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Technical Memorandum

To/Attention	Mike Giampa Senior Engineer, Infrastructure Applications City of Ottawa 110 Laurier Avenue West (4th Floor) Ottawa, ON K2P-2H9	**Date**	December 15, 2020
From	David Hook	**Project No**	125192
cc	Kevin Harper, Minto		
Subject	78-90 Beechwood Avenue/ 69-93 Barrette Street - TIA Addendum 1		

This technical memorandum has been submitted in response to City's transportation-related comments received on November 19, 2020, regarding the Transportation Impact Assessment (TIA) – Step 4 report for 78-90 Beechwood/ 69-93 Barrette, dated July 30, 2020. The TIA was prepared in support of both a Zoning By-Law Amendment Application as well as Site Plan Control.

The key changes to the site statistics since the submission of the TIA on July 30, 2020 are as follows:

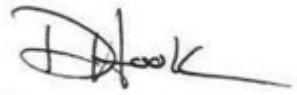
- A decrease of residential dwelling units from 251 to 229, equating to a 9% reduction in traffic generation; and
- An increase in bicycle parking from 131 to 252 spaces, including 236 residential spaces and 16 outdoor commercial spaces.

It is noted that there have been numerous comments relating to area-wide traffic growth, Transportation Demand Management (TDM), traffic-calming and the design of the proposed Beechwood frontage. These themes are addressed in the response to comments, attached, and supplemented with technical details in an Appendix where applicable.

Based on the above changes to the development statistics, the overall conclusions of the July 2020 TIA remain valid.

We trust that the transportation comments have been adequately addressed. Should you require anything else, please don't hesitate to contact me at 613-225-1311 x64029 or by email at dhook@ibigroup.com.

Regards,



David Hook, P.Eng.
Transportation Engineer

Appendix A – Response to Circulation Comments (Transportation)

Response to Circulation Comments (Transportation)

Transportation Engineering Services

Comment 2.1: The existing conditions traffic data illustrated in Exhibit 4 must include pedestrian and cycling information. Ensure that summer count data is used to determine feasible numbers for these modes.

- **IBI Response: Exhibit 4, as shown in Appendix B, has been updated with pedestrian and cycling volumes, based on turning movement count data purchased from the City of Ottawa. It is acknowledged that active transportation trips may be under-represented in these turning movement counts, which were conducted in the winter months, however this count represents the most recent data available from the City at the time that this TIA was undertaken. The potential under-representation of active transportation trips bears no consequence to the results of the TIA and is shown for information purposes only.**

Comment 2.2: The City has recently approved the Strategic Road Safety Action Plan requiring all new or reconstructed local residential streets to be designed with a target operating speed of 30 km/hr. Given that Barrette Street will be the vehicle access for this residential building, consideration should be given to reviewing the possibility of implementing traffic calming features on Barrette Street that will support a 30 km/hr design speed.

- **IBI Response: The site access driveway is proposed midway along a 130m segment of Barrette Street with stop signs at the nearest intersecting roads. With a travel path of only 75 meters, speeding is not anticipated for new site-generated trips and more likely a result of background through-traffic. The existing 3.5m lane widths are required to support transit service on this street and effective vertical traffic calming measures (i.e. speed humps/cushions) are not appropriate for transit routes. Significant investment in active transportation infrastructure is being made by the proponent, including a mid-block pedestrian connection from Beechwood to Barrette, wider sidewalks and a cycle track along the Beechwood frontage and the accommodation of twice the minimum required amount of bicycle parking to reduce the overall automobile dependence of this site. As such, no further off-site modifications are being considered.**

Comment 2.3: TDM-Supportive Design & Infrastructure Checklist

a) Uncheck item 2.1.4, it is unlikely that 131 bicycle spaces for 251 residential units will be enough for the expected number of cycling spaces plus visitor cyclists, given that only three are provided at street level for the commercial development. Consider implementation of additional bicycle parking.

