

**APPENDIX K**

# Multi-Modal Assessment Report





May 12, 2020

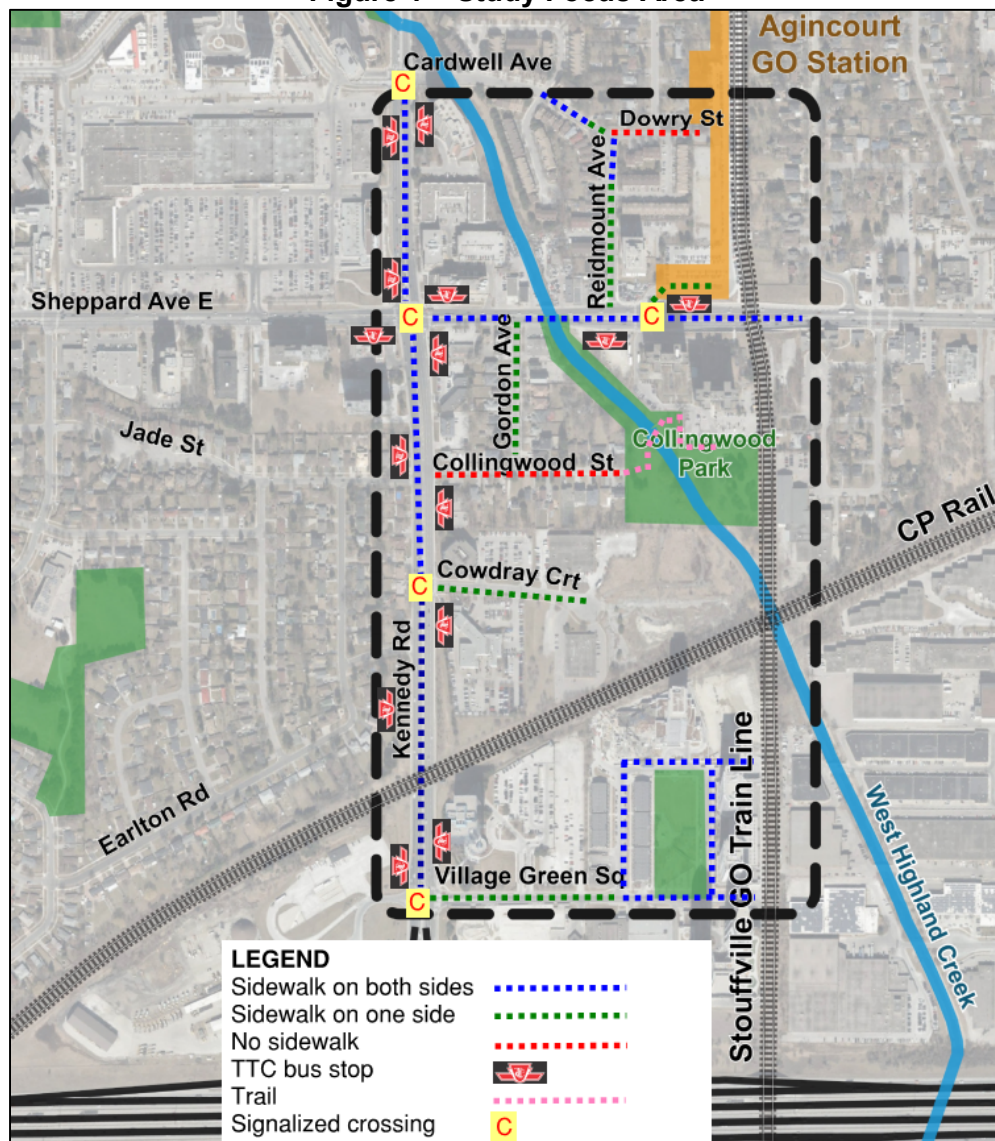
Niki Siabanis, MPlan, RPP

Project Manager, Transportation Major Projects  
Planning & Design Management, Transportation Services  
City of Toronto

**Subject: Southwest Agincourt Transportation Connections Study Environmental Assessment  
Existing Pedestrian, Bicycle and Transit Evaluation Memo**

As part of the study, the existing conditions for pedestrians, bicycles and transit have been evaluated for the focus area shown below in **Figure 1**. The existing sidewalk, trail, crossing location and bus stops are also shown in Figure 1. The purpose of evaluating the existing conditions is to understand the baseline for considering potential solutions to address the non-auto aspects of the problem and opportunity statement of the study. By way of background, the existing conditions evaluation of the auto mode has been submitted under a separate cover.

**Figure 1 – Study Focus Area**




## 1.0 General Methodology

The methodology of the multi-modal analysis is based on the City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines developed in 2015 & 2017. These guidelines were selected over other variations mainly for their intuitiveness, accommodation of contemporary facility designs (e.g. cycle tracks), and explicit recognition that pedestrian and cycling LOS should be based on user comfort, safety, and convenience. Recent literature review by the Ontario Traffic Council have also found this methodology to be the industry leaders for MMLOS in Canada. The MMLOS allows for comparison of modes in order to evaluate trade-offs by assessing the critical parameters that determine the relative attractiveness and comfort for particular mode.

**Figure 2** summarizes the LOS ranges for each mode and what they represent. For the purpose of this study, the truck aspect of the Ottawa MMLOS will not be evaluated since the movement of motor vehicles through the focus area has been evaluated under a separate cover.

