

TRANSPORTATION IMPACT STUDY

9094 REGIONAL ROAD 25
INDUSTRIAL COMMERCIAL DEVELOPMENT

TOWN OF HALTON HILLS
REGION OF HALTON

PREPARED FOR:
HALTON HILLS ONE LIMITED PARTNERSHIP

PREPARED BY:
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Revision Number	Date	Comments
Rev. 0	November 2025	Internal Review
Rev. 1	November 2025	Issued for First Submission

Executive Summary

Halton Hills One Limited Partnership retained C.F. Crozier & Associates Inc. (Crozier) to complete a Transportation Impact Study to support the privately initiated Settlement Area Boundary Expansion for the property located at 9094 Regional Road 25, in the Town of Halton Hills, Regional Municipality of Halton. The proposed Official Plan Amendment and Zoning By-Law Amendment applications will be in support of the proposed industrial and commercial retail uses in addition to the discount retail warehouse club and associated gas bar.

The Subject Lands cover an area of approximately 26.87 ha and currently consist of undeveloped lands, a heritage house, and a golf driving range. The property, located in a mixed-use area, is bound by agricultural lands to the north and west, 5 Side Road to the south, and Regional Road 25 to the east.

Based on the most recent Site Plan prepared by Turner Fleischer, the Development Proposal envisions 52,769 m² of industrial warehouse, 4,817 m² of retail, and 15,527 m² of discount retail warehouse club with associated gas bar. 3 site accesses are proposed to support the Subject Development, comprising 1 full moves access and 1 right-in/right-out access off Regional Road 25 as well as 1 full moves access off 5 Side Road.

Existing Conditions

- Regional Road 25 & James Snow Parkway is expected to operate at a LOS "C" or better during the weekday a.m. and p.m., and Saturday peak hours. It is noted that some movements are expected to operate at a LOS "F" or with a v/c ratio above the Region's thresholds. Nevertheless, the intersection is still expected to operate efficiently, and with the planned road widenings along Regional Road 25 and James Snow Parkway, the intersection operations are expected to improve in the future.
- The remaining study intersections are operating at a LOS "C" or better with low to moderate control delays and v/c ratios. These operations indicate that the intersections operate efficiently with acceptable delays and reserve capacity to accommodate future increases in traffic volumes.
- Some queues at Regional Road 25 & James Snow Parkway currently extend beyond the effective (parallel) storage length provided. These queues are expected to be alleviated by the planned capital improvements (road widenings) to Regional Road 25 and James Snow Parkway. It is therefore recommended that the Region monitor traffic volumes and queues at this intersection to confirm if interim mitigation measures are required.
- Overall, the modelled queues are not expected to result in notable operational impacts within the study road network.

Future Background Conditions

- The full build-out of the Proposed Development is expected to occur within the next five years. Accordingly, the 2030 and 2035 study horizons are reviewed herein.
- Growth rates provided by the Region of Halton were applied to Regional roads within the study areas, and a 2% growth rate was applied to Town roads consistent with approved background development reports. Background development traffic volumes for the active developments near the Subject Site were also included to estimate future

background traffic volumes.

- As part of planned capital improvements, the following mobility network improvements are planned for the following horizon years:
 - 2030 Horizon Year
 - Regional Road 25:
 - Widening to 6 Lanes (Steeles Avenue to 5 Side Road)
 - Widening to Add Two-Way Left-Turn Lane (5 Side Road to 10 Side Road)
 - Regional Road 25 & 5 Side Road: Roundabout
 - Highway 401 & Tremaine Road: Highway Interchange
 - 2035 Horizon Year
 - James Snow Parkway: Widening to 6 Lanes (Highway 401 to Tremaine Road)
- Consistent with existing conditions, the intersection of Regional Road 25 & James Snow Parkway is operating at a LOS "C" or better during the weekday and Saturday peak hours under 2030 and 2035 future background conditions when accounting for the planned capital improvements. It is noted that the intersection continues to operate at a v/c ratio above the Region's critical threshold; nevertheless, the intersection is still operating efficiently with no operational concerns anticipated.
- The remaining study intersections are expected to continue operating efficiently at a LOS "C" or better with low to moderate control delays and v/c ratios under 2030 and 2035 future background conditions.
- The queues for the following movements are expected to exceed the effective storage length:
 - Regional Road 25 & James Snow Parkway (WBL, WBR)

Future Total Conditions

- The Proposed Development is expected to generate 790, 1,751, and 2,177 two-way total baseline vehicle trips during the weekday a.m., weekday p.m., and Saturday peak hours, respectively.
 - Of the vehicle trips, the industrial component of the Subject Development is expected to generate 11, 17 and 5 two-way truck trips during the weekday a.m., weekday p.m. and Saturday peak hours, respectively.
 - Based on the Region's target mode split, 761, 1,685 and 2,117 two-way mode split adjusted trips are expected for the weekday a.m., weekday p.m. and Saturday peak hours, respectively. We note that the Region's target mode split was only applied to a portion of site trips that could reasonably contribute to the target

shift including industrial warehouse employee trips and traditional retail/commercial trips.

- Of the above total vehicle trips, 560 and 536 pass-by trips are expected for the retail component (discount warehouse club and typical retail units) of the Subject Development during the weekday p.m. and Saturday peak hours.
- The widening of Regional Road 25, north of 5 Side Road, is currently proposing the addition of a two-way left-turn lane as a midblock section. However, north of the proposed roundabout at 5 Side Road, 2 southbound lanes were proposed, with the curb lane tapering north along the site's frontage to 1 southbound lane.
- Based on a cursory operational analysis, it was recommended to extend the southbound curb lane to the northern property limits of the Proposed Development, such that 2 southbound lanes exist along the site's frontage. The second southbound lane is recommended to support the expected traffic volumes and is consistent with the lane configuration envisioned at the proposed roundabout. The 2 southbound through lanes were modelled along Regional Road 25 between 5 Side Road and the proposed Full Moves Access.
- Based on the preliminary preferred design of Regional Road 25 & 5 Side Road, which will be converted to a roundabout, this intersection is **expected to operate at a LOS "D" or better, with the south approach operating at LOS "F" during the weekday p.m. peak hour with extended 95th percentile queues**. In addition, some approaches are expected to have a maximum v/c ratio above the Region's thresholds. Accordingly, there is the opportunity to refine the roundabout geometry to better accommodate the future traffic volumes.
- A sensitivity analysis was conducted with refinements to the preliminary roundabout geometry including a 9.0 m entry width and 30 degree conflict (entry) angle for the south approach as well as dual circulating lanes on for all approaches.
 - With the refined geometric improvements, the intersection is expected to operate at a LOS "B" or better with low control delays and acceptable v/c ratios. While some approaches are expected to operate above the Region's critical threshold of 0.85, the approaches are still operating below capacity and with low control delays.
 - Moreover, the refinements in geometry appear to be able to be accommodated within the proposed ROW identified in the preliminary design and should be confirmed as part of the ongoing Environmental Assessment works.
- Regional Road 25 & James Snow Parkway is **expected to operate at a LOS "D" or better with a maximum increase in control delay and v/c ratio of 7 s and 0.03 in comparison to 2035 future background conditions**. While the intersection is expected to operate with a v/c ratio above the Region's critical threshold of 0.85, this is consistent with future background conditions, with the intersection operating below capacity.
- The proposed site accesses are operating efficiently at a LOS "C" or better with low control delays and acceptable v/c ratios. While some movements are expected to operate above the Region's critical threshold for v/c ratios, the movements are still operating below capacity with low control delays. Accordingly, there are no major operational concerns anticipated at the site accesses.

- The remaining study intersections are expected to operate efficiently with a LOS "C" or better with low control delays and low to moderate v/c ratios. This indicated the intersections are expected to operate with reserve capacity for future traffic growth.
- Overall, the site generated traffic does not significantly impact operations of the study road network with the implementation of the proposed recommendations. Accordingly, the Proposed Development is supportable from a traffic operations perspective.
- The queues for the following movements are expected to exceed the effective storage length and are therefore recommended for extension, as also summarized in Table E1:
 - Regional Road 25 & James Snow Parkway (WBL, WBR)
- The following auxiliary turn lanes should be provided at the proposed site accesses:
 - Regional Road 25 & Full Moves Access (EBL, NBL, SBR)
 - 5 Side Road & Full Moves Access (EBL, WBR, SBL)

Safety Review

- The sight distance requirements are met at the proposed site accesses off Regional Road 25 and 5 Side Road. Thus, the Proposed Development is supportable from a sight distance perspective.

Vehicle Maneuverability Review

- The Vehicle Turning Diagrams demonstrate that there are no expected vehicle maneuverability constraints within the Subject Development for Wb-20 trucks, fire trucks, and passenger vehicles.

Parking and Loading Review

- The Proposed Development satisfies the vehicle parking, accessible parking, bicycle parking, and loading requirements.

Transportation Demand Management Strategies

- Transportation demand management strategies were identified and recommended to support the Subject Development, as summarized below in Table E1.

Future Transit Considerations and Opportunities

- Although the Subject Site is located in the Town of Halton Hills, it is also located on the shared boundary with the Town of Milton. The Subject Development, as well as the 401 Business Park employment area, are expected to generate significant transit demand once built out. These significant developments offer transit-supportive opportunities for the medium-term that can increase transit mode share, should service be provided.
- Therefore, with the buildup of the Subject Lands as well as the adjacent 401 Business Park, it is expected that significant growth in transit demand may occur, recognizing that the area may benefit from future Milton Transit service, as a continuation of existing service, in comparison to the Town of Halton Hills' future fixed route service options.

- While the study area was contemplated to continue operating as an OnDemand Service Zone by Milton Transit, we recommend that opportunities for fixed route service be explored, and ridership demand continue to be evaluated as the area continues to be built out. Moreover, we recommend that the Town of Halton Hills and the Town of Milton coordinate to develop a transit service strategy to serve future employees and retail visitors, and continue contributing to the Region's goal of increasing sustainable mode share.
- These opportunities can be explored during shift change periods once confirmed with tenants in the area to initially provide sustainable transit options for regular commuters.

Road Connection Opportunities Review

- The Proposed Development, and the proposed site accesses, do not preclude the implementation of future access(es) to the surrounding properties fronting Regional Road 25, Dublin Line and 5 Side Road.

Recommendations

Table E1 outlines recommendations resulting from the conclusions and findings of this study.

Table E1: Recommendations Summary

Location	Improvement
2030 Future Background	
Regional Road 25	Maintain schedule for planned road widening between Steeles Avenue to 10 Side Road
Regional Road 25 & James Snow Parkway	Monitor traffic operations and queues to determine if additional improvements are warranted, prior to James Snow Parkway widening.
Regional Road 25 & 5 Side Road	Maintain schedule for planned roundabout.
Highway 401 & Tremaine Road	Maintain schedule for planned interchange.
2035 Future Background	
James Snow Parkway	Maintain schedule for planned road widening between Highway 401 to Tremaine Road.
Regional Road 25 & James Snow Parkway	Consider extending the existing WBL auxiliary turn lane (170 m).
	Extend existing WBR auxiliary turn lane (55 m).
2030 Future Total	
Regional Road 25	Extend planned southbound curb lane between 5 Side Road and Full Moves Access, resulting in 2 southbound lanes along site frontage.

Location	Improvement
Regional Road 25 & 5 Side Road	<p>Refine roundabout geometry to accommodate future traffic volumes as noted including:</p> <ul style="list-style-type: none"> • Entry Width: 9.0 m (South Approach) • Conflict (Entry) Angle: 30 degrees (South Approach) • Dual Circulating Lanes (All Approaches)
Regional Road 25 & James Snow Parkway	<p>Continue to monitor traffic operations and queues to determine if additional improvements are warranted, prior to James Snow Parkway widening.</p>
Regional Road 25 & Full Moves Access	<p>Implement traffic signals and auxiliary turn lanes for the following movements, with the recommended storage lengths:</p> <ul style="list-style-type: none"> • EBL: 30 m • NBL: 50 m • SBTR: 50 m
5 Side Road & Full Moves Access	<p>Implement auxiliary turn lanes for the following movements:</p> <ul style="list-style-type: none"> • EBL: 30 m • WBR: 20 m • SBL: 25 m
2035 Future Total	
Regional Road 25 & James Snow Parkway	<p>Continue to consider extending the future background warranted WBL auxiliary turn lane (from 170 m to 185 m).</p>
	<p>Extend recommended future background WBR auxiliary turn lane (from 55 m to 90 m).</p>
Other Site-Specific Recommendations	
Transportation Demand Management Measures	<p>Implement the following site-specific transportation demand management measures recommended:</p> <ul style="list-style-type: none"> • TDM Information Package • Off-Peak Shift Changes • Secure and Excess Bicycle Parking Spaces • Smart Commute • Transit Service Extension

Summary

In conclusion, the Proposed Residential Development is supportable from a transportation operation, parking, loading, site circulation and safety perspective, with the recommended improvements.

The analysis undertaken herein was prepared using the most recent Site Plan. Any minor changes to the Plan will not materially affect the conclusions contained within this report.

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1.0 Introduction

Halton Hills One Limited Partnership retained C.F. Crozier & Associates Inc. (Crozier) to complete a Transportation Impact Study to support the privately initiated Settlement Area Boundary Expansion for the property located at 9094 Regional Road 25, in the Town of Halton Hills, Regional Municipality of Halton. The proposed Official Plan Amendment and Zoning By-Law Amendment applications will be in support of the proposed industrial and commercial retail uses as well as the discount warehouse club commercial retail and associated gas bar.

1.1 Development Lands

The Subject Lands cover an area of approximately 26.87 ha and currently consist of undeveloped lands, a heritage house, and a golf driving range. The property, located in a mixed-use area, is bound by agricultural lands to the north and west, 5 Side Road to the south, and Regional Road 25 to the east.

Figure 1 illustrates the site location.

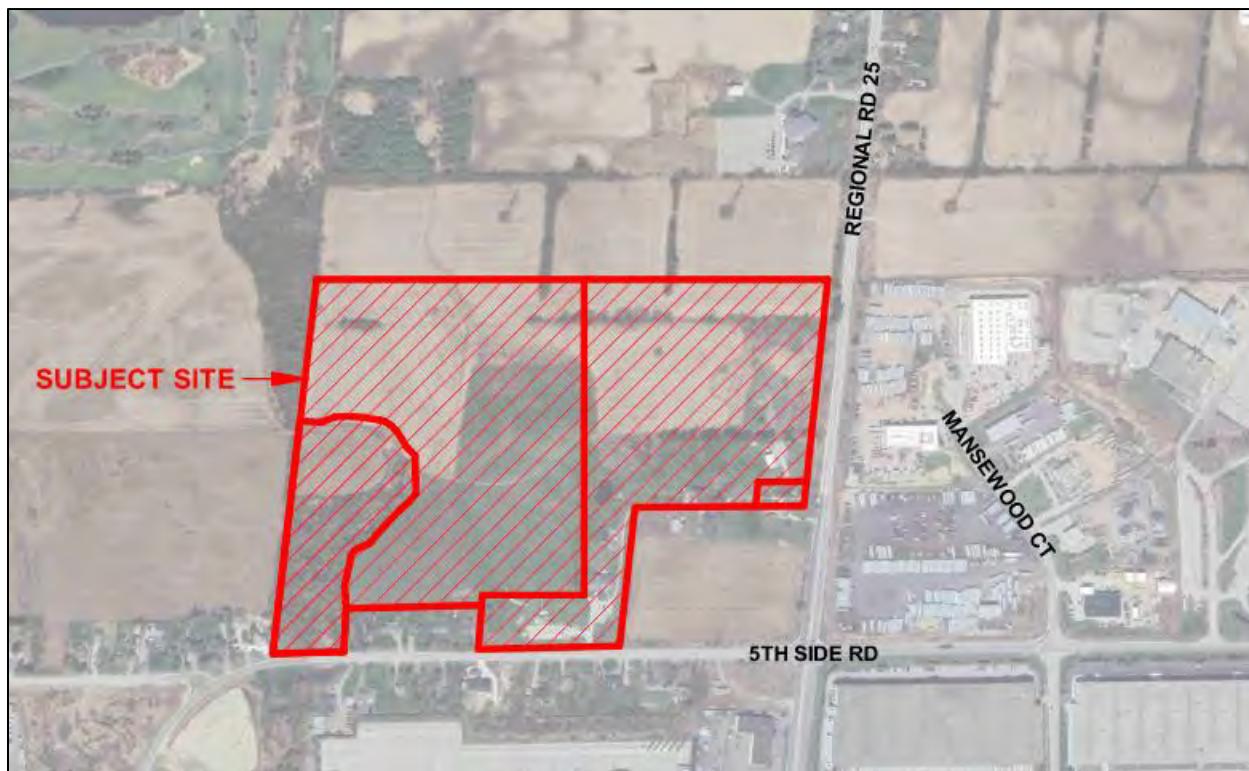


Figure 1: Site Location

1.2 Development Proposal

Based on the most recent Site Plan prepared by Turner Fleischer, the Development Proposal envisions 52,769 m² of industrial warehouse, 4,817 m² of retail, and 15,527 m² of discount retail warehouse club with associated gas bar. 3 site accesses are proposed to facilitate the Subject Development, comprising 1 full moves access and 1 right-in/right-out access off Regional Road 25 as well as 1 full moves access off 5 Side Road.

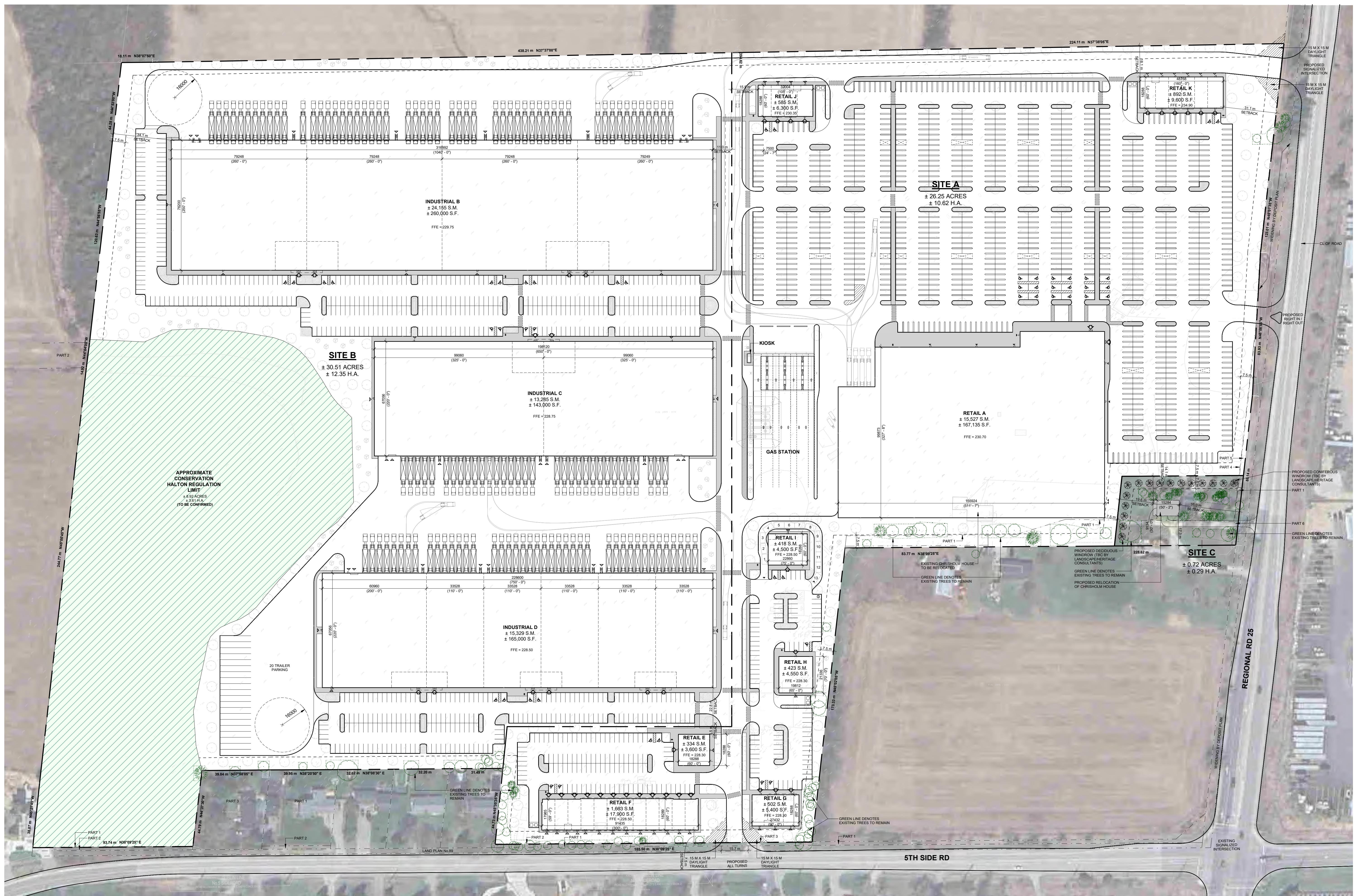
Table 1 outlines the site statistics.

Table 1: Proposed Development Breakdown

Block	Land Use	Building	Statistic
Block 1	Warehouse	Building B	24,155 m ²
		Building C	13,285 m ²
		Building D	15,329 m ²
Block 2	Discount Warehouse Club ¹	Building A	15,527 m ²
	Retail	Building J	585 m ²
		Building K	892 m ²
Block 3	Retail	Building E	334 m ²
		Building F	1,663 m ²
		Building G	502 m ²
		Building H	423 m ²
		Building I	418 m ²

Note 1: Includes an associated gas bar.

Figure 2 outlines the proposed Site Plan, dated September 16, 2025.



1 SITE PLAN
ZBA-A100 1:1000

ZONING REQUIREMENT

CURRENT ZONING	A/AGRICULTURAL		PROPOSED ZONING		PROPOSED ZONING		EMPLOYMENT ONE		PROPOSED ZONING		PROPOSED ZONING	
	REQUIRED	PROPOSED	REQUIRED	PROPOSED	REQUIRED	PROPOSED	REQUIRED	PROPOSED	REQUIRED	PROPOSED	REQUIRED	PROPOSED
MIN. LOT FRONTAGE	180 M	MIN. LOT FRONTAGE	30.0 M	MIN. LOT FRONTAGE	30.0 M	MIN. LOT FRONTAGE	30.0 M	MIN. LOT FRONTAGE	30.0 M	MIN. DRIVE AISLE WIDTH	6.7 M	MIN. DRIVE AISLE WIDTH
MIN. LOT DEPTH	4.0 M	MIN. LOT DEPTH	2.0 M	MIN. LOT DEPTH	2.0 M	MIN. LOT DEPTH	2.0 M	MIN. LOT DEPTH	2.0 M	MIN. PARKING WIDTH	2.75 M	MIN. PARKING WIDTH
MIN. FRONT YARD	15.0 M	MIN. FRONT YARD	7.5 M	MIN. FRONT YARD	7.5 M	MIN. FRONT YARD	7.5 M	MIN. FRONT YARD	7.5 M	MIN. PARKING LENGTH	5.5 M	MIN. PARKING LENGTH
MIN. REAR YARD	15.0 M	MIN. REAR YARD	7.5 M	MIN. REAR YARD	7.5 M	MIN. REAR YARD	7.5 M	MIN. REAR YARD	7.5 M	MIN. PARKING SPACE	N/A	MIN. PARKING SPACE
MIN. SIDE YARD	15.0 M	MIN. SIDE YARD	7.5 M	MIN. SIDE YARD	7.5 M	MIN. SIDE YARD	7.5 M	MIN. SIDE YARD	7.5 M	MIN. LOADING L x W	1018	MIN. LOADING L x W
MAX. HEIGHT	11.0 M	MAX. HEIGHT	10.5 M	MAX. HEIGHT	10.5 M	MAX. HEIGHT	10.5 M	MAX. HEIGHT	10.5 M	PER PREMISE	12 M x 3.5 M	PER PREMISE
MAX. NET FLOOR AREA	500.0 M	MAX. NET FLOOR AREA	500.0 M	MAX. NET FLOOR AREA	500.0 M	MAX. NET FLOOR AREA	500.0 M	MAX. NET FLOOR AREA	500.0 M	PER PREMISE	5	PER PREMISE

* indicates non-compliance												
PER PREMISE												

PROJECT NO.	25.117P01
PROJECT DATE	2025-08-08
DRAWN BY	JKW
CHECKED BY	RLA
SCALE	As indicated

DRAWING NO. ZBA-A100 REV 6

1.3 Study Purpose and Scope

The purpose of the study is to evaluate the transportation-related impacts of the Proposed Development on the study road network and to recommend or confirm any required mitigation measures, if warranted.

The study is in conformance with Halton Region's Transportation Impact Study Guidelines (January 2015) as well as the Town of Milton's Traffic Impact Study Terms of Reference (January 2023).

The Transportation Impact Study considers the following study intersections:

- Regional Road 25 & 5 Side Road
- Regional Road 25 & James Snow Parkway (Regional Road 4)
- James Snow Parkway & 5 Side Road
- James Snow Parkway/Campbellville Road & Tremaine Road (Regional Road 22)/Dublin Line
- Proposed Site Accesses

The existing (2025), buildout (2030) and 5 years post buildout (2035) horizon years were considered herein.

A proposed Terms of Reference was submitted to the Town and Region for comment; however, feedback was not received at the time of completing this report. The study was therefore undertaken assuming the proposed TOR was acceptable. Appendix A includes the Terms of Reference.

2.0 Existing Transportation Context

This section outlines the current conditions of the transportation network in the vicinity of the site. Details of the study road network, including traffic controls, lane configurations, speed limits, transit routes and stops, active transportation infrastructure and other relevant transportation elements are identified. The existing traffic operations are also summarized.

2.1 Existing Study Road Network

The study road network consists of the existing road network near the site, which includes the study intersections and the adjoining roadway segments. Table 2 outlines the study roadways, including road and active transportation network features.

