW18060) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Bert Posedowski 905.546.2424 Extension 3199
SUBMITTED BY:	Mark Bainbridge Director, Water & Wastewater Planning Public Works
SIGNATURE:	

RECOMMENDATION

- a) That an extension to the temporary full-time Senior Project Manager, Master Plan position to end on or before June 2020, be approved.
- b) That Hamilton Water staff work with Finance to have the Senior Project Manger, Master Plan staff charges be applied as development charges where applicable.

EXECUTIVE SUMMARY

This report seeks approval to extend the temporary full-time Senior Project Manager (SPM), Master Plan, reporting to the Manager of Water/Wastewater System Planning. Currently, the position is set to expire in September 2018. Given the delays in receiving 2041 Growth Projections from the Province and obligations to complete a Development Charge (DC) Background Study by 2019, the Senior Project Manager, Master Plans position is required to be extended an additional 21 months, ending June 2020. Hamilton Water does not have the resources to complete these studies without this position in place. Hamilton Water believes this proposed staff term extension is the most appropriate way to respond to this project delay and sees efficiency in continuing to leverage the knowledge and understanding developed by the incumbent that has been working in this capacity for the last 21 months.

The City's Budgeted Complement Control Policy (Policy No: CBP-1) requires that changes to the approved complement type from Temporary, less than 24 month duration, to Temporary longer than 24 month duration, requires Council approval. The preceding paragraph provides the basis for approval of the extension.

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SUBJECT: Extension of Senior Project Manager, Master Plan PW18060 (City Wide) - Page 2 of 4

Alternatives for Consideration – See Page 3

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Staffing costs of the SPM, Master Plan is funded by the Rate operating budget through realized savings. If approved, extending this position an additional 21 months will result in a \$260,650 increase in operating expenditures (total compensation) over the period. There may be an opportunity to fund this position from development charges which will be explored further by Hamilton Water.

Staffing: If the extension of the SPM, Master Plan is approved it will increase the divisional complement under Hamilton Water by 1 FTE for an extended temporary duration while the Master Plan project is actively proceeding to meet requirements to satisfy the City's obligations to develop Master Plan servicing strategies and support Development Charge update process.

Legal: NA

HISTORICAL BACKGROUND

In October 2016, Council was advised, through report CM16013, that the Corporate Strategic Growth Initiatives (CSGI) Project was being initiated with the goal of identifying the required infrastructure investment strategy and cost sharing policies necessary to support the Development Charges Background Study and the Development Charges By-Law for July 2019.

Two studies included in the CSGI Project are the Water & Wastewater Master Plan and the Stormwater Master Plan, executed by the Hamilton Water (HW) Division of Public Works. To complete these studies HW created a temporary full-time position of Senior Project Manager, Master Plan (SPM, Master Plan) with a duration of 24 months. The SPM, Master Plan position was filled in September 2016 with the understanding that these master plan projects must be complete no later than September 2018.

In May 2017, the Province released the updated Growth Plan for the Greater Golden Horseshoe, Greenbelt Plan and Niagara Escarpment Plan. At that time the Province also indicated their expectation that all municipalities would follow a Provincial land budget methodology (LBM) for allocating 2041 employment and population forecasts. That LBM was released in December of 2017 which resulted in delays in the schedules for several CSGI studies including the Water and Wastewater Master Plan and the Storm Water Master Plan. The delay in receipt of the LBM also resulted in the need for the City to undertake CSGI studies twice – once using 2031 population and employment forecast data to satisfy the 2019 DC Update process and again with 2041 population and employment forecast data for another DC Study Update planned for completion in 2020.

Due to the delays as described above and given the need to press ahead with master planning studies to satisfy the 2019 DC Study Update, the SPM, Master Plan position will end prior to all the necessary work being completed. HW is therefore

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SUBJECT: Extension of Senior Project Manager, Master Plan PW18060 (City Wide) - Page 3 of 4

recommending that this temporary position be extended 21 months, ending on or before June 2020.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The SPM, Master Plan position is a non-union position therefore no settlements with any of the City bargaining unions is required.

Council approval is required in accordance with the Budgeted Complement Control Policy (Policy No: CBP-1); specifically, the policy states under the Terms and Condition section:

- 4) Changing Complement Type (ii) From Temporary, less than 24 month duration, to Temporary longer than 24 month duration, requires Council approval.

RELEVANT CONSULTATION

HW staff consulted with senior Human Resources (HR) staff to discuss the merits of extending the position relative to existing legislative requirements i.e. City's Budgeted Complement Control Policy (Policy No: CBP-1). HR indicated that outside CBP-1 there are no other impediments to extending this position.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

There is a legislative requirement to complete the 2019 DC Update Study which, in turn, requires that master planning studies be completed in 2018, based on 2031 planning data. Once the first round of master planning work is completed, the process must be repeated to satisfy the City's obligations to complete the CSGI Project with 2041 planning data.

HW has no excess capacity to complete these two rounds of master planning study without the support of the SPM, Master Plan. To retain the existing incumbent to this position for both rounds of master planning study will provide consistency in the master planning study outputs and DC Update study outputs.

HW has confirmed with HR that if the existing SPM, Master Plan position is permitted to end in September 2018 and a new Temporary Full Time SPM, Master Plan position were to be posted, HW would first require Council approval (as per policy CBP-1).

ALTERNATIVES FOR CONSIDERATION

Council can elect not to approve an extension of this temporary staffing term that supports the current Water, Wastewater and Stormwater Master Planning project work. Without this Senior Project Manager position, Hamilton Water does not have adequate resources necessary to execute this strategic long-range planning required under the *Environmental Assessment Act* nor will the master plan data be available in support of the DC Update studies as required under the *Development Charges Act*.

For the above reasons, not approving the extension for the position of SPM, Master Plan is not recommended.

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SUBJECT: Extension of Senior Project Manager, Master Plan PW18060 (City Wide) - Page 4 of 4

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

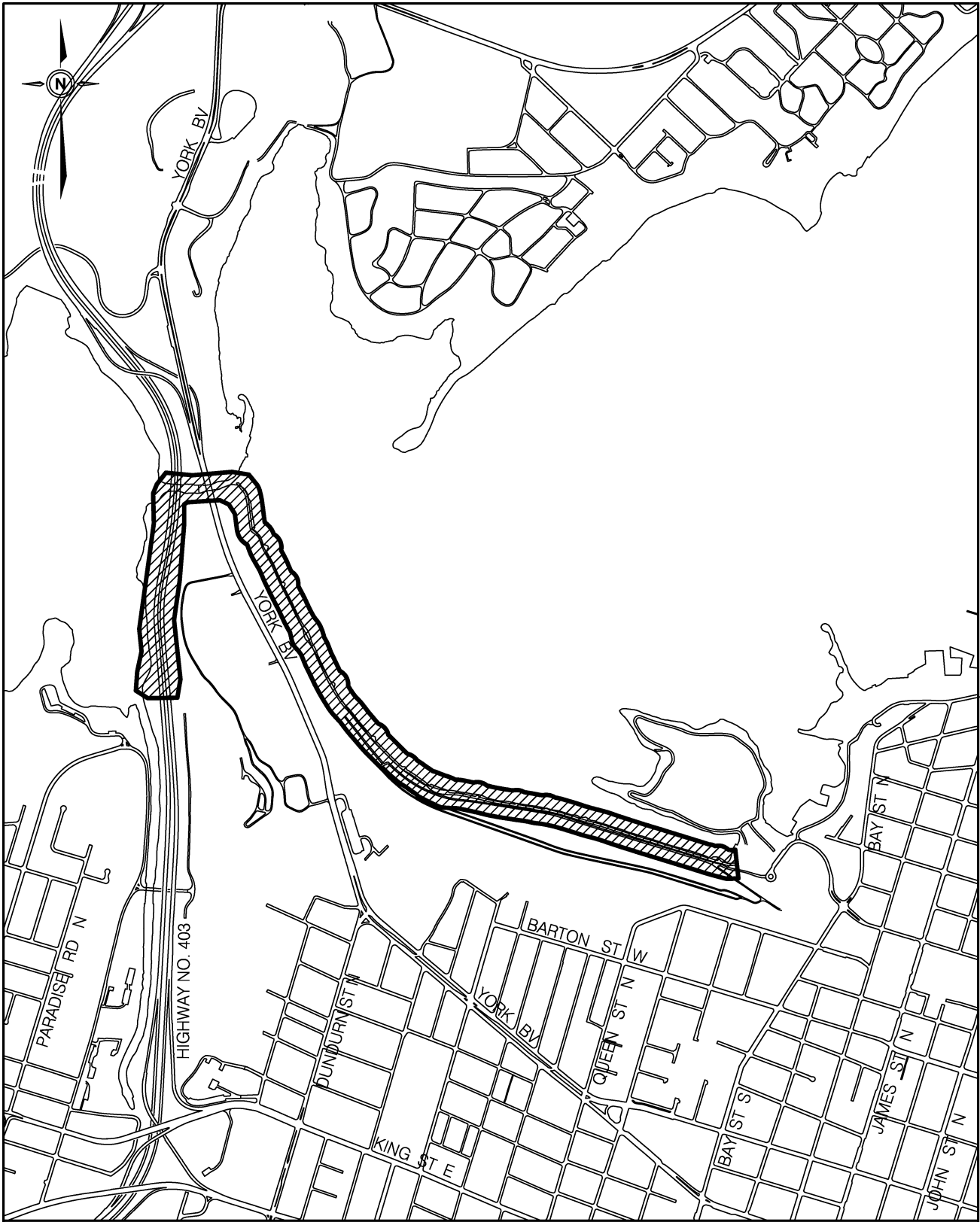
APPENDICES AND SCHEDULES ATTACHED

NA

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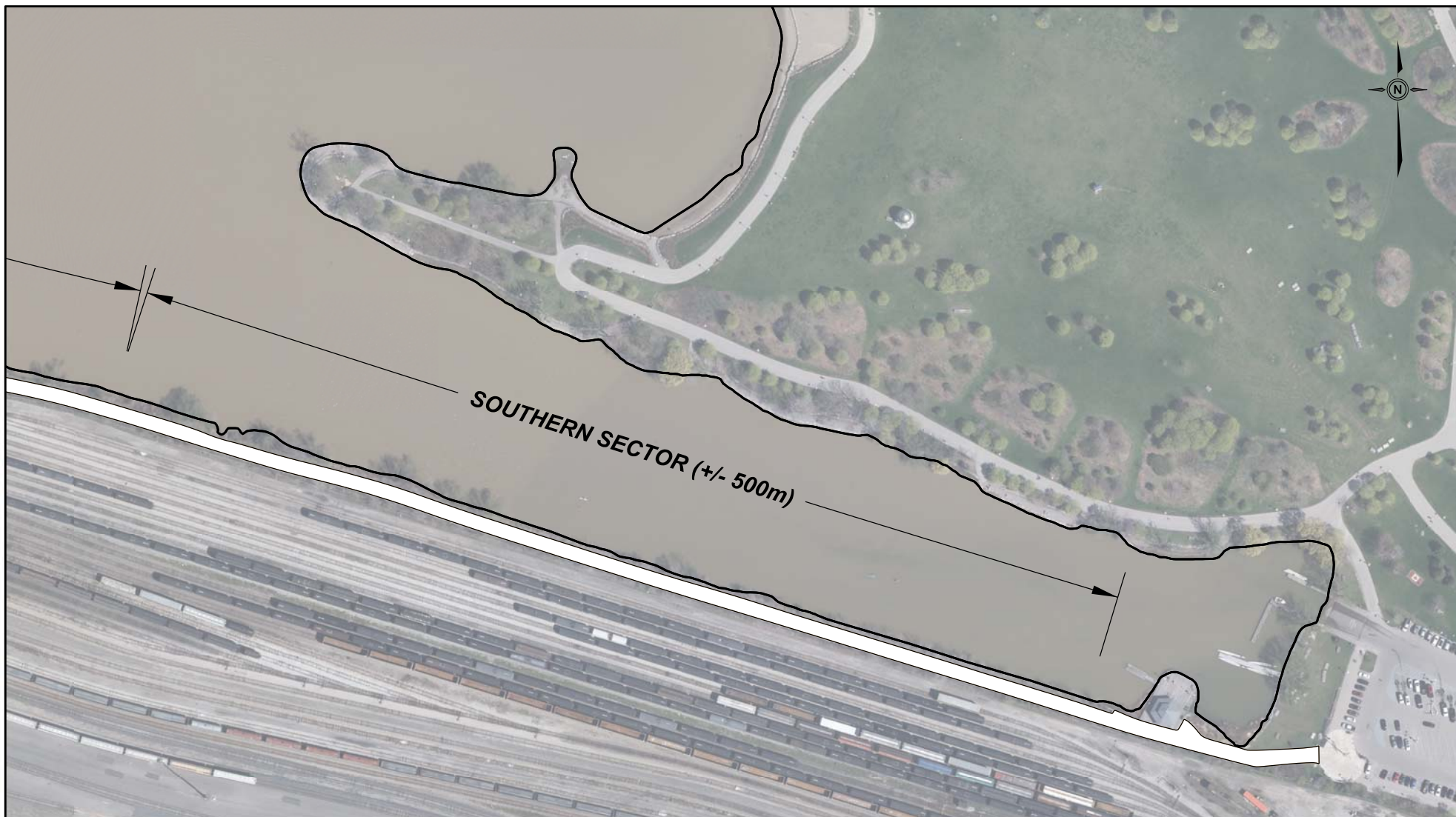
 Proposed Works

City of Hamilton
Ward 5
Bayfront Park
Erosion Repairs

CITY OF HAMILTON
Public Works Department
General Manager, Dan McKinnon

June 2018

Scale: NTS



City of Hamilton
Ward 5
Bayfront Park
Erosion Repairs (Southern Sector)

CITY OF
HAMILTON
Public Works Department
General Manager, Dan McKinnon

May 2018

Scale: NTS



City of Hamilton
Ward 5
Bayfront Park
Erosion Repairs (Central Sector)

CITY OF HAMILTON
Public Works Department
General Manager, Dan McKinnon

May 2018

Scale: NTS

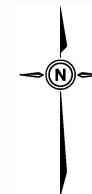
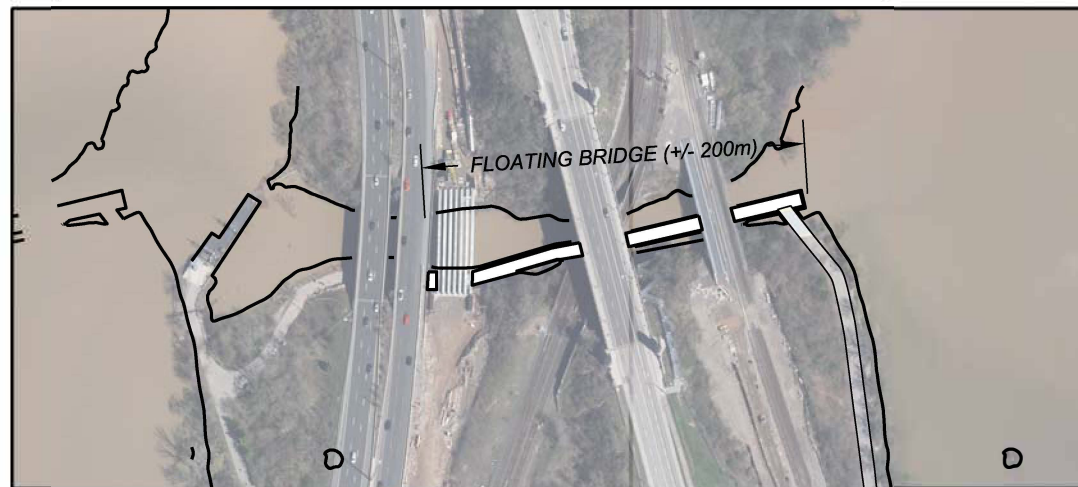
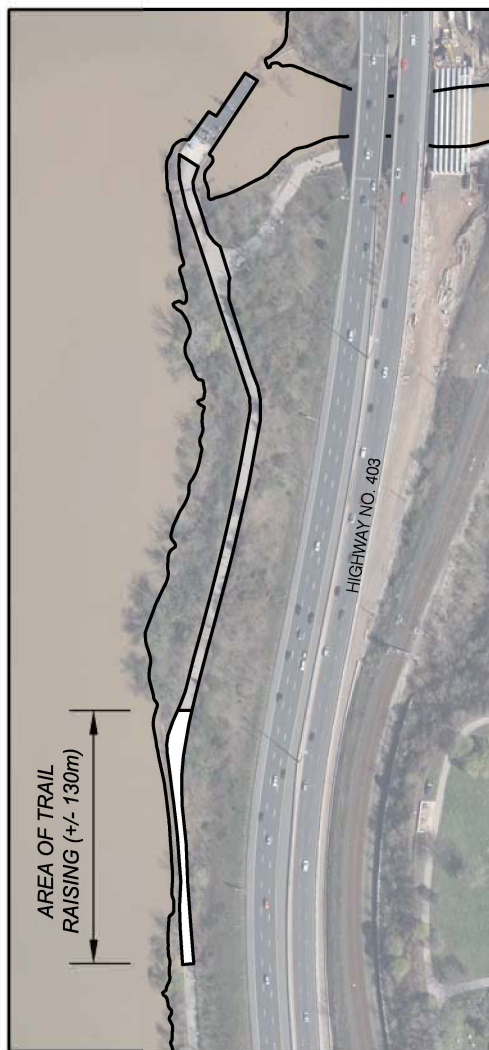


City of Hamilton
Ward 5
Bayfront Park
Erosion Repairs (Northern Sector)

CITY OF HAMILTON
Public Works Department
General Manager, Dan McKinnon

May 2018

Scale: NTS



City of Hamilton
Ward 5
Bayfront Park
Erosion Repairs (Floating Bridge & Trail Raising Areas)

CITY OF HAMILTON
Public Works Department
General Manager, Dan McKinnon

June 2018

Scale: NTS



CITY OF HAMILTON
Public Works Department
Environmental Services Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Waterfront (Bayfront) Trail Repair (PW18063) (City Wide) (Outstanding Business List)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Andrea McDonald (905) 546-2424, Extension 2738 Jim Collins (905) 546-2424, Extension 1075 Cynthia Graham (905) 546-2424, Extension 2337
SUBMITTED BY:	Craig Murdoch Director, Environmental Services Division Public Works Department
SIGNATURE:	

RECOMMENDATION

- (a) That Environmental Services Division staff be directed to implement Phase 1 - short term Trail Remediation Measures to repair the asphalt pathway for the trail areas from Bayfront Park to the floating bridge in the amount of \$157,150 to be funded through the unallocated Capital Reserve #108020;
- (b) That Environmental Services Division staff be directed to implement Phase 1 – short term Trail Remediation Measures to dredge the channel at the Floating Bridge and repair the bridge, in the amount of \$125,000 to be funded through the unallocated Capital Reserve #108020;
- (c) That Environmental Services Division staff be directed to implement Phase 1 -Trail Remediation Measures to raise the asphalt pathway for the trail areas from Princess Point to the Fishway above the current water level, in the amount of \$154,000 to be funded through the unallocated Capital Reserve #108020;
- (d) That Environmental Services Division staff be directed to submit their report and recommendations on the implementation of Phase 2 - Shoreline Protection Measures for the Waterfront Trail from Bayfront Park to the floating bridge, as

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SUBJECT: Waterfront (Bayfront) Trail Repair (PW18063) (City Wide)
- Page 2 of 6

identified in part b) of the Public Works Committee Report 18-006, Item 10.1 relating to Emergency Shoreline Protection Works, as part of the 2019 Capital Budget process.

- e) That the Outstanding Business List item related to Emergency Shoreline Protection Works sub-section (b), be identified as complete and removed from the list.

EXECUTIVE SUMMARY

At its meeting of May 9, 2018, Council approved Public Works Committee Report 18-006, including the following Motion, Item 10.1, Part (b), That Environmental Services staff report back to Public Works Committee on the options, costs and timing to address the 2017 and 2018 damage shoreline erosion and trail repair Bayfront Park.

Report PW18063 summarizes the findings and recommendations for trail repair noted in the Council Motion 10.1, Item (b)

The long-term shoreline erosion repair requirements noted in the Council Motion 10.1, Item (b), and the subsequent recommendations by staff will be directed separately to the 2019 Capital Budget process.

Following receipt of the final consulting engineer's study, and subsequent review by staff, the recommendation for moving forward is a Phased approach, with selective repairs where asphalt pathway damages have occurred (Phase 1). In addition to the asphalt pathway repairs, staff also recommends other pathway remediation associated with the storm events and changing environmental conditions. Staff recommend dredging in the area of the Floating Bridge and subsequent repairs of the bridge to ensure function and safety. As well, staff recommend increasing the elevation of the asphalt pathway from Princess Point to the Fishway well above the current water level of Cootes Paradise, which encounters frequent seasonal flooding. The total costs for this solution is estimated at \$436,150 for detailed design and construction, as outlined in the financial section of Report PW18063. This solution is estimated to require 3-4 months, and is dependent upon permit approvals and trail closure timelines. All of the short-term repairs in this report will allow the full removal of the temporary fencing that has been in place along the trail since the spring of 2017, thereby eliminating the visual obstruction and deviation experienced by trail users.

Alternatives for Consideration – See Page 6

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: \$436,150 in capital funding is required, as summarized below in Table 1 - Trail Remediation of Report PW18063, Table 2 - Floating Bridge of Report PW18063, and Table 3 - Trail Raising of Report PW18063.

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SUBJECT: Waterfront (Bayfront) Trail Repair (PW18063) (City Wide)
- Page 3 of 6

Table 1 – Summary of Recommended Trail Repair Estimated capital costs

Area	Asphalt Pathway repair			
	Length area	Area of pathway repair	Asphalt repair cost	Replacement of Base Materials
South Sector	500 m	33m ²	\$1,650	\$2,550
Central Sector	500 m	352m ²	\$17,600	\$27,400
Northern Sector	1000m	515m ²	\$25,750	\$42,200
Additional costs	2000m	Soft landscape / planting restoration		\$15,000
		Engineering/construction administration/staff		\$10,000
		Contingency		\$15,000
	Total costs			\$157,150

Table 2 – Summary of Recommended Floating Bridge Estimated capital costs

	Floating Bridge repair		
	Area	Description of pathway repair	Cost Estimate
Floating Bridge	All	Permits and approvals	\$10,000
Desjardin Channel	All	Dredging Operations to clear storm materials and debris	\$75,000
Floating Bridge	All	Repair connection points where damaged from high water levels	\$15,000
		Engineering/construction administration/staff	\$10,000
		Contingency	\$15,000
	Total costs		\$125,000

Table 3 – Summary of Recommended Trail Raising Estimated capital costs

	Pathway repair			
	Length area	Area of pathway repair	Asphalt repair cost	Placement of Base Materials
Low Area of Path 250m South of Fishway	130 m	780m ²	\$39,000	\$45,000
Additional costs	130 m	Soft landscape / planting restoration		\$10,000
		Raising foundations of 6 light poles		\$20,000
		Remove and reinstall fence at raised elevation		\$15,000
		Engineering/construction administration/staff		\$10,000
		Contingency		\$15,000
	Total costs			\$154,000

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SUBJECT: Waterfront (Bayfront) Trail Repair (PW18063) (City Wide)
- Page 4 of 6

Ongoing maintenance costs beyond routine inspections and seasonal clean-up works are expected but will be absorbed within existing Parks budgets. No additional operational impacts are expected.

Staffing: No staffing impacts. Work will be overseen by Parks staff.

Legal: N/A

HISTORICAL BACKGROUND

In 2017, the City of Hamilton was negatively impacted by high water levels in Lake Ontario, and significant rainfall events occurring over the Spring/Summer. The high-water levels, combined with wind and wave action resulted in significant damage to the Waterfront Recreational trail that connects Cootes Paradise at Princess Point to Bayfront Park.

