REPORT TO COUNTY COUNCIL

FROM: Brian Lima, Director of Engineering Services

DATE: April 16, 2019

SUBJECT: Port Bruce Traffic Plan Update

RECOMMENDATIONS:

THAT the report titled “Port Bruce Traffic Plan Update” from the Director of Engineering Services dated April 16, 2019, be received and filed; and,

THAT the appropriate respective By-Laws be made to include the following list of amendments:

By-Law No. 08-16 “Being a By-Law to Designate Through Highways”
- Bank Street – from Imperial Road to north limits of Dexter Line.

By-Law No. 17-11 “Being a By-Law to Authorize Speed Limits”
- Bank Street – 20km/h – from the north limit of Rush Creek Line to south limit of Dexter Line, being a distance of 133 m.
- Dexter Line – 40km/h – from the south limit of Dexter Line to the north limit of Colin Street, being a distance of 275 m.

INTRODUCTION:

Following the collapse of the Port Bruce Bridge, County Council authorized the installation of a temporary bridge in Port Bruce using the Bank Street/Dexter Line corridor across Catfish Creek. Following opening of the temporary bridge to the public on August 20, 2018, concerns associated with signage compliance and speeding have been expressed by several community residents and businesses. The highways subject to the Temporary Traffic Detour Control Plan (herein referred to as “Detour Plan”), and in particular those leading to and from the temporary bridge, are currently under the jurisdiction of Elgin County, including those under temporary assignment from the Township of Malahide.

It is important to note that the Detour Plan was established due to and associated with the unique demolition/construction project undertaken by Elgin County as a result of the collapse of the Imperial Road Bridge. A copy of the County’s Port Bruce – Detour Plan implemented following the collapse of the Imperial Road Bridge and installation of the temporary bridge is attached for reference in Appendix A.

The following report details an engineering evaluation review recently undertaken by Engineering Services and consideration of potential traffic calming solutions which could be deployed if directed by Council.

DISCUSSION:

Following the collapse of the Imperial Road bridge a 5.4 m wide temporary panel bridge, designed and manufactured by Acrow Bridge was constructed across Catfish Creek using the Bank Street/Dexter Road alignment.

Since its opening on August 20, 2018, several concerns associated with regulated and warning signage compliance and speeding of vehicles leading to and exiting the temporary bridge have been expressed to County administration staff by several community residents and/or business owners.

COMMUNITY CONCERNS:

Engineering Services and Elgin Ontario Provincial Police were invited by the Deputy Mayor of Malahide Township to attend a conversation to discuss traffic concerns in Port Bruce with four (4) community residents representing the Port Bruce Community Policing Committee and Port Bruce Rate Payers Association on April 9, 2019.

- In addition to reiteration of concerns associated with non-compliance of regulated and warning signage and speeding, residents present also questioned why Colin Street was restricted to only eastbound one-way traffic and furthermore expressed concerns associated with pedestrians being forced to walk within the travelled portion of road allowances.
- Compounded during the busy tourist season, in the absence of Township sidewalk infrastructure and resulting from non-compliance of on-street parking prohibitions, motorists are required to share the road with all road users (pedestrians, cyclists, etc.).

EVALUATION TEMPORARY TRAFFIC DETOUR CONTROL PLAN ("Detour Plan"):

Review of Detour Plan

- It is noted that the Detour Plan was developed by Engineering Services with input from third party traffic specialists.
- Engineering Services has reviewed the current Detour Plan and, notwithstanding the concerns noted to date, determined that no significant changes are required at this time.

One-way traffic

- The designation of one-way directional traffic on portions of Dexter Line and Colin Street between Imperial Road and Dexter Line is necessary to facilitate turning radii of large trucks utilizing the temporary detour route, and recognizes the existing substandard narrow road platform width at these two locations.

Signage and Speed Limits

- A re-evaluation of all existing posted regulated and warning signage by Engineering Services staff in accordance with the applicable Ontario Traffic Manuals did find that inconsistent southbound and northbound posted speed limits signage of 50 km/h and 40 km/h currently exists on Dexter Line between the temporary bridge and Colin Street. A change in signage for south bound traffic is required.
- Additionally, upon a review of a number of existing applicable Regulation of Traffic By-Laws, the temporary bridge itself needs to be designated as a through highway, and the existing posted speed limit of 20 km/h on the temporary bridge itself also needs to be recognized to become legally enforceable.

Enforcement

- Resident concerns expressed to date associated with regulated signage compliance and speeding have been passed along to the OPP, who confirmed at the April 9th meeting that they will continue to deploy enforcement personnel resources when available to ensure ongoing speed compliance in accordance with the Highway Traffic Act.