Table 2: Study Roadways

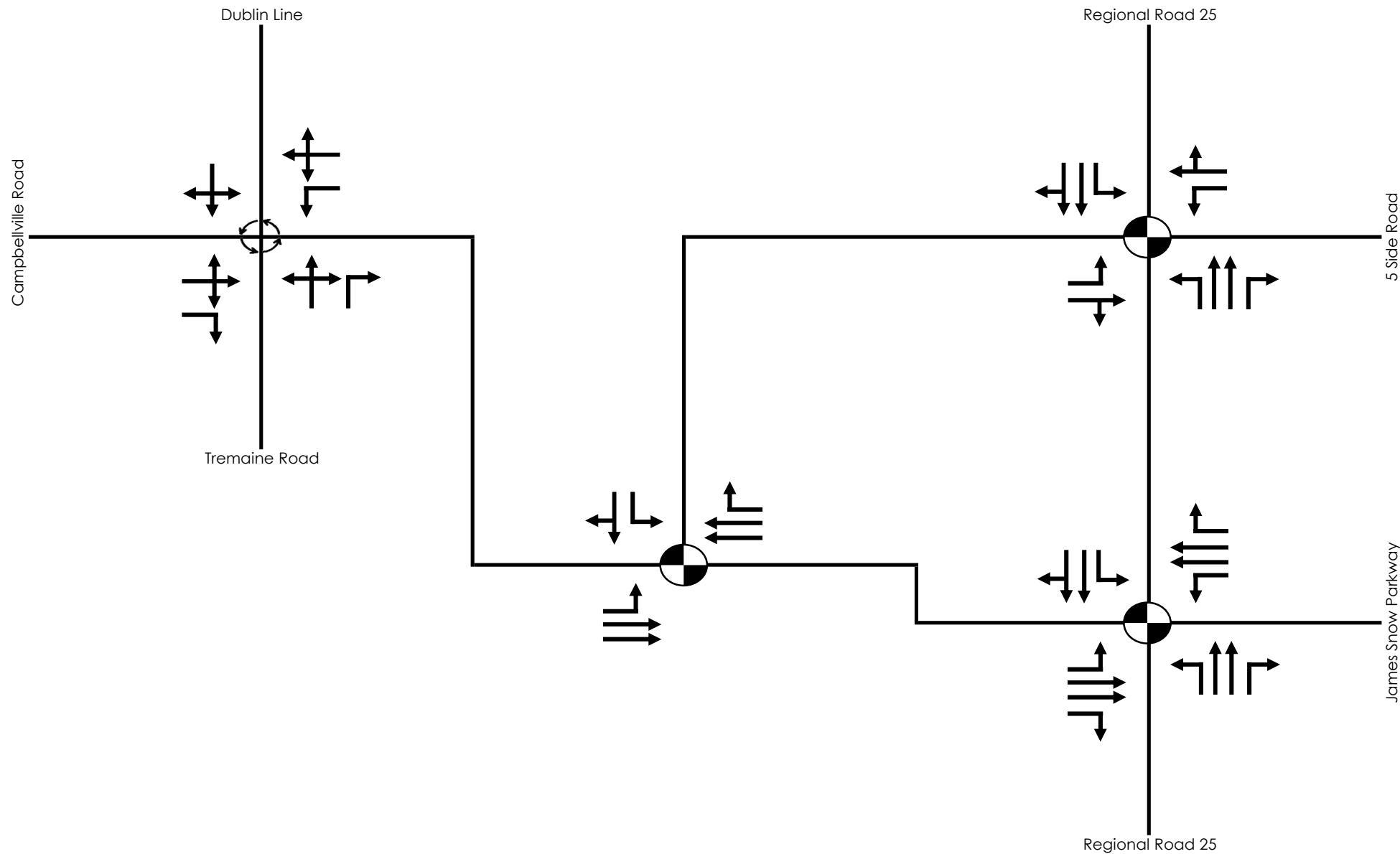
Feature	Regional Road 25	James Snow Parkway	Tremaine Road	5 Side Road	Campbellville Road	Dublin Line
Direction	North-South	North-South & East-West	North-South	East-West	East-West	North-South
Span	32 Side Rd to Steeles Ave E	Dublin Ln to Britannia Rd	James Snow Pkwy to Dundas St	East Terminus to Winston Churchill Blvd	Guelph Ln to Dublin Ln	North Terminus to James Snow Pkwy
Classification	Major Arterial	Major Arterial	Major Arterial	Minor Arterial	Minor Arterial	Local
Jurisdiction	Region of Halton	Region of Halton	Region of Halton	Town of Milton	Town of Milton	Town of Halton Hills
Speed Limit	80 km/h ¹ (Posted)	60 km/h (Posted)	70 km/h (Assumed)	60 km/h ² (Posted)	60 km/h (Posted)	50 km/h (Posted)
Number of Travel Lanes	2 Lanes ²	4 Lanes	4 Lanes	2 Lanes	2 Lanes	2 Lanes
Median Type	Painted	Painted	Concrete	None	None	None
Pedestrian Facilities	None	Multi-Use Path	None	None	None	None
Cycling Facilities	None	Multi-Use Path	None	None	None	None

Note 1: Regional Road 25 has an 80 km/h speed limit north of 5 Side Road and 70 km/h speed limit south of 5 Side Road.

Note 2: 5 Side Road has a 60 km/h speed limit east 7593 5 Side Road and a 50 km/h speed limit west of 7593 5 Side Road.

Note 3: Regional Road 25 has 2 travel lanes north of 5 Side Road and 4 travel lanes south of 5 Side Road.

Figure 3 illustrates the study road network, including the lane configurations and intersection control at the study intersections.



Legend

- Signal Control
- Stop Control
- Roundabout Control

9094 Regional Road 25

Existing Study Road Network

CROZIER
CONSULTING ENGINEERS

Figure 3

Project No. 2022-7556
Date: 11/10/25
Analyst: MY

2.2 Existing Transit Network

Milton Transit operates bus service within the Town of Milton, with service extending into the Town of Halton Hills through partnership between Milton Transit and the Town of Halton Hills. Within the study area there is no transit service, and the closest bus stop is located at Regional Road 25 & High Point Drive, approximately 1.5 km south of the Subject Site. Accordingly, there is the opportunity for Milton Transit as well as the Town of Halton Hills to extend transit service into the study area upon buildout of the Proposed Development.

Appendix B contains the relevant transit information.

3.0 Existing Transportation Network Review

This section reviews the automobile capacity analysis and network modelling associated with the boundary road network.

3.1 Traffic Data

Traffic movement counts (TMCs) were conducted by Spectrum Traffic at the study intersections. The TMCs were conducted on Tuesday, September 9, 2025, between 7:00 a.m. to 10:00 a.m., and 4:00 p.m. to 7:00 p.m. to reflect typical commuter peak hours.

TMCs were also conducted on Saturday, August 16, 2025, from 10:00 a.m. to 4:00 p.m., which reflects the typical commercial Saturday peak hour. It is noted that the Saturday counts were conducted during the summer. Nevertheless, Saturday traffic volumes are not typically significantly impacted by the traffic fluctuations associated with the summer months and school holidays.

The most recent signal timing plans were also received from Halton Region.

Table 3 summarizes the TMCs and signal timings plans.

Table 3: Turning Movement Count and Signal Timing Plan Data

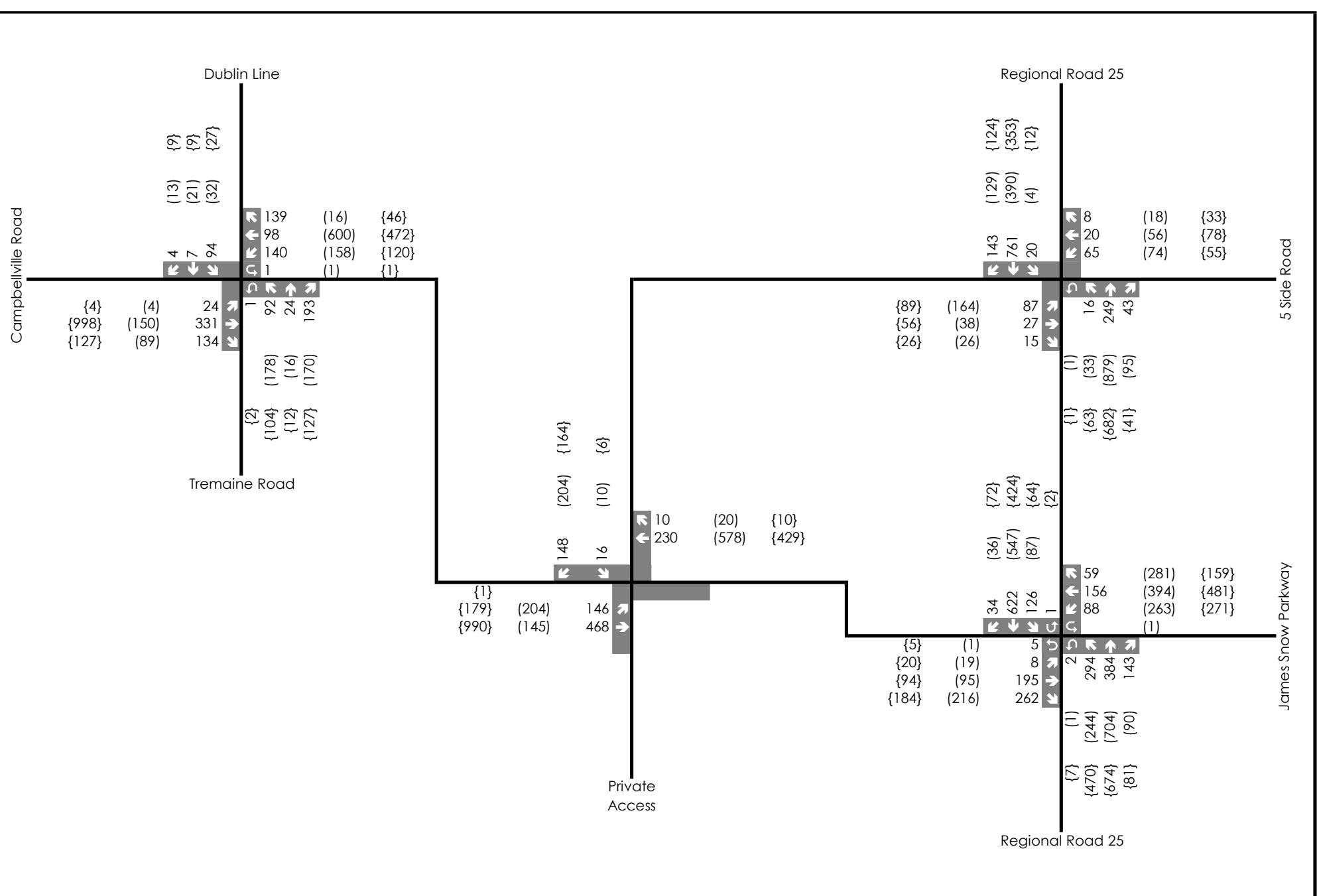
Intersection	TMC		Signal Timing Plan	
	Date	Source	Date ¹	Source
Regional Road 25 & 5 Side Road	Tuesday, September 9, 2025	Spectrum	March 17, 2025	Halton Region
	Saturday, August 16, 2025			
Regional Road 25 & James Snow Parkway	Tuesday, September 9, 2025	Spectrum	March 17, 2025	Halton Region
	Saturday, August 16, 2025			
James Snow Parkway & 5 Side Road	Tuesday, September 9, 2025	Spectrum	July 30, 2025	Halton Region
	Saturday, August 16, 2025			
James Snow Parkway/ Campbellville Road & Tremaine Road/Dublin Line	Tuesday, September 9, 2025	Spectrum	N/A	N/A
	Saturday, August 16, 2025			

Note 1: Date saved.

Appendix D contains the TMC and signal timing plan data.

3.2 Existing Traffic Volumes

Figure 4 illustrates the 2025 existing traffic volumes.



3.3 Traffic Modelling and Assumptions

3.3.1 Basis of Assessment

The signalized and stop controlled study intersections were modelled using Synchro 12.0 software. The assessment of these study intersections was conducted using Highway Capacity Manual (HCM) 2000 methodology for signalized and unsignalized intersections. Finally, queuing was analyzed using SimTraffic software. The SimTraffic modelling was run using 3 simulations with 15 min seeding and 60 min recording periods.

Roundabouts were modelled using ARCADY Junctions 8 software.

Appendix C includes the LOS definitions.

3.3.2 Modelling Parameters

The intersection operations were modelled in conformance with Halton Region's Transportation Impact Study Guidelines (January 2015). For parameters where guidelines were not provided, default values were used for the modelling of existing conditions.

The intersection peak hour factors (PHFs) and heavy vehicle percentages as observed in the turning movement counts were applied in the Synchro model.

Table 4 outlines the calculated PHFs at each intersection during each peak hour.

Table 4: Peak Hour Factors

Intersection	Peak Hour Factor		
	Weekday A.M.	Weekday P.M.	Saturday
Regional Road 25 & 5 Side Road	0.98	0.92	0.85
Regional Road 25 & James Snow Parkway	0.98	0.89	0.89
James Snow Parkway & 5 Side Road	0.94	0.94	0.85
James Snow Parkway/Campbellville Road & Tremaine Road/Dublin Line	0.96	0.92	0.87

The signal timing plans identified in Section 3.1 were incorporated into the model for the signalized study intersection. Roundabout control was applied in the model to the remaining study intersection, based on existing conditions.

3.3.3 Roundabout Analysis

The intersection of James Snow Parkway/Campbellville Road & Tremaine Road/Dublin Line is an existing roundabout, and the geometry was modelled based on measurements from aerial imagery as well as the parameter templates provided in the Region of Waterloo's Traffic Impact Study Requirements for Capacity Analysis, Roundabouts, Signal Warrants (April 2023). Table 5 outlines the roundabout geometry used in modelling.

Table 5: James Snow Parkway/Campbellville Road & Tremaine Road/Dublin Line Geometry

Parameter	Dublin Line	Tremaine Road	James Snow Parkway	Campbellville Road
Approach	North	South	East	West
Approach Road Half-Width	3.5 m	3.6 m	7.0 m	7.00 m
Entry Width	5.8 m	4.8 m	9.0 m	9.0 m
Effective Flare Length	30 m	30 m	30 m	30 m
Entry Radius	28 m	30 m	20 m	22 m
Inscribed Circle Diameter	57 m	57 m	57 m	57 m
Conflict (Entry) Angle	30 degrees	30 degrees	30 degrees	30 degrees

3.4 Intersection Operations

The section herein reviews the intersection operations under 2025 existing conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio.

Appendix E contains the detailed capacity analysis worksheets.

Signal Control

Table 6 outlines the 2025 existing operations for the signalized study intersections.

Table 6: 2025 Existing Intersection Operations – Signal Control

Intersection	Movement	Performance Metrics								
		LOS ¹			Delay (s) ¹			v/c ratio ²		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall	B	B	B	15	16	15	0.43	0.49	0.38
	EBL	D	E	D	43	62	42	0.36	0.78	0.42
	EBTR	D	D	D	50	51	48	0.17	0.26	0.34
	WBL	E	D	D	61	51	44	0.62	0.50	0.32
	WBTR	E	E	D	57	56	52	0.27	0.49	0.53
	NBL	A	A	A	1	4	2	0.04	0.07	0.13
	NBT	A	A	A	2	5	4	0.11	0.38	0.33
	NBR	A	A	A	3	2	1	0.03	0.09	0.04
	SBL	A	A	B	7	8	10	0.03	0.01	0.04
	SBTR	B	A	B	11	9	12	0.42	0.26	0.27
Regional Road 25 & James Snow Parkway	Overall	C	D	C	28	36	34	0.60	0.75	0.93
	EBL	D	D	D	43	39	38	0.07	0.13	0.19
	EBT	D	D	D	49	43	42	0.44	0.20	0.17
	EBR	D	D	D	47	43	41	0.23	0.18	0.13
	WBL	D	F	E	39	91	60	0.43	0.99	0.87
	WBT	D	D	D	43	47	48	0.29	0.66	0.72
	WBR	D	D	D	41	41	39	0.04	0.21	0.17
	NBL	B	B	C	13	14	29	0.61	0.59	0.88
	NBT	B	B	B	14	19	19	0.24	0.46	0.42
	NBR	B	B	B	13	15	15	0.10	0.08	0.06
	SBL	B	C	C	18	22	20	0.28	0.28	0.22
	SBTR	C	C	C	26	30	30	0.56	0.47	0.47
James Snow Parkway & 5 Side Road	Overall	B	C	C	17	23	21	0.25	0.38	0.46
	EBL	B	B	B	14	18	16	0.26	0.50	0.44
	EBT	B	B	B	14	12	19	0.34	0.09	0.67
	WBT	C	C	C	25	29	27	0.33	0.61	0.50
	WBR	C	C	C	22	22	22	0.01	0.01	0.01
	SBL	B	B	B	18	18	18	0.03	0.02	0.01
	SBR	B	B	B	19	19	19	0.10	0.14	0.12

Note 1: The overall LOS and control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).

Note 2: All v/c ratios above 0.85 for through movements and shared through/turning movements as well as v/c ratios above 0.95 for exclusive movements are outlined in red text.

The signalized intersection of Regional Road 25 & James Snow Parkway is expected to operate at a LOS "D" or better during the weekday and Saturday peak hours. The westbound left-turn movement is expected to operate at a LOS "F" or with a v/c ratio above the Region's thresholds during the weekday p.m. peak hour; however, the intersection is still expected to operate acceptably. Nevertheless, with the planned road widenings for Regional Road 25 and James Snow Parkway, the intersection operations are expected to improve in the future.

The remaining signalized study intersections are currently operating at a LOS "C" or better with low to moderate control delays and v/c ratios. As such, these intersections operate efficiently with reserve capacity for future growth.

Roundabout Control

Table 7 outlines the 2025 existing operations for the roundabout study intersections.

Table 7: 2025 Existing Intersection Operations – Roundabout Control

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
James Snow Parkway/ Campbellville Road & Tremaine Road/Dublin Line	Overall ²	A	A	A	4	3	4	0.27	0.40	0.59
	EB	A	A	A	3	2	4	0.27	0.13	0.59
	WB	A	A	A	3	3	3	0.24	0.40	0.34
	NB	A	A	A	5	4	8	0.14	0.19	0.22
	SB	A	A	A	7	5	4	0.17	0.09	0.05

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

The roundabout is currently operating at a LOS "A" with low to moderate control delays and v/c ratios during weekday a.m. and p.m., as well as Saturday peak hours. As such, this intersection is operating efficiently with reserve capacity for future growth.

3.5 Queuing Analysis

SimTraffic and ARCADY software was used to assess the queues within the study road network, as applicable. The 95th percentile queues were compared against the available storage lengths, to determine if any queues are expected to extend beyond the provided auxiliary turn lanes.

Appendix F contains the detailed queueing analysis worksheets.

Signal & Stop Control

Table 8 outlines the results of the 2025 existing queuing assessment for the signalized and stop controlled study intersections.

Table 8: 2025 Existing Conditions Queuing Assessment – Signal & Stop Control

Intersection	Performance Metrics				Auxiliary Lane Storage Length (m) ²	
	Movement	95 th Percentile Queue Length (m) ¹				
		A.M.	P.M.	SAT		
Regional Road 25 & 5 Side Road	EBL	40	60	40	75	
	WBL	60	40	30	105	
	NBL	10	15	15	80	
	NBR	10	20	10	75	
	SBL	10	10	10	90	
	SBTR	40	30	30	85	
Regional Road 25 & James Snow Parkway	EBL	15	20	15	85	
	EBR	70	45	40	115	
	WBL	45	145	110	85	
	WBR	30	65	30	35	
	NBL	90	50	95	40	
	SBL	35	30	20	125	
James Snow Parkway & 5 Side Road	EBL	35	45	25	30	
	WBR	10	15	10	50	
	SBL	15	10	10	30	

Note 1: Rounded up to the nearest 5 m.

Note 2: Rounded up to the nearest 1 m.

While the eastbound left-turn movement at James Snow Parkway & 5 Side Road is observed to have queues that extend beyond the available storage length during the weekday a.m. and p.m. peak hours. However, the expected queue can be accommodated within the effective storage length consisting of the provide storage and a portion of the taper length.

The westbound left-turn, westbound right-turn and northbound left-turn queues at Regional Road 25 & James Snow Parkway are expected to exceed the effective storage length provided. However, the extended queues observed may be alleviated by the planned capital improvements to Regional Road 25 and James Snow Parkway. It is recommended that the Region monitor the traffic volumes and queues in the near-term future to confirm if interim mitigation measures are warranted.

Nevertheless, the modelled queues are not expected to result in notable operational impacts within the study road network.

Roundabout Control

Table 9 outlines the results of the 2025 existing queuing assessment for the signalized and stop controlled study intersections.

Table 9: 2025 Existing Conditions Queuing Assessment – Roundabout Control

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (veh) ¹		
		A.M.	P.M.	SAT
James Snow Parkway/ Campbellville Road & Dublin Line/Tremaine Road	EB	~1	~1	2
	WB	~1	~1	1
	NB	~1	~1	~1
	SB	~1	~1	~1

Note 1: 95th percentile queues are recorded in passenger car equivalents. Rounded to the nearest vehicle.

There are no queuing concerns observed at James Snow Parkway/Campbellville Road & Dublin Line/Tremaine Road under 2025 existing conditions.

4.0 Future Transportation Context

Within the study area, there are several changes to the current transportation context planned as part of planned capital works as well as developer driven improvements. The future transportation context was reviewed to understand the future mobility context of the study area, applicable to the analysis of future conditions.

4.1 Future Transportation Trends

The Town of Halton Hills Transportation Master Plan (November 2011) and Region of Halton Transportation Master Plan (September 2011) identified mode share forecasts for the Town and Region, respectively. Table 10 outlines the forecasted mode share for the 2031 horizon year.

Table 10: Halton Region Mode Share Targets

Mode	2031 Forecast	
	Region of Halton	Town of Halton Hills
Auto Driver	72%	82%
Auto Passenger (Carpool)	3%	
Transit	20%	11% ¹
Active Transportation (Walk, Cycle)	5%	7%
Total	100%	100%

Note 1: Includes school bus.

Appendix G includes the Transportation Master Plan excerpts.

4.2 Planned Mobility Infrastructure

The section herein outlines the planned mobility infrastructure within the study area and study horizons. Appendix H includes the transportation improvement excerpts.

4.2.1 Regional Road 25

The Region of Halton Transportation Master Plan (September 2011) identified Regional Road 25 as being widened by the 2031 horizon year. Regional Road 25 is planned to be widened from 4 lanes to 6 lanes between Steeles Avenue and 5 Side Road. This improvement was reviewed as part of a municipal class environmental assessment (MCEA) study, and the Environmental Study Report (ESR) is complete. Regional Road 25 is also planned to be widened between 5 Side Road and 10 Side Road, with the MCEA study process still ongoing.

The Regional Road 25 Corridor Study ESR (Stantec, October 2020) a typical 6 lane cross-section for Regional Road 25, between Steeles Avenue and 5 Side Road, which includes multi-use paths and bike lanes on both sides. Left-turn and right-turn lanes are also proposed at most signalized intersections.

Figure 5 illustrates the proposed Regional Road 25 typical 6 lane cross-section.

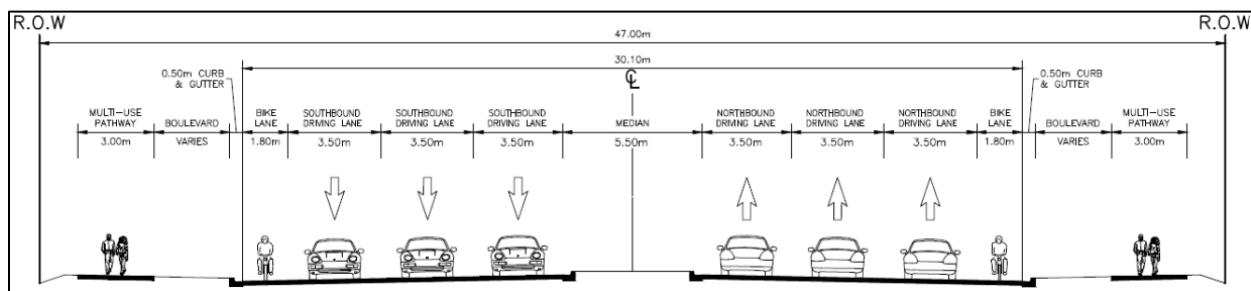


Figure 5: Proposed Regional Road 25 Typical 6-Lane Cross-Section (Region of Halton)

The widening of Regional Road 25, between 5 Side Road and 10 Side Road, is currently being reviewed as part of the North Halton Coordinated MCEA Study, which includes multiple roadway improvements proposed in North Halton. Despite the Transportation Master Plan identifying widening from 2 to 4 lanes between 5 Side Road and 10 Side Road, the most recent MCEA documents reviews cross-section options with 2 travel lanes and a two-way left-turn lane. The preliminary recommended design alternative includes buffered paved shoulders on both sides and a multi-use path on the west side.

Figure 6 illustrates the proposed Regional Road 25 typical 2-lane cross-section.

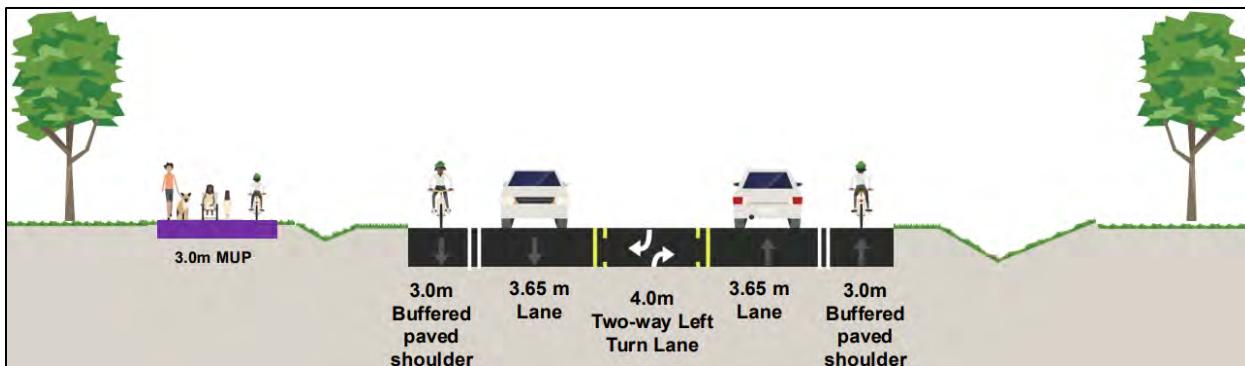


Figure 6: Proposed Regional Road 25 Typical 2-Lane Cross-Section (Region of Halton)

As part of the capital improvements along Regional Road 25, between Steeles Avenue and 5 Side Road, the existing signalized intersection of Regional Road 25 & 5 Side Road will be converted to a 2-lane roundabout.

It is noted that the transition between the 6-lane cross-section and the 2-lane cross-section along Regional Road 25, north of 5 Side Road, will need to be refined as part of the MCEA and detailed design processes. Given the Proposed Development along the west side of Regional Road 25, north of 5 Side Road, maintaining a more urban cross-section should be considered.

Based on the Region's 2025 Budget and Business Plan Capital Report, the construction associated with the widening of Regional Road 25 is expected to occur in 2025 between Steeles Avenue and 5 Side Road and in 2027 between 5 Side Road and 10 Side Road. It is noted that at the time of writing, construction along Regional 25 has not started; nevertheless, it is assumed that all Regional Road 25 improvements will be completed prior to the 2030 horizon year.

4.2.2 James Snow Parkway

The Region of Halton Transportation Master Plan (TMP) (September 2011) identifies widening of Regional Road 4 to 6 lanes between Highway 401 and Tremaine Road. Preliminary documents for the Region's Integrated Master Plan, which will update the current TMP to the 2051 horizon, maintains the planned widening of James Snow Parkway. Currently, there are no details regarding the planned improvement. As the Transportation Master Plan identifies Regional Road 4 as a C4 Urban roadway, it is assumed that Regional Road 4 will align with the typical C4 Urban cross-section.

Figure 1 illustrates the typical C4 Urban 6-lane cross-section outlined in the Region's TMP.

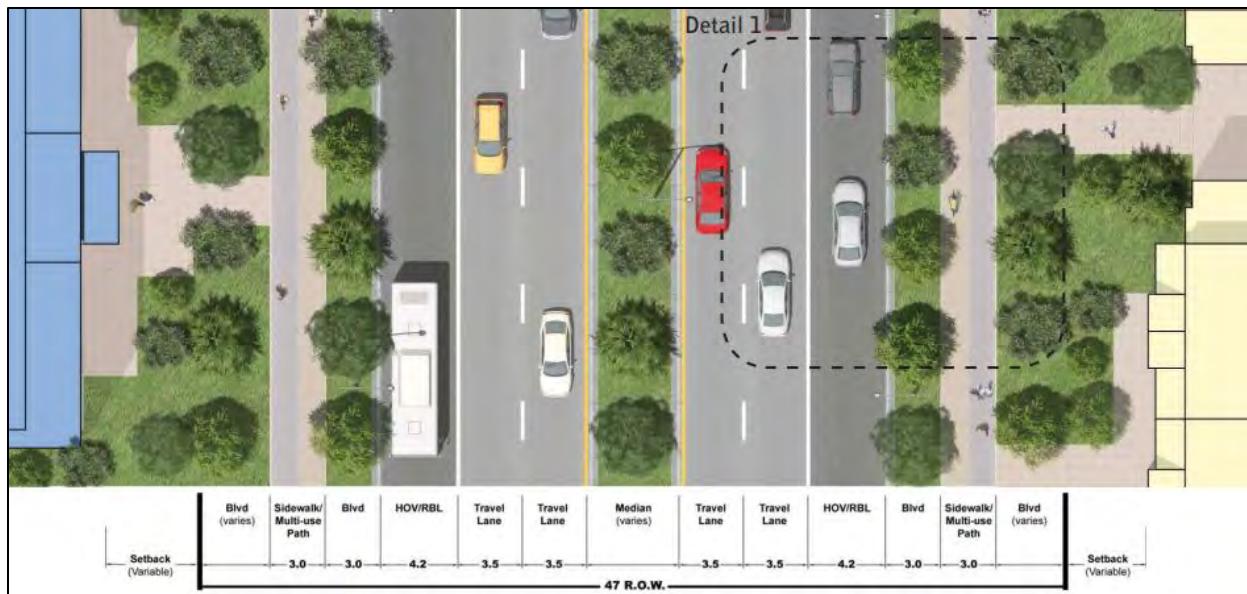


Figure 7: Typical C4 Urban 6-Lane Cross-Section (Region of Halton)

The Region's 2025 Budget and Business Plan Capital Report identifies that the construction associated with the Regional Road 25 widening to occur in 2030. Accordingly, for a conservative analysis, it is assumed that the widening will be built out after the 2030 horizon year, and thus, was only included in the analysis of the 2035 horizon year.

