

File 321806

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Re: 388/392 West Street North, City of Orillia
Site Access - Response to City Comments

Dear Jeremy:

We have reviewed the City's comments with respect to the proposed access provision for the 388/392 West Street North residential development. While the City provided various comments regarding the traffic impact brief submitted in support of the development, this response letter focuses on the comments concerning the proposed access provision as they relate to Sections 6.1.4.1.d.ii and 6.1.4.2.b.iv of the City's *Official Plan*.

OFFICIAL PLAN – ARTERIAL ROADS

The City has requested justification for the provision of 3 access points on West Street North in context of the intent and function of an arterial road, as described in the *Official Plan*. The relevant sections of the *Official Plan*, as identified by City staff, are as follows:

Section 6.1.4.1.d.ii – Roads, General Policies

- *Arterial Roads are primarily transportation facilities, providing through routes for vehicles, pedestrians and cyclists from across the City. Access to property can be permitted although the number, design and location of access points will be controlled so that the service to adjacent land does not detract from the primary function of moving the various modes of transportation.*
- *Arterial Roads will generally limit private land access to existing lots, and commercial and industrial uses, with new residential access permitted only where traffic movement, volume, speed and safety are not compromised, no alternative local or collector road access is available and the entrance criteria of the City are met.*

Section 6.1.4.2.b.iv – Roads, Design Policies for Roads – Arterial & Collector Roads

- *direct access to any development site shall be limited to minimize disruptions to traffic flow and to maximize safety and the attractiveness of the road.*

ACCESS JUSTIFICATION

The noted sections of the *Official Plan* are intended to guide and control access to arterial roads so as to ensure any permitted access does not detract from the primary function of the road (conveyance of through traffic) or disrupt/compromise traffic flow, capacity, speed or safety. As noted in the *388 & 392 West Street North Traffic Impact Brief*, and further summarized below, the proposed development is a low volume trip generator that will not have any material impact to the function or operation of West Street North.

Trip Generation

As per the *388 & 392 West Street North Traffic Impact Brief*, the proposed is expected to generate in the order of 20 peak hour trips or less. This level of trip generation is considered low and not such that would otherwise impact the traffic operations of the adjacent road network. Guidance provided by the Institute of Transportation Engineers (ITE) suggests that peak hour trip generation of less than 100 trips is unlikely to impact road network operations to any significant degree. As such, the development is not expected to have any material impact to the operations of West Street North, regardless of the number of access points provided.

Traffic Flow/Capacity

It is acknowledged that increased access density can impact the traffic flow and capacity of a road segment, particularly where several high-volume access points or road connections are located in close proximity to one another. In this respect, access control is recognized as an important tool in preserving the intended function of an arterial road. Having said that, it is noted that the proposed access provision for 388 and 392 West Street North does not introduce high-volume access points that would otherwise be a concern on an arterial road. As per the submitted traffic impact brief, the individual turning movements at the site access points will not surpass 5 vehicles during the peak hour periods. Given the existing 3-lane configuration of West Street North (1 lane per direction with a continuous two-way left turn lane), the inbound left turn volumes, which are considered the most disruptive movement on a road segment in that left turning vehicles can impede through volumes, are removed from through traffic and thus have no impact on the traffic flow or capacity of the road. Inbound right turn movements are considered free flow movements and are not considered as an impediment to through traffic until the turning movements exceed 60 vehicles per hour (by comparison, the site will generate right turn volumes of 4 vehicles per hour or less).

It is noted that the proposed provision of 3 access points will not impact the traffic flow or capacity operations along West Street North. Given the low trip generation of the site, there will be no material impact to the operations along West Street North or its function as an arterial road whether access to the site be provided via a single access point or 3 access points.

Speed

West Street North has a posted speed limit of 50 km/h, with a reduced limit of 40 km/h in effect during school start and end times. As such, West Street North is considered a low-speed arterial road. The implementation



of the proposed access points to the subject site, which as previously described will be very low volumes access points, will not have any impact to the operating speeds along West Street North.

Access Function

It is acknowledged that the internal roads serving the site are considered as private condominium roads; however, given the size of the development and limited trips to be generated, the private condominium roads will for all intents and purposes function as low volume driveways. It is noted that the volumes accessing the site at each driveway will be far less than a typical commercial access. In this respect, the access points can appropriately be considered as driveways rather than roads; and design guidelines applicable to driveways/access points referenced as opposed to guidelines specific to typical road connection.

