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Township of Tiny Administration Centre

TRANSPORTATION IMPACT STUDY

Township of Tiny

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1 Introduction

Tatham Engineering Limited has been retained by the Township of Tiny to prepare a Transportation Impact Study in support of the proposed municipal administration building to be located at 255 Concession Road 9 East in the Township of Tiny. The location of the development site is illustrated in Figure 1.

1.1 REPORT OBJECTIVE

The objective of this report is to present the findings of the transportation impact study and address the requirements of the Township with respect to the potential impacts of the proposed development on the area road network. In particular, the following will be discussed:

- the operations of the road system through the study area prior to the proposed development.
- the growth in the traffic volumes not otherwise attributed to the development (i.e. from overall growth in the area and/or other developments);
- the number of new trips the proposed development is likely to generate;
- the operations of the study area road system upon completion of the development; and
- the resulting impacts and need for mitigating measures (if required) to ensure acceptable overall road operations.

1.2 REPORT STRUCTURE

The report is structured as follows:

- Chapter 1: introduction and study purpose;
- Chapter 2: existing conditions, detailing the road system and corresponding traffic operations;
- Chapter 3: future conditions, prior to the completion of the proposed development (referred to as future background conditions), and the expected growth in traffic levels and the resulting operating conditions;
- Chapter 4: proposed development and associated details including land use, access, traffic volumes and sight lines;
- Chapter 5: future conditions, with completion of the proposed development (referred to as future total conditions); and
- Chapter 6: summary of the report and key findings.



2 Existing Conditions

This chapter will describe the current road network, traffic volumes and traffic operations under existing conditions.

2.1 ROAD NETWORK

The road network to be addressed by this study consists of the following roads and intersections:

Roads

- Concession Road 9 East
- Baseline Road South
- County Road 6 South

Intersections

- County Road 6 South & Concession Road 9 East
- Baseline Road South & Concession Road 9 East

Aerial mapping and photographs of the road system are provided in Figure 2 and Figure 3, with additional details provided below.

2.1.1 Roads

Key details of the study area roads are summarized in Table 1. The functional classification is based on that presented in *Schedule C - Transportation* of the Township's *Official Plan*¹ or, in the case of County Road 6 South, as per *Schedule 5.5.1 - County Transportation Systems* of the County's *Official Plan*². All roads within the study area have a rural cross-section with gravel shoulders (notwithstanding County Road 6 South which has a 1.0 metre paved shoulder and 1.5 to 2.0 metre gravel shoulders) and open ditches.

Table 1: Study Area Roads

ROAD	CLASSIFICATION	LANES	SPEED LIMIT	DIRECTION
Concession Road 9 East	Local	2	80 km/h	E-W
Baseline Road South	Local	2	80 km/h	N-S
County Road 6 South	Primary Arterial	2	60 km/h ¹	N-S

¹ The speed limit on County Road 6 South transitions to 80 km/h approximately 45 metres south of its intersection with Concession Road 9 East.

¹ *Township of Tiny Official Plan*. Township of Tiny. October 12, 2023 (Office Consolidated).

² *County of Simcoe Official Plan*. County of Simcoe. February 2023 (Office Consolidated).



2.1.2 Intersections

The configuration and control of the study area intersections are summarized below in Table 2 and illustrated in Figure 3.

Table 2: Study Area Intersections

INTERSECTION	CONTROL	INTERSECTION APPROACH CONFIGURATION			
		NB	SB	EB	WB
County Road 6 South & Concession Road 9 East	stop control on Concession Road 9 East	LTR	LTR	LTR	LTR
Baseline Road South & Concession Road 9 East	stop control on Concession Road 9 East	LT	TR	LR	-

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right

2.2 ACTIVE TRANSPORTATION NETWORK

There are no on-road or in-boulevard active transportation facilities within the study area. However, the Tiny Rail Trail (which makes up part of the Trans-Canada Trail and the Simcoe County Loop Trail) crosses Concession Road 9 East approximately 1.6 km west of the subject site.

2.3 TRANSIT NETWORK

There is no transit service offered within the study area.

2.4 TRAFFIC COUNTS

To determine existing traffic volumes on the road network, traffic counts were conducted at the study area intersections on Thursday, July 11, 2024 from 7:00 to 10:00 and 15:00 to 18:00. The counts, conducted during the summer season, are considered reflective of typical peak conditions and thus no adjustments have been made to the observed volumes. Detailed count sheets are provided in Appendix A with the 2024 peak hour volumes illustrated in Figure 4.

2.5 TRAFFIC OPERATIONS

The capacity, and hence operations, of a road system is effectively governed by its intersections. As such, the traffic assessment has focused on the operations of the study area intersection, based on the following:

- the 2024 traffic volumes;
- the existing intersection configurations and controls; and



- procedures outlined in the *2000 Highway Capacity Manual*³ (using Synchro v.11 software).

The analysis considers the following metrics for each lane group at signalized intersections and for the critical movements at unsignalized intersections (namely the stop-controlled movements):

- average delay (measured in seconds);
- level of service (LOS); and
- volume to capacity (v/c) ratio.

Level of Service (LOS) definitions are provided in Appendix B; LOS A corresponds to the best operating condition with minimal delays whereas LOS F corresponds to poor operations resulting from high intersection delays. A v/c ratio of less than 1.0 indicates the intersection movement/approach is operating at less than capacity while v/c of 1.0 indicates capacity has been reached.

To more accurately model existing traffic conditions, the overall intersection peak hour factor and heavy vehicle percentages for each movement were calculated based on those observed during the traffic counts and input into the traffic model. Where the observed heavy vehicle percentage was less than the Synchro default value (2%), the default was applied.

Results of the operational assessment are summarized in Table 3 with detailed operations worksheets provided in Appendix C.

Table 3: Intersection Operations - 2024

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
County Road 6 S. & Concession Road 9 E.	EB LTR	stop	14	B	0.11	18	C	0.13
	WB LTR	stop	11	B	0.11	14	B	0.20
Baseline Road S. & Concession Road 9 E.	EB LTR	stop	10	A	0.11	11	B	0.11

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right

As indicated, the study area intersections currently provide good operations (LOS C or better) with minor delay and excess reserve capacity.

³ *2000 Highway Capacity Manual*. Transportation Research Board. Washington DC, 2000.



2.6 NEED FOR IMPROVEMENTS

2.6.1 Intersection Operations

Given the reported operations at the study area intersections, no improvements are required under existing conditions.

2.6.2 Turn Lane Requirements

Despite the otherwise good intersection operations anticipated, the need for exclusive turn lanes at each intersection has been reviewed based on the following:

- MTO guidelines⁴ for auxiliary turn lanes at unsignalized intersections; and
- the 2024 traffic volumes.

Right Turn Lanes

With respect to right turn lanes, such are generally warranted where right turn volumes exceed 60 vehicles per hour and/or are expected to impede through traffic. The northbound and southbound right turn volumes on County Road 6 South at Concession Road 9 East (in the order of 20 vph or less), and the southbound right turn volumes on Baseline Road South at Concession Road 9 East (in the order of 25 vehicles or less) are not such that would warrant the implementation of right turn lanes.

Left Turn Lanes

In considering the need for an exclusive left turn lane, MTO warrants for auxiliary left turn lanes on 2-lane, undivided highways were considered. The warrants are based on the design speed, advancing volume (i.e. traffic travelling in the same direction as the left-turning traffic), opposing volume (i.e. traffic travelling in the opposite direction as the left-turning traffic) and the percentage of left turns in the advancing volume.

The left turn requirements are summarized in Table 4, whereas the completed warrants are provided in Appendix D. As indicated, the existing volumes do not warrant the implementation of left turn lanes on County Road 6 South or Baseline Road South.

⁴ *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*. Ontario Ministry of Transportation Design Standards & Specifications Office. April 2020.



Table 4: Left Turn Lane Warrants - 2024

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	NO	-	NO	-
Baseline Road South & Concession Road 9 East	NB Left	NO	-	NO	-



3 Future Background Conditions

This chapter will describe the road network and background traffic volumes expected for the years 2027, 2032 and 2037. The 2027 horizon has been adopted to reflect build-out of the subject development, whereas the 2032 and 2037 horizons have been adopted to address longer-term impacts of the development (5 and 10 years beyond build-out).

3.1 ROAD NETWORK

There are no planned improvements for the study area road network. As such, the road network as described under existing conditions has been maintained through the 2037 horizon, unless operations dictate the need for improvements.

3.2 TRAFFIC VOLUMES

Background traffic volumes expected for the 2027, 2032 and 2037 horizons have been determined based on the existing traffic volumes, historical and projected growth, and consideration for other development-specific traffic volumes.

3.2.1 Background Growth

Historical Growth - Population

Based on the census data from 2011, 2016 and 2021, the population of the Township increased from 11,232 persons in 2011 to 11,787 persons in 2016 and to 12,966 persons in 2021. This translates to a growth of approximately 1.0% per annum from 2011 to 2016, 1.93% per annum from 2016 to 2021, and approximately 1.5% per annum over the entire 10-year period 2011 and 2021.

Historical Growth - Traffic

As per the data published by the County of Simcoe, the Annual Average Daily Traffic volumes (AADT) on County Road 6 South have increased by approximately 4.4% per annum between 2014 and 2023. The historical volumes are summarized in Table 5.

Table 5: AADT – County Road 6 (Concession Road 4 to County Road 25)

	2014	2017	2020	2023
AADT	4,400	4,900	5,400	6,500



Projected Growth

Population and employment allocations for the Township and County were obtained from the County's *Growth Forecasts and Land Needs Assessment*⁵ report. Growth projections and corresponding growth rates based on the population and employment allocations are summarized in Table 6.

