City of Mississauga
Agenda

MISSISSAUGA

Mississauga Cycling Advisory Committee

Date
2019/02/05

Time
6:30 PM

Location
Civic Centre, Committee Room A - Second Floor,
300 Civic Centre Drive, Mississauga, Ontario, L5B 3C1 Ontario

Members
Donnie Morris, Citizen Member, (Chair)
Irwin Nayer, Citizen Member, (Vice-Chair)
Councillor Chris Fonseca, Ward 3
Dorothy Tomiuk, Citizen Member
Edisa Kozo, Citizen Member
Glenn Voakes, Citizen Member
Jonathan Giggs, Citizen Member
Leonard Verwey, Citizen Member
Natalie Halff, Citizen Member

Agency Representatives/City Staff
Manvir Tatla, Project Manager, Sustainable Transportation, Region of Peel
Jeremy Blair, Manager, Transportation Infrastructure Management
Matthew Sweet, Manager, Active Transportation
Max Gill, Supervisor, Traffic Operations
Kimberly Hicks, Communications Advisor

Contact
Stephanie Smith, Legislative Coordinator, Legislative Services
905-615-3200 ext. 3795
stephanie.smith@mississauga.ca

Find it Online

http://www.mississauga.ca/portal/cityhall/cyclingadvisory

1. CALL TO ORDER

2. APPROVAL OF AGENDA

3. DECLARATION OF CONFLICT OF INTEREST

4. MINUTES OF PREVIOUS MEETING

4.1. Mississauga Cycling Advisory Committee Minutes - January 8, 2019

5. DEPUTATIONS

5.1. Michelle Berquist, Project Leader Transportation regarding the Transportation Master Plan

5.2. Katherine Jim, Project Manager, WSP Canada and James Schofield, Active Transportation Planner, WSP Canada regarding the Collegeway Protected Bicycle Lanes Project Update

6. PUBLIC QUESTION PERIOD - 15 Minute Limit
Pursuant to Section 42 of the Council Procedure By-law 0139-2013, as amended: Mississauga Cycling Advisory Committee may grant permission to a member of the public to ask a question of Mississauga Cycling Advisory Committee, with the following provisions:
1. The question must pertain to a specific item on the current agenda and the speaker will state which item the question is related to.
2. A person asking a question shall limit any background explanation to two (2) Statements, followed by the question.
3. The total speaking time shall be five (5) minutes maximum, per speaker.

7. MATTERS TO BE CONSIDERED

7.1. Proposed 5 Year Cycling Implementation Plan (Matthew Sweet, Manager, Active Transportation 25minutes)

7.2. Bicycle Signals and Crossrides Operational and Layout Review (Matthew Sweet, Manager, Active Transportation 15 minutes)

7.3. Winston Churchill Boulevard Multi-use Trail Barrier Options (Matthew Sweet, Manager, Active Transportation 10 minutes)

7.4. 2018 Bike Challenge Review (Matthew Sweet, Manager, Active Transportation 5 minutes)

7.5. Tour de Mississauga Update (Matthew Sweet, Manager, Active Transportation 5 minutes)

7.6. 2018 Community Rides Review (Matthew Sweet, Manager, Active Transportation and Jonathan Giggs, Citizen Member 10 minutes)

8. OTHER BUSINESS

9. DATE OF NEXT MEETING - March 5, 2019

10. ADJOURNMENT

City of Mississauga
Minutes

MISSISSAUGA

Mississauga Cycling Advisory Committee

Date
2019/01/08

Time
6:34 PM

Location
Civic Centre, Committee Room A - Second Floor,
300 Civic Centre Drive, Mississauga, Ontario, L5B 3C1 Ontario

Members Present
Donnie Morris, Citizen Member, (Chair)
Irwin Nayer, Citizen Member, (Vice-Chair)
Councillor Chris Fonseca, Ward 3
Dorothy Tomiuk, Citizen Member
Glenn Voakes, Citizen Member
Jonathan Giggs, Citizen Member
Leonard Verwey, Citizen Member
Natalie Halff, Citizen Member

Members Absent
David Daglish, Citizen Member
Edisa Kozo, Citizen Member
Greg Symons, Citizen Member
Richard Dubiel, Citizen Member
Roy Buchanan, Citizen Member

Present Agency Representatives/City Staff
Mayor Bonnie Crombie
Councillor Karen Ras, Ward 2
Manvir Tatla, Project Manager, Sustainable Transportation, Region of Peel
Brandon Quigley, Planner, Sustainable Transportation, Region of Peel
Helen Noehammer, Director, Transportation & Infrastructure Planning
Jeremy Blair, Manager, Transportation Infrastructure Management
Matthew Sweet, Manager, Active Transportation
Sacha Smith, Manager, Legislative Services and Deputy Clerk
Kimberly Hicks, Communications Advisor
Stephanie Smith, Legislative Coordinator

Find it online

http://www.mississauga.ca/portal/cityhall/cyclingadvisory

1. CALL TO ORDER – 6:34PM

2. APPROVAL OF AGENDA

The following items were deferred to the February 2019 Mississauga Cycling Advisory Committee meeting: Items 7.5, 7.6 and 7.7

Amended/Approved – (J. Giggs)

3. DECLARATION OF CONFLICT OF INTEREST – Nil

4. MINUTES OF PREVIOUS MEETING

4.1. Mississauga Cycling Advisory Committee Minutes - June 12, 2018

Approved (D. Tomiuk)

5. DEPUTATIONS

5.1. Phil Green, past Chair of the Mississauga Cycling Advisory Committee (MCAC) regarding the history of MCAC

Mr. Green provided background information on the history of the Mississauga Cycling Advisory Committee (MCAC), the current state of cycling infrastructure in the City and what is required from City staff and from citizen members.

RECOMMENDATION
MCAC-0001-2019
That the deputation by Phil Green, past Chair of the Mississauga Cycling Advisory Committee (MCAC) regarding the history of MCAC be received.

Received (L. Verwey)

6. PUBLIC QUESTION PERIOD – Nil
(Persons who wish to address the Mississauga Cycling Advisory Committee about a matter on the Agenda. Persons addressing the Mississauga Cycling Advisory Committee with a question should limit preamble to a maximum of two (2) statements, sufficient to establish the context for the question, with a 5 minute limitation. Leave must be granted by the Committee to deal with any matter not on the Agenda.)

7. MATTERS CONSIDERED

7.1. Burnhamthorpe Trail Changes (Donnie Morris, Citizen Member 5minutes)

Leonard Verwey, Citizen Member spoke to the Burnhamthorpe multi-use trail and outlined safety concerns with the downtown cycling detour and the new cycling crossrides on Burnhamthorpe Road east of Dixie.

Members of the committee engaged in discussion regarding: deficiencies with signage; placement of black bollards; safety hazards along the trail; inspection standards; that the signal timing needs to be reviewed immediately; clearing of snow from cycling infrastructures; that the Region of Peel should include social media postings about cycling concerns related to their projects; that the committee had not been consulted; and that better planning and design consultation is needed.

Matthew Sweet, Manager, Active Transportation responded to questions and that he would follow-up with the Region of Peel.

7.2. Winston Churchill Safety Issues (Donnie Morris, Citizen Member 10minutes)

Glenn Voakes, Citizen Member spoke to a personal incident at the Winston Churchill crossride location. He noted that the crossrides are not safe, extra caution is needed and that the timing of the lights need to be reviewed.

Irwin Nayer, Citizen Member spoke to the pushback received when requesting the timing to be reviewed.

Donnie Morris, Citizen Member spoke to concerns with the Winston Churchill multi-use trail and that there is no buffer between the trail and roadway. Matthew Sweet, Manager, Active Transportation spoke to a review being completed on the multi-use trail and that a report would be brought to General Committee for consideration of barrier options.

7.3. Mississauga Cycling Advisory Committee Website and Social Media Pages (Dorothy Tomiuk, Citizen Member 10minutes)

Dorothy Tomiuk, Citizen Member spoke to the following: that the committee did not endorse the Cycling Master Plan (CMP) Update; the importance of social media to connect cyclists and raise awareness on cycling issues; Vision Zero; that the City's crossrides website is too complicated; that safety concerns raised by committee members over the summer were not addressed; and that she was advised that the MCAC website would now be maintained by Active Transportation staff.

Sacha Smith, Manager, Legislative Services provided background information on how information is communicated to residents and aligning the website with other Committees of Council.

Members engaged in discussion regarding the control of the website and social media pages; enquired about the city policy on committee website pages and social media pages; and proactive messaging for cyclists.

Mayor Crombie spoke to the advisory committee role, the consistency with City messaging and the history of the Road Safety Committee.

RECOMMENDATION
MCAC-0002-2019
That control of the Mississauga Cycling Advisory Committee (MCAC) website and social media accounts be transferred to the appropriate citizen member for the next term of MCAC and should the City's website and social media policy be amended in the short term to disallow this transfer, the accounts are to be archived.

7.4. Cycling Program □2018 Review & 2019 Outlook (Fred Sandoval, Active Transportation Coordinator 5minues)

Matthew Sweet, Manager, Active Transportation spoke to the Averbury and Aldridge Bicycle Lanes, Collegeway protected bicycle lanes, Derry Road multi-use trail, Eglinton Avenue multi-use trail and Mavis Road multi-use trail.

Members of the Committee spoke to the Derry Road multi-use trail; budget process; cycling infrastructure along Ninth Line; and holding individual meetings with committee members local councillor.

RECOMMENDATION
MCAC-0003-2019
That the memorandum dated December 12, 2018 entitled Cycling Program □2018 Review & 2019 Outlook be received.

Received (L. Verwey)

7.5. 2018 Bike Challenge Review (Mattea Turco, Active Transportation Coordinator, 5 minutes)

This item was deferred to a future MCAC meeting.

7.6. Tour de Mississauga Update (Matthew Sweet, Manager, Active Transportation 10minutes)

This item was deferred to a future MCAC meeting.

7.7. 2018 Community Rides Review (Mattea Turco, Active Transportation Coordinator, 5 minutes)

This item was deferred to a future MCAC meeting.

7.8. Crossride Education and Promotions (Matthew Sweet, Manager, Active Transportation 5minutes)

Mr. Sweet spoke to the newly developed crossride website.

Dorothy Tomiuk, Citizen Member enquired when staff would address safety concerns previously raised and spoke the complexity of the website.

Councillor Fonseca spoke to the timing of signals at crossride locations and directed staff to review immediately.

RECOMMENDATION
MCAC-0003-2019

1. That all newly installed crossrides be deactivated immediately due to safety concerns and that City staff report back on a new crossrides plan.
2. That the recommendation be forwarded to the Region of Peel for their consideration to deactivate the crossride at Winston Churchill Boulevard and Britannia Road.

Approved (J. Giggs)

7.9. Bicycle Friendly Communities Workshop (Matthew Sweet, Manager, Active Transportation 5 minutes)

Mr. Sweet spoke to the upcoming Bicycle Friendly Communities Workshop and that he would send the committee more information regarding the workshop.

7.10. Mississauga Cycling Advisory Committee Year-End Council Presentation

Donnie Morris, Citizen Member spoke to the upcoming January 30, 2019 General Committee year-end council presentation.

Mayor Crombie noted that the Committee could come to Budget Committee to make a deputation.

8. INFORMATION ITEMS

8.1. Resignation Email From David Daglish, Citizen Member, Mississauga Cycling Advisory Committee

RECOMMENDATION
MCAC-0005-2019
That the resignation email dated September 7, 2018 from David Daglish, Citizen Member, Mississauga Cycling Advisory Committee be received.

Received (J. Giggs)

8.2. Resignation Email From Greg Symons, Citizen Member, Mississauga Cycling Advisory Committee

RECOMMENDATION
MCAC-0006-2019
That the resignation email dated November 11, 2018 from Greg Symons, Citizen Member, Mississauga Cycling Advisory Committee be received.

