TRANSPORTATION IMPACT STUDY

5205 KING STREET, BEAMSVILLE

TOWN OF LINCOLN,
REGIONAL MUNICIPALITY OF NIAGARA

PREPARED FOR:
URBANLINK DEVELOPMENTS LTD.

PREPARED BY:

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APRIL 2025

CFCA FILE NO. 2740-7216

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CROZIER

Revision Number	Date	Comments
Rev. 0	November 2024	Issued for Review
Rev. 1	November 2024	Issued For Coordination
Rev. 2	December 2024	Issued For First Submission
Rev. 3	April 2025	Issued for Second Submission

Executive Summary

C.F. Crozier & Associates Inc. (Crozier) was retained by UrbanLink Developments Ltd. to undertake a Transportation Impact Study (TIS) in support of an Official Plan Amendment (OPA) and Zoning By- Law amendment (ZBA) for a proposed residential and commercial development. The development is located at the northwest corner of the Lincoln Avenue and King Street intersection in the Town of Lincoln, Regional Municipality of Niagara.

The purpose of the study is to assess the impacts of the proposed development on the study road network and to recommend any required mitigation measures, if warranted.

The study has been completed in accordance with the agreed upon Terms of Reference with the Town and Region.

The development proposes the construction of two apartment buildings with commercial/retail space on the ground floor. To facilitate the development, a total of 309 parking spaces, and full moves site accesses off King Street and Lincoln Avenue are proposed. Both buildings are separated at ground level but are connected via underground parking.

The TIS was originally submitted in December 2024. The TIS herein has been updated to address the Town and Region's first submission comments, as well as to review the changes in the most recent Site Plan.

Existing Conditions

Under existing conditions, the unsignalized intersection of Lincoln Avenue and King Street is currently operating and an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The maximum control delay occurs at the southbound leg with a delay of 26.2 seconds and 73.9 seconds during the weekday a.m. and p.m. peak periods, respectively. The maximum theoretical volume-to-capacity (v/c) ratio is 0.44 and 0.85 occurring at the southbound leg, during the weekday a.m. and p.m. peak periods, respectively.

The remainder of the study road network is operating with an overall LOS C or better at each intersection during the weekday a.m. and p.m. peak periods, with one critical movement occurring at the southbound leg of the Ontario Street and King Street intersection. The critical movement has a maximum control delay of 41.9 seconds, and a maximum volume-to-capacity ratio of 0.94.

Future Background Conditions

With the existing and background traffic growth in the ultimate background horizon year, the signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 39.0 seconds, and a maximum theoretical v/c ratio of 0.95.

With the expected traffic growth in 2035, the Lincoln Avenue and South Service Road intersection is expected to operate at an LOS E during the weekday a.m. and p.m. peak periods, this is due to delays in the minor, stop-controlled approach. The intersection has a maximum control delay of 41.4 seconds, and a maximum v/c ratio of 0.82.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 160.8 seconds, and a maximum v/c ratio of 1.04, both occurring at minor, stop-controlled approaches, in the p.m. peak period.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS E during the weekday a.m. and p.m. peak periods. Under 2035 future background conditions, the intersection has a maximum control delay of 289.2 seconds and a maximum v/c ratio of 1.54, both occurring at the southbound leg.

Future Total Conditions

In the ultimate horizon year, with the expected traffic growth and site generated trips the signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 41.8 seconds, and a maximum theoretical v/c ratio of 0.95.

With the expected traffic growth in 2035, the Lincoln Avenue and South Service Road intersection is expected to operate at an LOS E during the weekday a.m. and p.m. peak periods, consistent with 2035 future background conditions. The intersection has a maximum control delay of 43.7 seconds, and a maximum v/c ratio of 0.84.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 246.3 seconds, and a maximum v/c ratio of 1.24, both occurring at minor, stop-controlled approaches, in the p.m. peak period.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of E during the weekday a.m. and p.m. peak periods. Under 2035 future total conditions, the intersection has a maximum control delay of 293.6 seconds and a maximum v/c ratio of 1.55, both occurring at the southbound leg. These operations are consistent with those experienced under 2035 future background conditions.

Overall, the proposed development is not expected to significantly impact the study road network. Although critical movements exist in the ultimate horizon year, it can be noted that the growth of existing and background traffic account for a large portion of the 2035 future total traffic volume. The future background operations show multiple critical movements in its analysis, which support the significance of the existing and background traffic growth.

It can also be noted that the main intersection of Lincoln Avenue and King Street continues to operate efficiently with the addition of proposed development's site generated trips.

Recommendations

Auxiliary left turn lane warrant analysis was conducted at the new site access along King Street. The three-legged intersection was reviewed for left turn lane analysis for the future total scenario. The analysis was conducted using the MTO's design Supplement for TAC GDGCR. Considering King Street is an arterial roadway with a posted speed limit of 60 km/h, the design speed was set to 80 km/h, as per industry standards. It was found that the site access warranted a left turn lane under the ultimate horizon year, 2035.

The expected traffic growth in the future horizon years lead to significant delays at the Ontario Street and King Street intersection, specifically at the southbound approach. To mitigate these delays, the current signal timing plan was optimized to improve operations. Furthermore, the southbound left-through lane was changed to an exclusive left-turn lane, and the exclusive right-turn lane was changed to a right-through lane. This change improves the intersection operations as the observed saturated flow rates in the Region of Niagara are higher for left-turn lanes than left-through lanes. This change is justifiable as the lane essentially operates as an exclusive left-turn lane currently, with a total of 694 vehicles turning left, compared to just two (2) going through, in the 2035 future total a.m. and p.m. horizon years combined.

Similar to the Ontario Street and King Street intersection, the expected traffic growth in the future horizon years lead to significant delays at the Mountainview Road and King Street intersection, specifically at the stop-controlled approaches. While the signal is not warranted under OTM book 12 Justification 7, the signalization of Mountainview Road and King Street is included as a recommendation nonetheless.

Traffic Safety

Assessment of sight distance at the proposed site accesses indicate that no sight distance issues are expected for vehicles exiting the Site.

Vehicle Turning Diagrams indicate that there is sufficient space for the expected design vehicles to maneuver in and out of the designated site accesses, parking, and loading spaces without conflict.

Parking and Loading

The proposed development is governed by the Town of Lincoln Comprehensive Zoning By-Law 2022-50 (ZBL).

The Lincoln ZBL requires the development to provide a minimum parking supply of 309 parking spaces with the consideration of shared parking reductions. As the Site Plan proposes 309 parking spaces, the development meets the ZBL's requirements.

According to the Lincoln ZBL, a total of 9 accessible parking spaces are required. As the Site Plan proposes 9 accessible spaces, the development meets the ZBL's accessible parking requirements.

The Lincoln ZBL requires a total of 71 bicycle parking spaces. As the development proposes 77 bicycle parking spaces, the development exceeds the ZBL's requirements by six (6) spaces.

The proposed residential-commercial development at the northwest corner of Lincoln Avenue and King Street can be supported from transportation operations, safety, parking, and loading perspectives.

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1.0 Introduction

1.1 Background (Updated)

C.F. Crozier & Associates Inc. (Crozier) was retained by UrbanLink Developments Ltd. to undertake a Transportation Impact Study (TIS) in support of an Official Plan Amendment (OPA) and Zoning By- law amendment (ZBA) for a proposed residential and commercial development. The development is located at the northwest corner of the Lincoln Avenue and King Street intersection in the Town of Lincoln, Regional Municipality of Niagara.

The purpose of the study is to assess the impacts of the proposed development on the study road network and to recommend any required mitigation measures, if warranted.

The study analyzes the current operations of the study road intersections as well as the future traffic operations with and without the addition of the site generated vehicular trips.

The study has been completed in accordance with the agreed upon Terms of Reference with Town of Lincoln (Town) and Region of Niagara (Region), as well as general conformance with the Niagara Region Transportation Impact Study Guidelines. The associated analyses and findings are outlined herein. The Terms of Reference for the study can be found in the correspondence included in **Appendix A.**

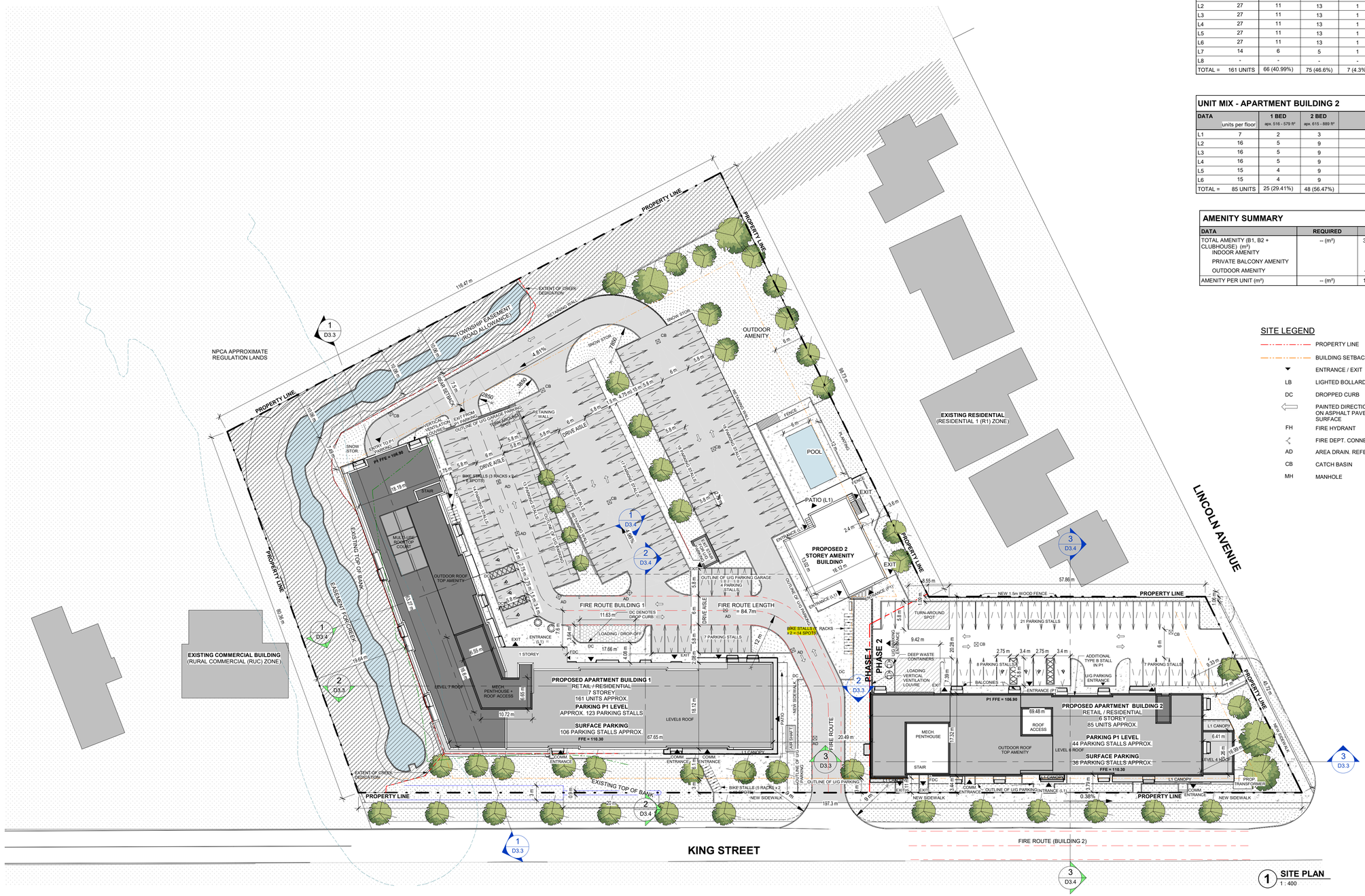
The TIS was originally submitted in December 2024. The TIS herein has been updated to address the Town and Region's first submission comments, as well as to review the changes in the most recent Site Plan. The comments from the first submission are included in **Appendix A.**

1.2 Development Proposal (Updated)

The development proposes the construction of two apartment buildings with a restaurant, and commercial/retail spaces on the ground floor of each building. The western building has a maximum of 7-storeys, and the eastern building is 6-storeys tall. A 2-storey amenity building shared between the two apartments is also proposed. To facilitate the development, a total of 310 parking spaces, and full moves site accesses off King Street and Lincoln Avenue are proposed. The King Street access primarily serves the western building while the Lincoln Avenue access primarily serves the eastern building. Both buildings are separated at ground level but are connected via the underground parking. It is expected that the buildings will be constructed two different phases, with the western building and King Street access being constructed first, with the eastern building and Lincoln Avenue access being constructed immediately after.

The most recent Site Plan prepared by SRM Architects Inc. is attached as **Figure 1.**

The Site Location is attached as **Figure 2.**



1 **SITE PLAN**
1 : 400

Project North

True North

UNIT MIX - APARTMENT BUILDING 1

DATA	units per floor	1 BED apx. 509 - 589 ft²	2 BED apx. 715 - 879 ft²	2 BED + D apx. 933 - 1013 ft²	3 BED apx. 971 - 1061 ft²
L1	12	5	5	1	1
L2	27	11	13	1	2
L3	27	11	13	1	2
L4	27	11	13	1	2
L5	27	11	13	1	2
L6	27	11	13	1	2
L7	14	6	5	1	2
L8	-	-	-	-	-
TOTAL =	161 UNITS	66 (40.99%)	75 (46.6%)	7 (4.3%)	13 (8.07%)

UNIT MIX - APARTMENT BUILDING 2

DATA	units per floor	1 BED apx. 516 - 579 ft²	2 BED apx. 615 - 889 ft²	3 BED apx. 896 - 1256 ft²
L1	7	2	3	2
L2	16	5	9	2
L3	16	5	9	2
L4	16	5	9	2
L5	15	4	9	2
L6	15	4	9	2
TOTAL =	85 UNITS	25 (29.41%)	48 (56.47%)	12 (14.12%)

AMENITY SUMMARY

DATA	REQUIRED	PROVIDED
TOTAL AMENITY (B1, B2 + CLUBHOUSE) (m²)	-- (m²)	3,181 m² (34,273 ft²)
INDOOR AMENITY		804 m² (8,655 ft²)
PRIVATE BALCONY AMENITY		690 m² (7,459 ft²)
OUTDOOR AMENITY		1,687 m² (18,159ft²)
AMENITY PER UNIT (m²)	-- (m²)	12.93 m² (139.32 ft²)

SITE LEGEND

- PROPERTY LINE
- BUILDING SETBACK
- ENTRANCE / EXIT
- LB — LIGHTED BOLLARD
- DC — DROPPED CURB
- PAINTED DIRECTIONAL ARROW ON ASPHALT PAVEMENT SURFACE
- FH — FIRE HYDRANT
- FIRE DEPT. CONNECTION
- AD — AREA DRAIN. REFER TO CIVIL
- CB — CATCH BASIN
- MH — MANHOLE

SITE DATA (CONCEPT 1 - CREEK REALIGNMENT)

5205 King St, Beamsville, Ontario

DATA	REQUIRED	PROVIDED
ZONING	ZONING - XX	
ORIGINAL LOT AREA (m²)	-- (m²)	16,047.5 (m²)
AREA DEDICATED TO CREEK (m²)	-- (m²)	2,139.4 (m²)
FINAL LOT AREA (m²)	-- (m²)	13,908 (m²)
SETBACKS: FRONT YARD (m)	3.0 (m)	3.0 (m)
SETBACKS: INTERIOR SIDE YARD (m)	4.5 (m)	6.0 (m)
SETBACKS: EXTERIOR SIDE YARD (m)	-- (m)	9.3 (m)
SETBACKS: REAR YARD (m)	7.5 (m)	7.5 (m)
TOTAL UNITS		246

BUILDING DATA - APARTMENT 1

DATA	REQUIRED	PROVIDED
TOTAL DENSITY (# of units)	-- (units)	161 (units)
BUILDING AREA (m²)	-- (m²)	2,148 m² (23,120 ft²)
*GROSS FLOOR AREA (m²)	-- (m²)	13,795 m² (148,489 ft²)
U/G FLOOR AREA (m²)	--	4,187 m² (45,069 ft²)
GROSS CONSTRUCTION AREA (m²)	--	17,747 m² (191,025 ft²)
NUMBER OF STOREYS	--	7 + ROOF AMENITY
BUILDING HEIGHT (m)	-- (m) MAX.	25.54 (m) *(from Finished Grade (109.66))*
COMMERCIAL/RETAIL AREA (m²)	-- (m²)	675 m² (7,264 ft²)
AMENITY AREA (m²)	= 10m² for each unit = 1,610 m²	886 m² (9,536 ft²)
INDOOR AMENITY *(common)*		177 m² (1,906 ft²)
PRIVATE AMENITY *(balconies)*		427 m² (4,625 ft²)
ROOFTOP AMENITY *(outdoor)*		279 m² (3,005 ft²)

*GROSS FLOOR AREA (m²) excludes parking, includes common spaces, circulation, services & garbage rooms in P1
Finished Grade calculated as average grade

BUILDING DATA - APARTMENT 2

DATA	REQUIRED	PROVIDED
TOTAL DENSITY (# of units)	-- (units)	85 (units)
BUILDING AREA (m²)	-- (m²)	1,195 m² (12,863 ft²)
*GROSS FLOOR AREA (m²)	-- (m²)	7,472 m² (80,429 ft²)
U/G FLOOR AREA (m²)	--	2,028 m² (21,825 ft²)
GROSS CONSTRUCTION AREA (m²)	--	9,510 m² (102,370 ft²)
NUMBER OF STOREYS	--	6 + ROOF AMENITY
BUILDING HEIGHT (m)	-- (m) MAX.	22.34 m *(from Finished Grade (109.66))*
COMMERCIAL/RETAIL AREA (m²)	-- (m²)	396 m² (4,267 ft²)
COMMERCIAL OUTDOOR AMENITY (m²) *(not included in overall amenity)*	-- (m²)	71 m² (763 ft²)
AMENITY AREA (m²)	= 10m² for each unit = 850 m²	644 m² (6,934 ft²)
INDOOR AMENITY *(common)*		86 m² (926 ft²)
PRIVATE AMENITY *(balconies)*		263 m² (2,834 ft²)
ROOFTOP AMENITY *(outdoor)*		295 m² (3,175 ft²)

*GROSS FLOOR AREA (m²) excludes parking, includes common spaces, circulation, services & garbage rooms in P1

BUILDING DATA - CLUBHOUSE

DATA	REQUIRED	PROVIDED
BUILDING AREA (total m²)	-- (m²)	266.2 m² (2,865 ft²)
GROSS FLOOR AREA (m²)	-- (m²)	804.5 m² (8,660 ft²)
P1		272.1 m² (2,929 ft²)
L1		266.2 m² (2,865 ft²)
L2		266.2 m² (2,665 ft²)
TOTAL CONSTRUCTION AREA (m²)		804.5 m² (8,660 ft²)
NUMBER OF STOREYS	--	2
BUILDING HEIGHT (m)	-- (m) MAX.	9.44 m *(from Finished Grade (109.66))*
AMENITY AREA (m²)	--	1,654 m² (17,803 ft²)
INDOOR AMENITY		541 m² (5,823 ft²)
OUTDOOR AMENITY		1,113 m² (11,979 ft²)

LOT COVERAGE

DATA	REQUIRED	PROVIDED
LOT COVERAGE (%)	-- (%)	27 (%)
LOT COVERAGE (m²)	-- (m²)	3,754 m² (40,421ft²)
LANDSCAPED OPEN SPACE (%)		4,339.9 m² (31.2%)

VEHICLE PARKING DATA

DATA	REQUIRED	PROVIDED
TOTAL PARKING BY LOCATION		
SURFACE - BUILDING 1		106
U/G - BUILDING 1		123
-		-
SURFACE - BUILDING 2		36
U/G - BUILDING 2		44
TOTAL		**309**
RESIDENTIAL PARKING APT. BUILDING 1&2	1.0 / unit = 246	246 (1/ unit)
BARRIER FREE PARKING	2% + 2 (for 201 - 1000 stalls) = 9	9 (included in overall) TYPE A - 4 TYPE B - 5
VISITOR PARKING	1 / 10 units = 25	25
COMMERCIAL PARKING	1.0 / 30m² retail 1072 / 30 = 35	39
	TOTAL	**309**

BICYCLE PARKING DATA

DATA	REQUIRED	PROVIDED
RESIDENTIAL BICYCLE PARKING	0.25 / 246 units = 62	
INDOOR - BUILDING 1		30
-		-
INDOOR - BUILDING 2		17
-		-
SURFACE		24
TOTAL		**71**
COMMERCIAL BICYCLE PARKING	1 / 200m² retail 1072 / 200 = 6	6 surface bike spots
	TOTAL	77

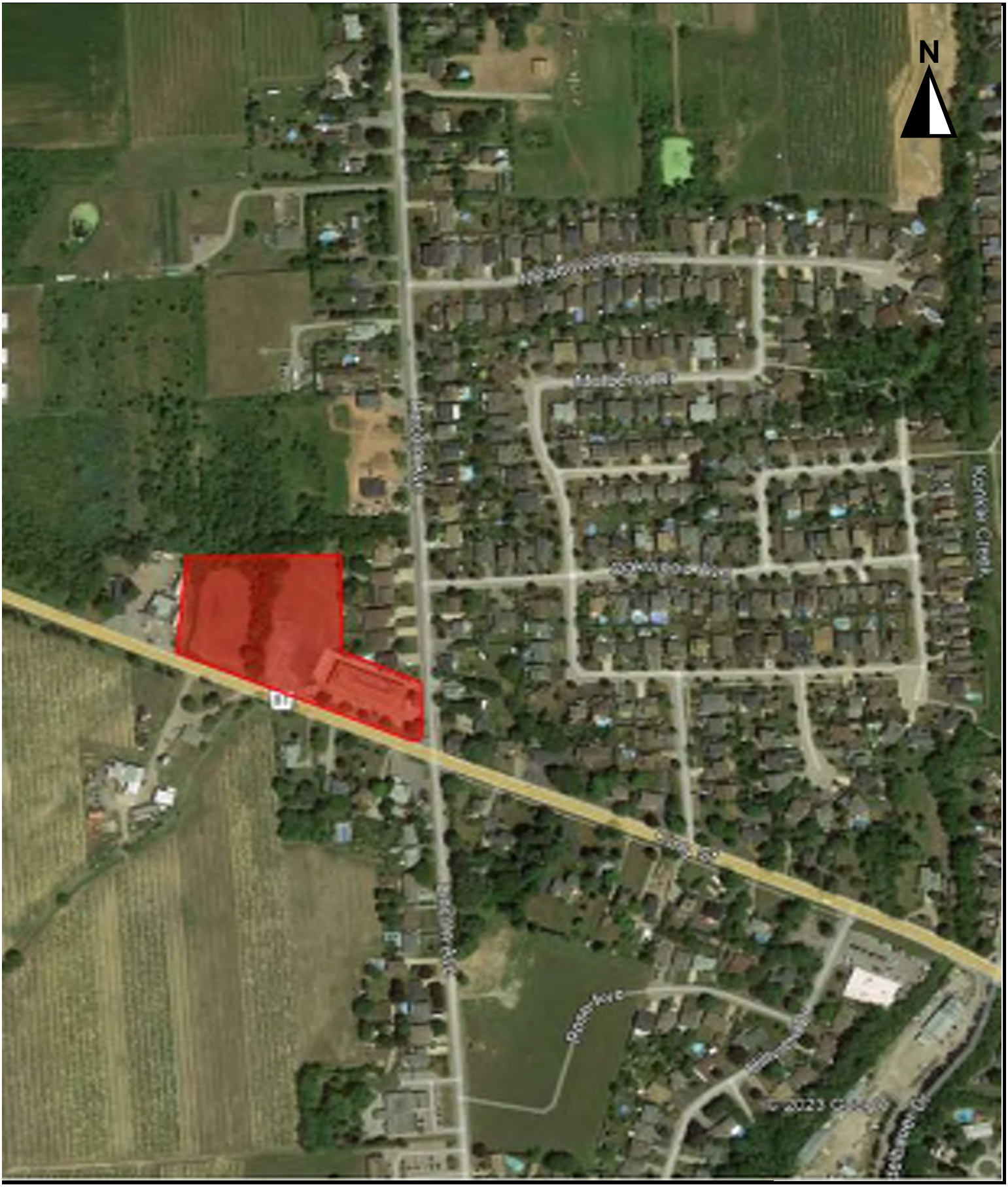
5205 KING ST, BEAMSVILLE

SITE PLAN - CONCEPT

22043
2025-03-19
ISSUED FOR REZONING

SRM↗
architects+
urban×designers

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Legend	5205 King Street, Beamsville	CROZIER CONSULTING ENGINEERS	Figure 2
Site Location	Site Location		Project No. 2740 - 7216 Date: April 2025 Analyst: Andrew Bader

Table 1 outlines the breakdown of the development proposal.

Table 1: Proposed Development Breakdown

Site Statistic	Phase 1
Number of Storeys	7 and 6
Number of Units	161
Commercial/Retail GFA	418 m^2
Restaurant GFA	257 m^2
Underground Parking Supply	123
Surface Level Parking Supply	106
Loading Supply	1
Site Statistic	**Phase 2**
Number of Storeys	6
Number of Units	85
Commercial/Retail GFA	144 m^2
Restaurant GFA	253 m^2
Underground Parking Supply	44
Surface Level Parking Supply	36
Loading Supply	1

2.0 Existing Conditions

2.1 Development Lands

The subject land covers an area of approximately 1.6 ha and currently consists of a small commercial/retail strip plaza and two empty lots. The property, located in a mixed-use residential, and agricultural neighborhood, is bound by agricultural lands to the north, King Street to the south, residential houses and Lincoln Avenue to the east, and a tire shop to the west.

The study area encompasses the study road network surrounding the subject property and is described in **Section 2.2**. The Transportation Impact Study analyzes the following intersections as agreed upon in the Terms of Reference with the Town staff, attached in **Appendix A.**

- Lincoln Avenue and King Street
- Lincoln Avenue Site Access
- Lincoln Avenue and South Service Road

- Lincoln Avenue and Greenlane
- King Street Existing Site Access
- King Street New Site Access
- King Street and Mountainview Road
- King Street and Ontario Street

2.2 Study Road Network (Updated)

The study road network is described **in Table 2** and is illustrated in **Figure 3.** King Street has been assigned an east-west direction, while Lincoln Avenue has been assigned a north-south direction for the purpose of this report.

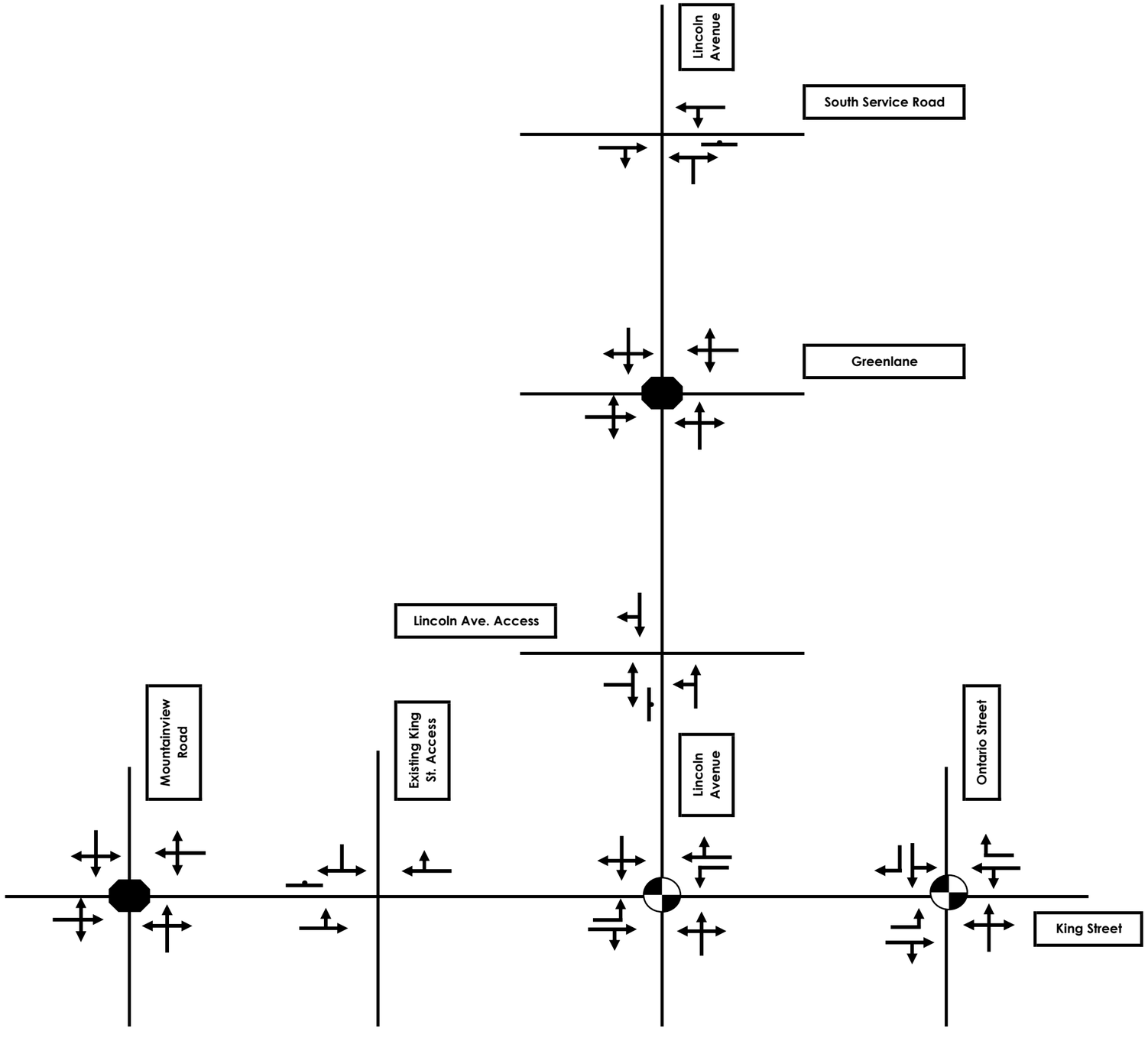
Table 2: Study Road Network

Feature	Roadway					
	King Street (Regional Road 81)	**Lincoln Avenue**	**South Service Road (Regional Road 40)**	**Mountainview Road**	**Ontario Street (Regional Road 18)**	**Greenlane**
Direction	Two-Way (East-West)	Two-Way (North-South)	Two-Way (East-West)	Two-Way (North-South)	Two-Way (North-South)	Two-Way (East-West)
Classification	Major Arterial	Collector Road	Major Arterial	Collector Road	Major Arterial	Collector Road
Jurisdiction	Niagara Region	Town of Lincoln	Niagara Region	Town of Lincoln	Niagara Region	Town of Lincoln
Speed Limit	60 km/h west of Lincoln Avenue (Posted) 50 km/h east of Lincoln Avenue (Posted)	50 km/h (Posted)	80 km/h (Posted)	50 km/h (Posted)	50 km/h (Posted)	50 km/h (Posted)
Span	Niagara's west regional limit to Victoria Avenue (Regional Road 24)	Lake Ontario to Mcleod Street	Niagara's west regional limit to Martindale Road	Blezard Drive (Lake Ontario) to Kemp Road East	South Service Road to King Street	King Street to Victoria Avenue
Number of lanes total	Two travel lanes	Two travel lanes	Two travel lanes	Two travel lanes	Two travel lanes	Two travel lanes
Median type	No Median	No Median	No Median	No median	No median	No Median

Feature	Roadway					
	King Street (Regional Road 81)	**Lincoln Avenue**	**South Service Road (Regional Road 40)**	**Mountainview Road**	**Ontario Street (Regional Road 18)**	**Greenlane**
Pedestrian Facilities	Sidewalk east of Lincoln Avenue (Both sides) No facilities West of Lincoln Avenue	Sidewalk north of King Street (East side only) No facilities south of King Street	No pedestrian facilities	No pedestrian facilities	Sidewalks on both sides	No pedestrian facilities
Cycling Facilities	None	None	None	None	None	None

Within the study road network, pedestrian facilities are provided on King Street, Lincoln Avenue, and Ontario Street. King Street has a sidewalk east of Lincoln Avenue, Lincoln has a sidewalk beside the northbound lane and Ontario Street has sidewalks on both sides. The aforementioned roadways provide good connectivity to residential and commercial developments in comparison to the remainder of the study road network.

Throughout the study road network there are currently no cycling facilities. **Section 3.6** mentions the planned improvements to the cycling infrastructure.



Legend

- Signalized Intersection
- All-Way Stop
- Stop Sign

5205 King Street, Beamsville

Existing Study Road Network

CROZIER CONSULTING ENGINEERS

Figure 3

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader

2.3 Transit Operations

GO Transit operates two regional transit routes that connect Lincoln to downtown Toronto, and many other suburban major transit areas along Lake Ontario. The closest bus stop to the study area is at Ontario Street and the QEW, which is 3.1 km away from the subject site. The Ontario Street and QEW bus stop is part of the Lakeshore West GO route and the Niagara Falls/Toronto route (Route 11 and 12, respectively). **Table 3** outlines the existing transit routes, direction, days of operation, peak hour headways, and the location of bus stops in the study area.

Table 3: Existing Transit Services

Route	Direction	Span	Days of Operation	Peak Hour Headways (min)	Bus Stops in Study Area
Go Transit (Bus)					
Lakeshore West GO (Route 11)	Two-Way (East-West)	Union Station to Niagara Falls GO[1]	Monday - Friday	60	Ontario Street @ QEW (Beamsville) (3.1 km; 9-minute bike or 5-minute drive)
Niagara Falls /Toronto GO (Route 12)	Two-Way (East-West)	Union Station to Niagara Falls GO[2]	7 days	60	Ontario Street @ QEW (Beamsville) (3.1 km; 9-minute bike or 5-minute drive)

Note 1: A transfer from bus to train is required at Aldershot GO
Note 2: A transfer from bus to train is required at Burlington GO

Appendix B contains relevant transit information.

2.4 Traffic Data

Turning movement counts (TMC) were conducted by Spectrum Traffic Data Inc. staff at the study intersection on Thursday, October 10, 2024, between 7:00 a.m. to 10:00 a.m., and 4:00 p.m. to 7:00p.m. to reflect typical commuter peak hours. The traffic count data is included in **Appendix C**.

Intersection analysis was conducted utilizing peak hour factors (PHFs) calculated for each study intersection for weekday peak periods, based on the TMCs.

The signal timing plan for the Ontario Street and King Street intersection was obtained from Niagara Region staff. The signal timing plan is included in **Appendix C.**

2.5 Intersection Modelling

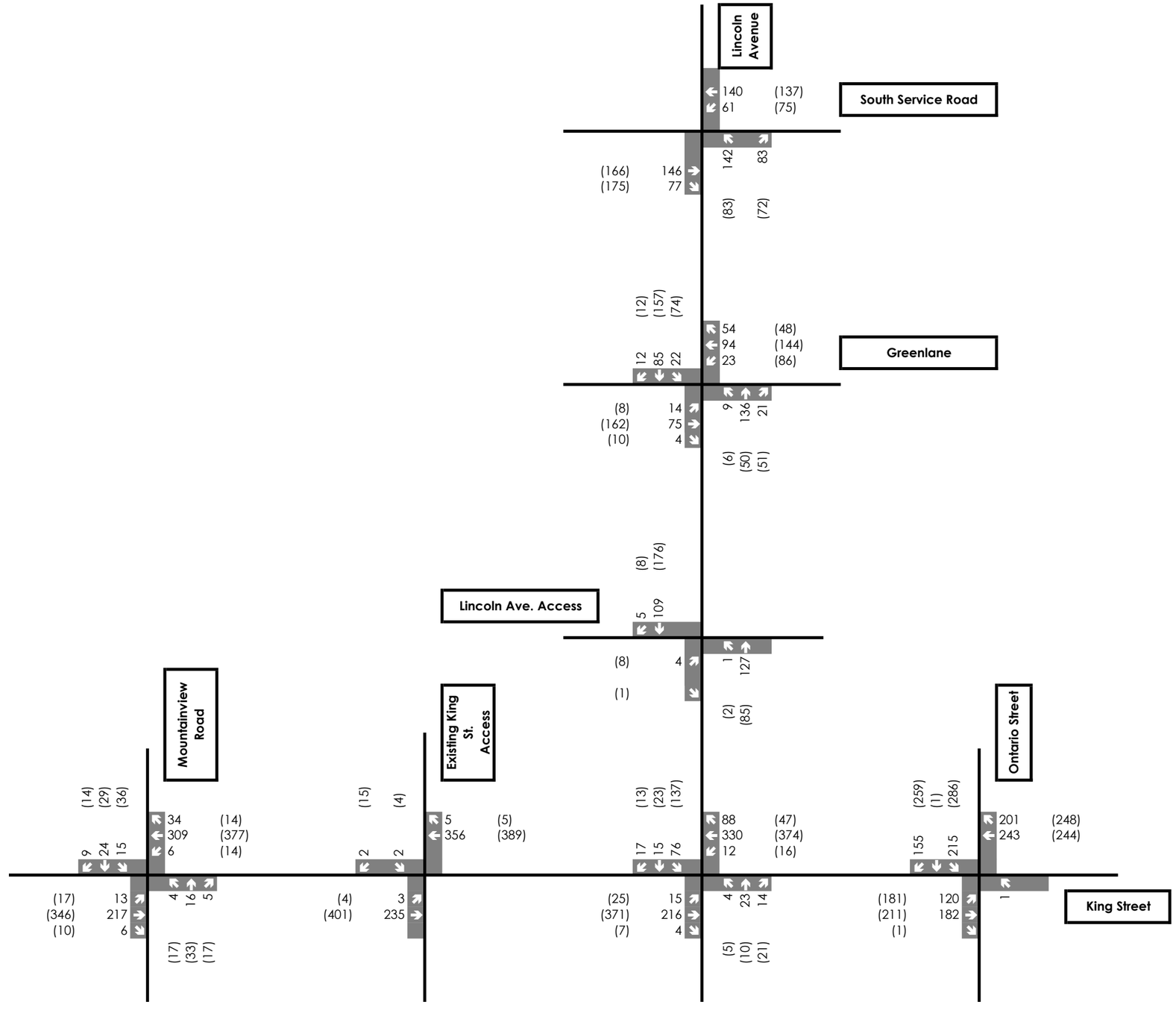
The Region of Niagara outlines the recommended saturated flow rates to be used by jurisdiction. Accordingly, the applicable rates for the Town Lincoln were used in the Synchro modelling herein. Peak hour factors, heavy vehicle percentages, and pedestrian crossing volumes were derived from the TMCs collected. For the remaining modelling parameters, default synchro values were used.

The assessment of intersections is based on the "Highway Capacity Manual (HCM)" methodology. Intersections are assessed using a Level of Service (LOS) metric with ranges of delay assigned a letter from "A" to "F"; "A" representing low delays and "F" representing heavy delays. The LOS definitions for are included in **Appendix D.** 95th percentile queue lengths at the site access were derived from Sim Traffic. Sim Traffic modelling was prepared using a minimum of 5 simulations with 5 minutes seeding and 10 minutes recording.

Signal timing plans obtained from the Niagara Region Staff were applied to the Ontario Street and King Street intersection.

2.6 Intersection Operations (Updated)

The operations of the study intersection were analyzed based on the existing traffic volumes illustrated in **Figure 4** and the signal timing as provided by Niagara Region. **Table 4** outlines the existing traffic level of service (LOS) for the intersections under existing conditions and geometric configurations**.** Detailed capacity analyses are included in **Appendix E.**



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

5205 King Street, Beamsville

2024 Existing Traffic Volumes

CROZIER CONSULTING ENGINEERS

Figure 4

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader

Table 4: 2024 Existing Level of Service

Intersection (Control)	Performance Metrics						
	Movement	LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Unsignalized)	**Overall**	**D**	**F**	**26.2**	**73.9**	**0.44**	**0.85**
	EBLTR	A	A	0.7	0.8	0.02	0.02
	WBLTR	A	A	0.3	0.5	0.01	0.02
	NBLTR	C	C	16.5	15.9	0.14	0.11
	SBLTR	D	F	26.2	73.9	0.44	0.85
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**B**	**B**	**10.0**	**10.2**	**0.08**	**0.12**
	EBLTR	B	B	10.0	10.2	0.01	0.01
	NBLTR	A	A	0.1	0.2	0.00	0.00
	SBLTR	A	A	0.0	0.0	0.08	0.12
King Street and Existing Site Access (Unsignalized)	**Overall**	**B**	**B**	**12.3**	**12.1**	**0.25**	**0.25**
	EBLTR	A	A	0.2	0.1	0.00	0.00
	WBLTR	A	A	0.0	0.0	0.25	0.25
	SBLTR	B	B	12.3	12.1	0.01	0.04
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**C**	**C**	**16.6**	**16.4**	**0.46**	**0.38**
	EBTL	A	A	0.0	0.0	0.15	0.24
	WBTR	A	A	2.8	3.5	0.06	0.08
	NBLR	C	C	16.6	16.4	0.46	0.38
Mountainview Road and King Street (Unsignalized)	**Overall**	**C**	**C**	**15.6**	**23.9**	**0.14**	**0.31**
	EBLTR	A	A	0.6	0.5	0.02	0.02
	WBLTR	A	A	0.2	0.4	0.01	0.01
	NBLTR	C	C	15.2	20.8	0.08	0.24
	SBLTR	C	C	15.6	23.9	0.14	0.31
Ontario Street and King Street (Signalized)	**Overall**	**C**	**C**	**26.0**	**29.4**	**0.78**	**0.94**
	EBT	B	B	13.7	15.9	0.34	0.45
	EBL	B	B	16.3	17.2	0.29	0.36
	WBLT	D	D	48.8	45.6	0.78	0.77
	WBR	B	B	12.9	14.1	0.54	0.61
	NBLTR	C	-	24.0	-	0.00	-
	SBTL	D	E	41.9	67.6	0.45	0.94
	SBR	A	A	6.2	5.8	0.34	0.46
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**A**	**B**	**9.3**	**11.9**	**0.25**	**0.42**
	EBLTR	A	B	8.8	10.5	0.14	0.28
	WBLTR	A	B	9.3	12.0	0.25	0.42
	NBLTR	A	A	9.3	9.5	0.24	0.17
	SBLTR	A	B	8.9	11.8	0.18	0.38

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

The unsignalized intersection of Lincoln Avenue and King Street is currently operating and an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The maximum control delay occurs at the southbound leg with a delay of 26.2 seconds and 73.9 seconds during the weekday a.m. and p.m. peak periods, respectively. The maximum theoretical volume-to-capacity (v/c) ratio is 0.44 and 0.85 occurring at the southbound leg, during the weekday a.m. and p.m. peak periods, respectively.

The remainder of the study road network is operating with an overall LOS C or better at each intersection during the weekday a.m. and p.m. peak periods, with one critical movement occurring at the southbound leg of the Ontario Street and King Street intersection. The critical movement has a maximum control delay of 67.6 seconds, and a maximum volume-to-capacity ratio of 0.94.

Table 5: 2024 Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBLTR	6.5	13.7	42.5[2]
	SBLTR	19.4	19.6	15.1[2]
Ontario Street and King Street	EBL	34.4	32.9	15.0
	WBR	28.5	26.1	20.0
	SBLT	39.5	53.2	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to Lincoln Site access.

At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns can be accommodated by the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane.

3.0 Future Background Conditions

3.1 Horizon Years

The subject development is expected to be built out in two phases, with Phase 2 beginning towards the end of phase 1. As confirmed with UrbanLink, Phase 1 is expected to be completed in 2028, while Phase 2 is expected to be completed in 2030. This study analyzes both buildout years in 2028 and 2030, as well as a five-year study horizon from total build-out in 2035, as agreed upon in the Terms of Reference with the Region of Niagara staff.

3.2 Growth Rate

As confirmed by the Town staff in the Terms of Reference, a 3% annual compounded growth rate is used in the Beamsville area and therefore applied to all movements within the study road network. It is noted that this is considered conservative as Niagara Region staff approved a 2% annual compounded growth rate.

3.3 Background Developments

In addition to the annual growth rate, background site generated traffic from the following developments were also separately applied to the future background traffic volumes as discussed in the Terms of Reference with Town staff.

Hixon Development Ltd, 4129 Hixon Street

Located southeast of the subject property, a residential development consisting of single-family homes, semi-detached homes, street townhomes and a multi-unit residential building is proposed. The development is expected to generate a total of 112 and 136 two-way trips during the weekday a.m. and p.m. peak periods, respectively. The site trips have been assigned to the boundary road network based on the trip assignment provided in Figure 7 of the R.J. Burnside TIS (June 2023). The volumes were then distributed to the remaining boundary road network based on existing travel patterns with consideration of the proposed and surrounding land uses.

Vista Ridge, 4020-4064 Mountain Street

Located southeast of the subject property, a townhouse residential development is proposed. The development is expected to generate a total of 158 and 185 two-way trips during the weekday a.m. and p.m. peak periods, respectively. The site trips have been assigned to the boundary road network based on the trip assignment provided in Figure 3.3a and 3.3b of the Paradigm TIS (April 2024). The volumes were then distributed to the remaining boundary road network based on existing travel patterns with consideration of the proposed and surrounding land uses.

Excerpts including the details and location of the developments can be found in **Appendix F.**

3.4 Future Roadway Improvements

The sections below outline the planned roadway improvements within the study area.

3.4.1. King Street Improvements

Niagara Region is addressing the failing road platform along King Street from Lincoln Avenue to Durham Road. This project will provide a complete reconstruction of King Street because the existing road platform has reached the end of its lifecycle, and remediation is required. The reconstruction will include replacing culverts, widening the road to include paved shoulders with painted buffers, and installing traffic signals at the Thirty Road and Lincoln Avenue intersections. Furthermore, improvements to roadside drainage, sub-surface drainage, illumination at intersections and geometry at the Thirty Road intersection will also take place. The project is currently in preliminary stages and construction is expected to begin in Summer 2025. Per the correspondence in Appendix A, the Region expects an updated design for the Lincoln Avenue intersection in mid-April 2025, but this has not been supplied as of the writing of this report.

The signalization of the King Street and Lincoln Avenue intersection is expected to impact both the King Street and Lincoln Avenue site accesses, as gaps in traffic should be created by the signals. With the expected gaps, vehicles attempting to enter or exit the site should have sufficient time to make their desired maneuver when the oncoming traffic has a red signal. Thus, the signalization of the King Street and Lincoln Avenue intersection is expected improve the operations of the proposed development's site accesses, as well as the intersection itself.

3.4.2. Lincoln Avenue Road Reconstruction Project

Lincoln Avenue is a key north-south throughfare within Beamsville, and will be reconstructed to improve existing road conditions, including narrow travel lanes and a lack of formal active transportation infrastructure. To address the lack of active transportation, the project proposes sidewalks and considers a multi-use pathway. Other notable improvements include road corridor rehabilitation, on-street parking improvements, traffic calming measures, and Canadian National Railway crossing improvements.

Overall, the Town aims to reconstruct the corridor to current standards while incorporating a complete streets approach and replacing the existing underground infrastructure as required.

Information on the King Street and Lincoln Avenue Improvements are included in **APPENDIX G.**

3.5 Future Transit Network

Beamsville has been identified by the province of Ontario as a potential GO station site, the Region has since advocated for four GO stations, including Beamsville. Niagara Region partnered with the Town of Lincoln in 2015 to develop a Secondary Plan which provides a 20-year vision and planning framework to guide transit-supportive development around the potential GO station.

The business case determined that a station in Beamsville is viable on the GO network and the proposed station could add 48,000 new annual trips from residents. The Beamsville GO Station, would be expected to improve access to businesses, housing, jobs, and destinations beyond the Town of Lincoln.

Currently, there is no timeline for construction of the station in Beamsville as there is a need for a third party to commit to the cost of building the station on behalf of Metrolinx. Niagara Region and the Town of Lincoln remain committed to a station in Beamsville in the future. Success with other GO service in Niagara will help to strengthen the opportunity for a future station in Beamsville.

3.6 Future Pedestrian and Cycling Network

The Town of Lincoln plans to address the lack of existing pedestrian and cycling infrastructure around the subject lands. As mentioned in **Section 3.4.2**, the reconstruction of Lincoln Avenue will come with improvements to the existing active infrastructure, with the goal of increasing the pedestrian and cycling connectivity in the study area.

3.6.1. Greenlane Road Reconstruction with Multi-Use Pathway

The Town of Lincoln plans on reconstructing Greenlane Road, between the Durham Road and King Street roundabout to Cedarbrook Lane. Greenlane Road runs east to west approximately 1.2 km north of the development. The project is focused on separating cycling and pedestrian facilities with an in-boulevard multi-use path. Other improvements include streetlighting, road widening, traffic calming measures, and connectivity to the new West Niagara Secondary School and the Konkle Creek Trail. The design for phase 1 is 90% complete and construction is expected to begin in 2025.

