



DEVELOPMENT AND INFRASTRUCTURE SERVICES – ENGINEERING SERVICES
TOWN OF NEWMARKET
395 Mulock Drive
P.O. Box 328
Newmarket, ON L3Y 4X7

www.newmarket.ca
info@newmarket.ca
905.895.5193

May 25, 2017

**DEVELOPMENT AND INFRASTRUCTURE SERVICES - ENGINEERING SERVICES
INFORMATION REPORT ES 2017-12**

TO: Mayor Van Bynen and Members of Council

SUBJECT: **Transportation Services Update #4**

ORIGIN: Director, Engineering Services

PREAMBLE

In accordance with the Procedure By-law, any Member of Council may make a request through the Town Clerk for this Information Report to be placed on an upcoming Committee of the Whole Agenda for discussion.

BACKGROUND/COMMENTS

Speeding on local roads, or the perception thereof, is an issue that has afflicted every single community throughout North America and Europe since the car was invented. There are numerous published examples of cars speeding on local roads in domestic and foreign communities, dating back to the 1920's and continuing until today. Still, there has been no magic solution to eradicate this problem. Every article indicates how difficult it is to control speeding on local roads, which appears to be an "unsolvable" issue.

Despite the above, Newmarket is emerging as an innovator in this area and the Town has seen some proven, positive results with the initiatives implemented to date. In the year and two months since the Transportation Services division was created, the Town has seen innovation and strong leadership from this new business unit, culminating in several cutting-edge initiatives in traffic calming and a new public input policy. These have resulted in a documented reduction in speeding, diminished infiltration on some high volume roads, and a significant decline in the number of complaints that the Town is receiving for transportation and traffic safety matters. All tangible results indicate that there has been a marked improvement in traffic safety in our community since the inception of the Transportation Services division.

The Town's Customer Service department advises that there were a total of 34 traffic and/or road safety complaints received by the Town in 2015, and 44 complaints in 2016, but there have been only 6 complaints to date in 2017. Furthermore, **only one of the six is about speeding** (four of the six are parking-related, and one is for traffic signals). There appears to be a trend where complaints received through Customer Service regarding traffic safety have decreased. When comparing only the same 4.5 month period between January 1 and May 17, there were four complaints for speeding in 2015 and three in 2016, showing a definite decrease to one in 2017.

The 3 E's of speed mitigation (Enforcement, Education and Engineering), which were introduced in 1925, are still used today to mitigate speeding and promote traffic safety. Enforcement requires that York Regional Police (YRP) monitor "hot spots" for speeding. Unfortunately, police response depends on staffing and workload levels, and is also influenced by competing priorities for police services. Education on road safety is being conducted by the Town's Transportation staff, YRP, York Region, the local school boards and the public who apply pressure in their own neighbourhoods. Engineering solutions include various levels of traffic calming and innovative methods that are currently being employed or piloted by the Town's Transportation Services division, with the support of Council through budgeting and policy approvals.

The more traditional traffic calming measures employed by the Town of Newmarket have revolved around the "Radar Speed Display Boards". In 2016, Transportation Services also continued the "Boulevard Lawn Sign" program and introduced an innovative pilot project employing "Flexible In-Street Bollards". Also in 2016, "Enhanced Cross-Walks" were implemented in school zones and a "Raised Median (Combined with Pedestrian Cross-Walks)" was implemented at Water Street.

Speed humps have not played a significant role in the Town's traffic calming initiatives and they are not recommended due to safety reasons, maintenance issues and increased traffic noise for abutting residents. Although speed humps slow traffic down (but only at the specific point where they are installed), and they may decrease traffic volume on a given road by discouraging infiltration, they do increase speeds once the speed hump has been cleared by the driver. The reason why a driver will speed up after clearing a speed hump is to make up for time lost from slowing down for the obstruction.

Speed humps are of great concern to Emergency Services, whose fire trucks, ambulances and other first response vehicles are slowed down by the obstructions. Additional seconds to reach a destination can make the difference between life and death, or saving property versus complete write-off. Speed humps also cause difficulties and extra expense for winter maintenance activities. They also create increased traffic noise in the vicinity of the hump, which is why some York Region communities were forced to remove speed humps shortly after they were installed in quiet communities and they no longer use them. As requested by Council at its meeting of May 15th, costing for speed humps will be the subject of a more detailed information report coming soon.

The following summarizes some findings of the 2016 traffic mitigation measures in the Town.

1. Flexible Bollard Traffic Calming

In the Spring of 2016, Transportation Services became familiar with a new "state-of-the-art" traffic calming device involving flexible bollards that are bolted to the pavement to visually narrow the road, thereby reducing speed. The bollards are brightly coloured in yellow and black stripes and are designed to be driven over safely by a vehicle in the event a vehicle does so. The durable fiberglass sign is bolted to the base which houses a flexible rubber connection. A wide bollard (30 cm) is installed on the centreline of the road, and narrower bollards (10 cm wide) are installed towards the edge of the road so that there is a minimum clear distance of 3.0 metres between bollards. The bollards affect drivers in a similar way to speed humps, but at a significantly lower cost. The bollards prove to be far more cost effective, are easier to install and are found to be an effective method of speed reduction.

