



22 November 2013

OUR REF: TO3077TOX

Brigil Construction
98 Rue Lois
Gatineau, QC J8Y 3R7

Attention: Michel Gagnon, P.Eng., MBA
Development Manager

Dear: Sir:

Re: 2940 and 2946 Baseline Road
Community Transportation Study: Addendum #2

Related to the above-noted proposed development project, Delcan has prepared a Community Transportation Study (CTS) dated 09 July 2012 and an Addendum dated 30 September 2013. Following review of the CTS Addendum, the City provided a number of transportation-related comments in an email from Wally Dubyk dated 13 November 2013. This Addendum #2 herein addresses these comments as follows with the comments listed first, followed by the response in italics.

1. Traffic Signals

Comment 1: Before excavating please call 613-797-8534 for underground locates.

Response 1: *Proponent has been advised.*

Comment 2: There are existing underground traffic plants in the area of proposed construction. Underground traffic plant and traffic signal hardware is to be maintained and protected at all times during construction. Please keep a minimum distance of 1 m from all existing traffic plants.

Response 2: *Proponent has been advised.*

Comment 3: The proponent of the project and its contractor are liable for all potential outages and fully responsible for reinstatement of all damages to existing underground traffic infrastructure and the costs associated with its reinstatement.

Response 3: *Proponent has been advised.*

2. Street Lighting

Comment 4: If there are any proposed changes to the existing roadway geometry, the City of Ottawa Streetlight Asset Management Group is required to provide a full streetlight design. Upon completion of proposed roadway geometry design changes, please submit digital Micro Station drawings with proposed roadway geometry changes to the Street Lighting Department,

so that we may proceed with the detailed streetlight design and coordination with the Streetlight maintenance provider and all necessary parties. Be advised that the applicant will be 100% responsible for all costs associated with any Streetlight design as a result of the roadway geometry change.

Response 4: *Proponent has been advised.*

Comment 5: Alterations and/or repairs are required where the existing streetlight plant is directly, indirectly or adversely affected by the scope of work under this circulation, due to the proposed road reconstruction process. All streetlight plant alterations and/or repairs must be performed by the City of Ottawa's Streetlight maintenance provider.

Response 5: *Proponent has been advised.*

Comment 6: Be advised that the applicant will be 100% responsible for all costs associated with any relocations/ modifications to the existing streetlight plant.

Response 6: *Proponent has been advised.*

3. Design Review and Implementation

Comment 7: Although the new location for the northerly access on Sandcastle Drive is an improvement over the current location of the access, the site is redeveloping and will generate a significant increase in peak period traffic flow in and out of the site. The combination of a substandard throat length, inadequate distance from Baseline Road and the lack of a southbound left turn lane increase the risk of collisions at the northern Sandcastle Drive access. Delcan is suggesting that the two NB lanes will be used equally by left turning vehicles at the Baseline Road and Sandcastle Drive intersection; however, there was no discussion of the impact of the RT vehicles on this assumption or inclusion of the RT volume in the Synchro PM analysis. Therefore, the response that the 95% queue can be accommodated in the storage area of the proposed 2 NB lanes between the new northerly access and Baseline Road is inaccurate. Subsequently, it is recommended that this access be relocated further south.

Response 7: *An error was made in the SYNCHRO analysis for the projected afternoon peak hour traffic conditions. The intent of the two northbound approach lanes to Baseline Road is one for left turns only and one for right turns. This is what was modelled/assessed for the morning peak hour. Unfortunately, for the afternoon peak hour, a single shared lane was modelled for left and right turning vehicles. The revised SYNCHRO analysis is attached, with the key findings being:*

	AM Peak Hour	PM Peak Hour
<i>Intersection LoS (v/c)</i>	<i>0.67('B')</i>	<i>0.55('A')</i>
<i>Critical movement LoS (v/c)</i>	<i>WBL 0.90('D')</i>	<i>WBL 0.64('B')</i>
<i>95th %ile westbound left queue</i>	<i>58 m</i>	<i>61 m</i>
<i>95th %ile northbound queue</i>	<i>21 m</i>	<i>46 m</i>