**Figure 2 – LOS Summary for Each Modes**

MODE	ELEMENT	LEVEL OF SERVICE	
			
Pedestrians (PLOS)	Segments	High level of comfort	Low level of comfort
	Intersections	Short delay, high level of comfort, low risk	Long delay, low level of comfort, high risk
Bicycles (BLOS)	Segments	High level of comfort	Low level of comfort
	Intersections	Low level of risk / stress	High level of risk / stress
Transit (TLOS)	Segments	High level of reliability	Low level of reliability
	Intersections	Short delay	Long delay

## 2.0 STUDY SCOPE

Based on the Ottawa MMLOS methodology, the intersection evaluation is only conducted at signalized intersections, while the segment evaluation is evaluated regardless of the upstream/downstream intersection control. This is because pedestrians and cyclists would not be crossing the approach with the right-of-way. For example, at the intersection of Sheppard and Gordon where the Gordon is stop-controlled, pedestrians and cyclists would not cross Sheppard and instead cross Gordon with minimal delay. The actual environment and quality of pedestrians and cyclists walking along Sheppard will be evaluated at the segment level. The intersection evaluation is intended to capture the environment of pedestrian and cyclist crossing relative to the vehicular traffic, configuration of the intersection and signal timing plan. The intersections and segments evaluated are shown in **Figure 3** and summarized in **Tables 1** and **2**.

**Table 1: Intersection LOS Evaluation Scope**

Intersection ID	Signalized Intersections Evaluated
A	Kennedy Rd & Sheppard Ave E
B	Agincourt GO Station / 4091 & 4101 Sheppard Dwys & Sheppard Ave E
C	Cowdray Crt & Kennedy Rd
D	Village Green Sq / Private Dwy & Kennedy Rd

**Table 2: Segment LOS Evaluation Scope**

Segment ID	Road Evaluated	Segment
1	Sheppard Ave E	between Kennedy Rd and Gordon Ave
2	Sheppard Ave E	between Gordon Ave and Agincourt GO Station / 4091 & 4101 Sheppard Dwys
3	Gordon Ave	between Sheppard Ave E and Collingwood St
4	Collingwood St	between Kennedy Rd and easterly terminus
5	Cowdray Crt	between Kennedy Rd and easterly terminus
6	Kennedy Rd	between Sheppard Ave E and Cowdray Crt
7	Kennedy Rd	between Cowdray Crt and Village Green Sq
8	Village Green Sq (east-west portion)	between Kennedy Rd and the intersection 240m east of Kennedy Rd
9	Village Green Sq (north-south portion)	north of the Village Green Sq intersection 240m east of Kennedy Rd
10	Reidmount Ave	between Sheppard Ave and Dowry/Cardwell

**Figure 3 – Study Evaluation Scope**





### 3.0 PEDESTRIAN ASSESSMENT

Pedestrian level of service (PLOS) is evaluated at both the intersections and segments (for each section of the sidewalk on either sides of the street), with the PLOS value ranked between A to F, where A is excellent and F represents conditions with a lack of comfort, longer delays or risks for pedestrians. Some key determining factors include:

- Intersection configuration
- Sidewalk configuration
- Boulevard width
- Traffic volumes
- Presence of on-street parking or other equivalent physical barrier
- Vehicle operating speeds.

Based on the input of various existing characteristics, **Table 3** summarizes the intersection PLOS under existing conditions. The results show that due to the fact that the signalized intersections are along arterial roads (where the associated crossing distance is significant and the exposure of pedestrians are higher), the overall PLOS is F for all of the intersections. However, the pedestrian crossing delays are not excessive ranging between LOS C and D.

**Table 3: Intersection PLOS**

INTERSECTIONS		A - Kennedy Rd & Sheppard Ave E				B - Agincourt GO Station Dwy & Sheppard Ave E			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	7	8	5	6	4	3	7	6
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	Median > 2.4 m
	Conflicting Left Turns	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive
	Conflicting Right Turns	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	Permissive or yield control
	Right Turns on Red (RTOR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel
	Corner Radius	10-15m	10-15m	10-15m	10-15m	10-15m	5-10m	5-10m	5-10m
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
	PETSI Score	7	-9	40	23	56	74	14	29
	Ped. Exposure to Traffic LoS	F	F	E	F	D	C	F	F
	Cycle Length	110	110	110	110	110	110	110	110
	Effective Walk Time	33	33	37	37	34	34	24	24
	Average Pedestrian Delay	27	27	24	24	26	26	34	34
	Pedestrian Delay LoS	C	C	C	C	C	C	D	D
Level of Service		F	F	E	F	D	C	F	F
		F				F			

INTERSECTIONS		C - Cowdray Crt & Kennedy Rd				C - Cowdray Crt & Kennedy Rd			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	7	7	0 - 2		8	8	3	
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m		No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	
	Conflicting Left Turns	Permissive	Permissive	Permissive		Protected/ Permissive	Permissive	Permissive	
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	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 prohibited		RTOR allowed	RTOR allowed	RTOR allowed	
	Ped Signal Leading Interval?	No	No	No		No	No	No	
	Right Turn Channel	No Channel	No Channel	No Channel		No Channel	No Channel	No Channel	
	Corner Radius	5-10m	5-10m	5-10m		10-15m	10-15m	10-15m	
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings		Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	
	PETSI Score	8	8	92		-9	-9	73	
	Ped. Exposure to Traffic LoS	F	F	A	-	F	F	C	-
	Cycle Length	110	110	110		110	110	110	
	Effective Walk Time	22	22	29		33	33	39	
	Average Pedestrian Delay	35	35	30		27	27	23	
	Pedestrian Delay LoS	D	D	D	-	C	C	C	-
Level of Service		F	F	D	-	F	F	C	-
		F				F			

At the segment level, the PLOS focuses more on the sidewalk configuration, curb lane traffic volume and the potential for over crowding along the sidewalk. The PLOS for each segment of the sidewalk within the study area are shown in **Table 4** and graphically in **Figure 4**. The detailed PLOS evaluation at the segment level are provided in **Appendix A**. It should be noted that based on the Ottawa MMLOS methodology, the northbound or eastbound sidewalks refer to the sidewalk on the right hand side of the street when facing north or east along the street, respectively.