4.2.3 Tremaine Road

Tremaine Road (Regional Road 22) was realigned, south of James Snow Parkway, which included a new Highway 401 overpass. Beyond the road realignment, which was completed in July 2025, a Highway 401 interchange is also proposed at Tremaine Road. This interchange is expected to open in December 2026.

4.3 Summary

Table 11 summarizes the planned mobility improvements within the study area.

Table 11: Planned Mobility Improvements

Roadway	Segment	Improvement	Year
Regional Road 25	Steeles Avenue to 5 Side Road	Widening to 6 Lanes	2025 ¹
	5 Side Road to 10 Side Road	Widening to Add Two-Way Left-Turn Lane	2027
James Snow Parkway	Highway 401 to Tremaine Road	Widening to 6 Lanes	By 2035 ²
Regional Road 25 & 5 Side Road		Roundabout	2025 ¹
Highway 401 & Tremaine Road		Highway Interchange	2026

Note 1: *The Region's budget identifies construction associated with the widening of Regional Road 25 in 2025. As these improvements have not been implemented, they are considered to be complete by the 2030 horizon.*

Note 2: *The Region's budget identifies the construction associated with the widening of James Snow Parkway in 2030. For conservative analysis, it is assumed that the widening of James Snow Parkway will be after the 2030 horizon year.*

5.0 Future Background Transportation Network Review

The section herein reviews the future background operations of the study road network, in a similar approach to existing conditions in Section 3.0.

5.1 Corridor Growth Rates

The Region of Halton provided the growth rates for the regional roads within the study area. These growth rates were applied to through movements along the regional study roadways.

Furthermore, a 2.0% growth rate was applied to through movements along Town roads, consistent with the Halton Business Community Traffic Impact Study (TYLin, December 2023).

Table 12 summarizes the growth rates applied to the study roadways.

Table 12: Applied Annual Growth Rates

Roadway	Growth Rate	
	2025 to 2031	2031 to 2041
Regional Road 25	3.0%	1.0%
James Snow Parkway	5.0%	3.0%
Tremaine Road	3.0%	1.0%
5 Side Road	2.0%	2.0%
Campbellville Road	2.0%	2.0%
Dublin Line	2.0%	2.0%

As confirmed with Region staff, the growth rates provided for Tremaine Road account for the planned Highway 401 interchange at Tremaine Road. Accordingly, no additional adjustments were made based on the planned interchange.

Appendix D includes the growth rate excerpts.

5.2 Background Developments

The Town of Halton Hills and Town of Milton's development applications database was reviewed to determine applicable background developments in the study area. Table 13 outlines the background developments noted near the Subject Site and included as background growth in the future analyses.

Table 13: Summary of Background Developments

Development	Land Use	Site Statistics	Report
Halton Business Community	Industrial	456,674 m ²	Traffic Impact Study (TYLin, December 2023)
6500 & 6750 Campbellville Road ¹	Industrial	90,025 m ²	N/A ²
8500 Mount Pleasant Way ¹	Industrial	38,090 m ²	N/A ²

Note 1: Located within the 401 Business Park.

Note 2: A transportation report was not publicly available at the time of writing.

Appendix I includes the background development excerpts.

Halton Business Community

The Halton Business Community is located within the North Milton Business Park Tertiary Plan in the Town of Milton. The background development proposes 7 industrial buildings totalling 456,674 m² of gross floor area.

Based on the Traffic Impact Study (TYLin, December 2023), the background development is expected to generate 838 and 939 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

As TYLin's report did not distribute trips west of Regional Road 25, it is assumed that all trips travelling to/from the west will be travelling through along James Snow Parkway and 5 Side Road to Campbellville Road and Tremaine Road, based on existing travel patterns as well as the applicable heavy vehicle restrictions.

It is noted that the Halton Business Community Traffic Impact Study did not analyze the Saturday peak period. As such, the Saturday volumes for each background development were estimated using the following methodology:

- The weekday p.m. peak hour is considered the best available data to approximate travel demands for the Saturday peak and was used as a baseline for Saturday peak hour volumes.
- An adjustment factor was calculated based on the vehicle trip generation rates per Institute of Transportation Engineers' (ITE) methodology for the weekday p.m. and Saturday peak hours
- The resulting adjustment factor was applied to the weekday p.m. peak hour trip assignment for the background development to represent the Saturday peak hour trip assignments.

6500 & 6750 Campbellville Road

The development at 6500 & 6750 Campbellville Road is located within the 401 Business Park and comprises 90,025 m² of industrial warehouse space. As the applicable transportation report was not publicly available online, the background development traffic volumes were estimated using ITE Trip Generation 12th, Edition and the methodology utilized for the Subject Development's trip generation, outlined in Section 6.0.

Table 14 outlines the baseline trip generation for the 6500 & 6750 Campbellville Road background development.

Table 14: 6500 & 6750 Campbellville Road Baseline Vehicle Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹		
				In	Out	Total
Vehicle						
LUC 150 Warehousing	969,025 ft ²	A.M.	0.12/1000 ft ²	89	27	116
		P.M.	0.15/1000 ft ²	41	104	145
		SAT	0.05/1000 ft ²	31	17	48
Truck						
LUC 150 Warehousing	969,025 ft ²	A.M.	0.02/1000 ft ²	10	9	19
		P.M.	0.03/1000 ft ²	15	14	29
		SAT	0.01/1000 ft ²	5	4	9
Passenger Car						
LUC 150 Warehousing	969,025 ft ²	A.M.	N/A ²	79	18	97
		P.M.	N/A ²	26	90	116
		SAT	N/A ²	26	13	39

Note 1: Rounding may cause appearance of minor discrepancies.

Note 2: Passenger car trips are the difference between the vehicle trips and the truck trips.

As outlined in Section 6.1.2, a mode split adjustment factor of 0.79 was applied to the passenger car trips, accounting for the Region's target vehicle mode split.

Table 15 outlines the mode split adjusted passenger car trip generation.

Table 15: 6500 & 6750 Campbellville Road Mode Split Adjusted Passenger Car Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹		
				In	Out	Total
Passenger Car						
LUC 150 Warehousing	969,025 ft ²	A.M.	0.79 mode split adjustment factor	62	14	77
		P.M.		21	71	92
		SAT		21	10	31

Note 1: Rounding may cause the appearance of discrepancies.

The passenger car trips were distributed to the study road network based on the warehouse trip distribution applied to the site generated trips, as outlined below in Section 6.2.1. Given the location of the background development, the truck trips are assumed to utilize James Snow Parkway and Tremaine Road. The trips were distributed based on existing travel patterns in the study area, with an adjustment to account for the planned Tremaine Road interchange.

8500 Mount Pleasant Way

The industrial warehouse development at 8500 Mount Pleasant Way, located in the 401 Business Park, has a gross floor area of 38,090 m². The transportation report was not publicly available at the time of writing. Accordingly, the background development traffic volumes were estimated using ITE Trip Generation 12th, Edition.

Table 16 outlines the trip generation for the 8500 Mount Pleasant Way background development.

Table 16: 8500 Mount Pleasant Way Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹		
				In	Out	Total
Vehicle Trips						
LUC 150 Warehousing	410,000 ft ²	A.M.	0.12/1000 ft ²	38	11	49
		P.M.	0.15/1000 ft ²	17	45	62
		SAT	0.05/1000 ft ²	13	8	21
Truck Trips						
LUC 150 Warehousing	410,000 ft ²	A.M.	0.02/1000 ft ²	4	4	8
		P.M.	0.03/1000 ft ²	6	6	12
		SAT	0.01/1000 ft ²	2	2	4
Passenger Car Trips						
LUC 150 Warehousing	410,000 ft ²	A.M.	N/A ²	34	7	41
		P.M.	N/A ²	11	39	50
		SAT	N/A ²	11	6	17

Note 1: Rounding may cause appearance of minor discrepancies.

Note 2: Passenger car trips are the difference between the vehicle trips and the truck trips.

As outlined in Section 6.1.2, a mode split adjustment factor of 0.79 was applied to the passenger car trips, accounting for the Region's target vehicle mode split.

Table 17 outlines the mode split adjusted passenger car trip generation.

Table 17: 6500 & 6750 Campbellville Road Mode Split Adjusted Passenger Car Trip Generation

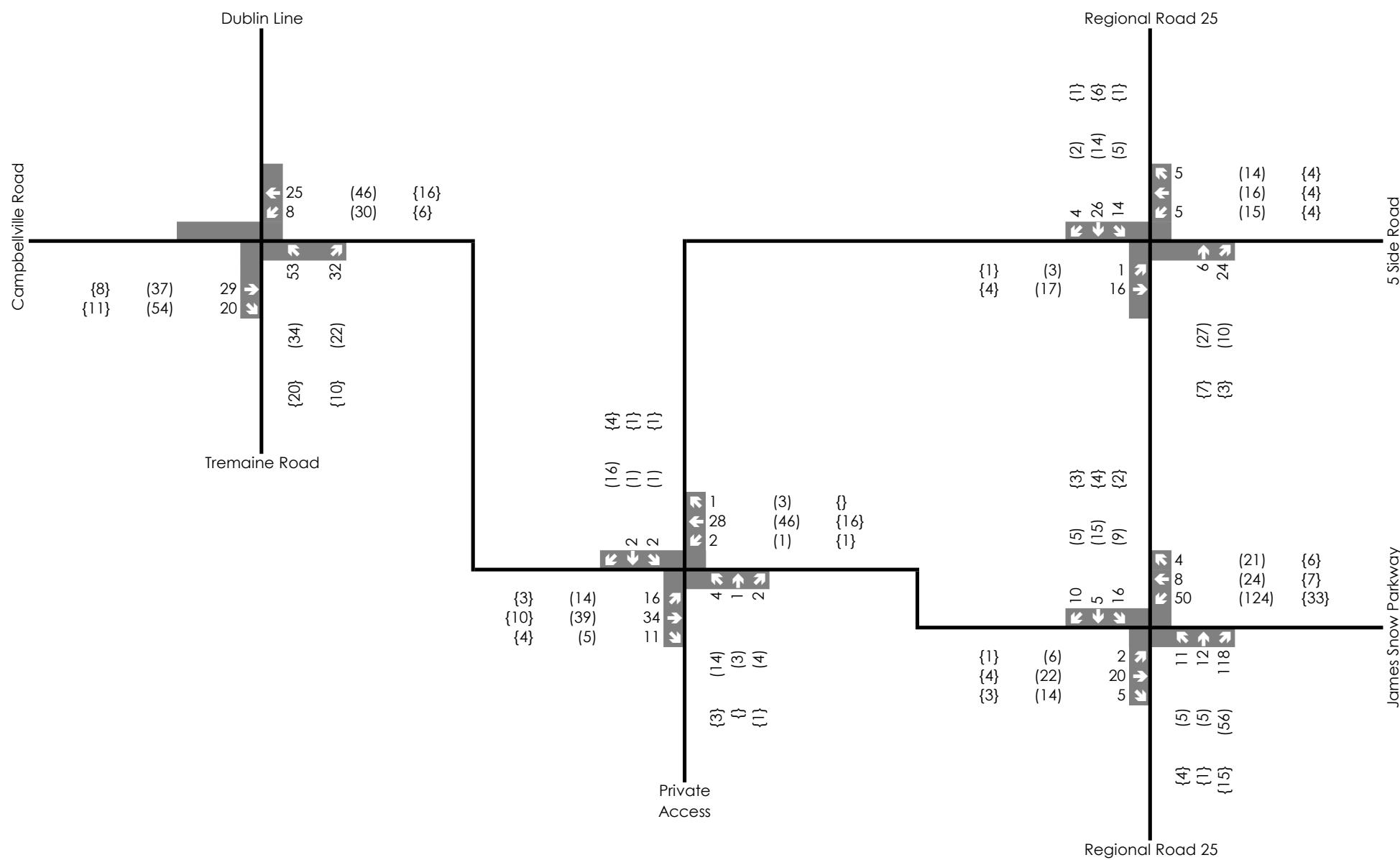
Land Use	Variable	Peak Hour	Equation	Trips ¹		
				In	Out	Total
Passenger Car						
LUC 150 Warehousing	410,000 ft ²	A.M.	0.79 mode split adjustment factor	27	6	32
		P.M.		9	31	39
		SAT		9	5	13

Note 1: Rounding may cause the appearance of discrepancies.

The passenger car trips were distributed to the study road network based on the warehouse trip distribution applied to the site generated trips, as outlined below in Section 6.2.1. Given the location of the background development, the truck trips are assumed to utilize James Snow Parkway, Regional Road 25 and Tremaine Road. The trips were distributed based on existing travel patterns in the study area, with an adjustment to account for the planned Tremaine Road interchange.

Summary

Figure 8 outlines the background development volumes.



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

9094 Regional Road 25

Background Development Volumes



Figure 8

Project No. 2022-7556
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Analyst: MY

5.3 Future Background Volumes

The future background traffic volumes for the horizon years consist of the following components:

- Grown Traffic Volumes
- Background Development Volumes

Figure 9 and Figure 10 outlines the 2030 and 2035 future background traffic volumes, respectively.

Campbellville Road

Dublin Line

Regional Road 25

5 Side Road

13

24

70

(32)

(79)

(89)

{37}

{92}

{59}

{9}

{10}

{27}

{32}

{33}

{13}

{24}

{16}

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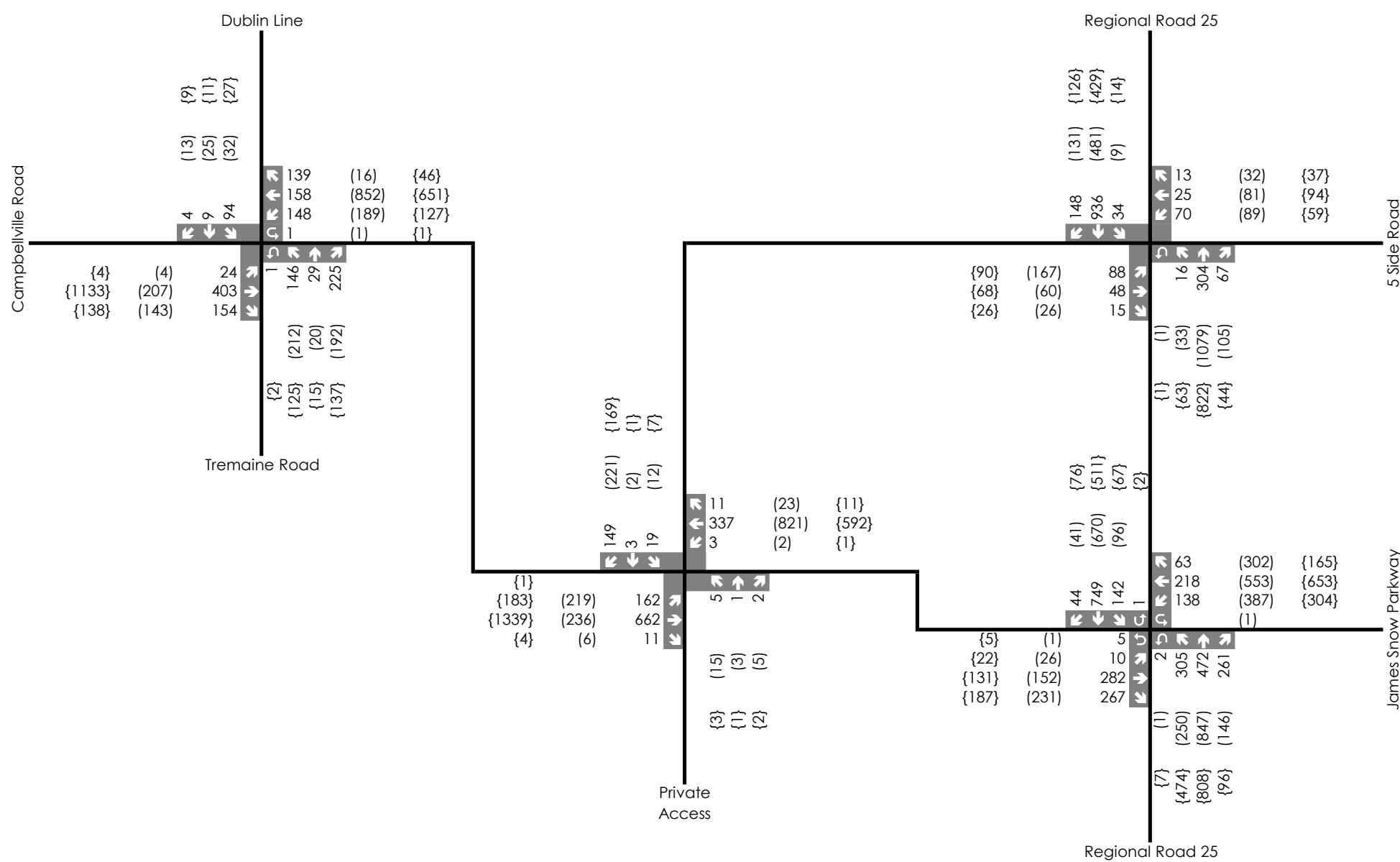
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Legend

- xx A.M. Peak Hour Traffic Volumes
- (xx) P.M. Peak Hour Traffic Volumes
- {xx} Weekend Peak Hour Traffic Volumes

9094 Regional Road 25

2035 Future Background Traffic Volumes



Figure 10

Project No. 2022-7556
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Analyst: MY

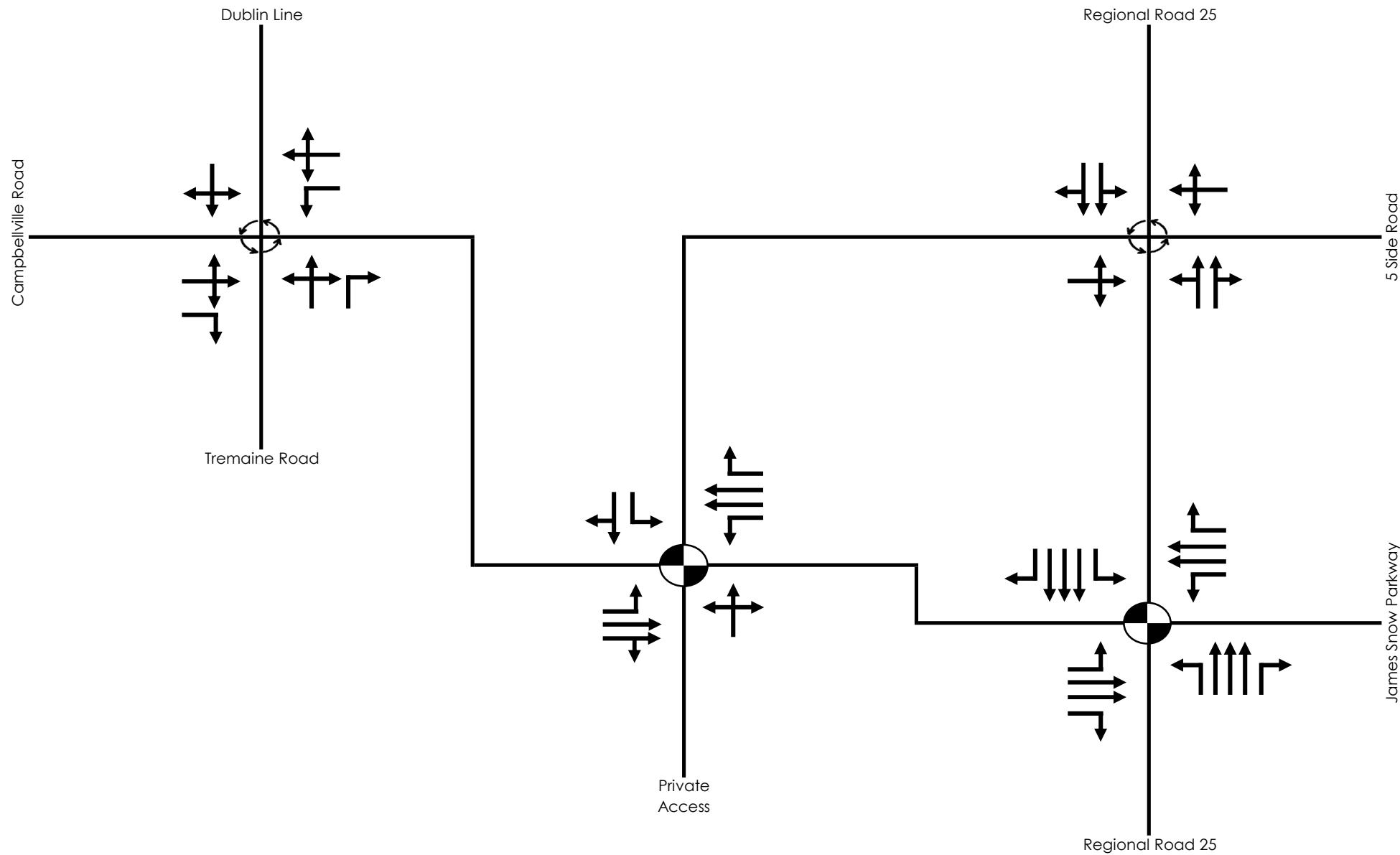
5.4 Traffic Modelling and Assumptions

5.4.1 Roadway Geometry

2030 Horizon Year

For the widening of Regional Road 25, south of 5 Side Road, to 6 lanes, the lane configuration and geometry were modelled based on the Preliminary Preferred Design drawings (Stantec, July 2019).

Figure 11 illustrates the 2030 future background study road network.



Legend

- Signal Control
- Stop Control
- Roundabout Control

9094 Regional Road 25
2030 Future Background Study Road Network

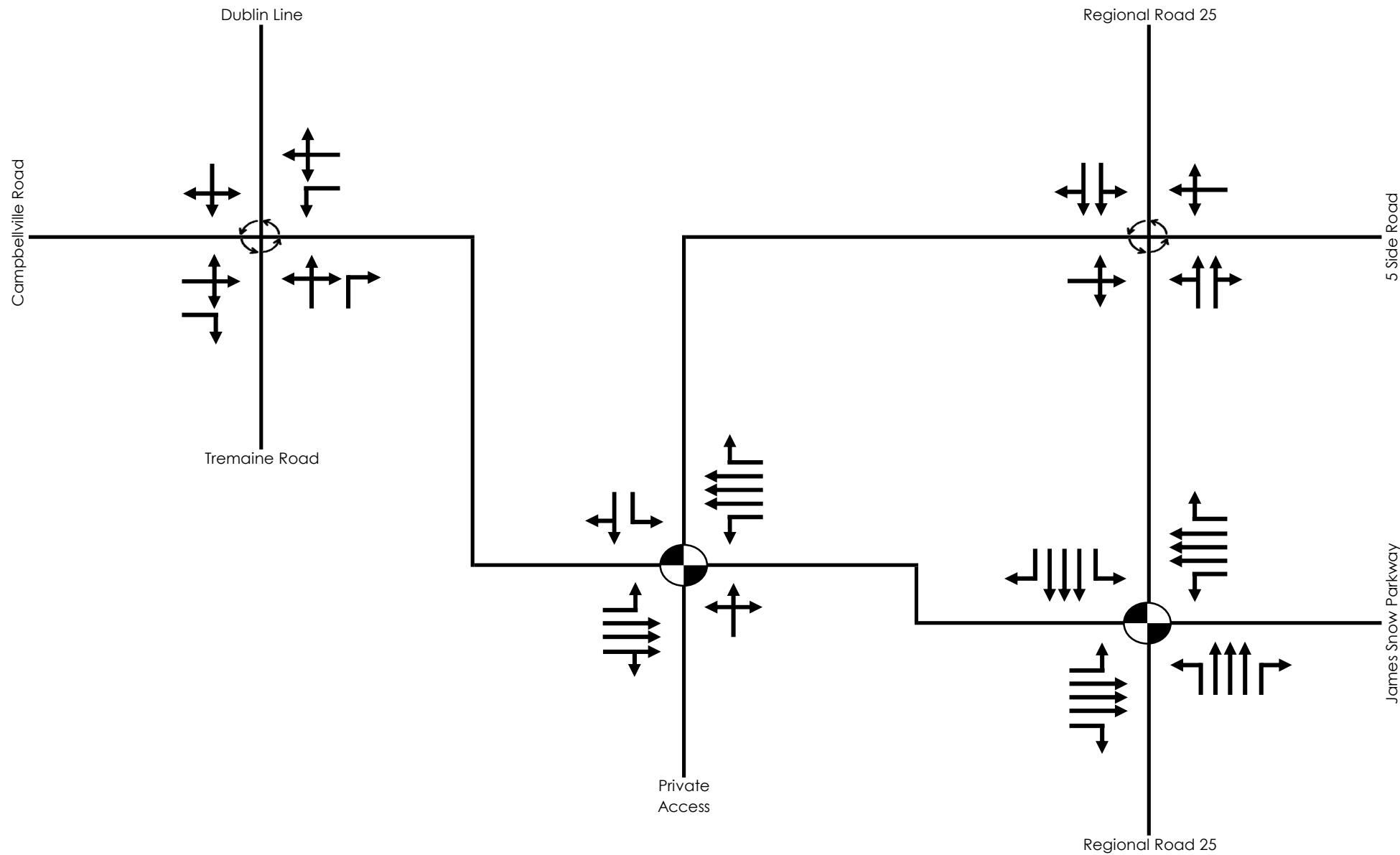
CROZIER
CONSULTING ENGINEERS

Figure 11
Project No. 2022-7556
Date: 11/10/25
Analyst: MY

2035 Horizon Year

As no design drawings are publicly available for the widening of James Snow Parkway to 6 lanes, it was assumed that one additional through lane, in each direction, would be added to the existing geometry along James Snow Parkway.

Figure 12 illustrates the 2035 future background study road network.



Legend

- Signal Control
- Stop Control
- Roundabout Control

9094 Regional Road 25

2035 Future Background Study Road Network

CROZIER
CONSULTING ENGINEERS

Figure 12

Project No. 2022-7556
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5.4.2 Modelling Parameters

The PHFs were kept consistent with existing conditions, for comparative purposes.

Given the planned road widenings as part of future background conditions, the signal timing plan splits were optimized for the signalized study intersections.

5.4.3 Roundabout Analysis

As outlined in the Regional Road 25 Corridor Study, the signalized intersection of Regional Road 25 & 5 Side Road is also planned to be converted to a roundabout. The roundabout is assumed to be built out by the 2030 horizon year.

The roundabout geometry was modelled based on the preliminary preferred design concept (Region of Halton, June 2019). Table 18 outlines the roundabout geometry used in modelling.

Table 18: Regional Road 25 & 5 Side Road Roundabout Geometry

Parameter	Regional Road 25	Regional Road 25	5 Side Road	5 Side Road
Approach	North	South	East	West
Approach Road Half-Width	4.1 m	7.00 m	3.3 m	3.9 m
Entry Width	9.0 m	8.2 m	7.0 m	7.5 m
Effective Flare Length	65 m	25 m	20 m	15 m
Entry Radius	25 m	30 m	35 m	25 m
Inscribed Circle Diameter	52 m	52 m	58 m	58 m
Conflict (Entry) Angle	55 degrees	40 degrees	45 degrees	40 degrees

5.5 Intersection Operations

The section herein reviews the intersection operations under 2030 and 2035 future background conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio.

Appendix E contains the detailed capacity analysis worksheets.

5.5.1 2030 Horizon Year

Signal Control

Table 19 outlines the 2030 future background intersection operations for the signalized study intersections.