The devices were recently invented, patented and introduced by a Canadian vendor. The vendor can install them in the spring and summer, and remove them in the fall to allow for unobstructed snow removal. The vendor provides training on how to install and remove the bollards, but he offers the full service at a very low price.

On August 17th, two flexible bollard sites were set up on Savage Road (one to the west, and one to the east of Sandford Road) and on Ivsbridge Boulevard (east of Kingsmere Avenue). The bollards remained in place until November, when they were removed for the winter maintenance season.

Residents who called in to ask about the bollards were bothered by the fact that the bollards were slowing them down during their travels on those particular roads. This indicated to us that the devices were performing as planned.

Staff obtained speed data, and confirmed that speeds decreased at all of the bollard sites. Speed measurements were taken one block east and one block west of each site. At each bollard site, the average speed decreased by almost 5 km per hour when compared to speeds prior to the bollard installation. However, on Savage Road, average speeds remained statistically similar at a distance of one block away from each of the installations. This result is consistent with speed changes due to driver behaviour as influenced by other traffic calming measures (e.g.: speed humps, chicanes, etc.).

Since the bollards create a visual narrowing of the road, with subsequent successful speed reduction at the actual bollard installation, staff will continue this traffic calming trial program in 2017. Within the next several weeks, staff plans to install bollards in at least two sites on collector roads (two consecutive sets on Sandford and two on Sawmill Valley Drive). The sets will be aligned to be inter-visible, creating the perception of a longer stretch of road narrowing. Staff will monitor performance and collect data during the spring, summer and fall and will assess the efficacy of this new type of installation during the winter of 2017.

2. Radar Speed Display Boards

One of the objectives of the 2016 radar sign program was to determine where to deploy the signs most effectively and, once deployed, to determine the length of time that the signs should remain at each site.

Two new solar-powered signs were purchased in 2016, at a cost of \$7,500.00 each (including the software license). The solar-powered signs do not have to be brought back to the office for regular maintenance or battery charging, and hence, they can remain deployed for much longer periods of time than the older battery-operated signs. Another benefit of the solar-powered signs is that data analysis and modifications to the settings on

the signs can be performed by staff from an office desk, through any internet connection. This eliminates the need to travel to the site to perform such tasks. Although installation times are slightly longer for solar-powered signs as compared to the older battery-operated signs, installation is less cumbersome because the solar units are much lighter in weight.

The two new solar-powered radar display signs were rotated at seven locations throughout Newmarket. The data was analysed in the Autumn and Winter of 2016. Staff anticipated initial speed reductions, followed by 'driver apathy' (less speed reduction after the signs had been in place for two or three weeks). However, it was found that display signs were effective in slowing speeds only for those drivers who travelled at or below the posted speed limit.

The radar speed display sign program must therefore be considered as an educational tool for drivers. Staff will need to complement this program with other initiatives to increase driver awareness regarding speeding on local roads. A more detailed report on the findings of the 2016 speed board program, and the raw data that was collected and analyzed, are available upon request.

3. **"Safety Cone Sam" Lawn Signs**

In 2016, at least thirty requests for lawn signs were forwarded from Members of Council and residents. One hundred lawn signs, designed by the Town's Communications Department, were printed. Of these, 89 signs were deployed throughout the Town, including sites adjacent to radar speed board locations. Out of the 89 signs that were out in the field, 34 of them went missing and were neither found nor recovered.

The boulevard lawn sign program will resume in 2017. Staff will continue to evaluate the effectiveness of this educational campaign, which may lead to a modified program or different sign graphics to increase efficacy in 2018 and beyond.

4. **Enhanced Cross-Walks in School Zones**

As per Transportation Services' commitment to Council, one enhanced cross-walk was installed in each of the Town's seven wards. Each enhanced cross-walk provides new visibility improvements through the painting of "zebra markings" on the road. The highly visible lines are painted at an all-way stop location near a school. The purpose of the markings is to provide a visual cue to drivers so that they will slow down and apply more caution when approaching the school crossing. The enhanced visibility cross-walks that were established in 2016 include the following intersections:

- Ward 1 – Stonehaven/Kingsmere
- Ward 2 – Srigley/Alexander
- Ward 3 – Huron Heights/Wayne
- Ward 4 – Bristol/Stiver
- Ward 5 – Main/Queen
- Ward 6 – Jordanray/Doubletree
- Ward 7 – Woodspring/Aspenwood

5. Raised Median (Combined with a Pedestrian Cross-Walk)

The Water Street pedestrian crossing island, which was completed in the Fall of 2016, has narrowed the roadway on both sides of the raised median. Through several scheduled observations, staff noted that traffic slows down significantly as it approaches the island in both the eastbound and westbound directions. Staff was very pleased to see that the crossing island is being used extensively and that it is meeting its intended purpose. The vast majority of pedestrians, and about half of the cyclists crossing Water Street, are using the crossing island to safely cross the road. Safety at the crossing is not only enhanced by the fact that people are sheltered from the traffic, but also by the fact that traffic actually slows down due to the visual impact of the island and the resulting narrowing of the roadway. This summer will be a true test to the efficacy and usefulness of the island and staff plans to continue their observation activities.

