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Technical Memorandum

To: Wally Dubyk C.E.T.(City of Ottawa)

Date: August 3, 2022

From: Jake Berube, P.Eng, Juan Lavin, E.I.T

Project: 478016-01000

Copy: Alex Turner, Development Manager

Subject: *989 Somerset Street Residential Development – Transportation Addendum No. 2*

1.0 Introduction

The following memo serves as a transportation addendum to the previously submitted Transportation Overview (August, 2014), Addendum No. 1 (September, 2014) and TIA Strategy Report (July, 2019) regarding the 989 Somerset Street Site Plan Application. This memo includes an update to the site plan and a response letter (Appendix A) to address City of Ottawa comments received from the previous Step 4 TIA Report (July 2019). Appendix B provides turning movements for waste vehicles. Appendix C provides for a revised MMLOS table per City comments.

2.0 Revised Site Plan

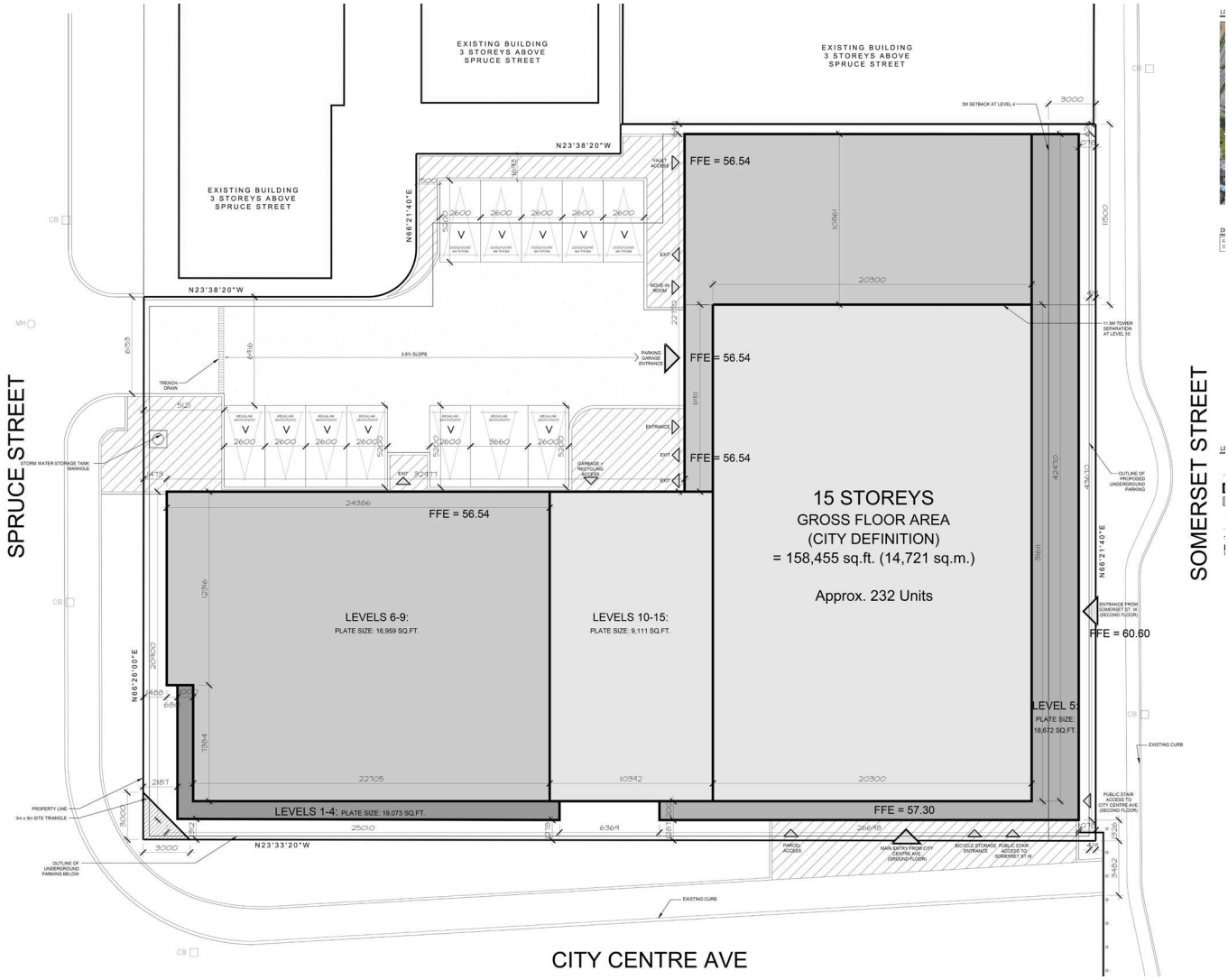
Table 1 compares the 2019 site plan statistics to the latest site plan prepared by Taggart (City Centre) Ltd, illustrated in **Figure 1** which has adopted a similar floor plate and the same maximum height.