Table 19: 2030 Future Background Operations - Signal Control

Intersection		Movement	Performance Metrics								
			LOS ¹			Delay (s) ¹			v/c ratio ²		
			A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & James Snow Parkway	Signal Opt. #1	Overall	C	C	C	27	35	35	0.76	0.85	0.91
		EBL	D	D	D	42	45	45	0.08	0.21	0.27
		EBT	D	D	D	49	51	49	0.55	0.46	0.35
		EBR	D	D	D	46	49	28	0.23	0.19	0.14
		WBL	D	D	D	44	54	51	0.65	0.91	0.84
		WBT	D	D	D	42	37	53	0.34	0.59	0.85
		WBR	D	C	D	39	33	37	0.05	0.35	0.21
		NBL	B	C	C	18	25	27	0.74	0.73	0.86
		NBT	B	C	B	16	27	19	0.21	0.48	0.35
		NBR	B	C	B	16	23	16	0.19	0.13	0.08
		SBL	B	C	C	15	22	25	0.30	0.40	0.28
		SBT	C	C	C	23	31	31	0.37	0.45	0.35
		SBR	B	C	C	19	26	28	0.04	0.04	0.06
James Snow Parkway & 5 Side Road	Signal Opt. #1	Overall	B	C	B	15	23	18	0.32	0.47	0.57
		EBL	A	B	A	9	11	10	0.24	0.42	0.34
		EBTR	A	A	B	10	7	13	0.38	0.12	0.69
		WBL	B	B	C	19	19	21	0.01	0.01	0.01
		WBT	C	C	C	22	29	29	0.38	0.72	0.63
		WBR	B	B	C	18	19	21	0.01	0.02	0.01
		NBLTR	C	C	C	23	25	24	0.02	0.06	0.02
		SBL	C	C	C	25	27	26	0.06	0.05	0.03
		SBR	C	C	C	25	28	27	0.11	0.15	0.21

Note 1: The overall LOS and control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).

Note 2: All v/c ratios above 0.85 for overall intersections, through movements and shared through/turning movements are in red text. All v/c ratios above 0.95 for exclusive movements are also in red text.

The signalized study intersections are operating at a LOS "C" or better during the weekday and Saturday peak hours, with low to moderate control delays.

It is noted that the intersection of Regional Road 25 & James Snow Parkway is operating with a maximum intersection v/c ratio above the threshold of 0.85. Nevertheless, the intersection is still expected to be under capacity and operating efficiently without any operational concerns noted.

Roundabout Control

Table 20 outlines the 2030 future background intersection operations for roundabout study intersections.

Table 20: 2030 Future Background Intersection Operations – Roundabout Control

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall ²	A	A	A	6	7	4	0.69	0.74	0.56
	EB	A	A	A	6	4	4	0.21	0.25	0.18
	WB	A	A	A	5	10	7	0.14	0.37	0.28
	NB	A	A	A	3	8	5	0.25	0.74	0.56
	SB	A	A	A	7	4	3	0.69	0.39	0.37
James Snow Parkway/ Campbellville Road & Tremaine Road/Dublin Line	Overall ²	A	A	A	4	4	10	0.32	0.55	0.68
	EB	A	A	A	3	2	6	0.32	0.20	0.68
	WB	A	A	A	3	4	3	0.28	0.55	0.43
	NB	A	A	B	6	5	10	0.23	0.24	0.31
	SB	A	A	A	7	7	5	0.18	0.12	0.06

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

The roundabout study intersections are expected to operate efficiently at a LOS “A” with low control delays and low to moderate v/c ratios. Accordingly, the roundabouts are anticipated to operate with reserve capacity to accommodate future traffic growth.

5.5.2 2035 Horizon Year

Signal Control

Table 21 outlines the 2035 future background intersection operations for the signalized study intersections.

Table 21: 2035 Future Background Traffic Operations – Signal Control

Intersection		Movement	Performance Metrics								
			LOST ¹			Delay (s) ¹			v/c ratio ²		
			A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & James Snow Parkway	Signal Opt. #1	Overall	C	C	C	28	35	34	0.77	0.87	0.92
		EBL	D	D	D	43	46	45	0.08	0.23	0.26
		EBT	D	D	D	48	50	49	0.48	0.39	0.28
		EBR	D	D	D	47	49	48	0.23	0.19	0.14
		WBL	D	E	D	45	57	52	0.66	0.92	0.85
		WBT	D	D	D	42	35	44	0.29	0.49	0.70
		WBR	D	C	D	40	33	37	0.05	0.26	0.21
		NBL	B	C	C	19	26	29	0.75	0.76	0.88
		NBT	B	C	B	15	27	19	0.22	0.51	0.38
		NBR	B	C	B	15	23	16	0.19	0.13	0.08
		SBL	B	C	C	15	22	25	0.30	0.42	0.30
		SBT	C	C	C	22	31	32	0.39	0.48	0.38
		SBR	B	C	C	19	26	28	0.04	0.04	0.06
James Snow Parkway & 5 Side Road	Signal Opt. #1	Overall	B	C	B	14	21	16	0.27	0.42	0.47
		EBL	A	B	A	9	10	9	0.25	0.41	9
		EBTR	A	A	B	9	6	10	0.31	0.09	10
		WBL	B	B	C	19	19	21	0.01	0.01	21
		WBT	C	C	C	21	25	26	0.31	0.58	26
		WBR	B	B	C	18	19	21	0.01	0.02	21
		NBLTR	C	C	C	23	25	24	0.02	0.06	24
		SBL	C	C	C	25	27	26	0.06	0.05	26
		SBR	C	C	C	25	28	27	0.11	0.15	27

Note 1: The overall LOS and control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).

Note 2: All v/c ratios above 0.85 for overall intersections, through movements and shared through/turning movements are in red text. All v/c ratios above 0.95 for exclusive movements are also in red text.

The signalized study intersections are operating at a LOS “C” or better during the weekday and Saturday peak hours, with low to moderate control delays.

Consistent with 2030 future background conditions, the intersection of Regional Road 25 & James Snow Parkway is operating with a maximum intersection v/c ratio above the threshold of 0.85 under 2035 future background conditions. Nevertheless, the intersection is still expected to be under capacity and operating efficiently without any operational concerns noted.

Roundabout Control

Table 22 outlines the 2035 future total intersection operations for the roundabout study intersections.

Table 22: 2035 Future Background Traffic Operations – Roundabout Control

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall ²	A	A	A	6	7	5	0.73	0.75	0.60
	EB	A	A	A	6	4	4	0.22	0.16	0.19
	WB	A	A	A	5	10	7	0.15	0.37	0.31
	NB	A	A	A	3	8	5	0.27	0.75	0.60
	SB	A	A	A	8	4	4	0.73	0.41	0.39
James Snow Parkway/ Campbellville Road & Tremaine Road/Dublin Line	Overall ²	A	A	A	4	4	6	0.34	0.55	0.73
	EB	A	A	A	3	2	7	0.34	0.20	0.73
	WB	A	A	A	3	4	3	0.29	0.55	0.49
	NB	A	A	B	6	5	12	0.24	0.24	0.35
	SB	A	A	A	7	7	5	0.19	0.12	0.07

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

The roundabout study intersections are expected to operate at a LOS “A” with low control delays and low to moderate v/c ratios. These metrics indicate that these intersections are forecasted to operate with reserve capacity to accommodate future traffic growth.

5.6 Queuing Analysis

Consistent with existing conditions, SimTraffic and ARCADY software was used to assess the queues within the study road network, as applicable. The 95th percentile queues were compared against the available storage length to determine if any queues are expected to extend beyond the auxiliary turn lanes.

Appendix F contains the detailed queueing analysis worksheets.

5.6.1 2030 Horizon Year

Signal & Stop Control

Table 23 outlines the results of the 2030 future background queuing assessment for the signalized and stop controlled study intersections.

Table 23: 2030 Future Background Queuing Assessment – Signal & Stop Control

Intersection	Performance Metrics				Auxiliary Lane Storage Length (m) ²	
	Movement	95 th Percentile Queue Length (m) ¹				
		A.M.	P.M.	SAT		
Regional Road 25 & James Snow Parkway	EBL	15	20	15	85	
	EBR	65	40	30	115	
	WBL	70	190	110	85	
	WBR	25	70	60	35	
	NBL	90	75	100	120	
	NBR	35	20	15	65	
	SBL	40	40	25	125	
	SBR	15	20	20	15	
James Snow Parkway & 5 Side Road	EBL	30	40	35	30	
	WBL	5	5	5	30	
	WBR	10	15	10	50	
	SBL	15	10	10	30	

Note 1: Rounded up to the nearest 5 m.

Note 2: Rounded up to the nearest 1 m.

The queues for some movements are expected to extend beyond the storage length. However, these queues for the following movements and intersections can be accommodated within the provided taper length or two-way left-turn lane, accordingly:

- Regional Road 25 & James Snow Parkway (SBR)
- James Snow Parkway & 5 Side Road (EBL)

The westbound left-turn and right-turn lane queues at Regional Road 25 & James Snow Parkway are expected to extend beyond the storage length provided. Nevertheless, the queue is not expected to significantly impact the study road network and does not extend to the upstream intersection. It is recommended that the Region monitors the queues to determine if interim improvements are warranted, prior to the James Snow Parkway widening.

Roundabout Control

Table 24 outlines the results of the 2035 future background queuing assessment for the roundabout study intersections.

Table 24: 2030 Future Background Conditions Queuing Assessment - Roundabout Control

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (veh) ¹		
		A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	EB	~1	~1	~1
	WB	~1	1	~1
	NB	~1	6	1
	SB	4	1	1
James Snow Parkway/ Campbellville Road & Dublin Line/Tremaine Road	EB	1	~1	3
	WB	~1	1	1
	NB	~1	~1	~1
	SB	~1	~1	1

Note 1: 95th percentile queues are recorded in passenger car equivalents. Rounded to the nearest vehicle.

Under 2030 future background conditions, there are no queuing concerns expected for the roundabout study intersections.

5.6.2 2035 Horizon Year

Signal & Stop Control

Table 25 outlines the results of the 2035 future background queuing assessment for the signalized and stop controlled study intersections.

Table 25: 2035 Future Background Queuing Assessment – Signal & Stop Control

Intersection	Performance Metrics				Auxiliary Lane Storage Length (m) ²	
	Movement	95 th Percentile Queue Length (m) ¹				
		A.M.	P.M.	SAT		
Regional Road 25 & James Snow Parkway	EBL	15	20	30	85	
	EBR	65	45	30	115	
	WBL	65	170	120	85	
	WBR	20	55	30	35	
	NBL	100	90	110	120	
	NBR	25	20	15	65	
	SBL	40	35	20	125	
	SBR	15	20	15	15	
James Snow Parkway & 5 Side Road	EBL	35	40	35	30	
	WBL	5	5	5	30	
	WBR	10	15	10	50	
	SBL	15	10	5	30	

Note 1: Rounded up to the nearest 5 m.

Note 2: Rounded up to the nearest 1 m.

The following queues are expected to extend beyond the storage provided; however, the exceedance can be accommodated within the provided or recommended effective storage length:

- Regional Road 25 & Jame Snow Parkway (WBR, SBR)
- James Snow Parkway & 5 Side Road (EBL)

The westbound left-turn queue at Regional Road 25 & James Snow Parkway is expected to extend beyond the assumed storage length. As part of the design to accommodate widening to 6-lanes, it is recommended that the Region consider extending the existing storage length to accommodate the extended queue. However, it is noted that this improvement would require revising the existing concrete median and back-to-back left-turn lanes, to accommodate a portion of the turn lanes side-by-side. If a storage length extension is desired by the Region, this improvement can be implemented as part of the James Snow Parkway widening works.

The westbound right-turn queue at Regional Road 25 & James Snow Parkway is expected to exceed the effective storage length. It is recommended that the storage length should be extended further to 55 m to accommodate the expected queues, which would be a minor increase compared to existing parallel lane design. This recommended storage length extension can be implemented as part of the James Snow Parkway widening works.

Roundabout Control

Table 26 outlines the results of the 2035 future background queuing assessment for the roundabout study intersections.

Table 26: 2035 Future Background Conditions Queuing Assessment - Roundabout Control

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (veh) ¹		
		A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	EB	~1	~1	~1
	WB	~1	1	1
	NB	~1	6	1
	SB	5	~1	1
James Snow Parkway/ Campbellville Road & Dublin Line/Tremaine Road	EB	1	~1	4
	WB	~1	1	~1
	NB	~1	~1	1
	SB	~1	~1	~1

Note 1: 95th percentile queues are recorded in passenger car equivalents. Rounded to the nearest vehicle.

There are no queueing concerns expected at the roundabout study intersections under 2035 future background conditions.

5.6.3 Summary

Table 27 outlines the recommended auxiliary turn lane geometry based on the results of the queuing analysis above.

Table 27: Future Background Recommended Auxiliary Turn Lane Geometry

Intersection	Movement	Horizon Year	Storage Length		Improvement Type
			Existing	Recommended	
Regional Road 25 & James Snow Parkway	WBR	2035	35 m	55 m (+20 m)	Capital Project Improvement ¹

Note 1: Potential implementation as part of James Snow Parkway widening project.

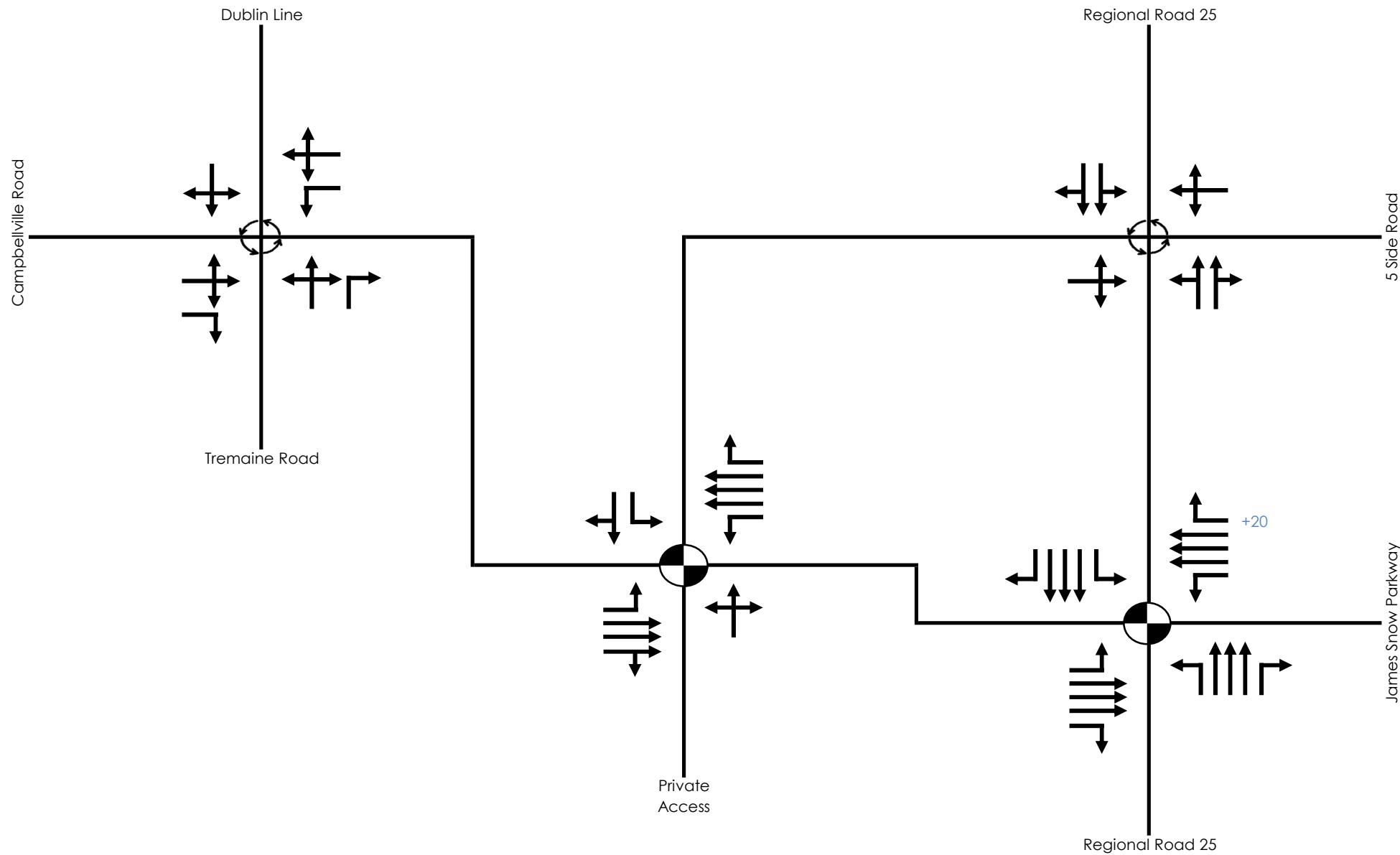
5.7 Future Background Recommendations Summary

Table 28 summarizes the future background recommended improvements.

Table 28: Future Background Recommendations Summary

Location	Improvement
2030 Future Background	
Regional Road 25	Maintain schedule for planned road widening between Steeles Avenue to 10 Side Road
Regional Road 25 & James Snow Parkway	Monitor traffic operations and queues to determine if additional improvements are warranted, prior to James Snow Parkway widening.
Regional Road 25 & 5 Side Road	Maintain schedule for planned roundabout.
Highway 401 & Tremaine Road	Maintain schedule for planned interchange.
2035 Future Background	
James Snow Parkway	Maintain schedule for planned road widening between Highway 401 to Tremaine Road.
Regional Road 25 & James Snow Parkway	Consider extending the existing WBL auxiliary turn lane (170 m). Extend existing WBR auxiliary turn lane (55 m).

Figure 13 illustrates the 2035 future background recommendations.



9094 Regional Road 25

2035 Future Background Recommendations



Figure 13

Project No. 2022-7556
Date: 11/10/25
Analyst: MY

6.0 Site Generated Traffic

This section reviews the multi-modal trip generation of the Proposed Development and the distribution of these trips on the multi-modal transportation network.

6.1 Trip Generation

The Proposed Development will result in additional vehicles on the boundary road network that would otherwise not exist, as well as additional turning movements at the study intersections.

Trip generation for the Proposed Development was determined using the methodology outlined below:

- The discount warehouse club trip generation was calculated using the estimated rates determined based on proxy site survey data across the Greater Toronto Area for similar developments, due to its unique membership-based operations. The trip generation surveys referenced were conducted at a similar development in Woodbridge and were retrieved from the Davis Drive & Highway 404 Retail Development Transportation Mobility Plan (TYLin, March 2022).
- The baseline trip generation rates outlined in the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 12th Edition (August 2025) were used for the following land uses categories (LUC) under a general urban/suburban setting:
 - Industrial Warehouse: LUC 150 "Warehousing"
 - Retail: LUC 821 "Shopping Plaza (40-150k)"
- The ITE Trip Generation Manual includes both fitted curve estimates and average rates. Fitted curve estimates were used if available and deemed accurate per ITE criteria (i.e., more than 20 data points and coefficient of determination $R^2 > 0.75$).
- The proposed industrial warehouse buildings are expected to generate a significant number of heavy vehicle trips, in comparison to the non-warehouse uses. As such, the expected truck trips were also determined based on rates included in the ITE Trip Generation Manual, 12th Edition. It is noted that truck trips are included in the total vehicle trip generation rates discussed above.
- A mode split adjustment was applied to the baseline trip generation, as the inherent mode split of the ITE trip generation rates may differ from the applicable mode split targets. As such, an adjustment factor was included to account for the sustainable mode share targets identified in the Region of Halton's Transportation Master Plan (September 2011).
 - The mode split adjustment was only applied to warehouse (passenger car) and retail trips. Warehouse (truck) trips are not generally impacted by reduced automobile mode split targets and corresponding initiatives to reduce vehicle use. Furthermore, given the bulk purchasing nature associated with discount retail warehouse clubs, it is not expected that a material number of trips will utilize non-automobile transportation modes. Therefore, mode split adjustments were not applied to these land uses.

- A portion of the discount warehouse club and retail/commercial components of the Subject Development will be pass-by trips, which represent existing trips on the study road network that make an intermediate stop at the Proposed Development en-route to their final destination. These trips are therefore not "new" trips on the study road network and differ from the primary trips noted. The pass-by trip generation rates outlined in the ITE Trip Generation Manual, 12th Edition for LUC 821 "Shopping Plaza (40-150k)" and LUC 857 "Discount Club" were used herein, as applicable.

Appendix J includes the trip generation excerpts.

6.1.1 Baseline Trips

Table 29 outlines the baseline vehicle trip generation for the Subject Site.

Table 29: Baseline Vehicle Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹			
				In	Out	Total	
LUC 150 Warehousing	568,000 ft ²	A.M.	0.12/1000 ft ²	52	16	68	
		P.M.	0.15/1000 ft ²	24	61	85	
		SAT	0.05/1000 ft ²	18	10	28	
Discount Warehouse Club	167,135 ft ²	A.M.	3.83/1000 ft ²	333	307	640	
		P.M.	8.49/1000 ft ²	695	724	1,419	
		SAT	11.28/1000 ft ²	980	905	1,885	
LUC 821 Shopping Plaza (40-150k)	51,850 ft ²	A.M.	1.59/1000 ft ²	51	31	82	
		P.M.	4.76/1000 ft ²	121	126	247	
		SAT	5.10/1000 ft ²	137	127	264	
Total		A.M.	N/A	436	354	790	
		P.M.	N/A	840	911	1,751	
		SAT	N/A	1,135	1,042	2,177	

Note 1: Rounding may cause appearance of minor discrepancies.

The Proposed Development is expected to generate 790, 1,751, and 2,177 two-way baseline vehicle trips during the weekday a.m., weekday p.m., and Saturday peak hours, respectively.

Truck Trips

Table 30 outlines the truck trip generation for the proposed industrial buildings.

Table 30: Truck Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹		
				In	Out	Total
LUC 150 Warehousing (Truck)	620,000 ft ²	A.M.	0.02/1000 ft ²	6	5	11
		P.M.	0.03/1000 ft ²	9	8	17
		SAT ²	0.01/1000 ft ²	3	2	5

Note 1: Rounding may cause appearance of minor discrepancies.

Note 2: The ITE Trip Generation Manual, 11th Edition does not include truck trip generation rates for the Saturday peak hour. As such, the trip generation rate is estimated based on the percentage of truck trips for the weekday a.m. and p.m. peak hours.

The proposed industrial warehouses are expected to generate 11, 17 and 5 two-way truck trips during the weekday a.m., weekday p.m., and Saturday peak hours, respectively. We note that the retail and discount warehouse club uses are expected to generate negligible truck trip generation during the peak hours, as deliveries typically occur outside of the peak hours to in managing on-site operations.

Passenger Car Trips

Table 30 outlines the baseline passenger car trip generation for the proposed industrial buildings.

Table 31: Baseline Passenger Car Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹		
				In	Out	Total
LUC 150 Warehousing (Passenger Car)	620,000 ft ²	A.M.	N/A ²	46	11	57
		P.M.	N/A ²	15	53	68
		SAT ²	N/A ²	15	8	23

Note 1: Rounding may cause appearance of minor discrepancies.

Note 2: Passenger car trips are the difference between the vehicle trips and the truck trips.

The industrial component of the Proposed Development is expected to generate 57, 68 and 23 two-way baseline passenger car trips during the weekday a.m., weekday p.m., and Saturday peak hours, respectively.

6.1.2 Mode Split Adjusted Trips

As outlined in Institute of Transportation Engineers (ITE) Trip Generation Handbook, 3rd Edition (September 2017), the trip generation rates for suburban context included an automobile split of 95% or higher. For the site generated trips, a target vehicle mode split of 75% was used per the Region's Transportation Master Plan for applicable trips (i.e., employee passenger car trips or commercial site trips). As such, a mode split adjustment factor of 0.79 was applied to passenger car trips for the employees and commercial visitors.

Table 32 outlines the mode split adjusted trip generation.

Table 32: Mode Split Adjusted Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹			
				In	Out	Total	
LUC 150 Warehousing (Passenger Car)	568,000 ft ²	A.M.	0.79 adjustment factor	36	9	45	
		P.M.		12	42	54	
		SAT		12	6	18	
LUC 150 Warehousing (Truck)		A.M.	N/A	6	5	11	
		P.M.		9	8	17	
		SAT		3	2	5	
Discount Retail Warehouse Club	167,135 ft ²	A.M.	N/A	333	307	640	
		P.M.		695	724	1,419	
		SAT		980	905	1,885	
LUC 821 Shopping Plaza (40-150k)	51,850 ft ²	A.M.	0.79 adjustment factor	40	24	65	
		P.M.		96	99	195	
		SAT		108	100	208	
Total		A.M.	N/A	416	345	761	
		P.M.	N/A	811	873	1,685	
		SAT	N/A	1,103	1,014	2,117	

Note 1: Rounding may cause the appearance of discrepancies.

Note 2: Mode split adjustment was not applied for warehousing (truck) and discount retail warehouse club trips.

The Subject Development is expected to generate 761, 1,685 and 2,117 two-way vehicle trips during the weekday a.m., p.m., and Saturday peak hours, respectively, when considering the Region's mode split targets.

6.1.3 Pass-By Trips

Table 33 outlines the pass-by vehicle trip generation for the Subject Site. As outlined in the ITE Trip Generation Manual, 12th Edition, the following pass-by trip rates are applicable to the proposed land uses:

- LUC 857 Discount Club
 - Weekday P.M.: 34%
 - Saturday: 25%
- LUC 821 Shopping Plaza (40-150k)
 - Weekday P.M.: 40%
 - Saturday: 31%

Table 33: Pass-By Vehicle Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹			
				In	Out	Total	
Discount Warehouse Club	167,135 ft ²	A.M.	-	0	0	0	
		P.M.	34% of trips ²	236	246	482	
		SAT	25% of trips ²	245	226	471	
LUC 821 Shopping Plaza (40-150k)	51,850 ft ²	A.M.	-	0	0	0	
		P.M.	40% of trips	38	40	78	
		SAT	31% of trips	34	31	65	
Total		A.M.	N/A	0	0	0	
		P.M.	N/A	274	286	560	
		SAT	N/A	279	257	536	

Note 1: Rounding may cause appearance of minor discrepancies.

Note 2: For LUC 857 "Discount Club"

The Subject Site is expected to generate a total of 560 and 536 two-way pass-by trips during the weekday a.m., p.m. and Saturday peak hours, respectively.

6.1.4 Primary Trips

Table 34 summarizes the primary vehicle trip generation.

Table 34: Primary Vehicle Trip Generation

Land Use	Variable	Peak Hour	Equation	Trips ¹			
				In	Out	Total	
LUC 150 Warehousing (Passenger Car)	568,000 ft ²	A.M.	N/A	36	9	45	
		P.M.	N/A	12	42	54	
		SAT	N/A	12	6	18	
		A.M.	N/A	6	5	11	
		P.M.	N/A	9	8	17	
		SAT	N/A	3	2	5	
Discount Retail Warehouse Club	167,135 ft ²	A.M.	N/A	333	307	640	
		P.M.	N/A	459	478	937	
		SAT	N/A	735	679	1,414	
LUC 821 Shopping Plaza (40-150k)	51,850 ft ²	A.M.	N/A	40	24	65	
		P.M.	N/A	58	59	117	
		SAT	N/A	74	69	143	
Total		A.M.	N/A	416	345	761	
		P.M.	N/A	537	587	1,125	
		SAT	N/A	824	757	1,581	

Note 1: Rounding may cause the appearance of discrepancies.

The Proposed Development is expected to generate 761, 1,125, and 1,581 two-way primary vehicle trips during the weekday a.m., weekday p.m. and Saturday peak hours, respectively.

6.2 Trip Distribution

The section herein outlines the methodology used to distribute the site generated trips to the study road network.

6.2.1 Warehouse Trip Distribution

Passenger Car

The site generated warehouse passenger car trips were distributed to the study road network based on Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey consisting of transportation patterns for households in the Greater Toronto and Hamilton Area and surrounding area. 2022 TTS data was used as it was the most recent data available at the time of writing.