Received (J. Giggs)

8.3. Resignation Email From Richard Dubiel, Citizen Member, Mississauga Cycling Advisory Committee

RECOMMENDATION
MCAC-0007-2019
That the resignation email dated December 7, 2018 from Richard Dubiel, Citizen Member, Mississauga Cycling Advisory Committee be received.

Received (J. Giggs)

8.4. Resignation Email From Roy Buchanan, Citizen Member, Mississauga Cycling Advisory Committee

RECOMMENDATION
MCAC-0008-2019
That the resignation email dated December 7, 2018 from Roy Buchanan, Citizen Member, Mississauga Cycling Advisory Committee be received.

Received (J. Giggs)

9. OTHER BUSINESS

Irwin Nayer, Citizen Member spoke to a letter dated January 8, 2019 regarding his end of term remarks as the Vice-Chair.

RECOMMENDATION
MCAC-0009-2019
That the letter dated January 8, 2019 from Irwin Nayer, Citizen Member entitled End-of-term remarks from the Vice-Chair be received.

Received (D. Morris)

Mayor Crombie provided remarks to the Mississauga Cycling Advisory Committee and thanked the Committee for their hard work and dedication. She further spoke to the City of Mississauga dedication to cycling and active transportation and addressed her lighthearted comments made at Council regarding appointing another Councillor to the committee.

10. DATE OF NEXT MEETING – February 5, 2019

11. ADJOURNMENT – 8:56PM (I. Nayer)

City of Mississauga
Memorandum

MISSISSAUGA

Date: 2019/01/29

To: Chair and Members of Mississauga Cycling Advisory Committee

From: Matthew Sweet

Meeting Date: 2019/02/05

Subject: Proposed 5 Year Cycling Implementation Plan

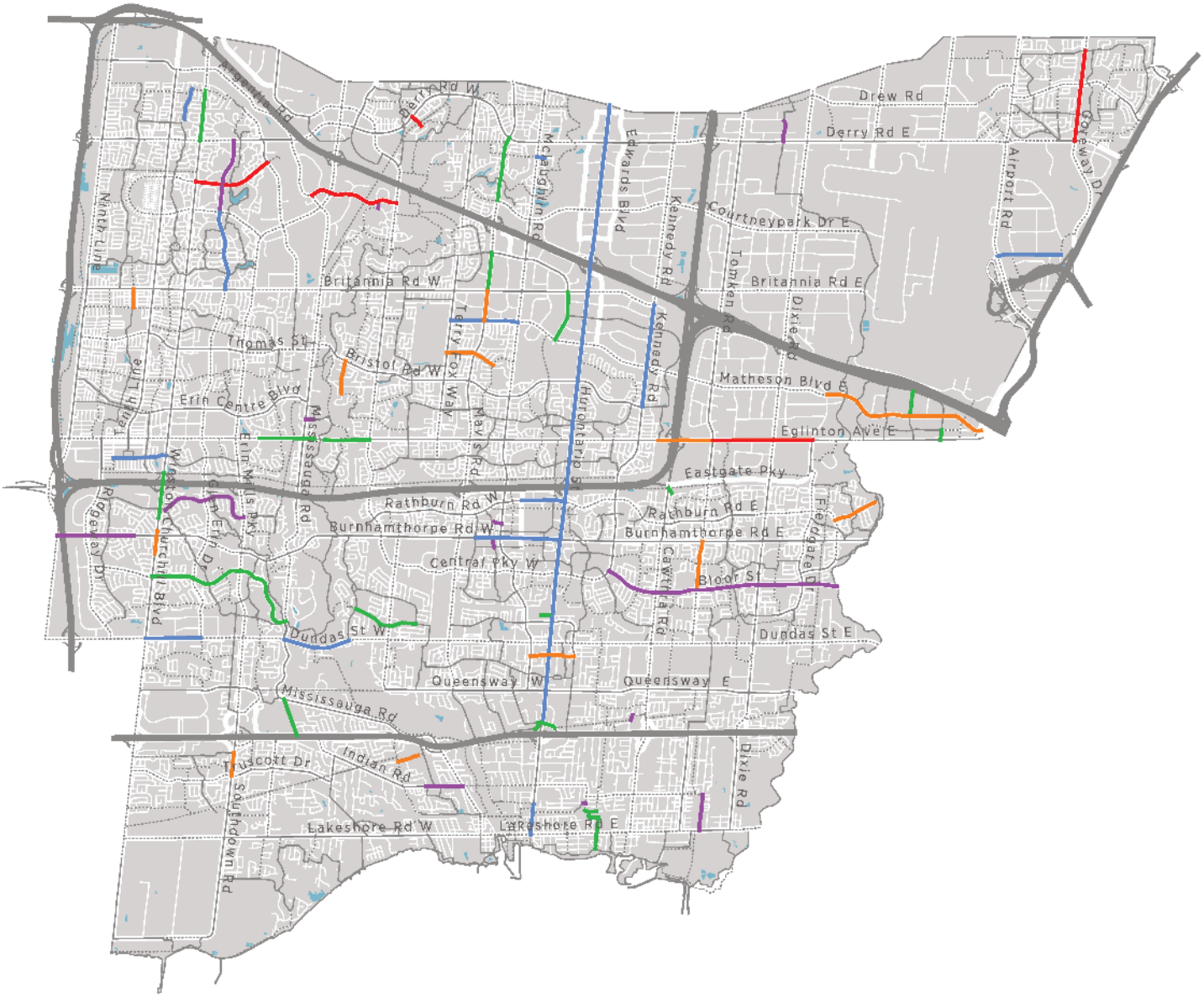
The attached documents outline the proposed 5 year cycling implementation plan prepared by the Active Transportation Office, based primarily on coordination with other Roads Service Area scheduled projects.

Please note that the nature and schedule of the proposed projects listed herein are subject to change in accordance with budget, engineering and construction constraints, public consultation and Council approval.

Attachments

Appendix 1: 5 Year Implementation Plan Map
Appendix 2: 2019 Project List
Appendix 3: 2020 Project List
Appendix 4: 2021 Project List
Appendix 5: 2022 Project List
Appendix 6: 2023 Project List

Prepared by: Matthew Sweet



Cycling Network Five-Year Cycling Program 2019-2023

2019
2020
2021
2022
2023

Existing Facility
Proposed Facility

Mississauga Transportation & Works Cycling Implementation Plan as of January 2019

Location	From	To	Facility Type	Length (m)	Cost per m	Total Cost	Year
Connector (Cawthra-Forest Fire)	Cawthra Road	Forest Fire Lane Walkway	Multi-Use Trail - Two-Way	118	$480	$56,640	2019
Eglinton Avenue West	Credit Valley Road / Summersky Co	Mississauga Road	Multi-Use Trail - Two-Way	899	$580	$521,420	2019
Eglinton Avenue West	Mississauga Road	Credit River Bridge (west end)	Multi-Use Trail - Two-Way	236	$580	$252,880	2019
Eglinton Avenue West	Credit River Bridge (east end)	Creditview Road	Multi-Use Trail - Two-Way	920	$580	$533,600	2019
Mavis Road	Derry Road West	Courtneypark Drive West	Multi-Use Trail - Two-Way	1311	$0	$0	2019
Mavis Road	Bancroft Drive / Cantay Road	Britannia Road West	Multi-Use Trail - Two-Way	782	$580	$453,560	2019
Winston Churchill Boulevard	Bayberry Drive / Crosscurrent Drive	Derry Road West	Multi-Use Trail - Two-Way	1034	$580	$599,720	2019
Winston Churchill Boulevard	Highway 403	Unity Drive / Unity Gate	Multi-Use Trail - Two-Way	731	$480	$350,880	2019
Winston Churchill Boulevard	Unity Drive / Unity Gate	180 m south of Unity Drive / Unity (	Multi-Use Trail - Two-Way	183	$480	$87,840	2019
Avebury Road	Britannia Road West	Aldridge Street	Bike Lane - Conventional	493	$60	$29,580	2019
Avebury Road	Aldridge Street	Matheson Boulevard	Bike Lane - Conventional	557	$60	$33,420	2019
Collegeway	Winston Churchill	South Millway (east leg)	Cycle Track - One-Way	2166	$720	$1,559,520	2019
Collegeway	South Millway (east leg)	Mississauga Road	Cycle Track - One-Way	1392	$720	$1,002,240	2019
Enola Avenue	Revus Avenue	Waterfron Trail	Shared Route - Signed	644	$50	$32,200	2019
Explorer Drive	Skymark Avenue	Eglinton Avene East	Bike Lane - Conventional	198	$60	$11,880	2019
Forestwood Drive	The Credit Woodlands	McBride Avenue	Shared Route - Signed	1338	$50	$66,900	2019
John Street (proposed)	Hurontario Street	200 m west	Multi-Use Trail - Two-Way	237	$0	$0	2019
Marf Avenue	Mineola Gardens	Canterbury Road	Shared Route - Signed	234	$50	$11,700	2019
North Service Road	Hurontario Street	ORT 2	Multi-Use Trail - Two-Way	277	$0	$0	2019
Orbitor Drive	Explorer Drive	Matheson Boulevard East	Bike Lane - Conventional	521	$60	$31,260	2019
Premium Way	Hydro Corridor	Harborn Road	Multi-Use Trail - Two-Way	165	$0	$0	2019
Rena Road	Torbram Road	Slough Street	Shared Route - Signed	746	$50	$37,300	2019
Revus Avenue	Marf Avenue	Enola Avenue	Shared Route - Signed	306	$50	$15,300	2019
Springbank Road	Mississauga Road	North Sheridan Way	Shared Route - Signed	781	$50	$39,050	2019

Mississauga Transportation & Works Cycling Implementation Plan as of January 2019

Location	From	To	Facility Type	Length (m)	Cost per m	Total Cost	Year
Eglinton Avenue East	Jan's Trail	Tomken Road	Multi-Use Trail - Two-Way	1107	$580	$642,060	2020
Southdown Road	South Sheridan Way	Truscott Drive	Multi-Use Trail - Two-Way	477	$580	$276,660	2020
Matheson Boulevard East	Creekbank Road	Renforth Drive	Cycle Track - One-Way	3428	$720	$2,468,160	2020
Mavis Road	Britannia Road West	Matheson Boulevard West	Multi-Use Trail - Two-Way	616	$580	$357,280	2020
Tomken Road	Burnhamthorpe Road East	Bloor Street	Cycle Track - Two-Way	999	$720	$719,280	2020
Winston Churchill Boulevard	90 m north of Burnhamthorpe Roac	Cornish Road / Split Maple Gate	Multi-Use Trail - Two-Way	472	$580	$273,760	2020
Caldwell Avenue	Woodeden Drive	ORT 2 / Indian Grove	Shared Route - Signed	427	$50	$21,350	2020
Delle Donne Drive	Britannia Road West	McDowell Drive	Shared Route - Signed	388	$50	$19,400	2020
Durie Road	Bristol Road West	Carrington Road	Shared Route - Signed	687	$50	$34,350	2020
King Street East	Hurontario Street	Camilla Road	Bike Lane - Conventional	524	$60	$31,440	2020
King Street West	Confederation Parkway	Hurontario Street	Bike Lane - Conventional	380	$60	$22,800	2020
Lafayette Drive	Mavis Road	Ceremonial Drive	Shared Route - Signed	437	$50	$21,850	2020
Preston Manor Drive	Terry Fox Way	Mavis Road	Shared Route - Signed	574	$50	$28,700	2020
Rathburn Road East	Ponytrail Drive	Etobicoke Creek Trail	Bike Lane - Conventional	896	$60	$53,760	2020

Mississauga Transportation & Works Cycling Implementation Plan as of January 2019