Notable changes include an additional 91 bicycle stalls while reducing the overall tenant auto parking ratio to 0.65 stalls/unit. The revised site plan meets minimum and maximum City of Ottawa zoning parking requirements for both auto and bicycle stalls.

Table 1: Comparison of Site Statistics

INDEPENDENT VARIABLE	JUYL, 2019	AUGUST, 2022	NET DIFFERENCE
Residential Units Proposed	191	232	+ 41 units
Floors proposed	15	15	0
Residential parking spots proposed	163	151	- 12
Visitor parking spots proposed	15	24	+ 9
Bicycle parking spots proposed	98	189	+ 91

Figure 1: Site Plan– August 2022



3.0 Background Conditions

Since the previous TIA submission, Line 1 has become operational and the surrounding transit system has changed substantially. The following section presents the supporting transit network within the study area.

3.1 Update to Existing Transit Network

Latest transit data has been provided in the figure below with descriptions as follows:

- **Line 1 LRT (Blair <-> Tunney's Pasture)**: identified by OC Transpo as a "O-Train", this light rail transit route operates 7 days a week in all time periods. Line 1 is fully grade separated and provides rapid transit east to west via downtown Ottawa. The nearest LRT station is located at Bayview, approximately 550 meters from the site.
- **Line 2 LRT (Bayview <-> Greenboro)**: identified by OC Transpo as a "O-Train", this light rail transit route operates 7 days a week in all time periods. Line 2 is fully grade separated and provides rapid transit north to south. The nearest LRT station is located at Bayview, approximately 550 meters from the site. Note that this line is currently closed for construction purposes and is being temporarily replaced by bus service route R2 but is expected to be operational before this development's opening day.

- **Route #61 (Gatineau <-> Stittsville)**: identified by OC Transpo as a "Rapid Transit", this route operates 7 days a week in all time periods. Route #61 provides quick connection between the City of Gatineau in Quebec to Stittsville via the major east-west BRT Transitway. Bus stops for this route are available on both sides of Albert Street, approximately 350 to 450 meters from the site.
- **Route #63 (Gatineau <-> Briarbrook)**: identified by OC Transpo as a "Rapid Transit", this route operates 7 days a week in all time periods. Route #63 provides quick connection between the City of Gatineau in Quebec to Briarbrook via the major east-west BRT Transitway with connectivity to Innovation Center. Bus stops for this route are available on both sides of Albert Street, approximately 350 to 450 meters from the site.
- **Route #75 (Gatineau <-> Barrhaven Center)**: identified by OC Transpo as a "Rapid Transit", this route operates 7 days a week in all time periods. Route #75 provides quick connection between the City of Gatineau in Quebec to Barrhaven Center via the north-south BRT Transitway. Bus stops for this route are available on both sides of Albert Street, approximately 350 to 450 meters from the site.
- **Route #11 (Parliament <-> Bayshore)**: identified by OC Transpo as a "Frequent Route", this route operates at a frequency of every 15 minutes or less on weekdays and operates 7 days a week. Route #11 provides service on Somerset Street, Richmond Road and Bank Street. Bus stops for this route are available on both sides of Somerset Street W, approximately 150 meters from the site.
- **Route #85 (Gatineau <-> Bayshore)**: identified by OC Transpo as a "Frequent Route", this route operates at a frequency of every 15 minutes or less on weekdays and operates 7 days a week. Route #85 provides service on Preston Street and Carling Avenue. Bus stops for this route are available on both sides of Preston Street, approximately 160 to 200 meters from the site.
- **Route #16 (Main <-> Westboro)**: identified by OC Transpo as a "Local Route", this route operates on custom routing and schedules. Route #16 provides local service to parts of downtown and University of Ottawa. Bus stops for this route are available on both sides of Albert Street, approximately 350 to 450 meters from the site.
- **Route #66 (Gatineau <-> Kanata Solandt)**: identified by OC Transpo as a "Local Route", this route operates on custom routing and schedules. Route #66 provides local service to parts of Kanata via Bayshore Mall. Bus stops for this route are available on both sides of Albert Street, approximately 350 to 450 meters from the site.

Figure 2: OC Transpo System Network Map, August 2022

3.2 Existing Peak Hour Volumes

The existing traffic volumes as established by the July 2019 TIA Strategy Report are considered to remain a valid representation of existing conditions as traffic patterns were substantially disrupted due to the Covid -19 pandemic. Therefore, the background traffic and resulting analysis is considered to remain unchanged and the conclusions from the previous submission remain relevant.