**Table 4: Segment PLOS Evaluation**

Segment ID	Road Evaluated	Segment	PLOS NB / SB or EB / WB
1	Sheppard Ave E	between Kennedy Rd and Gordon Ave	E / E
2	Sheppard Ave E	between Gordon Ave and Agincourt GO Station / 4091 & 4101 Sheppard Dwys	E / E
3	Gordon Ave	between Sheppard Ave E and Collingwood St	C / F*
4	Collingwood St	between Kennedy Rd and easterly terminus	F* / F*
5	Cowdray Crt	between Kennedy Rd and easterly terminus	C / C**
6	Kennedy Rd	between Sheppard Ave E and Cowdray Crt	F / E
7	Kennedy Rd	Between Cowdray Crt and Village Green Sq	E / E
8	Village Green Sq (east-west portion)	between Kennedy Rd and the intersection 240m east of Kennedy Rd	F* / C
9	Village Green Sq (north-south portion)	north of the Village Green Sq intersection 240m east of Kennedy Rd	B / B
10	Reidmount Ave	Between Sheppard Ave and Dowry/Cardwell	C / F*

\* where there is no sidewalk present, a PLOS F has been assigned

\*\* Sidewalk is present in the westbound direction for only 45m

The findings indicate that where there have been newer developments along Village Green Square, the current implementation of the City of Toronto standard of 2.1m sidewalk and provision of boulevard between the curb and the sidewalk results in higher performing sidewalks. On the other hand, several segments along the arterial roads of Kennedy and Sheppard are resulting in higher pedestrian stress and risk due to the fact that the sidewalks are based on the previous sidewalk width requirement of 1.5m and boulevards are not provided as buffers to the traffic flow. This is important to note since the current lack of transportation connectivity between Collingwood Street, Cowdray Court and Village Green Square results in most of the pedestrians having to use the sidewalks along Kennedy as a means of connecting to Sheppard or Collingwood/Gordon. As shown in Figure 2, this route is important since it offers access to the Agincourt GO Station, TTC bus stops, and other destinations. To illustrate this point, **Table 5** summarizes the time it would take for a pedestrian to walk from the terminus of various streets to the Agincourt GO Station.

**Table 5: Existing Walk Time Summary**

From Terminus of	Walk Time (Distance) To Agincourt GO Station Dwy
Collingwood Street	7 minutes (0.5km)
Cowdray Court	10 minutes (0.85km)
Village Green Square**	17 minutes (1.4km)

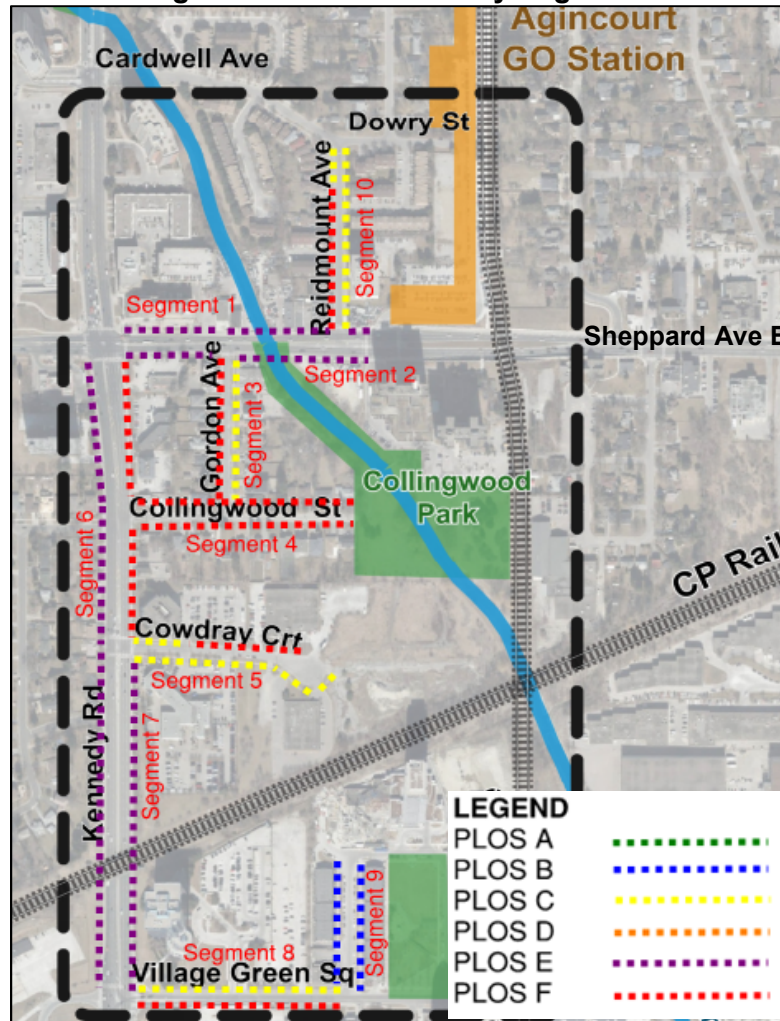
\* Assumes the use of only public sidewalk and streets

\*\* Southerly cul-de-sac (north of 141 Village Green Square)

It is interesting to note that the initial Google Map directions recommend the use of the trail through Collingwood Park and connecting through the private driveway along the westerly limits of the 4091/4101 Sheppard Avenue East site (instead of walking along Kennedy/Sheppard or Collingwood/Gordon) even though there are no sidewalks along most of the private driveway.

There are also four segments within the study area where there are sidewalks missing on one or both sides of the street. It is expected that when developments take place along Cowdray Court and Village Green Square that the sidewalk facilities along the site frontage will also be upgraded to the current City standards with further consideration for the boulevard configuration as well.

**Figure 4 – PLOS for Study Segments**



In addition to the evaluation above for pedestrians, the presence of tactile walking indicators (TWI), directional lines, accessible crossing signals and depressed curb/ramps have been evaluated at the study intersections since they are important for accessibility.