Design and Separation

The Transportation Association of Canada (TAC) guidelines recommend a minimum intersection spacing in the order of 40 metres to 60 metres along local and collector roads and 200 metres along arterial roads (*TAC GDGCR Section 9.4.2*); however, these guidelines are applicable to typical road intersections where volumes on the side street are much greater volumes than those to be generated by the subject site (where arterial roads are concerned, the increased separation considers signalized intersections). As previously noted, the volumes at the subject access points will be reflective of a low volume residential or commercial access. While technically described as condominium roads, they will function as private access points. In this respect, the TAC driveway spacing guidelines are considered more appropriate (*TAC Figure 8.9.2*). As identified in the traffic impact brief, each access will provide adequate separation from one another (approximately 30 metres between each access) and from the nearest adjacent access points to the north and south when considering the driveway spacing guidelines. It is further noted that TAC suggests that a property with frontage between 51 metres and 150 metres can accommodate a maximum of 3 access points. The subject site has a frontage of approximately 75 metres.

With respect to spacing considerations for access points on the opposite side of the road, TAC guidelines do not identify a minimum separation; however, the guidelines do note that moderate to high volume access points should be located so as to avoid inbound overlapping left turn movements. For low volume driveways, TAC states that access separation does not impact traffic operations and thus is not a necessary design consideration. As such, the review of opposing driveways has been limited to the location of the proposed north access in relation to the existing access to 401 West Street North (Westview Place Apartments), and the location of the proposed south access in relation to the existing entrance only access to Orchard Park Public School. As per TAC guidelines, the location of the subject driveways in relation to the opposing residential driveways (i.e. low volume driveways) is inconsequential.

The north access will be located approximately 1.5 metre north of the access to 401 West Street North (measured centre of access to centre of access) whereas the south access will be located approximately 0.5 metres north of the Orchard Park Public School access. In context of inbound left turn movements, the proposed offset at each access is such that prevents overlapping (as illustrated in Figure 1).



In consideration of the above, the proposed access locations are considered acceptable.

Access Operations

As indicated in the *388 & 392 West Street North Traffic Impact Brief*, the subject access points are expected to provide excellent operations with minimal delay. Thus, the proposed development will not have any material impact on the adjacent road network, including the intended function of West Street North as an arterial road.

With respect to the interaction of the ingress/egress movements between the adjacent access points, it is noted that the separation is sufficient so as to mitigate potential conflict between adjacent inbound and outbound movements. To illustrate this, the queue lengths for the inbound left turn movement from West Street North to the site at each access have been reviewed using *SimTraffic* (the simulation software that accompanies the Synchro traffic modelling package). The assessment considers the average results from five 60-minute simulation runs in *SimTraffic* (as recommended by the software developer), as expressed in metres (and based on typical vehicle lengths). The 95th percentile queue length refers to the queue length that accommodates 95% of the observed queues (i.e. queue lengths will exceed the reported length only 5% of the time). Based on the *SimTraffic* queuing assessment, the 95th percentile queue lengths for the inbound left turn movements are in the order of 1.7 to 4.0 metres with a maximum queue length of 5.4 metres. For reference purposes, the length of a passenger car (as per TAC design templates) is 5.6 metres, whereas in *SimTraffic*, a vehicle length of 6.0 metres is considered (which allows for the length of the car plus the gap between consecutive vehicles). Thus, the inbound queue lengths will be less than one car length. A queue length of less than one car length is reflective of the low volumes accessing the site during the peak hour and further indicates that the vehicles completing the inbound left turn movement will rarely experience a stopped condition. The *SimTraffic* queuing reports are attached in Appendix A.

In considering the above, a vehicle completing an exiting left turn from the site will not be encumbered by queueing vehicles at the adjacent access points.

Pedestrians

The separation between the proposed access points will provide sufficient refuge for pedestrians crossing the frontage of the site. It is recommended that the sidewalks be carried through the access points (similar to a commercial access or residential driveway) to ensure motorists recognize the presence and priority of pedestrians in the area.

Existing Level of Access

The proposed access provision is consistent with the level of access along West Street North, particularly to the south of the subject site where there are numerous driveways on both sides of the road, including a number of consecutive driveways in close proximity associated with detached residential units.



Justification Statement

Based on the proposed size of the development and associated trip generation, and in consideration of the proposed access design, anticipated operations and existing configuration and capacity of West Street North, the proposed development, regardless of the number of access points provided, will not compromise the intended function of West Street North as an arterial road. Furthermore, the access separation as proposed will allow each access to operate without impacting the adjacent access (i.e. outbound movements will not conflict with adjacent inbound movements). As such, the provision of 3 access points as proposed is considered acceptable and consistent with TAC guidelines.

SUMMARY

As noted herein, and further detailed in the *388 & 392 West Street North Traffic Impact Brief*, the proposed development is a low volume development that will not have any measurable impact on the adjacent road network. The proposed development, regardless of the number of access points provided, will not compromise the intended function of West Street North as an arterial road.

We trust that the above adequately addresses the City’s comments regarding the proposed access provision. Should you have any questions, please do not hesitate to contact us directly to further discuss.