4.0 Planned Conditions

4.1 Other Area Developments

Several site plan applications have been advanced in the previous years as illustrated by the numerical correlation in **Figure 2.** Within the figure, newly added other area developments have been illustrated in yellow shapes while still open previously noted developments have been illustrated in red shapes.

Figure 3: Updated Figure for Other Area Developments

The development applications numbered as 1, 2, 3, and 4 on the map remain unchanged (red shapes). The new developments, shown in yellow, include:

5. 967 Wellington: proposed 275-unit residential development with ground floor commercial. The TIA by CGH projects approximately 10 two-way trips in the AM peak and 15 two-way trips in the PM peak using Albert Street towards our study area intersection. This very modest increase in traffic is not anticipated to have any adverse effects on our intersection performance.
6. 56 Bayswater: proposed 40-unit residential development. No TIA was found; however, it is unlikely that many trips from this development will interact with our study intersection of Albert / City Centre given its location and size.
7. Gladstone Village: Gladstone Village proposes a plan of subdivision containing approximately 1,048 residential units as well as some commercial uses. Given that neither this site nor the Gladstone Village site provides access

to Somerset Street, it is unlikely that many trips from Gladstone Village will interact with our study intersection of Albert / City Centre.

8. 29 Balsam: proposed 23-unit residential development. It will replace existing units, causing a negligible increase in traffic.
9. Rochester Village: Rochester Village Phase 2 proposes mixed-use development containing approximately 270 residential units as well as some commercial uses. Given the distance between the sites, it is unlikely that many trips from Rochester Village will interact with our study intersection of Albert / City Centre.
10. 301 Lett: Part of Lebreton Flats East Phase 1, a proposed 25 and 30-storey mixed-use building consisting of 272 residential condominium units, 314 residential rental apartments, a 4,640 ft^2 daycare and 3,400 ft^2 ground floor retail. A TIA prepared by Novatech in January 2020 projected approximately 80 to 85 new two-way vehicular trips for the AM and PM peaks respectively. Of these trips in their TIA report, none were anticipated to use Albert Street west of Booth Street and to our study area intersection.
11. 665 Albert: Part of Lebreton Flats Library Parcel, a proposed 31 and 36-storey residential high-rise buildings with approximately 601 units. At the moment, only a scoping report is available within Devapps by the City of Ottawa, as the application is currently on-going.
12. 557 Wellington: City of Ottawa Central Library is currently under construction and assumed to be completed by 2023. A TIA prepared by Stantec in April 2018 projects approximately 6 and 17 vehicles two-ways on Albert Street west of Booth Street for the AM and PM peaks respectively. Given the very low number of trips projected to use our study area intersection and the very good existing intersection performance, it is anticipated that no changes to performance will occur.

No other relevant other area developments were noted within the former TIA or new applications which would impact future conditions. The impacts to Albert Street from the updated other area developments is minimal and no changes to the study area intersection are anticipated from recently commenced site plan applications. Therefore, projected background conditions are anticipated to be similar to those presented within the previous Strategy Report TIA.

5.0 Revised Trip Generation

The Trans Trip Generation Manual for the City of Ottawa (October, 2020) was referenced to develop new traffic generation forecasts for comparison to the previous submission.

Table 2 summarizes the new forecast trip generation based on 232 residential high-rise units and adopting the TOD-mode shares presented with the TIA Strategy Report. TOD mode shares were considered appropriate due to the site's proximity to the Bayview LRT Station (less than 600m) and transit along Somerset.

Table 3 provides a trip generation forecast assuming TRANS 2020 non-TOD-mode shares for the 'Ottawa Inner Area' and 232 residential high rise units.

Both tables adopted a multi-unit high rise person trip rates of 0.80 for the morning peak period and 0.90 for the afternoon peak period.

Table 2: 989 Somerset Trip Generation – TOD Mode Shares

TRAVEL MODE	MODE SHARE	AM PEAK (PERSON TRIPS/H)			MODE SHARE	PM PEAK (PERSON TRIPS/H)		
		IN	OUT	TOTAL		IN	OUT	TOTAL
Auto Driver	15%	5	10	15	15%	9	6	15
Auto Passenger	5%	2	3	5	5%	3	2	5
Transit	65%	20	45	65	65%	38	27	65
Cycling	5%	2	3	5	5%	3	2	5
Walking	10%	3	7	10	10%	6	4	10
Total Person Trips	**100%**	**32**	**68**	**100**	**100%**	**59**	**41**	**100**
Total 'New' Residential Auto Trips		**5**	**10**	**15**	**-**	**9**	**6**	**15**