Location	From	To	Facility Type	Length (m)	Cost per m	Total Cost	Year
Bloor Street	Central Parkway East	Cawthra Road	Cycle Track - One-Way	1086	$720	$781,920	2021
Bloor Street	Cawtha Road	Dixie Road	Cycle Track - One-Way	2108	$720	$1,517,760	2021
Bloor Street	Dixie Road	Toronto Border	Cycle Track - One-Way	1622	$720	$1,167,840	2021
Burnhamthorpe Road West	Ninth Line	Loyalist Drive	Multi-Use Trail - Two-Way	1561	$0	$0	2021
Glen Erin Drive	Derry Road West	Battleford Road	Cycle Track - One-Way	1529	$720	$1,100,880	2021
Angelene Street	Spruce Park	Mineola Gardens	Shared Route - Signed	53	$50	$2,650	2021
Arbutus Way	Parkside Village Drive	Confederation Parkway	Shared Route - Signed	157	$50	$7,850	2021
Asta Drive	ORT 2	Abana Road	Shared Route - Signed	105	$50	$5,250	2021
Barbertown Road	Mississauga Road	Amana Place	Shared Route - Signed	163	$50	$8,150	2021
Cardiff Boulevard	Mount Charles Park	Derry Road East	Cycle Track - Two-Way	424	$720	$305,280	2021
Folkway Drive	Unity Gate	Erin Mills Parkway	Shared Route - Signed	2043	$50	$102,150	2021
Haig Boulevard	Lakeshore Road East	Atwater Avenue	Shared Route - Signed	735	$50	$36,750	2021
Indian Road	Madigan's Lane	Mississauga Road	Bike Lane - Conventional	742	$60	$44,520	2021
Kinsmen Gate	Argentia Road	Falconer Drive	Bike Lane - Conventional	138	$60	$8,280	2021

Mississauga Transportation & Works Cycling Implementation Plan as of January 2019

Location	From	To	Facility Type	Length (m)	Cost per m	Total Cost	Year
Burnhamthorpe Road West	Grand Park Drive	Duke of York Boulevard	Cycle Track - Two-Way	935	$0	$0	2022
Burnhamthorpe Road West	Duke of York Boulevard	Hurontario Street	Cycle Track - Two-Way	803	$0	$0	2022
Dundas Street West	Winston Churchill Boulevard	Glen Erin Drive	Cycle Track - One-Way	1134	$720	$816,480	2022
Dundas Street West	Mississauga Road	The Credit Woodlands	Cycle Track - One-Way	1372	$580	$795,760	2022
Hurontario Street	Brampton Border	Derry Road	Cycle Track - One-Way	770	$0	$0	2022
Hurontario Street	Derry Road	Capston Drive / World Drive	Cycle Track - One-Way	1972	$0	$0	2022
Hurontario Street	Capston Drive / World Drive	Britannia Road	Multi-Use Trail - One-Way	1104	$0	$0	2022
Hurontario Street	Britannia Road	Kingsbridge Garden Circle / Elia Ave	Cycle Track - One-Way	3487	$0	$0	2022
Hurontario Street	Kingsbridge Garden Circle / Elia Ave	Square One Drive	Multi-Use Trail - One-Way	987	$0	$0	2022
Hurontario Street	Square One Drive	Burnhamthorpe Road	Cycle Track - One-Way	629	$0	$0	2022
Hurontario Street	Burnhamthorpe Road	Dundas Street	Cycle Track - One-Way	2119	$0	$0	2022
Hurontario Street	Dundas Street	Queensway	Cycle Track - One-Way	984	$0	$0	2022
Hurontario Street	Queensway	North Service Road	Multi-Use Trail - Two-Way	667	$0	$0	2022
Hurontario Street	Inglewood Drive	Park Street East	Multi-Use Trail - Two-Way	378	$0	$0	2022
Hurontario Street	Park Street East	Lakeshore Road East	Bike Lane - Two-Way	246	$220	$54,120	2022
Kennedy Road	Britannia Road East	Bristol Road East	Multi-Use Trail - Two-Way	2091	$580	$1,212,780	2022
Matheson Boulevard West	Terry Fox Way	Mavis Road	Cycle Track - One-Way	687	$720	$494,640	2022
Matheson Boulevard West	Mavis Road	McLaughlin Road	Cycle Track - One-Way	690	$720	$496,800	2022
Rathburn Road West	Duke of York Boulevard	Station Gate Road	Cycle Track - Two-Way	230	$0	$0	2022
Rathburn Road West	Station Gate Road	City Centre Drive	Cycle Track - Two-Way	424	$0	$0	2022
Rathburn Road West	City Centre Drive	Hurontario Street	Cycle Track - Two-Way	229	$0	$0	2022
American Drive	Airport Road	Northwest Drive	Cycle Track - One-Way	1298	$720	$285,560	2022
Arrowsmith Drive	McLaughlin Road	Golden Hills Way	Shared Route - Signed	164	$50	$8,200	2022
Artesian Drive	Dovehouse Drive	Winston Churchill Boulevard	Shared Route - Signed	1078	$50	$53,900	2022
Aspen Avenue	Bayberry Drive	Danton Promenade	Shared Route - Signed	646	$50	$32,300	2022

Mississauga Transportation & Works Cycling Implementation Plan as of January 2019

Location	From	To	Facility Type	Length (m)	Cost per m	Total Cost	Year
Eglinton Avenue East	Tomken Road	Eastgate Parkway	Multi-Use Trail - Two-Way	2033	$580	$1,179,140	2023
Goreway Drive	Brandon Gate Drive	Dorcas Street	Cycle Track - One-Way	1619	$720	$1,165,680	2023
Goreway Drive	Dorcas Street	Derry Road East	Cycle Track - One-Way	233	$720	$167,760	2023
Aquitaine Avenue	Winston Churchill Boulevard	Millcreek Avenue	Cycle Track - One-Way	1618	$720	$1,164,960	2023
Argentia Road	Turner Valley Road	Creditview Road	Cycle Track - One-Way	1828	$720	$1,316,160	2023
Atwood Lane	Frontier Ridge	Derry Road West	Shared Route - Signed	259	$50	$12,950	2023

City of Mississauga
Memorandum

MISSISSAUGA

Date: 2019/01/28

To: Chair and Members of Mississauga Cycling Advisory Committee

From: Matthew Sweet

Meeting Date: 2019/02/05

Subject: Winston Churchill Boulevard Multi-use Trail Barrier Options

Staff received direction at the May 2, 2018 General Committee meeting to conduct a safety review of the Winston Churchill Multi-Use Trail, between Aquitaine Avenue and Oka Road. The City's Active Transportation Office undertook their own safety review and also retained the professional services of the WSP Group to carry out an independent third-party safety review of the trail.

Both reports were provided to Mayor and Council in August 2018. The covering memo prepared is provided in Appendix 1; the report provided in Appendix 2 is an overview of the safety review undertaken by staff; Appendix 3 contains the safety review undertaken by WSP Group.

Both reviews found that the Winston Churchill MUT generally meets published design guidelines for a MUT. However, some improvements were identified to further improve the safety of the facility. These improvements include the following:

1. Add trail edge lines to increase the buffer between the road and trail where needed to direct users away from the curb
2. Add a centreline to the trail
3. Add mixed crossrides at the two driveway crossings
4. Modify the four intersections to provide bicycle signals and crossrides that have clear marked paths for cyclists and pedestrians

Staff prepared work orders to implement improvements 1 -3, and improvement 4 will be programmed to occur in the near future. These and other safety features will be incorporated in future MUT projects.

Staff received subsequent direction in September 2018 to research and report back on barrier options for implementation on the Winston Churchill Multi-use Trail where the trail is adjacent to the curb or a concrete splash pad. The purpose of barriers would be to prevent trail users from leaving the trail and entering the roadway where no grass boulevard is present as a buffer. Staff researched a variety of options and considered several factors including minimum height requirements consistent with standard bridge railing heights when cyclists are present, and barrier ability to prevent vehicle crossover.

Barrier options are presented in Appendix 4, with full costing to implement each option on Winston Churchill Trail between Oka Road and Aquitaine Avenue in Appendix 5.

Attachments

Appendix 1: Safety Review of Winston Churchill Multi-use Trail, Active Transportation Office
Appendix 2: Design Review of a Multi-use Path on Winston Churchill Boulevard from Oka Road to Aquitaine Avenue, WSP Canada Group Limited
Appendix 3: Barrier Options
Appendix 4: Winston Churchill Blvd Barrier Options Costing

Prepared by: Matthew Sweet

SAFETY REVIEW OF WINSTON CHURCHILL BLVD. MULTI-USE TRAIL

Prepared by: Active Transportation Office
Transportation & Works Department

Date: July 2018

Summary
A new multi-use trail on the east side of Winston Churchill Boulevard, between Aquitaine Avenue and Oka Road, is in the final stages of construction and already in use by cyclists and pedestrians. The location of the trail is illustrated in Figure 1. The trail is in Ward 9, and connects to the existing boulevard trail to the south, and a future extension to the north.

The design of the trail is consistent with existing and upcoming multi-use trails in the City of Mississauga and the Region of Peel. When compared with guidance from modern North American guidelines, the trail width (3.0 m to 3.75 m) is within the recommended range (3.0 m to 4.1 m). The road buffer (0.75 m) is on the lower end, but still within acceptable widths (0.5 m to 1.5 m). Painted edge lines on the trail can be used to increase this buffer. A painted centreline can aid in trail organization, encouraging users to stay on one side, which reduces conflicts and swerving, and makes passing easier.

Police data previously analysed by the City of Mississauga indicates that 90% of collisions between cyclists and motorists occur at intersections (as measured from 2010 to 2013).[1] Many of the multi-use trails existing in the city have sections immediately adjacent to the curb or a standard splash pad (0.75 m wide concrete road buffer). Many cyclists also ride on sidewalks, many of which are immediately adjacent to the roadway. Despite this, midblock collisions are rare, and there are no recent reports in Mississauga of major injury or death occurring from cyclists falling off a curb into traffic.

Since collisions at intersections are a concern, it is recommended that improvements are made to make crossing by bicycle safer and more comfortable. In particular, crossrides should be added to four intersections and two driveways along the route, and planned for addition to all current and future trail crossings in Mississauga.

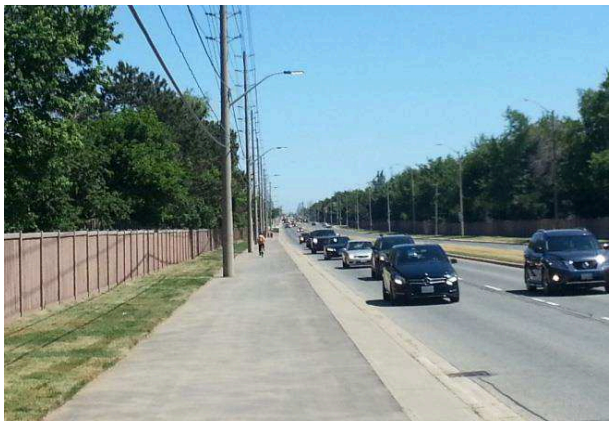


Figure 1: New multi-use trail on Winston Churchill Boulevard, south of Battleford Road.

