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Linksview Subdivision

TRANSPORTATION IMPACT STUDY

Rayville Developments (Legacy) Inc.

File 125027 | July 10, 2025

Document Control

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Date: July 10, 2025		

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Issue	Date	Description
1	July 10, 2025	Final Report

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1 Introduction

Tatham Engineering Limited was retained by Rayville Developments (Legacy) Inc. to conduct a Transportation Impact Study in support of Draft Plan renewal for the Linksview Subdivision, to be located at 780 Tenth Line in the Town of Collingwood. The location of the development site is illustrated in Figure 1.

1.1 REPORT OBJECTIVE

The objective of the report is to present the findings of the transportation impact study and address the requirements of the Town of Collingwood and the County of Simcoe with respect to the potential transportation impacts of the 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), the expected growth in traffic levels and developments; and the resulting operating conditions;
- Chapter 4: proposed development and associated details including land use, access, and traffic volumes;
- 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 detail 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

- Tenth Line
- Sixth Street
- Mountain Road
- Georgian Meadows Drive

Intersections

- Tenth Line & Mountain Road
- Tenth Line & Georgian Meadows Drive
- Tenth Line & Sixth Street

Aerial mapping and imagery of the road system are provided in Figure 2 and Figure 3.

2.1.1 Roads

Details of the road sections are summarized Table 1. The functional classification of each road is based on *Schedule 6 – Transportation Plan* of the *Town of Collinwood Official Plan*[1].

Table 1: Road Sections

ROAD	JURISDICTION	ROAD CLASS	SPEED LIMIT	CROSS-SECTION	DIRECTION
Mountain Road	Town	arterial	60 km/h	rural	E-W
Sixth Street					
West of Tenth Line	County	arterial	60	rural	E-W
East of Tenth Line	Town	arterial	60	rural	E-W
Tenth Line					
North of Mountain Road	Town	collector	50	rural	N-S
South of Mountain Road	Town	arterial	50	rural	N-S
South of Sixth Street	County	arterial	70	rural	N-S
Georgian Meadows Drive	Town	local	50	urban	varies

[1] *Town of Collingwood Official Plan - Schedule 6: Transportation Plan*. Town of Collingwood. December 2023 (modified July 2024)

2.1.2 Intersections

The study area intersections are described below and illustrated in Figure 3.

Tenth Line & Mountain Road

The intersection of Tenth Line with Mountain Road is a signalized 4-leg intersection. Each approach provides a single shared left-through-right turn lane (i.e. no exclusive turn lanes).

Tenth Line & Georgian Meadows Drive

The intersection of Tenth Line with Georgian Meadows Drive is a 3-leg intersection operating with stop control on the minor leg (Georgian Meadows Drive). The north approach consists of a shared left-through lane, whereas the south approach consists of a through lane and a right turn lane (20 metre storage with 35 metre taper). The east approach has a shared left-right turn lane.

Tenth Line & Sixth Street

The intersection of Tenth Line with Sixth Street is a 4-leg intersection operating under all-way stop control. Each approach has a shared left-through-right turn lane.

2.2 TRAFFIC VOLUMES

2.2.1 Traffic Counts

To determine existing traffic volumes on the road network, traffic counts were conducted at the study area intersections on Tuesday, May 6, 2025 from 7:00 to 9:00 and 15:00 to 18:00. The resulting peak hour volumes at are illustrated in Figure 4 with detailed count data provided in Appendix A.

2.3 TRAFFIC OPERATIONS

The assessment of existing conditions provides the baseline from which the future traffic volumes and operations (both with and without the subject development) can be assessed. As the capacity, and hence operations, of a road system is effectively dictated by its intersections, the analysis is based on:

- the 2025 AM and PM peak hour traffic volumes;
- the existing intersection configurations and controls; and
- procedures outlined in the *2000 Highway Capacity Manual*[2] (using Synchro v.11 software).

[2] *Highway Capacity Manual*. Transportation Research Board, Washington DC, 2000.

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 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.

A summary of the 2025 intersection analysis is provided in Table 2; whereas detailed operations worksheets for the existing traffic conditions are included in Appendix C. Based on the existing volumes, intersection configurations and controls, the study area intersections currently provide excellent operations with minimal delays during both peak hours.

Table 2: Intersection Operations - Existing (2025)

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Mountain Road	EB LTR	signal	9	A	0.54	9	A	0.53
	WB LTR	signal	9	A	0.55	9	A	0.54
	NB LTR	signal	6	A	0.18	6	A	0.18
	SB LTR	signal	6	A	0.03	6	A	0.08
	overall	signal	8	A	0.35	8	A	0.35
Tenth Line & Georgian Meadows Drive	WB LR	stop	10	A	0.08	10	A	0.05
	SB LT	free	2	A	0.01	2	A	0.03
Tenth Line & Sixth Street	EB LTR	stop	10	A	0.26	14	B	0.48
	WB LTR	stop	10	A	0.30	13	B	0.42
	NB LTR	stop	11	B	0.31	12	B	0.30
	SB LTR	stop	9	A	0.11	11	B	0.25

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

2.4 ROAD NETWORK IMPROVEMENTS

Based on the results of the operational analysis under existing conditions, no improvements are required at any of the study are key intersections to accommodate the existing volumes.

3 Future Background Conditions

This chapter will describe the road network and background traffic volumes expected for the years 2030, 2035 and 2040. The 2030 and 2035 horizon years have been adopted to reflect 50% and 100% build-out of the development, respectively, whereas the 2040 horizon will address the longer-term impacts of the development (5 years beyond build-out).

3.1 ROAD NETWORK

In 2019, the Town of Collingwood completed the *Environmental Study Report: Tenth Line and Mountain Road Improvements Municipal Class EA - Schedule 'C'*[3] (Tenth Line and Mountain Road Class EA) to assess road and intersection improvements along Tenth Line (between Sixth Street and Mountain Road) and Mountain Road (between Cambridge Street and Tenth Line). With respect to the study area, the Class EA recommended the following improvements:

2030 Horizon

- Mountain Road and Tenth Line: implement a 2-lane roundabout
- Tenth Line and Sixth Line: implement a 1-lane roundabout
- Tenth Line and Georgian Meadows Drive: implement northbound and southbound left turn lanes on Tenth Line (the northbound left turn lane would be to service future development opposite Georgian Meadows Drive via a future road opposite Georgian Meadows Drive)

2037 Horizon

- Tenth Line and Georgian Meadows Drive: implement traffic signals, a left turn lane on Georgian Meadows Drive and a left turn lane on the future road opposite Georgian Meadows Drive (which will service future development)

The implementation of roundabouts at the intersections of Tenth Line with Mountain Road and Sixth Street are planned improvements currently in the detailed design phase (projects being undertaken by the Town and County respectively). As such, the recommended roundabouts have been assumed to be in place by the 2030 horizon.

The recommended improvements for the intersection of Tenth Line and Georgian Meadows Drive (i.e. exclusive left turn lanes and traffic signals) have not been assumed to be in place as per the

[3] *Environmental Study Report: Tenth Line and Mountain Road Improvements Municipal Class EA - Schedule 'C'.* Ainley Group, April 2019.

timelines identified in the Class EA; rather, the need for and timing of any improvements at this intersection will be determined by the results of the operational assessment contained herein.

3.2 TRAFFIC VOLUMES

3.2.1 Tenth Line & Mountain Road Class EA

To establish future background traffic volumes for the road network, the traffic projections provided in the Tenth Line and Mountain Road Class EA were reviewed in context of the traffic data collected in May 2025 and the progress of planned development in the area.

Class EA Volumes vs 2025 Observed Volumes

The Class EA provided traffic volumes for 2017 (existing conditions), 2022, 2030 and 2037; excerpts are provided in Appendix D.

In comparing the 2025 traffic counts with the 2017 Class EA volumes, it was established that the 2017 volumes were either comparable or greater than the 2025 volumes. Of particular note are the 2017 through volumes on Mountain Road at Tenth Line, which were in the order of 100 to 200 vehicles (per hour per direction) greater than those observed in 2025. The discrepancy becomes greater (160 to 300 vehicles per hour per direction) when considering the 2022 projections provided in the Class EA. This increase is associated with assumed background growth and development progress between 2017 and 2022. Overall, the 2022 projections provided in the Class EA are greater than the observed 2025 volumes. The only exception being the eastbound right turn and northbound left turn volumes at the intersection of Tenth Line with Sixth Street, which were observed to be in the order of 50 to 60 vehicles per hour greater than the 2022 projections provided in the Class EA.

Given that the volumes provided in the Class EA are greater than the 2025 observed volumes, the future background volumes on the study area road network have been based on the traffic volume projections provided in the Tenth Line and Mountain Road Class EA. This provides a conservative approach to the assessment and further ensures consistency with the Class EA study which has informed the recommended road network improvements noted in Section 3.1.

Development Growth

As previously noted, the Class EA provided traffic volume projections for the 2030 and 2037 horizon years. The projections considered a background growth rate of 2% per annum and development specific traffic volumes associated with 7 planned developments within the study area (including the subject Linksview development). A list of the developments and their associated phasing, as considered in the Class EA traffic projections, is provided in Table 3, whereas the locations of each development are illustrated in Figure 5.

Table 3: Tenth Line & Mountain Road Class EA – Background Development

BACKGROUND DEVELOPMENT	BUILD-OUT LEVEL		
	2022	2030	2037
185 Mountain Road Industrial	100%	100%	100%
Georgian Bay Biomedical Facility (180 Mountain Road)	100%	100%	100%
Bluewood Business Park	100%	100%	100%
Red Maple/Consar Development	43%	100%	100%
Panorama Mair Mills	38%	100%	100%
Panorama North	30%	100%	100%
Linksview	20%	73%	100%

As indicated, the Class EA assumed that all developments, except Linksview, would be fully built-out by the 2030 horizon. In reality, only the 185 Mountain Road development has experienced any level of completion to date. In this respect, the Class EA projections for the 2030 horizon are overly conservative at this point, recognizing that full build-out of the noted developments by 2030 is now considered unlikely, if not unfeasible.

In consideration of the above, the 2030 projections provided in the Class EA have not been carried forward in this assessment; rather, the 2037 background volumes have been used as the reference for future growth (albeit with adjustments as discussed below). The 2037 traffic projections, as presented in the Class EA, are illustrated in Figure 6 for the study area.

Adjustments

Recognizing that the Linksview development is the subject of this study, the volumes associated with the development, as considered in the Class EA projections, have been removed from the 2037 traffic projections to avoid double counting of the trips generated by the site (which will otherwise be considered under total conditions). The Linksview volumes removed from the network are illustrated in Figure 7.

It is further noted that the previously proposed Georgian Bay Biomedical Facility (180 Mountain Road) is no longer moving forward as initially planned. The proposed development plans for this site now consist of an 11,223 m^2 (120,804 ft^2) multi-unit general industrial building. As the new

proposed development is expected to generate more traffic than was assumed under the previous plan, the trips associated with the Georgian Bay Biomedical Facility have also been removed from the Class EA projections and replaced with the anticipated trip generation associated with the current proposal (as detailed in the *180 Mountain Road Traffic Impact Brief*[4]). The trips to be removed and the industrial trips to be added are illustrated in Figure 8 and Figure 9, respectively.

Lastly, it is noted that the Class EA projections did not consider the proposed multi-unit industrial development to be located at 140 Mountain Road. However, as per the *140 Mountain Road Traffic Impact Brief*[5], the site is not expected to contribute any meaningful volumes to the study area intersections considered herein (the site is only expected to add 2 to 6 peak directional volumes to the intersection of Tenth Line with Mountain Road). Given the limited volumes to be generated by 140 Mountain Road, no adjustments have been made to consider the development.

The Class EA volumes for the 2037 horizon year, revised to reflect the adjustments above, are illustrated in Figure 10.

3.2.2 Background Traffic Volumes

2030 & 2035 Horizons

The background volumes for the 2030 and 2035 horizons have been established in consideration of the observed 2025 traffic volumes (Figure 4) and the adjusted 2037 Class EA traffic volumes (Figure 10). Growth rates over the respective horizons were determined (interpolated using the 2025 and 2037 volumes) for each intersection movement and applied to the 2025 volumes to establish the 2030 and 2035 volumes. The resulting background volumes for 2030 and 2035 are illustrated in Figure 11 and Figure 12.

2040 Background Volumes

The 2040 volumes are based on the adjusted 2037 Class EA volumes, with consideration for additional background growth of 2% per annum through to 2040. The 2040 background volumes are illustrated in Figure 13.

3.3 TRAFFIC OPERATIONS

The study area intersections were analyzed for each horizon year given the projected background volumes. The results for each horizon year are summarized in Table 4 to Table 6, with detailed worksheets provided in Appendix E.

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[4] *180 Mountain Road Traffic Impact Brief.* Tatham Engineering Limited, August 2024
[5] *140 Mountain Road Traffic Impact Brief.* Tatham Engineering Limited, December 2022

The proposed roundabouts along 10th Line were assessed using ARCADY, a specialized roundabout assessment software. The roundabout configurations were based on available design drawings for each. The roundabout at 10th Line with Mountain Road will provide two entry and exit lanes on Mountain Road, whereas two entry lanes and one exit lane will be provided on Tenth Line. The roundabout at 10th Line and 6th Street will provide a single entry and exit lane on each approach.

Table 4: Intersection Operations - 2030 Background

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Sixth Street	WB	roundabout	4	A	0.21	4	A	0.27
	SB	roundabout	4	A	0.12	4	A	0.17
	EB	roundabout	4	A	0.19	4	A	0.29
	NB	roundabout	4	A	0.21	4	A	0.21
Tenth Line & Georgian Meadows Drive	WB LR	stop	10	A	0.08	10	B	0.06
	SB LT	free	1	A	0.01	2	A	0.03
Tenth Line & Mountain Road	WB	roundabout	2	A	0.18	2	A	0.24
	SB	roundabout	4	A	0.08	5	A	0.12
	EB	roundabout	2	A	0.18	2	A	0.19
	NB	roundabout	4	A	0.11	5	A	0.13

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

Table 5: Intersection Operations - 2035 Background

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Sixth Street	WB	roundabout	4	A	0.26	5	A	0.35
	SB	roundabout	5	A	0.23	5	A	0.24
	EB	roundabout	4	A	0.24	5	A	0.35
	NB	roundabout	5	A	0.26	5	A	0.31
Tenth Line & Georgian Meadows Drive	WB LR	stop	10	A	0.09	12	B	0.07
	SB LT	free	1	A	0.01	2	A	0.04
Tenth Line & Mountain Road	WB	roundabout	2	A	0.26	3	A	0.40
	SB	roundabout	5	A	0.17	7	A	0.24
	EB	roundabout	2	A	0.28	3	A	0.32
	NB	roundabout	5	A	0.18	6	A	0.23

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

Table 6: Intersection Operations - 2040 Background

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Sixth Street	WB	roundabout	4	A	0.29	6	A	0.42
	SB	roundabout	5	A	0.32	5	A	0.29
	EB	roundabout	5	A	0.28	5	A	0.36
	NB	roundabout	4	A	0.22	5	A	0.35
Tenth Line & Georgian Meadows Drive	WB LR	stop	11	B	0.09	12	B	0.08
	SB LT	free	1	A	0.01	2	A	0.04
Tenth Line & Mountain Road	WB	roundabout	2	A	0.32	3	A	0.51
	SB	roundabout	7	A	0.26	12	B	0.39
	EB	roundabout	3	A	0.36	3	A	0.41
	NB	roundabout	6	A	0.24	8	A	0.33

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

Under background traffic conditions, all intersections within the study area are expected to provide excellent operations (LOS B or better) with minor delays through the 2040 horizon.

3.4 ROAD NETWORK IMPROVEMENTS

Based on the results of the operational analysis under future background conditions, no improvements (notwithstanding the planned roundabouts) are required to accommodate the future background volumes.

4 Proposed Development

This chapter will provide additional details with respect to the Linksview Subdivision, including its location, the projected site generated traffic volumes and the assignment of such to the adjacent road network.

4.1 LOCATION

The proposed development will be located at 780 Tenth Line in the Town of Collingwood (as illustrated in Figure 1).

4.2 LAND USE & PHASING

The Linksview development will consist of the following:

- 277 single detached units;
- 184 townhouse units; and
- 189 apartment units.

A block has also been reserved for a future elementary school. Details of the school with respect to enrollment are not yet known. For the purpose of this TIS, an enrollment of 500 students has been assumed (reflective of typical enrollment at other elementary schools in the area).

With respect to phasing, it has been assumed that the residential units will be 50% complete by 2030 and 100% complete by 2035. Completion of the school has been assumed by 2035.

The draft plan is provided in Figure 14.

4.3 ACCESS

4.3.1 Location & Configuration

The site will be served by a new municipal road network consisting of a 26-metre collector road (Street A) and several 20 metre local roads (Streets B through K). The development will initially be served by a single connection to Tenth Line via Street A, to be opposite Georgian Meadows Drive and thus creating a 4-leg intersection. There will be provision for future road connections to the lands to the north, south and west, thus protecting for connection to adjacent development should such occur.

4.3.2 Sightline Assessment

A sight line assessment was conducted to establish the available sight lines along Tenth Line at the Street A access opposite Georgian Meadows Drive. The assessment has considered both minimum stopping sight distance and intersection sight distance, as defined below and dictated per the standards published in the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads:*

- The minimum stopping sight distance provides a 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.
- 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 sight and intersection sight distance requirements are provided in Table 7 for a design speed of 60 km/h (reflective of the 50 km/h posted speed limit on Tenth Line). The available sight distances as determined through field measures are also summarized in Table 7 and illustrated in Figure 15. As indicated, the available sight distances surpass the minimum requirements for the noted design speeds and thus are considered appropriate.

Table 7: Site Access Sight Line Assessment

LOCATION	DESIGN SPEED	STOPPING SIGHT DISTANCE	INTERSECTION SIGHT DISTANCE		AVAILABLE SIGHTLINES TO/FROM	
			Left Turn	Right Turn	South	North
Street A	60 km/h	85 m	130 m	110 m	150 m	> 200 m

4.4 TRAFFIC

4.4.1 Trip Generation Rates

The number of vehicle trips to be generated by the proposed development has been determined based on type of use, development size and trip generation rates published in the *ITE Trip Generation Manual, 11th Edition*[6]. The following trip rates have been employed:

single family detached (ITE Code 210)	single family attached (ITE Code 215)	multi-family housing – low rise (ITE Code 220)	elementary school (ITE Code 520)

[6] *ITE Trip Generation Manual, 11th Edition.* Institute of Transportation Engineers, September 2021.

The ITE trip rates and resulting trip estimates are provided in Table 8 and Table 9.

Table 8: Trip Generation Rates

LAND-USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
single family detached	units	0.18	0.53	0.70	0.59	0.35	0.94
single family attached	units	0.12	0.36	0.48	0.34	0.23	0.57
multifamily housing	units	0.10	0.30	0.40	0.32	0.19	0.51
elementary school	students	0.40	0.34	0.74	0.07	0.09	0.16

Table 9: Trip Estimates – Linksview Development

LAND-USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
single family detached	277 units	48	145	194	164	96	260
single family attached	184 units	22	66	88	62	43	105
multifamily housing	189 units	18	57	76	61	36	96
elementary school	500 students	200	170	370	37	43	80
Total		**288**	**439**	**728**	**323**	**218**	**542**

As indicated, the proposed development is expected to generate 728 trips during the weekday AM peak hour and 542 new trips during the weekday PM peak hour (the difference is associated with the school trips and lack of PM trips during the PM peak hour of the road, given that the school day typically ends mid-afternoon).

In considering the school trips, there are 200 inbound and 170 outbound trips estimated during the AM peak hour. This suggests 170 round-trips (inbound + outbound), which are likely attributed to student drop-off, and 30 inbound trips only, which are likely attributed to staff or visitors. In this regard, approximately 30 to 40% of the students are likely to arrive by vehicle. Of these, some trips are likely to remain internal to the Linksview development (i.e. will not utilize the external road network) and others are likely shared with other trip purposes (i.e. students

dropped off as a parent drives to work). Notwithstanding, to ensure a conservative approach to this study and the traffic analysis, it has been assumed that all vehicle trips generated by the school will be external to the Linksview development.

4.4.2 Trip Distribution

Residential Trips

The distribution of the trips generated by Linksview has been developed based on traffic patterns identified through a review of the traffic count data and distribution data provided in the *2022 Transportation Tomorrow Survey (TTS).* The TTS is a comprehensive travel survey conducted in the Greater Golden Horseshoe Area once every 5 years and reports on trip origins and destinations for various travel zones. The subject development falls in Zone 17192 of 2022 TTS zones. Based on the travel zone and in considering the resulting trip origins and destinations, and the immediate road system, the following has been assumed:

- to/from the west on Mountain Road – 10%;
- to/from the east on Mountain Road – 35%;
- to/from the west on Sixth Street – 5%;
- to/from the east on Sixth Street – 30%; and
- to/from the south on Tenth Line – 20%.

School Trips

The distribution of school trips associated with the proposed elementary school has been assumed based on the location of nearby residential communities and the general layout of the surrounding road network. Accordingly, the following school trip distribution has been applied for analysis purposes:

- to/from the west on Mountain Road – 5%;
- to/from the east on Mountain Road – 35%;
- to/from the west on Sixth Street – 5%;
- to/from the east on Sixth Street – 40%;
- to/from the south on Tenth Line – 5%; and
- to/from the east on Georgian Meadows – 10%.

The resulting trips for the residential and elementary school uses are illustrated in Figure 16 and Figure 17 respectively.

5 Future Total Conditions

This chapter will address the resulting impacts of the proposed development on the adjacent road system with a focus on the following:

- operations of the study area road network, including the site access point; 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 was combined with the 2030, 2035 and 2040 horizon years. The resulting total traffic volumes are presented in Figure 19 through Figure 21.

5.2 ROAD NETWORK

Prior to the assessment of the road network under future total conditions, the need for exclusive turn lanes on Tenth Line at the intersection of Georgian Meadows Drive/Street A was reviewed. The review has considered the following:

- MTO guidelines[7] for auxiliary turn lanes at unsignalized intersections;
- a design speed of 60 km/h (reflective of the 50 km/h posted speed limit + 10 km/h; and
- the total traffic volumes.

Left Turn Lane

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:

- design speed (60 km/h for a posted speed of 50 km/h);
- 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); and
- percentage of left turns in the advancing volume.

The completed warrants are provided in Appendix F, with the results of the warrant analysis summarized in Table 10 for both AM and PM peak hour conditions. As indicated, exclusive left turn lanes are warranted on Tenth Line at both Georgian Meadows Drive and Street A by the

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

2035 horizon. It is noted that the southbound left turn lane would otherwise be warranted by the 2040 PM background conditions (i.e. without consideration for the Linksview development) as shown in Appendix F. With consideration for Linksview, the need is accelerated to 2035.

Table 10: Left Turn Lane Warrants – Tenth Line

LOCATION	TRAVEL DIRECTION	WARRANTED (Y/N)		STORAGE[1]
		AM Peak	PM Peak	
Georgian Meadows Drive	southbound	N	Y (2035)	15 m
Street A	northbound	Y (2035)	Y (2035)	30 m

[1] If a left turn is warranted, the storage length reflects that required to satisfy the conditions for the 2040 horizon

Right Turn Lane

With respect to right turn lanes, such are generally warranted where right turn volumes exceed 60 vehicles per hour and/or impede through traffic.

At 50 % build-out (2030 horizon), the peak hour southbound right turn volumes at Street A are expected to be in the order of 20 to 64 vehicles, whereas by full build-out (2035 horizon), the right turn volumes will be in the order of 120 to 144 vehicles. Based on the projected right turn volumes (which exceed 60 vph at 50% build-out), a right turn lane is recommended on Tenth Line at Street A by the 2030 horizon (or by 50% build-out if construction is delayed). This would also mirror the approach configuration serving Georgian Meadows Drive.

5.3 TRAFFIC OPERATIONS

The operations of the study area intersection were reviewed again for each future horizon year considering the total traffic volumes. Any planned improvements to the study area road system (namely the implementation of roundabouts at the intersections of Tenth Line with Mountain Road and Sixth Street) or recommended improvements to accommodate the background traffic operations, have been carried forward in the assessment of the total conditions.

With the introduction of Street A opposite Georgian Meadows Drive, the intersection has been revised to reflect the 4-leg configuration with stop control on Street A and Georgian Meadows Drive. Aside from the existing northbound right turn lane and the recommended right turn lane on Tenth Line at Street A (as indicated in Section 5.2), no other exclusive turn lanes have been considered in the initial assessment.

The results of the operational assessment and recommended improvements (if any) are provided below for each horizon year.

5.3.1 2030 Horizon

The operations of the key intersections for the 2030 horizon (reflecting 50% buildout of the subject development) are summarized in Table 11, with detailed worksheets provided in Appendix G.

As indicated, the study area intersections are expected to provide acceptable overall operations (LOS C or better) under the 2030 total conditions.

Table 11: Intersection Operations – 2030 Total

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Sixth Street	WB	roundabout	4	A	0.23	5	A	0.31
	SB	roundabout	4	A	0.19	4	A	0.21
	EB	roundabout	4	A	0.20	5	A	0.30
	NB	roundabout	4	A	0.23	5	A	0.24
Tenth Line & Georgian Meadows Drive/Street A	EB LTR	stop	12	B	0.22	15	B	0.20
	WB LTR	stop	10	A	0.09	11	B	0.07
	NB LT	free	2	A	0.02	3	A	0.07
	SB LT	free	1	A	0.01	2	A	0.03
Tenth Line & Mountain Road	WB	roundabout	2	A	0.19	2	A	0.26
	SB	roundabout	4	A	0.08	5	A	0.12
	EB	roundabout	2	A	0.19	2	A	0.20
	NB	roundabout	4	A	0.13	5	A	0.14

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

In considering the noted operations, no improvements are required to accommodate the projected 2030 total traffic volumes.

5.3.2 2035 Horizon

The operations of the key intersections for the 2035 horizon (reflecting 100% buildout of the subject development, including the school block) are summarized in Table 12, with detailed worksheets provided in Appendix G.

Table 12: Intersection Operations – 2035 Total

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Sixth Street	WB	roundabout	5	A	0.36	6	A	0.46
	SB	roundabout	6	A	0.45	5	A	0.34
	EB	roundabout	5	A	0.29	6	A	0.39
	NB	roundabout	5	A	0.31	6	A	0.38
Tenth Line & Georgian Meadows Drive/Street A	EB LTR	stop	**212**	**F**	**1.36**	**76**	**F**	**0.90**
	WB LTR	stop	18	C	0.24	18	C	0.14
	NB LT	free	9	A	0.14	5	A	0.17
	SB LT	free	8	A	0.01	2	A	0.04
Tenth Line & Sixth Street	WB	roundabout	2	A	0.31	3	A	0.44
	SB	roundabout	6	A	0.19	8	A	0.27
	EB	roundabout	2	A	0.30	3	A	0.34
	NB	roundabout	6	A	0.22	6	a	0.26

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

The analysis indicates that the roundabouts on Tenth Line at Mountain Road and Sixth Street will continue to operate acceptably, maintaining a LOS B or better during both peak periods.

With respect to the intersection of Tenth Line with Georgian Meadows Drive/Street A, poor operations (LOS F) are expected by the 2035 horizon with the intersection experiencing long delays and exceeding capacity during both the AM and PM peak hours periods. In considering these poor operations, traffic signal warrants were reviewed based on the methodologies outlined under *Justification 7* of *Ontario Traffic Manual Book 12 – Traffic Signals* (OTM Book 12), considering the 2035 total traffic volumes. The completed traffic signal warrants are provided in Appendix H. Based on the results of the review, traffic signals are not warranted at this intersection based on the 2035 projected traffic volumes (a sensitivity assessment also confirmed that signals are not warranted under 2040 total conditions). Notwithstanding the warrant criteria, traffic signals are nonetheless recommended to address the poor operations.

The intersection was reassessed with traffic signals to determine the resulting operational impact. With the implementation of traffic signals, exclusive left turn lanes on all approaches and a northbound advanced green phase was considered (consistent with the recommendations in the Tenth Line and Mountain Road Class EA). The results of the reassessment are summarized in

Table 13, with detailed operations worksheets provided in Appendix G. As indicated, signalization of the intersection will result in excellent overall operations (LOS B or better), with each signalized movement providing excellent operations (LOS B or better) with low to average delays and reserve capacity remaining (v/c ≤ 0.41).

Table 13: Intersection Operations - 2035 Total (with signals)

INTERSECTION, CONTROL & MOVEMENT			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Tenth Line & Georgian Meadows Drive/Street A	EB L	signal	15	B	0.54	17	B	0.44
	EB TR	signal	12	B	0.20	15	B	0.09
	WB L	signal	11	B	0.03	15	B	0.03
	WB TR	signal	12	B	0.08	15	B	0.04
	NB L	signal	7	A	0.33	5	A	0.31
	NB T	signal	6	A	0.19	4	A	0.28
	NB R	signal	6	A	0.01	4	A	-
	SB L	signal	11	B	0.04	8	A	0.11
	SB T	signal	13	B	0.46	10	A	0.38
	SB R	signal	11	B	0.08	8	A	0.10
	overall	signal	11	B	0.49	9	A	0.40

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

Based on the results of the operational assessment, the following improvements are recommended to address the 2035 traffic volumes:

- Tenth Line and Georgian Meadows Drive/Street A: implement traffic signals (including northbound advance green phase) and left turn lanes on Georgian Meadows Drive and Street A

5.3.3 2040 Horizon

Operations of the study area intersections for the 2040 horizon are summarized in Table 14, assuming all road and intersection improvements previously noted and recommended (including traffic signals at Georgian Meadows Drive/Street A). As indicated, the study area intersections are expected to provide excellent operations (LOS B or better) under the 2040 total conditions.

Table 14: Intersection Operations – 2040 Total

INTERSECTION, CONTROL & MOVEMENT			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
Tenth Line / Sixth Street	WB	roundabout	5	A	0.38	7	A	0.53
	SB	roundabout	7	A	0.53	6	A	0.39
	EB	roundabout	6	A	0.34	6	A	0.39
	NB	roundabout	5	A	0.27	6	A	0.42
Tenth Line / Georgian Meadows Drive/Street A	EB L	signal	16	B	0.55	18	B	0.45
	EB TR	signal	13	B	0.20	16	B	0.09
	WB L	signal	12	B	0.03	15	B	0.03
	WB TR	signal	12	B	0.08	15	B	0.04
	NB L	signal	7	A	0.38	5	A	0.33
	NB T	signal	6	A	0.21	5	A	0.35
	NB R	signal	6	A	0.01	4	A	-
	SB L	signal	10	B	0.04	8	A	0.11
	SB T	signal	14	B	0.58	10	A	0.43
	SB R	signal	11	B	0.08	8	A	0.10
	overall	signal	12	B	0.55	9	A	0.45
Tenth Line / Mountain Road	WB	roundabout	3	A	0.37	3	A	0.56
	SB	roundabout	7	A	0.30	15	B	0.46
	EB	roundabout	3	A	0.39	3	A	0.44
	NB	roundabout	7	A	0.29	8	A	0.36

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

Based on the results of the operational assessment, no additional intersection improvements are required to accommodate the 2040 total traffic volumes.

5.4 ROAD NETWORK IMPROVEMENTS

To ensure acceptable operations under future total conditions through to the 2040 horizon year, the following improvements are recommended at the intersection of Tenth Line with Georgian Meadows Drive/Street A:

- 2030 (50% build out of Linksview)
  - construct a southbound right turn lane
- 2035 (100% build out of Linksview)
  - construct a northbound left turn lane (30-metre storage)
  - construct a southbound left turn lane (15-metre storage)
  - implement traffic signal control (including northbound advance green phase)
  - construct left turn lanes on Georgian Meadow Drive and Street A

6 Summary

6.1 PROPOSED DEVELOPMENT

This study has addressed the transportation impacts associated with the proposed Linksview Subdivision development located at 780 Tenth Line, in the Town of Collingwood, County of Simcoe. The development includes 177 single family detached units, 184 townhouses, 189 apartment units and a development block reserved for an elementary school.

6.2 TRANSPORTATION IMPACTS

In addressing the study area traffic operations, the intersections of Tenth Line with Mountain Road, Georgian Meadows and Sixth Street were analyzed under existing (2025) and future (2030, 2035 and 2040) horizon periods. The following is a summary of the recommended improvements to the study area road network to support the existing, background (without the development) and total (with the development) conditions.

6.2.1 Existing Conditions

No recommended improvements.

6.2.2 Background Conditions

2030 Horizon

- Implement planned roundabouts at Tenth Line/Mountain Road and at Tenth Line/Sixth Street.

2035 Horizon

- No recommended improvements.

2040 Horizon

- Implement a southbound left turn lane (15-metre storage) at the intersection of Tenth Line and Georgian Meadows Drive/Street A.