Table 3: 989 Somerset Trip Generation – Non-TOD Mode Shares

TRAVEL MODE	MODE SHARE	AM PEAK (PERSON TRIPS/H)			MODE SHARE	PM PEAK (PERSON TRIPS/H)		
		IN	OUT	TOTAL		IN	OUT	TOTAL
Auto Driver	26%	8	18	26	25%	15	11	25
Auto Passenger	6%	2	4	6	8%	5	3	8
Transit	28%	9	20	29	21%	12	9	21
Cycling	5%	2	3	5	6%	4	2	6
Walking	34%	11	24	35	39%	22	17	42
Total Person Trips	**100%**	**31**	**69**	**100**	**100%**	**58**	**42**	**100**
Total 'New' Residential Auto Trips		**8**	**17**	**25**	-	**14**	**9**	**23**

The TIA Strategy Report projected approximately 20 AM and 20 PM peak hour vehicle trips in both directions.

In comparison, when adopting identical mode shares, the new TRANS 2020 methodology was found to generate approximate 15 auto trips in the peak hours, which is 5 less vehicle trips than previously documented. The non-TOD mode shares generate approximately 25 vehicles per hour two-way for the AM and PM peak hours which is negligibly greater than the previous methodology.

The new vehicle trip generation equates to approximately a single vehicle entering or leaving the site every 2 to 4 minutes. Given that the new trip generation is very similar to the former trip generation, then all previous transportation capacity and performance conclusions are still valid with no anticipated change.

6.0 Conclusion

With respect to changes that have occurred to background conditions, planned conditions and the proposed number of units, the findings and conclusions as presented within the Strategy Report TIA (July, 2019) remain unchanged. The increase in the number of units is anticipated to have a nominal impact on the surrounding transportation network.

The 989 Somerset Street West development application, from a transportation perspective, is recommended to proceed.

Sincerely;

Juan Lavin, E.I.T.
Traffic Analyst

Jake Berube, P.Eng.
Transportation Engineer

Appendix A

Response to City of Ottawa Comments

PARSONS

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3 August 2022

City of Ottawa
Development Review Services
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: Wally Dubyk, C.E.T

Dear Wally:

Re: 989 Somerset Street W
TIA Strategy report– Response to City Comments

The following section has City comments from the July 23, 2019 TIA Strategy Report submission noted in black font with the corresponding responses from Parsons in Green font.

TRANSPORTATION ENGINEERING SERVICES

1. Consider reducing parking supply to help meet mode share targets. The site is well served by rail and bus transit.

Since the last submission from July 2019, the development has increased the number of units from 191 to 232. The new site plan proposes 175 vehicle parking spaces in total, with 24 of those being designated for visitor parking. The former TIA proposed 178, of which 15 were for visitor parking. The residential parking rate has therefore been reduced from 0.85 residential parking spaces/unit to 0.65 residential parking spaces/unit.

Furthermore, the bicycle parking has been increased from 98 spaces to 189 bike parking spaces, increasing the rate of bike parking per units from 0.51 to 0.81.

2. Correct the MMLOS worksheets. They do not reflect the text in the report.

Noted, MMLOS updated and provided as Appendix D. **Table 1** and **Table 2** summarize the updated MMLOS results:

Table 1: MMLOS – Boundary Street Segment

Road Segment	Level of Service							
	Pedestrian		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target
City Centre between Spruce and Somerset west side	F	A	D	D	-	N/A	-	N/A
City Centre between Spruce and Somerset east side	C	A	D	D	-	N/A	-	N/A
Somerset between Preston and Breeze Hill	D	A	D	C	D	D	C	D
Spruce between City Centre and Preston	C	A	D	D	-	N/A	-	N/A

Overall, the MMLOS LoS continues to be below the desirable target goal on the same segments it did not meet the target previously and no new segment has changed in LoS from meeting target to not meeting target or vise versa.

Table 2: MMLOS – Intersections

Road Segment	Level of Service							
	Pedestrian		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target
Albert/City Centre	F	A	E	C	D	D	E	D

Transit TLoS and Truck TkLoS were added to the table. Only the transit TLoS target was met due to the number of lanes being crossed, the lack of cycling facilities on some approaches or the single receiving lane on the truck route.

3. Provide justification for the 40 km/h operating speed used on 50 km/h roads. In the absence of speed surveys, refer to the MMLOS Guidelines Addendum to determine operating speeds. Correct segment PLOS and BLOS.

   Noted, MMLOS updated to reflect posted speed plus 10km/h as per guidelines, refer to Appendix II. **Table 1** and **Table 2** above summarize the updated MMLOS results.

4. The at grade parking lot access should be 6.7 m wide as per the Zoning Bylaw Section 107. If the proposed access is to remain its current width, an exemption is required.

