Memo

To: Don Kudo, County of Wellington

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Date: August 13, 2021

Subject: Aberfoyle (Wellington Road 46): Road Diet – Strategic Traffic Analysis

Our File: 20-3297

1.0 Introduction

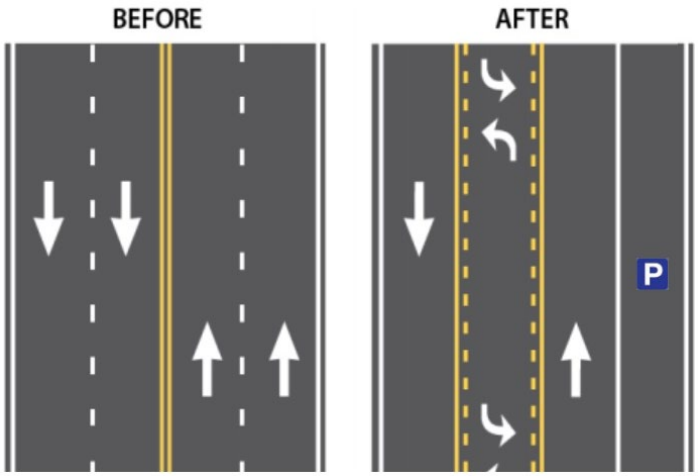
This memo reviews the existing and future traffic conditions (i.e., capacity and performance) on Wellington Road 46 (WR 46) to assess the potential effects of a proposed 'road diet' through the community of Aberfoyle within Wellington County. ***Figure 1*** illustrates the study area.

Figure 1: Study Area

1.1 Proposed Road Diet

The proposed road diet on Wellington Road 46 through Aberfoyle would see a conversion of the existing four-lane cross section, two travel lanes in each direction between Wellington Road 34 and Gilmour Road, to a single travel lane in each direction with a two-way centre left turn lane and a parking lane, as illustrated in ***Figure 2***.

Figure 2: Aberfoyle Road Diet



1.2 Approach

The following sections describe the analysis of the existing and future conditions on Wellington Road 46 in the Aberfoyle area.

Observed volumes from 2017-2018 are used to identify existing conditions. The estimated link volumes are then compared to planning level lane capacities to identify the capacity performance of the different sections of Wellington Road 46.

Future conditions (2041) are established using a County-wide strategic forecasting tool which accounts for background growth, area population and employment growth, and available local secondary plans in the County. Link volumes are estimated for Wellington Road 46 and compared to the planning level lane capacities.

Having established the forecast conditions for Wellington Road 46 specifically, a review of the strategic corridor capacity is undertaken. This includes reviewing the conditions on adjacent and parallel facilities. As part of this analysis, the City of Guelph strategic travel demand model (VISUM) was used to assess the travel markets within the corridor. The market review allows an assessment of the potential diversion of traffic if capacity conditions were to change on Wellington Road 46 (i.e., if the capacity were reduced through the application of a road diet).

The following sections describe the analysis in detail.

2.0 Existing Conditions

Wellington Road 46 is a major arterial roadway that was formerly Highway 6 before the existing Highway 6 (Hanlon Expressway) was built in the 1970's. At that time, old Highway 6 was downloaded from the Ministry of Transportation (MTO) to Wellington County and became Wellington Road 46. As a result, Wellington Road 46 was originally designed to meet MTO design standards for a rural highway.

Wellington Road 46 has a five-lane cross section between Highway 401 and McLean Road, a four-lane cross section between McLean Road and Wellington Road 34 and a two-lane cross section between Wellington Road 34 and Maltby Road.

Average Annual Daily Traffic (AADT) data was collected[1] at three locations along on Wellington Road 46 during 2017/2018 and Automatic Traffic Recorder (ATR) data was collected[2] at three similar locations (to the AADT count locations) on Wellington Road 46 during the spring, summer and fall of 2018. As the AADT data is an annual average, it reflects a more typical day compared to a few single day ATRs which may be subject to local events of the day. However, the AADT data does not provide any information regarding hourly profiles, direction, etc. For this reason, the two data sets were used in conjunction to determine the peak hour volumes on Wellington Road 46. The AADTs provided the daily traffic volumes and the spring and fall ATRs were used to calculate the Design Hour Volume (DHV) percentage and the Directional Split percentage. In the case of Wellington Road 46, the northbound direction is the primary direction of travel during the PM peak hour.

Table 1 summarizes the existing conditions on Wellington Road 46.

Table 1: Existing Conditions: Wellington Road 46

Section	Number of Travel Lanes (2-way)	Lane Capacity (veh/hr)	Directional Capacity (veh/hr)	Existing AADT	DHV (%)	Directional Split (%)	PM Peak Hour	V/C Ratio
Maltby Road to County Road 34	2	1,200	1,200	19,381	9%	55%	960	0.80
County Road 34 to McLean Road	4	1,200	2,400	19,392	8.5%	60%	990	0.41
McLean Road to Highway 401	4	1,200	2,400	23,560	7.5%	55%	970	0.40

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

[1] AADT data was collected by Wellington County.
[2] ATR data was collected by Horizon Data Services Limited.

Under existing conditions, Wellington Road 46 has sufficient capacity to carry the existing demand between Wellington Road 34 and Highway 401. However, between Malty Road to Wellington Road 34, where the cross section of Wellington Road 46 is reduced to two-lanes, volumes are approaching levels where the flow is unstable and minor incidents can cause delays.