Information on the Greenlane Road Reconstruction is included in **APPENDIX G.**

3.7 Intersection Modelling

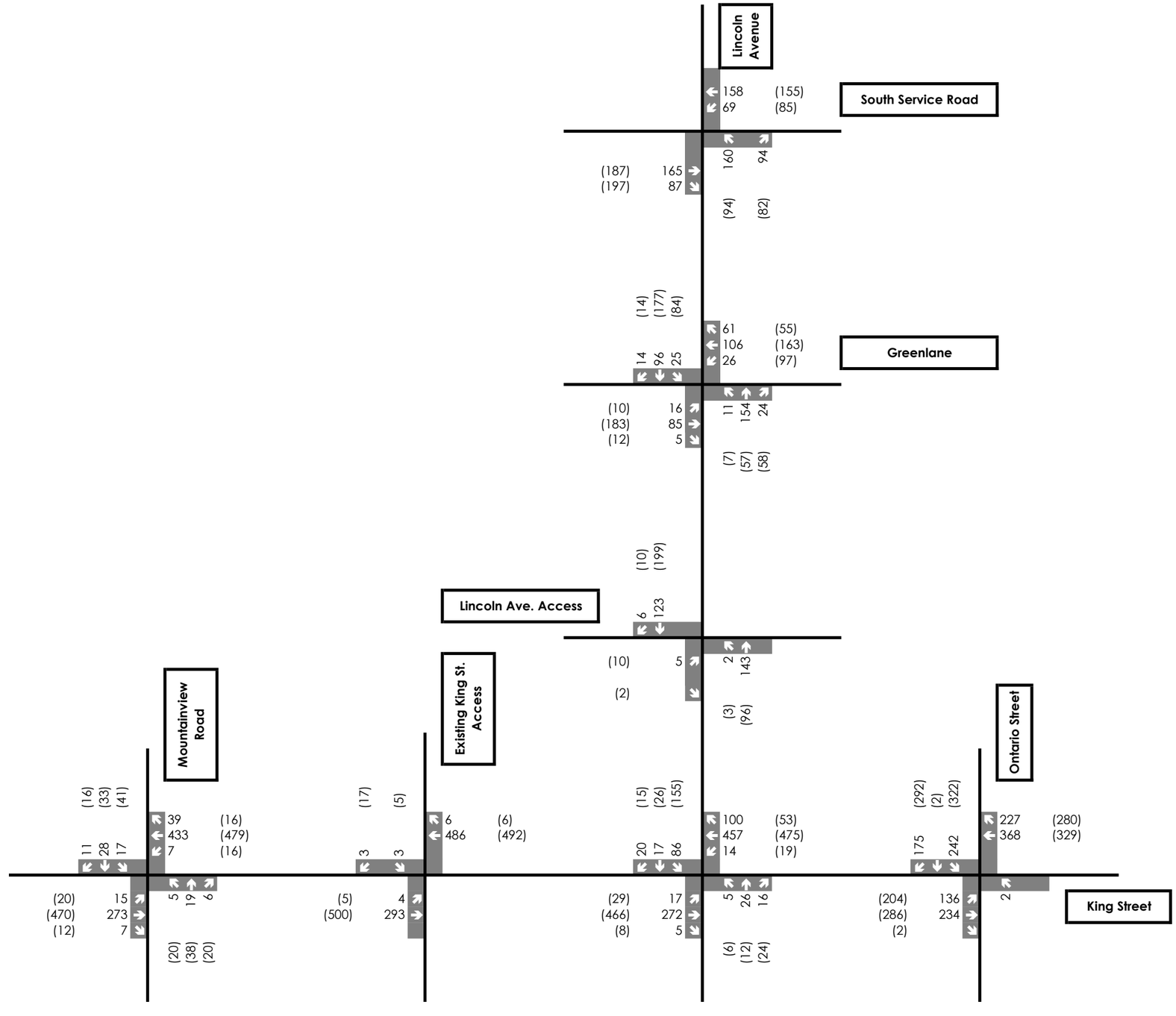
As mentioned in **Section 3.4** the region of Niagara is undergoing reconstruction on King Street. Included in the reconstruction is the signalization of King Street and Lincoln Avenue, as well as adding left turn lanes to the east and west approaches. The future plans have been accounted for in all future synchro models.

The signal timings of the signalized intersection at Lincoln Avenue and King Street were optimized for the ultimate horizon year of 2035 for both a.m. and p.m. peak periods. The optimized signal timing plans were applied to all future background conditions.

For consistency, the Ontario Street and King Street intersection used the timing plans obtained from the Region of Niagara staff.

3.8 Intersection Operations (Updated)

Table 6, **Table 8**, and **Table 10** outline the 2028, 2030 and 2035 future background traffic operations based on the future background traffic volumes illustrated in **Figure 5**, **Figure 6**, and **Figure 7**. **Table 7**, **Table 9**, and **Table 11** outline the queuing of the future background scenarios. Detailed capacity analysis and queuing analysis worksheets are included in **Appendix E.**



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

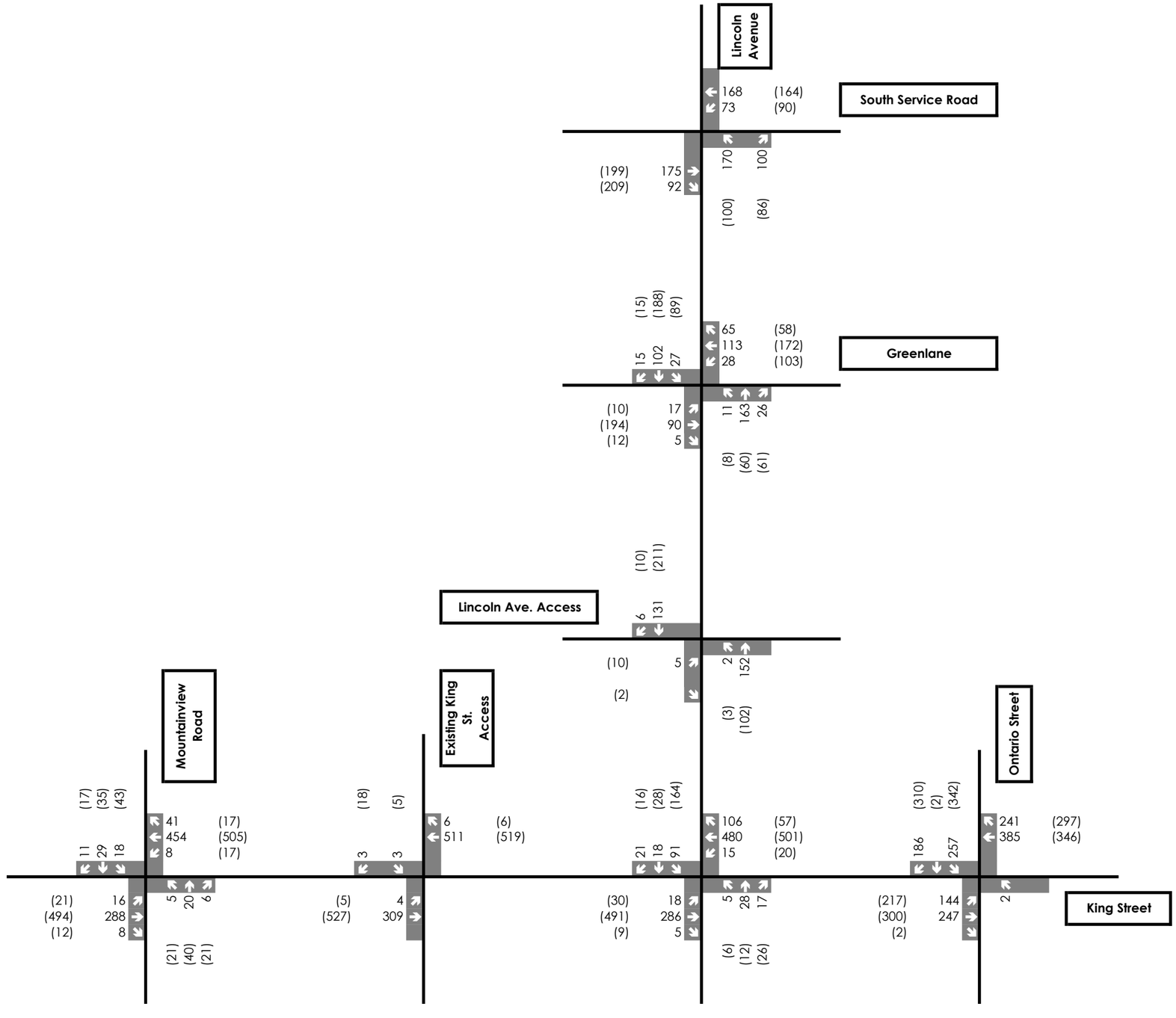
5205 King Street, Beamsville

2028 Future Background Traffic Volumes

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Figure 5

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

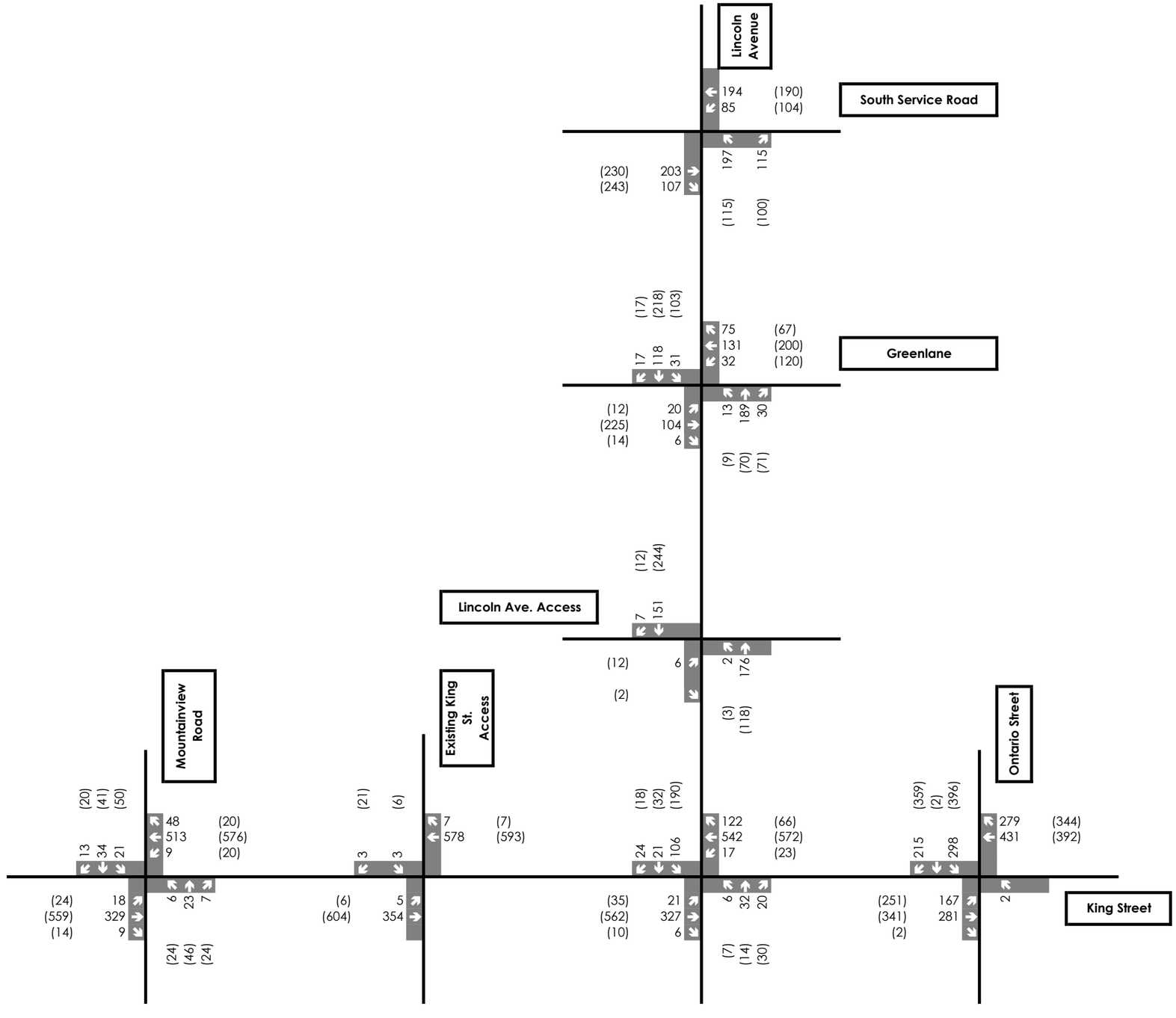
5205 King Street, Beamsville

2030 Future Background Traffic Volumes

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Figure 6

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

5205 King Street, Beamsville

2035 Future Background Traffic Volumes

CROZIER CONSULTING ENGINEERS

Figure 7

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader

Table 6: 2028 Future Background Level of Services

Intersection (Control)	Performance Metrics						
	Movement	LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Signalized)	**Overall**	**C**	**C**	**22.8**	**26.6**	**0.90**	**0.88**
	EBL	A	B	7.4	11.6	0.10	0.16
	EBTR	B	C	10.7	24.0	0.46	0.78
	WBL	A	A	6.1	9.9	0.04	0.09
	WBTR	C	C	29.1	32.1	0.90	0.88
	NBLTR	B	B	18.3	12.0	0.13	0.09
	SBLTR	C	C	27.4	25.4	0.42	0.52
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**B**	**B**	**10.3**	**10.4**	**0.09**	**0.14**
	EBLR	B	B	10.3	10.4	0.01	0.02
	NBLT	A	A	0.1	0.2	0.00	0.00
	SBTR	A	A	0.0	0.0	0.09	0.14
King Street and Site Access (Unsignalized)	**Overall**	**B**	**B**	**14.0**	**13.2**	**0.28**	**0.28**
	EBLT	A	A	0.2	0.1	0.00	0.00
	WBTR	A	A	0.0	0.0	0.34	0.32
	SBLR	B	B	14.0	13.2	0.02	0.04
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**C**	**C**	**20.4**	**20.0**	**0.56**	**0.48**
	EBTR	A	A	0.0	0.0	0.17	0.28
	WBLT	A	A	3.0	3.7	0.07	0.10
	NBLR	C	C	20.4	20.0	0.56	0.48
Mountainview Road and King Street (Unsignalized)	**Overall**	**C**	**E**	**20.8**	**46.8**	**0.22**	**0.54**
	EBLTR	A	A	0.7	0.6	0.02	0.02
	WBLTR	A	A	0.2	0.5	0.01	0.02
	NBLTR	C	E	19.6	35.2	0.12	0.42
	SBLTR	C	E	20.8	46.8	0.22	0.54
Ontario Street and King Street (Signalized)	**Overall**	**D**	**C**	**39.0**	**44.4**	**0.96**	**1.15**
	EBL	B	B	13.5	16.8	0.40	0.54
	EBTR	B	B	15.2	17.6	0.36	0.45
	WBLT	E	D	64.9	53.5	0.95	0.88
	WBR	B	B	17.1	18.7	0.53	0.65
	NBLTR	C	-	27.0	-	0.01	-
	SBLT	D	D	80.8	132.3	0.96	1.15
	SBR	A	A	7.0	6.8	0.42	0.52
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**A**	**B**	**9.9**	**13.8**	**0.29**	**0.50**
	EBLTR	A	B	9.2	11.6	0.17	0.34
	WBLTR	A	B	9.9	13.9	0.29	0.50
	NBLTR	A	B	9.9	10.2	0.28	0.20
	SBLTR	A	B	9.4	13.4	0.21	0.46

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

As the Lincoln Avenue and King Street intersection becomes signalized, the performance metrics significantly improve. The intersection is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 32.1 seconds, and a maximum theoretical v/c ratio of 0.90.

The Mountainview Road and King Street intersection is expected to operate at an LOS C and E during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 46.8 seconds, and a maximum v/c ratio of 0.54, both occurring at minor, stop-controlled approaches.

With the current signal timing plan, the Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of D and C during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 132.2 seconds and a maximum v/c ratio of 1.15, both occurring at the southbound leg.

The remainder of the study road network is expected to operate with an overall LOS C or better at each intersection, without any critical movements during the a.m. and p.m. peak periods.

Table 7: 2028 Future Background Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBL	9.4	14.3	16.0
	EBTR	30.1	48.4	45.0[2]
	WBL	23.3	5.7	16.0
	SBLTR	18.2	17.8	15.0[2]
Ontario Street and King Street	EBL	40.9	54.9	15.0
	WBR	27.5	27.0	20.0
	SBLT	70.5	76.4	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to adjacent site access.

At the Lincoln Avenue and King Street intersection, the 95th percentile queues for the westbound left turns extend beyond the provided storage length during the a.m. peak period. This queue can be accommodated within the taper length, therefore reducing the impact on the adjacent through lane.

The 95th percentile queues of the eastbound through-right lane are occasionally expected to extend to the King Street Site access; however, it can be noted that this access will be further from the intersection upon the buildout of the proposed development.

The southbound shared lane at Lincoln Avenue and King Street has queues that are expected to extend beyond the current access to the commercial property that is being replaced by this development. Due to the low volumes of vehicles utilizing this access, it is not expected that this leads to a safety concern. It is also noted that this access is being modified with the new development.

At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns can be accommodated by the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane.

Table 8: 2030 Future Background Level of Service

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Signalized)	**Overall**	**C**	**C**	**23.4**	**27.8**	**0.91**	**0.90**
	EBL	A	B	7.3	11.5	0.11	0.17
	EBTR	B	C	10.3	24.2	0.46	0.79
	WBL	A	A	5.8	9.8	0.04	0.09
	WBTR	C	C	29.4	33.6	0.91	0.90
	NBLTR	B	B	19.7	12.1	0.15	0.10
	SBLTR	C	C	30.8	28.4	0.48	0.56
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**B**	**B**	**10.4**	**10.5**	**0.09**	**0.14**
	EBLR	B	B	10.4	10.5	0.01	0.02
	NBLT	A	A	0.1	0.2	0.00	0.00
	SBTR	A	A	0.0	0.0	0.09	0.14
King Street and Site Access (Unsignalized)	**Overall**	**B**	**B**	**14.8**	**13.7**	**0.36**	**0.34**
	EBLT	A	A	0.2	0.1	0.01	0.00
	WBTR	A	A	0.0	0.0	0.36	0.34
	SBLR	B	B	14.8	13.7	0.02	0.06
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**C**	**C**	**23.5**	**22.7**	**0.63**	**0.53**
	EBTR	A	A	0.0	0.0	0.18	0.29
	WBLT	A	A	3.0	3.8	0.07	0.10
	NBLR	C	C	23.5	22.7	0.63	0.52
Mountainview Road and King Street (Unsignalized)	**Overall**	**C**	**F**	**22.5**	**42.1**	**0.24**	**0.64**
	EBLTR	A	A	0.7	0.6	0.02	0.02
	WBLTR	A	A	0.2	0.5	0.01	0.02
	NBLTR	C	E	21.0	42.1	0.14	0.49
	SBLTR	C	F	22.5	60.6	0.24	0.64
Ontario Street and King Street (Signalized)	**Overall**	**D**	**D**	**43.8**	**52.4**	**1.04**	**1.26**
	EBL	B	B	13.9	17.4	0.43	0.57
	EBTR	B	B	15.4	17.5	0.37	0.46
	WBLT	E	D	68.8	54.1	0.97	0.88
	WBR	B	B	18.2	19.8	0.55	0.67
	NBLTR	C	-	27.0	-	0.01	-
	SBLT	F	F	101.0	172.3	1.04	1.26
	SBR	A	A	7.1	7.1	0.44	0.55
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**B**	**B**	**10.3**	**14.7**	**0.31**	**0.54**
	EBLTR	A	B	9.5	12.3	0.18	0.37
	WBLTR	B	B	10.3	15.2	0.31	0.54
	NBLTR	B	B	10.2	10.6	0.31	0.22
	SBLTR	A	B	9.7	14.2	0.23	0.50

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

The signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 33.6 seconds, and a maximum theoretical v/c ratio of 0.91.

The Mountainview Road and King Street intersection is expected to operate at an LOS C and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 60.6 seconds, and a maximum v/c ratio of 0.64, both occurring at minor, stop-controlled approaches.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of D during the weekday a.m. and p.m. peak periods. Under 2030 future background conditions, the intersection has a maximum control delay of 172.3 seconds and a maximum v/c ratio of 1.26, both occurring at the southbound leg.

The remainder of the study road network operates with an overall LOS C or better at each intersection, without any critical movements during the a.m. and p.m. peak periods.

Table 9: 2030 Future Background Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBL	8.5	19.9	16.0
	EBTR	35.3	49.1	45.0[2]
	WBL	7.2	9.5	16.0
	SBLTR	20.3	18.2	15.0[2]
Ontario Street and King Street	EBL	35.3	51.5	15.0
	WBR	27.6	24.2	20.0
	SBLT	63.2	78.9	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to adjacent site access.

At the Lincoln Avenue and King Street intersection, the 95th percentile queues for the eastbound left turns extend beyond the provided storage length during the p.m. peak period. This queue can be accommodated within the taper length, therefore reducing the impact on the adjacent through lane.

The 95th percentile queues of the eastbound through-right lane are occasionally expected to extend to the King Street Site access; however, it can be noted that this access will be further from the intersection upon the buildout of the proposed development.

The southbound shared lane at Lincoln Avenue and King Street has queues that are expected to extend beyond the current access to the commercial property that is being replaced by this development. Due to the low volumes of vehicles utilizing this access, it is not expected that this leads to a safety concern. It is also noted that this access is being modified with the new development.

At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns can be accommodated by the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane.

Table 10: 2035 Future Background Level of Service

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Signalized)	**Overall**	**C**	**C**	**27.7**	**32.2**	**0.95**	**0.94**
	EBL	A	B	7.6	12.0	0.13	0.20
	EBTR	B	C	10.2	25.8	0.49	0.82
	WBL	A	A	5.6	9.8	0.04	0.11
	WBTR	D	D	35.7	38.9	0.95	0.94
	NBLTR	C	B	21.3	12.6	0.20	0.12
	SBLTR	D	D	38.8	39.0	0.61	0.72
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**B**	**B**	**10.8**	**11.0**	**0.10**	**0.17**
	EBLR	B	B	10.8	11.0	0.01	0.02
	NBLT	A	A	0.1	0.2	0.00	0.00
	SBTR	A	A	0.0	0.0	0.10	0.17
King Street and Site Access (Unsignalized)	**Overall**	**C**	**C**	**18.0**	**18.3**	**0.40**	**0.38**
	EBLT	A	A	0.2	0.2	0.01	0.01
	WBTR	A	A	0.0	0.0	0.40	0.38
	SBLR	C	C	18.0	18.3	0.03	0.10
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**E**	**E**	**41.4**	**41.3**	**0.82**	**0.72**
	EBTR	A	A	0.0	0.0	0.21	0.34
	WBLT	A	A	3.2	3.3	0.09	0.13
	NBLR	E	E	41.4	41.3	0.82	0.72
Mountainview Road and King Street (Unsignalized)	**Overall**	**D**	**F**	**29.4**	**168.0**	**0.28**	**1.04**
	EBLTR	A	A	0.8	0.7	0.03	0.03
	WBLTR	A	A	0.2	0.7	0.01	0.02
	NBLTR	D	F	25.8	84.2	0.19	0.74
	SBLTR	D	F	29.4	168.0	0.35	1.04
Ontario Street and King Street (Signalized)	**Overall**	**E**	**E**	**62.9**	**76.9**	**1.22**	**1.54**
	EBL	B	C	16.2	20.9	0.53	0.68
	EBTR	B	B	16.1	17.9	0.42	0.50
	WBLT	F	E	98.4	59.1	1.08	0.92
	WBR	C	C	21.8	23.9	0.63	0.73
	NBLTR	C	-	27.0	-	0.01	-
	SBLT	F	F	160.8	289.2	1.22	1.54
	SBR	A	A	7.3	7.8	0.49	0.62
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**B**	**C**	**11.5**	**21.9**	**0.38**	**0.70**
	EBLTR	B	C	10.2	15.3	0.22	0.47
	WBLTR	B	C	11.5	22.2	0.38	0.70
	NBLTR	B	B	11.5	12.4	0.38	0.29
	SBLTR	B	C	10.6	19.9	0.28	0.63

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

The signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 39.0 seconds, and a maximum theoretical v/c ratio of 0.95.

With the expected traffic growth in 2035, the Lincoln Avenue and South Service Road intersection is expected to operate at an LOS E during the weekday a.m. and p.m. peak periods, this is due to delays in the minor, stop-controlled approach. The intersection has a maximum control delay of 41.4 seconds, and a maximum v/c ratio of 0.82.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 160.8 seconds, and a maximum v/c ratio of 1.04, both occurring at minor, stop-controlled approaches, in the p.m. peak period.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS E during the weekday a.m. and p.m. peak periods. Under 2035 future background conditions, the intersection has a maximum control delay of 289.2 seconds and a maximum v/c ratio of 1.54, both occurring at the southbound leg.

Table 11: 2035 Future Background Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBL	9.6	25.9	16.0
	EBTR	33.3	56.9	45.0[2]
	WBL	6.2	23.1	16.0
	SBLTR	18.7	15.5	15.0[2]
Ontario Street and King Street	EBL	32.9	59.2	15.0
	WBR	30.0	25.9	20.0
	SBLT	70.6	133.9	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to adjacent site access.

At the Lincoln Avenue and King Street intersection, the 95th percentile queues for the eastbound and westbound left turns extend beyond the provided storage length during the p.m. peak period. This queue can be accommodated within the taper length, therefore reducing the impact on the adjacent through lane.

The 95th percentile queues of the eastbound through-right lane are occasionally expected to extend to the King Street Site access; however, it can be noted that this access will be further from the intersection upon the buildout of the proposed development.

The southbound shared lane at Lincoln Avenue and King Street has queues that are expected to extend beyond the current access to the commercial property that is being replaced by this development. Due to the low volumes of vehicles utilizing this access, it is not expected that this leads to a safety concern. It is also noted that this access is being modified with the new development.

At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns can be accommodated by the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane. The southbound left-through lane is also expected to occasionally exceed its provided storage length during the p.m. peak period; however, its average queue length can be accommodated by the provided storage length.

4.0 Site Generated Traffic

4.1 Trip Generation (Updated)

The proposed development will result in additional vehicles on the study road network that previously did not exist, as well as additional turning movements at the study intersections.

The trip generation of the proposed development was forecasted using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, for each apartment building individually. Both apartment buildings, consider Land Use Category (LUC) 221 "Multifamily Housing (Mid-Rise)" for the residential units, LUC 932 "High-Turnover (Sit Down) Restaurant" for the proposed restaurants and LUC 822 "Strip Retail Plaza" for the proposed retail/commercial establishments.

The variable used to estimate the trips generated by the two residential buildings is the number of dwelling units. Alternatively, the square footage is the independent variable used to estimate the trips generated by the restaurant and commercial/retail spaces. **Table 12** outlines the trip generation forecast, based on ITE Trip Generation Manual, 11th Edition.

Table 12: ITE Trip Generation

Land Use	Independent Variable	Roadway Peak Hour	Number of Trips		
			Inbound	Outbound	Total
Western Apartment – Phase 1					
LUC 221 Multifamily Housing (Mid-Rise)	161 Dwelling Units	Weekday A.M.	14	46	60
		Weekday P.M.	39	25	64
LUC 932 High-Turnover (Sit Down) Restaurant	2,770 Square Feet	Weekday A.M.[1]	0	0	0
		Weekday P.M.	15	10	25
LUC 822 Strip Retail Plaza	7,270 Square Feet	Weekday A.M.	6	4	10
		Weekday P.M.	15	15	30
Phase 1 Total		**Weekday A.M.**	**20**	**50**	**70**
		Weekday P.M.	**69**	**50**	**119**
Eastern Apartment - Phase 2					
LUC 221 Multifamily Housing (Mid-Rise)	85 Dwelling Units	Weekday A.M.	6	20	26
		Weekday P.M.	20	13	33
LUC 932 High-Turnover (Sit Down) Restaurant	2,720 Square Feet	Weekday A.M.[1]	0	0	0
		Weekday P.M.	15	10	25
LUC 822 Strip Retail Plaza	1,550 Square Feet	Weekday A.M.	2	1	3
		Weekday P.M.	5	5	10
Phase 2 Total		**Weekday A.M.**	**8**	**21**	**29**
		Weekday P.M.	**40**	**28**	**68**
Development Total		**Weekday A.M.**	**28**	**71**	**99**
		Weekday P.M.	**109**	**78**	**187**

Note 1: The restaurant land uses do not generate a.m. trips as the planned establishments are not expected to be open for breakfast.
Note 2: Minor discrepancies possible due to rounding.

Accordingly, the proposed development is forecasted to generate a total of 99 and 187 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

Excerpts from the ITE Trip Generation Manual, 11th Edition can be found in **Appendix H.**

The trips generated by the development were distributed to the study roadways based on TTS data and the expectations that residents of the proposed development will be making both intrazonal trips and trips going outside of the surrounding area. While the subject property is located within 2006 GTA Zone 6022, minimal TTS data is available for this zone as it has not yet been fully developed. Accordingly, the adjacent zone to the east, 2006 GTA Zone 6023, was used as proxy zone considering its similar land use.

Since the two mixed-use buildings have separated parking lots and their own site accesses, it is assumed that the two buildings will be serviced by their respective access exclusively. Accordingly, the western building will solely use the site access off King Street and the eastern building will solely use the eastern site access off Lincoln Avenue. With two different access bring used, a trip distribution has been made for each building.

While there are connections between the buildings underground, the lack of a surface connection between the parking lots is expected to limit the overlap of vehicles from the two buildings that will occur at the two accesses.

4.2 Trip Distribution (Updated)

The trips generated by the proposed development were distributed to the study road network using 2016 Transportation Tomorrow Survey (TTS) data. Excerpts from the TTS query have been included in **Appendix I.**

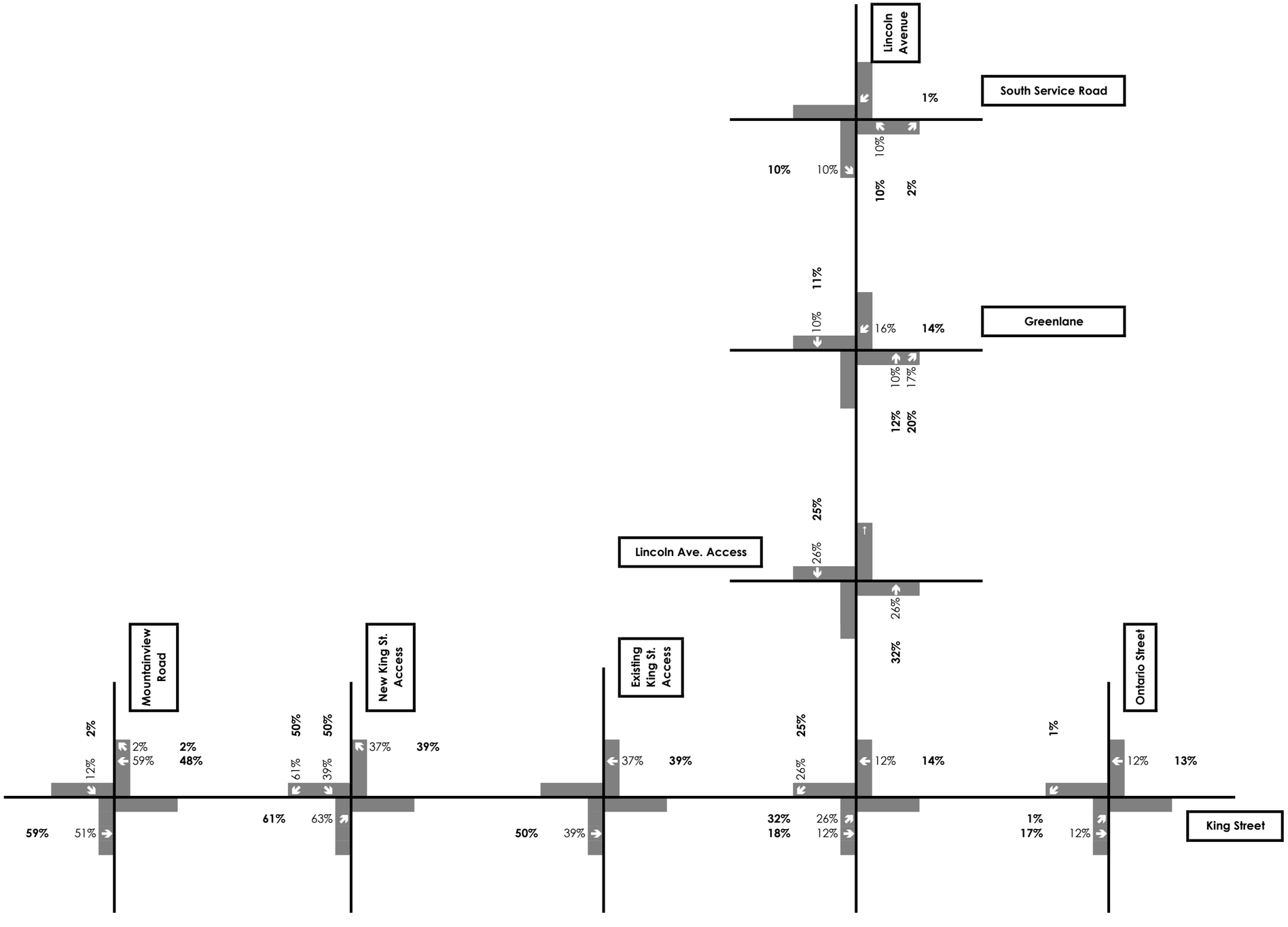
Table 13 summarizes the vehicle trip distribution.

Table 13: Trip Distribution

Direction	Weekday A.M. Peak Hour		Weekday P.M. Peak Hour	
	Inbound	Outbound	Inbound	Outbound
Western Apartment				
East via King Street	11.7%	12%	13%	17%
West via King Street	50.5%	59%	59%	49%
East via South Service Road via Lincoln Avenue	0.0%	1%	1%	1%
West via South Service Road via Lincoln Avenue	8.7%	10%	10%	10%
North via Mountainview Road via King Street	11.6%	2%	2%	1%
North via Ontario Street via King Street	2.0%	1%	1%	1%
East via Greenlane via Lincoln Avenue	15.5%	16%	14%	20%
Eastern Apartment				
East via King Street	11.7%	12%	13%	17%
West via King Street	32.8%	39%	38%	31%
East via South Service Road via Lincoln Avenue	0.0%	1%	1%	1%
West via South Service Road via Lincoln Avenue	26.4%	30%	31%	28%
North via Mountainview Road via King Street	11.6%	2%	2%	1%
North via Ontario Street via King Street	2.0%	1%	1%	1%
East via Greenlane via Lincoln Avenue	15.5%	16%	14%	20%

Note 1: Minor discrepancies possible due to rounding.

Figure 8 and **Figure 9** outline the vehicle trip assignment and distribution of the first phase of the development. **Figure 10** and **Figure 11** outline the vehicle trip assignment and distribution of the second phase of the development.



Legend

xx A.M. Peak Hour Traffic Distribution

xx P.M. Peak Hour Traffic Distribution

5205 King Street, Beamsville

Apartment 1 Trip Distribution

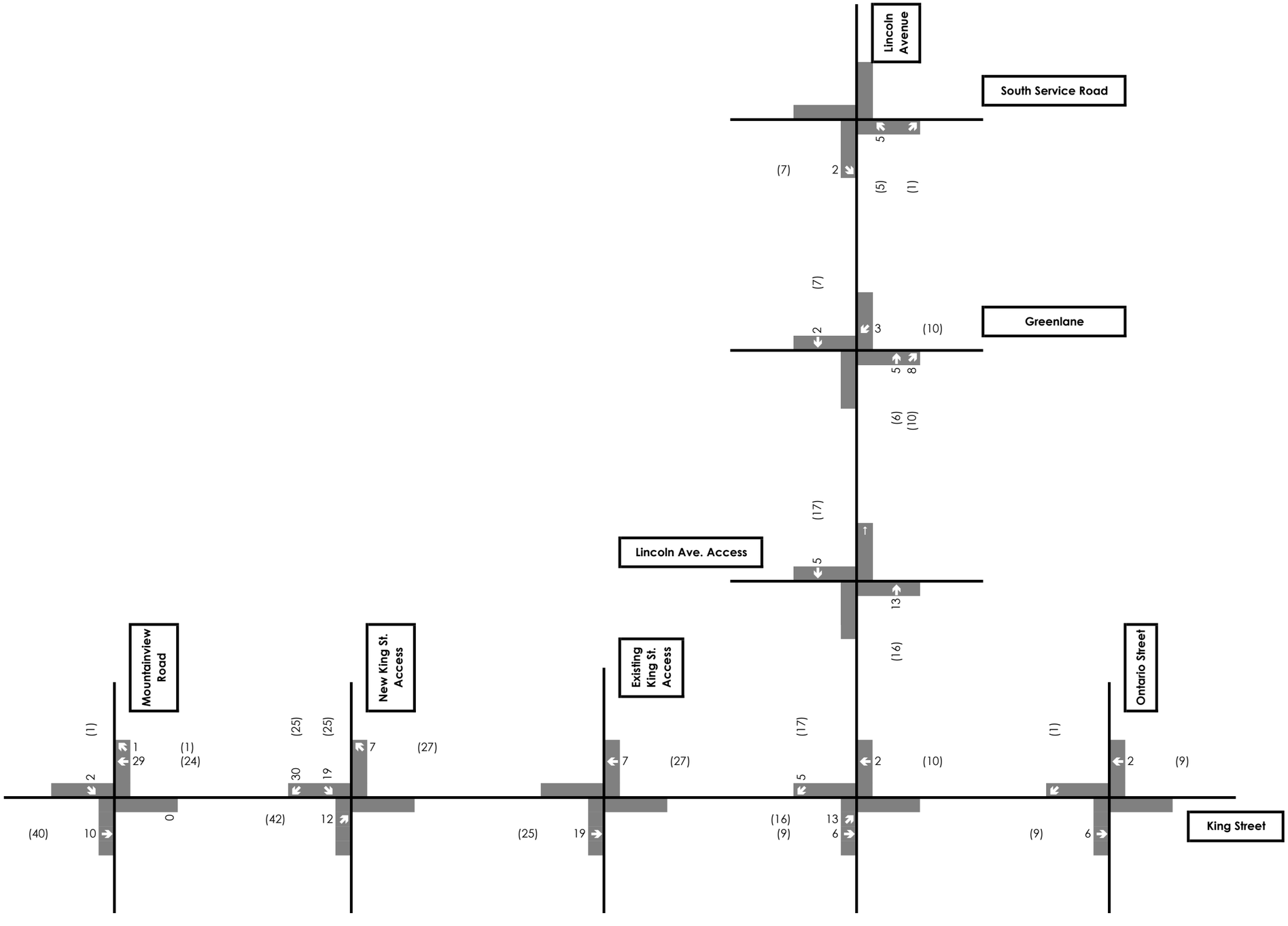
CROZIER CONSULTING ENGINEERS

Figure 8

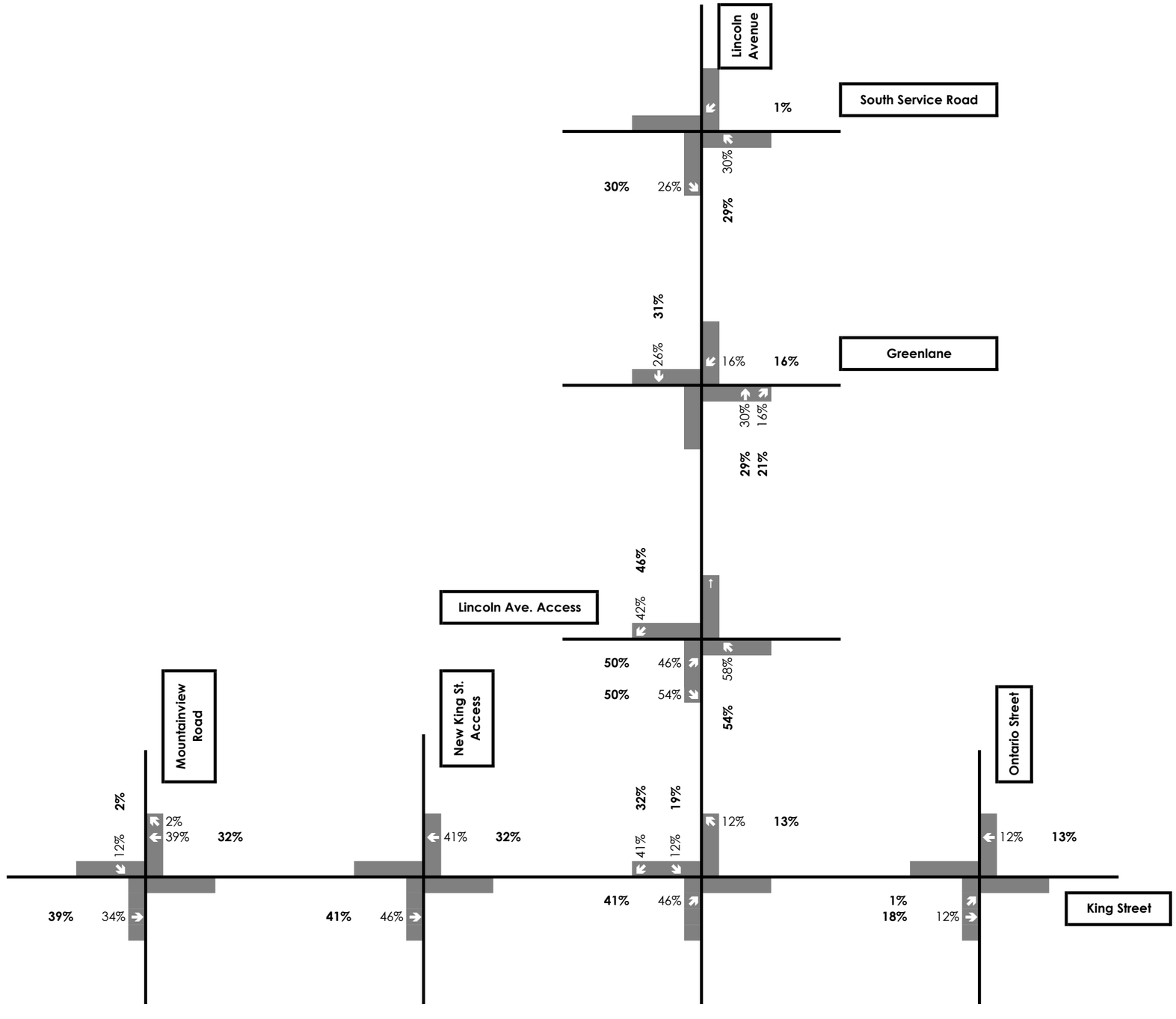
Project No. 2740 - 7216

Date: April 2025

Analyst. Andrew Bader



Legend	5205 King Street, Beamsville	CROZIER CONSULTING ENGINEERS	Figure 9
xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Apartment 1 Trip Assignment		Project No. 2740 - 7216 Date: April 2025 Analyst. Andrew Bader



Legend

xx A.M. Peak Hour Traffic Distribution

xx P.M. Peak Hour Traffic Distribution

5205 King Street, Beamsville

Apartment 2 Trip Distribution

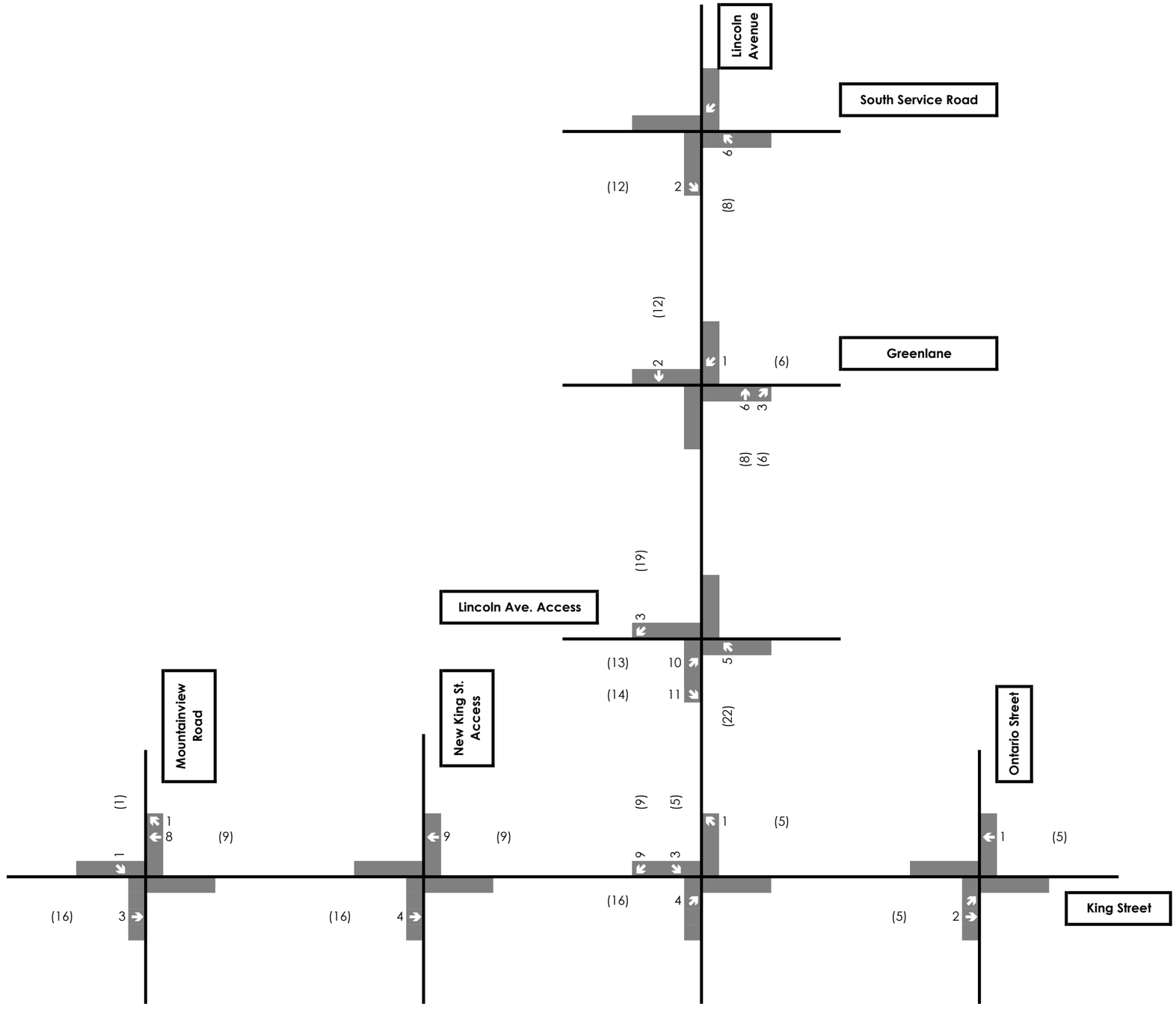
CROZIER CONSULTING ENGINEERS

Figure 10

Project No. 2740 - 7216

Date: April 2025

Analyst. Andrew Bader



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

5205 King Street, Beamsville

Apartment 2 Trip Assignment

CROZIER CONSULTING ENGINEERS

Figure 11

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader

5.0 Future Total Conditions

5.1 Basis of Assessment

The traffic impacts arising from the proposed development were assessed on the basis of the site generated traffic illustrated in **Figure 9** and **Figure 11**, superimposed on the future background traffic volumes**.** The resulting total traffic volumes for the weekday a.m. and p.m. peak hours are illustrated in **Figure 12, Figure 13,** and **Figure 14** for the 2028, 2030, and 2035 horizon years, respectively.

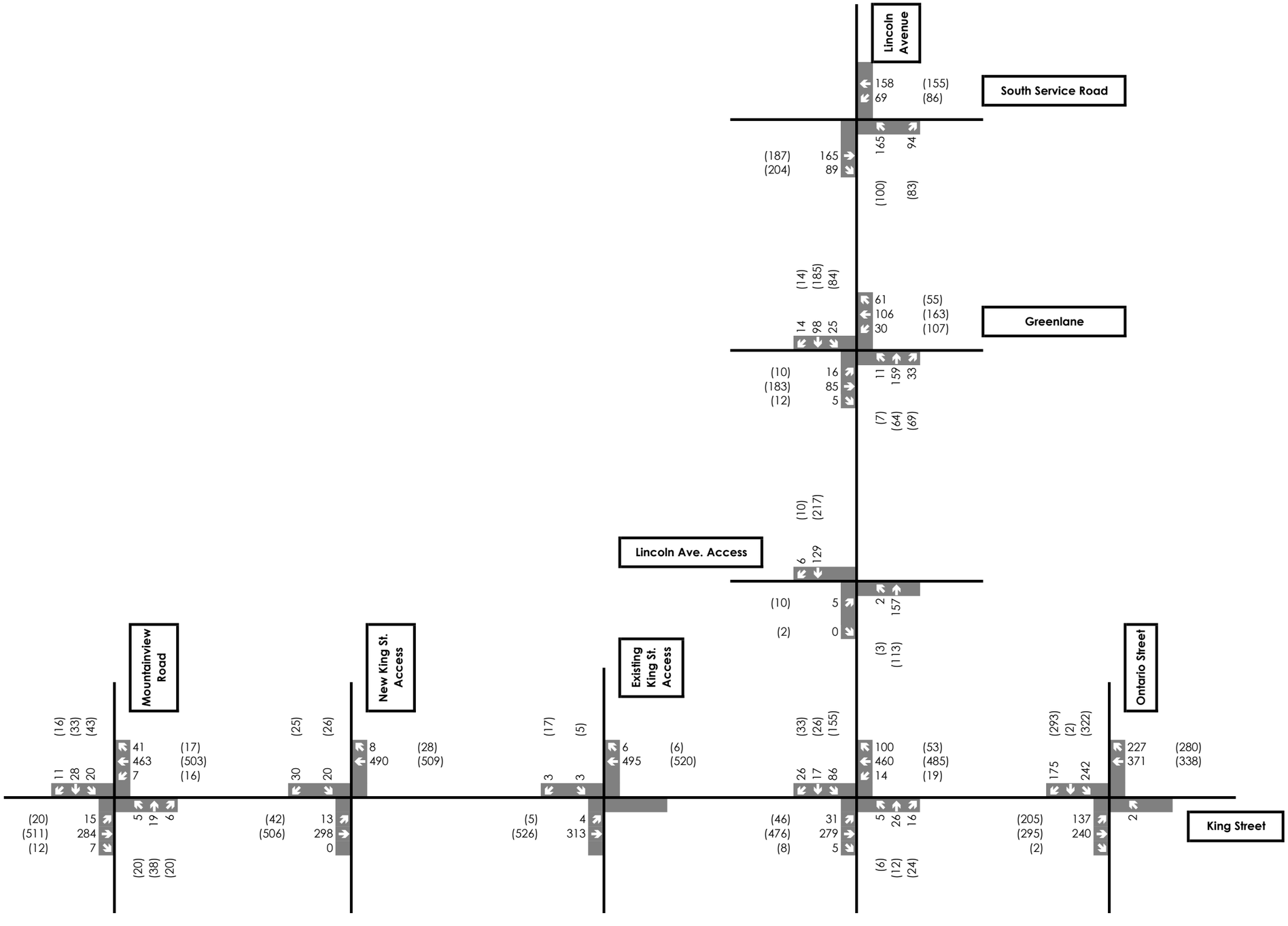
5.2 Phase 1 Intersection Modelling

As the proposed development is being completed in two phases, the 2028 horizon year represents the completion of the western building only. Therefore, the 2028 horizon considers the trips generated from phase 1 of the development, as well as the existing plaza. Conservatively modelling, the 2028 scenario considers the new site access to be operational along King Street, as well as the existing King Street and Lincoln Avenue site accesses to the exiting plaza.

