

Concept: How Might We Improve Pedestrian Safety When Crossing Pelham Street at Church Hill?

Background:

The pedestrian crossing signal at Church Hill and Pelham Street continues to be a safety concern, as no solution has yet been approved for implementation.

Latest Committee report: June 5 2017: Council did not support a fully signalized intersection to replace the Pedestrian Priority Signal (PPS), and rather asked that staff investigate prohibiting left turns at this intersection or installing a 3-way stop.

News of potentially prohibiting left turns quickly prompted feedback to staff from the community, about potential effects on businesses, resulting increased traffic on College and Emmett, bypassing, speeding, and U-turns. Prohibition of left turns is considered a Schedule A+ project under the Municipal Class EA legislation, requiring Public Notice. Also, effectiveness of this measure depends largely on enforcement, since driver compliance to 'no left turns' signs is often poor. This option was not investigated further.

Implementation of the 3-way stop was not tested in a pilot program, as it was uncertain whether compliance and vehicle queuing would pose significant risks for collision, especially related to the highway 20 intersection to the north. Like the 'no left turn' signs, effectiveness of this measure depends largely on enforcement, since driver compliance to unwarranted stop signs is often poor, and drivers instead do rolling stops, increasing collision risk (Staff are observing this with an unwarranted stop sign at another location, and plan to investigate options with this issue further).

In addition, Book 5 Regulatory Signs – Section 2 states the following:

“All-way stop controls should not be used under the following conditions... Where the protection of pedestrians, school children in particular, is a prime concern. This concern can usually be addressed by other means.”

To ensure Town staff are investigating options and not introducing additional risk, further data was collected by an independent consulting firm (Trans-Plan). The firm 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. In the interim, staff continued to explore root causes of the safety concerns.

2018 Consultant's Traffic Review at Church Hill and Pelham Street:

The Trans-Plan review is complete. Key items to note from the 2018 review:

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

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):

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 179m, which is below the minimum of spacing requirement of 215m between 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, as far as the Highway 20 intersection.

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: A woman crossing the street with 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 a Senior crossing 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 bay conflicts with vehicle and pedestrian movements within the intersection. There is adequate visibility from the approach at Church Hill to see vehicles travelling in the northbound and southbound directions 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 our 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. Despite the traffic signal warrant analysis not being met according to the provisions of OTM, there are very rare cases where the engineer's study finds no satisfaction of numerical warrants, but finds other special conditions that result in a conclusion that a signal is the best solution compared to other possible alternatives. According to the conditions of the intersection, the OTM indicates "should not" rather than a "shall not" for the very reasons discussed above. It is important to note that a politically dictated unwarranted signal installation (or all-way stop installation) may not be the best recommended solution.
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 has recommended the following:
 - *Remove on-street public parking within a minimum of 10m from the intersection (and within the intersection), and*

- *Introduce a raised crosswalk to enhance the PPS crossing location and improve pedestrian safety.*

Staff Notes

Although staff recognizes that both recommendations made by the consultant would help improve safety at the intersection, the root cause analysis completed by staff identifies the poor visibility of the traffic signals, especially from Church Hill, as one of the root causes of safety concerns. As noted during the consultant's study, two near misses were witnessed when the PPS was activated, one with a driver leaving an on-street parking stall, and one with a driver making a U-turn on Pelham St.

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 the area 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. New PXO installations are estimated at \$12-\$15K, but since hydro, poles, arms and other hardware are already present at this intersection, some of this cost could be reduced. The Region has secured a small amount of funding for driver education regarding the new PXOs, that could also be beneficial in education both drivers and pedestrians in Pelham. In the latest PXO installation in West Lincoln, the Niagara Regional Police were also requested to educate and monitor compliance for the first few days of use, which also proved successful.

The approximate costs for installation of the raised crosswalk is roughly estimated at \$30,000, and for removal of the on-street parking stalls at \$3,000. The raised crosswalk would be considered in the 2019 budget request, while the parking stall removal and PXO conversion can begin in 2018, provided budget can be reallocated accordingly. In consultation with the CAO and the Treasurer, this approach is feasible, especially in reviewing the red and blue circled projects for 2018. As this is an ongoing safety concern, Public Works would also recommend re-allocating funds from another approved roads project if needed, if red or blue circled funds could not be reallocated to this project.