- Almost all of the study intersections have directional lines to assist with crossing at an intersection. Directional lines appear to be missing at the east approach of the Sheppard/Gordon intersection;
- Only a few intersections within the Village Green Square (VGS) community have TWI;
- All of the signalized study intersections have accessible call buttons;
- There are curb depressions for sidewalks at all intersections
- The configuration of the sidewalk & intersection control is not clear at the VGS intersection (south of 275 VGS);
- The crosswalk pavement markings are faded at several intersections along VGS; and
- Crosswalk markings are missing for the east-west crossing at Reidmount/Dowry intersection.



## **Pedestrian Evaluation Summary**

Overall the PLOS results for both the intersection and segment levels show that a notable portion of the pedestrian infrastructure within the focus area are less than desirable. As part of the next steps, the future development applications and the future plans by the City and transit providers will be incorporated to develop the future “Do Nothing” conditions, which will be the benchmark for evaluating the future potential solutions.

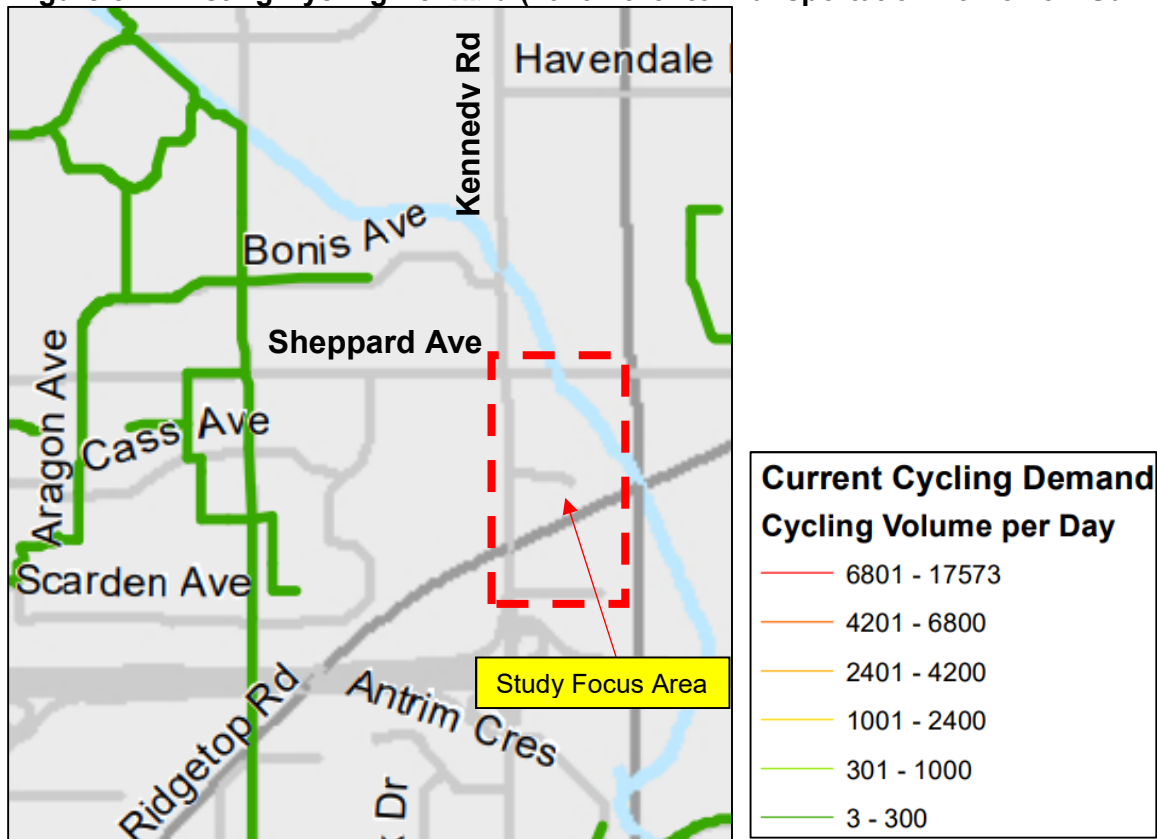
## **4.0 BICYCLE ASSESSMENT**

Similar to the PLOS for pedestrians, a Bicycle level of service (BLOS) has also been established for the existing conditions. BLOS is again evaluated at both the intersection and segment levels, with the BLOS value graded between A to F, where A is excellent and F is the lack of comfort, higher risk or stress for cyclists. Some of the key determining factors include:

- Type of bicycle facility available; and
- Traffic operating and posted speeds.

There are currently no dedicated cycling facilities in the focus area – with the exception of a short trail segment within Collingwood Park as shown in Figure 1. Therefore, most cyclists would be cycling in mixed-traffic conditions. The current cycling demand along the roads within the focus area are relatively low as shown in **Figure 5**, which is an excerpt of the City’s map of the current cycling demand. The figure shows that the demand along some of the adjacent streets beyond the focus area are ranging between 3 to 300 cyclists a day.

**Figure 5 – Existing Cycling Demand (2016 Toronto Transportation Tomorrow Survey)**



Based on the input of various existing characteristics, **Table 6** summarizes the intersection BLOS under existing conditions. The results show that due to the fact that cyclists are riding in mixed traffic conditions and the fact that the signalized intersections are along arterial roads (where the associated left turn movement is more difficult), the overall BLOS is F for all of the intersections.

