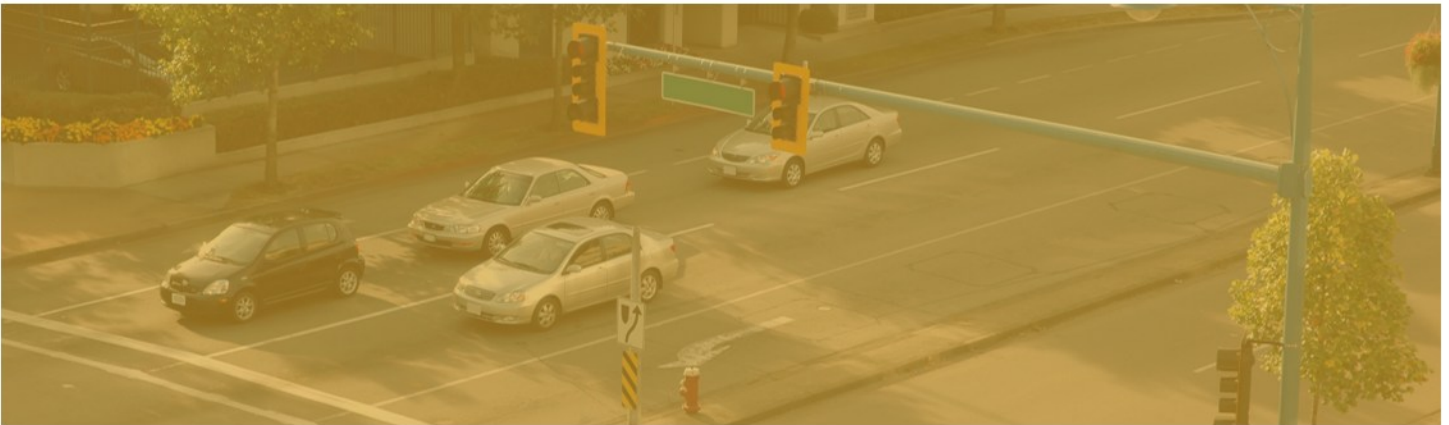




Enhancing our communities



Nagel Subdivision

TRANSPORTATION IMPACT BRIEF

Christian Nagel

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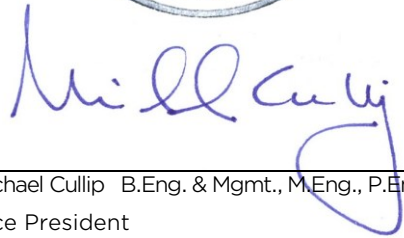
February
12, 2026

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Issue	Date	Description
1	August 19, 2025	Final Report
2	February 12, 2026	Final Report - Revised Site Plan

Document Contents

1	Introduction	1
1.1	Report Objective	1
1.2	Report Structure	1
2	Existing Conditions.....	2
2.1	Road Network	2
2.2	Traffic Volumes	3
2.3	Traffic Operations	4
2.4	Need for Improvements	5
3	Proposed Development	6
3.1	Location	6
3.2	Land Use	6
3.3	Access	6
3.4	Parking	6
3.5	Traffic	6
4	Future Conditions	8
4.1	Road Network	8
4.2	Traffic Volumes	8
4.3	Traffic Operations	9
4.4	Need for Improvements	10
5	Summary.....	11



Tables

Table 1: Intersection Operations – 2025 Conditions	5
Table 2: Trip Generation – Nagel Subdivision	7
Table 3: Historical Traffic Volumes – Highway 6.....	8
Table 4: Intersection Operations – 2030 Total Conditions.....	10

Figures

Figure 1: Site Location	12
Figure 2: Area Road Network	13
Figure 3: Traffic Volumes – 2023 Counts.....	15
Figure 4: Traffic Volumes – 2025	16
Figure 5: Site Plan	17
Figure 6: Site Generated Traffic.....	18
Figure 7: Traffic Volumes – 2030 Background	19
Figure 8: Traffic Volumes – 2030 Total.....	20

Appendices

Appendix A: Terms of Reference
Appendix B: Traffic Counts
Appendix C: MTO Seasonal Factors
Appendix D: LOS Definitions
Appendix E: Existing Operations
Appendix F: Total Operations



1 Introduction

Tatham Engineering Limited has been retained by Christian Nagel to address the traffic impacts associated with a proposed residential subdivision to be located in the community of Shallow Lake, Township of Georgian Bluffs in Grey County. The location of the site is illustrated in Figure 1.

