TOWN OF HALTON HILLS
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REPORT

REPORT TO:	Chair and Members of the Planning, Public Works and Transportation Committee
REPORT FROM:	Matt Roj, Traffic Coordinator
DATE:	April 17, 2018
REPORT NO.:	TPW-2018-0015
RE:	Travel Time and Delay Study

RECOMMENDATION:

THAT Report No. TPW-2018-0015, dated April 17, 2018, regarding the Travel Time and Delay Study, be received.

BACKGROUND:

Since 2015, staff have been conducting a Travel Time and Delay Study to review seven major corridors. This annual study utilized travel time information to determine the efficiency and traffic flow conditions within each corridor.

The findings of previous two studies were reported on Report No. PI-2016-0015 and Report No. PI-2017-0063, with a list of recommended projects to improve the overall operation of the corridors.

The following projects were included in the 2018 Capital Budget and 2019-2027 capital forecast summary:

- Guelph Street (Hwy 7)/Maple Avenue – installation of the southbound right turn lane and extension of the northbound right turn lane.
- Maple Avenue/Main Street – installation of the northbound right turn lane.
- Guelph Street (Hwy 7)/Mountainview Road – installation of the dual left turn lanes on Mountainview Road approaches.

In addition, the following improvements were also recommended, but future funding has not been allocated:

- Guelph Street (Hwy 7)/Sinclair Avenue – installation of the northbound right turn lane.

- Guelph Street (Hwy 7)/Albert Street – installation of the eastbound right turn lane at the Georgetown High School entrance.

- Main Street North (Hwy 7)/School Lane – upgrade of the existing Intersection Pedestrian Signal (IPS) to the full traffic signal.

Staff has commenced with the implementation of the Centracs traffic signal management system on Mountainview Road between Delrex Boulevard and River Drive. This will improve the overall signal progression along this corridor.

COMMENTS:

In November 2017, the Town retained Paradigm Transportation Solutions Ltd. to undertake the third Travel Time and Delay Study with the purpose of monitoring and comparing the study results on an annual basis.

The following seven major corridors were reviewed:

1. Guelph Street (Hwy 7) between Hall Road and Caseley Drive
2. Guelph Street (Hwy 7) between Main Street South and Delrex Boulevard
3. Main Street North (Hwy 7) between Guelph Street West and Kingham Road
4. Maple Avenue between Trafalgar Road and Mountainview Road North
5. Mill Street / Young Street / Queen Street (Hwy 7) between Main Street and Tanners Drive
6. Mountainview Road N. between Guelph St. (Hwy 7) and River Drive
7. Mountainview Road S. between Guelph St. (Hwy 7) and 10 Side Road

Data Collection

Data collection was undertaken using the Average Vehicle Method. The surveyors were required to drive the routes according to the “average-car” technique. The data was collected in December 2017 during A.M. and P.M. peak hours, between the hours of 7:00 – 9:00 A.M. and 4:00 – 6:00 P.M. A total of 88 directional survey runs were completed, collecting approximately 210 kilometres of travel time and delay data.

The “average-car” technique requires the driver to operate the vehicle in any available lane, at a speed that is equivalent to the average speed of the traffic stream. Surveyors were instructed to select a safe travel speed with consideration for the posted speed limit under minimal traffic conditions.

Performance Measures

Average Travel Speeds:
Using the continuous speed values reported in the raw GPS data, average vehicle speeds were calculated for 200 metre intervals for the duration of each run.

Level of Service (LOS):
Highway Capacity Manual (HCM) uses methods for qualitatively characterizing the operational conditions of various highway facilities. These methods rate flow quality using an A to F scale to designate LOS. The scale ranges from LOS A, which represents the best operating conditions to LOS F the worst conditions.

LOS for urban streets as outlined in the HCM uses the average speed data and assumed Free Flow Speed, in this case the posted speed limits. Appendix A illustrates the LOS criteria by Urban Street Class.

Measures of Delay:
Types of delays calculated in the study included the Total Corridor Delay, Signal Delay and Congestion Delay.

Corridor Results

The Performance Measures Summary table included in this report as an Appendix B provides a summary of results based on performance measures.