**Table 6: Intersection BLOS**

INTERSECTIONS		A - Kennedy Rd & Sheppard Ave E				B - Agincourt GO Station Dwy & Sheppard Ave E			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>		> 50 m		≤ 50 m	≤ 50 m		≤ 50 m	
	Dedicated Right Turning Speed		>25 km/h		>25 km/h	≤ 25 km/h		>25 km/h	
	Cyclist Through Movement		F		E	D		E	
	Separated or Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Left Turn Approach	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed
	Operating Speed	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≤ 40 km/h	≤ 40 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
	Left Turning Cyclist	F	F	F	F	B	D	F	F
	Level of Service	F	F	F	F	D	D	F	F

INTERSECTIONS		C - Cowdray Crt & Kennedy Rd				C - Cowdray Crt & Kennedy Rd			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>						≤ 50 m	> 50 m	
	Dedicated Right Turning Speed						>25 km/h	>25 km/h	
	Cyclist Through Movement				-		E	F	-
	Separated or Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	-	Mixed Traffic	Mixed Traffic	Mixed Traffic	-
	Left Turn Approach	≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed		≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed	
	Operating Speed	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h		> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	
	Left Turning Cyclist	F	F	E	-	F	F	E	-
	Level of Service	F	F	E	-	F	F	F	-

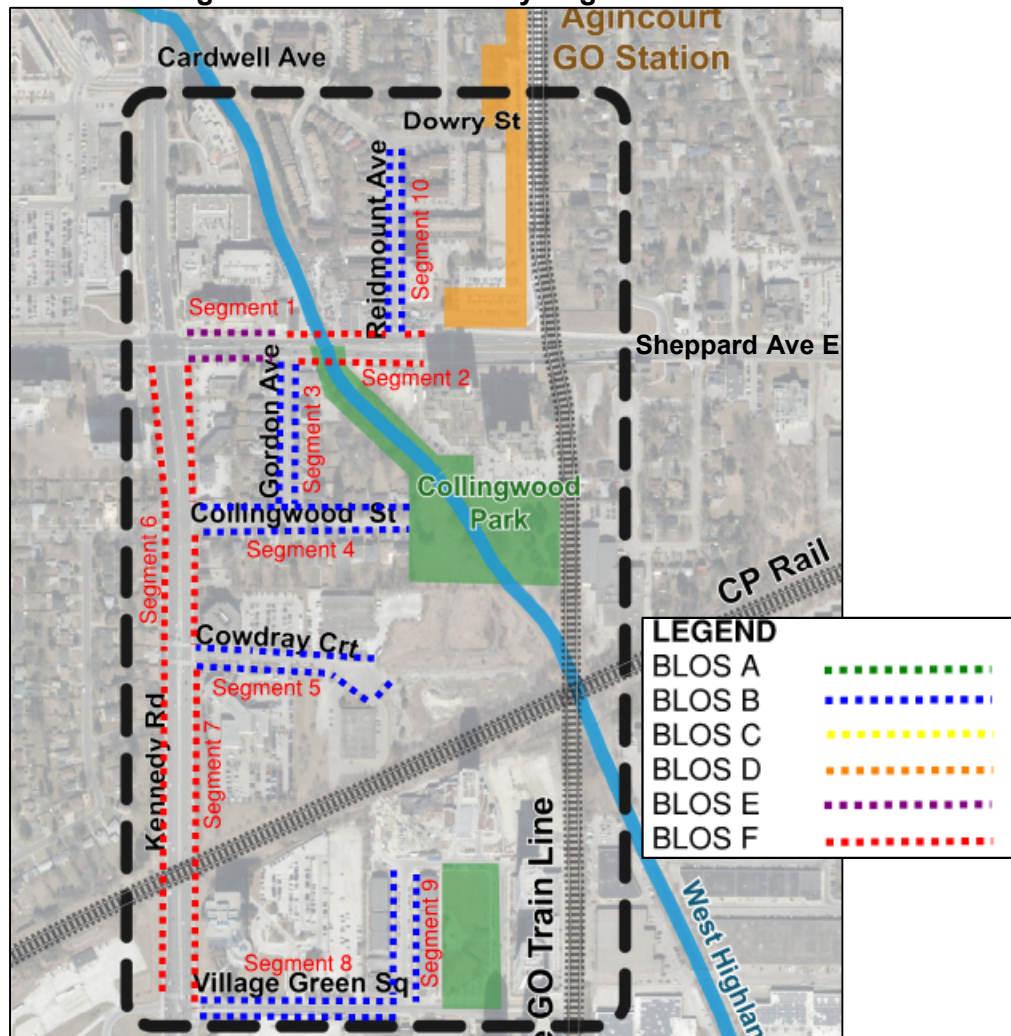
At the segment level, the BLOS focuses more on the number of travel lanes, side street configurations and the operating speeds. The BLOS for each of the study segments within the study area are shown in **Table 7** and graphically in **Figure 6**. The detailed PLOS evaluation at the segment level are provided in **Appendix A**.

**Table 7: Segment BLOS Evaluation**

Segment ID	Road Evaluated	Segment	BLOS NB / SB or EB / WB
1	Sheppard Ave E	between Kennedy Rd and Gordon Ave	E / E
2	Sheppard Ave E	between Gordon Ave and Agincourt GO Station / 4091 & 4101 Sheppard Dwys	F / F
3	Gordon Ave	between Sheppard Ave E and Collingwood St	B / B
4	Collingwood St	between Kennedy Rd and easterly terminus	B / B
5	Cowdray Crt	between Kennedy Rd and easterly terminus	B / B
6	Kennedy Rd	between Sheppard Ave E and Cowdray Crt	F / F
7	Kennedy Rd	Between Cowdray Crt and Village Green Sq	F / F
8	Village Green Sq (east-west portion)	between Kennedy Rd and the intersection 240m east of Kennedy Rd	B / B
9	Village Green Sq (north-south portion)	north of the Village Green Sq intersection 240m east of Kennedy Rd	B / B
10	Reidmount Ave	Between Sheppard Ave and Dowry/Cardwell	B / B