Table 6: Projected Population & Employment Growth

AREA	POPULATION			EMPLOYMENT		
	2021	2051	Annual Growth	2021	2051	Annual Growth
Township of Tiny	13,240	16,010	0.64%	1,570	2,390	1.4%
County of Simcoe	360,680	555,020	1.45%	116,600	197,980	1.78%

Should the population and employment allocations materialize as planned, the Township's population will increase in the order of 0.64% per annum between 2021 and 2051, whereas employment will experience growth the order of 1.4% per annum over the same period. Growth within the County is expected to be somewhat higher, with population and employment growth in the order of 1.5% and 1.8%, respectively.

Background Growth Rate

In consideration of the historical population and traffic growth within the area, the projected population and employment growth for the Township, and in consideration of the local function of the Township's roads (Concession Road 9 East and Baseline Road South), the following background growth rates have been applied to the study area road network:

- Concession Road 9 East - 1% per annum;
- Baseline Road South - 1% per annum; and
- County Road 6 South - 2% per annum.

3.2.2 Background Development

There were no other planned developments identified within the study area that would otherwise contribute additional traffic to the study area road network.

⁵ *County of Simcoe Growth Forecasts and Land Needs Assessment*. Hemson Consulting Ltd., March 2022.



3.2.3 Background Traffic Volumes

The resulting background traffic volumes for each horizon year are illustrated in Figure 5 through Figure 7. The background volumes are reflective of the 2024 existing volumes adjusted to reflect the noted background growth rates.

3.3 TRAFFIC OPERATIONS

The operation at the study area intersections were assessed to consider the projected background volumes for each horizon. The results of the operational analyses are summarized in Table 7 through Table 9, with detailed worksheets provided in Appendix E.

Table 7: Intersection Operations - 2027 Background

INTERSECTION, MOVEMENTS & CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			
	Delay	LOS	v/c	Delay	LOS	v/c	
County Road 6 S. & Concession Road 9 E.	EB LTR stop	14	B	0.12	19	C	0.14
	WB LTR stop	12	B	0.11	14	B	0.21
Baseline Road S. & Concession Road 9 E.	EB LTR stop	10	A	0.11	11	B	0.12

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right

Table 8: Intersection Operations - 2032 Background

INTERSECTION, MOVEMENTS & CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			
	Delay	LOS	v/c	Delay	LOS	v/c	
County Road 6 S. & Concession Road 9 E.	EB LTR stop	15	C	0.13	21	C	0.17
	WB LTR stop	12	B	0.13	15	C	0.24
Baseline Road S. & Concession Road 9 E.	EB LTR stop	10	A	0.12	11	B	0.13

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right



Table 9: Intersection Operations – 2037 Background

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
County Road 6 S. & Concession Road 9 E.	EB LTR	stop	17	C	0.15	24	C	0.20
	WB LTR	stop	13	B	0.15	16	C	0.27
Baseline Road S. & Concession Road 9 E.	EB LTR	stop	10	B	0.13	11	B	0.13

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right

As indicated, the study area intersections are expected to continue to provide good operations (LOS C or better) with minor to average delays and excess capacity through the 2037 horizon under background conditions.

3.4 NEED FOR IMPROVEMENTS

3.4.1 Intersection Operations

Given the reported operations at the study area intersections, no improvements are required to under background conditions.

3.4.2 Turn Lane Requirements

Notwithstanding the good operations at the study area intersections, the need for exclusive turn lanes has again been reviewed based on the future background traffic volumes and the warrant criteria as described in Section 2.6.2.

Right Turn Lanes

The northbound and southbound right turn volumes on County Road 6 South at Concession Road 9 East and the southbound right turn volumes on Baseline Road South at Concession Road 9 East (see Figure 5 through Figure 7) are comparable to those observed under existing conditions, with the right turn volumes remaining well below the typical warrant threshold of 60 vph. As such, right turn lanes are not warranted given the projected right turn volumes under background conditions.

Left Turn Lanes

The left turn lane warrants were revisited under background conditions. The results of the warrant assessment are summarized in Table 10 through Table 12, with the completed warrants provided in Appendix D.



Table 10: Left Turn Lane Warrants – 2027 Background

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	NO	-	NO	-
Baseline Road South & Concession Road 9 East		NO	-	NO	-

Table 11: Left Turn Lane Warrants – 2032 Background

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	NO	-	YES	15m
Baseline Road South & Concession Road 9 East		NO	-	YES	15m

Table 12: Left Turn Lane Warrants – 2037 Background

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	YES	15m	YES	15m
Baseline Road South & Concession Road 9 East		NO	-	YES	15m

As noted above and illustrated in Appendix D, a southbound left turn lane on County Road 6 South at Concession Road 9 East is warranted during the PM peak hour at the 2032 horizon year. By the 2037 horizon, the warrants are satisfied for the AM and PM peak hour. While the warrant criteria is satisfied, it is noted that the volume of left turns is not considered significant (in the



order of 50 vph or less, which translates to less than 1 vehicle per minute during the peak hour). The left turn lane is not required to address the operations at the intersection, which are otherwise good with excess capacity.

With respect to the intersection of Baseline Road South with Concession Road 9 East, a northbound left turn lane is marginally warranted during the PM peak hour under both the 2032 and 2037 background conditions. Given the very low volumes on Baseline Road South and the otherwise excellent operations at the intersection, a left turn lane is not considered necessary. If desired, the existing shoulder of the northbound lane could be paved to create a slip-by lane at the intersection to allow northbound through vehicles to manoeuvre around left turning vehicles; however, the volumes do not suggest that left turning vehicles will cause undue delay to through traffic.



4 Proposed Development

This chapter will provide additional details with respect to the proposed development, including its location, land use, site access, trip generation and assignment of said trips to the adjacent road network.

4.1 LOCATION

The subject site is located on the south side of Concession Road 9 East, approximately 2 km east of County Road 6 South, in the Township of Tiny. It is understood that the Township has created a new address (255 Concession Road 9 East) for the parcel.

4.2 LAND USE

The subject development will consist of a 2,709 m² (29,160 ft²) municipal administration office complete with council chambers, administration offices, community room, public lobby and outdoor terrace. A site plan is still being developed as supplementary studies are being completed to inform the preferred location of the building within the subject site. A preliminary concept of the floor plan is provided in Figure 8.

4.3 ACCESS

As previously noted, the site plan is still under development and thus the configuration and location of the site access is still to be determined. In terms of configuration, the access will be designed to the appropriate municipal and/or industry standards.

4.4 ON-SITE CIRCULATION

The internal aisles serving the overall site and parking area will be designed to accommodate the appropriate critical design vehicles (i.e. fire truck, waste collection, etc.) and will satisfy the relevant municipal/industry requirements.

4.5 SIGHT LINE ASSESSMENT

While the exact location of the site access is yet to be determined, a sight line assessment was conducted to ascertain the available sight distances along Concession Road 9 East across the frontage of the site and determine whether any constraints exist that would impact the selection of a location for the access. It is noted that there is an existing access serving the site, located approximately 320 metres east of the access to the Township's operations complex (located on the north side of Concession Road 9 East).



The sight line assessment was conducted as per the guidelines provided in the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads*. The assessment has considered both minimum stopping sight distance and intersection sight distance, as defined below and dictated per TAC standards:

- the minimum stopping sight distance provides sufficient distance for an approaching motorist to observe a stationary hazard in the road and bring their vehicle to a complete stop prior to the hazard; and
- the intersection sight distance allows a vehicle to enter a main road from a side street (or site access) and attain the appropriate operating speed without significantly impacting the operating speed of an approaching vehicle.

The minimum stopping and intersection sight distance requirements for a design speed of 100 km/h (reflective of the 80 km/h speed limit + 20 km/h) are summarized in Table 13. The available sight distances along the frontage of the site (as determined through field measurements at various locations) are also summarized in Table 13. The available sight lines are also illustrated in Figure 9.

Table 13: Site Access Sight Lines

LOCATION	DESIGN SPEED	STOPPING SIGHT DISTANCE	INTERSECTION SIGHT DISTANCE		AVAILABLE SIGHTLINES TO/FROM	
			Left Turn	Right Turn	West	East
Concession Road 9 Access	100 km/h	185 m	210 m	185 m	>250 m	>250 m

As indicated, sight lines in excess of 250 metres are available from any given location along the frontage of the site. In this respect, the available sight lines will not impact the selection of the access location (that is to say, the sight lines will be adequate regardless of the access location).

4.6 PARKING

Standard Parking

The parking requirements detailed below have been determined based on the requirements set forth in the *Township of Tiny Zoning By-law 22-075*⁶. While the site plan is still being developed, it is understood that parking will be provided as per the Township's requirements.

⁶ *Township of Tiny Zoning By-law 22-075*. Township of Tiny. September 2024



Regarding provision of parking spaces within the site, the proposed administration centre is required to provide 1 parking space per 37 m² gross floor area (GFA). With a proposed GFA of 2,709 m², the site is required to provide 74 parking spaces.

Accessible Parking

With respect to accessible parking, a site which is required to supply between 20 and 100 parking spaces (as identified above) must in turn supply at least 2 accessible parking spaces.

4.7 SITE TRAFFIC

4.7.1 Trip Generation

The number of vehicle trips to be generated by the proposed development for the weekday AM and weekday PM peak hours has been determined based on type of use, development size and trip generation rates per the *ITE Trip Generation Manual, 11th Edition*. Based on the proposed development, trip rates for the *government office* (ITE land-use code 730) have been applied. The associated trip rates and estimated trip generation of the subject site are summarized in Table 14.

Table 14: Trip Generation - Township of Tiny Administration Centre

LAND USE	VARIABLE/ SIZE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
government office (ITE 730)	per 1000 ft ² GFA	2.51	0.84	3.34	0.43	1.28	1.71
	29,160 ft ²	73	24	97	12	37	50

As indicated, the proposed development is expected to generate 97 new trips during the weekday AM peak hour and 50 new trips during the weekday PM peak hour.

