

CORPORATION OF THE COUNTY OF HURON
Public Works

TO: Chair and Members of the Committee of the Whole – Day 2
FROM: Steven Lund, County Engineer
DATE: February 15th, 2017
SUBJECT: **Traffic Control Report – Intersection of CR25 & CR4**

RECOMMENDATION

It is recommended that the County Council receive the **Traffic Control Report – Intersection of CR25 & CR4** report dated February 15th, 2017 from the County Engineer for information.

And further that “a four way flashing beacon be placed in 2017 at a cost \$25,000 to be funded from reserves”.

BACKGROUND

County Council at their meeting of February 8th, 2017 received a delegation with a petition to install traffic signals at the intersection of County Road (CR) 25 and CR4. Concerns cited accidents, roadway geometrics, increased traffic and pedestrian volumes. Council passed the following motion:

“The Council of the County of Huron request a staff report regarding the petition for traffic control at the intersection of County Road 4 and County Road 25”.

It should be noted the County received County Road 4, Clinton to the north limit of the County (north of Wingham) via a download that occurred in the late 1990’s from the Ministry of Transportation (MTO). The roadway was reconstructed a couple of times since 1970 with the latest reconstruct that occurred in 1993 by the MTO. This involved re-alignment, filling the east side of the ROW and super-elevating the CR 4 roadway. The roadway as it exists today is at a 70 degree skew as County road 25 intersects CR 4 with a downhill grade to the south.

There is a two way stop at the intersection with CR 4 as the through road. The speed limit on CR4 is 50kph and the speed limit on the west leg of CR 25 was reduced to 60kph in the fall of 2015 to match the speed limit of 60kph on the east leg of CR25. The latest traffic counts on CR4 (south of Blyth) is 743 AADT (Sept. 2014) and CR25 (east of CR4) is 596 AADT (Sept.2013).

Two recent developments, Tim Hortons and the Blyth Brewing and Distilling Inc. required traffic impact studies which reviewed the existing and forecasted traffic volumes in this area. The traffic studies concluded traffic signals were not justified.

COMMENTS

Traffic Signals – General

Book 12 of the Ontario Traffic Manual (OTM) Series comments on the functions and practice of installing traffic control signals. It states the following:

“The practice of installing traffic control signals for reasons other than right-of-way control has led to installations in some instances where justification is weak. In these cases, traffic waiting at a side road stop sign may have a lower overall delay without a signal than would otherwise occur waiting for a signal change.

Unjustified traffic control signals can lead to excessive delay, increased use of fuel, increased air pollution, increased noise, motorist frustration, greater disobedience of the signals and the increased use of alternative routes in attempting to avoid these types of signals. Unjustified traffic control signals may alter the number and type of collisions. For example, traffic control signals installed at a location previously controlled by a stop sign may reduce the number of right angle collisions, but increase the number of rear-end collisions. **Therefore, the installation of traffic control signals does not necessarily guarantee a reduction in collision frequency, though some signals can be justified on a safety basis only.**

A traffic control signal is a control device rather than a safety device. Traffic control signals should not be used for traffic calming schemes, for limiting traffic volumes on specific routes, as speed control devices, as demand control devices, or for the discouragement of motorists and pedestrians from using a specific route.”

The justification for traffic signals should be based on studies and needs as outlined in Section 4 of Book 12 of the OTM.

Traffic Warrants or Justifications for Traffic Signal Control

Book 12 of the Ontario Traffic Manual is referred to when reviewing the need for traffic signals. There are seven types of warrants or justifications used for considering whether traffic control signals should be installed. These justifications are as follows:

1. Minimum vehicle eight hour volumes
2. Delay to cross traffic
3. Combination Warrant
4. Minimum Four hour vehicle volume
5. Collision Experience
6. Pedestrian Volumes
7. Projected volumes

For a traffic signal to be technically justified one of the above justifications must be fully satisfied.

The justifications in more detail are as follows:

1. Minimum vehicle volumes consider volumes in both directions and must meet minimum volumes for an eight hour period as per the manual.
2. Delay to cross traffic is where volume on the main road is so heavy the delay to cross traffic is excessive or a hazard to entering of crossing the main road way again based on an eight hour period.
3. A combination warrant is where both justification 1 and 2 are satisfied to the 80% level rather than satisfying each one at the 100% level individually.
4. Minimum four hour vehicle volume is where the intersection experiences excessive delays for four peak hours of the day but does not have a prolonged demand to meet an eight hour warrant are required by Justification 1 and 2 above. This justification is normally used on Commuter dominated routes, commercial or manufacturing areas where there a 2 hour am and pm peak.
5. Collision experience is where there are 15 reportable collisions susceptible to correction over a 36 month period. Typically these are reducible collisions i.e. turning/angle. Non-reducible collisions i.e. rear-end, oncoming, sideswipe, single vehicle collisions are not included in this justification as signals would not significantly reduce the likely hood of this type of collision from occurring again.
6. Pedestrian volume justification is based on where the traffic volume on the main road is so excessive, pedestrians experience significant delay or hazard in crossing the main road or where high pedestrian volumes create excessive delay to cross.
7. Projected traffic volumes can be added to existing traffic counts and is usually done where one or more significant developments will likely impact the operation of the intersection.

Traffic Impact Studies -Tim Hortons Development and Blyth Brewing

Traffic impact studies for both the Blyth Brewing and Tim Hortons Development concluded signal warrants/justifications were not met for both pre-development and post development forecasted traffic volumes.