The Subject Property is in 2022 TTS Zone 5463. Given that the subject zone is mainly greenfield lands, nearby zones with industrial uses were included as proxy zones. These zones have similar transportation contexts to the warehouse component of the Proposed Development and thus

expected to have similar travel patterns to the Subject Lands. The following proxy zones were used:

- 2022 TTS Zone 5464
- 2022 TTS Zone 5311
- 2022 TTS Zone 5313
- 2022 TTS Zone 5314

The TTS data was filtered to trips entering and exiting the proxy zones for work purposes during the weekday a.m. and p.m. peak hours, respectively, which reflect the peak commuter directions.

Table 35 outlines the warehouse passenger car trip distribution.

Table 35: Warehouse (Passenger Car) Trip Distribution

Direction	Inbound	Outbound	External Network Gateway
North	13%	7%	Regional Road 25, Dublin Line
South	35%	24%	Regional Road 25, Tremaine Road
East	6%	11%	James Snow Parkway, 5 Side Road
West	9%	21%	Campbellville Road
Highway 401 (via South)	36%	36%	Regional Road 25, Tremaine Road
Total	100%	100%	-

Appendix K includes the TTS data queries.

Truck Distribution

The site generated truck trips were distributed to the study road network based on the expected travel routes for heavy vehicle traffic and roadways where heavy vehicles are permitted. As such, trucks will primarily rely on Regional Roads as well as Highway 401.

The truck trips were assigned north and south along Regional Road 25 based on the existing heavy vehicle travel patterns along Regional Road 25. As expected, a significant portion of the truck trips were distributed along Regional Road 25, destined to/from Highway 401.

It is assumed that the truck trips will not access Highway 401 via the future Tremaine Road interchange, as the Regional Road 25 interchange is the most convenient and direct route to access the highway. Moreover, as truck traffic is currently prohibited on 5 Side Road, no truck trips have been assumed to access the site via this roadway.

6.2.2 Discount Retail Warehouse Club Trip Distribution

The discount retail warehouse club is expected to attract trips from a wider area, as the customer base is driven by membership, and these developments are also less prevalent than regular retail developments.

To understand the general catchment area of trips expected at the discount retail warehouse club, 2022 TTS data was reviewed for 2022 TTS Zone 13169, which captures a similar discount retail warehouse club. Based on this data, the average trip distance is approximately 11.0 km from the discount retail warehouse club during the weekday p.m. peak hour.

Given the average trip distance for the proxy discount retail warehouse club as well as the locations of similar existing and planned membership-based discount retail warehouse clubs, it is expected that the Proposed Development will primarily service residents from the Town of Milton (including Campbellville), Town of Halton Hills (including Acton) and the Rockwood area. It is noted that given the proximity to a similar planned discount retail warehouse club in the Town of Oakville, the Proposed Development is primarily expected to service Town of Milton residents north of Britannia Road (Regional Road 6), as future residents south of Britannia Road would be able to access a similar club in Oakville, which would have a much shorter travel time in comparison.

Moreover, in consideration of the planned population growth in the Town of Halton Hills and the Town of Oakville, trips were distributed to the aforementioned areas based on the 2041 population forecast targets outlined for the Region of Halton. For the Campbellville, Acton and Rockwood areas, it is assumed that the current population will remain steady, as identified in the 2021 census data, given that there are no major plans for expansion at the time of writing.

Table 36 outlines the discount retail warehouse club trip distribution.

Table 36: Discount Retail Warehouse Club Trip Distribution

Direction	Inbound	Outbound	External Network Gateway
North	19%	25%	Regional Road 25, Dublin Line
South ¹	48%	48%	Regional Road 25, Tremaine Road
East	31%	24%	James Snow Parkway, 5 Side Road
West	3%	3%	Campbellville Road
Total	100%	100%	-

Note 1: Includes trips utilizing Highway 401.

Appendix K includes the TTS data queries and population forecast excerpts.

6.2.3 Retail Trip Distribution

Similarly to the warehousing passenger car trips, the retail trips were distributed using 2022 TTS Data. The following proxy zones with retail uses near the Subject Lands were used:

- 2022 TTS Zone 5312
- 2022 TTS Zone 5314
- 2022 TTS Zone 5421

The TTS data was filtered to trips entering and exiting the proxy zones for retail purposes during the weekday p.m. peak hour, which reflects the peak retail period.

Table 37 outlines the retail trip distribution.

Table 37: Retail Trip Distribution

Direction	Inbound	Outbound	External Network Gateway
North	11%	14%	Regional Road 25, Dublin Line
South ¹	59%	54%	Regional Road 25, Tremaine Road
East	26%	28%	James Snow Parkway, 5 Side Road
West	4%	4%	Campbellville Road
Total	100%	100%	-

Note 1: Includes trips utilizing Highway 401.

Appendix K includes the TTS data queries.

6.2.4 Pass-by Trip Distribution

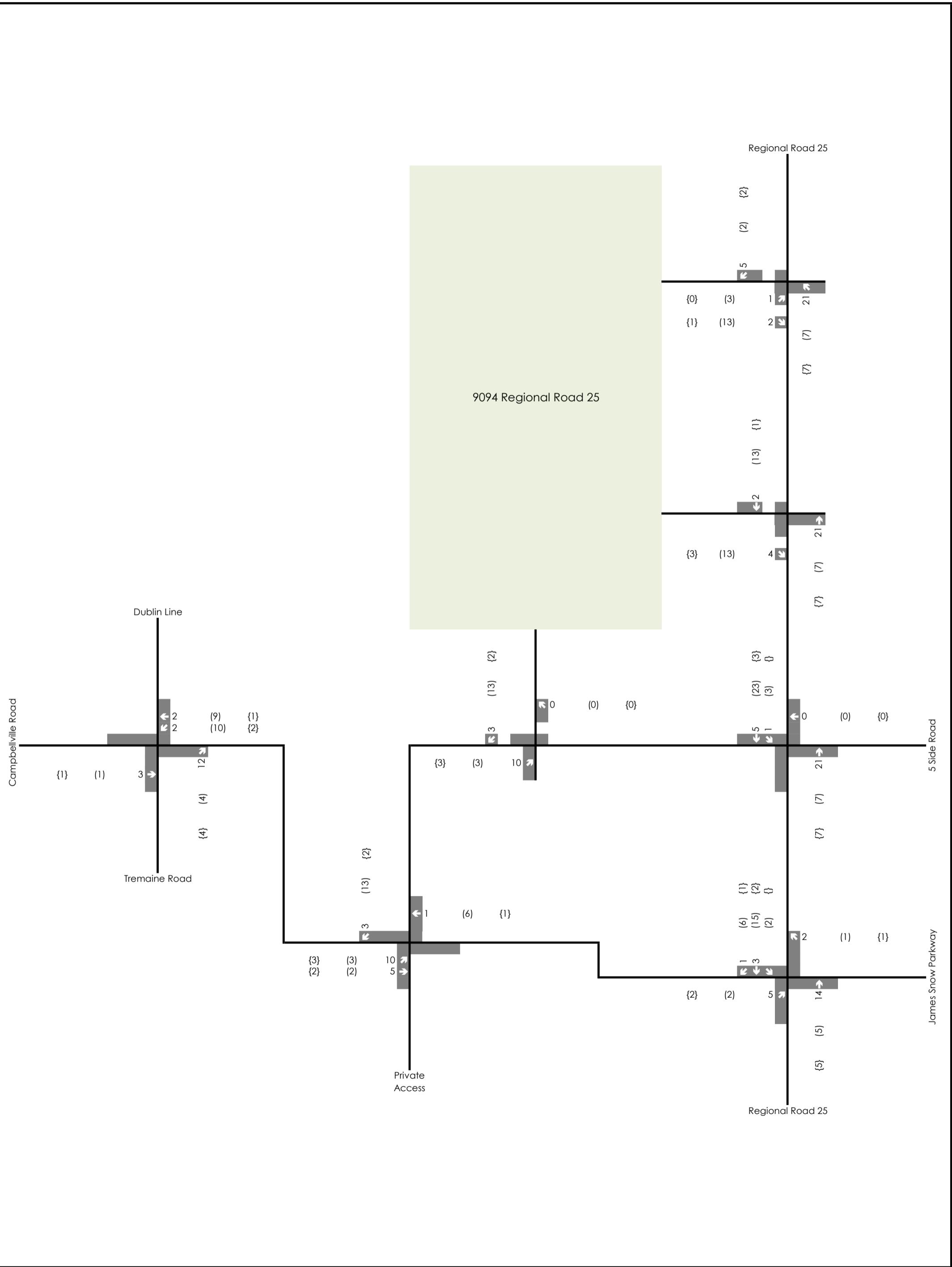
Pass-by trips were distributed based on the existing and future background travel patterns along the site's frontage, where trips already going southbound on Regional Road 25 would access the site and leave, returning southbound on Regional Road 25. The distribution was based on the proportion of traffic northbound and southbound on Regional Road 25 and eastbound and westbound along 5 Side Road fronting the site.

6.3 Trip Assignment

The site generated trips were assigned to the study road network based on the trip distribution outlined in Section 6.2. Based on the Transportation Tomorrow Survey data, existing travel patterns and directional delays that residents would be familiar with, all site-generated trips were assigned to the following study road network gateways:

- North via Regional Road 25
- North via Dublin Line
- South via Regional Road 25
- South via Dublin Line
- East via 5 Side Road
- East via Regional Road 4
- West via Campbellville Road

Figure 14, Figure 15, Figure 16, Figure 17 and Figure 18 outlines the warehouse (passenger car), warehouse (truck), discount retail warehouse club, retail and pass-by site traffic volumes, respectively.



Legend

xx A.M. Peak Hour Traffic Volumes
 xx P.M. Peak Hour Traffic Volumes
 xx Weekend Peak Hour Traffic Volumes

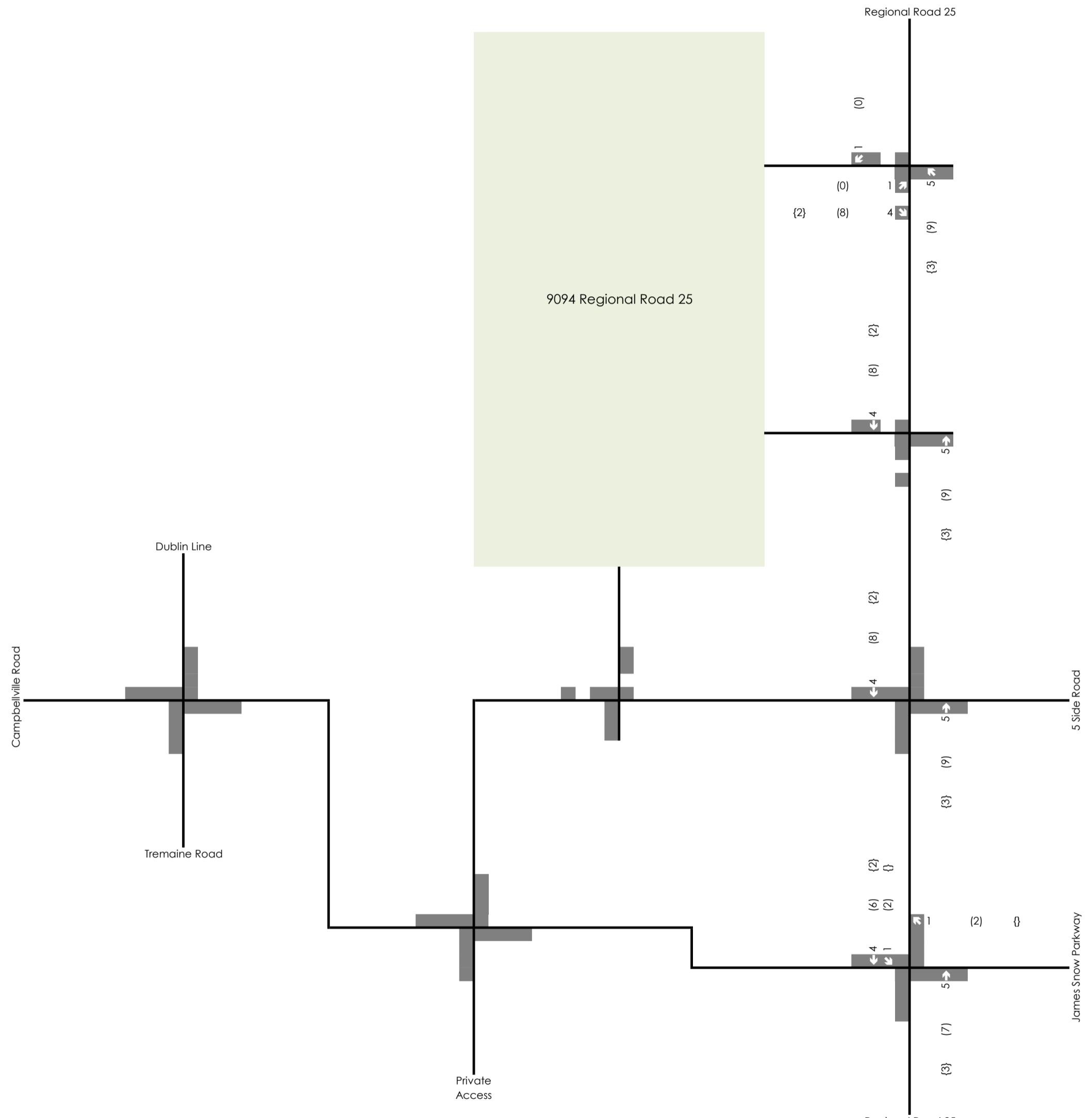
9094 Regional Road 25

Warehouse (Passenger Car) Site Traffic Volumes



Figure 14

Project No. 2022-7556
 Date: 11/10/25
 Analyst: MY



Legend

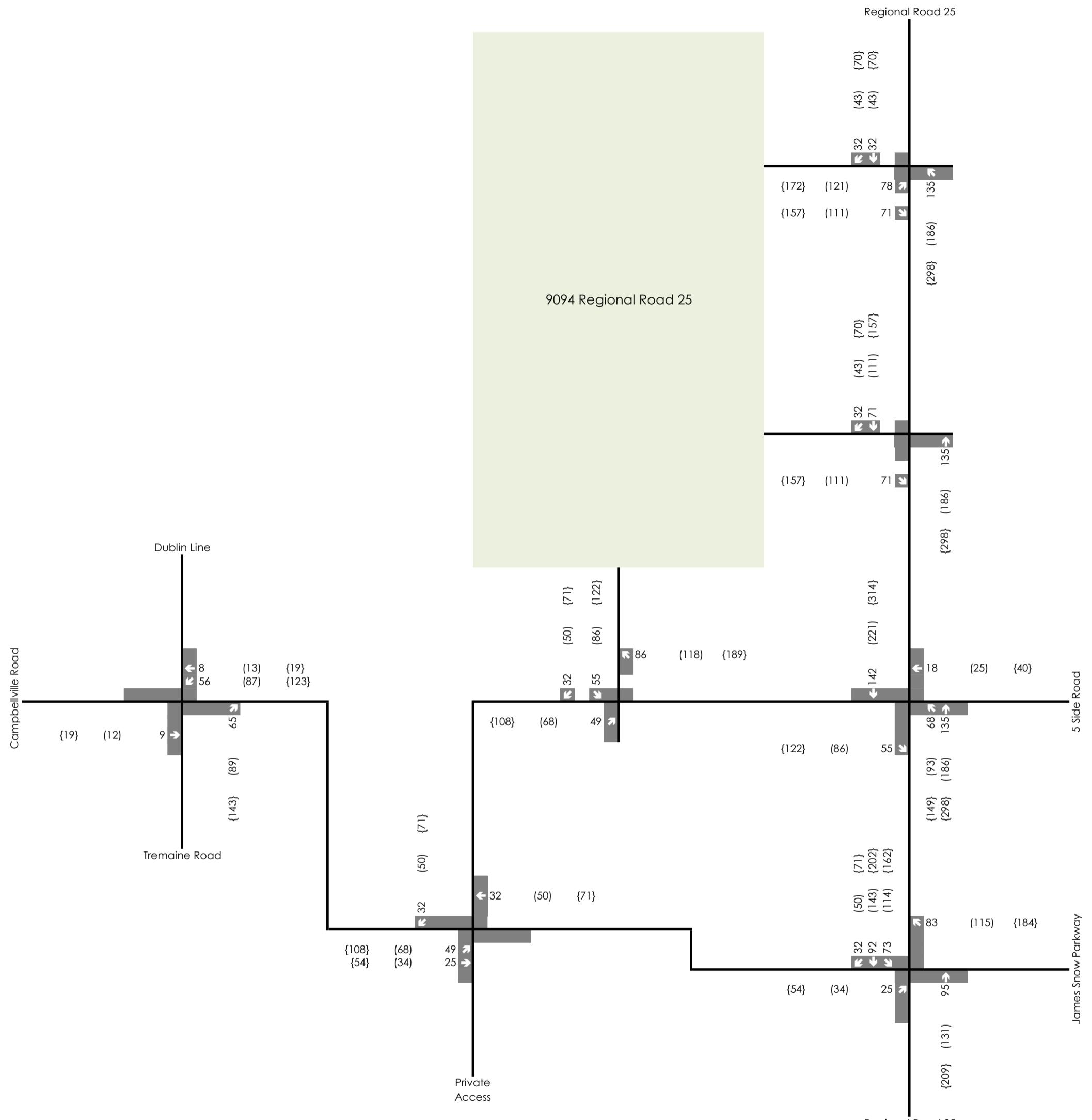
9094 Regional Road 25

Warehouse (Truck) Site Traffic Volumes



Figure 15

Project No. 2022-7556
Date: 11/10/25
Analyst: MY



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

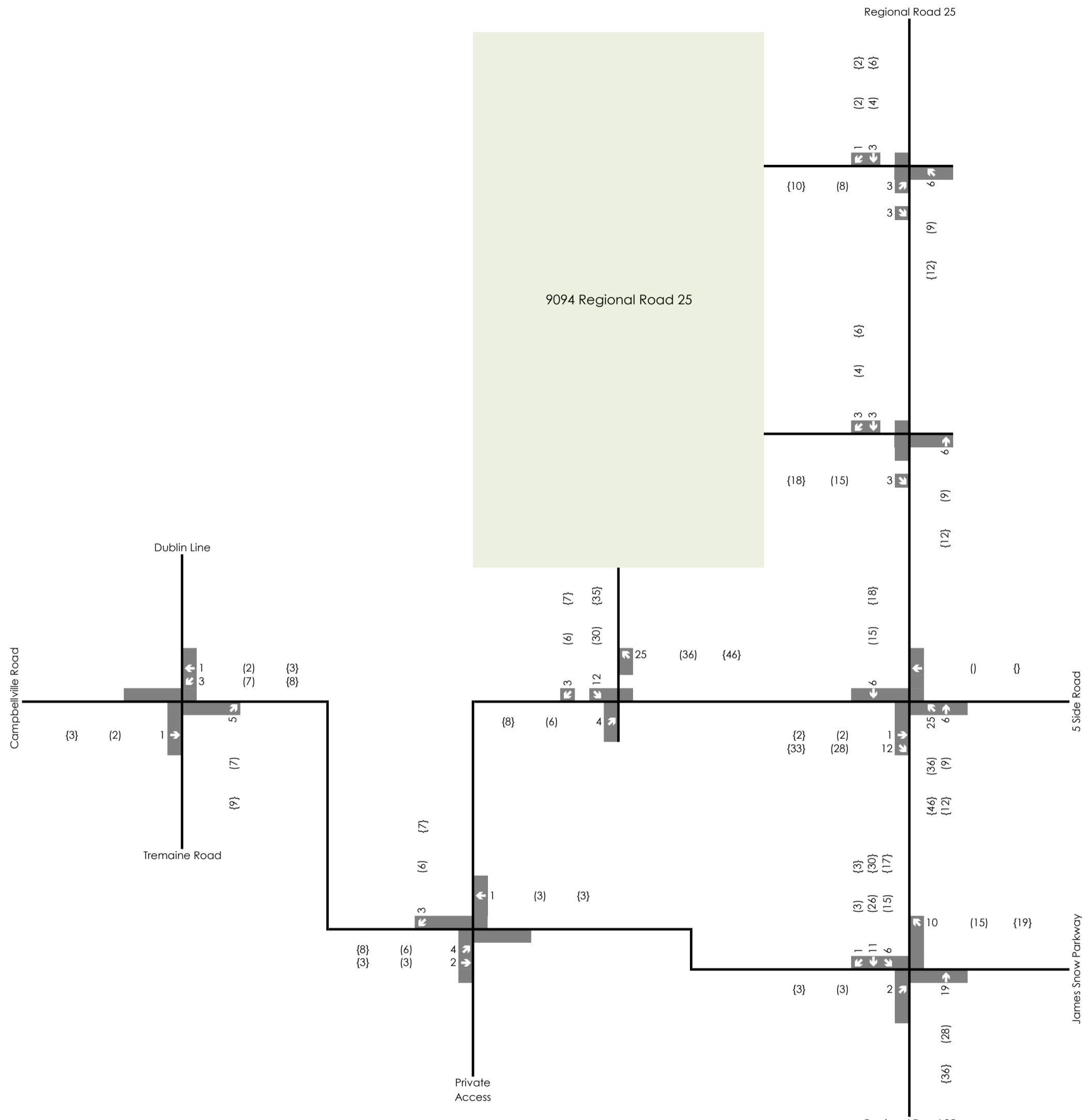
9094 Regional Road 25

Discount Retail Warehouse Club Site Traffic Volumes



Figure 16

Project No. 2022-7556
Date: 11/10/25
Analyst: MY



Legend

Legend

- xx A.M. Peak Hour Traffic Volumes
- (xx) P.M. Peak Hour Traffic Volumes
- {xx} Weekend Peak Hour Traffic Volumes

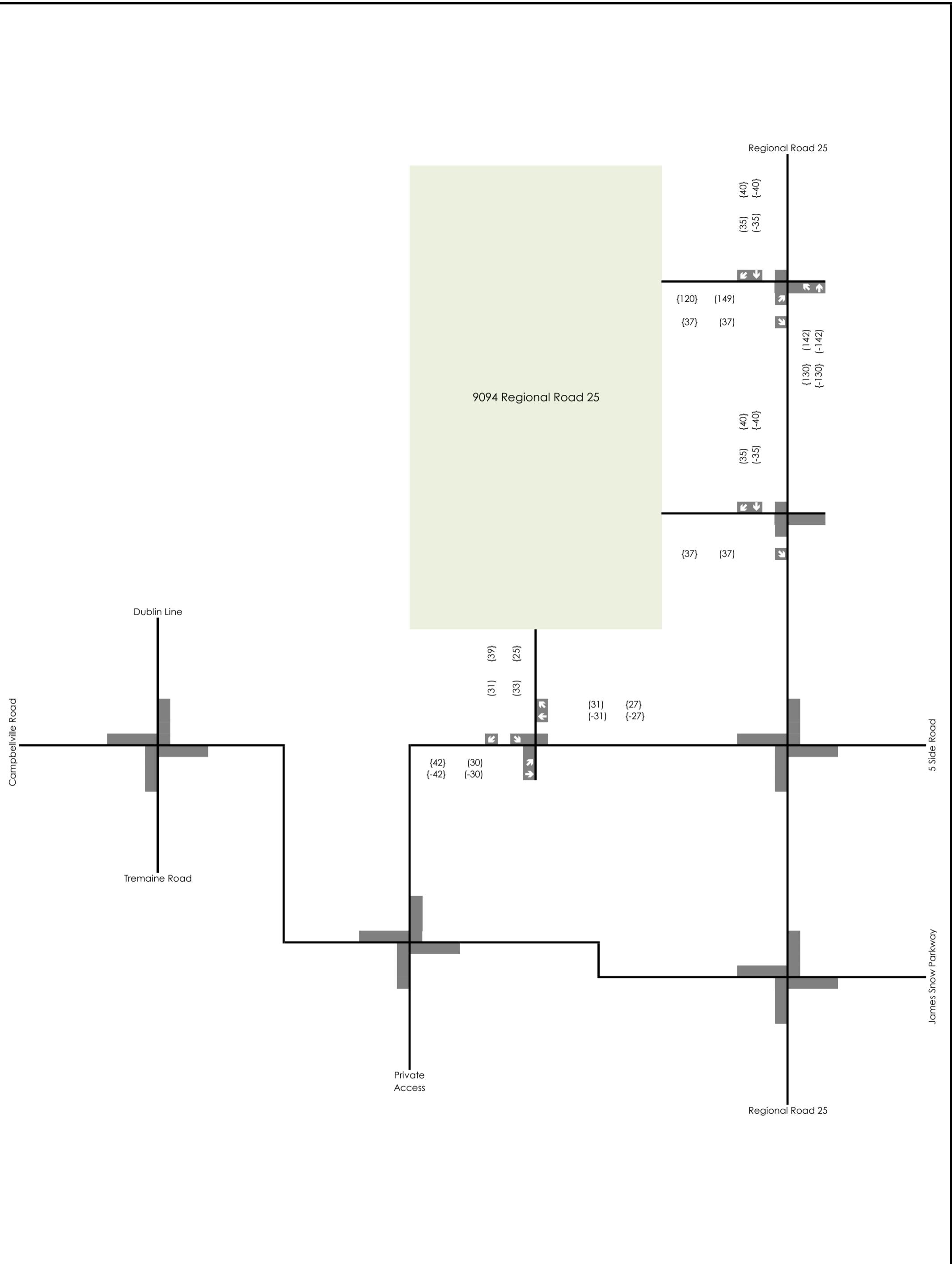
9094 Regional Road 35

Retail Site Traffic Volumes



Figure 17

Project No. 2022-7556
Date: 11/10/25
Analyst: MY



Legend

- xx A.M. Peak Hour Traffic Volumes
- xx P.M. Peak Hour Traffic Volumes
- xx Weekend Peak Hour Traffic Volumes

9094 Regional Road 25

Pass-by Site Traffic Volumes



Figure 18

Project No. 2022-7556
Date: 11/10/25
Analyst: MY

7.0 Future Total Transportation Network Review

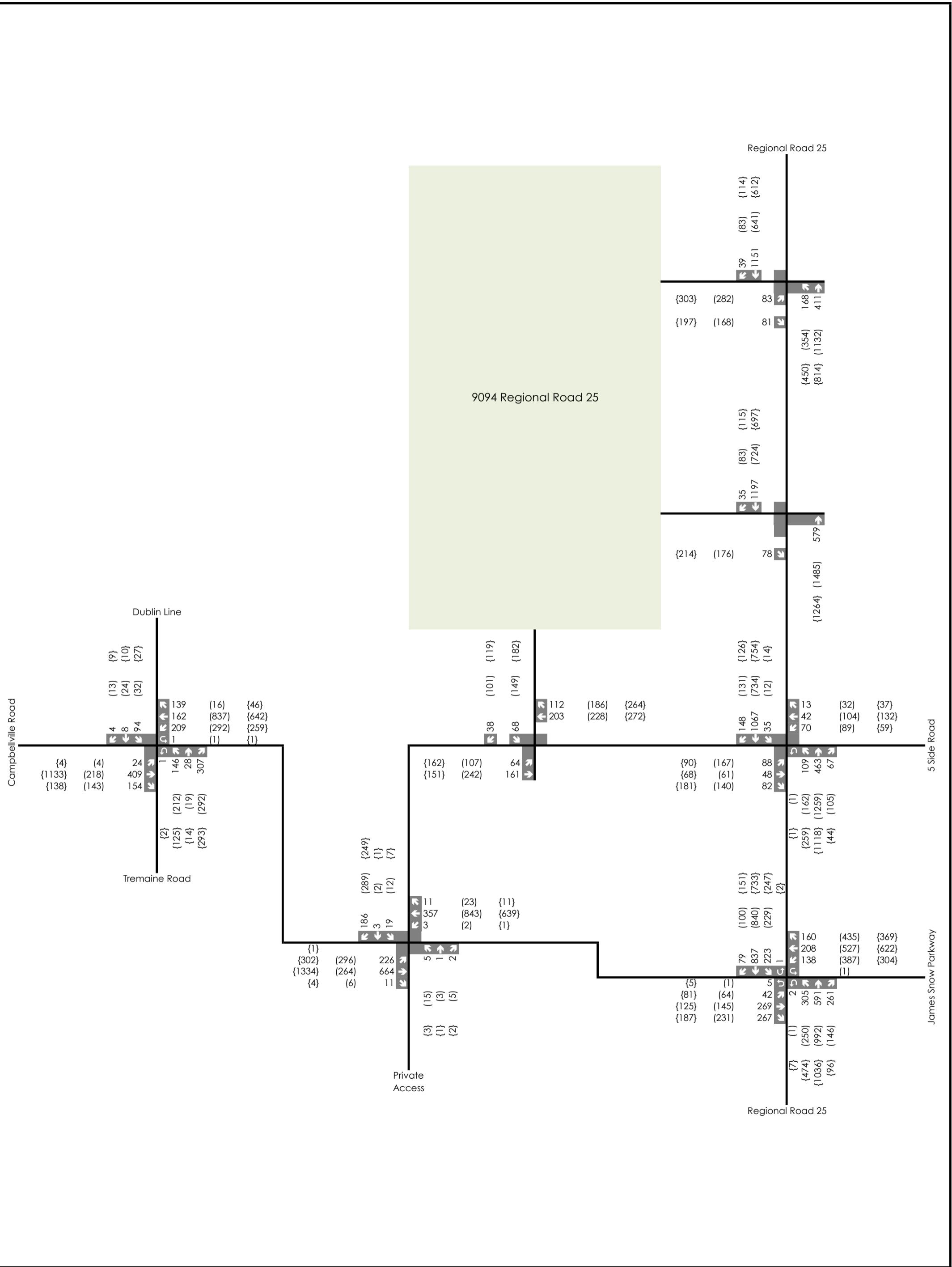
This section summarizes the future total conditions of the study road network.