4.7.2 Trip Distribution & Assignment

The distribution of the new trips generated by the site has been developed based on distribution data provided in the *2016 Transportation Tomorrow Survey (TTS)*. The TTS is a comprehensive travel survey conducted in the Greater Golden Horseshoe Area once every five years (the 2021 survey has been delayed due to travel implications of Covid-19). As per TTS data for the area the following distribution was established:

- to/from the north - 59%;



- to/from the south - 34%;
- to/from the east - 5%; and
- to/from the west - 2%.

The assignment of the trips generated by the development onto the area road network is based on the trip distribution noted above with consideration given to the expected travel routes. The following assignment has been considered:

- to/from the north via County Road 6 South - 10%;
- to/from the north via Baseline Road South - 50%;
- to/from the south via County Road 6 South - 30%;
- to/from the east via Baseline Road South/Angela Schmidt Foster Road - 5%
- to from the west via County Road 6 South - 5%

The assignment of site trips to the adjacent road network are illustrated in Figure 10.



5 Future Total Conditions

This chapter will address the resulting impacts of the proposed development on the adjacent road network. The following areas will be addressed:

- operations of the key intersections; and
- potential improvements to the study area road network, if necessary.

5.1 TRAFFIC VOLUMES

To assess the impacts of the increased traffic volumes resulting from the proposed development, the site-generated traffic volumes were added to the 2027, 2032 and 2037 background traffic volumes. The resulting total traffic volumes are illustrated in Figure 11 through Figure 13.

5.2 TRAFFIC OPERATIONS

The operations of the study area intersection were re-assessed at each horizon to consider the total traffic volumes. The site access operations were also reviewed, assuming single lane approaches with stop control on the exit movement from the site. Results of the operational analyses are summarized in Table 15 through Table 17 with detailed worksheets provided in Appendix F.

Table 15: Intersection Operations – 2027 Total

INTERSECTION, MOVEMENTS & CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			
	Delay	LOS	v/c	Delay	LOS	v/c	
County Road 6 S. & Concession Road 9 E.	EB LTR stop	15	C	0.12	19	C	0.14
	WB LTR stop	13	B	0.15	15	C	0.27
Baseline Road S. & Concession Road 9 E.	EB LTR stop	10	B	0.14	11	B	0.16
Site Access & Concession Road 9 E.	NB LR stop	10	A	0.03	9	A	0.05

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right



Table 16: Intersection Operations – 2032 Total

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
County Road 6 S. & Concession Road 9 E.	EB LTR	stop	16	C	0.14	21	C	0.17
	WB LTR	stop	13	B	0.17	17	C	0.30
Baseline Road S. & Concession Road 9 E.	EB LTR	stop	10	A	0.15	11	B	0.17
Site Access & Concession Road 9 E.	NB LR	stop	10	A	0.03	9	A	0.05

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right

Table 17: Intersection Operations – 2037 Total

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
County Road 6 S. & Concession Road 9 E.	EB LTR	stop	17	C	0.16	24	C	0.21
	WB LTR	stop	14	B	0.19	19	C	0.34
Baseline Road S. & Concession Road 9 E.	EB LTR	stop	11	B	0.15	11	B	0.18
Site Access & Concession Road 9 E.	NB LR	stop	10	A	0.03	9	A	0.05

L - left T - thru R - right LT - left-thru TR - thru-right LTR - left-thru-right LR - left-right

As indicated, the study area intersections will continue to provide good operations (LOS C or better) with average delays and excess reserve capacity. The operations are comparable to those under background conditions, indicating that the additional site traffic will have minimal impact on the road network operations.

The site access on Concession Road 9 East is expected to provide excellent operations (LOS A) with minimal delays.



5.3 NEED FOR IMPROVEMENT

5.3.1 Intersection Operations

Given the reported operations at the study area intersections and site access, no improvements are required under future total conditions.

5.3.2 Turn Lane Requirements

The need for exclusive turn lanes at each intersection, including the site access has been revisited to consider the total traffic volumes.

Right Turn Lanes

The right turn volumes on County Road 6 South and Baseline Road South at Concession Road 9 East remain below the 60 vph threshold typically considered when assessing the need for a right turn lane. Similarly, the right turning volumes on Concession Road 9 East at the site access are in the order of 33 vph or less.

In considering the above, right turn lanes are not warranted at any of the study area intersections.

Left Turn Lanes

The left turn lane warrants were revisited under total conditions. The results of the warrant assessment are summarized in Table 18 through Table 20, with the completed warrants provided in Appendix D.

Table 18: Left Turn Lane Warrants – 2027 Total

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	NO	-	NO	-
Baseline Road South & Concession Road 9 East	NB Left	NO	-	NO	-
Site Access & Concession Road 9 East	WB Left	NO	-	NO	-



Table 19: Left Turn Lane Warrants – 2032 Total

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	NO	-	YES	15m
Baseline Road South & Concession Road 9 East	NB Left	NO	-	YES	15m
Site Access & Concession Road 9 East	WB Left	NO	-	NO	-

Table 20: Left Turn Lane Warrants – 2037 Total

INTERSECTION & MOVEMENT		AM PEAK HOUR		PM PEAK HOUR	
		Warranted	Storage	Warranted	Storage
County Road 6 South & Concession Road 9 East	NB Left	NO	-	NO	-
	SB Left	YES	15m	YES	15m
Baseline Road South & Concession Road 9 East	NB Left	NO	-	YES	15m
Site Access & Concession Road 9 East	WB Left	NO	-	NO	-

The left turn warrant results are similar to the those under background conditions, with left turn lanes warranted on County Road 6 South and Baseline Road South by the 2032 horizon. It is noted that the addition of the site generated traffic does not impact the warrant results (i.e. the warrants are not accelerated to an earlier horizon and the storage requirements remain the same).

As under background conditions, the left turn lanes are not required to address the operations at the study area intersections, which continue to provide good operations under total conditions. The volume of southbound left turns on County Road 6 South remains relatively low (in the order of 1 vehicle per minute or less). The northbound left turn volumes on Baseline Road South at Concession Road 9 East are slightly higher (in the order of 70 vph or less); however, the



overall volumes on Baseline Road South are not significant. While left turn lanes are warranted based on the MTO criteria, the volumes do not suggest that the left turns will create undue delay. In this respect, the provision of left turn lanes is not considered necessary.

It is noted that the left turn lane warrants are not triggered by the additional volumes associated with subject development.



6 Summary

Proposed Development

This study has addressed the transportation impacts associated with the proposed municipal administration building to be located at 255 Concession Road 9 East in the Township of Tiny. Upon completion, the development is expected to generate approximately 97 new trips during the weekday AM peak hour and 50 new trips during the weekday PM peak hour.

Transportation Impacts

In assessing the impact of the development on the study area road system, the key intersections were analyzed under existing (2024) and future (2027, 2032, and 2037) horizon periods.

Results of the operational analyses indicate that the intersections currently provide good overall operations (LOS C or better) and will continue to provide good operations under both background and total conditions through the 2037 horizon. In this respect, no intersection improvements are necessary to accommodate the future traffic volumes, including those associated with the proposed development.

Turn Lane Requirements

The need for exclusive turn lanes at the study area intersections, including the site access, was reviewed in context of MTO warrants for auxiliary turn lanes. Based on the review, right turn lanes are not warranted. With respect to exclusive left turn lanes on County Road 6 and Baseline Road South at Concession Road 9 East, left turn lanes are warranted on both roads (the southbound left turn movement on County Road 6 South and the northbound left turn movement on Baseline Road South) under 2032 background conditions. The warrants are the same under total conditions (i.e. the development does not accelerate the warrants or impact the recommended storage length). Notwithstanding the satisfied warrants, the volume of southbound left turning traffic on County Road 6 is relatively low (1 vehicle per minute or less), as are the overall volumes on Baseline Road South. At both intersections, the left turn volumes are not expected to cause any undue delay to through traffic. Given the otherwise good operations at the intersections, the implementation of left turn lanes is not considered necessary.

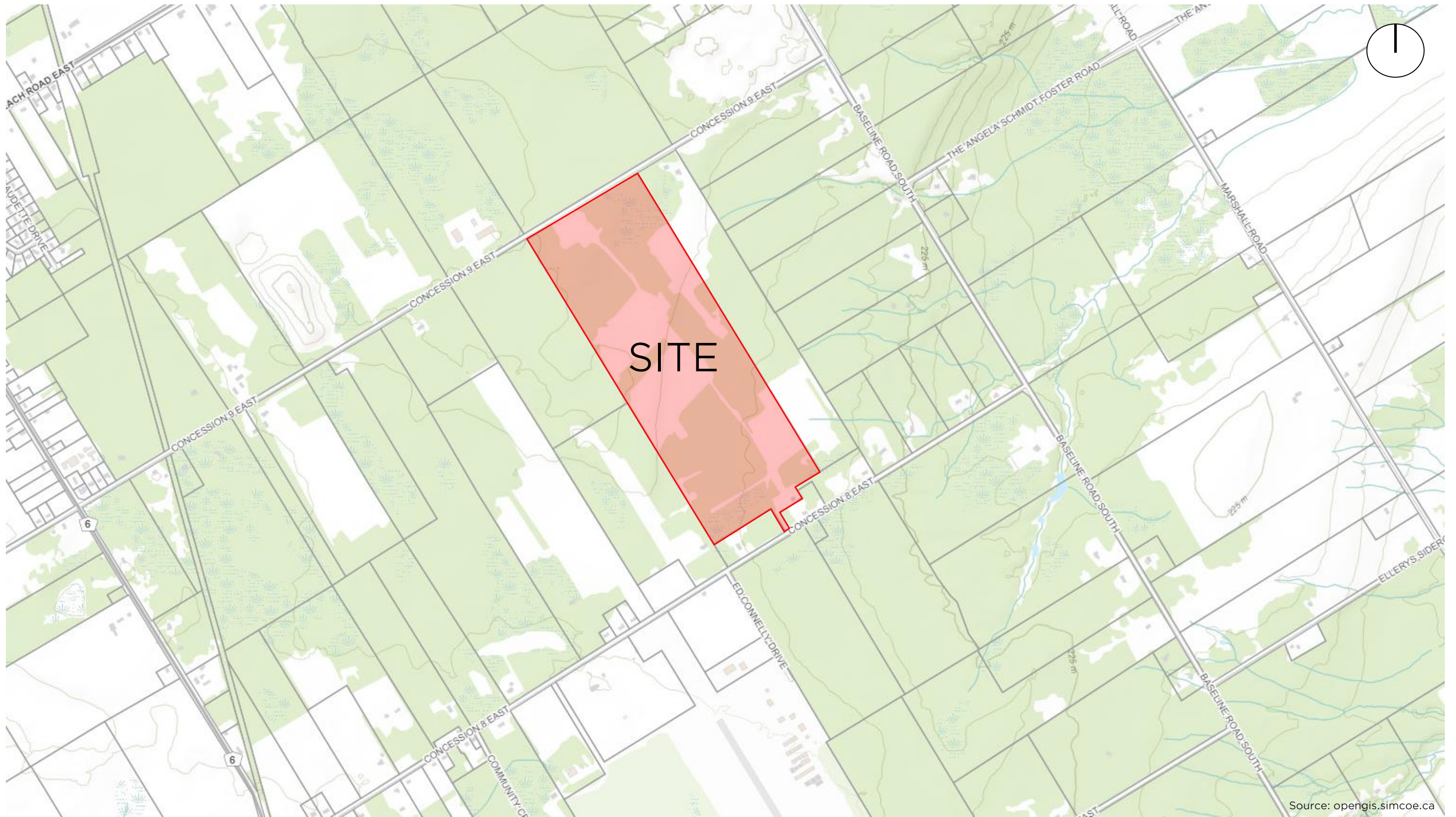
It is further noted that exclusive turn lanes are not warranted on Concession Road 9 East at the site access.