Traffic Count Evaluation

- Engineering Services staff deployed mid-block traffic counters on both sides of the temporary bridge from Thursday, April 11th to Monday, April 15th.
- Bank Street between Imperial Road and Rush Creek Line currently contains a posted speed limit of 40 km/h, while Dexter Line between the temporary bridge and Colin Street currently contains inconsistent posted speed limits of 40 and 50 km/h.
- Upon evaluation of the traffic count data by Engineering Services staff, the 85th percentile average speed for both sections of Bank Street and Dexter Line were 45 km/h and 51 km/h respectively.
- The 85th percentile represents the speed at which 85% of the motorists are traveling at or below, and is based on the reasoning that drivers are in general reasonable and travel at a speed they feel comfortable with so as to avoid crashes.

Based on the respective 85th percentile speed factors, Engineer Services staff is of the opinion that the existing posted speed limits remain appropriate and recommends at minimum that ongoing monthly traffic count evaluations be undertaken to consider whether future appropriate temporary traffic calming measures are warranted given the unique unforeseen circumstances.

Possible Solutions

A summary of traffic calming solutions, benefits and possible implications is included in Appendix B. It is noted in this attachment that traffic calming measures can be used alone or in various combinations and can be effective in reducing motor vehicle speeds and decreasing volume. At the same time, traffic calming measures can have negative

impacts including the mobility of neighbourhood residents, emergency vehicle response times and road maintenance activities. It is important to determine the best combination of measures to improve both quality of life and community safety at a reasonable cost.

Appendix B, “Traffic Calming Solutions, Benefits, and Implications” provides appropriate temporary traffic calming enhancement solutions which would be deployed in Port Bruce if directed by County Council, including:

1. Targeted Education Campaigns (estimated cost $450.00 + HST per unit)
2. Vertical Centreline Treatment (estimated cost $850.00 + HST per unit)
3. Speed Display Devices (estimated cost $4,300 + HST)
4. Speed Cushions (estimated cost $3,656 + HST per unit)

Potential Impact of Speed Humps on Emergency Services

Engineering Services staff contacted emergency service providers including Medavie Health Services (Emergency Medical Services) and The Township of Malahide Fire Chief to discuss the deployment of various traffic calming solutions, including the installation of “speed cushions”. Medavie Health Services did not foresee any issues with a change in response time, nor did the Township of Malahide Fire Chief.

NEXT STEPS:

In order to manage traffic across the new single lane bridge, a Traffic Detour Control Plan was previously established and endorsed by Council.

- In support of the plan and required correction of the aforementioned deficiencies, the applicable supporting road regulation by-law amendments are required.
- A recent traffic calming engineering evaluation was conducted by Engineering Services staff, who concluded that the majority of motorists are compliant with the posted speed limits, and as a result, concluded that no further traffic calming enhancement(s) are warranted at this time.
- Inconsistent posted limits on Dexter Line were however identified and are recommended for a consistent designation containing a posted speed limit of 40 km/h.
- That Engineering Services staff undertake, at minimum, ongoing monthly traffic count evaluations and report back to County Council.

Legal Perspective

Must be considered as a Closed Meeting Item.