The signal timing plans used for the future background conditions remain consistent in all future total scenarios for comparative purposes.

5.3 Phase 1 Intersection Operations (Updated)

Table 14 and **Table 15** outline the 2028 future total traffic conditions associated with the study road network, with the total traffic volumes illustrated in **Figure 12** for the 2028 horizon year. Detailed capacity analyses included in **Appendix E.**



Legend	5205 King Street, Beamsville	CROZIER CONSULTING ENGINEERS	Figure 12
xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	2028 Future Total Traffic Volumes		Project No. 2740 - 7216 Date: April 2025 Analyst. Andrew Bader

Table 14: 2028 Future Total Level of Service

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Signalized)	**Overall**	**C**	**C**	**22.6**	**27.1**	**0.90**	**0.89**
	EBL	A	B	9.0	13.7	0.19	0.26
	EBTR	B	C	10.8	24.3	0.47	0.79
	WBL	A	A	6.0	9.9	0.04	0.09
	WBTR	C	C	29.0	32.9	0.90	0.89
	NBLTR	B	B	18.5	12.1	0.14	0.09
	SBLTR	C	C	27.7	26.3	0.44	0.54
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**B**	**B**	**10.4**	**10.7**	**0.09**	**0.15**
	EBLR	B	B	10.4	10.7	0.01	0.02
	NBLT	A	A	0.1	0.2	0.00	0.00
	SBTR	A	A	0.0	0.0	0.09	0.15
New King Street and Site Access (Unsignalized)	**Overall**	**B**	**C**	**14.9**	**22.8**	**0.31**	**0.33**
	EBLT	A	A	0.5	1.3	0.01	0.05
	WBT	A	A	0.0	0.0	0.31	0.33
	WBR	A	A	0.0	0.0	0.01	0.02
	SBLR	B	C	14.9	22.8	0.13	0.21
Existing King Street and Site Access (Unsignalized)	**Overall**	**B**	**B**	**14.5**	**14.0**	**0.35**	**0.34**
	EBLT	A	A	0.2	0.1	0.01	0.00
	WBTR	A	A	0.0	0.0	0.35	0.34
	SBLR	B	B	14.5	14.0	0.02	0.05
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**C**	**C**	**20.9**	**21.0**	**0.58**	**0.50**
	EBTR	A	A	0.0	0.1	0.17	0.28
	WBTL	A	A	3.0	0.0	0.07	0.10
	NBLR	C	C	20.9	14.0	0.58	0.50
Mountainview Road and King Street (Unsignalized)	**Overall**	**C**	**F**	**22.9**	**60.1**	**0.25**	**0.63**
	EBLTR	A	A	0.7	0.6	0.02	0.02
	WBLTR	A	A	0.2	0.5	0.01	0.02
	NBLTR	C	E	20.9	41.3	0.13	0.47
	SBLTR	C	F	22.9	60.1	0.25	0.63
Ontario Street and King Street (Signalized)	**Overall**	**D**	**D**	**39.3**	**45.3**	**0.96**	**1.17**
	EBL	B	B	13.5	16.8	0.40	0.55
	EBTR	B	B	15.4	17.6	0.37	0.46
	WBLT	E	D	65.6	53.8	0.95	0.88
	WBR	B	B	17.2	18.8	0.52	0.64
	NBLTR	C	-	27.0	-	0.01	-
	SBLT	F	F	81.7	137.7	0.96	1.17
	SBR	A	A	7.0	6.9	0.42	0.53
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**B**	**B**	**10.1**	**14.8**	**0.31**	**0.53**
	EBLTR	A	B	9.3	11.9	0.17	0.35
	WBLTR	B	B	10.1	14.8	0.30	0.53
	NBLTR	B	B	10.1	10.7	0.31	0.24
	SBLTR	A	B	9.5	14.1	0.21	0.48

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

As the Lincoln Avenue and King Street intersection becomes signalized, the performance metrics significantly improve in the future total condition, compared to existing condition. The intersection is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 32.9 seconds, and a maximum theoretical v/c ratio of 0.90.

The Mountainview Road and King Street intersection is expected to operate at an LOS C and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 60.1 seconds, and a maximum v/c ratio of 0.63, both occurring at minor, stop-controlled approaches.

With the current signal timing plan, the Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of D during the weekday a.m. and p.m. peak periods. The intersection has a maximum control delay of 137.7 seconds and a maximum v/c ratio of 1.17, both occurring at the southbound approach.

The remainder of the study road network operates with an overall LOS C or better at each intersection, without any critical movements during the a.m. and p.m. peak periods.

Table 15: 2028 Future Total Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBL	17.9	14.2	16.0
	EBTR	34.7	46.3	45.0[2]
	WBL	3.6	7.8	16.0
	SBLTR	20.8	21.2	15.0[2]
Ontario Street and King Street	EBL	32.2	51.4	15.0
	WBR	29.4	30.1	20.0
	SBLT	66.1	67.5	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to adjacent site access.

At the Lincoln Avenue and King Street intersection, the 95th percentile queues for the eastbound left turns extend beyond the provided storage length during the a.m. peak period. This queue can be accommodated within the taper length, therefore reducing the impact on the adjacent through lane.

The 95th percentile queues of the eastbound through-right lane are occasionally expected to extend to the King Street Site access; however, it can be noted that this access will be further from the intersection upon the buildout of the proposed development.

The southbound shared lane at Lincoln Avenue and King Street has queues that are expected to extend beyond the current access to the commercial property that is being replaced by this development. Due to the low volumes of vehicles utilizing this access, it is not expected that this leads to a safety concern. It is also noted that this access is being modified with the new development.

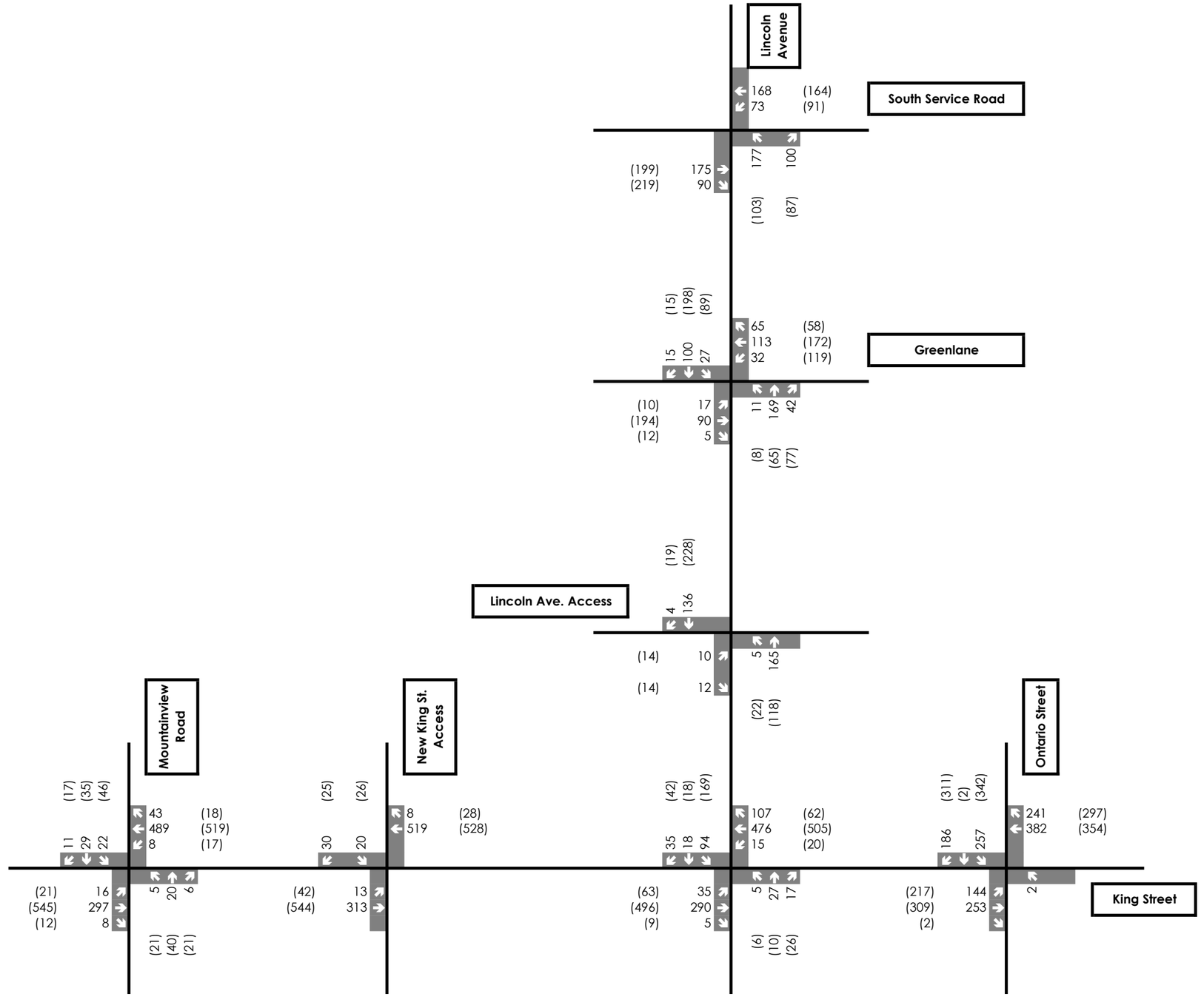
At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns extend beyond the provided storage length, however these queues can be accommodated within the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane.

5.4 Phase 2 Intersection Modeling

The full build-out of the development is modelled in the 2030 and 2035 future total horizon years. In the 2030 and 2035 future total horizons, trips from both phases are modelled and the trips generated from the existing plaza have been removed. The existing King Street access is no longer operational, and the existing Lincoln Avenue access is now being used for the eastern apartment building. As previously mentioned, the signal timing plans remain consistent in all future total scenarios for comparative purposes.

5.5 Phase 2 Intersection Operations (Updated)

Table 16 and **Table 18** outline the 2030 and 2035 future total traffic conditions associated with the study road network, respectively. With the total traffic volumes illustrated in**, Figure 13,** and **Figure 14**, for the 2030 and 2035 horizon year, respectively. Detailed capacity analyses are included in **Appendix E.**



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

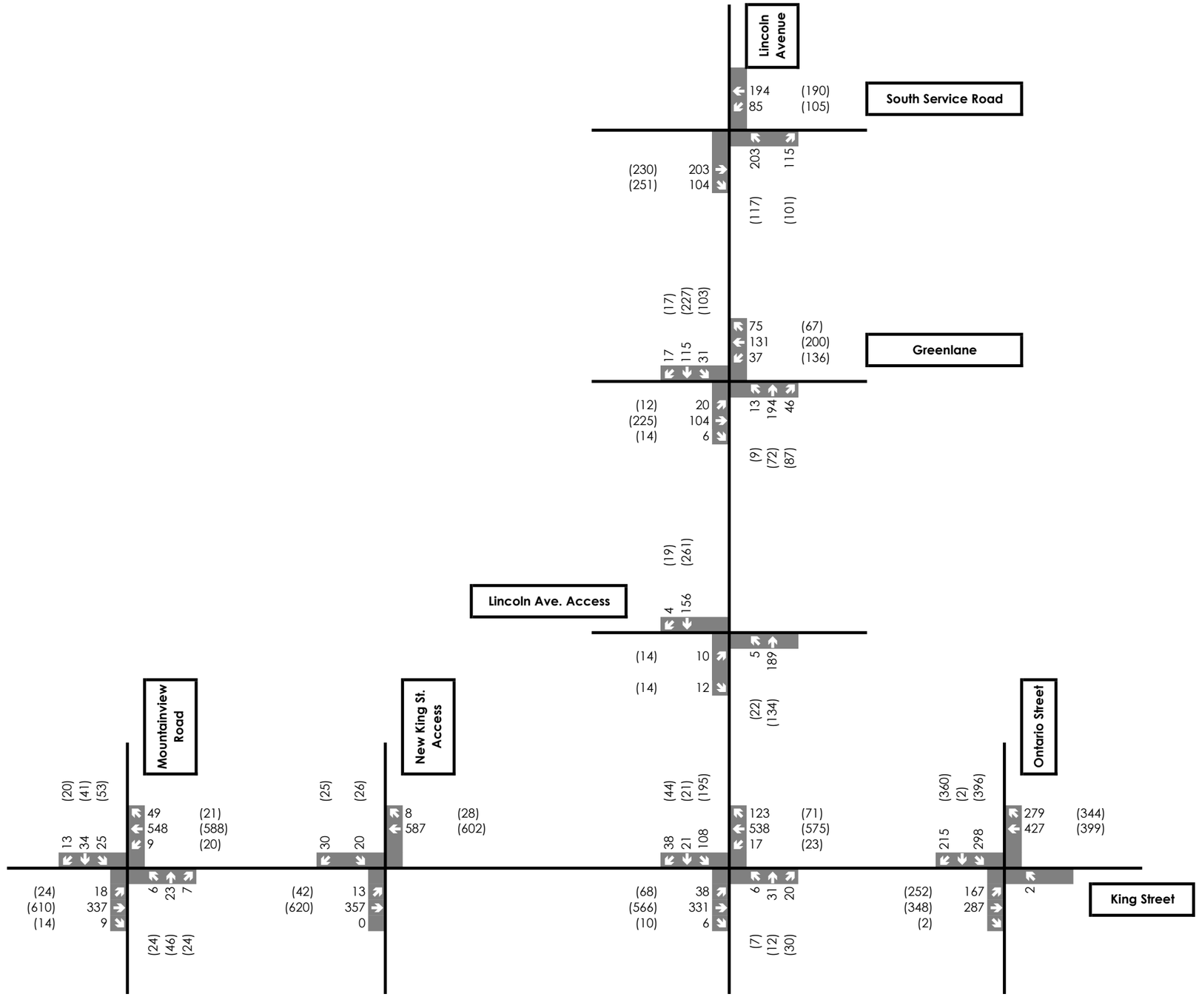
5205 King Street, Beamsville

2030 Future Total Traffic Volumes

CROZIER CONSULTING ENGINEERS

Figure 13

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

5205 King Street, Beamsville

2035 Future Total Traffic Volumes

CROZIER CONSULTING ENGINEERS

Figure 14

Project No. 2740 - 7216
Date: April 2025
Analyst. Andrew Bader

Table 16: 2030 Future Total Level of Service

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Signalized)	**Overall**	**C**	**C**	**23.3**	**28.0**	**0.90**	**0.90**
	EBL	A	B	9.3	15.9	0.21	0.35
	EBTR	B	C	10.5	24.0	0.47	0.79
	WBL	A	A	5.9	9.7	0.04	0.09
	WBTR	C	C	29.3	33.9	0.90	0.90
	NBLTR	B	B	19.5	12.0	0.15	0.09
	SBLTR	C	C	31.5	30.1	0.53	0.61
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**A**	**B**	**9.9**	**10.8**	**0.09**	**0.16**
	EBLR	A	B	9.9	10.8	0.03	0.05
	NBLT	A	A	0.3	1.3	0.00	0.02
	SBTR	A	A	0.0	0.0	0.09	0.16
New King Street and Site Access (Unsignalized)	**Overall**	**B**	**D**	**15.5**	**26.0**	**0.33**	**0.34**
	EBLT	A	A	0.5	1.3	0.01	0.05
	WBT	A	A	0.0	0.0	0.33	0.34
	WBR	A	A	0.0	0.0	0.01	0.02
	SBLR	C	D	15.5	26.0	0.14	0.24
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**C**	**C**	**24.4**	**23.7**	**0.64**	**0.55**
	EBTR	A	A	0.0	0.0	0.18	0.30
	WBTL	A	A	3.0	2.7	0.07	0.11
	NBLR	C	C	24.4	23.7	0.64	0.55
Mountainview Road and King Street (Unsignalized)	**Overall**	**D**	**F**	**25.3**	**83.3**	**0.28**	**0.75**
	EBLTR	A	A	0.7	0.6	0.02	0.02
	WBLTR	A	A	0.2	0.5	0.01	0.02
	NBLTR	C	F	22.4	50.8	0.15	0.55
	SBLTR	D	F	25.3	83.3	0.28	0.75
Ontario Street and King Street (Signalized)	**Overall**	**D**	**D**	**43.3**	**53.2**	**1.03**	**1.27**
	EBL	B	B	13.9	17.5	0.43	0.58
	EBTR	B	B	15.6	17.6	0.38	0.47
	WBLT	E	E	68.7	55.1	0.97	0.89
	WBR	B	C	18.2	20.1	0.55	0.66
	NBLTR	C	-	27.0	-	0.01	-
	SBLT	F	F	99.3	176.3	1.03	1.27
	SBR	A	A	7.1	7.1	0.44	0.56
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**B**	**C**	**10.6**	**17.0**	**0.34**	**0.59**
	EBLTR	A	B	9.6	12.9	0.18	0.38
	WBLTR	B	C	10.5	17.0	0.33	0.59
	NBLTR	B	B	10.6	11.3	0.34	0.27
	SBLTR	A	C	9.8	15.7	0.23	0.53

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

The signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 33.9 seconds, and a maximum theoretical v/c ratio of 0.90.

The King Street Access is expected to operate at an LOS D during the weekday p.m. peak periods as vehicles exiting the site experience a control delay of 26.0 at the stop-controlled approach.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 83.3 seconds, and a maximum v/c ratio of 0.75, both occurring at minor, stop-controlled approaches.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of D during the weekday a.m. and p.m. peak periods. Under 2030 future total conditions, the intersection has a maximum control delay of 176.3 seconds and a maximum v/c ratio of 1.27, similar to the operations in the 2030 future background horizon year.

The remainder of the study road network is expected to operate with an overall LOS C or better at each intersection, without any critical movements during the a.m. and p.m. peak periods.

Table 17: 2030 Future Total Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBL	10.2	36.6	16.0
	EBTR	36.8	70.7	80.0[2]
	WBL	6.4	25.3	16.0
	SBLTR	16.9	15.8	25.0[2]
Ontario Street and King Street	EBL	46.8	64.9	15.0
	WBR	27.2	28.9	20.0
	SBLT	65.6	80.4	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to adjacent site access.

At the Lincoln Avenue and King Street intersection, the 95th percentile queues for the eastbound and westbound left turns extend beyond the provided storage length during the p.m. peak period. This queue can be accommodated within the taper length, therefore reducing the impact on the adjacent through lane.

At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns extend beyond the provided storage length, however these queues can be accommodated within the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane.

Table 18: 2035 Future Total Level of Service

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
Lincoln Avenue and King Street (Signalized)	**Overall**	**C**	**C**	**27.6**	**32.9**	**0.95**	**0.94**
	EBL	A	B	9.9	17.6	0.24	0.39
	EBTR	B	C	10.3	25.8	0.49	0.82
	WBL	A	A	5.6	9.8	0.04	0.11
	WBTR	D	D	35.3	39.7	0.95	0.94
	NBLTR	C	B	21.0	12.3	0.19	0.12
	SBLTR	D	D	40.7	41.8	0.67	0.77
Lincoln Avenue and Site Access (Unsignalized)	**Overall**	**B**	**B**	**10.2**	**11.2**	**0.11**	**0.18**
	EBLR	B	B	10.2	11.2	0.03	0.05
	NBLT	A	A	0.2	1.2	0.00	0.02
	SBTR	A	A	0.0	0.0	0.11	0.18
New King Street and Site Access (Unsignalized)	**Overall**	**C**	**E**	**17.3**	**42.7**	**0.38**	**0.38**
	EBLT	A	A	0.5	1.4	0.01	0.05
	WBT	A	A	0.0	0.0	0.38	0.38
	WBR	A	A	0.0	0.0	0.01	0.02
	SBLR	C	E	17.3	42.7	0.16	0.37
Lincoln Avenue and South Service Road (Unsignalized)	**Overall**	**E**	**E**	**43.7**	**39.0**	**0.84**	**0.74**
	EBTR	A	A	0.0	0.0	0.21	0.34
	WBTL	A	A	3.2	4.2	0.09	0.13
	NBLR	E	E	43.7	39.0	0.84	0.74
Mountainview Road and King Street (Unsignalized)	**Overall**	**D**	**F**	**33.7**	**246.3**	**0.40**	**1.24**
	EBLTR	A	A	0.8	0.7	0.03	0.03
	WBLTR	A	A	0.2	0.7	0.01	0.03
	NBLTR	D	F	27.8	110.6	0.21	0.84
	SBLTR	D	F	33.7	246.3	0.40	1.24
Ontario Street and King Street (Signalized)	**Overall**	**E**	**E**	**62.0**	**77.8**	**1.22**	**1.55**
	EBL	B	C	16.1	21.0	0.53	0.69
	EBTR	B	B	16.3	17.9	0.43	0.50
	WBLT	F	E	95.6	60.4	1.07	0.93
	WBR	C	C	21.7	24.0	0.63	0.73
	NBLTR	C	-	27.0	-	0.01	-
	SBLT	F	F	160.8	293.6	1.22	1.55
	SBR	A	A	7.3	7.9	0.49	0.62
Lincoln Avenue and Greenlane (Unsignalized)	**Overall**	**B**	**D**	**11.9**	**26.4**	**0.41**	**0.75**
	EBLTR	B	C	10.4	16.3	0.23	0.49
	WBLTR	B	D	11.9	26.4	0.40	0.75
	NBLTR	B	B	11.9	13.4	0.41	0.34
	SBLTR	B	C	10.6	22.3	0.28	0.67

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

The signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 41.8 seconds, and a maximum theoretical v/c ratio of 0.95.

With the expected traffic growth in 2035, the Lincoln Avenue and South Service Road intersection is expected to operate at an LOS E during the weekday a.m. and p.m. peak periods, consistent with 2035 future background conditions. The intersection has a maximum control delay of 43.7 seconds, and a maximum v/c ratio of 0.84.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 246.3 seconds, and a maximum v/c ratio of 1.24, both occurring at minor, stop-controlled approaches, in the p.m. peak period.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of E during the weekday a.m. and p.m. peak periods. Under 2035 future total conditions, the intersection has a maximum control delay of 293.6 seconds and a maximum v/c ratio of 1.55, both occurring at the southbound leg. These operations are consistent with those experienced under 2035 future background conditions.

Overall, the proposed development is not expected to significantly impact the study road network. Although critical movements exist in the ultimate horizon year, it can be noted that the growth of existing and background traffic account for a large portion of the 2035 future total traffic volume. The future background operations in **Section 3.8** show multiple critical movements in its analysis, which support the significance of the existing and background traffic growth.

In this analysis, it can be noted that the main intersection of Lincoln Avenue and King Street continues to operate efficiently with the addition of proposed development's site generated trips.

Table 19: 2035 Future Total Queuing Analysis

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Lincoln Avenue and King Street	EBL	8.7	25.2	16.0
	EBTR	41.7	71.6	80.0[2]
	WBL	23.5	24.7	16.0
	SBLTR	16.8	16.5	25.0[2]
Ontario Street and King Street	EBL	48.2	61.2	15.0
	WBR	29.9	30.2	20.0
	SBLT	79.6	111.2	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.
Note 2: Distance to adjacent site access.

At the Lincoln Avenue and King Street intersection, the 95th percentile queues for the eastbound and westbound left turns extend beyond the provided storage length during the peak periods. These queues can be accommodated within the taper length, therefore reducing the impact on the adjacent through lane.

At the Ontario Street and King Street intersection, the 95th percentile queues for the eastbound left turns extend beyond the provided storage length, however, these queues can be accommodated within the taper length, therefore reducing the impact on the adjacent lanes. The westbound right queues are also expected to occasionally extend beyond the storge length; however, this is expected as the westbound right operates as a slip through lane. The southbound left-through lane is also expected to occasionally exceed its provided storage length during the p.m. peak period; however, its average queue length can be accommodated by the provided storage length.

6.0 Recommended Improvements

6.1 King Street Site Access Left Turn Warrant (Updated)

Auxiliary left turn lane warrant analysis was conducted at the new site access along King Street. The three-legged intersection was reviewed for left turn lane analysis for the future total scenario. The analysis was conducted using the MTO's design Supplement for TAC GDGCR. Considering King Street is an arterial roadway with a posted speed limit of 60 km/h, the design speed was set to 80 km/h per industry standards.

It was found that the site access warranted a left turn lane under the ultimate horizon year, 2035. **Appendix J** contains warrant analysis worksheets.

6.2 Ontario Street and King Street Signal Optimization (New)

As outlined in **Section 3.8,** the expected traffic growth in the future horizon years lead to significant delays at the Ontario Street and King Street intersection, specifically at the southbound approach. To mitigate these delays, the current signal timing plan was optimized to improve operations. Furthermore, the southbound left-through lane was changed to an exclusive left-turn lane, the exclusive right-turn lane was changed to a right-through lane. This change improves the intersection operations as the observed saturated flow rates in the Region of Niagara are higher for left-turn lanes than left-through lanes. This change is justifiable as the lane essentially operates as an exclusive left-turn lane currently, with a total of 694 vehicles turning left, compared to just two (2) going through, in the 2035 future total a.m. and p.m. horizon years combined.

The signal timing plans were optimized for the 2035 future total conditions, for the a.m. and p.m. peak periods separately. The optimized signal timing plans were then applied to the 2028 and 2030 horizon years.

6.3 Mountainview Road and King Street Signalization (New)

Similar to the Ontario Street and King Street intersection, the expected traffic growth in the future horizon years lead to significant delays at the Mountainview Road and King Street intersection, specifically at the stop-controlled approaches. While the signal is not warranted under OTM book 12 justification 7, the signalization of Mountainview Road and King Street is included as a recommendation nonetheless.

The signal timing plans were optimized for the 2035 future total conditions, for the a.m. and p.m. peak periods separately. The optimized signal timing plans were then applied to the 2028 and 2030 horizon years.

Appendix J contains warrant analysis worksheets.

6.4 Intersection Operations (Updated)

The following tables outline the future total traffic conditions after the addition of the recommended improvements outlined in **Sections 6.1 - 6.3,** detailed capacity analyses included in **Appendix E.**

Table 20: 2028 Future Total Level of Service with Improvements

Intersection (Control)	Performance Metrics						
	Movement	LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
New King Street and Site Access (Unsignalized)	**Overall**	**B**	**C**	**8.6**	**22.8**	**0.31**	**0.33**
	EBL	A	A	8.6	8.9	0.01	0.05
	EBT	A	A	0.0	0.0	0.19	0.32
	WBT	A	A	0.0	0.0	0.31	0.33
	WBR	A	A	0.0	0.0	0.01	0.02
	SBLR	B	C	3.4	22.8	0.13	0.21
Mountainview Road and King Street (Optimized - Signalized)	**Overall**	**B**	**C**	**19.6**	**23.9**	**0.85**	**0.85**
	EBLTR	B	C	12.6	25.3	0.54	0.85
	WBLTR	C	C	24.7	25.7	0.85	0.85
	NBLTR	B	B	14.1	12.9	0.08	0.19
	SBLTR	B	B	14.4	14.3	0.15	0.23
Ontario Street and King Street (Optimized - Signalized)	**Overall**	**C**	**C**	**29.5**	**30.1**	**0.91**	**0.94**
	EBL	D	E	42.7	76.1	0.70	0.94
	EBTR	C	C	24.9	29.5	0.48	0.61
	WBLT	D	D	52.6	38.9	0.91	0.78
	WBR	B	B	13.5	14.0	0.50	0.58
	NBLTR	C	-	28.5	-	0.01	-
	SBLT	C	C	26.8	29.3	0.51	0.67
	SBR	A	A	1.1	4.9	0.30	0.45

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

Table 21: 2030 Future Total Level of Service with Improvements

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
New King Street and Site Access (Unsignalized)	**Overall**	**C**	**D**	**15.5**	**26.0**	**0.33**	**0.35**
	EBL	A	A	8.7	9.0	0.01	0.05
	EBT	A	A	0.0	0.0	0.20	0.35
	WBT	A	A	0.0	0.0	0.33	0.34
	WBR	A	A	0.0	0.0	0.01	0.02
	SBLR	C	D	15.5	26.0	0.14	0.24
Mountainview Road and King Street (Unsignalized)	**Overall**	**C**	**C**	**20.4**	**24.8**	**0.87**	**0.87**
	EBLTR	B	C	12.4	27.4	0.55	0.87
	WBLTR	C	C	26.0	25.6	0.87	0.85
	NBLTR	B	B	14.8	13.4	0.09	0.21
	SBLTR	B	B	15.3	15.0	0.16	0.25
Ontario Street and King Street (Signalized)	**Overall**	**C**	**C**	**30.2**	**31.8**	**0.91**	**0.98**
	EBL	D	F	46.1	83.9	0.74	0.98
	EBTR	C	C	25.0	28.9	0.49	0.61
	WBLT	D	D	52.9	38.3	0.91	0.78
	WBR	B	B	14.1	15.4	0.52	0.60
	NBLTR	C	-	29.0	-	0.01	-
	SBLT	C	C	28.8	34.2	0.55	0.73
	SBR	A	A	1.3	5.2	0.32	0.48

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

Table 22: 2035 Future Total Level of Service with Improvements

Intersection (Control)	Movement	Performance Metrics					
		LOS[1]		Delay (s)		v/c ratio[2]	
		AM	PM	AM	PM	AM	PM
New King Street and Site Access (Unsignalized)	**Overall**	**C**	**E**	**17.3**	**42.7**	**0.38**	**0.40**
	EBL	A	A	8.9	9.3	0.01	0.05
	EBT	A	A	0.0	0.0	0.23	0.40
	WBT	A	A	0.0	0.0	0.38	0.38
	WBR	A	A	0.0	0.0	0.01	0.02
	SBLR	C	E	17.3	42.7	0.16	0.37
Mountainview Road and King Street (Unsignalized)	**Overall**	**C**	**C**	**23.2**	**31.5**	**0.91**	**0.93**
	EBLTR	B	C	12.8	34.5	0.58	0.93
	WBLTR	C	C	30.7	33.6	0.91	0.92
	NBLTR	B	B	15.5	14.2	0.10	0.25
	SBLTR	B	B	16.4	16.6	0.20	0.32
Ontario Street and King Street (Signalized)	**Overall**	**C**	**D**	**34.1**	**37.8**	**0.94**	**0.99**
	EBL	E	F	59.2	82.5	0.85	0.99
	EBTR	C	C	24.6	26.1	0.52	0.58
	WBLT	E	C	56.0	33.9	0.94	0.74
	WBR	B	B	15.7	15.5	0.56	0.61
	NBLTR	C	-	30.0	-	0.01	-
	SBLT	D	E	37.1	69.6	0.69	0.97
	SBR	A	A	3.2	8.9	0.40	0.58

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle.
Note 2: All v/c ratios above critical thresholds are outlined in red text. At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS "E" or worse are deemed to be "critical". At unsignalized intersections, movements expected to operate at LOS "D" or worse are deemed "critical" The maximum v/c ratio for the weekday a.m. and p.m. peak hours is bolded.

While the left turn lane is warranted under the ultimate future total horizon, the results show that the changes to the road network are very minor. The warranted left turn lane could improve safety by separating the left turning vehicles and if the goal was to improve the operations of the eastbound through movements, then the warranted left turn lane would do so.

The optimization of the Ontario Street and King Street signal, as well as changes the left-through lane into an exclusive left-turn lane, significantly improves the intersection's operations. With the current signal timing plan, the 2035 future background and future total scenarios have an overall intersection control delay of 76.9 and 77.8 seconds, respectively, compared to 37.8 seconds after optimization. It is recommended that the region monitors the traffic volumes at the Ontario Street and King Street intersection, to determine if additional improvements are warranted.

Despite not being warranted under OTM Book 12 – Justification 7, the signalization of the Mountainview Road and King Street intersection significantly improves the intersection's operations, as the minor stop-controlled approaches experienced high control delays. Similar to the Ontario Street and King Street intersection, it is recommended that the Region monitors the traffic volumes to determine if additional improvements are warranted.

Table 23: 2028 Future Total Queuing Analysis with Improvements

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Ontario Street and King Street	EBL	61.8	68.4	15.0
	WBR	29.2	26.3	20.0
	SBL	64.6	80.2	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.

Table 24: 2028 Future Total Queuing Analysis with Improvements

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Ontario Street and King Street	EBL	68.7	70.8	15.0
	WBR	24.2	27.1	20.0
	SBL	90.3	78.8	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.

Table 25: 2028 Future Total Queuing Analysis with Improvements

Intersection (Control)	Performance Metrics			
	Movement	95th Percentile Queue Length (m)[1]		Auxiliary Lane Storage Length (m)
		A.M.	P.M.	
Ontario Street and King Street	EBL	69.2	70.1	15.0
	WBR	27.5	29.1	20.0
	SBL	79.6	103.0	90.0

Note 1: 95th percentile queue lengths exceeding the storage length are highlighted in red.

As the Ontario Street and King Street signal is optimized, there are no significant changes in the queuing. Aside from the eastbound left in the p.m. peak hour, all queueing exceedances can be accommodated within the taper length. While the 95th percentile eastbound left queue occasionally exceeds the storage plus taper length, the average queue can be accommodated in each horizon year. As mentioned, it is recommended that the region monitors the traffic volumes at the Ontario Street and King Street intersection, to determine if additional improvements are warranted.

7.0 Traffic Safety

7.1 Sight Distance Assessment

The available sightlines at the proposed site access on Lincoln Avenue and King Street were measured and compared to the standard set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Sight distances were measured from the proposed site access using the following assumptions:

- A standard drive eye height of 1.08 metres for a passenger car, and;
- A 4.4-5.4 metre setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

Intersection sight distance is calculated using equation 9.9.1 from the GDGCR as outlined below:

$$ISD = 0.278 * V_{major} * t_g$$

Where: *ISD = Intersection Sight Distance*
V_{major} = design speed of roadway (km/h)
t_g = assumed time gap for vehicles to turn from stop onto roadway (s)

The design speed of roadway in a suburban environment is typically 10-20 km/h greater than the posted speed limit. The posted speed limit on Lincoln Avenue is 50 km/h, therefore, a design speed of 60 km/h was assumed for the sight distance analysis. The posted speed limit on King Street at the new site access is 60km/h, therefore a design speed of 80 km/h was used.

Table 23 outlines the sight distance analysis for the proposed site access. **Appendix K** contains relevant TAC excerpts.

Table 26: Sight Distance Analysis

Parameter	Lincoln Avenue Site Access	King Street Site Access
Access Type	Full Moves	Full Moves
Intersection Control	Case B: Stop Control on Minor Road	Case B: Stop Control on Minor Road
Posted Speed Limit	50 km/h (Posted)	60 km/h (Posted)
Assumed Design Speed	60 km/h	80 km/h
Base Time Gap	Left Turn: 7.5 seconds Right Turn: 6.5 seconds	Left Turn: 7.5 seconds Right Turn: 6.5 seconds
Grade of Roadway	Less than 3%	Less than 3%
Additional Time Gap	None	None

Parameter	Lincoln Avenue Site Access	King Street Site Access
Horizontal Alignment of Roadway	Straight	Straight
Intersection Sight Distance Required (TAC GDGCR Eqn. 9.9.1)	Left Turn: 130 m Right Turn: 110 m	Left Turn: 170 m Right Turn: 145 m
Intersection Sight Distance Available	Left Turn: 130 m+ Right Turn: 110 m+	Left Turn: 170 m+ Right Turn: 145 m+

As typically seen in suburban environments, egressing vehicles are expected to conduct a two-stage egress maneuver. From this perspective, egressing vehicles can observe pedestrians and cyclists without expected sight distance issues while stopped at 4.4 m to 5.4 m from the edge of roadway. Once moved closer to the edge of roadway, drivers are expected to have a clear visual of the roadway.

As outlined in **Table 23,** minimum sight distance requirements are satisfied at the proposed site accesses along King Street and Lincoln Avenue. The road network is straight with minimal grade changes and no visual obstructions are noted. While the King Street and Lincoln Avenue intersection is nearby, egressing vehicles can see past the intersection, well beyond the sight distance requirement. Vehicles making turning movements at the intersection are expected to stop or slow down considerably to complete their turn, therefore giving vehicles at the site accesses adequate time to egress.

7.2 Corner Clearance

7.2.1. Lincoln Avenue Site Access

Per Table 3 of the Region of Niagara's Access Management Guidelines, the required corner clearance for a rural scenic roadway such as Lincoln Avenue is 100 meters. As the site plan proposes a corner clearance of approximately 42 m, adequate corner clearance is not provided per Niagara's Standards.

It is noted that this site access is located on a town road and by having access on Lincoln Road, it reduces the number of accesses on King Street. It is also noted that this access is further north than the current access to the existing commercial development.

7.2.2. New King Street Site Access

Per Table 3 of the Region of Niagara's Access Management Guidelines, the required corner clearance for a rural throughfare roadway such as King Street is 125 meters. As the site plan proposes a corner clearance of approximately 105 m, adequate corner clearance is not provided per Niagara's Standards.

When following the TAC GDGCR Section 8.8, the required corner clearance for the King Street Access is 70 m. As the Site Plan proposes a corner clearance of approximately 105 m, the TAC GDGCR standards are met. Furthermore, the new King Street site access is located further away from the intersection compared to the existing site access, which operated without causing delays and traffic issues on King Street.

8.0 Site Circulation

Vehicle Turning Diagrams were prepared using a passenger car, a Town of Lincoln fire truck, and a private waste collection vehicle. The drawings indicate that there is sufficient space for the aforementioned vehicles to manoeuvre in and out of the designated site access, surface level parking spaces, underground parking spaces, loading areas, and waste collection areas without conflict.

Vehicle turning diagrams are included in **Appendix L.**

9.0 Town of Lincoln Zoning By-Law Requirements

This section reviews the vehicle, accessible, and bicycle parking requirements, as well as the loading requirements for the proposed development governed by the Town of Lincoln Comprehensive Zoning By-Law 2022-50 (ZBL). The comprehensive ZBL applies to all properties east of fifteen-mile pond, west of Fairbrother Road, and north of the Lincoln southern limits. also referred to as "Lincoln ZBL" throughout the rest of this document.

Appendix M contains ZBL excerpts.

9.1 Vehicle Parking Requirements (Updated)

The proposed parking supply was assessed against the Lincoln ZBL. The minimum parking requirements per the Lincoln ZBL are outlined below in **Table 24**.

Table 27: Lincoln Zoning By-Law Parking Requirements

Land Use	Size	Minimum Vehicle Parking Rates	Parking Spaces Required
Dwelling Unit in a Mixed-Use Development	246 Dwelling units	1 space per dwelling unit	246 Spaces
		1 visitor space per 10 dwelling units	25 Spaces
Eating Establishment	220 m^2 public floor area[1]	Dining: 1 space per 4.5 square metres of public floor area Takeout: 1 space per 6 square metres of public floor area	49 Spaces
Retail Use	561 m^2 GFA	1 space per 30 square metres of GFA	19 Spaces
Parking Required			**339 Spaces**
Parking Supplied			**309 Spaces**
Surplus/Deficiency			**-30 Spaces**

Note 1: Assuming 43% of the restaurant's GFA is public floor area, per discussions with the client.
Note 2: All fractions are rounded up to the nearest whole number.

As outlined above, the Lincoln ZBL requires the development to provide a minimum parking supply of 339 parking spaces. As the Site Plan proposes 309 parking spaces, the development proposes a deficit of 30 spaces.

9.2 Shared Parking Reductions (New)

For a mixed use development where more than one use is located in the same lot, the Lincoln ZBL allows the reduction of minimum parking requirements by the sharing of parking spaces.

As the proposed development includes residential, retail, and restaurant land uses, the parking reduction rates outlined in **Table 28** can be applied to the Subject Site.

Table 28: Lincoln Zoning By-Law Shared Parking Rates

Land Use	Time Period	Shared Parking Rate	
Dwelling Unit in a Mixed-Use Development	Morning	Regular: 90%	Visitor: 20%
	Afternoon	Regular: 40%	Visitor: 10%
	Evening	Regular: 90%	Visitor: 80%
	Overnight	Regular: 100%	Visitor: 100%
Eating Establishment	Morning	15%	
	Afternoon	50%	
	Evening	100%	
	Overnight	0%	
Retail	Morning	80%	
	Afternoon	90%	
	Evening	90%	
	Overnight	0%	

As the evening period has the lowest parking reduction rate, the proposed parking supply was assessed against the Lincoln ZBL requirements, with the evening shared parking reductions included. The minimum shared parking requirements per the Lincoln ZBL are outlined below in **Table 29.**

Table 29: Lincoln Zoning By-Law Shared Parking Reductions

Land Use	Size	Minimum Vehicle Parking Rates	Parking Spaces	Shared Parking Rate (Evening)	Evening Parking Requirement
Dwelling Unit in a Mixed-Use Development	246 Dwelling Units	1 space per dwelling unit	246 spaces	0.9	222 spaces
		1 Visitor Space per 10 dwelling units	25 spaces	0.8	20 spaces
Eating Establishment	220 M^2 Public Floor Area[1]	Dining: 1 space per 4.5 square metres of public floor area Takeout: 1 space per 6 square metres of public floor area	49 spaces	1	49 spaces
Retail Use	561 m^2 GFA	1 space per 30 square metres of GFA	19 Spaces	0.9	18 spaces
Parking Required			**339 Spaces**		**309 spaces**
Parking Supplied			**309 Spaces**		
Surplus/Deficiency			**-30 Spaces**		**Equal**

Note 1: Assuming 43% of the restaurant's GFA is public floor area.
Note 2: All fractions are rounded up to the nearest whole number.

As outlined in **Table 29**, with the shared parking reductions considered, the Lincoln ZBL requires the development to provide 30 less spaces, for an overall minimum requirement of 309 parking spaces. As the Site Plan proposes 309 parking spaces, the development meets the parking requirements outlined in the Lincoln ZBL.

9.3 Accessible Parking Requirements

The minimum accessible parking requirements associated with the development are outlined below in **Table 30**.

Table 30: Lincoln Zoning By-Law Accessible Parking Requirements

Total Number of Parking Spaces Required	Minimum Number of Accessible Parking Required to be Designated	Minimum Number of Accessible Parking Required
201 to 1000 required parking spaces	2 Spaces plus 2% of the total number of parking spaces (50% type A and 50% type B)	**9 Spaces**
Accessible Parking Spaces Proposed		**9 spaces**
Surplus/Deficiency		**Equal**

Note 1: All fractions are rounded up to the nearest whole number.

According to the Lincoln ZBL, a total of 9 accessible parking spaces are required. As the Site Plan proposes 9 accessible spaces, the development meets the ZBL accessible parking requirements.

9.4 Bicycle Parking Requirements (Updated)

Table 31 below outlines the Lincoln ZBL minimum bicycle parking requirements.

Table 31: Lincoln Zoning By-Law Bicycle Parking Requirements

Land Use	Size	Minimum Bicycle Parking Rates	Parking Spaces
Dwelling Unit in a Mixed-Use Development	246 Dwelling units	0.25 spaces per dwelling unit	62 spaces
Eating Establishment	510 m^2	1 Space per 100 m^2 of GFA	6 spaces
Retail Use	561 m^2	1 Space per 200 m^2 of GFA	3 spaces
Parking Required			**71 spaces**
Parking Supplied			**77 spaces**
Surplus/Deficiency			**+ 6 spaces**

Note 1: All fractions are rounded up to the nearest whole number.

As noted in **Table 31**, a total of 71 bicycle parking spaces are required. As the development proposes 77 bicycle parking spaces, the development provides a surplus of six (6) bicycle parking spaces.

9.5 Loading Requirements

According to Lincoln ZBL, there are no loading requirements for this development. Nevertheless, the development proposes one loading area in support of each apartment building.

10.0 Transportation Demand Management (TDM) Strategies

Transportation Demand Management (TDM) refers to various strategies to reduce traffic congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. TDM strategies have multiple benefits, including the following:

- Reduced auto-related emissions to improve air quality.
- Decreased traffic congestion to reduce travel time.
- Increased travel options for residents and commuters.
- Reduced personal transportation costs and energy consumption.
- Support Provincial Smart Growth Objectives.

The above-combined benefits will assist in creating a more active and livable community.

There are several existing, future, and site-specific Transportation Demand Management (TDM) opportunities in the Town of Lincoln and Region of Niagara to encourage the use of non-auto transportation, reduce single-occupancy vehicle (SOV) trips and parking demand for the proposed development, and to improve community health.

10.1 Existing TDM Measures

Pedestrian and Cycling

Currently, there are sidewalks along Lincoln Avenue and on King Street, but only west of Lincoln Avenue. There are more pedestrian facilities beyond the immediate study road network, but limited cycling facilities. With future improvements, the pedestrian and cycling infrastructure aim to promote active transportation in the area and encourage the reduction of automobile use.

Carpooling Facilities

A carpooling facility is approximately a five-minute drive away from the subject site, at the Ontario Street and QEW interchange. Nearby Carpooling aims to reduce the number of single-occupant trips taken, therefore decreasing traffic congestion, auto-related emissions, and personal transportation costs.

Transit

As outlined in **Section 3.4**, there are limited transit options near the subject property. A GO bus stop located at the Ontario Street and QEW interchange services the Lakeshore West GO route and the Niagara Falls/Toronto route (Route 11 and 12, respectively). These lines provide regional transit to downtown Toronto and many major suburban transit areas along Lake Ontario.

10.2 Future TDM Measures

Pedestrian and Cycling

The site plan indicates the addition of bike lanes and sidewalks on both sides of King Street. The implementation of active transportation facilities will increase the development's pedestrian and cycling accessibility and connectivity to the surrounding areas, further encouraging residents and visitors to view walking or cycling as a reliable mode of transportation.

Transit

As mentioned in **Section 3.12.2** Beamsville has been identified by the province of Ontario as a future potential GO station site. A business case determined that a station in Beamsville is viable on the GO network and the proposed station could add 48,000 new annual trips to the network from residents. The Beamsville GO Station, would be expected to improve access to businesses, housing, jobs, and destinations beyond the Town of Lincoln. Currently, there is no timeline for construction, but the Town of Lincoln remains committed to a station in Beamsville in the future.

10.3 Site Specific TDM Opportunities and Recommendations

There are several opportunities for the development to promote TDM measures in support of reduced automobile use. The following measures, outlined in **Table 27**, are recommended for the proponent to undertake, and are expected to contribute to a reduced automobile use and increased sustainable mode share.

Table 32: Site Specific TDM Recommendations

Recommended/Provided TDM Measure	Implementation Summary
Improved Bicycle Initiatives	Safe and secure bicycle parking spaces are proposed. Access to safe and secure bicycle parking will increase confidence and reliability for prospective cyclists to cycle as one of their primary modes of transportation.
Implement Pick-up and Drop-off Zones	Designated pick-up and drop-off zones enable convenient locations for passenger loading and increases site safety by easing the potential conflicts between vehicle and pedestrian movements.

11.0 Conclusion

Urbanlink Developments Ltd. Proposes a residential-commercial development consisting of two apartments with ground floor retail space at the northwest corner of Lincoln Avenue and King Street, in the City of Lincoln, Region of Niagara. The analysis contained within this report has resulted in the following key findings:

Existing Conditions

Under existing conditions, the unsignalized intersection of Lincoln Avenue and King Street is currently operating and an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The maximum control delay occurs at the southbound leg with a delay of 26.2 seconds and 73.9 seconds during the weekday a.m. and p.m. peak periods, respectively. The maximum theoretical volume-to-capacity (v/c) ratio is 0.44 and 0.85 occurring at the southbound leg, during the weekday a.m. and p.m. peak periods, respectively.

The remainder of the study road network is operating with an overall LOS C or better at each intersection during the weekday a.m. and p.m. peak periods, with one critical movement occurring at the southbound leg of the Ontario Street and King Street intersection. The critical movement has a maximum control delay of 41.9 seconds, and a maximum volume-to-capacity ratio of 0.94.

Future Background Conditions

With the existing and background traffic growth in the ultimate background horizon year, the signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 39.0 seconds, and a maximum theoretical v/c ratio of 0.95.

With the expected traffic growth in 2035, the Lincoln Avenue and South Service Road intersection is expected to operate at an LOS E during the weekday a.m. and p.m. peak periods, this is due to delays in the minor, stop-controlled approach. The intersection has a maximum control delay of 41.4 seconds, and a maximum v/c ratio of 0.82.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 160.8 seconds, and a maximum v/c ratio of 1.04, both occurring at minor, stop-controlled approaches, in the p.m. peak period.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS E during the weekday a.m. and p.m. peak periods. Under 2035 future background conditions, the intersection has a maximum control delay of 289.2 seconds and a maximum v/c ratio of 1.54, both occurring at the southbound leg.