The following represents the results for each road corridor:

1) **Guelph Street (Highway 7) between Hall Road and Caseley Drive (2.1 km)**

   During the A.M. peak hours, both the eastbound and westbound directions had average speeds of 52-56 km/h, respectively. During the P.M. peak hours, the eastbound and westbound directions had average speeds of 51-56 km/h, respectively.

   LOS during A.M. peak hours: Eastbound and Westbound, LOS A for both directions.

   LOS during P.M. peak hours: Eastbound and Westbound, LOS A for both directions.

   This road segment of Guelph Street (Highway 7) is under the jurisdiction of the Ontario Ministry of Transportation (MTO). Future operational improvements to this segment of Highway 7 are within the MTO's jurisdiction.

   The study results comparison between 2016 and 2017 indicates an overall improvement in the Level of Service in both directions from LOS C and B to LOS A.

   However, it is staff's opinion that the study results were affected by the Halton Region's Guelph Street Watermain Replacement Project. The study was completed immediately following the project completion, and surveyors would experience lower than usual traffic volumes and congestion delays on Guelph Street (Highway 7).

2) **Guelph Street (Highway 7) between Main Street South and Delrex Boulevard (3.9 km)**

This road segment consists of 12 signalized intersections. During the A.M. peak hours, both the eastbound and westbound directions had an average speed of 42 km/h. During the P.M. peak hours, the eastbound and westbound direction had average speeds of 45-43 km/h, respectively.

LOS during A.M. peak hours: Eastbound and Westbound, LOS B for both directions.

LOS during P.M. peak hours: Eastbound and Westbound, LOS B for both directions.

The study results comparison between 2016 and 2017 indicates the change of Level of Service in the P.M. peak hours; the westbound direction improved from LOS C to LOS B.

3) **Main Street North (Highway 7) between Guelph Street West (Highway 7) and Kingham Road (1.3 km)**

During the A.M. peak hours, the northbound and southbound directions indicated average speeds of 35-38 km/h, respectively. During the P.M. peak hours, the northbound direction indicated an average speed of 28 km/h, which is the lowest speed recorded during the PM peak period of all corridors. The southbound direction had an average speed of 39 km/h.

LOS during A.M. peak hours: Northbound and Southbound, LOS C for both directions.

LOS during P.M. peak hours: Northbound and Southbound, LOS C for both directions.

The study results comparison between 2016 and 2017 indicates the change of Level of Service in the A.M. peak hours; the northbound and southbound direction decreased from LOS B to LOS C.

4) **Maple Avenue between Mountainview Road North and Trafalgar Road (2.8 km)**

During the A.M. peak hours, the eastbound direction indicated an average speed of 26 km/h. This road segment has the lowest A.M. peak period average speed and experiences the highest A.M. peak hour signal and congestion delays of all corridors. The westbound direction results indicated an average speed of 34 km/h. During the P.M. peak hours, the eastbound and westbound directions indicated average speeds of 35-31 km/h, respectively.

LOS during A.M. peak hours: Eastbound and Westbound, LOS C for both directions.

LOS during P.M. peak hours: Eastbound and Westbound, LOS C for both directions.

The study results comparison between 2016 and 2017 indicates the change of Level of Service in the A.M. peak hours; the eastbound and westbound direction decreased from LOS B to LOS C.

5) Mill Street East/Young Street/Queen Street (Highway 7) between Tanners Drive and Main Street (1.9 km)

During the A.M. peak hours, the eastbound direction traffic indicated an average speed of 41 km/h. The westbound direction traffic indicated an average speed of 34 km/h. During the P.M. peak hours, the eastbound and westbound directions indicated average speeds of 38-30 km/h, respectively. This road segment experiences the highest P.M. peak period congestion (41 seconds) of all corridors in either direction.

LOS during A.M. peak hours: Eastbound and Westbound, LOS B and C, respectively for each direction.

LOS during P.M. peak hours: Eastbound and Westbound, LOS B and C, respectively for each direction.

The study results comparison between 2016 and 2017 indicates the change of Level of Service in the A.M. peak hours; the eastbound direction improved from LOS C to LOS B.