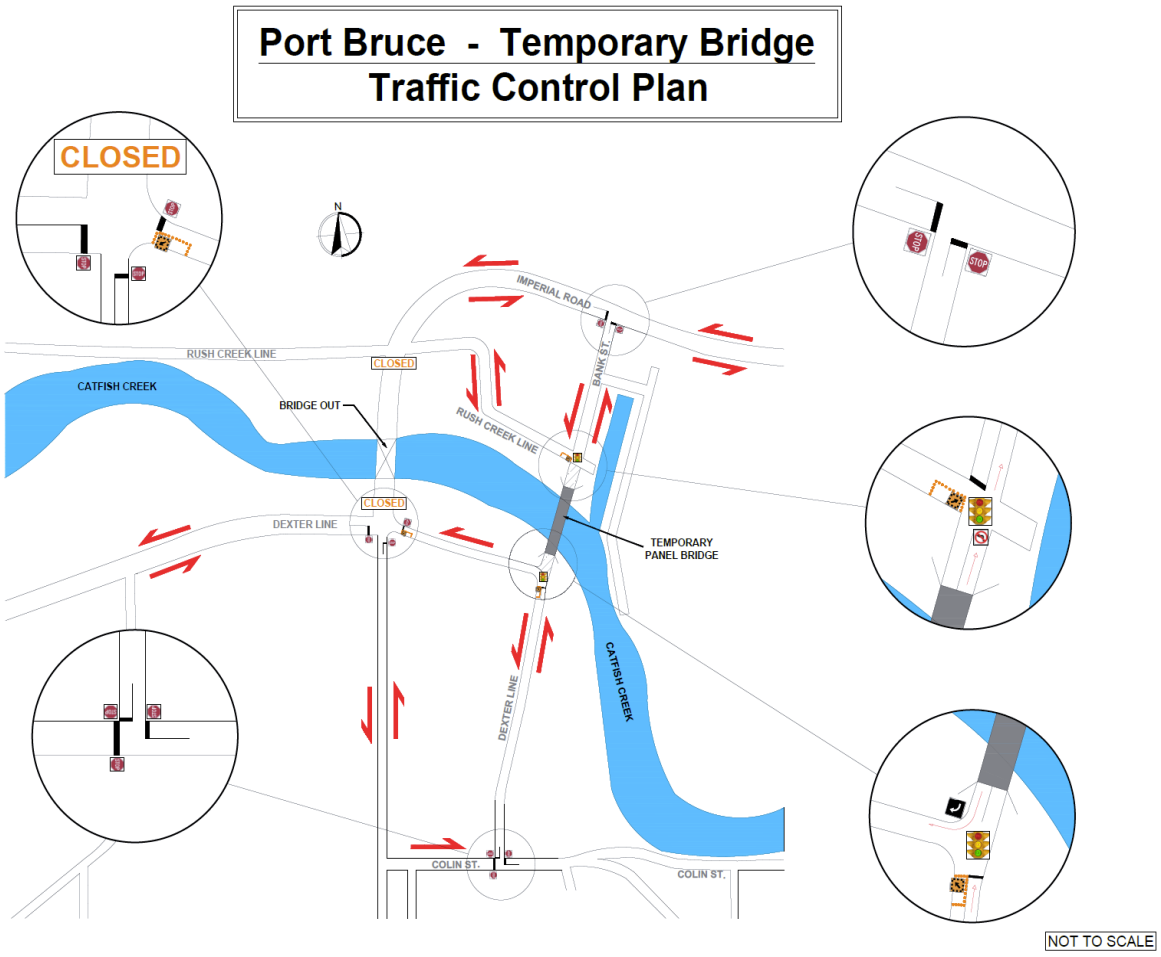
All of which is Respectfully Submitted

Brian Lima
Director of Engineering Services

Approved for Submission

Julie Gonyou
Chief Administrative Officer

Appendix A – Port Bruce – Temporary Bridge Traffic Control Plan



Appendix B –Traffic Calming Solutions, Benefits and Implications

Traffic calming is the broad term used to describe the process and measures applied by road authorities to address concerns about the behaviour of motor vehicle drivers travelling on streets within their jurisdictions typically associated with speeding and/or shortcutting traffic. The intent of traffic calming is to achieve driver behaviours that are appropriate within the context of a road's intended use.

Often described as "speeding", "infiltration", and/or "shortcutting", inappropriate actions by motorists can have a detrimental impact on the quality of life or livability of a community, leading to:

- Lack of feeling safe and secure within a neighbourhood;
- Deterrent from walking and cycling due to safety concerns, particularly for vulnerable road users;
- Decreased interaction between residents within a neighbourhood; and,
- Increased air and noise pollution from increased volumes and speeds.

Traffic calming has been defined as "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour and improve conditions for non-motorized street users."[1] The physical measures referenced in this definition consist primarily of vertical and horizontal deflections in the roadway. Examples include speed humps, speed cushions, raised intersections, traffic circles, and curb extensions. As well as physical measures, traffic calming initiatives often include education or enforcement actions.

Recognizing that traffic calming measures used alone or in various combinations and when implemented properly can be effective in reducing motor vehicle speeds, decreasing traffic volumes, etc., they too can also have potentially negative effects on the mobility of neighbourhood residents, on road maintenance activities and on emergency vehicle response times.

The objective and challenge associated with implementing a traffic calming plan is to determine the best combination of measures that result in a new improvement (both real and perceived) in the quality of life and community safety at a reasonable cost.

