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Penn Avenue Traffic Review - Update Staff Report to Council

Report Number: 2023-27

Department(s): Engineering Services

Author(s): M. Kryzanowski, Manager, Transportation Services

Meeting Date: May 8, 2023

Recommendations

1. That the report entitled “Penn Avenue Traffic Review – Update” dated May 8, 2023, be received; and,
2. That All-Way Stop controls not be implemented at this time at the intersections of Penn Avenue with Vincent Street, Hillview Drive and Denne Boulevard; and,
3. That traffic calming measures involving flexible bollards and the narrowing of travel lanes through the application of urban shoulders be implemented in 2023 and that resulting speeds be monitored; and,
4. That road signage relocations or realignments be made in 2023; and,
5. That staff be authorized and directed to do all things necessary to give effect to this resolution.

Purpose

At its regular meeting of March 21, 2022, the Committee of the Whole adopted the recommendations in Report #2022-18 (entitled “Penn Avenue Traffic Calming Review”), and added the following recommendations:

1. That Town staff monitor the speeds on Penn Avenue to determine the success or additional mitigations required; and
2. That staff be directed to report back regarding options for an all-way stop at the Penn Avenue and Vincent Street, Hillview Drive and Denne Boulevard intersections.

This report outlines the findings and conclusions of the additional study.

Background

At its regular meeting of September 13, 2021, the Committee of the Whole under “New Business” adopted the following recommendation:

That staff be directed to conduct a study to investigate traffic calming measures on Penn Avenue west of Main Street North to Maple Leaf Public School.

In response to this recommendation, at its regular meeting of March 21, 2022, the Committee of the Whole received a report (#2022-18, entitled “Penn Avenue Traffic Calming Review”). This report recommended that Category 1 traffic calming measures, which included in-road flexible bollards, solar speed boards and boulevard signs be implemented, along with continued monitoring to determine effectiveness. Furthermore, the intersections of Penn Avenue with Vincent Street, Hillview Drive, and Denne Boulevard were to be monitored for potential All-Way Stop controls.

Discussion

All-way Stop Control Review

Staff proceeded by conducting a five-hour traffic count at all three intersections. The traffic count was performed in conformance with the Town’s Transportation Management Policy. This requires that the number of vehicle turning movements and the pedestrian activity be counted on a weekday between 7:00 a.m. and 9:00 a.m. and between 3:00 p.m. and 6:00 p.m. The subject intersections were analysed to determine if the All-Way Stop Warrants were met.

The All-Way Stop Warrants consist of three (3) parts. The first part addresses the future signalization of intersections. This part does not apply since traffic signals are not planned for this section of Penn Avenue.

The second part of the All-Way Stop Warrant examines the frequency of recorded vehicle collisions at the given intersection for the twelve (12) month period prior to the review. A search of our records indicated that all three intersections had no recorded vehicle collisions occurring within the intersections during that time period. The last collision that occurred at any of these intersections was in 2016 (Penn Ave. & Denne Blvd.), but this does not qualify for the warrant because it does not fall within the required period.

The third part of the warrant deals with both traffic and pedestrian volumes on the major and minor streets of the intersection. Accordingly, staff counted the total number of vehicles and pedestrians approaching the intersection on an hourly basis and the average volume on the minor street over the monitoring period. Both the major and minor street warrants need to be met at 100% or greater to warrant an All-Way Stop control.

The results of the All-Way Stop Warrant analysis confirmed none of the three intersections would warrant an all-way stop at this time. Based on the data collected, the volumes on the minor streets are much too low to be considered as factors in the warrant.

The technical reference documents based on research and experience indicate that All-Way Stop controls are to be used for right-of-way control only, as they are ineffective as speed control measures. Unwarranted All-Way Stops can create concerning issues such as stop non-compliance, thereby posing a potential new danger to pedestrians. There is a low compliance rate for motorists stopping at unwarranted All-Way Stop controlled intersections. When there are infrequent conflicting vehicles entering the intersection, a larger number of drivers will disobey the stop sign or perform a rolling stop. This stop non-compliance poses a safety risk for pedestrians who are expecting the vehicle to come to a full stop. Another issue caused by unwarranted stop signs is an increase in speeds, as drivers have been shown to accelerate away from the intersection, with the perception that they would be making up for lost time caused by the stop sign.

Monitoring

In 2020 and 2022, staff placed traffic calming flexible bollards on Penn Avenue. In 2020, four (4) sets of triple bollards were installed near house numbers 315, 343, 385, and near Vincent Street. In 2022, three (3) sets of triple bollards were installed at house numbers 315, 343, 385. The contractor couldn't place bollards at Vincent Street as there was construction occurring at the site. The table below shows the comparison of operating speed with bollards (2020) and without bollards (2022). The data shows that flexible bollards worked effectively on Penn Avenue and reduced operating speeds by about 4.6 – 12.6 km/h.

PENN AVE (WEST TO EAST)	WITHOUT BOLLARDS	WITH BOLLARDS	DIFFERENCE
Gwillimbury Rd & Hillview Dr	47.8	35.2	-12.6
Denne Blvd & Hillview Dr	N/A	N/A	N/A
Denne Blvd & Vincent St	54.1	49.5	-4.6
Charlotte St N & Vincent St	53.4	45.9	-7.5

It can therefore be concluded that the use of the in-road flexible bollards had a significant impact on the reduction of speeds on Penn Avenue.

Additional Measures

Urban Shoulders have been introduced on several streets within the Town. Urban shoulders are painted lines within a specific distance from the curb. These act as a traffic calming measure by narrowing the travelled portion of the roadway.

The width of Penn Avenue between Hillview Drive and Main Street N is between 8.5m and 9.7m. Urban shoulders would be painted 3.0m away from the existing centreline on both sides. This will create two 3.0m wide traffic lanes and two 1.25m to 1.85m wide urban shoulders. It is expected that the visually narrowed traffic lanes will reduce the traffic speed on Penn Avenue. Since Penn Avenue, between Hillview Drive and Main Street N, is No-Parking on both sides at anytime, operating issues are not expected with new urban shoulders.

Therefore, it is recommended that the flexible bollards and urban shoulders be implemented in 2023 and be monitored to determine speed impacts. Depending on the outcome, Penn Avenue may be the first location in Newmarket where flexible bollards would be installed annually and would not be rotated to another site.

As well, a signage review was undertaken, and some of the signage is positioned incorrectly (too close or too far) in accordance with the Ontario Traffic Manuals (OTM). No signage will be removed. Signs will just be relocated to an optimal position.

Conclusion

It is concluded that none of the three intersections studied warrant an All-Way Stop. Furthermore, it is recommended that additional Category 1 measures (bollards and urban shoulders) be implemented in 2023. Finally, the existing signage is to be relocated or realigned to meet the Ontario Traffic Manual (OTM) standards.

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

There was no direct consultation required for the preparation of this report.

Human Resource Considerations

None.

Budget Impact

Funds for this initiative are available through the Transportation Services Business Unit's budget, and form part of the annual traffic calming program.

Attachments

None.

Approval

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

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

Contact

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