6.2.3 Total Conditions

2030 Horizon

- Implement a southbound right turn lane at the intersection of Tenth Line and Georgian Meadows Drive/Street A.

2035 Horizon

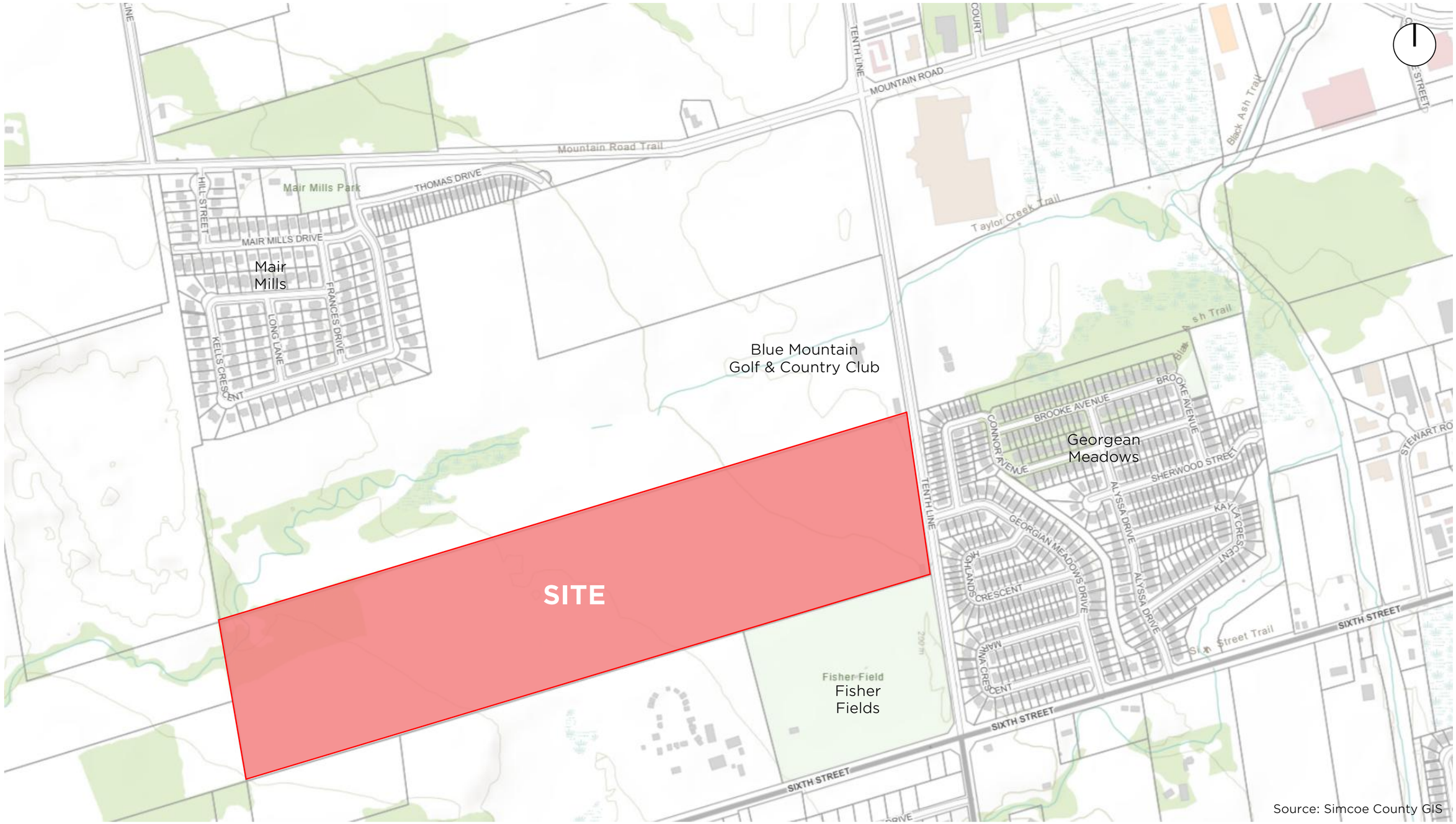
- Implement a northbound left turn lane (30-metre storage), a southbound left turn lane (15-metre storage), eastbound and westbound left turn lanes, and traffic signal control (including northbound advance green phase) at the intersection of Tenth Line and Georgian Meadows Drive/Street A.

2040 Horizon

- No recommended improvements.

6.3 SITE ACCESS SIGHT LINES

The available sight lines along Tenth Line at the proposed site access (Street A, to be constructed as a collector road in accordance with municipal standards) were reviewed and determined to exceed the TAC design guidelines for minimum stopping and intersection sight distances.



LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 1: Site Location

LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 2: Road Network

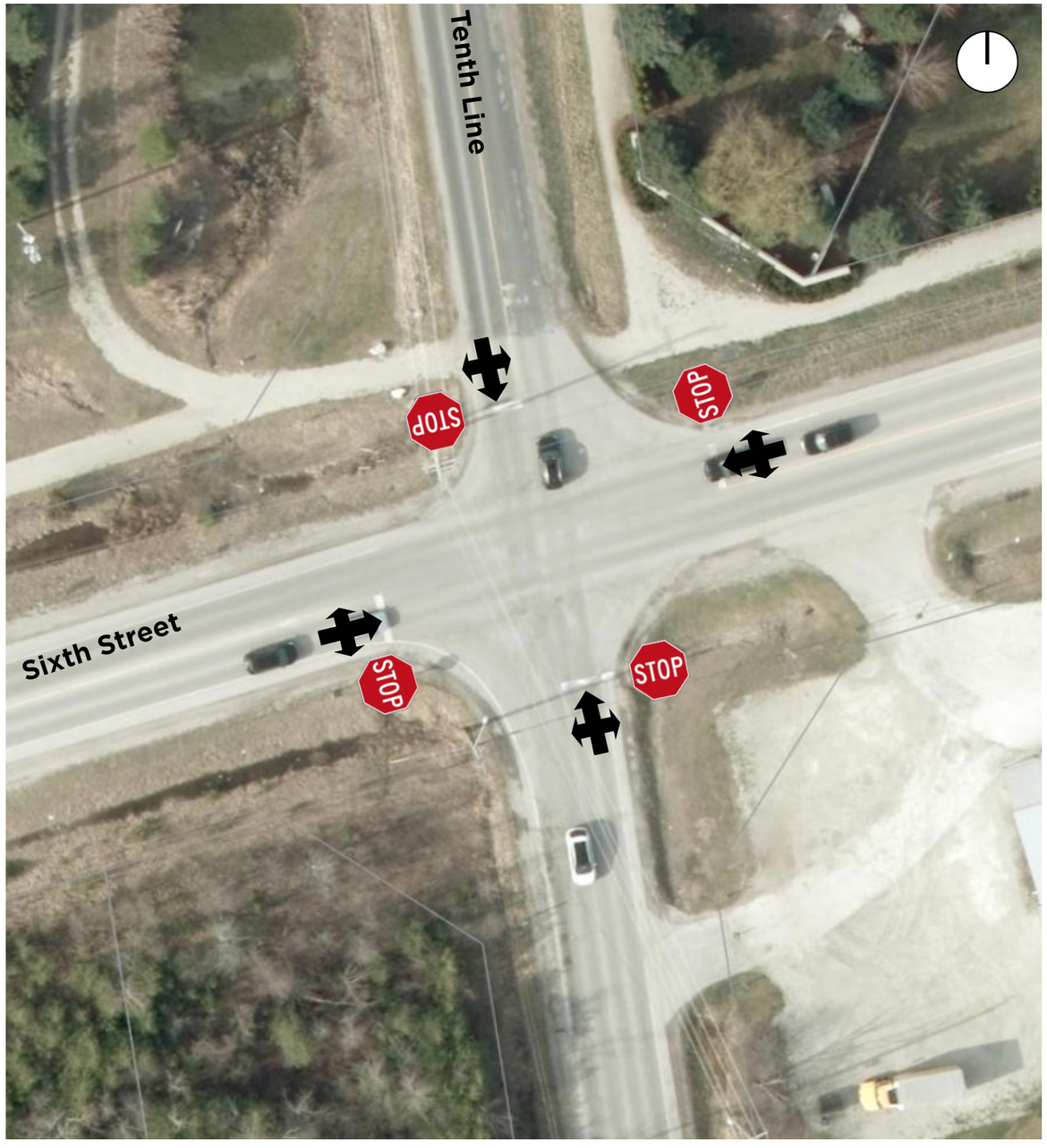
Mountain Road & Tenth Line

Source: Simcoe County GIS

LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 3A: Study Area Intersections

Tenth Line & Georgian Meadows Drive

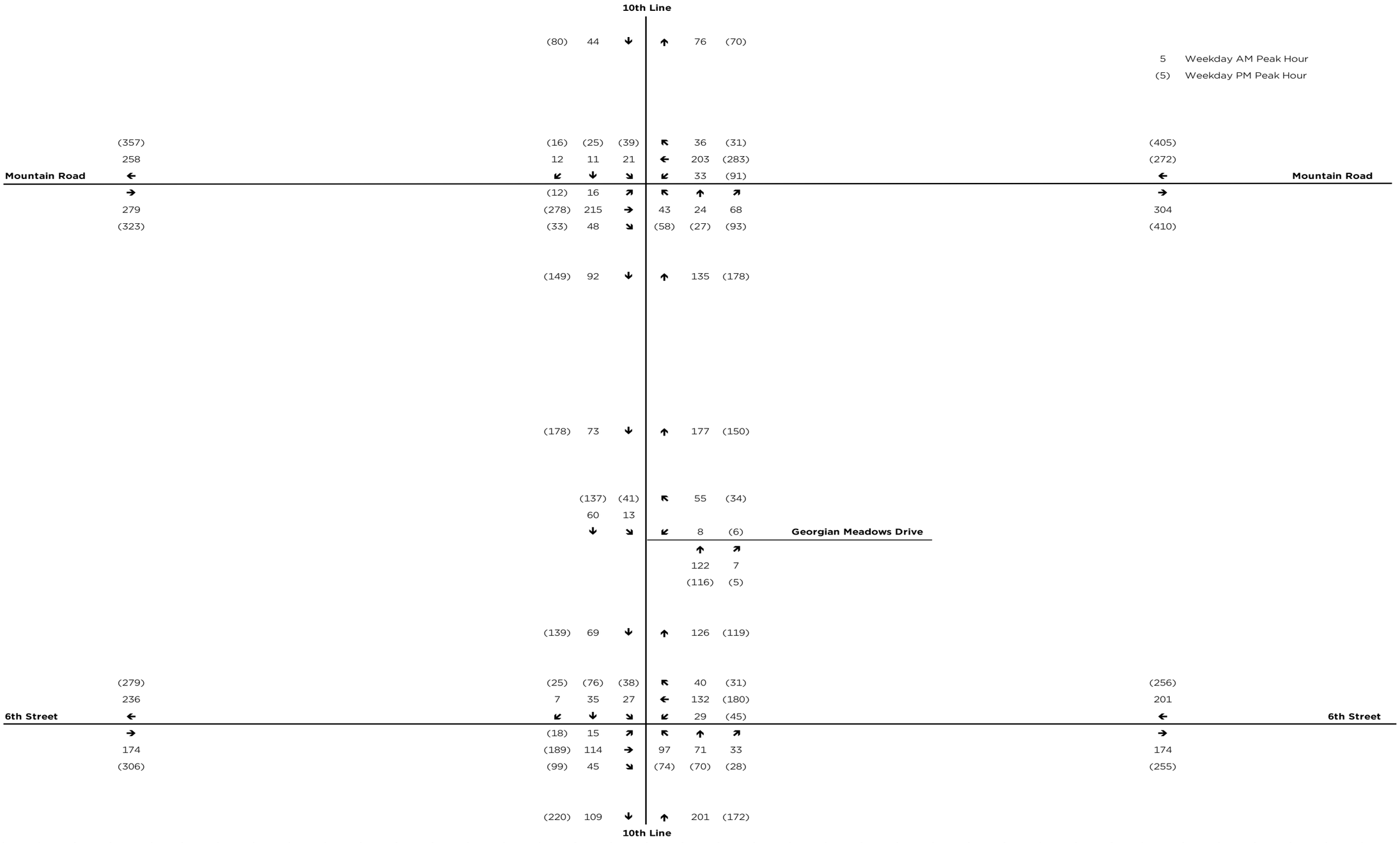


Tenth Line & Sixth Street

Source: Simcoe County GIS

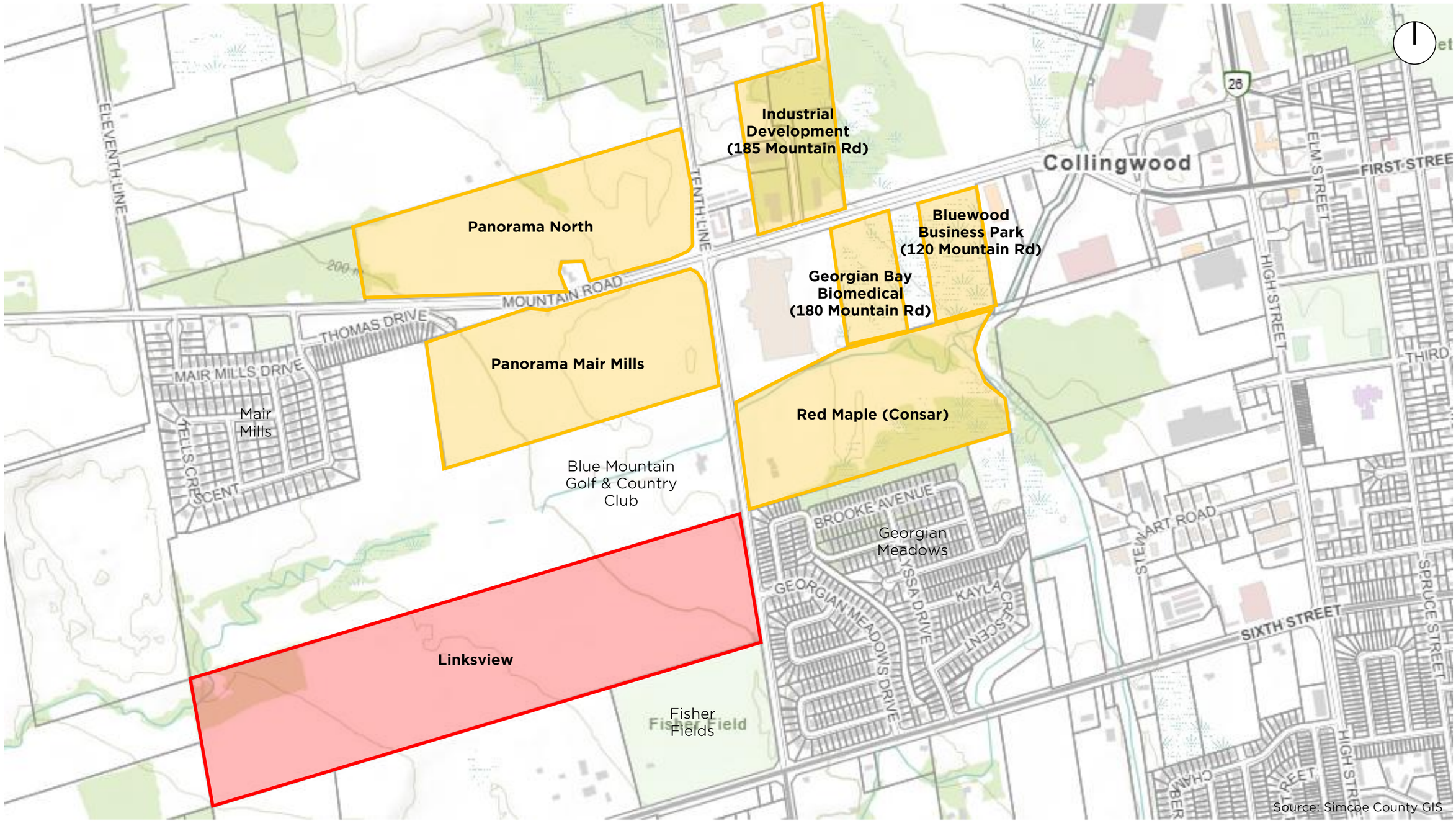
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 3B: Study Area Intersection



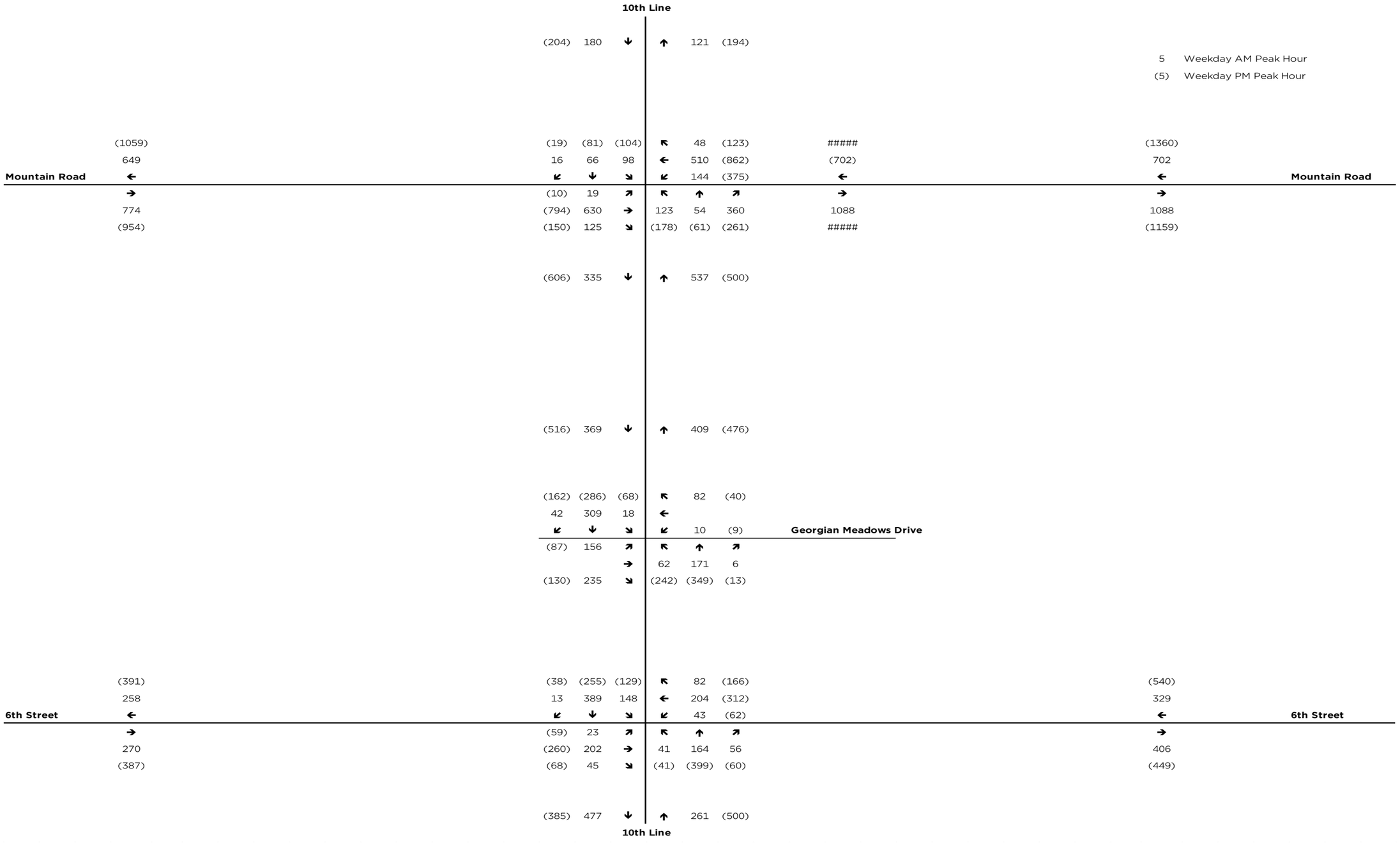
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 4: Traffic Volumes – 2025 Counts



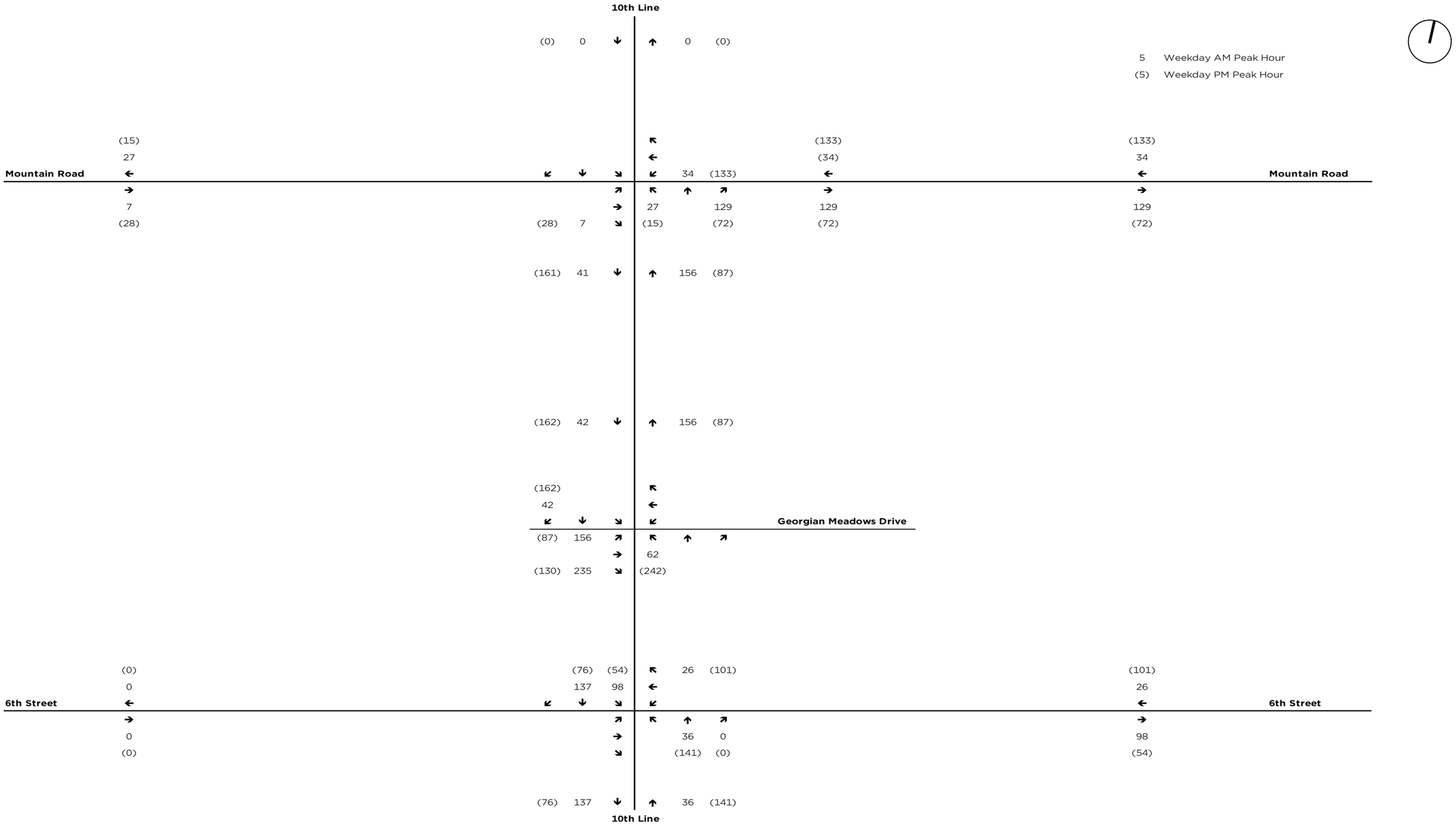
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 5: Tenth Line & Mountain Road Class EA Background Developments



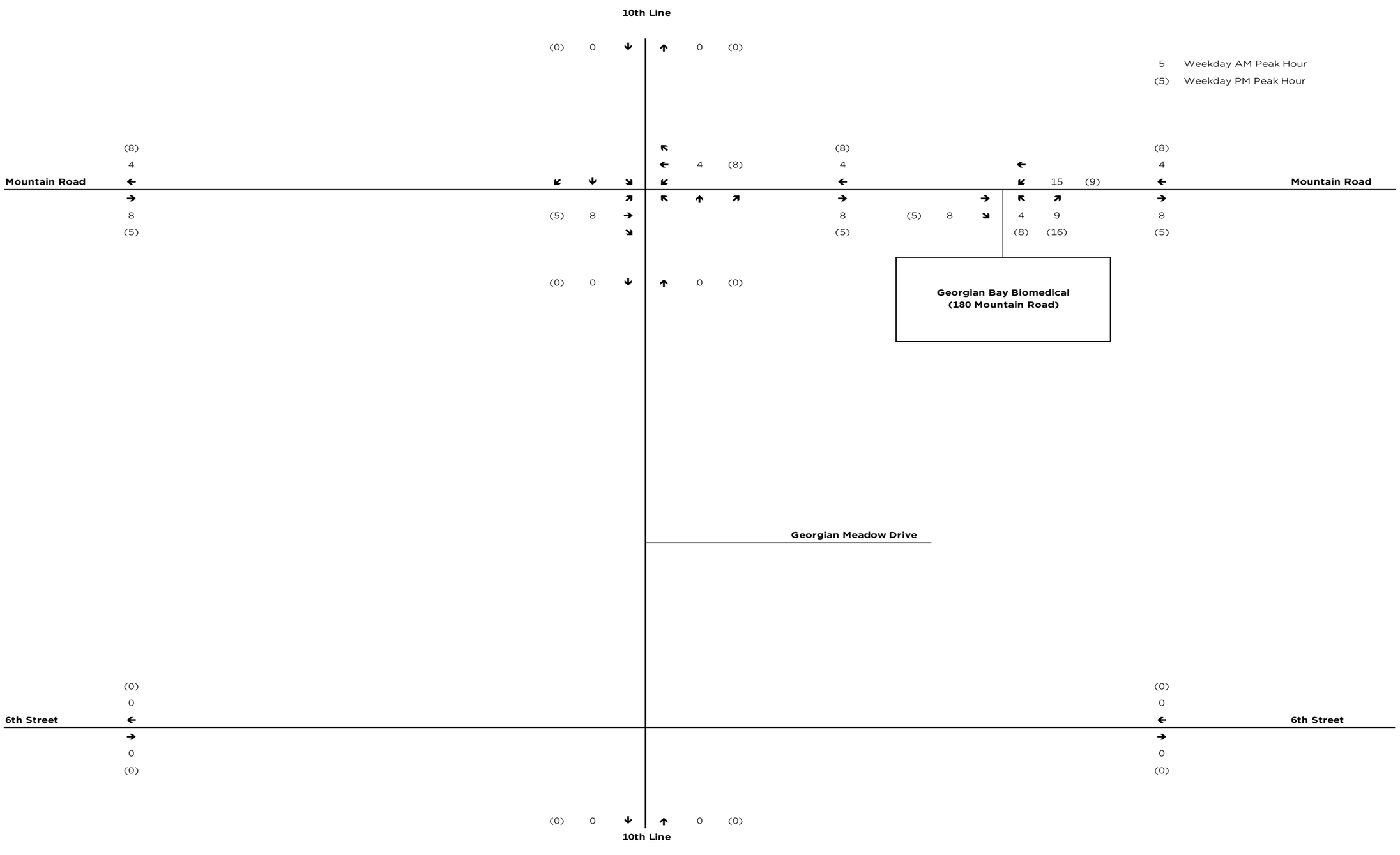
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 6: Tenth Line & Mountain Road Class EA Traffic Volumes - 2037



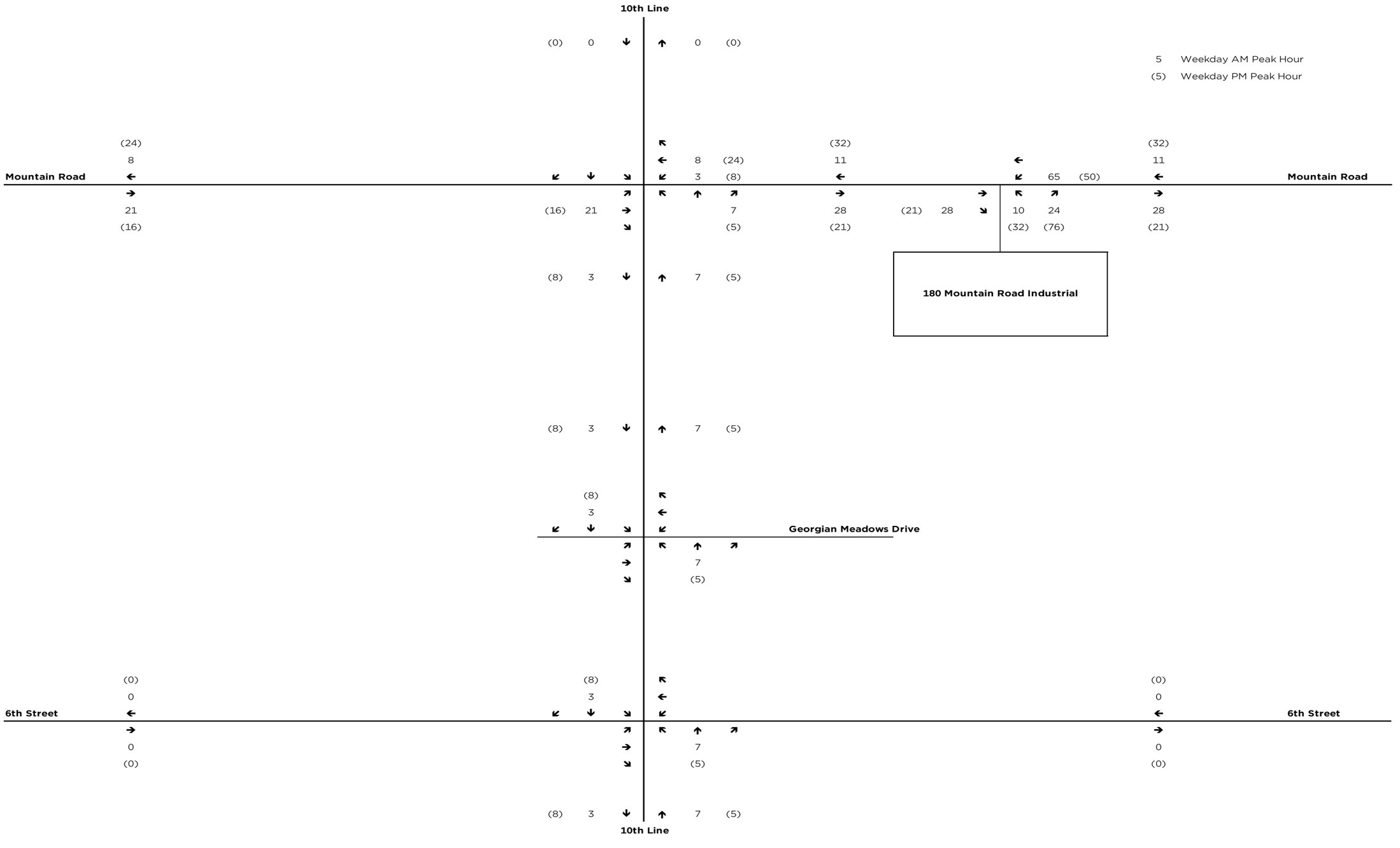
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 7: Tenth Line & Mountain Road Class EA Traffic Volumes - Linksview