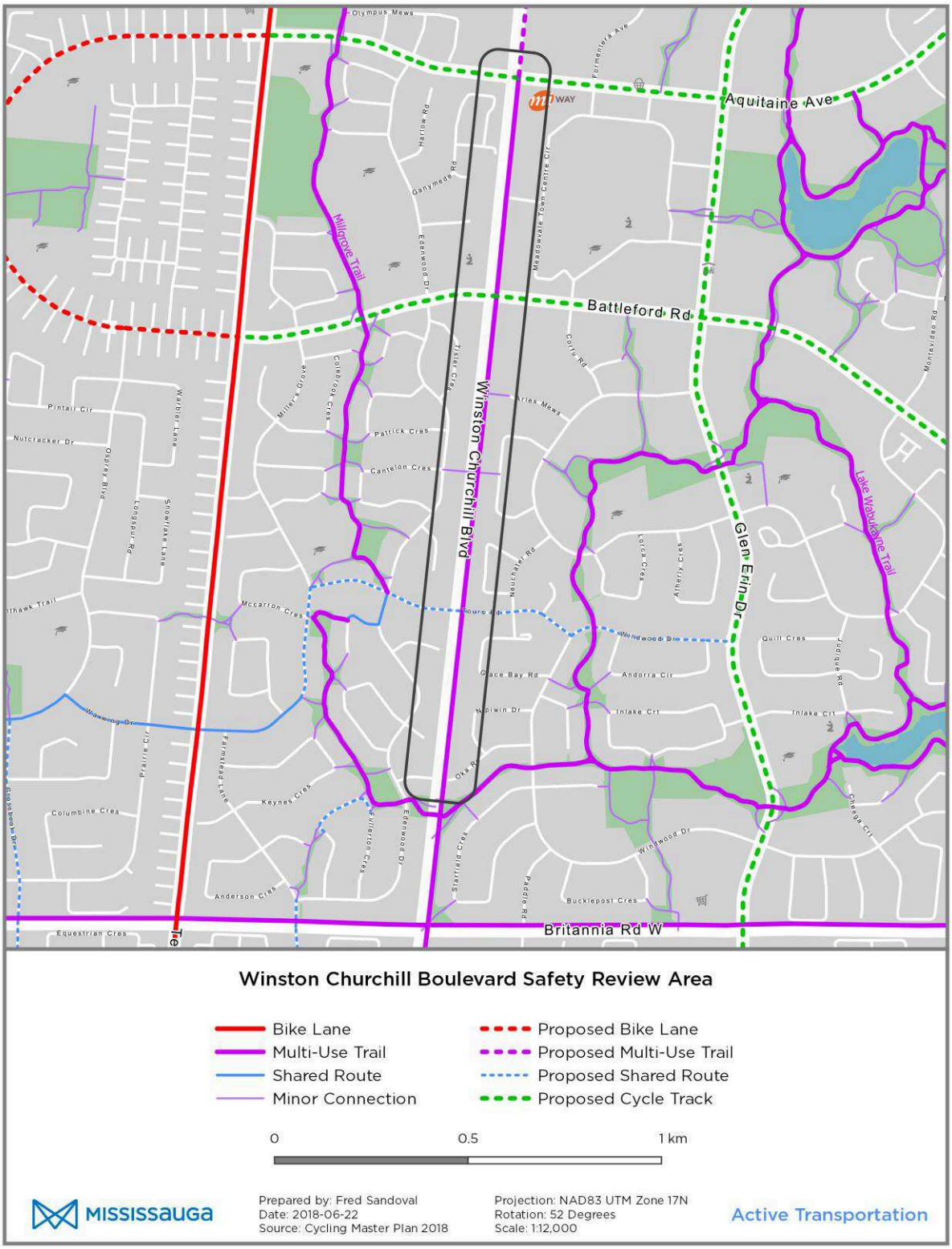


Figure 2: Winston Churchill safety review area with Cycling Master Plan 2018 cycling routes.

Existing Trail Design and Issues

Trail Width

The trail in most sections is 3.75 m wide. In constrained sections between Aquitaine Avenue and Battleford Road, the trail narrows to 3.0 m. In some sections, utility poles on the trail reduce the effective width to 2.6 m. These widths are all within recommended limits from current design guidance.

Recommended multi-use trail widths:
OTM (2013)[2]: 4.0 m (minimum: 3.0 m, constrained: 2.4 m)
TAC (2017)[3]: 3.0 m - 6.0m (minimum: 2.7 m)
Toronto (2015)[4]: 3.0 m - 4.1m (minimum: 2.7 m)
NACTO (2014)[5]: 3.7 m (constrained: 2.4 m)
Vélo Québec (2010)[6]: 3.0 m
CROW (2016)[7]: Minimum 2.4 m

Conclusion and Recommended Action:
The current width of the Winston Churchill Blvd. trail is appropriate and no modifications are required.

Trail Buffer

The buffer between the trail edge and the roadway varies. In some sections, there is a grass buffer at least 1.5m wide. In others, the trail is immediately adjacent to the concrete splash pad. The splash pad is 0.75 m wide, as per City of Mississauga design standards[8]. This width is slightly below most design guidance.

Recommended buffer between curb and multi-use trail:
OTM (2013)[9]: 1.0 m
TAC (2017)[10]: 1.0 m
Toronto (2015)[11]: 1.5 m
NACTO (2014)[12]: 0.9 m
Vélo Québec (2010)[13]:0.5 m
CROW (2016)[14]: 1.5 m

Important consideration for trail buffers is the operating speed of the roadway and opening doors from parked cars. Motor vehicles are not permitted to park adjacent to the trail on Winston Churchill Boulevard, so that is not an issue in the review area. Despite a speed limit of 60 km/h, the 85th percentile operating speeds for the northbound traffic lanes (those adjacent to the trail) are higher, between 64 km/h and 80 km/h. Approximately 30,000 cars travel on Winston Churchill in this area daily, 7500 of those in the northbound curb lane.

85th percentile operating speeds (northbound):
At Aquitaine Avenue (2014): 75 km/h
At Aquitaine Avenue (2016): 64 km/h
At Battleford Road (2014): 78 km/h
At Battleford Road (2016): 80 km/h

Given these operating speeds, some buffer space or delineation of space is recommended between the roadway and multi-use trail users.

Note that a short section of 3.3 m wide trail at Meadowvale Town Centre Circle is immediately adjacent to the curb with no buffer. However it is adjacent to a right turn lane, which would see much slower traffic.

Conclusion and Recommendation:
Ensure that there is either a buffer space or delineation of space between motor vehicle traffic and trail users along all segments of the trail

Adding a Barrier or Railing to the Trail Buffer
It has been proposed that a barrier or railing be added to the 0.75 m splash pad between the road curb and the trail. This should be technically feasible, and would prevent cyclists and other trail users from falling onto the roadway should they lose control. However, this is a very rare occurrence. Despite many cyclists riding on similar multi-use trails, and narrower sidewalks adjacent to the roadways, there are no recent reports in Mississauga of death or injury from cyclists falling off a curb mid-block. In the City of Mississauga, 90% of collisions between cyclists and motor vehicles occur at intersections due to conflicts with turning traffic.

In Toronto, the death of a 5-year old cyclist on the Waterfront Trail in 2017 prompted a safety review of all similar trails in the city. This happened at a location where the trail was immediately adjacent to the roadway, on a downhill segment, where car traffic was known to travel at high speeds. In that review, it was noted that there were no records of previous injury or death at that location, despite being one of Toronto's oldest and busiest trails. There were also no other similar incidents of cyclists falling off of the trail into live traffic at any trail sections in the city.

Barriers or railings are desirable in locations where there is a concern of cyclists falling off a curb, such as on steep hills or sharp turns that are immediately adjacent to a high-speed roadway. The trail on Winston Churchill Boulevard in the review area does not have any significant grade changes or sharp turns.

Conclusion and Recommendation:
The design of the Winston Churchill MUT and safety history of similar trail types does not warrant the addition of a physical barrier or railing where the Winston Churchill MUT is adjacent to the curb.

Markings
The trail is not yet marked, as our practice is to wait until contractors are finished with a site prior to City staff implementing pavement markings. Contractors for the Winston Churchill MUT will be finished on site by the beginning of September, and staff will complete pavement markings shortly thereafter. In previous practice, multi-use trails in Mississauga were marked with a solid yellow line near intersections. Design guidance recommends marking trails with a centreline. This emphasizes that the trail is designed for bicycle-use, makes it clear that it is a two-way trail (not just to trail users, but motorists driving in adjacent lanes, who may turn across the trail), and encourages trail users to stay to one side, leading to easier passing, and therefore smoother traffic flow, less conflicts, and less swerving.

Conclusion and Recommendation:
Provide a centre line treatment along the Winston Churchill MUT

Existing Intersection Design and Issues

Stopping and Dismounting

Current regulations require cyclists to stop and dismount at intersections unless a crossride is present. In practice, cyclists rarely do this, as stopping and dismounting at all intersections on a route could add significant time and energy, reducing the benefits of cycling. There are five intersections in the review area: Oka Road, Tours Road, Battleford Road, Meadowvale Town Centre Circle, and Aquitaine Avenue. All these intersections should have crossrides to accommodate cyclists. Since the trail ends at Aquitaine Avenue, a crossride there should be installed with a future north trail extension. As with current practice, crossrides at signalized intersections must also have signals for bicycles. Oka Road is the only unsignalized intersection in this corridor.

Ambiguous Crossing Path

At many of the intersections, cyclists cannot follow a straight path of travel, and may have to significantly slow down, and compete for space with pedestrians. This means that cyclists are not able to concentrate as much on the crossing, lose sight of motor traffic, and mix with pedestrians, leading to more conflicts. The intersection crossing path should be clear, and meet pedestrian and motor cross traffic close to right angles.

Driveways

There are two driveways along the trail: 6707 Winston Churchill Boulevard, and 2900 Battleford Road (though this appears to be closed off, and thus rarely used). The trail surface through these is continuous and barrier-free. The addition of a mixed crossride, as has been done in many other similar situations in the City, would clearly indicate the crossing to both trail users and turning motor vehicles.

Conflicts with turning traffic

Collisions with turning traffic are one of the largest causes of injury and death of cyclists. Speed and reaction time are the primary factors that determine if a collision will occur, and how much damage and injury will be caused. All the intersections along this segment of Winston Churchill have curbs with a 12 m to 15 m radius. These are generally the maximum curb radii recommended, which would accommodate turning trucks and buses.

At the Oka Road and Tours Road intersections (both residential collectors roads), this curb radius should not be necessary, as they lead into residential areas. Prior to implementing smaller radii, staff ensure that larger vehicles such as school busses, fire trucks, and garbage trucks are able to negotiate all turning movements at the intersection. These smaller radii only reduce the speed at which all vehicles can turn, but does not prevent any type of vehicle from performing turning movements. Tours Road has a bus route, but it does not turn onto Winston Churchill. These roads could have smaller radii, such as 5 m or 10 m, which would lower turning speed, and thus increase reaction time and decrease potential collision speeds between motorists, cyclists, and pedestrians.[15] This is consistent with newer practices, such as those from Toronto's turn radius standards.[16]

Possible Trail Improvements

Several improvements with trail markings could easily be made to the Winston Churchill multi-use trail to increase safety and comfort of trail users. These are outlined in figures 3 to 6 below.

Figure 3: Looking north from Oka Road, on the east side of Winston Churchill Boulevard. The asphalt trail is 3.75 m wide, with a standard 0.75 m concrete splash pad as a buffer.

Figure 4: Conceptual graphic of edge and centre lines applied to the trail. The road buffer can be increased by moving the edge line. In this case, moving the line 0.25 m inwards results in a 1.0 m buffer, and 3.5 m wide trail.

Figure 5: A narrower section of trail between Meadowvale Town Centre Circle and Battleford Road. The trail is 3.0 m wide, but well buffered from the roadway by shrubs and grass. However heavier pedestrian use in this area can cause conflicts between users.

Figure 6: Adding a solid centreline in narrow stretches encourages users to walk and ride along the edges of the trail, instead of the middle. This makes passing easier, and leads to less conflicts between users travelling at different speeds.

Possible Intersection Improvements

The study corridor has four signalized intersections, one unsignalized intersection, and two driveways. Figures 7 to 10 below show conceptual applications of the crossrides.

