
TO: GENERAL COMMITTEE

SUBJECT: ASSESSMENT OF MULTI-USE PATHWAYS AT THE ESSA ROAD AND DUNLOP STREET INTERCHANGES - UPDATE TO MTO PROJECTS AT ESSA ROAD AND DUNLOP STREET INTERCHANGES AND ANNE STREET AND SUNNIDALE ROAD CROSSINGS

WARD: ALL

PREPARED BY AND KEY CONTACT: R. SCHEUNEMANN, P. ENG., SENIOR INFRASTRUCTURE PLANNING ENGINEER EXT. 4782

SUBMITTED BY: B. ARANIYASUNDARAN, P. ENG., PMP DIRECTOR OF ENGINEERING

GENERAL MANAGER APPROVAL: A. MILLER, RPP
GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

CHIEF ADMINISTRATIVE OFFICER APPROVAL: M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RECOMMENDED MOTION

1. That the addition of a multi-use pathway to the Ministry of Transportation (MTO) Essa Road Interchange Reconstruction Project, be approved.

PURPOSE & BACKGROUND

Purpose

2. The purpose of this staff report is as follows:
 - a) To report on our further assessment of the active transportation recommendation related to cycling in the 2019 Transportation Master Plan (TMP) related to the Essa and Dunlop interchanges.
 - b) To provide an update on MTO and the City of Barrie (City) efforts related to the reconstruction of the Essa and Dunlop interchanges and Anne and Sunnidale crossings.
3. On May 13, 2019 Council approved the 2019 TMP through motion 19-G-134. The 2019 TMP covers road network improvements, active transportation improvements (pedestrian and cycling networks), trails and transit. The TMP does not recommend cycling infrastructure at either the Essa or Dunlop / Highway 400 interchanges.
4. On June 3, 2019 Council directed staff through Motion 19-G-148 to undertake the following:

“That staff in the Engineering Department investigate potential options for cycling infrastructure at the Essa Road and Dunlop Street Highway 400 interchanges and areas within the City for multi-use pathways.”

Background

5. The City currently has 5 Highway 400 interchanges (Duckworth, Bayfield, Dunlop, Essa and Mapleview) and 5 Highway 400 crossings (St. Vincent, Sunnidale, Anne, Tiffin and McKay). The 2019 TMP recommended two additional crossings; one at Harvie and one at Lockhart. It also recommended that the McKay crossing be converted to an interchange. Cycling infrastructure was recommended in the 2019 TMP at all existing/future crossings and interchanges except the Essa and Dunlop interchanges (see Figure 1).
6. Both Dunlop Street and Essa Road are identified as intensification corridors in Schedule I of the City of Barrie Official Plan.
7. MTO has plans to reconstruct the Highway 400/Dunlop and Highway 400/Essa interchanges and to replace the Highway 400 bridge crossings at Anne and Sunnidale. MTO has initiated the design work and is leading these projects, and the City is a key stakeholder. The City and MTO are working collaboratively to incorporate transportation improvements that support the needs of both local residents and the travelling public at large. As an example, the City is required to relocate municipal infrastructure that is located within MTO's right-of-way in order to facilitate the ultimate construction. Staff from MTO and the City are in regular contact to ensure the timing of the various improvements proceeds in a logical fashion. These improvements will enhance the transportation network and help mitigate traffic congestion.

MTO will be holding Public Information Centres (PIC) in the future related to implementing specific transportation improvements in advance of construction. MTO has set up webpages for their projects as follows:

Dunlop/Anne/Sunnidale: <http://highway400dunlopannesunnidale.com/>

Essa: <https://hwy400essaroad.ca/>

ANALYSIS

General

8. Efforts to make Barrie more bicycling friendly are often challenged by limited space within Right of Way (ROW), high volumes of vehicular traffic and overall congestion. Separated cycling and pedestrian infrastructure is typically safer but there are exceptions depending on the type of cyclist, roadway speed, traffic volumes and the number of intersection/driveway conflicts.
9. Cycling infrastructure can take many forms but generally falls into the following main categories:
 - a) Separated dedicated cycling in road pathways like bike lanes or buffered bike lanes.
 - b) Separated dedicated cycling off road pathways like cycle tracks or like the cycling trail around the waterfront.
 - c) Shared off road cycling infrastructure like multi-use pathways which are shared between cyclists and pedestrians.
10. There are generally two types of cyclists, the commuter cyclists and the recreational bike riders. Commuter cyclists generally prefer higher speeds with fewer conflicts particularly with pedestrians. The recreational bike riders generally have more time available and prefer scenic routes with few vehicle conflicts. Bike lanes or dedicated cycling infrastructure like cycle tracks tend to serve the commuter cyclists needs better and shared off road cycling facilities like multi-use pathways are generally more preferred by the recreational bike riders.

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11. The 2019 TMP considered the needs of both the commuter cyclists and the recreational bike riders and recommended a mix of cycling infrastructure throughout the City to give both types of cyclists options throughout the City.