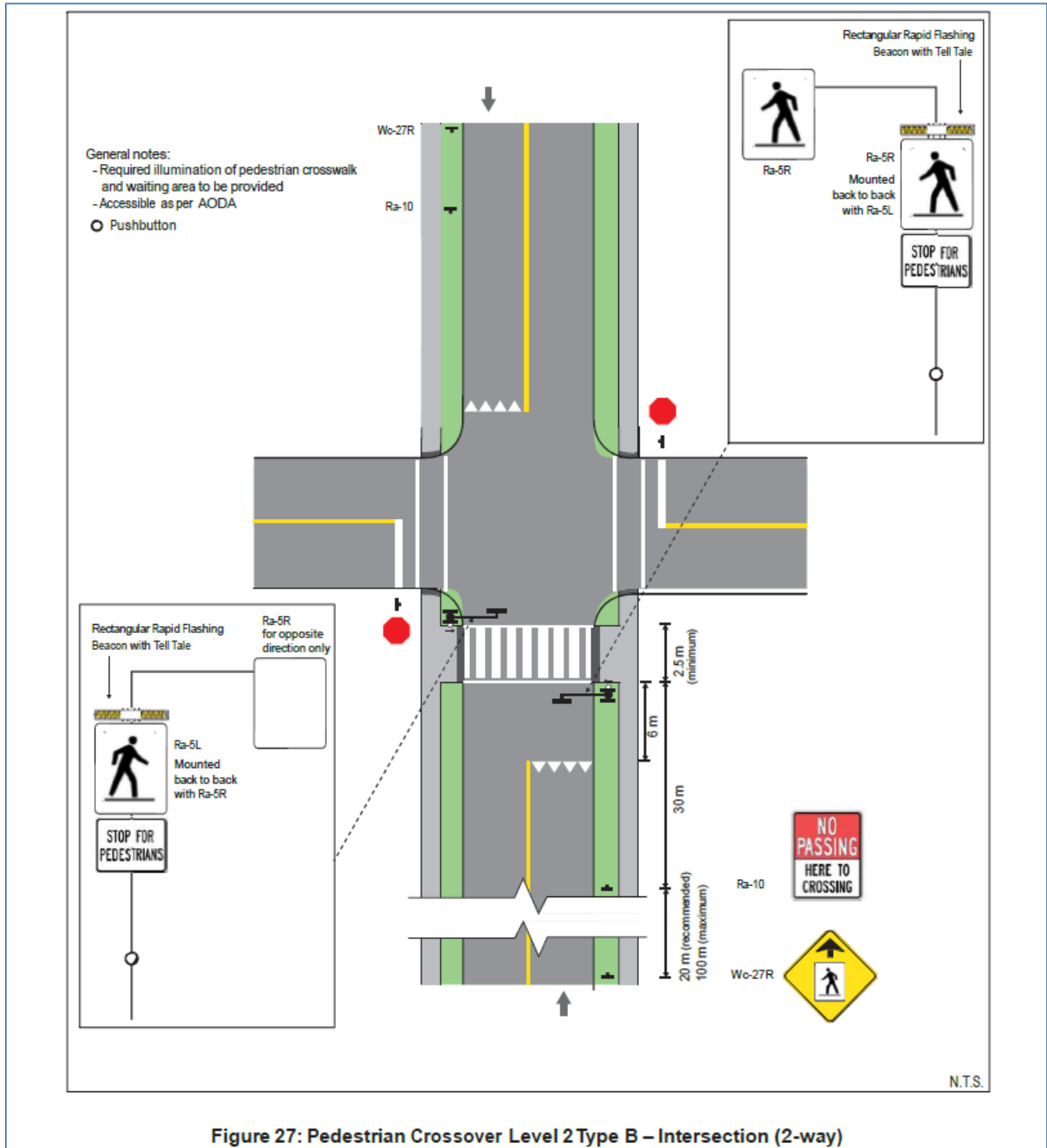
A summary of recommended improvement measures is shown in the table below:

Item	Estimated Cost	When
Raised crosswalk – elevate crossing to increase visibility, while still being accessible and maintainable	\$30,000 - \$40,000	2019
Removal of on-street parking stalls within 10m of intersection	\$3,000 - \$5,000	2018
Conversion to PXO	\$5,000 - \$12,000	2018

Parking stall removal and PXO conversion can begin in 2018, provided budget can be reallocated accordingly. In consultation with the CAO and the Treasurer, this approach is feasible, especially in reviewing the red and blue circled projects for 2018. As this is an ongoing safety concern, Public Works would also recommend re-allocating 2018 funds from another approved roads project if needed, if red or blue circled funds could not be reallocated to this project.

The raised crosswalk could be considered in the 2019 budget request, as a second phase of safety measures.

An illustration of the target PXO design is shown below, provided by the Region of Niagara, based on Ministry of Transportation updated legislation.



The Challenge:

How might we improve pedestrian safety while crossing Pelham Street at Church Hill?

Our Recommended Solution:

That Committee of the Whole receive the Public Works report “Safer Pedestrian Crossing on Pelham Street” for information, and

That Committee of the Whole recommends Council approve the removal of select on-street parking stalls and PXO conversion from the existing PPS, in 2018.

Rationale:

Implementation of the recommended measures for safety align with the 2017 Strategic Plan Values, and with Goals 4 and 5.

Measure of Success:

Success of these improvements could be measured through PATC endorsement, reports of near-misses.

Milestones:

Approval of measures by Council, Approval in 2018 or 2019 Capital budget, Completion of Construction project.