Figure 7: At the Tours Road intersection, cyclists legally must dismount to cross. However in practice, many ride through. The trail leads into a full curb, which is potentially dangerous for cyclists who may expect a ramp. Cyclists may use the curb cut to the left, which is very close to turning traffic, or the one to the right, in which they may lose sight of traffic by turning away from the roadway, and conflict with pedestrians in the narrow sidewalk space.

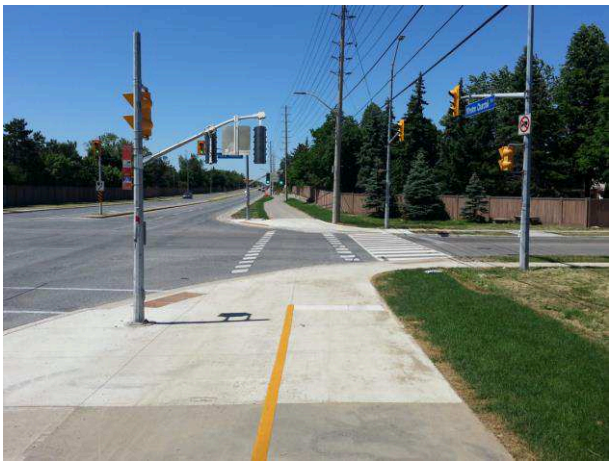


Figure 8: Adding a crossride with a smooth curb cut, trail markings with a stop bar, and bicycle signals makes the path clear for cyclists, and shows motorists where to expect cyclists. Reducing the curb radius of the turns would also significantly increase safety. Pedestrians have a crosswalk, which leads to less conflict between trail users, at a point where all have to concentrate on making a safe crossing.

Figure 9: This driveway south of Aquitaine serves the mall, stores, and a gas station, and thus has significant amounts of turning traffic.

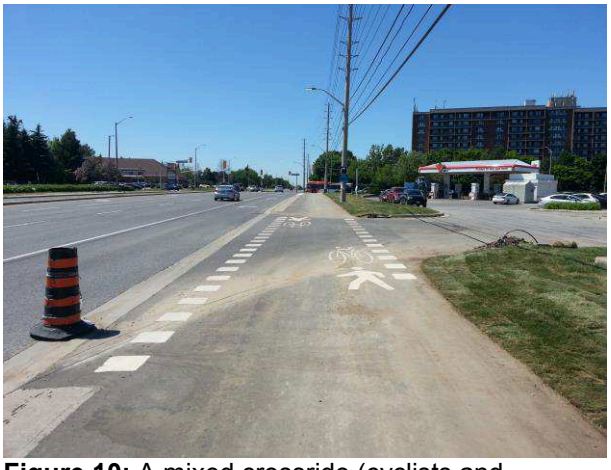


Figure 10: A mixed crossride (cyclists and pedestrians share the space) shows a clear path of travel, and indicates to both trail users and motorists that this is a conflict point.

Conclusion
The design of the new Winston Churchill Trail is consistent with the design of other multi-use trails in the City of Mississauga. When compared to modern design guidance, the trail width is well within the recommended range, though the buffer between the trail sections immediately adjacent to the roadway is slightly narrowor than generally recommended. However, available collision data suggests that there are few bicycle-motor vehicle collisions midblock, even with many multi-use trails of similar design, and that the majority of accidents happen at intersections.

From this safety review, five actions are recommended:

1. Modify the four intersections to provide crossrides that have clear marked paths for cyclists and pedestrians.

2. Add mixed crossrides at the two driveway crossings.

3. Add a centreline to the trail.

4. Add trail edge lines to increase the buffer between the road and trail where needed.

5. Explore treatments to reduce the turn radius of motor vehicles at the four intersections.

In addition to Winston Churchill Boulevard, the above recommendations should be applied to current and future multi-use trails, to increase the safety and comfort for all trail users.

Prepared by: Fred Sandoval, Active Transportation Coordinator

c: Mayor and Members of Mississauga City Council

Endnotes

[1] City of Mississauga (2018). Cycling Master Plan.
[2] Ontario Ministry of Transportation (2013). Ontario Traffic Manual. Book 18 Cycling Facilities. P 115.
[3] Transportation Association of Canada (2017) Geometric Design Guide for Canadian Roads. Chapter 5 – Bicycle Integrated Design. P 20.
[4] City of Toronto (2015). Toronto Multi-Use Trail Design Guidelines. P 15-20.
[5] National Association of City Transportation Officials (2014). Urban Bikeway Design Guide, 2nd edition. P 46. No specific guidance for multi-use trails, width for two-way cycle tracks used.
[6] Vélo Québec (2010). Planning and Design for Pedestrians and Cyclists. P 39.
[7] CROW-Fietsberad (2016). Design Manual for Bicycle Traffic. P. 243.
[8] City of Mississauga (2015). T&W Road Standard No. 2240.041: Concrete Splash Pad.
[9] OTM (2013). P 106, 115.
[10] TAC (2017). P 17.
[11] City of Toronto (2015). P 26.
[12] NACTO (2014). P 46. 0.9 m converted from 3 ft.
[13] Vélo Québec (2010). P 80.
[14] CROW (2016). P 243. 1.5 m recommended specifically for roads with 60 km/h operating speed.
[15] National Association of City Transportation Officials (2013).Urban Street Design Guide.
[16] City of Toronto (2017). Curb Radii Guideline.

July 13th, 2018

Transportation and Works Department
City of Mississauga
300 City Centre Drive,
Mississauga, Ontario L5B 3C
Canada

Attention: **Mr. Matthew Sweet, Manager, Active Transportation**

Subject: **Design Review of a Multi-use Path on Winston Churchill Boulevard from Oka Road to Aquitaine Avenue**

1. INTRODUCTION & PROBLEM STATEMENT

The City of Mississauga has constructed a new segment of Multi-Use Path (MUP) on the east side of Winston Churchill Boulevard between Oka Road and Aquitaine Avenue in Ward 9 of the City. In June 2018, WSP Group Canada Limited ('WSP') was retained to complete a review of the MUP design of the new path segment, and to suggest potential future improvements for the Winston Churchill MUP and future MUP design and construction projects.

2. REVIEW APPROACH

The review was completed in a four-step process to assess the design of the MUP and to determine future opportunities for improvement. It is important to note that opportunities that have been considered are context specific due to the varying constraints along Winston Church Boulevard and the different street elements that interact with the MUP. The review approach is outlined in the next page:

1. **Field Investigation:** The WSP design review team initiated the design review with a field assessment of the recently constructed MUP along Winston Churchill Boulevard from Aquitaine Avenue to Britannia Road. During the field investigation, several photos were taken to document the current conditions and implemented design.

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2. **Best Practices Overview**: Best practices for MUP design have been compiled and reviewed, including the Ontario Bikeway Design Manual, Ontario Traffic Manual (OTM) Book 18: Cycling Facilities, National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide, the City of Toronto Multi-Use Trail Design Guidelines and the City of Mississauga's Multi-use Trail Standard (2012) and 2018 Cycling Master Plan.

3. **Tender Drawing Review:** Following the field investigation, a thorough review of the tender drawings provided by the City was conducted. A comparison between images from the field investigation and the detailed design were used to evaluate any potential opportunities to improve the design of the Winston Churchill Boulevard MUP and provide guidance for future path design projects.

4. **Opportunity Assessment:** The design drawings were compared against best practices for MUP design guidance and implementation in Ontario so as to confirm that the path meets best practices.

3. BEST PRACTICES OVERVIEW

The Best Practices review confirmed that Multi-Use Paths are typically 3.0 – 4.0m in width with a minimum of 2.4m in constrained areas. MTO's Bikeway Design Manual, OTM Book 18, NACTO, and the City of Toronto's Multi-Use Trail Design Guidelines all support 3.0 – 4.0m path width. The City of Mississauga's Multi-Use Trail Standard (2012) in Figure 1 on the following page identifies a trail width between 3.0 and 4.5m. The City's new Cycling Master Plan (CMP) recommends path widths that are consistent with the best practices listed above.[1]

Figure 2 on the following page shows example cross-sections from the MTO Bikeway Design Manual[2] and the Toronto MUP Design Guidelines.[3] OTM Book 18 recognizes that the minimum path width could be reduced to "2.4m over very short distances to avoid utility poles or other infrastructure that may be costly to relocate". [4] Similarly, NACTO recommends 8ft (~2.4m) wide two-way facilities, only where the locations are constrained.[5]

According to the City of Toronto, "Lateral clearance areas are areas to the side of the trail surface that improve safety conditions for trail users by providing space for avoiding collisions".[6] OTM Book 18 recommends that a splash strip be used to separate the curb and cyclists and notes that the typical splash strip is 1.0m wide. [4] The Toronto MUP Guidelines recommends that the trail be located 1.5m set back from the curb (0.6m lateral + 0.9m curb-side zone). However, the Toronto guide notes that lateral clearances may be smaller due to unique on-site constraints.[7] Mississauga's 2018 CMP identifies a standard 0.75m wide splash pad which is in-line with trail design guidance in Ontario.[1] A minimum of 0.6m is considered acceptable.

OTM Book 18 is currently being updated, which will include detailed design guidance for MUPs. Mississauga City staff are on the Steering Committee of the OTM Book 18 update and sit on the OTC AT Committee, and will have the opportunity to engage in Multi-use Path design guidance for Ontario.

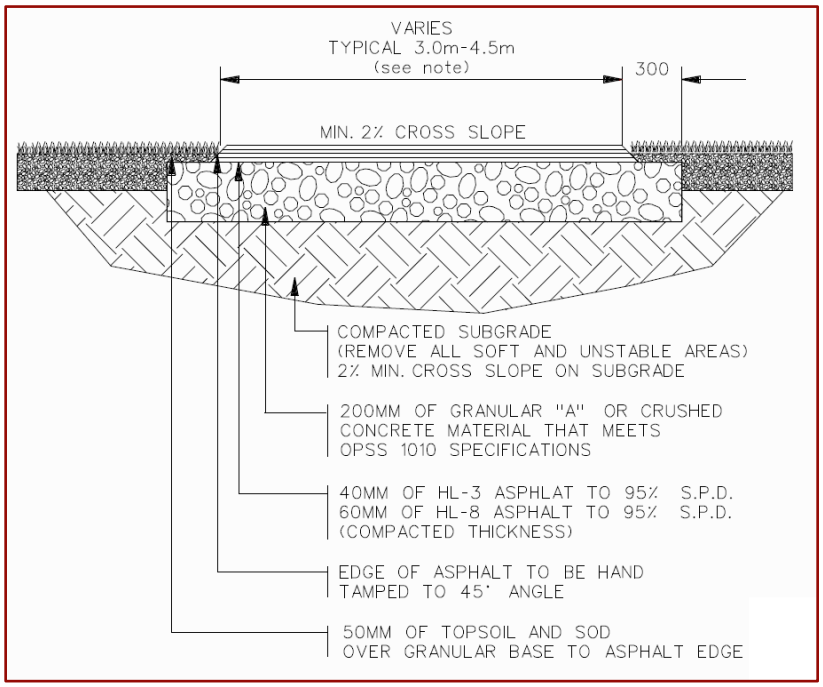


Figure 1: City of Mississauga Multi-use Trail Standard (2012)

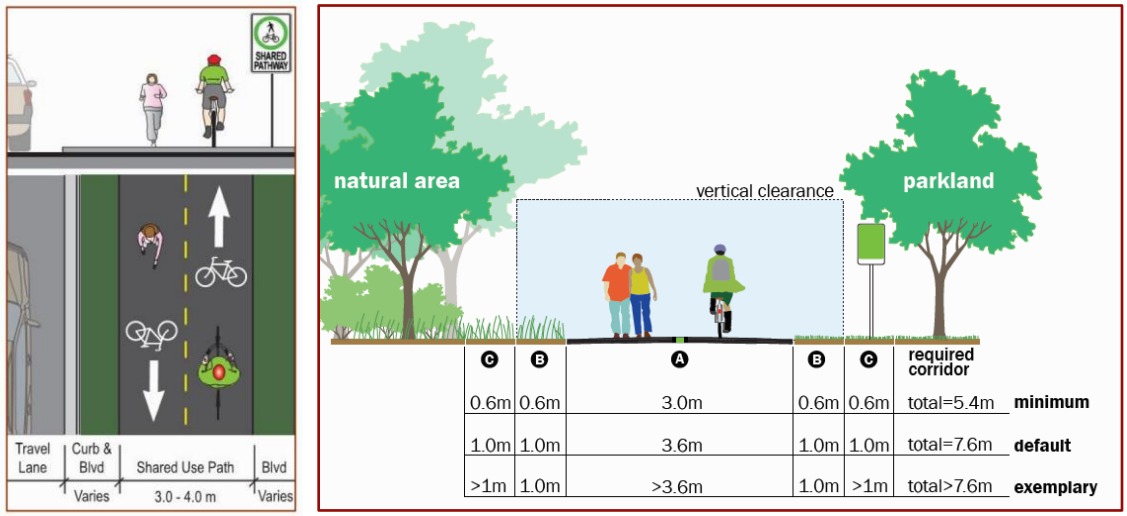


Figure 2: Shared AT Path Example Cross Sections
(Left; MTO Bikeway Design Manual, Right; City of Toronto MUP Design Guide)

4. KEY FINDINGS AND SUGGESTIONS

Based on the results of our review, it is WSP's opinion that the geometric design of the MUP on Winston Churchill Boulevard from Oka Road to Aquitaine Avenue is consistent with provincial design guidance and best practices for MUP design. For all sections of the path, it meets or exceeds provincial guidance for minimum MUP width.