In particular, over 900 square metres of asphalt paved pathway was undermined and broken, and shoreline areas were seriously damaged. As this damage presents a safety issue, Parks staff cordoned off the damaged areas, using temporary fencing to keep the trail users away from these areas. No repairs have been completed to date at the Waterfront Trail, and these damaged conditions remain in place presently.

In 2017, staff engaged Shoreplan Engineering Limited to prepare a report to look at alternatives for repair of the damage to the trail from Bayfront Park to Cootes Paradise, as well as look at long term shoreline protection to avoid future damage. The results of this analysis will be the subject of a future report and will be forwarded to the 2019 Capital Budget process.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

As this work is in the active lake water level, we expect that approval from the Department of Fisheries and Oceans (DFO) will be required.

Additionally, a permit may be required by the Hamilton Conservation Authority (HCA) for approval of the works as this area is within the regulated area of the HCA.

RELEVANT CONSULTATION

The following groups have been consulted and/or are supportive of the recommendation.

Corporate Services – Procurement Section
Corporate Services – Capital Budgets and Development Section

SUBJECT: Waterfront (Bayfront) Trail Repair (PW18063) (City Wide)
- Page 5 of 6

ANALYSIS AND RATIONALE FOR RECOMMENDATION

In less than 12 months, the City of Hamilton experienced two weather events that damaged the shorelines at two City of Hamilton waterfront parks. These events have brought into focus the changing environmental conditions that are negatively impacting City of Hamilton assets.

Due to budget implications and longer-term planning requirements, the long-term shoreline improvements and protection measures recommendations are proposed to be considered separately under a 2019 Capital Budget Report for the trail connecting Bayfront Park to the floating bridge.

In the short term, this report proposes recommendations to get the trail repairs completed and temporary fencing down, to reinstate the trail as soon as possible and remove visual obstructions caused by the temporary fencing.

This area is approximately 2,700m in length, identified in Appendix "A" attached to Report PW18063, which has been sectioned into four areas for the subject review, based on the wave impacts and exposure. These areas include the south sector (500m) starting at Bayfront, identified in Appendix "B" attached to report PW18063, the Central Sector (500m), identified in Appendix "C" attached to report PW18063, and the Northern Sector (1000m) ending at the floating bridge, identified in Appendix "D" attached to report PW18063X. Appendix "E" attached to report PW18063 defines the area of the Floating Bridge and the area of Trail Raising.

The construction timing for implementation of the report recommendations is 3-4 months because of the scale of the works, and this is dependent on regulatory approvals. Preferred timing of work would be coordinated with non-peak usage of the trail in the fall, and if required, continued through to the spring. However, the in-water work would have to be done during non-breeding times for fish, which is July 15th to September 15th. The remaining work is above the current water level, and likely most of this work could occur even through the colder months where frozen ground conditions could be beneficial.

Due to the site location and the narrow access of the existing pathway being located between the railyard tracks and the water, the Waterfront Trail would need times of restricted access to the trail and floating bridge from the gazebo area of Bayfront Park to Princess Point. Staff would work to schedule the access restrictions to minimize disruptions. In order to safely install the restoration materials on this narrow path that has no existing turn-around points, will require materials to be loaded in from Bayfront Park, and then built from the north end to the south. The costs estimated are based on all work being completed from the land side, as work from the water side would be very high, and cost prohibitive.

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SUBJECT: Waterfront (Bayfront) Trail Repair (PW18063) (City Wide)
- Page 6 of 6

The City has an obligation to ensure that recreational trails are safe for use by the public, as well as the ongoing maintenance and repair due to storm damage, and therefore, any design solution must consider ways to minimize closures of the trail.

ALTERNATIVES FOR CONSIDERATION

Alternate phasing would be to defer these works and package them as part of the overall long-term Bayfront Trail Shoreline Protection works, to be presented under the 2019 Capital Budget process.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Healthy and Safe Communities

Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” - Location Map

Appendix “B” - Waterfront Area Mapping – South Sector

Appendix “C” - Waterfront Area Mapping – Central Sector

Appendix “D” - Waterfront Area Mapping – North Sector

Appendix “E” - Waterfront Area Mapping – Floating Bridge and Trail Raising Area

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

Appendix A

10 Year Infrastructure Needs vs. Funding

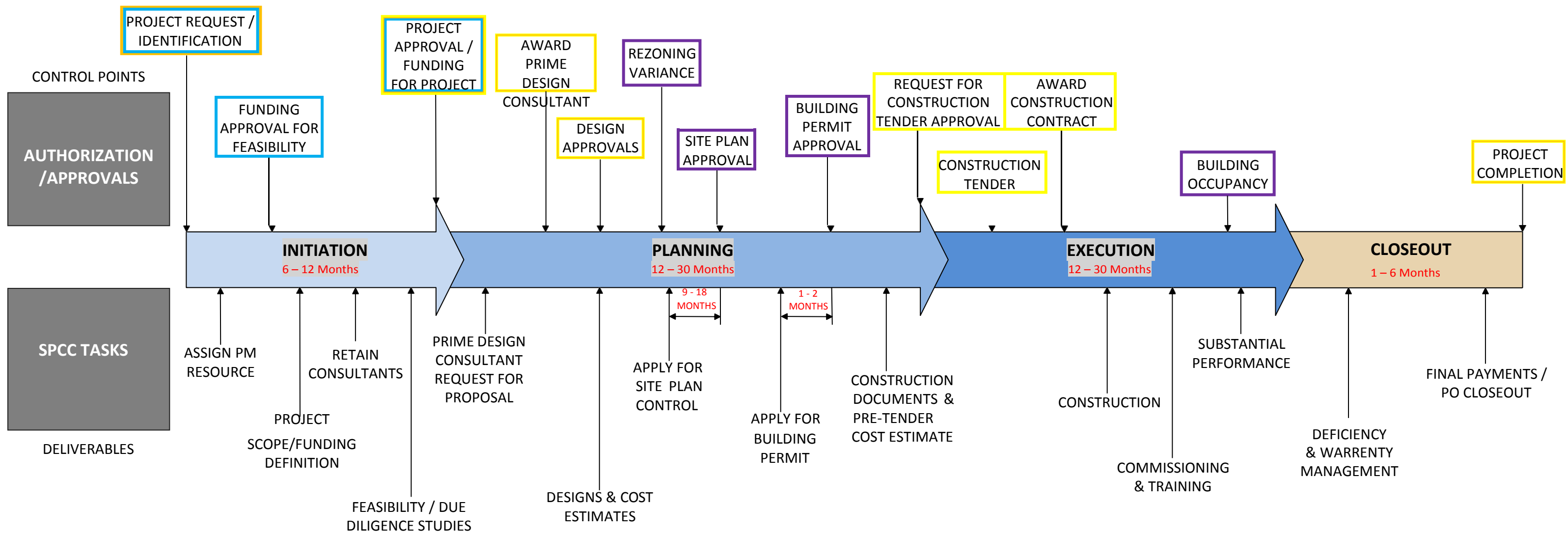


LOCATION	FUNDING ANNUAL BLOCK FUNDING	10 YEAR LIFECYCLE COSTS			
		TOTAL NEEDS BACKLOG 2017	FUTURE 10 YR CAPITAL NEEDS	AODA UPGRADES	TOTAL FUNDING 10 YEAR LIFECYCLE
Corporate Facilities	4.5M	78M	102M	\$78M	258M
Recreation Facilities	4.58M	93M	124M	\$79M	296M
Entertainment Facilities	900K	45M	38M	---	83M
TOTAL	9.88M**	216M	264M	157M	637M

**\$9.88M Project = \$6.7M Construction

\$637M DIVIDED OVER 10 YEARS

	Size	Replacement Value	Unit Rate
Corporate Facilities	2.8 million sf	\$ 862 million	\$ 308/sf
Entertainment Facilities	0.7 million sf	\$ 306 million	\$ 437/sf
Recreation Facilities	2.6 million sf	\$ 966 million	\$ 371/sf
Total	6.1 million sf	\$ 2.13 billion	\$ 352/sf



** This is based on a General Construction Project **

LEGEND

- MUNICIPAL / LEGISLATIVE
- COUNCIL
- INTERNAL

Appendix B

Project Schedule

		INITIATION				PLANNING		EXECUTION		CLOSEOUT
		PROJECT REQUEST / ASSIGN PROJECT MANAGER	RETAIN CONSULTANT REQUEST FOR PROPOSAL	FEASIBILITY	FUNDING APPROVALS FOR PROJECT	PRIME DESIGN CONSULTANT REQUEST FOR PROPOSAL / AWARD	DESIGN & COST ESTIMATE	CONSTRUCTION PROCUREMENT	CONSTRUCTION	POST CONSTRUCTION
		1 - 3 Months	1 - 3 Months	3 - 12 Months	VARIABLE	3 - 6 Months	9 - 24 Months	2 - 6 Months	4-24 Months	1-12 Months
Duration	What's Involved	<ul style="list-style-type: none"> Project Request to Facilities Scope Statement Development of Project Charter Review Resource for PM Assignment 	<ul style="list-style-type: none"> Scope of Work Request For Proposals / Roster Assignment > Value < 150K (Roster) > Value > 150K (RFP) Prepare RFP Fee Proposal 	<ul style="list-style-type: none"> Geotechnical (Investigation) Environmental Site Assessment (ESA) Phase 1 & 2 Archeological Assessment Niagara Escarpment Commission (NEC) Ministry of Transportation - Ontario (MTO) Hamilton Conservation Authority (HCA) Ministry of Environment & Climate Change (MOECC) Conceptual Design / Initial Programming Legal Survey Cost Consultant Designated Substance/ Hazardous Material Survey (Asbestos/Lead/Mould/Etc.) Environmental Impact Study (EIS) Halton Region Conservation Authority (HRCA) Planning Review / Rezoning Heritage Review / Consultation 	<ul style="list-style-type: none"> Council Report Board Report Report to Client Report to Facility Management Capital Budget Stimulus Funding Opportunities 	<ul style="list-style-type: none"> RFP Prepare Evaluate Award 	<ul style="list-style-type: none"> Further Due Diligence Stakeholder Mtgs. (As Required) Costing Exercises (Class A/B/D) Schematic Design Design Development Construction Drawings (50 & 100%) AODA checklist Site Plan Adjustment (Minor: 8 - 10 Months) Site Plan Control (Full SPA) (12+ Months) <ul style="list-style-type: none"> > Pre-Consultation > Committee of Adjustment > Approvals From Regulatory Bodies (Refer to Feasibility) Building Permit Submission <ul style="list-style-type: none"> > Circulate to Inner Departments (Heritage, Health, PW, Etc.) Value Engineering (If Required) Utility Coordination (Hydro, Gas, Etc.) Internal Coordination <ul style="list-style-type: none"> > IT > Office of Energy Initiatives 	<ul style="list-style-type: none"> Request for Tender (RFT) / Request for Quotation (RFQ) GC Pre Qualification (Add 6-8 Weeks) RFT/Evaluate/Award/PO Request for Contract Tender Award (RFCTA) <p>RFQ (6 Weeks) RFT (6-18 Weeks)</p>	<ul style="list-style-type: none"> Renovation / New Build (With/Without Site Work) Changes / Additional Scope Shop Drawing Review Testing & Inspection ConAdmin <ul style="list-style-type: none"> > Proposed Changes > Change Directives > Change Orders > Certificate of Payment > Request for Information > Supplementary Instruction > Shop Drawings / Submittals > Tests / Inspections / Site Reviews > Minutes > Schedule Deficiencies Commissioning Testing Equipment User / Operator Training Turnover to Clients 	<ul style="list-style-type: none"> Receive Closeout Documents (Operations & Maintenance Manuals) Keys Maintenance Materials (Extra Material From GC) Final Payments / PO Closeout Holdback Releases Warranty Review Lien Search
		Deliverables	<ul style="list-style-type: none"> Project Charter 	<ul style="list-style-type: none"> PO/Contract 	<ul style="list-style-type: none"> Surveys & Reports to Assist Design Project Plan 	<ul style="list-style-type: none"> Approval to Proceed With Project (Go/No-Go Decision) 	<ul style="list-style-type: none"> PO/Contract 	<ul style="list-style-type: none"> Defined Scope Construction Drawing & Specifications (Form Part of Construction Documents) Construction Budget Update Project Budget Update 	<ul style="list-style-type: none"> PO/Contract Approved RFCTA 	<ul style="list-style-type: none"> Occupancy Substantial Performance (Ready for Intended Use) Previous Defined Scope Items (Client Acceptance)

1) NEW CONSTRUCTION: NEXT RECREATION PRIORITIES UNDER CONSIDERATION

Phase	Ward	Project	Type	Estimated Project Cost (including inflation)	Partial Funding Sources	Estimated Budget Year(s)
1	4	Parkdale Outdoor Pool Expansion	Expansion & Refurbishment	\$3,000,000	Reserves (DC, facility, unallocated)	2018-2022
1	11	Mt. Hope small facility and multipurpose space	New Construction	\$4,850,000	Reserves (DC, facility, unallocated)	2018-2022
1	5	Expansion of Sir Wilfrid Laurier Recreation Centre Gymnasium	Expansion	\$7,500,000	Reserves (DC, facility, unallocated)	2018-2022
2	3	Pinky Lewis Gymnasium Expansion	Expansion	\$6,600,000	Reserves (DC, facility, unallocated)	2023-2032
2	5	Domenic Agostino Riverdale Community Centre Expansion	Expansion	\$5,000,000	Reserves (DC, facility, unallocated)	2023-2032
2	all	Other city-wide priority park facilities (placeholder)	New Construction	\$3,600,000	Reserves (DC, facility, unallocated)	2023-2032
2	5	New Confederation Park Washrooms and Facilities	New Construction	\$4,950,000	Reserves (DC, facility, unallocated)	2023-2032
2	11	New Recreation Centre in Winona (with Pool)	New Construction	\$26,500,000	Reserves (DC, facility, unallocated)	2023-2032
2	7	Sackville Seniors Centre Expansion	Expansion	TBD	Reserves (DC, facility, unallocated)	2023-2032
3	11	New Recreation Centre in Binbrook (with Pool)	New Construction	\$27,500,000	Reserves (DC, facility, unallocated)	2033-2042
3	15	New Pool & Rec Centre in Waterdown	New Construction	\$27,500,000	Reserves (DC, facility, unallocated)	2033-2042
3	3	Stadium Precinct Park Washroom/Changeroom Facilities	New Construction	\$3,300,000	Reserves (DC, facility, unallocated)	2033-2042
4	4	Sir Winston Churchill Expansion	Expansion & Refurbishment	\$6,400,000	Reserves (DC, facility, unallocated)	2043-2052
4	2	Bennetto Expansion & Refurbishment	Expansion & Refurbishment	\$6,400,000	Reserves (DC, facility, unallocated)	2043-2052
4	10	Saltfleet Multipurpose Recreation Facility	New Construction	\$32,000,000	Reserves (DC, facility, unallocated)	2043-2052
Total				\$165,100,000		

2) NEW CONSTRUCTION: PROPOSED PHASING AND FUNDING SHORTFALL FOR RECREATION

Phase	Estimated Project Cost	Estimated Available through DCs	Shortfall	%
Phase 1 (2018-2022)	\$15,350,000	\$15,000,000	\$350,000	2.2%
Phase 2 (2023-2032)	\$46,650,000	\$30,000,000	\$16,650,000	35%
Phase 3 (2033-2042)	\$58,300,000	\$30,000,000	\$28,300,000	48%
Phase 4 (2043-2052)	\$44,800,000	\$30,000,000	\$14,800,000	33%
Total	\$165,100,000	\$105,000,000	\$60,100,000	36%

Shortfall per year

\$ 1,717,142

3) INFRASTRUCTURE RENEWAL: NEXT PRIORITIES FOR RECREATION FACILITIES

i) INFRASTRUCTURE RENEWAL PRIORITIES: RECREATION CENTRES WITH POOLS

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior Walls/Windows/Doors)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior Finishes)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special Construction/Equipment)	Renewal Costs CAT.G (Parking Lots and Roadways)
Brewster Pool (P)	1976-01-02	10	PLS003	21.33%	21.33%	\$ 1,341,477	\$ 1,341,477	\$ 25,548	\$ 221,925	\$ 233,386	\$ 122,790	\$ 478,231	\$ 188,377	\$ 71,220
Hill Park Recreation Centre (P)	1977-01-02	7	REC023	20.92%	24.45%	\$ 2,059,933	\$ 2,408,017	\$ 60,112	\$ 718,943	\$ 242,448	\$ 224,029	\$ 904,542	\$ 128,826	\$ 129,116
Sir Wilfrid Laurier Recreation Centre (P)	1981-01-02	5	REC048	19.85%	23.24%	\$ 1,946,689	\$ 2,279,625	\$ 26,717	\$ 193,719	\$ 263,994	\$ 404,092	\$ 968,273	\$ 145,298	\$ 277,532
Sir Winston Churchill Recreation Centre (P)	1970-01-02	4	REC049	12.77%	18.50%	\$ 935,394	\$ 1,355,700	\$ 43,415	\$ 119,866	\$ 379,401	\$ 144,914	\$ 393,651	\$ 172,664	\$ 101,789
Jimmy Thompson Pool (Heritage) (P) (Reno in 2018)	1934-01-02	3	REC025	12.71%	14.19%	\$ 1,473,265	\$ 1,644,628	\$ -	\$ 160,286	\$ -	\$ 227,106	\$ 1,118,487	\$ 138,748	
Sir Allan Macnab Recreation Centre (P)	1987-01-02	8	REC047	12.25%	15.06%	\$ 1,509,019	\$ 1,855,008	\$ -	\$ 238,805	\$ 311,087	\$ 270,703	\$ 606,064	\$ 159,490	\$ 268,860
Central Memorial Recreation Centre (P) (HVAC in 2014)	1900-01-01	2	REC010	12.21%	12.21%	\$ 1,567,260	\$ 1,380,318	\$ 8,349	\$ 138,688	\$ 548,187	\$ 313,490	\$ -	\$ 124,573	\$ 247,032
Dundas Community Pool (P)	1984-01-02	13	REC015	11.62%	16.46%	\$ 710,906	\$ 1,006,644	\$ 835	\$ 195,937	\$ 246,930	\$ 136,839	\$ 346,844	\$ 74,250	\$ 5,009
Dominic Agostino Riverdale Community Centre (P)	2006-01-02	5	REC062	9.71%	16.87%	\$ 939,672	\$ 1,632,750	\$ -	\$ 22,141	\$ 846,826	\$ 113,091	\$ 352,609	\$ 60,999	\$ 237,083
Huntington Park Recreation Centre (P) (reno in 2018)	1997-01-02	6	REC024	9.25%	9.25%	\$ 1,574,428	\$ 1,375,899	\$ 73,471	\$ 419,358	\$ -	\$ 312,570	\$ -	\$ -	\$ 570,500
Ryerson Recreation Centre (P)	1975-01-02	1	REC042	8.96%	10.12%	\$ 1,473,037	\$ 1,663,559	\$ 35,066	\$ 166,835	\$ -	\$ 291,081	\$ 843,940	\$ 200,014	\$ 126,623
Bennetto Recreation Centre (P)	1970-01-02	2	REC002	6.16%	12.34%	\$ 1,006,397	\$ 2,016,388	\$ -	\$ 198,897	\$ 281,792	\$ 260,981	\$ 940,275	\$ 92,590	\$ 241,852
Valley Park Aquatic Centre (P)	1990-01-02	9	REC052	5.57%	5.57%	\$ 13,682	\$ 13,682	\$ -	\$ -	\$ 12,879	\$ -	\$ -	\$ -	\$ 803
Kiwanis Boys & Girls Club (P)	1965-01-02	4	REC026	4.76%	17.65%	\$ 506,138	\$ 1,874,980	\$ -	\$ 62,592	\$ 477,744	\$ 370,042	\$ 765,355	\$ 70,974	\$ 128,273
Ancaster Aquatic Centre (P)	1982-01-02	12	PLS001	Renovated	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Norman Pinky Lewis Recreation Centre (P) (under reno)	1985-01-02	3	REC036	Renovation	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Dalewood Recreation Centre (P) (renovated in 2016)	1969-01-02	1	REC013	1.31%	1.31%	\$ 385,471	\$ 75,892	\$ -	\$ 75,892	\$ -	\$ -	\$ -	\$ -	\$ -
Stoney Creek Recreation Centre (P)	2016-01-02	9	REC067	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Westmount Recreation Centre (P)	2016-01-02	8	REC068	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
				Total Construction Costs		\$ 17,442,769	\$ 21,924,568	\$ 247,964	\$ 2,711,959	\$ 3,611,288	\$ 3,068,940	\$ 7,240,039	\$ 1,368,427	\$ 2,334,474
				Soft Costs		\$ 5,232,831	\$ 6,577,370							
				Total Project Costs		\$ 22,675,600	\$ 28,501,938							
				Available Funds through annual prog		\$ 200,000	\$ 2,000,000							
				Shortfall		\$ 22,475,600	\$ 26,501,938							