3.0 Future (2041) Conditions

3.1 Background Traffic Growth

A compounded annual growth rate (CAGR) of 0.4% was applied to the existing traffic volumes to estimate general traffic growth. This growth rate was calculated using a linear projection of historical AADT count data (2011 – 2019) from across the County.

3.2 Trip Generation

3.2.1 Wellington County

Future trip generation forecasts for Wellington County were derived from residential and employment forecast data provided by Watson & Associates in the *Wellington County Population, Household and Employment Forecast Update, 2011-2041*[3].

Anticipated daily vehicular trip generation for housing growth was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

The trip generation rates were determined based on the type of dwelling units specified in the Watson & Associates report, which included single family and semi-detached houses, townhouses and apartments. Each dwelling unit type has unique trip generation characteristics. Trip generation was derived for three residential land use types:

- Single Family Dwelling Units and Semi-detached homes (ITE Code 210);
- Multi-family Housing Low-Rise (ITE Code 220); and
- Multi-family Housing Mid-Rise (ITE Code 221).

Household trip generation takes into account trips that are made for school, work, recreation, shopping, medical and other purposes.

The development projections that have been provided for this current study identify that the projected employment growth rate is approximately 6% higher than the projected growth in residential development. As such, a factor of 1.06 was applied to the projected residential traffic growth to account for additional employment-based trips (i.e., employment-to-housing differential adjustment).

[3] Wellington County Population, Household and Employment Forecast Update, 2011-2041 (Watson & Associates, May 5, 2015)

Total 2041 population and employment trip forecasts for Wellington County Townships that have trips destined to or through the Township of Puslinch are summarized in ***Table 2***. These represent new trips only as a result of population and employment growth.

Table 2: 2041 Daily Trip Generation (New Trips Only) – Wellington County

Location	Total Residential Trip Generation	Employment Based Trip Generation	Total Daily Trip Generation
Township of Puslinch	5,737	344	**6,081**
Township of Guelph/Eramosa	3,241	194	**3,435**
Township of Centre Wellington	59,879	3,593	**63,472**

3.2.2 City of Guelph: Clair-Maltby

Future trip generation forecasts for the Clair-Maltby Secondary Plan area within the City of Guelph were provided by BA Group in the *Clair-Maltby Secondary Plan: Transportation Master Plan Study*[4], taken from the City of Guelph website.

Total 2041 trip forecasts to/from the Clair-Maltby Secondary Plan via Wellington Road 46 are summarized in ***Table 3***. These represent new trips only as a result of population and employment growth.

Table 3: 2041 Daily Trip Generation (New Trips Only) – Clair-Maltby (via WR 46 only)

Location	Total Daily Trip Generation
Clair-Maltby	**7,413**

3.3 Trip Distribution

The distribution of trips was based on data provided in the *2016 Census Place of Work Data*[5], taken from the Statistics Canada website. Using this data, an origin-destination matrix was derived, depicting patterns internal to and external from Wellington County.

Using these travel patterns, trip distribution factors were calculated and applied to trip generation numbers for each hamlet to determine the daily development generated traffic volume growth between each origin-destination pair.

3.4 Trip Assignment

Future daily trips were manually assigned to the road network based on a judgement of the most direct, and time efficient route available between the various zones.

[4] Clair-Maltby Secondary Plan: Transportation Master Plan Study (BA Group, March 6, 2019)

[5] 2016 Census Data, Commuting Flow from Geography of Residence to Geography of Work (Statistics Canada, 2016)

3.5 Total Future Traffic Volumes

Total future traffic volumes are a combination of existing traffic, plus background traffic growth, plus development related traffic growth. ***Table 4*** summarizes the 2041 total future volume conditions on Wellington Road 46.

Table 4: 2041 Total Future Volume Conditions - Wellington Road 46

Section	Number of Travel Lanes (two-way)	Lane Capacity (veh/hr)	Directional Capacity (veh/hr)	2041 AADT	DHV (%)	Directional Split (%)	PM Peak Hour	V/C Ratio
Maltby Road to County Road 34	2	1,200	1,200	31,149	9%	55%	1,540	**1.28**
County Road 34 to McLean Road	4	1,200	2,400	30,525	8.5%	60%	1,550	**0.65**
McLean Road to Highway 401	4	1,200	2,400	35,068	7.5%	55%	1,440	**0.60**

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

Under total future volume conditions, Wellington Road 46 has sufficient capacity to carry the forecast existing demand between Wellington Road 34 and Highway 401. However, there is a significant capacity deficiency (v/c ratio of 1.28) between Maltby Road to Wellington Road 34, where the cross section of Wellington Road 46 is reduced to two-lanes.

4.0 Strategic Capacity Review

4.1 Methodology

Corridor capacity within the study area was analyzed at an individual link and screenline level. The purpose of this strategic assessment is to understand the role and capacity of roadways parallel to WR 46.

Existing peak hour traffic volumes on county roads were derived using the methodology described in ***Section 2.0 - Existing Conditions***. Existing peak hour traffic volumes on provincial highways were provided by MTO and existing peak hour traffic counts on municipal roadways in the immediate vicinity of Guelph were extracted from City of Guelph's existing conditions (2016) travel demand model.