The off-set distance between the northbound STOP bar at the Baseline intersection and the proposed northerly site driveway connection is approximately 40 m. Therefore, during the morning peak hour the 95th %ile maximum northbound queue of 21 m is of no concern. During the afternoon peak hour, the 50th %ile northbound queue is 33 m and the 95th %ile northbound queue is 46 m, or approximately 1 car length beyond the available 40 m. For this afternoon peak hour scenario, there is the potential that for the few seconds at the end of a long red phase that the last vehicle in the northbound queue may block a southbound vehicle wanting to turn left into the site. If the last vehicle in the queue leaves a gap, as the majority of drivers do in these circumstances, then the southbound left-turning vehicle can advance into the site causing no delay to southbound through traffic. There is the potential, however, that there could be peaking within the afternoon peak hour such that periodically the northbound queues could be longer than 40 m, gaps are not left for southbound traffic flow, and southbound queues could develop quickly that could affect the operation of the Baseline/Sandcastle intersection. If this circumstance were to occur with any regularity, the appropriate solution is to widen Sandcastle by up to 4 m for a length of 40 m (plus taper) to provide two southbound lanes between the Baseline intersection and the first driveway into the site (in addition to two northbound lanes totaling 13.5 m in width). If the City and proponent were to agree to this widening/modification, the appropriate RMA drawing package can be prepared.

With regard to the suggestion of moving the site's proposed north driveway connection further south, this is not feasible/practical as the existing commercial building, which is to be retained, would prevent the relocated connection from penetrating the site and efficiently/effectively serving any of the proposed on-site parking. If this connection is to be provided, it is at the location proposed, which is approximately 15 m further south from the Baseline intersection than the existing driveway location.

Comment 8: In addition to the 2 NB lanes on Sandcastle Drive between the northerly access and Baseline Road, it is recommended that 2 SB lanes be provided as well. The EB LT volume on Baseline Road at Sandcastle Drive is projected for 2020 to be 300 vph in the PM peak which requires development of a double LT lane. (This volume should actually be

projected to 2025 as required by the TIA Guidelines regardless of Delcan's views on the issue.) The development of the double LT lane on Baseline Road will require the provision of 2 SB lanes on Sandcastle Drive. Considering that the development projects an additional 131 vehicles making the EB LT on Baseline Road following Phase 2, provision should be made for this increase on Sandcastle Drive.

Response 8: *The projected westbound left-turn volume of 300 vph on Baseline at Sandcastle does not require a double left-turn lane. The intersection and movement are projected to operate at acceptable levels of service during both peak periods (see attached SYNCHRO summary) and the 95th percentile queues are projected to be 58 m and 61 m respectively. As the available length of westbound left-turn lane is approximately 150 m, there is no need for a double left-turn lane.*

With regard to the "horizon year" whether it is 2020 or 2025 has no bearing on the projected westbound left-turns. As there is no other planned infill/development south along Sandcastle or the connecting streets, and as full build-out of the subject site has been accounted for, the projected 300 vph westbound left-turners are valid for both time periods.

Comment 9: As a minimum, 2 SB and 2 NB lanes should be accommodated on Sandcastle Drive between Baseline Road and the first access. The SB lanes need to be designed appropriately to drop the lane and the northbound lanes on Sandcastle Drive would have to accommodate the projected NB LT and RT volumes. Without this provision, queuing of southbound left turning vehicles into Baseline Road/Sandcastle Drive may result in a re-evaluation of the northern Sandcastle Drive access - which may lead to closure of the access.

Response 9: *This proposed measure/widening would eliminate any potential queuing issues on Sandcastle, would ensure that the Baseline/Sandcastle intersection would be unaffected by the increased site traffic generation, and would enable the proposed site driveway connection to remain where shown.*

Comment 10: Sandcastle Drive is designated as a Collector road within the City's Official Plan with a ROW protection of 24.0 metres. The ROW limits are to be shown on all the drawings and the offset distance (12.0 metres) to be dimensioned from the existing centerline of pavement.

Response 10: *The proponent has been advised.*

Comment 11: Baseline Road is designated as an Arterial road within the City's Official Plan with a ROW protection of 44.5 metres. The ROW limits are to be shown on all the drawings and the offset distance (22.25 metres) to be dimensioned from the existing centerline of pavement.

Response 11: *The proponent has been advised.*

Comment 12: Land for a road widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of the widening if required by the City. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.

Response 12: *The proponent has been advised.*

Comment 13: With the next submission, please provide plans that show all the pavement markings on Baseline Road and Sandcastle Drive. As well, it appears that the turning movements for heavy vehicles are not sufficiently provided for in the Baseline Road access.

Response 13: *The proponent/architect have been advised.*

Comment 14: Corner sight triangle of 5.0 metres x 5.0 metres is required at the intersection of Baseline Road and Sandcastle Drive.