Sight Line Assessment

The sight lines along Concession Road 9 East across the frontage of the site were reviewed in context of TAC requirements for minimum stopping and intersection sight distances. Based on the review, adequate sight lines are available from any given location along the frontage of the site. In this respect, an access to the site can be located at any point along the frontage of the site without concern to sight lines.





TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 1: Site Location

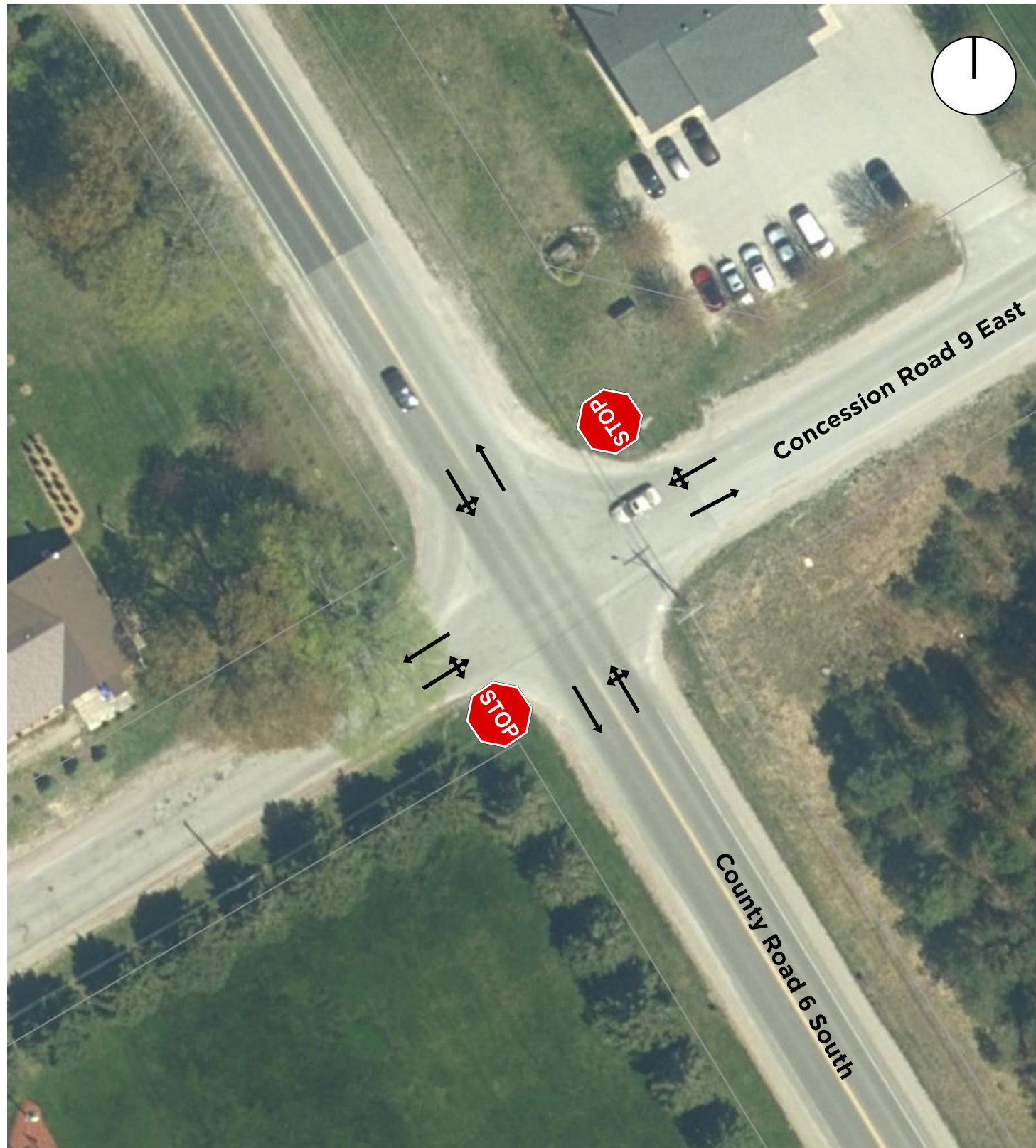




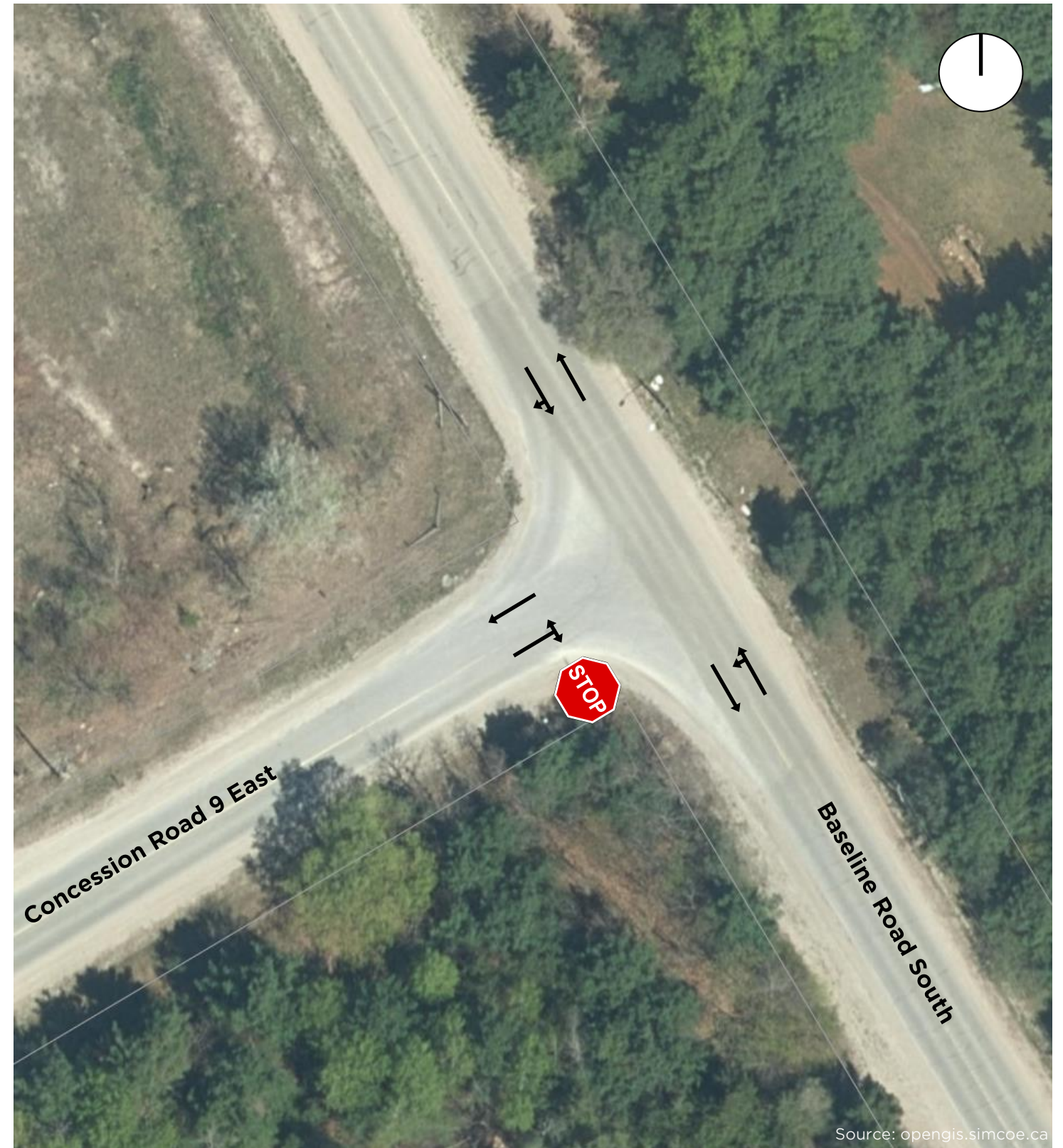
TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 2: Road Network