7.1 Future Total Volumes

The future total traffic volumes for the horizon years consist of the following components:

- Future Background Traffic Volumes
- Site Traffic Volumes

Figure 19 and Figure 20 illustrates the resulting 2030 and 2035 future total traffic volumes, respectively.

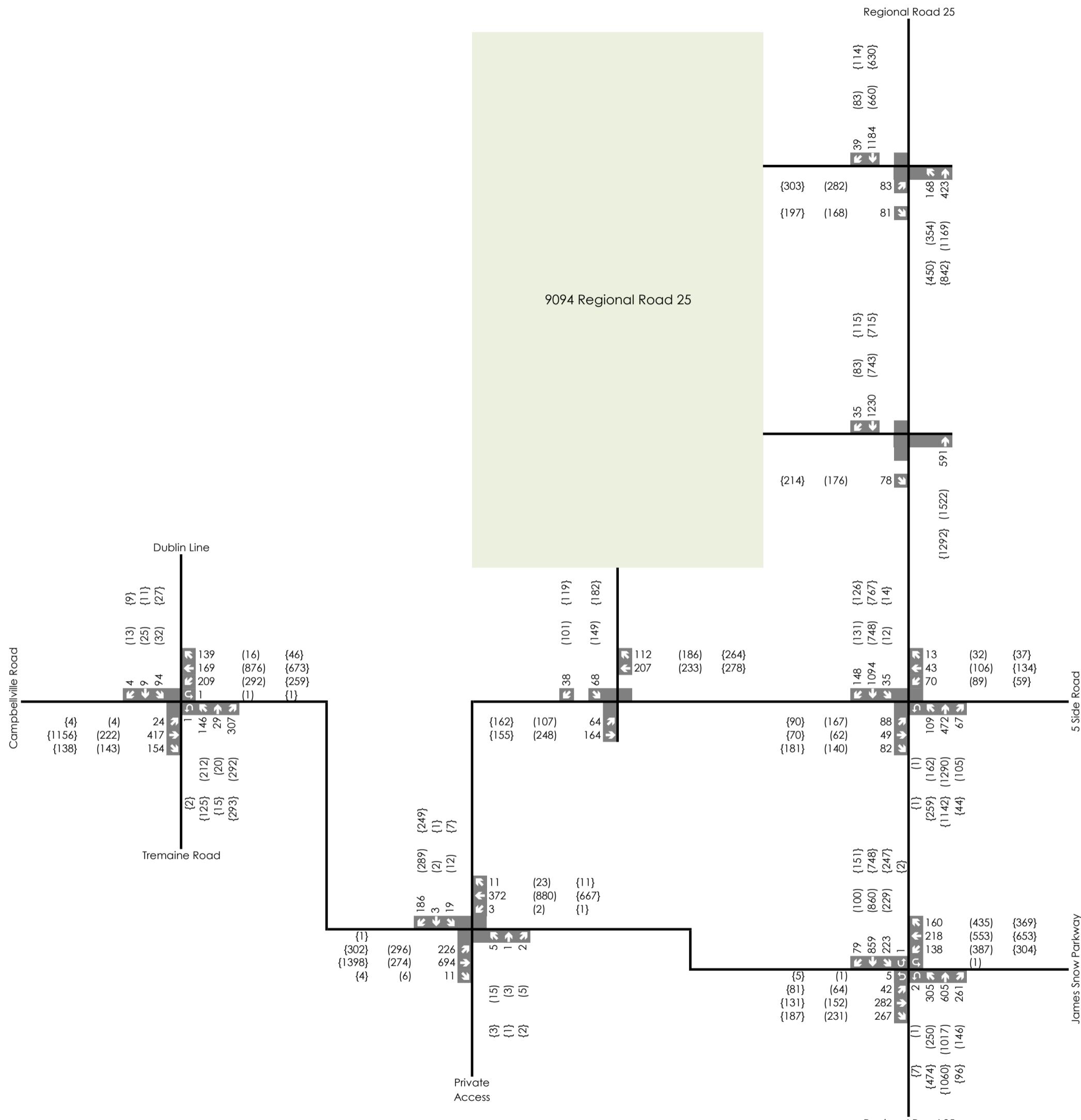

Legend

xx A.M. Peak Hour Traffic Volumes
 (xx) P.M. Peak Hour Traffic Volumes
 {xx} Weekend Peak Hour Traffic Volumes

9094 Regional Road 25
2030 Future Total Traffic Volumes

Figure 19

Project No. 2022-7556
 Date: 11/10/25
 Analyst: MY



Legend

xx A.M. Peak Hour Traffic Volumes
 xx P.M. Peak Hour Traffic Volumes
 xx Weekend Peak Hour Traffic Volumes

9094 Regional Road 25

2035 Future Total Traffic Volumes



Figure 20

Project No. 2022-7556
 Date: 11/10/25
 Analyst: MY

7.2 Warrants Assessment

The following warrants were assessed for future total conditions, where applicable:

- Signal Warrants
- Auxiliary Turn Lane Warrants

The warrants were assessed based on 2035 future total volumes, which represents the ultimate horizon year.

7.2.1 Signal Warrant

Signal warrants were reviewed at the proposed full moves site accesses.

The analysis was conducted based on Chapter 4 of the Ontario Traffic Manual Book 12: Traffic Signals (MTO, March 2012). As only peak hour volumes were available, Justification 7: Projected Volumes was selected as the most appropriate warrant to assess the unsignalized study intersections.

The average hour volume was determined using the following formula from Ontario Traffic Manual Book 12:

$$AHV = (amPHV + pmPHV) / 4$$

Where:

AHV = average hour volume
amPHV = a.m. peak hour volume
pmPHV = p.m. peak hour volume

It is expected that the future study road network will have an operating speed of 60 km/h or lower along the boundaries of the Subject Property. Accordingly, restricted flow was used for the signal warrant analysis for all intersections.

Table 38 summarizes the signal warrant analysis.

Table 38: Signal Warrant Analysis

Intersection	Horizon	Flow Conditions	Lanes on Major Road	Signal Warranted?
Regional Road 25 & Full Moves Access	2035 Future Total	Free	2+ Lanes	Yes
5 Side Road & Full Moves Access	2035 Future Total	Free	1 Lane	No

As outlined in Table 38, signal control is warranted at the full moves access off Regional Road 25.

Appendix L includes the warrant assessment reports.

7.2.2 Auxiliary Left-Turn Lane Warrant

The auxiliary left-turn lane warrants for unsignalized study intersections were reviewed based on the guidelines included in the Ontario Ministry of Transportation Design Supplement for

Transportation Association of Canada Geometric Design Guide for Canadian Roads (MTO Design Supplement for TAC GDGCR) (June 2023).

At 5 Side Road & Full Moves Access, an eastbound left-turn lane, with 25 m storage, is warranted. Appendix L includes the warrant assessment reports.

7.2.3 Auxiliary Right-Turn Lane Warrant

Auxiliary right-turn lane warrant for the proposed site accesses using the standard set out in the Transportation Association of Canada Geometric Design Guide for Canadian Roads (June 2017). As outlined in Chapter 9.14.2, a right turn taper and/or auxiliary lane may be considered if:

- Unsignalized Intersection: the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard.
- Signalized Intersection: the volume of right-turning traffic is 10% to 20% of total approaching volume.

At Regional Road 25 & Full Moves Access, the southbound right-turn volumes account for 3% to 15% of the total southbound volumes. Accordingly, a southbound right-turn lane is warranted, and recommended to separate left and right turning volumes.

Similarly, a right-turn taper and/or auxiliary turn lane may be considered for the westbound right-turn movement at 5 Side Road & Full Moves Access as the right-turns comprises at least 33% of the total eastbound volumes. Given that 5 Side Road has a 2-lane rural cross-section, the westbound right-turn volumes may cause undue delay for through volumes should a taper length or auxiliary lane not be provided. Accordingly, a westbound right-turn lane is recommended.

Appendix L includes the warrant assessment excerpts.

7.3 Traffic Modelling and Assumptions

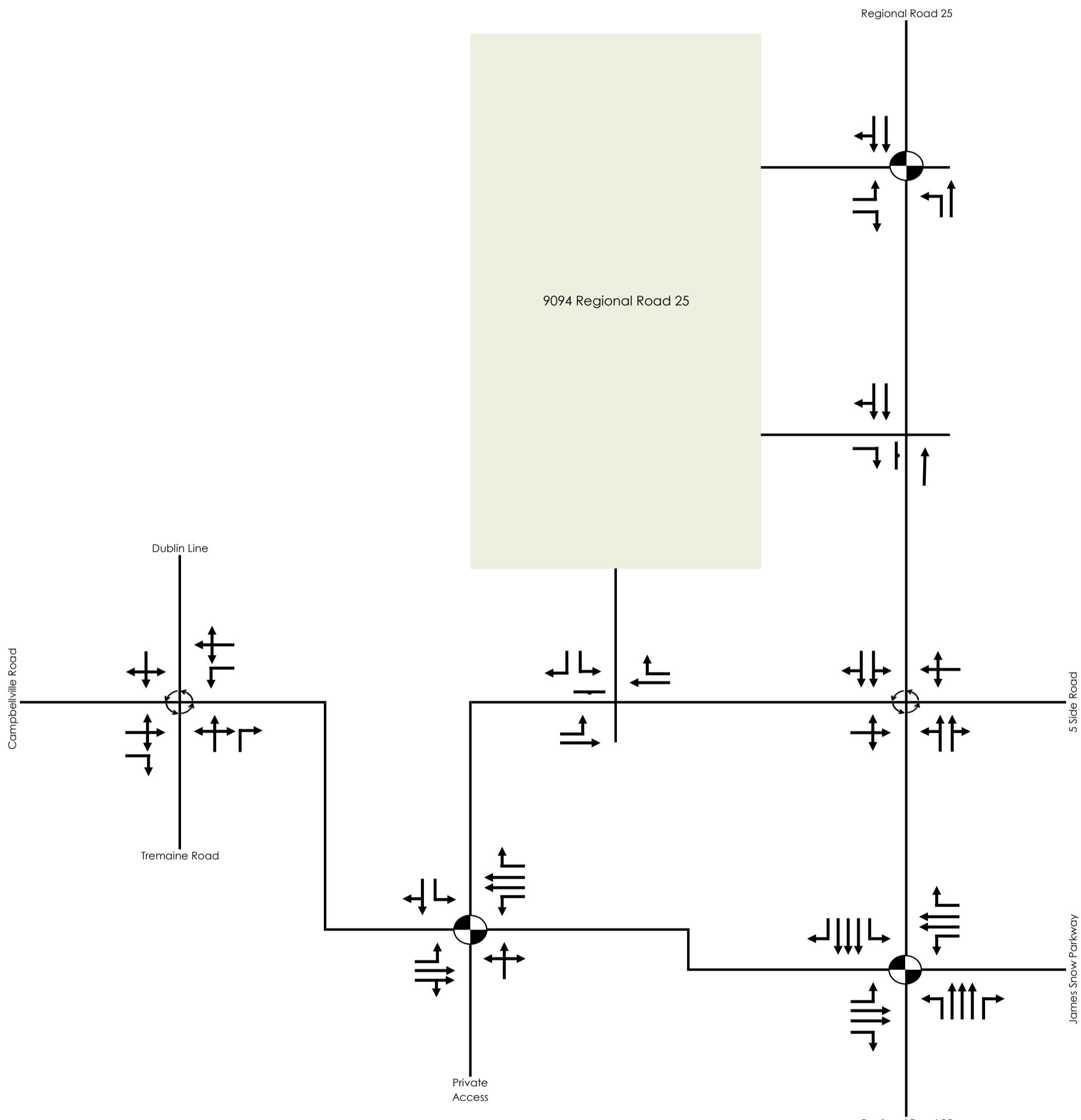
7.3.1 Roadway Geometry

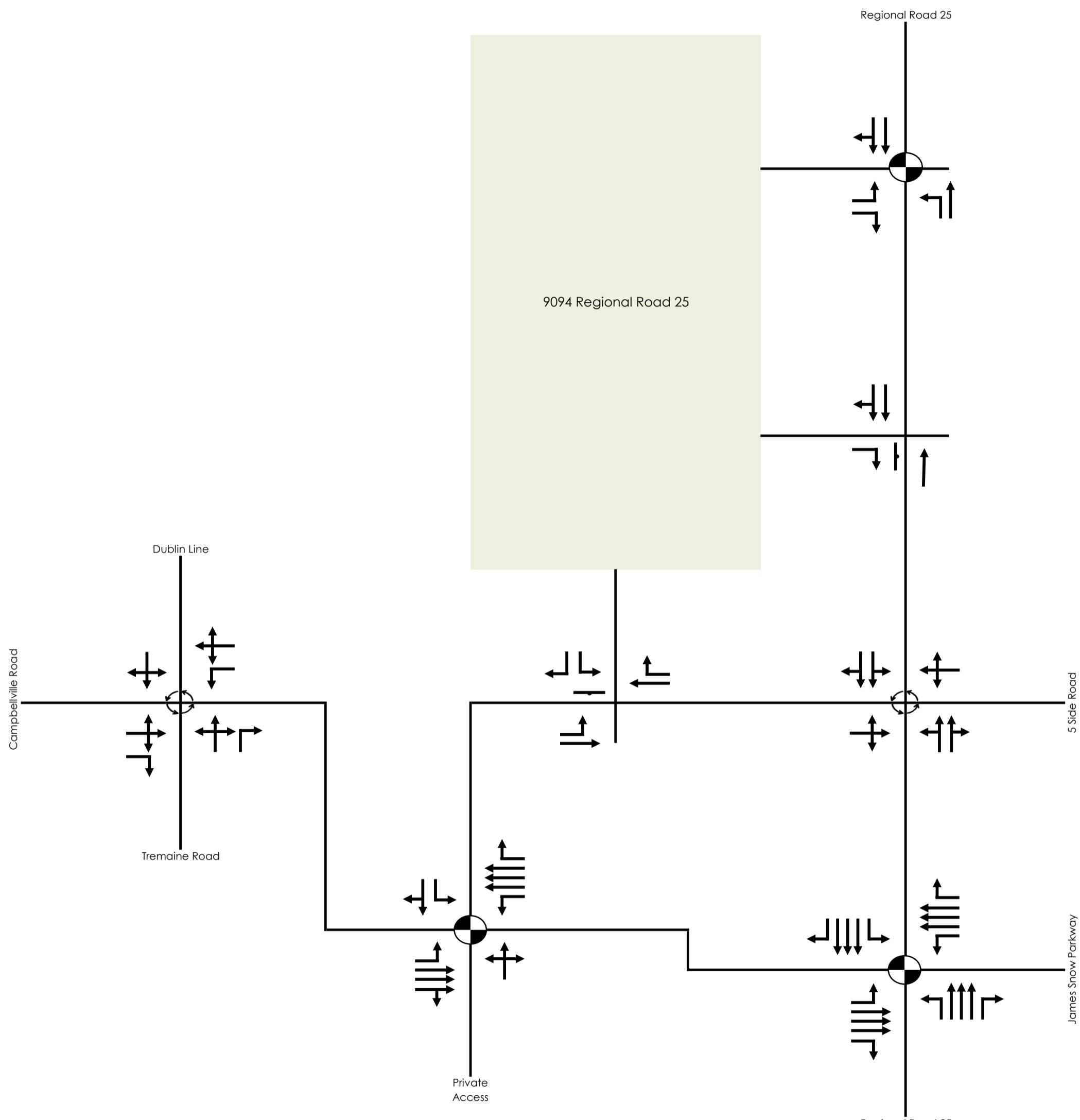
Regional Road 25, north of 5 Side Road, is planned to be widened to include a two-way left-turn lane by 2030. As no updated design drawings **along the site's frontage** were available at the time of writing, a two-way left-turn lane was added to the existing geometry. However, at the intersection of Regional Road 25 & 5 Side Road, a southbound right/through lane was proposed per the previous EA conceptual design, with the curbside lane terminating approximately 170 m north of the intersection. Based on a cursory operational analysis, a second southbound through lane (i.e., extension of the already planned southbound through/right curb lane), is recommended to support the expected traffic volumes **along the site's frontage**. Accordingly, 2 southbound through lanes were modelled along Regional Road 25 between 5 Side Road and the proposed Full Moves Access, at the northern limits of the site.

The following auxiliary turn lanes were modelled at the proposed site accesses to support traffic operations:

- Regional Road 25 & Full Moves Access (EBL, NBL, SBR)
- 5 Side Road & Full Moves Access (EBL, WBR, SBL)

Figure 21 and Figure 22 outline the 2030 and 2035 future total study road network, respectively.





Legend

- Signal Control
- Stop Control
- Roundabout Control

9094 Regional Road 25

2035 Future Total Study Road Network



CROZIER
CONSULTING ENGINEERS

Figure 22

Project No. 2022-7556
Date: 11/10/25
Analyst: MY

7.3.2 Modelling Parameters

For comparative purposes, PHFs, signal timing plans and lost time adjustments were kept consistent with future background conditions.

Consistent with the Town of Milton's Traffic Impact Study Terms of Reference (January 2023), a PHF of 1.0 was used for all future intersections.

Despite not being warranted, signal control was implemented at Regional Road 25 & Full Moves Access to support the traffic operations.

7.4 Intersection Operations

The section herein reviews the intersection operations under 2030 and 2035 future total conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio.

Appendix E contains the detailed capacity analysis worksheets.

7.4.1 2030 Horizon Year

Signal Control

Table 39 outlines the 2035 future total intersection operations for the signalized study intersections.

Table 39: 2030 Future Total Traffic Operations – Signal Control

Intersection		Movement	Performance Metrics								
			LOST ¹			Delay (s) ¹			v/c ratio ²		
			A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & James Snow Parkway	Signal Opt. #1	Overall	C	D	D	28	39	43	0.78	0.89	0.95
		EBL	D	D	E	42	47	55	0.20	0.47	0.68
		EBT	D	D	D	51	52	49	0.60	0.48	0.34
		EBR	D	D	D	47	50	48	0.23	0.19	0.14
		WBL	D	E	D	49	58	50	0.69	0.92	0.83
		WBT	D	D	E	46	39	65	0.42	0.62	0.94
		WBR	D	D	D	43	37	49	0.11	0.52	0.68
		NBL	B	C	D	20	33	44	0.76	0.81	0.91
		NBT	B	D	C	17	36	29	0.26	0.68	0.57
		NBR	B	C	C	16	28	22	0.19	0.13	0.08
		SBL	B	D	C	15	40	34	0.46	0.83	0.77
		SBT	C	C	D	24	35	40	0.42	0.59	0.62
		SBR	B	C	C	19	28	33	0.06	0.10	0.11
James Snow Parkway & 5 Side Road	Signal Opt. #1	Overall	B	C	B	15	24	19	0.34	0.56	0.60
		EBL	A	B	B	10	18	14	0.34	0.58	0.59
		EBTR	A	A	B	10	7	13	0.40	0.14	0.71
		WBL	B	B	C	19	19	21	0.01	0.01	0.01
		WBT	C	C	C	23	30	31	0.41	0.76	0.71
		WBR	B	B	C	18	19	21	0.01	0.02	0.01
		NBLTR	C	C	C	23	25	24	0.02	0.06	0.01
		SBL	C	C	C	25	27	26	0.06	0.05	0.03
		SBR	C	C	C	26	29	28	0.13	0.20	0.18
Regional Road 25 & Full Moves Access	Signal Opt. #1	Overall	B	C	C	12	23	23	0.50	0.86	0.80
		EBL	D	D	D	43	52	53	0.42	0.78	0.80
		EBR	D	D	D	40	36	36	0.08	0.11	0.12
		NBL	A	C	B	7	23	16	0.46	0.76	0.76
		NBT	A	C	B	4	23	12	0.28	0.88	0.64
		SBTR	B	A	C	11	7	23	0.52	0.30	0.46

Note 1: The overall LOS and control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).

Note 2: All v/c ratios above 0.85 for overall intersections, through movements and shared through/turning movements are in red text. All v/c ratios above 0.95 for exclusive movements are also in red text.

Regional Road 25 & James Snow Parkway is expected to operate at a LOS "D" or better during weekday a.m., weekday p.m. and Saturday peak hours. While the v/c ratio is above the Region's critical v/c ratio thresholds, these movements are expected to operate under capacity. Furthermore, operations are consistent with 2030 future background conditions, with a maximum increase in v/c ratio of 0.04.

The signalized full moves access off Regional Road 25 is expected to operate at a LOS "C" or better with low control delays. Despite the v/c ratio exceeding the Region's critical threshold, the site access is operating under capacity and there are no operational concerns noted.

The remaining study intersection is operating at a LOS "C" or better with low control delays and low to moderate v/c ratios.

Stop Control

Table 40 outlines the 2035 future total intersection operations for the unsignalized study intersections.

Table 40: 2030 Future Total Traffic Operations – Stop Control

Intersection	Movement	Performance Metrics								
		LOS ¹			Delay (s) ¹			v/c ratio ²		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & RIRO Access	Overall	A	B	B	10	11	10	0.47	0.87	0.74
	EBR	A	B	B	A	11	10	0.10	0.24	0.23
	NBT	A	A	A	A	0	0	0.34	0.87	0.74
	SBTR	A	A	A	A	0	0	0.47	0.28	0.27
5 Side Road & Full Moves Access	Overall	B	C	C	12	16	22	0.13	0.40	0.57
	EBL	A	A	A	8	9	9	0.05	0.09	0.16
	EBT	A	A	A	0	0	0	0.09	0.14	0.09
	WBT	A	A	A	0	0	0	0.12	0.13	0.16
	WBR	A	A	A	0	0	0	0.07	0.11	0.16
	SBL	B	C	D	13	21	30	0.13	0.40	0.57
	SBR	A	B	B	10	10	11	0.05	0.12	0.16

Note 1: The overall LOS and control delay of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).

Note 2: The overall v/c ratio for unsignalized intersections are the maximum movement v/c ratio. All v/c ratios above 0.85 for overall intersections, through movements and shared through/turning movements are in red text. All v/c ratios above 0.95 for exclusive movements are also in red text.

The stop-controlled site accesses off Regional Road 25 and 5 Side Road are expected to operate at a LOS "C" or better under 2030 future total conditions. The intersections are expected to operate efficiently with low control delays and low to moderate v/c ratios. It is noted that some movements are expected to operate above the Region's critical threshold. Nevertheless, the intersections are expected to operate efficiently, and no operational concerns were forecasted.

Roundabout Control

Table 41 outlines the 2035 future total intersection operations for the roundabout study intersections.

Table 41: 2030 Future Total Traffic Operations – Roundabout Control

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall ²	A	C	B	7	20	11	0.75	0.94	0.86
	EB	A	A	A	8	7	6	0.34	0.42	0.40
	WB	A	C	C	6	22	17	0.18	0.60	0.56
	NB	A	D	B	4	31	14	0.40	0.94	0.86
	SB	A	A	A	8	5	5	0.75	0.54	0.60
James Snow Parkway/ Campbellville Road & Tremaine Road/Dublin Line	Overall ²	A	A	A	4	5	6	0.34	0.62	0.72
	EB	A	A	A	3	3	7	0.34	0.21	0.72
	WB	A	A	A	3	5	4	0.31	0.62	0.50
	NB	A	A	B	6	5	10	0.23	0.25	0.31
	SB	A	A	A	8	8	5	0.19	0.14	0.07

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

Regional Road 25 & 5 Side Road is expected to operate at a LOS “C” or better with low control delays. Some approaches are anticipated to operate above the Region’s critical v/c ratio threshold with extended queues. Accordingly, there is the opportunity to adjust the roundabout design to accommodate the expected traffic volumes.

The intersection of James Snow Parkway/Campbellville Road & Tremaine Road/Dublin Line is expected to operate efficiently with an unchanged LOS “A” with a low control delays and low to moderate v/c ratios.

Roundabout Geometry Improvement Considerations

As outlined above, there is the opportunity to adjust the preliminary preferred design identified in the Regional Road 25 Corridor Study (October 2020) to improve the anticipated intersection operations and queueing. As the detailed design process is still ongoing, any optimizations to the preliminary preferred design can be implemented as part of the detailed design works.

The Transportation Association of Canada’s Canadian Roundabout Design Guide (January 2017) was reviewed to understand which components can be considered for modification given the available right-of-way and impacts of each geometric feature on capacity. The entry width and effective flare length have the largest effect on capacity, though other variables such as conflict (entry) angle and entry radius can still be important. For dual lane approaches, the entry width should not exceed 12 m, with the conflict (entry) angle falling between 20 and 60 degrees. Based on these guiding principles, the following geometric improvements to the preliminary roundabout design concept are recommended for consideration:

- Entry Width: 9.0 m (South Approach)
- Conflict (Entry) Angle: 30 degrees (South Approach)
- Dual Circulating Lanes (All Approaches)

For a comprehensive review, the roundabout operations were assessed herein with adjustments to the roundabout geometry, however, these adjustments should be confirmed as part of the ongoing Regional Road 25 Environmental Assessment works.

Table 42 outlines the 2030 future total intersection operations for the adjusted roundabout geometry considerations.

Table 42: 2030 Future Total Traffic Operations – Roundabout Geometry Considerations

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall ²	A	B	A	9	11	8	0.83	0.85	0.78
	EB	A	A	A	8	7	6	0.34	0.42	0.40
	WB	A	C	C	6	23	18	0.18	0.60	0.56
	NB	A	B	A	3	12	8	0.36	0.85	0.78
	SB	B	A	A	13	6	7	0.83	0.60	0.66

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

With the adjusted roundabout geometry, Regional Road 25 & 5 Side Road is expected to operate efficiently with a LOS “B” or better with low control delays and acceptable v/c ratios.

7.4.2 2035 Horizon Year

Signal Control

Table 43 outlines the 2035 future total intersection operations for the signalized study intersections.