KEY DESIGN AREAS AND CONSIDERATIONS

Lateral Setback

The setback of the MUP varies depending on the available width within the boulevard. Generally, the setback between the edge of the MUP to the road is greater than 0.6m and the setback between the edge of the MUP to a utility pole or box is 0.3m, which is consistent with best practices. In some segments of the MUP, the existing concrete splash pad was used to provide separation, which is also consistent with design best practices.

In Ontario, it is best practice to provide at least 0.6m setback away from the curb, and using physical separation such as planting medians if possible. It is acknowledged that in the review corridor, that there were several physical constraints such as utilities and property lines that affect the alignment, width and setback of the path.

It is recommended to provide a minimum 0.6m of separation between the cycling MUP and pedestrian sidewalk if there is sufficient space in the boulevard. It is important to note that there are no instances of sidewalks running parallel to the review segment of the MUP. The separation can be provided by various surface treatment such as stone pavers or impressed concrete. This best practice is identified as part of the City's 2018 Cycling Master Plan: "Design guidance generally recommends a minimum 0.3 to 0.6 m buffer between a boulevard bicycle facility and a sidewalk. The buffer can either be raised, such as a curb or planters, or flat, such as grass or textured pavement. Bricks, pavers, or textured concrete should provide a contrasting colour, as well as a tactile feature to help those with visual impairments. A crossable buffer is useful when the cycle track and sidewalk are at their minimum widths, so as to allow users to temporarily cross over if necessary. This buffer area, if wide enough, may also be used for poles and other street furniture.".[1] This topic will also be addressed in the update to OTM Book 18.

MUP Segment by Meadowvale Town Centre Circle & Winston Churchill Boulevard

The tender drawings indicate that the MUP south of Meadowvale Town Centre Circle and adjacent to the McDonald's narrows to 3.3m from the 3.75m wide typical path segment throughout the corridor. WSP's field measurement was consistent with the tender drawings. It is acknowledged that this design consideration was influenced by the width constraints of the boulevard and property line. The path is directly adjacent to the curb along the northbound right-turn lane on Winston Churchill Boulevard. Figure 3 on the next page illustrates how the newly constructed MUP abuts the roadway curb.

To mitigate cyclists and pedestrians straying too close to the edge of the path and the curb, WSP suggests implementing a painted edge line, offset 0.6m from the back of the

curb. This would result in an effective Multi-Use path width of 2.7m. An example is shown below in Figure 4 from York Region's recently constructed Lake Simcoe to Lake Ontario (Lake to Lake) Trail in Richmond Hill. The painted line acts as a visual warning indicator for pedestrians to not approach too close to the edge of the road. The goal is to encourage all MUP users to stay back from the curb and to reduce the risk that a user may misjudge their position and go over the curb into a live traffic lane.

During the field investigation, it was noted that a hydro pole was located behind the fence (as noted by the red box in Figure 3). It was also noted that the toe wall in the tender drawings was not yet constructed. The soil adjacent to the path appeared to be graded and may have been an opportunity to provide additional width to the MUP. If the property behind the fence is own by the City, additional space may have been available by relocating the fence. It is acknowledged that further implementation challenges were presented given the proximity of an Enbridge gas line within the boulevard area.

Figure 3: Winston Churchill MUP by Meadowvale Town Centre Circle

Figure 4: Multi-use Path on Leslie Street in Richmond Hill

Intersection & Driveway Treatments

The implemented MUP design follows the previous sidewalk alignment as much as possible. As a result, it was possible to use the existing crosswalks at the intersection. As part of the path upgrade, tactile walking surface indicators were added to the corners of intersections to comply with AODA requirements.

Legally cyclists must dismount at a crosswalk and walk through a crosswalk.[8] However, many cyclists may not use the crosswalk as intended and cycle through the intersection due to the inconvenience of dismounting. Anticipating this user behaviour, WSP suggests that in the future, the City consider implementing crossrides and bike signals as part of path upgrades or with future intersection improvements.

Figure 5 below is an example from the City of Toronto at Eglinton Avenue West and The East Mall that illustrates how a crosswalk and crossride could be organized at an intersection to separate pedestrians and cyclists.

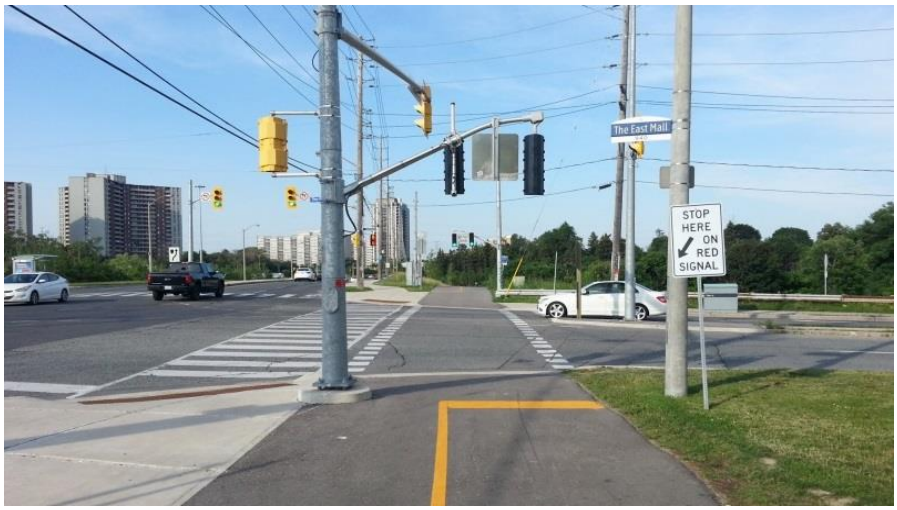


Figure 5: Crosswalk and Crossride at Intersection at the City of Toronto[9]

At driveways, consideration should be given to provide indicators for motorists that they need to yield to pedestrians and cyclists. Figure 6 below shows driveway treatments that were used on York Region's Lake Simcoe to Lake Ontario (Lake to Lake) Trail on Leslie Street in Richmond Hill. The intersections are marked by an arrow, bike and pedestrian stencils and bounded with elephant's feet markings. Signage can be added approaching a driveway and at the exit of a driveway to warn drivers that a pedestrian or cyclist may be crossing. The Lake to Lake Trail applies the signing approach of using WC-44R (TAC), Wc-15 (OTM) and Wc-32t (OTM) signs as illustrated in Figure 6.

Figure 6: Driveway Signage and Pavement Markings

Transit Stops and Shared Space

Along the Winston Churchill Boulevard corridor there are several shared spaces where transit users, pedestrians and cyclists mix. Currently the transit stops along the review corridor do not have shelters. Outside of Oka Road and Aquitaine Avenue, there are some transit stops with a shelter such as the stop at Britannia Road. The configurations of transit stops are shown below in Figure 7 and Figure 8. Where there is available space, a concrete path has been constructed adjacent to the path that provides sufficient waiting space for transit users.

Where there are higher volumes of transit users, consideration should be given to bend the path out and around the transit stop. Examples from Richmond Hill and Mississauga are shown in Figure 9 and Figure 10. This creates an island where transit users can wait for buses and reduces conflict with through travelling pathway users. This design consideration involves additional boulevard width that is not available within the review corridor.

As Mississauga grows and develops, active transportation should be increasingly integrated with transit. Design of MUPs at transit stops should also consider the type of transit in the corridor such as local buses, rapid transit and light rail as well as bike parking to support first and last mile type trips.

Figure 7: Transit stop area at Tours Road

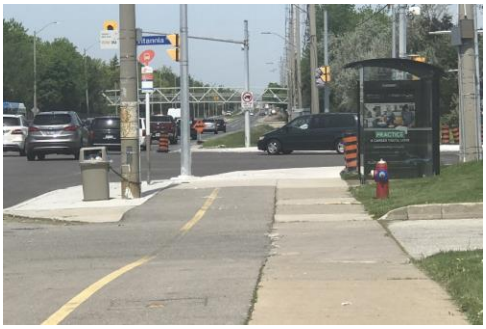


Figure 8: Transit stop and shelter at Britannia Road on existing path section

Figure 9: YRT Transit stop at Leslie Street and Highway 7 (northwest corner)

Figure 10: MiWay Bus Stop with a separated loading platform on Burnhamthorpe Road East[10]

Differential Settling

At an existing segment of path close to Britannia Road south of the review corridor, some differential settling was observed between the concrete sidewalk and the asphalt path illustrated in Figure 11 below. WSP suggests for future implementation to use a concrete base underneath the asphalt path and sidewalk to reduce differential settling. The differential settling between the MUP and sidewalk is relatively minor, but should be monitored to ensure that a significant elevation change does not occur.

Figure 11: Differential Settling of Concrete and Asphalt

5. CONCLUSION

It is WSP's opinion that the geometric design and implementation of the MUP on Winston Churchill Boulevard from Oka Road to Aquitaine Avenue is generally consistent with Ontario design guidance and best practices. It provides a major link within the Winston Churchill Boulevard corridor that will provide a comfortable and direct route for residents and visitors. The following summarizes design considerations for future MUP improvements to enhance user experience in Mississauga:

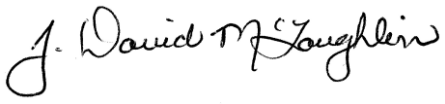
1. **Setback:** Provide more than 0.6m of separation between the edge of the MUP and roadway where there is sufficient space.
2. **Pedestrian and Cyclist Separation:** Provide a minimum 0.6m buffer between a boulevard cycling facility and a sidewalk.
3. **Treatment when path directly abuts road:** If 0.6m of separation behind the curb cannot be provided due to boulevard constraints, implement a painted edge line offset 0.6m from the curb to direct users away from the curb, but the MUP should never be less than 2.4m wide.
4. **Intersections:** Implement crossrides and bike signals at intersections to allow cyclists to legally ride though.
5. **Driveways:** Implement pavement markings and signage to better indicate to drivers to yield to pedestrians and cyclists on the MUP.
6. **Transit Stops and Mixing Zones:** Consider bending the path away from the transit stop to create a "transit island" if there is sufficient room in the boulevard.
7. **Concrete Base:** In the future, construct a concrete base under both the MUP and sidewalk to reduce differential settling.