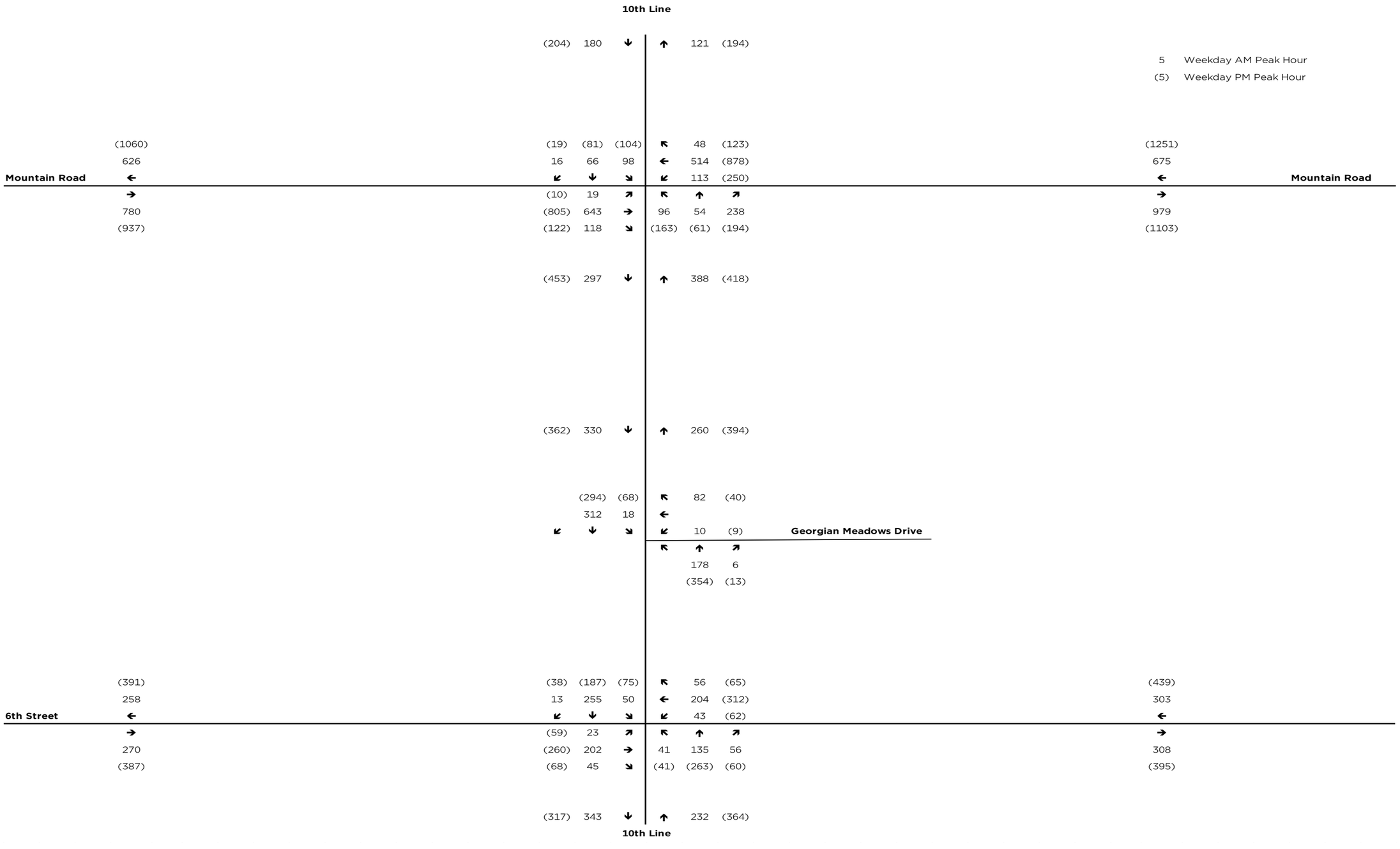
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 8: Tenth Line & Mountain Road Class EA Traffic Volumes - Georgian Bay Biomedical (180 Mountain Road)



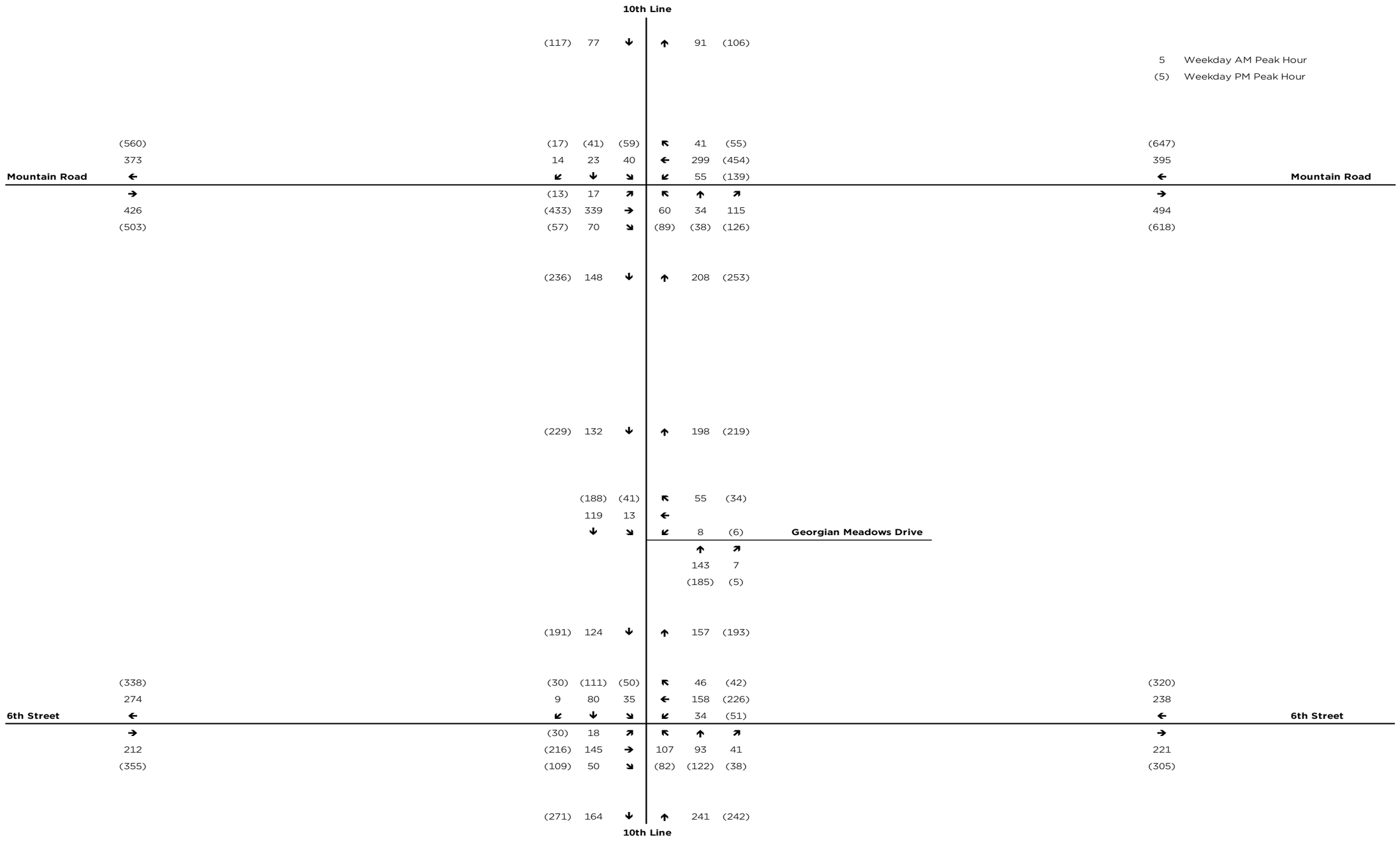
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 9: Updated Traffic Volumes – 180 Mountain Road



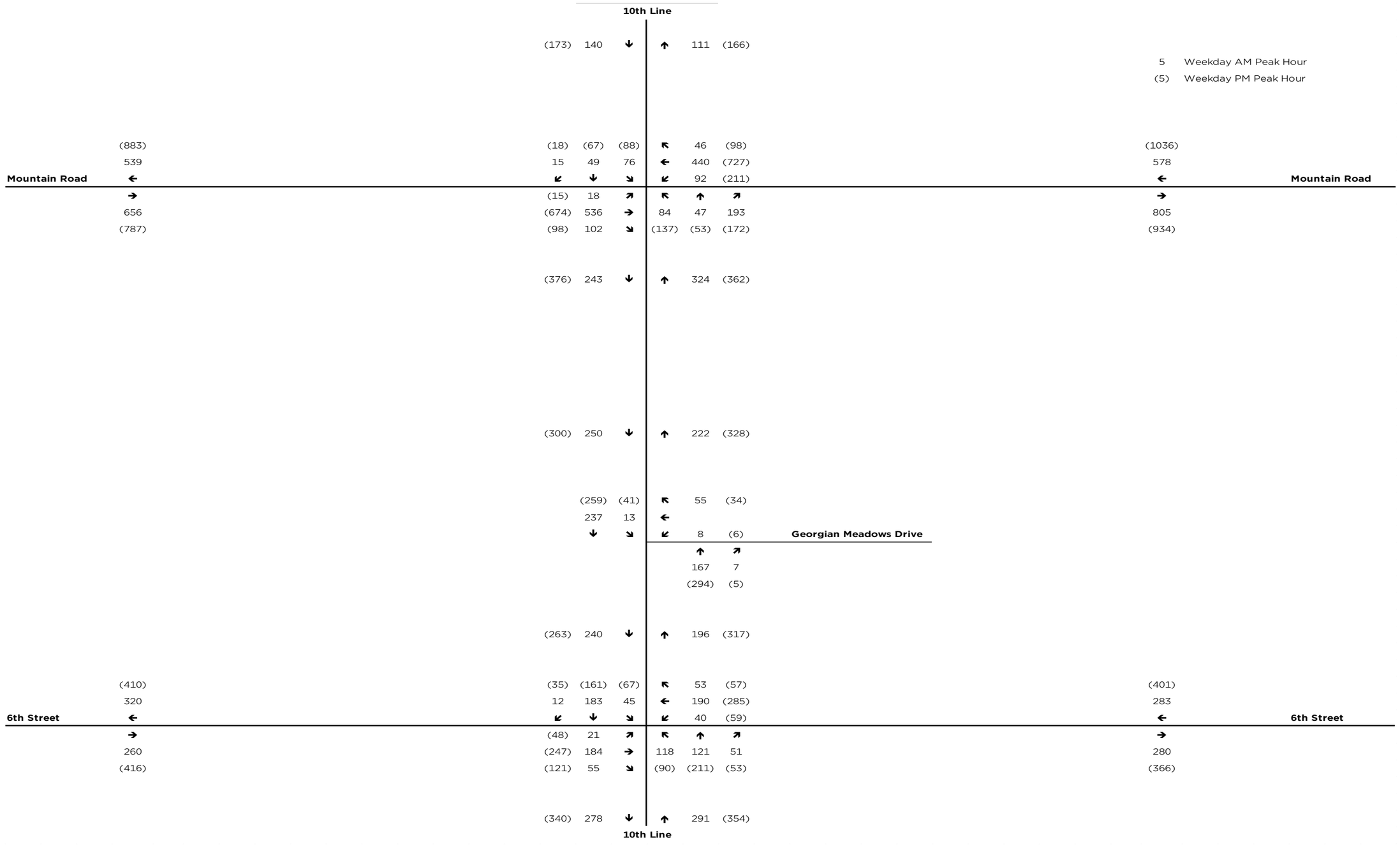
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 10: Tenth Line & Mountain Road Class EA Traffic Volumes - 2037 Adjusted



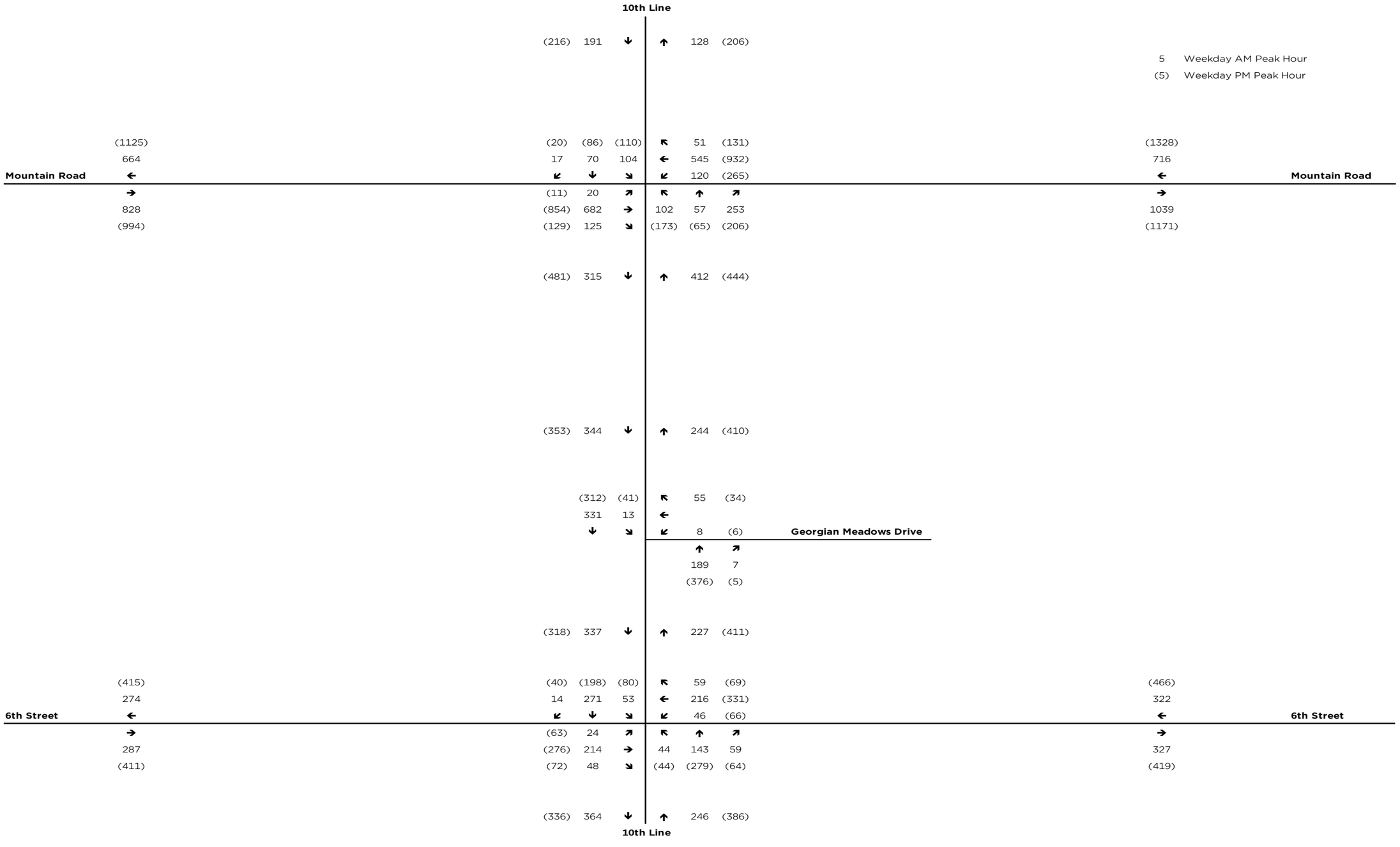
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 11: Traffic Volumes – 2030 Background



LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 12: Traffic Volumes – 2035 Background



LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 13: Traffic Volumes – 2040 Background

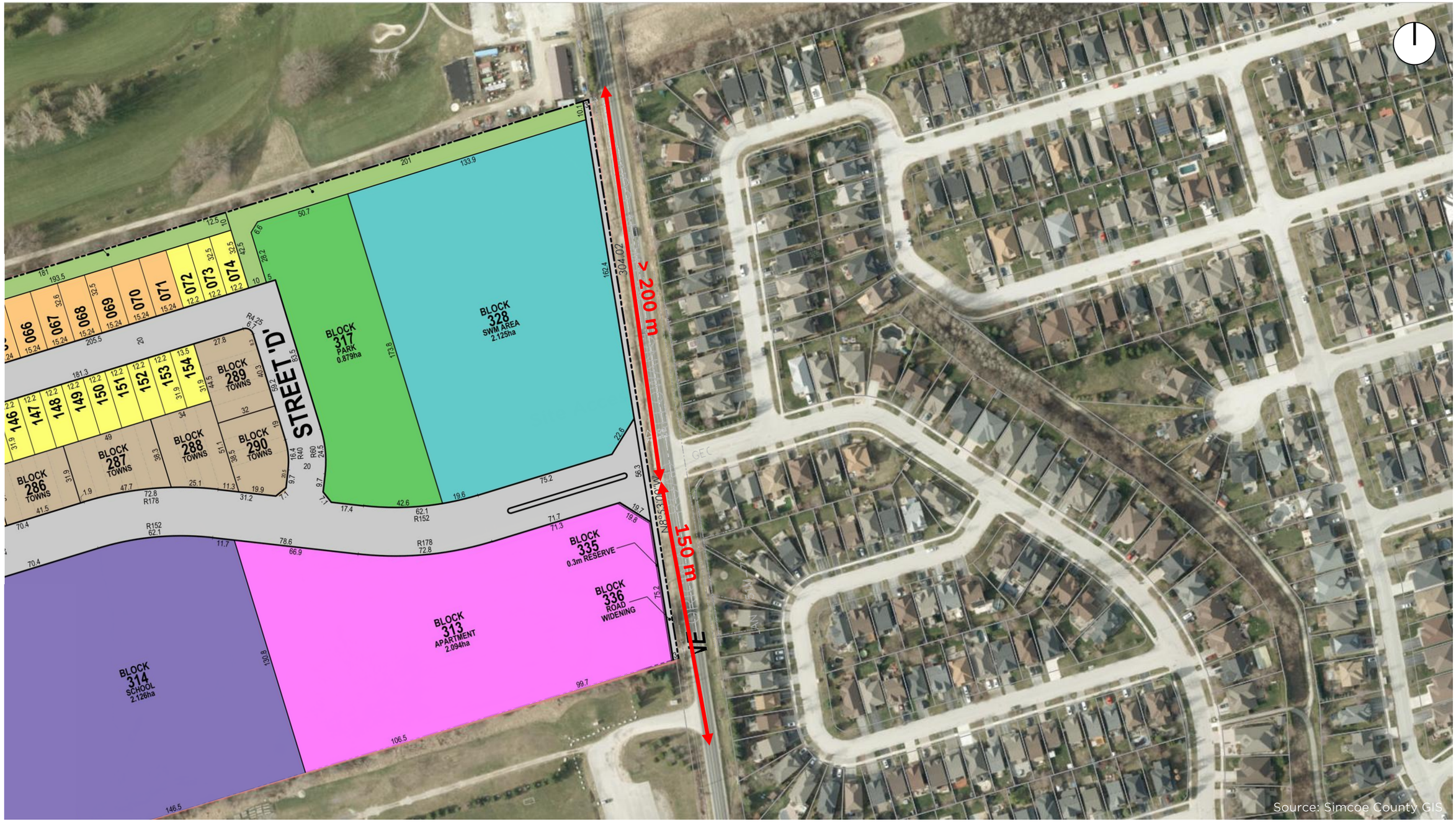
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 14: Site Plan

Looking North on Tenth Line from Georgian Meadows Drive

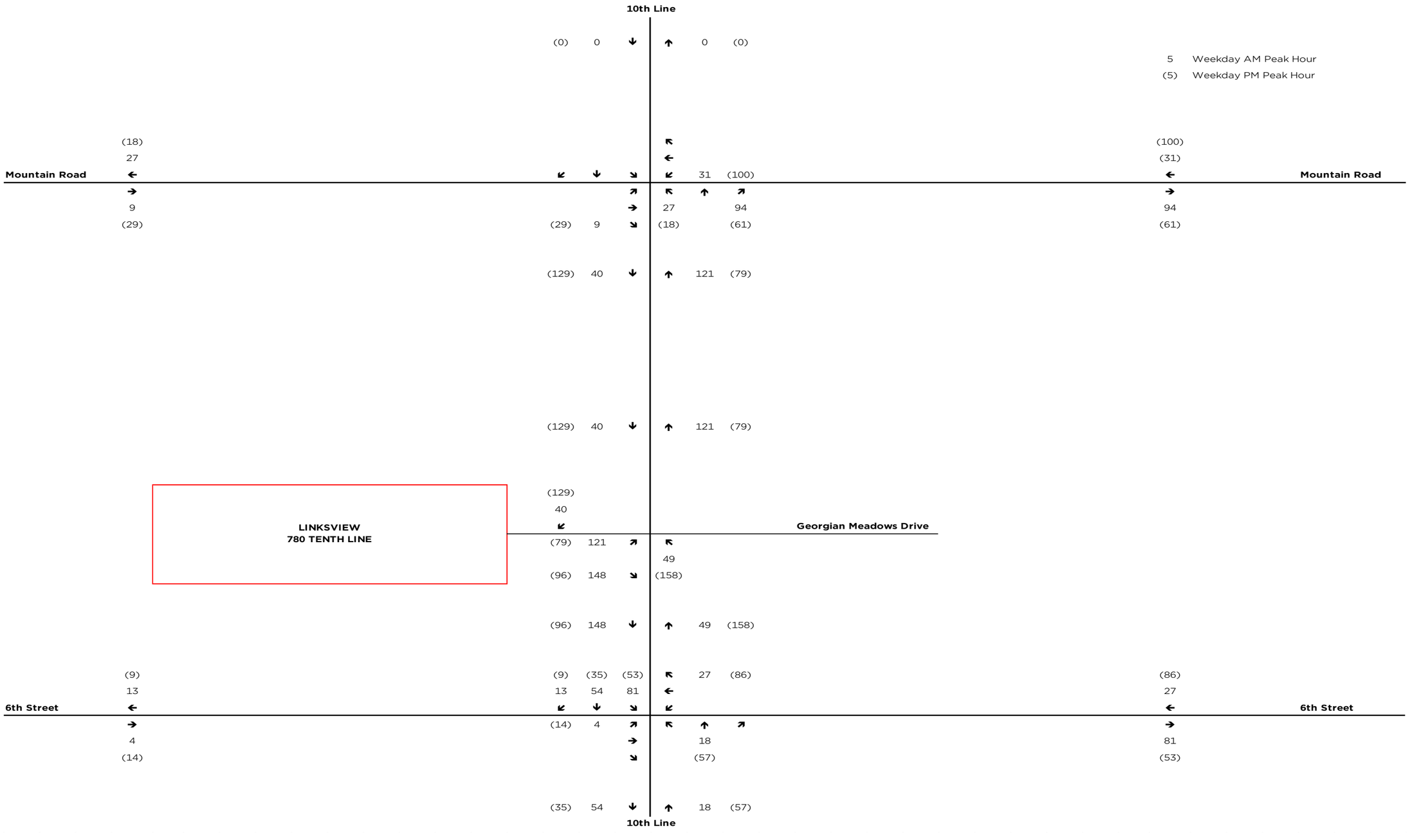
Looking South on Tenth Line from Georgian Meadows Drive

Source: Google Streetview



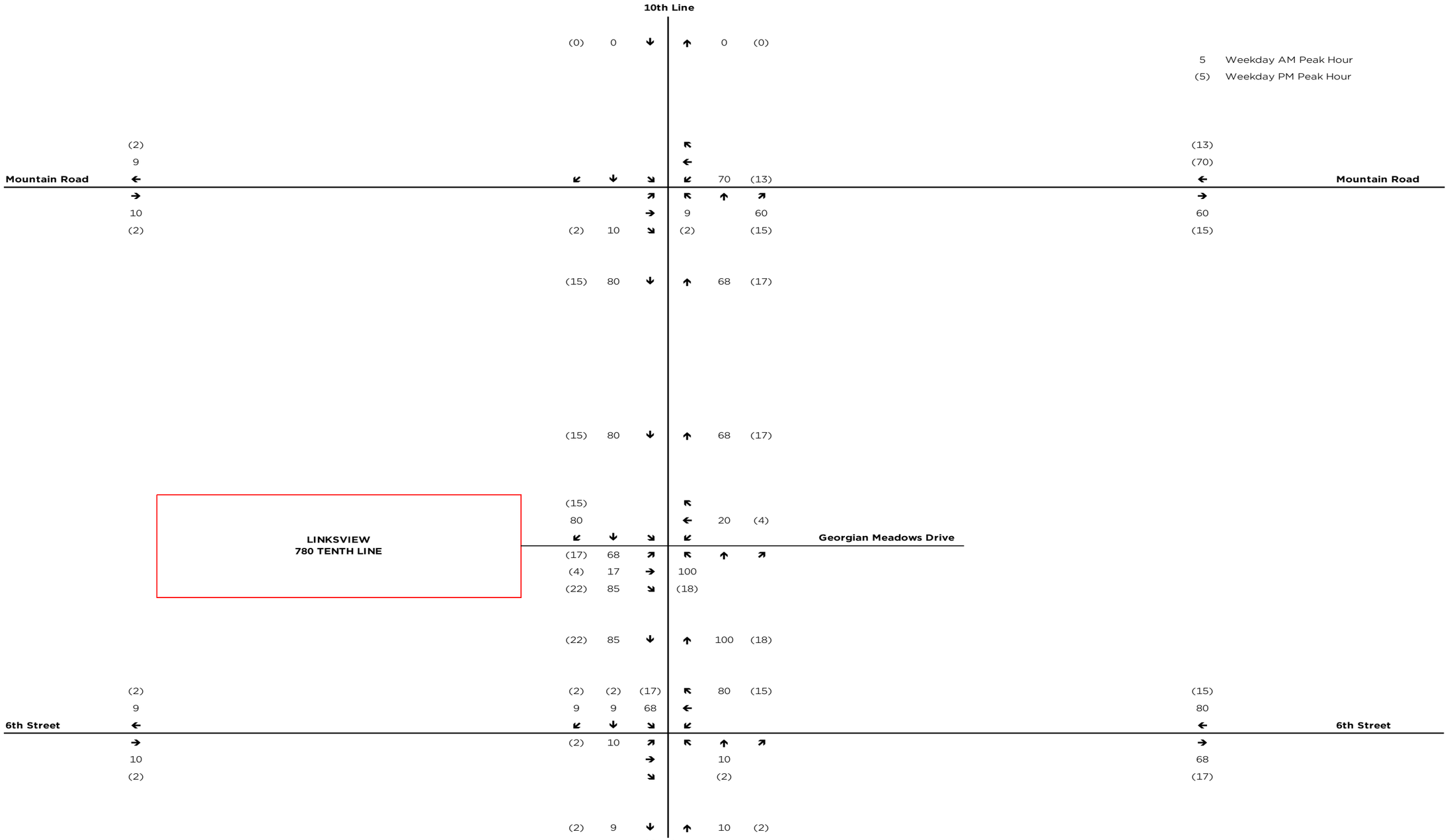
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 15B: Site Access Sight Lines



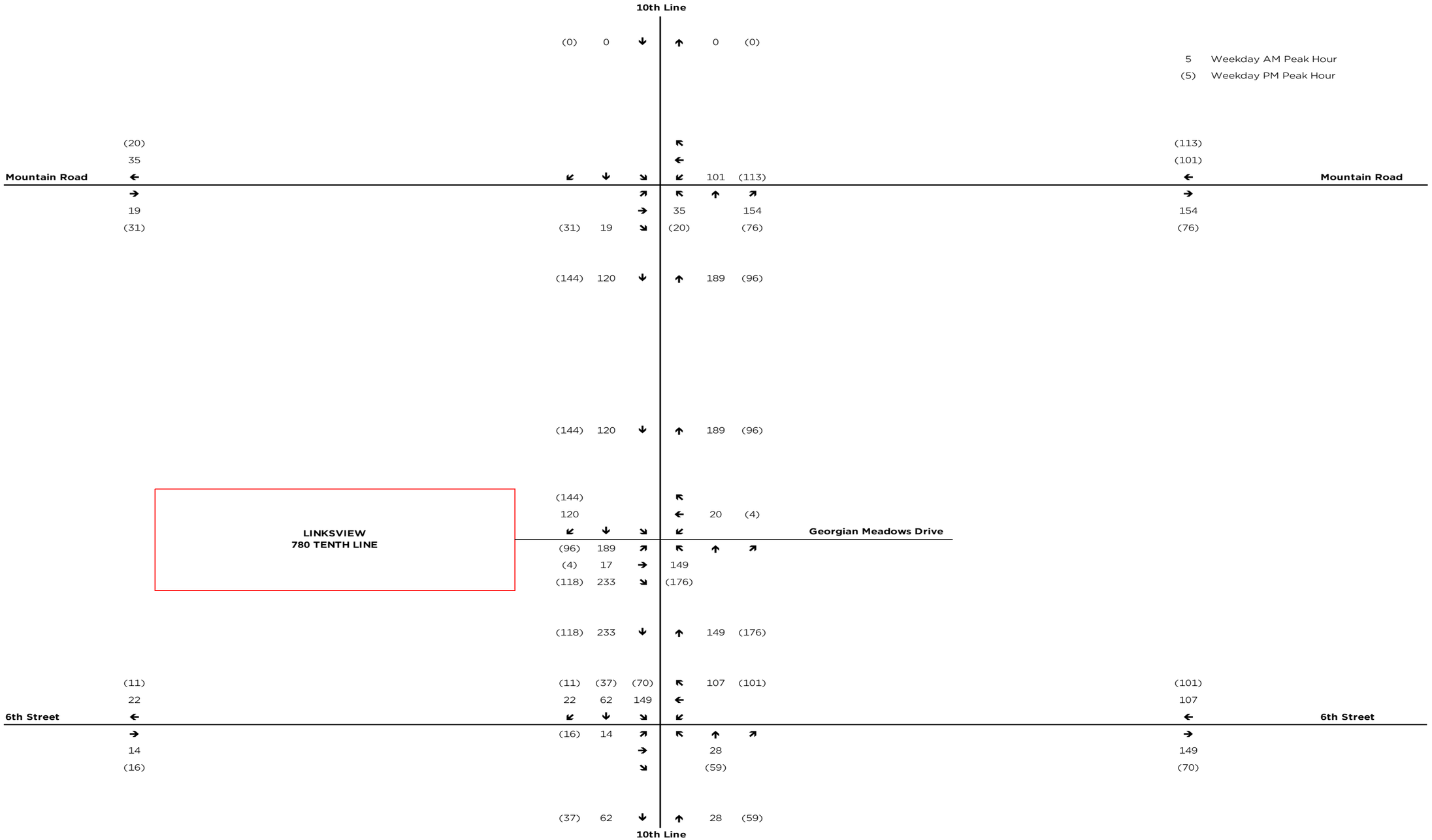
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 16: Site Traffic - Residential



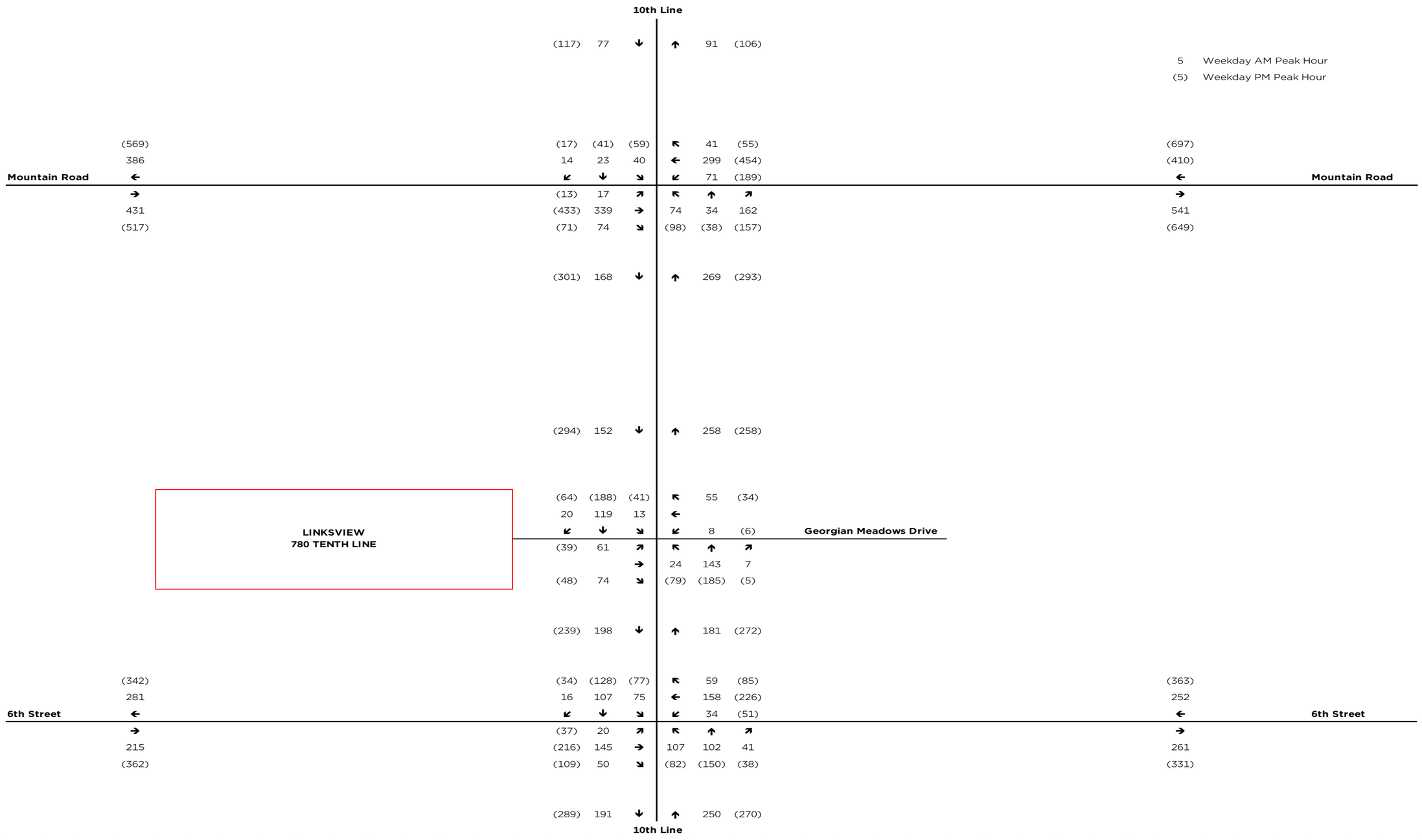
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 17: Site Traffic – Elementary School



