



G R E E R
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October 9, 2024

RE: Jochem Road Traffic Study

Client Name: Township of Edwardsburgh Cardinal

Address: 18 Centre St, PO Box 129
Spencerville, Ontario
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Attention: Chris Leblanc

Dear Mr. Leblanc

The purpose of this letter is to provide a summary of the traffic study completed by Greer Galloway on Jochem Road. In this letter, we will outline the findings of the study including traffic counts, percentage of heavy truck traffic, average vehicle speed, and existing roadway characteristics. We will also provide recommendations on any necessary improvements to the roadway.

Background

Jochem Road is a rural, local 2.1 km long road located in the Township of Edwardsburgh Cardinal. It primarily functions as access to residences along the roadway but also facilitates some through traffic from County Road 44 to Smith Road. The section of Jochem Road west of Smith Road is a dead end and only services four (4) residences. For the purpose of this report, we will only be considering the section of Jochem Road between Smith Road and County Road 44.

The existing driving surface is surface treatment. The road is not posted, and therefore has a speed limit of 80 km/h. The roadside environment is relatively flat and consists of wooded areas mixed with residential properties. There is generally ditching throughout the roadway.

There are no significant vertical or horizontal curves on the main section of Jochem Road that would impact sightlines to extent that stopping sight distance would be a concern.

Traffic Counting Data

Greer Galloway collected traffic count data over a one-week period on Jochem Road. Data was collected near the intersection of Jochem Road and County Road 44 over a one-week period from July 2nd-8th, 2024. The average traffic volume was 269 vehicles per day, with a high of 388 vehicles on Thursday July 4th. Peak hourly volumes were generally observed at midday.

The vehicular traffic was largely comprised of passenger vehicles, which were between 40-60% of the total traffic. There were specific days within this timeframe where heavy truck traffic made up a significant portion of the volume. Specifically, Thursday July 4th and Friday July 5th both had higher than 30% of the volume consist of heavy trucks. This is likely due to haul routes from the adjacent quarry on Smith Road.



With regards to vehicular speed, the average speed was typically between 60-70 km/h during the study period. There were some infrequent instances where the data collector recorded speeds exceeding 100 km/h.

Surface and Platform Width

The existing driving surface varies in width with the average being approximately 6.1 m. The existing shoulder is also generally very narrow, with an average width of approximately 0.5 m.

As part of this review, Greer Galloway compared the existing surface and platform widths for compliance with the TAC Geometric Design Guide for Canadian Roads (2017). The determination of required lane width is affected by design speed, traffic volume and the number and type of heavy vehicles on the roadway. The following represents the TAC guidelines for lane width on roads with AADT's as low as Jochem Road:

Table 4.2.1: Through Lane Widths – Rural Roadways (Design Hour Directional Volume <=450)

Design Speed (km/h)	Design Domain			
	Practical Lower Limit	Recommended Range		Practical Upper Limit
		Recommended Lower Limit	Recommended Upper Limit	
60 and less	2.7m	3.0m	3.7m	4.0m
70 to 100	3.3m	3.5m	3.7m	4.0m
110 and higher	3.5m	3.5m	3.7m	4.0m

1. Where buses and larger trucks are expected to regularly use a lane, a minimum lane width of 3.3m is recommended regardless of the design speed or traffic volume.

Figure 1 – Recommended Lane Widths from TAC Manual

Due to the presence of larger trucks, the minimum lane width on Jochem Road should be 3.3 m. Based on the current posted speed and collected traffic data, the range for lane width should be between 3.3 m and 3.7 m.



With regards to shoulder width, this should generally be 1.0 m for local roads. Please see Table 4.4.1 from the TAC manual below:

For undivided rural roadways, the design domain for shoulder widths is outlined in quantitative form the following table.

Table 4.4.1: Shoulder Widths for Undivided Rural Roads (m)¹⁵

Design Speed (km/h)	Designation and Design Hour Directional Volume					
	Rural	Collector			Arterial	
	Local	Design Hour Directional Volume			Design Hour Directional Volume	
		<250	250-450	>450	<450	>450
60	1.0	1.5	2.0	2.5		
70	1.0	1.5	2.0	2.5		
80	1.0	2.0	2.5	2.5	2.5	3.0
90	1.0	2.0	2.5	2.5	2.5	3.0
100	1.0	2.5	2.5	3.0	2.5	3.0
110					2.5	3.0
120					3.0	3.0
130					3.0	3.0

Figure 2 – Recommended Shoulder Widths from TAC Manual

It is the understanding of Greer Galloway that many municipalities have historically had success with shoulders of 0.5 m on low AADT roadways in areas where the pedestrian traffic volume is relatively low. However, 1.0 m shoulders should likely be utilized in areas where both heavy truck traffic and pedestrian traffic exist.

Recommendations

This study found that Jochem Road is a low volume roadway that can experience a significant amount of heavy truck traffic. This can have impacts on the longevity of the roads surface as well as the experience of pedestrians and other drivers utilizing the road ROW. Additionally, the road is currently unposted, but the average vehicle speed is similar to what would be expected in a 60 km/h zone.

With respect to longevity of the surface, it is recommended that the surface treatment be monitored for deterioration prior to the end of its design service life. If this is observed, the road could be reconstructed with hot mix asphalt to provide increased resistance to the significant loading from heavy vehicle traffic. This roadway has a low enough AADT that it is just on the threshold where surface treatment would be recommended. However, surface treatment has a tendency to degrade quickly when exposed to heavy truck or agricultural traffic. Accordingly, this roadway may be a good candidate for hot mix asphalt in the future.