6. REFERENCES

The following documents were referred to during the development of this letter:

1. Mississauga Cycling Master Plan Appendix V DRAFT (p. 17), 2018
2. MTO Bikeway Design Manual Figure 5.4 (p. 5-4), 2014
3. Toronto MUP Design Guidelines Figure 4.03 (p. 16), 2015
4. Ontario Traffic Manual Book 18: Cycling Facilities (p. 115), 2013
5. NACTO Urban Bikeway Design Guide (p. 97), 2011
6. Toronto MUP Design Guidelines (p. 23), 2015
7. Toronto MUP Design Guidelines (p. 26), 2015
8. Ontario Highway Traffic Act 144(29)
9. Mississauga Cycling Master Plan Appendix V DRAFT (p. 9), 2018
10. Mississauga Cycling Master Plan Appendix V DRAFT (p. 23), 2018

Sincerely,



Dave McLaughlin, MES, RPP

National Active Transportation Practice Manager & Senior Project Manager - Transportation Planning and Advisory

Daniel Nalliah, B.Sc., M. Sc., P. Eng.

Manager, Municipal Roads Transportation

Requirements:

- Barrier recommendation for curb-facing MUT segments at the City of Mississauga
- Current height standard for cyclist barriers is 137cm
- Options for barriers/delineators outlined below

A. <u>Removable Barriers</u>

A modular concrete or plastic barrier employed to separate lanes of traffic

Type	Evaluation	Dimensions *(may vary)*	Cost
Water OR Sand-Filled Barriers  *Baltimore*	✗ Meets height requirement ✓ Continuous barrier ✗ Will prevent vehicle crossover ✓ Visual deterrent ✗ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✓ Portable	**H:** 90cm **W:** 40cm **L:** 180cm ea.	**$41,667 / 100m** *(OBW Equipment* – $750 per 1.8m unit)

Concrete Jersey Barrier  San Francisco	✗ Meets height requirement ✓ Continuous barrier ✓ Will prevent vehicle crossover ✓ Visual deterrent ✗ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✓ Portable	**H:** 81cm **W:** 60cm **L:** 180cm ea.	**$200 / 4m segment** *(City Repair Contracts)*
Pre-Cast Curb Barrier  Winnipeg	✗ Meets height requirement ✓ Continuous barrier ✗ Will prevent vehicle crossover ✓ Visual deterrent ✓ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✓ Portable	**H:** 13cm **W:** 18cm **L:**183cm ea.	**$4,166 / 100m** *(OBW Equipment – $75 per 1.8m unit)* **$86.97 per m** *(City Repair Contract - Supply and Install New Precast Concrete Bumper Blocks)*

Planter Barrier  Seattle	✗ Meets height requirement ✗ Continuous barrier ✗ Will prevent vehicle crossover ✓ Visual deterrent ✗ Narrow base ✓ Aesthetically conscious ✗ Minimal maintenance ✗ Portable	**H:** < 100cm **W:** > 30cm **L:** 50cm	**$43,000 - $53,000 / 100m** *(Crescent Garden, Ellis Planters – $860-$1060 per unit, 0.5m spacing)*

B. <u>Bollard</u>

A short, vertical post

Type	Evaluation	Dimensions *(may vary)*	Cost
Security Bollard  Ottawa	✗ Meets height requirement ✗ Continuous barrier ✓ Will prevent vehicle crossover ✓ Visual deterrent ✗ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H:** 92cm **Diameter:** ~10 cm	**$10,000 / 100m** *(Ontario Bollards – $1,000 per unit , 1m spacing)*

Self-Correcting Guide Post  Ottawa	✗ Meets height requirement ✗ Continuous barrier ✗ Will prevent vehicle crossover ✓ Visual deterrent ✓ Narrow base ✓ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H:** 92cm **W:** 15cm	**$4,000 / 100m (5m spacing) to $15,000 / 100m (2m spacing)** *(Powell – $200-$300 per unit, 2-5m spacing)* *(CycloZone - $150 per unit, supply and install)* *(Impact Recovery Systems - $130 per unit, supply and install)*
			

C. Guardrails

A strong fence intended to reduce the risk of serious accidents

Type	Evaluation	Dimensions *(may vary)*	Cost
Steel Guardrail  **Toronto** *(along Bayview – installed by Powell)*	✗ Meets height requirement ✓ Continuous barrier ✓ Will prevent vehicle crossover ✓ Visual deterrent ✗ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H:** 79cm **W:** 30cm	**$10,000 / 100m - $25,000 / 100m** *(Powell – $100-$250 per m)*
Jersey Wall  New York City	✓ Meets height requirement ✓ Continuous barrier ✓ Will prevent vehicle crossover ✓ Visual deterrent ✗ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H:** Optional **W:** 30cm	**$40,540 / 100m** *(Fences Toronto – $405 per m, used)*

D. <u>Fence</u>

Upright structure that fully encloses an area

Type	Evaluation	Dimensions *(may vary)*	Cost
Chain-Link Fence  Portland	✓ Meets height requirement ✓ Continuous barrier ✗ Will prevent vehicle crossover ✓ Visual deterrent ✓ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H**: Optional **W:** 8cm	**$8,200 / 100m** *(Fences Toronto – $82 per m)*
Handrail Barrier  Paris	✓ Meets height requirement ✓ Continuous barrier ✓ Will prevent vehicle crossover ✓ Visual deterrent ✓ Narrow base ✓ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H:** Optional **W:** 8cm	**$10,000 / 100m – $20,000 / 100m** *(Fences Toronto – $100-$200 per m)* ***Must reference highest cost (as outlined above) to meet height requirement***

Pipe Railing  Brooklyn	✓ Meets height requirement ✓ Continuous barrier ✓ Will prevent vehicle crossover ✓ Visual deterrent ✓ Narrow base ✗ Aesthetically conscious ✓ Minimal maintenance ✗ Portable	**H:** Optional **W:** 8cm	**$8,200 / 100m - $ 10,000 / 100m** *(Fences Toronto – $82-$100 per m)* ***Must reference highest cost (as outlined above) to meet height requirement***

Category	Type	Cost per 100m (low estimate)	Cost per 100m (high estimate)
A. Removable Barriers	Water or Sand-Filled Barriers	$41,667	$41,667
	Concrete Jersey Barrier	$5,000	$20,000
	Pre-Cast Curb Barrier	$4,166	$8,697
	Planter	$43,000	$53,000
B. Bollards	Security Bollard	$10,000	$10,000
	Self-Correcting Guide Post	$2,600	$15,000
C. Guardrails	Steel Guardrail	$10,000	$25,000
	Jersey Wall *	$40,540	$40,540
D. Fence	Chain-Link *	$8,200	$8,200
	Handrail *	$20,000	$20,000
	Pipe Railing *	$10,000	$10,000

* *Continuous & meets height requirement*

Winston Churchill (low estimate)		
Cost for Curb-Facing Segments (540m)	Cost for Splash Strip Segments (1,815m)	Cost for Curb-Facing AND Splash Strip Segments (2,355m)
$225,001.80	$756,256.05	$981,258
$27,000.00	$90,750.00	$117,750
$22,496.40	$75,612.90	$98,109
$232,200.00	$780,450.00	$1,012,650
$54,000.00	$181,500.00	$235,500
$14,040.00	$47,190.00	$61,230
$54,000.00	$181,500.00	$235,500
$218,916.00	$735,801.00	$954,717
$44,280.00	$148,830.00	$193,110
$108,000.00	$363,000.00	$471,000
$54,000.00	$181,500.00	$235,500

Winston Churchill (high estimate)		
Cost for Curb-Facing Segments (540m)	Cost for Splash Strip Segments (1,815m)	Cost for Curb-Facing AND Splash Strip Segments (2,355m)
$225,001.80	$756,256	$981,258
$108,000.00	$363,000	$471,000
$46,963.80	$157,851	$204,814
$286,200.00	$961,950	$1,248,150
$54,000.00	$181,500	$235,500
$81,000.00	$272,250	$353,250
$135,000.00	$453,750	$588,750
$218,916.00	$735,801	$954,717
$44,280.00	$148,830	$193,110
$108,000.00	$363,000	$471,000
$54,000.00	$181,500	$235,500

City of Mississauga
Memorandum

MISSISSAUGA

Date:	2018/12/17
To:	Chair and Members of Mississauga Cycling Advisory Committee
From:	Mattéa Turco
Meeting Date:	2019/02/05
Subject:	2018 Bike Challenge Review

Background

In 2017, The City of Mississauga partnered with Mississauga Forestry to reach its goal of planting one million trees by 2032. From June to September 2017 participants earned one tree for every 150 kilometres cycled and logged through the Mississauga Bike Challenge.

The 2017 challenge was a success and the 150,000 kilometre community goal was met and exceeded. 650 participants collectively logged 5,832 bike rides adding up to a total of 204,026 kilometres. Together participants unlocked 1,360 trees provided by Mississauga Parks and Forestry and helped plant them in and around the Mississauga trail system in the fall of 2017 and spring of 2018.

After such a successful first challenge, the City of Mississauga partnered with the Humberview Group and Trillium Health Partners Foundation for the 2018 Bike Challenge.

The infographic below summarizes the challenge results.

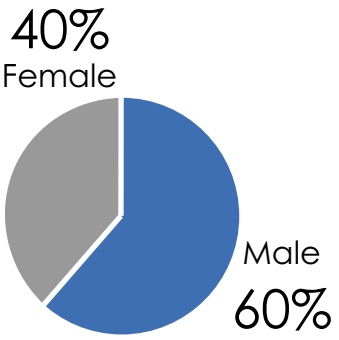
THE 2018 MISSISSAUGA BIKE CHALLENGE

For the 2018 Bike Challenge, The Humberview Group donated $1 to The Trillium Health Partners Foundation for every 10 km cycled from June 10 to September 16. As a bonus, $5 per 10 km was donated for trips in September. Here's what happened...

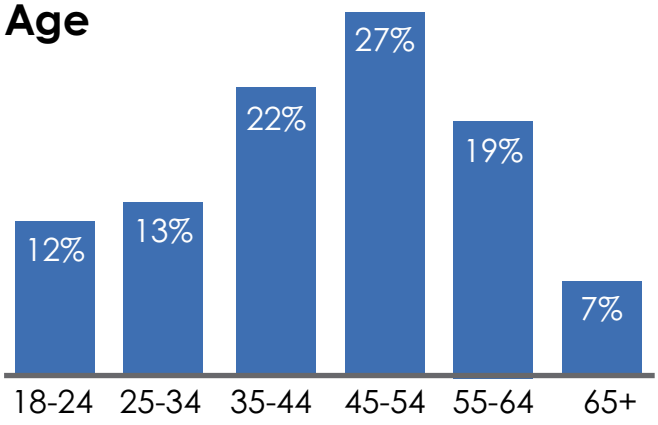
IN 99 DAYS,

1 468 Participants

Gender



Age



Experience

25% Beginner

45% Intermediate

30% Experienced

On Average...

5 new people joined the bike challenge each day.

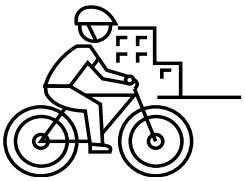
Where are they from?

2 9,228 Trips Logged

Reason for trips

67% Exercise

18% Recreation



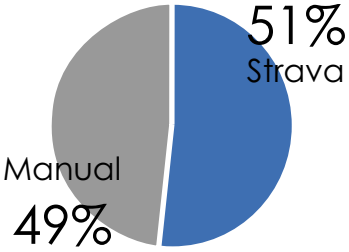
15% Commute

On Average...

