

August 24, 2016

**DEVELOPMENT & INFRASTRUCTURE SERVICES REPORT
ENGINEERING SERVICES 2016-36**

TO: Mayor and Members of Council

SUBJECT: Water Street Crossing – Update #4
File No.: T.08 T.30 Water

ORIGIN: Director, Engineering Services

RECOMMENDATION

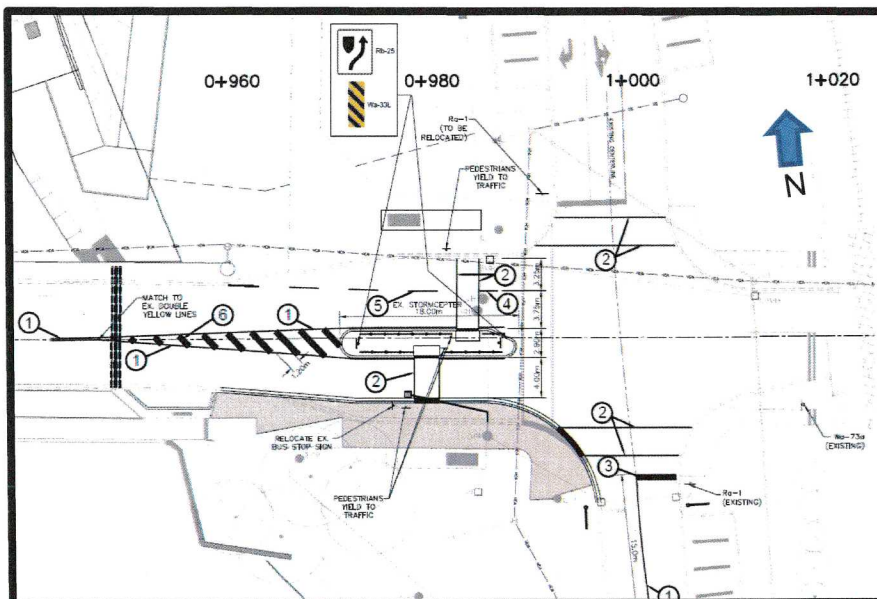
THAT Development and Infrastructure Services Report – Engineering Services 2016-36 dated August 24, 2016, regarding Water Street Crossing – Update #4 be received.

BACKGROUND

In June 2016, Development and Infrastructure Services Information Report ES 2016-29 outlined available information regarding the Water Street Pedestrian Refuge Island, specifically estimated cost, proposed design, and the safety audit review.

The purpose of this Report is to provide an update on the construction cost and timing, public information centre results, and next steps highlighting the eastbound left turn issue.

COMMENTS



The figure above illustrates the final design of the pedestrian refuge island. The Town contracted IBI Group to undertake a safety audit of the design; recommendations stemming from that review were outlined in the June 2016 Information Report 2016-29 as Water Street Update #3. There are still two outstanding items that will need to be reviewed.

The safety audit noted that the streetlighting may not be well positioned to provide an adequate level of lighting. This issue is being addressed with the design team and Newmarket Hydro. This does not come under the current contract, and usually is best designed and implemented after the pedestrian island is constructed to ensure the proper illumination in the appropriate locations.

The second issue concerns the left turn restrictions. The safety audit suggested implementing AM and PM peak hour/peak period eastbound left turn restrictions to mitigate any queue lengths that may occur.







In the Update #3 Information Report, it is stated:

“Engineering staff would consider the peak period left-turn restrictions as a preferred alternative to a full restriction or an unrestricted left-turn movement. This movement will be monitored post-construction, as well as the traffic flow around the island and pedestrian crossings to determine if adjustments are required.”

Based on the safety audit, Engineering Services would prefer to implement peak period only restrictions, if necessary. The traffic volumes in the safety audit report reflect conditions concurrent with vivaNext Davis Drive construction traffic diverted onto Gorham Street, Eagle Street and Water Street. The quick, dramatic and fluctuating volumes can easily congest Water Street, and the volumes would indicate a ‘worst case’ scenario as opposed to the typical traffic flows. Engineering Services is planning on undertaking full traffic counts for weekday and weekend conditions in the area post-construction of the refuge island before any determination of turn restrictions is presented to Town Council.

However, to illustrate the information used to date, the following provides some indication of the data that would go into determining the turn restrictions.

The following table illustrates the eastbound left turn and through volumes on Water Street at Main Street, Doug Duncan Drive and Prospect Street. Unbracketed numbers represent the AM peak hour volumes, and bracketed numbers are for the PM peak hour.