County Road 6 North & Concession Road 9 East



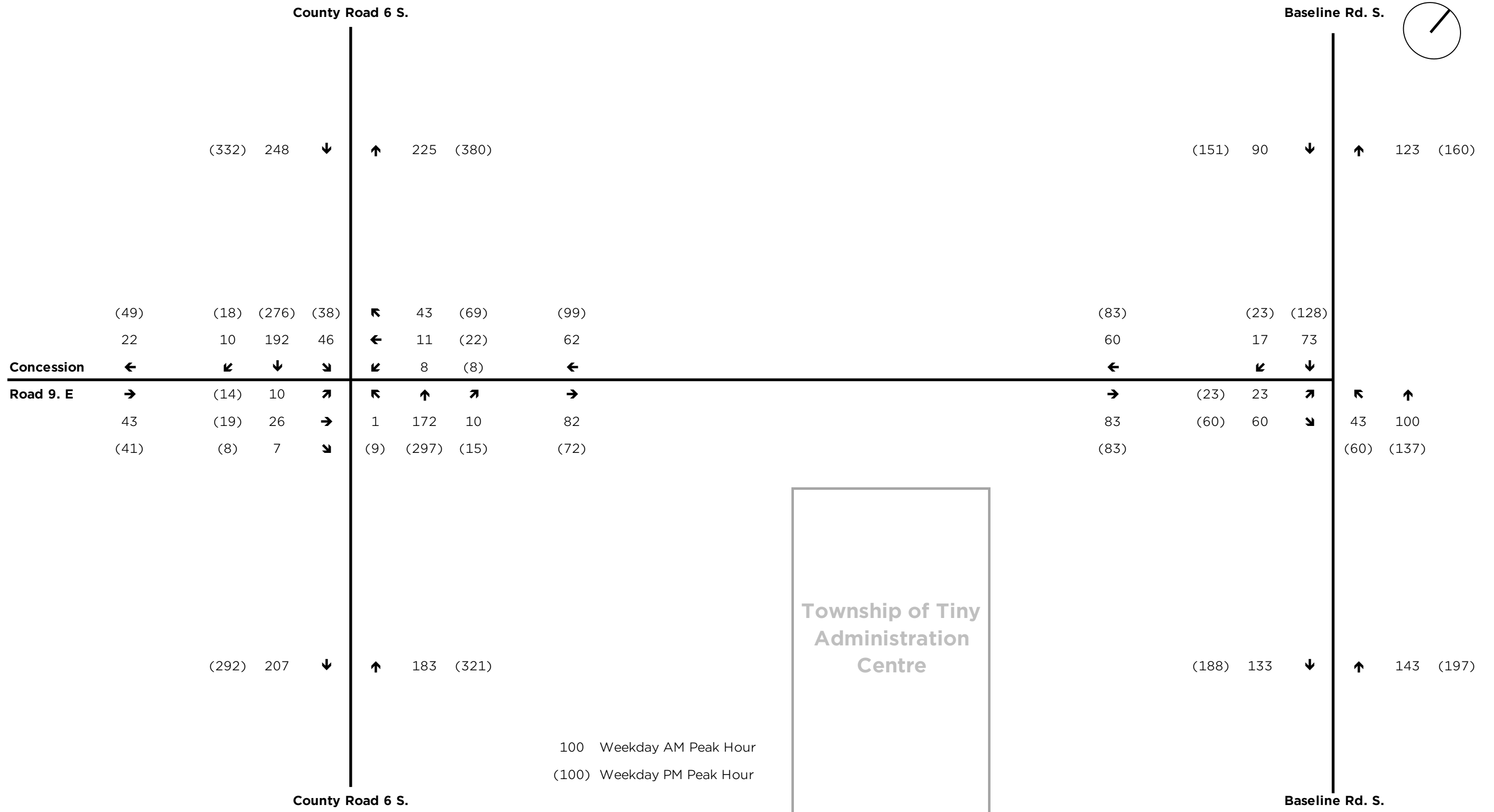
Baseline Road South & Concession Road 9 East

Source: opengis.simcoe.ca

TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 3: Study Area Intersections