Table 43: 2035 Future Total Traffic Operations - Signal Control

Intersection		Movement	Performance Metrics								
			LOS ¹			Delay (s) ¹			v/c ratio ²		
			A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & James Snow Parkway	Signal Opt. #1	Overall	C	D	D	29	39	41	0.79	0.90	0.95
		EBL	D	D	D	43	48	50	0.22	0.48	0.60
		EBT	D	D	D	50	51	49	0.53	0.41	0.30
		EBR	D	D	D	48	50	49	0.23	0.19	0.14
		WBL	D	E	E	50	61	56	0.69	0.94	0.87
		WBT	D	D	D	46	37	50	0.36	0.52	0.81
		WBR	D	D	D	44	37	45	0.11	0.50	0.57
		NBL	B	C	D	20	34	44	0.77	0.82	0.91
		NBT	B	D	C	16	36	28	0.27	0.70	0.59
		NBR	B	C	C	16	27	21	0.19	0.14	0.08
		SBL	B	D	C	15	13	33	0.47	0.80	0.76
		SBT	C	D	D	24	2	40	0.45	0.62	0.63
		SBR	B	C	C	19	0	33	0.06	0.08	0.11
James Snow Parkway & 5 Side Road	Signal Opt. #1	Overall	B	C	B	15	21	17	0.30	0.49	0.51
		EBL	A	B	B	10	15	13	0.36	0.57	0.58
		EBTR	A	A	B	9	6	11	0.32	0.11	0.58
		WBL	B	B	C	19	19	21	0.01	0.01	0.01
		WBT	C	C	C	21	26	27	0.33	0.62	0.57
		WBR	B	B	C	18	19	21	0.01	0.02	0.01
		NBLTR	C	C	C	23	25	24	0.02	0.07	0.02
		SBL	C	C	C	25	27	26	0.06	0.05	0.03
		SBR	C	C	C	26	29	28	0.13	0.20	0.18
Regional Road 25 & Full Moves Access	Signal Opt. #1	Overall	B	C	C	12	26	23	0.54	0.90	0.80
		EBL	D	D	D	43	52	53	0.42	0.77	0.79
		EBR	D	D	D	40	36	36	0.05	0.11	0.12
		NBL	A	C	B	8	27	17	0.47	0.81	0.77
		NBT	A	C	B	4	29	14	0.30	0.94	0.68
		SBTR	B	A	C	12	7	24	0.56	0.31	0.49

Note 1: The overall LOS and control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).

Note 2: All v/c ratios above 0.85 for overall intersections, through movements and shared through/turning movements are in red text. All v/c ratios above 0.95 for exclusive movements are also in red text.

Regional Road 25 & James Snow Parkway is expected to operate at a LOS "D" or better with a maximum increase in control delay and v/c ratio of 7 s and 0.03 in comparison to 2035 future background conditions. While the intersection is expected to operate with a v/c ratio above the Region's critical threshold of 0.85, this is consistent with future background conditions and the intersection is still operating below capacity.

While Regional Road 25 & Full Moves Access is expected to have a v/c ratio above the Region's threshold during the weekday p.m. peak hour, the intersection is operating undercapacity with a LOS "C" with low control delays. Nevertheless, no operational concerns are anticipated.

The remaining study intersection is expected to operate at a LOS "C or better with low control delays and low to moderate v/c ratios. These metrics indicate that the intersection is operating efficiently with reserve capacity for future traffic growth.

Stop Control

Table 44 outlines the 2035 future total intersection operations for the unsignalized study intersections.

Table 44: 2035 Future Total Traffic Operations - Stop Control

Intersection	Movement	Performance Metrics								
		LOS ¹			Delay (s) ¹			v/c ratio ²		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & RIRO Access	Overall	A	B	B	10	11	10	0.50	0.93	0.78
	EBR	A	B	B	10	11	10	0.09	0.24	0.23
	NBT	A	A	A	0	0	0	0.36	0.93	0.78
	SBTR	A	A	A	0	0	0	0.50	0.30	0.29
5 Side Road & Full Moves Access	Overall	B	C	C	12	18	25	0.14	0.42	0.61
	EBL	A	A	A	8	8	9	0.05	0.09	0.16
	EBT	A	A	A	0	0	0	0.10	0.16	0.10
	WBT	A	A	A	0	0	0	0.13	0.15	0.18
	WBR	A	A	A	0	0	0	0.07	0.11	0.16
	SBL	B	C	D	14	23	34	0.14	0.42	0.61
	SBR	A	B	B	10	10	11	0.05	0.13	0.16

Note 1: The overall LOS and control delay of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).

Note 2: The overall v/c ratio for unsignalized intersections are the maximum movement v/c ratio. All v/c ratios above 0.85 for overall intersections, through movements and shared through/turning movements are in red text. All v/c ratios above 0.95 for exclusive movements are also in red text.

The site accesses are expected to operate efficiently under 2035 future total conditions at a LOS "C" or better with low control delays. While some movements are expected to operate above the Region's critical threshold for v/c ratios, the movements are still operating below capacity with low control delays. Accordingly, there are no major operational concerns anticipated at the site accesses.

Roundabout Control

Table 45 outlines the 2035 future total intersection operations for the roundabout study intersections.

Table 45: 2035 Future Total Traffic Operations – Roundabout Control

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall ²	A	D	B	8	33	14	0.79	0.99	0.90
	EB	A	A	A	9	7	7	0.37	0.44	0.42
	WB	A	D	C	6	29	22	0.19	0.67	0.63
	NB	A	F	C	4	54	19	0.42	0.99	0.90
	SB	A	A	A	10	6	6	0.79	0.62	0.62
James Snow Parkway/ Campbellville Road & Tremaine Road/Dublin Line	Overall ²	A	A	A	4	5	8	0.37	0.69	0.79
	EB	A	A	A	6	3	9	0.37	0.22	0.36
	WB	A	A	A	3	6	3	0.33	0.69	0.50
	NB	A	A	B	3	5	13	0.25	0.25	0.79
	SB	A	A	A	8	10	5	0.20	0.17	0.07

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

The intersection of Regional Road 25 & 5 Side Road is expected to operate at a LOS “D” or better with maximum v/c ratios above the Region’s critical threshold and extended queues.

The remaining study roundabout intersection is expected to operate efficiently at a LOS “A” with low control delays and low to moderate v/c ratios.

Roundabout Geometry Improvement Considerations

As outlined for 2030 future total conditions, it is recommended that the Region consider refining the preliminary preferred roundabout design at Regional Road 25 & 5 Side Road based on the expected traffic volumes. The recommended geometry improvements from the 2030 conditions are maintained for analysis outlined below.

Table 46 outlines the 2035 future total intersection operations for the adjusted roundabout geometry considerations.

Table 46: 2035 Future Total Traffic Operations – Adjusted Roundabout Geometry Considerations

Intersection	Approach	Performance Metrics								
		LOS			Delay (s)			v/c ratio ¹		
		A.M.	P.M.	SAT	A.M.	P.M.	SAT	A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road	Overall ²	B	B	A	12	14	10	0.87	0.89	0.81
	EB	A	A	A	9	7	7	0.37	0.44	0.42
	WB	A	D	C	6	32	23	0.19	0.69	0.63
	NB	A	C	A	3	6	9	0.38	0.89	0.81
	SB	C	A	A	17	17	8	0.87	0.62	0.68

Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.

Note 2: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.

Regional Road 25 & 5 Side Road is expected to operate efficiently with a LOS “B” or better, with the adjusted roundabout geometry. While some approaches are expected to operate above the Region’s critical threshold of 0.85, the approaches are still operating below capacity and

with low control delays. Accordingly, there are no operational concerns expected. Moreover, the recommended geometric improvements can significantly improve the south approach operations from a LOS "F", as outlined in Table 45, to a LOS "C".

7.4.3 Summary

Overall, the site generated traffic is not expected to significantly impact the operations of the study road network, with the recommended improvements. As such, the Proposed Development is supportable from this perspective.

7.5 Queueing Analysis

Consistent with existing and future background conditions, SimTraffic and ARCADY software was used to assess the queues within the study road network, as applicable. The 95th percentile queues were compared against the available storage length to determine if any queues are expected to extend beyond the auxiliary turn lanes.

Appendix F contains the detailed queueing analysis worksheets.

7.5.1 2030 Horizon Year

Signal & Stop Control

Table 47 outlines the results of the 2030 future total queueing assessments using SimTraffic for signalized and stop controlled study intersections.

Table 47: 2030 Future Total Queuing Assessment - Signal & Stop Control

Intersection	Performance Metrics				Auxiliary Lane Storage Length (m) ²	
	Movement	95 th Percentile Queue Length (m) ¹				
		A.M.	P.M.	SAT		
Regional Road 25 & James Snow Parkway	EBL	30	45	60	85	
	EBR	65	45	35	115	
	WBL	105	190	185	85	
	WBR	35	100	105	35	
	NBL	105	80	110	120	
	NBR	35	25	15	65	
	SBL	55	80	65	125	
	SBR	15	30	30	15	
James Snow Parkway & 5 Side Road	EBL	40	60	50	30	
	WBL	5	5	5	30	
	WBR	10	15	10	50	
	SBL	15	15	10	30	
Regional Road 25 & Full Moves Access	EBL	30	25	25	15	
	NBL	40	50	45	25	
	SBR	50	45	45	20	
5 Side Road & Full Moves Access	EBL	15	20	30	25	
	WBR	5	10	15	20	
	SBL	15	25	25	15	

Note 1: Rounded up to the nearest 5 m.

Note 2: Rounded up to the nearest 1 m.

The following queues are expected to extend beyond the provided storage, however, the exceedance can be accommodated within the provided or recommended effective storage length and painted median, as applicable:

- Regional Road 25 & James Snow Parkway (SBR)
- James Snow Parkway & 5 Side Road (EBL)

Consistent with 2030 future background conditions, the westbound left-turn and right-turn lane queues at Regional Road 25 & James Snow Parkway are expected to extend beyond the storage length provided. Nevertheless, the queue is not expected to significantly impact the study road network and does not extend to the upstream intersection. It is recommended that the Region continue monitoring the queues to determine if interim improvements are warranted, prior to the James Snow Parkway widening.

The following storage lengths should be provided at the proposed site accesses to support 2030 future total conditions:

- Regional Road 25 & Full Moves Access (EBL): 30 m
- Regional Road 25 & Full Moves Access (NBL): 50 m
- Regional Road 25 & Full Moves Access (SBR): 50 m
- 5 Side Road & Full Moves Access (EBL): 30 m
- 5 Side Road & Full Moves Access (WBR): 20 m
- 5 Side Road & Full Moves Access (SBL): 25 m

Roundabout Control

Table 48 outlines the results of the 2030 future total queueing assessment for the roundabout study intersections using ARCADY.

Table 48: 2030 Future Total Queuing Assessment – Roundabout Control

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (veh) ¹		
		A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road ²	EB	1	1	1
	WB	~1	3	3
	NB	1	17	6
	SB	14	2	2
James Snow Parkway/ Campbellville Road & Dublin Line/Tremaine Road	EB	~1	1	4
	WB	3	1	2 ³
	NB	~1	~1	1
	SB	~1	~1	~1

Note 1: 95th percentile queues are recorded in passenger car equivalents. Rounded up to the nearest vehicle.

Note 2: Based on adjusted roundabout geometry, as detailed in Table 42.

Note 3: Due to the unique volume pattern at James Snow Parkway/Campbellville Road & Tremaine Road/Dublin Line, with varied volumes at each approach, a 95th percentile queue can not be determined. Nevertheless, the maximum queue is outlined herein instead.

Regional Road 25 & 5 Side Road is expected to have some extended queues along the north and south approaches. Nevertheless, based on a vehicle length of 6.0 m, the expected queues are not expected to extend to the upstream intersection.

Overall, there are no queuing concerns expected at the roundabout study intersections under 2030 future total conditions.

7.5.2 2035 Horizon Year

Signal & Stop Control

Table 49 outlines the results of the 2035 future total queuing assessments using SimTraffic for signalized and stop controlled study intersections.

Table 49: 2035 Future Total Queuing Assessment - Signal & Stop Control

Intersection	Performance Metrics				Auxiliary Lane Storage Length (m) ²	
	Movement	95 th Percentile Queue Length (m) ¹				
		A.M.	P.M.	SAT		
Regional Road 25 & James Snow Parkway	EBL	35	30	40	85	
	EBR	70	55	40	115	
	WBL	80	185	125	85	
	WBR	30	90	60	35	
	NBL	115	80	130	120	
	NBR	35	25	15	65	
	SBL	50	70	70	125	
	SBR	15	20	20	15	
James Snow Parkway & 5 Side Road	EBL	40	55	50	30	
	WBL	5	5	-	30	
	WBR	10	15	10	50	
	SBL	15	10	10	30	
Regional Road 25 & Site Access	EBL	25	25	25	15	
	NBL	40	50	45	25	
	SBTR	50	45	45	20	
5 Side Road & Site Access	EBL	15	20	20	25	
	WBR	5	10	10	20	
	SBL	15	25	25	15	

Note 1: Rounded up to the nearest 5 m.

Note 2: Rounded up to the nearest 1 m.

The queues for some movements are expected to extend beyond the storage length. However, these queues for the following movements and intersections can be accommodated within the provided taper length or painted median, as applicable:

- Regional Road 25 & James Snow Parkway (NBL, SBR)
- James Snow Parkway & 5 Side Road (EBL)

The westbound left-turn queue at Regional Road 25 & James Snow Parkway is expected to extend beyond the assumed storage length. As outlined for future background conditions, it is recommended that the Region consider extending the existing storage length to accommodate the extended queue. Nevertheless, it is noted that this improvement would require revising the existing concrete median and back-to-back left-turn lanes. If a storage length extension is desired by the Region, this improvement can be implemented as part of the James Snow Parkway widening works. Furthermore, it is noted that the Proposed Development is

not expected to result in additional trips for this movement. Accordingly, an extension of this auxiliary turn lane storage would support background traffic, while benefiting future total traffic.

Consistent with future background conditions, the westbound right-turn queue at Regional Road 25 & James Snow Parkway is expected to extend beyond the effective storage length. It is recommended that the storage length be further extended to 90 m to accommodate the expected queues. This storage length extension can be implemented as part of the James Snow Parkway widening works.

The expected queues at Regional Road 25 & Full Moves Access and 5 Side Road & Full Moves Access can be accommodated within the storage lengths recommended to support 2030 future total conditions.

Roundabout Control

Table 50 outlines the results of the 2035 future total queueing assessment for the roundabout study intersections using ARCADY.

Table 50: 2035 Future Total Queueing Assessment – Roundabout Control

Intersection	Performance Metrics			
	Movement	95 th Percentile Queue Length (veh) ¹		
		A.M.	P.M.	SAT
Regional Road 25 & 5 Side Road ²	EB	1	1	1
	WB	~1	6	5
	NB	1	27	11
	SB	22	2	2
James Snow Parkway/ Campbellville Road & Dublin Line/Tremaine Road	EB	1	~1	7
	WB	1	5	1 ³
	NB	~1	~1	1
	SB	~1	~1	~1

Note 1: 95th percentile queues are recorded in passenger car equivalents. Rounded up to the nearest vehicle.

Note 2: Based on adjusted roundabout geometry, as detailed in Table 46.

Note 3: Due to the unique volume pattern at James Snow Parkway/Campbellville Road & Tremaine Road/Dublin Line, with varied volumes at each approach, a 95th percentile queue can not be determined. Nevertheless, the maximum queue is outlined herein instead.

Regional Road 25 & 5 Side Road is expected to have some extended queues along the north and south approaches. Nevertheless, based on a vehicle length of 6.0 m, the expected queues are not expected to extend to the upstream intersection.

There are no queuing concerns expected at the roundabout study intersections under 2035 future total conditions.

7.5.3 Summary

Table 51 outlines the recommended auxiliary turn lane geometry based on the results of the queuing analysis above.

Table 51: Future Total Recommended Auxiliary Turn Lane Geometry

Intersection	Movement	Horizon Year	Storage Length		Improvement Type
			Planned	Recommended	
Regional Road 25 & James Snow Parkway	WBR	2035	55 m ¹	90 m (+35 m)	Capital Project Improvement ²
Regional Road 25 & Full Moves Access	EBL	2030	N/A ³	30 m	Proposed Development
	NBL	2030	N/A ³	50 m	Proposed Development
	SBTR	2030	N/A ³	50 m	Proposed Development
5 Side Road & Full Moves Access	EBL	2030	N/A ³	30 m	Proposed Development
	WBR	2030	N/A ³	20 m	Proposed Development
	SBL	2030	N/A ³	25 m	Proposed Development

Note 1: Recommended storage length as outlined in Table 27.

Note 2: Potential implementation as part of James Snow Parkway widening project.

Note 3: To support the Subject Lands, thus, no planned storage length.

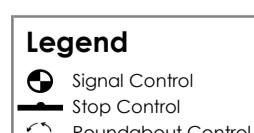
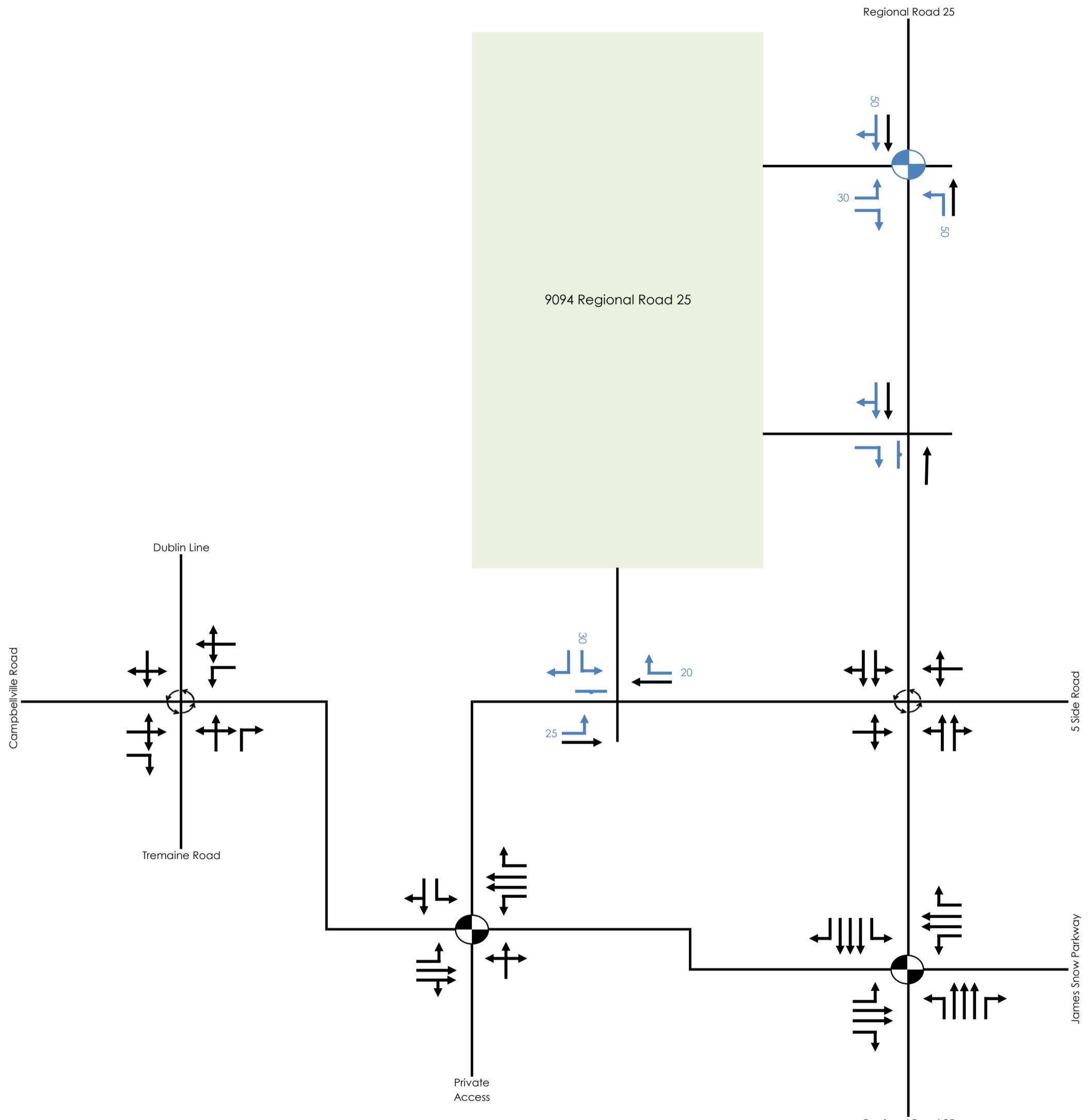
7.6 Future Total Recommendations Summary

Table 52 summarizes the recommended future total improvements. These improvements should be implemented in addition to the future background warranted improvements outlined in Table 28.

Table 52: Future Total Recommendations Summary

Location	Improvement
2030 Future Total	
Regional Road 25	Extend planned southbound curb lane between 5 Side Road and Full Moves Access, resulting in 2 southbound lanes along site frontage.
Regional Road 25 & 5 Side Road	Refine roundabout geometry to accommodate future traffic volumes as noted including: <ul style="list-style-type: none"> • Entry Width: 9.0 m (South Approach) • Conflict (Entry) Angle: 30 degrees (South Approach) • Dual Circulating Lanes (All Approaches)
Regional Road 25 & James Snow Parkway	Continue to monitor traffic operations and queues to determine if additional improvements are warranted, prior to James Snow Parkway widening.
Regional Road 25 & Full Moves Access	Implement traffic signals and auxiliary turn lanes for the following movements, with the recommended storage lengths: <ul style="list-style-type: none"> • EBL: 30 m • NBL: 50 m • SBTR: 50 m
5 Side Road & Full Moves Access	Implement auxiliary turn lanes for the following movements: <ul style="list-style-type: none"> • EBL: 30 m • WBR: 20 m • SBL: 25 m
2035 Future Total	
Regional Road 25 & James Snow Parkway	Continue to consider extending the future background warranted WBL auxiliary turn lane (from 170 m to 185 m). Extend recommended future background WBR auxiliary turn lane (from 55 m to 90 m).

Figure 23 and Figure 24 illustrates the 2030 and 2035 future total recommendations, respectively.



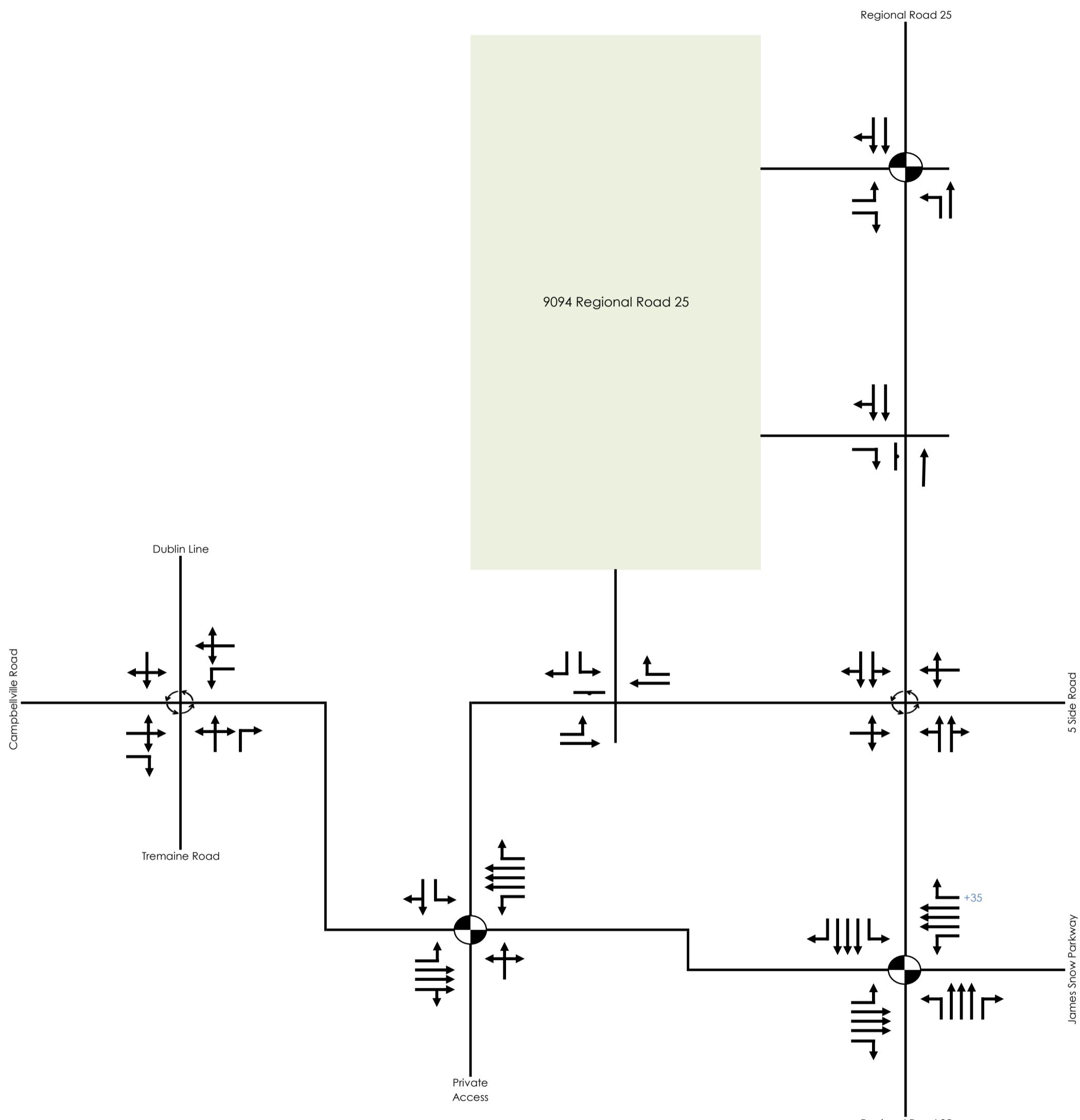
9094 Regional Road 25

2030 Future Total Recommendations



Figure 23

Project No. 2022-7556
Date: 11/10/25
Analyst: MY



Legend

- Signal Control
- Stop Control
- Roundabout Control

9094 Regional Road 25

2035 Future Total Recommendations



CROZIER
CONSULTING ENGINEERS

Figure 24

Project No. 2022-7556
Date: 11/10/25
Analyst: MY

8.0 Intersection Sight Distance

The available sightlines at the proposed site accesses were measured and compared to the standards set out in the TAC GDGCR (June 2017). The following cases were reviewed, as applicable:

- Case B: Intersections with Stop on the Minor Road
- Case D: Intersections with Traffic Signal Control
- Case F: Left-Turns from the Major Road

Sight distances were measured from the proposed site accesses using the following assumptions:

- A standard driver eye height of 1.08 m for a passenger car.
- A standard driver eye height of 2.30 m for a tractor trailer (Wb-20).
- An object height of 0.60 m.
- A 4.4 to 5.4 m setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

The design speed of a roadway is typically 10 km/h greater than the posted speed limit. The posted speed limit along Regional Road 25 and 5 Side Road is 80 km/h and 60 km/h, respectively. Therefore, for the sight distance analysis, a design speed of 90 km/h was assumed for Regional Road 25 and a design speed of 70 km/h for 5 Side Road.

Appendix M includes the relevant TAC GDGCR excerpts.

8.1 Unsignalized Accesses

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

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

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)

Table 53 outlines the sight distance analysis for the unsignalized site accesses.

Table 53: Sight Distance Analysis

Access	RIRO Access off Regional Road 25	Full Moves Access off 5 Side Road	
Maneuver	Right Turn	Left Turn	Right Turn
Access Type	Right-In/Right-Out	Full Moves	
Intersection Control	Case B: Stop on Minor Road	Case B: Stop on Minor Road	
Posted Speed Limit	80 km/h	60 km/h	
Assumed Design Speed	90 km/h	70 km/h	
Grade	Less than 3%	Less than 3%	
Horizontal Alignment	Straight	Straight	
Base Time Gap	6.5 s	7.5 s	6.5 s
Additional Time Gap	None	None	None
Sight Distance Required	165 m	150 m	130 m
Measured Sight Distance	165+ m	150+ m	130+ m
Sight Distance Satisfied	Yes	Yes	Yes

For the proposed unsignalized accesses off Regional Road 25 and 5 Side Road, the minimum sight distance requirements are satisfied.