ii) **INFRASTRUCTURE RENEWAL PRIORITIES: ARENAS**

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior Walls/Windows)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior Finishes)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special Construction/Equipment)	Renewal Costs CAT.G (Parking Lots and Roadways)
Eastwood Arena	1959-01-02	2	ARE006	41.39%	62.90%	\$ 4,439,042	\$ 6,746,304	\$ 90,944	\$ 981,383	\$ 483,952	\$ 397,880	\$ 1,283,492	\$ 3,074,070	\$ 434,582
Grightmire Arena (under renovation)	1956-01-02	13	ARE005	21.84%	28.53%	\$ 3,144,064	\$ 4,106,139	\$ 87,696	\$ 209,496	\$ 903,269	\$ 362,233	\$ 427,617	\$ 2,115,828	\$ -
Dave Andreychuk Mtn Arena & Skating Ctr	1970-01-02	7	ARE011/ARE	21.44%	39.44%	\$ 5,603,612	\$ 10,310,633	\$ -	\$ 781,956	\$ 1,965,040	\$ 933,800	\$ 854,730	\$ 4,360,602	\$ 1,414,504
Westoby Arena	1982-01-02	13	ARE014	18.75%	29.96%	\$ 2,069,788	\$ 3,306,889	\$ -	\$ 372,708	\$ -	\$ 178,640	\$ 299,404	\$ 2,456,138	\$ -
Spring Valley Arena (work done in 2015)	1974-01-02	12	ARE019	17.88%	27.64%	\$ 1,952,129	\$ 3,017,554	\$ -	\$ 181,076	\$ 634,984	\$ 410,791	\$ 403,158	\$ 1,387,546	\$ -
Coronation Arena	1985-01-02	1	ARE004	15.03%	21.80%	\$ 1,660,053	\$ 2,406,888	\$ -	\$ 360,528	\$ -	\$ 322,510	\$ 404,513	\$ 427,762	\$ 891,576
Stoney Creek Arena	1973-01-02	9	ARE020	14.00%	37.81%	\$ 1,612,957	\$ 4,356,171	\$ -	\$ 561,904	\$ 682,080	\$ 310,996	\$ 661,734	\$ 1,713,970	\$ 425,488
Carlisle Arena (work done in 2017)	1982-01-02	15	ARE002	12.26%	23.01%	\$ 1,651,779	\$ 3,099,108	\$ -	\$ 84,980	\$ 937,340	\$ 528,856	\$ 557,572	\$ 532,672	\$ 372,708
Morgan Firestone Arena & Rotary Centre	1996-01-02	12	ARE010-REC	11.80%	16.09%	\$ 3,482,181	\$ 4,747,276	\$ -	\$ 657,761	\$ 59,276	\$ 605,752	\$ 870,748	\$ 2,553,740	\$ -
Chedoke Twin Pad Arena	1998-01-02	8	ARE003	10.03%	25.21%	\$ 3,074,232	\$ 7,723,575	\$ -	\$ 1,010,737	\$ 1,342,723	\$ 1,656,480	\$ 1,174,186	\$ 2,370,553	\$ 168,896
Saltfleet Arena	1964-01-02	10	ARE017	8.40%	22.28%	\$ 854,744	\$ 2,267,432	\$ -	\$ 189,521	\$ 501,166	\$ 128,783	\$ 358,225	\$ 349,160	\$ 740,576
Pat Quinn Parkdale Arena	1999-01-02	4	ARE015	6.58%	35.85%	\$ 911,876	\$ 4,968,597	\$ -	\$ 221,676	\$ 638,232	\$ 587,888	\$ 842,825	\$ 2,262,232	\$ 415,744
Inch Park Arena	1999-01-02	7	ARE008	6.44%	28.72%	\$ 892,226	\$ 3,977,609	\$ -	\$ 267,148	\$ 603,803	\$ 343,638	\$ 805,450	\$ 1,818,880	\$ 138,690
Bill Friday Lawfield Arena	1979-01-02	7	ARE009	5.45%	16.09%	\$ 804,854	\$ 2,374,746	\$ 12,992	\$ 301,252	\$ 804,692	\$ 301,739	\$ 205,407	\$ 748,664	\$ -
Beverly Arena (work done in 2017)	1978-01-02	14	ARE001	4.87%	29.68%	\$ 654,472	\$ 3,987,563	\$ 45,472	\$ 142,100	\$ 717,808	\$ 478,593	\$ 532,991	\$ 2,055,984	\$ 14,616
Valley Park Arena	1985-01-02	9	ARE021	2.88%	19.76%	\$ 386,604	\$ 2,653,336	\$ -	\$ 1,285,722	\$ 574,711	\$ 403,450	\$ 167,144	\$ 214,076	\$ 8,234
Glanbrook Arena & Auditorium (F) (work done in 2017)	1979-01-02	11	ARE007	2.22%	28.93%	\$ 345,100	\$ 4,489,974	\$ -	\$ 265,443	\$ -	\$ 521,694	\$ 411,476	\$ 2,107,465	\$ 1,183,896
Mohawk 4 Ice Centre	2009-01-02	6	ARE022	1.77%	5.24%	\$ 826,616	\$ 2,441,619	\$ -	\$ 89,320	\$ 227,360	\$ 744,198	\$ 412,025	\$ 850,976	\$ 117,740
Rosedale Arena	1977-01-02	5	ARE016	1.08%	11.22%	\$ 194,068	\$ 2,021,102	\$ -	\$ 227,850	\$ -	\$ 596,788	\$ 774,548	\$ 276,080	\$ 145,835
Harry Howell Arena	2016-08-02	15	ARE023	0.12%	1.08%	\$ 35,728	\$ 318,770	\$ -	\$ -	\$ -	\$ 235,480	\$ 83,290	\$ -	\$ -
Total Construction Costs						\$ 34,596,124	\$ 79,321,286	\$ 237,104	\$ 8,192,561	\$ 11,076,437	\$ 10,050,189	\$ 11,530,534	\$ 31,676,396	\$ 6,473,085
Soft Costs						\$ 10,378,837	\$ 23,796,386							
Total Project Costs						\$ 44,974,961	\$ 103,117,671							
Available Funds through annual program						\$ 200,000	\$ 2,000,000							
Shortfall						\$ 44,774,961	\$ 101,117,671							

iii) **INFRASTRUCTURE RENEWAL PRIORITIES: OTHER RECREATION FACILITIES**

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior Walls/Windows/Doors)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior Finishes)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special Construction/Equipment)	Renewal Costs CAT.G (Parking Lots and Roadways)
Club 60 Senior Citizen Centre	1975-01-02	9	REC011	92.33%	96.91%	\$ 464,689	\$ 487,743	\$ 8,349	\$ 43,129	\$ 34,575	\$ 107,324	\$ 253,193	\$ -	\$ 41,174
Copetown & District Community Centre	1996-01-02	14	REC012	31.87%	52.83%	\$ 995,440	\$ 1,649,984	\$ -	\$ 64,176	\$ 8,000	\$ 169,760	\$ 347,008	\$ -	\$ 1,061,040
Dundas Little Theatre	1982-01-02	13	REC063	91.44%	156.75%	\$ 644,950	\$ 1,105,590	\$ -	\$ 114,800	\$ 24,960	\$ 163,200	\$ 212,230	\$ -	\$ 590,400
Mohawk Sports Park - Bernie Arbour Stadium	1982-01-02	6	REC003	33.31%	51.70%	\$ 140,945	\$ 218,779	\$ -	\$ 74,110	\$ -	\$ 85,326	\$ 34,341	\$ -	\$ 25,002
Mountsberg Hall	1944-01-02	15	REC034	42.22%	164.78%	\$ 85,280	\$ 332,848	\$ 9,600	\$ 63,920	\$ 24,160	\$ 87,360	\$ 88,864	\$ -	\$ 58,944
Winona Senior Citizen Centre	1986-01-02	11	REC058	123.95%	128.68%	\$ 683,814	\$ 709,909	\$ -	\$ 74,169	\$ 42,239	\$ 63,575	\$ 204,818	\$ -	\$ 325,108
Woodburn / Centennial Hall	1898-01-01	11	REC059	39.81%	136.60%	\$ 141,520	\$ 485,584	\$ 16,000	\$ 95,600	\$ 28,800	\$ 141,440	\$ 160,784	\$ -	\$ 42,960
Beverly Township Hall	1980-01-02	14	REC005	17.04%	119.76%	\$ 82,064	\$ 576,750	\$ -	\$ 78,280	\$ -	\$ 229,840	\$ 182,259	\$ -	\$ 86,371
Carlisle Memorial Hall	1925-01-02	15	REC008	19.11%	108.27%	\$ 121,627	\$ 689,267	\$ 9,600	\$ 107,520	\$ 46,080	\$ 362,000	\$ 130,160	\$ -	\$ 33,907
Carlisle Community Centre	1929-01-02	12	REC009	16.11%	39.65%	\$ 210,720	\$ 518,736	\$ 9,600	\$ 83,840	\$ 25,920	\$ 212,080	\$ 88,640	\$ -	\$ 98,656
Sackville Hill Seniors Centre	1996-01-02	7	REC043	18.24%	25.59%	\$ 1,374,154	\$ 1,927,433	\$ -	\$ 260,895	\$ 708,355	\$ 707,674	\$ 191,353	\$ -	\$ 59,157
Greensville Community Hall	1875-01-01	14	REC022	15.83%	41.94%	\$ 314,880	\$ 834,314	\$ 9,600	\$ 164,514	\$ 46,080	\$ 218,560	\$ 245,920	\$ -	\$ 149,640
Ancaster Seniors Achievement Centre	1969-01-02	12	REC045	13.46%	24.31%	\$ 587,781	\$ 1,061,742	\$ -	\$ 93,562	\$ 307,749	\$ 225,101	\$ 296,279	\$ -	\$ 139,052
Kiwanis Community Centre	1976-01-02	11	REC027	15.01%	51.94%	\$ 419,960	\$ 1,453,756	\$ 17,720	\$ 117,664	\$ 291,200	\$ 197,456	\$ 348,180	\$ -	\$ 481,536
Mohawk Sports Park - Bldg B - Rugby Field	1993-01-02	6	REC030	28.18%	85.58%	\$ 110,679	\$ 336,072	\$ 8,349	\$ 42,531	\$ 454	\$ 103,485	\$ 121,627	\$ -	\$ 59,625
Mohawk Sports Park - Soccer Field House	1991-01-02	6	REC030	11.94%	18.77%	\$ 194,686	\$ 306,116	\$ -	\$ 40,021	\$ 6,604	\$ 159,298	\$ 95,287	\$ -	\$ 4,906
Mohawk Sports Park - Storage / Office Space	1982-01-02	6	REC050	17.46%	25.16%	\$ 38,550	\$ 55,532	\$ -	\$ 11,321	\$ 13,948	\$ -	\$ 19,812	\$ -	\$ 10,451
Mount Hope Community Youth Centre	1964-01-02	11	REC021	24.25%	24.40%	\$ 632,139	\$ 636,226	\$ -	\$ 105,394	\$ 202,338	\$ 153,798	\$ 172,993	\$ -	\$ 1,703
Normanhurst Community Centre (for sale)	1944-01-02	4	REC037	28.57%	32.43%	\$ 363,690	\$ 412,887	\$ 8,349	\$ 82,963	\$ -	\$ 143,428	\$ 176,477	\$ -	\$ 1,670
Sealy Park Scout Hall	1855-01-01	15	REC044	20.34%	37.98%	\$ 77,856	\$ 145,342	\$ -	\$ 45,872	\$ -	\$ 21,370	\$ 4,906	\$ -	\$ 73,194
Sheffield Community Hall	1877-01-01	14	REC046	17.65%	40.14%	\$ 332,400	\$ 755,728	\$ 9,600	\$ 94,000	\$ 65,280	\$ 190,080	\$ 141,408	\$ -	\$ 255,360
Morgan Firestone Arena & Rotary Centre	1996-01-02	12	ARE010-REC	11.80%	16.09%	\$ 3,482,181	\$ 4,747,276	\$ -	\$ 657,761	\$ 59,276	\$ 605,752	\$ 870,748	\$ 2,553,740	\$ -
Valens Community Hall	1959-01-02	14	REC051	16.44%	39.66%	\$ 209,680	\$ 505,789	\$ -	\$ -	\$ 128,960	\$ 84,160	\$ 188,304	\$ -	\$ 104,365
Woodburn Ball Park - Concession / Washrooms	1976-01-02	11	REC020	22.49%	22.49%	\$ 35,530	\$ 35,530	\$ -	\$ 14,718	\$ 2,887	\$ -	\$ 17,925	\$ -	\$ -
Millgrove Community Centre	1986-01-02	15	REC029	9.56%	36.03%	\$ 184,386	\$ 695,170	\$ 8,226	\$ 36,560	\$ 86,400	\$ 217,792	\$ 273,424	\$ -	\$ 72,768
Mohawk Sports Park - Bldg C - Small Parks	1991-01-02	6	REC041	7.76%	12.30%	\$ 18,735	\$ 29,679	\$ -	\$ 9,919	\$ -	\$ 14,477	\$ 4,151	\$ -	\$ 1,132
Mohawk Sports Park - Bldg D - Track And Field	1982-01-02	6	REC030	7.10%	24.75%	\$ 65,543	\$ 228,521	\$ -	\$ 26,700	\$ 31,133	\$ 65,456	\$ 103,250	\$ -	\$ 1,982
Binbrook Memorial Hall	1924-01-02	11	REC006	Renovated	6.20%	\$ 210,258	\$ 134,466	\$ 7,664	\$ 68,127	\$ -			\$ -	\$ 58,675
Waterdown Memorial Hall	1926-01-02	13	REC055	Renovated	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Beasley Community Centre (New)	2010-11-24	2	REC054	0.18%	5.65%	\$ 2,400	\$ 77,280	\$ -	\$ 31,680	\$ -	\$ 16,640	\$ 28,960	\$ -	\$ -

iii) INFRASTRUCTURE RENEWAL PRIORITIES: OTHER RECREATION FACILITIES (cont'd)

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior Walls/Windows/Doors)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior Finishes)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special Construction/Equipment)	Renewal Costs CAT.G (Parking Lots and Roadways)
Copetown Lions Park - Pavilion	1998-01-02	14	REC012	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Eastmount Community Centre	1964-01-02	7	REC018	4.77%	59.12%	\$ 50,800	\$ 629,446	\$ -	\$ 56,320	\$ 124,800	\$ 57,040	\$ 126,360	\$ -	\$ 264,926
Fruitland Community Centre	1964-01-02	10	REC019	3.16%	56.76%	\$ 70,432	\$ 1,264,109	\$ 9,600	\$ 31,680	\$ 72,032	\$ 153,920	\$ 195,024	\$ -	\$ 801,853
Valley Park Community Centre	1985-01-02	9	REC053	2.77%	32.61%	\$ 401,804	\$ 4,729,098	\$ -	\$2,065,754	\$1,111,547	\$1,025,917	\$ 235,528	\$ 228,073	\$ 62,281
Lynden Lions South Park - Lions Communi	1900-01-01	14	REC060	0.91%	2.76%	\$ 8,304	\$ 25,192	\$ -	\$ 12,737	\$ -	\$ -	\$ 9,247	\$ -	\$ 3,208
Dundas Lions Memorial Community Centre	1940-01-02	13	REC014	1.15%	25.50%	\$ 92,400	\$ 2,048,214	\$ 17,600	\$ 85,680	\$ 592,608	\$ 391,280	\$ 465,760	\$ -	\$ 495,286
Optimist Youth Centre	1969-01-02	12	REC039	1.76%	43.82%	\$ 29,600	\$ 738,411	\$ 9,600	\$ 29,600	\$ 75,840	\$ 164,720	\$ 131,267	\$ -	\$ 327,384
Simone Hall (Old Beasley)	1998-01-02	2	REC054	4.62%	31.83%	\$ 49,009	\$ 337,747	\$ -	\$ 27,480	\$ 130,088	\$ 88,931	\$ 79,088	\$ -	\$ 12,160
Alliance Church	1985-01-02	10	REC066	0.87%	32.42%	\$ 107,040	\$ 3,968,373	\$ 25,600	\$ 164,880	\$ -	\$ 975,520	\$ 1,063,333	\$ -	\$ 1,739,040
Winona Park - Scout Hall Building	1973-01-02	11	REC057	3.55%	6.83%	\$ 10,728	\$ 20,635	\$ -	\$ 16,040	\$ 1,509	\$ -	\$ -	\$ -	\$ 3,086
			Total Construction Costs			\$ 9,879,285	\$ 29,904,203	\$ 151,108	\$4,647,972	\$4,129,579	\$6,785,774	\$ 6,007,669	\$ 2,781,813	\$5,400,287
			Soft Costs			\$ 2,963,785	\$ 8,971,261							
			Total Project Costs			\$ 12,843,070	\$ 38,875,463							
			Available Funds through annual program			\$ 100,000	\$ 1,000,000							
			Shortfall			\$ 12,743,070	\$ 37,875,463							

iv) INFRASTRUCTURE RENEWAL PRIORITIES: PARK BUILDINGS AND WASHROOMS

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next	Renewal Costs CAT. A (Found	Renewal Costs CAT. B (Exterior	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Specia	Renewal Costs CAT.G (Parking Lo
Rosedale Tennis Club House	1977-01-02	5	PRK107	111.12%	123.38%	\$ 346,406	\$ 384,643	\$ -	\$ -	\$ -	\$ 207,448	\$ 73,583	\$ -	\$ 103,612
Gage Park - Small Building South Of Baseball Change F	1968-01-02	3	PRK077	61.27%	61.27%	\$ 8,397	\$ 8,397	\$ -	\$ 8,113	\$ -	\$ -	\$ 284	\$ -	\$ -
Carlisle Community Centre - Washrooms / Concession	1982-01-02	15	PRK026	60.62%	68.83%	\$ 41,134	\$ 46,701	\$15,329	\$ 14,379	\$ -	\$ 105	\$ 8,963	\$ -	\$ 7,925
Highview Park - Storage Shed	1985-01-02	6	PRK073	51.79%	51.79%	\$ 2,830	\$ 2,830	\$ -	\$ 1,132	\$ 943	\$ -	\$ 755	\$ -	\$ -
Globe Park - Storage - 133062	1974-01-02	4	PRK065	50.99%	50.99%	\$ 12,029	\$ 12,029	\$ -	\$ 8,680	\$ 3,350	\$ -	\$ -	\$ -	\$ -
Belview Park - Utility Bldg For Spray Pad And Supie	1968-01-02	3	PRK014	47.68%	47.68%	\$ 24,547	\$ 24,547	\$ -	\$ 5,661	\$ 4,547	\$ -	\$ 14,340	\$ -	\$ -
Gage Park - Band Shell	1951-01-02	3	PRK159	47.52%	99.66%	\$ 65,695	\$ 137,773	\$ -	\$ 65,912	\$ 30,567	\$ 26,424	\$ 14,869	\$ -	\$ -
Kings Forest Golf Club - Storage / Office	1985-01-02	5	PRK079	44.91%	52.09%	\$ 47,172	\$ 54,719	\$ -	\$ -	\$ 47,172	\$ -	\$ 7,547	\$ -	\$ -
Little League Park - Storage	1987-01-02	9	PRK081	41.45%	41.45%	\$ 29,176	\$ 29,176	\$ -	\$ -	\$ 28,799	\$ -	\$ -	\$ -	\$ 377
Kings Forest Golf Clubhouse	1977-01-02	5	PRK079	38.63%	53.07%	\$ 1,059,477	\$1,455,639	\$ -	\$ 23,963	\$ 755	\$ 635,629	\$ 185,517	\$ -	\$ 609,776
Freelton Community Park - Storage	1973-01-02	14	PRK059	40.79%	40.79%	\$ 4,246	\$ 4,246	\$ -	\$ 3,114	\$ 1,132	\$ -	\$ -	\$ -	\$ -
Flamborough Centre Park - Garage / Washroom / Conc	2000-01-02	15	PRK058	33.41%	57.65%	\$ 20,548	\$ 35,455	\$ -	\$ 19,812	\$ -	\$ -	\$ 15,643	\$ -	\$ -
HAAA - Field House/Changeroom/Washrooms	1944-01-02	1	PRK070	29.47%	54.54%	\$ 222,650	\$ 412,061	\$ -	\$ 150,435	\$ -	\$ 190,586	\$ 55,048	\$ -	\$ 15,992
Gage Park - 2 Storage Bldgs, 1 Concrete Stucco And 1	1962-01-02	3	PRK061	29.14%	39.07%	\$ 8,302	\$ 11,132	\$ -	\$ 5,095	\$ -	\$ -	\$ 6,038	\$ -	\$ -
Globe Park - Storage - 133195	1974-01-02	4	PRK065	28.62%	28.62%	\$ 3,774	\$ 3,774	\$ -	\$ 3,774	\$ -	\$ -	\$ -	\$ -	\$ -
Churchill Park - Sun Shelter 146886	1985-01-02	1	PRK034	27.06%	27.06%	\$ 1,099	\$ 1,099	\$ -	\$ -	\$ 1,099	\$ -	\$ -	\$ -	\$ -
Bullocks Corner Park - Storage / Concession	1954-01-02	14	PRK023	21.14%	56.97%	\$ 8,351	\$ 22,502	\$ -	\$ 3,774	\$ 7,407	\$ -	\$ 11,321	\$ -	\$ -
Chedoke Golf - Pro Shop	1956-01-02	1	PRK030-2	19.99%	29.59%	\$ 83,862	\$ 124,134	\$ -	\$ 10,944	\$ 26,818	\$ 73,407	\$ 12,964	\$ -	\$ -
Churchill Park - Cricket Club'S Storage Buildings (2)	1990-01-01	1	PRK035	19.74%	19.74%	\$ 7,547	\$ 7,547	\$ -	\$ 7,547	\$ -	\$ -	\$ -	\$ -	\$ -
Sanctuary Park - Washrooms	1978-01-02	13	PRK114	19.68%	21.97%	\$ 19,430	\$ 21,694	\$ -	\$ 5,844	\$ -	\$ -	\$ 11,699	\$ -	\$ 4,151
Valley Park - Pavilion	1986-01-02	9	PRK146	18.88%	33.02%	\$ 20,164	\$ 35,259	\$ -	\$ -	\$ 20,164	\$ -	\$ -	\$ -	\$ 15,095
Chedoke Golf - Storage - 111373	1964-08-30	1	PRK030	18.73%	26.96%	\$ 3,435	\$ 4,944	\$ -	\$ -	\$ 982	\$ -	\$ 3,962	\$ -	\$ -
Hamilton Tennis Club	1996-01-02	1	PRK071	18.70%	21.78%	\$ 377,037	\$ 439,240	\$ -	\$ 14,908	\$ 36,558	\$ 324,457	\$ 63,317	\$ -	\$ -
Gilkson Park - Small Utility Shed Next To Ball Diamond	1968-01-02	8	PRK063	18.50%	51.13%	\$ 1,605	\$ 4,435	\$ -	\$ 2,830	\$ 1,605	\$ -	\$ -	\$ -	\$ -
Globe Park - Washrooms / Changerooms	1974-01-02	4	PRK065	17.85%	43.02%	\$ 44,436	\$ 107,119	\$ -	\$ 12,453	\$ 16,982	\$ -	\$ 71,646	\$ -	\$ 6,038
Millgrove Park - Washrooms	1974-01-02	15	PRK106	17.64%	57.79%	\$ 10,850	\$ 35,543	\$ -	\$ 16,927	\$ 7,200	\$ -	\$ 11,416	\$ -	\$ -
Churchill Park - Sun Shelter 151590	1985-01-02	1	PRK034	27.10%	27.10%	\$ 1,100	\$ 1,100	\$ -	\$ -	\$ 1,100	\$ -	\$ -	\$ -	\$ -
Churchill Park - Washroom / Changeroom	1954-01-02	1	PRK034	10.93%	14.52%	\$ 13,208	\$ 17,548	\$ -	\$ 12,265	\$ -	\$ -	\$ 5,283	\$ -	\$ -
Lynden Lions South Park - Washroom/Concession Nort	1985-01-02	14	PRK084	17.19%	18.05%	\$ 28,303	\$ 29,719	\$ -	\$ 7,547	\$ -	\$ -	\$ 20,755	\$ -	\$ 1,416
Binbrook Park - Ball Park Washroom	1983-01-02	11	PRK017	16.59%	80.26%	\$ 5,849	\$ 28,303	\$ -	\$ -	\$ -	\$ -	\$ 27,171	\$ -	\$ 1,132
Beverly Park - Storage Garage At Entrance To Park	1975-01-02	14	PRK016	15.31%	19.08%	\$ 57,541	\$ 71,692	\$ -	\$ 25,661	\$ 37,313	\$ -	\$ 8,718	\$ -	\$ -
Rosedale Lawn Bowling - Clubhouse	1934-01-02	5	PRK108	15.26%	44.88%	\$ 76,780	\$ 225,850	\$ -	\$ 47,930	\$ 14,888	\$ 128,420	\$ 32,726	\$ -	\$ 1,887
Lucy Day Park - Storage & Utility	1968-01-02	3	PRK082	14.63%	32.92%	\$ 7,242	\$ 16,299	\$ -	\$ -	\$ 5,355	\$ -	\$ 10,944	\$ -	\$ -

iv) INFRASTRUCTURE RENEWAL PRIORITIES: PARK BUILDINGS AND WASHROOMS (cont'd)