Future peak hour traffic volumes on county roads were derived using the methodology described in ***Section 3.0 - Future (2041) Conditions***, while future peak hour traffic volumes on provincial highways and municipal roadways in the immediate vicinity of Guelph were extracted from City of Guelph's future conditions (2031) travel demand model.

Existing and future capacities on county roads are based on typical planning level capacities used in the industry, while capacities on provincial highways and municipal roadways in the immediate vicinity of Guelph were extracted from the respective City of Guelph travel demand model (these also reflect typical planning level capacities).

Demand markets (travel origin and destinations for specific corridors) within the City of Guelph were determined using the City of Guelph's existing conditions travel demand model.

4.2 Capacity Analysis

4.2.1 Wellington Road 46

As displayed previously in ***Table 4***, Wellington Road 46 is forecast to operate within capacity between Highway 401 and Wellington Road 34 (4-5 lane section), and above capacity between Wellington Road 34 and Maltby Road (2-lane section) under the total future (2041) volume conditions. The transportation assessment for the broader area as part of the RMAP has identified the need for a widening of the two (2) lane section to four (4) lanes.

Reductions in capacity (i.e. the road diet) on Wellington Road 46 between Wellington Road 34 and Gilmour Road will extend the identified capacity constraint further south to Gilmour Road.

Under such capacity constrainst, it is likely that traffic would divert from Wellington Road 46 to parallel routes. To achieve satisfactory capacity conditions, approximately 550-700 peak hour vehicles would need to divert from Wellington Road 46.

4.2.2 Aberfoyle Screenline

The Aberfoyle screenline (as depicted in **Figure 3**) captures the demand between Guelph and Highway 401/Highway 6 south of Highway 401.

Figure 3: Aberfoyle Screenline

There are two major roadways that cross the screenline; Hanlon Expressway (Highway 6) and Wellington Road 46, both of which directly connect Guelph and Highway 401/Highway 6. There are also two minor roadways that cross the screenline; Concession Road 7 and Victoria Road, both of which indirectly connect Guelph and Highway 401/6 via Wellington Road 46 and McLean Road and Gilmour Road respectively.

Table 5 and **Table 6** summarize the screenline results for the PM peak hour for the existing and total future volume conditions respecively.

Table 5: Aberfoyle Screenline Results: Existing Conditions

Roadway Name	Direction	Capacity			PM Peak Hour	
		# of Lanes	Per Lane	Total	Volume	V/C
Hanlon Expressway (Highway 6)	NB	2	1,500	3,000	1,170	0.39
Concession Road 7	NB	1	1,000	1,000	120	0.12
Wellington Road 46	NB	2	1,200	2,400	990	0.41
Victoria Road	NB	1	800	800	140	0.18
Total	**NB**	**5**	-	**7,200**	**2,420**	0.34

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

Table 6: Aberfoyle Screenline Results: 2041 Total Future Volume Conditions

Roadway Name	Direction	Capacity			PM Peak Hour	
		# of Lanes	Per Lane	Total	Volume	V/C
Hanlon Expressway (Highway 6)	NB	2	1,800	3,600	1,880	0.52
Concession Road 7	NB	1	1,000	1,000	60	0.06
Wellington Road 46	NB	2	1,200	2,400	1,550	0.65
Victoria Road	NB	1	1,000	1,000	460	0.46
Total	**NB**	**6**	-	**8,000**	**3,950**	0.49

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

Overall, there is a significant amount of available capacity across the Aberfoyle screenline in both the existing (v/c ratio of 0.34) and total future volume (v/c ratio of 0.49) scenarios. Even when the capacity is reduced on Wellington Road 46 to simulate the proposed road diet condition, the capacity across the Aberfoyle screenline is still well within the 'Good' range (v/c ratio of 0.58), as illustrated in **Table 7**.

Table 7: Aberfoyle Screenline Results: Total Future Volumes – Road Diet

Roadway Name	Direction	Capacity			PM Peak Hour	
		# of Lanes	Per Lane	Total	Volume	V/C
Hanlon Expressway (Highway 6)	NB	2	1,800	3,600	1,880	0.52
Concession Road 7	NB	1	1,000	1,000	60	0.06
Wellington Road 46	NB	1	1,200	1,200	1,550	1.29
Victoria Road	NB	1	1,000	1,000	460	0.46
Total	**NB**	**5**	-	**6,800**	**3,950**	0.58

Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

However, the use of Concession Road 7 and Victoria Road as alternative roadways to Wellington Road 46 to travel between Guelph and Highway 401/Highway 6 would increase travel on McLean Road and Gilmour Road in order for vehicles to connect to Concession Road 7 and Victoria Road respectively. Increasing commuter travel volumes on McLean Road and Gilmour Road is not desirable given their current roles and functions, and based on their surrounding land uses (industrial and residential respectively).

Assuming that additional commuter traffic on McLean Road and Gilmour Road (diverted trips) is undesirable, the Hanlon Expressway is the most appropriate alternative to absorb the diverted traffic resulting from the proposed vehicle capacity reduction (road diet) on Wellington Road 46. Therefore, an assessment that exclusively considers the Hanlon Expressway and Wellington Road 46 within the total future volume road diet scenario was undertaken. The Aberfoyle screenline is forecast to have a v/c ratio of 0.71 (as illustrated in ***Table 8***) which is in the "Approaching Capacity" range. A screenline v/c ratio of 0.71 would indicate that both the Hanlon Expressway and Wellington Road 46 could experience some period of unstable flow during portions of the peak hour.