8.2 Signalized Access

For Case D: Intersections with Traffic Signal Control, the following requirements must be met per TAC GDGCR (June 2017) Section 9.9.2.3:

- The first vehicle stopped at each approach must be visible to the driver of the first vehicle stopped on each of the other approaches.
- Left-turning vehicles must have sufficient sight distance to select gaps in oncoming traffic and complete left-turns (Case F: Left-Turns from the Major Road).
- Right-turning vehicles must have sufficient sight distance to select gaps in oncoming traffic and complete right-turns (Case B2: Right-Turn from the Minor Road).

The Full Moves Access will accommodate both passenger cars and heavy trucks. Accordingly, the sight distance analysis was conducted using the base time gap for a tractor trailer (Wb-20). Accordingly, an additional time gap was applied to account for the two-way left-turn lane along Regional Road 25.

Table 54 outlines the sight distance assessment for the signalized access.

Table 54: Sight Distance Assessment - Signalized Accesses

Access	Full Moves Access off Regional Road 25	
Maneuver	Left-Turn	Right-Turn
Access Type	Full Moves	
Intersection Control	Case F: Left-Turn from Major Road	Case B2: Right-Turn from Minor Road
Posted Speed Limit	80 km/h	
Assumed Design Speed	90 km/h	
Grade	Less than 3%	
Horizontal Alignment	Straight	
Base Time Gap	7.5 s	10.5 s
Additional Time Gap	0.7 s	None
Sight Distance Required	210 m	265 m
Measured Sight Distance	210+ m	265+ m
Minimum Sight Distance Satisfied	Yes	Yes

For the proposed signalized access off Regional Road 25, the minimum sight distance requirements are satisfied.

8.3 Summary

In summary, the Proposed Development is supportable from a sight distance perspective, as the minimum requirements are satisfied at the 3 site accesses proposed.

9.0 Vehicle Maneuverability Review

This section considers the internal vehicle maneuverability of the Subject Site to confirm vehicles can safely operate without conflicts or constraints. Vehicle Turning Diagrams were prepared using AutoTURN software.

The following design vehicles are expected to operate on site and are reviewed herein:

- Wb-20 Tractor Trailer Truck
- Region of Halton Fire Truck
- TAC p-car

Appendix N includes the Vehicle Turning Diagrams.

9.1 Heavy Vehicles

The Full Moves Access off Regional Road 25 will service the heavy vehicle traffic, given the existing heavy vehicle restrictions along 5 Side Road.

Analysis of vehicle turning movements indicate that there is sufficient space for a standard Wb-20 truck to maneuver in and out of the proposed Full Moves Access off Regional Road 25, as well as in and out of the proposed loading spaces.

9.2 Emergency Vehicles

The Region of Halton Fire Truck can maneuver throughout the Subject Site as well as the proposed site accesses without issues.

9.3 Passenger Vehicles

Passenger vehicles can safely enter and exit the proposed site accesses without any conflicts. Furthermore, passenger vehicles can safely maneuver around the provided vehicle parking areas.

9.4 Summary

Overall, the Proposed Development is supportable from a vehicle maneuverability perspective.

10.0 Parking and Loading Review

The parking and loading requirements were reviewed for the Proposed Development against the following By-Laws, as applicable:

- Town of Halton Hills Zoning By-Law 2010-0050
- Town of Halton Hills By-Law 2005-0117

Appendix O includes the relevant Town of Halton Hills By-Law excerpts.

10.1 Vehicle Parking Review

Table 55 outlines the parking requirements based on the Town of Halton Hills Zoning By-Law.

Table 55: Town of Halton Hills Zoning By-Law 2010-0050 Vehicle Parking Requirements

Land Use	Block	Statistic	Rate	Required	Proposed
Warehouse	Block 1	52,769 m ²	168 + 1/170 m ² (>20,000)	361 spaces	606 spaces (+245 spaces)
Retail	Block 2	17,004 m ²	1/20 m ²	851 spaces	1,039 spaces (+188 spaces)
	Block 3	3,340 m ²	1/20 m ²	167 spaces	200 spaces (+33 spaces)
Total				1,379 spaces	1,845 spaces (+466 spaces)

As outlined above, the Proposed Development is required to provide a total of 1,379 spaces. The most recent Site Plan proposes 1,845 vehicle spaces, which exceeds the Zoning By-Law requirements.

10.2 Accessible Parking Review

Table 56 outlines the accessible parking requirements for the Proposed Development based on the Town of Halton Hills Zoning By-Law 2005-0117.

Table 56: Town of Halton Hills By-Law 2005-0117 Accessible Parking Requirements

Land Use	Block	Provided Parking	Rate	Required ¹	Proposed
Warehouse	Block 1	606 spaces	2 + 2% of provided	15 spaces	18 spaces (+3 spaces)
Retail	Block 2	1,039 spaces	11 + 1% of provided	22 spaces	22 spaces (+0 spaces)
	Block 3	200 spaces	1 + 3% of provided	7 spaces	9 spaces (+2 spaces)
Total				44 spaces	51 spaces (+9 spaces)

Note 1: Rounded up to the nearest whole number.

Based on the proposed parking supply, 44 accessible parking spaces are required. As 51 accessible parking spaces are provided, the By-Law requirements are exceeded.

10.3 Bicycle Parking Review

Table 57 outlines the bicycle parking requirements per Zoning By-Law 2010-0050.

Table 57: Town of Halton Hills Zoning By-Law 2010-0050 Bicycle Parking Requirements

Land Use	Block	Statistic	Rate	Required	Proposed
Warehouse	Block 1	52,769 m ²	2 + 0.25/1000 m ²	16 spaces	16 spaces (+0 spaces)
Retail	Block 2	17,004 m ²	2 + 1/1000 m ²	20 spaces	35 spaces (+9 spaces)
	Block 3	3,340 m ²	2 + 1/1000 m ²	6 spaces	
Total				42 spaces	51 spaces (+9 spaces)

To support the Proposed Development, a total of 42 bicycle parking spaces is required. The Site Plan includes 51 bicycle parking spaces, which exceeds the Zoning By-Law requirements.

10.4 Loading Review

Table 58 outlines the loading requirements per Zoning By-Law 2010-0050.

Table 58: Town of Halton Hills Zoning By-Law 2010-0050 Loading Parking Requirements

Land Use	Block	Statistic	Rate	Required	Proposed
Warehouse	Block 1	52,769 m ²	5 + 1/3700 m ²	14 spaces	129 spaces (+115 spaces)
Retail	Block 2	17,004 m ²	4 spaces	4 spaces	6 spaces (+2 spaces)
	Block 3	3,340 m ²	2 spaces	2 spaces	2 spaces (+0 spaces)
Total				20 spaces	137 spaces (+117 spaces)

The Subject Development proposes a total of 137 loading spaces, which exceeds the Zoning By-Law requirements.

11.0 Transportation Demand Management Strategies

There are several opportunities for the Subject Development to promote transportation demand management (TDM) measures in support of reduced automobile use. Table 59 outlines the proposed TDM measures, which are expected to contribute to reduced automobile use and increased sustainable mode share.

Table 59: Site Specific TDM Recommendations

Recommended TDM Measure	Implementation Summary	Responsibility
TDM Information Package	<p>Upon and prior to employment, a TDM information package should be provided to new and future employees. Promotional material should also be readily available (and continuously updated) in area(s) central to all employees, such as a lunchroom or lobby to increase awareness of available alternate travel modes and reduce the barriers to adopting more sustainable travel behaviour. Such marketing allows employees to be aware of sustainable travel options, as well as updates in the transit and cycling infrastructures improvements of the area.</p> <p>The TDM Information Package can comprise of:</p> <ul style="list-style-type: none"> • Active transportation network maps • Transit maps and schedules • Site specific TDM measures <p>Information on the future transit projects could be provided to increase awareness of pending mass transit opportunities, which can encourage employees to utilize alternative transportation methods.</p>	Developer/ Tenant
Off-Peak Shift Changes	<p>The future industrial tenant(s) are encouraged to have shift changes and primary vehicle-oriented activity to occur outside of peak hours, subject to operational requirements of the tenants. Deliveries, tractor trailer schedules, and shift changes occurring outside of peak periods will reduce the impact on peak hour congestion and travel time reliability, providing a benefit to the site's employees, site operations, and background traffic in the area.</p>	Tenant to Consider
Secure and Excess Bicycle Parking Spaces	<p>Safe and secure bicycle parking is proposed for the development. Access to safe and secure bicycle parking will increase confidence and reliability for prospective cyclists to cycle as their primary mode of transportation.</p> <p>The provision of secure and excess bicycle parking spaces encourages bicycle use and provides employees and visitors with convenient and safe storage for frequent bicycle use.</p>	Developer

Recommended TDM Measure	Implementation Summary	Responsibility
Smart Commute	<p>The future tenants are encouraged to join Smart Commute to support sustainable travel initiatives for employees.</p> <p>Smart Commute works with employers to provide resources and tools that encourage commuters to utilize transportation alternatives. Smart Commute can assist in facilitating TDM strategies, including but not limited to:</p> <ul style="list-style-type: none"> • Carpool Ride-Matching Programs • Emergency Ride Home Programs • Discounted Transit Incentive Programs • Walking and Cycling Programs • Campaigns, Events and Promotions <p>Smart Commute presents a collaborative opportunity to reduce the proposed development's SOV trips and automobile dependency through various initiatives, infrastructure, and programs.</p>	Tenant
Transit Service Extension	<p>As the site is located on the boundary of the Town of Halton Hills and the Town of Milton, it is recommended that the Town of Halton Hills explore partnerships with the Town of Milton to extend on-demand transit services to the site.</p> <p>It is also noted that with the buildup of the Subject Site as well as the 401 Business Park area, a significant increase in transit demand may occur. Supporting on-demand transit particularly during shift-change periods in the area and eventually fixed routes, should demands warrant, would contribute to reduced peak hour vehicle trips and help to support the Region's mode share targets.</p>	Town of Halton Hills/Town of Milton/Milton Transit

In summary, there are several existing, and site-specific TDM opportunities that are expected to encourage the use of non-auto transportation, reduce SOV trips, and reduce parking demand for the Proposed Development.

12.0 Future Transit Considerations and Opportunities

Although the Subject Site is in the Town of Halton Hills, it is also located on the shared boundary road of 5 Side Road with the Town of Milton. The Subject Development, as well as the 401 Business Park employment area to the south, are expected to generate significant transit demand once fully built out. These significant developments offer transit-supportive opportunities for the medium-term that can increase transit mode share, should service, whether fixed or on-demand, be provided.

The Town of Halton Hills' Transit Service Strategy (June 2019) did not contemplate a fixed route within the study area due to a lack of planned developments at the time of preparing the

report. By 2028, several fixed route services are recommended, with the closest transit route to the Subject Lands spanning between Milton GO and Lisgar GO stations, with an intermediate stop at the Toronto Premium Outlets. Connections to these fixed service routes from the Subject Site will inherently rely on service from Milton Transit as well as on demand Halton Hills transit service.

In Exhibit 3.28 of the Town of Milton's Five-Year Service Plan and Transit Master Plan Update (June 2024), the Town's OnDemand Service ridership flows in 2023 saw moderate demand along Regional Road 25, to Side Road 5. Therefore, with the buildout of the Subject Lands as well as the 401 Business Park, it would be expected that significant growth in transit demand may occur by the 2030 horizon. While the study area was contemplated to continue operating as an OnDemand Service Zone, as outlined in Exhibit 3.40 of the Five-Year Service Plan and Transit Master Plan Update, we recommend that opportunities for fixed route service be explored and ridership demand continue to be evaluated as the area continues to be built out.

Moreover, once these employment areas are built out, we recommend the Town of Milton and Town of Halton Hills explore transit opportunities, whether fixed or on-demand, during shift change periods, once confirmed with tenants, to support sustainable transit options for regular commuters.

Appendix P includes the transit service strategy excerpts for the Town of Milton and Town of Halton Hills.

13.0 Future Roadway Connection Opportunities Review

The Subject Site proposes access connections to Regional Road 25 and Side Road 5. Beyond the Subject Lands, there is the opportunity for future development that will also require access to the surrounding study road network. This section herein reviews opportunities for future roadway connections for adjacent parcels, in light of the Development Proposal. Specifically, this section aims to evaluate if the Proposed Development precludes or impacts opportunities for adjacent land access(es) and intersection(s) to the study road network.

The minimum intersection and access spacing requirements, as outlined in the following guidelines, were reviewed herein:

- Region of Halton Access Management Guideline (January 2015)
- Town of Milton Engineering & Parks Standards Manual (September 2024)
- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) (June 2017)

Table 60 summarizes the intersection and spacing requirements along Regional Road 25, Dublin Line and 5 Side Road.

Table 60: Intersection and Access Spacing Requirements

Roadway	Access Type	Intersection Spacing	Access Spacing	Source
Regional Road 25	Right-In/Right-Out	115 m	115 m	Region of Halton Access Management Guideline
	Full Moves	400 m	400 m	
Dublin Line	Right-In/Right-Out	60 m ¹	15 m ²	TAC GDGCR
	Full Moves			
5 Side Road	Right-In/Right-Out	100 m	70 m ^{2,3}	Town of Milton Engineering & Parks Standards Manual/ TAC GDGCR
	Full Moves	200 m		

Note 1: 40 m spacing is acceptable for a three-legged intersection.

Note 2: Minimum corner clearance requirements per TAC GDGCR.

Note 3: If cross road is stop controlled, reduced corner clearance of 35 m and 25 m required for full moves and right-in/right-out accesses, respectively.

Appendix M includes the relevant TAC GDGCR excerpts.

13.1 Regional Road 25

The property located immediately north of the Subject Lands has a frontage along Regional Road 25 of approximately 130 m. Accordingly, given the proposed full moves site access off Regional Road 25, there is sufficient frontage along the property to the north to accommodate a right-in/right-out site access. Furthermore, should the property to the north be combined with at least one of the adjacent properties, there are additional opportunities for full-moves accesses off Regional Road 25.

Along Regional Road 25, an approximate frontage of 1,100 m is available between the Subject Lands and the natural heritage system, located north of Chudleigh's Farm (9528 Regional Road 25). This frontage can support up to 9 right-in/right-out accesses or up to 3 full moves accesses or intersections.

The property south of the Subject Lands (9056 Regional Road 25) has a frontage to Regional Road 25 of approximately 170 m. However, given the existing driveway to the heritage home within the Subject Lands, there is insufficient spacing to support access off Regional Road 25. It is also noted that the existing driveway for 9056 Regional Road 25 does not meet the Region's access spacing requirements with the existing driveway for the heritage home on the Subject Lands. Nevertheless, as the property has frontage to 5 Side Road, which can support access(es) should the lands be redeveloped, at which time the reduced access spacing along Regional Road 25 can be addressed.

13.2 Dublin Line

As the Subject Lands does not have frontage to Dublin Line, no site accesses are proposed off Dublin Line. Therefore, the Proposed Development does not preclude the redevelopment of the lands fronting Dublin Line. Nevertheless, with an approximate 1,810 m frontage between James

Snow Parkway and the northern property limit of Granite Ridge Golf Club (9503 Dublin Line), there is sufficient frontage to support future site accesses and/or intersections, as required.

13.3 5 Side Road

As outlined above, the property south of the Subject Lands (9056 Regional Road 25) has frontage to both Regional Road 25 and 5 Side Road. With the 5 Side Road frontage of approximately 240 m, there is sufficient spacing to accommodate up to 3 site accesses.

13.4 Summary

Overall, the Subject Development, does not preclude the implementation of future access(es) to the surrounding properties under future redevelopment scenarios, as well as the implementation of new roadways(s). Accordingly, the Proposed Development is supportable from a roadway connection perspective.

Appendix R illustrates the future access and/or intersection opportunities for the lands surrounding the Subject Property. These access and intersection opportunities consider parcel delineation, Natural Heritage System constraints and sight distance considerations. As these surrounding lands have different ownership, alignment of collector roads through these neighbouring parcels was not shown. Several of these parcels are existing businesses currently in operation and it was not considered appropriate to highlight a system of collector roads through these lands, particularly without their consultation or without consideration of the potential redevelopment plans for these lands. However, the access and intersection opportunities illustrate that such a network can be developed with access to the existing external road network, and the internal network can be developed to respond to future land use scenarios as well as Natural Heritage System impacts, where appropriate.

14.0 Conclusions and Recommendations

Halton Hills One Limited Partnership retained C.F. Crozier & Associates Inc. (Crozier) to complete a Transportation Impact Study to support the privately initiated Settlement Area Boundary Expansion for the property located at 9094 Regional Road 25, in the Town of Halton Hills, Regional Municipality of Halton. The proposed Official Plan Amendment and Zoning By-Law Amendment applications will be in support of the proposed industrial and commercial retail uses as well as the discount warehouse club commercial retail and associated gas bar.

The purpose of the study is to evaluate the transportation-related impacts of the Proposed Development on the boundary road network and to recommend any required mitigation measures, if warranted.

14.1 Conclusions

The analysis contained within this report has resulted in the key findings outlined below.

Existing Conditions

- Regional Road 25 & James Snow Parkway is expected to operate at a LOS "C" or better during the weekday a.m. and p.m., and Saturday peak hours. It is noted that some movements are expected to operate at a LOS "F" or with a v/c ratio above the Region's thresholds. Nevertheless, the intersection is still expected to operate efficiently, and with the planned road widenings along Regional Road 25 and James Snow Parkway, the intersection operations are expected to improve in the future.
- The remaining study intersections are operating at a LOS "C" or better with low to moderate control delays and v/c ratios. These operations indicate that the intersections operate efficiently with acceptable delays and reserve capacity to accommodate future increases in traffic volumes.
- Some queues at Regional Road 25 & James Snow Parkway currently extend beyond the effective (parallel) storage length provided. These queues are expected to be alleviated by the planned capital improvements (road widenings) to Regional Road 25 and James Snow Parkway. It is therefore recommended that the Region monitor traffic volumes and queues at this intersection to confirm if interim mitigation measures are required.
- Overall, the modelled queues are not expected to result in notable operational impacts within the study road network.

Future Background Conditions

- The full build-out of the Proposed Development is expected to occur within the next five years. Accordingly, the 2030 and 2035 study horizons are reviewed herein.
- Growth rates provided by the Region of Halton were applied to Regional roads within the study areas, and a 2% growth rate was applied to Town roads consistent with approved background development reports. Background development traffic volumes for the active developments near the Subject Site were also included to estimate future background traffic volumes.
- As part of planned capital improvements, the following mobility network improvements

are planned for the following horizon years:

- 2030 Horizon Year
 - Regional Road 25:
 - Widening to 6 Lanes (Steeles Avenue to 5 Side Road)
 - Widening to Add Two-Way Left-Turn Lane (5 Side Road to 10 Side Road)
 - Regional Road 25 & 5 Side Road: Roundabout
 - Highway 401 & Tremaine Road: Highway Interchange
- 2035 Horizon Year
 - James Snow Parkway: Widening to 6 Lanes (Highway 401 to Tremaine Road)
- Consistent with existing conditions, the intersection of Regional Road 25 & James Snow Parkway is operating at a LOS "C" or better during the weekday and Saturday peak hours under 2030 and 2035 future background conditions when accounting for the planned capital improvements. It is noted that the intersection continues to operate at a v/c ratio above the Region's critical threshold; nevertheless, the intersection is still operating efficiently with no operational concerns anticipated.
- The remaining study intersections are expected to continue operating efficiently at a LOS "C" or better with low to moderate control delays and v/c ratios under 2030 and 2035 future background conditions.
- The queues for the following movements are expected to exceed the effective storage length:
 - Regional Road 25 & James Snow Parkway (WBL, WBR)

Future Total Conditions

- The Proposed Development is expected to generate 790, 1,751, and 2,177 two-way total baseline vehicle trips during the weekday a.m., weekday p.m., and Saturday peak hours, respectively.
 - Of the vehicle trips, the industrial component of the Subject Development is expected to generate 11, 17 and 5 two-way truck trips during the weekday a.m., weekday p.m. and Saturday peak hours, respectively.
 - Based on the Region's target mode split, 761, 1,685 and 2,117 two-way mode split adjusted trips are expected for the weekday a.m., weekday p.m. and Saturday peak hours, respectively. We note that the Region's target mode split was only applied to a portion of site trips that could reasonably contribute to the target shift including industrial warehouse employee trips and traditional retail/commercial trips.

- Of the above total vehicle trips, 560 and 536 pass-by trips are expected for the retail component (discount warehouse club and typical retail units) of the Subject Development during the weekday p.m. and Saturday peak hours.
- The widening of Regional Road 25, north of 5 Side Road, is currently proposing the addition of a two-way left-turn lane as a midblock section. However, north of the proposed roundabout at 5 Side Road, 2 southbound lanes were proposed, with the curb lane tapering north along the site's frontage to 1 southbound lane.
- Based on a cursory operational analysis, it was recommended to extend the southbound curb lane to the northern property limits of the Proposed Development, such that 2 southbound lanes exist along the site's frontage. The second southbound lane is recommended to support the expected traffic volumes and is consistent with the lane configuration envisioned at the proposed roundabout. The 2 southbound through lanes were modelled along Regional Road 25 between 5 Side Road and the proposed Full Moves Access.
- Based on the preliminary preferred design of Regional Road 25 & 5 Side Road, which will be converted to a roundabout, this intersection is expected to operate at a LOS "D" or better, with the south approach operating at LOS "F" during the weekday p.m. peak hour with extended 95th percentile queues. In addition, some approaches are expected to have a maximum v/c ratio above the Region's thresholds. Accordingly, there is the opportunity to refine the roundabout geometry to better accommodate the future traffic volumes.
- A sensitivity analysis was conducted with refinements to the preliminary roundabout geometry including a 9.0 m entry width and 30 degree conflict (entry) angle for the south approach as well as dual circulating lanes on for all approaches.
 - With the refined geometric improvements, the intersection is expected to operate at a LOS "B" or better with low control delays and acceptable v/c ratios. While some approaches are expected to operate above the Region's critical threshold of 0.85, the approaches are still operating below capacity and with low control delays.
 - Moreover, the refinements in geometry appear to be able to be accommodated within the proposed ROW identified in the preliminary design and should be confirmed as part of the ongoing Environmental Assessment works.
- Regional Road 25 & James Snow Parkway is expected to operate at a LOS "D" or better with a maximum increase in control delay and v/c ratio of 7 s and 0.03 in comparison to 2035 future background conditions. While the intersection is expected to operate with a v/c ratio above the Region's critical threshold of 0.85, this is consistent with future background conditions, with the intersection operating below capacity.
- The proposed site accesses are operating efficiently at a LOS "C" or better with low control delays and acceptable v/c ratios. While some movements are expected to operate above the Region's critical threshold for v/c ratios, the movements are still operating below capacity with low control delays. Accordingly, there are no major operational concerns anticipated at the site accesses.
- The remaining study intersections are expected to operate efficiently with a LOS "C" or better with low control delays and low to moderate v/c ratios. This indicated the

intersections are expected to operate with reserve capacity for future traffic growth.

- Overall, the site generated traffic does not significantly impact operations of the study road network with the implementation of the proposed recommendations. Accordingly, the Proposed Development is supportable from a traffic operations perspective.
- The queues for the following movements are expected to exceed the effective storage length and are therefore recommended for extension, as summarized in Table E1:
 - Regional Road 25 & James Snow Parkway (WBL, WBR)
- The following auxiliary turn lanes should be provided at the proposed site accesses:
 - Regional Road 25 & Full Moves Access (EBL, NBL, SBR)
 - 5 Side Road & Full Moves Access (EBL, WBR, SBL)

Safety Review

- The sight distance requirements are met at the proposed site accesses off Regional Road 25 and 5 Side Road. Thus, the Proposed Development is supportable from a sight distance perspective.

Vehicle Maneuverability Review

- The Vehicle Turning Diagrams demonstrate that there are no expected vehicle maneuverability constraints within the Subject Development for Wb-20 trucks, fire trucks, and passenger vehicles.

Parking and Loading Review

- The Proposed Development satisfies the vehicle parking, accessible parking, bicycle parking, and loading requirements.

Transportation Demand Management Strategies

- Transportation demand management strategies were identified and recommended to support the Subject Development, as summarized below in Table E1.

Future Transit Considerations and Opportunities

- Although the Subject Site is located in the Town of Halton Hills, it is also located on the shared boundary with the Town of Milton. The Subject Development, as well as the 401 Business Park employment area, are expected to generate significant transit demand once built out. These significant developments offer transit-supportive opportunities for the medium-term that can increase transit mode share, should service be provided.
- Therefore, with the buildup of the Subject Lands as well as the adjacent 401 Business Park, it is expected that significant growth in transit demand may occur, recognizing that the area may benefit from future Milton Transit service, as a continuation of existing service, in comparison to the Town of Halton Hills' future fixed route service options.
- While the study area was contemplated to continue operating as an OnDemand Service

Zone by Milton Transit, we recommend that opportunities for fixed route service be explored, and ridership demand continue to be evaluated as the area continues to be built out. Moreover, we recommend that the Town of Halton Hills and the Town of Milton coordinate to develop a transit service strategy to serve future employees and retail visitors, and continue contributing to the Region's goal of increasing sustainable mode share.

- These opportunities can be explored during shift change periods once confirmed with tenants in the area to initially provide sustainable transit options for regular commuters.

Road Connection Opportunities Review

- The Proposed Development, and the proposed site accesses, do not preclude the implementation of future access(es) to the surrounding properties fronting Regional Road 25, Dublin Line and 5 Side Road.

14.2 Recommendations

Table C1 outlines recommendations resulting from the conclusions and findings of this study.

Table C1: Recommendations Summary

Location	Improvement
2030 Future Background	
Regional Road 25	Maintain schedule for planned road widening between Steeles Avenue to 10 Side Road
Regional Road 25 & James Snow Parkway	Monitor traffic operations and queues to determine if additional improvements are warranted, prior to James Snow Parkway widening.
Regional Road 25 & 5 Side Road	Maintain schedule for planned roundabout.
Highway 401 & Tremaine Road	Maintain schedule for planned interchange.
2035 Future Background	
James Snow Parkway	Maintain schedule for planned road widening between Highway 401 to Tremaine Road.
Regional Road 25 & James Snow Parkway	Consider extending the existing WBL auxiliary turn lane (170 m).
	Extend existing WBR auxiliary turn lane (55 m).
2030 Future Total	
Regional Road 25	Extend planned southbound curb lane between 5 Side Road and Full Moves Access, resulting in 2 southbound lanes along site frontage.

Location	Improvement
Regional Road 25 & 5 Side Road	<p>Refine roundabout geometry to accommodate future traffic volumes as noted including:</p> <ul style="list-style-type: none"> • Entry Width: 9.0 m (South Approach) • Conflict (Entry) Angle: 30 degrees (South Approach) • Dual Circulating Lanes (All Approaches)
Regional Road 25 & James Snow Parkway	<p>Continue to monitor traffic operations and queues to determine if additional improvements are warranted, prior to James Snow Parkway widening.</p>
Regional Road 25 & Full Moves Access	<p>Implement traffic signals and auxiliary turn lanes for the following movements, with the recommended storage lengths:</p> <ul style="list-style-type: none"> • EBL: 30 m • NBL: 50 m • SBTR: 50 m
5 Side Road & Full Moves Access	<p>Implement auxiliary turn lanes for the following movements:</p> <ul style="list-style-type: none"> • EBL: 30 m • WBR: 20 m • SBL: 25 m
2035 Future Total	
Regional Road 25 & James Snow Parkway	<p>Continue to consider extending the future background warranted WBL auxiliary turn lane (from 170 m to 185 m).</p>
	<p>Extend recommended future background WBR auxiliary turn lane (from 55 m to 90 m).</p>
Other Site-Specific Recommendations	
Transportation Demand Management Measures	<p>Implement the following site-specific transportation demand management measures recommended:</p> <ul style="list-style-type: none"> • TDM Information Package • Off-Peak Shift Changes • Secure and Excess Bicycle Parking Spaces • Smart Commute • Transit Service Extension

In conclusion, the Proposed Residential Development is supportable from a transportation operation, parking, loading, site circulation and safety perspective.

The analysis undertaken herein was prepared using the most recent Site Plan. Any minor changes to the Plan will not materially affect the conclusions contained within this report.

We trust that this review addresses any transportation-related concerns with the project. Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Respectfully submitted by,

C.F. CROZIER & ASSOCIATES INC.



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