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next	Renewal Costs CAT. A (Found	Renewal Costs CAT. B (Exterior	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Specia	Renewal Costs CAT.G (Parking Lo
Beverly Park - Tennis Clubhouse	1978-01-02	14	PRK016-6	14.32%	30.23%	\$ 7,514	\$ 15,863	\$ -	\$ 8,349	\$ -	\$ 7,514	\$ -	\$ -	\$ -
Chedoke Golf - Washrooms - 126793	1964-08-30	1	PRK030	13.89%	20.75%	\$ 14,182	\$ 21,188	\$ -	\$ -	\$ 6,440	\$ -	\$ 7,200	\$ 7,547	\$ -
Ancaster Little League Park - Concession / Changeroom	1971-01-02	12	PRK004	13.74%	13.74%	\$ 20,221	\$ 20,221	\$ -	\$ 943	\$ -	\$ -	\$ 19,278	\$ -	\$ -
Churchill Clubhouse - Former Lawnbowling Clubhouse	1963-01-02	13	PRK034	13.65%	41.09%	\$ 127,121	\$ 382,607	\$ -	\$ 66,135	\$ -	\$ 271,658	\$ 41,040	\$ -	\$ 3,774
Bullocks Corner Park - Washroom / Storage And Utility Bldg	1971-01-02	14	PRK023	12.88%	17.32%	\$ 24,845	\$ 33,399	\$ -	\$ 11,323	\$ -	\$ -	\$ 21,699	\$ -	\$ 377
Edwards Park - Storage / Concession	1968-01-02	13	PRK051	12.57%	12.57%	\$ 14,340	\$ 14,340	\$ -	\$ -	\$ -	\$ -	\$ 14,340	\$ -	\$ -
Strabane Community Park - Washroom / Concession / Storage	1971-01-02	14	PRK125	12.48%	12.48%	\$ 15,839	\$ 15,839	\$ -	\$ 10,109	\$ -	\$ 5,731	\$ -	\$ -	\$ -
Centennial Heights Park - 2nd. Flr Concession Booth / L	1981-01-02	14	PRK060	11.84%	63.36%	\$ 8,372	\$ 44,809	\$ -	\$ 15,617	\$ -	\$ -	\$ 24,097	\$ -	\$ 5,095
Millgrove Park - Small Storage / Washroom Between Th	1974-01-02	15	PRK093	11.12%	72.16%	\$ 2,700	\$ 17,526	\$ -	\$ 9,057	\$ 5,921	\$ 1,132	\$ -	\$ -	\$ 1,416
Chedoke Golf - Storage - 121640	1964-08-30	1	PRK030	10.98%	10.98%	\$ 3,019	\$ 3,019	\$ -	\$ 3,019	\$ -	\$ -	\$ -	\$ -	\$ -
Sheffield Ball Park - Pavilion	1987-01-02	14	PRK117	10.67%	10.67%	\$ 4,019	\$ 4,019	\$ -	\$ -	\$ -	\$ 4,019	\$ -	\$ -	\$ -
Kings Forest Golf Club - Pavilion A	1985-01-02	5	PRK079	10.48%	10.48%	\$ 1,354	\$ 1,354	\$ -	\$ -	\$ 1,354	\$ -	\$ -	\$ -	\$ -
Central Park - Pavilion	2002-01-02	2	PRK029	10.22%	10.22%	\$ 10,022	\$ 10,022	\$ -	\$ 8,341	\$ -	\$ -	\$ 1,209	\$ -	\$ 473
Winona Park - Storage	1968-01-02	11	PRK142	9.93%	16.30%	\$ 8,821	\$ 14,482	\$ -	\$ 5,661	\$ 8,821	\$ -	\$ -	\$ -	\$ -
Churchill Park - Small Storage Shed To East Of Main Bl	1985-01-02	1	PRK035	9.91%	9.91%	\$ 2,543	\$ 2,543	\$ -	\$ -	\$ 2,543	\$ -	\$ -	\$ -	\$ -
Valley Park - Washroom / Changeroom	1986-01-02	9	PRK131	9.58%	15.13%	\$ 14,529	\$ 22,945	\$ -	\$ -	\$ 8,416	\$ -	\$ 14,529	\$ -	\$ -
Gage Park - Small Structure North Of Tennis Courts	1962-01-02	3	PRK061	9.51%	17.72%	\$ 4,587	\$ 8,549	\$ -	\$ 2,830	\$ 4,587	\$ -	\$ -	\$ -	\$ 1,132
Dundas Driving Park - Baseball Washroom/Concession	1966-01-02	13	PRK045	8.87%	28.64%	\$ 16,002	\$ 51,663	\$ -	\$ 15,152	\$ 11,416	\$ -	\$ 21,699	\$ -	\$ 3,396
Churchill Park - Storage Shed	1985-01-02	1	PRK035	8.76%	8.76%	\$ 1,359	\$ 1,359	\$ -	\$ -	\$ 1,359	\$ -	\$ -	\$ -	\$ -
Glanbrook Sports Park - Concession / Washrooms	1985-01-02	11	PRK174	8.74%	12.71%	\$ 6,227	\$ 9,057	\$ -	\$ 9,057	\$ -	\$ -	\$ -	\$ -	\$ -
Chedoke Golf - Washrooms - 114305	1964-08-30	1	PRK030	8.54%	24.53%	\$ 6,604	\$ 18,964	\$ -	\$ -	\$ -	\$ -	\$ 18,964	\$ -	\$ -
Ancaster Community Centre Park - Washroom / Conces	1996-01-02	12	PRK002	8.30%	24.21%	\$ 13,019	\$ 37,974	\$ -	\$ 3,585	\$ 13,634	\$ -	\$ 9,434	\$ -	\$ 11,321
Village Green Park - Tennis Club House	1968-01-02	12	PRK006	8.23%	15.35%	\$ 12,455	\$ 23,235	\$ -	\$ 5,378	\$ 8,893	\$ -	\$ 1,887	\$ -	\$ 7,077
Beverly Park - Washrooms - Located North West Corner	1985-01-02	14	PRK016	8.19%	8.19%	\$ 3,465	\$ 3,465	\$ -	\$ -	\$ -	\$ -	\$ 3,465	\$ -	\$ -
Gourley Park - Washroom / Storage / Concession	1985-01-02	8	PRK066	7.77%	11.14%	\$ 15,095	\$ 21,634	\$ -	\$ 1,887	\$ -	\$ -	\$ 7,953	\$ -	\$ 11,794
Sackville Hill Memorial Park - Garbage Storage	1996-01-02	7	PRK111	7.26%	7.26%	\$ 1,887	\$ 1,887	\$ -	\$ 1,887	\$ -	\$ -	\$ -	\$ -	\$ -
Carlisle Memorial Park - Storage For Grass Cutting Equ	1976-01-02	15	PRK026	7.03%	20.30%	\$ 6,267	\$ 18,099	\$ -	\$ 9,474	\$ 8,058	\$ -	\$ -	\$ -	\$ 566
Gage Park - Washrooms / Storage	1962-01-02	3	PRK061	6.59%	33.12%	\$ 16,728	\$ 84,089	\$ -	\$ 8,209	\$ -	\$ -	\$ 72,861	\$ -	\$ 3,019
Woodlands Park - Concession / Washrooms	1966-01-02	3	PRK144	6.34%	7.75%	\$ 22,303	\$ 27,286	\$ -	\$ -	\$ -	\$ -	\$ 25,700	\$ -	\$ 1,586
Templemead Park - Storage	1968-01-02	6	PRK127	6.31%	42.56%	\$ 755	\$ 5,095	\$ -	\$ -	\$ -	\$ -	\$ 5,095	\$ -	\$ -
Mountain Drive Park - Washrooms / Storage	1968-01-02	6	PRK096	6.02%	6.24%	\$ 18,286	\$ 18,947	\$ -	\$ -	\$ -	\$ -	\$ 18,097	\$ -	\$ 850
T.B. Mcquesten Park - Storage / Washroom / Utility	2002-01-02	7	PRK091	6.02%	9.74%	\$ 36,814	\$ 59,598	\$ -	\$ -	\$ 4,717	\$ 42,239	\$ 8,680	\$ -	\$ 3,962
Veterans Park - Storage / Concession	1985-01-02	13	PRK133	5.88%	12.33%	\$ 10,000	\$ 20,959	\$ -	\$ 3,774	\$ 9,261	\$ -	\$ 5,661	\$ -	\$ 2,264
Buchanan Park - Washroom And Changeroom Facility	1968-01-02	8	PRK022	5.87%	23.50%	\$ 16,227	\$ 64,938	\$ -	\$ 13,208	\$ 18,067	\$ -	\$ 22,342	\$ -	\$ 11,321
Andrew Warburton Memorial Park - Storage, Utility Bldg	1985-09-20	4	PRK007	5.76%	9.26%	\$ 5,589	\$ 8,985	\$ -	\$ -	\$ -	\$ -	\$ 8,324	\$ -	\$ 661

iv) INFRASTRUCTURE RENEWAL PRIORITIES: PARK BUILDINGS AND WASHROOMS (cont'd)

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next	Renewal Costs CAT. A (Found	Renewal Costs CAT. B (Exterior	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Specia	Renewal Costs CAT.G (Parking Lo
Alexander Park - Washroom, Concession, Storage	1973-01-02	1	PRK001	5.71%	17.23%	\$ 15,734	\$ 47,480	\$ -	\$ 4,208	\$ -	\$ -	\$ 18,555	\$ -	\$ 24,718
Chedoke Golf - Washrooms / Storage - 125141	1964-08-30	1	PRK030	5.62%	104.05%	\$ 3,137	\$ 58,122	\$ -	\$ -	\$ -	\$ -	\$ 23,422	\$ 34,700	\$ -
Sam Lawrence Park - Pavilion	1968-01-02	7	PRK112	5.37%	8.79%	\$ 5,844	\$ 9,560	\$ -	\$ -	\$ -	\$ -	\$ 3,715	\$ -	\$ 5,844
Valley Park -Tennis Club House	1986-01-02	9	PRK132	5.17%	40.72%	\$ 82,439	\$ 649,157	\$ -	\$ 32,284	\$ -	\$ 498,568	\$ 68,523	\$ -	\$ 49,782
Mahony Park - Washrooms	1969-01-02	4	PRK086	Reconstructed	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Montgomery Park - Washroom / Storage / Concession	1964-01-02	4	PRK094	Reconstructed	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Gage Park Tropical House	1980-01-02	3	YRD085	Reconstructed	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Churchill Park - Garden Shed	1985-01-02	1	PRK035	4.85%	4.85%	\$ 943	\$ 943	\$ -	\$ 943	\$ -	\$ -	\$ -	\$ -	\$ -
Gage Park - Washroom, Utility Bldg For Wading Pool At	2002-01-02	3	PRK061	4.74%	18.23%	\$ 3,208	\$ 12,341	\$ -	\$ -	\$ -	\$ -	\$ 12,341	\$ -	\$ -
Mount Hope Park - Baseball Storage / Concession / Wa	1968-01-02	11	PRK170	4.44%	18.42%	\$ 17,170	\$ 71,218	\$ -	\$ 18,775	\$ 30,272	\$ -	\$ 18,964	\$ -	\$ 3,208
Bobby Kerr Park - Storage - 3 Structures Side By Side	1968-01-02	6	PRK160	4.02%	4.02%	\$ 2,171	\$ 2,171	\$ -	\$ 943	\$ 1,227	\$ -	\$ -	\$ -	\$ -
Martino Memorial Park - Washrooms And Concession E	1984-01-02	13	PRK156	4.02%	15.08%	\$ 10,378	\$ 38,964	\$ -	\$ 14,058	\$ -	\$ -	\$ 5,661	\$ -	\$ 19,246
Victoria Park - Washroom / Concession At South End O	1984-01-02	1	PRK134	3.82%	19.04%	\$ 10,680	\$ 53,229	\$ -	\$ 566	\$ -	\$ -	\$ 32,851	\$ -	\$ 19,812
Chedoke Golf - Storage - 124650	1964-08-30	1	PRK030	3.07%	19.99%	\$ 1,887	\$ 12,265	\$ -	\$ 2,830	\$ 377	\$ -	\$ 9,057	\$ -	\$ -
Little League Park - Tennis Court Club House	1987-01-02	9	PRK123	2.94%	11.79%	\$ 9,434	\$ 37,832	\$ -	\$ 21,228	\$ -	\$ -	\$ 11,887	\$ -	\$ 4,717
Bruce Park - Washrooms / Changerooms	1969-01-02	7	PRK021	2.81%	19.70%	\$ 7,547	\$ 52,889	\$ -	\$ 13,442	\$ 14,011	\$ -	\$ 18,643	\$ -	\$ 6,793
Chedoke Golf - Equipment Storage - 125060	1954-01-02	1	PRK030	2.80%	12.75%	\$ 10,095	\$ 46,041	\$ -	\$ 10,755	\$ 5,661	\$ -	\$ 29,625	\$ -	\$ -
Gilkson Park - Small Storage Next To Playground	2004-01-02	8	PRK063	2.38%	30.17%	\$ 566	\$ 7,170	\$ -	\$ 6,604	\$ -	\$ -	\$ -	\$ -	\$ 566
Dundas Driving Park - Tennis Clubhouse	1954-01-02	13	PRK045	2.37%	7.61%	\$ 8,108	\$ 26,034	\$ -	\$ 5,844	\$ -	\$ -	\$ 17,548	\$ -	\$ 2,642
Eastwood Park- Concession	1973-01-02	2	PRK049	2.25%	13.63%	\$ 8,805	\$ 53,390	\$ -	\$ 1,703	\$ 35,361	\$ 10,900	\$ 3,916	\$ -	\$ 1,509
Battlefield Park - Washroom / Concession	2004-01-02	9	PRK009	2.16%	16.45%	\$ 10,214	\$ 77,739	\$ -	\$ -	\$ 22,365	\$ 29,806	\$ 15,756	\$ -	\$ 9,812
Sam Manson Park - Washroom / Storage Bldg	1979-01-02	5	PRK113	2.04%	2.04%	\$ 9,341	\$ 9,341	\$ -	\$ -	\$ -	\$ -	\$ 6,510	\$ -	\$ 2,830
Powell Park - Washrooms, Small Meeting Space, Stora	1968-01-02	3	PRK104	1.86%	8.75%	\$ 11,321	\$ 53,116	\$ -	\$ 2,830	\$ -	\$ -	\$ 18,586	\$ -	\$ 31,699
Dundas Driving Park - Lawn Bowling Club House	1954-01-02	13	PRK045	1.72%	2.41%	\$ 5,001	\$ 6,983	\$ -	\$ -	\$ -	\$ -	\$ 6,699	\$ -	\$ 284
Bayfront Park - Concession	2002-08-28	2	PRK010	1.64%	7.92%	\$ 1,605	\$ 7,738	\$ -	\$ 3,303	\$ -	\$ -	\$ 4,435	\$ -	\$ -
Jackie Washington Rotary Park - Washrooms / Concess	2002-01-02	2	PRK171	1.52%	1.52%	\$ 1,454	\$ 1,454	\$ -	\$ -	\$ -	\$ -	\$ 982	\$ -	\$ 473
Village Green Park - Lawn Bowling Club House	1968-01-02	12	PRK003	1.45%	14.85%	\$ 2,548	\$ 26,040	\$ -	\$ 13,208	\$ -	\$ -	\$ 10,096	\$ -	\$ 2,737
Trieste Bocce Club - Clubhouse	2009-01-02	7	PRK153	1.39%	12.70%	\$ 1,960	\$ 17,908	\$ -	\$ 1,960	\$ -	\$ 3,340	\$ 10,722	\$ -	\$ 1,887
Sackville Hill Memorial Park - Storage Garage Used By	1962-01-02	7	PRK111	1.34%	1.34%	\$ 943	\$ 943	\$ -	\$ 943	\$ -	\$ -	\$ -	\$ -	\$ -
Chedoke Golf - Golf Shelter - 113753	1964-01-02	1	PRK030	1.32%	1.32%	\$ 170	\$ 170	\$ -	\$ -	\$ 170	\$ -	\$ -	\$ -	\$ -
Myrtle Park - Pavilion/Storage	1969-01-02	3	PRK098	1.27%	1.41%	\$ 2,077	\$ 2,304	\$ -	\$ -	\$ -	\$ -	\$ 2,077	\$ -	\$ 227
Pier 4 Park - Gartshore - Thomson Bldg	1870-01-01	2	PRK102	1.22%	6.12%	\$ 4,906	\$ 24,643	\$ -	\$ 17,473	\$ 3,774	\$ -	\$ 2,264	\$ -	\$ 1,132
Beach Strip Open Space - Washroom Utility Bldg For Tr	2008-09-22	5	PRK162	1.22%	4.99%	\$ 3,132	\$ 12,851	\$ -	\$ -	\$ 4,906	\$ -	\$ 6,058	\$ -	\$ 1,887
Kings Forest Golf Club - Storage Quonset	2002-01-02	5	PRK079	1.15%	1.15%	\$ 2,076	\$ 2,076	\$ -	\$ -	\$ -	\$ -	\$ 2,076	\$ -	\$ -
Billy Sherring Park - Sunshelter Washroom Building	2002-01-02	7	PRK154	1.14%	6.38%	\$ 2,264	\$ 12,642	\$ -	\$ -	\$ -	\$ -	\$ 12,642	\$ -	\$ -

iv) INFRASTRUCTURE RENEWAL PRIORITIES: PARK BUILDINGS AND WASHROOMS (cont'd)

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next	Renewal Costs CAT. A (Found	Renewal Costs CAT. B (Exterior	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Specia	Renewal Costs CAT.G (Parking Lc
Rosedale Park - Utility Bldg For New Cso Tank Behind /	2014-01-02	5	PRK005	0.00%	5.17%	\$ -	\$ 6,415	\$ -	\$ 5,661	\$ -	\$ -	\$ -	\$ -	\$ 755
Sackville Hill Memorial Park - Bocci Storage Shed	1996-01-02	7	PRK111	0.00%	28.23%	\$ -	\$ 3,674	\$ -	\$ -	\$ 3,674	\$ -	\$ -	\$ -	\$ -
Sackville Hill Memorial Park - Changeroom / Washroom	2011-01-02	7	PRK111	0.00%	0.20%	\$ -	\$ 1,132	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,132
Sackville Park - Bocce Sun Shelter	2002-01-02	7	PRK220	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Shawinigan Park - Storage And Sunshelter	1990-01-01	8	PRK116	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sheffield Ball Park - Concession / Shelter	1987-01-02	14	PRK117	0.00%	5.25%	\$ -	\$ 8,591	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,591
Strabane Community Park - Pavilion	1971-01-02	14	PRK125	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trenholme - Splashpad Equipment Building	2012-01-02	6	PRK129	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trenholme Park - Bocce Storage Shed	1968-01-02	6	PRK129	0.00%	25.24%	\$ -	\$ 6,612	\$ -	\$ -	\$ 6,612	\$ -	\$ -	\$ -	\$ -
Trenholme Park - Pavilion	1985-01-02	6	PRK129	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trieste Bocce Club - Bocce Court	2009-01-02	7	PRK153	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Veevers Park - Sunshelter With Storage Bldg	2002-01-02	5	PRK150	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Waterdown Memorial Park - Picnic Pavilion	1985-01-02	15	PRK136	0.00%	15.68%	\$ -	\$ 13,669	\$ -	\$ -	\$ 13,669	\$ -	\$ -	\$ -	\$ -
Waterdown Memorial Park - Storage Shed	1954-01-02	15	PRK136	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Waterdown Memorial Park - Washroom / Storage / Utilit	2014-01-02	15	PRK136	0.00%	4.57%	\$ -	\$ 10,378	\$ -	\$ -	\$ -	\$ -	\$ 6,604	\$ -	\$ 3,774
William Mcculloch - Pavilion	2011-01-02	8	PRK089	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
William Mcculloch Park - Change / Washroom	1998-01-02	8	PRK089	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
William Mcculloch Park - Storage	1998-01-02	8	PRK193	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Winona Park - Picnic Pavilion In Woods Area	2002-01-02	11	PRK142	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Woodward Park - Washroom / Sun Shelter	1999-01-02	4	PRK145	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Construction Costs						\$ 3,562,039	\$6,939,651							
Soft Costs						\$ 1,068,612	\$2,081,895							
Total Project Costs						\$ 4,630,651	\$9,021,546							
Available Funds through annual program						\$ 100,000	\$1,000,000							
Shortfall						\$ 4,530,651	\$8,021,546							

1) NEW CONSTRUCTION: NEXT CORPORATE PRIORITIES

Overview

Currently under ongoing review and development by both Non-Public Facing Yard Study by Real Estate & Master Office Accommodation Planning Committee by Facilities & Real Estate.

Many locations and amounts are undisclosed as they pertain to discussion of the proposed or pending acquisition or disposition of land by the City. Under the City of Hamilton's Procedural By-Law and the Ontario Municipal Act, 2001, discussion of many of those items are closed.

New Construction or large Renovation priorities:

A) Office Accommodation, Lister Annex (approved)

Fully funded with no levy impact

Undisclosed amount

B) Office Accommodation, Undisclosed Annex #2 in Ward 2

Undisclosed amount

Edward John to provide estimated cost

C) Fire, New Construction (undisclosed location):

To support Fire Station 13 move

Undisclosed amount

D) EFFM, Renovation of undisclosed facility location:

Facilities move out of 125 Barton 22,500 s.f.

Undisclosed amount

E) Parks, Renovation of undisclosed facility:

Parks move out of 125 Barton 20,000 s.f.

Undisclosed amount

F) EMS, New Construction of undisclosed facility:

To support EMS move 30,000 s.f.

Undisclosed amount

G) Roads, New Construction of undisclosed facilities:

To support Roads move of office staff & salt domes 4500 s.f.