Essa Road

12. The 2019 TMP did not recommend bike lanes at the Essa interchange or on Essa Road between Fairview Road and Gowan Street due to safety concerns related to vehicles weaving over the bike lane on / off the existing / future highway ramps. Bike lanes were also not recommended due to the proximity of the recommended bike lanes at the Tiffin crossing which offered a safer and more cycling friendly alternative.
13. Barrie staff have reassessed the 2019 TMP recommendations related to cycling infrastructure at the Essa interchange and have asked MTO to implement a multi-use pathway as part of the MTO Essa interchange reconstruction project for the following reasons:
- a) The Essa interchange offers a more direct cycling route from south-west portions of the City to downtown Barrie and the Barrie waterfront.
 - b) Essa Road has many existing and proposed high density residential developments on both sides of Highway 400, so it is well on its way to transitioning into an intensification corridor.
 - c) The proposed Essa interchange design includes sidewalks on both sides. Converting one of the sidewalks to a multi-use pathway to be shared by cyclists and pedestrians is cost effective. Bike lanes would be significantly more expensive to implement in part because the structure crossing Highway 400 would need to be widened three meters more.
 - d) Planning and Building Services Department is undertaking an intensification study for Essa Road and implementing cycling infrastructure is an essential component of the complete streets vision for this corridor.
 - e) It is anticipated that this corridor would be used extensively by the recreational cyclist due to the proximity of downtown Barrie, waterfront, GO Station and potential future City Transit Terminal.
 - f) The 2019 TMP recommends a multi-use pathway just south-west of the Highway 400 interchange, along Essa Road south-west of Ardagh to tie into the existing multi-use pathway on Essa Road south-west of Veteran's.
 - g) Constructing a multi-use trail within the limits of the interchange, and then extending the multi-use pathway on Essa Road from Fairview Road to Gowan Street to tie into the 2019 TMP recommended multi-use pathway on Essa Road north-east of Gowan Street would provide a continuous link to downtown Barrie and the waterfront.
 - h) The complexities of cycling in traffic is extremely challenging for children. For this reason multi-use pathways are safer than bike lanes for children, but children should still be accompanied by an adult to help them cross driveways and intersections.
 - i) Essa Road is an arterial road with high traffic volumes, traffic congestion and posted speeds of 50 km/hour. Given the existing grades on Essa Road vehicles and cyclists can quickly unintentionally reach high speeds which increases the risk of accidents between vehicles and cyclists in bike lanes particularly at conflict points such as driveways, intersections and interchange on/off ramps. This is exacerbated on roads such as Essa, which is a high volume, arterial road. Some of these safety concerns can be mitigated through the implementation of a multi-use path rather than a bike lane.

- j) Multi-use pathways can reduce the risk of severe injury between vehicles and cyclists but introduce different risks between vehicles, cyclists and pedestrians. At driveways and intersections in particular motorists typically do not look for or expect to encounter a cyclist on a multi-use pathway. These safety concerns can be mitigated through proper design and increased maintenance, some of these considerations are summarized below:
 - i) Additional pavement marking and signing to alert motorists and pedestrians to the presence of cyclists and to warn cyclists that they must exercise caution.
 - ii) Removal or relocation of fixed objects adjacent to the multi-use pathway so that they are less likely to be struck by cyclists or multi-use pathway users.
 - iii) Elimination of any impaired sight distance for either motorists, pedestrians or cyclists.
 - iv) Regular maintenance to remove obstacles, sand/gravel or leaves which could cause cyclists to lose control.
 - v) Speed advisory signs for cyclists.
- 14. The multi-use pathway is proposed on the north side of Essa Road for the following reasons:
 - a) There are fewer significant conflicts between driveways and intersections.
 - b) Ties into the existing multi-use pathway on the north side of Essa and on the west side of Ferndale/Veterans.
 - c) Better connection to the existing residential areas on the north side of Essa and Ardagh.
- 15. The recommendation to implement a multi-use pathway along Essa Road has been informally discussed with the Active Transportation and Sustainability Advisory Committee and they support this recommendation.
- 16. The Provincial Cycling Network identifies key cycling routes across the province. While Essa Road is not part of this network, there may be an opportunity to have the route added, and that may result in provincial funding for construction. Staff will be working with MTO's project team to pursue this initiative and potential for funding.
- 17. MTO's design is underway and reconstruction of the Essa Road interchange is anticipated to begin in 2022, subject to funding and environmental approvals. In addition to the multi-use pathway cycling infrastructure, the project will include widening Essa Road from 4 to 6 lanes from Ardagh Road/Bryne Drive to Fairview Road.

Dunlop Street

- 18. The 2019 TMP did not recommend bike lanes at Dunlop interchange due to safety concerns related to high volumes and points of conflicts at ramps / intersections. Bike lanes at the Dunlop interchange were also not recommended due to the proximity of the recommended cycling infrastructure at the Anne and Tiffin crossings which offer safer and more cycling friendly alternatives.
- 19. Barrie staff have reviewed the 2019 TMP recommendations related to cycling infrastructure at the Dunlop interchange and continue to not recommend cycling infrastructure for the following reasons:
 - a) The Anne crossing and Edgehill Drive offers a more direct cycling route from residential areas in the north-west portions of the City, to downtown Barrie, and the waterfront.
 - b) The Tiffin crossing offers a safer route for cyclists south of Dunlop.