Table 8: Aberfoyle Screenline Results (Hanlon Pkwy and CR 46 only): Total Future Volumes – Road Diet

Roadway Name	Direction	Capacity			PM Peak Hour	
		# of Lanes	Per Lane	Total	Volume	V/C
Hanlon Expressway (Highway 6)	NB	2	1,800	3,600	1,880	0.52
Wellington Road 46	NB	1	1,200	1,200	1,550	1.29
Total	**NB**	**3**	**-**	**4,800**	**3,430**	0.71

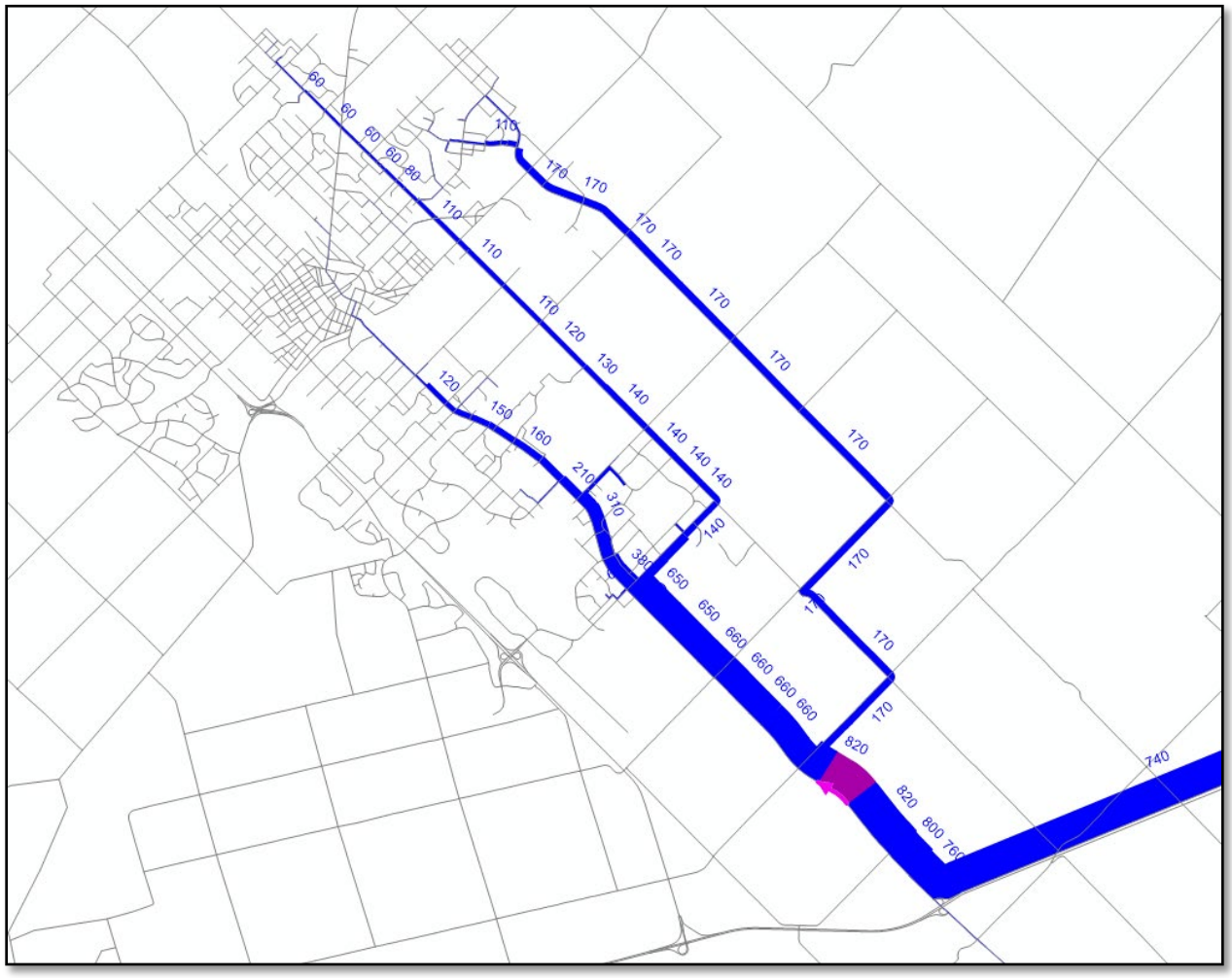
Note: V/C Range: < 0.70 = Good Capacity, 0.70 – 0.85 = Approaching Capacity, > 0.85 = Over Capacity Conditions

4.3 Demand Markets/Trip Diversion

Section 4.4.2 - Aberfoyle Screenline indicates that from a strategic capacity point of view, a road diet on Wellington Road 46 between Wellington Road 34 and Gilmour Road could be accommodated. However, for this to work at an operational level, approximately 550 – 700 future (2041) northbound PM peak hour vehicle trips would need to be diverted from Wellington Road 46 to the Hanlon Expressway in order to reduce v/c ratios on Wellington Road 46 to acceptable levels, between 0.83 and 0.71 respectively.