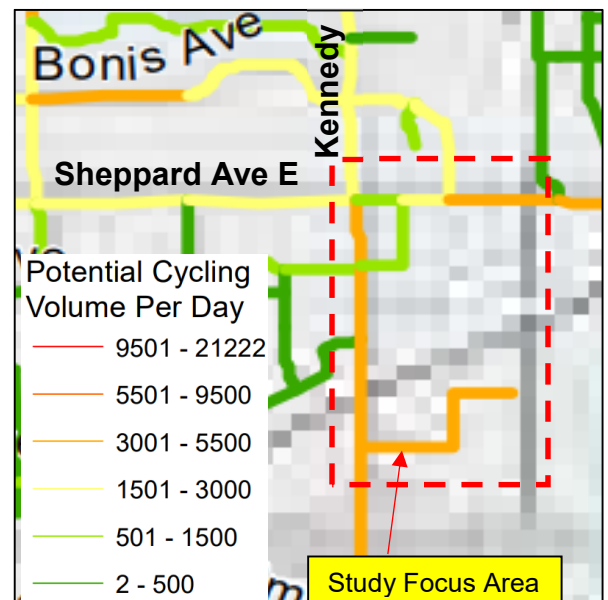
The results show that cycling along the arterial road segments of Kennedy and Sheppard result in poor BLOS of E to F, while cycling along the local streets are generally good at BLOS of B. Nonetheless, when the cyclists along the local streets arrive at the intersections, the continuation of the trip becomes more challenging as noted earlier in Table 6.

Figure 6 – BLOS for Study Segments



### Bicycle Evaluation Summary

Overall the BLOS results show that cycling is currently not a desirable mode of transportation within the study focus area due to the lack of dedicated cycling facilities. While cyclists are able to ride along local streets generally adequately, they must use the arterial roads eventually due to the lack of connectivity over the CP Rail corridor and the Highland Creek. The excerpt on the right illustrates the City's forecast of potential cycling demand where there is currently a high demand for short trips (under 5 km) not currently being made by bicycle that could potentially be completed by bicycle in future. As shown there is clearly a demand for short trips that will be generated in the focus area that need to be considered in the alternative evaluation. Presently only Sheppard Avenue in the study area is listed as having future cycling facilities to be evaluated in the future.





## 5.0 TRANSIT ASSESSMENT

Two aspects of transit services have been evaluated in the study area: the capacity of existing bus routes and the quality of transit service based on the Ottawa MMLOS methodology. The current bus routes that serve the study focus area are routes 43A, 85, 985A and 985B along the arterial roads. In addition, WSP understands that there is a pilot study being planned in the Village Green Square community where TTC buses bring patrons to/from Kennedy subway station. For the purpose of this evaluation, this pilot route has not been evaluated given its preliminary status and lack of data. The existing ridership volumes for the regular bus routes were purchased from the TTC. Based on the typical bus capacity, the existing bus route utilizations are summarized in **Table 8**. The results indicate that there is residual capacity available along all of the bus routes.

**Table 8 - Existing Transit Ridership Utilization**

Route	Direction	Weekday A.M. Period		Weekday P.M. Period	
		Average Ridership per transit unit	Utilization	Average Ridership per transit unit	Utilization
43A Kennedy	NB	30	59%	24	47%
	SB	34	67%	35	69%
85 Sheppard East	EB	21	41%	27	53%
	WB	26	51%	22	43%
985A Sheppard Express	EB	26	51%	33	65%
	WB	31	61%	30	59%
985B Sheppard Express	EB	17	33%	28	55%
	WB	44	86%	19	37%

In addition to the capacity aspect of transit, the segment evaluations of transit level of service (TLOS) within the focus area are summarized in **Table 9**. The details of the evaluation are provided in **Appendix A**. The results are average TLOS D for the bus routes since the buses travel in mixed-traffic conditions and there are no on-street parking and limited driveways along Kennedy and Sheppard, which results in low friction for buses traveling along the curb lanes.

**Table 9: Segment TLOS Evaluation**

Segment ID	Road Evaluated	Segment	TLOS NB / SB or EB / WB
1	Sheppard Ave E	between Kennedy Rd and Gordon Ave	D / D
2	Sheppard Ave E	between Gordon Ave and Agincourt GO Station / 4091 & 4101 Sheppard Dwys	D / D
3	Gordon Ave	between Sheppard Ave E and Collingwood St	--
4	Collingwood St	between Kennedy Rd and easterly terminus	--
5	Cowdray Crt	between Kennedy Rd and easterly terminus	--
6	Kennedy Rd	between Sheppard Ave E and Cowdray Crt	D / D
7	Kennedy Rd	Between Cowdray Crt and Village Green Sq	D / D
8	Village Green Sq (east-west)	between Kennedy Rd and the intersection 240m east of Kennedy Rd	--
9	Village Green Sq (north-south)	north of the Village Green Sq intersection 240m east of Kennedy Rd	--
10	Reidmount Ave	Between Sheppard Ave and Dowry/Cardwell	--

Appendix A - MMLoS Evaluation Tables

Multi-Modal Level of Service - Segments Form

Consultant	WSP	Project Date	
Scenario	Existing Conditions		May-20
Comments	Sheppard Avenue East		

SEGMENTS		Sheppard	between Kennedy & Gordon			between Gordon & Agincourt GO Dwy
Pedestrian	Sidewalk Width	E	EB	WB	EB	WB
	Boulevard Width		1.5 m	1.5 m	≥ 2 m	≥ 2 m
	Avg Daily Curb Lane Traffic Volume		0.5 - 2 m	> 2 m	< 0.5	< 0.5
	Operating Speed		> 3000	> 3000	> 3000	> 3000
	On-Street Parking		> 50 to 60 km/h	> 50 to 60 km/h	> 50 to 60 km/h	> 50 to 60 km/h
	Exposure to Traffic PLoS		no	no	no	no
	Effective Sidewalk Width		E	E	E	E
	Pedestrian Volume		1.5 m	1.5 m	2.5 m	2.5 m
	Crowding PLoS		250 ped/hr	250 ped/hr	250 ped/hr	250 ped/hr
Bicycle	Level of Service	F	B	B	B	B
	Type of Cycling Facility		E	E	E	E
	Number of Travel Lanes		Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Operating Speed		4-5 lanes total	4-5 lanes total	≥ 6 lanes total	≥ 6 lanes total
	# of Lanes & Operating Speed LoS		≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h
	Bike Lane (+ Parking Lane) Width		E	E	F	F
	Bike Lane Width LoS					
	Bike Lane Blockages		-	-	-	-
	Blockage LoS					
	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		>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h
	Unsignalized Crossing - Lowest LoS		B	B	B	B
	Level of Service		E	E	F	F
Transit	Facility Type	D	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8
	Level of Service		D	D	D	D