    - **IBI Response: It should be noted that the City's bicycle parking requirements were met with the previous configuration for both the residential and commercial land uses, however it is acknowledged that additional bicycle parking would help to further encourage the use non-auto modes for site-generated trips. Additional bicycle parking spaces have therefore been incorporated into the site plan design in order to exceed a 1:1 ratio of spaces per unit and achieve a LEED credit for this element. As these additional spaces do meet the City's requirements under the current zoning, an amendment is being sought to recognize their provision. In terms of commercial bicycle parking, an additional 16 spaces are proposed at street level, far exceeding the minimum amount required. Item 2.1.4 in the**

TDM Supportive Design and Infrastructure Checklist should therefore remain checked.

b) Uncheck item 2.2.2 since only 131 spaces are provided for the 251 unit development.

- **IBI Response: Bicycle parking to residential units is now meeting a 1:1 ratio, therefore item 2.2.2 in the TDM Supportive Design and Infrastructure Checklist should remain checked.**

Comment 2.4: Section 5.3 Boundary Streets

a) A functional design of all proposed road modifications is required as part of the submission of the site plan application. Coordination with neighbouring road modifications may also be required. There may be delays in the application given the incomplete submission.

- **IBI Response: Acknowledged. As part of the TIA process, a functional design was undertaken in coordination with City staff to accommodate an eastbound cycle track and a wider sidewalk in the along the site's Beechwood Avenue frontage. The design drawings have taken into consideration the under-construction cycle track design for the segment of Beechwood Avenue east of St. Charles Street as well as the ultimate corridor plan. Drawings illustrating the interim tie-in to existing conditions as well as the coordination with planned conditions are included in Appendix C.**

Comment 2.5: Section 5.3.1 Mobility

a) Correct PLOS achievement on Barrette Street. In the absence of speed surveys, PLOS operating speeds should be taken as the posted speed limit plus 10 km/hr.

- **IBI Response: Acknowledged. The segment-based PLOS has been re-evaluated with an operating speed of 60km/h (i.e. posted speed limit plus 10km/h). This higher operating speed results in a PLOS of 'C', which still achieves the City's target for a local road in the General Urban Area. The updated segment-based MMLOS analysis is provided in Appendix D.**

Comment 2.6: Section 5.5.3 TDM Program

a) The TDM Checklist attached mentions that periodic travel surveys will be undertaken. Describe what the property management plans to do with this information (ex: trigger further TDM Measures).

- **IBI Response: Regular communication with residents will be conducted through the proponent's property management office and the undertaking of building life and transportation surveys are an important part of this communication. The proponent is committed to facilitating the use of active transportation by residents of this development and will respond to resident needs with appropriate tools, measures and incentives at their discretion.**

b) Include only the Measures that will be implemented as part of the TIA supporting the Site Plan Application.

- **IBI Response: Acknowledged. The TDM Measures Checklist has been updated to only show measures that will be implemented as part of the TIA supporting the Site Plan Application. The revised TDM Measures Checklist is provided in Appendix E.**

Public Comments

d) Concerns with Increased Traffic

Beechwood:

- Beechwood is already too busy at rush hour
  - **IBI Response: Weekday morning and afternoon turning movement counts obtained from the City of Ottawa indicate that traffic volumes are presently well below the theoretical capacity threshold for an arterial road, generally considered to be between 800 and 1,000 vehicles per hour per lane. Intersection capacity analyses conducted as part of this study indicate that both study area intersections on Beechwood Avenue, including Charlevoix/ Mackay and St. Charles are presently operating at an acceptable Level of Service (i.e. LOS 'A').**
- The minto building at the intersection of McKay and Beechwood causes a loss of one of the lanes on Beechwood every Wednesday at 5pm for food delivery and multiple days during summer months for window cleaning. This negatively impacts the traffic along Beechwood. Concern mitigations measures will not be taken on this site.
  - **IBI Response: The re-design of the Beechwood frontage includes a parking bay thereby mitigating the issue noted. A loading dock will be provided for this building, but it is not intended for regular use by the commercial units.**
- Winter snow accumulation causes a reduction on available parking spaces
  - **IBI Response: Noted.**
- Traffic will get worse with other developments in the area, including Canada Lands area.
  - **IBI Response: This claim is not supported by the City of Ottawa's 2031 transportation demand model and City staff have re-confirmed the appropriateness of a 0% background growth rate for traffic originating from outside of the 400m context area of this site. City-wide investments in transit and active transportation infrastructure are expected to increase the non-auto mode shares and mitigate the impact of future traffic growth. For example, implementation of the Beechwood Avenue Crosstown Bikeway is expected to increase cyclist mode share, the Montreal Road Transit Priority Corridor is expected to increase transit mode share and the extension of light rail transit to Orleans is expected to increase suburban transit mode share, freeing up capacity on Highways 174 and 417 for major developments to the east such as Wateridge Village. Each of these City investments will reduce existing auto mode share to sufficiently accommodate future traffic generated by new development which, in itself, is mitigated through the implementation of Transportation Demand Management (TDM) measures.**

Barrette:

- Concern with Barrette having a significant increase in traffic with both this project and the St Charles project also having their parking entrance from Barrette.
  - **IBI Response: Traffic volume projections associated with both of these projects have been identified in the TIA report. The majority of traffic from these two developments will access Beechwood Avenue from St. Charles Street. The projected two-way traffic volumes along Barrette Street west of the site are expected to increase by 25-35 trips during the peak hours but will remain well under the 120/hr livability threshold of a local residential street.**
- Concern with the impact increased traffic will have on a predominately residential street. Impacts include increased noise.
  - **IBI Response: Refer to the Noise Study for the expected noise impacts.**
- Concern with conflicts with cyclists and existing bus service.
  - **IBI Response: Noted. There are no planned transit stops along the Beechwood or Barrette frontages of the site. It is noted that the transit stop along Barrette Street on the approach to St. Charles Street may be problematic for cyclists due to the street width, however this represents an existing condition and not a consequence of the proposed development. Formalization of cycling facilities on Beechwood Avenue will serve to reduce cycling volumes on Barrette Street.**
- Concern with increased deliveries occurring on Barrette St
  - **IBI Response: The site provides an enclosed loading dock which will be used for residential loading and weekly waste collection. A 15% resident turnover is expected and therefore likely in the order of 40 units move-ins & move-outs a year. No off-site loading facilities are required by the City for the scale of commercial proposed.**
- Desire to see traffic calming measures implemented
  - **IBI Response: See above response to Technical Comment 2.2 received from Transportation Engineering Services.**

e) Concern with the TIA

- Concern that the TIA indicates there is “no traffic growth projected along Beechwood Ave corridor…”. Concern that this is incorrect and that the intensification proposed will in fact increase automobile traffic along beechwood.
  - **IBI Response: See previous response regarding area background traffic growth.**
- Concern that there are specific neighborhoods factors not addressed in the TIA. Concern that developments are being considered piecemeal without consideration of total impact on the community. These are as follows (direct quote below):
  - Hemlock Rd. is currently closed at Aviation, but within several years is planned to re-open, providing direct access to the Beechwood corridor for the estimated 10,000 to 15,000 residents of Wateridge Village, as well as for those travelling from further east who may cut through Wateridge.
    - **IBI Response: This study followed the City’s TIA Guidelines which limits the review to a 400m radius of the site in urban conditions.**

Active development applications with notable traffic generation have been explicitly accounted for in the estimation of future traffic projections. Any traffic growth resulting from development outside of this area is accounted for through the application of a general growth rate.