Having regard for the concerns expressed by the Port Bruce residents, and upon review of the Institute of Transportation Engineers (ITE) *Canadian Guide to Traffic Calming*[2], all or components of the following appropriate temporary traffic calming enhancement solutions could be deployed if warranted and/or directed by Council:

1. **Targeted Education Campaigns** – Are initiatives to raise awareness of road safety issues. Education campaigns can address multiple types of driver awareness, including speeding. Additional advantages and disadvantages include:

[1] Institute of Transportation Engineers (ITE) Subcommittee on Traffic Calming, 1997
[2] Institute of Transportation Engineers (ITE) Canadian Guide to Traffic Calming Second Edition, February 2018

Advantages

i. Other: May be effective at raising awareness and changing self-reported attitudes and perceptions.

Disadvantages

i. Enforcement: Outreach programs urging drivers not to speed are unlikely to have any effect unless they are tied to vigorous enforcement. When used in isolation, generally does not deliver tangible and sustainable results.

ii. Other: Good media campaigns can be expensive; campaign measures are not equally absorbed by all individuals; and, benefits are usually sustained only during campaign period.

Estimate Cost: $450.00 + HST per unit (supplied and installed)

2. **<u>Vertical Centreline Treatment</u>** – The use of such devices like flexible raised pavement markers or bollards are commonly used in work zones and are utilized to create a centre median to give drivers a perception of lane narrowing and create a sense of constriction. Additional advantages and disadvantages include:

Advantages

i. Vehicle Speeds: Reduction in 85th percentile speed up to 5 km/h[3]

ii. Conflicts: Separation of traffic has the potential to reduce collisions

iii. Other: Collapsible design is able to withstand impact with a vehicle

Disadvantages

iv. Maintenance: Requires removal for winter operations.

Estimate Cost: $850.00 + HST per unit (supplied and installed)

[3] Hallmark, S., Hawkins, N., Knickerbocker, S. April 2013 *Speed Management Toolbox for Rural communities*. Ames, IA: Iowa Highway Research Board.

3. **<u>Speed Display Devices</u>** – Are interactive signs that display vehicle speeds as oncoming motorists approach. Vehicle speed is captured using radar and can trigger the display board to show when vehicles approach at predetermined unsafe speeds. Additional advantages and disadvantages include:

Advantages

i. Vehicle Speeds: Reduction in 85th percentile speed between 3 and 5 km/h[4].
ii. Conflicts: Reduction in speed related collisions.
iii. Other: Portable units can be relocated and deployed immediately at different locations; and, less expensive than police enforcement when considering long-term use.

Disadvantages

iv. Maintenance: Requires regular maintenance and a source of power; drivers may become immune to devices if there is no further perception of enforcement; motorists speed up to see how fast they can go; and, may be less effective or less accurate on multi-lane roads, or heavily trafficked roads.

Estimate Cost: $4,300 + HST per unit (supplied and installed)

4. **<u>Speed Cushions</u>** – A raised area on a road, similar to a speed hump, but does not cover the entire width of the road. The width is designed to allow a large vehicle to "straddle" the cushion, while light vehicles will have at least one side of the vehicle deflected upward. Speed cushions are intended to produce sufficient discomfort to limit passenger vehicle travel speeds yet allow the driver to maintain vehicle control, while allowing larger vehicles such as emergency vehicles to pass without difficulty. Additional advantages and disadvantages include:

Advantages

i. Vehicle Speeds: Reduction in 85th percentile speed up to 8 km/h[5].
ii. Traffic Volumes: Reduction of approximately 30%[6].

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[4] Hallmark, S., Hawkins, N., and Smadi, O. June 2012. *Toolbox of Countermeasures for Rural Two-Lane Curves*. Report IHRB Project TR-579. Ames, IA: Iowa Department of Transportation and Iowa Highway Research Board.

[5] Kahn, R. and Goedecke, A.K. September 2009. "Roadway Striping as a Traffic Calming Option." *ITE Journal, 81(9)*, pp. 30-37.

iii. Environment: Traffic noise may be reduced due to lower speeds (benefits may be offset by increased noise due to braking and accelerating).
iv. Other: No effect on bicycles riding at moderate speeds; and, no effect on resident access, street sweeping, and police enforcement.

Disadvantages

v. Emergency Response: May slightly affect emergency vehicle response times but not as much as speed humps or speed tables
vi. Maintenance: Requires removal for winter operations.
vii. Other: Increase traffic noise level due to braking and accelerating; increase gas consumption and emission levels; and signing could detract from the appearance of a street or interfere with driveway entrances.

Estimate Cost: $3,656.00 + HST per unit (supplied and installed)

[6] Pennsylvania Department of Transportation. 2012. *Pennsylvania's Traffic Calming Handbook.* Harrisburg, PA: Pennsylvania Department of Transportation.