PUBLIC WORKS DEPARTMENT
Monday, March 22, 2021

Subject: Update on Pedestrian Safety When Crossing Pelham Street at Church Hill

Recommendation:

BE IT RESOLVED THAT Council receive Report #2021-0100-Public Works entitled "Update on Pedestrian Safety When Crossing Pelham Street at Church Hill" for information purposes

Background:

The pedestrian crossing signal at Church Hill and Pelham Street continues to be a safety concern, along with the ones at Pelham Street and Pancake Lane/John Street and Pelham Street and Bacon Lane/Spruceside Crescent, as no solution has yet been approved for implementation.

In 2019 Associated Engineering completed a review of the operational effectiveness at all three (3) intersections on Pelham Street that are currently controlled by Intersection Pedestrian Signals; Pelham Street and Church Hill; Pelham Street and Pancake Lane/John Street; and Pelham Street and Bacon Lane/Spruceside Crescent. The focus of the review was to determine whether the intersection pedestrian signals are warranted and whether there are any operations or safety issues associated with them.

<u>2019 Associated Engineering's Review of Intersection Pedestrian Signals</u>

The 2019 review completed by AE resulted in the following findings:

The three intersection pedestrian signals on Pelham Street are not currently warranted based on November 2018 traffic counts. This determination is a result of the gap analysis completed which indicates that there is a sufficient amount of available safe gaps for pedestrians to cross the roadway without the benefit of the intersection pedestrian signals.

Pelham Street an Church Hill Pedestrian Signal

(1) the Pelham Street and Church Hill pedestrian crossing should have a parking restriction, on both sides of Pelham Street, within 30 metres of the

crossing including the installation of the corresponding parking prohibition signs.

(2) the three intersection pedestrian signals should have the existing crosswalk markings removed and replaced with markings specified in Section 6.2.4.4 of Book 15, "Crosswalk lines must be solid white parallel retro reflective lines 10 cm to 20 cm wide, extending entirely across the pavement"; and

(3) Install Ra-9a signs on the south side of the intersection as specified in Table 9 of Book 15, "Do Not Cross Here Sign" (Ra-9a).

Pelham Street and Pancake Lane/John Street Pedestrian Signal

(1) Consider installing parking prohibition signs on both sides of Pelham Street within 30 metres of the crossing.

(2) Remove the existing crosswalk markings and replace with markings specified in Section 6.2.4.5, Figure 12 of Book 15 (ladder markings for increased awareness); and

(3) Install Ra-9a signs on the north side of the intersection as specified in Table 9 of Book 15, "Do Not Cross Here Sign" (Ra-9a).

Pelham Street and Bacon Lane/Spruceside Crescent Pedestrian Signal

(1) Consider installing parking prohibition signs on both sides of Pelham Street within 30 metres of the crossing.

(2) Remove the existing crosswalk markings and replace with markings specified in Section 6.2.4.5, Figure 12 of Book 15 (ladder markings for increased awareness); and

(3) Install Ra-9a signs on the north side of the intersection as specified in Table 9 of Book 15, "Do Not Cross Here Sign" (Ra-9a).

In 2018, Trans-Plan Transportation Engineering was engaged to study the intersection, its pedestrian and vehicle traffic, sightlines, past reports, and to

make recommendations on improving safety, especially related to Council suggestions of a 3-way stop at Church Hill and Pelham Street. The results of the safety study included the following observations and recommendations:

1. The Trans-Plan review noted previous important recommendations from a former Fonthill Traffic Study (R&R, 2009), as follows:

Historical and recent spot speed surveys suggested that drivers on these roads generally disregard speed limits, endangering pedestrians. The study noted that installing traffic signals would help to slow traffic and likely reduce the probability and severity of collisions involving right of way conflicts, as well as improving safety conditions for pedestrians. Future modifications for the existing 45 on-street parking spaces on Pelham Street should be reviewed and analyzed in order improve sightlines at the cross streets of Pelham Town Square, Church Hill, and Regional Road 20.