As the peak travel characteristics on Wellington Road 46 are northbound during the PM peak hour, the City of Guelph's existing conditions (2016) travel demand model was utilized to assess the demand markets of trips using Wellington Road 46. ***Figure 4*** illustrates the demand markets for vehicles traveling northbound through Aberfoyle on Wellington Road 46 during the PM peak hour.

Figure 4: Wellington Road 46 Demand Markets – Northbound - PM Peak Hour



Overall, the figure indicates that the vehicles traveling northbound on Wellington Road 46 during the PM peak hour are almost entirely destined to locations in the eastern half of Guelph. With approximately 60% destined to locations in southeast Guelph and the remaining 40% destined to locations in northeast Guelph.

The aforementioned existing demand markets indicate that diverting any of the existing trips from Wellington Road 46 to the Hanlon Expressway is not realistic, as this route would increase travel distances and time as displayed in ***Table 9***.

Table 9: Distance / Travel Time Summary: Hanlon Expressway vs. WR 46 – Existing PM Peak Hour

Origin \ Destination	Westminster Woods (Gordon St & Clair Rd W)				University of Guelph (Gordon St & N. of Stone Rd)				Grange Hill East (Grange Rd & Starwood Dr)			
	via Hanlon		via WR 46		via Hanlon		via WR 46		via Hanlon		via WR 46	
	Dist.	TT	Dist.	TT	Dist.	TT	Dist.	TT	Dist.	TT	Dist.	TT
Hwy 401 & Hwy 6 South	12.0	9 – 16	7.9	7 – 12	16.0	12 – 24	12.6	12 – 24	22.7	22 – 40	18.4	18 – 30

Note: Dist. = Distance in kilometers, TT = Travel Time in minutes
Source: Google Maps, for typica weekday at 5pm.

Moreover, this problem is likely to be compounded in the future as the majority of future development related traffic forecast for Wellington Road 46 will be destined to the Clair-Maltby Secondary Plan area, which will largely be located in southeastern Guelph (east of WR 46).

If congestion on Wellington Road 46 increases as the result of a road diet between Wellington Road 34 and Gilmour Road, the existing and future demand markets would suggest that vehicles are more likely to use Victoria Road via Gilmour Road to bypass the constrained sections of Wellington Road 46. An increase of 550-700 vehicles on these routes could have significant impacts on the safety and efficiency of these roads.

4.4 Future Hanlon Expressway and Morriston By-Pass Improvements

The Ontario Ministry of Transportation (MTO) is moving forward with a Preliminary Design Review and Detailed Design under the Class Environmental Assessment (EA) for improvements to Highway 6 (from Highway 401 to Maltby Road) and Highway 401 (Wellington Road 36 to Wellington Road 35).

As part of this study, the following upgrades are being considered (with specific improvements that have direct bearing on WR 46 bolded):

- A new controlled access four-lane alignment of Highway 6 west of the existing highway, from Highway 6 at Maddaugh Road northerly to Highway 401
- Improvements to the Highway 6/Maddaugh Road intersection
- Structures to carry CP Rail, Calfass Road, Concession Road 1 and Fielding Lane across the new Highway 6 alignment
- **A new two-lane connection road north of the community of Morriston, linking the existing and new alignments of Highway 6**;
- **Reconfiguration of the Highway 401 interchanges at Highway 6 / Wellington Road 46 (Brock Road), and at Highway 6 (Hanlon Expressway)**
- Widening of approximately 3 km of Highway 401 to 10 lanes including High Occupancy Vehicle (HOV) lanes between the two Highway 6 interchanges

- **Replacement of the Hanlon Expressway intersection at Wellington Road 34 with a bridge (no connection to the highway)**
- **Closure of the Hanlon Expressway intersection at Maltby Road/Concession Road 4**
- **A new Hanlon Expressway interchange approximately mid-way between Wellington Road 34 and Maltby Road/Concession Road 4 linking Wellington Road 34 on the west side of the Hanlon Expressway to Concession Road 7 on the east side of the Hanlon Expressway**
- **Construction of a new five-kilometre route that bypasses the community of Morriston**
- Reconstruction of the section of Concession Road 7 between the new interchange and Wellington Road 34
- Replacement of the Puslinch Concession Road 7 Bridge over Highway 401 (Completed in 2020 as part of an advanced construction project, G.W.P. 3224-15-00); and Reconfiguration and expansion of the Wellington Road 46 (Brock Road) commuter parking lot.

The improvements provide a new route to and from Highway 6 South that bypasses Morriston and the Highway 6/WR 46 interchange with Highway 401, and provides increased capacity on Hanlon Expressway with the replacement of two at grade intersections with a single grade separated interchange.