Undisclosed amount

2) INFRASTRUCTURE RENEWAL: NEXT PRIORITIES FOR CORPORATE FACILITIES

i) INFRASTRUCTURE RENEWAL PRIORITIES: FIRE AND EMS STATIONS

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior Walls/Windows/Doors)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior Finishes)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special Construction/Equipment)	Renewal Costs CAT.G (Parking Lots and Roadways)
Fire Stn #14 (595 Chapel Hill Rd, Elfrida)	2002-01-02	11	FIR014	42.13%	60.51%	\$ 369,969	\$ 531,321	\$ -	\$ 104,114	\$ 53,934	\$ 36,226	\$ 79,231	\$ -	\$ 257,816
Fire Stn #13 (177 Bay St. N.)	1967-01-02	2	FIR013	34.42%	51.04%	\$ 1,017,403	\$ 1,508,572	\$ -	\$ 177,332	\$ 606,134	\$ 77,478	\$ 429,303	\$ -	\$ 218,325
Fire Stn #07 (225 Quigley Rd.) (F)	1989-01-02	5	FIR007	30.52%	31.95%	\$ 829,969	\$ 868,775	\$ -	\$ 69,463	\$ 135,253	\$ 225,171	\$ 144,838	\$ -	\$ 248,131
Fire Stn #02 (1400 Upper Wellington St.)	1995-01-02	7	FIR002	20.66%	31.48%	\$ 596,866	\$ 909,576	\$ -	\$ 118,889	\$ 31,058	\$ 150,740	\$ 268,920	\$ 5,009	\$ 243,121
Fire Stn #11 (24 Ray St. S.)	1963-01-02	1	FIR011	13.88%	18.56%	\$ 186,182	\$ 248,966	\$ -	\$ 16,364	\$ 129,743	\$ 2,505	\$ 16,030	\$ -	\$ 38,405
Fire Stn #28 (1801 Brock Rd., Freilton)	1966-01-02	14	FIR028	13.62%	28.79%	\$ 186,223	\$ 393,653	\$ -	\$ 99,519	\$ -	\$ 90,252	\$ 75,975	\$ -	\$ 127,906
Fire Stn #06 (246 Wentworth St. N.)	1986-01-02	3	FIR006	13.49%	16.65%	\$ 538,966	\$ 665,386	\$ -	\$ 168,941	\$ -	\$ 150,156	\$ 176,096	\$ -	\$ 168,524
Fire Stn #19 (3302 Homestead Dr.)	1994-01-02	11	FIR019	13.35%	34.04%	\$ 299,644	\$ 763,845	\$ -	\$ 19,203	\$ 357,168	\$ 77,228	\$ 125,735	\$ -	\$ 184,512
Fire Stn #26 (119 Lynden Rd., Lynden)	1980-01-02	14	FIR026	12.80%	26.63%	\$ 191,797	\$ 399,093	\$ -	\$ 56,105	\$ 123,731	\$ 65,085	\$ 47,890	\$ -	\$ 106,282
Fire Stn #18 (2640 Hwy #56, Binbrook)	2005-01-02	11	FIR018	12.59%	22.06%	\$ 559,351	\$ 979,901	\$ -	\$ 72,135	\$ 112,794	\$ 142,057	\$ 354,139	\$ -	\$ 286,586
Fire Stn #24 (252 Parkside Dr., Flamborough)	1996-01-02	15	FIR024	12.49%	35.38%	\$ 384,344	\$ 1,088,594	\$ -	\$ 105,531	\$ 135,670	\$ 269,312	\$ 261,823	\$ -	\$ 316,258
Fire Stn #21 (365 Wilson St. W.)	1994-01-02	12	FIR021	12.30%	25.59%	\$ 478,270	\$ 995,186	\$ -	\$ 155,875	\$ 131,496	\$ 226,757	\$ 275,198	\$ -	\$ 205,860
Ems Stn #32 (1000 Limeridge Rd. E., Formerly Fire Stn 5)	1991-01-02	6	EMS001	10.63%	29.89%	\$ 185,789	\$ 522,218	\$ -	\$ 63,452	\$ 54,101	\$ 136,914	\$ 111,208	\$ -	\$ 156,543
Fire Stn #12 (199 Hwy #8)	1994-01-02	10	FIR012	10.60%	29.97%	\$ 393,653	\$ 1,113,165	\$ -	\$ 148,611	\$ 4,842	\$ 252,723	\$ 501,187	\$ -	\$ 205,802
Fire Stn #15 (415 Arvin Ave.)	1999-01-02	10	FIR015	10.04%	24.35%	\$ 257,912	\$ 625,433	\$ -	\$ 80,150	\$ 1,670	\$ 143,882	\$ 195,365	\$ -	\$ 187,668
Fire Stn #16 (939 Barton St. E.)	1999-01-02	11	FIR016	9.52%	23.93%	\$ 244,457	\$ 614,816	\$ -	\$ 133,917	\$ 44,750	\$ 85,660	\$ 141,264	\$ -	\$ 146,608

i) INFRASTRUCTURE RENEWAL PRIORITIES: FIRE AND EMS STATIONS cont'd

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior Walls/ Windows/ Doors)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior Finishes)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special Construction/ Equipment)	Renewal Costs CAT.G (Parking Lots and Roadways)
Fire Stn #30 (489 Victoria Ave. N.)	1988-01-02	3	FIR030	8.82%	22.02%	\$ 609,048	\$ 1,521,504	\$ -	\$ 274,096	\$ -	\$ 263,401	\$ 305,238	\$ -	\$ 678,770
Fire Stn #03 (965 Garth St.)	1981-01-02	8	FIR003	7.92%	23.48%	\$ 228,845	\$ 678,335	\$ -	\$ 127,572	\$ 1,670	\$ 89,651	\$ 235,607	\$ -	\$ 182,091
Fire Stn #17 (363 Isaac Brock St.)	1989-01-02	9	FIR017	6.54%	23.87%	\$ 165,727	\$ 604,614	\$ -	\$ 110,540	\$ 5,009	\$ 127,973	\$ 193,111	\$ -	\$ 151,283
Fire Stn #04 (729 Upper Sherman Ave.) (F)	1998-01-02	6	FIR004	6.50%	32.14%	\$ 469,002	\$ 2,318,044	\$ -	\$ 242,120	\$ 790,479	\$ 315,131	\$ 606,718	\$ -	\$ 261,740
Fire Department Admin. Bldg. (55 King William St.)	1979-01-02	2	FIR101	5.50%	22.04%	\$ 176,664	\$ 707,276	\$ 45,919	\$ 16,030	\$ 118,555	\$ 84,779	\$ 424,461	\$ -	\$ 17,533
Fire Stn #09 (125 Kenilworth Ave. N.)	2006-01-02	4	FIR009	5.50%	18.84%	\$ 180,838	\$ 619,116	\$ -	\$ 60,112	\$ 197,035	\$ 80,275	\$ 22,876	\$ -	\$ 212,898
Fire Stn #23 (19 Memorial Square, Dundas)	1976-01-02	13	FIR023	5.42%	13.24%	\$ 168,816	\$ 412,355	\$ -	\$ 103,527	\$ 4,675	\$ 97,683	\$ 102,024	\$ -	\$ 104,445
Fire Stn #27 (795 Old Hwy 8, Rockton)	1971-01-02	14	FIR027	4.83%	22.22%	\$ 72,385	\$ 333,039	\$ -	\$ 84,074	\$ 136,756	\$ 41,244	\$ 66,291	\$ -	\$ 4,675
Fire Stn #25 (361 Old Brock Rd., Greensville)	1971-01-02	14	FIR025	4.42%	6.50%	\$ 59,945	\$ 88,040	\$ -	\$ 11,522	\$ -	\$ 2,630	\$ 7,514	\$ -	\$ 66,374
Fire Stn #30 (489 Victoria Ave. N., Out Building)	1988-01-02	3	FIR030	3.59%	3.93%	\$ 34,523	\$ 37,862	\$ -	\$ 29,722	\$ -	\$ 3,131	\$ 1,670	\$ -	\$ 3,340
Fire Stn #08 (420 Melvin Ave.)	1958-01-02	4	FIR008	2.13%	13.57%	\$ 46,612	\$ 296,571	\$ -	\$ -	\$ 1,670	\$ 118,213	\$ 71,659	\$ -	\$ 59,111
Matc - Burn House / Smoke Tower (1227 Stonechurch Rd E)	2015-01-02	N/A	FIR005D	1.87%	1.87%	\$ 14,527	\$ 14,527	\$ 1,670	\$ 7,848	\$ 1,670	\$ 1,670	\$ 1,670	\$ -	\$ -
Fire Stn #01 (33 John St. N.) (F)	1917-01-02	2	FIR001	1.78%	10.50%	\$ 108,870	\$ 643,276	\$ -	\$ 75,141	\$ 331,036	\$ 124,723	\$ 72,552	\$ -	\$ 32,143
Fire Stn #10 (1455 Main St. W.)	1956-01-02	1	FIR010	1.36%	23.30%	\$ 46,420	\$ 795,905	\$ -	\$ 15,028	\$ 277,185	\$ 157,127	\$ 243,956	\$ -	\$ 56,689
Fire Stn #20 (661 Garner Rd. E.)	2013-01-02	12	FIR020	0.29%	5.64%	\$ 8,349	\$ 162,487	\$ -	\$ -	\$ 100,187	\$ 28,654	\$ 11,355	\$ -	\$ 22,292
Matc - Fire Stn #05 (1227 Stonechurch Rd E)	2015-01-02	6	FIR005	0.15%	0.70%	\$ 5,009	\$ 22,960	\$ -	\$ -	\$ 3,340	\$ 10,269	\$ 9,351	\$ -	\$ -
Matc - Training Support Centre (1227 Stonechurch Rd E)	2015-01-02	N/A	FIR005B	0.04%	0.18%	\$ 5,009	\$ 25,047	\$ -	\$ -	\$ -	\$ 5,009	\$ 20,037	\$ -	\$ -
Fire Stn #14 Garage (595 Chapel Hill Rd, Elfrida)	2002-01-02	11	FIR014B	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Matc - Training Centre (1227 Stonechurch Rd E)	2015-01-02	N/A	FIR005C	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			Total Construction Costs			\$ 9,121,386	\$ 21,509,462	\$ 47,589	\$ 2,746,931	\$ 3,891,613	\$ 3,683,709	\$ 5,600,292	\$ 5,009	\$ 4,951,729
			Soft Costs			\$ 2,736,416	\$ 6,452,839							
			Total Project Costs			\$ 11,857,801	\$ 27,962,301							
			Available Funds through annual pro			\$ 200,000	\$ 2,000,000							
			Shortfall			\$ 11,657,801	\$ 25,962,301							

ii) INFRASTRUCTURE RENEWAL PRIORITIES: YARDS

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT. F (Special)	Renewal Costs CAT. G (Parking Lot)
Mt Hamilton Cemetery - Storage	1982-01-02	7	YRD036	441.96%	441.96%	\$ 221,316	\$ 221,316	\$ 58,443	\$ 90,962	\$ 5,579	\$ 10,812	\$ -	\$ -	\$ 55,520
Forestry Operation Centre - Quonset	1984-01-02	6	YRD057	63.34%	127.61%	\$ 112,664	\$ 227,005	\$ 2,830	\$ 1,887	\$ 94,343	\$ -	\$ 21,340	\$ -	\$ 106,604
Fire Stn #29 (Fire Prevention Office & Dundas Yard (1998-01-02	13	FIR029-YRD	59.22%	79.45%	\$ 1,264,365	\$ 1,696,363	\$ -	\$ 92,506	\$ 440,274	\$ 150,540	\$ 307,891	\$ -	\$ 379,543
Brampton Yard - Salt Dome	1989-01-02	4	YRD058	54.89%	60.72%	\$ 149,662	\$ 165,560	\$ -	\$ 9,434	\$ 51,889	\$ 5,236	\$ 1,227	\$ -	\$ 97,773
Tapleystown Maintenance Yard - Sand Storage	1982-01-02	11	YRD051	41.11%	50.57%	\$ 24,584	\$ 30,245	\$ -	\$ 18,114	\$ 10,378	\$ -	\$ 810	\$ -	\$ 943
Hamilton Cemetery Gatehouse - Office (F) (Heritage)	1900-01-01	1	YRD030	37.70%	51.16%	\$ 470,112	\$ 638,046	\$ -	\$ 40,706	\$ 168,649	\$ 246,281	\$ 99,977	\$ -	\$ 82,434
Brampton Yard - Warehouse / Office (F)	1989-01-02	4	YRD011	34.96%	82.22%	\$ 170,804	\$ 401,750	\$ -	\$ 26,039	\$ 11,321	\$ 37,031	\$ 214,838	\$ -	\$ 112,520
Gage Park Horticulture Building (F)	1997-01-02	3	YRD026	33.21%	59.92%	\$ 500,224	\$ 902,633	\$ 1,887	\$ 83,057	\$ 167,553	\$ 90,336	\$ 366,659	\$ -	\$ 193,141
Chedoke Yard - Salt Dome	1989-01-02	1	YRD074	30.85%	117.39%	\$ 52,181	\$ 198,533	\$ -	\$ 137,090	\$ 47,172	\$ -	\$ 12,557	\$ -	\$ 1,715
Forestry Operation Centre - Main Building	1995-01-02	6	YRD024	22.77%	56.67%	\$ 465,202	\$ 1,158,064	\$ -	\$ 144,156	\$ -	\$ 47,549	\$ 581,335	\$ -	\$ 385,024
Brock Road Shed	1973-01-02	14	YRD023	22.23%	33.55%	\$ 432,811	\$ 653,337	\$ -	\$ 97,881	\$ -	\$ 47,232	\$ 335,320	\$ -	\$ 172,903
Bernie Court Yard - Garage	1968-01-02	N/A	YRD069	20.41%	344.07%	\$ 11,772	\$ 198,464	\$ -	\$ -	\$ 8,793	\$ -	\$ 177,749	\$ -	\$ 11,922
Brampton Yard - Quonset	1989-01-02	4	YRD058	17.99%	104.67%	\$ 25,847	\$ 150,346	\$ -	\$ 33,586	\$ 37,737	\$ 8,020	\$ 68,946	\$ -	\$ 2,057
Dundas Yard - Storage Building A	1985-01-02	13	YRD062	17.61%	23.41%	\$ 13,749	\$ 18,277	\$ -	\$ 14,151	\$ -	\$ -	\$ -	\$ -	\$ 4,126
Bernie Court Yard - Office / Garage (F)	1993-01-02	7	YRD008	17.54%	31.26%	\$ 992,700	\$ 1,768,997	\$ -	\$ 203,122	\$ 8,349	\$ 257,530	\$ 607,827	\$ -	\$ 692,170
Chedoke Yard - Operations Centre	1954-01-02	1	YRD014	16.99%	32.37%	\$ 480,592	\$ 915,689	\$ -	\$ 162,836	\$ -	\$ 64,626	\$ 488,175	\$ -	\$ 200,053
Glanbrook Yard #2 - Shop / Garage (F)	1969-01-02	11	YRD028	16.63%	20.39%	\$ 261,928	\$ 321,271	\$ -	\$ 69,273	\$ -	\$ 36,087	\$ 124,990	\$ -	\$ 90,920
Fiddler's Green Yard - Garage (sold)	1963-01-02	12	YRD022	16.01%	18.82%	\$ 565,087	\$ 664,262	\$ -	\$ 82,080	\$ 1,321	\$ 55,096	\$ 235,928	\$ -	\$ 289,837
Stoney Creek Operations Centre - Salt Dome	1994-01-02	11	YRD054	15.91%	17.60%	\$ 49,633	\$ 54,916	\$ -	\$ 8,349	\$ -	\$ -	\$ 33,407	\$ -	\$ 13,160
Gage Park Boiler Rm (1919 Bldg)	1977-01-02	3	YRD084	15.35%	23.36%	\$ 12,453	\$ 18,944	\$ -	\$ 10,566	\$ 1,887	\$ -	\$ -	\$ -	\$ 6,490
Centre Road Yard	1971-01-02	15	YRD013	14.66%	22.35%	\$ 230,830	\$ 351,967	\$ -	\$ 107,929	\$ -	\$ 37,031	\$ 109,834	\$ -	\$ 97,173
Rockton Regional Yard #2 - Shop / Garage (F)	1984-01-02	14	YRD037	13.53%	21.36%	\$ 276,043	\$ 435,940	\$ -	\$ 47,549	\$ 174,233	\$ 31,263	\$ 158,152	\$ -	\$ 24,743
Barton Yard - Warehouse / Office	1914-01-02	2	YRD017	13.25%	16.67%	\$ 1,629,383	\$ 2,049,751	\$ -	\$ 999,660	\$ -	\$ 305,179	\$ 593,644	\$ -	\$ 151,268
Eastlawn Cemetery	1972-01-02	4	YRD020	12.27%	13.49%	\$ 73,031	\$ 80,328	\$ -	\$ 6,345	\$ 30,657	\$ 11,720	\$ 28,266	\$ -	\$ 3,340
Glanbrook Yard #2 - Storage	2004-01-02	11	YRD063	11.47%	11.47%	\$ 16,825	\$ 16,825	\$ -	\$ 12,831	\$ -	\$ 3,538	\$ 456	\$ -	\$ -
Chedoke Yard - Garage / Fuel Building (F)	1979-01-02	1	YRD073	11.22%	19.53%	\$ 496,776	\$ 864,715	\$ -	\$ 142,647	\$ 204,725	\$ 60,380	\$ 225,542	\$ -	\$ 231,423
Tapleystown Maintenance Yard - Shop / Garage	1973-01-02	11	YRD043	9.47%	13.26%	\$ 332,921	\$ 466,494	\$ -	\$ 206,423	\$ -	\$ 33,963	\$ 125,857	\$ -	\$ 100,251
Dundas Yard - Main Building	1983-01-02	13	YRD019	9.06%	20.64%	\$ 214,189	\$ 488,056	\$ -	\$ 70,569	\$ -	\$ 62,504	\$ 321,282	\$ -	\$ 33,701
Stoney Creek Operations Centre - Shop / Garage (F)	1999-01-02	11	YRD040	8.63%	21.24%	\$ 845,508	\$ 2,080,434	\$ -	\$ 263,830	\$ -	\$ 241,660	\$ 1,052,210	\$ -	\$ 522,734
Glanbrook Yard #1 - Shop / Garage (F)	1969-01-02	11	YRD038	8.43%	11.07%	\$ 132,105	\$ 173,411	\$ -	\$ 48,399	\$ -	\$ 25,945	\$ 79,051	\$ -	\$ 20,016
Bernie Court Yard - Barn	2004-01-02	7	YRD068	8.41%	11.46%	\$ 212,893	\$ 289,999	\$ -	\$ 87,714	\$ -	\$ 42,610	\$ 118,042	\$ -	\$ 41,633
Dundas Yard - Storage Building B	1985-01-02	13	YRD081	7.72%	7.72%	\$ 2,830	\$ 2,830	\$ -	\$ 943	\$ 1,887	\$ -	\$ -	\$ -	\$ -
Ancaster Operations Centre - North Garage	1983-01-02	12	YRD002	7.60%	19.76%	\$ 197,887	\$ 514,789	\$ -	\$ 113,212	\$ -	\$ 46,749	\$ 348,759	\$ -	\$ 6,070
Glanbrook Yard #1 - Storage	2004-01-02	11	YRD027	7.16%	57.61%	\$ 10,331	\$ 83,160	\$ -	\$ 14,340	\$ 63,399	\$ 3,538	\$ 942	\$ -	\$ 942
Forestry Operation Centre - Garage/ Storage (Renov)	1984-01-02	6	YRD056	6.96%	6.96%	\$ 82,866	\$ 41,433	\$ -	\$ -	\$ -	\$ 16,322	\$ 25,111	\$ -	\$ -

iii) INFRASTRUCTURE RENEWAL PRIORITIES: YARDS -cont'd

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundations)	Renewal Costs CAT. B (Exterior)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Specialty)	Renewal Costs CAT.G (Parking Lots)
Barton Yard - Carpenter's Shop	1950-01-02	2	YRD012	6.46%	9.18%	\$ 296,481	\$ 421,241	\$ -	\$ 141,515	\$ -	\$ 43,399	\$ 231,399	\$ -	\$ 4,928
Arvin Yard - Shop / Garage	1995-01-02	11	YRD007	6.40%	24.39%	\$ 160,538	\$ 611,420	\$ -	\$ 47,738	\$ 12,831	\$ 37,503	\$ 224,166	\$ -	\$ 275,597
Dundas Driving Park - Shop / Garage	1993-01-02	13	YRD015	4.55%	11.25%	\$ 76,040	\$ 187,850	\$ -	\$ 37,360	\$ 67,455	\$ 15,566	\$ 64,387	\$ -	\$ 3,082
Ancaster Operations Centre - Salt Storage	2010-01-02	12	YRD066	4.15%	10.69%	\$ 11,321	\$ 29,161	\$ -	\$ -	\$ 11,321	\$ -	\$ -	\$ -	\$ 17,840
Traffic Operations Centre (F)	1995-01-02	6	YRD044	3.97%	21.04%	\$ 457,517	\$ 2,426,193	\$ -	\$ 377,279	\$ -	\$ 260,883	\$ 1,635,396	\$ -	\$ 152,636
Wentworth Street Operation Centre (F)	1992-01-02	3	YRD001	3.96%	13.23%	\$ 2,581,435	\$ 8,617,867	\$ 9,434	\$ 567,663	\$ 37,737	\$ 1,340,898	\$ 6,109,131	\$ -	\$ 553,003
Dundas Yard - Stores	2007-01-02	13	YRD006	3.68%	27.55%	\$ 19,812	\$ 148,317	\$ -	\$ 15,284	\$ 59,436	\$ 5,378	\$ 50,765	\$ -	\$ 17,454
Tapleystown Maintenance Yard - Salt Dome	2006-01-02	11	YRD047	3.55%	13.64%	\$ 14,151	\$ 54,430	\$ -	\$ -	\$ 14,151	\$ 9,907	\$ 8,169	\$ -	\$ 22,203
Ancaster Operations Centre - South Garage (F)	1995-01-02	12	YRD067	3.38%	19.73%	\$ 204,895	\$ 1,194,886	\$ -	\$ 98,494	\$ 283,029	\$ 132,080	\$ 505,257	\$ -	\$ 176,026
Grove Cemetery - Storage	1990-01-01	N/A	YRD029	2.81%	2.81%	\$ 2,505	\$ 2,505	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,505
Animal Control	1996-01-02	11	YRD053	2.74%	72.23%	\$ 10,700	\$ 282,430	\$ -	\$ 20,755	\$ -	\$ 47,360	\$ 99,837	\$ -	\$ 114,477
Mountain Transit Centre (F)	1987-01-02	11	YRD035	2.44%	12.83%	\$ 1,528,942	\$ 8,026,480	\$ -	\$ 600,966	\$ 44,341	\$ 820,431	\$ 5,638,150	\$ -	\$ 865,987
Bernie Court Yard - Sand Hut	2010-01-02	N/A	YRD071	2.07%	2.42%	\$ 5,652	\$ 6,596	\$ -	\$ -	\$ -	\$ -	\$ 943	\$ -	\$ 5,652
Rockton Regional Yard #2 - Salt Dome	1971-01-02	14	YRD052	1.79%	2.45%	\$ 6,681	\$ 9,134	\$ -	\$ -	\$ -	\$ -	\$ 9,134	\$ -	\$ -
Stoney Creek Operations Centre - Sand Building	1971-01-02	11	YRD055	1.73%	70.90%	\$ 8,945	\$ 365,562	\$ -	\$ 8,349	\$ 356,617	\$ -	\$ 596	\$ -	\$ -
Bernie Court Yard - Storage	1993-01-02	7	YRD070	1.07%	8.68%	\$ 23,806	\$ 192,630	\$ -	\$ 19,670	\$ -	\$ 30,049	\$ 13,664	\$ -	\$ 129,247
Limeridge Transit Terminal	1988-01-02	7	YRD048	1.01%	5.65%	\$ 1,132	\$ 6,322	\$ -	\$ 3,019	\$ -	\$ -	\$ 3,303	\$ -	\$ -
Mountview Garden Cemetery - Storage	1985-01-02	N/A	YRD039	0.22%	0.22%	\$ 417	\$ 417	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 417
Woodland Cemetery - Storage Building (F)	1985-01-02	N/A	YRD045	0.05%	0.05%	\$ 417	\$ 417	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 417
Gage Park Greenhouse	2015-01-02	3	YRD025	0.01%	5.01%	\$ 566	\$ 278,142	\$ 566	\$ 6,557	\$ -	\$ 18,869	\$ 252,150	\$ -	\$ -
Arvin Yard - Storage Building	2008-01-02	11	YRD064	0.00%	11.68%	\$ -	\$ 74,514	\$ -	\$ 5,661	\$ -	\$ 6,369	\$ 44,269	\$ -	\$ 14,819
Bernie Court Yard - Salt Dome	1994-01-02	7	YRD072	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Centre Road Yard - Quonset Hut	1974-01-02	15	YRD059	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Macnab St Transit Terminal	2011-01-01	1	YRD077	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Upper Ottawa Salt Shed	2005-01-02	6	YRD049	0.00%	1.87%	\$ -	\$ 8,486	\$ -	\$ -	\$ -	\$ -	\$ 2,825	\$ -	\$ 5,661
Wentworth Operations Centre - Salt Storage	2004-01-02	3	YRD010	0.00%	21.85%	\$ -	\$ 99,940	\$ -	\$ -	\$ -	\$ -	\$ 3,769	\$ -	\$ 96,172
				Total Construction Costs		\$ 12,542,516	\$34,647,489	\$ 10,000	\$ 4,623,077	\$ 1,373,375	\$ 4,104,435	\$ 19,571,015	\$ -	\$4,892,000
				Soft Costs		\$ 3,762,755	\$10,394,247							
				Total Project Costs		\$ 16,305,271	\$45,041,736							
				Available Funds through annual		\$ 200,000	\$ 2,000,000							
				Shortfall		\$ 16,105,271	\$43,041,736							