Future Total Conditions

In the ultimate horizon year, with the expected traffic growth and site generated trips the signalized intersection of Lincoln Avenue and King Street is expected to operate at an LOS C during the weekday a.m. and p.m. peak periods, with a maximum control delay of 41.8 seconds, and a maximum theoretical v/c ratio of 0.95.

With the expected traffic growth in 2035, the Lincoln Avenue and South Service Road intersection is expected to operate at an LOS E during the weekday a.m. and p.m. peak periods, consistent with 2035 future background conditions. The intersection has a maximum control delay of 43.7 seconds, and a maximum v/c ratio of 0.84.

The Mountainview Road and King Street intersection is expected to operate at an LOS D and F during the weekday a.m. and p.m. peak periods, respectively. The intersection has a maximum control delay of 246.3 seconds, and a maximum v/c ratio of 1.24, both occurring at minor, stop-controlled approaches, in the p.m. peak period.

The Ontario Street and King Street intersection is expected to operate with an overall intersection LOS of E during the weekday a.m. and p.m. peak periods. Under 2035 future total conditions, the intersection has a maximum control delay of 293.6 seconds and a maximum v/c ratio of 1.55, both occurring at the southbound leg. These operations are consistent with those experienced under 2035 future background conditions.

Overall, the proposed development is not expected to significantly impact the study road network. Although critical movements exist in the ultimate horizon year, it can be noted that the growth of existing and background traffic account for a large portion of the 2035 future total traffic volume. The future background operations show multiple critical movements in its analysis, which support the significance of the existing and background traffic growth.

It can also be noted that the main intersection of Lincoln Avenue and King Street continues to operate efficiently with the addition of proposed development's site generated trips.

Recommendations

Auxiliary left turn lane warrant analysis was conducted at the new site access along King Street. The three-legged intersection was reviewed for left turn lane analysis for the future total scenario. The analysis was conducted using the MTO's design Supplement for TAC GDGCR. Considering King Street is an arterial roadway with a posted speed limit of 60 km/h, the design speed was set to 80 km/h, as per industry standards. It was found that the site access warranted a left turn lane under the ultimate horizon year, 2035.

The expected traffic growth in the future horizon years lead to significant delays at the Ontario Street and King Street intersection, specifically at the southbound approach. To mitigate these delays, the current signal timing plan was optimized to improve operations. Furthermore, the southbound left-through lane was changed to an exclusive left-turn lane, and the exclusive right-turn lane was changed to a right-through lane. This change improves the intersection operations as the observed saturated flow rates in the Region of Niagara are higher for left-turn lanes than left-through lanes. This change is justifiable as the lane essentially operates as an exclusive left-turn lane currently, with a total of 694 vehicles turning left, compared to just two (2) going through, in the 2035 future total a.m. and p.m. horizon years combined.

Similar to the Ontario Street and King Street intersection, the expected traffic growth in the future horizon years lead to significant delays at the Mountainview Road and King Street intersection, specifically at the stop-controlled approaches. While the signal is not warranted under OTM book 12 Justification 7, the signalization of Mountainview Road and King Street is included as a recommendation nonetheless.

Traffic Safety

Assessment of sight distance at the proposed site accesses indicate that no sight distance issues are expected for vehicles exiting the Site.

Vehicle Turning Diagrams indicate that there is sufficient space for the expected design vehicles to maneuver in and out of the designated site accesses, parking, and loading spaces without conflict.

Parking and Loading

The proposed development is governed by the Town of Lincoln Comprehensive Zoning By-Law 2022-50 (ZBL). The Lincoln ZBL requires the development to provide a minimum parking supply of 309 parking spaces with the consideration of shared parking reductions. As the Site Plan proposes 309 parking spaces, the development meets the ZBL's requirements.

According to the Lincoln ZBL, a total of 9 accessible parking spaces are required. As the Site Plan proposes nine (9) accessible spaces, the development meets the ZBL's accessible parking requirements. The Lincoln ZBL requires a total of 71 bicycle parking spaces. As the development proposes 77 bicycle parking spaces, the development exceeds the ZBL's requirements by six (6) spaces.

In conclusion, the proposed residential-commercial development at the northwest corner of Lincoln Avenue and King Street can be supported from transportation operations, safety, parking, and loading perspectives. The analysis contained within this report was prepared using the most recent Site Plan. Any minor revisions to the Site Plan are not expected to affect the conclusions contained within this report.

Respectfully submitted by,

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APPENDIX A

Correspondence

Response to Comments Matrix: Notice of Incomplete Application - Technical Comments

Ref #	Comment	Assigned Consultant	Response
	Traffic Study: i. Section 9.1: As the applicants are proposing restaurant space in the commercial spaces the report must be updated to include the different parking requirements for these uses: 1. Dine-in: 1 space per 4.5 square metres of public floor area 2. Takeout: 1 space per 6 square metres of public floor area ii. Shared Use Parking: Please note that Section 4.1.5. of the Town's Zoning By-laws contains calculations for determining the required number of parking spaces for mixed-use developments. It is recommended that an analysis be undertaken using the shared parking methodology to determine if the proposed number of parking spaces is sufficient for restaurant uses. iii. Table 25: The Surplus/Deficiency figure should be updated to reflect that there is an adequate number of accessible parking spaces in the proposed development.	Crozier	Parking Section has been updated in the updated submission
	Future Site King St. Entrance: i. The first mention of a left hand turn lane in the east bound lane appears to occur in Section 6.2 of the report. If a left hand turn lane into the development is required it should also be mentioned in the Executive Summary. ii. Please clarify the discussion on the requirement for a left hand turning lane from the east bound lane on King St. For example, the first sentence says that it is warranted but the second seems to imply that it is not.	Crozier	Noted, see updated TIS
	Development Phasing Assumptions: Some clarification is needed about the location of the commercial parking for Building 2. If parking for these spaces is provided behind Building 2 then the assumptions provided on Page 25 are correct. However, if commercial parking is provided on the Phase 1 lands as well then this will need to be adjusted in the TIS.	Crozier	Noted, see updated TIS
	Table 13: To help residents identify trip generation patterns please identify any other roads taken to reach another street that is identified in the table. For example, rather than East via Greenlane, it would help reduce confusion if it read East on Greenlane via Lincoln Avenue or West on South Service Road via Lincoln Ave.	Crozier	Noted, see updated TIS
	Intersection Design: Section 3.7 mentions that future plans for the King St./Lincoln Ave. intersection were utilized for the intersection. However, it is not clear which design was used and it is not clear if the design drawings used in the report were included in the appendices. To address the next comment, this information needs to be included within the next version of the report.	Crozier	The latest designs were provided by Region Staff on April 4th, 2025
	Page 40, 4 & 5th paragraph: The wording in these paragraphs is not clear on what is required to address storage lane problems as it is not clear what design is being used to measure traffic flows for the study. For example, are changes needed to the conceptual drawings provided by the Region, is it based on a different designs or current conditions? Please clarify this in the next submission.	Crozier	Noted, see updated TIS
	Section 6.2: This appears to be the first mention of an eastbound turn left turn lane at the new King St. site access in the report.	Crozier	Noted, see updated TIS
	Section 7.1: The discussion on site line issues at King and Lincoln states that there are no site line issues at the intersection. However this is not correct as the Region is installing a traffic signal at this intersection because there are significant site line impacts. Please revise this portion of the report accordingly.	Crozier	Section 7.1 discusses the site accesses and not the main intersection of King and Lincoln
	This subject lands have frontage along Regional Road #81 (King Street). At this location, the road width satisfies the NOP requirement. The required daylight triangle of 6.0 metres has already been dedicated at the corner of King Street and Lincoln Avenue. No further widening is required.	Crozier	Noted
	Transportation Impact Study Regional Transportation staff have reviewed the submitted Transportation Impact Study (TIS), prepared by Crozier Consulting Engineers (dated December 2024) and have identified several issues, including discrepancies in traffic counts, errors in traffic volume data, and inconsistencies between figures and capacity analysis. These are outlined in detail in Appendix 1. A revised/updated TIS will be required to address these comments This must be submitted prior to final approval of the applications, as changes to the overall site design may need to be implemented to address any adverse transportation impacts on the Regional road network.	Crozier	Region and Town staff agreed the traffic volume data collected is to be used
	Page 7-9: 2.5 Traffic Data For the King Street and Lincoln Avenue intersection, it is noted that the Traffic Monitoring Counts (TMC) collected to support this assessment are less than the typical Regional TMC, especially during the PM peak hour. The Regional counts, which were conducted on July 14th, 2023, a year before the study's completion date, are showing higher traffic volumes compared to those recorded by Spectrum Traffic Data Inc. The consultant will need to review and compare the traffic counts and provide justification for the discrepancy. If justification is not provided, the Region requires the analysis be revised using the Region's traffic counts to ensure accuracy and consistency, which will require all background and total traffic volumes be modified.	Crozier	Region and Town staff agreed the traffic volume data collected is to be used
	Page 7-9: 2.5 Traffic Data Figure 4: Existing Traffic Volumes shows identical traffic volumes at the AM and PM peak hour for King Street and Mountainview Road intersection, likely in error. The attached TMC's in Appendix C show higher traffic volumes for the PM peak hour. Please revise the figure, traffic volumes, and the capacity analysis of this intersection for all the scenarios. Note there is a Regional TMC available for this intersection, conducted in August 2021	Crozier	Noted, figures updated
	Page 11-23: 3.0 Future Background Conditions Figure 7- 2035 future background traffic volumes are lower than the previous background scenarios. Please revise the figure, traffic volumes, and the capacity analysis of this intersection for the subsequent scenarios.	Crozier	Noted, figures updated
	Page 11-23: 3.0 Future Background Conditions Traffic volumes used in the capacity analysis inputs are not the same as the ones calculated in Figures 5-7. The synchro reports are showing the projected volumes used reflect the growth rates only and not the background development as mentioned in Section 3.3. Please revise the capacity analysis, and Tables 6-11, accordingly.	Crozier	Noted, see updated TIS
	Page 24: 4.0 Site Generated Traffic Regarding the retail trip generation, please use Peak Hour of Generator instead of Peak Hour of Adjacent Street Traffic to accurately estimate the number of trips generated. The assessment is to analyze the impact of the vehicular traffic demand directly associated with the site.	Crozier	Per Region comment, this peak hour of adjacent street was used
	Page 24: 4.0 Site Generated Traffic Please clarify the nature of the commercial/ retail space of the development (markets, cafes, or other amenities). Is the retail space open to the public or is it entirely employee or tenant focused? Depending on the nature of the retail space, please consider applying pass-by adjustments to the retail portion.	Crozier	Noted, see updated TIS
	Page 43: 6.0 Warrants Please revise the left turn lane warrants analysis with respect to the comments above. If left turn lane is still warranted, please submit a functional design drawing for the Region's review.	Crozier	Noted, functional design provided with updated TIS
	For Table 2: Study Road Network, please note that all Regional roads are classified as arterial roads.	Crozier	Noted, see updated TIS
	Figures 4-7 are missing the west bound right turn movement volumes for the intersections of King Street with Ontario Street and Lincoln Avenue.	Crozier	Noted, see updated TIS
	Table 5: 2024 Queuing Analysis shows queue lengths that do not reflect the results from the Sim Traffic Report. For the Ontario Street and King Street intersection, the shown queue lengths for the PM peak hour are relatively less. Please revise and update accordingly with respect to the comments above.	Crozier	Noted, see updated TIS
	The subject property has frontage along a road which is designated as part of the Regional Niagara Bicycling Network. If the bicycle routes are currently not established and identified with signage, it is the intent of the Region to make provisions for doing so when an appropriate opportunity arises. This may involve additional pavement width, elimination of on-street parking, etc.	Crozier	Noted.

Response to Comments Matrix: Notice of Incomplete Application

	Page 7-9: 2.5 Traffic Data For the King Street and Lincoln Avenue intersection, it is noted that the Traffic Monitoring Counts (TMC) collected to support this assessment are less than the typical Regional TMC, especially during the PM peak hour. The Regional counts, which were conducted on July 14th, 2023, a year before the study's completion date, are showing higher traffic volumes compared to those recorded by Spectrum Traffic Data Inc. The consultant will need to review and compare the traffic counts and provide justification for the discrepancy. If justification is not provided, the Region requires the analysis be revised using the Region's traffic counts to ensure accuracy and consistency, which will require all background and total traffic volumes be modified.	Crozier	Region and Town staff agreed the traffic volume data collected is to be used
	Page 7-9: 2.5 Traffic Data Figure 4: Existing Traffic Volumes shows identical traffic volumes at the AM and PM peak hour for King Street and Mountainview Road intersection, likely in error. The attached TMC's in Appendix C show higher traffic volumes for the PM peak hour. Please revise the figure, traffic volumes, and the capacity analysis of this intersection for all the scenarios. Note there is a Regional TMC available for this intersection, conducted in August 2021	Crozier	Noted, figures updated
	Page 11-23: 3.0 Future Background Conditions Figure 7- 2035 future background traffic volumes are lower than the previous background scenarios. Please revise the figure, traffic volumes, and the capacity analysis of this intersection for the subsequent scenarios.	Crozier	Noted, figures updated
	Page 11-23: 3.0 Future Background Conditions Traffic volumes used in the capacity analysis inputs are not the same as the ones calculated in Figures 5-7. The synchro reports are showing the projected volumes used reflect the growth rates only and not the background development as mentioned in Section 3.3. Please revise the capacity analysis, and Tables 6-11, accordingly.	Crozier	Noted, see updated TIS
	Page 24: 4.0 Site Generated Traffic Regarding the retail trip generation, please use Peak Hour of Generator instead of Peak Hour of Adjacent Street Traffic to accurately estimate the number of trips generated. The assessment is to analyze the impact of the vehicular traffic demand directly associated with the site.	Crozier	Per Region comment, this peak hour of adjacent street was used
	Page 24: 4.0 Site Generated Traffic Please clarify the nature of the commercial/ retail space of the development (markets, cafes, or other amenities). Is the retail space open to the public or is it entirely employee or tenant focused? Depending on the nature of the retail space, please consider applying pass-by adjustments to the retail portion.	Crozier	Noted, see updated TIS
	Page 43: 6.0 Warrants Please revise the left turn lane warrants analysis with respect to the comments above. If left turn lane is still warranted, please submit a functional design drawing for the Region's review.	Crozier	Noted, functional design provided with updated TIS
	For Table 2: Study Road Network, please note that all Regional roads are classified as arterial roads.	Crozier	Noted, see updated TIS
	Figures 4-7 are missing the west bound right turn movement volumes for the intersections of King Street with Ontario Street and Lincoln Avenue.	Crozier	Noted, see updated TIS
	Table 5: 2024 Queuing Analysis shows queue lengths that do not reflect the results from the Sim Traffic Report. For the Ontario Street and King Street intersection, the shown queue lengths for the PM peak hour are relatively less. Please revise and update accordingly with respect to the comments above.	Crozier	Noted, see updated TIS
	Future Traffic Volume (No Development): The figures outlining future traffic conditions appear to not portray them accurately. For example, eastbound movements on King St. between 2028 and 2035 decline by 151 between Figure 5 and 7 despite a 3% annual growth rate being applied. Please update these figures accordingly.	Crozier	Noted, see updated TIS
	Traffic Volumes (With Development): Some of the vehicle trip figures in Figure 12 do not appear to match with those provided in earlier figures for the same time period. For example, eastbound PM movements through the Mountainview Road intersection should be (362)(325+37) and 285 while Figure 12 shows that it is (379) 286. Please update these figures so that they are coordinated together.	Crozier	Noted, see updated TIS. Please note that in Section 5.4. It is described that vehicles are lost once the existing site is no longer in use.
	Required Improvements: It is unclear within the report whether any improvements beyond those contemplated by the Region on King St. or Lincoln Avenue are required to accommodate the proposed development. Please update the report to address these matters so that Section 16 of the Region's Terms of Reference is met.	Crozier	Noted, see updated TIS

Andrew Bader

From: Melissa Shih <mshih@lincoln.ca>
Sent: Wednesday, October 2, 2024 2:53 PM
To: Andrew Bader
Cc: Ian Lindley; Josh Warkentin; Matt Bruder
Subject: RE: Follow up - 5205 King Street, Beamsville - Transportation Engineering Services ToR

Hi Andrew,

See Town comments on the TofR in blue below – there is an additional intersection to include and some notes on when traffic counts should take place.

The only item outstanding for the TofR is the background developments to include, and we will provide this to you shortly.

Thank you,

Melissa Shih , MCIP, RPP
Manager, Prudhommes & Special Projects
Town of Lincoln
Direct: 905-563-2799 ext. 250
Tel: 905-563-8205
Cell: 289-968-2216
mshih@lincoln.ca

lincoln.ca
@TownofLincolnON

From: Andrew Bader <abader@cfcrozier.ca>
Sent: October 2, 2024 2:29 PM
To: Melissa Shih <mshih@lincoln.ca>
Cc: Ian Lindley <ilindley@cfcrozier.ca>; Josh Warkentin <jwarkentin@lincoln.ca>; Matt Bruder <MBruder@lincoln.ca>
Subject: RE: Follow up - 5205 King Street, Beamsville - Transportation Engineering Services ToR

Some people who received this message don't often get email from abader@cfcrozier.ca. Learn why this is important

Hi Melissa,

Thank you for getting back to me, while the planning department works out their concerns regarding the development size, would you be able to confirm the intersections to be included in our study? We are looking to request traffic counts soon.

Thanks,
Andrew

Andrew Bader
Engineering Intern, Transportation

Office: 289.204.8341
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Melissa Shih <mshih@lincoln.ca>
Sent: Thursday, September 26, 2024 1:23 PM
To: Andrew Bader <abader@cfcrozier.ca>
Cc: Ian Lindley <ilindley@cfcrozier.ca>; Josh Warkentin <jwarkentin@lincoln.ca>; Matt Bruder <MBruder@lincoln.ca>
Subject: RE: Follow up - 5205 King Street, Beamsville - Transportation Engineering Services ToR

Hi Andrew,

Thank you for sending this request along. I will get back to you on the Town's requirements for the TIS, however, I would like to note that the Town Planning Dept has concerns with the development scale/uses as proposed and has reached out to the Applicant regarding this. This would potentially impact the development figures you have summarized below.

As noted above, I will follow up with you regarding the TofR.

Sincerely,

Melissa Shih , MCIP, RPP
Manager, Prudhommes & Special Projects
Town of Lincoln
Direct: 905-563-2799 ext. 250
Tel: 905-563-8205
Cell: 289-968-2216
mshih@lincoln.ca

lincoln.ca
@TownofLincolnON

From: Andrew Bader <abader@cfcrozier.ca>
Sent: September 25, 2024 11:30 AM
To: Melissa Shih <mshih@lincoln.ca>
Cc: Ian Lindley <ilindley@cfcrozier.ca>
Subject: Follow up - 5205 King Street, Beamsville - Transportation Engineering Services ToR

You don't often get email from abader@cfcrozier.ca. Learn why this is important

Hello Melissa,

Hope you are doing well and had a good summer. Crozier has been retained to provide Transportation Engineering Services in support of the Official Plan Amendment and Zoning By-Law Amendment related to the proposed mixed-use development for the site located at 5205 King Street, in the Town of Lincoln.

The elements envisioned for this two-phase development include:

Phase 1

- An 8-storey building with a total of 158 rental apartment units, and 474m^2 of ground floor commercial space.
- A total of 209 parking spaces (86 surfaces and 123 underground).
- Three (3) townhouse blocks with a total of 10 units.
- A site access off King Street.

Phase 2

- A 6-storey residential building with a total of 85 rental apartment units.
- A total of 81 parking spaces (37 surfaces and 44 underground).
- A site access off Lincoln Avenue.

After reviewing the proposed Site Plan and pre-consultation meeting package, we prepared the following Terms of Reference below. It was sent to the Region of Niagara and the Town of Lincoln Planning Applications. A response was received from the Region, (their comments are in red below) but we have not heard back from the Town of Lincoln. I'm following up to request a response at your earliest convenience.

Submission Materials:

1. **Transportation Impact Study**
2. **Parking Review**
3. **Vehicle Swept Path Analysis (If required)**

TIS Workplan:

Study Intersections

- King Street and Lincoln Avenue -TMC available for July 2023
- Site Access off King Street
- Site Access off Lincoln Avenue
- Lincoln Avenue and South Service Road
- King Street at Mountainview Road
- King Street at Ontario Street

Lincoln & Greenlane

Existing Conditions

- We will conduct new counts at the study intersection, unless using historical counts provided by the Region/Town are the preferred option. Please ensure traffic counts are undertaken on a Tuesday, Wednesday, or Thursday. We would prefer new counts be undertaken as so much of the data we have is from pre or during COVID.
- We will request signal timing plans from Region/Town staff as required.

- We will analyze the weekday a.m. and p.m. peak periods; 7:00 a.m. to 10:00 a.m. & 4:00 p.m. to 7:00 p.m.; reflective of the typical commuter peak periods.
- We will analyze the existing vehicle traffic conditions based on peak hour traffic counts using Synchro Version 11.0, LOS, control delays, and maximum volume-to-capacity ratios will be outlined. 95th percentile queues from Sim Traffic will also be outlined.

Study Horizons

- We will analyze the current year (2024), the build-out year of 2027 and a five-year study horizon from build-out (2032) per Niagara Region TIS Guidelines

  Since the development will be built in multiple phases, the study should include capacity analysis at the end of each phase, additional to the buildout year and the 5 from buildout.

Growth Rates

- An industry standard of 2% is typically applied to the study roadways. Please advise if this growth rate is applicable for the roadways listed above. Confirmed Town utilizes 3% growth rate in Beamsville area.

Background Developments

- Based on the "Development in Lincoln" website, the residential development at 4129 Hixon Street, Beamsville will be accounted for in our study.
- Please advise if any additional developments should be accounted for in our study. Town staff to provide.

Future Background Conditions

- We will forecast the future background vehicle traffic volumes based on the advised growth rates and background developments.
- Future background vehicle traffic volumes will be analyzed based on Synchro Version 11.0, LOS (based on control delays) and maximum volume-to-capacity ratios. Queue lengths will be evaluated based on Sim Traffic results.

Future Total Conditions

- Trip Distribution will be based on Transportation Tomorrow Survey (TTS) data and existing travel patterns.
- Trip Generation will be based on Trip Generation Manual, 11th editions using Land Use Category (LUC) 221 – Multifamily housing (Mid-Rise) and LUC 822 – Strip Retail Plaza (Under 40k).
- Future total vehicle traffic volumes will be analyzed based on Synchro Version 11.0, LOS (based on control delays) and maximum volume-to-capacity ratios. Queue lengths will be evaluated based on Sim Traffic results.
- Future background and future total conditions will be compared to identify if capacity and queuing issues are forecasted and if site-specific mitigation measures are required.

Traffic Safety

- The available sight distance at the proposed site accesses will be compared to standards set out by the Transportation Associates of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).
- The supportability of site access locations and restrictions will be reviewed based on traffic operations and expected queue lengths.

  Please follow the Niagara Region access management guidelines, accessible at:
  - https://www.niagararegion.ca/business/default.aspx?topnav=1
  - The planned road typology for Regional Road 81 (King Street) is urban general.

- Conflicts will be reviewed between vehicles, pedestrians, cyclists, and recommendations made to maintain multimodal safety.
- As King Street is two lane regional road, please review a left turn lane warrant assessment. Right turn taper to the access is required.

Transportation Demand Management (TDM) Review

- TDM opportunities will be assessed, and site-specific measures for the development will be recommended to reduce single-occupancy vehicle (SOV) trips and promote sustainable transportation.

Please note there is no transit, car share, bicycle share, etc. in Town.

Parking Review Workplan:

Parking and Loading

- Review the minimum vehicle parking requirements for the proposed residential and retail development per the Town of Lincoln Zoning By-Law No. 2022-50
- We will analyze the weekday a.m. and p.m. peak periods; 7:00 a.m. to 10:00 a.m. & 4:00 p.m. to 7:00 p.m.; reflective of the typical commuter peak periods.
- A proxy parking survey will also be conducted at a similar development with a comparable transportation context.
- Identify site specific Transportation Demand Management (TDM) opportunities available to the residents of the proposed development and assess potential site-specific measures that may be used to further support a reduced parking supply.
- Based on the findings, confirm the adequacy or shortfall of the proposed parking supply, and provide recommendations.
- Document all analysis and recommendations in a Parking Justification Study for the Town's review.

Vehicle Swept Path Analysis

- Vehicle Swept Path Analysis Diagrams can be included within the TIS. The Diagrams would include the circulation of a Fire Truck, Niagara Region waste collection truck, and passenger vehicles. Town has a specific Lincoln fire truck to test (see attached).
- Please advise if a Vehicle Swept Path Analysis will be required with the submission of the TIS and that the above listed vehicles are sufficient. Should a different garbage truck be tested, as this will be a private contractor picking it up (we assume)?
-

Additional comments:

- Please follow the updated Niagara Region TIA guidelines, accessible at:
    - https://www.niagararegion.ca/business/default.aspx?topnav=1
- For further updates on the reconstruction project and improvements along Regional Road 81 (King Street), please refer to the project's webpage:
    - https://www.niagararegion.ca/projects/king-st-improvements/default.aspx

Should you have any questions or concerns, please feel free to reach out.

Thanks,

Andrew

Andrew Bader
Engineering Intern, Transportation
Office: 289.204.8341
Collingwood | Milton | Toronto | Bradford | Guelph

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Andrew Bader

From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: Wednesday, September 18, 2024 7:18 AM
To: Andrew Bader; planningapplications@lincoln.ca
Cc: Ian Lindley; Biba, Philippe; Wilson, Josh
Subject: RE: 5205 King Street, Beamsville - Transportation Engineering Services ToR

Hi Andrew

Thank you for circulating your terms of reference, Transportation planning staff have reviewed the scope and have provided the information noted below in red. If you require Regional traffic data please using the following link to submit a request. https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx If the TIS findings require upgrades to Regional Roads or intersections a function design is to be included in the TIS for review and approval.

If you require anything further please contact me at your convenience.

Thank you

Susan M. Dunsmore, P.Eng.
ACTING DIRECTOR, INFRASTRUCTURE PLANNING & DEVELOPMENT ENGINEERING
Niagara Region, 1815 Sir Isaac Brock Way, Thorold, ON, L2V 4T7

P : (905) 980 - 6000 ext. 3661
W : www.niagararegion.ca
E : susan.dunsmore@niagararegion.ca

From: Andrew Bader <abader@cfcrozier.ca>
Sent: Tuesday, September 10, 2024 2:58 PM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>; planningapplications@lincoln.ca
Cc: Ian Lindley <ilindley@cfcrozier.ca>
Subject: 5205 King Street, Beamsville - Transportation Engineering Services ToR

CAUTION EXTERNAL EMAIL: This email originated from outside of the Niagara Region email system. Use caution when clicking links or opening attachments unless you recognize the sender and know the content is safe.

Good Afternoon, Susan,

Hope you are doing well and enjoying the summer. Crozier has been retained to provide Transportation Engineering Services in support of the Official Plan Amendment and Zoning By-Law Amendment related to the proposed mixed-use development for the site located at 5205 King Street, in the Town of Lincoln.

The elements envisioned for this two-phase development include:

Phase 1

- An 8-storey building with a total of 158 rental apartment units, and 474m^2 of ground floor commercial space.
- A total of 209 parking spaces (86 surfaces and 123 underground).
- Three (3) townhouse blocks with a total of 10 units.
- A site access off King Street.

Phase 2

- A 6-storey residential building with a total of 85 rental apartment units.
- A total of 81 parking spaces (37 surfaces and 44 underground).
- A site access off Lincoln Avenue.

After reviewing the proposed Site Plan and pre-consultation meeting package, we propose the following Terms of Reference for the submission materials listed below.

Submission Materials:

1. **Transportation Impact Study**
2. **Parking Review**
3. **Vehicle Swept Path Analysis (If required)**

TIS Workplan:

Study Intersections

- King Street and Lincoln Avenue -TMC available for July 2023
- Site Access off King Street
- Site Access off Lincoln Avenue
- Lincoln Avenue and South Service Road
- King Street at Mountainview Road
- King Street at Ontario Street

Existing Conditions

- We will conduct new counts at the study intersection, unless using historical counts provided by the Region/Town are the preferred option.
- We will request signal timing plans from Region/Town staff as required.
- We will analyze the weekday a.m. and p.m. peak periods; 7:00 a.m. to 10:00 a.m. & 4:00 p.m. to 7:00 p.m.; reflective of the typical commuter peak periods.

- We will analyze the existing vehicle traffic conditions based on peak hour traffic counts using Synchro Version 11.0, LOS, control delays, and maximum volume-to-capacity ratios will be outlined. 95th percentile queues from Sim Traffic will also be outlined.

Study Horizons

- We will analyze the current year (2024), the build-out year of 2027 and a five-year study horizon from build-out (2032) per Niagara Region TIS Guidelines

  Since the development will be built in multiple phases, the study should include capacity analysis at the end of each phase, additional to the buildout year and the 5 from buildout.

Growth Rates

- An industry standard of 2% is typically applied to the study roadways. Please advise if this growth rate is applicable for the roadways listed above. Confirmed

Background Developments

- Based on the "Development in Lincoln" website, the residential development at 4129 Hixon Street, Beamsville will be accounted for in our study.
- Please advise if any additional developments should be accounted for in our study.

Future Background Conditions

- We will forecast the future background vehicle traffic volumes based on the advised growth rates and background developments.
- Future background vehicle traffic volumes will be analyzed based on Synchro Version 11.0, LOS (based on control delays) and maximum volume-to-capacity ratios. Queue lengths will be evaluated based on Sim Traffic results.

Future Total Conditions

- Trip Distribution will be based on Transportation Tomorrow Survey (TTS) data and existing travel patterns.
- Trip Generation will be based on Trip Generation Manual, 11th editions using Land Use Category (LUC) 221 – Multifamily housing (Mid-Rise) and LUC 822 – Strip Retail Plaza (Under 40k).
- Future total vehicle traffic volumes will be analyzed based on Synchro Version 11.0, LOS (based on control delays) and maximum volume-to-capacity ratios. Queue lengths will be evaluated based on Sim Traffic results.
- Future background and future total conditions will be compared to identify if capacity and queuing issues are forecasted and if site-specific mitigation measures are required.

Traffic Safety

- The available sight distance at the proposed site accesses will be compared to standards set out by the Transportation Associates of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR).

- The supportability of site access locations and restrictions will be reviewed based on traffic operations and expected queue lengths.

  Please follow the Niagara Region access management guidelines, accessible at:
  - https://www.niagararegion.ca/business/default.aspx?topnav=1
  - The planned road typology for Regional Road 81 (King Street) is urban general.

- Conflicts will be reviewed between vehicles, pedestrians, cyclists, and recommendations made to maintain multimodal safety.
- As King Street is two lane regional road, please review a left turn lane warrant assessment. Right turn taper to the access is required.

Transportation Demand Management (TDM) Review

- TDM opportunities will be assessed, and site-specific measures for the development will be recommended to reduce single-occupancy vehicle (SOV) trips and promote sustainable transportation.

Parking Review Workplan:

Parking and Loading

- Review the minimum vehicle parking requirements for the proposed residential and retail development per the Town of Lincoln Zoning By-Law No. 2022-50
- We will analyze the weekday a.m. and p.m. peak periods; 7:00 a.m. to 10:00 a.m. & 4:00 p.m. to 7:00 p.m.; reflective of the typical commuter peak periods.
- A proxy parking survey will also be conducted at a similar development with a comparable transportation context.
- Identify site specific Transportation Demand Management (TDM) opportunities available to the residents of the proposed development and assess potential site-specific measures that may be used to further support a reduced parking supply.
- Based on the findings, confirm the adequacy or shortfall of the proposed parking supply, and provide recommendations.
- Document all analysis and recommendations in a Parking Justification Study for the Town's review.

Vehicle Swept Path Analysis

- Vehicle Swept Path Analysis Diagrams can be included within the TIS.
- The Diagrams would include the circulation of a Fire Truck, Niagara Region waste collection truck, and passenger vehicles.
- Please advise if a Vehicle Swept Path Analysis will be required with the submission of the TIS and that the above listed vehicles are sufficient.

Additional comments:

- Please follow the updated Niagara Region TIA guidelines, accessible at:
    - https://www.niagararegion.ca/business/default.aspx?topnav=1
- For further updates on the reconstruction project and improvements along Regional Road 81 (King Street), please refer to the project's webpage:
    - https://www.niagararegion.ca/projects/king-st-improvements/default.aspx

Should you have any questions or concerns, please feel free to reach out.

Thanks,

Andrew

Andrew Bader
Engineering Intern, Transportation
Office: 289.204.8341
Collingwood | Milton | Toronto | Bradford | Guelph

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Growth Strategy & Economic Development
1815 Sire Isaac Brock Way, PO Box 1042, Thorold, ON, L2V 4T7
Telephone: 905-980-6000 Toll-free: 1-800-263-7215
www.niagararegion.ca

VIA EMAIL ONLY

March 12, 2025

Revised Transportation Comments for Official Plan & Zoning By-law Amendment Application

Proposal: Two mixed use buildings with heights of 6 and 7 storeys

Location: 5205 King Street - In the Town of Lincoln

Our File: PLOPA202500165

Transportation Impact Study

Regional Transportation staff previously reviewed the Transportation Impact Study (TIS) (prepared by Crozier Consulting Engineers, dated December 2024) and identified several issues. The Region also recently completed an environmental assessment (EA) and detailed design of King Street (Lincoln Avenue to Greenlane) and is now issuing the tender for construction in summer 2025.

Below is a summary of revised comments on the TIS following a discussion with Town staff, and in light of the recent detailed design and upcoming reconstruction project:

- The turning movement count (TMC) for King Street & Lincoln Avenue that was completed by Spectrum (dated Thursday, October 10, 2024) underestimates volumes compared to the Region's TMC on file (dated Friday, July 14, 2023). Traffic volumes may have been impacted by construction activities in the area at the time the Spectrum count was completed. The Region requests that the TIS be revised using the Region's TMC (attached).

- The existing traffic volumes presented in the TIS for King Street & Mountain Street appear to be in error, as they show identical volumes in the AM and PM peak hours (the PM volumes differ from those presented in the TIS Appendix). The analysis will need to be revised to reflect the correct volumes.

- The 2035 future background volumes appear to be calculated in error, as they are lower than the earlier background scenarios. It appears the 2035 future background volumes may only reflect growth rates and not background development traffic as intended. Please revise the analysis accordingly.

- The King Street EA recommended that a traffic signal be implemented at the King Street & Lincoln Avenue intersection to improve safety. The design of this intersection, including lane configuration and storage lengths, is considered finalized through the EA and detailed design.

- The design of the King Street site access is to be addressed though the development TIS. Please revise the left-turn lane warrants analysis with respect to the comments above, and

provide commentary on the impact (if any) of a traffic signal at King Street & Lincoln Avenue (e.g. if signalization creates gaps in opposing traffic on King Street).

- If the eastbound left-turn lane is still warranted, a functional design of the site access / left-turn lane is to be included with the TIS. Please disregard the previous comment requesting a right-turn slip lane as this improvement is not feasible with the EA design.

- The above analysis can be based on the peak hour of adjacent street traffic – please disregard the previous comment relating to the peak hour of generator.

Niagara Region

Public Works, Growth Management and Planning
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free:1-800-263-7215

Via Email Only

January 28, 2025

File Number: PLOPA202500165
PLZBA202500166

Josh Warkentin
Senior Planner
Town of Lincoln
4800 South Service Road
Beamsville, ON L3J 1L3

Dear Mr. Warkentin:

Re: Updated Preliminary Regional and Provincial Comments
Official Plan Amendment and Zoning By-law Amendment Applications
Town File Numbers: PLOPA-2025-0001 and PLZBA-2025-0001
Agent: Bousfields Inc. (David Faletta)
Applicant: UrbanLink Developments
Address: 5205 King Street and unaddressed parcel to the west (ARN: 262202000129100)
Municipality: Town of Lincoln

Regional Growth Management and Planning staff have reviewed the information circulated with the applications for Official Plan Amendment and Zoning By-law Amendment for the above-noted lands in the Town of Lincoln. The applications are proposed to allow for the development of two mixed-use buildings, which would be six and seven storeys in height, with a total of 251 residential units and 1,071 square meters of commercial space, on the subject lands.

The subject lands are currently designated as ‘General Commercial’ and ‘Natural Environment’ in the Town’s Official Plan. The proposed Official Plan Amendment seeks to adjust the boundaries of these designations and allow for a maximum net density of 176 units per hectare and a maximum building height of seven storeys on the subject lands.

The subject lands are currently zoned General Commercial (GC) and Environmental Conservation (EC) under the Town’s Zoning By-law. The Zoning By-law Amendment proposes to modify the extent of these zones and introduce site-specific regulations for the General Commercial (GC) zone. These modifications include revised provisions for

front yard setback, building and accessory building height, landscape strip, balcony projection, drive aisle width, parking space setback, and the allowance for underground parking to extend above finished grade, to permit the proposed development.

A pre-consultation meeting for this proposal was held on July 27, 2024. It is Regional staff's understanding that the Town has not deemed the applications complete as of the date of this letter. The following preliminary Provincial and Regional comments are provided to assist the Town in considering these applications as currently proposed.

Provincial and Regional Policies

The subject lands are located within a Settlement Area under the Provincial Planning Statement (PPS). Under the Niagara Official Plan (NOP), the lands are located within the Delineated Built-Up Area (specifically at 5205 King Street), while the remainder of the property is designated as a Designated Greenfield Area.

The PPS directs growth to Settlement Areas, which are to be the focus of growth and development and encourages land use patterns based on densities and a mix of land uses that efficiently use land and resources, optimize existing and planned infrastructure and public service facilities, and support active transportation. The PPS further encourages planning authorities to establish density targets for Designated Growth Areas, which are defined as lands within Settlement Areas designated for growth or lands added to Settlement Areas that have not yet been fully developed, based on local conditions.

For the Delineated Built-Up Area, the NOP identifies that forecasted population growth will be primarily accommodated through intensification this area. To support the achievement of forecasted growth for Niagara Region as a whole, the NOP directs municipalities to develop strategy and policies for managing population and employment growth, including those designed to achieve minimum residential intensification targets specified for each municipality. According to the conceptual site plan provided with the applications, the proposed development will result in the creation of approximately 85 apartment units in the Delineated Built-Up Area (Building 2), which will contribute to the Town of Lincoln's minimum residential intensification target of 90% allocated in the NOP.

The NOP directs that development in Designated Greenfield Areas be planned as complete communities, ensuring development is sequential, orderly and contiguous with the existing built-up area, infrastructure capacity is available, and that it supports active transportation. To support the achievement of forecasted growth for all Designated Greenfield Areas within Niagara Region as a whole, the NOP directs that local Official Plans include direction which achieves a minimum greenfield density target of 50 residents and jobs combined per hectare on a municipal-wide basis.

Based on the conceptual site plan, the proposed development will yield a density of approximately 332 people and jobs per hectare in the Designated Greenfield Area (based on 161 units; 7,266 square feet of commercial space, a total developable area of 0.916 hectares, excluding the re-delineated Environmental Conservation Area lands; 1.8 persons per household; and assuming 1 employee per 500 square feet of commercial space). This exceeds the minimum density target of 50 people and jobs per hectare for Designated Greenfield Areas in the NOP. The minimum density target is to be measured on a municipal-wide basis. The Town is to monitor developments to ensure that the overall greenfield density target will be achieved, and accordingly should be satisfied that the proposed development will contribute positively to the achievement of the overall target.

To support the development of a complete community, Town staff should also be satisfied that the proposed modifications to the General Commercial designation will be adequate to support the needs of the immediate area, and the municipality as a whole.

Regional staff note that the NOP states that municipalities may establish standards for appropriate infill development within established residential neighbourhoods. Local compatibility considerations and interface with neighbouring land uses are local planning matters, and therefore Regional staff defer consideration of these aspects of the proposed development to Town staff.

Natural Environment System

The subject property is impacted by the Region's Natural Environment System (NES), consisting of Other Woodland and a Permanent/Intermittent Watercourse.

The applicant confirmed that the Permanent/Intermittent Watercourse was realigned under a Niagara Peninsula Conservation Authority (NPCA) permit. A final copy of this permit was provided to Regional staff. As part of that realignment, what the NES maps as Other Woodland were removed. As such, consistent with Policy 3.1.18.1 of the NOP, where a feature was identified as an Other Woodland, and no longer meet the definition of an Other Woodland because of either a natural or anthropogenic disturbance, the feature shall retain its status and the policies of the NOP shall continue to apply.

Regional staff have reviewed an EIS and subsequent Technical Memo – Other Woodlands, prepared by Myler Ecological Consulting (dated July 2023 and November 28, 2024, respectively). The reports confirm that approximately 2,867 square metres of Other Woodlands were affected by the watercourse realignment, including a portion permanently removed along the central watercourse. However, the reports indicate that the watercourse realignment design compensated the removal and temporary disturbance of Other Woodlands, with a total of approximately 2,878 square metres of restored planted riparian.

Staff offer no objection to the findings of the reports, and accordingly, are satisfied that Policy 3.1.18.1 of the NOP has been sufficiently addressed. Further, Policy 3.1.20.1 of the NOP, related to enhancements of the NES, and Policy 3.1.11.4 of the NOP, related to Other Woodland buffers in Settlement Areas, were also adequately addressed in the submitted reports.

As such, as it relates to the proposed Official Plan Amendment and Zoning By-law Amendment applications, Regional staff offer no objection, provided the extent of NES features and their associated buffers are identified with an appropriately restrictive environmental designation and zone. Staff have reviewed the proposed schedules circulated with the applications and confirm that they appear to sufficiently address Provincial and Regional natural heritage policies.

Regional staff will recommend conditions of approval when future *Planning Act* applications are circulated to ensure the effective implementation of the mitigation measures outlined in the EIS.

Noise

The subject lands are adjacent to Regional Road 81 (King Street) and is immediately adjacent to an auto repair facility (5249 King Street). Policy 3.5.1 of the PPS and Policy 4.2.4.2 of the NOP state that major facilities (including transportation infrastructure and corridors and industrial uses) and sensitive land uses are to be planned to “ensure they are appropriately designed, buffered and/or separated from each other to prevent or mitigate adverse effects from odour, noise and other contaminants, minimize risk to public health and safety…” Further, the Regional Road Traffic Noise Control Policy (PW5.NO1.0) requires that all development applications for sensitive uses along existing Regional Roads be considered for noise abatement features. To implement these policies, the Ministry of Environment, Conservation and Parks’ (MECP) Noise Guidelines (NPC-300) are to be applied in the land use planning process to prevent or minimize future land use problems.

An Environmental Noise Assessment, prepared by Gradientwind Engineers and Scientists (dated November 18, 2024), was submitted with the applications to evaluate potential noise affecting the proposed development.

Regional staff have reviewed the study and have noted the following points:

- The study indicates that transportation noise source modeling was conducted using the Predictor-Lima software, which employs the United States Federal Highway Administration's Traffic Noise Model (TNM). NPC-300 specifies that NPC-206 (Sound Levels Due to Road Traffic) should be used as the basis for determining background noise from transportation sources. NPC-206 requires the use of the Stamson model for modeling transportation noise. While the study references NPC-306, which allows for the use of TNM modeling, this guideline is

currently in draft form and is not yet in effect. Therefore, an updated noise study is required, utilizing the Stamson model and providing detailed calculations to ensure compliance with the NPC-300 noise limits.

- The study does not appear to project transportation noise to account for future conditions. According to the Regional Road Traffic Noise Control Policy, sound level predictions for future road traffic must be based on a 20-year AADT (Annual Average Daily Traffic) forecast. The updated noise study must provide explicit data to demonstrate that such a forecast has been incorporated into the analysis.

To confirm the proposed amendments will conform to Policy 3.5.1 of the PPS and Policy 4.2.4.2 of the NOP, **Regional staff will require an updated noise study which addresses the requirements outline above.** This will be required prior to the approval of the Official Plan and Zoning By-law Amendments, as changes to the overall site design may need to be implemented through these instruments to address adverse noise impacts arising from the nearby transportation sources.

Site Condition

The subject lands are currently used for commercial purposes. Under the *Environmental Protection Act*, and more specifically Ontario Regulation 153/04, the proposed change in use from a commercial to a more sensitive mixed/residential use requires the filing of a Record of Site Condition (RSC) on the MECP Brownfields Environmental Site Registry.

In this regard, a Phase I Environmental Site Assessment (ESA) Update and Phase II ESA Update, both prepared by Eon Environmental Consultants (dated May 15, 2024, and June 3, 2024, respectively), were submitted with the applications. Both reports serve as updates to previous ESA reports that were completed more than 18 months ago, and therefore, updated reports are required to support the filing of a Record of Site Condition (RSC). The previous ESA reports were not included in the application submissions.

Based on the figures included in the Phase II ESA Update, it appears that only the portion of the subject lands known municipally as 5205 King Street were assessed. Regional staff note that the remaining portion of the subject lands are identified in Municipal Property Assessment Corporation (MPAC) data as "vacant commercial land." Additionally, a review of historic aerial photography suggests that this portion of the subject lands previously supported an orchard, during a time when older-generation pesticides, such as lead and arsenic-based pesticides, were in use. Information obtained from the MECP and other sources indicates that the application of lead arsenate pesticides can increase the concentration of lead and arsenic in the soil.

In accordance with Policy 5.3.2 of the Provincial Policy Statement (PPS) and Policy 6.3.1.5 of the Niagara Official Plan (NOP), which state that "sites with contaminants in

land or water shall be assessed and remediated as necessary prior to any activity on the site associated with the proposed use such that there will be no adverse effects," **Regional staff require the submission of an updated Phase I ESA, including soil sampling at a minimum, to confirm that the proposed development will conform to these policies and ensure that a Record of Site Condition (RSC) is not required prior to the proposed change in use.**

Regional staff recommend that this requirement be addressed prior to the final approval of the proposed amendments to ensure consistency and conformity with the above-noted policies. Additionally, copies of the original Phase I and II ESA reports, on which the updated reports are based, should also be submitted to verify the findings in the updated reports.

Archaeological Potential

The PPS and NOP provide direction for the conservation of significant cultural heritage and archaeological resources. Specifically, the PPS and NOP state that development and site alteration are not permitted on lands containing archaeological resources or areas of archaeological potential, unless significant archaeological resources have been conserved. Based on archaeological potential mapping in Schedule K of the NOP, the lands exhibit high potential for the discovery of archaeological resources.

A Stage 1 and 2 Archaeological Assessment, prepared by Irvin Heritage Inc. (dated May 11, 2022), was submitted with the applications. The Stage 2 Assessment did not unearth any archaeological resources. As such, the Licensed Archaeologist recommended no further archaeological work was required for the subject lands.

An acknowledgement letter from the (then) Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) (dated June 8, 2022) was submitted with the applications. The letter notes that the report has been entered into the Ontario Public Register of Archaeological Reports without technical review. Accordingly, no additional archaeological assessments will be required by Regional staff.

Recognizing that no archaeological survey, regardless of its intensity, can entirely negate the possibility of deeply buried archaeological materials, Regional staff note that the inclusion of a standard warning clause will be requested at the time of future *Planning Act* applications (i.e. site plan), relating to deeply buried archaeological materials that may be encountered during grading and construction activities.

Urban Design

Regional staff have an urban design interest in the proposed development as the subject lands have frontage along Regional Road 81 (King Street). The Region’s primary urban design interest in the proposed development is to ensure it will contribute to the overall success of the streetscape in this location.

As requested by Regional staff at the pre-consultation stage, a conceptual Landscape Plan, prepared by SRM Architects (dated December 16, 2024), and Pedestrian Level Wind Study, prepared by Gradientwind Engineers and Scientists (dated November 22, 2024), were provided with the applications. Regional Urban Design staff have no initial concerns with these submission materials. Detailed comments and requirements will be provided as part of the detailed formal review of the applications.

Regional Road

This subject lands have frontage along Regional Road #81 (King Street). At this location, the road width satisfies the NOP requirement. The required daylight triangle of 6.0 metres has already been dedicated at the corner of King Street and Lincoln Avenue. No further widening is required.

Road Reconstruction

The section of King Street between Durham Road to Lincoln Avenue will be reconstructed in 2025. The project information can be found using the following link: https://www.niagararegion.ca/projects/king-st-improvements/default.aspx.

The Region expects to tender the reconstruction project at the end of February, with Council approval/award anticipated in June or July. If possible, it would be preferable to install the servicing connections prior to the road being widened and curb installed at this location. Please note that once the Region's contractor for the road reconstruction commences work and has control of the site, the Region cannot guarantee the developer will be permitted to work within the Regional right-of-way, and if permitted, they would likely be subject to the contractor's scheduling.

Regional staff confirm that the signalization of the intersection of King Street and Lincoln Avenue will be implemented as part of these works.

Engineering Drawings

Regional Transportation staff have reviewed the Preliminary Servicing Plan, prepared by Urban Link Construction Ltd. (dated December 10, 2024) and have the following comments:

- All trench restorations are to be shown on the servicing plan (i.e. storm, fire line, watermain).
- Design notes should indicate that restorations in the Regional right-of-way are to be as per Niagara Region Construction Encroachment Specifications.
- Any damage to the road structure, not as a result of service installation, will need the entire lane to be milled and paved (50 mm minimum) in order to repair.