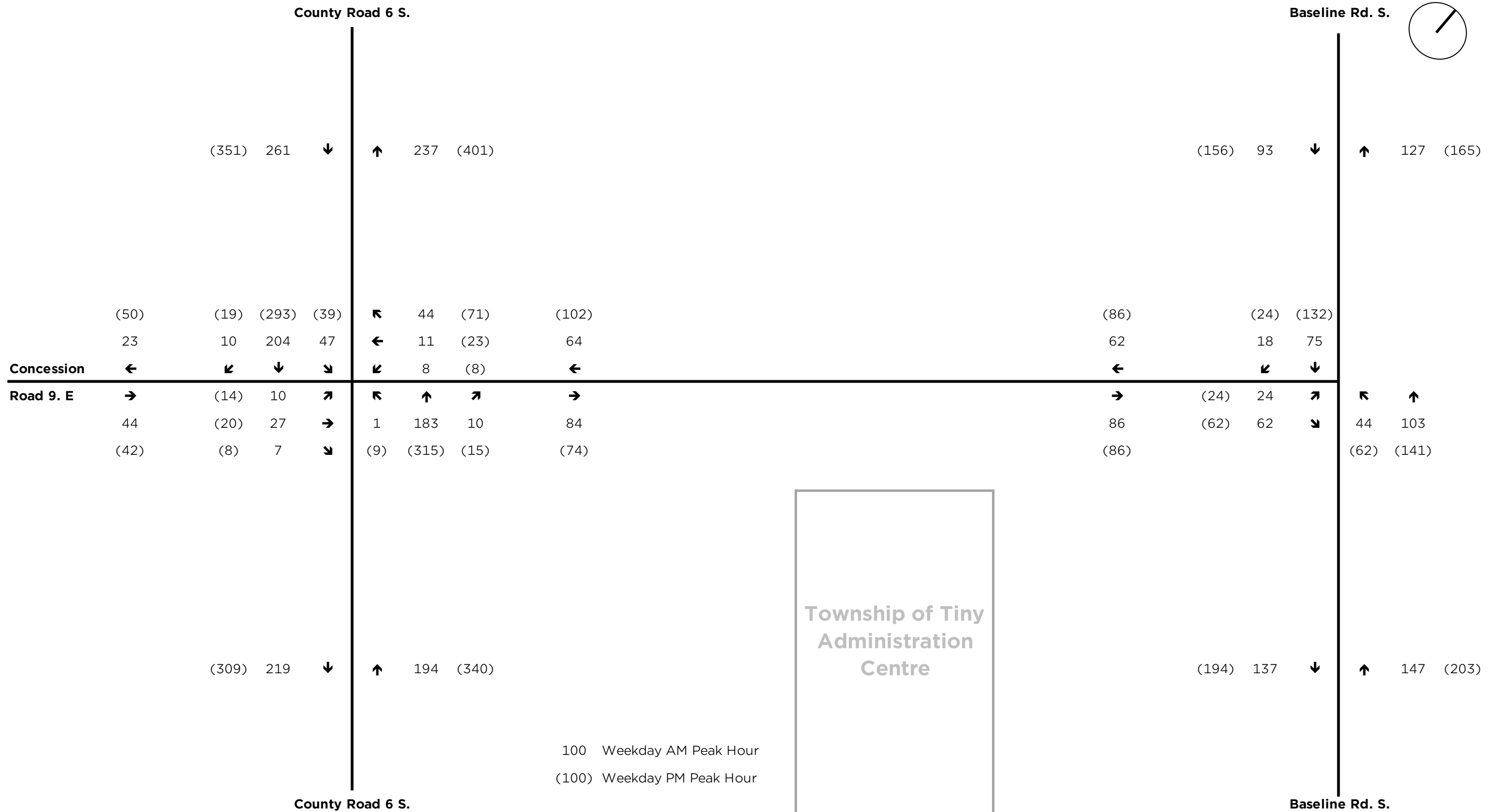




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 4: Traffic Volumes - 2024

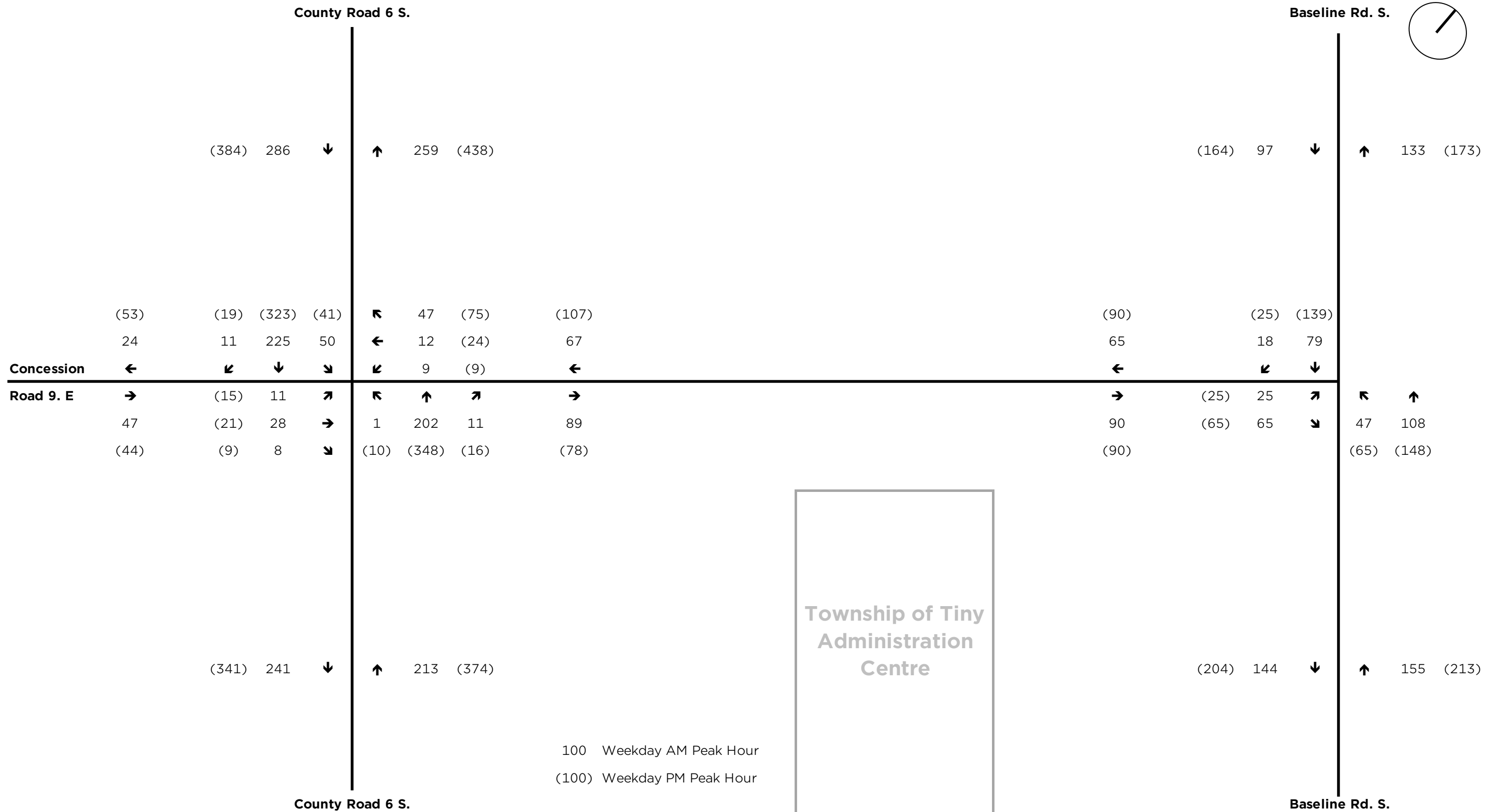




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 5: Traffic Volumes - 2027 Background

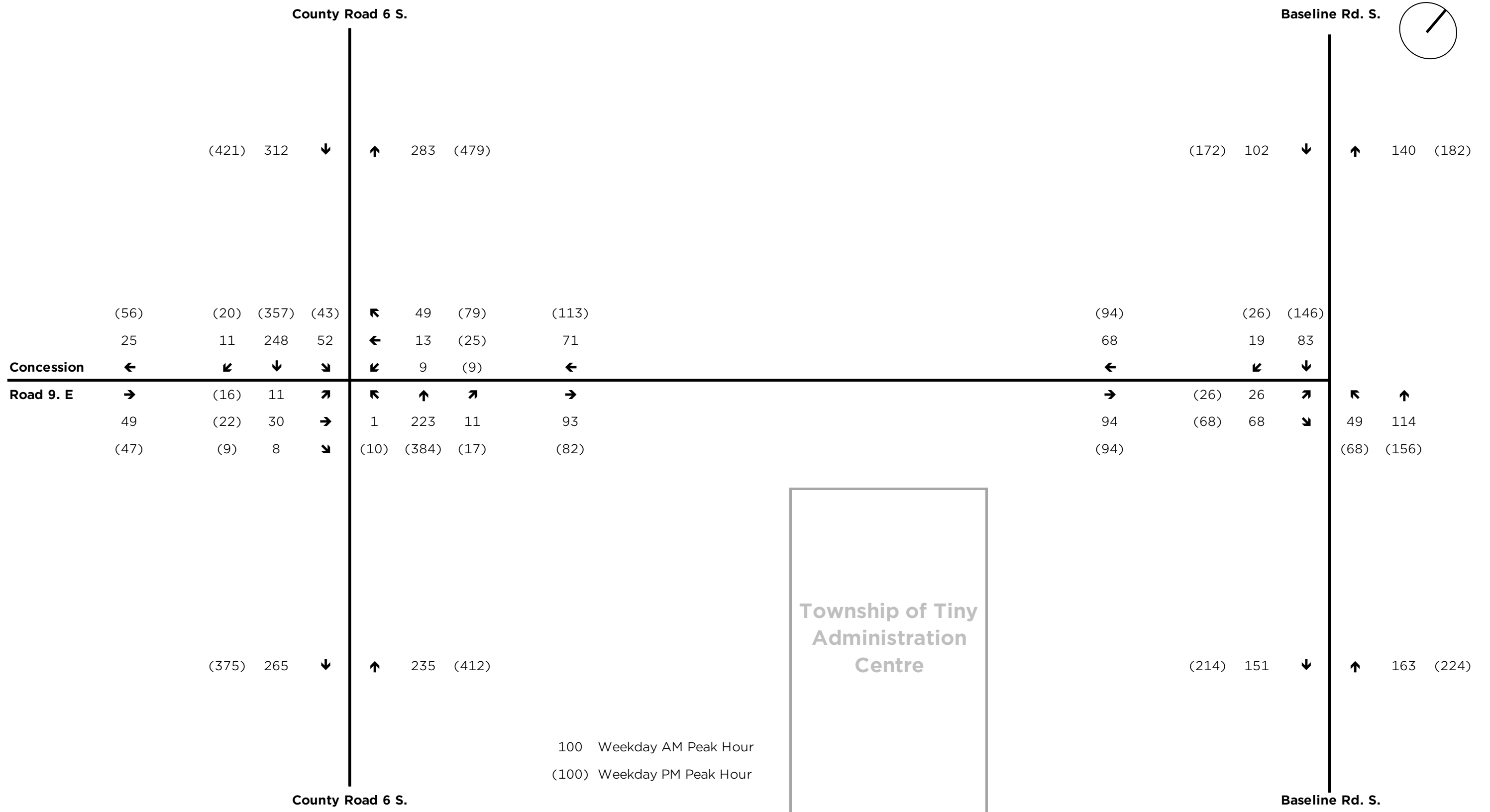




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 6: Traffic Volumes - 2032 Background

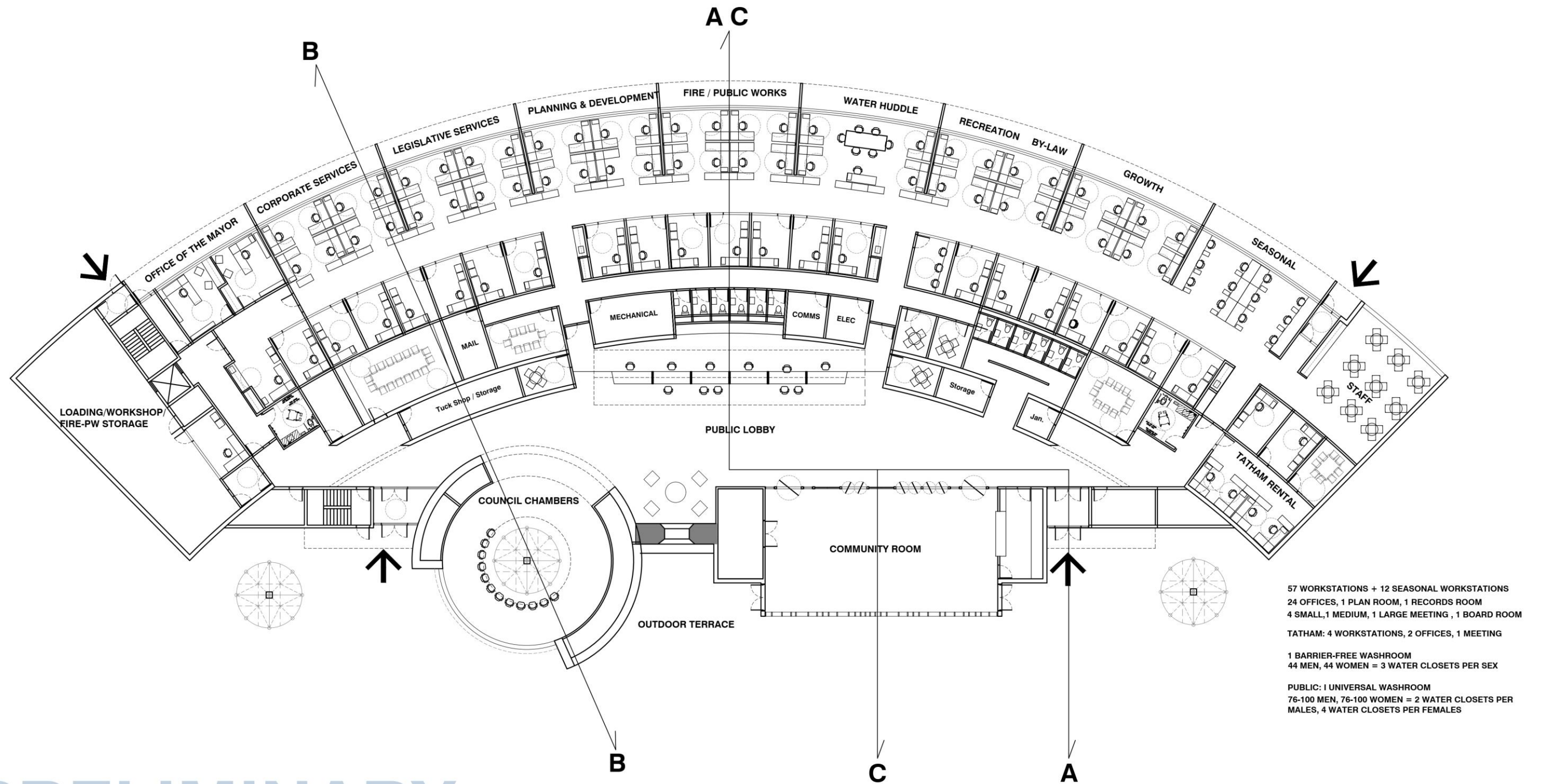




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 7: Traffic Volumes - 2037 Background