Yours truly,

Tatham Engineering Limited



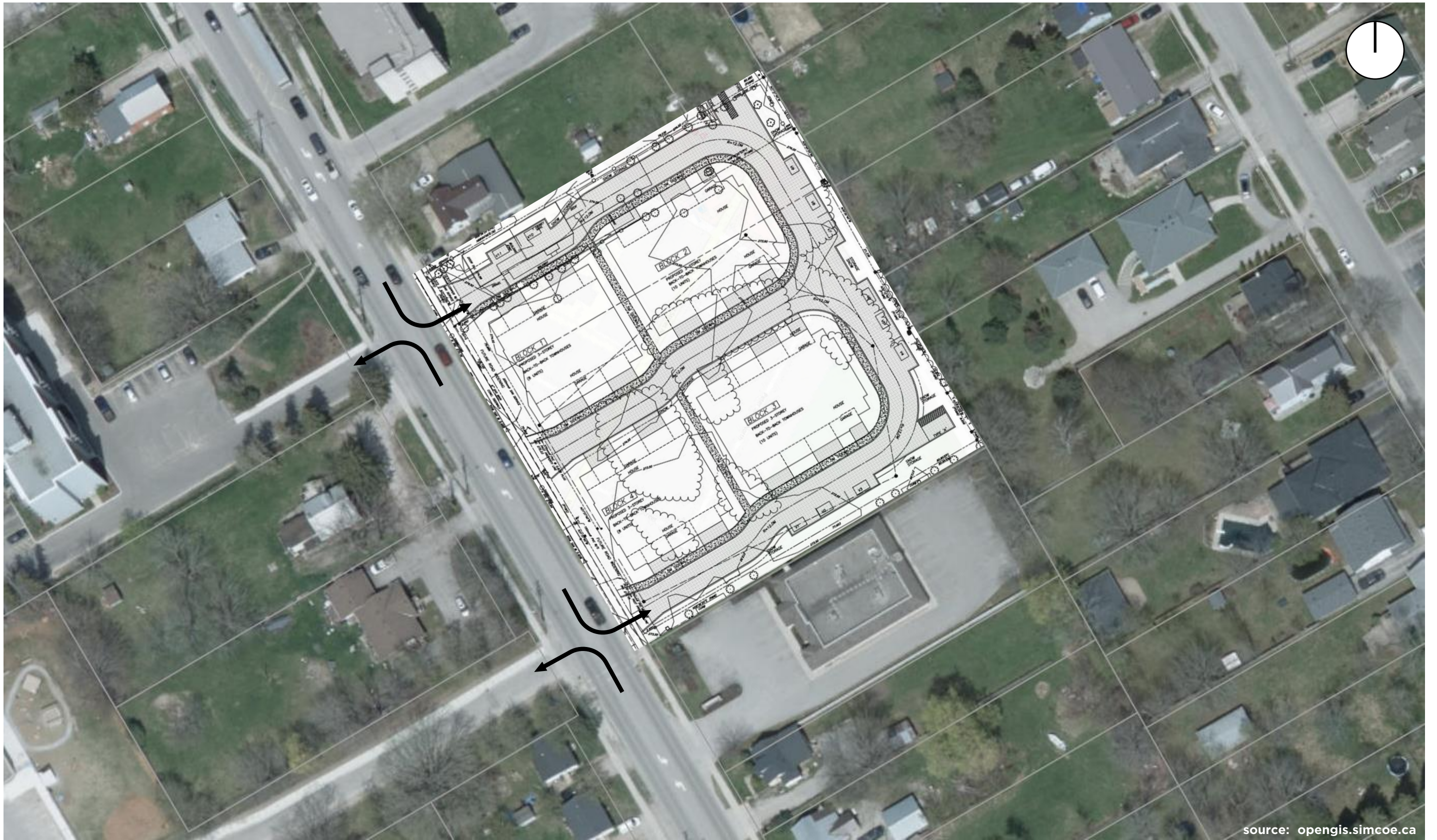
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source: opengis.simcoe.ca

388 & 392 West Street North

Figure 1: Opposing Left Turn Movements



Appendix A: Queue Report

Intersection: 3: West Street North & Access 3

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (m)	8.7	1.7
Average Queue (m)	0.4	0.1
95th Queue (m)	3.5	1.2
Link Distance (m)	33.4	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		10.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 5: Access 2 & West Street North

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (m)	8.2	5.4
Average Queue (m)	1.0	0.5
95th Queue (m)	5.3	4.0
Link Distance (m)	20.6	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		10.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		1

Intersection: 7: West Street North & Access 1

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (m)	8.7	3.6
Average Queue (m)	0.3	0.1
95th Queue (m)	3.1	1.8
Link Distance (m)	26.1	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		10.0
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Network Summary

Network wide Queuing Penalty: 2