With regards to roadside safety and pedestrian safety, the high volume of truck traffic in conjunction with the constrained limits of the road platform presents some concerns. It is recommended that the Township consider an expanded road platform with wider lanes and shoulders during future reconstruction. The Township should aim to achieve a 3.3 m lane width and, if budget and space permit, a 1.0 m shoulder. This would further help to mitigate conflicts between pedestrians and the heavy truck traffic that can traverse this roadway.



Please contact the undersigned should you have any questions or concerns.

Sincerely,

**GREER GALLOWAY
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Daily Summaries

Classes	Motor Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	
Tuesday 7/2/2024	Vehicles: 133		% Strikes Used					A: 98.0	B: 94.4					
	Average Axles per Vehicle: 2.08					Average 2-Axle Wheelbase: 3.01 m								
	Peak Hour, 12:00 AM - 12:00 PM				-		-		-					
	Peak Hour, 12:00 PM - 12:00 AM				2:30 PM		Volume: 24		Factor: 0.67					
k/h	Average: 70.0		Percentiles		10%: 84.2	15%: 88.1	50%: 113.2	85%: 136.2	90%: 139.3					
Class (%)	0.0	60.2	26.3	0.0	10.5	1.5	0.8	0.8	0.0	0.0	0.0	0.0	0.0	
Wednesday 7/3/2024	Vehicles: 238		% Strikes Used					A: 99.2	B: 91.9					
	Average Axles per Vehicle: 2.06					Average 2-Axle Wheelbase: 3.09 m								
	Peak Hour, 12:00 AM - 12:00 PM				8:45 AM		Volume: 23		Factor: 0.82					
	Peak Hour, 12:00 PM - 12:00 AM				4:30 PM		Volume: 33		Factor: 0.83					
k/h	Average: 68.3		Percentiles		10%: 84.4	15%: 90.1	50%: 109.0	85%: 131.1	90%: 138.6					
Class (%)	0.0	58.8	23.9	0.0	14.3	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	
Thursday 7/4/2024	Vehicles: 388		% Strikes Used					A: 95.0	B: 85.0					
	Average Axles per Vehicle: 2.52					Average 2-Axle Wheelbase: 3.14 m								
	Peak Hour, 12:00 AM - 12:00 PM				8:30 AM		Volume: 37		Factor: 0.84					
	Peak Hour, 12:00 PM - 12:00 AM				12:30 PM		Volume: 40		Factor: 0.77					
k/h	Average: 65.1		Percentiles		10%: 77.4	15%: 81.8	50%: 104.1	85%: 126.4	90%: 133.4					
Class (%)	1.8	42.5	16.8	0.5	10.1	14.9	12.4	1.0	0.0	0.0	0.0	0.0	0.0	
Friday 7/5/2024	Vehicles: 377		% Strikes Used					A: 95.6	B: 86.7					
	Average Axles per Vehicle: 2.44					Average 2-Axle Wheelbase: 3.06 m								
	Peak Hour, 12:00 AM - 12:00 PM				11:00 AM		Volume: 39		Factor: 0.89					
	Peak Hour, 12:00 PM - 12:00 AM				12:15 PM		Volume: 42		Factor: 0.62					
k/h	Average: 62.3		Percentiles		10%: 71.0	15%: 74.1	50%: 99.5	85%: 124.3	90%: 132.1					
Class (%)	2.4	45.9	21.2	0.0	8.0	11.9	8.8	1.1	0.0	0.8	0.0	0.0	0.0	
Saturday 7/6/2024	Vehicles: 163		% Strikes Used					A: 96.5	B: 91.6					
	Average Axles per Vehicle: 2.01					Average 2-Axle Wheelbase: 3.03 m								
	Peak Hour, 12:00 AM - 12:00 PM				10:00 AM		Volume: 15		Factor: 0.75					
	Peak Hour, 12:00 PM - 12:00 AM				12:15 PM		Volume: 17		Factor: 0.61					
k/h	Average: 70.2		Percentiles		10%: 87.3	15%: 91.4	50%: 108.0	85%: 134.4	90%: 138.3					
Class (%)	0.0	62.0	26.4	0.0	11.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	
Sunday 7/7/2024	Vehicles: 178		% Strikes Used					A: 97.4	B: 91.0					
	Average Axles per Vehicle: 2.10					Average 2-Axle Wheelbase: 3.05 m								
	Peak Hour, 12:00 AM - 12:00 PM				10:00 AM		Volume: 15		Factor: 0.47					
	Peak Hour, 12:00 PM - 12:00 AM				12:30 PM		Volume: 22		Factor: 0.92					
k/h	Average: 69.0		Percentiles		10%: 84.2	15%: 88.6	50%: 107.7	85%: 136.5	90%: 141.9					
Class (%)	0.0	61.8	25.3	0.0	10.7	0.0	0.0	1.1	1.1	0.0	0.0	0.0	0.0	
Monday 7/8/2024	Vehicles: 186		% Strikes Used					A: 96.1	B: 86.6					
	Average Axles per Vehicle: 2.62					Average 2-Axle Wheelbase: 3.05 m								
	Peak Hour, 12:00 AM - 12:00 PM				9:45 AM		Volume: 36		Factor: 0.69					
	Peak Hour, 12:00 PM - 12:00 AM				12:00 PM		Volume: 19		Factor: 0.68					
k/h	Average: 62.4		Percentiles		10%: 74.3	15%: 78.0	50%: 97.1	85%: 124.1	90%: 129.5					
Class (%)	1.6	32.8	16.1	1.1	10.2	18.3	18.3	1.6	0.0	0.0	0.0	0.0	0.0	