93

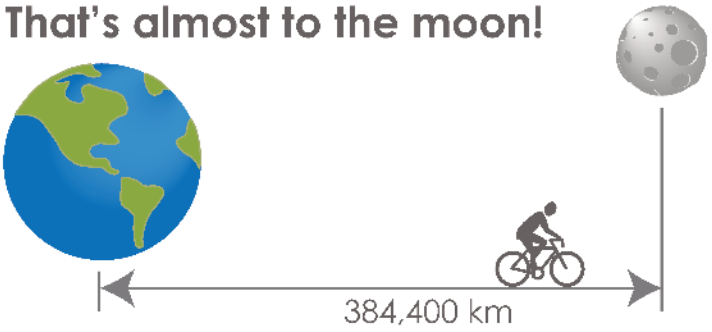
trips were logged each day

How were the trips logged?



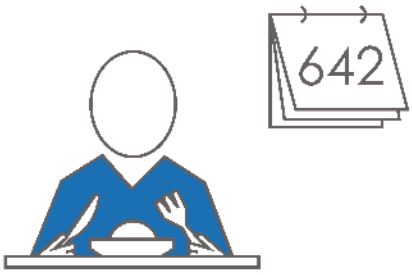
3 309,645 km cycled

That's almost to the moon!



1,284, 038 calories burned

That's enough to meet the average adult's suggested intake of 2,000 calories/day for 642 days!



30 tonnes of CO_2 saved

By riding a bike instead of driving a car for each of the trips logged throughout the challenge, participants helped reduce the level of CO_2 emissions in the City of Mississauga by 30 tonnes!

That's the equivalent of:

6 vehicles off the road for 1 year

OR

The energy use of 3 homes for 1 year

On Average...

We collectively cycled 3,128 km a day

non-stop bike rides from MISSISSAUGA to VANCOUVER

Anyone?

4 $50,000 raised

A big **THANK YOU** to all who participated in the 2018 Mississauga Bike Challenge to help unlock $50,000 from The Humberview Group to Trillium Health Partners. The funds you helped unlock were directed towards our local hospital's most pressing needs and helped purchase new diagnostic imaging equipment, like an angiography machine for the revitalized Diagnostic Imaging department at Credit Valley Hospital site.

This machine checks the health of a patient's blood vessels by looking at how blood flows through them. Over 50% of patients who come to Trillium Health Partners receive some form of diagnostic imaging as part of their health care journey, which is why having the most up-to-date equipment is a top priority.

Thank you for ensuring that the people in our community who come to rely on Trillium Health Partners have access to the latest technology.

HG TheHumberviewGroup AUTOMOTIVE SPECIALISTS

In support of: Trillium Health Partners Better Together

MISSISSAUGA

City of Mississauga
Memorandum

MISSISSAUGA

Date: 2018/12/17

To: Chair and Members of Mississauga Cycling Advisory Committee

From: Mattéa Turco

Meeting Date: 2019/01/16

Subject: 2018 Community Rides Review

Background

The Mississauga Cycling Advisory Committee (MCAC) formed a working group to plan the 2018 community rides sponsored by the Greater Toronto Airports Authority (GTAA). At the committee meeting in April 2018 it was recommended that SustainMobility organize the onsite management of the 2018 Community Rides and that the service fee of up to $10,000.00 be allocated from the 2018 Committee of Council budget.

Below is the resulting schedule of rides managed by SustainMobility, details regarding registration for each ride, participant data, and feedback regarding ride management.

Ride Schedule

In total, 19 rides were organized by MCAC, 17 of which were managed by SustainMobility and two of which were managed by City staff. The ones in bold below were not managed by SustainMobility due to a policy that prohibits staff from working outdoors after dusk.

Date	Ride Name	Distance	Location	Staff Time	Marshals	Participants
MAY						
Saturday May 5	GTAA Kick-Off Ride	20 km	Mount Charles Park	9 am to 3 pm	12	130
Saturday May 12	Tree Planting Ride / Osprey Marsh Ride	10 km	Castlegreen Meadows Park	11 am to 3 pm	10	58
Saturday May 26	Port Credit Waterfront Trail Family Ride	5 km & 15 km	JC Saddington Park	9 am to 1 pm	8	48
JUNE						
Saturday June 2	Jim Tovey Memorial Lakeview Ride	15 km	Mississauga Sailing Club	9 am to 3 pm	10	98
Sunday June 10	Bike Challenge Launch Ride	23 km	The Humberview Dealership	9 am to 3 pm	13	134

Sunday June 17	Erin Mills Bikefest Family Ride	5 km & 10 km	South Common CC	9 am to 2 pm	8	109
JULY						
Thursday July 12	Creditview and Rivergrove Ride	15 km	Fallingbrook Community Park	4:45 pm to 8:45 pm	13	79
Saturday July 21	Mississauga Valley Family Ride	5 km & 15 km	Mississauga Valley CC	9 am to 2 pm	11	78
Saturday July 28	Malton and Humber Trail Ride	17 km	Malton CC	9 am to 2 pm	7	49
AUGUST						
Saturday August 11	Lake Aquitaine Bikefest Family Ride	5 km & 12 km	Meadowvale CC	12:30 pm to 5:30 pm	8	95
Saturday August 25	Park Royal and Southdown Ride	17 km	Clarkson CC	9 am to 2 pm	7	59
SEPTEMBER						
Saturday September 1	Burnhamthorpe and Bristol Tour Training Ride	35 km	Riverwood Park	9 am to 3 pm	9	51
Saturday September 8	Downtown and Hershey Centre	25 km	Hershey Centre	9 am to 2 pm	8	50
Thursday September 13	UTM Ride	15 km	UTM	4:45 pm to 8:45 pm	5	44
Friday September 21	**Work of Wind**	**5 km**	**Bradley Museum**	**5 pm to 9 pm**	**5**	**25**
Saturday September 29	Culham Trail Salmon Run Ride	25 km	Erindale Park	9 am to 2 pm	7	44
OCTOBER						
Saturday October 13	Applewood and Rockwood Ride	15 km	Garnetwood Park	9 am to 2 pm	16	31
Saturday October 20	Vista Heights Ride	15 km	Vista Heights Public School	9 am to 2 pm	16	30
Friday October 26	**Halloween Ride**	**15 km**	**Port Credit Arena**	**6 pm to 10 pm**	**7**	**36**

Ride Registration

Participants were provided with the opportunity to register in advance for each ride using CCN. On average, 74% of those who participated in the rides registered online and 26% registered in person. 38% of those who registered online did not show up.

The table below shows a breakdown of the percent of participants that registered online or registered on site, and the percent of total online registrations that did not show up for the ride.

Day	Month	Date	% Check-Ins	% Walk-Ins	2018 Total Participants	% No-Show
Saturday	May	5	88%	12%	130	25%
Saturday	May	12	69%	31%	58	40%
Saturday	May	26	50%	50%	48	49%
Saturday	June	2	69%	22%	98	24%
Sunday	June	10	71%	29%	134	26%
Sunday	June	17	74%	26%	109	21%
Thursday	July	12	71%	29%	79	21%
Saturday	July	21	74%	26%	78	23%
Saturday	July	28	55%	45%	49	34%
Saturday	Aug	11	75%	25%	95	21%
Saturday	Aug	25	81%	19%	59	21%
Saturday	Sept	1	78%	22%	51	22%
Saturday	Sept	8	72%	28%	50	18%
Thursday	Sept	13	70%	30%	44	33%
Friday	Sept	21	88%	12%	45	51%
Saturday	Sept	29	75%	25%	44	38%
Saturday	Oct	13	55%	45%	31	32%
Saturday	Oct	20	73%	27%	30	21%
Saturday	Oct	26	94%	6%	36	29%

Ride Participation

In total, 501 individuals attended the rides from May 5 to October 26, 2018. 60% of those individuals attended only one ride while 6% attended more than half the rides. On average, each participant attended two rides.

Age Group

As seen in the figure below, 63% of participants were over the age of 40 and 16% were under the age of 18.

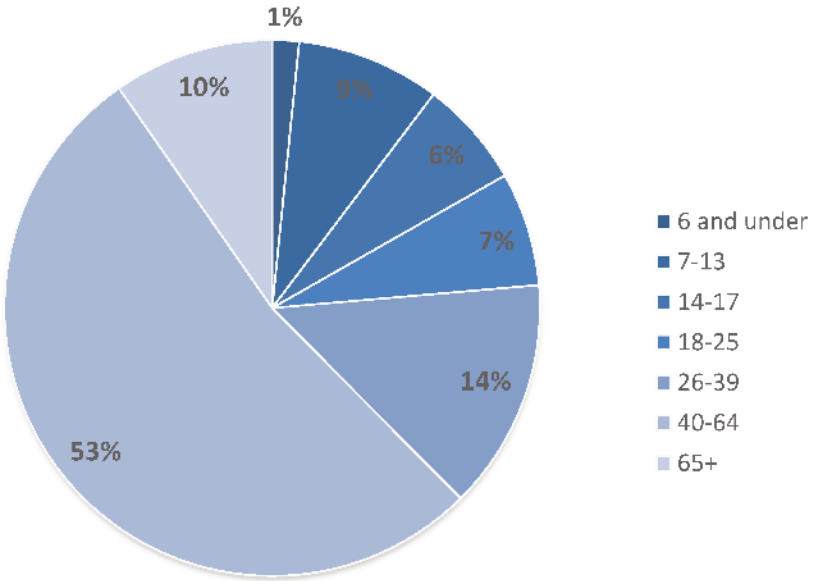


Figure 1: Percent of all participants in each age group.

Postal Codes

When planning the start locations for each of the rides, MCAC members made an effort to touch as many different parts of Mississauga as they could. The variety in location allowed cyclists to explore their entire city by bike and brought the rides to different neighbourhoods in order to encouraged local participation.

Postal code data collected from those who registered online showed an increase in participation from the same area as a ride started and ended. In the chart below, each of the postal codes listed represents a ride's start and finish location. When the percent of participants from the same postal area as the ride is compared to that from the ride before and the ride after; the majority of rides show a spike in local participation.

The table below shows the percent of participants living in the same postal area as the ride start and end location as well as participation rates from that area for the ride before and the ride after.

Postal Code	Ride Before	Ride	Ride After
L4T	2%	4%	0%
L4W	3%	11%	5%
L4Z	3%	0%	0%
L5A	4%	10%	4%
L5C	4%	5%	0%
L5C	3%	9%	0%
L5E	0%	0%	1%
L5G	0%	15%	N/A
L5H	0%	15%	1%
L5J	4%	6%	0%
L5J	0%	0%	0%
L5L	7%	12%	11%
L5L	11%	10%	6%
L5M	18%	25%	7%
L5M	17%	32%	9%
L5N	11%	22%	18%
L5V	6%	9%	18%

Feedback

Participants appeared to enjoy the rides and did not provide any major feedback directly to staff or SustainMobility; however, SustainMobility did provide the following comments relating to ride management:

- Evening rides: These should be scheduled at the beginning of the season when there are more daylight hours rather than at the end of the season when it gets darker earlier. Some participants hinted that it would be better if the evening rides started after 6 pm to allow enough time for riders to finish work and make their way to the ride.
- Registration: Give people the opportunity to sign up for rides further in advance. Ride information was not released on a consistent basis and anyone wanting to participate had to check the website regularly to know when the next ride would be. Confirming rides on a weekly basis runs the risk of people missing the ride all together.
- Reminders: Anyone signed up for a ride should receive a notification email a day or two before the ride reminding them of the ride, the route, what to bring, what to wear, timing and any other pertinent info related to said ride like weather conditions, duration etc. Having a calendar of events would also help people when planning to attend the ride.
- Ride Materials: Armbands and vests need to be washed a few times throughout the season and walkies need to be properly sterilized/cleaned after each ride. It would be a good idea to have a bike mechanic on site for a few of the busier rides.
- Planning: Ride start locations and routes need to be confirmed at the beginning of the year so facilities can be booked and routes can be checked for concerns/conflicts.