Next Steps – 2017 Program

1. Council has directed staff to increase the number of solar-powered radar display boards for the Speed Management Program in order to have one solar speed board for each Ward (for a total of seven). This requires the purchase of five additional solar-powered display boards at a total cost of approximately \$37,500.00 for the capital purchase.

The larger number of speed boards will require the use of a contractor to move all of the solar-power radar display boards at least 10 times per year. With this larger number of speed boards, staff can no longer wait for Public Works Services staff to have down time during their busy summers to move the signs around. This additional cost is in the range of \$1,000.00 to \$1,400.00 per move for all seven signs combined, which would amount to \$7,000.00 to \$9,800.00 for the remainder of 2017. Transportation Services will prepare a list of recommended locations per Ward based on roadway and traffic criteria, and on the technical data that has been collected. Members of Council will be invited to review the list and comment on it.

2. The boulevard “Safety Cone Sam” lawn sign program will continue in 2017 with the signs that are still usable from 2016. A fresh new sign design with new messaging will be developed in 2017 for deployment in 2018.

3. The flexible bollards will be installed in sets of two installations per location. One set will be installed on Sandford Road and another will be on Sawmill Valley Drive, in the vicinity of Society Crescent.
4. One new pilot project for 2017 will involve the construction of a permanent pinch point (road narrowing), also called a “mid-block choker”, which will be combined with Low Impact Development (LID) drainage on Queen St as part of the Capital Roads Reconstruction program. The pinch point will be monitored to determine how well it works and, if successful, it may form the basis for future installations which will combine both traffic calming and climate change mitigation initiatives in one single feature. The pinch points would essentially form the next step in the flexible bollard program, whereby successful installations of flexible bollards could result in the next locations for permanent pinch points.
5. Another new pilot project for 2017 is the construction of a Pedestrian Crossing Island (similar to Water St. Pedestrian Crossing) along Queen St near Haskett Park, as part of the Capital Roads Reconstruction Program. This island will narrow the road and provide visual cues that will result in slowing down traffic, as is the case on Water St.
6. Enhanced cross-walks in school zones will be continued in 2017, with an additional one being painted in each ward with the exception of Ward 5, which will get 2 as a result of the Queen St. reconstruction project through the Capital Projects division.

BUSINESS PLAN AND STRATEGIC PLAN LINKAGES

- Well-planned and connected...strategically planning for the future to improve information access and enhance travel to, from and within Newmarket.

CONSULTATION

No formal public consultation was undertaken with respect to implementing the aforementioned traffic mitigation measures, except for the Queen Street pinch point and LID pilot installation, which was presented at the Public Information Centre (PIC) that was held for the Queen Street Reconstruction project. Also, staff sent out notices to residents who resided near the bollard installations to inform them of the program. Staff also provided additional information to Ward Councillors on request.

HUMAN RESOURCE CONSIDERATIONS

There is no impact on current staffing levels, but the Traffic Technician and our Public Works Services will no longer be able to accommodate the installation and rotation of speed boards in a timely way due to the increased number. A contractor will be required for the efficient deployment and moving of signs to meet the increased program requirements.

BUDGET IMPACT

Operating Budget (Current and Future)

It is estimated that the operating cost for deployment and relocation of the solar-powered radar display boards will be in the range of \$1,000.00 to \$1,400.00 per move for all seven boards. With an anticipated 10 moves per year for each speed board, the total cost per year would be \$10,000.00 to \$14,000.00. The operating cost for 2017 will be somewhat lower, since the new boards will not be deployed until they are received some time in May or June. There will be an anticipated 6 moves for 2017, resulting in a cost of approximately \$7,000 to \$9,800. This amount can be accommodated by the current 2017 Transportation Services operating budget.

Capital Budget

The additional five solar-powered radar display boards will cost approximately \$7,500.00 each, for a total of \$37,500.00.

The additional flexible bollards will cost approximately \$1,500.00 in total.

CONTACT

For more information on this report, please contact Mark Kryzanowski, Manager of Transportation Services, at 905-953-5300, press "2", then extension 2508 (or MKryzanowski@Newmarket.ca).



For: Mark Kryzanowski, BES, MCIP, RPP
Manager, Transportation Services



Rachel Prudhomme, M.Sc., P.Eng.
Director, Engineering Services



Peter Noehammer, P.Eng.
Commissioner, Development and
Infrastructure Services