   The access throat width has been maintained at approximate 6.1 meters and the drive aisle width has been increased to 6.9 meters. No exemption is required.

5. Complete the TDM Measures Checklist for residential developments (in addition to the 'TDM-Supportive Design & Infrastructure Measures Checklist' completed in Appendix H) as part of module 4.5. To reach the target mode shares, post-occupancy measures such as, but not limited to, an internal coordinator and provision of pre-loaded Presto passes for tenants are encouraged. Contact travelwise@ottawa.ca to coordinate with the City's TDM officer.

   A completed TDM Measures checklist has been included in Appendix B.

6. Provide turning templates for garbage collection.

   Turning templates provided in Appendix C. Waste collection is to take place on site.

TRAFFIC SIGNAL OPERATIONS

7. Albert Street at City Centre will remain one single eastbound through and one single westbound through lane.

   Noted. The TIA Strategy report referenced a 'final buildout' of Albert Street as having dual EBT/WBT travel lanes. However, the Synchro analysis conducted within the TIA was modelled with a single eastbound through and single westbound through lane, consistent with today's final intersection design, and as such, the modelling done for the TIA is still valid today. No further action is required for this network change.

TRANSIT SERVICES

8. Section 2.2.3 has out of date transit information and network map. Please update to reflect the October 6, 2019 network service change.

   Addendum No.2 provides update transit network information to reflect Line 1.

9. Comments will be shared with the planner in charge regarding the inclusion of a draft condition for the purchase of transit passes in the form of loaded presto cards.

   It is unclear to where a commitment to transit passes has been made in the past. The proponent as been notified of the benefits however has elected to not offer transit passes or a transit incentive at this time.

Appendix B

TDM Measures Checklist

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

* — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

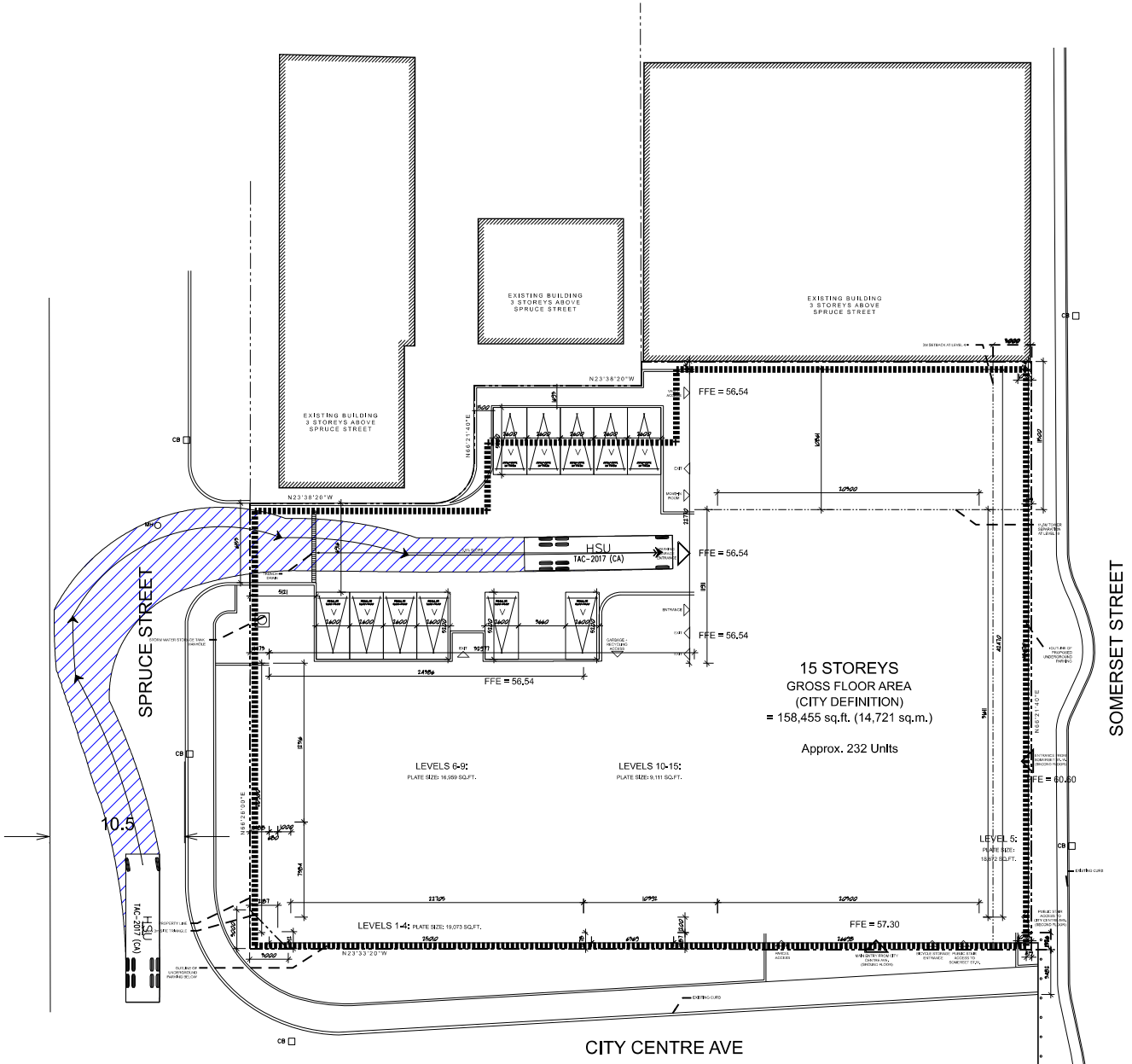
	TDM measures: *Residential developments*	Check if proposed & add descriptions
	1. TDM PROGRAM MANAGEMENT	
	1.1 Program coordinator	
BASIC *	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
	1.2 Travel surveys	
BETTER	1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
	2. WALKING AND CYCLING	
	2.1 Information on walking/cycling routes & destinations	
BASIC	2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☐ ***To be provided at main entries***
	2.2 Bicycle skills training	
BETTER	2.2.1 Offer on-site cycling courses for residents, or subsidize off-site courses	☐