- The owners of Manor Park Estates are in the early stages of planning a redevelopment of their extensive landholdings north and south of Hemlock. This will greatly increase the population density of their lands. Given the extent of the landholdings and the scale of the development, it is anticipated that between 4,000 – 5,000 additional units will be developed in Manor Park.
    - **IBI Response: Noted. Manor Park Estates is located 1.8km from the subject site and is therefore outside of the 400-metre study context area of this site. This planned development presently has no formal application status with the City and will be subject to its own transportation impact assessment to identify future traffic generation. The City's long-term transportation model takes into consideration population and employment potential based on land use and zoning at the 2031 planning horizon. A sensitivity analysis of future traffic volumes along the Beechwood Avenue corridor, however, indicates that an annual background growth rate of up to 3% could be accommodated while maintaining acceptable operating conditions along the corridor within the horizon year of this study.**
- There are other properties along Beechwood that are being developed and for which, development applications have been made or are in the process of being made. Indeed, the City is counting on further redevelopment to enable conversion of Beechwood to a complete street
    - **IBI Response: The City has implemented the framework for a Complete Street through the interim use of pavement markings to define on-road cycling facilities and on-street parking for the Beechwood Avenue Crosstown Bikeway. Private development along the corridor will simply formalize the streetscape through permanent measures, while increasing the attractiveness of cycling as an alternative mode of transportation for the corridor.**
- Montreal Rd. is currently being redeveloped as a more pedestrian-oriented main street for Vanier. This redevelopment is of course supported by the MPCA, but the reduction of automobile capacity along Montreal Rd. will cause some diversion of traffic to Beechwood.
    - **IBI Response: The Montreal Road revitalization includes infrastructure improvements to help reduce automobile dependency and encourage a shift towards more sustainable modes of transportation such as walking, cycling and transit. The City's Long-Range transportation model takes into consideration both the potential shift in traffic to parallel alternative routes, as well as the expected increase in sustainable transportation mode share associated with more feasible alternatives to the use of private automobiles.**