Looking west along Concession Road 9 East from west limit of site



Looking east along Concession Road 9 East from west limit of site



Looking west along Concession Road 9 East from east limit of site



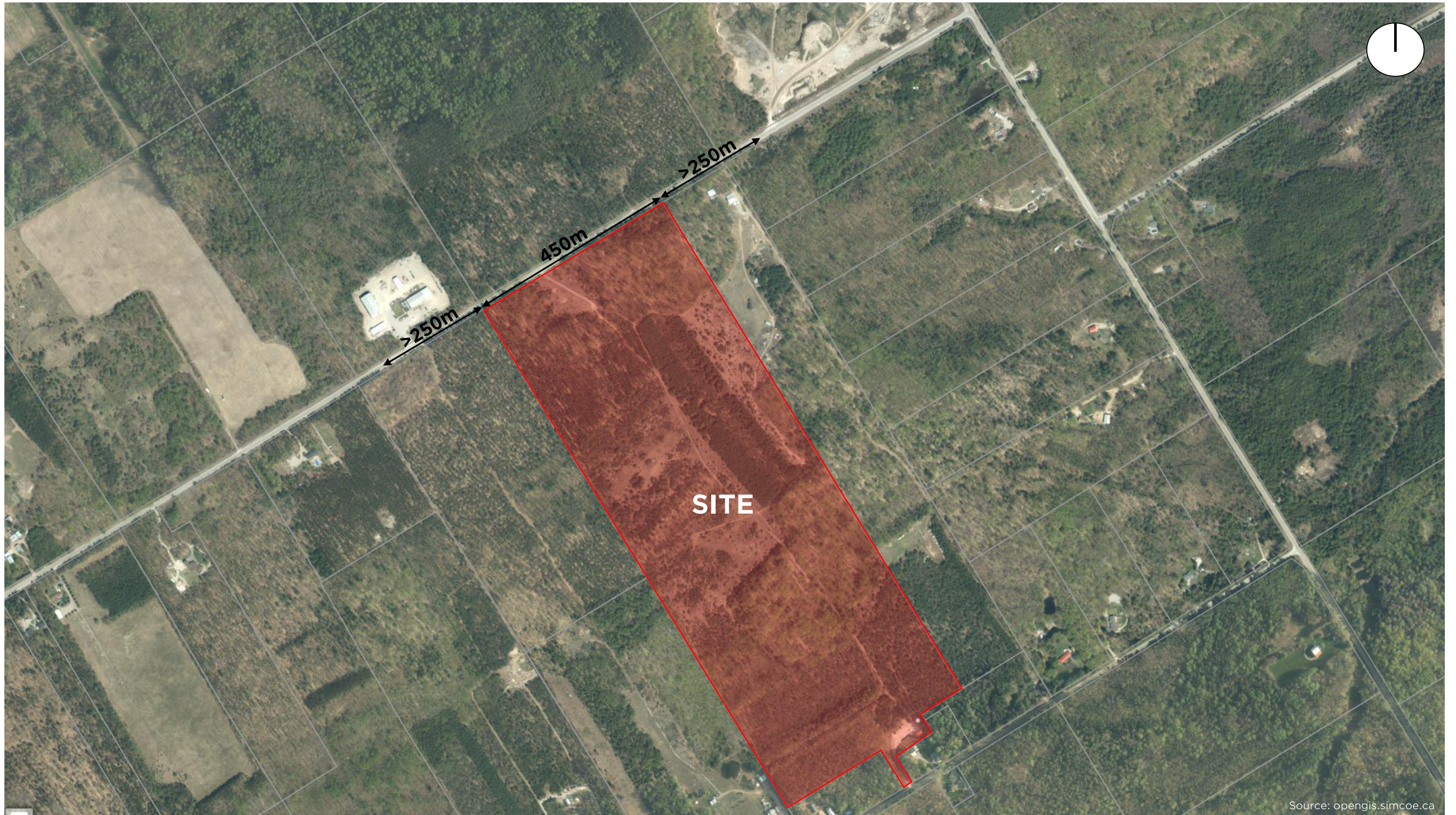
Looking east along Concession Road 9 East from east limit of site