2. The Trans-Plan review also noted observations from a 2017 intersection review (Rusit & Associates, 2017), as follows:

A signalized intersection at Church Hill would be below the minimum separation distance to the northerly existing signalized intersection at Highway 20. The intersection spacing is 179 m, which is below the minimum spacing requirement of 215 m for signalized intersections in urban settings. The findings also indicate that installing new traffic signals at the intersection would improve left turn movements from Pelham Town Square to Pelham Road. It was also noted from field observations that southbound vehicle queues on Pelham Road extend approximately 150m from the Church Hill intersection to the north; thereby impacting the intersection at Hwy 20.

3. 91 pedestrians crossed Pelham Street in an 8-hour test duration. Due to the comparatively higher number of retail and commercial uses located to the north of the intersection, compared to the south of the intersection, the pedestrian crossing volumes at or near the north leg are generally higher. For the full 8-hour period, excluding midblock crossings, 27 pedestrians complied with the PPS and 13 pedestrians did not, resulting in a compliance of 67.5 percent.

4. During the study, two near-misses were observed by the consultant as follows: (1) a woman crossing the street with an infant at the PPS (during

walk phase) was almost struck by a vehicle exiting from an on-street parking space located within the intersection, and (2) a senior crossing the street at the PPS (during walk phase) was almost struck by a southbound vehicle making U-turn within the intersection.

5. The on-street parking causes sightline issues for vehicular and pedestrian movements within the intersection. There is adequate visibility for eastbound traffic on Churchill approaching the intersection for vehicles travelling northbound and southbound along Pelham Street; however, when vehicles are parked along the west side of Pelham Street, the visibility becomes limited.

6. Regarding vehicle queuing, all vehicles tend to clear the intersection after each cycle (of the PPS). No vehicles were observed to experience lengthy delays at Church Hill when making eastbound left and right turns at the intersection. During afternoon hours, southbound vehicles stacked up to 63m while the PPS was activated. This stacking is anticipated to be 35m should a 3-way stop be implemented under future conditions, and 33m for a signalized intersection.

7. There has only been one collision reported within the past three years at the Pelham Street and Church Hill intersection. Therefore, no further vehicle collision analyses were conducted.

8. Both methods of intersection control (3-way stop or traffic signals) would operate acceptably (under current or future conditions); however, from the warrant analysis (using OTM guidelines), neither control type is warranted due to low pedestrian crossing volumes and due to comparatively low volumes of traffic entering the intersection from Church Hill.

9. Based on the investigation, and the unwarranted traffic signal or 3-way stop conditions and guidance from Book 5 of the Ontario Traffic Manual the consultant recommended the following:

(1) Remove on-street public parking within a minimum of 10m from the intersection (and within the intersection), and

(2) Introduce a raised crosswalk to enhance the PPS crossing location and

improve pedestrian safety.

Analysis:

Although staff recognizes that all recommendations made by the consultants would help improve safety at the signalized pedestrian signals, staff is recommending to leave the pedestrian crossings in place seeing that they are operating and functioning satisfactorily, and that the Town has already incurred the capital cost for the installation.

Staff also recommends that the minor safety improvements, identified in the consultant's reports, be implemented. These improvements include: (1) Additional Signage; and (2) Pavement Markings in accordance with Book 15. The costs for the above minor modifications can be absorbed in the 2021 Operating Budget.

In addition, Staff is recommending further consideration towards the installation of raised crosswalks and implementing parking prohibitions to improve sightlines and driver awareness of pedestrian movements. These improvements will require Council approval and the costs would need to be included in the 2022 Capital Budget request.

Council may choose to direct Staff to undertake any safety measures they feel would be more appropriate. However, based on the Consultants analysis, the minimum recommended course of action is to improve Safety Related Signage and Pavement Markings at the crossings.