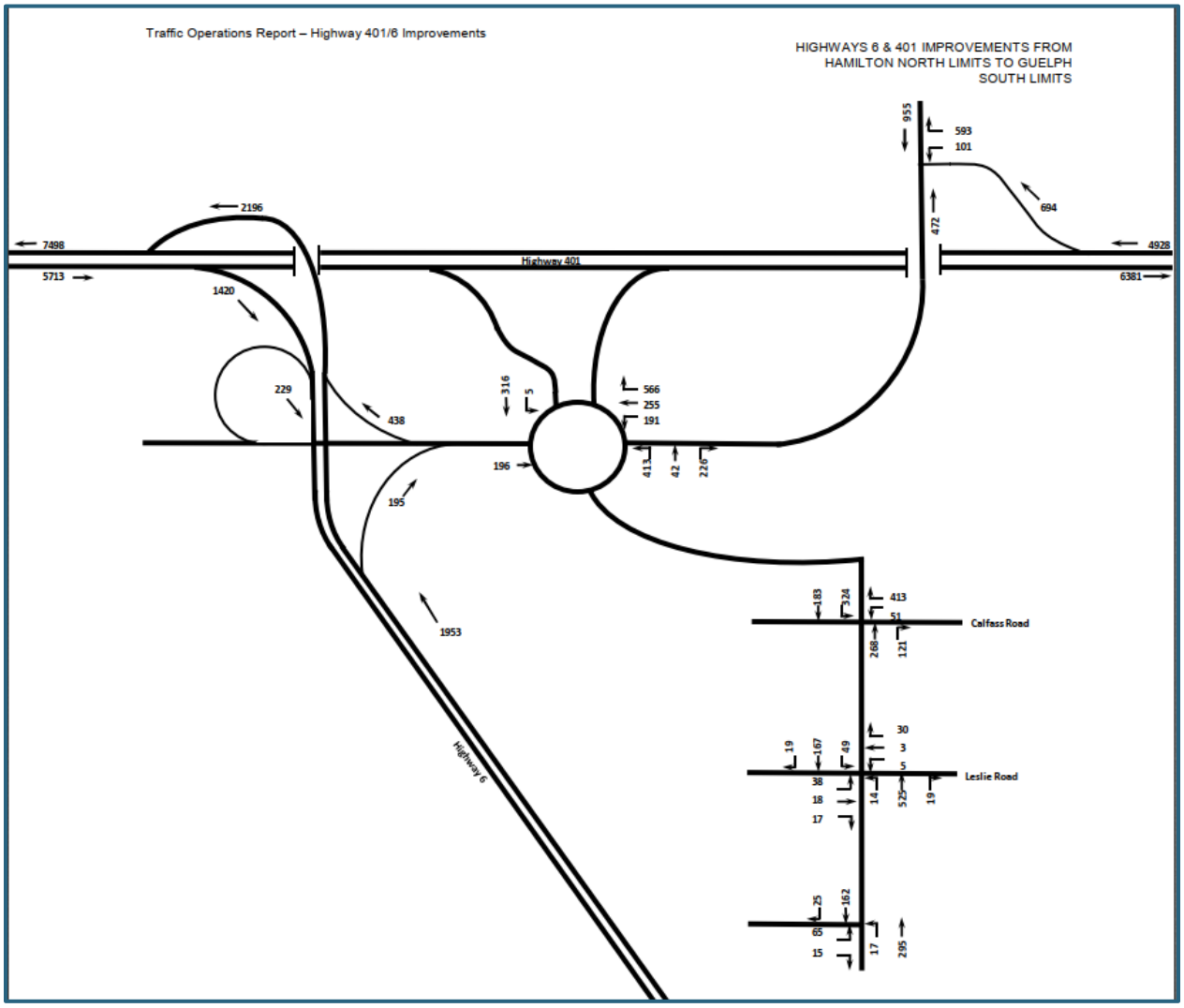
With regard to the by-pass of Morriston-pass, travel volumes and patterns through Morriston and at the Highway 401/WR 46 Interchange are expected to change. The by-pass itself is planned to connect to Highway 401 at a new partial interchange (direct ramps to and from the west) and the existing interchange with Highway 401 is planned to be modified to a button hook ramp on the south side to serve eastbound offs/ons. The effect of these changes is expected to be as follows:

- Significant volume reduction through the village of Morriston
- Relocation of the significant south to west and west to south volumes at the Highway 401/Highway 6 interchange
- Relocation of the north to west volume at the Highway 401/Highway 6 interchange to the Hanlon Expressway
- Encourage diversion of the west to north volume at the Highway 401/Highway 6 interchange to the Hanlon Expressway to Hanlon Expressway
- Encourage diversion of the east to north volume at the Highway 401/Highway 6 interchange to the Hanlon Expressway to the improved Hanlon Expressway.

With regard to Hanlon Expressway, under existing conditions trips from Highway 401 can exit Hanlon Expressway at Wellington Road 34 (via at grade intersection, at Maltby Road (via at grade intersection), or at Laird Road (via grade separated interchange. With the planned future improvements to Hanlon Expressway, the WR 34 and Maltby Road connections will be closed and replaced with a single grade separated interchange approximately mid-way between the two roads. While this improvement improves the capacity on along the Expressway it does not significantly change the accessibility of the community to east of the Expressway.