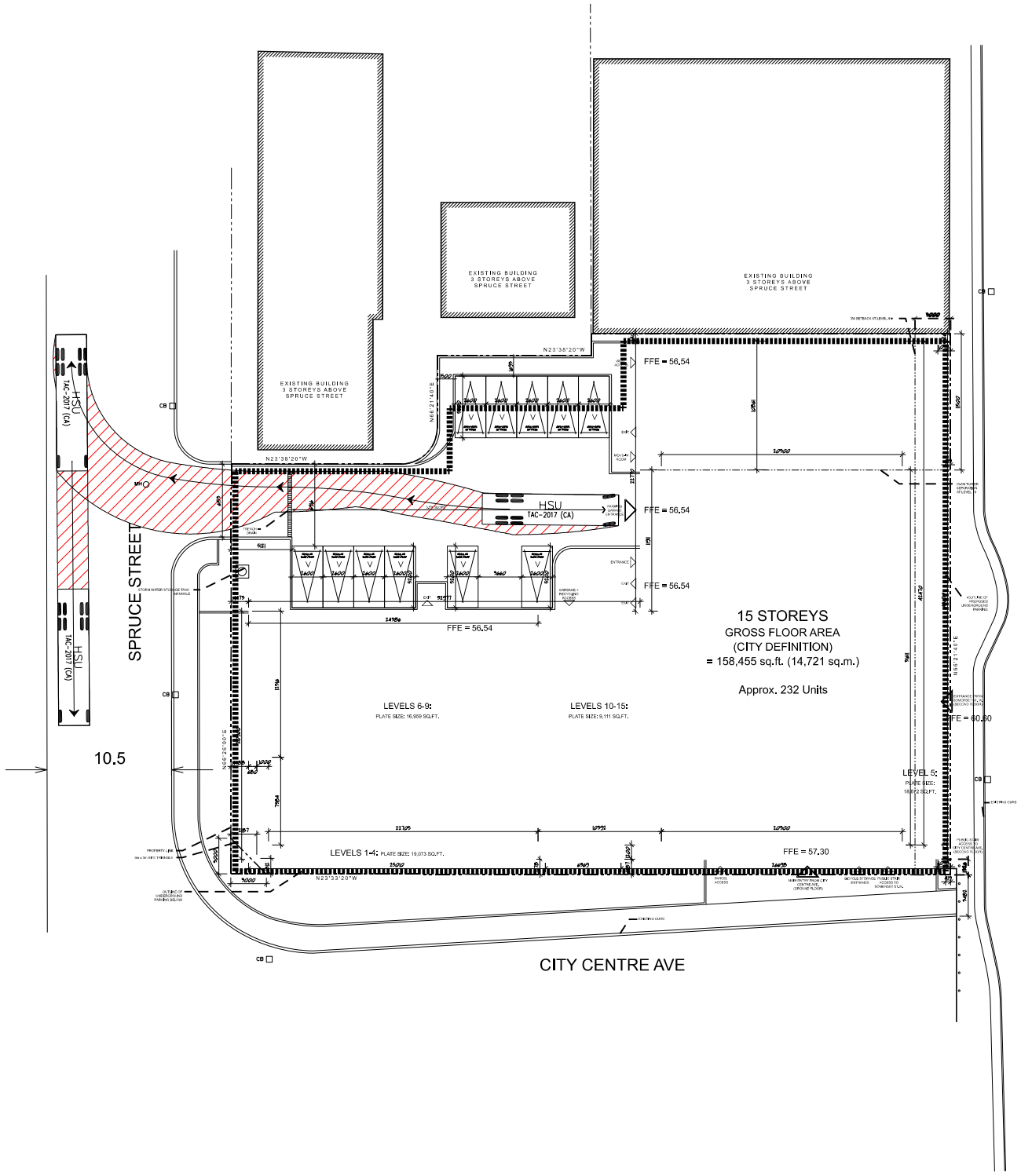
		TDM measures: *Residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☐ ***To be provided at main entries***
BETTER		3.1.2 Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2 Transit fare incentives	
BASIC	*	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐ Not to be offered at this time
BETTER		3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3 Enhanced public transit service	
BETTER	*	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4 Private transit service	
BETTER		3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER		4.1.1 Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2 Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER		4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	☐
BETTER		4.2.2 Provide residents with carshare memberships, either free or subsidized	☐
		5. PARKING	
		5.1 Priced parking	
BASIC	*	5.1.1 Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	*	5.1.2 Unbundle parking cost from monthly rent *(multi-family)*	☐ ***Residential costs to be unbundled***