Permit Requirements

Prior to any construction/work taking place within the Regional road allowance, a Regional Construction Encroachment and/or Entrance Permit must be obtained from the Transportation Services Division, Public Works Department. Please note that the placement of any sign, notice or advertising device within 20 metres of the centerline of King Street will require a Regional Sign permit. Permit applications can be made through the following link: http://niagararegion.ca/living/roads/permits/default.aspx.

Transportation Impact Study

Regional Transportation staff have reviewed the submitted Transportation Impact Study (TIS), prepared by Crozier Consulting Engineers (dated December 2024) and have identified several issues, including discrepancies in traffic counts, errors in traffic volume data, and inconsistencies between figures and capacity analysis. These are outlined in detail in Appendix 1. **A revised/updated TIS will be required to address these comments.** This must be submitted prior to final approval of the applications, as changes to the overall site design may need to be implemented to address any adverse transportation impacts on the Regional road network.

Servicing

Any servicing extensions or connections on King Street will require Regional review and approval. Please see the above comments about the planned reconstruction of King Street. Regional staff will need to ensure that servicing connections are not permitted to lands to the north of the subject lands, which are outside the urban area boundary. Future servicing will also be subject to the Town's requirements.

Regional Sewer Use By-law

The applicant should be advised that Niagara Region has a Sewer Use By-law, which requires owner/occupants of commercial, institutional, or industrial premises to install and maintain a suitable maintenance access point (manhole) to allow observation, sampling and flow measurement of sewage effluent form the proposed development. Further, every manhole installed must be located on the property of the owner, as close to the property line as possible. The full requirements of the Region's Sewer Use By-Law are available on the Region's website:
https://www.niagararegion.ca/government/bylaws/pdf/Sewer%20Use%20By-Law.pdf

The servicing plan shows a proposed sanitary manhole located near the property line in accordance with the Sewer Use By-law. Therefore, Regional staff have no further comments to provide with respect to the Region's Sewer Use By-law requirements at this stage of the proposed development.

Waste Collection

Niagara Region provides curbside waste and recycling collection for developments that meet the requirements of Niagara Region's Waste Collection Policy. The proposed development is eligible to receive Regional curbside waste and recycling collection provided that the owner bring the waste and recycling to the curbside on the designated pick up day, and that the following limits are not exceeded:

- Organics: No Limit - Weekly Collection; and
- Garbage: 8 Garbage Bags/Cans, Collected Every-Other-Week.

Region staff have reviewed the submitted site plan and acknowledge that the development is proposing to utilize in-ground waste containers. The applicant is advised that this method of waste storage is not eligible for Regional collection and waste collection for the subject lands will be the responsibility of the owner through a private waste collection contractor and not Niagara Region.

Circular Materials Ontario is responsible for the delivery of residential Blue / Grey Box recycling collection services. The most up to date information can be found using the following link: https:\\www.circularmaterials.ca/resident-communities/niagara-region/.

Stormwater Management

The submitted Functional Servicing Report, prepared by S. Llewellyn & Associates Ltd. (dated December 2024) notes that the development will provide water quality and quantity control prior to discharge to a re-aligned creek. Based on the preliminary engineering plans, the creek flows east to Lincoln Avenue. The stormwater management and engineering plan details will be subject to review and approval at the time of the future site plan application.

Protection of Survey Evidence

Survey evidence adjacent to the Regional road allowances is not to be damaged or removed during the development of the property. The Region would request that any future agreements entered into for this development include a clause that requires the owner to obtain a certificate from an Ontario Land Surveyor, stating that all existing and new evidence is in place at the completion of said development.

Regional Bicycle Route

The subject property has frontage along a road which is designated as part of the Regional Niagara Bicycling Network. If the bicycle routes are currently not established and identified with signage, it is the intent of the Region to make provisions for doing so when an appropriate opportunity arises. This may involve additional pavement width, elimination of on-street parking, etc.

Conclusion

In conclusion, Regional staff note that an updated noise study is required in order to complete a fulsome review of the proposed Official Plan Amendment, Zoning By-law Amendment applications' consistency with the Provincial Planning Statement (PPS), and conformity with the Niagara Official Plan (NOP). A Phase I ESA (with soil sampling), as well as copies of previous ESA reports (applicable to the portion of the subject lands municipally addressed as 5205 King Street) should also be submitted to ensure the proposed development to address consistency and conformity with Provincial and Regional policies related to sites with potential historical contamination. An updated Transportation Impact Study (TIS) is also required to ensure that the proposed applications will not result in adverse transportation impacts on the Regional road network.

Accordingly, Regional staff recommend that the applications not be considered by the Town until such time as these materials are received and reviewed to the satisfaction of Regional and Town staff.

If you have any questions related to the above comments, please contact me at amy.shanks@niagararegion.ca.

Kind regards,



Amy Shanks, MCIP, RPP
Senior Planner, Development

cc: Adam Boudens, Senior Environmental Planner/Planning Ecologist, Niagara Region
Khaldoon Ahmad, MCIP, RPP, Manager, Urban Design, Niagara Region
Phillipe Biba, Development Approvals Technician, Niagara Region
Maggie Ding, P.Eng., Stormwater Management Engineer, Niagara Region
Josh Wilson, P.Eng., Manager, Development Engineering

Appendix 1: Regional Transportation Comments

Regional Transportation staff have reviewed the submitted Transportation Impact Study (TIS), prepared by Crozier Consulting Engineers (dated December 2024) and provide the following comments that will be required to be addressed as part of an updated/revised TIS prior to final approval of the proposed applications:

Page 7-9: 2.5 Traffic Data

- For the King Street and Lincoln Avenue intersection, it is noted that the Traffic Monitoring Counts (TMC) collected to support this assessment are less than the typical Regional TMC, especially during the PM peak hour. The Regional counts, which were conducted on July 14th, 2023, a year before the study's completion date, are showing higher traffic volumes compared to those recorded by Spectrum Traffic Data Inc. The consultant will need to review and compare the traffic counts and provide justification for the discrepancy. If justification is not provided, the Region requires the analysis be revised using the Region's traffic counts to ensure accuracy and consistency, which will require all background and total traffic volumes be modified.

- Figure 4: Existing Traffic Volumes shows identical traffic volumes at the AM and PM peak hour for King Street and Mountainview Road intersection, likely in error. The attached TMC's in Appendix C show higher traffic volumes for the PM peak hour. Please revise the figure, traffic volumes, and the capacity analysis of this intersection for all the scenarios. Note there is a Regional TMC available for this intersection, conducted in August 2021.

Page 11-23: 3.0 Future Background Conditions

- Figure 7- 2035 future background traffic volumes are lower than the previous background scenarios. Please revise the figure, traffic volumes, and the capacity analysis of this intersection for the subsequent scenarios.

- Traffic volumes used in the capacity analysis inputs are not the same as the ones calculated in Figures 5-7. The synchro reports are showing the projected volumes used reflect the growth rates only and not the background development as mentioned in Section 3.3. Please revise the capacity analysis, and Tables 6-11, accordingly.

Page 24: 4.0 Site Generated Traffic

- Regarding the retail trip generation, please use Peak Hour of Generator instead of Peak Hour of Adjacent Street Traffic to accurately estimate the number of trips generated. The assessment is to analyze the impact of the vehicular traffic demand directly associated with the site.

- Please clarify the nature of the commercial/ retail space of the development (markets, cafes, or other amenities). Is the retail space open to the public or is it entirely employee or tenant focused? Depending on the nature of the retail space, please consider applying pass-by adjustments to the retail portion.

Page 43: 6.0 Warrants

- Please revise the left turn lane warrants analysis with respect to the comments above. If left turn lane is still warranted, please submit a functional design drawing for the Region's review.

Other comments

- For Table 2: Study Road Network, please note that all Regional roads are classified as arterial roads.

- Figures 4-7 are missing the west bound right turn movement volumes for the intersections of King Street with Ontario Street and Lincoln Avenue.

- Table 5: 2024 Queuing Analysis shows queue lengths that do not reflect the results from the Sim Traffic Report. For the Ontario Street and King Street intersection, the shown queue lengths for the PM peak hour are relatively less. Please revise and update accordingly with respect to the comments above.

Andrew Bader

From: Wilson, Josh <Josh.Wilson@niagararegion.ca>
Sent: Thursday, March 27, 2025 11:55 AM
To: Andrew Bader; Ian Lindley; Dunsmore, Susan
Cc: Biba, Philippe; Aaron Wignall; Josh Warkentin
Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments
Attachments: Revised Traffic Comments - PLOPA202500165 - 5205 King Street.pdf

Hi Andrew,

I see the same. It's possible staff were focused on the eastbound movements when making that comment as I see those are slightly higher in the PM peak hour using the Region's counts, but not by much.

I think we can deem the existing counts suitable, unless the Town sees it differently.

However please be sure to correct for the other errors/inaccuracies per our comments. I also notice the volume exhibits do not show a WBR volume at King & Lincoln in the AM peak hour under any scenario.

Thanks,

Josh Wilson, P.Eng
905-980-6000 ext. 3336
Mobile: 289-668-2971
Niagara Region

From: Andrew Bader <abader@cfcrozier.ca>
Sent: Wednesday, March 26, 2025 4:09 PM
To: Wilson, Josh <Josh.Wilson@niagararegion.ca>; Ian Lindley <ilindley@cfcrozier.ca>; Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Biba, Philippe <Philippe.Biba@niagararegion.ca>; Aaron Wignall <awignall@cfcrozier.ca>
Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments

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Hi Josh,

As noted in the comments from the first submission, the Region requested that we use their TMCs collected in July 2023 at the King Street and Lincoln Avenue intersection, as they were expected to show higher volumes. However, upon review, the TMCs from our initial submission (collected in October 2024) indicate higher volumes in most movements and overall, at the intersection.

Could you confirm whether we should proceed with the Region's TMCs or revert to the original ones? Please let us know how you'd like us to move forward.

Let me know if you'd like to discuss—feel free to give me a call.

Thanks,
Andrew

Andrew Bader
Engineering Intern, Transportation
Office: 289.204.8341
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Wilson, Josh <Josh.Wilson@niagararegion.ca>
Sent: Monday, March 17, 2025 11:24 AM
To: Ian Lindley <ilindley@cfcrozier.ca>; Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Biba, Philippe <Philippe.Biba@niagararegion.ca>; Andrew Bader <abader@cfcrozier.ca>
Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments

Good morning Ian,

We recently provided updated comments to the Town relating to the 2nd submission and revised TIS. I imagine they are consolidating these with their own comments, and you might expect to see a formal response soon. I believe they cover these questions, but I have added brief notes (in red below) in the meantime.

Josh Wilson, P.Eng
905-980-6000 ext. 3336
Mobile: 289-668-2971
Niagara Region

From: Ian Lindley <ilindley@cfcrozier.ca>
Sent: Monday, March 17, 2025 11:11 AM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Biba, Philippe <Philippe.Biba@niagararegion.ca>; Wilson, Josh <Josh.Wilson@niagararegion.ca>; Andrew Bader <abader@cfcrozier.ca>
Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments

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Good Morning,

We have not heard anything regarding our questions for the 1St Submission TIS comments.
Please let us know if there is anything we can provide that will help you provide clarification regarding our questions below.

Regards,
Ian

Ian Lindley, M.A.Sc., P.Eng.
Project Engineer, Transportation
Office: 905.876.7119
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Ian Lindley <ilindley@cfcrozier.ca>
Sent: February 20, 2025 3:22 PM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Biba, Philippe <Philippe.Biba@niagararegion.ca>; Wilson, Josh <Josh.Wilson@niagararegion.ca>; Andrew Bader <abader@cfcrozier.ca>
Subject: 5205 King Street Beamsville 1st Submission TIS Comments

Good Afternoon,

We recently received your comments on the first submission of the TIS for the project at 5205 King Street in Beamsville.

We wanted to thank you for your comments and ask for some clarification.

- For the comment regarding the differences between the Regional TMCs collected in July 2023 and the TMCs used in the study, are you able to provide the July 2023 TMCs if we are to compare them? Region provided these to the Town to share.
- Can you provide justification for the comment regarding the Peak Hour of Generator to be used instead of the Peak Hour of Adjacent street traffic? In terms of our reasoning, the peak hour of adjacent street traffic should be used since that will be at a time similar to the TMCs and when the road network is the busiest. Region will no longer be requiring this.
- What level of functional design is the Region looking for if a left turn is warranted at the entrance? For example, is the Region looking for a markup of an aerial image or a more detailed design with surveys and other data? More detailed, e.g. preliminary design level.

Regards,
Ian

Ian Lindley, M.A.Sc., P.Eng.
Project Engineer, Transportation
Office: 905.876.7119
Collingwood | Milton | Toronto | Bradford | Guelph

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Andrew Bader

From: Josh Warkentin <jwarkentin@lincoln.ca>
Sent: Thursday, March 27, 2025 12:16 PM
To: Wilson, Josh; Andrew Bader; Ian Lindley; Dunsmore, Susan
Cc: Biba, Philippe; Aaron Wignall
Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments

Hi Andrew,

If the Region's comfortable with the 2024 counts than the Town is as well.

Again, to Josh Wilson's point though – the rest of the Town and Region's comments need to be addressed however.

Josh Warkentin
Senior Planner
Town of Lincoln
Direct: 905-563-2799 ext. 503
Tel: 905-563-8205
jwarkentin@lincoln.ca

lincoln.ca
@TownofLincolnON

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Josh Wilson, P.Eng
905-980-6000 ext. 3336

Mobile: 289-668-2971
Niagara Region

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Andrew

Andrew Bader
Engineering Intern, Transportation
Office: 289.204.8341
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Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments

Good morning Ian,

We recently provided updated comments to the Town relating to the 2nd submission and revised TIS. I imagine they are consolidating these with their own comments, and you might expect to see a formal response soon. I believe they cover these questions, but I have added brief notes (in red below) in the meantime.

Josh Wilson, P.Eng
905-980-6000 ext. 3336
Mobile: 289-668-2971
Niagara Region

From: Ian Lindley <ilindley@cfcrozier.ca>
Sent: Monday, March 17, 2025 11:11 AM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Biba, Philippe <Philippe.Biba@niagararegion.ca>; Wilson, Josh <Josh.Wilson@niagararegion.ca>; Andrew Bader <abader@cfcrozier.ca>
Subject: RE: 5205 King Street Beamsville 1st Submission TIS Comments

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Good Morning,

We have not heard anything regarding our questions for the 1St Submission TIS comments.
Please let us know if there is anything we can provide that will help you provide clarification regarding our questions below.

Regards,
Ian

Ian Lindley, M.A.Sc., P.Eng.
Project Engineer, Transportation
Office: 905.876.7119
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Ian Lindley <ilindley@cfcrozier.ca>
Sent: February 20, 2025 3:22 PM
To: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Biba, Philippe <Philippe.Biba@niagararegion.ca>; Wilson, Josh <Josh.Wilson@niagararegion.ca>; Andrew Bader <abader@cfcrozier.ca>
Subject: 5205 King Street Beamsville 1st Submission TIS Comments

Good Afternoon,

We recently received your comments on the first submission of the TIS for the project at 5205 King Street in Beamsville.

We wanted to thank you for your comments and ask for some clarification.

- For the comment regarding the differences between the Regional TMCs collected in July 2023 and the TMCs used in the study, are you able to provide the July 2023 TMCs if we are to compare them? Region provided these to the Town to share.
- Can you provide justification for the comment regarding the Peak Hour of Generator to be used instead of the Peak Hour of Adjacent street traffic? In terms of our reasoning, the peak hour of adjacent street traffic should be used since that will be at a time similar to the TMCs and when the road network is the busiest. Region will no longer be requiring this.
- What level of functional design is the Region looking for if a left turn is warranted at the entrance? For example, is the Region looking for a markup of an aerial image or a more detailed design with surveys and other data? More detailed, e.g. preliminary design level.

Regards,
Ian

Ian Lindley, M.A.Sc., P.Eng.
Project Engineer, Transportation
Office: 905.876.7119
Collingwood | Milton | Toronto | Bradford | Guelph

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Andrew Bader

From: Latham, Chris <Chris.Latham@niagararegion.ca>
Sent: Friday, April 4, 2025 9:18 AM
To: Ian Lindley
Cc: Andrew Bader; Wilson, Josh
Subject: RE: King Street Improvements

Good Morning Ian,

Revised drawings were expected to be received from our consultant this week but that has been pushed to next week now (tentatively April 11). There were some changes relating to storm & sanitary sewers and grading within the Lincoln Ave intersection as well as the west approach.

If you are looking for traffic signal drawings only for general configuration of the intersection, I could provide those sooner.

Thanks,

Chris Latham, C.E.T.
Project Manager
Transportation Engineering, Public Works
Niagara Region
1815 Sir Isaac Brock Way, Thorold L2V 4T7
Phone: 905-980-6000 ext. 3374 Toll-free: 1-800-263-7215
www.niagararegion.ca

From: Ian Lindley <ilindley@cfcrozier.ca>
Sent: Tuesday, April 1, 2025 8:47 AM
To: Latham, Chris <Chris.Latham@niagararegion.ca>
Cc: Andrew Bader <abader@cfcrozier.ca>; Huppunen, Stephanie <Stephanie.Huppunen@niagararegion.ca>
Subject: RE: King Street Improvements

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Good Morning Chris,

Can you provide the latest drawings for these improvements in both CAD and PDF?

Regards,
Ian

Ian Lindley, M.A.Sc., P.Eng.
Project Engineer, Transportation
Office: 905.876.7119
Collingwood | Milton | Toronto | Bradford | Guelph

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From: Latham, Chris <Chris.Latham@niagararegion.ca>
Sent: Monday, October 21, 2024 1:23 PM
To: Andrew Bader <abader@cfcrozier.ca>
Cc: Huppunen, Stephanie <Stephanie.Huppunen@niagararegion.ca>
Subject: King Street Improvements

Good Afternoon Andrew,

Please find attached the preliminary traffic signal drawing for the intersection of RR81 and Lincoln Ave. The design is still subject to change as we work towards finalizing the EA and then detailed design.

In terms of timeline, we are looking to post the completed EA report for public review in November after which we will finalize the detailed design. We anticipate tendering and going to construction in 2025 so long as nothing major arises when the report is filed.

Please let me know should you require any other information relating to the Kings St improvements.

Thanks,

Chris Latham, C.E.T.
Project Manager
Transportation Engineering, Public Works
Niagara Region
1815 Sir Isaac Brock Way, Thorold L2V 4T7
Phone: 905-980-6000 ext. 3374 Toll-free: 1-800-263-7215
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Assumptions for Pass-by and Internal Capture Trips should be presented in a tabular and graphical form.

3.6 Evaluation of Impacts

3.6.1 Traffic Operations Analysis

The evaluation of impacts shall be conducted for all time periods of each horizon year, including any interim phasing years if applicable, as established by Regional and/or Municipal staff as part of the approved Scope of Work. The peak hour analysis should be undertaken for existing, future background and future total traffic conditions as detailed below:

- Existing traffic conditions.
- Existing traffic conditions plus background growth (i.e., future background traffic conditions).
- Existing traffic conditions plus background growth plus site-generated traffic (i.e., future total traffic conditions)

Where required, separate scenarios should be developed to present findings with and without possible road/intersection improvements.

Capacity analysis shall be performed at all proposed site access points and intersections in the study area in accordance with the methodology described in the latest edition of the Highway Capacity Manual (HCM). Critical movements should be identified according to the following:

- At signalized intersections, movements with v/c ratio greater than 0.85 and/or LOS “E” or worse are deemed to be “critical” in terms of operations. Movements that exceed those thresholds shall be evaluated for possible operational improvements.
- At unsignalized intersections, movements expected to operate at LOS “D” or worse and/or where the estimated 95th percentile queue length for an individual movement exceeds the available queuing space.
- Any site accesses where entrances or egress is anticipated to be blocked by traffic queues from an upstream/downstream intersection.
- An exclusive turning movement in which the 95th percentile queue will exceed the available storage space.
- Exclusive left- and right turn lanes that are inaccessible due to the length of queues in the adjacent through lanes.

Conventional signal timing plans should be used and all proposed adjustments to traffic signal timing, phasing and cycle lengths should be evaluated in terms of pedestrian crossing time, effect on queue lengths, adequacy of existing storage and effects on the existing signal co-ordination in accordance to Niagara Region standards.

Two stages left turning movements or pedestrian crossings shall not be considered as part of the capacity analysis.

For developments in which truck trip generation and their effects on the study area have been identified in the Scope of Work, heavy/commercial vehicles shall be considered as part of the capacity analysis and the following information shall be included as part of the TIA:

- Existing conditions related to truck traffic (percentage, number of collisions).
- Relationship between land use and truck traffic (cargo, service hours, routing).
- Physical requirements (dedicated access, dedicated lanes).

The Region and Municipal staff will accept the use of Highway Capacity Software, Synchro/SimTraffic or similar simulation software for intersection/roundabout capacity, operational analysis, and geometric delay analysis. Regional and Municipal staff will confirm the approved software and the version of its packages as part of the approved Scope of Work. The Developer shall request approval from Regional and Municipal staff as part of the proposed Scope of Work to use any software and may be required to submit an electronic copy of the calculation files.

3.6.1.1 Saturation Flow Rates

A saturation flow rate represents the maximum number of vehicles per hour a traffic lane can process during a green phase. Since saturation flows vary based on driver behaviour and movement type, local saturation flow rates for different turning movements were estimated by collecting field data at multiple signalized intersections across the Region.

Selection of the most appropriate saturation flow will be determined by the Region and Municipal staff as part of the approved Scope of Work. Saturation flows others than the ones shown in **Table 1** will not be accepted unless substantiated through surveys of existing conditions can be presented for consideration by the Developer's consultant.

Table 1 Saturation Flow Rate by Jurisdiction

Variable	Saturation Flow Rate (pc/h/ln)			
	St. Catharines / Welland	Niagara Falls	Grimsby	Other Municipalities*
T	1,776	1,579	1,532	1,629
L	1,651	1,454	1,407	1,504
LT	1,375	1,178	1,131	1,228
LL	2,341	2,144	2,097	2,194
R	1,498	1,301	1,254	1,351
RT	1,535	1,338	1,291	1,388
LTR	1,630	1,433	1,386	1,483

* The survey conducted for the saturation flow rate modelling only included municipalities in St Catharines, Welland, Niagara Falls, and Grimsby. For other municipalities in the Niagara Region, the average value of estimated saturation flow rates is recommended.

3.6.2 Active Transportation Analysis

For all developments, the following information shall be included as part of the TIA:

- Existing and proposed pedestrian and cyclist facilities – including proposed if applicable.
- Measures to maintain and/or improve existing conditions, including interconnection of existing facilities.
- Any possible effects in existing or proposed facilities generated by the proposed development.

The Multi-Modal Level of Service (MMLOS) indicators as presented in the Ontario Traffic Council's MMLOS Guideline should be used as part of the evaluation of impacts and the results presented as part of the TIA.

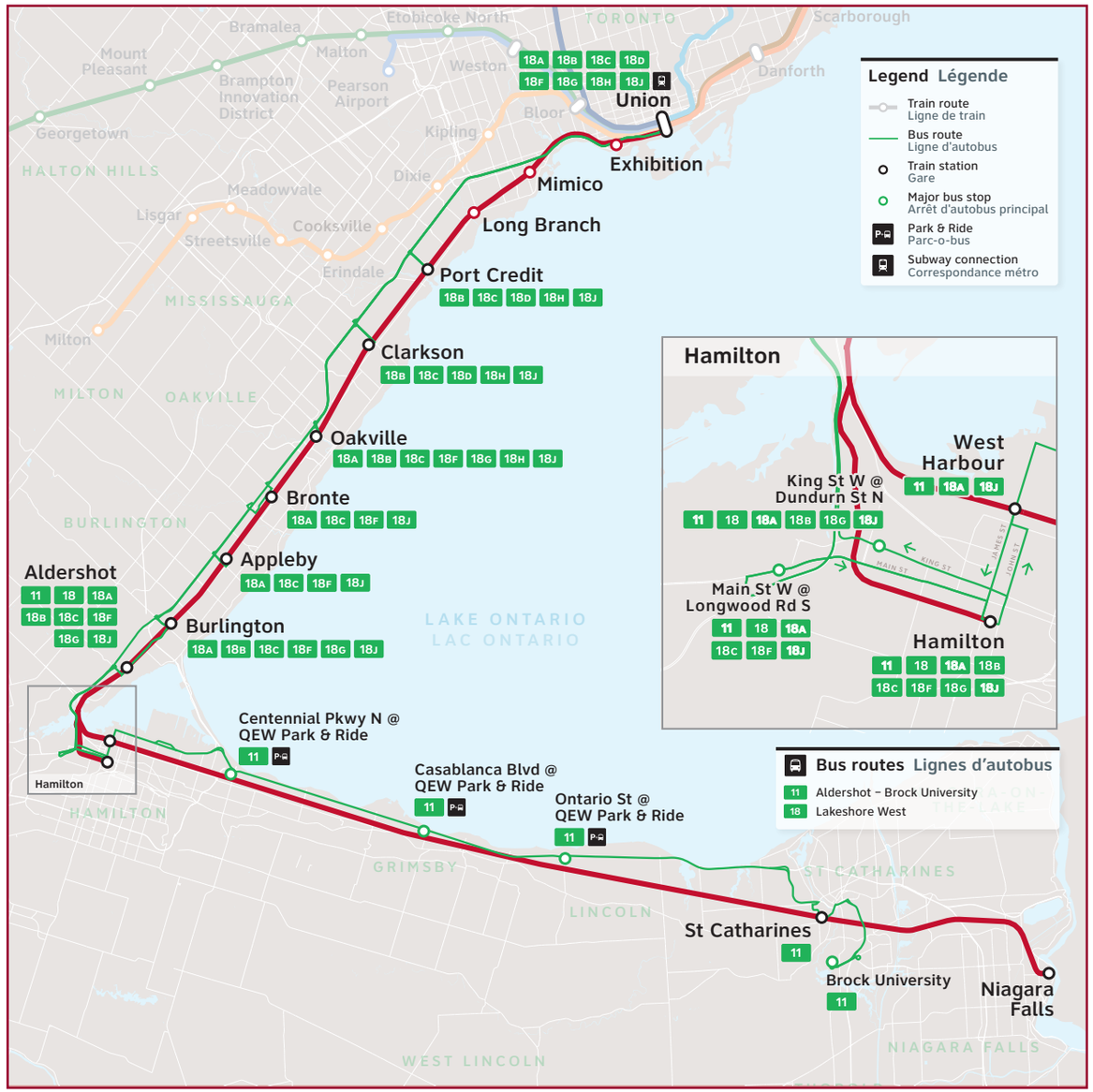
3.6.3 Transit Analysis

The Multi-Modal Level of Service (MMLOS) indicators as presented in the Ontario Traffic Council's MMLOS Guideline should be used as part of the evaluation of impacts and the results presented as part of the TIA. Existing transit services should be evaluated in terms of available capacity and need for increased service.

APPENDIX B

Relevant Map Excerpts

01 -11-18 Route numbers / Numéros des trajets Lakeshore West



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Lakeshore West

GO Train and Bus Schedule/
Horaire des trains et des autobus GO

METROLINX

LW **11** **18**

- Niagara Falls
- St. Catharines
- West Harbour GO
- Hamilton (King & Dundurn)
- Hamilton GO Centre
- Aldershot GO
- Burlington GO
- Appleby GO
- Bronte GO
- Oakville GO
- Clarkson GO
- Port Credit GO
- Long Branch GO
- Mimico GO
- Exhibition GO
- Union Station

Daily / Quotidiennement
Includes GO Bus routes 11 & 18 / Inclut les trajets 11 & 18 d'autobus GO

Effective / À partir de:
31 AUGUST AOÛT 2024

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00



Legend

- Train trips
- Bus trips
- → Trip does not serve this location.
- ↓ Check below for connecting trips.
- GO Train service is accessible to passengers using mobility devices at this location.
- GO Bus service is accessible to passengers using mobility devices at this location.
- GO Train & GO Bus service is accessible to passengers using mobility devices at this location.
- Parking available.

Notes

h Trip holds for connection from bus.

M-Th Trip operates Monday to Thursday only.

Fri Trip operates on Fridays only.

Sat Trip operates on Saturdays only.

Sun Trip operates on Sundays only.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

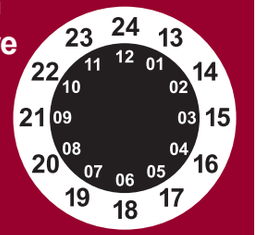
Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00



Légende

- Horaire des trains
- Horaire des autobus
- → Trajet ne sert pas cette station.
- ↓ Vérifiez les trajets de correspondance cidessous.
- Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.
- Stationnement disponible.

Notes

h Attentes des trajets pour les connexions d'autobus.

M-Th Service offert du lundi au jeudi seulement.

Fri Service offert les vendredis seulement.

Sat Service offert les samedis seulement.

Sun Service offert les dimanches seulement.

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

| Route Number / Numéro du trajet | | |

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Zone→	Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13 Ar	Oakville 14	Burlington 15	Burlington 16	Burlington 17 Ar	Transfer - Correspondances	Burlington 17 Dp	Hamilton 18	Hamilton 18	Hamilton 18 Ar	Stoney Creek 80	Grimsby 81	Beamsville 82	St. Catharines 83	St. Catharines 83	Louth St. @ St. Paul St. W.	St. Catharines 83	Niagara Falls 84 Ar
				Union Station	Exhibition GO	Mimico GO	Long Branch GO	Port Credit GO	Clarkson GO	Oakville GO	Bronte GO	Appleby GO	Burlington GO	Aldershot GO	Trip Number - Numéro du parcours	Aldershot GO	Main St. W. @ Longwood Rd. S.	Hamilton GO Centre	West Harbour GO	Centennial Pkwy. N. @ QEW	Casablanca Blvd. @ QEW	Ontario St. @ QEW	St. Catharines GO		Brock University		Niagara Falls GO
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11	1005			06 12	06 19	06 26	06 32	06 38	06 45	06 52	06 58	07 04	07 10	07 18	11071	07 26h	07 36	07 49	07 58	08 15	08 28	08 37	→	08 59	09 16		
	1705			06 42	06 49	06 56	07 02	07 08	07 15	07 22	07 28	07 34	07 40	07 47	→	07 47	→	→	08 01								
18	1007			07 17	07 24	07 31	07 37	07 44	07 51	07 58	08 04	08 10	08 17	08 25	18121	08 33h	08 43	08 56									
	1707			07 47	07 54	08 01	08 07	08 14	08 21	08 28	08 34	08 40	08 47	08 54	→	08 54	→	→	09 08								
11	1009			08 17	08 24	08 31	08 37	08 44	08 51	08 58	09 04	09 10	09 17	09 25	11161	09 33h	09 43	09 56	10 05	10 22	10 35	10 44	→	11 06	11 23		
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11	1013			10 17	10 24	10 32	10 38	10 45	10 52	10 59	11 05	11 11	11 18	11 26	11201	11 34h	11 44	11 57	12 06	12 23	12 36	12 45	→	13 07	13 24		
	1713			10 47	10 54	11 02	11 08	11 15	11 22	11 29	11 35	11 41	11 48	11 55	→	11 55	→	→	12 09								
	1015			11 17	11 24	11 32	11 38	11 45	11 52	11 59	12 05	12 11	12 18	12 26													
	1715			11 47	11 54	12 02	12 08	12 15	12 22	12 29	12 35	12 41	12 48	12 55	→	12 55	→	→	13 09								
11	1017			12 17	12 24	12 32	12 38	12 45	12 52	12 59	13 05	13 11	13 18	13 26	11281	13 34h	13 42	13 52	14 01	14 18	14 31	14 40	→	15 00	15 19		
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11	1021			14 17	14 24	14 32	14 38	14 45	14 52	14 59	15 05	15 11	15 18	15 26	11451	15 34h	15 44	15 56	16 06	16 23	16 36	16 45	→	17 08	17 29		
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Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Zone→	Toronto 2 Dp	Toronto 2	Etobicoke 79	Etobicoke 59	Mississauga 10	Mississauga 12	Oakville 13 Ar	Oakville 14	Burlington 15	Burlington 16	Burlington 17 Ar	Transfer - Correspondances	Burlington 17 Dp	Hamilton 18	Hamilton 18	Hamilton 18 Ar	Stoney Creek 80	Grimsby 81	Beamsville 82	St. Catharines 83	St. Catharines 83	Louth St. @ St. Paul St. W.	St. Catharines 83	Niagara Falls 84 Ar
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11	1075			16 32	→	→	→	→	16 56	17 04	17 10	17 16	17 23	17 31	11571	17 39h	17 51	18 06	18 16	18 33	18 46	18 55	→	19 18	19 34		
	1325			16 36	16 43	16 50	16 56	17 03	17 10	17 19																	
	1877			16 51	→	→	→	→	17 16	17 23	17 29	17 35	17 42	17 49	→	17 49	→	18 06									
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18	1077			17 32	→	→	→	→	17 56	18 04	18 10	18 16	18 23	18 31	18641	18 39h	18 51	19 06									
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	1879			17 51	→	→	→	→	18 16	18 23	18 29	18 35	18 42	18 49	→	18 49	→	19 06									
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	1035			21 17	21 25	21 33	21 39	21 46	21 53	22 00	22 06	22 12	22 19	22 27													
	1735			21 47	21 55	22 03	22 09	22 16	22 23	22 30	22 36	22 42	22 49	22 56	→	22 56	→	→	23 10								
18	1037			22 17	22 25	22 33	22 39	22 46	22 53	23 00	23 06	23 12	23 19	23 27	18901	23 35h	23 42	23 52								
	1987			22 22	22 30	→	→	22 45	→	22 58	→	→	23 12	23 19	→	23 19	→	→	→	→	→	→	00 14	→	→	00 42	
	1737			22 47	22 55	23 03	23 09	23 16	23 23	23 30	23 36	23 42	23 49	23 56	→	23 56	→	→	00 10								
	1039			23 17	23 25	23 33	23 39	23 46	23 53	00 01	00 06	00 12	00 19	00 27													
	1739			23 47	23 55	00 03	00 09	00 16	00 23	00 30	00 36	00 42	00 49	00 56	→	00 56	→	→	01 10								
18	1041			00 17	00 25	00 33	00 39	00 46	00 53	01 00	01 06	01 12	01 19	01 27	18941	01 39h	01 46	01 54								
	1741	Fri		00 47	00 55	01 04	01 10	01 17	01 24	01 31	01 37	01 43	01 49	01 56	→	01 56	→	→	02 10								
18J	18951	M-Th		01 05	→	→	→	01 23	01 35	01 45	01 53	02 03	02 15	02 25	→	02 25	02 32	02 40	02 50								
18C	18981			01 30	→	→	→	01 53	02 05	02 17	02 25	02 35	02 45	02 55	→	02 55	03 02	03 15									
18C	18991			02 30	→	→	→	02 53	03 05	03 17	03 25	03 35	03 43	03 53	→	03 53	04 00	04 10									

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Exception	Niagara Falls GO	St. Catharines GO	West Harbour GO	Hamilton GO Centre	King St. W. @ Dundurn St. N.	Aldershot GO	Transfer - Correspondances / Trip Number - Numéro du parcours	Aldershot GO	Burlington GO	Appleby GO	Bronte GO	Oakville GO	Clarkson GO	Port Credit GO	Long Branch GO	Mimico GO	Exhibition GO	Union Station
				84 Dp	83	18 Dp	18 Dp	18	17 Ar		17 Dp	16 Dp	15 Dp	14	13	12	10	59	79	2	2 Ar
18B	18050						04 30	04 37	04 45	→	04 45	04 55	→	→	05 10	05 20	05 30	→	→	→	05 55
18J	18060					05 05	05 10	05 17	05 25	→	05 25	05 37	05 47	05 57	06 07	06 17	06 27	→	→	→	06 55
18J	18070					05 30	05 38	05 45	05 53	→	05 53	06 05	06 15	06 25	06 35	06 45	06 55	→	→	→	07 25
18J	18080					06 00	06 08	06 15	06 23	→	06 23	06 35	06 45	06 55	07 05	07 15	07 25	→	→	→	07 55
18A	18090					06 25	06 33	06 40	06 48	→	06 48	07 00	07 10	07 20	07 30	→	→	→	→	→	08 10
	1708					07 23	→	→	07 35	→	07 35	07 41	07 48	07 53	08 00	08 07	08 13	08 20	08 28	08 36	08 45
18	18200						07 32	07 39	07 49	1010	08 04	08 11	08 18	08 23	08 30	08 37	08 43	08 50	08 58	09 06	09 15
	1710					08 23	→	→	08 35	→	08 35	08 41	08 48	08 53	09 00	09 07	09 13	09 20	09 28	09 36	09 45
18	18300						08 32	08 39	08 49	1012	09 04	09 11	09 18	09 23	09 30	09 37	09 43	09 50	09 58	10 06	10 15
	1712					09 23	→	→	09 35	→	09 35	09 41	09 48	09 53	10 00	10 07	10 13	10 20	10 28	10 36	10 45
										1014	10 04	10 11	10 18	10 23	10 30	10 37	10 43	10 50	10 58	11 06	11 15
	1714					10 23	→	→	10 35	→	10 35	10 41	10 48	10 53	11 00	11 07	11 13	11 20	11 28	11 36	11 45
18	18420						10 32	10 39	10 49	1016	11 04	11 11	11 18	11 23	11 30	11 37	11 43	11 50	11 58	12 06	12 15
	1716					11 23	→	→	11 35	→	11 35	11 41	11 48	11 53	12 00	12 07	12 13	12 20	12 28	12 36	12 45
										1018	12 04	12 11	12 18	12 23	12 30	12 37	12 43	12 50	12 58	13 06	13 15
	1718					12 23	→	→	12 35	→	12 35	12 41	12 48	12 53	13 00	13 07	13 13	13 20	13 28	13 36	13 45
18	18510						12 29	12 38	12 49	1020	13 04	13 11	13 18	13 23	13 30	13 37	13 43	13 50	13 58	14 06	14 15
	1970		12 04	12 30	→	→	→	→	13 26	→	13 26	13 34	→	→	13 47	→	13 59	→	→	14 15	14 24
	1720				13 23	→	→	13 35	→	13 35	13 41	13 48	13 53	14 00	14 07	14 13	14 20	14 28	14 36	14 45
										1022	14 04	14 11	14 18	14 23	14 30	14 37	14 43	14 50	14 58	15 06	15 15
										1322					14 45	14 52	14 58	15 05	15 13	15 21	15 30

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Exception	Niagara Falls GO	St. Catharines GO	West Harbour GO	Hamilton GO Centre	King St. W. @ Dundurn St. N.	Aldershot GO	Transfer - Correspondances / Trip Number - Numéro du parcours	Aldershot GO	Burlington GO	Appleby GO	Bronte GO	Oakville GO	Clarkson GO	Port Credit GO	Long Branch GO	Mimico GO	Exhibition GO	Union Station
				84 Dp	83	18 Dp	18 Dp	18	17 Ar		17 Dp	16 Dp	15 Dp	14	13	12	10	59	79	2	2 Ar
	1722					14 23	→	→	14 35	→	14 35	14 41	14 48	14 53	15 00	15 07	15 13	15 20	15 28	15 36	15 45
										1124					15 15	15 22	15 28	15 35	15 43	15 51	16 00
18	18590						14 29	14 38	14 49	1024	15 04	15 11	15 18	15 23	15 30	15 37	15 43	15 50	15 58	16 06	16 15
										1324					15 45	15 52	15 58	16 05	16 13	16 21	16 30
	1724					15 23	→	→	15 35	→	15 35	15 41	15 48	15 53	16 00	16 07	16 13	16 20	16 28	16 36	16 45
										1126					16 15	16 22	16 28	16 35	16 43	16 51	17 00
										1026	16 04	16 11	16 18	16 23	16 30	16 37	16 43	16 50	16 58	17 06	17 15
										1326					16 45	16 52	16 58	17 05	17 13	17 21	17 30
	1726					16 23	→	→	16 35	→	16 35	16 41	16 48	16 53	17 00	17 07	17 13	17 20	17 28	17 36	17 45
										1128					17 15	17 22	17 28	17 35	17 43	17 51	18 00
18	18670						16 29	16 38	16 49	1028	17 04	17 11	17 18	17 23	17 30	17 37	17 43	17 50	17 58	18 06	18 15
	1978			16 04	16 30	→	→	→	17 27	→	17 27	17 35	→	→	17 48	→	18 00	→	→	18 16	18 25
										1328					17 45	17 52	17 58	18 05	18 13	18 21	18 30
	1728					17 23	→	→	17 35	→	17 35	17 41	17 48	17 53	18 00	18 07	18 13	18 20	18 28	18 36	18 45
										1130					18 15	18 22	18 28	18 35	18 43	18 51	19 00
										1030	18 04	18 11	18 18	18 23	18 30	18 37	18 43	18 50	18 58	19 06	19 15
										1330					18 45	18 52	18 58	19 05	19 13	19 21	19 30
	1730					18 23	→	→	18 35	→	18 35	18 41	18 48	18 53	19 00	19 07	19 13	19 20	19 28	19 36	19 45
										1132					19 15	19 22	19 28	19 35	19 43	19 51	20 00
18	18750						18 26	18 35	18 46	1032	19 01	19 08	19 15	19 20	19 27	19 34	19 40	19 47	19 55	20 03	20 12
										1332					19 45	19 52	19 58	20 05	20 13	20 21	20 30
	1732					19 23	→	→	19 35	→	19 35	19 41	19 48	19 53	20 00	20 07	20 13	20 20	20 28	20 36	20 45
										1134					20 15	20 22	20 28	20 35	20 43	20 51	21 00
										1034	20 04	20 11	20 18	20 23	20 30	20 37	20 43	20 50	20 58	21 06	21 15
										1334					20 45	20 52	20 58	21 05	21 13	21 21	21 30
	1734					20 23	→	→	20 35	→	20 35	20 41	20 48	20 53	21 00	21 07	21 13	21 20	21 28	21 36	21 45
										1136					21 15	21 22	21 28	21 35	21 43	21 51	22 00
18	18820						20 29	20 38	20 49	1036	21 04	21 11	21 18	21 23	21 30	21 37	21 43	21 50	21 58	22 06	22 15
										1336					21 45	21 52	21 58	22 05	22 13	22 21	22 30
	1986		Sun	20 17	20 43	→	→	→	21 40	→	21 40	21 48	→	→	22 01	→	22 12	→	→	22 28	22 37
	1736					21 23	→	→	21 35	→	21 35	21 41	21 48	21 53	22 00	22 07	22 13	22 20	22 28	22 36	22 45
										1138					22 15	22 22	22 28	22 35	22 43	22 51	23 00
										1038	22 04	22 11	22 18	22 23	22 30	22 37	22 43	22 50	22 58	23 06	23 15
	1988		Sat	21 06	21 32	→	→	→	22 28	→	22 28	22 36	→	→	22 48	→	22 59	→	→	23 15	23 24
										1338					22 45	22 52	22 58	23 05	23 13	23 21	23 30
	1738					22 23	→	→	22 35	→	22 35	22 41	22 48	22 53	23 00	23 07	23 13	23 20	23 28	23 36	23 45
										1040	23 04	23 11	23 18	23 23	23 30	23 37	23 43	23 50	23 58	00 06	00 15
18	18890		Sat				23 08	23 15	23 25↓												
	1740		Sat			23 23	→	→	23 35	→	23 35	23 41	23 48	23 53	00 01	00 07	00 13	00 20	00 28	00 36	00 45
18J	18900		Sun			22 50	22 58	23 05	23 15	→	23 15	23 27	23 38	23 48	23 58	00 08	00 20	→	→	→	00 45

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Toronto 2 Dp Union Station	Toronto 2 Exhibition GO	Toronto 79 Mimico GO	Toronto 59 Long Branch GO	Mississauga 10 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Ar Aldershot GO	Transfer - Correspondances Trip Number - Numéro du parcours	Burlington 17 Dp Aldershot GO	Hamilton 18 Main St. W. @ Longwood Rd. S.	Hamilton 18 Ar Hamilton GO Centre	Hamilton 18 Ar West Harbour GO	St. Catharines 83 St. Catharines GO	Niagara Falls 84 Ar Niagara Falls GO
18J	18061		06 40	→	→	→	07 00	07 15	07 27	07 38	07 48	08 00	08 10	→	08 10	08 17	08 30	08 40		
18J	18091		07 10	→	→	→	07 30	07 45	07 57	08 08	08 18	08 30	08 40	→	08 40	08 47	09 00	09 10		
18J	18101		07 40	→	→	→	08 03	08 18	08 30	08 41	08 53	09 05	09 15	→	09 15	09 22	09 35	09 45		
18A	18111		08 10	→	→	→	→	→	08 42	08 53	09 05	09 20	09 30	→	09 30	09 37	09 50	10 00		
18H	18113		08 25	→	→	→	08 48	09 05	09 20											
	1709		08 44	08 52	09 00	09 06	09 13	09 20	09 27	09 33	09 39	09 46	09 53	→	09 53	→	→	10 07		
	1961		09 03	09 12	→	→	09 27	→	09 39	→	→	09 53	10 01	→	10 01	→	→	→	10 56	11 24
18	1011		09 14	09 22	09 30	09 36	09 43	09 50	09 57	10 03	10 09	10 16	10 24	18171	10 32**h**	10 40	10 52			
	1711		09 44	09 52	10 00	10 06	10 13	10 20	10 27	10 33	10 39	10 46	10 53	→	10 53	→	→	11 07		
	1013		10 14	10 22	10 30	10 36	10 43	10 50	10 57	11 03	11 09	11 16	11 24							
	1713		10 44	10 52	11 00	11 06	11 13	11 20	11 27	11 33	11 39	11 46	11 53	→	11 53	→	→	12 07		
18	1015		11 14	11 22	11 30	11 36	11 43	11 50	11 57	12 03	12 09	12 16	12 24	18241	12 32**h**	12 40	12 52			
	1715		11 44	11 52	12 00	12 06	12 13	12 20	12 27	12 33	12 39	12 46	12 53	→	12 53	→	→	13 07		
	1017		12 14	12 22	12 30	12 36	12 43	12 50	12 57	13 03	13 09	13 16	13 24							
	1717		12 44	12 52	13 00	13 06	13 13	13 20	13 27	13 33	13 39	13 46	13 53	→	13 53	→	→	14 07		
	1969		13 05	13 14	→	→	13 29	→	13 40	→	→	13 54	14 01	→	14 01	→	→	→	14 56	15 24
18	1019		13 14	13 22	13 30	13 36	13 43	13 50	13 57	14 03	14 09	14 16	14 24	18331	14 32**h**	14 40	14 52			
	1719		13 44	13 52	14 00	14 06	14 13	14 20	14 27	14 33	14 39	14 46	14 53	→	14 53	→	→	15 07		
	1021		14 14	14 22	14 30	14 36	14 43	14 50	14 57	15 03	15 09	15 16	15 24							
	1721		14 44	14 52	15 00	15 06	15 13	15 20	15 27	15 33	15 39	15 46	15 53	→	15 53	→	→	16 07		
18	1023		15 14	15 22	15 30	15 36	15 43	15 50	15 57	16 03	16 09	16 16	16 24	18491	16 32**h**	16 40	16 52			
	1123		15 29	15 37	15 45	15 51	15 58	16 05	16 14											
	1723		15 44	15 52	16 00	16 06	16 13	16 20	16 27	16 33	16 39	16 46	16 53	→	16 53	→	→	17 07		
	1323		15 59	16 07	16 15	16 21	16 28	16 35	16 42											
	1025		16 14	16 22	16 30	16 36	16 43	16 50	16 57	17 03	17 09	17 16	17 24							
	1125		16 29	16 37	16 45	16 51	16 58	17 05	17 14											