6) Mountainview Road North between Guelph Street (Highway 7) and River Drive (1.4 km)

During the A.M. peak hours, the northbound and southbound directions indicated average speeds of 38-36 km/h, respectively. During the P.M. peak hours, the northbound and southbound directions indicated average speeds of 43-36 km/h, respectively.

LOS during A.M. peak hours: Northbound and Southbound, LOS C for both directions.

LOS during P.M. peak hours: Northbound and Southbound, LOS B and LOS C, respectively for each direction.

The study results comparison between 2016 and 2017 indicates the change of Level of Service in the A.M. and P.M. peak hours; the A.M. peak hours LOS decreased in both directions from LOS B to LOS C. The P.M. peak hours LOS decreased in the southbound direction from LOS B to LOS C.

7) **Mountainview Road South between Guelph Street (Highway 7) and 10 Side Road (3.5 km)**

During the A.M. peak hours, the northbound and southbound directions indicated average speeds of 48-63 km/h, respectively. During the P.M. peak hours, the northbound and southbound directions indicated average speeds of 37-45 km/h, respectively.

LOS during A.M. peak hours: Northbound and Southbound, LOS B and LOS A, respectively for each direction.

LOS during P.M. peak hours: Northbound and Southbound, LOS C for both directions.

The study results comparison between 2016 and 2017 indicates the change of Level of Service in the A.M. and P.M. peak hours; the A.M. peak hours LOS improved in the northbound direction from LOS B to LOS A. The P.M. peak hours LOS decreased in both directions from LOS B to LOS C.

Comparison to Previous Years

The following overall results were identified comparing the 2016 and 2017 Travel Time and Delay Studies:

- There was a general decline in Level of Service for the A.M. peak hours compared to the 2016 study.
- Overall, Level of Service has remained consistent over the three study years;
- The lower range for travel speed has declined marginally for the A.M. peak hours, but remained relatively constant for the P.M. peak hours. The upper range for travel speed has remained consistent for both peak hour periods;
- The top five average Signal Delays has been relatively constant over time for both peak hour periods;
- No corridors were reported as having a LOS D in the 2017 study.

Overall, our major corridors continue to operate at good Level of Service, with all corridors at Level of Service C or better. For the next two years, staff will be implementing a new traffic signal management system.

The new system will allow staff to improve the coordination on Mountainview Road from Derlex Boulevard to River Drive. To improve the efficiency of our corridors, Council approved the Guelph Street/Maple Avenue southbound right turn lane project as part of the 2018 Capital Budget. Also, identified in the 2019-2027 capital forecast summary is the Maple Avenue/Main Street northbound right turn lane project. The proposed intersection improvements are expected to improve the overall Level of Service on Maple Avenue.

RELATIONSHIP TO STRATEGIC PLAN:

The application of the Travel Time and Delay Study is an operational matter.

FINANCIAL IMPACT:

The cost to undertake the annual Travel Time and Delay Study is included as part of the Operating Budget. This annual study will continue to be funded through the Operating Budget.

COMMUNICATIONS IMPACT:

Staff will continue to report our annual findings on the Travel Time and Delay Study to Council.

SUSTAINABILITY IMPLICATIONS:

The Town is committed to implementing our Community Sustainability Strategy, Imagine Halton Hills. Doing so will lead to a higher quality of life.

The recommendation outlined in this report advances the Strategy's implementation.

The report supports the Social Well-being pillar of Sustainability and in summary the alignment of this report with Community Sustainability Strategy is good.

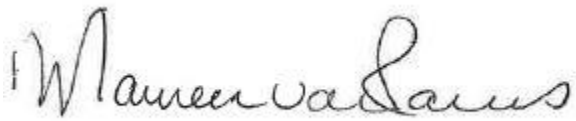
CONSULTATION:

This report was discussed with Transportation and Public Works staff.

CONCLUSION:

The Travel Time and Delay Study is an annual monitoring study of our major corridors to evaluate existing operation and traffic flow conditions. The study, together with other traffic operational reviews, identifies future road network improvements to maintain a good Level of Service and social well-being of our community.

Reviewed and Approved by,



Maureen Van Ravens, Acting Commissioner of Transportation and Public Works

Brent Marshall, CAO