	Main Street			Doug Duncan Drive			Prospect Street		
	(125)	101		(25)	46		(56)	46	
	(450)	430		(650)	531		(382)	370	
Left Turn	30m			15m			25m		
Storage	4 cars			2 cars			3 cars		

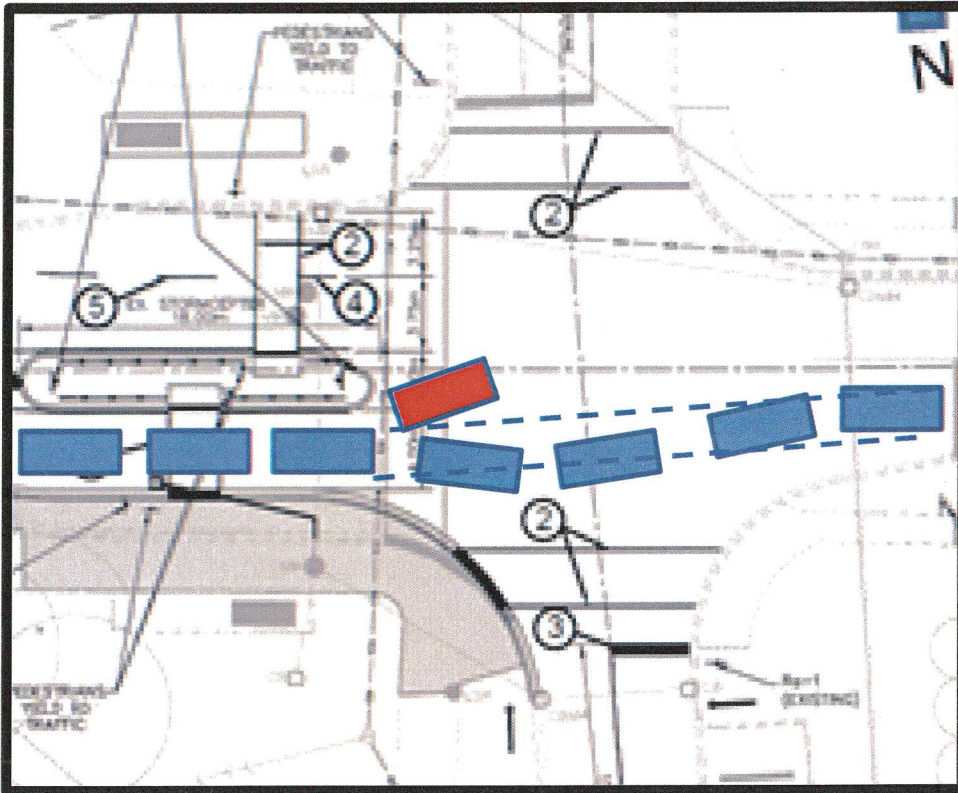
If the AM and PM volumes at Doug Duncan Drive were restricted, they would divert either to Main Street or Prospect Street, depending on destination. Based on the safety audit review and volumes, the PM peak hour would be the highest in terms of overall volumes, and the analysis indicates that, if required, the full additional left turn volume could be accommodated at Main Street, given the volume-capacity ratio and the 95th percentile queue length. However, the full diversion of left turn vehicles to Prospect Street would begin to make the left turn movement there close to capacity in terms of volume-capacity ratio, but moreover, the storage length may not be sufficient. If this becomes an issue, then adjusting the green times at the Water/Prospect intersection with the assistance of York Region can mitigate this potential impact. Realistically, if the left turns were restricted at Doug Duncan Drive, some would divert to each of these alternate intersections spread between them.

If the left turning movement was not restricted, then the issue to review would be the queue from left turning vehicles. The illustration below shows a vehicle stopped to turn left at Doug Duncan Drive and the approximate distance to the Main/Water intersection of 90 metres, or about 15 cars.



If there were a left turning vehicle every minute on average (i.e., up to 60 turning vehicles per hour) at Doug Duncan Drive, then the queuing back would be about 11 vehicles based on the 650 peak hour volume, as noted above. Given the peaking characteristics of traffic flow, there is sufficient length to accommodate this queue at most times. Additionally, if queuing back from Prospect Street becomes heavy at times the signal timing at the Prospect Street intersection could be adjusted to provide more green time for east-west traffic.