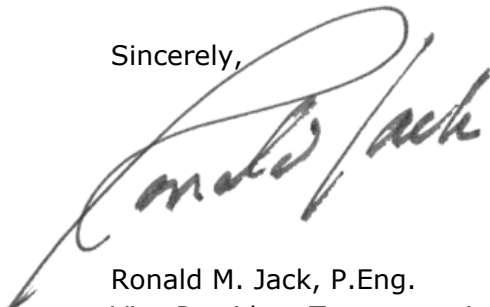
Response 14: *The proponent/architect have been advised.*

Comment 15: Relocating an existing roadway curbing by 30 cm will require a RMA report and approval by the delegated authority. Please confirm if you are triggering an RMA.

Response 15: *The proponent has been advised.*

Please call if you have any questions of the foregoing.

Sincerely,



Ronald M. Jack, P.Eng.
Vice President Transportation
Manager Ottawa Operations

Attachments



Projected 2020 AM
3: Sandcastle & Baseline

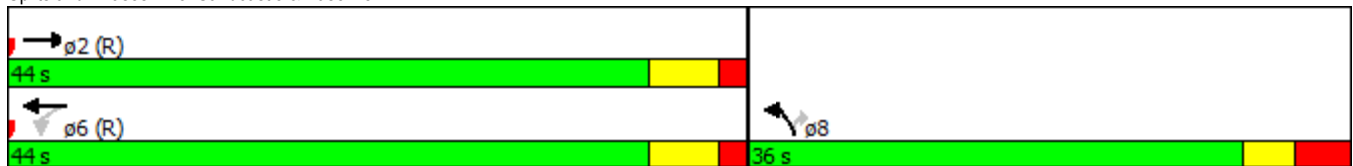


Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Volume (vph)	1492	114	502	65	104
Lane Group Flow (vph)	1635	120	528	68	109
Turn Type	NA	Perm	NA	NA	Perm
Protected Phases	2		6	8	
Permitted Phases		6			8
Detector Phase	2	6	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.9	22.9	22.9	35.5	35.5
Total Split (s)	44.0	44.0	44.0	36.0	36.0
Total Split (%)	55.0%	55.0%	55.0%	45.0%	45.0%
Yellow Time (s)	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	1.7	1.7	1.7	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	6.5	6.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	57.7	57.7	57.7	14.4	14.4
Actuated g/C Ratio	0.72	0.72	0.72	0.18	0.18
v/c Ratio	0.67	0.90	0.22	0.22	0.39
Control Delay	8.0	75.1	3.0	27.2	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	75.1	3.0	27.2	27.8
LOS	A	E	A	C	C
Approach Delay	8.0		16.4	27.5	
Approach LOS	A		B	C	
Queue Length 50th (m)	30.3	11.0	10.6	9.5	13.9
Queue Length 95th (m)	#185.2	#57.5	20.5	14.8	20.7
Internal Link Dist (m)	413.1		132.4	23.5	
Turn Bay Length (m)		70.0			
Base Capacity (vph)	2429	134	2443	625	559
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.67	0.90	0.22	0.11	0.19

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 69 (86%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 11.6
 Intersection Capacity Utilization 78.0%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Sandcastle & Baseline



Projected 2020 PM
3: Sandcastle & Baseline



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↕↕	↖	↕↕	↖	↖
Volume (vph)	751	300	1069	170	161
Lane Group Flow (vph)	832	316	1125	179	169
Turn Type	NA	pm+pt	NA	NA	Perm
Protected Phases	2	1	6	8	
Permitted Phases		6			8
Detector Phase	2	1	6	8	8
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.9	16.2	22.9	35.5	35.5
Total Split (s)	37.0	27.0	64.0	36.0	36.0
Total Split (%)	37.0%	27.0%	64.0%	36.0%	36.0%
Yellow Time (s)	4.2	4.2	4.2	3.0	3.0
All-Red Time (s)	1.7	1.7	1.7	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	6.5	6.5
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	None	None
Act Effct Green (s)	48.6	70.3	70.3	17.3	17.3
Actuated g/C Ratio	0.49	0.70	0.70	0.17	0.17
v/c Ratio	0.51	0.64	0.47	0.61	0.42
Control Delay	18.7	21.5	7.7	45.8	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	21.5	7.7	45.8	8.2
LOS	B	C	A	D	A
Approach Delay	18.7		10.8	27.5	
Approach LOS	B		B	C	
Queue Length 50th (m)	48.1	24.9	35.0	33.0	0.0
Queue Length 95th (m)	110.3	60.7	64.0	46.0	14.4
Internal Link Dist (m)	413.1		132.4	25.5	
Turn Bay Length (m)		70.0			
Base Capacity (vph)	1636	565	2381	500	560
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.56	0.47	0.36	0.30

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 57 (57%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 15.5
 Intersection Capacity Utilization 66.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 3: Sandcastle & Baseline