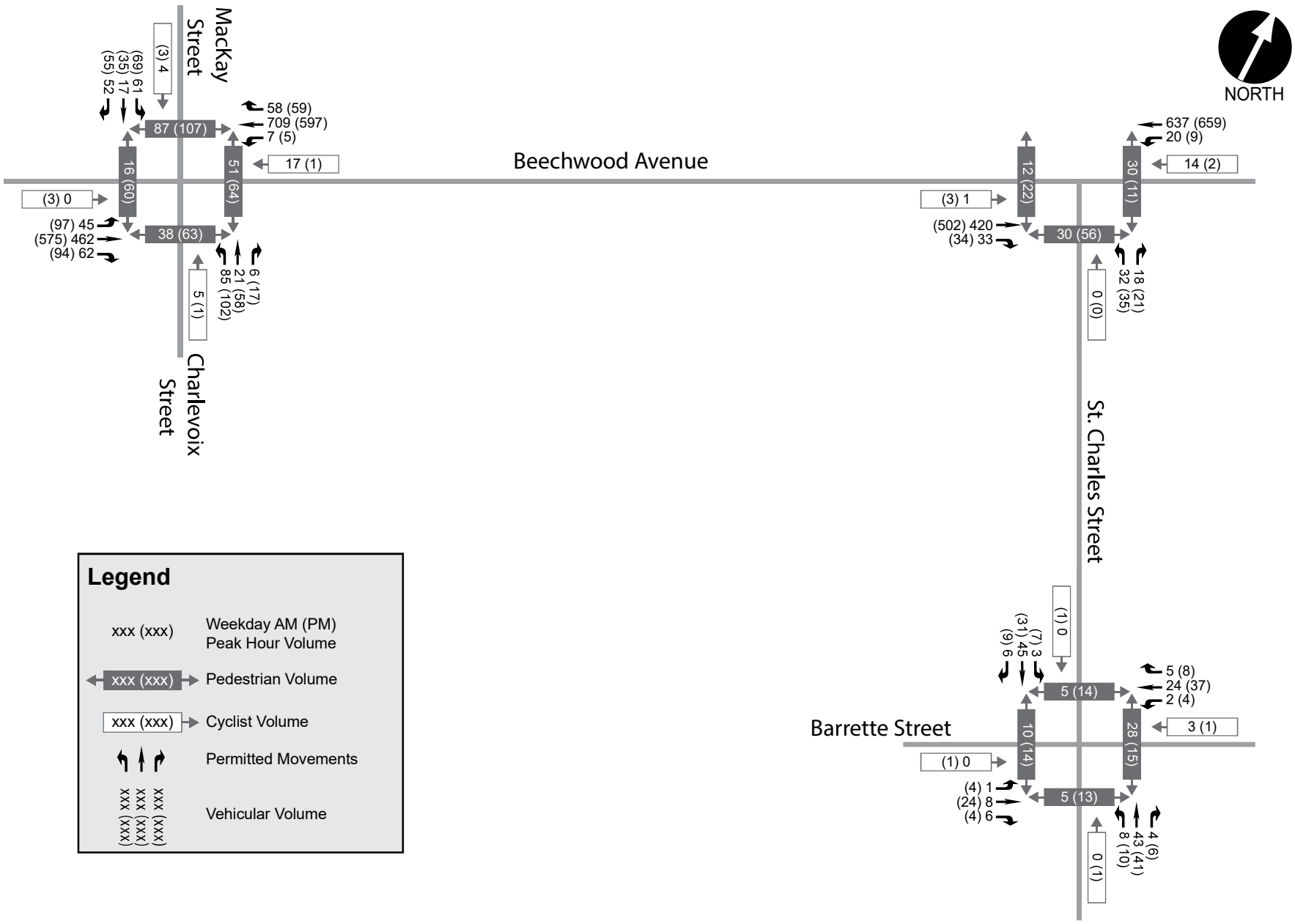
- The federal government has proposed a sixth interprovincial crossing, likely for the east end. While there is significant opposition to this proposal, including from the City, relevant data from the NCC study on interprovincial transportation needs to be considered in the City's modelling.
    - **IBI Response: Noted.**

Concern that:

- Then when presenting the result of the traffic impact of the proposed development between 2023 and 2028 (TIA – Exhibits 7 & 8 – pages 31-32), one can easily calculate that, in 2028, the (41) extra vehicle predicted during PM peak hours going Eastbound on Beechwood and entering the intersection with Mackay and Charlevoix represents in fact a 5% increase of the (786) background vehicular traffic of 2023 at the same location.

  This short section of Beechwood, between the Vanier Parkway/Crichton street and Charlevoix/Mackay streets is arguably the busiest part of Beechwood Avenue. So my question to the developer is the following: since the traffic in the busiest section of Beechwood can be increased by 5%, just by one new development in the area, do you think that the assumption of no traffic growth between 2011 and 2031 is reasonable? And if it is not reasonable as anyone would realize from your own study, why did you accept this assumption? Just because it is provided by the city?
    - **IBI Response: It is acknowledged that, generally, all new development *does* generate additional vehicular traffic, however it is minimized by Transportation Demand Management measures in accordance with City policy. As described previously, this is offset by a reduction in background traffic as a result of the City's investment in transit and active transportation infrastructure as well as individual TDM measures of adjacent developments. In essence, new traffic generation is minimized while a portion of existing traffic shifts to more sustainable modes.**

Appendix B – Updated Existing (2020) Traffic Volume Exhibit



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Mid-Rise Residential Development
78-90 Beechwood/ 69-93 Barrette
Transportation Impact Assessment

Exhibit 4:
Existing (2020)
Traffic

PROJECT No. 125192
DATE: December 2020
SCALE: N.T.S.

