

Memo

To: Asha Saddi
From: Neal Smith
Date: June 4, 2018
File: TP115085
cc: Jason Stahl, Wood
Re: **Speed Reduction for Mississauga Road from 1190 metres south of Embleton Road to 400 metres north of Queen Street West**

The section of Mississauga Road from 1190 metres south of Embleton Road to 400 metres north of Queen Street West is proposed to be widened to six lanes and urbanized. At present, the posted speed on Mississauga Road is 60 km/hr. The speed was increased from 50 km/hr to 60km/hr in May of 2015.

The current characteristics of Mississauga Road in this section are:

- four (4) lane cross-section, constructed in 2010
- through lane widths are:
 - ◆ southbound lanes 3.5m
 - ◆ northbound lanes 3.4m
- steep southbound grade (8.3%) south of Queen Street
- steep northbound grade (10.1%) north of the Terrace on the Green restaurant entrance
- Mississauga Road is a goods movement truck route
- Mixed (sidewalk or multi-use trail) pedestrian and cycling infrastructure which abuts the back of curb
- A signal ahead warning sign is in place for southbound drivers

The lane widths north of Queen Street are approximately 3.65m to 3.75m. The lane widths south of Lionhead Golf Course entrance are approximately 3.85m to 3.90m.

Through the environmental assessment process, it was determined that Mississauga Road in this section needs to be widened to 6 lanes to accommodate future growth and traffic demand expected by year 2031. In addition, it is recommended that the crossing of the Credit River be fully replaced to accommodate the 6-lane widening. The width of the proposed structure includes a 2.0m wide painted median between northbound and southbound traffic, and a multi-use trail on the east side.



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A review of recent collision data for the past 6 years from 2012 to 2017 found that approximately 85 collisions were recorded for this section of Mississauga Road, including collisions at the intersections of Queen Street, Embleton Road and the Lionhead Golf Course entrance.

The proposed design characteristics of Mississauga Road in this section are as follows:

- Six (6) lane cross-section
- Through lane widths to be:
 - ◆ 2 southbound median lanes 3.4m, curb lane 3.5m
 - ◆ 2 northbound median lanes 3.4m, curb lane 3.5m
- Steep southbound grade (8.3%), south of Queen Street
- Steep northbound grade (approximately 10.1%), north of Terrace on the Green restaurant entrance
- Mississauga Road is a goods movement truck route
- Multi-use trail for pedestrian and cyclist activities
- A signal ahead warning sign is in place for southbound drivers

At the two public meetings held for the project, residents of the Huttonville community expressed concern with the existing 60km/hr posted speed due to the observed high speed of vehicles travelling through this area. The residents also noted that prior to the widening of Mississauga Road to 4- lanes, the posted speed through Huttonville was 50km/hr.

The proposed roadway design in this section of Mississauga Road includes narrower lane widths, a new bridge structure to accommodate 6 lanes and a multi-use trail on the east side. The narrower lane widths were required to mitigate impacts to environmentally sensitive areas and to avoid any impacts to the designated built and cultural heritage resources (the McMurchy Woolen Mill, McMurchy Powerhouse and River Road itself). Without minimizing the footprint of Mississauga Road, acquiring the necessary approvals from agencies would not be possible.

The section of Mississauga Road from just north of Queen Street to just south of the Terrace on the Green restaurant differs dramatically from other sections of Mississauga Road to the north and south. There are significant vertical and horizontal changes, narrow lanes, minimal spacing between north and southbound traffic, no raised median, hidden driveways and turning vehicles. There is a safety concern that drivers entering this section of Mississauga Road may be unaware that some of the roadway characteristics have changed.

When evaluating the safe operation of a roadway it is completed from the driver's perspective and includes the three basic principles of Human Factors that relate to safe operating practices on a roadway. The Human Factors are *Driver Expectancy, Positive Guidance, and Consistency*.

- *Driver Expectancy* – is the concept that the driver is influenced by the *roadway environment*, in that, what was experienced on the previous section of the road is likely to be what the driver expects to continue going forward along the same road.
- *Positive Guidance* – is the concept that a driver should be given sufficient information to navigate through a section of road that is different to the section previously driven along.
- *Consistency* – is the concept that relates to the *"sameness"* characteristics of the road from one section to the next.

This section of Mississauga Road is therefore different from the sections of Mississauga Road to the north and south of this location and is contrary to *driver's expectations* of the roadway. To provide *positive*

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guidance to drivers, sufficient information in the form of warning signage or a reduction in speed is needed to guide the driver safely through the section of the roadway that is not consistent.

Wood has reviewed the following documents:

- Region of Peel Regional Road Characterization Study, May 2013, and
- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, June 2017

The Region's Road Characterization Study identifies segments of Regional Roads and associated typologies. The Road Character Map identifies Mississauga Road as a *Suburban Connector* from Steeles Avenue to Bovaird Drive. The Road Characterization Study also provides a table, which identifies certain characteristics and desired elements for each roadway type. The table identifies desired operating speeds as follows:

- Suburban Connector Road: 50 to 70 km/hr

TAC provides guidelines on the selection of appropriate design and posted speeds. TAC states that it is important to provide a reasonable degree of uniformity for a given roadway classification. Mississauga Road is classified as an Urban Arterial Undivided (UAU), and based on Chapter 2 – Design Controls, Classifications and Consistency, the design speed should range from 60 to 80 km/hr. The posted speed typically ranges from 0 to 20 km/hr less than the design speed. Consequently, for Mississauga Road, the lowest theoretical posted speed would be 40 km/hr.

Recommendation

Based on the foregoing, it is recommended that the design speed for this section of Mississauga Road from 1190 metres south of Embleton Road to 400 metres north of Queen Street West be reduced from 70 km/hr to 60km/hr, unless the design can be modified to allow for the current design speed to be retained.

The levels of service at the intersections are not expected to change significantly with a reduction in the posted speed limit. The use of a lower speed limit along Mississauga Road will support increased pedestrians and cycling activities.

It is understood that a speed reduction will require Region Council approval.

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