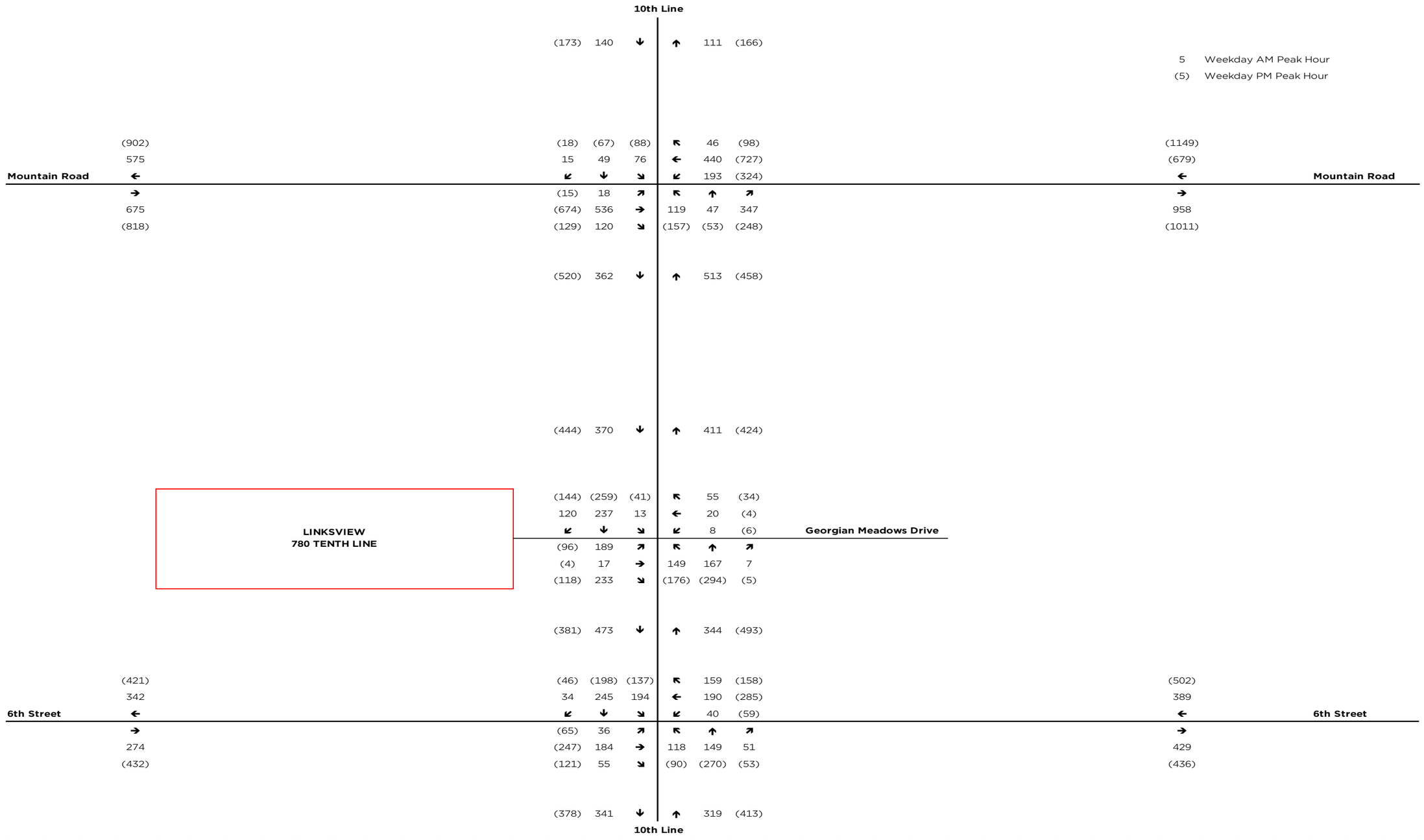
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 18: Site Traffic - Total



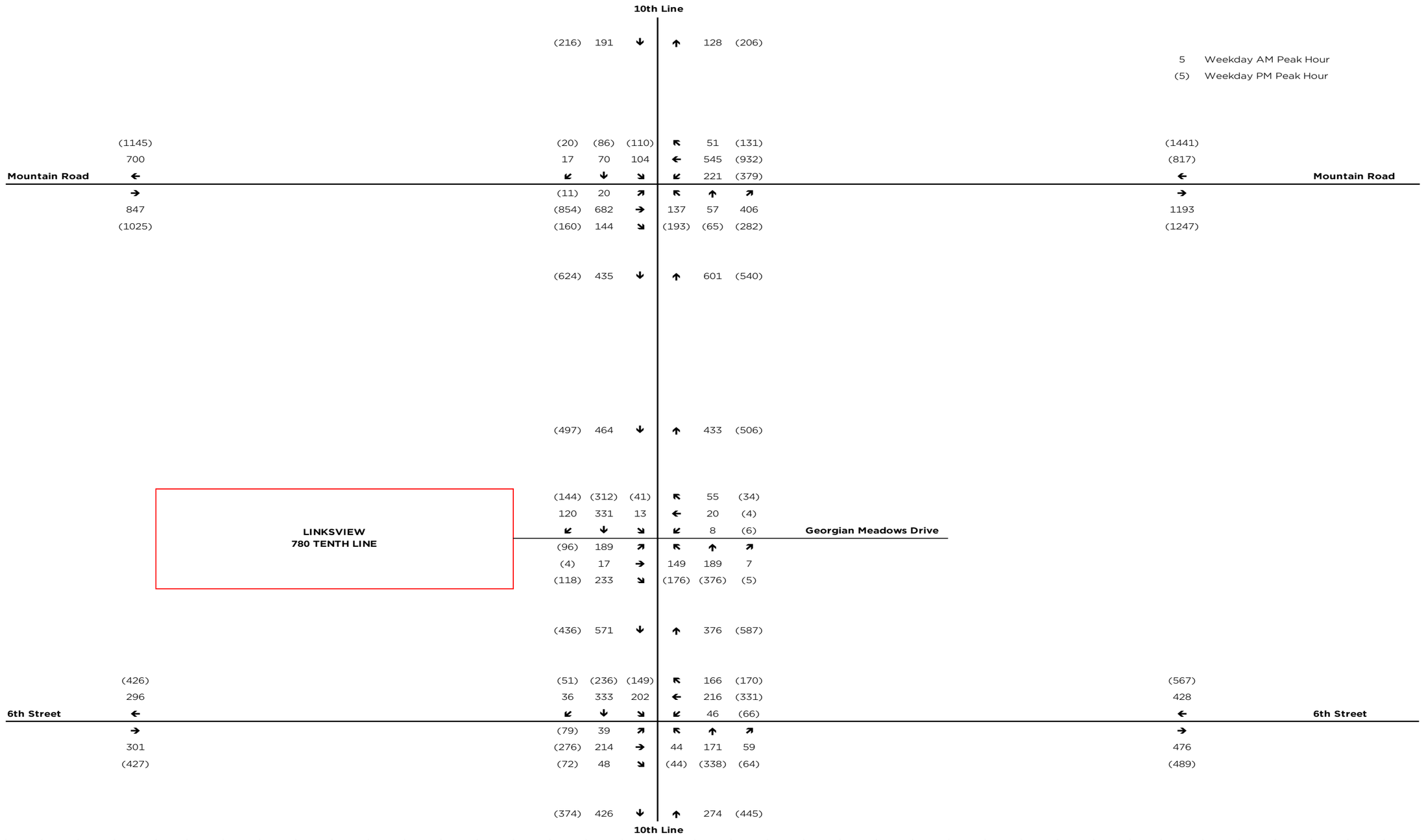
LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 19: Traffic Volumes – 2030 Total



LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 20: Traffic Volumes – 2035 Total



LINKSVIEW SUBDIVISION – TRANSPORTATION IMPACT STUDY

Figure 21: Traffic Volumes – 2040 Total

Appendix A:
Traffic Counts

10th Line & 6th Street

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Collingwood
Site #: 0000002601
Intersection: 6th Street & 10th Line & Concessior
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy
Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 6th Street runs W/E

North Leg Total:	195
North Entering:	69
North Peds:	0
Peds Cross:	⋈

Heavys	0	5	1	6
Trucks	0	2	1	3
Cars	7	28	25	60
Totals	7	35	27	

Heavys	7
Trucks	5
Cars	114
Totals	126

East Leg Total:	375
East Entering:	201
East Peds:	0
Peds Cross:	⧖

10th Line

Heavys	Trucks	Cars	Totals
3	7	226	236

Cars	Trucks	Heavys	Totals
38	2	0	40
128	3	1	132
27	1	1	29
193	6	2	

6th Street

N
W E
S

Heavys	Trucks	Cars	Totals
3	0	12	15
1	1	112	114
2	0	43	45
6	1	167	

6th Street

Cars	Trucks	Heavys	Totals
168	4	2	174

Concession Rd 10

Peds Cross:	⧖
West Peds:	1
West Entering:	174
West Leg Total:	410

Cars	98
Trucks	3
Heavys	8
Totals	109

Cars	91	64	31	186
Trucks	4	3	2	9
Heavys	2	4	0	6
Totals	97	71	33	

Peds Cross:	⋈
South Peds:	0
South Entering:	201
South Leg Total:	310

Comments

10th Line & 6th Street

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 13:30:00
To: 14:30:00

Municipality: Collingwood
Site #: 0000002601
Intersection: 6th Street & 10th Line & Concessior
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Non-Signalized Intersection ****

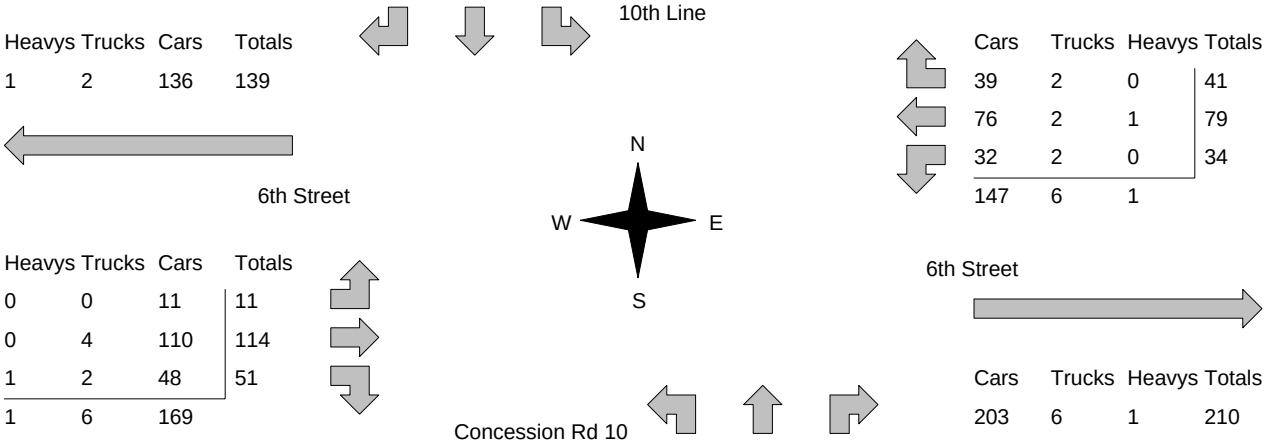
Major Road: 6th Street runs W/E

North Leg Total:	276			
North Entering:	147			
North Peds:	0			
Peds Cross:	⋈			

Heavys	0	3	1	4
Trucks	0	2	2	4
Cars	16	72	51	139
Totals	16	77	54	

Heavys	3
Trucks	7
Cars	119
Totals	129

East Leg Total:	364		
East Entering:	154		
East Peds:	0		
Peds Cross:	⧖		



Heavys	Trucks	Cars	Totals
1	2	136	139

Cars	Trucks	Heavys	Totals
39	2	0	41
76	2	1	79
32	2	0	34
147	6	1	

Heavys	Trucks	Cars	Totals
0	0	11	11
0	4	110	114
1	2	48	51
1	6	169	

Cars	Trucks	Heavys	Totals
203	6	1	210

Peds Cross:	⧖			
West Peds:	0			
West Entering:	176			
West Leg Total:	315			

Cars	152			
Trucks	6			
Heavys	4			
Totals	162			

Cars	44	69	42	155
Trucks	0	5	0	5
Heavys	0	3	0	3
Totals	44	77	42	

Peds Cross:	⋈			
South Peds:	0			
South Entering:	163			
South Leg Total:	325			

Comments

10th Line & 6th Street

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Collingwood
Site #: 0000002601
Intersection: 6th Street & 10th Line & Concessior
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 6th Street runs W/E

North Leg Total:	258			
North Entering:	139			
North Peds:	0			
Peds Cross:	⋈			

Heavys	0	1	0	1
Trucks	0	0	0	0
Cars	25	75	38	138
Totals	25	76	38	

Heavys	4
Trucks	0
Cars	115
Totals	119

East Leg Total:	511		
East Entering:	256		
East Peds:	0		
Peds Cross:	⧖		

10th Line

Heavys	Trucks	Cars	Totals
1	3	275	279

Cars	Trucks	Heavys	Totals
31	0	0	31
180	0	0	180
45	0	0	45
256	0	0	

6th Street

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	18	18
1	0	188	189
0	3	96	99
1	3	302	

6th Street

Cars	Trucks	Heavys	Totals
254	0	1	255

Concession Rd 10

Peds Cross:	⧖			
West Peds:	2			
West Entering:	306			
West Leg Total:	585			

Cars	216			
Trucks	3			
Heavys	1			
Totals	220			

Cars	70	66	28	164
Trucks	3	0	0	3
Heavys	1	4	0	5
Totals	74	70	28	

Peds Cross:	⋈			
South Peds:	0			
South Entering:	172			
South Leg Total:	392			

Comments

10th Line & 6th Street

Total Count Diagram

Municipality: Collingwood
Site #: 0000002601
Intersection: 6th Street & 10th Line & Concessior
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy
Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 6th Street runs W/E

North Leg Total:	2055			
North Entering:	987			
North Peds:	3			
Peds Cross:	⋈			
Heavys	3	31	2	36
Trucks	3	18	10	31
Cars	152	477	291	920
Totals	158	526	303	
Heavys	38			
Trucks	29			
Cars	1001			
Totals	1068			
East Leg Total:	3309			
East Entering:	1630			
East Peds:	0			
Peds Cross:	⧖			

10th Line

Heavys	Trucks	Cars	Totals
18	31	1577	1626

Cars	Trucks	Heavys	Totals
333	12	3	348
946	11	7	964
307	9	2	318
1586	32	12	

6th Street

N
W E
S

Heavys	Trucks	Cars	Totals
3	3	121	127
7	18	1049	1074
8	15	542	565
18	36	1712	

6th Street

Cars	Trucks	Heavys	Totals
1632	34	13	1679

Concession Rd 10

Peds Cross:	⧖			
West Peds:	5			
West Entering:	1766			
West Leg Total:	3392			
Cars	1326			
Trucks	42			
Heavys	41			
Totals	1409			
Cars	479	547	292	1318
Trucks	17	14	6	37
Heavys	8	32	4	44
Totals	504	593	302	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	1399			
South Leg Total:	2808			

Comments

10th Line & 6th Street
Traffic Count Summary

Intersection: 6th Street & 10th Line & Concessio | **Count Date:** 6-May-2025 | **Municipality:** Collingwood

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	9	29	6	44	0	165
9:00:00	27	35	7	69	0	270
11:00:00	0	0	0	0	0	0
12:00:00	44	57	14	115	2	248
13:00:00	23	60	21	104	0	248
14:00:00	44	52	19	115	1	272
15:00:00	44	75	15	134	0	278
15:00:00	0	0	0	0	0	0
16:00:00	42	75	20	137	0	291
17:00:00	39	80	26	145	0	333
18:00:00	31	63	30	124	0	281
Totals:	303	526	158	987	3	2386

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	49	50	22	121	0
9:00:00	97	71	33	201	0
11:00:00	0	0	0	0	0
12:00:00	39	63	31	133	0
13:00:00	42	76	26	144	0
14:00:00	51	63	43	157	0
15:00:00	43	65	36	144	0
15:00:00	0	0	0	0	0
16:00:00	54	57	43	154	0
17:00:00	73	80	35	188	0
18:00:00	56	68	33	157	0
Totals:	504	593	302	1399	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	18	80	25	123	0	253
9:00:00	29	132	40	201	0	375
11:00:00	0	0	0	0	0	0
12:00:00	32	96	47	175	0	350
13:00:00	48	103	40	191	0	367
14:00:00	38	89	48	175	0	346
15:00:00	33	98	44	175	0	339
15:00:00	0	0	0	0	0	0
16:00:00	39	87	38	164	0	397
17:00:00	45	121	34	200	0	493
18:00:00	36	158	32	226	0	476
Totals:	318	964	348	1630	0	3396

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	8	89	33	130	0
9:00:00	15	114	45	174	1
11:00:00	0	0	0	0	0
12:00:00	20	92	63	175	0
13:00:00	18	107	51	176	1
14:00:00	13	106	52	171	0
15:00:00	8	101	55	164	0
15:00:00	0	0	0	0	0
16:00:00	13	135	85	233	0
17:00:00	12	168	113	293	0
18:00:00	20	162	68	250	3
Totals:	127	1074	565	1766	5

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	196	146	142	158	162	171	192	158

10th Line and Georgian Meadows Dr

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Collingwood
Site #: 0000002602
Intersection: 10th Line & Georgian Meadows Dr
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10th Line runs N/S

North Leg Total: 220
North Entering: 73
North Peds: 0
Peds Cross: ⋈

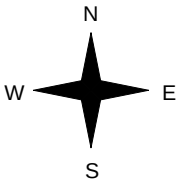
Heavys	6	3	9
Trucks	2	0	2
Cars	52	10	62
Totals	60	13	

Heavys	4
Trucks	5
Cars	138
Totals	147

East Leg Total: 53
East Entering: 33
East Peds: 0
Peds Cross: ⋈

10th Line

Cars	Trucks	Heavys	Totals
24	0	1	25
8	0	0	8
32	0	1	



Georgian Meadows Dr

Cars	Trucks	Heavys	Totals
13	0	7	20

10th Line

Cars	60
Trucks	2
Heavys	6
Totals	68

Cars	114	3	117
Trucks	5	0	5
Heavys	3	4	7
Totals	122	7	

Peds Cross: ⋈
South Peds: 0
South Entering: 129
South Leg Total: 197

Comments

10th Line and Georgian Meadows Dr

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 13:45:00
To: 14:45:00

Municipality: Collingwood
Site #: 0000002602
Intersection: 10th Line & Georgian Meadows Dr
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10th Line runs N/S

North Leg Total: 314
North Entering: 165
North Peds: 0
Peds Cross: ⋈

Heavys	4	1	5
Trucks	6	0	6
Cars	124	30	154
Totals	134	31	

Heavys	5
Trucks	8
Cars	136
Totals	149

East Leg Total: 67
East Entering: 34
East Peds: 0
Peds Cross: ⋈

10th Line

Cars	Trucks	Heavys	Totals
25	0	1	26
7	0	1	8
32	0	2	

N
W E
S

Georgian Meadows Dr

Cars	Trucks	Heavys	Totals
32	0	1	33

10th Line

Cars	131
Trucks	6
Heavys	5
Totals	142

Cars	111	2	113
Trucks	8	0	8
Heavys	4	0	4
Totals	123	2	

Peds Cross: ⋈
South Peds: 0
South Entering: 125
South Leg Total: 267

Comments

10th Line and Georgian Meadows Dr

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:00:00
To: 17:00:00

Municipality: Collingwood
Site #: 0000002602
Intersection: 10th Line & Georgian Meadows Dr
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10th Line runs N/S

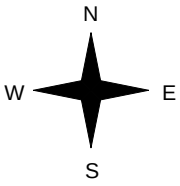
North Leg Total: 328
North Entering: 178
North Peds: 0
Peds Cross: ⋈

Heavys	1	1	2
Trucks	1	0	1
Cars	135	40	175
Totals	137	41	

Heavys	5	
Trucks	0	
Cars	145	
Totals	150	

East Leg Total: 86
East Entering: 40
East Peds: 0
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	33	0	1	34
	5	0	1	6
	38	0	2	



Georgian Meadows Dr

	Cars	Trucks	Heavys	Totals
	45	0	1	46

10th Line

Cars	140		
Trucks	1		
Heavys	2		
Totals	143		

Cars	112	5	117
Trucks	0	0	0
Heavys	4	0	4
Totals	116	5	

Peds Cross: ⋈
South Peds: 0
South Entering: 121
South Leg Total: 264

Comments

10th Line and Georgian Meadows Dr

Total Count Diagram

Municipality: Collingwood
Site #: 0000002602
Intersection: 10th Line & Georgian Meadows Dr
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: 10th Line runs N/S

North Leg Total: 2420
North Entering: 1176
North Peds: 0
Peds Cross: ⋈

Heavys	30	12	42
Trucks	31	0	31
Cars	862	241	1103
Totals	923	253	

Heavys	41
Trucks	29
Cars	1174
Totals	1244

East Leg Total: 578
East Entering: 278
East Peds: 0
Peds Cross: ⋈

10th Line

Cars	Trucks	Heavys	Totals
213	0	11	224
48	1	5	54
261	1	16	

N
W E
S

Georgian Meadows Dr

Cars	Trucks	Heavys	Totals
281	0	19	300

10th Line

Cars	910
Trucks	32
Heavys	35
Totals	977

Cars	961	40	1001
Trucks	29	0	29
Heavys	30	7	37
Totals	1020	47	

Peds Cross: ⋈
South Peds: 1
South Entering: 1067
South Leg Total: 2044

Comments

10th Line and Georgian Meadows Dr
Traffic Count Summary

Intersection: 10th Line & Georgian Meadows Dr | **Count Date:** 6-May-2025 | **Municipality:** Collingwood

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	7	36	0	43	0	121
9:00:00	13	60	0	73	0	202
11:00:00	0	0	0	0	0	0
12:00:00	32	113	0	145	0	274
13:00:00	30	98	0	128	0	260
14:00:00	22	106	0	128	0	262
15:00:00	39	125	0	164	0	284
15:00:00	0	0	0	0	0	0
16:00:00	32	126	0	158	0	266
17:00:00	41	137	0	178	0	299
18:00:00	37	122	0	159	0	275
Totals:	253	923	0	1176	0	2243

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	76	2	78	0
9:00:00	0	122	7	129	0
11:00:00	0	0	0	0	0
12:00:00	0	126	3	129	0
13:00:00	0	127	5	132	0
14:00:00	0	129	5	134	0
15:00:00	0	118	2	120	0
15:00:00	0	0	0	0	0
16:00:00	0	99	9	108	0
17:00:00	0	116	5	121	0
18:00:00	0	107	9	116	1
Totals:	0	1020	47	1067	1

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	9	0	20	29	0	29
9:00:00	8	0	25	33	0	33
11:00:00	0	0	0	0	0	0
12:00:00	2	0	30	32	0	32
13:00:00	4	0	20	24	0	24
14:00:00	5	0	24	29	0	29
15:00:00	6	0	26	32	0	32
15:00:00	0	0	0	0	0	0
16:00:00	10	0	22	32	0	32
17:00:00	6	0	34	40	0	40
18:00:00	4	0	23	27	0	27
Totals:	54	0	224	278	0	278

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0
15:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	8	2	4	5	6	10	6	5

10th Line & Mountain Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

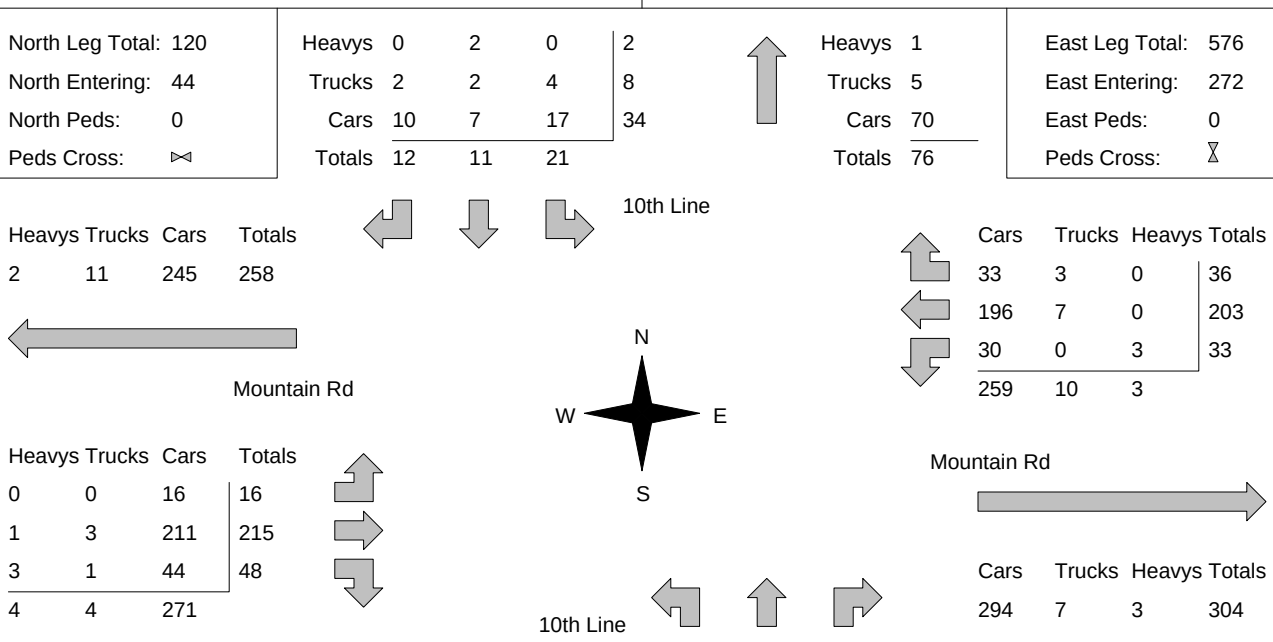
One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Collingwood
Site #: 0000002603
Intersection: Mountain Rd & 10th Line
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mountain Rd runs W/E



Comments

10th Line & Mountain Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 15:00:00

One Hour Peak
From: 13:30:00
To: 14:30:00

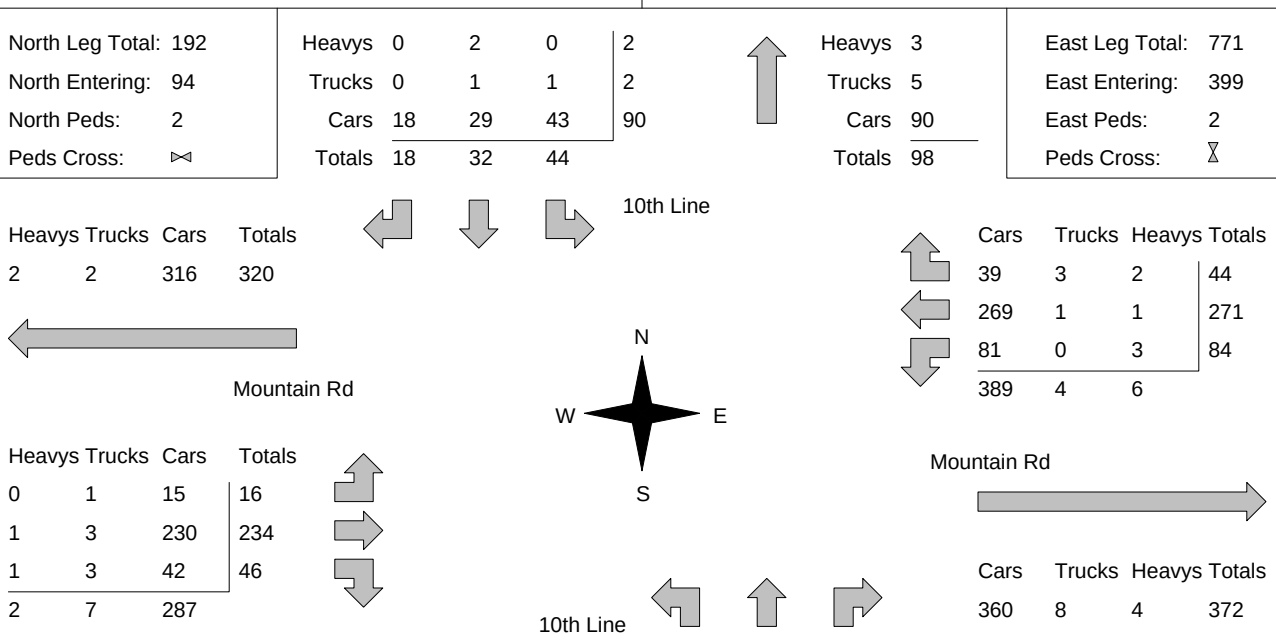
Municipality: Collingwood
Site #: 0000002603
Intersection: Mountain Rd & 10th Line
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mountain Rd runs W/E



Comments

10th Line & Mountain Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 15:30:00
To: 16:30:00

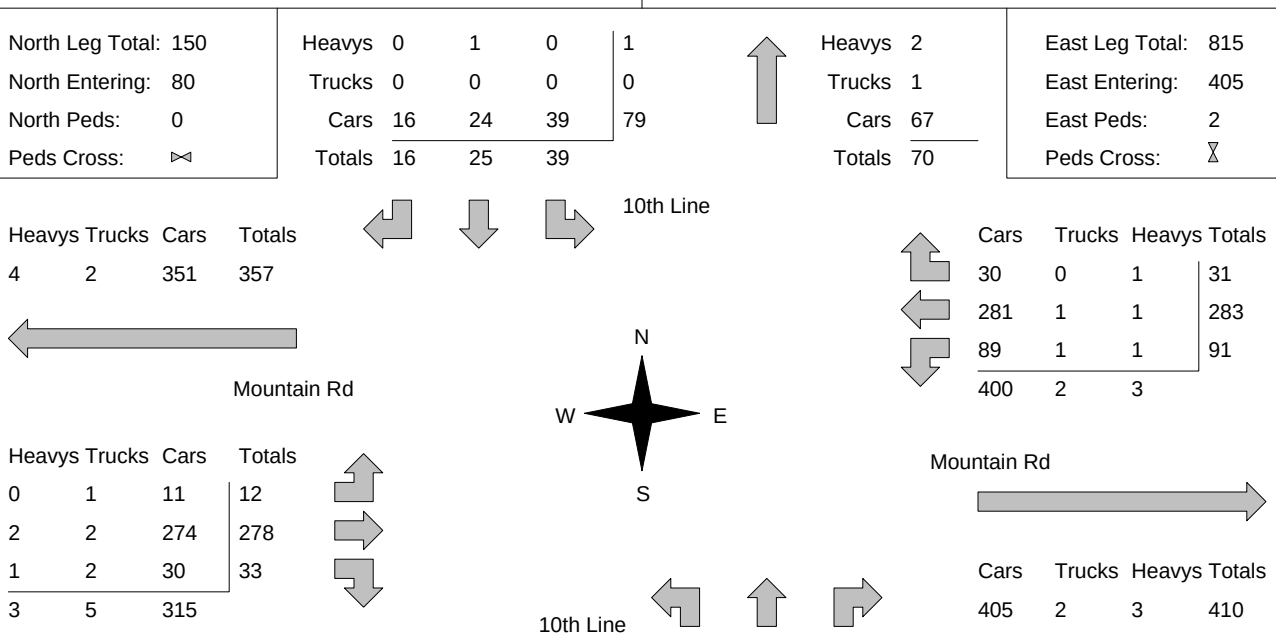
Municipality: Collingwood
Site #: 0000002603
Intersection: Mountain Rd & 10th Line
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mountain Rd runs W/E



Comments

10th Line & Mountain Rd

Total Count Diagram

Municipality: Collingwood
Site #: 0000002603
Intersection: Mountain Rd & 10th Line
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Mountain Rd runs W/E

North Leg Total:	1203			
North Entering:	593			
North Peds:	2			
Peds Cross:	⋈			

Heavys	1	12	4	17
Trucks	3	12	12	27
Cars	89	174	286	549
Totals	93	198	302	

Heavys	19	
Trucks	32	
Cars	559	
Totals	610	

East Leg Total:	6172			
East Entering:	3079			
East Peds:	4			
Peds Cross:	⧖			

10th Line

Heavys	Trucks	Cars	Totals
23	34	2511	2568

Cars	Trucks	Heavys	Totals
277	16	7	300
2096	24	7	2127
628	7	17	652
3001	47	31	

Mountain Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	3	92	95
9	26	2034	2069
13	11	300	324
22	40	2426	

Mountain Rd

Cars	Trucks	Heavys	Totals
3018	46	29	3093

10th Line

Peds Cross:	⧖		
West Peds:	5		
West Entering:	2488		
West Leg Total:	5056		

Cars	1102			
Trucks	30			
Heavys	42			
Totals	1174			

Cars	326	190	698	1214
Trucks	7	13	8	28
Heavys	15	12	16	43
Totals	348	215	722	

Peds Cross:	⋈		
South Peds:	6		
South Entering:	1285		
South Leg Total:	2459		

Comments

10th Line & Mountain Rd
Traffic Count Summary

Intersection: Mountain Rd & 10th Line | **Count Date:** 6-May-2025 | **Municipality:** Collingwood

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	8	4	0	12	0	97
9:00:00	21	11	12	44	0	179
11:00:00	0	0	0	0	0	0
12:00:00	45	23	12	80	0	227
13:00:00	51	28	13	92	0	254
14:00:00	46	26	14	86	0	245
15:00:00	44	39	17	100	2	250
15:00:00	0	0	0	0	0	0
16:00:00	48	27	18	93	0	240
17:00:00	36	29	7	72	0	245
18:00:00	3	11	0	14	0	141
Totals:	302	198	93	593	2	1878

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	28	17	40	85	0
9:00:00	43	24	68	135	0
11:00:00	0	0	0	0	0
12:00:00	28	31	88	147	3
13:00:00	39	29	94	162	0
14:00:00	33	37	89	159	1
15:00:00	37	34	79	150	0
15:00:00	0	0	0	0	0
16:00:00	46	24	77	147	0
17:00:00	59	15	99	173	0
18:00:00	35	4	88	127	2
Totals:	348	215	722	1285	6

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	29	131	19	179	0	310
9:00:00	33	203	36	272	0	551
11:00:00	0	0	0	0	0	0
12:00:00	85	216	39	340	0	622
13:00:00	79	252	51	382	0	662
14:00:00	67	276	56	399	0	683
15:00:00	83	228	43	354	2	668
15:00:00	0	0	0	0	0	0
16:00:00	79	278	41	398	0	689
17:00:00	95	276	12	383	2	725
18:00:00	102	267	3	372	0	657
Totals:	652	2127	300	3079	4	5567

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	4	104	23	131	0
9:00:00	16	215	48	279	0
11:00:00	0	0	0	0	0
12:00:00	13	232	37	282	4
13:00:00	9	234	37	280	0
14:00:00	18	234	32	284	0
15:00:00	14	253	47	314	0
15:00:00	0	0	0	0	0
16:00:00	14	244	33	291	0
17:00:00	5	303	34	342	0
18:00:00	2	250	33	285	1
Totals:	95	2069	324	2488	5

Calculated Values for Traffic Crossing Major Street

Hours Ending:	9:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Crossing Values:	88	108	119	116	122	121	126	50

Appendix B:
LOS Definitions

TATHAM ENGINEERING

Level of Service – Unsignalized Intersections

Level of Service (LOS) for unsignalized intersections is defined in terms of control delay for each critical lane. Control delay includes initial deceleration, queue move-up time, stopped delay and final acceleration delay, and is a function of the service rate or capacity of the approach and degree of saturation.