iv) INFRASTRUCTURE RENEWAL PRIORITIES: LIBRARIES

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Foundation)	Renewal Costs CAT. B (Exterior)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special)	Renewal Costs CAT.G (Parking Lot)
Carlisle Library	1992-01-02	15	LIB004	92.54%	194.71%	\$ 310,541	\$ 653,416	\$ -	\$ 130,732	\$ 151,032	\$ 96,254	\$ 234,311	\$ -	\$ 41,087
Binbrook Library	1986-01-02	11	LIB003	77.91%	89.25%	\$ 325,080	\$ 372,401	\$ 45,084	\$ 62,200	\$ 29,806	\$ 79,240	\$ 37,934	\$ -	\$ 118,138
Freelton Library	1999-01-02	14	LIB008	36.35%	74.98%	\$ 99,740	\$ 205,710	\$ -	\$ 18,676	\$ 32,668	\$ 55,302	\$ 56,028	\$ -	\$ 43,036
Barton Public Library	2003-01-02	3	LIB002	10.23%	18.95%	\$ 417,206	\$ 772,637	\$ 1,624	\$ 63,336	\$ 270,234	\$ 137,593	\$ 206,470	\$ -	\$ 93,380
Westdale Public Library	1993-01-02	1	LIB025	7.92%	11.70%	\$ 436,044	\$ 644,241	\$ 1,624	\$ 30,856	\$ 238,728	\$ 246,036	\$ 126,997	\$ -	\$ -
Central Public Library	1984-01-02	2	LIB005-CRP	6.87%	8.51%	\$ 4,895,873	\$ 6,060,281	\$ -	Window Replacement	\$ 934,612	\$2,497,712	\$ 2,627,957	\$ -	\$ -
Concession Street Library	1995-01-02	7	LIB006	6.77%	26.14%	\$ 294,431	\$ 1,136,556	\$ -	\$ 344,694	\$ 124,723	\$ 211,770	\$ 343,314	\$ -	\$ 112,056
Kenilworth Public Library	1992-01-02	4	LIB010	5.71%	16.07%	\$ 237,429	\$ 668,601	\$ 48,720	\$ 14,616	\$ 91,756	\$ 246,848	\$ 251,070	\$ -	\$ 15,590
Terryberry Library	1995-01-02	8	LIB022	5.07%	18.60%	\$ 663,729	\$ 2,435,838	\$ -	\$ 545,826	\$ 304,500	\$ 763,280	\$ 749,963	\$ -	\$ 72,268
Mount Hope Hall & Library	1908-01-02	11	LIB014-REC	4.00%	15.41%	\$ 128,994	\$ 496,348	\$ -	\$ 68,988	\$ 151,097	\$ 187,918	\$ 83,474	\$ -	\$ 4,872
Turner Park Community Ctr (Library & Ymca)	2009-01-02	7	LIB027	0.45%	4.93%	\$ 162,400	\$ 1,771,946	\$ -	\$ 25,984	\$ 92,568	\$ 531,860	\$ 892,469	\$115,385	\$ 113,680
Lynden Library	2017-01-02	14	LIB001	0.24%	3.27%	\$ 4,872	\$ 66,857	\$ -	\$ -	\$ -	\$ 61,985	\$ -	\$ -	\$ 4,872
Valley Park Library	1985-01-02	9	LIB023	Renovation Budgeted	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Locke Public Library	1999-01-02	1	LIB011	Renovation Budgeted	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Dundas Public Library	1974-01-02	13	LIB007	Renovated	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Waterdown Library and Civic Centre	2015-08-03	15	LIB021	0.00%	0.47%	\$ -	\$ 52,170	\$ -	\$ -	\$ -	\$ -	\$ 52,170	\$ -	\$ -
Totals			Total Construction Costs			\$ 7,976,338	\$ 15,337,003	\$ 51,968	\$ 1,112,976	\$ 2,240,886	\$4,940,304	\$ 5,389,912	\$115,385	\$ 459,754
			Soft Costs			\$ 2,392,901	\$ 4,601,101							
			Total Project Costs			\$ 10,369,239	\$ 19,938,104							
			Available Funds through annual progr			\$ 200,000	\$ 2,000,000							
			Shortfall			\$ 10,169,239	\$ 17,938,104							

v) INFRASTRUCTURE RENEWAL PRIORITIES: OTHER CORPORATE FACILITIES

Asset Name	Date Built	Ward	Building Code	FCI	FCI in 10 years	Total Renewal Cost (Current and Deferred)	Total Renewal Cost (The Next 10 Years)	Renewal Costs CAT. A (Found.)	Renewal Costs CAT. B (Exterior)	Renewal Costs CAT. B (Roofs)	Renewal Costs CAT. C (Interior)	Renewal Costs CAT. D (M&E)	Renewal Costs CAT.F (Special)	Renewal Costs CAT.G (Parking Lot)
Ancaster Old Firehall / Little Theatre	1960-01-02	12	CRP016	38.57%	56.09%	\$ 256,840	\$ 373,508	\$ -	\$ 16,691	\$ 59,612	\$ 89,758	\$ 73,748	\$ -	\$ 133,700
Dundas Town Hall (Heritage)	1848-01-01	13	CRP039	27.97%	33.60%	\$ 1,843,981	\$ 2,214,749	\$ 58,443	\$ 251,988	\$ 152,094	\$ 262,224	\$ 1,355,065	\$ -	\$ 134,936
Parking Operations, Hp & Hcc Parking Garage - Car Pa	1982-01-02	2	CRP081	24.34%	31.05%	\$ 10,210,345	\$13,026,222	\$ -	\$ 448,960	\$ -	\$ 1,348,583	\$ 11,100,941	\$ -	\$ 127,739
Eastmount Park Elementary School	1960-01-01	7	CIVC034	23.16%	50.36%	\$ 2,744,268	\$ 5,968,232	\$ 12,992	\$1,269,432	\$ 514,808	\$ 1,360,100	\$ 2,432,914	\$ -	\$ 377,986
Pedestrian Bridge (Over King St W Connecting Hcc To	1984-01-01	2	CRP060	20.84%	22.67%	\$ 312,568	\$ 340,119	\$ -	\$ 128,115	\$ 84,308	\$ 66,750	\$ 60,947	\$ -	\$ -
Burlington Street Storage	1953-01-02	3	CRP082	18.17%	18.17%	\$ 247,129	\$ 247,129	\$ -	\$ 50,929	\$ 158,630	\$ -	\$ 25,047	\$ -	\$ 12,523
Glanbrook Municipal Offices	1999-01-02	11	CRP045	16.42%	25.13%	\$ 682,977	\$ 1,045,585	\$ -	\$ 44,623	\$ 195,866	\$ 326,160	\$ 182,411	\$ -	\$ 296,525
Hamilton Spca / Animal Control	1999-01-02	6	CRP093	11.42%	17.86%	\$ 848,442	\$ 1,326,730	\$ -	\$ 8,516	\$ 456,028	\$ 501,588	\$ 204,756	\$ -	\$ 155,841
Hamilton City Hall - Boiler Plant / Garage (Heritage) (F)	1962-01-02	2	CRP050	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	\$ -	TBD
Redhill Day Care Centre	1919-01-02	5	CRP062	7.14%	20.58%	\$ 360,199	\$ 1,037,402	\$ -	\$ 74,640	\$ 154,138	\$ 153,529	\$ 572,279	\$ -	\$ 82,817
Central Public Library	1984-01-02	2	LIB005-CRP	6.87%	13.34%	\$ 4,895,873	\$ 9,498,289	\$ -	\$3,438,008	\$ 934,612	\$ 2,497,712	\$ 2,627,957	\$ -	\$ -
Stoney Creek Town Hall & Library	1995-01-02	11	CRP065	5.95%	19.93%	\$ 1,538,962	\$ 5,153,223	\$ -	\$ 754,745	\$ 292,213	\$ 677,935	\$ 2,992,264	\$ 16,698	\$ 419,368
City Lab (Former Football Hall Of Fame)	1974-01-02	2	CRP042-CR	5.18%	8.40%	\$ 433,402	\$ 703,491	\$ -	\$ 112,507	\$ 766	\$ 385,593	\$ 204,624	\$ -	\$ -
Ancaster Square (Library & Municipal Centre)	2000-01-02	12	CRP026	1.87%	13.41%	\$ 155,417	\$ 1,116,987	\$ -	\$ 84,610	\$ 4,872	\$ 450,822	\$ 454,882	\$ -	\$ 121,800
Hamilton-Wentworth Courthouse	1961-01-02	2	CRP034	Renovated	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Ancaster Memorial School	1947-01-01	12	CRP061	Renovation Budgeted	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Hamilton City Hall - Offices (Heritage)	1962-01-02	2	CRP047	0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	TBD
Lister Block (Heritage)	1928-01-02	1	CRP020	0.00%	TBD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Construction Costs						\$ 24,530,402	\$42,051,667	\$ 12,992	\$5,966,125	\$2,796,242	\$ 6,420,189	\$ 9,758,082	\$ 16,698	\$1,466,860
Soft Costs						\$ 7,359,121	\$12,615,500							
Total Project Costs						\$ 31,889,523	\$54,667,167							
Available Funds through annual program						\$ 100,000	\$ 1,000,000							
Shortfall						\$ 31,789,523	\$53,667,167							

1) NEW CONSTRUCTION (Entertainment Portfolio): NEXT ENTERTAINMENT PRIORITIES

* (includes First Ontario Centre, Hamilton Convention Centre & First Ontario Concert Hall)

2) INFRASTRUCTURE RENEWAL: NEXT PRIORITIES FOR ENTERTAINMENT FACILITIES

Overview

For the purposes of this appendix, a Criticality Rating is assigned to each recommendation pertaining to an asset (and therefore the asset itself). These values are translated to Priorities 1-A, 1-B, 2 or 3 for implementation purposes:



i) INFRASTRUCTURE RENEWAL PRIORITIES AT FIRST ONTARIO CENTRE (FORMERLY COPPS COLLISEUM)

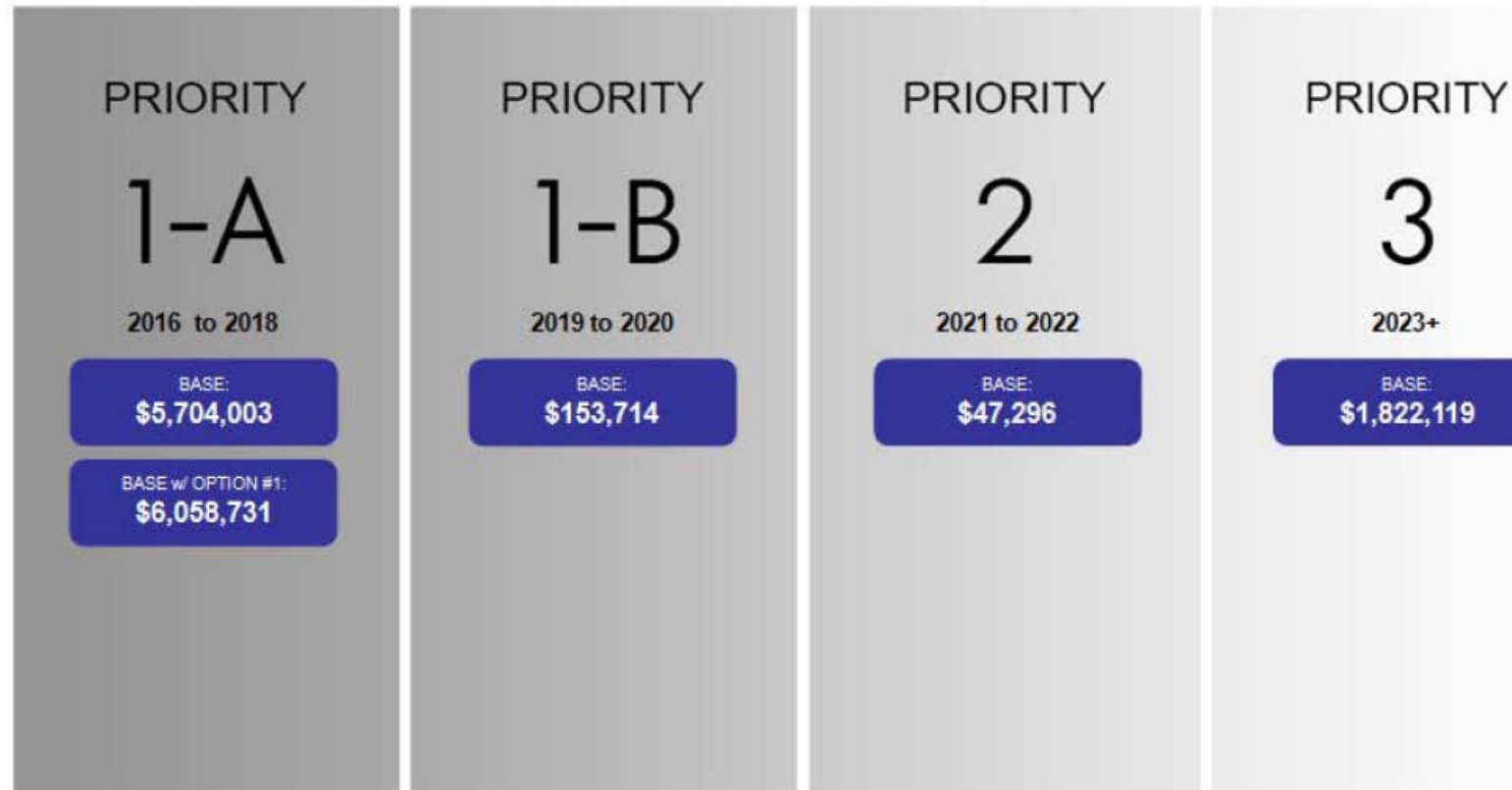


Approximate available block funds: \$300,000 annually

2018 Shortfall: exceeds \$6,000,000

10 year Shortfall (2016-2023): exceeds \$45,000,000

ii) INFRASTRUCTURE RENEWAL PRIORITIES AT FIRST ONTARIO CONCERT HALL (FORMERLY HAMILTON PLACE)

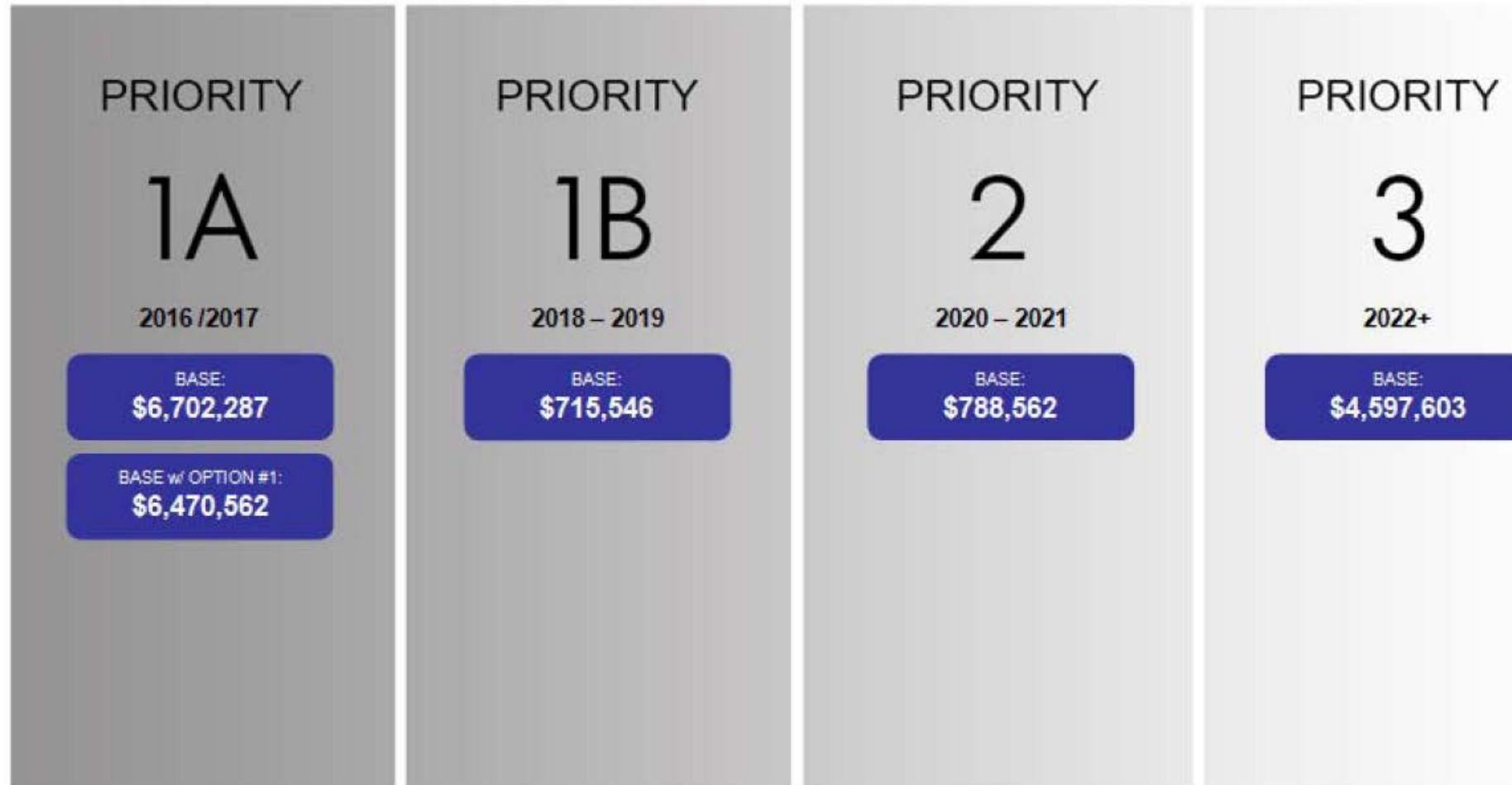


Approximate available block funds: \$200,000 annually

2018 Shortfall: exceeds \$5,000,000

8 year Shortfall (2016-2023): exceeds \$5,000,000

iii) INFRASTRUCTURE RENEWAL PRIORITIES AT HAMILTON CONVENTION CENTRE

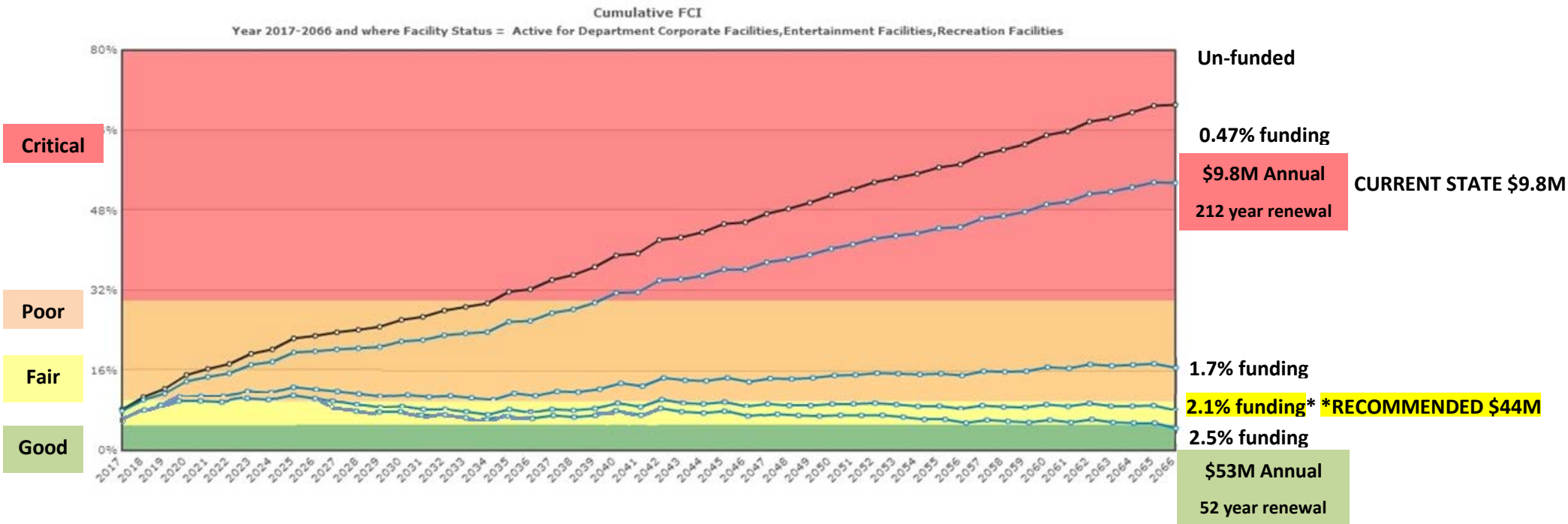


Approximate available block funds: \$300,000 annually

2018 Shortfall: exceeds \$6,000,000

8 year Shortfall (2016-2023): exceeds \$10,000,000

Reinvestment Options: 52-212 year lifecycle renewal of existing facilities



SUMMARY OF OPTIONS:

1) Status Quo: 0.47% Reinvestment: 212 year lifecycle renewal

Non-Sustainable, does not address AODA

\$9.8M per year annually

2) 1.7% Municipal Reinvestment: 77 year lifecycle renewal

Non-Sustainable, slows deterioration, address some AODA

\$36M per year annually over 10 years

3) *Recommended*: 2.1% Municipal Reinvestment: 63 year lifecycle renewal

Sustainable at "B-" Condition, address some AODA

\$44M per year annually over 10 years

4) 2.5% Municipal Reinvestment: 52.3 year lifecycle renewal

Sustainable/improve "B+" Condition, address all AODA

\$53M per year annually over 10 years



External Survey-Based Report
by the Canadian Infrastructure Report Card



CANADIAN INFRASTRUCTURE REPORT CARD

Informing the Future Key Messages



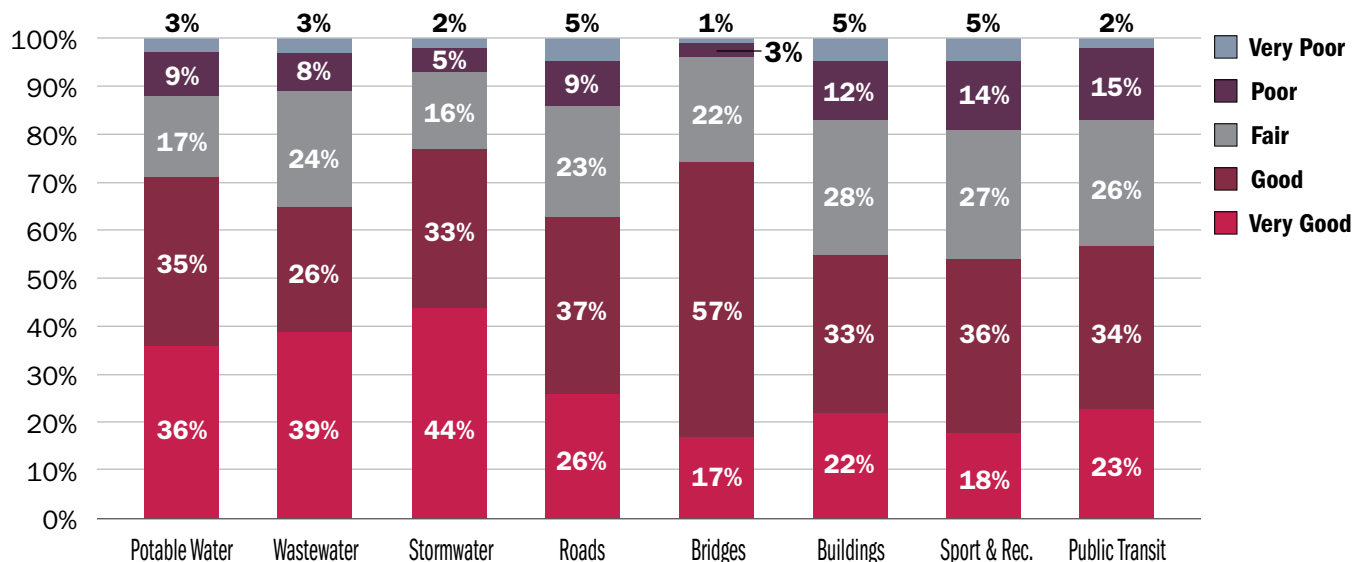
KEY MESSAGES

Municipalities own the core infrastructure assets that are critical to the quality of life of Canadians and the competitiveness of our country.