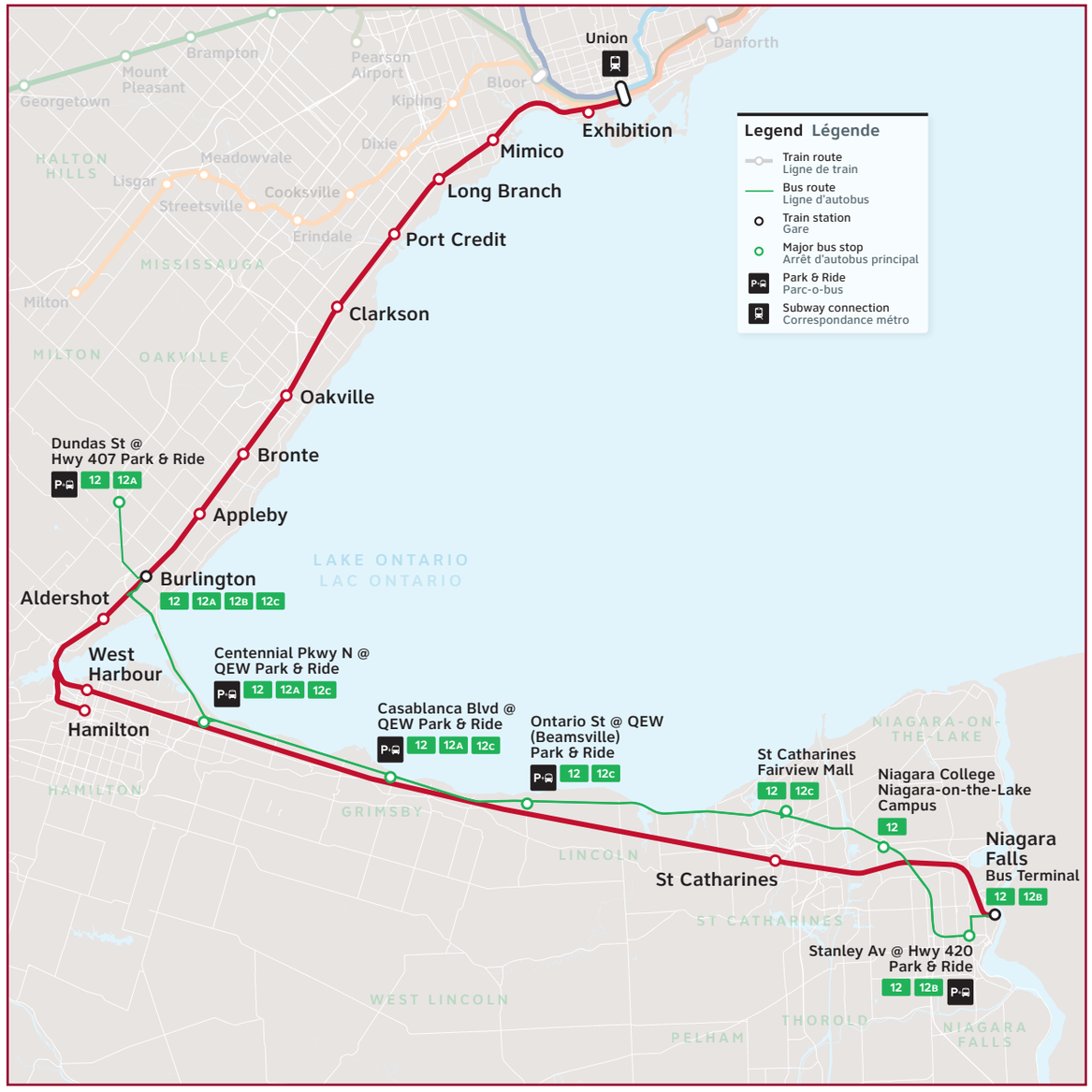
Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Exception	Toronto 2 Dp Union Station	Toronto 2 Exhibition GO	Toronto 79 Mimico GO	Toronto 59 Long Branch GO	Mississauga 10 Port Credit GO	Mississauga 12 Clarkson GO	Oakville 13 Oakville GO	Oakville 14 Bronte GO	Burlington 15 Appleby GO	Burlington 16 Burlington GO	Burlington 17 Ar Aldershot GO	Transfer - Correspondances Trip Number - Numéro du parcours	Burlington 17 Dp Aldershot GO	Hamilton 18 Main St. W. @ Longwood Rd. S.	Hamilton 18 Ar Hamilton GO Centre	Hamilton 18 Ar West Harbour GO	St. Catharines 83 St. Catharines GO	Niagara Falls 84 Ar Niagara Falls GO
	1725		16 44	16 52	17 00	17 06	17 13	17 20	17 27	17 33	17 39	17 46	17 53	→	17 53	→	→	18 07		
	1325		16 59	17 07	17 15	17 21	17 28	17 35	17 42											
	1977	Sun	17 05	17 14	→	→	17 28	→	17 39	→	→	17 53	18 00	→	18 00	→	→	→	18 55	19 23
18	1027		17 14	17 22	17 30	17 36	17 43	17 50	17 58	18 04	18 10	18 17	18 25	18641	18 33**h**	18 41	18 53			
	1127		17 29	17 37	17 45	17 51	17 58	18 05	18 14											
	1727		17 44	17 52	18 00	18 06	18 13	18 20	18 28	18 34	18 40	18 47	18 54	→	18 54	→	→	19 08		
	1327		17 59	18 07	18 15	18 21	18 28	18 35	18 42											
	1029		18 14	18 22	18 30	18 36	18 43	18 50	18 58	19 04	19 10	19 17	19 25							
	1979	Sat	18 21	18 29	→	→	18 44	→	18 55	→	→	19 09	19 16	→	19 16	→	→	→	20 11	20 39
	1129		18 29	18 37	18 45	18 51	18 58	19 05	19 14											
	1729		18 44	18 52	19 00	19 06	19 13	19 20	19 28	19 34	19 40	19 47	19 54	→	19 54	→	→	20 08		
	1329		18 59	19 07	19 15	19 21	19 28	19 35	19 42											
18	1031		19 14	19 22	19 30	19 36	19 43	19 50	19 58	20 04	20 10	20 17	20 25	18781	20 33**h**	20 41	20 53			
	1131		19 29	19 37	19 45	19 51	19 58	20 05	20 14											
	1731		19 44	19 52	20 00	20 06	20 13	20 20	20 28	20 34	20 40	20 47	20 54	→	20 54	→	→	21 08		
	1331		19 59	20 07	20 15	20 21	20 28	20 35	20 42											
	1033		20 14	20 22	20 30	20 37	20 43	20 50	20 58	21 04	21 10	21 17	21 25							
	1133		20 29	20 37	20 45	20 51	20 58	21 05	21 14											
	1733		20 44	20 52	21 00	21 06	21 13	21 20	21 28	21 34	21 40	21 47	21 54	→	21 54	→	→	22 08		
	1333		20 59	21 07	21 15	21 21	21 28	21 35	21 42											
18	1035		21 14	21 22	21 30	21 36	21 43	21 50	21 58	22 04	22 10	22 17	22 25	18871	22 33**h**	22 41	22 53			
	1135		21 29	21 37	21 45	21 51	21 58	22 05	22 14											
	1735		21 44	21 52	22 00	22 06	22 13	22 20	22 28	22 34	22 40	22 47	22 54	→	22 54	→	→	23 08		
	1335		21 59	22 07	22 15	22 21	22 28	22 35	22 42											
	1037		22 14	22 22	22 30	22 36	22 43	22 50	22 58	23 04	23 10	23 17	23 25							
	1137		22 29	22 37	22 45	22 51	22 58	23 05	23 14											
	1737		22 44	22 52	23 00	23 06	23 13	23 20	23 28	23 34	23 40	23 47	23 54	→	23 54	→	→	00 08		
	1337		22 59	23 07	23 15	23 21	23 28	23 35	23 44											
18	1039		23 14	23 22	23 30	23 36	23 44	23 52	00 01	00 06	00 12	00 19	00 27	18931	00 35**h**	00 42	00 52			
	1739		23 45	23 53	00 01	00 07	00 15	00 23	00 31	00 37	00 43	00 50	00 57	→	00 57	→	→	01 11		
18	1041		00 15	00 23	00 31	00 37	00 45	00 53	01 01	01 07	01 13	01 20	01 28	18961	01 40**h**	01 47	01 57			
18	1741	Sat	00 45	00 53	01 01	01 07	01 15	01 23	01 31	01 37	01 43	01 50	01 57	→	01 57	→	→	02 11		
18J	18973	Sun	01 05	→	→	→	01 25	01 38	01 52	02 00	02 10	02 20	02 30	→	02 30	02 37	02 45	02 55		
18D	18983	Sat	01 30	→	→	→	01 55	02 10												
18F	18985	Sat	01 30	→	→	→	→	→	02 07	02 15	02 27	02 38	02 50	→	02 50	02 57	03 10			
18C	18981	Sun	01 30	→	→	→	01 53	02 05	02 17	02 25	02 35	02 45	02 55	→	02 55	03 02	03 15			
18D	18993	Sat	02 30	→	→	→	02 55	03 10												
18F	18995	Sat	02 30	→	→	→	→	→	03 04	03 12	03 22	03 30	03 40	→	03 40	03 47	04 00			
18C	18991	Sun	02 30	→	→	→	02 53	03 05	03 17	03 25	03 35	03 43	03 53	→	03 53	04 00	04 10			

12 Route number
Numéro du trajet

Niagara Falls/Toronto



CONTACT US

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gotransit.com/schedules

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Say Something.
24/7 Transit Safety Dispatch:
1-877-297-0642

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Sign-up for email or text alerts/ Inscrivez-vous pour recevoir des alertes par courriel ou message texte.
gotransit.com/OnTheGO

Niagara Falls/ Toronto

GO Train and Bus Schedule/
Horaire des trains et des autobus GO

METROLINX

12

- Toronto
- Mississauga
- Oakville
- Burlington
- Hamilton
- St. Catharines
- Niagara Falls

Daily / Quotidiennement
Includes GO Bus route 12 /
Inclut le trajet 12 d'autobus GO
Includes Lakeshore West GO Trains/
Inclut les trains GO Lakeshore West

Effective / À partir de:
31 AUGUST AOÛT **2024**

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

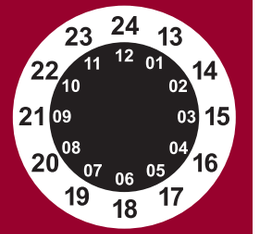
Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00



Legend

Train trips

Bus trips

→ Trip does not serve this location.

↓ Check below for connecting trips.

GO Train service is accessible to passengers using mobility devices at this location.

GO Bus service is accessible to passengers using mobility devices at this location.

GO Train & GO Bus service is accessible to passengers using mobility devices at this location.

Parking Available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Notes

h Trip holds for connection from train.

Sat Trip Operates on Saturdays ONLY.

Sun Trip Operates on Sundays ONLY.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

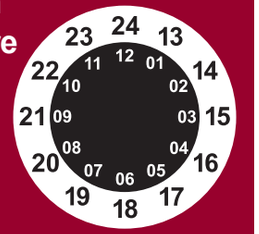
Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00



Légende

Horaire des trains

Horaire des autobus

→ Trajet ne sert pas cette station.

↓ Vérifiez les trajets de correspondance cidessous.

Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.

Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.

Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Notes

h Le départ de l'autobus est retardé pour assurer la correspondance avec le service de trains.

Sat Service offert les samedis SEULEMENT.

Sun Service offert les dimanche SEULEMENT.

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→		Niagara Falls 84 Dp	Niagara Falls 84 Dp	Niagara Falls 84	Niagara Falls 84	St. Catharines 83	St. Catharines 83	Beamsville 82	Grimsby 81	Casablanca Blvd. @ QEW	Stoney Creek 80	Hamilton 18	Burlington 17	Burlington 16 Dp	Burlington 16 Ar	Burlington 15	Oakville 14	Oakville 13	Mississauga 12	Mississauga 10	Etobicoke 59	Etobicoke 79	Toronto 2	Toronto 2 Ar
		Exception 1		Niagara Falls GO	Niagara Falls Bus Terminal	Stanley Ave. @ Hwy. 420	Niagara College	St. Catharines Fairview Mall	St. Catharines GO	Ontario St. @ QEW		Centennial Pkwy. N. @ QEW		West Harbour GO	Aldershot GO	Burlington GO	Dundas St. @ Hwy. 407	Appleby GO	Bronte GO	Oakville GO	Clarkson GO	Port Credit GO	Long Branch GO	Mimico GO	Exhibition GO	Union Station
12A	12050										04 47	04 59	→	→	05 14↓	05 27										
	1704														05 29	→	05 29	05 41	05 47	05 54	06 00	06 07	06 14	06 21	06 30
12	12080				04 22	04 26	04 36	04 47	→	05 01	05 12	05 26	→	→	05 44↓	05 57										
	1006														05 59	→	06 05	06 11	06 17	06 24	06 30	06 37	06 44	06 51	07 00
12	12110				05 10	05 14	05 26	05 40	→	05 54	06 05	06 19	→	→	06 41↓	06 55										
	1256														06 56	→	07 02	07 08	07 14	07 21	→	→	→	→	07 47
	1960			06 30	→	→	→	→	06 55	→	→	→	07 55	08 07	08 13	→	08 19	08 25	08 31	08 38	→	→	→	→	09 04
12	12180				06 00	06 05	06 19	06 33	→	06 48	06 59	07 15	→	→	07 41↓	07 55										
	1258														07 56	→	08 02	08 08	08 14	08 21	→	→	→	→	08 47
12	12240				07 17	07 22	07 36	07 50	→	08 05	08 16	08 32	→	→	08 58↓	09 12										
	1012														09 13	→	09 19	09 25	09 31	09 38	09 44	09 51	09 59	10 06	10 15
12	12280				08 17	08 22	08 36	08 50	→	09 05	09 16	09 32	→	→	09 58↓	10 12										
	1014												→		10 13	→	10 19	10 25	10 31	10 38	10 44	10 51	10 59	11 06	11 15
12	12320				09 22	09 27	09 41	09 55	→	10 10	10 21	10 35	→	→	10 58↓	11 12										
	1016														11 13	→	11 19	11 25	11 31	11 38	11 44	11 51	11 59	12 06	12 15
12	12360				10 22	10 27	10 41	10 55	→	11 10	11 21	11 35	→	→	11 58↓	12 12										
	1018														12 13	→	12 19	12 25	12 31	12 38	12 44	12 51	12 59	13 06	13 15
12	12400				11 22	11 27	11 41	11 55	→	12 10	12 21	12 35	→	→	12 58↓	13 12										
12B	12402				11 58	12 03	→	→	→	→	→	→	→	→	12 58↓											
	1020														13 13	→	13 19	13 25	13 31	13 38	13 44	13 51	13 59	14 06	14 15
12	12440				12 22	12 27	12 41	12 55	→	13 10	13 21	13 35	→	→	13 58↓	14 12										
12B	12442				12 58	13 03	→	→	→	→	→	→	→	→	13 58↓											
	1022														14 13	→	14 19	14 25	14 31	14 38	14 44	14 51	14 59	15 06	15 15
	1972			13 09	→	→	→	→	13 34	→	→	→	→	14 30	14 37	→	→	→	14 50	→	15 02	→	→	15 18	15 27
12	12470				13 22	13 27	13 41	13 55	→	14 10	14 21	14 35	→	→	14 58↓	15 12										
12B	12472				13 52	13 57	→	→	→	→	→	→	→	→	14 57↓											
	1024														15 13	→	15 19	15 25	15 31	15 38	15 44	15 51	15 59	16 06	16 15
12	12530				14 15	14 20	14 34	14 51	→	15 06	15 19	15 35	→	→	16 00↓	16 15										
12B	12532				14 47	14 52	→	→	→	→	→	→	→	→	15 57↓											
	1026														16 14	→	16 20	16 26	16 32	16 39	16 45	16 52	16 59	17 06	17 15
12	12590				15 09	15 14	15 28	15 45	→	16 00	16 13	16 29	→	→	16 55↓	17 14										
12B	12592				15 45	15 00	→	→	→	→	→	→	→	→	16 55↓											
	1028														17 10	→	17 17	17 24	17 31	17 39	17 45	17 52	17 59	18 06	18 15
12B	12620				16 17	16 22	→	→	→	→	→	→	→	→	17 27↓											
	1728														17 42	→	17 48	17 54	18 00	18 07	18 14	18 21	18 28	18 36	18 45
12	12650				16 10	16 15	16 29	16 46	→	17 01	17 14	17 30	→	→	17 56↓	18 15										
12B	12652				16 46	16 51	→	→	→	→	→	→	→	→	17 56↓											
	1030														18 11	→	18 17	18 23	18 30	18 37	18 43	18 50	18 58	19 06	19 15
12	12700				17 15	17 20	17 34	17 50	→	18 05	18 18	18 34	→	→	18 57↓	19 10										
12B	12702				17 52	17 57	→	→	→	→	→	→	→	→	18 57↓											
	1032														19 12	→	19 18	19 24	19 30	19 37	19 43	19 50	19 58	20 06	20 15
12	12740				18 20	18 25	18 39	18 54	→	19 09	19 20	19 34	→	→	19 57↓	20 10										
12B	12742				18 57	19 02	→	→	→	→	→	→	→	→	19 57↓											
	1034														20 12	→	20 18	20 24	20 30	20 37	20 43	20 50	20 58	21 06	21 15
12	12780				19 20	19 25	19 39	19 54	→	20 09	20 20	20 34	→	→	20 57↓	21 10										
	1036														21 12	→	21 18	21 24	21 30	21 37	21 43	21 50	21 58	22 06	22 15
12	12810				20 25	20 30	20 44	20 59	→	21 13	21 24	21 38	→	→	21 57↓	22 10										
12B	12812				20 57	21 02	→	→	→	→	→	→	→	→	21 57↓											
	1038														22 12	→	22 18	22 24	22 30	22 37	22 43	22 50	22 58	23 06	23 15
	1988			21 09	→	→	→	→	21 34	→	→	→	→	22 30	22 38	→	→	→	22 51	→	23 03	→	→	23 19	23 28
12	12850				21 25	21 30	21 44	21 59	→	22 13	22 24	22 38	→	→	22 57↓	23 10										
	1040														23 12	→	23 18	23 24	23 30	23 37	23 43	23 50	23 58	00 06	00 15
12B	12860				22 28	22 33	→	→	→	→	→	→	→	→	23 28↓											
18J	18900		M-Th												23 35	→	23 45	23 55	00 05	00 15	00 25	→	→	→	00 50
	1740		Fri												23 43	→	23 49	23 55	00 01	00 08	00 14	00 21	00 00	00 37	00 46

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Toronto 2 Dp	Toronto 2	Etobicoke 79	Toronto 59	Mississauga 10	Mississauga 12	Oakville 13	Oakville 14	Burlington 15	Burlington 16 Dp	Burlington 16	Burlington 17	Hamilton 18	Stoney Creek 80	Grimsby 81	Beamsville 82	St. Catharines 83	St. Catharines 83 Ar	Niagara-on-the-Lake 84	Niagara Falls 84	Niagara Falls 84 Ar	Niagara Falls 84	Niagara Falls 84 Ar
			Union Station	Exhibition GO	Mimico GO	Long Branch GO	Port Credit GO	Clarkson GO	Oakville GO	Bronte GO	Appleby GO	Dundas St. @ Hwy. 407	Burlington GO	Aldershot GO	West Harbour GO	Centennial Pkwy. N. @ QEW	Casablanca Blvd. @ QEW	Ontario St. @ QEW	St. Catharines GO	St. Catharines Fairview Mall	Niagara College	Stanley Ave. @ Hwy. 420	Niagara Falls Bus Terminal	Niagara Falls GO	
18C	18051		05 24	→	→	→	05 44	05 57	06 11	06 22	06 32	→	06 44												
12	12121											06 35	06 50c	→	→	07 04	07 17	07 26	→	07 42	07 54	08 05	08 15		
	1705		06 42	06 49	06 56	07 02	07 08	07 15	07 22	07 28	07 34	→	07 40												
12	12181											07 35	07 50h	→	→	08 06	08 19	08 28	→	08 45	08 58	09 10	09 20		
	1707		07 47	07 54	08 01	08 07	08 14	08 21	08 28	08 34	08 40	→	08 47												
12	12241											08 42	08 57h	→	→	09 13	09 26	09 35	→	09 52	10 05	10 17	10 27		
	1009		08 17	08 24	08 31	08 37	08 44	08 51	08 58	09 04	09 10	→	09 17												
	1709		08 47	08 54	09 02	09 08	09 15	09 22	09 29	09 35	09 41	→	09 48												
12	12281											09 43	09 58h	→	→	10 14	10 27	10 36	→	10 53	11 06	11 18	11 28		
12B	12283												09 58h	→	→	→	→	→	→	→	→	10 48	10 58		
	1961		09 10	09 18	→	→	09 32	→	09 43	→	→	→	09 56	10 03	→	→	→	→	10 58	→	→	→	→	11 26	
	1711		09 47	09 54	10 02	10 08	10 15	10 22	10 29	10 35	10 41	→	10 48												
12B	12313												10 58h	→	→	→	→	→	→	→	→	11 48	11 58		
12	12311											10 43	10 58h	→	→	11 14	11 27	11 36	→	11 53	12 06	12 18	12 28		
	1713		10 47	10 54	11 02	11 08	11 15	11 22	11 29	11 35	11 41	→	11 48												
12B	12363												11 58h	→	→	→	→	→	→	→	→	12 53	13 03		
12	12361											11 43	11 58h	→	→	12 14	12 27	12 36	→	12 53	13 06	13 18	13 28		
	1715		11 47	11 54	12 02	12 08	12 15	12 22	12 29	12 35	12 41	→	12 48												
12B	12393												12 58h	→	→	→	→	→	→	→	→	13 53	14 03		
12	12391											12 43	12 58h	→	→	13 16	13 29	13 38	→	13 58	14 11	14 23	14 33		
	1717		12 47	12 54	13 02	13 08	13 15	13 22	13 29	13 35	13 41	→	13 48												
12B	12443												13 58h	→	→	→	→	→	→	→	→	14 53	15 03		
12	12441											13 43	13 58h	→	→	14 16	14 29	14 38	→	14 58	15 11	15 23	15 33		
	1719		13 47	13 54	14 02	14 08	14 15	14 22	14 29	14 35	14 41	→	14 48												
12	12481											14 40	14 58h	→	→	15 17	15 30	15 39	→	16 00	16 13	16 25	16 36		
12B	12483												15 02h	→	→	→	→	→	→	→	→	16 04	16 17		
	1721		14 47	14 54	15 02	15 08	15 15	15 22	15 29	15 35	15 41	→	15 48												
12B	12533												16 02h	→	→	→	→	→	→	→	→	17 04	17 17		
12	12531											15 42	16 02h	→	→	16 21	16 34	16 43	→	17 04	17 17	17 29	17 42		
	1775		16 02	→	→	→	→	16 26	16 33	16 39	16 45	→	16 52												
12	12601											16 45	17 02h	→	→	17 21	17 34	17 43	→	18 04	18 17	18 29	18 40		
12B	12603												17 02h	→	→	→	→	→	→	→	→	18 01	18 12		
	1777		17 02	→	→	→	→	17 26	17 33	17 39	17 45	→	17 52												
12C	12651												18 00h	→	→	18 19	18 32	18 41	→	19 02					
12	12661											17 48	18 05h	→	→	18 24	18 37	18 46	→	19 07	19 20	19 32	19 43		
	1977		17 21	→	→	→	→	17 46	17 53	17 59	18 05	→	18 12	18 19	18 31	→	→	→	19 30	→	→	→	→	19 58	
	1727		17 47	17 55	18 03	18 09	18 16	18 23	18 30	18 36	18 42	→	18 49												
12	12691											18 42	18 59h	→	→	19 13	19 26	19 35	→	19 52	20 05	20 17	20 27		
12B	12693												18 59h	→	→	→	→	→	→	→	→	19 54	20 04		
	1729		18 47	18 55	19 03	19 09	19 16	19 23	19 30	19 36	19 42	→	19 49												
12	12741											19 44	19 59h	→	→	20 13	20 26	20 35	→	20 51	21 03	21 14	21 24		
	1731		19 47	19 55	20 03	20 09	20 16	20 23	20 30	20 36	20 42	→	20 49												
12	12781											20 44	20 59h	→	→	21 13	21 26	21 35	→	21 51	22 03	22 14	22 24		
	1733		20 47	20 55	21 03	21 09	21 16	21 23	21 30	21 36	21 42	→	21 49												
12	12811											21 44	21 59h	→	→	22 13	22 26	22 35	→	22 51	23 03	23 14	23 24		
	1735		21 47	21 55	22 03	22 09	22 16	22 23	22 30	22 36	22 42	→	22 49												
12	12841											22 44	22 59h	→	→	23 13	23 26	23 35	→	23 51	00 03	00 14	00 24		
	1987		22 22	22 30	→	→	22 45	→	22 58	→	→	→	23 12	23 19	→	→	→	→	00 14	→	→	→	→	00 42	
12	12871											23 46	00 01h	→	→	00 15	00 28	00 37	→	00 53	01 05	01 16	01 26		
	1737		22 47	22 55	23 03	23 09	23 16	23 23	23 30	23 36	23 42	→	23 49												

Saturday and Sunday
Samedi et dimanche

EASTBOUND / EN DIRECTION EST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours		Zone→		84 Dp	84 Dp	84	84	83	83	82	81	80	17	16	16 Ar	15	14	13	12	10	59	79	2	2 Ar
		Exception 1		Niagara Falls GO	Niagara Falls Bus Terminal	Stanley Ave. @ Hwy. 420	Niagara College	St. Catharines Fairview Mall	St. Catharines GO	Beamsville	Ontario St. @ QEW	Grimsby	Casablanca Blvd. @ QEW	Stoney Creek	Centennial Pkwy. N. @ QEW	Burlington	Aldershot GO	Burlington GO	Dundas St. @ Hwy. 407	Appleby GO	Bronte GO	Oakville GO	Clarkson GO	Port Credit GO	Long Branch GO	Mimico GO	Exhibition GO	Union Station
12	12130				05 59	06 03	06 15	06 29	→	06 44	06 54	07 08	→	07 26↓	07 39												
	1708													07 41	→	07 48	07 53	08 00	08 07	08 13	08 20	08 28	08 36	08 45	
12	12190				06 29	06 33	06 45	06 59	→	07 14	07 24	07 38	→	07 56↓	08 09												
	1010													08 11	→	08 18	08 23	08 30	08 37	08 43	08 50	08 58	09 06	09 15	
12	12230				07 20	07 25	07 39	07 53	→	08 08	08 21	08 37	→	08 56↓	09 10												
	1012													09 11	→	09 18	09 23	09 30	09 37	09 43	09 50	09 58	10 06	10 15	
12	12270				08 20	08 25	08 39	08 53	→	09 08	09 21	09 37	→	09 56↓	10 10												
	1014													10 11	→	10 18	10 23	10 30	10 37	10 43	10 50	10 58	11 06	11 15	
12	12320				09 20	09 25	09 39	09 53	→	10 08	10 21	10 37	→	10 56↓	11 10												
	1016													11 11	→	11 18	11 23	11 30	11 37	11 43	11 50	11 58	12 06	12 15	
12	12360				10 15	10 20	10 34	10 53	→	11 08	11 21	11 37	→	11 56↓	12 10												
12B	12362				10 51	10 56	→	→	→	→	→	→	→	11 56↓													
	1018												→	12 11	→	12 18	12 23	12 30	12 37	12 43	12 50	12 58	13 06	13 15	
12	12400				11 15	11 20	11 34	11 53	→	12 08	12 21	12 37	→	12 56↓	13 10												
12B	12402				11 51	11 56	→	→	→	→	→	→	→	12 56↓													
	1020													13 11	→	13 18	13 23	13 30	13 37	13 43	13 50	13 58	14 06	14 15	
	1970			12 04	→	→	→	→	12 30	→	→	→	13 26	13 34	→	→	→	13 47	→	13 59	→	→	14 15	14 24		
12	12440				12 10	12 15	12 29	12 48	→	13 03	13 16	13 32	→	13 56↓	14 10												
12B	12442				12 51	12 56	→	→	→	→	→	→	→	13 56↓													
	1022												→	14 11	→	14 18	14 23	14 30	14 37	14 43	14 50	14 58	15 06	15 15	
12	12480				13 10	13 15	13 29	13 48	→	14 03	14 16	14 32	→	14 56↓	15 10												
12B	12482				13 51	13 56	→	→	→	→	→	→	→	14 56↓													
	1024													15 11	→	15 18	15 23	15 30	15 37	15 43	15 50	15 58	16 06	16 15	
12	12530				14 10	14 15	14 29	14 48	→	15 03	15 16	15 32	→	15 56↓	16 10												
12B	12532				14 51	14 56	→	→	→	→	→	→	→	15 56↓													
	1026													16 11	→	16 18	16 23	16 30	16 37	16 43	16 50	16 58	17 06	17 15	
12	12590				15 10	15 15	15 29	15 48	→	16 03	16 16	16 32	→	16 56↓	17 10												
12B	12592				15 46	15 51	→	→	→	→	→	→	→	16 56↓													
	1028													17 11	→	17 18	17 23	17 30	17 37	17 43	17 50	17 58	18 06	18 15	
	1978			16 04	→	→	→	→	16 30	→	→	→	17 27	17 35	→	→	→	17 48	→	18 00	→	→	18 16	18 25		
12	12650				16 10	16 15	16 29	16 48	→	17 03	17 16	17 32	→	17 56↓	18 10												
12B	12652				16 46	16 51	→	→	→	→	→	→	→	17 56↓													
	1030													18 11	→	18 18	18 23	18 30	18 37	18 43	18 50	18 58	19 06	19 15	
12	12700				17 07	17 12	17 26	17 45	→	18 00	18 13	18 29	→	18 53↓	19 07												
12B	12702				17 43	17 48	→	→	→	→	→	→	→	18 53↓													
	1032													19 08	→	19 15	19 20	19 27	19 34	19 40	19 47	19 55	20 03	20 12	
12	12740				18 10	18 15	18 29	18 48	→	19 03	19 16	19 32	→	19 56↓	20 10												
12B	12742				18 46	18 51	→	→	→	→	→	→	→	19 56↓													
	1034													20 11	→	20 18	20 23	20 30	20 37	20 43	20 50	20 58	21 06	21 15	
12	12780				19 14	19 19	19 33	19 49	→	20 04	20 17	20 33	→	20 56↓	21 09												
12B	12782				19 51	19 56	→	→	→	→	→	→	→	20 56↓													
	1036													21 11	→	21 18	21 23	21 30	21 37	21 43	21 50	21 58	22 06	22 15	
	1986	Sun		20 17	→	→	→	→	20 43	→	→	→	21 40	21 48	→	→	→	22 01	→	22 12	→	→	22 28	22 37		
12	12810				20 14	20 19	20 33	20 49	→	21 04	21 17	21 33	→	21 56↓	22 09												
12B	12812				20 51	20 56	→	→	→	→	→	→	→	21 56↓													
	1038													22 11	→	22 18	22 23	22 30	22 37	22 43	22 50	22 58	23 06	23 15	
12B	12852				21 26	21 31	→	→	→	→	→	→	→	22 26↓													
	1988	Sat		21 06	→	→	→	→	21 32	→	→	→	22 28	22 36	→	→	→	22 48	→	22 59	→	→	23 15	23 24		
	1738													22 41	→	22 48	22 53	23 00	23 07	23 13	23 20	23 28	23 36	23 45	
12	12850				21 19	21 23	21 37	21 49	→	22 04	22 17	22 33	→	22 56↓	23 09												
	1040													23 11	→	23 18	23 23	23 30	23 37	23 43	23 50	23 58	00 06	00 15	
12B	12860				22 22	22 27	→	→	→	→	→	→	→	23 22↓													
	1740	Sat												23 41	→	23 48	23 53	00 01	00 07	00 13	00 20	00 28	00 36	00 45	
18J	18930	Sun												23 27	→	23 38	23 48	23 58	00 08	00 20	→	→	→	00 50	

Saturday and Sunday
Samedi et dimanche

WESTBOUND / EN DIRECTION OUEST

Route Number / Numéro du trajet	Trip Number / Numéro du parcours		Zone→	2 Dp	2	79	59	10	12	13	14	15	16 Dp	16	17	80	81	82	83	83	84	84 Ar	84	84 Ar
		Exception 1		Toronto Union Station	Toronto Exhibition GO	Etobicoke Mimico GO	Etobicoke Long Branch GO	Mississauga Port Credit GO	Mississauga Clarkson GO	Oakville GO	Oakville Bronte GO	Burlington Appleby GO	Burlington Dundas St. @ Hwy. 407	Burlington GO	Burlington Aldershot GO	Stoney Creek Centennial Pkwy. N. @ QEW	Grimsby Casablanca Blvd. @ QEW	Beamsville Ontario St. @ QEW	St. Catharines GO	St. Catharines Fairview Mall	Niagara-on-the-Lake Niagara College	Niagara Falls Stanley Ave. @ Hwy. 420	Niagara Falls Bus Terminal	Niagara Falls	Niagara Falls GO
18J	18061			06 40	→	→	→	07 00	07 15	07 27	07 38	07 48	→	08 00											
12	12181												07 50	08 05h	→	08 19	08 32	08 41	→	08 57	09 09	09 20	09 30		
18J	18101			07 40	→	→	→	08 03	08 18	08 30	08 41	08 53	→	09 05											
12	12231												08 55	09 10h	→	09 26	09 39	09 48	→	10 05	10 18	10 30	10 40		
12B	12233													09 10h	→	→	→	→	→	→	→	10 00	10 10		
18A	18111			08 10	→	→	→	→	→	08 42	08 53	09 03	→	09 17											
	1709			08 44	08 52	09 00	09 06	09 13	09 20	09 27	09 33	09 39	→	09 46											
	1961			09 03	09 12	→	→	09 27	→	09 39	→	→	→	09 53	10 01	→	→	→	10 56	→	→	→	→	11 24	
12	12261												09 41	09 56h	→	10 14	10 27	10 36	→	10 56	11 09	11 21	11 31		
12B	12263													09 56h	→	→	→	→	→	→	→	10 46	10 56		
	1711			09 44	09 52	10 00	10 06	10 13	10 20	10 27	10 33	10 39	→	10 46											
12B	12303													10 56h	→	→	→	→	→	→	→	11 51	12 01		
12	12301												10 41	10 56h	→	11 17	11 30	11 39	→	12 01	12 14	12 26	12 36		
	1713			10 44	10 52	11 00	11 06	11 13	11 20	11 27	11 33	11 39	→	11 46											
12B	12353													11 56h	→	→	→	→	→	→	→	13 01	13 11		
12	12351												11 41	11 56h	→	12 17	12 32	12 44	→	13 06	13 19	13 31	13 41		
	1715			11 44	11 52	12 00	12 06	12 13	12 20	12 27	12 33	12 39	→	12 46											
12B	12393													12 56h	→	→	→	→	→	→	→	14 06	14 16		
12	12391												12 41	12 56h	→	13 17	13 32	13 44	→	14 06	14 19	14 31	14 41		
	1717			12 44	12 52	13 00	13 06	13 13	13 20	13 27	13 33	13 39	→	13 46											
	1969			13 05	13 14	→	→	13 29	→	13 40	→	→	→	13 54	14 01	→	→	→	14 56	→	→	→	→	15 24	
12B	12423													13 56h	→	→	→	→	→	→	→	15 06	15 16		
12	12421												13 41	13 56h	→	14 17	14 32	14 44	→	15 06	15 19	15 31	15 41		
	1719			13 44	13 52	14 00	14 06	14 13	14 20	14 27	14 33	14 39	→	14 46											
12B	12463													14 56h	→	→	→	→	→	→	→	16 06	16 16		
12	12461												14 41	14 56h	→	15 17	15 32	15 44	→	16 06	16 19	16 31	16 41		
	1721			14 44	14 52	15 00	15 06	15 13	15 20	15 27	15 33	15 39	→	15 46											
12B	12523													15 56h	→	→	→	→	→	→	→	17 01	17 11		
12	12521												15 41	15 56h	→	16 17	16 30	16 39	→	17 01	17 14	17 26	17 36		
	1723			15 44	15 52	16 00	16 06	16 13	16 20	16 27	16 33	16 39	→	16 46											
12B	12603													16 56h	→	→	→	→	→	→	→	17 51	18 01		
12	12601												16 41	16 56h	→	17 17	17 30	17 39	→	18 01	18 14	18 26	18 36		
	1725			16 44	16 52	17 00	17 06	17 13	17 20	17 27	17 33	17 39	→	17 46											
	1977	Sun		17 05	17 14	→	→	17 28	→	17 39	→	→	→	17 53	18 00	→	→	→	18 55	→	→	→	→	19 23	
12B	12643													17 56h	→	→	→	→	→	→	→	18 51	19 01		
12	12641												17 41	17 56h	→	18 14	18 27	18 36	→	18 56	19 09	19 21	19 31		
	1727			17 44	17 52	18 00	18 06	18 13	18 20	18 28	18 34	18 40	→	18 47											
12B	12673													18 57h	→	→	→	→	→	→	→	19 47	19 57		
12	12671												18 42	18 57h	→	19 13	19 26	19 35	→	19 52	20 05	20 17	20 27		
	1979	Sat		18 21	18 29	→	→	18 44	→	18 55	→	→	→	19 09	19 16	→	→	→	20 11	→	→	→	→	20 39	
	1729			18 44	18 52	19 00	19 06	19 13	19 20	19 28	19 34	19 40	→	19 47											
12B	12723													19 57h	→	→	→	→	→	→	→	20 47	20 57		
12	12721												19 42	19 57h	→	20 13	20 26	20 35	→	20 52	21 05	21 17	21 27		
	1731			19 44	19 52	20 00	20 06	20 13	20 20	20 28	20 34	20 40	→	20 47											
12	12781												20 42	20 57h	→	21 13	21 26	21 35	→	21 52	22 05	22 17	22 27		
	1733			20 44	20 52	21 00	21 06	21 13	21 20	21 28	21 34	21 40	→	21 47											
12	12811												21 42	21 57h	→	22 14	22 24	22 33	→	22 49	23 01	23 12	23 22		
	1735			21 44	21 52	22 00	22 06	22 13	22 20	22 28	22 34	22 40	→	22 47											
12	12841												22 42	22 57h	→	23 11	23 24	23 33	→	23 49	00 01	00 12	00 22		
	1737			22 44	22 52	23 00	23 06	23 13	23 20	23 28	23 34	23 40	→	23 47											
12	12871												23 44	23 59h	→	00 13	00 26	00 35	→	00 51	01 03	01 14	01 24		

APPENDIX C

Traffic Data

Spectrum

Turning Movement Count
Location Name: KING ST & 5205 KING STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (1 . KING ST & 5205 KING STREET)

Start Time	N Approach 5205 KING STREET						E Approach KING ST						S Approach SOUTH DRIVEWAY						W Approach KING ST						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	0	0	0	0	0	0	0	66	0	0	0	66	0	0	0	0	0	0	0	24	0	0	0	24	90	
07:15:00	0	0	0	0	0	0	2	73	0	0	0	75	0	0	0	0	0	0	0	21	0	0	0	21	96	
07:30:00	0	0	0	0	1	0	1	99	0	0	0	100	0	0	0	0	0	0	0	22	0	0	1	22	122	
07:45:00	1	0	0	0	0	1	0	85	0	0	0	85	0	0	0	0	0	0	0	64	1	0	0	65	151	459
08:00:00	2	0	0	0	0	2	2	78	0	0	0	80	0	0	0	0	0	0	0	60	0	0	2	60	142	511
08:15:00	0	0	0	0	0	0	0	72	0	0	0	72	0	0	0	0	0	0	0	49	4	0	1	53	125	540
08:30:00	1	0	1	0	0	2	0	114	0	0	0	114	0	0	0	0	0	0	0	61	0	0	0	61	177	595
08:45:00	0	0	0	0	0	0	3	94	0	0	0	97	0	0	0	0	0	0	0	56	0	0	0	56	153	597
09:00:00	1	0	1	0	1	2	1	79	0	0	0	80	0	0	0	0	0	0	0	59	1	0	0	60	142	597
09:15:00	0	0	0	0	0	0	1	69	0	0	0	70	0	0	0	0	0	0	0	59	2	0	0	61	131	603
09:30:00	1	0	0	0	0	1	1	68	0	0	0	69	0	0	0	0	0	0	0	51	0	0	0	51	121	547
09:45:00	0	0	3	0	0	3	0	77	0	0	0	77	0	0	0	0	0	0	0	65	3	0	0	68	148	542
BREAK																										
16:00:00	0	0	1	0	0	1	0	87	0	0	0	87	0	0	0	0	0	0	0	92	1	0	0	93	181	
16:15:00	3	0	1	0	1	4	2	108	0	0	0	110	0	0	0	0	0	0	0	100	2	0	0	102	216	
16:30:00	5	0	1	0	0	6	0	97	0	0	0	97	0	0	0	0	0	0	0	84	1	0	0	85	188	
16:45:00	1	0	1	0	0	2	2	97	0	0	0	99	0	0	0	0	0	0	0	122	0	0	0	122	223	808
17:00:00	6	0	1	0	0	7	1	87	0	0	0	88	0	0	0	0	0	0	0	95	1	0	0	96	191	818
17:15:00	2	0	1	0	0	3	1	81	0	0	0	82	0	0	0	0	0	0	0	107	2	0	0	109	194	796
17:30:00	1	0	2	0	0	3	0	84	0	0	0	84	0	0	0	0	0	0	0	93	0	0	0	93	180	788
17:45:00	0	0	0	0	0	0	3	91	0	0	0	94	0	0	0	0	0	0	0	86	1	0	0	87	181	746
18:00:00	0	0	3	0	0	3	0	81	0	0	0	81	0	0	0	0	0	0	0	83	0	0	0	83	167	722
18:15:00	1	0	0	0	0	1	3	86	0	0	0	89	0	0	0	0	0	0	0	78	2	0	0	80	170	698
18:30:00	2	0	1	0	0	3	2	73	0	0	0	75	0	0	0	0	0	0	0	66	0	0	0	66	144	662
18:45:00	1	0	4	0	0	5	0	62	0	0	0	62	0	0	0	0	0	0	0	55	0	0	0	55	122	603
Grand Total	28	0	21	0	3	49	25	2008	0	0	0	2033	0	0	0	0	0	0	0	1652	21	0	4	1673	**3755**	-
Approach%	57.1%	0%	42.9%	0%		-	1.2%	98.8%	0%	0%		-	0%	0%	0%	0%		-	0%	98.7%	1.3%	0%		-	-	-
Totals %	0.7%	0%	0.6%	0%		1.3%	0.7%	53.5%	0%	0%		54.1%	0%	0%	0%	0%		0%	0%	44%	0.6%	0%		44.6%	-	-
Heavy	0	0	0	0		-	0	61	0	0		-	0	0	0	0		-	0	54	0	0		-	-	-
Heavy %	0%	0%	0%	0%		-	0%	3%	0%	0%		-	0%	0%	0%	0%		-	0%	3.3%	0%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: KING ST & 5205 KING STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

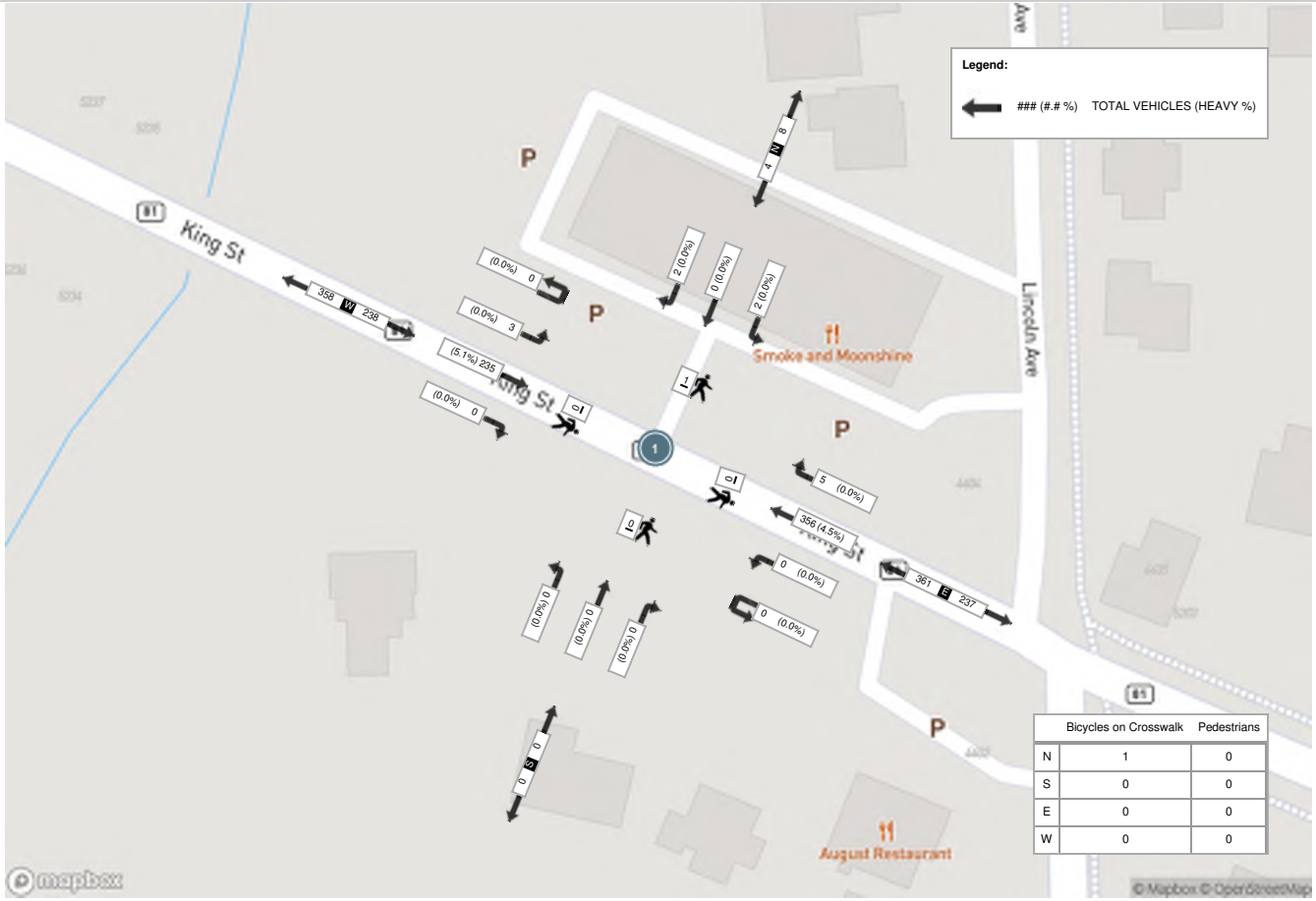
Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (9.13 °C)

Start Time	N Approach 5205 KING STREET						E Approach KING ST						S Approach SOUTH DRIVEWAY						W Approach KING ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:30:00	1	0	1	0	0	2	0	114	0	0	0	114	0	0	0	0	0	0	0	61	0	0	0	61	177
08:45:00	0	0	0	0	0	0	3	94	0	0	0	97	0	0	0	0	0	0	0	56	0	0	0	56	153
09:00:00	1	0	1	0	1	2	1	79	0	0	0	80	0	0	0	0	0	0	0	59	1	0	0	60	142
09:15:00	0	0	0	0	0	0	1	69	0	0	0	70	0	0	0	0	0	0	0	59	2	0	0	61	131
Grand Total	2	0	2	0	1	4	5	356	0	0	0	361	0	0	0	0	0	0	0	235	3	0	0	238	**603**
Approach%	50%	0%	50%	0%		-	1.4%	98.6%	0%	0%		-	0%	0%	0%	0%		-	0%	98.7%	1.3%	0%		-	**-**
Totals %	0.3%	0%	0.3%	0%		0.7%	0.8%	59%	0%	0%		59.9%	0%	0%	0%	0%		0%	0%	39%	0.5%	0%		39.5%	**-**
PHF	0.5	0	0.5	0		0.5	0.42	0.78	0	0		0.79	0	0	0	0		0	0	0.96	0.38	0		0.98	**-**
Heavy	0	0	0	0		0	0	16	0	0		16	0	0	0	0		0	0	12	0	0		12	**-**
Heavy %	0%	0%	0%	0%		0%	0%	4.5%	0%	0%		4.4%	0%	0%	0%	0%		0%	0%	5.1%	0%	0%		5%	**-**
Lights	2	0	2	0		4	5	339	0	0		344	0	0	0	0		0	0	223	3	0		226	**-**
Lights %	100%	0%	100%	0%		100%	100%	95.2%	0%	0%		95.3%	0%	0%	0%	0%		0%	0%	94.9%	100%	0%		95%	**-**
Single-Unit Trucks	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	0	3	0	0		3	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	2.2%	0%	0%		2.2%	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		1.3%	**-**
Buses	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	0	9	0	0		9	**-**
Buses %	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		1.7%	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.8%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 04:15 PM - 05:15 PM Weather: Clear Sky (12.99 °C)