The following table describes in detail the characteristics of each level of service, with A being the best and F being the worst.

LOS	EXPECTED DELAY TO STREET TRAFFIC	DELAY (sec/veh)
A	Little or no delays	$0 < d \leq 10$
B	Short traffic delays	$10 < d \leq 15$
C	Average traffic delays	$15 < d \leq 25$
D	Long traffic delays	$25 < d \leq 35$
E	Very long traffic delays	$35 < d \leq 50$
F	Extreme delays with queuing which may cause congestion affecting other traffic movements in the intersection	$50 < d$

source: 2010 Highway Capacity Manual

TATHAM ENGINEERING

Level of Service – Signalized Intersections

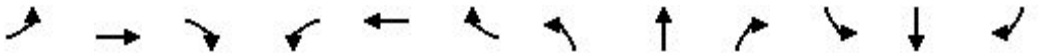
Level of Service (LOS) for signalized intersections is defined in terms of delay, which is made up of a number of factors that relate to control, geometrics, traffic and incidents. Only the portion of total delay attributed to the control facility is quantified. This control delay includes initial deceleration, queue move-up time, stopped delay and final acceleration delay.

The following table describes in detail the characteristics of each level of service, with A being the best and F being the worst.

LOS	EXPECTED DELAY TO STREET TRAFFIC	DELAY (sec/veh)
A	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all at this LOS. Short cycle lengths may also contribute to low delay.	$0 < d \leq 10$
B	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop at this level than at LOS A, causing longer average delays.	$10 < d \leq 20$
C	These higher delays may result from fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	$20 < d \leq 35$
D	At this level, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavourable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures become noticeable.	$35 < d \leq 55$
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	$55 < d \leq 80$
F	At this level, oversaturation occurs when arrival flow rates exceed the design capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such high delay levels. LOS F is considered to be unacceptable to most drivers.	$80 < d$

source: 2010 Highway Capacity Manual

Appendix C:
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	215	48	33	203	36	43	24	68	21	11	12
Future Volume (vph)	16	215	48	33	203	36	43	24	68	21	11	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.93			0.96	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		1835			1839			1728			1772	
Flt Permitted		0.96			0.93			0.89			0.83	
Satd. Flow (perm)		1771			1723			1568			1510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	234	52	36	221	39	47	26	74	23	12	13
RTOR Reduction (vph)	0	20	0	0	14	0	0	48	0	0	8	0
Lane Group Flow (vph)	0	283	0	0	282	0	0	99	0	0	40	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.5			7.5			8.9			8.9	
Effective Green, g (s)		7.5			7.5			8.9			8.9	
Actuated g/C Ratio		0.30			0.30			0.35			0.35	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		522			508			549			529	
v/s Ratio Prot												
v/s Ratio Perm		0.16			c0.16			c0.06			0.03	
v/c Ratio		0.54			0.55			0.18			0.07	
Uniform Delay, d1		7.5			7.5			5.7			5.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			1.3			0.2			0.1	
Delay (s)		8.7			8.9			5.9			5.6	
Level of Service		A			A			A			A	
Approach Delay (s)		8.7			8.9			5.9			5.6	
Approach LOS		A			A			A			A	

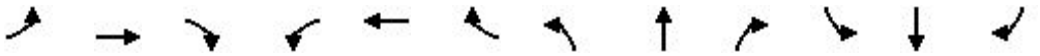
Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	25.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	55	122	7	13	60
Future Volume (Veh/h)	8	55	122	7	13	60
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	60	133	8	14	65
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	226	133			141	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	133			141	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	93			99	
cM capacity (veh/h)	755	916			1442	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	69	133	8	79
Volume Left	9	0	0	14
Volume Right	60	0	8	0
cSH	891	1700	1700	1442
Volume to Capacity	0.08	0.08	0.00	0.01
Queue Length 95th (m)	1.9	0.0	0.0	0.2
Control Delay (s)	9.4	0.0	0.0	1.4
Lane LOS	A			A
Approach Delay (s)	9.4	0.0		1.4
Approach LOS	A			

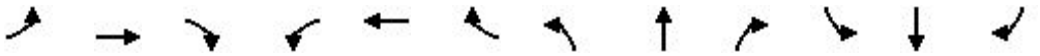
Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	15	114	45	29	132	40	97	71	33	27	35	7
Future Volume (vph)	15	114	45	29	132	40	97	71	33	27	35	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	124	49	32	143	43	105	77	36	29	38	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	189	218	218	75
Volume Left (vph)	16	32	105	29
Volume Right (vph)	49	43	36	8
Hadj (s)	-0.10	-0.05	0.03	0.05
Departure Headway (s)	4.9	4.9	5.1	5.3
Degree Utilization, x	0.26	0.30	0.31	0.11
Capacity (veh/h)	682	689	652	607
Control Delay (s)	9.5	9.9	10.3	9.0
Approach Delay (s)	9.5	9.9	10.3	9.0
Approach LOS	A	A	B	A

Intersection Summary				
Delay	9.8			
Level of Service	A			
Intersection Capacity Utilization	39.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	215	48	33	203	36	43	24	68	21	11	12
Future Volume (vph)	16	215	48	33	203	36	43	24	68	21	11	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.93			0.96	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		1835			1839			1728			1772	
Flt Permitted		0.96			0.93			0.89			0.83	
Satd. Flow (perm)		1772			1719			1565			1505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	234	52	36	221	39	47	26	74	23	12	13
RTOR Reduction (vph)	0	20	0	0	14	0	0	49	0	0	9	0
Lane Group Flow (vph)	0	283	0	0	282	0	0	98	0	0	39	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			8.7			8.7	
Effective Green, g (s)		7.7			7.7			8.7			8.7	
Actuated g/C Ratio		0.30			0.30			0.34			0.34	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		537			521			536			515	
v/s Ratio Prot												
v/s Ratio Perm		0.16			c0.16			c0.06			0.03	
v/c Ratio		0.53			0.54			0.18			0.08	
Uniform Delay, d1		7.3			7.4			5.9			5.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			1.2			0.2			0.1	
Delay (s)		8.3			8.5			6.0			5.7	
Level of Service		A			A			A			A	
Approach Delay (s)		8.3			8.5			6.0			5.7	
Approach LOS		A			A			A			A	

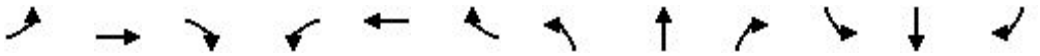
Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	25.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	34	116	5	41	137
Future Volume (Veh/h)	6	34	116	5	41	137
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	37	126	5	45	149
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	365	126			131	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	365	126			131	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			97	
cM capacity (veh/h)	615	924			1454	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	44	126	5	194
Volume Left	7	0	0	45
Volume Right	37	0	5	0
cSH	856	1700	1700	1454
Volume to Capacity	0.05	0.07	0.00	0.03
Queue Length 95th (m)	1.2	0.0	0.0	0.7
Control Delay (s)	9.4	0.0	0.0	1.9
Lane LOS	A			A
Approach Delay (s)	9.4	0.0		1.9
Approach LOS	A			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	189	99	45	180	31	74	70	28	38	76	25
Future Volume (vph)	18	189	99	45	180	31	74	70	28	38	76	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	205	108	49	196	34	80	76	30	41	83	27

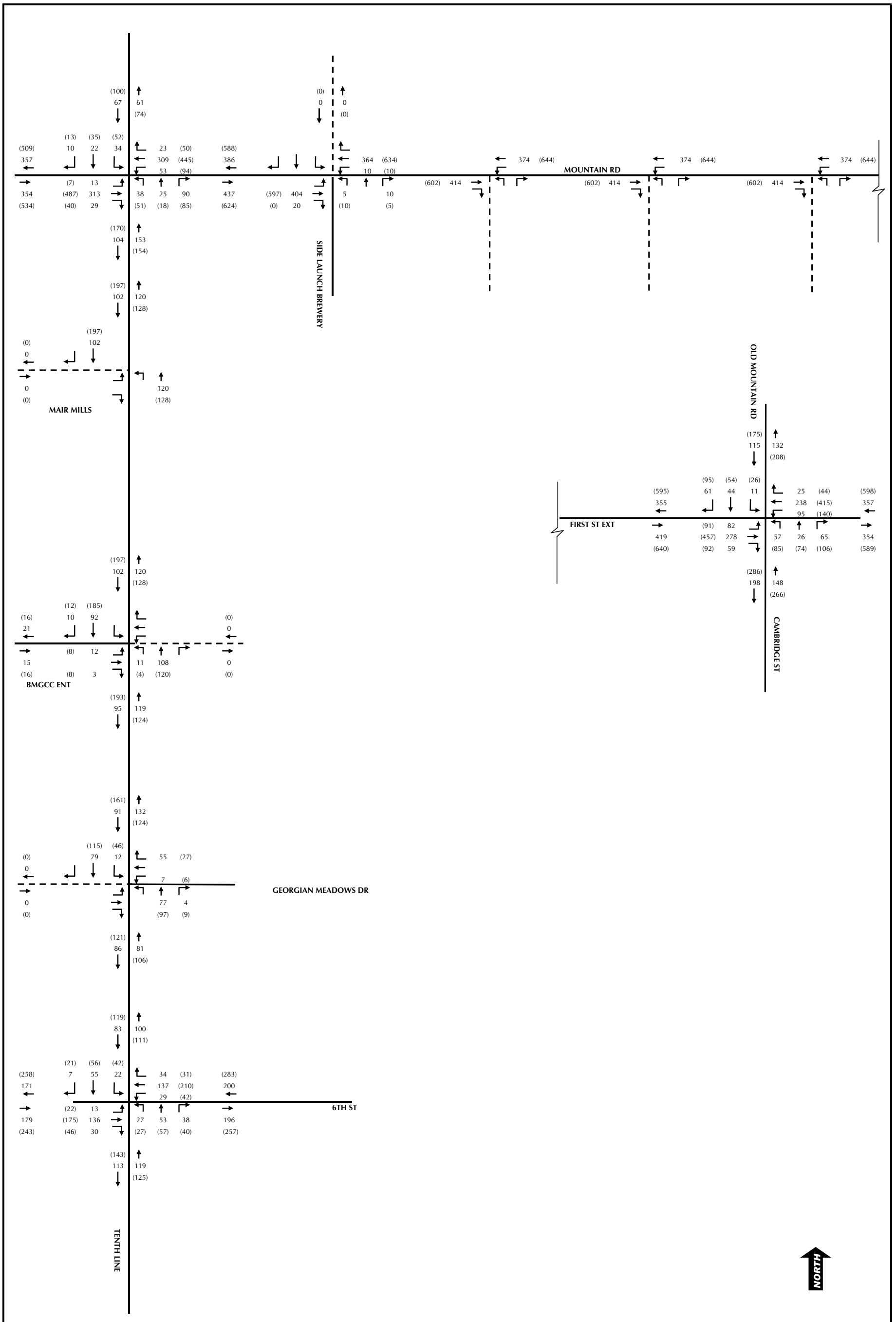
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	333	279	186	151
Volume Left (vph)	20	49	80	41
Volume Right (vph)	108	34	30	27
Hadj (s)	-0.15	0.00	0.02	-0.02
Departure Headway (s)	5.2	5.5	5.9	5.9
Degree Utilization, x	0.48	0.42	0.30	0.25
Capacity (veh/h)	644	615	542	533
Control Delay (s)	13.1	12.4	11.4	10.9
Approach Delay (s)	13.1	12.4	11.4	10.9
Approach LOS	B	B	B	B

Intersection Summary				
Delay	12.2			
Level of Service	B			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix D:
Tenth Line & Mountain Road Class EA

Appendix A

Traffic Analysis and Mountain Road Bridge Memo



100 (100) AM (PM) Peak Hour

Figure 1
Existing 2017 Traffic Volumes
Maintain Road and Tenth Line EA
Town of Collingwood

Ainley Group CONSULTING ENGINEERS PLANNERS

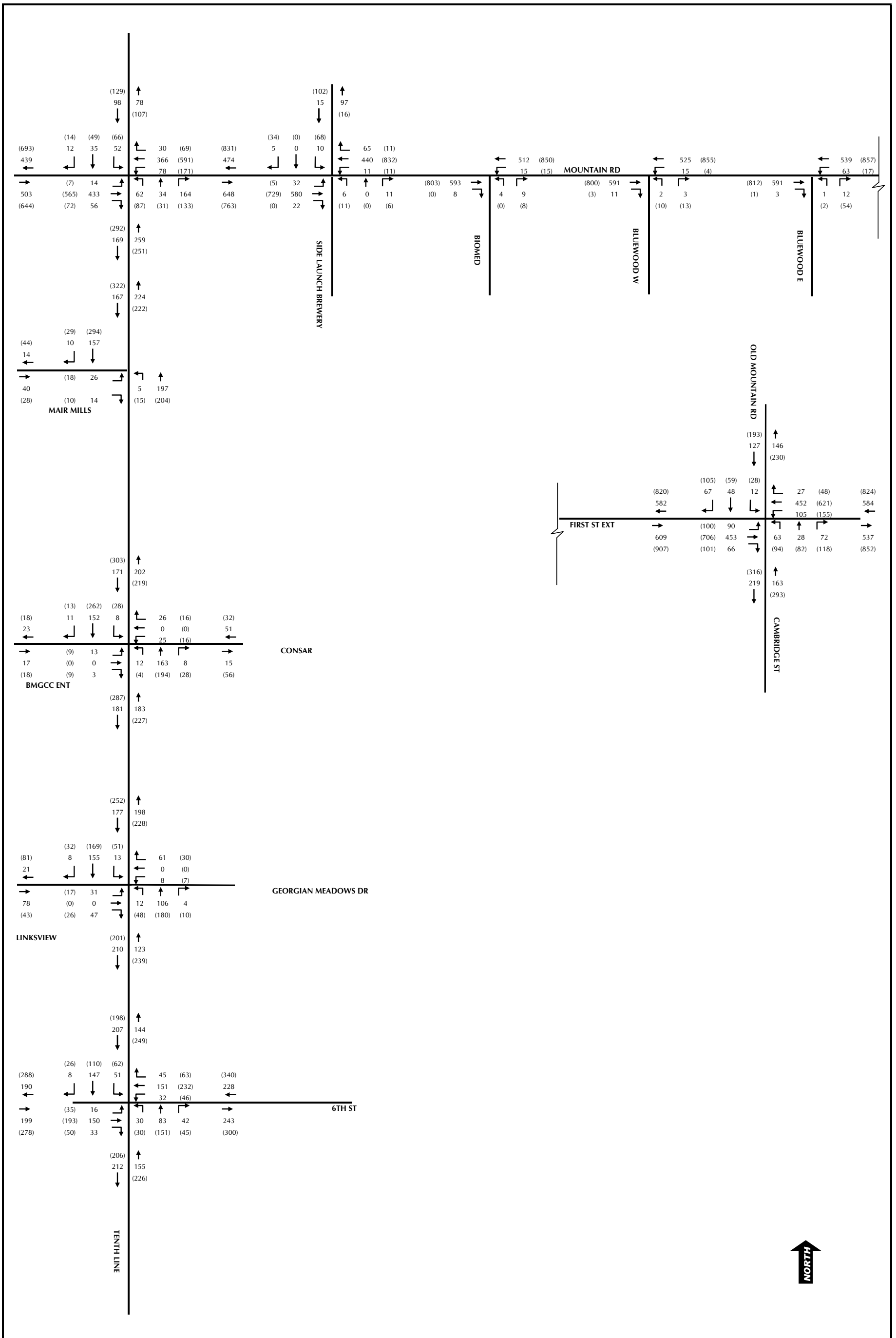


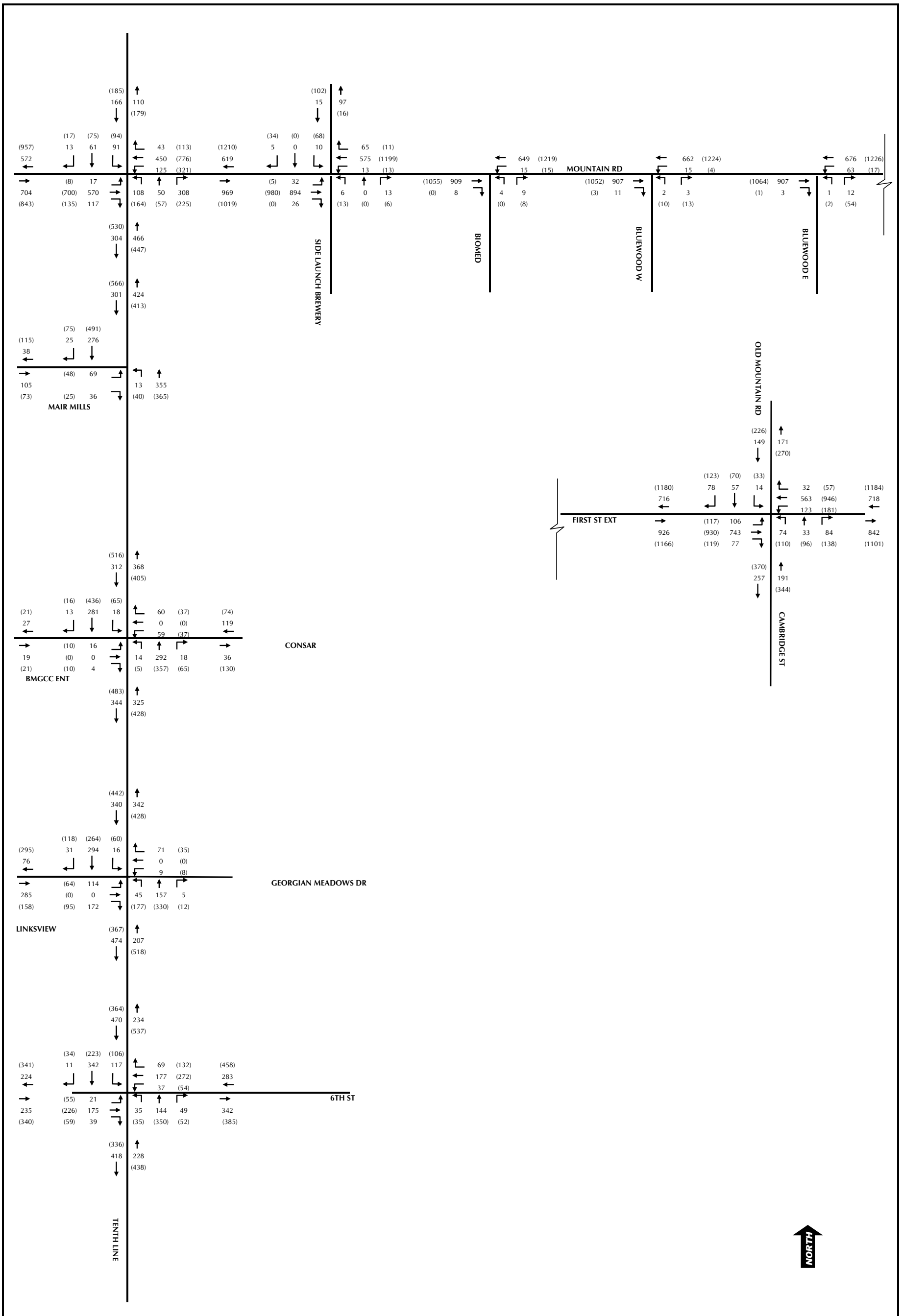
Figure 3

2022 Traffic Volumes

Maintain Road and Tenth Line EA

Town of Collingwood

Ainley Group CONSULTING ENGINEERS PLANNERS



100 (100) AM (PM) Peak Hour

Figure 4
2030 Traffic Volumes
Maintain Road and Tenth Line EA
Town of Collingwood

Ainley Group CONSULTING ENGINEERS PLANNERS

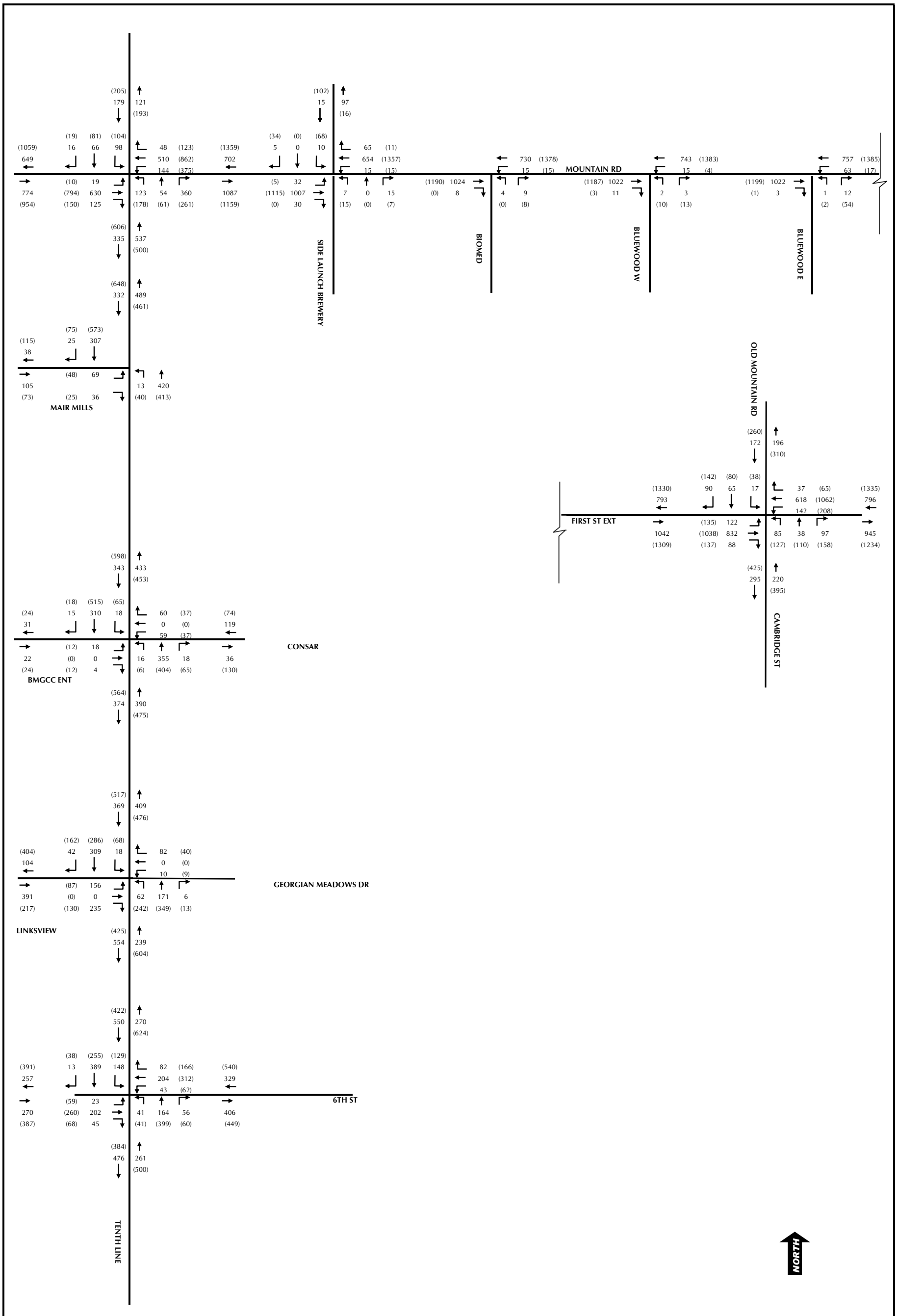


Figure 5

2037 Traffic Volumes

Maintain Road and Tenth Line EA

Town of Collingwood

Ainley Group — Consulting Engineers Planners

Appendix E:
Background Conditions

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	55	143	7	13	119
Future Volume (Veh/h)	8	55	143	7	13	119
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	60	155	8	14	129
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	312	155			163	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312	155			163	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	93			99	
cM capacity (veh/h)	674	891			1416	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	69	155	8	143
Volume Left	9	0	0	14
Volume Right	60	0	8	0
cSH	855	1700	1700	1416
Volume to Capacity	0.08	0.09	0.00	0.01
Queue Length 95th (m)	2.0	0.0	0.0	0.2
Control Delay (s)	9.6	0.0	0.0	0.8
Lane LOS	A			A
Approach Delay (s)	9.6	0.0		0.8
Approach LOS	A			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	34	185	5	41	188
Future Volume (Veh/h)	6	34	185	5	41	188
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	37	201	5	45	204
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	495	201			206	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	495	201			206	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	96			97	
cM capacity (veh/h)	516	840			1365	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	44	201	5	249
Volume Left	7	0	0	45
Volume Right	37	0	5	0
cSH	764	1700	1700	1365
Volume to Capacity	0.06	0.12	0.00	0.03
Queue Length 95th (m)	1.4	0.0	0.0	0.8
Control Delay (s)	10.0	0.0	0.0	1.6
Lane LOS	B			A
Approach Delay (s)	10.0	0.0		1.6
Approach LOS	B			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 10th Line Roundabouts.j9
Path: I:\2025 Projects\125027 - Linksview, 780 Tenth Line, Collingwood\Design\TIS\ARCADY
Report generation date: 5/16/2025 10:40:20 AM

Summary of intersection performance

	Weekday AM									Weekda				
	Set ID	Q (Veh)	Q95 (Veh)	Delay (s)	V/C	LOS	Int Del (s)	Int LOS	Res Cap	Set ID	Q (Veh)	Q95 (Veh)	Delay (s)	V/
	Planned Configuration - 2030 Background													
1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)	A1PLN D30BAM	0.3	1.1	3.66	0.21	A	3.60	A	227 % [1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)]	A1PLN D30BPM	0.4	1.3	3.91	0.2
1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)		0.1	0.5	3.61	0.12	A					0.2	0.5	3.67	0.1
1 - CR32 & 6th St/Tenth Line - 3 - County Road 32 (EB)		0.2	0.5	3.47	0.19	A					0.4	1.7	4.00	0.2
1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)		0.3	1.1	3.66	0.21	A					0.3	1.2	3.79	0.2
2 - Tenth Line & Mountain Road - 1 - Mountain Road (WB)		0.2	0.5	1.62	0.18	A	2.19	A			0.3	1.3	1.72	0.2
2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)		0.1	0.5	3.88	0.08	A					0.1	0.5	4.45	0.1
2 - Tenth Line & Mountain Road - 3 - Mountain Road (EB)		0.2	0.5	1.58	0.18	A					0.2	0.5	1.66	0.1
2 - Tenth Line & Mountain Road - 4 - Tenth Line (NB)		0.1	0.5	3.88	0.11	A					0.2	0.5	4.12	0.1
	Planned Configuration - 2035 Background													
1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)	A1PLN D35BAM	0.3	1.4	3.97	0.26	A	4.01	A	115 % [2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)]	A1PLN D35BPM	0.5	1.9	4.70	0.3
1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)		0.3	1.3	4.13	0.23	A					0.3	1.4	4.16	0.2
1 - CR32 & 6th St/Tenth Line - 3 - County Road 32 (EB)		0.3	1.3	3.95	0.24	A					0.5	1.9	4.54	0.3
1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)		0.4	1.5	4.01	0.26	A					0.5	1.9	4.51	0.3
2 - Tenth Line & Mountain Road - 1 - Mountain Road (WB)		0.3	1.2	1.81	0.26	A	2.68	A			0.7	1.5	2.20	0.4
2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)		0.2	0.5	4.89	0.17	A					0.3	1.4	6.81	0.2
2 - Tenth Line & Mountain Road - 3 - Mountain Road (EB)		0.4	1.4	1.87	0.28	A					0.5	1.9	2.04	0.3
2 - Tenth Line & Mountain Road - 4 - Tenth Line (NB)		0.2	0.5	4.83	0.18	A					0.3	1.4	5.46	0.2
	Planned Configuration - 2040 Background													
1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)		0.4	1.4	4.00	0.29	A			69 %		0.7	1.5	5.31	0.4