Almost 60% of Canada’s core public infrastructure is owned and maintained by municipal governments. According to survey results, the total value of core municipal infrastructure assets is estimated at \$1.1 trillion dollars, or about \$80,000 per household.⁸ Municipal infrastructure gets people and goods moving, provides safe drinking water, handles our waste, creates spaces for sport and recreation, and helps protect our homes against flooding and other natural disasters. The delivery of these essential public services is reliant on a strong foundation of municipal infrastructure. This foundation enables our communities and local businesses to grow, and ensures Canadians can lead safe and healthy lives.

One-third of our municipal infrastructure is in fair, poor or very poor condition, increasing the risk of service disruption. The survey asked municipalities to qualitatively assess their infrastructure according to a five-point rating scale ranging from Very Good to Very Poor (see Glossary of Terms for more detail). Nearly 35% of assets are in need of attention. Assets in fair, poor and very poor conditions represent a call for action. Survey results demonstrate that roads, municipal buildings, sport and recreation facilities and public transit are the asset classes most in need of attention. Figure 3 provides a summary of the physical condition ratings for the sectors included in this report.

Figure 3: Summary of Average Physical Condition Rating



KEY MESSAGES

Increasing reinvestment rates will stop the deterioration of municipal infrastructure. The 2016 CIRC found that rates of reinvestment are lower than targets recommended by asset management practitioners. The rate can vary based on factors such as the age of the infrastructure, the level of service and risk tolerance. The values provided are based on the experience of municipal asset management practitioners and are intended to be informative in nature. Roads and sidewalks, storm water, and sport and recreation infrastructure presented the largest gaps in terms of current and target rates of reinvestment, with water systems-related facilities not far behind. Figures 4 and 5 demonstrate the gap between current and target reinvestment levels. Continuing down this path will result in a gradual decline of physical condition levels that will impact municipal services.⁹ When contrasted with target reinvestment rates¹⁰ it becomes clear that current levels of reinvestment in municipal infrastructure are inadequate.

Figure 4: Target Reinvestment Rates vs Current Reinvestment Rate

Infrastructure	Lower Target Reinvestment Rate	Upper Target Reinvestment Rate	Current Reinvestment Rate
Potable Water (linear)	1.0%	1.5%	0.9%
Potable Water (non-linear)	1.7%	2.5%	1.1%
Wastewater (linear)	1.0%	1.3%	0.7%
Wastewater (non-linear)	1.7%	2.5%	1.4%
Stormwater (linear)	1.0%	1.3%	0.3%
Stormwater (non-linear)	1.7%	2.0%	1.3%
Roads and Sidewalks	2.0%	3.0%	1.1%
Bridges	1.0%	1.5%	0.8%
Buildings	1.7%	2.5%	1.7%
Sport and Recreation	1.7%	2.5%	1.3%



KEY MESSAGES

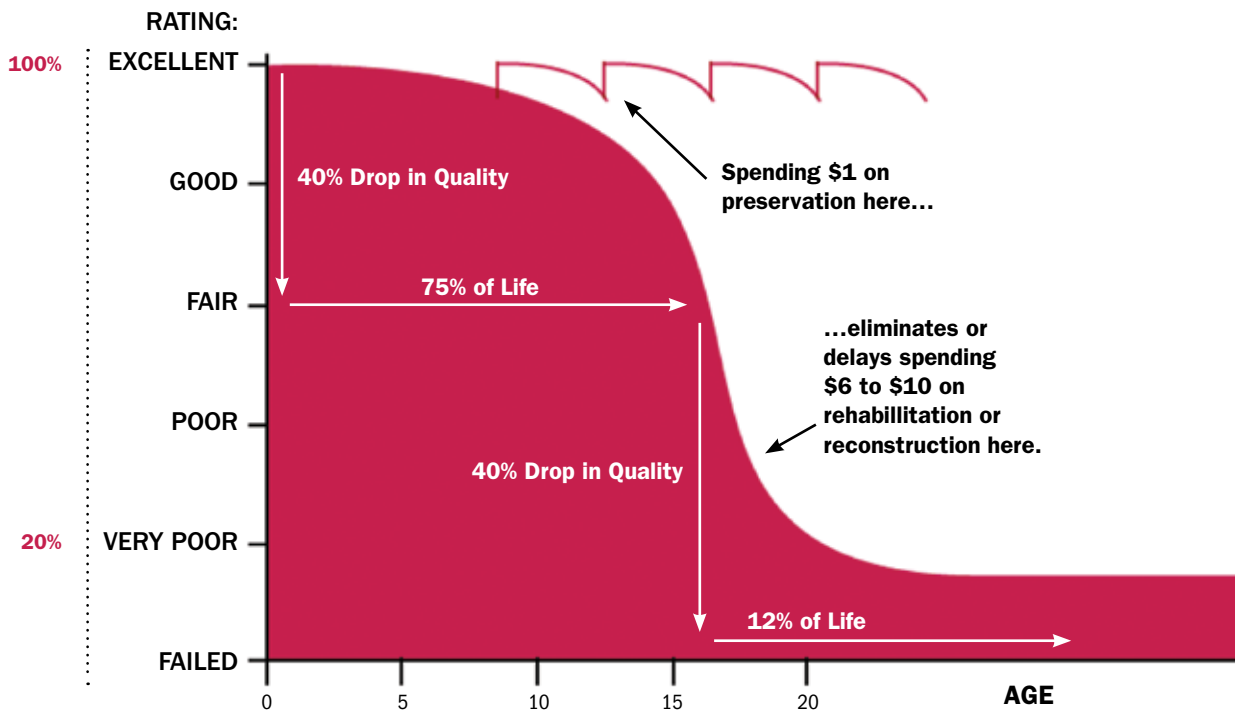
Figure 5: Summary of the physical condition of the infrastructure studied, by replacement value, extrapolated to the entire country

Infrastructure	Extrapolated Replacement Value of All Assets	Assets in Very Poor and Poor Condition	Assets in Fair Physical Condition	Anticipated Condition Based on Reported Reinvestment Levels (Improving, Stable, Declining)
		Replacement Value	Replacement Value	
Potable Water	\$207 billion	\$25 billion (12%)	\$35 billion (17%)	Declining
Wastewater	\$234 billion	\$26 billion (11%)	\$56 billion (24%)	Declining
Stormwater	\$134 billion	\$10 billion (7%)	\$21 billion (16%)	Declining
Roads	\$330 billion	\$48 billion (15%)	\$75 billion (23%)	Declining
Bridges	\$50 billion	\$2 billion (4%)	\$11 billion (22%)	Declining
Buildings	\$70 billion	\$12 billion (17%)	\$20 billion (28%)	Declining
Sport and Recreation Facilities	\$51 billion	\$9 billion (18%)	\$14 billion (27%)	Declining
Transit	\$57 billion	\$9 billion (16%)	\$15 billion (27%)	Unavailable
Total	\$1.1 trillion	\$141 billion (12%)	\$247 billion (22%)	
Replacement Value per Household	\$80,000	\$10,000	\$18,000	

KEY MESSAGES

Increasing reinvestment rates will save money in the long-term. Without an increase in current reinvestment rates, the condition of Canada’s core municipal infrastructure will gradually decline, costing more money and risking service disruption. For example, Figure 6¹¹ demonstrates that when roads, as is typical for many assets,¹² are allowed to deteriorate below a Fair condition rating, the rate of deterioration and reinvestment costs both increase substantially. Investing in preventive maintenance and regular repair will prolong the asset service life, avoiding premature and costly reconstruction and service disruption.

Figure 6: Example of asset deterioration curve (Roads)



Building for today’s communities and tomorrow’s Canada requires long-term planning. Survey results demonstrate that, if our current rates of reinvestment do not change, the condition of Canada’s existing municipal infrastructure will decline. A long-term plan is needed to ensure Canadians can continue to rely upon essential public services without disruption. This would also allow municipalities to plan for projected population growth, keep up with technological innovation, and deal with the increasing impact of extreme weather events.



ASSET MANAGEMENT

The 2016 CIRC survey included a section on asset management for the first time. These questions shed light on the state of Canadian municipal asset management practices.¹³

Survey results point to varied asset management practices according to community size. For instance, 62% of large municipalities, 56% of medium-sized municipalities and 35% of small municipalities reported having a formal asset management plan in place. **All communities, particularly smaller municipalities, would benefit from increased asset management capacity.**

Further, nearly 40% of responding municipalities reported publishing a state of infrastructure report (SOIR).¹⁴ Once again, results varied according to the size of the municipality. Only 10% of small municipalities reported publishing an SOIR, whereas levels reached 56% for medium-sized municipalities and 63% for large municipalities.

Many municipalities reported having undertaken risk assessments, applied new inspection technology to assess the condition of infrastructure, and carried out periodic inspections. Survey results also pointed to a high degree of variability in the condition of the infrastructure assessed, suggesting that having an objective understanding of the physical condition is an area that requires continued attention.

In addition to physical condition, survey questions focused on gaining a better understanding of the ways municipalities are managing their assets. For example, approximately 40% of responding municipalities reported that they use computer-based information and maintenance-management systems to manage their road and transit assets; almost 25% for potable water and wastewater; 20% for stormwater; 22% for sport and recreation facilities and 30% for municipal buildings. Should these figures improve over time, better and more consistent condition reporting can be expected.

Finally, approximately 19% of responding municipalities stated that they use formal mechanisms (i.e. municipal policies or documented practices) to factor climate change adaptation strategies into decision-making. Adaptation strategies were formally factored-in for the following assets: Stormwater (16%); Roads and Bridges (15%); Wastewater (16%); Buildings (14%); Potable Water (14%); Sport and Recreation Facilities (13%); Public Transit (6%). Whether a municipality formally factored in climate change varied somewhat according to size of municipality: 10% for small municipalities, and 27% for both large and medium municipalities.

More detailed information on these areas of asset management is included in the summary of results by category in Part 1, as well as in the detailed reports found in Part 2 of this report.



ENDNOTES

- 1 FCM's membership was just under 2000 municipalities during the survey period which took place from November 2014 to January 2015.
- 2 Most of the transit data was collected through a survey distributed to 130 transit operators across the country. The information was supplemented with data that the Canadian Urban Transit Association gathers annually from its members. A total of 37 transit authorities responded to the transit survey, representing a serviced population of just over 17 million (or about 67% of Canada's population serviced by transit) and representing 88% of all transit trips taken in 2013. The list of municipalities/transit authorities that provided data related to transit is contained in Appendix F. Where data in this report is extrapolated for transit, the serviced population is used and the extrapolation factors in different sizes of transit authorities.
- 3 The full Canadian population used to extrapolate the survey results is 35.7 million. This figure is a Statistics Canada population projection using a medium growth scenario. (See Statistics Canada, Population Projections for Canada, Provinces and Territories, Table 3.1, Components of population growth, medium-growth - historical trends (1981 to 2008) scenario (M1) — Canada, 2009/2010 to 2060/2061
- 4 Responses received from 37 transit authorities represented a total serviced population of 17.2 million people or 67% of the national total. This population represents 88% of all transit trips taken in 2013. Data from the 37 respondents was extrapolated to the 2013-2014 Canadian transit service population of 25.6 million.
- 5 Based on 2011 Census data, large municipalities represent 53% of Canada's population (see Statistics Canada, Population and dwelling counts, for Canada and census subdivisions (municipalities), 2011 and 2006 censuses. For the purposes of this report, the remaining 47% is classified under small and medium-sized municipalities. Large municipalities therefore have a 2014 total population of 18.9 million and small and medium-sized municipalities have a population of 16.8 million. The 2014 population is estimated at 35.7 million (see endnote 3). The data collected from the survey represents 94% of the total population of large municipalities in Canada but only represents 13% of the total population of both small and medium-sized municipalities combined, resulting in datasets that are more representative of large municipalities.
- 6 The 30,000 population limit for small municipalities is quite high for rural and remote communities. This report classifies municipalities as small, medium and large, consistent with Statistics Canada groupings, with one exception. Statistics Canada classifies small municipalities as having populations between 1,000 and 29,999, but this report includes all municipalities with a population under 30,000 as small.
- 7 The ratio in the chart is General Government Gross Fixed Capital Formation as a percentage of Gross Domestic Product (GDP), which is total government investment in plant, buildings, machinery, equipment, roads, facilities, pipes, and other physical assets. This investment includes new construction and the replacement of assets, but can exclude certain maintenance expenditures. Due to Statistics Canada's transition to a new international protocol for reporting the National Income and Expenditure Accounts, the dataset draws on three sources. Data for 1961-1980 were drawn from Statistics Canada Catalogue No. 13-213S. Data for 1981-2010 were drawn from the Statistics Canada CANSIM Table 384-0002. Data for 2011 and forward were drawn from Statistics Canada CANSIM Table 380-0064. Data analysis by Casey Vander Ploeg.
- 8 For households in large municipalities (over 100,000 population), this cost is \$73,000 and increases to almost \$85,000 for households in small and medium-sized municipalities. This discrepancy is due to the fact that large urban centres have higher population density, which means that assets are extended over shorter distances and the costs are shared by more people.
- 9 The 2016 CIRC survey collected data on the current value, the estimated replacement value and projected annual renewal budget (for rehabilitation, reconstruction or replacement) for most asset categories. Average reinvestment rates were then derived from the data. The transit survey asked respondents to provide data on replacement value of assets and the annual renewal budget, which is how the report derives reinvestment rates. However, very few were able to provide both. For this reason, the report does not assess reinvestment rates for transit assets.
- 10 There are currently no formal industry-recognized target reinvestment rates. The rate varies across responding municipalities based on factors such as the average age of the infrastructure, the level of maintenance expenditures, risk tolerance and available infrastructure funding. Municipal asset management practitioners in Canada are working to develop tools that municipalities can use to better establish target reinvestment rates for each asset type (rehabilitation, reconstruction or replacement of infrastructure). The values provided in this report are based on the experience of municipal asset management practitioners providing advice to the CIRC PSC and are therefore intended to be informative in nature.
- 11 Larry Galehouse, James S. Moulthrop, and R. Gary Hicks, "Pavement Preservation Compendium II: Principles of Pavement Preservation - Definitions, Benefits, Issues, and Barriers," TR News, September-October 2003, pp. 4-15, Transportation Research Board (TRB), National Research Council, Washington, D.C.
- 12 Though only the deterioration curve for roads is included in this report, Appendix E provides a more detailed illustration of infrastructure system/network deterioration over its service life.
- 13 An important caveat when reading this section is that the survey sample was generated on a voluntary basis, likely resulting in a self-selection bias for communities with existing asset management practices.
- 14 A SOIR is a tool that documents the inventory and replacement value of the assets owned by the municipality, summarizes the physical condition of each asset type, and ideally documents the state of the services that are provided through the infrastructure systems. The most common infrastructure types included in reported SOIRs are roads and bridges, potable water, stormwater and wastewater.

THANK YOU TO ALL WHO PARTICIPATED

On behalf of the Canadian Infrastructure Report Card (CIRC) team, we would like to thank all municipalities who completed this important survey. Your knowledge and expertise will help inform investment needs and asset management practices across Canada.

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INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Capital Lifecycle Renewal - Strategic Renewal of Facilities (PW18065) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Robyn Ellis (905) 546- 2424, Extension 2616
SUBMITTED BY:	Rom D'Angelo, C.E.T.; CFM Director, Energy, Fleet and Facilities Management Public Works Department
SIGNATURE:	

Council Direction:

Emergency and Community Services Committee, at its meeting of September 3, 2008 (Item 3(d), E&CS Report 08- 011) and February 11, 2013 (Item 8, E&CS Report 13-002) provided direction in relation to Strategic Renewal of Facilities:

“That Staff be directed to review and update Option 4 - in the Strategic Renewal and New Construction strategy (every five years).”

Information:

History and Introduction:

September 12, 2016, Emergency and Community Services Committee was informed of the results of the Indoor Study Phase One Update (respecting public-use Recreation Facilities) and provided considerations for future phases of the Indoor Study through Report ECS07068(d) (City Wide). This report built upon earlier Council Reports including the Use, Renovation and Replacement Study of Hamilton Recreation and Public-Use Facilities - Recommendations (Report ECS07068(b)) (City Wide) in 2008, which identified factors impacting the use and condition of current Recreation Facilities, and examined future Facility priorities. Since 2008, 53% of the shorter term recommendations have been completed, partially completed, or are in progress. However, achieving the balance of the larger Recreation Facility recommendations from the 2008 report is currently out of reach from a 10 year capital funding perspective.

During the 2017 capital budget process, staff identified that there is a significant capital funding gap in Facilities across all portfolios: Recreation Facilities, Corporate Facilities and Entertainment Facilities. This funding gap is an obstacle to the achievement of the

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 2 of 9**

10 year Facility priorities identified through Report ECS07068(d) (City Wide) respecting Recreation Facilities, as well as keeping up with the increasing backlog of facility infrastructure renewal across all portfolios. This funding gap in lifecycle renewal is contrary to recommendations by the Canadian Infrastructure Report Card (CIRC), who recommend an infrastructure renewal rate between 1.7% and 2.5% of the replacement value of buildings. The CIRC is supported by four organizations as follows: Canadian Construction Association, Canadian Public Works Association, Canadian Society for Civil Engineering, Federation of Canadian Municipalities.

October 20, 2017 at the Tax Capital Workshop, Public Works Staff delivered a presentation on Facilities Asset Management. The presentation also reported results of staff work regarding Strategic Renewal of Facilities. Public Works Staff identified a shortfall to sustain existing infrastructure at recommended reinvestment, as well a shortfall for constructing new, future Recreation Facility priorities. Additionally, Bill 6, “The Infrastructure for Jobs and Prosperity Act” was introduced as a legislative mandate to report capital renewal against benchmarks.

Staff identified the importance of updating Council regarding this funding gap, therefore in 2016 the project team engaged an architectural consultant to do a high level analysis of the current state of strategic renewal of Facilities portfolio including Recreation, Corporate and Entertainment Facilities. This included an analysis of known funding gaps and assisting in the development of recommendations and guidelines around renovations, expansions and new construction of Facilities, completed Q4 2017 and presented at the October 20, 2017 Tax Capital Workshop.

Current State:

Infrastructure Renewal Standards and Bill 6:

Bill 6, “The Infrastructure for Jobs and Prosperity Act”, is a proposed municipal asset management planning regulation change with a comment period between May 25, 2017 and July 24, 2017 through the Ministry of Economic Development, Employment and Infrastructure.

“The Infrastructure for Jobs and Prosperity Act, 2015, was proclaimed on May 1, 2016 and includes an authority for the province to regulate municipal asset management planning. The purpose of the proposed regulation is to implement best practices throughout the municipal sector and provide a degree of consistency to support collaboration between municipalities and among municipalities and the province. This regulation would aim to help municipalities more clearly identify what their infrastructure needs are and therefore help them work towards a more sustainable position regarding the funding of their infrastructure. Municipalities would also be required to report on implementation annually.”

The City of Hamilton is ahead of other municipalities in terms of our asset information system. Facilities has infrastructure renewal data for all of its over 450 owned sites and a measured baseline to track against called a Facilities Condition Index (FCI). Data is

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 3 of 9**

measured against an industry standard and recorded in Information Management System: Ameresco Asset Planner. Questions that have yet to be addressed by the City of Hamilton: What is the municipality's minimum standard for state of good repair? What is the funding required to maintain that standard to prevent assets from deteriorating further? Canadian Infrastructure Report Card (CIRC) indicates that the recommended target infrastructure renewal rate is between 1.7% and 2.5% of the replacement value of buildings (which would provide funding to replace the building on average 40-59 years). The City of Hamilton block funds fall short at a rate of only 0.47% of total replacement value (212 year replacement cycle, considering total project costs). The current state of "B"- average Facility condition (between "fair" and "poor" and declining) is unsustainable and will result in an average Facility condition of "poor" by 2019 and "critical" by 2039. Critical facility conditions come with the risk of unplanned Facility closures, service disruptions and increasing operating costs (e.g. for repairs). As an example, there are 135 roofs which are currently overdue for replacement in the Facilities portfolio and that number continues to grow. Deferral of replacement eventually results in roof leaks which cause damage to the rest of the Facility.

Bill 6 will set out requirements to improve asset management planning. Municipalities will be required to adopt strategic asset management policies that would promote best practices and link asset management planning with budgeting, etc. There will be new reporting requirements to higher levels of government with respect to asset management planning.

Current Funding Gaps in Facilities:

There are significant gaps in the current level of annual capital funding required to sustain the condition of the City's facility infrastructure over time. In 2017, there is a total deferred capital backlog in Facilities of approximately \$216M project costs. An increase in annual capital funding to Facilities would be needed in order to sustain Facility infrastructure at the current level "B"- and declining and address accessibility considerations. The Facilities Capital Block is currently the only source of funding for infrastructure renewal. Increasing reinvestment rates would stop (or slow) the deterioration of municipal infrastructure, according to the 2016 Canadian Infrastructure Report Card (CIRC).

Strategies to Address Funding Gaps

City staff has developed strategies in order to assist in managing the Facilities funding gap including:

1. Increase Facilities Block Funds;
2. Establish Facilities Capital Reserves;
3. Minimum Facility Condition Standards;
4. Prioritize and Schedule Projects;

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 4 of 9**

5. Guidelines for Funding Projects;
6. Consolidate and Divest Assets (non-core facilities);
7. Partner and Seek Funding Opportunities.

These strategies are discussed in more detail as follows:

1. Increase Block Funds

An increase to \$44M in the Facilities Capital Block would be required in order to sustain the current Facility condition, which represents a 2.1% reinvestment rate, bringing the assets within CIRC targets. This rate, 2.1% is also the rate required in order to sustain Facilities at their current condition and slow the decline below the “B-” Facility condition and also to address majority of the AODA accessibility considerations over 10 years. Please refer to Appendix A for 10 year needs vs. funding and Appendix F for Options to Increase Facilities Capital Block Funding.

2. Establish Facilities Capital Reserves

Another strategy to bridge the annual capital funding gap in city-owned facilities is to establish Facilities Capital Reserves.

Reserves, funded through periodic operating and capital contributions, can help fund lifecycle renewal funding to over 450 existing, owned facilities to supplement capital renewal block programs, AODA upgrades and Facilities compliance issues. They also serve the purpose of supplementing Recreation DCs to build the top priority new and expanded facilities sooner.

Most current sources of capital funding for large Recreation construction and expansion are unpredictable. These include funding sources such as the Unallocated Reserve and funding from higher levels of government such as Infrastructure Stimulus Funds. Some funding sources are simply very limited, such as Recreation DC’s which fund only \$3M annually. Debt funding tends to have limited applications, for example where there is a business case (e.g. through annual revenues or savings).

In order to realize the benefits of reserves, staff identifies that operating budget from the closure of non-core facilities can be directed to a Facilities Capital Reserve. It is also possible in select cases that facility and property sales be directed to reserve through Council approval, in addition to a nominal annual funding amount added to the Facilities Reserves. Facilities Capital Reserves will be drawn as a funding source as part of the annual capital budget. This will allow available funding to be focussed on top priorities.

3. Minimum Facility Condition Standards

The average condition of the over 450 owned Facilities at the City of Hamilton is a “B-“ average Facility condition (between “fair” and “poor”) and declining annually. This current state of “B-“ average Facility condition (between “fair” and “poor”) is unsustainable and will result in an average Facility condition of “poor” by 2019 and “critical” by 2039. This is based on its Facilities Condition Index (FCI) and the annual

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 5 of 9**

gap in infrastructure renewal funding. The FCI is a ratio of deferred capital replacement over Facility replacement value. The FCI speaks mainly to the current lifecycle condition of the assets. Assets which have components past their useful life, as indicated by the FCI, carry risk and reliability implications for continued operations and programming.

Canadian Infrastructure Report Card (CIRC) indicates that the recommended target infrastructure renewal rate is between 1.7% and 2.5% of the replacement value of buildings (which would provide funding to replace the building on average 40-59 years). Please refer to Appendix G for an excerpt from CIRC. The City of Hamilton block funds fall short at a rate of only 0.47% of total replacement value (which would provide funding to replace the building in approximately 212 years).