They noted there were no significant pedestrian linkages and movements in the area and given the lower traffic volumes, pedestrian delays are not expected to be an issue.

Motor Vehicle Collision data was not reviewed by the traffic impact studies, however, has been reviewed by County Public Works staff further on in this report.

Based on traffic volumes in the two development related impact studies, it is forecasted the traffic justifications/warrants will be approximately 55% of the required traffic volumes to justify traffic signals. As a result, staff suggest ongoing monitoring of summer and fall traffic counts be carried out and reviewed on a regular basis.

Motor Vehicle Collision Data Analysis

Motor vehicle collision (MVC) data from the OPP that was reported at this intersection was recently received and reviewed by County Public Works. There were 7 reported accidents from 2014 to 2016 at this intersection. Four of the seven involved failing to yield at one of the stop signs and three were following too closely. None of these collisions involved fatalities or would be considered reducible by traffic signals as they were not turning/angle movements. On this basis, the accident justification is not met.

Geometric and Sightline Review

The MTO redesigned and reconstructed the intersection during the 1990's prior to download to the County. Consideration for geometrics and design would have conformed to current guidelines and standards of the day. We have not had any concerns raised regarding this intersection and is operating well from a traffic point of view. Occasionally, snow banks can accumulate like any other intersection and need period removal to maintain sightlines.

Sidewalks

Sidewalks are the responsibility of the local municipalities as per the Municipal Act. Currently, there are no sidewalks in the vicinity of the intersection. Concrete sidewalks lead out of the downtown core of Blyth southerly on both sides terminating on the west side of CR4 at Sunward Dr. and on the east side at McConnell St.

The County has paved shoulders behind the curbs (both sides) along CR4 starting where the sidewalk currently ends leading to the north limit of the intersection of CR25 and CR4.

Given the recent commercial development in the vicinity of this intersection, the area would benefit from the extension of sidewalks to the CR 25 intersection in terms of traffic and pedestrian safety but that would be at the discretion of the local municipality.

Speed Zones, Speed Survey and Enforcement

As noted previously, the speed zones are 50 and 60 km/h respectively on CR4 and CR25. It should be noted speed is an enforcement issue. A speed survey undertaken near end of December 2016 indicated the average speed is 68kph. The OPP and County Public works have been working together to monitor and enforce the posted speed limit. These efforts will continue as required to ensure conformance with the posted speed limits in the area.

Stop Signs and Rumble strips

Two stop ahead and two oversized stop signs are pre-ceded by transverse rumble strips in both directions on CR25. These are effective measures in drawing attention to the intersection in advance of the stop signs.

Street-Lighting

There are currently two streetlights located on the Southwest and Northeast corners to illuminate the intersection at night. No comments regarding street-lighting have been received.

OPTIONS

Consideration of options in ascending order of cost and impact are as follows:

1) Monitor traffic flow and Justification indicators

Staff suggest traffic counts be taken in both the summer and fall for the next 2-3 years once the recent developments have been built out. This information can be compared to the traffic impact studies and justifications as per OTM Book 12. Should the volume or other justifications meet warrants for traffic signals then staff could consider signals for a future budget year. It should be noted all way stop signs are generally not in use on Huron County Roads and have not been considered, although could be a future date.

2) Flashing Beacons

Two options for flashing beacons have been considered for this intersection.

- a. Flashing beacons could be placed on top of stop signs and stop ahead signs for about \$20,000 depending on power supply locations and/or solar light technology options/costs.
- b. Alternatively, an interim step would be to install an overhead flashing all-way beacon which is a common solution ahead of placing traffic signals and would help alert motorists to the two way stop intersection in all directions. They are typically used where the motorist has not needed to stop for some distance (CR25). We have also noted parked trucks and large vehicles on the south side of CR 25 adjacent or nearby the new Tim Hortons development that are partially obstructing the westerly stop sign. The beacon will help delineate the stop signs ahead should a stop sign be partially or completely obstructed from sight at a longer distance from the intersection. The cost is estimated in the order of \$25,000 subject to a power supply nearby.

Should parking on the west leg of CR 25 continue to be a visibility issue, then further review will be required including consideration of prohibiting parking near the intersection to maintain better sightlines.

3) Traffic Signals

Should traffic signals become justified or deemed warranted, then the cost to place will be \$350,000 including engineering. The cost would be subject to utility conflicts and power supply issues which is not expected be of great concern at this time.

4) Roundabout Consideration

A roundabout could be considered instead of traffic signals once justifications were met, however, the cost is in the order of \$1-1.5M which depends on a variety of geometric and servicing factors. Roundabouts are gaining popularity with the MTO, Regions and Counties as an acceptable means of providing traffic control in roadway intersections. They are effective in reducing the severity of MVC's and considered environmentally friendly. It should be noted roundabouts are not as pedestrian friendly compared to traditional intersections. A feasibility study would have to be carried out to determine if a roundabout could be physically installed at this location including the associated impact to current land use and development which is expected to be of concern.

OTHER CONSULTED

Mike Hausser, Manager of Public Works

Mike Alcock, Civil Engineering Technologist

SUMMARY

A four way flashing beacon is recommended as an interim measure until traffic signals are justified. Staff will monitor parking and traffic counts at this intersection on an ongoing basis and report if further action is required.

FINANCIAL IMPACTS

None of the traffic signal options costs are in the current county 2017 budget. Funding for a four way flashing beacon of \$25,000 is suggested from reserves if built in 2017 or deferred to the 2018 budget.

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