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		6. TDM MARKETING & COMMUNICATIONS	
		6.1 Multimodal travel information	
BASIC	*	6.1.1 Provide a multimodal travel option information package to new residents	☐ ***To be provided on move-in***
		6.2 Personalized trip planning	
BETTER	*	6.2.1 Offer personalized trip planning to new residents	☐

Appendix C

Waste Vehicle Turning Movements


EXISTING BUILDING
3 STOREYS ABOVE
SPRUCE STREET
EXISTING BUILDING
3 STOREYS ABOVE
SPRUCE STREET
EXISTING BUILDING
3 STOREYS ABOVE
SPRUCE STREET
SPRUCE STREET
SOMERSET STREET
CITY CENTRE AVE
FFE = 56.54
FFE = 56.54
FFE = 56.54
FFE = 56.54
FFE = 60.30
FFE = 57.30
HSU
TAC-2017 (CA)
15 STOREYS
GROSS FLOOR AREA
(CITY DEFINITION)
= 158,455 sq.ft. (14,721 sq.m.)
Approx. 232 Units
LEVELS 6-9:
PLATE SIZE: 16,359 SQ.FT.
LEVELS 10-15:
PLATE SIZE: 9,111 SQ.FT.
LEVEL 5:
PLATE SIZE:
16,972 SQ.FT.
LEVELS 1-4: PLATE SIZE: 19,073 SQ.FT.
10.5
N23°38'20"W
N66°21'40"E
N66°26'00"E
N23°33'20"W


EXISTING BUILDING
3 STOREYS ABOVE
SPRUCE STREET
EXISTING BUILDING
3 STOREYS ABOVE
SPRUCE STREET
EXISTING BUILDING
3 STOREYS ABOVE
SPRUCE STREET
SPRUCE STREET
SOMERSET STREET
CITY CENTRE AVE
HSU
TAC-2017 (CA)
HSU
TAC-2017 (CA)
HSU
TAC-2017 (CA)
FFE = 56.54
FFE = 56.54
FFE = 56.54
FFE = 56.54
FFE = 60.60
FFE = 57.30
15 STOREYS
GROSS FLOOR AREA
(CITY DEFINITION)
= 158,455 sq.ft. (14,721 sq.m.)
Approx. 232 Units
LEVELS 6-9:
PLATE SIZE: 16,959 SQ.FT.
LEVELS 10-15:
PLATE SIZE: 9,111 SQ.FT.
LEVEL 5:
PLATE SIZE:
18,672 SQ.FT.
LEVELS 1-4: PLATE SIZE: 19,073 SQ.FT.
10.5
N23°38'20"W
N66°21'40"E
N66°26'00"E
N23°33'20"W
CB
MH

Appendix D

MMLOS Table

Multi-Modal Level of Service - Intersections Form

Consultant	Parsons	**Project**	477039 - 01000
Scenario	989 Somerset St. W	**Date**	27-Jul-22
Comments			