Multi-Modal Level of Service - Segments Form

Consultant	WSP	Project Date	
Scenario	Existing Conditions		May-20
Comments	Gordon Avenue		

SEGMENTS		Gordon	Sheppard & Collingwood	
			NB	SB
Pedestrian	Sidewalk Width	C	1.5 m	no sidewalk
	Boulevard Width		> 2 m	n/a
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000
	Operating Speed		> 30 to 50 km/h	> 30 to 50 km/h
	On-Street Parking		yes	yes
	Exposure to Traffic PLoS		C	F
	Effective Sidewalk Width		1.5 m	
	Pedestrian Volume		250 ped/hr	
	Crowding PLoS		B	-
Level of Service			C	-
Bicycle	Type of Cycling Facility	B	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h
	# of Lanes & Operating Speed LoS		B	B
	Bike Lane (+ Parking Lane) Width			
	Bike Lane Width LoS		-	-
	Bike Lane Blockages			
	Blockage LoS		-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		A	A
	Level of Service		B	B
Transit	Facility Type	-		
	Friction or Ratio Transit:Posted Speed			
	Level of Service		-	-

Multi-Modal Level of Service - Segments Form

Consultant	WSP	Project Date	
Scenario	Existing Conditions		May-20
Comments	Collingwood Street		

SEGMENTS		Collingwood	Kennedy & Easterly terminus	
			EB	WB
Pedestrian	Sidewalk Width	-	no sidewalk	no sidewalk
	Boulevard Width		n/a	n/a
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000
	Operating Speed		> 30 to 50 km/h	> 30 to 50 km/h
	On-Street Parking		yes	yes
	Exposure to Traffic PLoS		F	F
	Effective Sidewalk Width			
	Pedestrian Volume			
Bicycle	Crowding PLoS	B	-	-
	Level of Service		-	-
	Type of Cycling Facility		Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h
	# of Lanes & Operating Speed LoS		B	B
	Bike Lane (+ Parking Lane) Width			
	Bike Lane Width LoS		-	-
	Bike Lane Blockages			
	Blockage LoS		-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		A	A
	Level of Service		B	B
Transit	Facility Type	-		
	Friction or Ratio Transit:Posted Speed			
	Level of Service		-	-

Multi-Modal Level of Service - Segments Form

Consultant	WSP	Project Date	
Scenario	Existing Conditions		May-20
Comments	Cowdray Court		

SEGMENTS		Cowdray	Kennedy & terminus	
			EB	WB
Pedestrian	Sidewalk Width	C	1.5 m	1.5 m
	Boulevard Width		> 2 m	0.5 - 2 m
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000
	Operating Speed		> 30 to 50 km/h	> 30 to 50 km/h
	On-Street Parking		yes	yes
	Exposure to Traffic PLoS		C	C
	Effective Sidewalk Width		1.5 m	1.5 m
	Pedestrian Volume		250 ped/hr	250 ped/hr
	Crowding PLoS		B	B
Level of Service			C	C
Bicycle	Type of Cycling Facility	B	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h
	# of Lanes & Operating Speed LoS		B	B
	Bike Lane (+ Parking Lane) Width			
	Bike Lane Width LoS		-	-
	Bike Lane Blockages			
	Blockage LoS		-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		A	A
	Level of Service		B	B
Transit	Facility Type	-		
	Friction or Ratio Transit:Posted Speed			
	Level of Service		-	-

Multi-Modal Level of Service - Segments Form

Consultant

Scenario

Comments

WSP

Existing Conditions

Kennedy Road

Project

Date

May-20

SEGMENTS		Kennedy	Sheppard & Cowdray	SB		Cowdray & VGS
			NB		NB	SB
Pedestrian	Sidewalk Width	F	< 1.5 m	1.5 m	≥ 2 m	≥ 2 m
	Boulevard Width		n/a	0.5 - 2 m	< 0.5	< 0.5
	Avg Daily Curb Lane Traffic Volume		> 3000	> 3000	> 3000	> 3000
	Operating Speed		> 50 to 60 km/h	> 50 to 60 km/h	> 50 to 60 km/h	> 50 to 60 km/h
	On-Street Parking		no	no	no	no
	Exposure to Traffic PLoS		F	E	E	E
	Effective Sidewalk Width		1.5 m	1.5 m	2.0 m	2.0 m
	Pedestrian Volume		250 ped/hr	250 ped/hr	250 ped/hr	250 ped/hr
	Crowding PLoS		B	B	B	B
Level of Service			F	E	E	E
Bicycle	Type of Cycling Facility	F	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≥ 6 lanes total	≥ 6 lanes total	≥ 6 lanes total	≥ 6 lanes total
	Operating Speed		≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h
	# of Lanes & Operating Speed LoS		F	F	F	F
	Bike Lane (+ Parking Lane) Width					
	Bike Lane Width LoS		-	-	-	-
	Bike Lane Blockages					
	Blockage LoS		-	-	-	-
	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		>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h	>40 to 50 km/h
	Unsignalized Crossing - Lowest LoS		B	B	B	B
	Level of Service		F	F	F	F
Transit	Facility Type	D	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Friction or Ratio Transit:Posted Speed		Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8
	Level of Service		D	D	D	D