Appendix C – Beechwood Avenue - Functional Design Drawings

NORTH

DOUGLAS AVE

LANGEVIN AVE

BEECHWOOD AVE

REPAINT THE PAVEMENT MARKING TO PROVIDE 2.0m BIKE LANE BESIDE CURB

REMOVE CURB AND PROVIDE ON-RAMP FOR CYCLE TRACK

PAVEMENT MARKING TO SUIT EXISTING CONDITION TO BE ADJUSTED WITH ULTIMATE DESIGN

TERMINATION OF CURB CYCLE TRACK OFF- RAMP

CONCRETE SIDEWALK TO MATCH EXISTING

2.0m CYCLE TRACK

SIDEWALK

CONRETE BUFFER

CYCLE TRACK TO ON-ROAD BIKE LANE

CONCRETE SIDEWALK TO MATCH EXISTING

78-90 Beechwood Avenue

ST. CHARLES

Mid-Rise Residential Development
78-90 Beechwood/ 69-93 Barrette
TIA - Addendum 1

Streetscape Improvements - Interim Configuration

PROJECT No. 125192
DATE: December 2020
SCALE: 0m 5m 10m

NORTH

DOUGLAS AVE

LANGEVIN AVE

BEECHWOOD AVE

REMOVAL OF INTERIM TIE-IN (BY OTHERS)

REPAINT THE PAVEMENT MARKING TO PROVIDE 2.0m BIKE LANE BESIDE CURB

REMOVE CURB AND PROVIDE ON-RAMP FOR CYCLE TRACK

PAVEMENT MARKING TO SUIT EXISTING CONDITION TO BE ADJUSTED WITH ULTIMATE DESIGN

TERMINATION OF CURB CYCLE TRACK OFF- RAMP

ULTIMATE CONFIGURATION

CONCRETE SIDEWALK TO MATCH EXISTING

CYCLE TRACK TO ON-ROAD BIKE LANE

CONCRETE SIDEWALK TO MATCH EXISTING

2.0m CYCLE TRACK

CONRETE BUFFER

SIDEWALK

78-90 Beechwood Avenue

ST. CHARLES

Mid-Rise Residential Development
78-90 Beechwood/ 69-93 Barrette
TIA - Addendum 1

Streetscape Improvements - Ultimate Configuration

PROJECT No. 125192
DATE: December 2020
SCALE: 0m 5m 10m

Appendix D – Updated MMLOS Analyses

Multi-Modal Level of Service
78-90 Beechwood/ 69-93 Barrette - TIA Addendum
Scenario: Existing Conditions