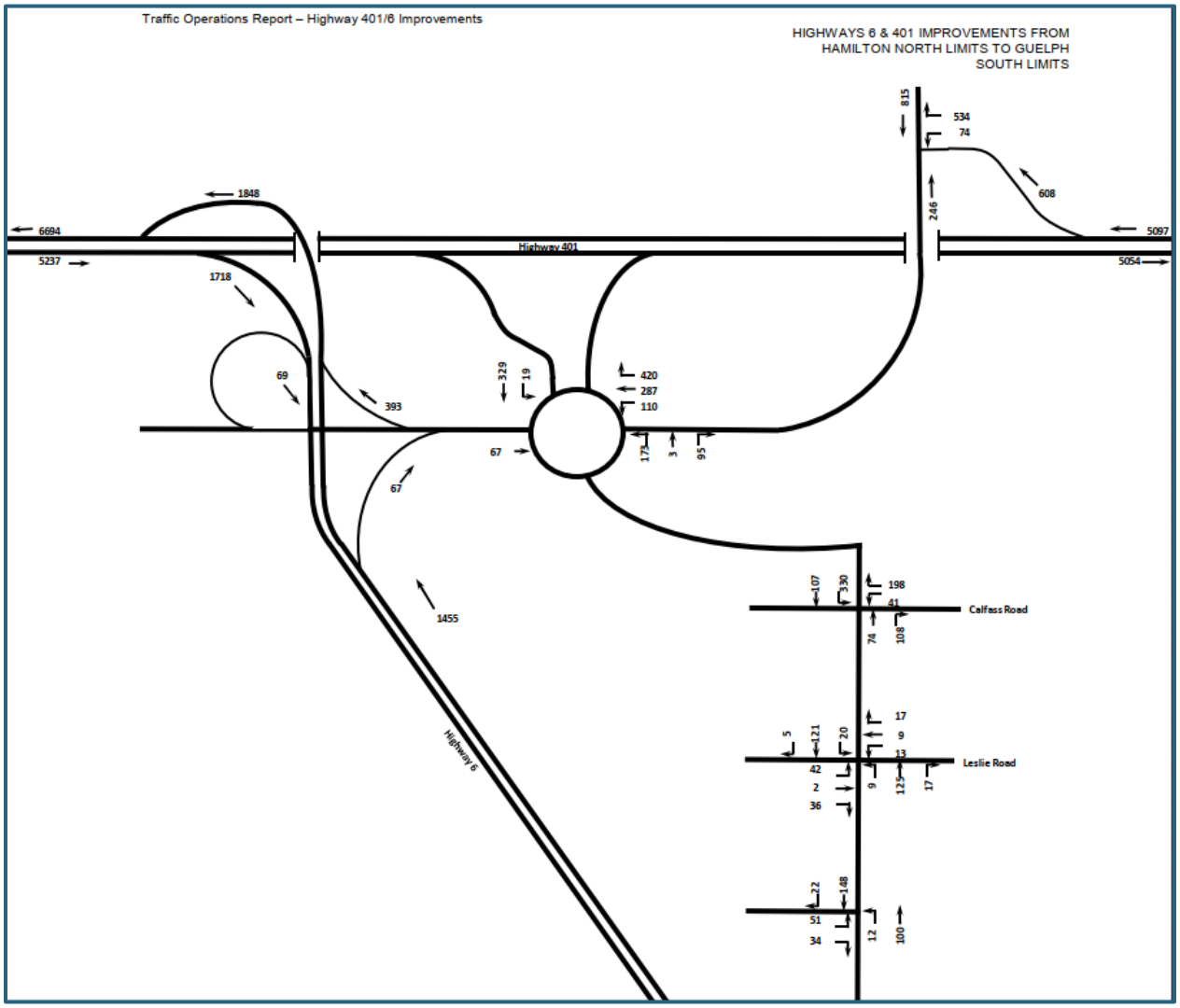
2041 volume forecasts for the Highway 401/Highway 6 interchange were provided by the MTO project team. The AM and PM peak hour volume forecasts for the future recommended network modifications are shown in ***Figure 5a and 5b***.