- c) Widening the bridge beyond what is required for the vehicles lanes, sidewalk, etc., would require additional property from local businesses and would negatively impacting parking, quite significantly in some cases. Property impacts could be mitigated by implementing a multi-use pathway instead of bike lanes, but a multi-use pathway is not recommended primarily due to the number of driveway conflicts on the Dunlop Street corridor.
 - d) Dunlop Street doesn't cross Hwy 400 at 90 degrees and also crosses Hwy 400 at a curve in the highway which means a very long/expensive bridge is required to cross the future 10 lane highway. Any additional width required to accommodate cycling infrastructure would also push out the highway on/off ramps which would result in additional private property impacts.
 - e) Dyments Creek is immediately on the south side of the existing Dunlop Street right of way, on the west side of Highway 400. Opportunities for a horizontal alignment shift are limited due to property impacts. The addition of cycling infrastructure would result in additional impacts to Dyments Creek which are not desirable from an environmental and cost perspective.
20. MTO's design for Dunlop is underway and reconstruction of the interchange is anticipated to begin in 2024, subject to funding and environmental approvals. In addition to MTO's freeway improvements, the project will include a sidewalk on both sides and widening Dunlop Street.
21. The City currently has an Environmental Assessment underway to confirm the number of lanes on Dunlop to be either 4 or 6 lanes. The recommendations from this EA study will be incorporated into MTO's design subject to MTO endorsement of the recommendations.

Anne and Sunnidale Crossings

22. MTO's Dunlop project includes the Anne and Sunnidale highway crossings. Anne Street is anticipated to go to construction in 2020, and will include widening of Anne Street to provide for extended left turn lanes onto Edgehill Drive and Donald Street, as well as cycling lanes. Sunnidale Road is anticipated to proceed to construction in 2022. The number of lanes will remain the same, but cycling lanes will be added.

Next Steps

23. Staff have a number of reports coming forward to Council later this year and in early 2020, which will address active transportation issues within the City on a broader scale, and consider strategies to increase the number of people choosing active transportation over conventional vehicular travel.

ENVIRONMENTAL MATTERS

24. The 2019 TMP has been completed under Phase 1 & 2 of the Municipal Class EA process which considers environmental as well as social and financial criteria. The environmental commitments made through completion of the master plans will be carried through to Phase 3 & 4 of the Municipal Class EA process where required and the design and construction phases of the process.
25. The Dunlop Phase 3 & 4 Class EA currently underway is following the Municipal Class EA process which considers more detailed environmental as well as social and financial assessment. The environmental commitments made through completion of this Class EA will also be carried through to the design and construction phases of the process. The next PIC for this study is schedule for October 2019.

26. Implementing a multi-use pathway along Essa Road aligns with the 2019 TMP recommendation to improve the long term sustainability of the City by improving transportation options for residents by providing more incentives for people to make sustainable and healthy choices.
27. The implementation of cycling infrastructure along Essa Road promotes an emission free transportation alternative and is part of the City's overall transportation strategy identified in the 2019 TMP to achieve a higher non-automotive modal split. Reduction in vehicle travel reduces green-house gas emissions which has been directly linked to climate change.

ALTERNATIVES

28. The following alternatives are available for consideration by General Committee:

Alternative #1 General Committee could not endorse the addition of a multi-use pathway on Essa at the Highway 400 interchange. This alternative is not recommended given the connectivity and other benefits noted earlier in this report.

Alternative #2 General Committee could direct staff to work with MTO to implement cycling infrastructure such as a multi-use pathway on Dunlop at the Highway 400 interchange. This alternative is not recommended given the geometric challenges at this interchange, potential impact to MTO's schedule and given the safer more convenient cycling opportunities at the Anne and Tiffin crossings.

FINANCIAL

29. Council endorsement of a multi-use pathway at Essa Road/Highway 400 may increase the opportunity to receive funding for the capital cost of the multi-use pathway through MTO's Provincial Cycling Network project. Without Council approval there would be no opportunity for Provincial Funding. The City will become responsible for maintenance of the additional infrastructure (± 3 m multi-use pathway rather than 2 m sidewalk) however the ongoing operating and maintenance costs are considered low, compared to the benefit the City will receive.
30. Staff are working with MTO to develop cost share agreements for the Essa, Dunlop, Sunnidale and Anne projects. The associated costs will be presented to Council for approval through future capital plans or stand alone staff reports. The costs apportioned to the City will be to implement transportation infrastructure over what MTO has committed to implementing.

LINKAGE TO 2018-2022 STRATEGIC PLAN

31. The recommendation(s) included in this Staff Report support the following goals identified in the 2018-2022 Strategic Plan:
 - Fostering a Safe and Healthy City
 - Improving the Ability to Get Around Barrie
32. The recommended multi-use pathway at the Essa interchange will improve the ability of residents and businesses to get around the City in part by implementing transportation infrastructure that also supports cycling / walking and transit.

Figure 1

2019 TMP Recommended Cycling Infrastructure at Highway 400 Interchanges and Crossings