1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)	A1PLN D40BAM	0.5	1.8	4.45	0.32	A	4.20	A	[2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)]	A1PLN D40BPM	0.4	1.7	4.47	0.2
1 - CR32 & 6th St/Tenth Line - 3 - County Road 32 (EB)		0.4	1.3	4.39	0.28	A					0.6	1.9	4.71	0.3
1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)		0.3	1.2	3.87	0.22	A					0.5	2.0	4.89	0.3
2 - Tenth Line & Mountain Road - 1 - Mountain Road (WB)		0.5	1.4	1.97	0.32	A	3.19	A			1.1	1.7	2.77	0.5
2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)		0.4	1.3	6.10	0.26	A					0.6	2.1	11.34	0.3
2 - Tenth Line & Mountain Road - 3 - Mountain Road (EB)		0.6	2.0	2.17	0.36	A					0.7	1.5	2.45	0.4
2 - Tenth Line & Mountain Road - 4 - Tenth Line (NB)		0.3	1.2	5.92	0.24	A					0.5	2.0	7.22	0.3
Planned Configuration - 2030 Total														
1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)	A1PLN D30TAM	0.3	1.2	3.74	0.23	A	3.77	A	204 % [1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)]	A1PLN D30TPM	0.4	1.9	4.21	0.3
1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)		0.2	0.7	3.90	0.19	A					0.3	1.2	3.86	0.2
1 - CR32 & 6th St/Tenth Line - 3 - County Road 32 (EB)		0.2	0.8	3.64	0.20	A					0.4	1.8	4.15	0.3
1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)		0.3	1.2	3.81	0.23	A					0.3	1.4	4.01	0.2
2 - Tenth Line & Mountain Road - 1 - Mountain Road (WB)		0.2	0.5	1.64	0.19	A	2.31	A			0.4	1.4	1.77	0.2
2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)		0.1	0.5	3.96	0.08	A					0.1	0.5	4.65	0.1
2 - Tenth Line & Mountain Road - 3 - Mountain Road (EB)		0.2	0.5	1.60	0.19	A					0.3	0.5	1.71	0.2
2 - Tenth Line & Mountain Road - 4 - Tenth Line (NB)		0.1	0.5	3.95	0.13	A					0.2	0.5	4.17	0.1
Planned Configuration - 2035 Total														
1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)	A1PLN D35TAM	0.6	2.1	4.67	0.36	A	5.05	A	77 % [1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)]	A1PLN D35TPM	0.8	1.4	5.83	0.4
1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)		0.8	1.5	5.74	0.45	A					0.5	2.0	4.83	0.3
1 - CR32 & 6th St/Tenth Line - 3 - County Road 32 (EB)		0.4	1.4	4.76	0.29	A					0.6	1.6	5.05	0.3
1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)		0.5	1.8	4.72	0.31	A					0.6	1.7	5.25	0.3
2 - Tenth Line & Mountain Road - 1 - Mountain Road (WB)		0.4	1.5	1.96	0.31	A	3.04	A			0.8	1.5	2.40	0.4
2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)		0.2	0.5	5.55	0.19	A					0.4	1.3	7.97	0.2
2 - Tenth Line & Mountain Road - 3 - Mountain Road (EB)		0.4	1.5	2.00	0.30	A					0.5	2.1	2.21	0.3
2 - Tenth Line & Mountain Road - 4 - Tenth Line (NB)		0.3	1.0	5.11	0.22	A					0.3	1.1	5.63	0.2
Planned Configuration - 2040 Total														
1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)	A1PLN D40TAM	0.6	2.0	4.71	0.38	A	5.44	A	51 % [2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)]	A1PLN D40TPM	1.1	1.4	6.77	0.5
1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)		1.1	1.4	6.43	0.53	A					0.6	1.6	5.25	0.3
1 - CR32 & 6th St/Tenth Line - 3 - County Road 32 (EB)		0.5	1.9	5.39	0.34	A					0.6	1.6	5.25	0.3
1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)		0.4	1.1	4.52	0.27	A					0.7	1.4	5.76	0.4
2 - Tenth Line & Mountain Road - 1 - Mountain Road (WB)		0.6	2.1	2.15	0.37	A	3.65	A			1.3	2.5	3.09	0.5
2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)		0.4	1.5	7.15	0.30	A					0.8	2.2	14.90	0.4
2 - Tenth Line & Mountain Road - 3 - Mountain Road (EB)		0.6	2.3	2.34	0.39	A					0.8	1.4	2.70	0.4
2 - Tenth Line & Mountain Road - 4 - Tenth Line (NB)		0.4	1.5	6.34	0.29	A					0.6	2.0	7.52	0.3

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of Av. delay per arriving vehicle. Int LOS and Int Del are demand-weighted Av.s. Res Cap indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

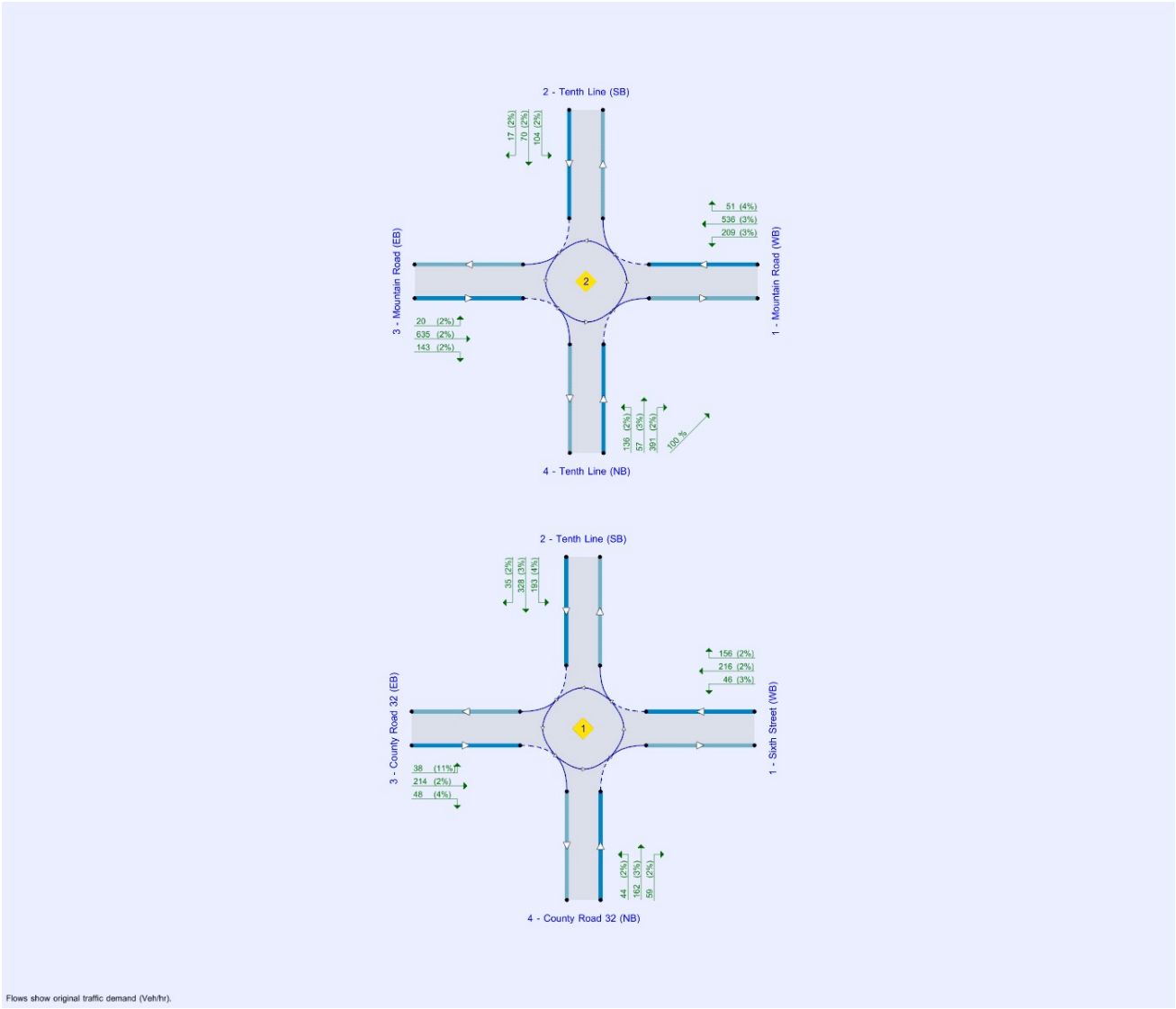
File summary

File Description

Title	Tenth Line Roundabouts
Location	County of Simcoe
Site number	
Date	5/15/2025
Version	
Status	
Identifier	
Client	Linksview
Jobnumber	125027
Analyst	
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Av. delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin



The intersection diagram reflects the last run of Intersections.

Analysis Options

Vehicle length (m)	Calculate Q Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	V/C Threshold	Av. Delay threshold (s)	Q threshold (PCE)
5.75	✓		✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D30BAM	2030 Background	Weekday AM	PHF	08:00	09:00	15	✓
D30BPM	2030 Background	Weekday PM	PHF	16:00	17:00	15	✓
D30TAM	2030 Total	Weekday AM	PHF	08:00	09:00	15	✓
D30TPM	2030 Total	Weekday PM	PHF	16:00	17:00	15	✓
D35BAM	2035 Background	Weekday AM	PHF	08:00	09:00	15	✓
D35BPM	2035 Background	Weekday PM	PHF	16:00	17:00	15	✓
D35TAM	2035 Total	Weekday AM	PHF	08:00	09:00	15	✓
D35TPM	2035 Total	Weekday PM	PHF	16:00	17:00	15	✓
D40BAM	2040 Background	Weekday AM	PHF	08:00	09:00	15	✓
D40BPM	2040 Background	Weekday PM	PHF	16:00	17:00	15	✓
D40TAM	2040 Total	Weekday AM	PHF	08:00	09:00	15	✓
D40TPM	2040 Total	Weekday PM	PHF	16:00	17:00	15	✓

Planned Configuration - 2030 Background, Weekday AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	3.60	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	2.19	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	227	1 - CR32 & 6th St/Tenth Line - 1 - Sixth Street (WB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D30BAM	2030 Background	Weekday AM	PHF	08:00	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	238	100.000
	2 - Tenth Line (SB)		PHF	✓	124	100.000
	3 - County Road 32 (EB)		PHF	✓	213	100.000
	4 - County Road 32 (NB)		PHF	✓	239	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	392	100.000
	2 - Tenth Line (SB)		PHF	✓	77	100.000
	3 - Mountain Road (EB)		PHF	✓	416	100.000
	4 - Tenth Line (NB)		PHF	✓	207	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	238	0.89	SecondQuarter
	2 - Tenth Line (SB)	124	0.89	SecondQuarter
	3 - County Road 32 (EB)	213	0.89	SecondQuarter
	4 - County Road 32 (NB)	239	0.89	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	392	0.82	SecondQuarter
	2 - Tenth Line (SB)	77	0.82	SecondQuarter
	3 - Mountain Road (EB)	416	0.82	SecondQuarter
	4 - Tenth Line (NB)	207	0.82	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	46	158	34
	2 - Tenth Line (SB)	35	0	9	80
	3 - County Road 32 (EB)	145	18	0	50
	4 - County Road 32 (NB)	41	91	107	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	41	297	54
	2 - Tenth Line (SB)	40	0	14	23
	3 - Mountain Road (EB)	329	17	0	70
	4 - Tenth Line (NB)	113	34	60	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	3
	2 - Tenth Line (SB)	4	0	2	10
	3 - County Road 32 (EB)	2	15	0	4
	4 - County Road 32 (NB)	2	5	2	0

Truck %s

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	5	5	5
	2 - Tenth Line (SB)	2	0	2	10
	3 - Mountain Road (EB)	2	2	0	4
	4 - Tenth Line (NB)	3	3	4	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.21	3.66	0.3	1.1	A	238	238
	2 - Tenth Line (SB)	0.12	3.61	0.1	0.5	A	124	124
	3 - County Road 32 (EB)	0.19	3.47	0.2	0.5	A	213	213
	4 - County Road 32 (NB)	0.21	3.66	0.3	1.1	A	239	239
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.18	1.62	0.2	0.5	A	392	392
	2 - Tenth Line (SB)	0.08	3.88	0.1	0.5	A	77	63
	3 - Mountain Road (EB)	0.18	1.58	0.2	0.5	A	416	416
	4 - Tenth Line (NB)	0.11	3.88	0.1	0.5	A	206	94

Planned Configuration - 2030 Background, Weekday PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	3.87	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	2.32	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	142	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D30BPM	2030 Background	Weekday PM	PHF	16:00	17:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	319	100.000
	2 - Tenth Line (SB)		PHF	✓	189	100.000
	3 - County Road 32 (EB)		PHF	✓	355	100.000
	4 - County Road 32 (NB)		PHF	✓	241	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	642	100.000
	2 - Tenth Line (SB)		PHF	✓	117	100.000
	3 - Mountain Road (EB)		PHF	✓	499	100.000
	4 - Tenth Line (NB)		PHF	✓	252	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	319	0.96	SecondQuarter
	2 - Tenth Line (SB)	189	0.96	SecondQuarter
	3 - County Road 32 (EB)	355	0.96	SecondQuarter
	4 - County Road 32 (NB)	241	0.96	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	642	0.95	SecondQuarter
	2 - Tenth Line (SB)	117	0.95	SecondQuarter
	3 - Mountain Road (EB)	499	0.95	SecondQuarter
	4 - Tenth Line (NB)	252	0.95	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	42	226	51
	2 - Tenth Line (SB)	50	0	30	109
	3 - County Road 32 (EB)	216	30	0	109
	4 - County Road 32 (NB)	38	121	82	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	55	450	137
	2 - Tenth Line (SB)	59	0	17	41
	3 - Mountain Road (EB)	429	13	0	57
	4 - Tenth Line (NB)	125	38	89	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	2
	2 - Tenth Line (SB)	2	0	2	2
	3 - County Road 32 (EB)	2	2	0	2
	4 - County Road 32 (NB)	2	5	2	0

Truck %s

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	3	2	2
	2 - Tenth Line (SB)	2	0	2	4
	3 - Mountain Road (EB)	2	2	0	3
	4 - Tenth Line (NB)	2	4	4	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.27	3.91	0.4	1.3	A	319	319
	2 - Tenth Line (SB)	0.17	3.67	0.2	0.5	A	189	189
	3 - County Road 32 (EB)	0.29	4.00	0.4	1.7	A	355	355
	4 - County Road 32 (NB)	0.21	3.79	0.3	1.2	A	241	241
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.24	1.72	0.3	1.3	A	642	642
	2 - Tenth Line (SB)	0.12	4.45	0.1	0.5	A	117	100
	3 - Mountain Road (EB)	0.19	1.66	0.2	0.5	A	499	499
	4 - Tenth Line (NB)	0.13	4.12	0.2	0.5	A	250	127

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	55	167	7	13	237
Future Volume (Veh/h)	8	55	167	7	13	237
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	60	182	8	14	258
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	468	182			190	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468	182			190	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	93			99	
cM capacity (veh/h)	548	861			1384	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	69	182	8	272
Volume Left	9	0	0	14
Volume Right	60	0	8	0
cSH	801	1700	1700	1384
Volume to Capacity	0.09	0.11	0.00	0.01
Queue Length 95th (m)	2.1	0.0	0.0	0.2
Control Delay (s)	9.9	0.0	0.0	0.5
Lane LOS	A			A
Approach Delay (s)	9.9	0.0		0.5
Approach LOS	A			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	34	294	5	41	259
Future Volume (Veh/h)	6	34	294	5	41	259
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	37	320	5	45	282
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	692	320			325	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	692	320			325	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	95			96	
cM capacity (veh/h)	395	721			1235	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	44	320	5	327
Volume Left	7	0	0	45
Volume Right	37	0	5	0
cSH	637	1700	1700	1235
Volume to Capacity	0.07	0.19	0.00	0.04
Queue Length 95th (m)	1.7	0.0	0.0	0.9
Control Delay (s)	11.1	0.0	0.0	1.4
Lane LOS	B			A
Approach Delay (s)	11.1	0.0		1.4
Approach LOS	B			

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Planned Configuration - 2035 Background, Weekday AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	4.01	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	2.68	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	115	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D35BAM	2035 Background	Weekday AM	PHF	08:00	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	283	100.000
	2 - Tenth Line (SB)		PHF	✓	238	100.000
	3 - County Road 32 (EB)		PHF	✓	260	100.000
	4 - County Road 32 (NB)		PHF	✓	285	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	570	100.000
	2 - Tenth Line (SB)		PHF	✓	140	100.000
	3 - Mountain Road (EB)		PHF	✓	624	100.000
	4 - Tenth Line (NB)		PHF	✓	319	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	283	0.89	SecondQuarter
	2 - Tenth Line (SB)	238	0.89	SecondQuarter
	3 - County Road 32 (EB)	260	0.89	SecondQuarter
	4 - County Road 32 (NB)	285	0.89	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	570	0.82	SecondQuarter
	2 - Tenth Line (SB)	140	0.82	SecondQuarter
	3 - Mountain Road (EB)	624	0.82	SecondQuarter
	4 - Tenth Line (NB)	319	0.82	SecondQuarter

Origin-Destination Data

1 - CR32 & 6th St/Tenth Line

Demand (Veh/hr)

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	53	190	40
	2 - Tenth Line (SB)	45	0	12	181
	3 - County Road 32 (EB)	184	21	0	55
	4 - County Road 32 (NB)	51	116	118	0

2 - Tenth Line & Mountain Road

Demand (Veh/hr)

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	46	434	90
	2 - Tenth Line (SB)	76	0	15	49
	3 - Mountain Road (EB)	504	18	0	102
	4 - Tenth Line (NB)	188	47	84	0

Vehicle Mix

1 - CR32 & 6th St/Tenth Line

Truck %s

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	3
	2 - Tenth Line (SB)	4	0	2	5
	3 - County Road 32 (EB)	2	13	0	4
	4 - County Road 32 (NB)	2	5	2	0

2 - Tenth Line & Mountain Road

Truck %s

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	5	4	4
	2 - Tenth Line (SB)	2	0	2	5
	3 - Mountain Road (EB)	2	2	0	3
	4 - Tenth Line (NB)	3	3	3	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.26	3.97	0.3	1.4	A	283	283
	2 - Tenth Line (SB)	0.23	4.13	0.3	1.3	A	238	238
	3 - County Road 32 (EB)	0.24	3.95	0.3	1.3	A	260	260
	4 - County Road 32 (NB)	0.26	4.01	0.4	1.5	A	285	285
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.26	1.81	0.3	1.2	A	570	570
	2 - Tenth Line (SB)	0.17	4.89	0.2	0.5	A	140	125
	3 - Mountain Road (EB)	0.28	1.87	0.4	1.4	A	624	624
	4 - Tenth Line (NB)	0.18	4.83	0.2	0.5	A	319	131

Planned Configuration - 2035 Background, Weekday PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	4.51	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	2.99	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	55	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D35BPM	2035 Background	Weekday PM	PHF	16:00	17:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	401	100.000
	2 - Tenth Line (SB)		PHF	✓	257	100.000
	3 - County Road 32 (EB)		PHF	✓	416	100.000
	4 - County Road 32 (NB)		PHF	✓	351	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	1020	100.000
	2 - Tenth Line (SB)		PHF	✓	173	100.000
	3 - Mountain Road (EB)		PHF	✓	776	100.000
	4 - Tenth Line (NB)		PHF	✓	358	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	401	0.96	SecondQuarter
	2 - Tenth Line (SB)	257	0.96	SecondQuarter
	3 - County Road 32 (EB)	416	0.96	SecondQuarter
	4 - County Road 32 (NB)	351	0.96	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	1020	0.95	SecondQuarter
	2 - Tenth Line (SB)	173	0.95	SecondQuarter
	3 - Mountain Road (EB)	776	0.95	SecondQuarter
	4 - Tenth Line (NB)	358	0.95	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	57	285	59
	2 - Tenth Line (SB)	67	0	35	155
	3 - County Road 32 (EB)	247	48	0	121
	4 - County Road 32 (NB)	53	208	90	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	98	716	206
	2 - Tenth Line (SB)	88	0	18	67
	3 - Mountain Road (EB)	663	15	0	98
	4 - Tenth Line (NB)	168	53	137	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	2
	2 - Tenth Line (SB)	2	0	2	2
	3 - County Road 32 (EB)	2	2	0	2
	4 - County Road 32 (NB)	2	4	2	0

Truck %s

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	2	2	2
	2 - Tenth Line (SB)	2	0	2	3
	3 - Mountain Road (EB)	2	2	0	3
	4 - Tenth Line (NB)	2	4	3	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.35	4.70	0.5	1.9	A	401	401
	2 - Tenth Line (SB)	0.24	4.16	0.3	1.4	A	257	257
	3 - County Road 32 (EB)	0.35	4.54	0.5	1.9	A	416	416
	4 - County Road 32 (NB)	0.31	4.51	0.5	1.9	A	351	351
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.40	2.20	0.7	1.5	A	1020	1020
	2 - Tenth Line (SB)	0.24	6.81	0.3	1.4	A	173	155
	3 - Mountain Road (EB)	0.32	2.04	0.5	1.9	A	776	776
	4 - Tenth Line (NB)	0.23	5.46	0.3	1.4	A	356	190

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	55	189	7	13	331
Future Volume (Veh/h)	8	55	189	7	13	331
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	60	205	8	14	360
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	593	205			213	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	593	205			213	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	93			99	
cM capacity (veh/h)	463	836			1357	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	69	205	8	374
Volume Left	9	0	0	14
Volume Right	60	0	8	0
cSH	756	1700	1700	1357
Volume to Capacity	0.09	0.12	0.00	0.01
Queue Length 95th (m)	2.3	0.0	0.0	0.2
Control Delay (s)	10.2	0.0	0.0	0.4
Lane LOS	B			A
Approach Delay (s)	10.2	0.0		0.4
Approach LOS	B			

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	34	376	5	41	312
Future Volume (Veh/h)	6	34	376	5	41	312
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	37	409	5	45	339
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	838	409			414	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	409			414	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			96	
cM capacity (veh/h)	323	642			1145	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	44	409	5	384
Volume Left	7	0	0	45
Volume Right	37	0	5	0
cSH	555	1700	1700	1145
Volume to Capacity	0.08	0.24	0.00	0.04
Queue Length 95th (m)	2.0	0.0	0.0	0.9
Control Delay (s)	12.0	0.0	0.0	1.3
Lane LOS	B			A
Approach Delay (s)	12.0	0.0		1.3
Approach LOS	B			

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

Planned Configuration - 2040 Background, Weekday AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	4.20	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	3.19	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	69	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D40BAM	2040 Background	Weekday AM	PHF	08:00	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	321	100.000
	2 - Tenth Line (SB)		PHF	✓	334	100.000
	3 - County Road 32 (EB)		PHF	✓	286	100.000
	4 - County Road 32 (NB)		PHF	✓	239	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	704	100.000
	2 - Tenth Line (SB)		PHF	✓	191	100.000
	3 - Mountain Road (EB)		PHF	✓	780	100.000
	4 - Tenth Line (NB)		PHF	✓	404	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	321	0.89	SecondQuarter
	2 - Tenth Line (SB)	334	0.89	SecondQuarter
	3 - County Road 32 (EB)	286	0.89	SecondQuarter
	4 - County Road 32 (NB)	239	0.89	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	704	0.82	SecondQuarter
	2 - Tenth Line (SB)	191	0.82	SecondQuarter
	3 - Mountain Road (EB)	780	0.82	SecondQuarter
	4 - Tenth Line (NB)	404	0.82	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	59	216	46
2 - Tenth Line (SB)	53	0	14	267
3 - County Road 32 (EB)	214	24	0	48
4 - County Road 32 (NB)	59	136	44	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	51	536	117
2 - Tenth Line (SB)	104	0	17	70
3 - Mountain Road (EB)	635	20	0	125
4 - Tenth Line (NB)	245	57	102	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	2	2	3
2 - Tenth Line (SB)	4	0	2	3
3 - County Road 32 (EB)	2	11	0	4
4 - County Road 32 (NB)	2	3	2	0

Truck %s

2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	4	3	3
2 - Tenth Line (SB)	2	0	2	2
3 - Mountain Road (EB)	2	2	0	2
4 - Tenth Line (NB)	2	3	2	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.29	4.00	0.4	1.4	A	321	321
	2 - Tenth Line (SB)	0.32	4.45	0.5	1.8	A	334	334
	3 - County Road 32 (EB)	0.28	4.39	0.4	1.3	A	286	286
	4 - County Road 32 (NB)	0.22	3.87	0.3	1.2	A	239	239
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.32	1.97	0.5	1.4	A	704	704
	2 - Tenth Line (SB)	0.26	6.10	0.4	1.3	A	191	174
	3 - Mountain Road (EB)	0.36	2.17	0.6	2.0	A	780	780
	4 - Tenth Line (NB)	0.24	5.92	0.3	1.2	A	403	159

Planned Configuration - 2040 Background, Weekday PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	4.88	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	3.97	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	22	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D40BPM	2040 Background	Weekday PM	PHF	16:00	17:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	466	100.000
	2 - Tenth Line (SB)		PHF	✓	310	100.000
	3 - County Road 32 (EB)		PHF	✓	411	100.000
	4 - County Road 32 (NB)		PHF	✓	382	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	1303	100.000
	2 - Tenth Line (SB)		PHF	✓	216	100.000
	3 - Mountain Road (EB)		PHF	✓	977	100.000
	4 - Tenth Line (NB)		PHF	✓	439	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	466	0.96	SecondQuarter
	2 - Tenth Line (SB)	310	0.96	SecondQuarter
	3 - County Road 32 (EB)	411	0.96	SecondQuarter
	4 - County Road 32 (NB)	382	0.96	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	1303	0.95	SecondQuarter
	2 - Tenth Line (SB)	216	0.95	SecondQuarter
	3 - Mountain Road (EB)	977	0.95	SecondQuarter
	4 - Tenth Line (NB)	439	0.95	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	69	331	66
	2 - Tenth Line (SB)	80	0	40	190
	3 - County Road 32 (EB)	276	63	0	72
	4 - County Road 32 (NB)	64	274	44	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	131	915	257
	2 - Tenth Line (SB)	110	0	20	86
	3 - Mountain Road (EB)	837	11	0	129
	4 - Tenth Line (NB)	201	65	173	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	2
	2 - Tenth Line (SB)	2	0	2	2
	3 - County Road 32 (EB)	2	2	0	2
	4 - County Road 32 (NB)	2	3	2	0

Truck %s

2 - Tenth Line & Mountain Road

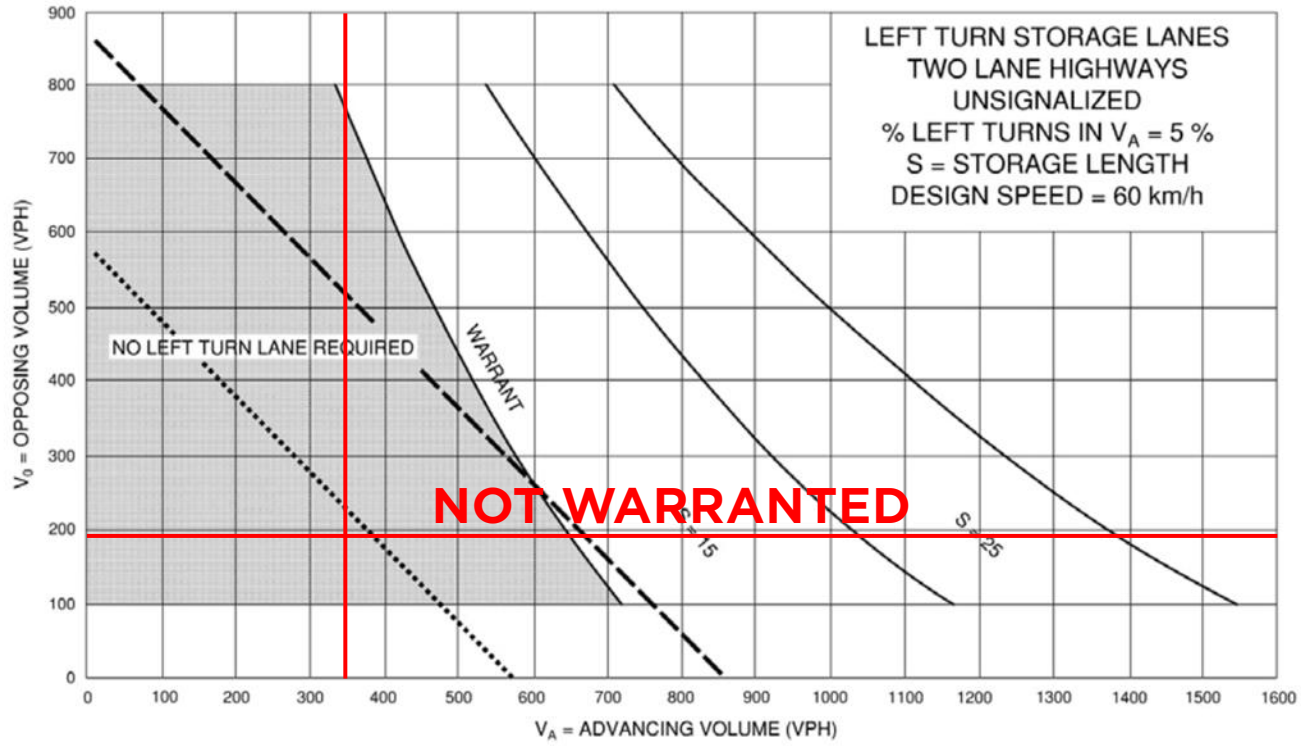
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	2	2	2
	2 - Tenth Line (SB)	2	0	2	3
	3 - Mountain Road (EB)	2	2	0	3
	4 - Tenth Line (NB)	2	4	3	0

Results

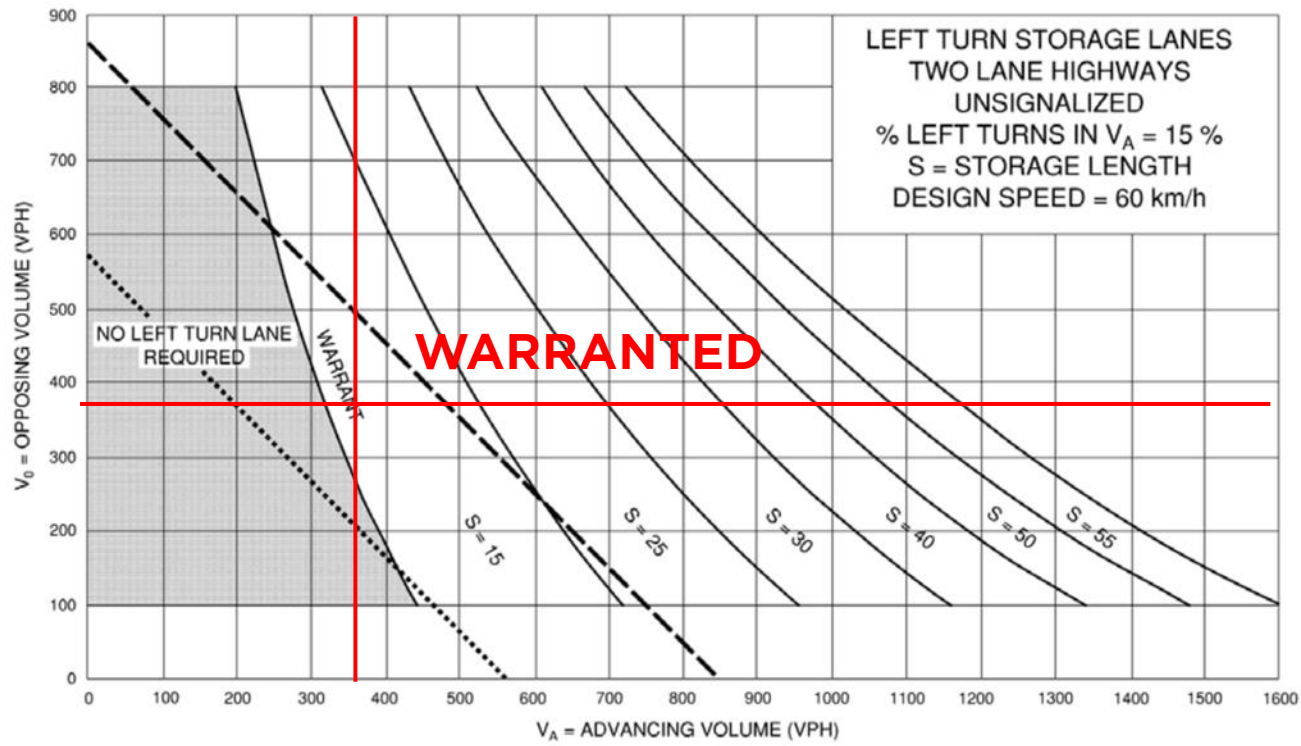
Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.42	5.31	0.7	1.5	A	466	466
	2 - Tenth Line (SB)	0.29	4.47	0.4	1.7	A	310	310
	3 - County Road 32 (EB)	0.36	4.71	0.6	1.9	A	411	411
	4 - County Road 32 (NB)	0.35	4.89	0.5	2.0	A	382	382
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.51	2.77	1.1	1.7	A	1303	1303
	2 - Tenth Line (SB)	0.39	11.34	0.6	2.1	B	216	196
	3 - Mountain Road (EB)	0.41	2.45	0.7	1.5	A	977	977
	4 - Tenth Line (NB)	0.33	7.22	0.5	2.0	A	437	238