Figure 5a: 2041 Volume Forecasts - A.M. Peak Hour



Source: Hwy 6/401 project (GWP 3042-14-00) - AECOM - March 31, 2021 E-mail

Figure 5b: 2041 Volume Forecasts - P.M. Peak Hour



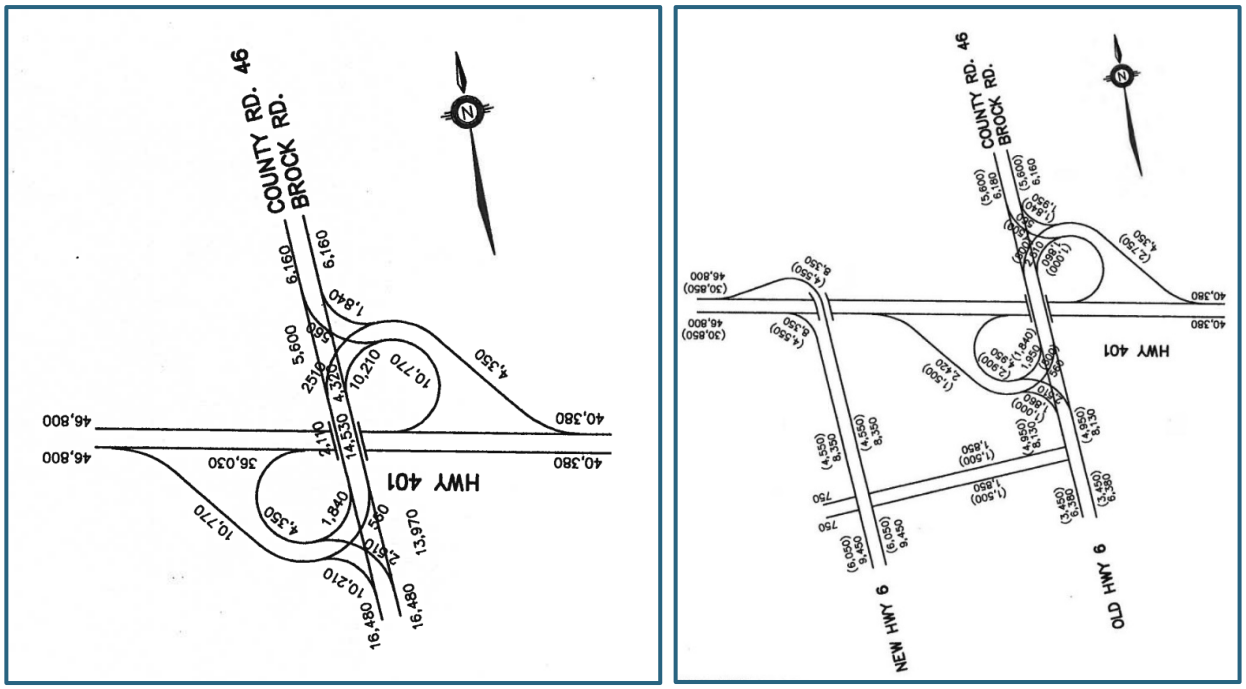
Source: Hwy 6/401 project (GWP 3042-14-00) - AECOM - March 31, 2021 E-mail

The volume forecasts shown on the north approach to the interchange are approximately 500 vehicles lower in the peak direction than the forecasts identified in the screenline and link analysis above (1,065 northbound vehicles in the PM peak hour versus 1,550 northbound vehicles in the PM peak hour).

While this comes close to the lower threshold of the diversion identified earlier as required to suggest one-lane in each direction would suffice for WR 46, specific details about how the forecasts were generated or how the improved alternative affects travel behaviour (i.e. forecasts for a base network scenario) were not available, so there is no basis for comparison of the growth and network assumptions as used in the RMAP 2041 volume forecasts, or for determining the expected volume diversion from WR 46 as a result of the network modifications.

The recent Preliminary Design Review and Detailed Design built on work completed for the September 1995 Preliminary Design Study. Volume forecast for the Do Nothing and Recommended By-Pass scenarios are shown in **Figure 6.**

Figure 6: 2011 – AADT Forecasts



Source: WP-65-76-05_Hwy6-Freelton-to-Guelph_EA-Report_1995_Volume3.pdf

These forecasts, while older and based on a different interchange configuration, seem to confirm the statements made related to the impacts of the by-pass on travel patterns at the Highway 401/WR 46 interchange:

- West-South, south to west – significant
- South to north, north to south, east to north, north to east – little or no impact.

It is concluded that while there will be some diversion away from WR 46 as a result of the planned improvements by the Ministry, specifically the Morriston By-Pass, it is not significant enough to suggest that lane/capacity reductions on WR 46 will result in satisfactory operating conditions. There is no appreciable benefit of the by-pass to trips that already prefer to use the Wellington Road 46 route over Hanlon Expressway to facilitate their trip (i.e., trips to and from the east on Highway 401). This is demonstrated in the travel market identified in **Figure 4**, where the primary market for trips on Wellington Road 46 is from the east on Highway 401. The real benefit of the by-pass is to trips destined to Highway 401 westbound or Hanlon Expressway northbound that currently travel through Morriston.

5.0 Conclusion

Based on the foregoing analysis, the following conclusions are reached:

- Wellington Road 46 is operating within capacity for the existing conditions
- By 2041, the two-lane section of Wellington Road is forecast to experience significant congestion between Maltby Road and County Road 34
- A reduction in capacity of the section of Wellington Road 46 between Gilmour Road and County Road 34 would result in significant capacity constraints. Approximately 550-700 peak hour vehicles would need to divert to result in adequate operating conditions on Wellington Road 46
- The broader strategic corridor network has capacity to absorb the 550-700 peak hour peak hour vehicles, but diversion of this magnitude not forecast to occur due to origin-destination of trips and associated travel time and distance increases
- While the Morriston By-Pass is likely to result in some reduction in volume in the WR 46 corridor, it will not be significant enough to justify reduced capacity on WR 46
- While Hanlon Expressway is the more appropriate road for the trips to divert to and is forecast to have the available capacity, the assessment of the travel market for Wellington Road 46 shows using this route would result in increases in travel distance and travel time. It is more likely that trips would use the Victoria Road via Gilmour Road to bypass the constrained sections of Wellington Road 46
- Any reduction in capacity (i.e., implementation of a road diet) on Wellington Road 46 through Aberfoyle will result in a significant increase on non-County roadways (Gilmour Road and Victoria Road). The design and environment for these roads is not suited to accommodate the changed role and function
- Overall, a road diet through the community of Aberfoyle within Wellington County could be accommodated from a strategic capacity perspective but the commensurate impacts on the adjacent municipal network is not desirable from an operational and road safety perspective.
- A future review and study is required once future infrastructure and service implemented (Morriston By-Pass; All-day, two-way rail service on Kitchener line). This could take the form of a Municipal Class EA where alternative methods and alternative design concepts would be fully explored (i.e., impacts and costs).