December 11, 2020

IBI

INTERSECTIONS		Beechwood & Charlevoix/ MacKay				Beechwood & St. Charles			
		NORTH leg	SOUTH leg	EAST leg	WEST leg	NORTH leg	SOUTH leg	EAST leg	WEST leg
Pedestrian	Lanes (do NOT include lanes protected by bulb-outs)	3	3	4	4		2	4	4
	Median	No Median	No Median	No Median	No Median		No Median	No Median	No Median
	Island Refuge								
	Conflicting Left Turns (from street to right)	Permissive	Permissive	Permissive	Permissive		Permissive	Permissive	Permissive
	Conflicting Right Turns (from street to left)	Permissive Permissive or yield control	Permissive Permissive or yield control	Permissive Permissive or yield control	Permissive Permissive or yield control		Permissive Permissive or yield control	Permissive Permissive or yield control	Permissive Permissive or yield control
	RTOR? (from street to left)	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval? (on cross street)	No	No	No	No		No	No	No
	Corner Radius	> 3m to 5m	> 5m to 10m	Less than/equal to 3m	> 5m to 10m		> 5m to 10m	> 5m to 10m	> 5m to 10m
	Right Turn Channel	No right turn channel	No right turn channel	No right turn channel	No right turn channel		No right turn channel	No right turn channel	No right turn channel
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings		Standard transverse markings	Standard transverse markings	Standard transverse markings
	LOS (PETSI)	**75 B**	**74 C**	**59 D**	**60 C**		**86 B**	**54 D**	**54 D**
	Cycle Length (sec)	110	110	110	110		100	100	100
	Pedestrian Walk Time (solid white symbol) (sec)	10	10	10	10		7	7	7
	LOS (Delay,seconds)	**47.0 E**	**47.0 E**	**47.0 E**	**47.0 E**		**44.3 E**	**44.3 E**	**44.3 E**
	Overall Level of Service	**E**				**E**			
Cyclist	Type of Bikeway	Mixed Traffic	Bike Pocket at Intersection	Bike Lanes/Cycle Track	Bike Lanes/Cycle Track		Mixed Traffic	Bike Lanes/Cycle Track	Bike Lanes/Cycle Track
	Turning Speed (based on corner radius & angle)	Slow	Slow	Slow	Slow		Slow	Slow	Slow
	Right Turn Storage Length								
	Dual Right Turn?	No	No	No	No		No	No	No
	Shared Through-Right?	Yes	Yes	No	Yes		Yes	Yes	Yes
	Bike Box?	No	Yes	Yes	Yes		No	No	No
	Number of Lanes Crossed for Left Turns	1 Lane Crossed	No Lanes Crossed	No Lanes Crossed	1 Lane Crossed		No Lanes Crossed	No Lanes Crossed	No Lanes Crossed
	Operating Speed on Approach	50km/h	50km/h	50km/h	50km/h		50km/h	50km/h	50km/h
	Dual Left Turn Lanes?	No	No	No	No		No	No	No
	Level of Service	**C**	**B**	**B**	**C**		**B**	**B**	**B**
		C				**B**			
Transit	Average Signal Delay	≤10 sec	≤10 sec				≤40 sec	≤10 sec	≤10 sec
	Level of Service	**B**	**B**				**E**	**B**	**B**
		B				**E**			
Truck	Turning Radius (Right Turn)			< 10m	< 10m			< 10m	
	Number of Receiving Lanes			2+	2+			1	
				D	**D**			**F**	
		D				**F**			

SEGMENTS			Barrette Street - Adjacent to Proposed Development						
			1	2	3				
Pedestrian	Sidewalk Width		1.8						
	Boulevard Width		0						
	AADT		< 3000						
	On-Street Parking		N/A						
	Operating Speed		51 to 60 km/h						
	Level of Service		**C**						
			C						
Cyclist	Type of Bikeway		Mixed Traffic						
	Number of Travel Lanes (per direction)		1 Travel Lane Per Direction						
	Raised Median?								
	Bike Lane Width								
	Operating Speed		50 km/h						
	Bike Lane Blockages (Commercial Areas)								
	Median Refuge								
	Number of Travel Lanes on Sidestreet								
	Sidestreet Operating Speed		50 km/h						
	Level of Service		**D**						
Transit	Facility Type		Mixed Traffic						
	Friction		Limited parking/driveway friction						
	Level of Service		**D**						
Truck	Curb Lane Width		>3.7						
	Number of Travel Lanes		2						
			B						
			B						

Multi-Modal Level of Service

78-89 Beechwood Ave - Transportation Impact Assessment

Scenario: Future Conditions (with Beechwood RMA Design Fully Implemented)