Multi-Modal Level of Service - Segments Form

Consultant

Scenario

Comments

WSP

Existing Conditions

Village Green Square

Project

Date

May-20

SEGMENTS		VGS	Kennedy & N-S segment	N-S section of VGS (240m east of Kennedy/V		
			EB	WB	NB	SB
Pedestrian	Sidewalk Width	C		1.5 m	≥ 2 m	≥ 2 m
	Boulevard Width			0.5 - 2 m	0.5 - 2 m	0.5 - 2 m
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000	≤ 3000	≤ 3000
	Operating Speed		> 30 to 50 km/h	> 30 to 50 km/h	> 30 to 50 km/h	> 30 to 50 km/h
	On-Street Parking		no	no	yes	yes
	Exposure to Traffic PLoS		-	C	A	A
	Effective Sidewalk Width			1.5 m	2.0 m	2.0 m
	Pedestrian Volume			250 ped/hr	250 ped/hr	250 ped/hr
	Crowding PLoS		-	B	B	B
	Level of Service		-	C	B	B
Bicycle	Type of Cycling Facility	B	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)	≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h	>40 to <50 km/h	>40 to <50 km/h
	# of Lanes & Operating Speed LoS		B	B	B	B
	Bike Lane (+ Parking Lane) Width					
	Bike Lane Width LoS		-	-	-	-
	Bike Lane Blockages					
	Blockage LoS		-	-	-	-
	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		≤ 40 km/h	≤ 40 km/h	≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		A	A	A	A
	Level of Service		B	B	B	B
Transit	Facility Type	-				
	Friction or Ratio Transit:Posted Speed					
	Level of Service		-	-	-	-



Multi-Modal Level of Service - Segments Form

Consultant	WSP	Project Date	
Scenario	Existing Conditions		May-20
Comments	Reidmount Avenue		

SEGMENTS		Reidmount	Sheppard & Dowry	
			NB	SB
Pedestrian	Sidewalk Width	C	1.5 m	no sidewalk
	Boulevard Width		0.5 - 2 m	n/a
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000
	Operating Speed		> 50 to 60 km/h	> 50 to 60 km/h
	On-Street Parking		no	no
	Exposure to Traffic PLoS		C	F
	Effective Sidewalk Width		1.5 m	
	Pedestrian Volume		250 ped/hr	
	Crowding PLoS		B	-
	Level of Service		C	-
Bicycle	Type of Cycling Facility	B	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h
	# of Lanes & Operating Speed LoS		B	B
	Bike Lane (+ Parking Lane) Width			
	Bike Lane Width LoS		-	-
	Bike Lane Blockages			
	Blockage LoS		-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		A	A
	Level of Service		B	B
Transit	Facility Type	-		
	Friction or Ratio Transit:Posted Speed			
	Level of Service		-	-

Multi-Modal Level of Service - Intersections Form

Consultant  
Scenario  
Comments

WSP

Existing Conditions

SW Agincourt EA

Project  
Date

May-20

To add intersections  
Select columns LMNO, right-click and *Copy*;  
Then select column P, right-click and *Insert Copied Cells*

To add intersections  
Select columns LMNO, right-click and *Copy*;  
Then select column P, right-click and *Insert Copied Cells*

INTERSECTIONS																	
Crossing Side		A - Kennedy Rd & Sheppard Ave E				B - Agincourt GO Station Dwy & Sheppard Ave E				C - Cowdray Crt & Kennedy Rd				C - Cowdray Crt & Kennedy Rd			
		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	7	8	5	6	4	3	7	6	7	7	0 - 2		8	8	3	
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	Median > 2.4 m	Median > 2.4 m	No Median - 2.4 m	No Median - 2.4 m	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	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Permissive	Protected/ Permissive	Protected/ Permissive	Protected/ Permissive	Permissive	Permissive	Permissive		Protected/ Permissive	Permissive	Permissive	
	Conflicting Right Turns	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	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	
	Right Turns on Red (RTor) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited		RTOR allowed	RTOR allowed	RTOR allowed	
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No	No	No	No		No	No	No	
	Right Turn Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel		No Channel	No Channel	No Channel	
	Corner Radius	10-15m	10-15m	10-15m	10-15m	10-15m	5-10m	5-10m	5-10m	5-10m	5-10m	5-10m		10-15m	10-15m	10-15m	
	Crosswalk Type	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings		Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	
	PETSI Score	7	-9	40	23	56	74	14	29	8	8	92		-9	-9	73	
	Ped. Exposure to Traffic LoS	F	F	E	F	D	C	F	F	F	F	A	-	F	F	C	-
	Cycle Length	110	110	110	110	110	110	110	110	110	110	110		110	110	110	
	Effective Walk Time	33	33	37	37	34	34	24	24	22	22	29		33	33	39	
	Average Pedestrian Delay	27	27	24	24	26	26	34	34	35	35	30		27	27	23	
	Pedestrian Delay LoS	C	C	C	C	C	C	D	D	D	D	D	-	C	C	C	-
	Level of Service	F	F	E	F	D	C	F	F	F	F	D	-	F	F	C	-
		F				F				F				F			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank>		> 50 m		≤ 50 m	≤ 50 m		≤ 50 m							≤ 50 m	> 50 m	
	Dedicated Right Turning Speed		>25 km/h		>25 km/h	≤ 25 km/h		>25 km/h							>25 km/h	>25 km/h	
	Cyclist Through Movement	F				D				-				E			
	Separated or Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	-	Mixed Traffic	Mixed Traffic	Mixed Traffic	-
	Left Turn Approach	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed		≥ 2 lanes crossed	≥ 2 lanes crossed	One lane crossed	
	Operating Speed	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	≤ 40 km/h	≤ 40 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h		> 50 to < 60 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	
	Left Turning Cyclist	F	F	F	F	B	D	F	F	F	F	E	-	F	F	E	-
	Level of Service	F	F	F	F	D	D	F	F	F	F	E	-	F	F	F	-
		F				F				F				F			