Unlocked Rows for Replicating

INTERSECTIONS — **Albert / City Centre**

	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	4	5	6	6								
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m								
	Conflicting Left Turns	Protected/ Permissive	Permissive	Permissive	Permissive								
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control								
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed								
	Ped Signal Leading Interval?	No	No	No	No								
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel								
	Corner Radius	10-15m	10-15m	5-10m	10-15m								
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings								
	PETSI Score	**56**	**40**	**24**	**23**								
	Ped. Exposure to Traffic LoS	**D**	**E**	**F**	**F**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Cycle Length	120	120	120	120								
	Effective Walk Time	21	21	23	23								
	Average Pedestrian Delay	**41**	**41**	**39**	**39**	**38**	**38**	**39**	**39**				
	Pedestrian Delay LoS	**E**	**E**	**D**	**D**	**D**	**D**	**D**	**D**	**-**	**-**	**-**	**-**
	Level of Service	**E**	**E**	**F**	**F**	**D**	**D**	**D**	**D**	**-**	**-**	**-**	**-**
		F				**D**				**-**			
	Approach From	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Bicycle	Bicycle Lane Arrangement on Approach		Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic								
	Right Turn Lane Configuration		≤ 50 m	Not Applicable	≤ 50 m								
	Right Turning Speed		≤ 25 km/h	Not Applicable	≤ 25 km/h								
	Cyclist relative to RT motorists	**-**	**D**	**Not Applicable**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Separated or Mixed Traffic	**-**	**Mixed Traffic**	**Separated**	**Mixed Traffic**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Left Turn Approach		No lane crossed	No lane crossed	One lane crossed								
	Operating Speed		> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h								
	Left Turning Cyclist	**-**	**C**	**C**	**E**	**-**	**C**	**C**	**C**	**-**	**-**	**-**	**-**
	Level of Service	**-**	**D**	**C**	**E**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		E				**-**				**-**			
Transit	Average Signal Delay		≤ 30 sec	≤ 30 sec	≤ 30 sec								
	Level of Service	**-**	**D**	**D**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		D				**-**				**-**			
Truck	Effective Corner Radius		10 - 15 m		10 - 15 m								
	Number of Receiving Lanes on Departure from Intersection		≥ 2		1								
	Level of Service	**-**	**B**	**-**	**E**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		E				**-**				**-**			
Auto	Volume to Capacity Ratio												
	Level of Service	**-**				**-**				**-**			

Multi-Modal Level of Service - Segments Form

Consultant	Parsons	**Project**	477039 - 01000
Scenario	989 Somerset St. W	**Date**	27-Jul-22
Comments			

SEGMENTS		Street A	City Centre West Side	City Centre East Side	Somerset Both Sides	Spruce Both Sides	Section 5	Section 6	Section 7	Section 8	Section 9
Pedestrian	Sidewalk Width Boulevard Width	-	no sidewalk n/a	≥ 2 m < 0.5	≥ 2 m < 0.5	≥ 2 m < 0.5					
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000	> 3000	≤ 3000					
	Operating Speed On-Street Parking		> 50 to 60 km/h yes	> 50 to 60 km/h yes	> 50 to 60 km/h yes	> 50 to 60 km/h yes					
	Exposure to Traffic PLoS		**F**	**C**	**D**	**C**	-	-	-	-	-
	Effective Sidewalk Width										
	Pedestrian Volume										
	Crowding PLoS		-	-	-	-	-	-	-	-	-
	Level of Service		-	-	-	-	-	-	-	-	-
Bicycle	Type of Cycling Facility	D	Mixed Traffic	Mixed Traffic	Parking beside Bike Lane	Mixed Traffic					
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)	1 each direction	≤ 2 (no centreline)					
	Operating Speed		≥ 50 to 60 km/h	≥ 50 to 60 km/h	>50 to <70 km/h	≥ 50 to 60 km/h					
	# of Lanes & Operating Speed LoS		**D**	**D**	**D**	**D**	-	-	-	-	-
	Bike Lane (+ Parking Lane) Width				≤ 4 m biking + parking width						
	Bike Lane Width LoS		-	-	**C**	-	-	-	-	-	-
	Bike Lane Blockages				Rare						
	Blockage LoS		-	-	**A**	-	-	-	-	-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge					
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes	≤ 3 lanes	≤ 3 lanes					
	Sidestreet Operating Speed		>50 to 60 km/h	>50 to 60 km/h	>50 to 60 km/h	>50 to 60 km/h					
	Unsignalized Crossing - Lowest LoS		**C**	**C**	**C**	**C**	-	-	-	-	-
	Level of Service		**D**	**D**	**D**	**D**	-	-	-	-	-
Transit	Facility Type	D			Mixed Traffic						
	Friction or Ratio Transit:Posted Speed				Vt/Vp ≥ 0.8						
	Level of Service		-	-	**D**	-	-	-	-	-	-
Truck	Truck Lane Width	C			≤ 3.5 m						
	Travel Lanes per Direction				1						
	Level of Service		-	-	**C**	-	-	-	-	-	-