December 11, 2020

IBI

INTERSECTIONS		Beechwood & Charlevoix/ MacKay				Beechwood & St. Charles			
		NORTH leg	SOUTH leg	EAST leg	WEST leg	NORTH leg	SOUTH leg	EAST leg	WEST leg
Pedestrian	Lanes (do NOT include lanes protected by bulb-outs)	3	3	4	4		2	2	2
	Median	No Median	No Median	No Median	No Median		No Median	No Median	No Median
	Island Refuge								
	Conflicting Left Turns (from street to right)	Permissive	Permissive	Permissive	Permissive		Permissive	Permissive	Permissive
	Conflicting Right Turns (from street to left)	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control		Permissive or yield control	Permissive or yield control	Permissive or yield control
	RTOR? (from street to left)	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR allowed
	Ped Leading Interval? (on cross street)	No	No	No	No		No	No	No
	Corner Radius	> 3m to 5m	> 5m to 10m	Less than/equal to 3m	> 5m to 10m		> 5m to 10m	> 5m to 10m	> 5m to 10m
	Right Turn Channel	No right turn channel	No right turn channel	No right turn channel	No right turn channel		No right turn channel	No right turn channel	No right turn channel
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings		Standard transverse markings	Standard transverse markings	Standard transverse markings
	LOS (PETSI)	**75 B**	**74 C**	**59 D**	**60 C**		**86 B**	**86 B**	**86 B**
	Cycle Length (sec)	110	110	110	110		100	100	100
	Pedestrian Walk Time (solid white symbol) (sec)	10	10	10	10		7	7	7
	LOS (Delay,seconds)	**47.0 E**	**47.0 E**	**47.0 E**	**47.0 E**		**44.3 E**	**44.3 E**	**44.3 E**
	Overall Level of Service	**E**				**E**			
Cyclist	Type of Bikeway	Mixed Traffic	Bike Pocket at Intersection	Bike Lanes/Cycle Track	Bike Lanes/Cycle Track		Mixed Traffic	Bike Lanes/Cycle Track	Bike Lanes/Cycle Track
	Turning Speed (based on corner radius & angle)	Slow	Slow	Slow	Slow		Slow	Slow	Slow
	Right Turn Storage Length								
	Dual Right Turn?	No	No	No	No		No	No	No
	Shared Through-Right?	Yes	Yes	No	Yes		Yes	Yes	Yes
	Bike Box?	No	Yes	Yes	Yes		Yes	Yes	Yes
	Number of Lanes Crossed for Left Turns	1 Lane Crossed	No Lanes Crossed	No Lanes Crossed	1 Lane Crossed		No Lanes Crossed	No Lanes Crossed	No Lanes Crossed
	Operating Speed on Approach	50km/h	50km/h	50km/h	50km/h		50km/h	50km/h	50km/h
	Dual Left Turn Lanes?	No	No	No	No		No	No	No
	Level of Service	**C**	**B**	**B**	**C**		**A**	**A**	**A**
		C				**A**			
Transit	Average Signal Delay	≤10 sec	≤10 sec				≤40 sec	≤10 sec	≤10 sec
	Level of Service	**B**	**B**				**E**	**B**	**B**
		B				**E**			
Truck	Turning Radius (Right Turn)			< 10m	< 10m			10 to 15m	
	Number of Receiving Lanes			2+	2+			1	
				D	**D**			**E**	
		D				**E**			

SEGMENTS			Barrette Street - Adjacent to Proposed Development					
			1	2	3			
Pedestrian	Sidewalk Width		1.8					
	Boulevard Width		0					
	AADT		< 3000					
	On-Street Parking		N/A					
	Operating Speed		51 to 60 km/h					
	Level of Service		**C**					
			C					
Cyclist	Type of Bikeway		Mixed Traffic					
	Number of Travel Lanes (per direction)		1 Travel Lane Per Direction					
	Raised Median?							
	Bike Lane Width							
	Operating Speed		50 km/h					
	Bike Lane Blockages (Commercial Areas)							
	Median Refuge							
	Number of Travel Lanes on Sidestreet							
	Sidestreet Operating Speed		50 km/h					
	Level of Service		**D**					
Transit	Facility Type		Mixed Traffic					
	Friction		Limited parking/driveway friction					
	Level of Service		**D**					
Truck	Curb Lane Width		>3.7					
	Number of Travel Lanes		2					
			B					
			B					

Appendix E – Updated 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)*	●
	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)*	●
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	●
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)*	●

			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	●
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