The reconstruction of Pelham Street, between Port Robinson Road and Pancake Lane, includes the area of the Signalized Pedestrian Crossing at the intersection of Pelham Street and Pancake Lane. There is currently no provision made for changing or updating this crossing in the proposed works except for the minor safety improvements recommended as part of the Associated Engineering report. These improvements will be included in the design for Pelham Street.

In addition, the signalized pedestrian crossings at Bacon Lane / Spruceside and Pelham Street will be reviewed during the detailed design assignment for Phase 3 and 4 of the Pelham Street Reconstruction project.

Niagara Region has also requested the Town's permission to timing changes to the Pelham Street and Church Hill Intersection Pedestrian Signal (IPS). Currently when a pedestrian pushes the button, there is a 10 second delay before the signal changes to yellow for the traffic on Pelham. This gives the driver some reaction time in order to stop at the signal or proceed through if he is too close to the crossing to stop safely. This has been in place since this signal went in in 2013. The Region is considering dropping this down to a 5 second delay, which has been done at a couple of other IPS's in the Region without any problems. The purpose of this reduction in timing is to reduce the sequence change times and mitigate the acceleration by drivers to get through the signal before they change to red.

In consultation with the Region's transportation safety staff, converting the signals to the newer 'PXO' (pedestrian crossover) style is possible. The PXO style involves rapid flashing lights mounted on the poles, not the overhead arms, visible from all directions. The crossover also requires specific signs and pavement markings. Legislation about these crossovers changed in January 2016, and resulted in the improved crossing design, seen most recently in West Lincoln. This would likely improve drivers being able to see the activated lights, at a reasonably low cost, since the lights would be mounted on both the east and west poles, rather than on the overhead arms.

Financial Considerations:

The approximate costs for installation of the raised crosswalk is roughly estimated at $40,000, and for removal of the on-street parking stalls is $7,500.

New PXO installations are estimated at $20,000, but since hydro, poles, arms and other hardware are already present at this intersection, some of this cost could be reduced. The Region previously secured a small amount of funding for driver education regarding the new PXOs, which may also be beneficial in education of both drivers and pedestrians in Pelham. When the PXO was installed in West Lincoln, the Niagara Regional Police were also requested to educate and monitor compliance for the first few days of use, which proved successful.

The raised crosswalk, parking stall removal and PXO conversion would be

considered in the 2022 capital budget request.

Alternatives Reviewed:

Council could consider the installation of a fully signalized intersection or a stop controlled intersection. Both methods of intersection control (3-way stop or traffic signals) would operate acceptably (under current or future conditions); however, based on a warrant analysis (using OTM guidelines), neither control type is warranted due to low pedestrian crossing volumes and due to comparatively low volumes of traffic entering the intersection from Church Hill.

Council may consider implementing parking prohibitions on Pelham Street in the vicinity of the signalized pedestrian crossings in order to improve sightlines. This would impact the number of usable parking spaces in the downtown business area of Fonthill.

Council may consider removing the signalized pedestrian crossings or replace the systems with a PXO system.

Strategic Plan Relationship: Risk Management

Maintaining a safe and efficient transportation network is important in providing for the safe movement of vehicular and pedestrian traffic.

Other Pertinent Reports/Attachments:

Appendix A – Signalized Cross Walk Location Plan

Appendix B – Review of Intersection Pedestrian Signals (Associated Engineering)

Appendix C - Trans-Plan Transportation Traffic and Safety Review of Pedestrian Priority Signal (Pelham and Church Hill).

Consultation:

Consultation was undertaken with the following parties in the preparation of this report:

1) Associated Engineering - Review of Intersection Pedestrian Signals
2) Trans-Plan Transportation Engineering – Traffic & Safety Review of Pedestrian Priority Signal, Pelham Street and Church Hill
3) Niagara Region Transportation and Engineering

Legal Consultation, If Applicable:

N/A

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