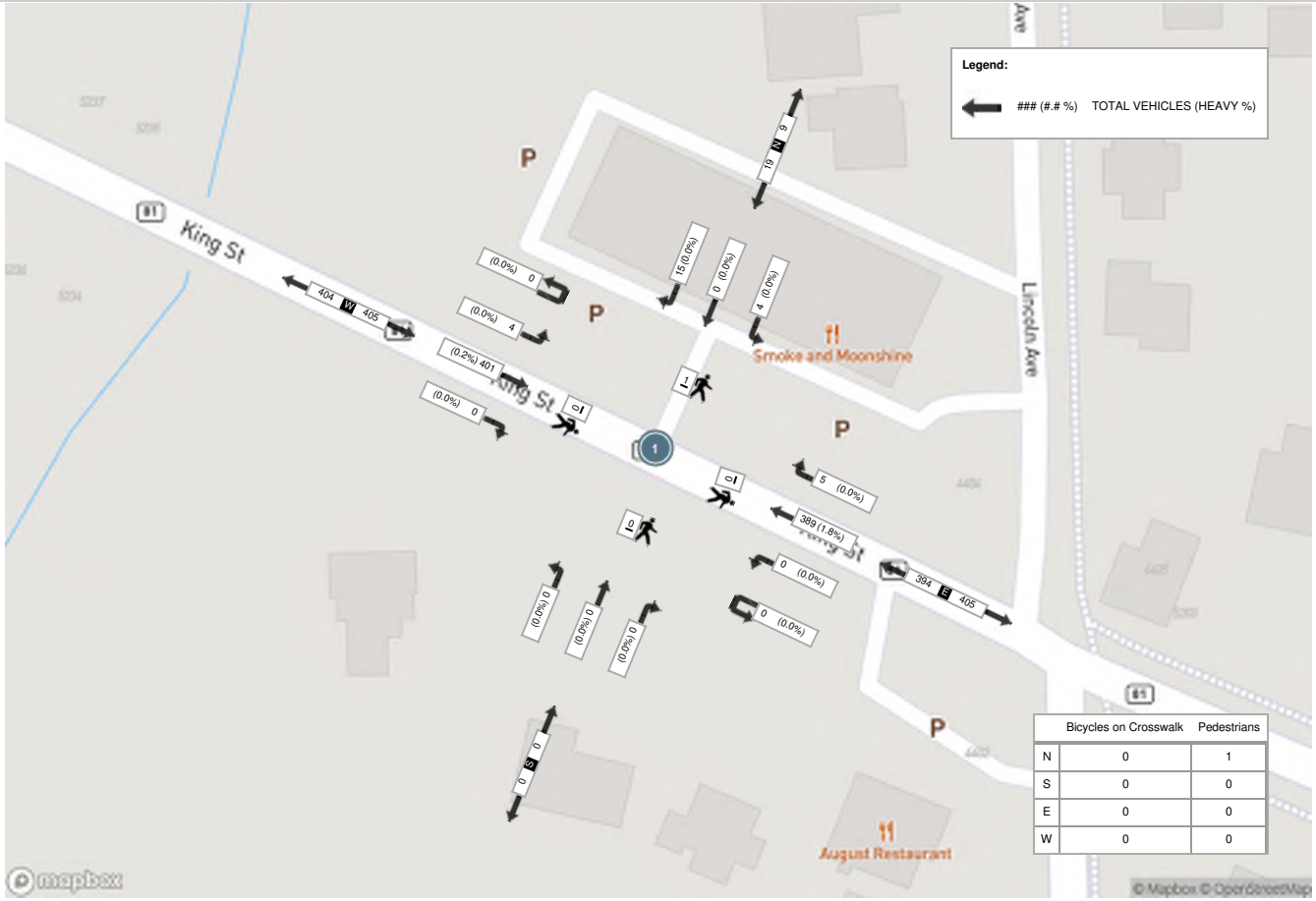
Start Time	N Approach 5205 KING STREET						E Approach KING ST						S Approach SOUTH DRIVEWAY						W Approach KING ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	3	0	1	0	1	4	2	108	0	0	0	110	0	0	0	0	0	0	0	100	2	0	0	102	216
16:30:00	5	0	1	0	0	6	0	97	0	0	0	97	0	0	0	0	0	0	0	84	1	0	0	85	188
16:45:00	1	0	1	0	0	2	2	97	0	0	0	99	0	0	0	0	0	0	0	122	0	0	0	122	223
17:00:00	6	0	1	0	0	7	1	87	0	0	0	88	0	0	0	0	0	0	0	95	1	0	0	96	191
Grand Total	15	0	4	0	1	19	5	389	0	0	0	394	0	0	0	0	0	0	0	401	4	0	0	405	**818**
Approach%	78.9%	0%	21.1%	0%		-	1.3%	98.7%	0%	0%		-	0%	0%	0%	0%		-	0%	99%	1%	0%		-	**-**
Totals %	1.8%	0%	0.5%	0%		2.3%	0.6%	47.6%	0%	0%		48.2%	0%	0%	0%	0%		0%	0%	49%	0.5%	0%		49.5%	**-**
PHF	0.63	0	1	0		0.68	0.63	0.9	0	0		0.9	0	0	0	0		0	0	0.82	0.5	0		0.83	**-**
Heavy	0	0	0	0		0	0	7	0	0		7	0	0	0	0		0	0	1	0	0		1	**-**
Heavy %	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.8%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	**-**
Lights	15	0	4	0		19	5	381	0	0		386	0	0	0	0		0	0	400	4	0		404	**-**
Lights %	100%	0%	100%	0%		100%	100%	97.9%	0%	0%		98%	0%	0%	0%	0%		0%	0%	99.8%	100%	0%		99.8%	**-**
Single-Unit Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	1	0	0		1	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1%	0%	0%		1%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	**-**
Buses	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:30 AM - 09:30 AM **Weather: Broken Clouds (9.13 °C)**



	Bicycles on Crosswalk	Pedestrians
N	1	0
S	0	0
E	0	0
W	0	0

Peak Hour: 04:15 PM - 05:15 PM Weather: Clear Sky (12.99 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	1
S	0	0
E	0	0
W	0	0

Spectrum

Turning Movement Count
Location Name: KING STREET & LINCOLN AVENUE
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (2 . KING STREET & LINCOLN AVENUE)

Start Time	N Approach LINCOLN AVENUE						E Approach KING STREET						S Approach LINCOLN AVENUE						W Approach KING STREET						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	4	1	5	0	0	10	12	62	2	0	0	76	0	2	1	0	0	3	0	22	2	0	0	24	113	
07:15:00	5	2	7	0	0	14	13	68	3	0	0	84	1	3	1	0	1	5	0	19	2	0	0	21	124	
07:30:00	8	3	6	0	0	17	28	89	1	0	2	118	0	3	1	0	0	4	0	21	1	0	0	22	161	
07:45:00	6	4	16	0	0	26	29	83	4	0	1	116	0	6	1	0	0	7	1	56	4	0	0	61	210	608
08:00:00	3	0	18	0	0	21	17	70	1	0	0	88	4	7	2	0	0	13	0	58	6	0	0	64	186	681
08:15:00	5	7	20	0	0	32	19	64	1	0	0	84	3	5	0	0	0	8	1	44	3	0	0	48	172	729
08:30:00	3	4	22	0	0	29	23	113	6	0	0	142	7	5	1	0	0	13	2	58	2	0	0	62	246	814
08:45:00	5	8	9	0	0	22	18	88	4	0	0	110	4	5	5	0	0	14	1	56	1	0	0	58	204	808
09:00:00	4	3	13	0	0	20	10	76	3	0	0	89	5	3	1	0	0	9	1	54	2	0	0	57	175	797
09:15:00	4	3	10	0	0	17	6	62	3	0	0	71	2	4	2	0	0	8	6	53	1	0	0	60	156	781
09:30:00	1	2	18	0	0	21	11	69	3	0	0	83	7	5	1	0	0	13	2	48	1	0	0	51	168	703
09:45:00	3	1	10	0	0	14	10	72	2	0	0	84	4	4	4	0	0	12	1	64	3	0	0	68	178	677
BREAK																										
16:00:00	6	7	35	0	0	48	17	83	4	0	0	104	5	2	0	0	0	7	4	81	6	0	0	91	250	
16:15:00	4	8	41	0	5	53	10	105	3	0	4	118	3	1	0	0	0	4	2	92	4	0	0	98	273	
16:30:00	4	6	22	0	0	32	14	93	4	0	0	111	3	3	2	0	0	8	2	78	6	0	0	86	237	
16:45:00	3	3	34	0	0	40	13	93	5	0	0	111	9	4	3	0	0	16	1	112	7	0	0	120	287	1047
17:00:00	2	6	40	0	0	48	10	83	4	0	0	97	6	2	0	0	0	8	2	89	8	0	0	99	252	1049
17:15:00	2	2	34	0	0	38	14	79	3	0	0	96	3	2	1	0	0	6	0	100	6	0	0	106	246	1022
17:30:00	2	6	29	0	0	37	9	88	1	0	0	98	4	3	0	0	0	7	1	87	6	0	0	94	236	1021
17:45:00	5	1	18	0	0	24	11	87	3	0	0	101	3	6	0	0	0	9	1	82	4	0	0	87	221	955
18:00:00	4	3	20	0	0	27	9	70	1	0	0	80	2	0	3	0	0	5	2	80	4	0	0	86	198	901
18:15:00	2	1	23	0	0	26	5	85	4	0	0	94	4	0	2	0	0	6	1	76	3	0	0	80	206	861
18:30:00	2	4	16	0	1	22	14	73	2	0	0	89	7	3	0	0	0	10	1	62	4	0	0	67	188	813
18:45:00	1	7	17	0	1	25	4	62	3	0	0	69	1	2	1	0	0	4	2	53	4	0	0	59	157	749
Grand Total	88	92	483	0	7	663	326	1917	70	0	7	2313	87	80	32	0	1	199	34	1545	90	0	0	1669	**4844**	-
Approach%	13.3%	13.9%	72.9%	0%		-	14.1%	82.9%	3%	0%		-	43.7%	40.2%	16.1%	0%		-	2%	92.6%	5.4%	0%		-	-	-
Totals %	1.8%	1.9%	10%	0%		13.7%	6.7%	39.6%	1.4%	0%		47.7%	1.8%	1.7%	0.7%	0%		4.1%	0.7%	31.9%	1.9%	0%		34.5%	-	-
Heavy	4	2	5	0		-	7	57	2	0		-	3	4	0	0		-	4	46	3	0		-	-	-
Heavy %	4.5%	2.2%	1%	0%		-	2.1%	3%	2.9%	0%		-	3.4%	5%	0%	0%		-	11.8%	3%	3.3%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (9.13 °C)**

Start Time	N Approach LINCOLN AVENUE						E Approach KING STREET						S Approach LINCOLN AVENUE						W Approach KING STREET						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	6	4	16	0	0	26	29	83	4	0	1	116	0	6	1	0	0	7	1	56	4	0	0	61	210
08:00:00	3	0	18	0	0	21	17	70	1	0	0	88	4	7	2	0	0	13	0	58	6	0	0	64	186
08:15:00	5	7	20	0	0	32	19	64	1	0	0	84	3	5	0	0	0	8	1	44	3	0	0	48	172
08:30:00	3	4	22	0	0	29	23	113	6	0	0	142	7	5	1	0	0	13	2	58	2	0	0	62	246
Grand Total	17	15	76	0	0	108	88	330	12	0	1	430	14	23	4	0	0	41	4	216	15	0	0	235	**814**
Approach%	15.7%	13.9%	70.4%	0%		-	20.5%	76.7%	2.8%	0%		-	34.1%	56.1%	9.8%	0%		-	1.7%	91.9%	6.4%	0%		-	**-**
Totals %	2.1%	1.8%	9.3%	0%		13.3%	10.8%	40.5%	1.5%	0%		52.8%	1.7%	2.8%	0.5%	0%		5%	0.5%	26.5%	1.8%	0%		28.9%	**-**
PHF	0.71	0.54	0.86	0		0.84	0.76	0.73	0.5	0		0.76	0.5	0.82	0.5	0		0.79	0.5	0.93	0.63	0		0.92	**-**
Heavy	2	0	1	0		3	1	14	0	0		15	1	2	0	0		3	1	14	2	0		17	**-**
Heavy %	11.8%	0%	1.3%	0%		2.8%	1.1%	4.2%	0%	0%		3.5%	7.1%	8.7%	0%	0%		7.3%	25%	6.5%	13.3%	0%		7.2%	**-**
Lights	15	15	75	0		105	87	315	12	0		414	13	20	4	0		37	3	202	13	0		218	**-**
Lights %	88.2%	100%	98.7%	0%		97.2%	98.9%	95.5%	100%	0%		96.3%	92.9%	87%	100%	0%		90.2%	75%	93.5%	86.7%	0%		92.8%	**-**
Single-Unit Trucks	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	1	4	0	0		5	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.4%	0%	0%	0%	0%		0%	25%	1.9%	0%	0%		2.1%	**-**
Buses	2	0	1	0		3	1	5	0	0		6	1	2	0	0		3	0	10	2	0		12	**-**
Buses %	11.8%	0%	1.3%	0%		2.8%	1.1%	1.5%	0%	0%		1.4%	7.1%	8.7%	0%	0%		7.3%	0%	4.6%	13.3%	0%		5.1%	**-**
Articulated Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	4.3%	0%	0%		2.4%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: KING STREET & LINCOLN AVENUE
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

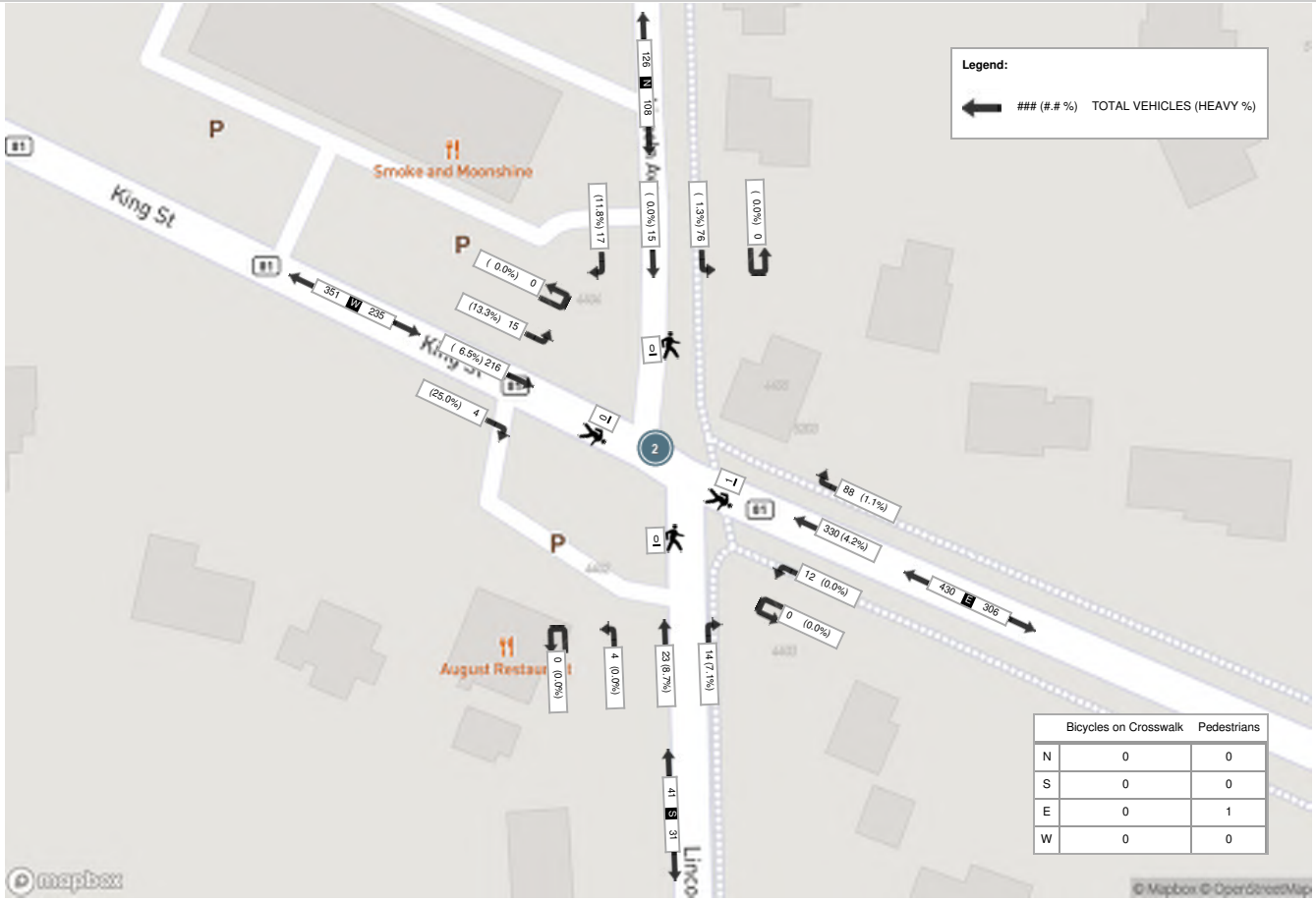
Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Clear Sky (12.99 °C)

Start Time	N Approach LINCOLN AVENUE						E Approach KING STREET						S Approach LINCOLN AVENUE						W Approach KING STREET						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	4	8	41	0	5	53	10	105	3	0	4	118	3	1	0	0	0	4	2	92	4	0	0	98	273
16:30:00	4	6	22	0	0	32	14	93	4	0	0	111	3	3	2	0	0	8	2	78	6	0	0	86	237
16:45:00	3	3	34	0	0	40	13	93	5	0	0	111	9	4	3	0	0	16	1	112	7	0	0	120	287
17:00:00	2	6	40	0	0	48	10	83	4	0	0	97	6	2	0	0	0	8	2	89	8	0	0	99	252
Grand Total	13	23	137	0	5	173	47	374	16	0	4	437	21	10	5	0	0	36	7	371	25	0	0	403	**1049**
Approach%	7.5%	13.3%	79.2%	0%		-	10.8%	85.6%	3.7%	0%		-	58.3%	27.8%	13.9%	0%		-	1.7%	92.1%	6.2%	0%		-	**-**
Totals %	1.2%	2.2%	13.1%	0%		16.5%	4.5%	35.7%	1.5%	0%		41.7%	2%	1%	0.5%	0%		3.4%	0.7%	35.4%	2.4%	0%		38.4%	**-**
PHF	0.81	0.72	0.84	0		0.82	0.84	0.89	0.8	0		0.93	0.58	0.63	0.42	0		0.56	0.88	0.83	0.78	0		0.84	**-**
Heavy	0	0	1	0		1	0	7	0	0		7	0	0	0	0		0	0	1	0	0		1	**-**
Heavy %	0%	0%	0.7%	0%		0.6%	0%	1.9%	0%	0%		1.6%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	**-**
Lights	13	23	136	0		172	47	366	16	0		429	21	10	5	0		36	7	370	25	0		402	**-**
Lights %	100%	100%	99.3%	0%		99.4%	100%	97.9%	100%	0%		98.2%	100%	100%	100%	0%		100%	100%	99.7%	100%	0%		99.8%	**-**
Single-Unit Trucks	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	0	1	0	0		1	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		0.9%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	**-**
Buses	0	0	1	0		1	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0.7%	0%		0.6%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	5	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	55.6%		-	-	-	-	44.4%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

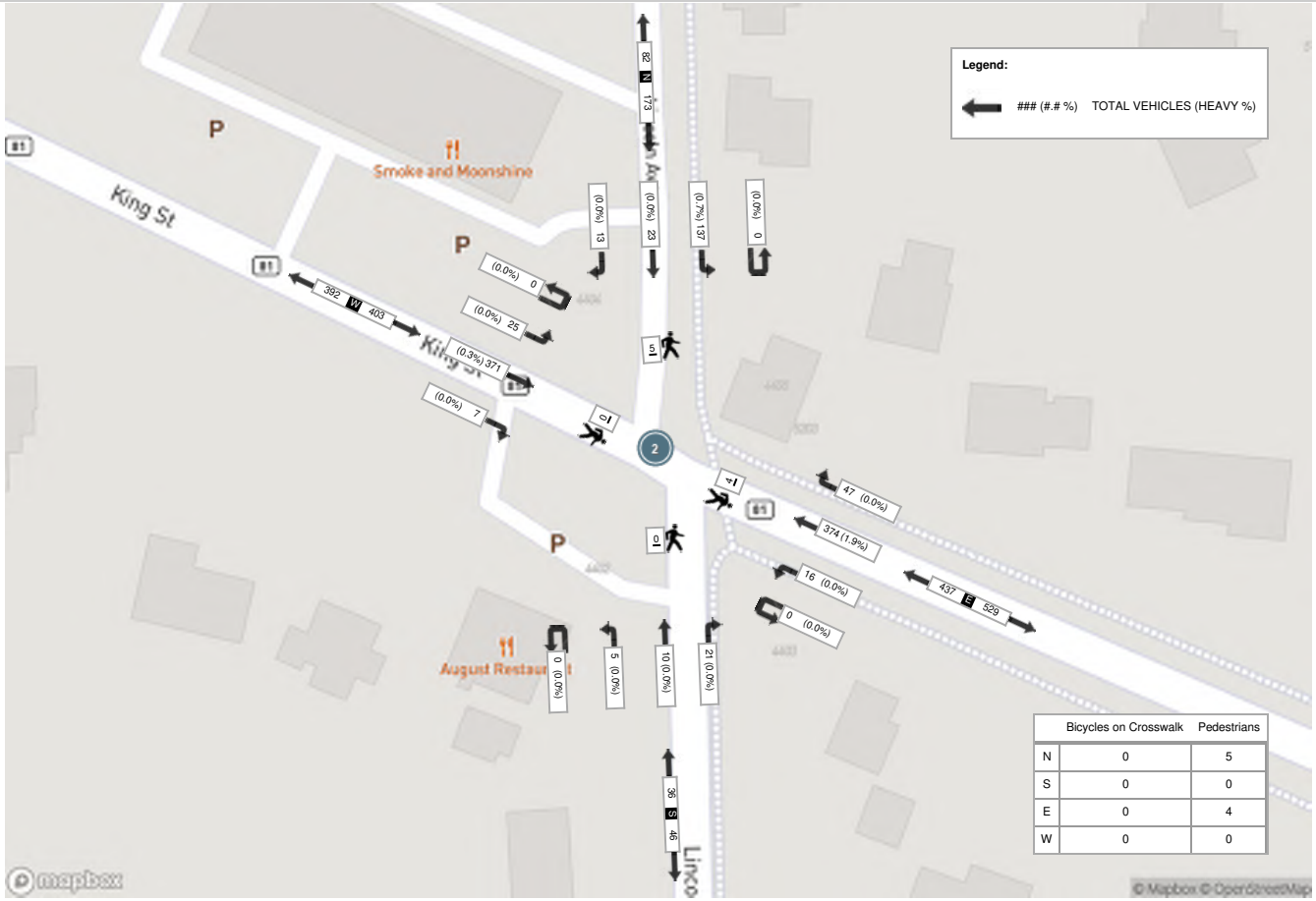
Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (9.13 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
E	0	1
W	0	0

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Clear Sky (12.99 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	5
S	0	0
E	0	4
W	0	0

Spectrum

Turning Movement Count
Location Name: KING STREET & MOUNTAINVIEW ROAD
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (5 . KING STREET & MOUNTAINVIEW ROAD)

Start Time	N Approach MOUNTAINVIEW ROAD						E Approach KING STREET						S Approach MOUNTAINVIEW ROAD						W Approach KING STREET						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	1	4	1	0	0	6	3	62	3	0	0	68	1	2	0	0	0	3	1	21	0	0	0	22	99	
07:15:00	3	4	1	0	0	8	4	64	0	0	0	68	1	6	3	0	0	10	2	20	3	0	0	25	111	
07:30:00	2	3	2	0	2	7	5	92	1	0	0	98	0	7	0	0	0	7	2	23	4	0	0	29	141	
07:45:00	2	8	6	0	0	16	8	64	2	0	0	74	1	6	1	0	0	8	1	51	3	0	0	55	153	504
08:00:00	1	6	1	0	0	8	8	73	2	0	0	83	2	5	1	0	0	8	0	58	2	0	0	60	159	564
08:15:00	0	4	2	0	0	6	1	68	4	0	0	73	4	0	0	0	0	4	1	45	5	0	0	51	134	587
08:30:00	1	4	4	0	0	9	11	96	0	0	0	107	2	6	1	0	0	9	2	56	4	0	0	62	187	633
08:45:00	5	9	4	0	0	18	10	77	4	0	0	91	2	5	1	0	0	8	2	50	4	0	0	56	173	653
09:00:00	2	5	3	0	1	10	5	69	1	0	0	75	1	3	1	0	0	5	2	55	3	0	0	60	150	644
09:15:00	1	6	4	0	0	11	8	67	1	0	0	76	0	2	1	0	0	3	0	56	2	0	0	58	148	658
09:30:00	2	5	4	0	0	11	1	64	1	0	0	66	5	3	2	0	0	10	2	41	1	0	0	44	131	602
09:45:00	1	4	4	0	0	9	3	67	3	0	0	73	7	7	0	0	0	14	3	58	1	0	0	62	158	587
BREAK																										
16:00:00	1	11	4	0	0	16	4	85	2	0	0	91	2	6	2	0	0	10	5	85	6	0	0	96	213	
16:15:00	4	9	9	0	0	22	3	106	5	0	0	114	2	7	3	0	0	12	5	85	3	0	0	93	241	
16:30:00	5	4	6	0	0	15	4	87	3	0	0	94	3	7	3	0	0	13	1	80	4	0	0	85	207	
16:45:00	4	8	10	0	0	22	6	93	3	0	0	102	7	9	5	0	0	21	1	99	4	0	0	104	249	910
17:00:00	1	8	11	0	0	20	1	91	3	0	0	95	5	10	6	0	0	21	3	82	6	0	0	91	227	924
17:15:00	1	9	7	0	0	17	3	72	3	0	0	78	6	6	2	0	0	14	2	92	5	0	0	99	208	891
17:30:00	1	5	4	0	0	10	1	87	2	0	0	90	2	3	5	0	0	10	4	86	6	0	0	96	206	890
17:45:00	2	3	4	0	0	9	2	82	2	0	0	86	0	4	2	0	0	6	0	81	1	0	0	82	183	824
18:00:00	5	5	7	0	0	17	3	74	1	0	0	78	0	3	1	0	0	4	0	71	2	0	0	73	172	769
18:15:00	2	7	5	0	0	14	6	77	3	0	0	86	3	5	0	0	0	8	1	72	3	0	0	76	184	745
18:30:00	2	1	4	0	0	7	4	71	3	0	0	78	2	2	2	0	0	6	1	59	1	0	0	61	152	691
18:45:00	0	1	2	0	0	3	3	61	2	0	0	66	1	3	1	0	0	5	2	59	0	0	0	61	135	643
Grand Total	49	133	109	0	3	291	107	1849	54	0	0	2010	59	117	43	0	0	219	43	1485	73	0	0	1601	**4121**	-
Approach%	16.8%	45.7%	37.5%	0%		-	5.3%	92%	2.7%	0%		-	26.9%	53.4%	19.6%	0%		-	2.7%	92.8%	4.6%	0%		-	-	-
Totals %	1.2%	3.2%	2.6%	0%		7.1%	2.6%	44.9%	1.3%	0%		48.8%	1.4%	2.8%	1%	0%		5.3%	1%	36%	1.8%	0%		38.8%	-	-
Heavy	3	4	3	0		-	12	44	3	0		-	2	4	5	0		-	5	49	9	0		-	-	-
Heavy %	6.1%	3%	2.8%	0%		-	11.2%	2.4%	5.6%	0%		-	3.4%	3.4%	11.6%	0%		-	11.6%	3.3%	12.3%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: KING STREET & MOUNTAINVIEW ROAD
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 08:30 AM - 09:30 AM **Weather: Broken Clouds (9.13 °C)**

Start Time	N Approach MOUNTAINVIEW ROAD						E Approach KING STREET						S Approach MOUNTAINVIEW ROAD						W Approach KING STREET						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:30:00	1	4	4	0	0	9	11	96	0	0	0	107	2	6	1	0	0	9	2	56	4	0	0	62	187
08:45:00	5	9	4	0	0	18	10	77	4	0	0	91	2	5	1	0	0	8	2	50	4	0	0	56	173
09:00:00	2	5	3	0	1	10	5	69	1	0	0	75	1	3	1	0	0	5	2	55	3	0	0	60	150
09:15:00	1	6	4	0	0	11	8	67	1	0	0	76	0	2	1	0	0	3	0	56	2	0	0	58	148
Grand Total	9	24	15	0	1	48	34	309	6	0	0	349	5	16	4	0	0	25	6	217	13	0	0	236	**658**
Approach%	18.8%	50%	31.3%	0%		-	9.7%	88.5%	1.7%	0%		-	20%	64%	16%	0%		-	2.5%	91.9%	5.5%	0%		-	**-**
Totals %	1.4%	3.6%	2.3%	0%		7.3%	5.2%	47%	0.9%	0%		53%	0.8%	2.4%	0.6%	0%		3.8%	0.9%	33%	2%	0%		35.9%	**-**
PHF	0.45	0.67	0.94	0		0.67	0.77	0.8	0.38	0		0.82	0.63	0.67	1	0		0.69	0.75	0.97	0.81	0		0.95	**-**
Heavy	2	0	0	0		2	4	13	0	0		17	0	1	2	0		3	1	14	5	0		20	**-**
Heavy %	22.2%	0%	0%	0%		4.2%	11.8%	4.2%	0%	0%		4.9%	0%	6.3%	50%	0%		12%	16.7%	6.5%	38.5%	0%		8.5%	**-**
Lights	7	24	15	0		46	30	296	6	0		332	5	15	2	0		22	5	203	8	0		216	**-**
Lights %	77.8%	100%	100%	0%		95.8%	88.2%	95.8%	100%	0%		95.1%	100%	93.8%	50%	0%		88%	83.3%	93.5%	61.5%	0%		91.5%	**-**
Single-Unit Trucks	0	0	0	0		0	4	5	0	0		9	0	1	0	0		1	1	3	3	0		7	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	11.8%	1.6%	0%	0%		2.6%	0%	6.3%	0%	0%		4%	16.7%	1.4%	23.1%	0%		3%	**-**
Buses	2	0	0	0		2	0	6	0	0		6	0	0	1	0		1	0	11	1	0		12	**-**
Buses %	22.2%	0%	0%	0%		4.2%	0%	1.9%	0%	0%		1.7%	0%	0%	25%	0%		4%	0%	5.1%	7.7%	0%		5.1%	**-**
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	1	0		1	0	0	1	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	25%	0%		4%	0%	0%	7.7%	0%		0.4%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

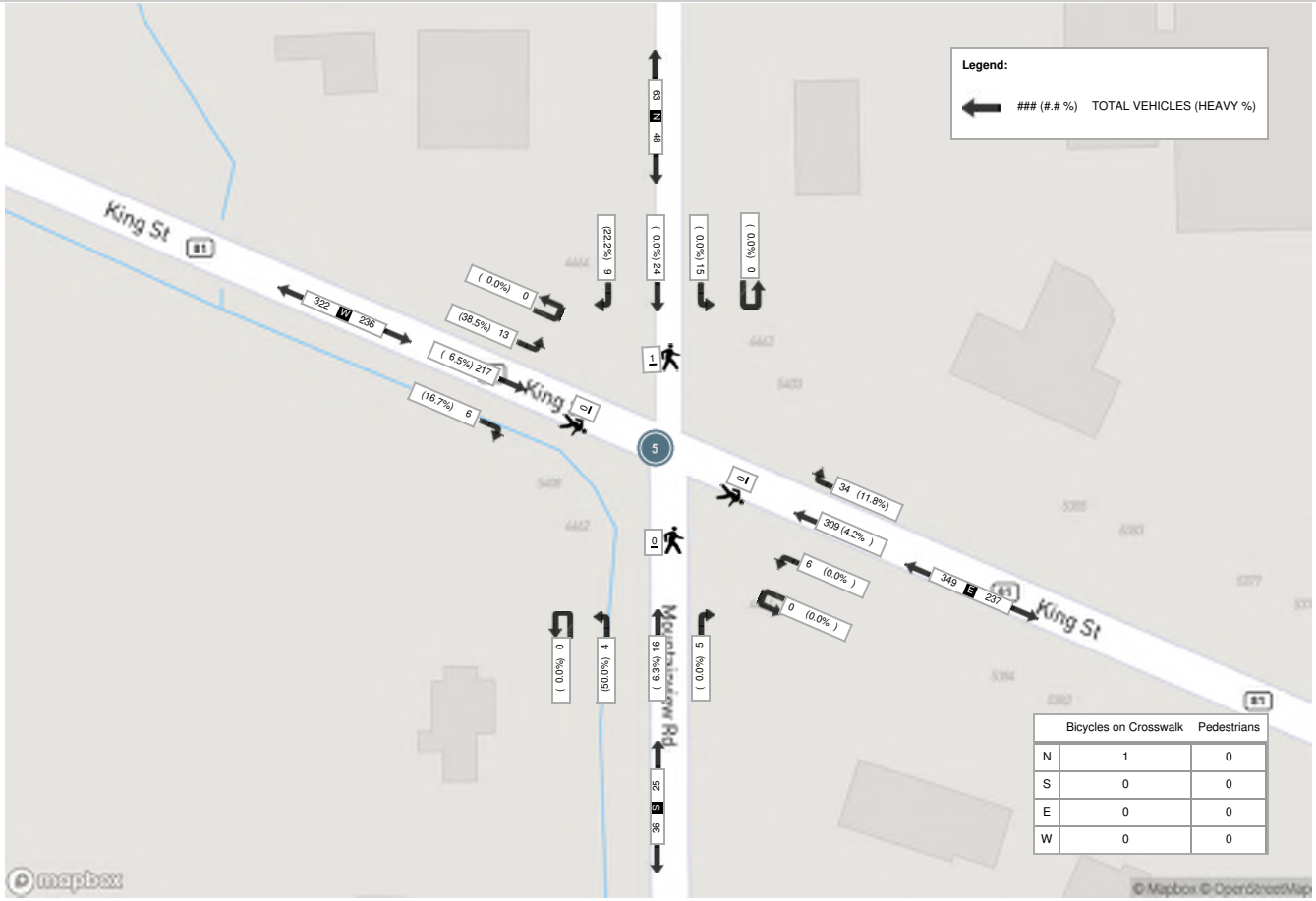
Turning Movement Count
Location Name: KING STREET & MOUNTAINVIEW ROAD
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Clear Sky (12.99 °C)

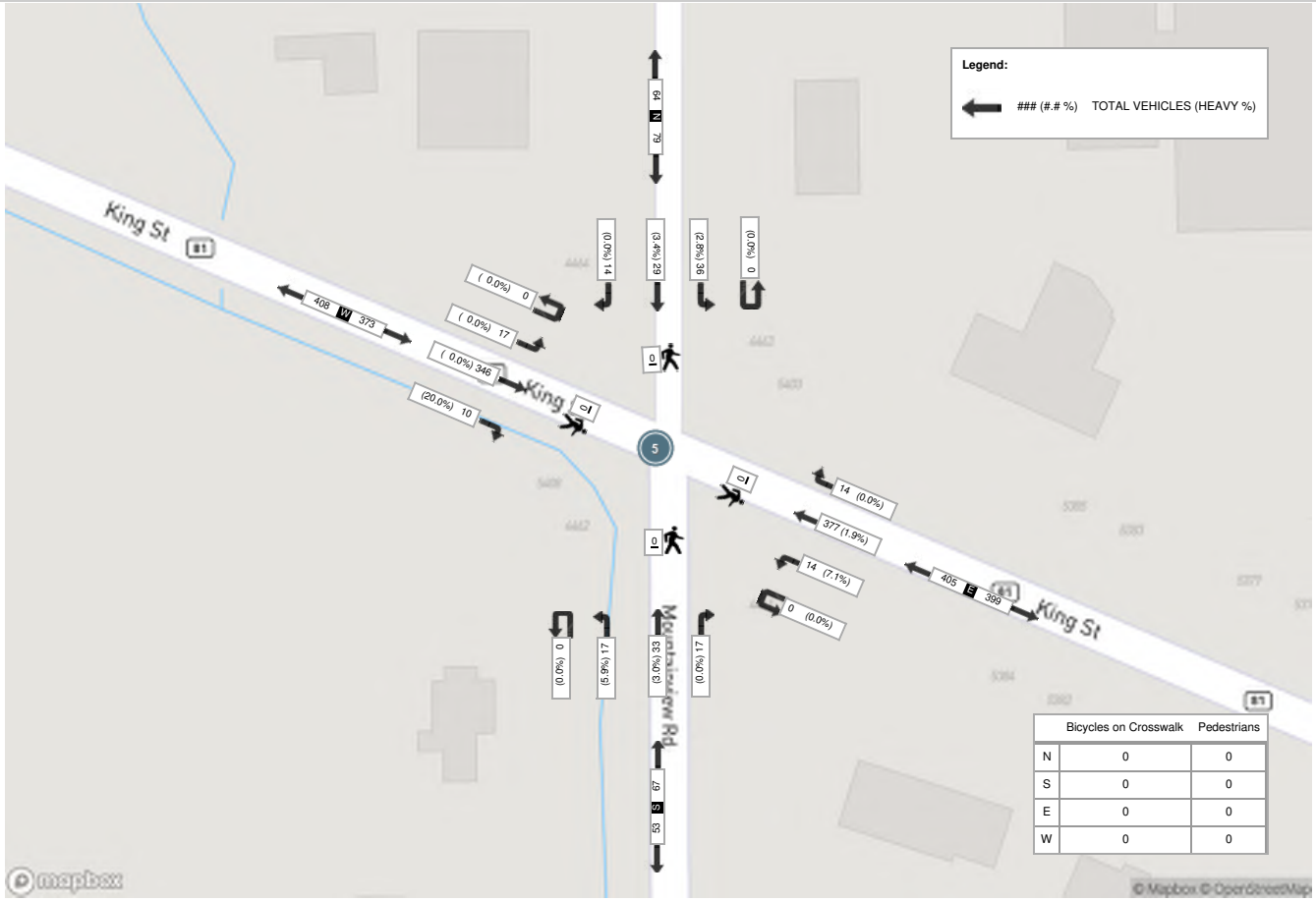
Start Time	N Approach MOUNTAINVIEW ROAD						E Approach KING STREET						S Approach MOUNTAINVIEW ROAD						W Approach KING STREET						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	4	9	9	0	0	22	3	106	5	0	0	114	2	7	3	0	0	12	5	85	3	0	0	93	241
16:30:00	5	4	6	0	0	15	4	87	3	0	0	94	3	7	3	0	0	13	1	80	4	0	0	85	207
16:45:00	4	8	10	0	0	22	6	93	3	0	0	102	7	9	5	0	0	21	1	99	4	0	0	104	249
17:00:00	1	8	11	0	0	20	1	91	3	0	0	95	5	10	6	0	0	21	3	82	6	0	0	91	227
Grand Total	14	29	36	0	0	79	14	377	14	0	0	405	17	33	17	0	0	67	10	346	17	0	0	373	**924**
Approach%	17.7%	36.7%	45.6%	0%		-	3.5%	93.1%	3.5%	0%		-	25.4%	49.3%	25.4%	0%		-	2.7%	92.8%	4.6%	0%		-	**-**
Totals %	1.5%	3.1%	3.9%	0%		8.5%	1.5%	40.8%	1.5%	0%		43.8%	1.8%	3.6%	1.8%	0%		7.3%	1.1%	37.4%	1.8%	0%		40.4%	**-**
PHF	0.7	0.81	0.82	0		0.9	0.58	0.89	0.7	0		0.89	0.61	0.83	0.71	0		0.8	0.5	0.87	0.71	0		0.9	**-**
Heavy	0	1	1	0		2	0	7	1	0		8	0	1	1	0		2	2	0	0	0		2	**-**
Heavy %	0%	3.4%	2.8%	0%		2.5%	0%	1.9%	7.1%	0%		2%	0%	3%	5.9%	0%		3%	20%	0%	0%	0%		0.5%	**-**
Lights	14	28	35	0		77	14	369	13	0		396	17	32	16	0		65	8	346	17	0		371	**-**
Lights %	100%	96.6%	97.2%	0%		97.5%	100%	97.9%	92.9%	0%		97.8%	100%	97%	94.1%	0%		97%	80%	100%	100%	0%		99.5%	**-**
Single-Unit Trucks	0	0	1	0		1	0	4	1	0		5	0	0	1	0		1	2	0	0	0		2	**-**
Single-Unit Trucks %	0%	0%	2.8%	0%		1.3%	0%	1.1%	7.1%	0%		1.2%	0%	0%	5.9%	0%		1.5%	20%	0%	0%	0%		0.5%	**-**
Buses	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	1	0	0		1	0	1	0	0		1	0	1	0	0		1	0	0	0	0		0	**-**
Articulated Trucks %	0%	3.4%	0%	0%		1.3%	0%	0.3%	0%	0%		0.2%	0%	3%	0%	0%		1.5%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:30 AM - 09:30 AM **Weather: Broken Clouds (9.13 °C)**



Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Clear Sky (12.99 °C)



Spectrum

Turning Movement Count
Location Name: KING STREET & ONTARIO STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (6 . KING STREET & ONTARIO STREET)

Start Time	N Approach ONTARIO ST						E Approach KING ST						S Approach ONTARIO ST						W Approach KING ST						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	30	0	22	0	1	52	36	29	0	0	0	65	0	0	0	0	3	0	0	14	14	1	0	29	146	
07:15:00	26	0	35	0	0	61	50	28	0	0	0	78	0	0	0	0	0	0	0	23	19	0	0	42	181	
07:30:00	37	0	26	0	0	63	30	46	0	0	1	76	0	0	0	0	4	0	0	16	12	0	0	28	167	
07:45:00	39	0	30	0	3	69	45	41	0	0	1	86	0	0	0	0	0	0	0	32	26	0	0	58	213	707
08:00:00	28	0	32	0	2	60	35	42	0	0	1	77	0	0	0	0	5	0	0	30	20	0	1	50	187	748
08:15:00	44	0	52	0	5	96	35	73	0	0	0	108	0	0	1	0	10	1	0	46	28	0	0	74	279	846
08:30:00	41	0	66	0	2	107	56	68	0	0	0	124	0	0	0	0	3	0	0	47	42	0	1	89	320	999
08:45:00	36	0	55	0	1	91	69	52	0	0	0	121	0	0	0	0	2	0	0	44	29	0	0	73	285	1071
09:00:00	34	0	42	0	0	76	41	50	0	0	1	91	0	0	0	0	1	0	0	45	21	0	1	66	233	1117
09:15:00	29	0	33	0	0	62	40	57	0	0	1	97	0	0	0	0	5	0	0	44	27	0	0	71	230	1068
09:30:00	40	0	33	0	5	73	41	52	0	0	1	93	0	0	1	0	0	1	1	40	25	0	1	66	233	981
09:45:00	40	0	57	0	2	97	43	39	0	0	0	82	1	0	0	0	0	1	0	50	35	0	2	85	265	961
BREAK																										
16:00:00	56	0	64	0	4	120	51	67	1	0	0	119	0	1	0	0	3	1	0	55	40	0	1	95	335	
16:15:00	59	0	45	0	0	104	42	74	1	0	0	117	0	0	0	0	0	0	0	58	46	0	5	104	325	
16:30:00	62	0	55	0	3	117	58	60	0	0	1	118	0	0	1	0	7	1	0	61	41	0	9	102	338	
16:45:00	67	0	51	0	3	118	61	55	0	0	0	116	0	0	0	0	3	0	0	66	41	0	0	107	341	1339
17:00:00	49	0	62	0	4	111	58	60	0	0	0	118	0	0	0	0	3	0	0	62	48	0	0	110	339	1343
17:15:00	66	1	69	0	5	136	52	64	0	0	2	116	0	0	0	0	1	0	0	56	36	0	0	92	344	1362
17:30:00	69	0	74	0	2	143	66	59	0	0	2	125	0	0	0	0	5	0	0	61	58	0	2	119	387	1411
17:45:00	59	0	64	0	2	123	69	72	0	0	0	141	0	0	0	0	3	0	1	53	42	0	3	96	360	1430
18:00:00	65	0	79	0	2	144	61	49	0	0	10	110	0	0	0	0	10	0	0	41	45	0	0	86	340	1431
18:15:00	60	0	72	0	3	132	71	46	0	0	3	117	0	0	0	0	6	0	0	41	47	0	2	88	337	1424
18:30:00	80	0	79	0	8	159	47	49	0	0	2	96	0	0	0	0	8	0	0	38	37	0	3	75	330	1367
18:45:00	56	0	53	0	3	109	48	46	0	0	3	94	0	0	0	0	5	0	0	34	40	0	3	74	277	1284
Grand Total	1172	1	1250	0	60	2423	1205	1278	2	0	29	2485	1	1	3	0	87	5	2	1057	819	1	34	1879	**6792**	-
Approach%	48.4%	0%	51.6%	0%		-	48.5%	51.4%	0.1%	0%		-	20%	20%	60%	0%		-	0.1%	56.3%	43.6%	0.1%		-	**-**	-
Totals %	17.3%	0%	18.4%	0%		35.7%	17.7%	18.8%	0%	0%		36.6%	0%	0%	0%	0%		0.1%	0%	15.6%	12.1%	0%		27.7%	**-**	-
Heavy	14	0	29	0		-	47	57	0	0		-	0	0	0	0		-	0	35	19	1		-	**-**	-
Heavy %	1.2%	0%	2.3%	0%		-	3.9%	4.5%	0%	0%		-	0%	0%	0%	0%		-	0%	3.3%	2.3%	100%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: KING STREET & ONTARIO STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Broken Clouds (9.13 °C)

Start Time	N Approach ONTARIO ST						E Approach KING ST						S Approach ONTARIO ST						W Approach KING ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	44	0	52	0	5	96	35	73	0	0	0	108	0	0	1	0	10	1	0	46	28	0	0	74	279
08:30:00	41	0	66	0	2	107	56	68	0	0	0	124	0	0	0	0	3	0	0	47	42	0	1	89	320
08:45:00	36	0	55	0	1	91	69	52	0	0	0	121	0	0	0	0	2	0	0	44	29	0	0	73	285
09:00:00	34	0	42	0	0	76	41	50	0	0	1	91	0	0	0	0	1	0	0	45	21	0	1	66	233
Grand Total	155	0	215	0	8	370	201	243	0	0	1	444	0	0	1	0	16	1	0	182	120	0	2	302	**1117**
Approach%	41.9%	0%	58.1%	0%		-	45.3%	54.7%	0%	0%		-	0%	0%	100%	0%		-	0%	60.3%	39.7%	0%		-	**-**
Totals %	13.9%	0%	19.2%	0%		33.1%	18%	21.8%	0%	0%		39.7%	0%	0%	0.1%	0%		0.1%	0%	16.3%	10.7%	0%		27%	**-**
PHF	0.88	0	0.81	0		0.86	0.73	0.83	0	0		0.9	0	0	0.25	0		0.25	0	0.97	0.71	0		0.85	**-**
Heavy	1	0	10	0		11	6	24	0	0		30	0	0	0	0		0	0	3	6	0		9	**-**
Heavy %	0.6%	0%	4.7%	0%		3%	3%	9.9%	0%	0%		6.8%	0%	0%	0%	0%		0%	0%	1.6%	5%	0%		3%	**-**
Lights	153	0	205	0		358	195	218	0	0		413	0	0	1	0		1	0	179	114	0		293	**-**
Lights %	98.7%	0%	95.3%	0%		96.8%	97%	89.7%	0%	0%		93%	0%	0%	100%	0%		100%	0%	98.4%	95%	0%		97%	**-**
Single-Unit Trucks	0	0	6	0		6	4	10	0	0		14	0	0	0	0		0	0	1	2	0		3	**-**
Single-Unit Trucks %	0%	0%	2.8%	0%		1.6%	2%	4.1%	0%	0%		3.2%	0%	0%	0%	0%		0%	0%	0.5%	1.7%	0%		1%	**-**
Buses	1	0	1	0		2	0	11	0	0		11	0	0	0	0		0	0	2	4	0		6	**-**
Buses %	0.6%	0%	0.5%	0%		0.5%	0%	4.5%	0%	0%		2.5%	0%	0%	0%	0%		0%	0%	1.1%	3.3%	0%		2%	**-**
Articulated Trucks	0	0	3	0		3	2	3	0	0		5	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	1.4%	0%		0.8%	1%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	1	0	0	0		1	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0.6%	0%	0%	0%		0.3%	0%	0.4%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	8	-	-	-	-	-	1	-	-	-	-	-	16	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	29.6%		-	-	-	-	3.7%		-	-	-	-	59.3%		-	-	-	-	3.7%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	3.7%		**-**

Spectrum

Turning Movement Count
Location Name: KING STREET & ONTARIO STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

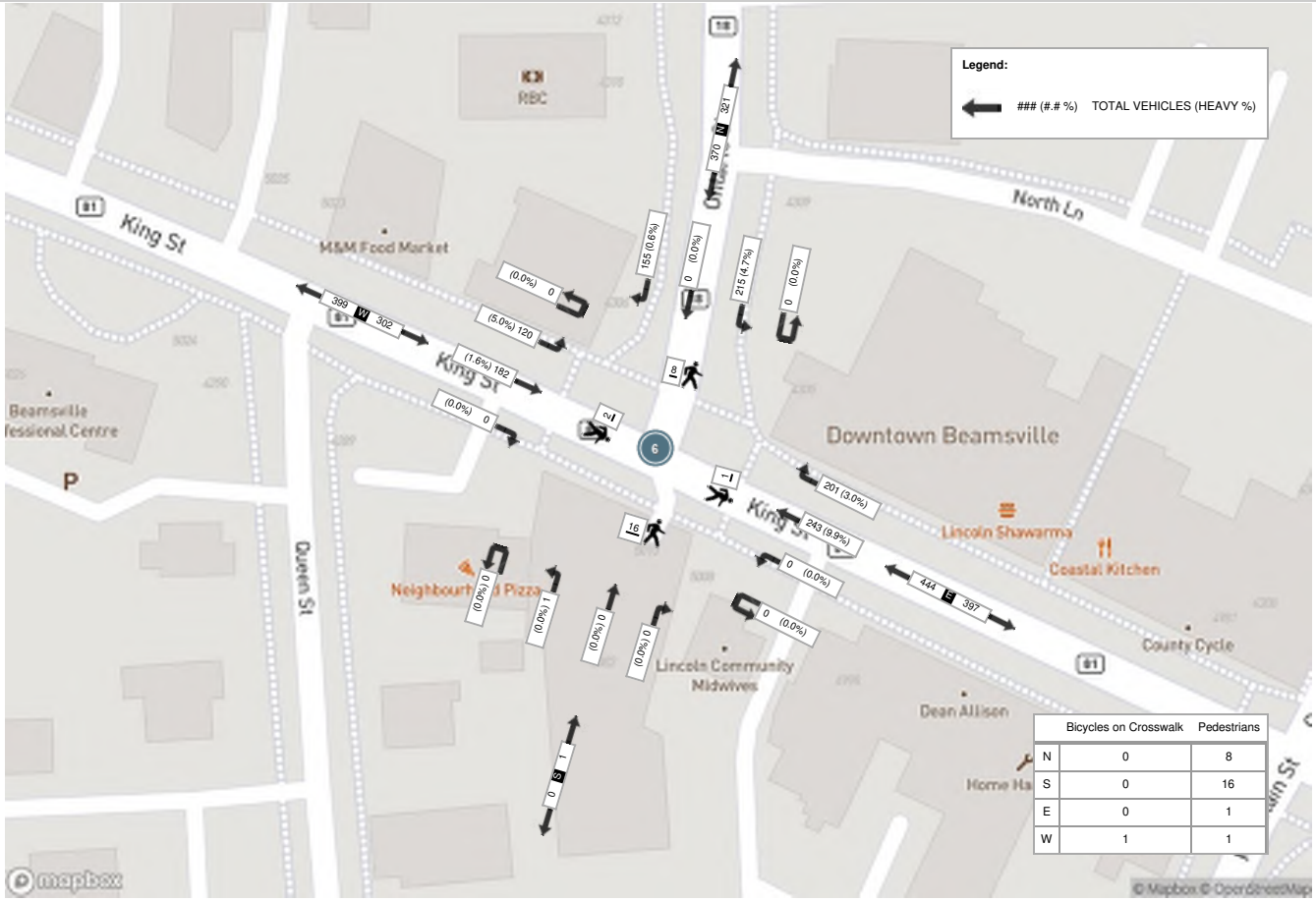
Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Clear Sky (12.99 °C)