Source: Google Streetview

TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 9A: Available Sight Lines

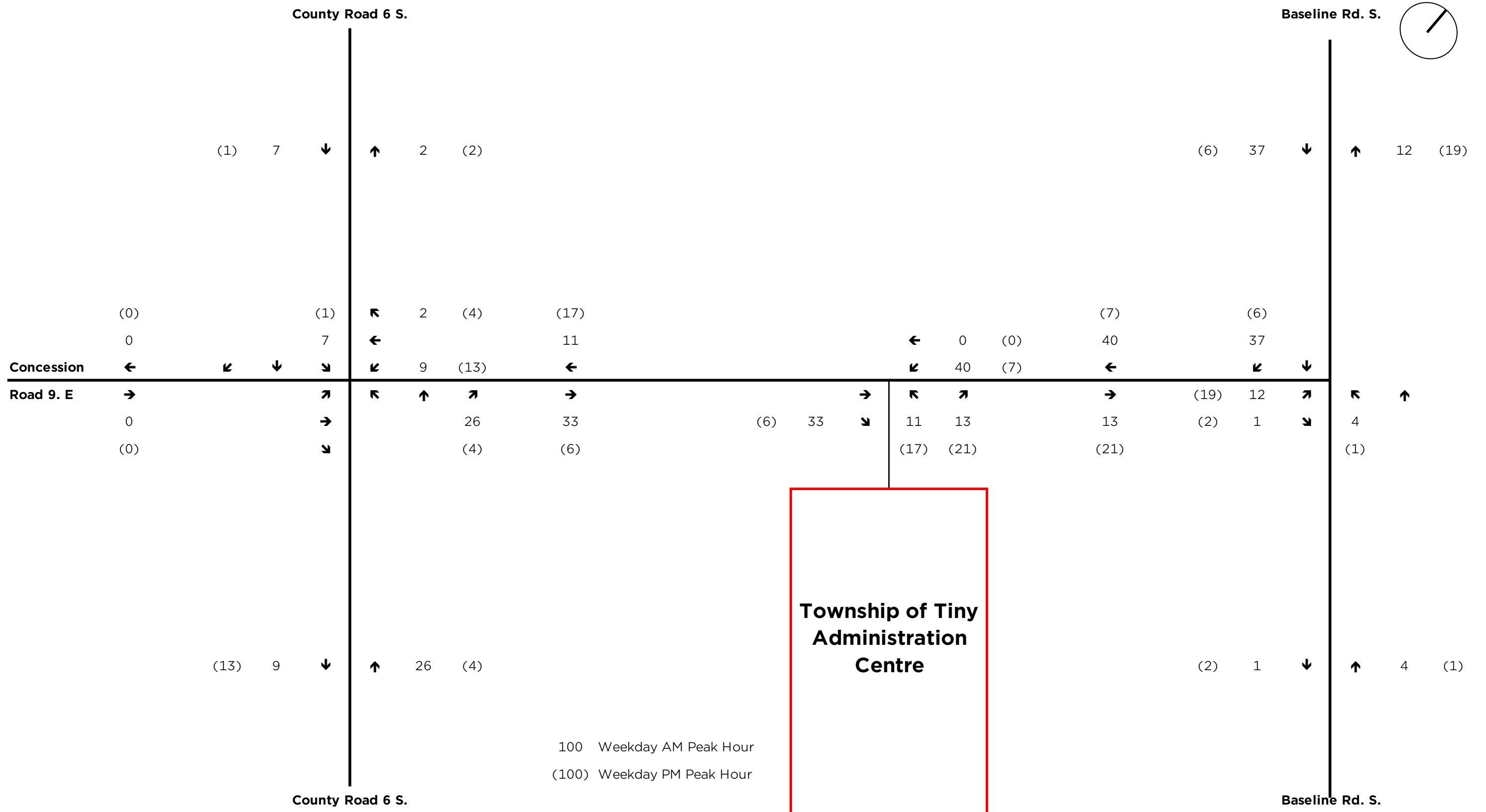




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 9B: Available Sight Lines

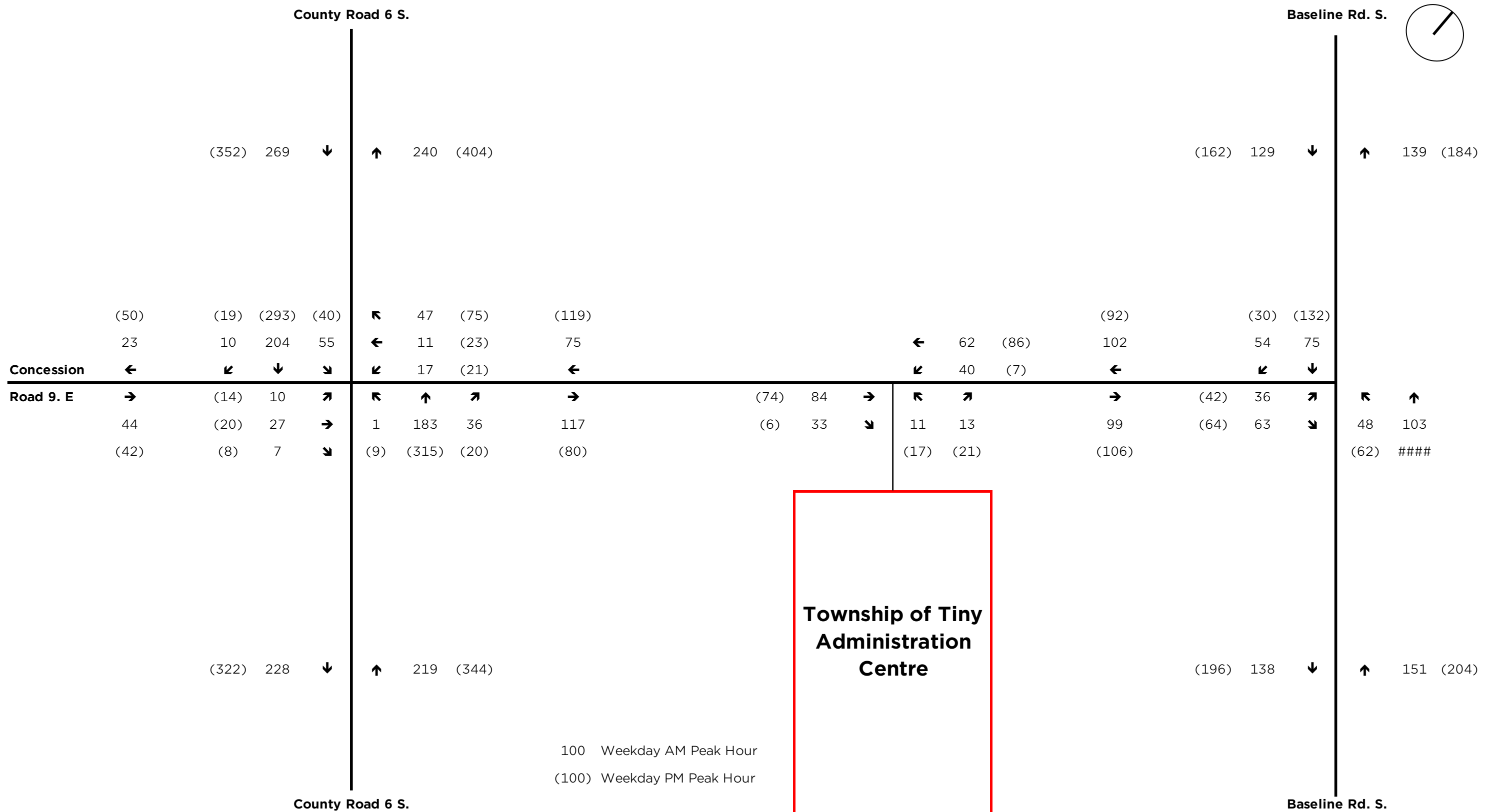




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 10: Site Generated Traffic

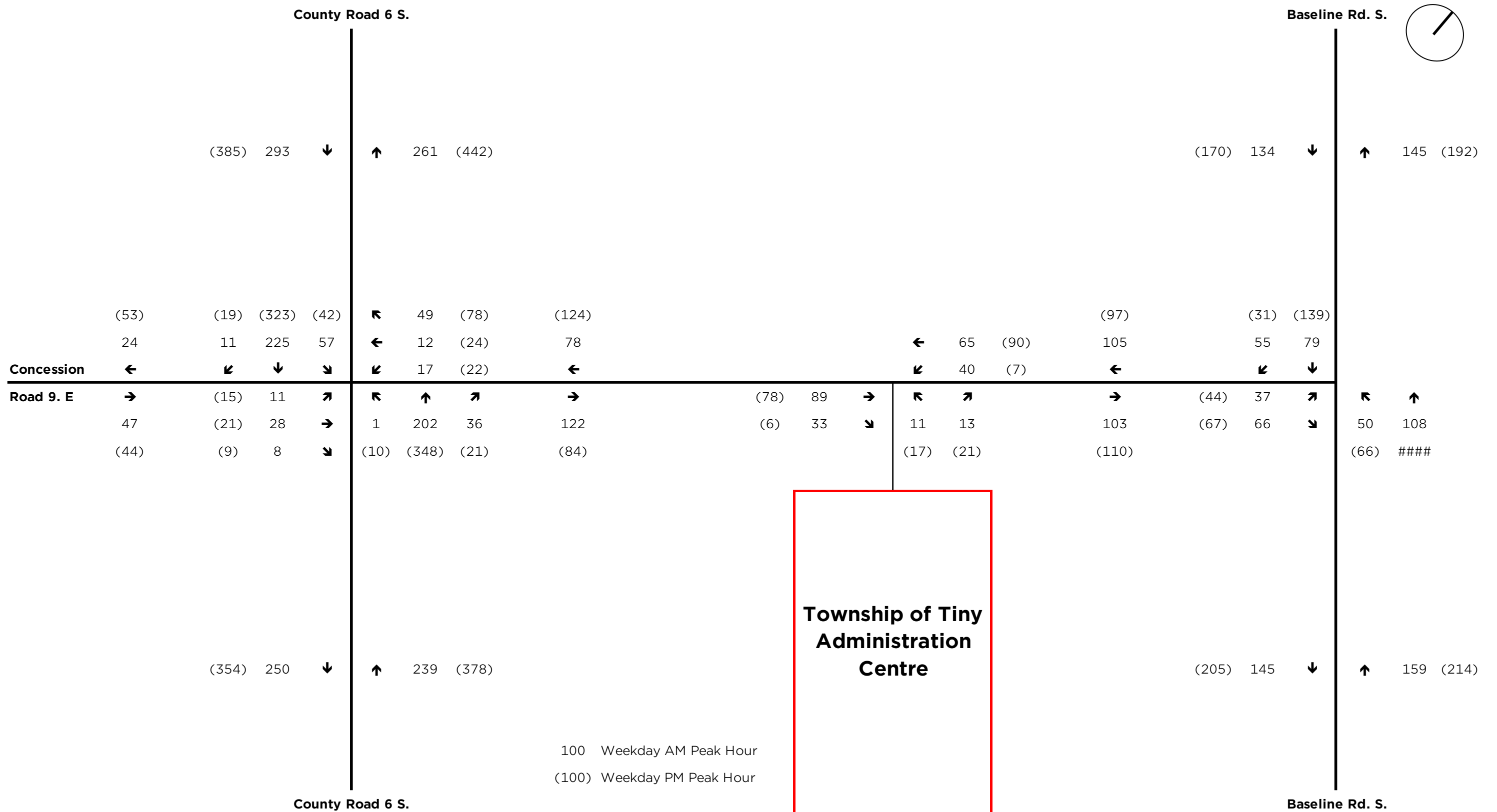




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 11: Traffic Volumes - 2027 Total

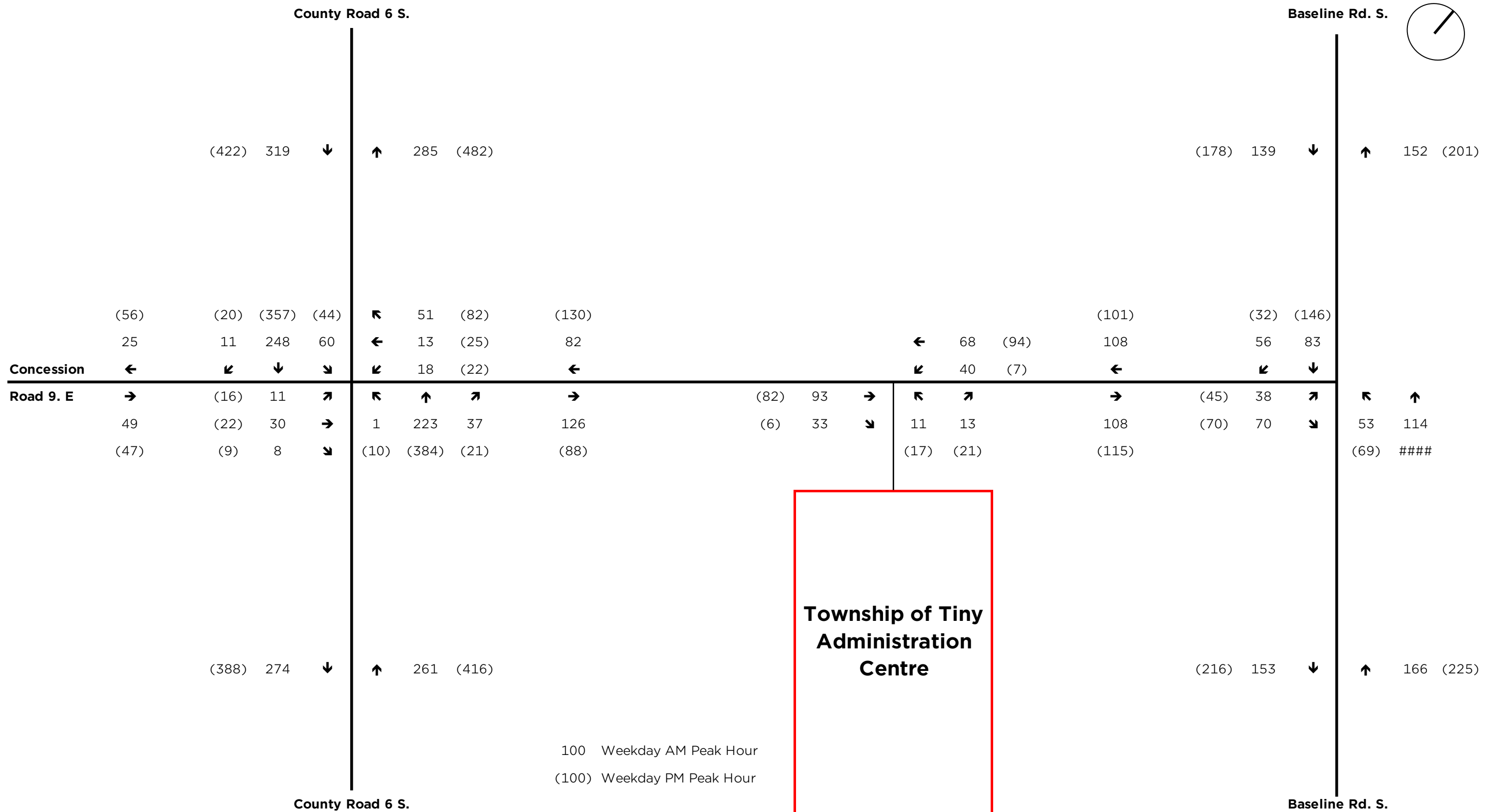




TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 12: Traffic Volumes - 2032 Total





TOWNSHIP OF TINY ADMINISTRATION CENTRE - TRANSPORTATION IMPACT STUDY

Figure 13: Traffic Volumes - 2037 Total



Appendix A: Traffic Counts

Appendix B: LOS Definitions

Appendix C: Existing Operations

Appendix D: Left Turn Warrants

Appendix E: Future Background Operations

Appendix F: Future Total Operations