Appendix F:
Left Turn Lane Nomographs



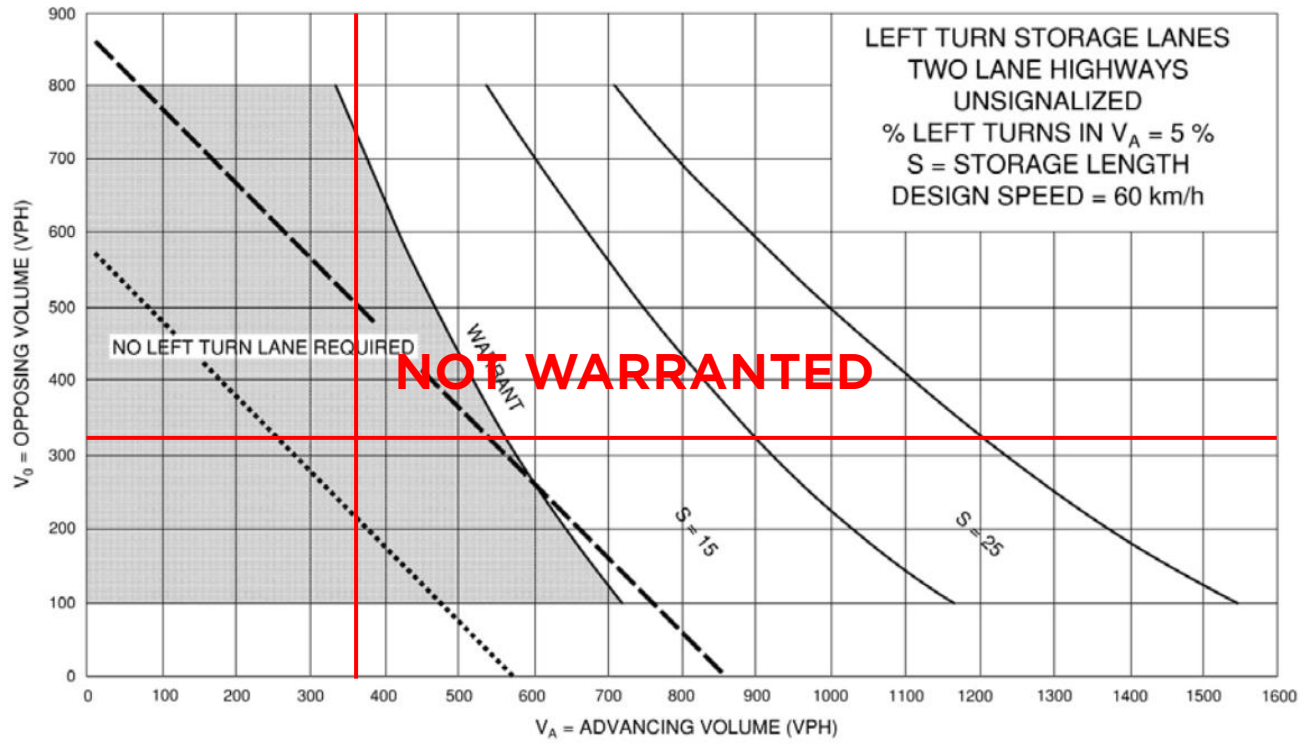
AM PEAK HOUR



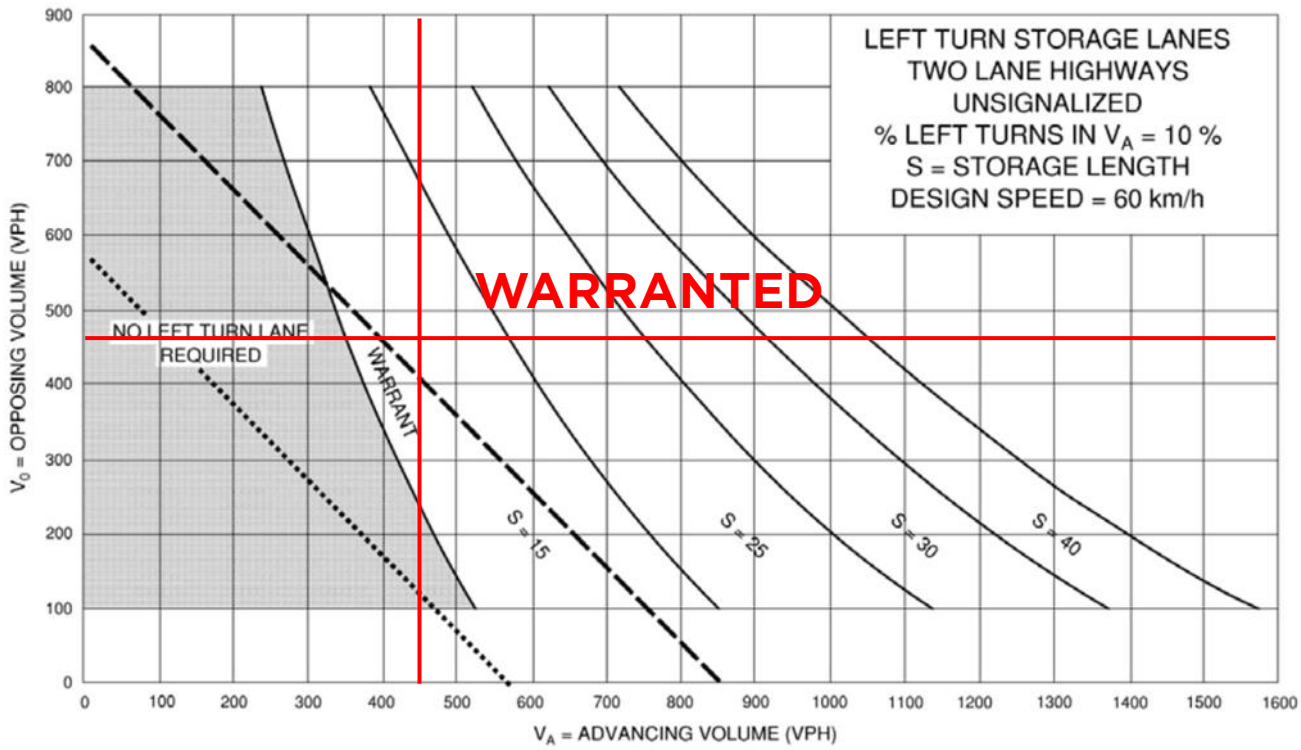
PM PEAK HOUR

LINKSVIEW SUBDIVISION – LEFT TURN LANE NOMOGRAPHS

2040 Southbound Background Traffic



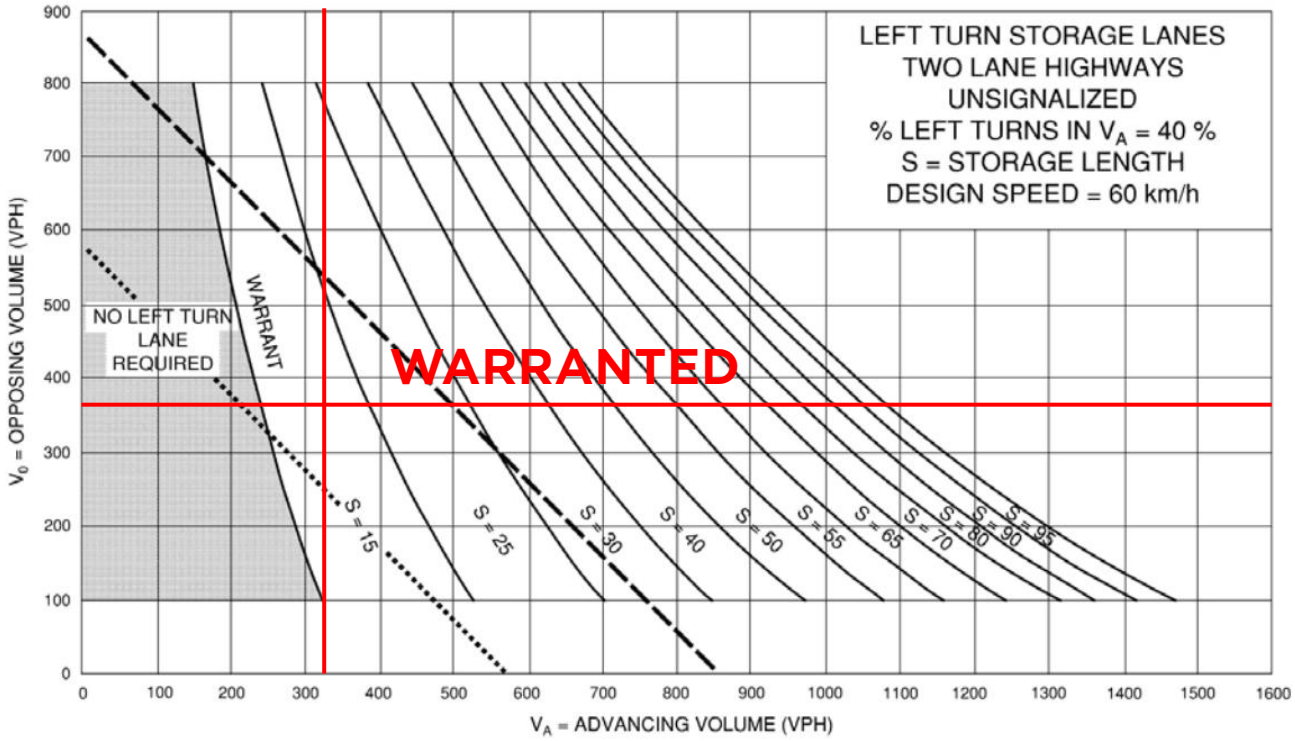
AM PEAK HOUR



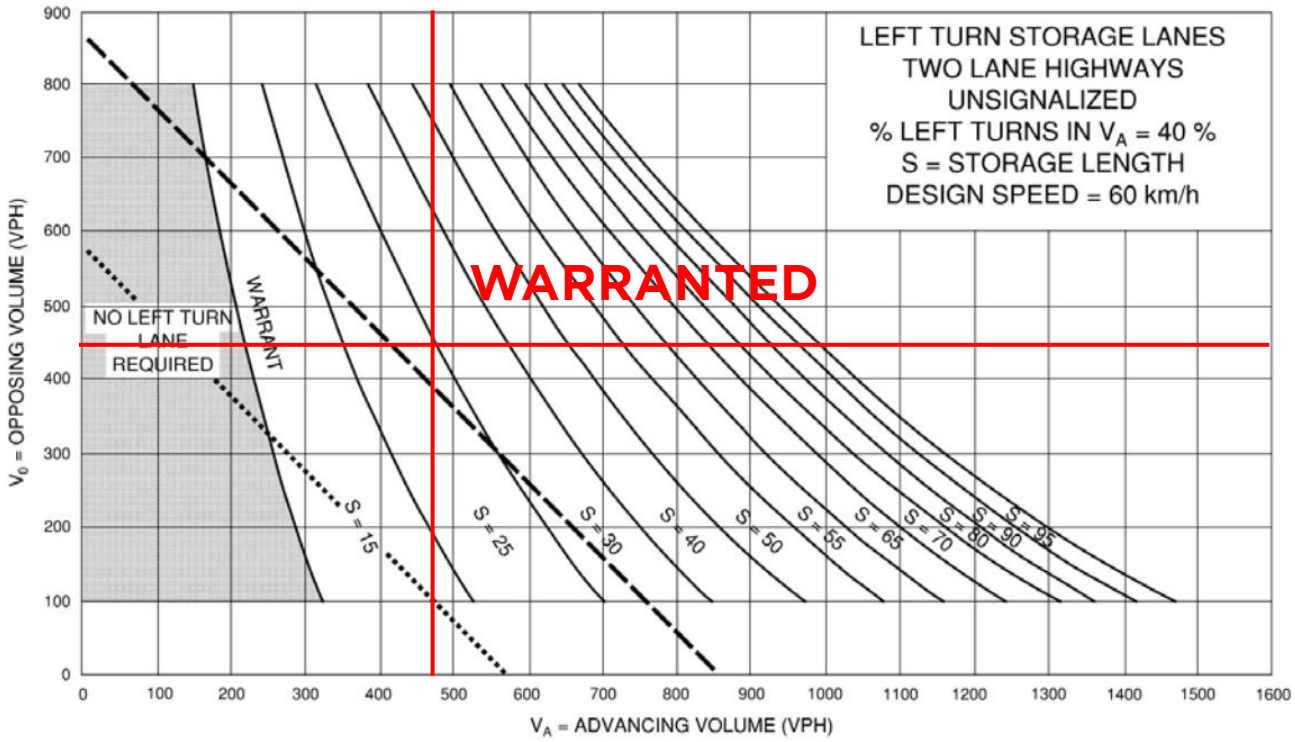
PM PEAK HOUR

LINKSVIEW SUBDIVISION – LEFT TURN LANE NOMOGRAPHS

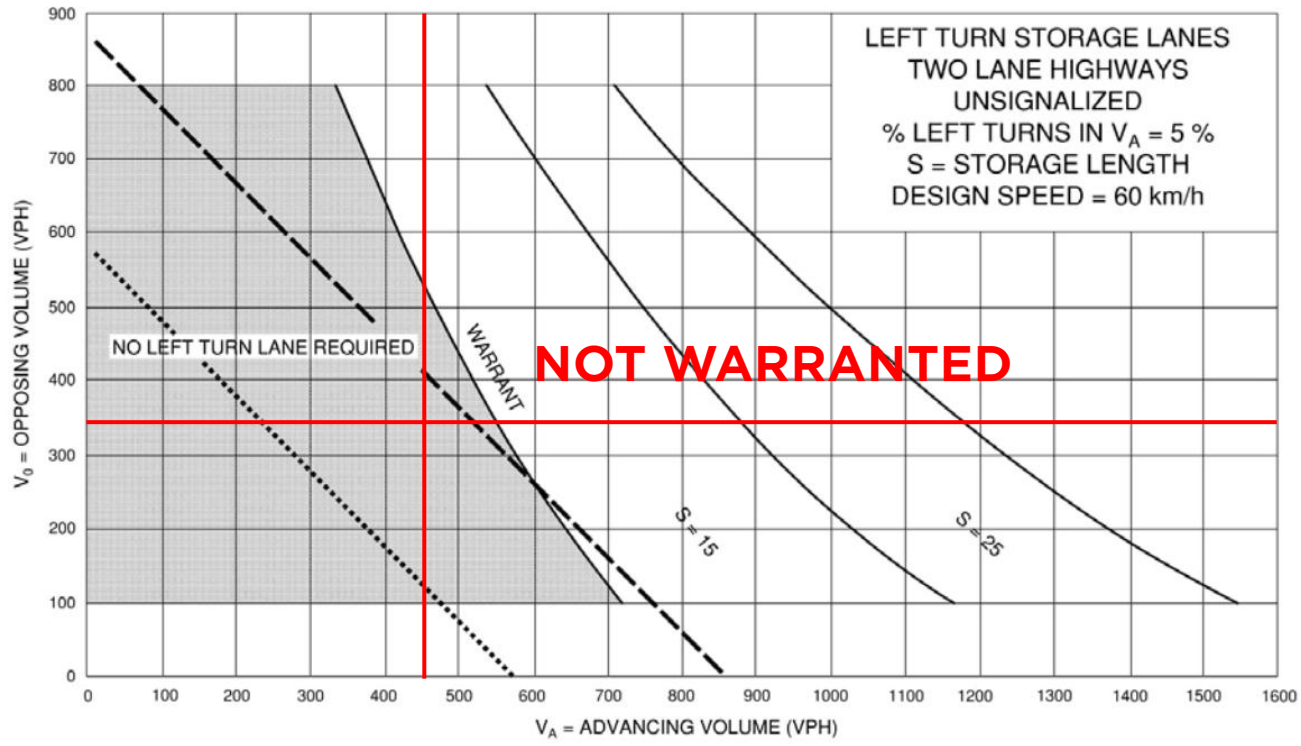
2035 Southbound Total Traffic



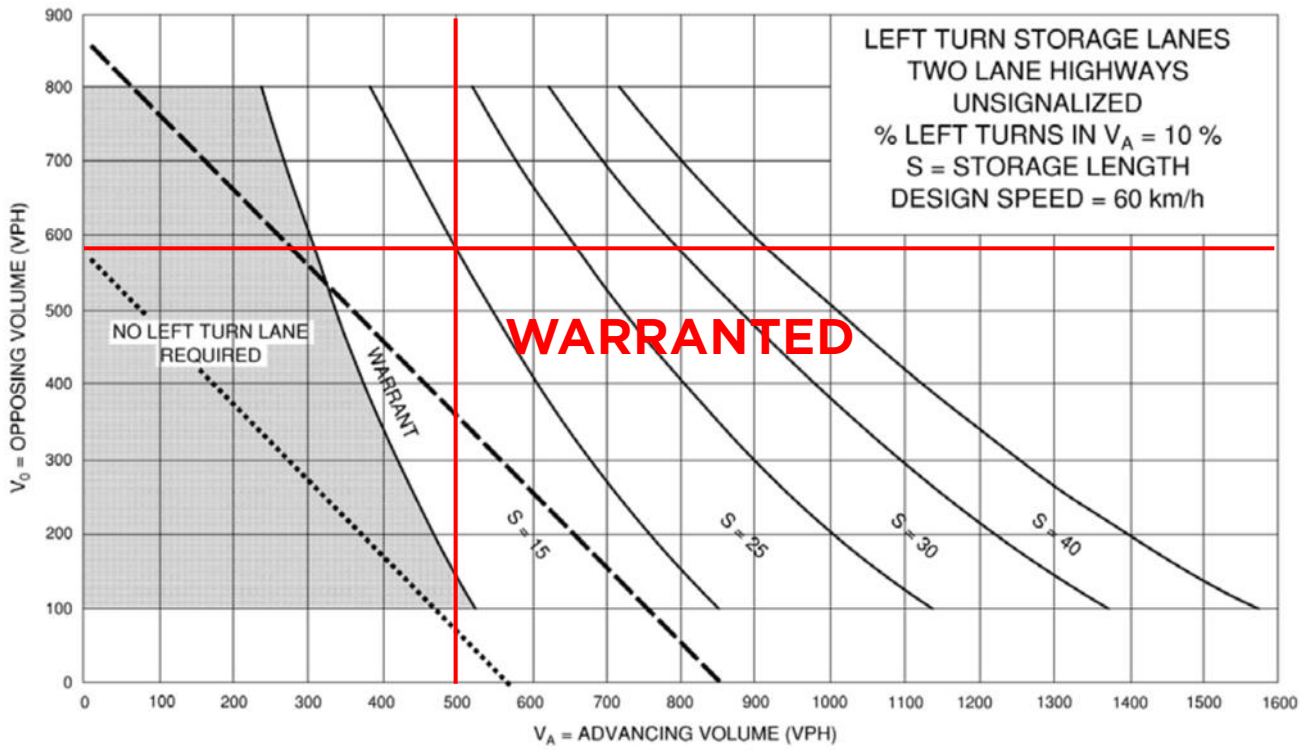
AM PEAK HOUR



PM PEAK HOUR



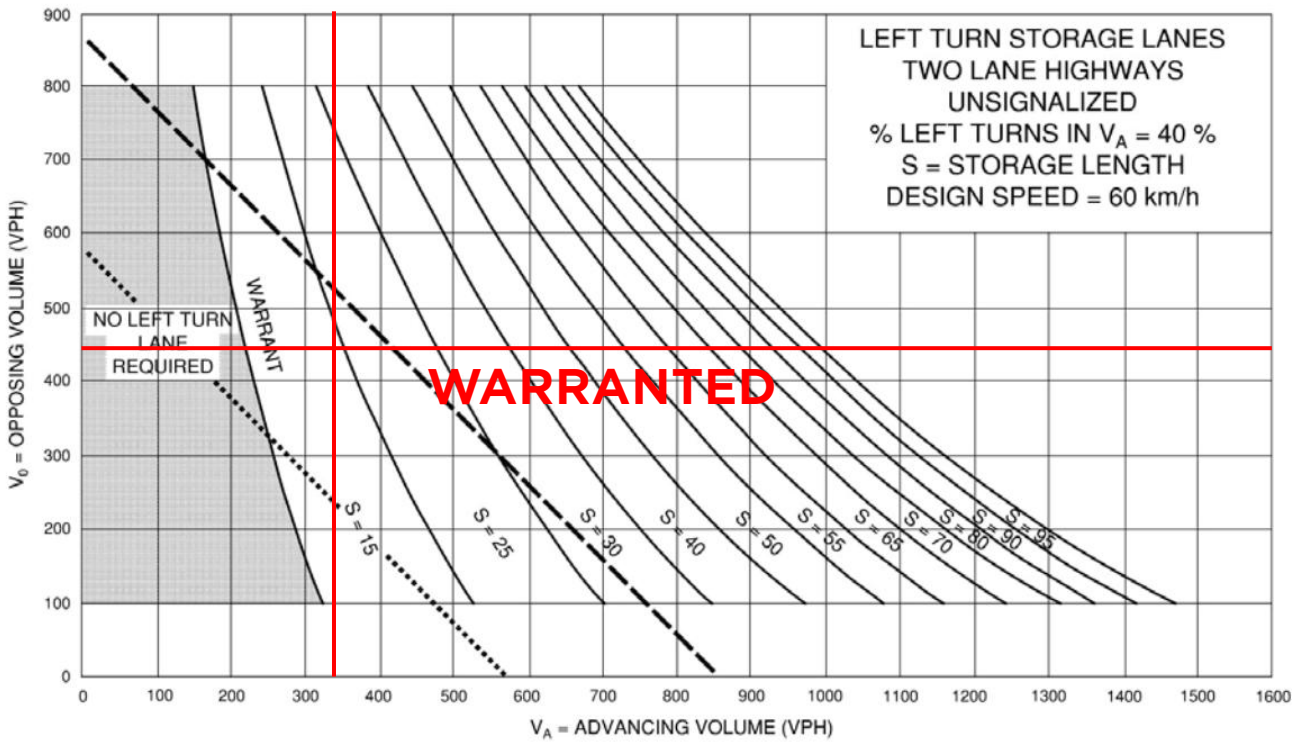
AM PEAK HOUR



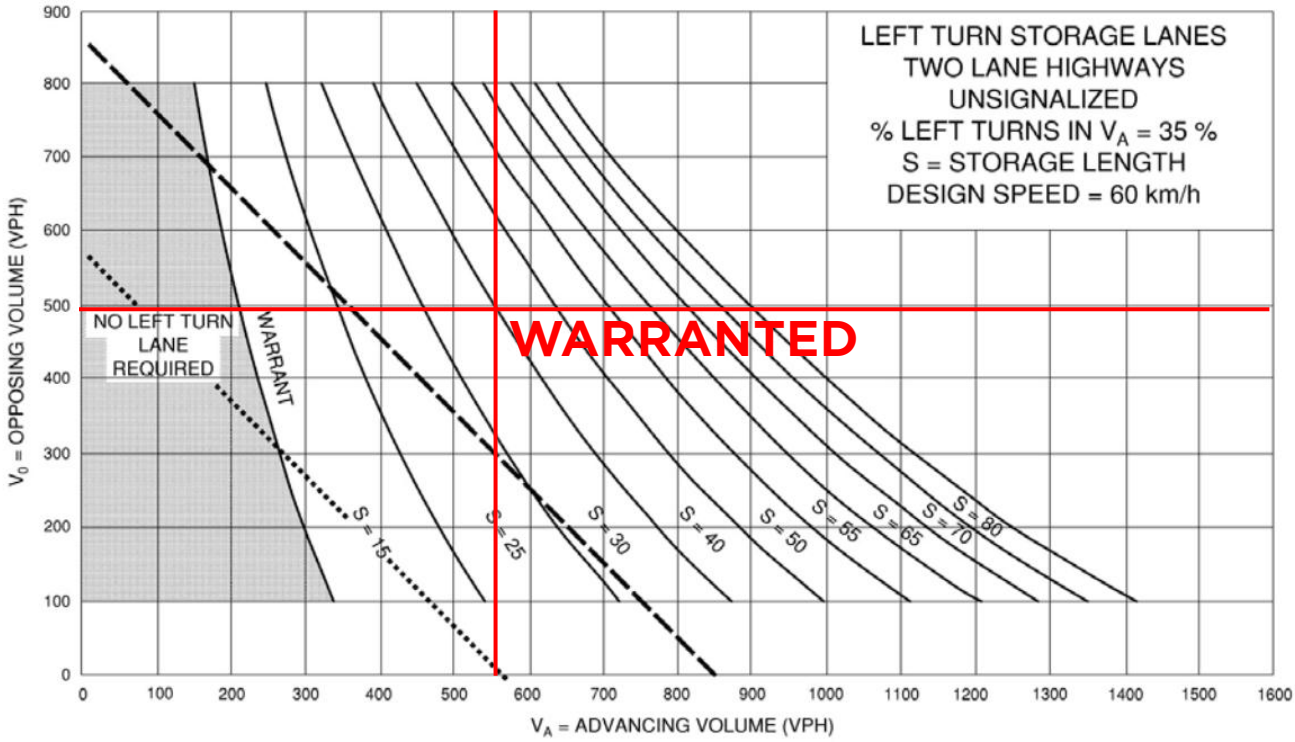
PM PEAK HOUR

LINKSVIEW SUBDIVISION – LEFT TURN LANE NOMOGRAPHS

2040 Southbound Total Traffic



AM PEAK HOUR

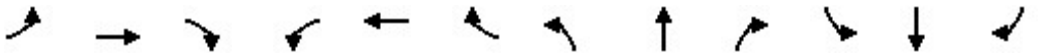


PM PEAK HOUR

LINKSVIEW SUBDIVISION – LEFT TURN LANE NOMOGRAPHS

2040 Northbound Total Traffic

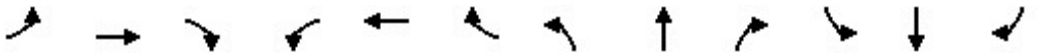
Appendix G:
Total Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	0	74	8	0	55	24	143	7	13	119	20
Future Volume (Veh/h)	61	0	74	8	0	55	24	143	7	13	119	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	66	0	80	9	0	60	26	155	8	14	129	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	424	372	129	444	386	155	151			163		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	424	372	129	444	386	155	151			163		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	91	98	100	93	98			99		
cM capacity (veh/h)	493	543	921	468	533	891	1430			1416		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	146	69	181	8	143	22
Volume Left	66	9	26	0	14	0
Volume Right	80	60	0	8	0	22
cSH	662	797	1430	1700	1416	1700
Volume to Capacity	0.22	0.09	0.02	0.00	0.01	0.01
Queue Length 95th (m)	6.4	2.2	0.4	0.0	0.2	0.0
Control Delay (s)	12.0	9.9	1.2	0.0	0.8	0.0
Lane LOS	B	A	A		A	
Approach Delay (s)	12.0	9.9	1.2		0.7	
Approach LOS	B	A				

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	38.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	0	48	6	0	34	79	185	5	41	188	64
Future Volume (Veh/h)	39	0	48	6	0	34	79	185	5	41	188	64
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	0	52	7	0	37	86	201	5	45	204	70
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	704	672	204	719	737	201	274			206		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	704	672	204	719	737	201	274			206		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	94	98	100	96	93			97		
cM capacity (veh/h)	311	340	837	298	312	840	1289			1365		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	94	44	287	5	249	70
Volume Left	42	7	86	0	45	0
Volume Right	52	37	0	5	0	70
cSH	477	652	1289	1700	1365	1700
Volume to Capacity	0.20	0.07	0.07	0.00	0.03	0.04
Queue Length 95th (m)	5.5	1.6	1.6	0.0	0.8	0.0
Control Delay (s)	14.4	10.9	2.8	0.0	1.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	14.4	10.9	2.8		1.3	
Approach LOS	B	B				

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	48.0%	ICU Level of Service		A
Analysis Period (min)	15			

Planned Configuration - 2030 Total, Weekday AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	3.77	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	2.31	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	204	1 - CR32 & 6th St/Tenth Line - 4 - County Road 32 (NB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D30TAM	2030 Total	Weekday AM	PHF	08:00	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	251	100.000
	2 - Tenth Line (SB)		PHF	✓	197	100.000
	3 - County Road 32 (EB)		PHF	✓	215	100.000
	4 - County Road 32 (NB)		PHF	✓	248	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	408	100.000
	2 - Tenth Line (SB)		PHF	✓	77	100.000
	3 - Mountain Road (EB)		PHF	✓	420	100.000
	4 - Tenth Line (NB)		PHF	✓	267	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	251	0.89	SecondQuarter
	2 - Tenth Line (SB)	197	0.89	SecondQuarter
	3 - County Road 32 (EB)	215	0.89	SecondQuarter
	4 - County Road 32 (NB)	248	0.89	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	408	0.82	SecondQuarter
	2 - Tenth Line (SB)	77	0.82	SecondQuarter
	3 - Mountain Road (EB)	420	0.82	SecondQuarter
	4 - Tenth Line (NB)	267	0.82	SecondQuarter

Origin-Destination Data

1 - CR32 & 6th St/Tenth Line

Demand (Veh/hr)

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	59	158	34
	2 - Tenth Line (SB)	75	0	16	106
	3 - County Road 32 (EB)	145	20	0	50
	4 - County Road 32 (NB)	41	100	107	0

2 - Tenth Line & Mountain Road

Demand (Veh/hr)

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	41	297	70
	2 - Tenth Line (SB)	40	0	14	23
	3 - Mountain Road (EB)	329	17	0	74
	4 - Tenth Line (NB)	160	34	73	0

Vehicle Mix

1 - CR32 & 6th St/Tenth Line

Truck %s

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	3
	2 - Tenth Line (SB)	4	0	2	10
	3 - County Road 32 (EB)	2	15	0	4
	4 - County Road 32 (NB)	2	5	2	0

2 - Tenth Line & Mountain Road

Truck %s

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	5	5	5
	2 - Tenth Line (SB)	2	0	2	10
	3 - Mountain Road (EB)	2	2	0	4
	4 - Tenth Line (NB)	3	3	4	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.23	3.74	0.3	1.2	A	251	251
	2 - Tenth Line (SB)	0.19	3.90	0.2	0.7	A	197	197
	3 - County Road 32 (EB)	0.20	3.64	0.2	0.8	A	215	215
	4 - County Road 32 (NB)	0.23	3.81	0.3	1.2	A	248	248
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.19	1.64	0.2	0.5	A	408	408
	2 - Tenth Line (SB)	0.08	3.96	0.1	0.5	A	77	63
	3 - Mountain Road (EB)	0.19	1.60	0.2	0.5	A	420	420
	4 - Tenth Line (NB)	0.13	3.95	0.1	0.5	A	266	107

Planned Configuration - 2030 Total, Weekday PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	4.08	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	2.40	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	126	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D30TPM	2030 Total	Weekday PM	PHF	16:00	17:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	362	100.000
	2 - Tenth Line (SB)		PHF	✓	237	100.000
	3 - County Road 32 (EB)		PHF	✓	362	100.000
	4 - County Road 32 (NB)		PHF	✓	269	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	692	100.000
	2 - Tenth Line (SB)		PHF	✓	117	100.000
	3 - Mountain Road (EB)		PHF	✓	513	100.000
	4 - Tenth Line (NB)		PHF	✓	291	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	362	0.96	SecondQuarter
	2 - Tenth Line (SB)	237	0.96	SecondQuarter
	3 - County Road 32 (EB)	362	0.96	SecondQuarter
	4 - County Road 32 (NB)	269	0.96	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	692	0.95	SecondQuarter
	2 - Tenth Line (SB)	117	0.95	SecondQuarter
	3 - Mountain Road (EB)	513	0.95	SecondQuarter
	4 - Tenth Line (NB)	291	0.95	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	85	226	51
2 - Tenth Line (SB)	77	0	34	126
3 - County Road 32 (EB)	216	37	0	109
4 - County Road 32 (NB)	38	149	82	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	55	450	187
2 - Tenth Line (SB)	59	0	17	41
3 - Mountain Road (EB)	429	13	0	71
4 - Tenth Line (NB)	155	38	98	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	2	2	2
2 - Tenth Line (SB)	2	0	2	2
3 - County Road 32 (EB)	2	2	0	2
4 - County Road 32 (NB)	2	5	2	0

Truck %s

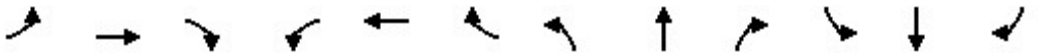
2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	3	2	2
2 - Tenth Line (SB)	2	0	2	4
3 - Mountain Road (EB)	2	2	0	3
4 - Tenth Line (NB)	2	4	4	0

Results

Results Summary for whole modelled period

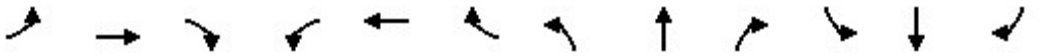
Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.31	4.21	0.4	1.9	A	362	362
	2 - Tenth Line (SB)	0.21	3.86	0.3	1.2	A	237	237
	3 - County Road 32 (EB)	0.30	4.15	0.4	1.8	A	362	362
	4 - County Road 32 (NB)	0.24	4.01	0.3	1.4	A	269	269
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.26	1.77	0.4	1.4	A	692	692
	2 - Tenth Line (SB)	0.12	4.65	0.1	0.5	A	117	100
	3 - Mountain Road (EB)	0.20	1.71	0.3	0.5	A	513	513
	4 - Tenth Line (NB)	0.14	4.17	0.2	0.5	A	288	136



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	17	233	8	20	55	149	167	7	13	237	120
Future Volume (Veh/h)	189	17	233	8	20	55	149	167	7	13	237	120
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	205	18	253	9	22	60	162	182	8	14	258	130
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	863	800	258	1054	922	182	388			190		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	863	800	258	1054	922	182	388			190		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	3	93	68	92	90	93	86			99		
cM capacity (veh/h)	211	271	781	116	230	861	1170			1384		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	476	91	344	8	272	130
Volume Left	205	9	162	0	14	0
Volume Right	253	60	0	8	0	130
cSH	349	375	1170	1700	1384	1700
Volume to Capacity	1.36	0.24	0.14	0.00	0.01	0.08
Queue Length 95th (m)	178.4	7.1	3.6	0.0	0.2	0.0
Control Delay (s)	211.3	17.6	4.7	0.0	0.5	0.0
Lane LOS	F	C	A		A	
Approach Delay (s)	211.3	17.6	4.6		0.3	
Approach LOS	F	C				