Start Time	N Approach ONTARIO ST						E Approach KING ST						S Approach ONTARIO ST						W Approach KING ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:15:00	66	1	69	0	5	136	52	64	0	0	2	116	0	0	0	0	1	0	0	56	36	0	0	92	344
17:30:00	69	0	74	0	2	143	66	59	0	0	2	125	0	0	0	0	5	0	0	61	58	0	2	119	387
17:45:00	59	0	64	0	2	123	69	72	0	0	0	141	0	0	0	0	3	0	1	53	42	0	3	96	360
18:00:00	65	0	79	0	2	144	61	49	0	0	10	110	0	0	0	0	10	0	0	41	45	0	0	86	340
Grand Total	259	1	286	0	11	546	248	244	0	0	14	492	0	0	0	0	19	0	1	211	181	0	5	393	**1431**
Approach%	47.4%	0.2%	52.4%	0%		-	50.4%	49.6%	0%	0%		-	0%	0%	0%	0%		-	0.3%	53.7%	46.1%	0%		-	**-**
Totals %	18.1%	0.1%	20%	0%		38.2%	17.3%	17.1%	0%	0%		34.4%	0%	0%	0%	0%		0%	0.1%	14.7%	12.6%	0%		27.5%	**-**
PHF	0.94	0.25	0.91	0		0.95	0.9	0.85	0	0		0.87	0	0	0	0		0	0.25	0.86	0.78	0		0.83	**-**
Heavy	0	0	0	0		0	4	2	0	0		6	0	0	0	0		0	0	2	2	0		4	**-**
Heavy %	0%	0%	0%	0%		0%	1.6%	0.8%	0%	0%		1.2%	0%	0%	0%	0%		0%	0%	0.9%	1.1%	0%		1%	**-**
Lights	259	1	286	0		546	242	242	0	0		484	0	0	0	0		0	1	209	179	0		389	**-**
Lights %	100%	100%	100%	0%		100%	97.6%	99.2%	0%	0%		98.4%	0%	0%	0%	0%		0%	100%	99.1%	98.9%	0%		99%	**-**
Single-Unit Trucks	0	0	0	0		0	2	2	0	0		4	0	0	0	0		0	0	2	2	0		4	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0.8%	0.8%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.9%	1.1%	0%		1%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	2	0	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0.8%	0%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	2	0	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0.8%	0%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	9	-	-	-	-	-	14	-	-	-	-	-	19	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	18.4%		-	-	-	-	28.6%		-	-	-	-	38.8%		-	-	-	-	8.2%		**-**
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	4.1%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	2%		**-**

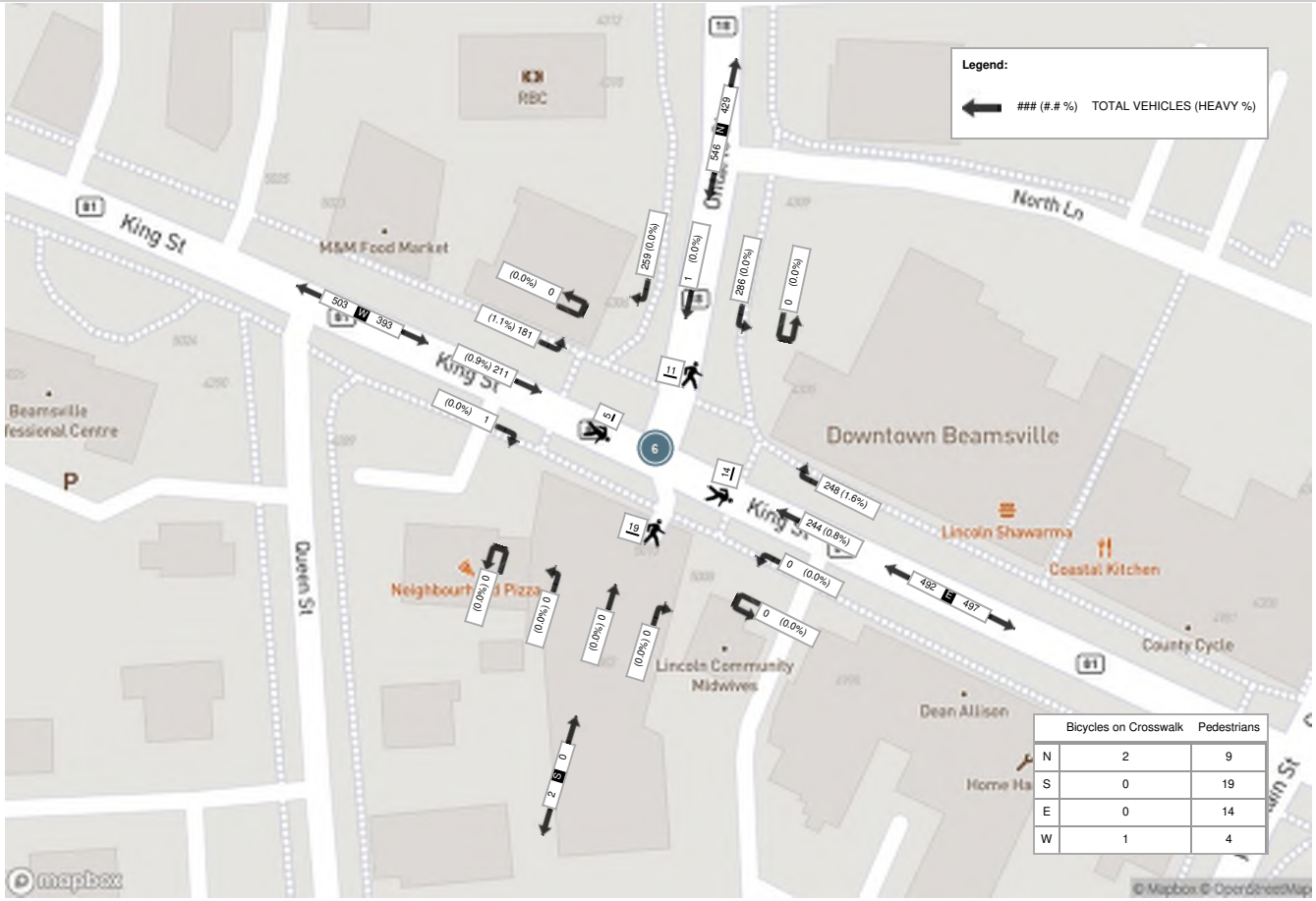
Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 08:15 AM - 09:15 AM **Weather: Broken Clouds (9.13 °C)**



Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 05:15 PM - 06:15 PM Weather: Clear Sky (12.99 °C)



Spectrum

Turning Movement Count
Location Name: LINCOLN AVE & 5205 KING STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (3 . LINCOLN AVE & 5205 KING STREET)

Start Time	N Approach LINCOLN AVE						S Approach LINCOLN AVE						W Approach 5205 KING STREET SOUTH ACCESS						NW Approach 5205 KING STREET NORTH ACCESS						Int. Total (15 min)	Int. Total (1 hr)
	Hard Right N:NW	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Bear Left S:NW	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	Hard Left W:NW	UTurn W:W	Peds W:	Approach Total	Hard Right NW:W	Bear Right NW:S	Hard Left NW:N	UTurn NW:NW	Peds NW:	Approach Total		
07:00:00	0	0	11	0	0	11	16	0	0	0	0	16	0	1	0	0	0	1	0	0	0	0	0	0	28	
07:15:00	0	1	13	0	0	14	18	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	32	
07:30:00	0	2	18	0	0	20	32	0	0	0	1	32	0	0	0	0	0	0	0	0	0	0	0	0	52	
07:45:00	0	0	26	0	0	26	40	0	0	0	0	40	0	3	0	0	0	3	0	0	0	0	0	0	69	181
08:00:00	0	2	23	0	0	25	29	0	1	0	2	30	0	0	0	0	0	0	1	0	0	0	0	1	56	209
08:15:00	0	1	31	0	0	32	27	0	0	0	1	27	0	1	0	0	0	1	0	0	0	0	0	0	60	237
08:30:00	0	2	29	0	0	31	31	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	62	247
08:45:00	0	1	23	0	0	24	23	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	47	225
09:00:00	0	0	19	0	0	19	15	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	34	203
09:15:00	0	1	17	0	0	18	11	0	0	0	0	11	0	1	0	0	0	1	0	0	0	0	0	0	30	173
09:30:00	0	0	22	0	0	22	17	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	39	150
09:45:00	0	0	14	0	0	14	16	1	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	31	134
BREAK																										
16:00:00	0	2	50	0	0	52	25	0	0	0	0	25	0	1	0	0	0	1	0	0	0	0	0	0	78	
16:15:00	0	1	53	0	0	54	14	0	1	0	2	15	0	3	0	0	0	3	0	0	0	0	0	0	72	
16:30:00	0	2	31	0	0	33	23	0	0	0	1	23	0	2	0	0	0	2	0	0	0	0	0	0	58	
16:45:00	1	2	42	0	0	45	23	0	1	0	0	24	1	2	0	0	0	3	0	0	0	0	0	0	72	280
17:00:00	1	0	46	0	0	47	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	67	269
17:15:00	1	2	35	0	0	38	20	2	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	60	257
17:30:00	1	0	39	0	0	40	18	0	0	0	0	18	0	1	0	0	0	1	0	0	0	0	0	0	59	258
17:45:00	0	0	24	0	0	24	18	3	0	0	0	21	0	1	0	0	0	1	0	0	0	0	0	0	46	232
18:00:00	0	0	27	0	0	27	13	0	0	0	1	13	0	0	0	0	0	0	0	0	0	0	0	0	40	205
18:15:00	0	1	27	0	0	28	8	0	0	0	0	8	0	2	0	0	0	2	0	0	0	0	0	0	38	183
18:30:00	1	0	20	0	7	21	17	4	0	0	0	21	0	1	0	0	1	1	0	0	0	0	7	0	43	167
18:45:00	0	0	24	0	0	24	10	0	0	0	0	10	0	1	0	0	0	1	0	0	0	0	0	0	35	156
Grand Total	5	20	664	0	7	689	484	10	3	0	8	497	1	20	0	0	1	21	1	0	0	0	7	1	**1208**	-
Approach%	0.7%	2.9%	96.4%	0%		-	97.4%	2%	0.6%	0%		-	4.8%	95.2%	0%	0%		-	100%	0%	0%	0%		-	**-**	-
Totals %	0.4%	1.7%	55%	0%		57%	40.1%	0.8%	0.2%	0%		41.1%	0.1%	1.7%	0%	0%		1.7%	0.1%	0%	0%	0%		0.1%	**-**	-
Heavy	0	0	12	0		-	14	0	0	0		-	0	1	0	0		-	0	0	0	0		-	**-**	-
Heavy %	0%	0%	1.8%	0%		-	2.9%	0%	0%	0%		-	0%	5%	0%	0%		-	0%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: LINCOLN AVE & 5205 KING STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (9.13 °C)**

Start Time	N Approach LINCOLN AVE						S Approach LINCOLN AVE						W Approach 5205 KING STREET SOUTH ACCESS						NW Approach 5205 KING STREET NORTH ACCESS						Int. Total (15 min)
	Hard Right	Right	Thru	UTurn	Peds	Approach Total	Thru	Bear Left	Left	UTurn	Peds	Approach Total	Right	Left	Hard Left	UTurn	Peds	Approach Total	Hard Right	Bear Right	Hard Left	UTurn	Peds	Approach Total	
07:45:00	0	0	26	0	0	26	40	0	0	0	0	40	0	3	0	0	0	3	0	0	0	0	0	0	69
08:00:00	0	2	23	0	0	25	29	0	1	0	2	30	0	0	0	0	0	0	1	0	0	0	0	1	56
08:15:00	0	1	31	0	0	32	27	0	0	0	1	27	0	1	0	0	0	1	0	0	0	0	0	0	60
08:30:00	0	2	29	0	0	31	31	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	62
Grand Total	0	5	109	0	0	114	127	0	1	0	3	128	0	4	0	0	0	4	1	0	0	0	0	1	**247**
Approach%	0%	4.4%	95.6%	0%		-	99.2%	0%	0.8%	0%		-	0%	100%	0%	0%		-	100%	0%	0%	0%		-	**-**
Totals %	0%	2%	44.1%	0%		46.2%	51.4%	0%	0.4%	0%		51.8%	0%	1.6%	0%	0%		1.6%	0.4%	0%	0%	0%		0.4%	**-**
PHF	0	0.63	0.88	0		0.89	0.79	0	0.25	0		0.8	0	0.33	0	0		0.33	0.25	0	0	0		0.25	**-**
Heavy	0	0	3	0		3	5	0	0	0		5	0	0	0	0		0	0	0	0	0		0	**-**
Heavy %	0%	0%	2.8%	0%		2.6%	3.9%	0%	0%	0%		3.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Lights	0	5	106	0		111	121	0	1	0		122	0	4	0	0		4	1	0	0	0		1	**-**
Lights %	0%	100%	97.2%	0%		97.4%	95.3%	0%	100%	0%		95.3%	0%	100%	0%	0%		100%	100%	0%	0%	0%		100%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	0	3	0		3	5	0	0	0		5	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	2.8%	0%		2.6%	3.9%	0%	0%	0%		3.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0.8%	0%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: LINCOLN AVE & 5205 KING STREET
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

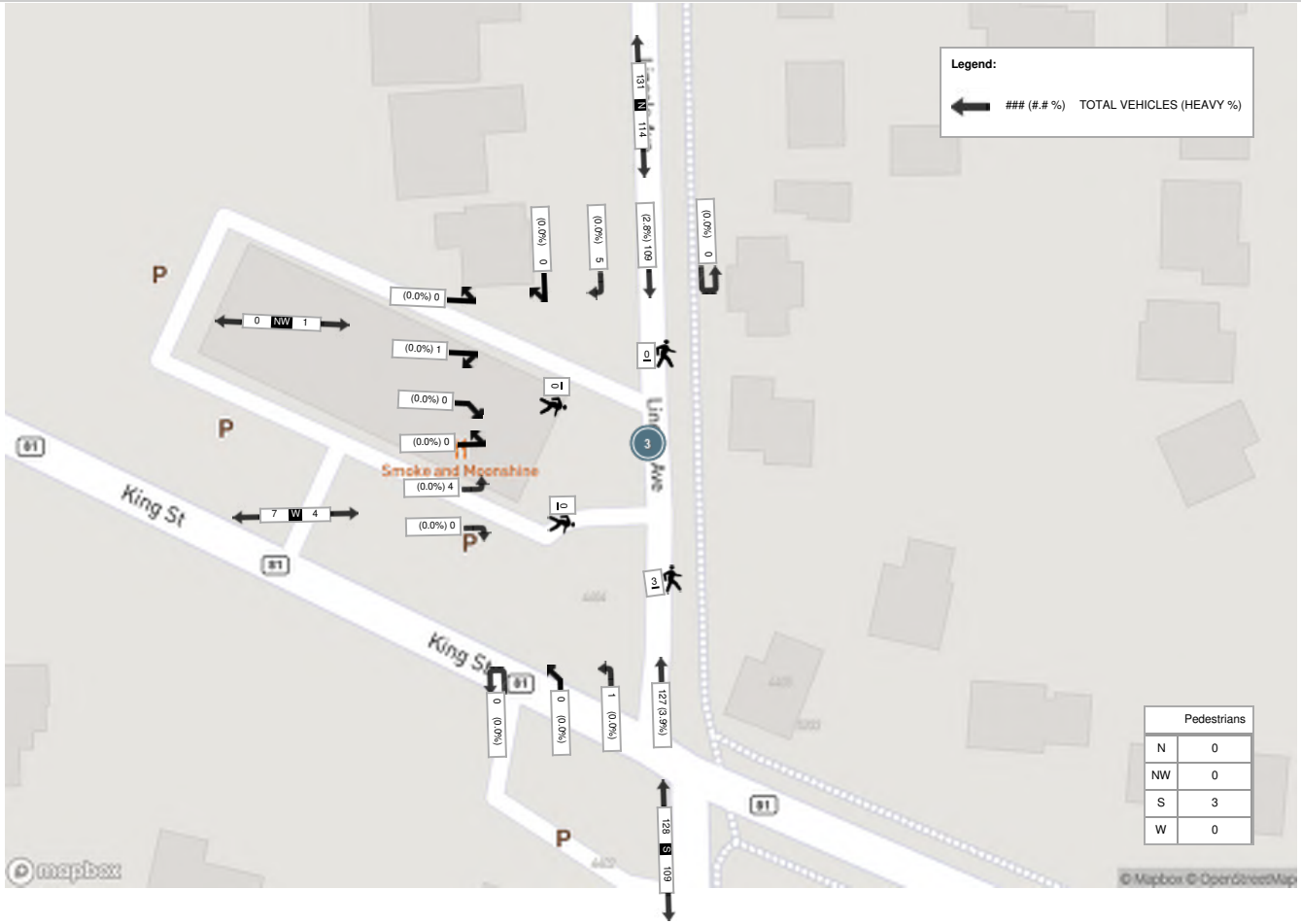
Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (12.99 °C)

Start Time	N Approach LINCOLN AVE						S Approach LINCOLN AVE						W Approach 5205 KING STREET SOUTH ACCESS						NW Approach 5205 KING STREET NORTH ACCESS						Int. Total (15 min)
	Hard Right	Right	Thru	UTurn	Peds	Approach Total	Thru	Bear Left	Left	UTurn	Peds	Approach Total	Right	Left	Hard Left	UTurn	Peds	Approach Total	Hard Right	Bear Right	Hard Left	UTurn	Peds	Approach Total	
16:00:00	0	2	50	0	0	52	25	0	0	0	0	25	0	1	0	0	0	1	0	0	0	0	0	0	78
16:15:00	0	1	53	0	0	54	14	0	1	0	2	15	0	3	0	0	0	3	0	0	0	0	0	0	72
16:30:00	0	2	31	0	0	33	23	0	0	0	1	23	0	2	0	0	0	2	0	0	0	0	0	0	58
16:45:00	1	2	42	0	0	45	23	0	1	0	0	24	1	2	0	0	0	3	0	0	0	0	0	0	72
Grand Total	1	7	176	0	0	184	85	0	2	0	3	87	1	8	0	0	0	9	0	0	0	0	0	0	**280**
Approach%	0.5%	3.8%	95.7%	0%		-	97.7%	0%	2.3%	0%		-	11.1%	88.9%	0%	0%		-	0%	0%	0%	0%		-	**-**
Totals %	0.4%	2.5%	62.9%	0%		65.7%	30.4%	0%	0.7%	0%		31.1%	0.4%	2.9%	0%	0%		3.2%	0%	0%	0%	0%		0%	**-**
PHF	0.25	0.88	0.83	0		0.85	0.85	0	0.5	0		0.87	0.25	0.67	0	0		0.75	0	0	0	0		0	**-**
Heavy	0	0	5	0		5	2	0	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Heavy %	0%	0%	2.8%	0%		2.7%	2.4%	0%	0%	0%		2.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Lights	1	7	171	0		179	83	0	2	0		85	1	7	0	0		8	0	0	0	0		0	**-**
Lights %	100%	100%	97.2%	0%		97.3%	97.6%	0%	100%	0%		97.7%	100%	87.5%	0%	0%		88.9%	0%	0%	0%	0%		0%	**-**
Single-Unit Trucks	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0.6%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	0	4	0		4	2	0	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	2.3%	0%		2.2%	2.4%	0%	0%	0%		2.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	12.5%	0%	0%		11.1%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	100%		-	-	-	-	0%		-	-	-	-	0%		**-**

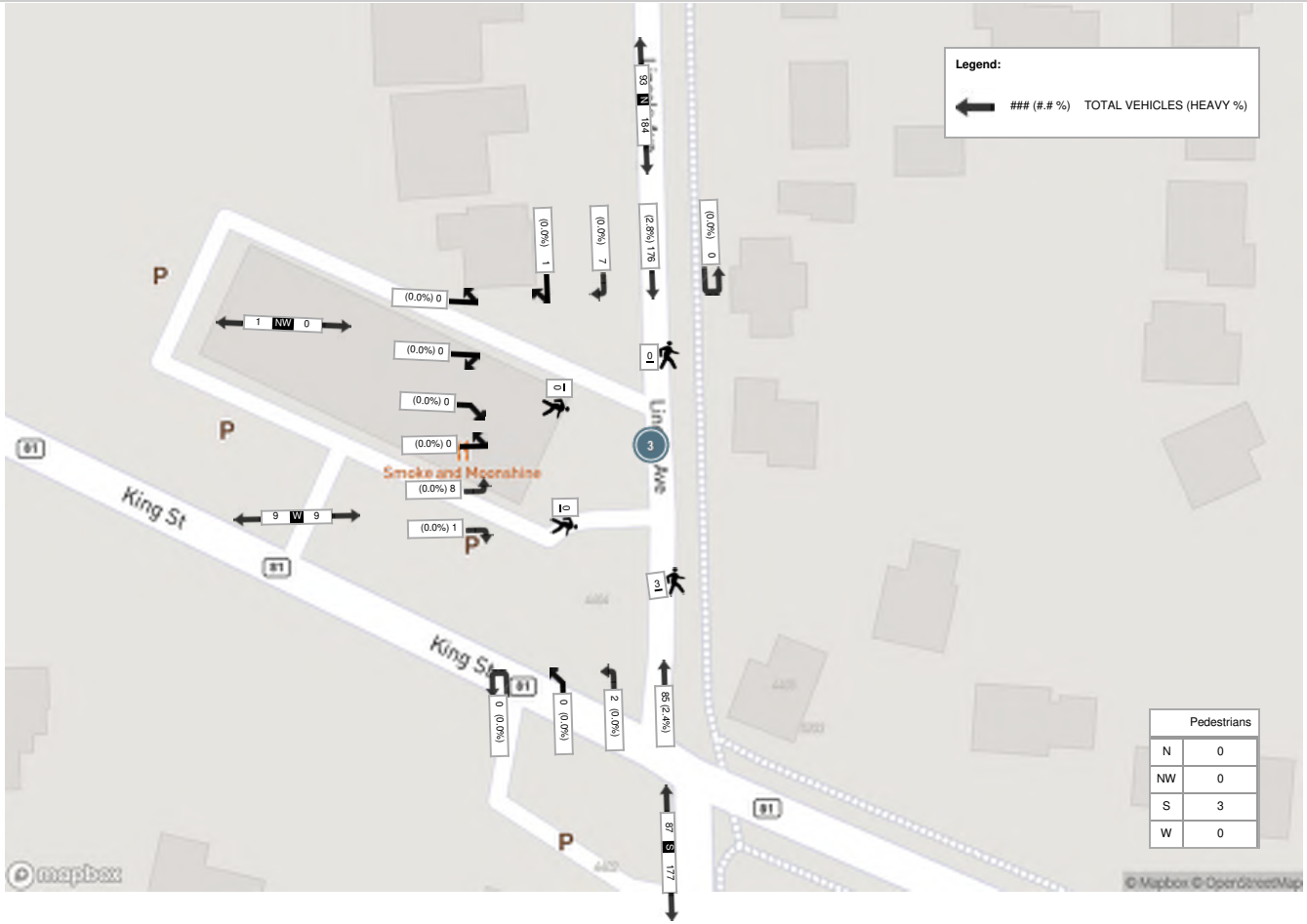
Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (9.13 °C)**



Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:00 PM - 05:00 PM **Weather: Clear Sky (12.99 °C)**



Spectrum

Turning Movement Count
Location Name: LINCOLN AVENUE & GREENLANE
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
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TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (7 . LINCOLN AVENUE & GREENLANE)

Start Time	N Approach LINCOLN AVENUE						E Approach GREENLANE						S Approach LINCOLN AVENUE						W Approach GREENLANE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	4	8	1	0	0	13	5	22	1	0	0	28	5	22	0	0	0	27	0	12	2	0	0	14	82	
07:15:00	2	9	3	0	0	14	9	17	3	0	0	29	6	22	1	0	0	29	0	13	4	0	0	17	89	
07:30:00	6	12	1	0	0	19	21	29	3	0	0	53	3	46	2	0	1	51	2	19	2	0	0	23	146	
07:45:00	3	23	5	0	0	31	14	28	6	0	0	48	5	43	2	0	0	50	1	17	4	0	0	22	151	468
08:00:00	4	17	7	0	0	28	10	21	7	0	0	38	5	28	3	0	0	36	0	23	3	0	0	26	128	514
08:15:00	2	21	1	0	0	24	15	20	4	0	0	39	5	33	2	0	0	40	1	14	4	0	0	19	122	547
08:30:00	3	24	9	0	0	36	15	25	6	0	0	46	6	32	2	0	0	40	2	21	3	0	0	26	148	549
08:45:00	4	22	8	0	0	34	12	24	5	0	0	41	7	25	2	0	0	34	0	17	2	0	0	19	128	526
09:00:00	3	19	5	0	0	27	4	15	7	0	0	26	5	20	2	0	1	27	1	20	2	0	0	23	103	501
09:15:00	0	8	4	0	0	12	10	19	4	0	0	33	7	18	0	0	0	25	0	22	1	0	0	23	93	472
09:30:00	3	17	4	0	0	24	2	15	7	0	0	24	9	24	2	0	0	35	1	14	4	0	0	19	102	426
09:45:00	0	11	6	0	0	17	6	16	8	0	0	30	7	7	1	0	0	15	2	14	1	0	0	17	79	377
BREAK																										
16:00:00	2	40	21	0	0	63	12	38	24	0	0	74	15	11	4	0	0	30	1	37	2	0	0	40	207	
16:15:00	3	40	20	0	0	63	10	44	19	0	0	73	9	12	1	0	0	22	4	42	6	0	0	52	210	
16:30:00	5	35	19	0	0	59	14	35	19	0	0	68	16	11	1	0	0	28	2	43	0	0	0	45	200	
16:45:00	2	42	14	0	0	58	12	27	24	0	0	63	11	16	0	0	0	27	3	40	0	0	0	43	191	808
17:00:00	4	37	18	0	0	59	13	40	18	0	0	71	9	19	0	0	0	28	1	31	3	0	0	35	193	794
17:15:00	2	41	12	0	0	55	8	31	15	0	0	54	13	11	0	0	0	24	3	34	2	0	0	39	172	756
17:30:00	4	33	16	0	0	53	6	28	14	0	0	48	12	16	0	0	0	28	5	24	0	0	0	29	158	714
17:45:00	3	27	15	0	0	45	7	22	7	0	0	36	9	13	0	0	0	22	1	20	0	0	0	21	124	647
18:00:00	3	31	9	0	0	43	7	30	5	0	0	42	11	5	2	0	0	18	0	27	0	0	0	27	130	584
18:15:00	0	26	13	0	0	39	9	22	9	0	0	40	11	8	1	0	0	20	1	17	2	0	0	20	119	531
18:30:00	1	15	9	0	0	25	6	28	17	0	0	51	6	19	3	0	0	28	2	23	2	0	0	27	131	504
18:45:00	1	23	6	0	0	30	10	26	10	0	0	46	7	4	0	0	0	11	1	13	1	0	0	15	102	482
Grand Total	64	581	226	0	0	871	237	622	242	0	0	1101	199	465	31	0	2	695	34	557	50	0	0	641	**3308**	-
Approach%	7.3%	66.7%	25.9%	0%		-	21.5%	56.5%	22%	0%		-	28.6%	66.9%	4.5%	0%		-	5.3%	86.9%	7.8%	0%		-	**-**	-
Totals %	1.9%	17.6%	6.8%	0%		26.3%	7.2%	18.8%	7.3%	0%		33.3%	6%	14.1%	0.9%	0%		21%	1%	16.8%	1.5%	0%		19.4%	**-**	-
Heavy	2	5	1	0		-	6	17	4	0		-	5	5	3	0		-	3	19	1	0		-	**-**	-
Heavy %	3.1%	0.9%	0.4%	0%		-	2.5%	2.7%	1.7%	0%		-	2.5%	1.1%	9.7%	0%		-	8.8%	3.4%	2%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (9.13 °C)**

Start Time	N Approach LINCOLN AVENUE						E Approach GREENLANE						S Approach LINCOLN AVENUE						W Approach GREENLANE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	3	23	5	0	0	31	14	28	6	0	0	48	5	43	2	0	0	50	1	17	4	0	0	22	151
08:00:00	4	17	7	0	0	28	10	21	7	0	0	38	5	28	3	0	0	36	0	23	3	0	0	26	128
08:15:00	2	21	1	0	0	24	15	20	4	0	0	39	5	33	2	0	0	40	1	14	4	0	0	19	122
08:30:00	3	24	9	0	0	36	15	25	6	0	0	46	6	32	2	0	0	40	2	21	3	0	0	26	148
Grand Total	12	85	22	0	0	119	54	94	23	0	0	171	21	136	9	0	0	166	4	75	14	0	0	93	**549**
Approach%	10.1%	71.4%	18.5%	0%		-	31.6%	55%	13.5%	0%		-	12.7%	81.9%	5.4%	0%		-	4.3%	80.6%	15.1%	0%		-	**-**
Totals %	2.2%	15.5%	4%	0%		21.7%	9.8%	17.1%	4.2%	0%		31.1%	3.8%	24.8%	1.6%	0%		30.2%	0.7%	13.7%	2.6%	0%		16.9%	**-**
PHF	0.75	0.89	0.61	0		0.83	0.9	0.84	0.82	0		0.89	0.88	0.79	0.75	0		0.83	0.5	0.82	0.88	0		0.89	**-**
Heavy	0	1	1	0		2	0	2	1	0		3	1	1	1	0		3	1	8	0	0		9	**-**
Heavy %	0%	1.2%	4.5%	0%		1.7%	0%	2.1%	4.3%	0%		1.8%	4.8%	0.7%	11.1%	0%		1.8%	25%	10.7%	0%	0%		9.7%	**-**
Lights	12	84	21	0		117	54	89	22	0		165	20	135	8	0		163	3	67	14	0		84	**-**
Lights %	100%	98.8%	95.5%	0%		98.3%	100%	94.7%	95.7%	0%		96.5%	95.2%	99.3%	88.9%	0%		98.2%	75%	89.3%	100%	0%		90.3%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	5	0	0		5	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	6.7%	0%	0%		5.4%	**-**
Buses	0	1	1	0		2	0	2	1	0		3	1	1	1	0		3	1	3	0	0		4	**-**
Buses %	0%	1.2%	4.5%	0%		1.7%	0%	2.1%	4.3%	0%		1.8%	4.8%	0.7%	11.1%	0%		1.8%	25%	4%	0%	0%		4.3%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	3.2%	0%	0%		1.8%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: LINCOLN AVENUE & GREENLANE
Date: Thu, Oct 10, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (12.99 °C)

Start Time	N Approach LINCOLN AVENUE						E Approach GREENLANE						S Approach LINCOLN AVENUE						W Approach GREENLANE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	2	40	21	0	0	63	12	38	24	0	0	74	15	11	4	0	0	30	1	37	2	0	0	40	207
16:15:00	3	40	20	0	0	63	10	44	19	0	0	73	9	12	1	0	0	22	4	42	6	0	0	52	210
16:30:00	5	35	19	0	0	59	14	35	19	0	0	68	16	11	1	0	0	28	2	43	0	0	0	45	200
16:45:00	2	42	14	0	0	58	12	27	24	0	0	63	11	16	0	0	0	27	3	40	0	0	0	43	191
Grand Total	12	157	74	0	0	243	48	144	86	0	0	278	51	50	6	0	0	107	10	162	8	0	0	180	**808**
Approach%	4.9%	64.6%	30.5%	0%		-	17.3%	51.8%	30.9%	0%		-	47.7%	46.7%	5.6%	0%		-	5.6%	90%	4.4%	0%		-	**-**
Totals %	1.5%	19.4%	9.2%	0%		30.1%	5.9%	17.8%	10.6%	0%		34.4%	6.3%	6.2%	0.7%	0%		13.2%	1.2%	20%	1%	0%		22.3%	**-**
PHF	0.6	0.93	0.88	0		0.96	0.86	0.82	0.9	0		0.94	0.8	0.78	0.38	0		0.89	0.63	0.94	0.33	0		0.87	**-**
Heavy	0	2	0	0		2	1	3	2	0		6	1	0	0	0		1	1	1	0	0		2	**-**
Heavy %	0%	1.3%	0%	0%		0.8%	2.1%	2.1%	2.3%	0%		2.2%	2%	0%	0%	0%		0.9%	10%	0.6%	0%	0%		1.1%	**-**
Lights	12	155	74	0		241	47	140	84	0		271	50	50	6	0		106	9	160	8	0		177	**-**
Lights %	100%	98.7%	100%	0%		99.2%	97.9%	97.2%	97.7%	0%		97.5%	98%	100%	100%	0%		99.1%	90%	98.8%	100%	0%		98.3%	**-**
Single-Unit Trucks	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.4%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	2	0	0		2	1	1	2	0		4	1	0	0	0		1	1	1	0	0		2	**-**
Buses %	0%	1.3%	0%	0%		0.8%	2.1%	0.7%	2.3%	0%		1.4%	2%	0%	0%	0%		0.9%	10%	0.6%	0%	0%		1.1%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM **Weather: Broken Clouds (9.13 °C)**



Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 04:00 PM - 05:00 PM **Weather: Clear Sky (12.99 °C)**



Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Turning Movement Count (4 . LINCOLN AVENUE & SOUTH SERVICE ROAD)

Start Time	E Approach SOUTH SERVICE ROAD					S Approach LINCOLN AVENUE					W Approach SOUTH SERVICE ROAD					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	UTurn W:W	Peds W:	Approach Total		
07:00:00	24	15	0	0	39	13	11	0	0	24	11	20	0	0	31	94	
07:15:00	27	24	0	0	51	14	18	0	0	32	12	35	0	0	47	130	
07:30:00	35	15	0	0	50	28	46	0	0	74	9	22	0	0	31	155	
07:45:00	31	18	0	0	49	22	47	0	0	69	19	34	0	0	53	171	550
08:00:00	30	12	0	0	42	16	27	0	0	43	19	32	0	0	51	136	592
08:15:00	36	14	0	0	50	31	34	0	0	65	14	25	0	0	39	154	616
08:30:00	43	17	0	0	60	14	34	0	0	48	25	55	0	0	80	188	649
08:45:00	39	17	0	0	56	16	29	0	0	45	18	39	0	0	57	158	636
09:00:00	26	14	0	0	40	18	17	0	0	35	15	27	0	0	42	117	617
09:15:00	26	7	0	0	33	14	20	0	0	34	11	51	0	0	62	129	592
09:30:00	28	8	0	0	36	17	11	0	0	28	16	26	0	0	42	106	510
09:45:00	31	2	0	0	33	12	11	0	0	23	21	17	0	0	38	94	446
BREAK																	
16:00:00	32	31	0	0	63	30	30	0	0	60	39	53	0	0	92	215	
16:15:00	30	15	0	0	45	17	19	0	0	36	46	35	0	0	81	162	
16:30:00	43	11	0	0	54	13	18	0	0	31	45	39	0	0	84	169	
16:45:00	32	18	0	0	50	12	16	0	0	28	45	39	0	0	84	162	708
17:00:00	33	14	0	0	47	13	22	0	0	35	38	53	0	0	91	173	666
17:15:00	35	11	0	0	46	11	15	0	0	26	46	37	0	0	83	155	659
17:30:00	27	8	0	0	35	6	14	0	0	20	43	38	0	0	81	136	626
17:45:00	23	13	0	0	36	10	13	0	0	23	31	38	0	0	69	128	592
18:00:00	17	15	0	0	32	4	6	0	0	10	30	20	0	0	50	92	511
18:15:00	35	3	0	0	38	5	11	0	0	16	36	25	0	0	61	115	471
18:30:00	24	1	0	0	25	8	16	0	0	24	21	27	0	0	48	97	432
18:45:00	22	4	0	0	26	4	14	0	0	18	24	22	0	0	46	90	394
Grand Total	729	307	0	0	1036	348	499	0	0	847	634	809	0	0	1443	**3326**	-
Approach%	70.4%	29.6%	0%		-	41.1%	58.9%	0%		-	43.9%	56.1%	0%		-	**-**	-
Totals %	21.9%	9.2%	0%		31.1%	10.5%	15%	0%		25.5%	19.1%	24.3%	0%		43.4%	**-**	-
Heavy	42	32	0		-	32	9	0		-	4	26	0		-	**-**	-
Heavy %	5.8%	10.4%	0%		-	9.2%	1.8%	0%		-	0.6%	3.2%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (9.13 °C)

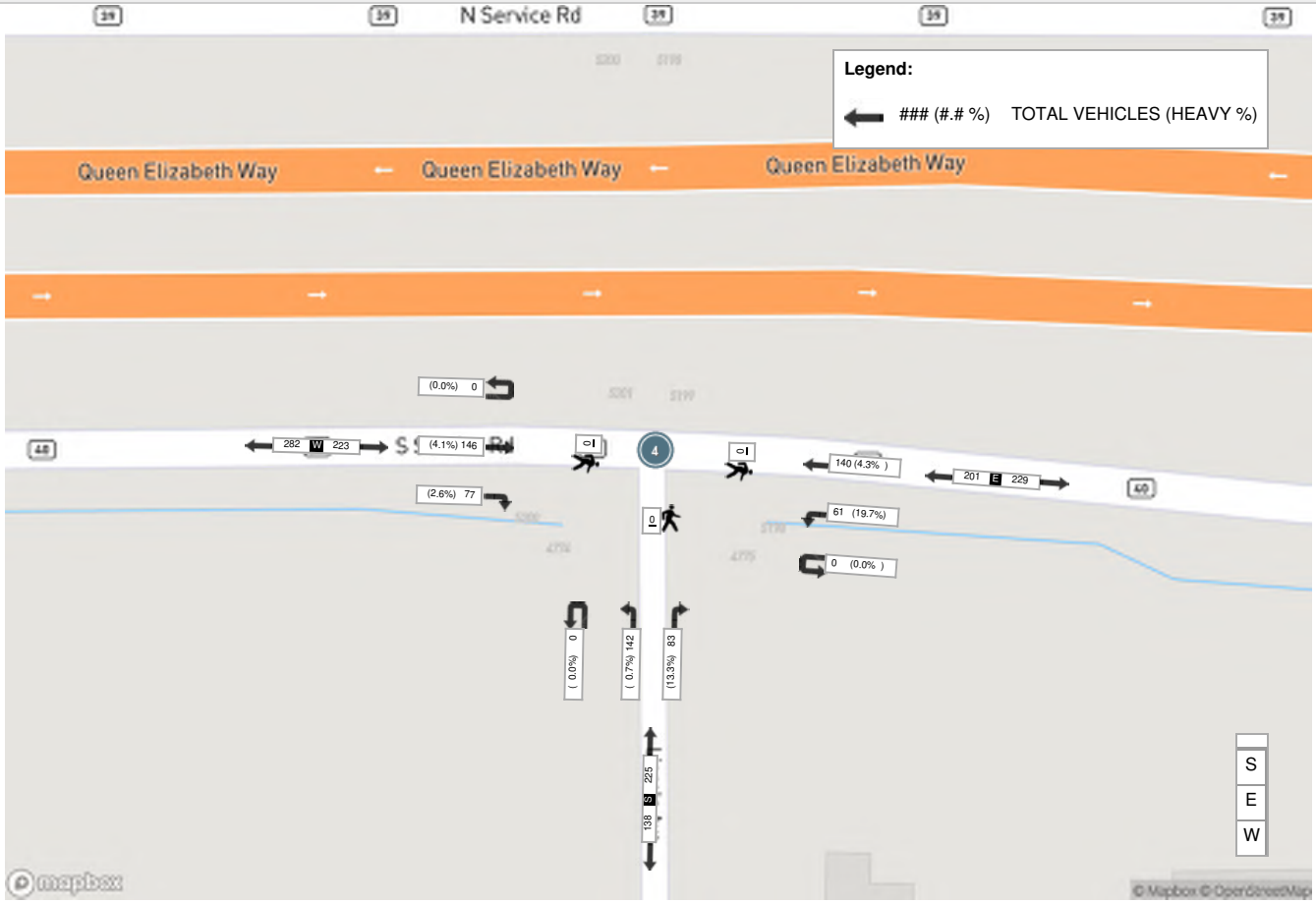
Start Time	E Approach SOUTH SERVICE ROAD					S Approach LINCOLN AVENUE					W Approach SOUTH SERVICE ROAD					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
07:45:00	31	18	0	0	49	22	47	0	0	69	19	34	0	0	53	171
08:00:00	30	12	0	0	42	16	27	0	0	43	19	32	0	0	51	136
08:15:00	36	14	0	0	50	31	34	0	0	65	14	25	0	0	39	154
08:30:00	43	17	0	0	60	14	34	0	0	48	25	55	0	0	80	188
Grand Total	140	61	0	0	201	83	142	0	0	225	77	146	0	0	223	**649**
Approach%	69.7%	30.3%	0%		-	36.9%	63.1%	0%		-	34.5%	65.5%	0%		-	**-**
Totals %	21.6%	9.4%	0%		31%	12.8%	21.9%	0%		34.7%	11.9%	22.5%	0%		34.4%	**-**
PHF	0.81	0.85	0		0.84	0.67	0.76	0		0.82	0.77	0.66	0		0.7	**-**
Heavy	6	12	0		18	11	1	0		12	2	6	0		8	**-**
Heavy %	4.3%	19.7%	0%		9%	13.3%	0.7%	0%		5.3%	2.6%	4.1%	0%		3.6%	**-**
Lights	134	49	0		183	72	141	0		213	75	140	0		215	**-**
Lights %	95.7%	80.3%	0%		91%	86.7%	99.3%	0%		94.7%	97.4%	95.9%	0%		96.4%	**-**
Single-Unit Trucks	4	11	0		15	11	0	0		11	0	2	0		2	**-**
Single-Unit Trucks %	2.9%	18%	0%		7.5%	13.3%	0%	0%		4.9%	0%	1.4%	0%		0.9%	**-**
Buses	0	0	0		0	0	1	0		1	2	1	0		3	**-**
Buses %	0%	0%	0%		0%	0%	0.7%	0%		0.4%	2.6%	0.7%	0%		1.3%	**-**
Articulated Trucks	2	1	0		3	0	0	0		0	0	3	0		3	**-**
Articulated Trucks %	1.4%	1.6%	0%		1.5%	0%	0%	0%		0%	0%	2.1%	0%		1.3%	**-**

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SUITE 301 211 YONGE
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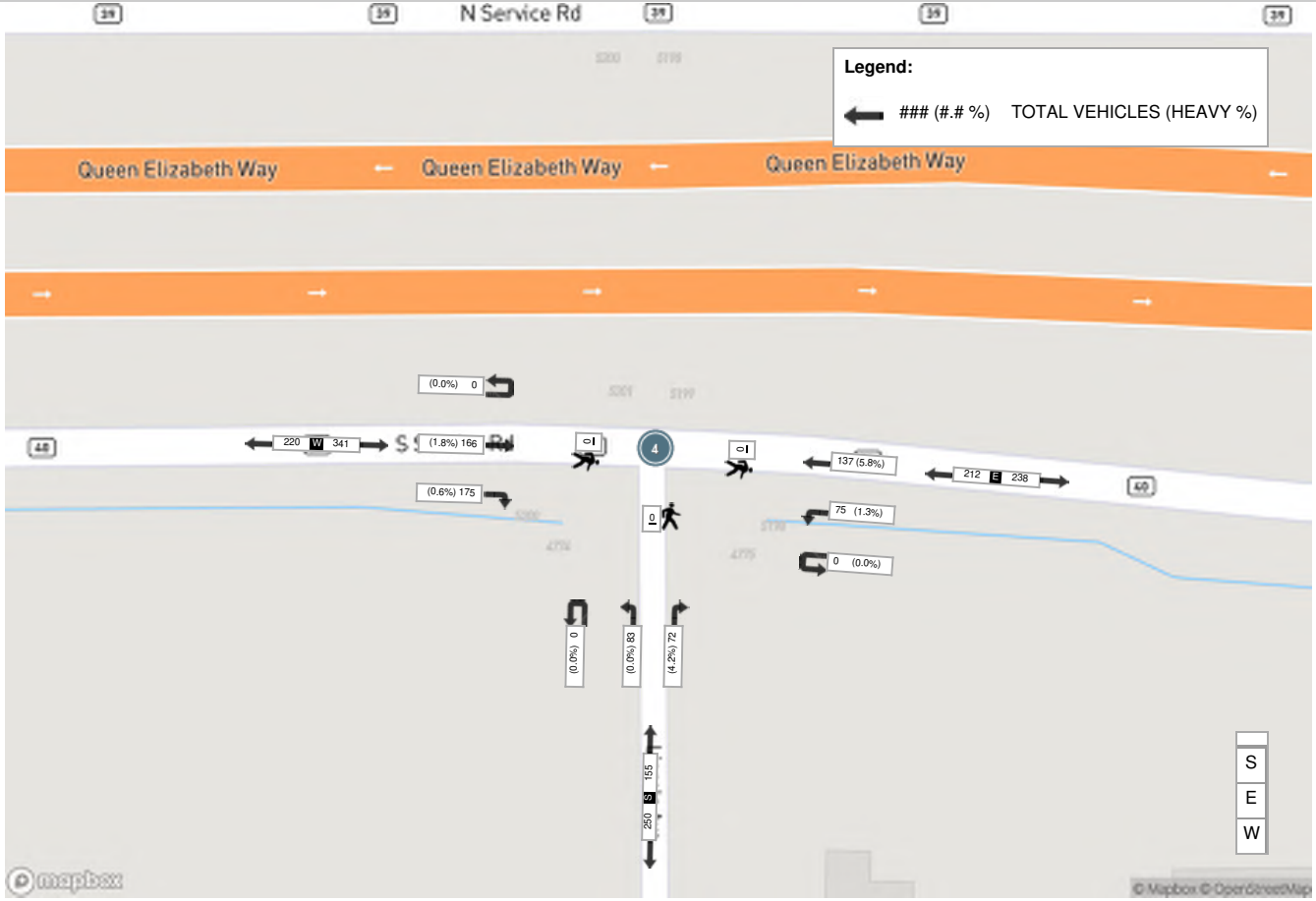
Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (12.99 °C)

Start Time	E Approach SOUTH SERVICE ROAD					S Approach LINCOLN AVENUE					W Approach SOUTH SERVICE ROAD					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:00:00	32	31	0	0	63	30	30	0	0	60	39	53	0	0	92	215
16:15:00	30	15	0	0	45	17	19	0	0	36	46	35	0	0	81	162
16:30:00	43	11	0	0	54	13	18	0	0	31	45	39	0	0	84	169
16:45:00	32	18	0	0	50	12	16	0	0	28	45	39	0	0	84	162
Grand Total	137	75	0	0	212	72	83	0	0	155	175	166	0	0	341	**708**
Approach%	64.6%	35.4%	0%		-	46.5%	53.5%	0%		-	51.3%	48.7%	0%		-	**-**
Totals %	19.4%	10.6%	0%		29.9%	10.2%	11.7%	0%		21.9%	24.7%	23.4%	0%		48.2%	**-**
PHF	0.8	0.6	0		0.84	0.6	0.69	0		0.65	0.95	0.78	0		0.93	**-**
Heavy	8	1	0		9	3	0	0		3	1	3	0		4	**-**
Heavy %	5.8%	1.3%	0%		4.2%	4.2%	0%	0%		1.9%	0.6%	1.8%	0%		1.2%	**-**
Lights	129	74	0		203	69	83	0		152	174	163	0		337	**-**
Lights %	94.2%	98.7%	0%		95.8%	95.8%	100%	0%		98.1%	99.4%	98.2%	0%		98.8%	**-**
Single-Unit Trucks	2	1	0		3	3	0	0		3	0	2	0		2	**-**
Single-Unit Trucks %	1.5%	1.3%	0%		1.4%	4.2%	0%	0%		1.9%	0%	1.2%	0%		0.6%	**-**
Buses	2	0	0		2	0	0	0		0	1	0	0		1	**-**
Buses %	1.5%	0%	0%		0.9%	0%	0%	0%		0%	0.6%	0%	0%		0.3%	**-**
Articulated Trucks	4	0	0		4	0	0	0		0	0	1	0		1	**-**
Articulated Trucks %	2.9%	0%	0%		1.9%	0%	0%	0%		0%	0%	0.6%	0%		0.3%	**-**

Peak Hour: 07:45 AM - 08:45 AM Weather: Broken Clouds (9.13 °C)



Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (12.99 °C)



Signal Code: 018081

Intersection: RR18 (ONTARIO ST.) & RR81 (KING ST.)

Municipality: lincoln

Owner: Region

Last Modified: 2024-10-22 1:03:50 PM

Timing Parameters	EBD KING ADV.	EBD & WBD KING	SBD ONTARIO	n/a	n/a	n/a
Min Green	6	10	8	0	0	0
Walk	0	11	10	0	0	0
Ped Clearance	0	17	14	0	0	0
Vehicle Ext.	2.5	2.8	4	0	0	0
Max Green	15	45	35	0	0	0
Yellow	3	4.1	4.1	0	0	0
All Red	0	3.1	2.5	0	0	0

		Offset
Minimum Cycle	31.8	0
Pedestrian Cycle	65.8	
Maximum Cycle	111.8	0
Operation	FA	

Installed On:	2021-03-18
Count Date:	--/--/----

FA = Fully Actuated SA = Semi Actuated FT = Fixed Time

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