The other item to consider is that a vehicle can begin to make the turn and wait within the intersection since the pedestrian island is about 3 metres wide. Eastbound vehicles have the opportunity of deflecting south and then swinging back into the eastbound lanes prior to the railway tracks. This probable maneuvering would mitigate some if not most of the queuing potential from left turning vehicles. This can be verified during site observations as to the effectiveness.



The weekend restriction issue would be harder to determine since events at Riverwalk Common and the occasional closure of Timothy Street between Cedar Street and Doug Duncan Drive would have a different traffic pattern from the typical weekday traffic volumes. Also, through traffic volumes on Saturday and Sunday are generally lower on the primary collector roads like Water Street since the weekday commute and school-related traffic is not present.

In summary, updating traffic data and field observations once the pedestrian refuge island is completed would better inform the nature of turn restrictions, if any are required at all. It must be kept in mind that the pedestrian refuge island has been requested and designed to improve pedestrian safety first and foremost. Impacts on motorists will be mitigated to the greatest extent practical. Traffic flows around the refuge island and pedestrian traffic across the island will be a key determining factor of any mitigating solutions.

PUBLIC CONSULTATION

A public information centre (PIC) was held at the Riverwalk Commons Community Centre on July 5, 2016, from 5:00 p.m. to 8:00 p.m. At the PIC, staff and the consultant communicated detailed aspects of the design of the proposed island, as well as important elements of IBI Group's safety review. Twelve residents signed the attendance sheet. Mayor Van Bynen and Regional Councillor Taylor also visited, and six (6) staff and one consultant staff were present. Seven (7) PIC comments from residents were received by staff. Six of seven comments demonstrated overwhelming support of the proposed island construction. Excerpts from these comments are as follows:

1. *'I think the pedestrian island is a great idea. It is time that we did something.'*
2. *'....I appreciate I will be able to cross from Fairy Lake to Riverwalk without taking my life into my hands....'*

3. *'....I understand the design's details now....Good design for a difficult problem.'*
4. *'Impressed with design and obvious safety improvements for pedestrians...'*
5. *'....should keep pedestrians safe....'*
6. *'...with...Riverwalk, the growth of Main Street, and...special events...around Fairy Lake, there has been a huge influx of people...Having this pedestrian island will make crossing to either side more manageable.'*

The seventh comment sheet suggested an on-demand button with stop lights. However, in a response back to this suggestion, it was stated that Metrolinx will not allow a (signalized) half pedestrian crossing in the subject location, which is in their area of jurisdiction. Staff also explained that the Town's third party safety review consultant concluded that removing the right-turn lane (existing bus bay) into Fairy Lake and constructing the island would substantially shorten the distance which pedestrians would need to cross, creating a much safer condition than exists today.

As detailed in Engineering Services Report 2016-29 ES, Transportation staff were required to consider PIC comments when producing the final, construction tender design. Staff accepted all of the positive comments as confirmation that these respondents were in favour of the construction of the island.

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.

HUMAN RESOURCE CONSIDERATIONS

No impact on current staffing levels.

IMPACT ON BUDGET

Operating Budget (Current and Future)

Operation and maintenance of the pedestrian refuge island will be part of the budget for road maintenance. Any additional maintenance of features (planting bed for example) will need to be determined based on final design.

Capital Budget

Construction costs were estimated at \$150,000, inclusive of all consulting fees. These costs did not include any additional streetscaping elements or alteration of the island to incorporate any public art. The successful bid for construction of the island was Crownwood Construction Ltd. The contractor's bid was \$161,578.00, not including contingencies and consulting fees.

The bid was higher than anticipated due in part to the Town's requirement that the project be constructed and completed in a timely manner this Fall.

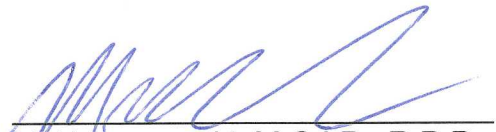
There is sufficient budget in the 2016 Capital Budget for construction and contract administration of the pedestrian island.

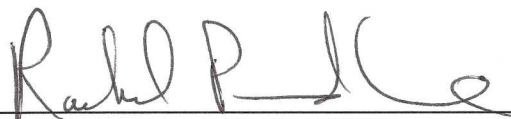
CONTACT

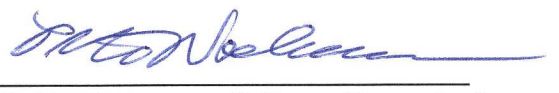
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