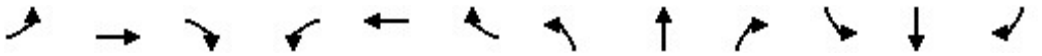
Intersection Summary				
Average Delay	78.7			
Intersection Capacity Utilization	72.5%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	4	118	6	4	34	176	294	5	41	259	144
Future Volume (Veh/h)	96	4	118	6	4	34	176	294	5	41	259	144
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	104	4	128	7	4	37	191	320	5	45	282	157
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1113	1079	282	1204	1231	320	439			325		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1113	1079	282	1204	1231	320	439			325		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	29	98	83	94	97	95	83			96		
cM capacity (veh/h)	146	175	757	111	142	721	1121			1235		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	236	48	511	5	327	157
Volume Left	104	7	191	0	45	0
Volume Right	128	37	0	5	0	157
cSH	261	337	1121	1700	1235	1700
Volume to Capacity	0.90	0.14	0.17	0.00	0.04	0.09
Queue Length 95th (m)	60.7	3.7	4.7	0.0	0.9	0.0
Control Delay (s)	75.3	17.5	4.5	0.0	1.4	0.0
Lane LOS	F	C	A		A	
Approach Delay (s)	75.3	17.5	4.4		1.0	
Approach LOS	F	C				

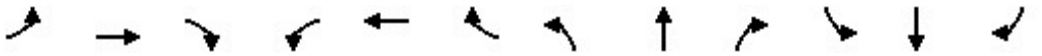
Intersection Summary				
Average Delay	16.6			
Intersection Capacity Utilization	70.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	17	233	8	20	55	149	167	7	13	237	120
Future Volume (vph)	189	17	233	8	20	55	149	167	7	13	237	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1620		1789	1677		1789	1883	1601	1789	1883	1601
Flt Permitted	0.70	1.00		0.55	1.00		0.42	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	1325	1620		1039	1677		799	1883	1601	1210	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	18	253	9	22	60	162	182	8	14	258	130
RTOR Reduction (vph)	0	180	0	0	43	0	0	0	4	0	0	91
Lane Group Flow (vph)	205	91	0	9	39	0	162	182	4	14	258	39
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	12.1	12.1		12.1	12.1		21.1	21.1	21.1	12.5	12.5	12.5
Effective Green, g (s)	12.1	12.1		12.1	12.1		21.1	21.1	21.1	12.5	12.5	12.5
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.50	0.50	0.50	0.30	0.30	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	379	464		297	480		495	941	800	358	557	474
v/s Ratio Prot		0.06			0.02		c0.03	0.10			c0.14	
v/s Ratio Perm	c0.15			0.01			0.13		0.00	0.01		0.02
v/c Ratio	0.54	0.20		0.03	0.08		0.33	0.19	0.01	0.04	0.46	0.08
Uniform Delay, d1	12.7	11.4		10.8	11.0		6.1	5.8	5.3	10.6	12.1	10.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	0.2		0.0	0.1		0.4	0.1	0.0	0.0	0.6	0.1
Delay (s)	14.3	11.6		10.9	11.1		6.5	5.9	5.3	10.6	12.7	10.8
Level of Service	B	B		B	B		A	A	A	B	B	B
Approach Delay (s)		12.7			11.0			6.2			12.0	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	4	118	6	4	34	176	294	5	41	259	144
Future Volume (vph)	96	4	118	6	4	34	176	294	5	41	259	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1609		1789	1628		1789	1883	1601	1789	1883	1601
Flt Permitted	0.73	1.00		0.67	1.00		0.46	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	1376	1609		1267	1628		861	1883	1601	1067	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	4	128	7	4	37	191	320	5	45	282	157
RTOR Reduction (vph)	0	106	0	0	31	0	0	0	2	0	0	95
Lane Group Flow (vph)	104	26	0	7	10	0	191	320	3	45	282	62
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	7.1	7.1		7.1	7.1		24.9	24.9	24.9	16.3	16.3	16.3
Effective Green, g (s)	7.1	7.1		7.1	7.1		24.9	24.9	24.9	16.3	16.3	16.3
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.61	0.61	0.61	0.40	0.40	0.40
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	238	278		219	281		615	1143	972	424	748	636
v/s Ratio Prot		0.02			0.01		0.03	c0.17			c0.15	
v/s Ratio Perm	c0.08			0.01			0.16		0.00	0.04		0.04
v/c Ratio	0.44	0.09		0.03	0.04		0.31	0.28	0.00	0.11	0.38	0.10
Uniform Delay, d1	15.2	14.2		14.1	14.1		3.8	3.8	3.2	7.8	8.8	7.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1		0.1	0.1		0.3	0.1	0.0	0.1	0.3	0.1
Delay (s)	16.4	14.4		14.2	14.2		4.1	3.9	3.2	7.9	9.1	7.8
Level of Service	B	B		B	B		A	A	A	A	A	A
Approach Delay (s)		15.3			14.2			4.0			8.6	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Planned Configuration - 2035 Total, Weekday AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	5.05	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	3.04	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	77	1 - CR32 & 6th St/Tenth Line - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D35TAM	2035 Total	Weekday AM	PHF	08:00	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	380	100.000
	2 - Tenth Line (SB)		PHF	✓	460	100.000
	3 - County Road 32 (EB)		PHF	✓	274	100.000
	4 - County Road 32 (NB)		PHF	✓	311	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	663	100.000
	2 - Tenth Line (SB)		PHF	✓	140	100.000
	3 - Mountain Road (EB)		PHF	✓	641	100.000
	4 - Tenth Line (NB)		PHF	✓	500	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	380	0.89	SecondQuarter
	2 - Tenth Line (SB)	460	0.89	SecondQuarter
	3 - County Road 32 (EB)	274	0.89	SecondQuarter
	4 - County Road 32 (NB)	311	0.89	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	663	0.82	SecondQuarter
	2 - Tenth Line (SB)	140	0.82	SecondQuarter
	3 - Mountain Road (EB)	641	0.82	SecondQuarter
	4 - Tenth Line (NB)	500	0.82	SecondQuarter

Origin-Destination Data

1 - CR32 & 6th St/Tenth Line

Demand (Veh/hr)

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	150	190	40
	2 - Tenth Line (SB)	185	0	33	242
	3 - County Road 32 (EB)	184	35	0	55
	4 - County Road 32 (NB)	51	142	118	0

2 - Tenth Line & Mountain Road

Demand (Veh/hr)

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	46	434	183
	2 - Tenth Line (SB)	76	0	15	49
	3 - Mountain Road (EB)	504	18	0	119
	4 - Tenth Line (NB)	335	47	118	0

Vehicle Mix

1 - CR32 & 6th St/Tenth Line

Truck %s

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	3
	2 - Tenth Line (SB)	4	0	2	5
	3 - County Road 32 (EB)	2	13	0	4
	4 - County Road 32 (NB)	2	5	2	0

2 - Tenth Line & Mountain Road

Truck %s

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	5	4	4
	2 - Tenth Line (SB)	2	0	2	5
	3 - Mountain Road (EB)	2	2	0	3
	4 - Tenth Line (NB)	3	3	3	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.36	4.67	0.6	2.1	A	380	380
	2 - Tenth Line (SB)	0.45	5.74	0.8	1.5	A	460	460
	3 - County Road 32 (EB)	0.29	4.76	0.4	1.4	A	274	274
	4 - County Road 32 (NB)	0.31	4.72	0.5	1.8	A	311	311
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.31	1.96	0.4	1.5	A	663	663
	2 - Tenth Line (SB)	0.19	5.55	0.2	0.5	A	140	125
	3 - Mountain Road (EB)	0.30	2.00	0.4	1.5	A	641	641
	4 - Tenth Line (NB)	0.22	5.11	0.3	1.0	A	500	165

Planned Configuration - 2035 Total, Weekday PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	5.28	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	3.29	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	41	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D35TPM	2035 Total	Weekday PM	PHF	16:00	17:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	500	100.000
	2 - Tenth Line (SB)		PHF	✓	372	100.000
	3 - County Road 32 (EB)		PHF	✓	432	100.000
	4 - County Road 32 (NB)		PHF	✓	409	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	1131	100.000
	2 - Tenth Line (SB)		PHF	✓	173	100.000
	3 - Mountain Road (EB)		PHF	✓	806	100.000
	4 - Tenth Line (NB)		PHF	✓	452	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	500	0.96	SecondQuarter
	2 - Tenth Line (SB)	372	0.96	SecondQuarter
	3 - County Road 32 (EB)	432	0.96	SecondQuarter
	4 - County Road 32 (NB)	409	0.96	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	1131	0.95	SecondQuarter
	2 - Tenth Line (SB)	173	0.95	SecondQuarter
	3 - Mountain Road (EB)	806	0.95	SecondQuarter
	4 - Tenth Line (NB)	452	0.95	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	156	285	59
2 - Tenth Line (SB)	134	0	46	192
3 - County Road 32 (EB)	247	64	0	121
4 - County Road 32 (NB)	53	266	90	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	98	716	317
2 - Tenth Line (SB)	88	0	18	67
3 - Mountain Road (EB)	663	15	0	128
4 - Tenth Line (NB)	242	53	157	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	2	2	2
2 - Tenth Line (SB)	2	0	2	2
3 - County Road 32 (EB)	2	2	0	2
4 - County Road 32 (NB)	2	4	2	0

Truck %s

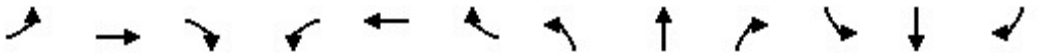
2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	2	2	2
2 - Tenth Line (SB)	2	0	2	3
3 - Mountain Road (EB)	2	2	0	3
4 - Tenth Line (NB)	2	4	3	0

Results

Results Summary for whole modelled period

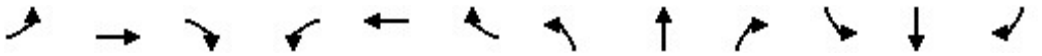
Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.46	5.83	0.8	1.4	A	500	500
	2 - Tenth Line (SB)	0.34	4.83	0.5	2.0	A	372	372
	3 - County Road 32 (EB)	0.39	5.05	0.6	1.6	A	432	432
	4 - County Road 32 (NB)	0.38	5.25	0.6	1.7	A	409	409
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.44	2.40	0.8	1.5	A	1131	1131
	2 - Tenth Line (SB)	0.27	7.97	0.4	1.3	A	173	155
	3 - Mountain Road (EB)	0.34	2.21	0.5	2.1	A	806	806
	4 - Tenth Line (NB)	0.26	5.63	0.3	1.1	A	449	210



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	17	233	8	20	55	149	189	7	13	331	120
Future Volume (vph)	189	17	233	8	20	55	149	189	7	13	331	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1620		1789	1677		1789	1883	1601	1789	1883	1601
Flt Permitted	0.70	1.00		0.54	1.00		0.34	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	1325	1620		1012	1677		632	1883	1601	1185	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	18	253	9	22	60	162	205	8	14	360	130
RTOR Reduction (vph)	0	182	0	0	43	0	0	0	4	0	0	86
Lane Group Flow (vph)	205	89	0	9	39	0	162	205	4	14	360	44
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	12.4	12.4		12.4	12.4		22.9	22.9	22.9	14.7	14.7	14.7
Effective Green, g (s)	12.4	12.4		12.4	12.4		22.9	22.9	22.9	14.7	14.7	14.7
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.52	0.52	0.52	0.33	0.33	0.33
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	370	453		283	469		423	973	827	393	624	531
v/s Ratio Prot		0.05			0.02		c0.03	0.11			c0.19	
v/s Ratio Perm	c0.15			0.01			0.17		0.00	0.01		0.03
v/c Ratio	0.55	0.20		0.03	0.08		0.38	0.21	0.01	0.04	0.58	0.08
Uniform Delay, d1	13.6	12.2		11.6	11.8		6.4	5.8	5.2	10.0	12.2	10.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.2		0.0	0.1		0.6	0.1	0.0	0.0	1.3	0.1
Delay (s)	15.4	12.4		11.6	11.8		7.0	5.9	5.2	10.0	13.5	10.2
Level of Service	B	B		B	B		A	A	A	B	B	B
Approach Delay (s)		13.7			11.8			6.4			12.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	4	118	6	4	34	176	376	5	41	312	144
Future Volume (vph)	96	4	118	6	4	34	176	376	5	41	312	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	1609		1789	1628		1789	1883	1601	1789	1883	1601
Flt Permitted	0.73	1.00		0.67	1.00		0.41	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1376	1609		1267	1628		779	1883	1601	983	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	4	128	7	4	37	191	409	5	45	339	157
RTOR Reduction (vph)	0	107	0	0	31	0	0	0	2	0	0	91
Lane Group Flow (vph)	104	25	0	7	10	0	191	409	3	45	339	66
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	7.1	7.1		7.1	7.1		26.4	26.4	26.4	17.8	17.8	17.8
Effective Green, g (s)	7.1	7.1		7.1	7.1		26.4	26.4	26.4	17.8	17.8	17.8
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.62	0.62	0.62	0.42	0.42	0.42
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	229	268		211	271		581	1169	994	411	788	670
v/s Ratio Prot		0.02			0.01		0.03	c0.22			c0.18	
v/s Ratio Perm	c0.08			0.01			0.17		0.00	0.05		0.04
v/c Ratio	0.45	0.09		0.03	0.04		0.33	0.35	0.00	0.11	0.43	0.10
Uniform Delay, d1	16.0	15.0		14.8	14.8		3.9	3.9	3.1	7.5	8.8	7.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.2		0.1	0.1		0.3	0.2	0.0	0.1	0.4	0.1
Delay (s)	17.4	15.1		14.9	14.9		4.2	4.1	3.1	7.6	9.1	7.5
Level of Service	B	B		B	B		A	A	A	A	A	A
Approach Delay (s)		16.1			14.9			4.1			8.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Planned Configuration - 2040 Total, Weekday AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	5.44	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	3.65	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	51	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D40TAM	2040 Total	Weekday AM	PHF	08:00	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	418	100.000
	2 - Tenth Line (SB)		PHF	✓	556	100.000
	3 - County Road 32 (EB)		PHF	✓	300	100.000
	4 - County Road 32 (NB)		PHF	✓	265	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	796	100.000
	2 - Tenth Line (SB)		PHF	✓	191	100.000
	3 - Mountain Road (EB)		PHF	✓	798	100.000
	4 - Tenth Line (NB)		PHF	✓	584	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	418	0.89	SecondQuarter
	2 - Tenth Line (SB)	556	0.89	SecondQuarter
	3 - County Road 32 (EB)	300	0.89	SecondQuarter
	4 - County Road 32 (NB)	265	0.89	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	796	0.82	SecondQuarter
	2 - Tenth Line (SB)	191	0.82	SecondQuarter
	3 - Mountain Road (EB)	798	0.82	SecondQuarter
	4 - Tenth Line (NB)	584	0.82	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	156	216	46
	2 - Tenth Line (SB)	193	0	35	328
	3 - County Road 32 (EB)	214	38	0	48
	4 - County Road 32 (NB)	59	162	44	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	51	536	209
	2 - Tenth Line (SB)	104	0	17	70
	3 - Mountain Road (EB)	635	20	0	143
	4 - Tenth Line (NB)	391	57	136	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

		To			
		1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
From	1 - Sixth Street (WB)	0	2	2	3
	2 - Tenth Line (SB)	4	0	2	3
	3 - County Road 32 (EB)	2	11	0	4
	4 - County Road 32 (NB)	2	3	2	0

Truck %s

2 - Tenth Line & Mountain Road

		To			
		1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
From	1 - Mountain Road (WB)	0	4	3	3
	2 - Tenth Line (SB)	2	0	2	2
	3 - Mountain Road (EB)	2	2	0	2
	4 - Tenth Line (NB)	2	3	2	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.38	4.71	0.6	2.0	A	418	418
	2 - Tenth Line (SB)	0.53	6.43	1.1	1.4	A	556	556
	3 - County Road 32 (EB)	0.34	5.39	0.5	1.9	A	300	300
	4 - County Road 32 (NB)	0.27	4.52	0.4	1.1	A	265	265
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.37	2.15	0.6	2.1	A	796	796
	2 - Tenth Line (SB)	0.30	7.15	0.4	1.5	A	191	174
	3 - Mountain Road (EB)	0.39	2.34	0.6	2.3	A	798	798
	4 - Tenth Line (NB)	0.29	6.34	0.4	1.5	A	583	193

Planned Configuration - 2040 Total, Weekday PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Queue variations	Analysis Options	Q percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Analysis Set Details

ID	Name	Include in report	Use specific Demand Set(s)	Specific Demand Set(s)	Network flow scaling factor (%)	Networ capacit scaling factor (%)
A1PLN	Planned Configuration	✓	✓	D30BAM,D30BPM,D35BAM,D35BPM,D40BAM,D40BPM,D30TAM,D30TPM,D35TAM,D35TPM,D40TAM,D40TPM	100.000	100.000

Intersection Network

Intersections

Intersection	Name	Intersection type	Use circulating lanes	Leg order	Int Del (s)	Int LOS
1	CR32 & 6th St/Tenth Line	Standard Roundabout		1, 2, 3, 4	5.83	A
2	Tenth Line & Mountain Road	Standard Roundabout		1, 2, 3, 4	4.52	A

Intersection Network Options

Driving side	Lighting	Res Cap (%)	First leg reaching threshold
Right	Normal/unknown	13	2 - Tenth Line & Mountain Road - 2 - Tenth Line (SB)

Legs

Legs

Intersection	Leg	Name	Description
1 - CR32 & 6th St/Tenth Line	1	Sixth Street (WB)	
	2	Tenth Line (SB)	
	3	County Road 32 (EB)	
	4	County Road 32 (NB)	
2 - Tenth Line & Mountain Road	1	Mountain Road (WB)	
	2	Tenth Line (SB)	
	3	Mountain Road (EB)	
	4	Tenth Line (NB)	

Roundabout Geometry

Intersection	Leg	V (m)	E (m)	l' (m)	R (m)	D (m)	PHI (deg)	Exit only
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	3.50	5.00	15.0	30.0	40.0	30.0	
	2 - Tenth Line (SB)	3.50	5.00	15.0	30.0	40.0	30.0	
	3 - County Road 32 (EB)	3.50	5.00	15.0	30.0	40.0	30.0	
	4 - County Road 32 (NB)	3.50	5.00	15.0	30.0	40.0	30.0	
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	7.50	11.00	25.0	15.0	45.0	30.0	
	2 - Tenth Line (SB)	3.50	4.50	25.0	30.0	45.0	30.0	
	3 - Mountain Road (EB)	7.00	11.20	25.0	25.0	45.0	30.0	
	4 - Tenth Line (NB)	3.75	4.50	25.0	21.5	45.0	30.0	

Bypass

Intersection	Leg	Leg has bypass	Bypass Util (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		
	2 - Tenth Line (SB)		
	3 - County Road 32 (EB)		
	4 - County Road 32 (NB)		
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		
	2 - Tenth Line (SB)	✓	100
	3 - Mountain Road (EB)		
	4 - Tenth Line (NB)	✓	100

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Intersection	Leg	Final slope	Final intercept (PCE/hr)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.592	1428
	2 - Tenth Line (SB)	0.592	1428
	3 - County Road 32 (EB)	0.592	1428
	4 - County Road 32 (NB)	0.592	1428
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.868	2956
	2 - Tenth Line (SB)	0.564	1351
	3 - Mountain Road (EB)	0.880	2977
	4 - Tenth Line (NB)	0.560	1348

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D40TPM	2040 Total	Weekday PM	PHF	16:00	17:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCE Factor for a Truck (PCE)
✓	✓	Truck %s	2.00

Demand overview (Traffic)

Intersection	Leg	Linked leg	Profile type	Use O-D data	Av. Demand (Veh/hr)	Scaling Factor (%)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)		PHF	✓	564	100.000
	2 - Tenth Line (SB)		PHF	✓	425	100.000
	3 - County Road 32 (EB)		PHF	✓	426	100.000
	4 - County Road 32 (NB)		PHF	✓	440	100.000
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)		PHF	✓	1414	100.000
	2 - Tenth Line (SB)		PHF	✓	216	100.000
	3 - Mountain Road (EB)		PHF	✓	1008	100.000
	4 - Tenth Line (NB)		PHF	✓	532	100.000

Peak Hour Factor Data (Traffic)

Intersection	Leg	Hourly volume (Veh/hr)	Peak hour factor	Peak time segment
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	564	0.96	SecondQuarter
	2 - Tenth Line (SB)	425	0.96	SecondQuarter
	3 - County Road 32 (EB)	426	0.96	SecondQuarter
	4 - County Road 32 (NB)	440	0.96	SecondQuarter
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	1414	0.95	SecondQuarter
	2 - Tenth Line (SB)	216	0.95	SecondQuarter
	3 - Mountain Road (EB)	1008	0.95	SecondQuarter
	4 - Tenth Line (NB)	532	0.95	SecondQuarter

Origin-Destination Data

Demand (Veh/hr)

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	167	331	66
2 - Tenth Line (SB)	147	0	51	227
3 - County Road 32 (EB)	276	78	0	72
4 - County Road 32 (NB)	64	332	44	0

Demand (Veh/hr)

2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	131	915	368
2 - Tenth Line (SB)	110	0	20	86
3 - Mountain Road (EB)	837	11	0	160
4 - Tenth Line (NB)	275	65	192	0

Vehicle Mix

Truck %s

1 - CR32 & 6th St/Tenth Line

From \ To	1 - Sixth Street (WB)	2 - Tenth Line (SB)	3 - County Road 32 (EB)	4 - County Road 32 (NB)
1 - Sixth Street (WB)	0	2	2	2
2 - Tenth Line (SB)	2	0	2	2
3 - County Road 32 (EB)	2	2	0	2
4 - County Road 32 (NB)	2	3	2	0

Truck %s

2 - Tenth Line & Mountain Road

From \ To	1 - Mountain Road (WB)	2 - Tenth Line (SB)	3 - Mountain Road (EB)	4 - Tenth Line (NB)
1 - Mountain Road (WB)	0	2	2	2
2 - Tenth Line (SB)	2	0	2	3
3 - Mountain Road (EB)	2	2	0	3
4 - Tenth Line (NB)	2	4	3	0

Results

Results Summary for whole modelled period

Intersection	Leg	Max V/C	Max Delay (s)	Max Q (Veh)	Max Q95 (Veh)	Max LOS	Av. Demand (Veh/hr)	Total Intersection Arrivals (Veh)
1 - CR32 & 6th St/Tenth Line	1 - Sixth Street (WB)	0.53	6.77	1.1	1.4	A	564	564
	2 - Tenth Line (SB)	0.39	5.25	0.6	1.6	A	425	425
	3 - County Road 32 (EB)	0.39	5.25	0.6	1.6	A	426	426
	4 - County Road 32 (NB)	0.42	5.76	0.7	1.4	A	440	440
2 - Tenth Line & Mountain Road	1 - Mountain Road (WB)	0.56	3.09	1.3	2.5	A	1414	1414
	2 - Tenth Line (SB)	0.46	14.90	0.8	2.2	B	216	196
	3 - Mountain Road (EB)	0.44	2.70	0.8	1.4	A	1008	1008
	4 - Tenth Line (NB)	0.36	7.52	0.6	2.0	A	529	257

Appendix H:
Traffic Signal Warrants

TATHAM ENGINEERING

TRAFFIC SIGNAL WARRANT

Project Info: Linksview Development — Number

GENERAL INFORMATION

Analyst	Hassan Naeem	Jurisdiction/Area	Collingwood — Date 05 Jul 2025
Agency or Company		East-West Street	Linksview / Georgian Meadows Drive
Analysis Period	2030 Total Traffic	North-South Street	Tenth Line
Flow Conditions	Restricted flow (urban)	Major Street	North-South
T Intersection	No	Approach Lanes per Directi	1
		Existing or Planned Intersec	existing intersection

Additional Comments

TRAFFIC & PEDESTRIAN VOLUMES

	AM Peak Hour			PM Peak Hour			Average Hour (AM+PM) ÷ 4		
	right	thru	left	right	thru	left	right	thru	left
Major Street									
Northbound	7	143	24	5	185	79	**3**	**82**	**26**
Southbound	20	119	13	64	188	41	**21**	**77**	**14**
Minor Street									
Eastbound	74	0	61	48	0	39	**31**	**0**	**25**
Westbound	55	0	8	34	0	6	**22**	**0**	**4**
Pedestrians									
crossing MAJOR street		5			5			**3**	
crossing MINOR street		5			5			**3**	

	AM Peak Hour			PM Peak Hour			Average Hour (AM+PM) ÷ 4		
	major	minor	total	major	minor	total	major	minor	total
Approach Volumes	326	198	524	562	127	689	**222**	**81**	**303**
Crossing Volumes			74			50			**31**

JUSTIFICATION 7 - PROJECTED VOLUMES

Justification	Description	Warrant Level		Warrant Adjustment	Sectional Numerical	Sectional Compliance	Entire Compliance
1 Minimum Vehicular Volumes	A. Vehicle volume, all approaches (average hour)	720 (1 lane approach on main)	or 900 (2 or more lane approach on main)	**120%**	**303**	**35%**	35%
	B. Vehicle volume, along minor streets (average hour)	170 (Full intersection)	or 255 (T intersection)	**120%**	**81**	**40%**	
2 Delay to Cross Trafifc	A. Vehicle volume, major street (average hour)	720 (1 lane approach on main road)	or 900 (2 or more lane approach on main road)	**120%**	**222**	**26%**	26%
	B. Combined vehicle & pedestrian volume crossing artery from minor streets (average hour)	75 (1 lane approach on main road)	or 75 (2 or more lane approach on main road)	**120%**	**31**	**34%**	

Signals are warranted if BOTH Justification 1A and Justification 1B OR Justification 2A and Justification 2B are 100% compliant	Not Warranted
Signals are warranted if THE LESSER of Justification 1A or 1B AND the lesser of Justification 2A or Justification 2B are 80% con	Not Warranted

NOTES

Restricted Flow Conditions
- roads with operating speeds less than 70 km/h
- normally encountered in urban areas where the traffic volumes approach or exceed practical working capacity of road

Free Flow Conditions
- roads with operating speeds greater than or equal to 70 km/h
- normally encountered in rural areas
- may also be used at intersections within the built-up area of a community with < 10 000 people and outside the commuting influence of a large urban centre, even if the speed is less than 70 km/h

TATHAM ENGINEERING

TRAFFIC SIGNAL WARRANT

Project Info: Linksview Development | Number

GENERAL INFORMATION

Analyst	Hassan Naeem	Jurisdiction/Area	Collingwood
Agency or Company		East-West Street	Linksview / Georgian Meadows Drive
Analysis Period	2035 Total Traffic	North-South Street	Tenth Line
Flow Conditions	Restricted flow (urban)	Major Street	North-South
T Intersection	No	Approach Lanes per Directi	1
		Existing or Planned Intersec	existing intersection

Date: 05 Jul 2025

Additional Comments

TRAFFIC & PEDESTRIAN VOLUMES

	AM Peak Hour			PM Peak Hour			Average Hour (AM+PM) ÷ 4		
	right	thru	left	right	thru	left	right	thru	left
Major Street									
Northbound	7	167	149	5	294	176	**3**	**115**	**81**
Southbound	120	237	13	144	259	41	**66**	**124**	**14**
Minor Street									
Eastbound	233	17	189	118	4	96	**88**	**5**	**71**
Westbound	55	20	8	34	4	6	**22**	**6**	**4**
Pedestrians									
crossing MAJOR street		5			5			**3**	
crossing MINOR street		5			5			**3**	

	AM Peak Hour			PM Peak Hour			Average Hour (AM+PM) ÷ 4		
	major	minor	total	major	minor	total	major	minor	total
Approach Volumes	693	522	1215	919	262	1181	**403**	**196**	**599**
Crossing Volumes			222			111			**83**

JUSTIFICATION 7 - PROJECTED VOLUMES

Justification	Description	Warrant Level			Warrant Adjustment	Sectional Numerical	Sectional Compliance	Entire Compliance
1 Minimum Vehicular Volumes	A. Vehicle volume, all approaches (average hour)	720 (1 lane approach on main)	or	900 (2 or more lane approach on main)	**120%**	**599**	**69%**	69%
	B. Vehicle volume, along minor streets (average hour)	170 (Full intersection)	or	255 (T intersection)	**120%**	**196**	**96%**	
2 Delay to Cross Trafifc	A. Vehicle volume, major street (average hour)	720 (1 lane approach on main road)	or	900 (2 or more lane approach on main road)	**120%**	**403**	**47%**	47%
	B. Combined vehicle & pedestrian volume crossing artery from minor streets (average hour)	75 (1 lane approach on main road)	or	75 (2 or more lane approach on main road)	**120%**	**83**	**93%**	

Signals are warranted if BOTH Justification 1A and Justification 1B OR Justification 2A and Justification 2B are 100% compliant	Not Warranted
Signals are warranted if THE LESSER of Justification 1A or 1B AND the lesser of Justification 2A or Justification 2B are 80% cor	Not Warranted

NOTES

Restricted Flow Conditions
- roads with operating speeds less than 70 km/h
- normally encountered in urban areas where the traffic volumes approach or exceed practical working capacity of road

Free Flow Conditions
- roads with operating speeds greater than or equal to 70 km/h
- normally encountered in rural areas
- may also be used at intersections within the built-up area of a community with < 10 000 people and outside the commuting influence of a large urban centre, even if the speed is less than 70 km/h

TATHAM ENGINEERING

TRAFFIC SIGNAL WARRANT

Project Info: Linksview Development | Number

GENERAL INFORMATION

Analyst	Hassan Naeem	Jurisdiction/Area	Collingwood
Agency or Company		East-West Street	Linksview / Georgian Meadows Drive
Analysis Period	2040 Total Traffic	North-South Street	Tenth Line
Flow Conditions	Restricted flow (urban)	Major Street	North-South
T Intersection	No	Approach Lanes per Directi	1
		Existing or Planned Intersec	existing intersection

Date: 05 Jul 2025

Additional Comments

TRAFFIC & PEDESTRIAN VOLUMES

	AM Peak Hour			PM Peak Hour			Average Hour (AM+PM) ÷ 4		
	right	thru	left	right	thru	left	right	thru	left
Major Street									
Northbound	9	186	137	17	460	173	**7**	**162**	**78**
Southbound	110	465	20	141	344	77	**63**	**202**	**24**
Minor Street									
Eastbound	222	15	181	115	4	94	**84**	**5**	**69**
Westbound	110	18	11	42	3	10	**38**	**5**	**5**
Pedestrians									
crossing MAJOR street		5			5			**3**	
crossing MINOR street		5			5			**3**	

	AM Peak Hour			PM Peak Hour			Average Hour (AM+PM) ÷ 4		
	major	minor	total	major	minor	total	major	minor	total
Approach Volumes	927	557	1484	1212	268	1480	**535**	**206**	**741**
Crossing Volumes			215			113			**82**

JUSTIFICATION 7 - PROJECTED VOLUMES

Justification	Description	Warrant Level			Warrant Adjustment	Sectional Numerical	Sectional Compliance	Entire Compliance
1 Minimum Vehicular Volumes	A. Vehicle volume, all approaches (average hour)	720 (1 lane approach on main)	or	900 (2 or more lane approach on main)	**120%**	**741**	**86%**	86%
	B. Vehicle volume, along minor streets (average hour)	170 (Full intersection)	or	255 (T intersection)	**120%**	**206**	**100%**	
2 Delay to Cross Trafifc	A. Vehicle volume, major street (average hour)	720 (1 lane approach on main road)	or	900 (2 or more lane approach on main road)	**120%**	**535**	**62%**	62%
	B. Combined vehicle & pedestrian volume crossing artery from minor streets (average hour)	75 (1 lane approach on main road)	or	75 (2 or more lane approach on main road)	**120%**	**82**	**91%**	

Signals are warranted if BOTH Justification 1A and Justification 1B OR Justification 2A and Justification 2B are 100% compliant	Not Warranted
Signals are warranted if THE LESSER of Justification 1A or 1B AND the lesser of Justification 2A or Justification 2B are 80% con	Not Warranted

NOTES

Restricted Flow Conditions
- roads with operating speeds less than 70 km/h
- normally encountered in urban areas where the traffic volumes approach or exceed practical working capacity of road

Free Flow Conditions
- roads with operating speeds greater than or equal to 70 km/h
- normally encountered in rural areas
- may also be used at intersections within the built-up area of a community with < 10 000 people and outside the commuting influence of a large urban centre, even if the speed is less than 70 km/h