Setting a Minimum Building Condition Standard means that funding would need to be allocated to address conditions such as leaky roofs or end of life mechanical systems exist at some Facilities without deferral to subsequent budget years.

What is the minimum acceptable Facility condition and what are the corresponding funds required in order to maintain that condition? An increase in the Facilities Capital Block would be required in order to significantly slow the decline in Facility Condition below the current “B-” rating and shorten the 212 year replacement cycle closer to the industry recommendation.

4. Prioritize and Schedule Projects

There is a lack of clarity on funding and scheduling when reading the Council-approved 10 year Facilities capital plan. The 10 year capital plan consists of projects which are funded from block, reserves, Development Charges (DC’s), and there are also a large number of un-funded projects. Including un-funded projects on the 10 year capital plan has the advantage of identifying these projects as “asks”, however it unfortunately sets up a false expectation that un-funded projects can be implemented or have Council approval. These un-funded projects are often not possible within a 10 year timeframe. Based on high cost and limited available funding sources for new builds and expansions (few DC’s collected), lower priority projects are achievable within a 35 year timeframe, rather than 10 years. This leaves many projects in the 10 year capital plan in a precarious position of not being funded unless external funding is identified. This is where it becomes important to prioritize funding to the top projects.

Once a large project is approved by Council, it normally requires a 3-6 year planning cycle. A typical schedule for an approved capital project includes several steps such as feasibility and concept design, public site plan approval, detailed design, building permit, public tender, followed by around 12-18 months of construction. Additional time is required if rezoning is required. Please refer to Appendix B for further detail of planning cycles for Capital Construction. While these lengthy timelines are standard across the industry, they present both an opportunity and a challenge. The opportunity is that the capital funding of projects can be saved over several budget years, for example in a reserve.

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 6 of 9**

One of the challenges that the 3-6 year timeline presents is that the project schedule spans over several one year capital budget approval cycles at the City of Hamilton. Also, since the budgets for Facility capital construction are significant (as industry standard rates for construction), it has not been normally feasible for Council to approve the required funds to complete a Facilities Capital Project from beginning to end through the capital budget process in a single year. This means that staff has often been in a position on significant projects where they must commit approximately 10% of the soft costs for a capital project, without knowing for certain that Council will approve the remainder of the funding for project construction in subsequent years. Starting a project this way is an uncomfortable risk because detailed design only has value if the project is implemented. With limited funding, it is a risk the City cannot afford to take. Typically, staff has mitigated the risk of unfunded construction by going to Council with a report to approve funding for the entire project to fund the entire project prior to the start of detailed design.

Other challenges of a capital project planning schedule include the fact that the City's capital budget planning process is only 10 years. Although 10 years may seem like a long time to wait for a project, putting it in perspective, it can be less than two capital project planning cycles. Even a single capital project planning cycle of 3-6 years can also exceed one term of Council which is 4 years.

Planning ahead on Facilities' capital projects is valuable. This is clear when looking at the 3-6 years to complete a capital project, including early planning/feasibility. When investing in a renovation at one Facility, it is important to incorporate all deferred work at that Facility into the project. Since the timeline of a capital planning cycle is lengthy, it is best to design and implement all deferred work together at one site. This way, the City and taxpayers can also save funds on contractor mobilization costs. Mobilizing as much construction as possible together also minimizes operating impacts and closures by planning projects at the same site together where possible. Unfortunately, under current funding levels, it is often the case that there are insufficient funds available to complete all deferred items at one site during a planned renovation, therefore some work is left for future phases.

Besides the importance of lining up funding in advance, it is also important to line up expectations, processes, and resources in accordance with 3-6 year capital project timelines. Setting an expectation for a quick project delivery in the hopes that the project can be fast-tracked is not recommended since there are very few opportunities to expedite the standard schedule on a large project. Frequently, there are complex touchpoints and mandated processes to be negotiated with Site Plan (including site servicing), By-Law, natural and cultural heritage and the like prior to being eligible to apply for building permit. Once construction is underway, unforeseen site conditions can easily lead to schedule delays. Very rarely are there opportunities to expedite a large capital project schedule in less than 3-6 years.

Exceptions to the 3-6 year capital project timeline may include small interior renovation projects where no Site Plan approval is required. These types of projects can be hand-

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 7 of 9**

picked for quick delivery against tight deadlines, such as a 2 year federal funding deadline. Another way to complete a project within a 2 year federal funding deadline, possibly on a larger project, is to have already completed the 2-3 years of feasibility, design, Site Plan approvals and permits ahead of time to have a “shovel-ready” design prior to entering into time-limited funding agreements. The financial commitment of getting a project “shovel-ready is approximately 10% of the project value. It is recommended that along with this investment there is a Council-approval to complete the full project scope at some point in the future, otherwise the “shovel-ready” design has little value. Please refer to Appendix C for next Recreation Facilities Priorities and funding shortfalls, Appendix D for Corporate Facilities Priorities and funding shortfalls and Appendix E for Entertainment Facilities Priorities and funding shortfalls.

5. Guidelines for Funding Projects

The establishment of capital guidelines for Facilities is an important strategy to assist in providing clarity during the annual capital planning process. Guidelines provide assistance with:

- Setting and achieving annual infrastructure renewal targets;
- Better management of the “state of good repair” of Facilities;
- Clarity in capital budgeting allows project funding to be properly planned in advance;
- Common understanding of standard uses for funding.

The Facilities Capital Block is limited and the only available source of funds for infrastructure renewal, therefore it is not an appropriate source of funding for large expansions or new Facility construction.

6. Consolidate and Divest Assets

Assets are consolidated through replacement, repurpose, sale or demolition. Consolidation and divestiture of assets allows the City to:

- Fill portion of the capital funding shortfall;
- Divest of non-core facilities;
- Save on annual operating funds (e.g. Rec indoor pool closure saves \$700k-\$1M annually);
- Cost avoidance on deferred and ongoing lifecycle renewal;
- Offload facilities past their useful life;
- Redirect limited funds from non-core Facilities to core Facilities;
- Create opportunities to fund priority projects; and,
- Advance the schedule of renovations, expansions and new construction of Facilities.

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 8 of 9**

A possible disadvantage of consolidating assets would be to decrease the service standard and therefore decrease the eligibility for collection of DCs.

7. Partnerships and Opportunities

Benefits of pursuing capital partnerships and other opportunities include:

- Cost savings/avoidance in operating, capital and real estate costs;
- Community Hubs;
- Renewed infrastructure.

Potential partners include Hamilton Public Library, School Boards (HWDSB, HWCDSB) and CityHousing Hamilton.

Ongoing Work:

Ongoing work regarding the Strategic Renewal of Facilities completed in parallel and which will continue subsequent to this report is as follows:

- Master Office Accommodation Planning (MOAP) Committee;
- Non-Public Facing Portfolio Strategy Review;
- Land Development Task Force; and,
- Phase Two of the Indoor Recreation Study Update.

It is important to note that the findings and recommendations of the MOAP Committee, as well as the Non-Public Facing Portfolio Strategy Review and Land Development Task Force, involve consultations with a wider list of stakeholders (e.g. from additional Departments, Divisions, Agencies and Boards) and will report to Council at the conclusion of their initiatives. These initiatives focus around the Corporate Facilities portfolio and the business cases required for decisions around leases and ownership of non-public facing facilities assets. Their findings and reports to Council will drive future construction or lease projects within the Corporate Facilities Portfolio.

Ongoing work also includes retaining 3rd party engineers to conduct Building Condition Assessments on a 5 year cycle through the entire Facilities portfolio to ensure that there are records of life cycle renewal requirements to compare against industry benchmarks and that these records are kept up to date in an information management system, Asset Planner.

Finally, ongoing work includes conducting feasibility studies on projects identified by clients or Council for inclusion into short or long term capital budgets to ensure that funding sources are planned in advance and funding gaps identified.

A benefit of completing the Strategic Renewal Report was to develop a methodical process from which to compare the City's existing multi-year asset management strategies with current data and recommendations as gathered from industry professionals including building condition assessments, cost consultants, Architects and

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**SUBJECT: Capital Lifecycle Renewal - Strategic Renewal of Facilities
(PW18065) (City Wide) - Page 9 of 9**

Engineers. The intent of Report PW18065 is to identify process gaps and identify improvements to the overall multi-year capital planning process in line with Council's direction towards a Corporate Multi-year Asset Management Strategy.

Appendices and Schedules Attached

Appendix A – 10 Year Infrastructure Needs vs. Funding

Appendix B – 3-6 year Planning Cycle for Capital Construction

Appendix C – Next Recreation Facility Priorities, Phasing and Shortfall

Appendix D – Next Corporate Facility Priorities and Funding Shortfall

Appendix E – Next Entertainment Facility Priorities and Funding Shortfall

Appendix F – Options to Increase Facilities Capital Block Funding

Appendix G – Canadian Infrastructure Report Card (CIRC)

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CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Environmental Services Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	July 12, 2018
SUBJECT/REPORT NO:	Fallen Fire Fighters Memorial (PW18052) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Jonathan Epp (905) 546-2424 extension 4621
SUBMITTED BY:	Craig Murdoch, B.Sc. Director – Environmental Services Public Works Department
SIGNATURE:	

RECOMMENDATION

- (a) That the site selection for the Fallen Fire Fighters Memorial be confirmed at Gage Park (1000 Main Street East, Ward 3, Hamilton) as shown in Appendix “B” attached to Report PW18052, and staff continue with the detailed design of the memorial project;
- (b) That the capital and operating costs associated with the construction and maintenance of the Fallen Fire Fighters Memorial be referred to the 2019 Capital Budget process for consideration;

EXECUTIVE SUMMARY

On January 18, 2017, Item 19 of General Issues Committee Minutes 17-001 was approved, as shown in Appendix “A” attached to Report PW18052.

The purpose of this report is to satisfy Items a, c, and d of the direction as shown in Appendix “A” attached to Report PW18052, and to seek authorization to proceed with further consultation and design toward the installation of the Fallen Fire Fighters Memorial at the preferred location at Gage Park.

Through preliminary consultation with the Hamilton Professional Fire Fighters Association (HPFFA) and a subsequent site-selection study, staff determined the most appropriate location for the Fallen Fire Fighters Memorial to be the northeast corner of Gage Park, as shown in Appendix “B” attached to Report PW18052. Consultation with

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SUBJECT: Fallen Fire Fighters Memorial (PW18052) (City Wide) - Page 2 of 6

the HPFFA confirmed that the memorial will incorporate a public art component such as a commemorative statue, the details of which are to be determined through the City of Hamilton's Public Art Call for Artists process. Representation from the HPFFA, as well as the Friends of the Gage, will be sought for input during this Public Art selection procedure, in addition to the city-wide consultation that is part of the Call for Artists process.

Alternatives for Consideration – See Page 5

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: The recommendation of Report PW18052 directs staff to include the Fallen Fire Fighters Memorial project in the 2019 Capital Budget process for consideration. Therefore, there are no financial implications of Report PW18052. The estimated capital costs for construction of the concept shown in Appendix "B" attached to Report PW18052 is \$900,000; the operating impact from the construction of the memorial will be shown on the detail sheet in the 2019 Capital Budget.

Staffing: There are no staffing impacts from the recommendations of Report PW18052.

Legal: There are no legal implications from the recommendations of Report PW18052.

HISTORICAL BACKGROUND

On January 18, 2017, Item 19 of the General Issues Committee Minutes 17-001 was approved, which provided the authorization for City staff to proceed with preliminary design and investigative work for the Fallen Fire Fighters Memorial. A budget of \$125,000 was approved for this investigative process.

In 2017, Landscape Architectural Services (LAS) retained Forrec Limited to complete a site selection study to determine the best location for the memorial. Seven prospective sites were ranked according to 18 criteria that ranged from typical site attributes to special site features. Typical site attributes included site visibility, site servicing and existing site amenities (e.g. washrooms); special site features included items such as pre-existing accessibility routes or site-specific factors that could increase construction costs.

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SUBJECT: Fallen Fire Fighters Memorial (PW18052) (City Wide) - Page 3 of 6

The following table summarizes the study sites and their scores:

Study Site	Score	Ranking
Bayfront Park	52	Tie – 3, 4
Eastwood Park	46	7
Fire station Number 23 at Memorial Square	50	Tie – 5, 6
Gage Park	61	1
Sam Lawrence Park	52	Tie – 3, 4
T.B. McQuesten Park	54	2
Valley Park	50	Tie – 5, 6

The study concluded that the northeast section of Gage Park, as shown in Appendix “B” attached to Report PW18052, is the ideal site for the Fallen Fire Fighters Memorial.

In 2018, Forrec Ltd. was further retained to prepare conceptual designs for the Memorial. The preferred concept, as shown in Appendix “C” attached to Report PW18052, was chosen because of its more-formal nature, which responds to the current geometry of Gage Park’s formal gardens, the 2010 Gage Park Master Plan, and the original Gage Park vision first laid out by the Canadian Landscape Architects, Lorrie and Howard Dunnington-Grubb.

In May 2018, staff met with representatives from Friends of the Gage to review the proposed concept as shown in Appendix “C” attached to Report PW18052. While the Friends of the Gage are not opposed to and even support the idea of a memorial for Fire Fighters, they are not supportive of the proposed location within Gage Park. Their concerns relate to the Robbie Burns Memorial that already exists near the proposed Fallen Firefighters Memorial location, as well as the current and historical use of the garden area that is the site for redevelopment into the memorial space. The Friends of the Gage suggested a location near the parking lot closer to Lawrence Road, as shown in Appendix “D” attached to Report PW18052.

Staff compared this new location against the same site-selection criteria as the other sites in the above table. This new location scored higher with regard to parking proximity, but scored lower with regard to site visibility, accessibility, and the increased costs that would result from the entirely-new construction required in that location.

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SUBJECT: Fallen Fire Fighters Memorial (PW18052) (City Wide) - Page 4 of 6

The site proposed by the Friends of the Gage, as shown in Appendix “D” attached to Report PW18052, scored 55 points overall. Other concerns with this alternate location include:

- Interference with the new Tropical House entrance and the space around it;
- Limited access for fire trucks during ceremonial events;
- Interference with typical set up for festivals that use that area for food, portapotties, and access to the large grass area by the amphitheatre.

Staff therefore recommends that this alternate location is not selected for the final Fallen Fire Fighters Memorial, and that, if necessary, other locations for the Robbie Burns Memorial are considered as part of this process.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The recommendations are in keeping with the Public Art Master Plan 2016 and the Call for Artists Policy.

RELEVANT CONSULTATION

The following internal stakeholders were consulted and have no concerns with the location and concept design of the proposed Fallen Fire Fighters Memorial:

Ward 3 Councillor
Ward 4 Councillor and Ward 5 Councillor

Fallen Fire Fighters Memorial Sub-Committee Members

Public Works
Parks Operations
Forestry and Horticulture

Planning and Economic Development - Public Art and Projects

The following groups external to the City of Hamilton were also consulted:

Hamilton Professional Fire Fighters Association, who are supportive of the concept and look forward to the implementation of the memorial.

Friends of the Gage, whose concerns are outlined above.

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SUBJECT: Fallen Fire Fighters Memorial (PW18052) (City Wide) - Page 5 of 6

ANALYSIS AND RATIONALE FOR RECOMMENDATION

The northeast portion of Gage Park, as shown in Appendix “A” attached to Report PW18052, is recommended for the site of the Fallen Fire Fighters Memorial because of its:

- Highest overall score when compared to the other potential sites;
- Accessibility via bus transit and proximity to future LRT;
- Ease of access for fire trucks along a main route during special ceremonies;
- Potential to integrate the memorial with existing park design;
- High pedestrian traffic and visibility from major road;
- Formal character (formal gardens, fountain);
- Highly programmed state (Greenhouses, playground, sports facilities, etc.);
- Existing facilities and servicing (washrooms, etc.).

ALTERNATIVES FOR CONSIDERATION

One alternative to the recommendation in Report PW18052 is to recommence the site-selection process in light of the feedback received from the Friends of the Gage. This alternative is not recommended, however, as the recommended site as shown in Appendix “B” attached to Report PW18052 retains the highest score even when all sites are compared against the same criteria.

Another alternative to the recommendation in Report PW18052 is to direct staff to not move forward with the detailed design of the memorial project, and to not include a capital budget sheet for the Fallen Fire Fighters Memorial in the 2019 Capital Budget. This would not fulfil the mandate of the Subcommittee of Council established for this project, and therefore, this alternative is not recommended.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**Community Engagement & Participation**

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

Healthy and Safe Communities

Hamilton is a safe and supportive city where people are active, healthy, and have a high quality of life.

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

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SUBJECT: Fallen Fire Fighters Memorial (PW18052) (City Wide) - Page 6 of 6

Culture and Diversity

Hamilton is a thriving, vibrant place for arts, culture, and heritage where diversity and inclusivity are embraced and celebrated.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" – General Issues Committee Minutes Report No. 17-001 Item 19 dated
January 18, 2017

Appendix "B" – Recommended Site Location at Gage Park

Appendix "C" – Concept Plan of Proposed Fire Fighters Memorial

Appendix "D" – Gage Park Site #2

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General Issues Committee Minutes from Report no. 17-001
Item 19 dated January 18, 2017.

19. Proposed Fallen Fire Fighter Memorial (Item 9.1)

(Merulla/Collins)

WHEREAS, the John Rebecca Park Master Plan incorporated a commemorative space for Emergency Workers, as design by a stakeholder consultation process;

WHEREAS, the Master Plan for the proposed John Rebecca Park has not been able to proceed, due to related lands for the proposed park being in private ownership;

WHEREAS, the Hamilton Professional Fire Fighters Association in a letter dated January 20, 2015, requested that a Fire Fighters Memorial Committee, comprised of appointed Members of Council and two fire fighters be formed, to collaborate on the proposed Fallen Fire Fighter Memorial project;

WHEREAS, at its meeting of February 11, 2015, Council approved Item 14 of the General Issues Committee Report 15-005, which appointed Councillors S. Merulla and C. Collins to the Hamilton Professional Fire Fighters Association's (Local 288) Fire Fighter's Memorial Committee;

WHEREAS, the Hamilton Fire Fighter's Association's (Local 288) initial concept for the Fallen Fire Fighter's Memorial is proposed to be at Gage Park, with an estimated cost of \$1.7 million;

WHEREAS, Fallen Fire Fighter Memorial project is currently unfunded in the 2017 Capital Budget Forecast;

WHEREAS, there are extensive pressures and limited capital resources to fund all priorities across the City of Hamilton; and,

WHEREAS, there may be alternative funding strategies, that may be more cost effective;

THEREFORE BE IT RESOLVED:

- (a) That, to reduce costs, staff be directed to investigate potential sites on existing City lands to be used for the Fallen Fire Fighter Memorial;
- (b) That staff be directed to communicate with the Hamilton Professional Fire Fighters Association (HPFFA) to determine their ability and willingness to participate as a funding partner in the creation of the Fallen Fire Fighter Memorial site;

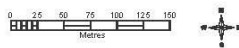
Appendix "A"
Report PW18052
Page 2 of 2

- (c) That staff be directed to proceed with the preliminary design and investigative work for the Fallen Fire Fighter Memorial at a cost not to exceed \$125,000, with a funding source to be identified through the 2017 Operating Budget process;
- (d) That staff be directed to collaborate with public stakeholders associated with any of the potential sites being considered for the Fallen Fire Fighter Memorial; and,
- (e) That staff be directed to report back to the General Issues Committee, through a future Capital budget process on alternatives for the Fallen Fire Fighter Memorial project location, scope, detailed design, related capital construction costs with identified funding sources.

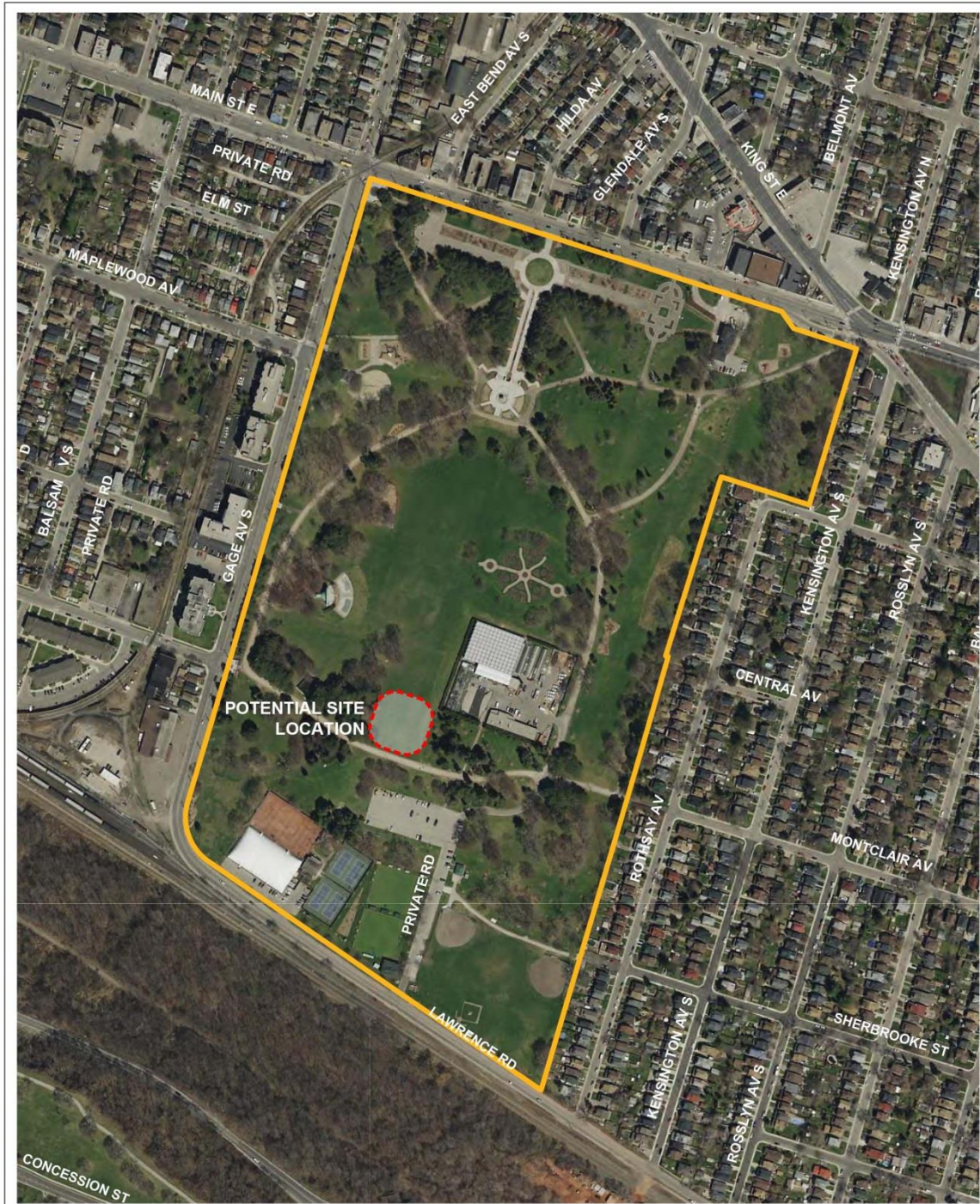
Appendix "B"
Report PW18052

Recommended Site Location at Gage Park

SITE SELECTION
GAGE PARK



Gage Park Site #2



Site Selection / Gage Park Site #2

0 25 50 75 100 125 150
Metres

DATE: May 25, 2018
FILE NAME:

DRAWN BY: JJ
NOTE: Aerial Photography - COH 2015

Landscape Architectural Services
Hamilton Public Works