1.1 REPORT OBJECTIVE

The objective of this report is to present the findings of the transportation impact brief and address the requirements of the Township and Ministry of Transportation of Ontario (MTO) with respect to the potential impacts of the development on the area road network. In particular, the following will be discussed:

- existing conditions, including a description of the study area road network, traffic volumes, and operations;
- details of the proposed development and anticipated trip generation; and
- future conditions, including transportation impacts associated with the proposed development.

The study has been completed in context of the agreed upon Terms of Reference provided in Appendix A, which confirms the study area and scope of the transportation impact brief.

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 traffic operations;
- Chapter 3: proposed development, access, parking and trip generation;
- Chapter 4: future traffic operations associated with the proposed development; and
- Chapter 5: summary of the report and key findings.



2 Existing Conditions

This chapter will describe the road network traffic volumes and operations for the existing conditions.

2.1 ROAD NETWORK

The road network to be addressed by this study includes Highway 6, McInnis Street, Main Street, Howe Drive and the intersections of McInnis Street with Highway 6 and Main Street.

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

2.1.1 Roads

Highway 6

As per MTO's *Highway Corridor Management Manual*¹, Highway 6 is classified as a 2B-Arterial provincial highway under the jurisdiction of the MTO. Within the study area, the highway runs southeast-northwest (referred herein as east-west) and features a two-lane urban cross-section (curb and gutter with sidewalks), providing one travel lane per direction. There are also 2.5-metre paved shoulders on both sides of the highway, within which on-street parking is permitted. The posted speed limit through the Shallow Lake area is 50 km/h.

McInnis Street, Main Street, & Howe Drive

As per the *Township of Georgian Bluffs Official Plan*², the remaining study area roads (McInnis Street, Main Street and Howe Drive) are classified as local roads under the jurisdiction of the Township. Each road has a two-lane cross-section providing one lane of travel per direction. McInnis Street and Main Street have semi-urban cross-sections (grass shoulders, open ditches and a sidewalk on at least one side of the road), whereas Howe Drive has a rural cross section (grass shoulders, open ditches and no sidewalks). The speed limit on the noted roads is unposted, thus a limit of 50 km/h has been assumed.

¹ *Highway Corridor Management Manual*. Ministry of Transportation. April 2025.

² *Recolour Grey. County of Grey Official Plan*. County of Grey. May 6, 2025.



2.1.2 Intersections

McInnis Street & Highway 6

The intersection of McInnis Street and Highway 6 is a 3-leg intersection with stop control on McInnis Street. All approaches are single lane approaches (i.e. there are no exclusive turn lanes provided).

Main Street & McInnis Street

The intersection of Main Street with McInnis Street is a 4-leg intersection with stop control on Main Street. All approaches consist of a single shared left-through-right turn lane.

2.2 TRAFFIC VOLUMES

2.2.1 Traffic Counts

To determine existing traffic volumes, traffic counts were conducted at the intersection of Highway 6 and McInnis Street on Wednesday, September 6, 2023, during the following time periods: 7:00–9:00, 12:00–14:00 and 15:00–18:00. The observed AM and PM peak hour volumes (which are considered the more critical peaks) are illustrated in Figure 3, whereas detailed count sheets are provided in Appendix B.

2.2.2 Volume Adjustments

Main Street & McInnis Street

Given the relatively minor traffic volumes on McInnis Street (11 to 24 vehicles per hour per direction), additional traffic counts at the intersection of McInnis Street with Main Street were not completed. Rather, the volumes observed on McInnis Street at Highway 6 were carried through the intersection based on the development levels served by each leg of the intersection, resulting in the following allocation:

- to/from Howe Drive/Main Street, west of McInnis Street – 75%;
- to/from Main Street, east of McInnis Street – 15%; and
- to/from McInnis Street, north of Main Street – 10%.

In addition to the above assumptions, a minimum volume of 5 vehicles has been assumed for all other turning movements. The resulting projected volumes at the intersection of McInnis Street with Main Street are also illustrated in Figure 3.



Seasonal Adjustment

As the traffic counts were completed in September, the observed traffic volumes are considered reflective of average conditions. Given the characteristics of the area and the seasonal travel patterns on Highway 6, a seasonal adjustment factor has been applied to consider the peak season traffic volumes. As per seasonal adjustment factors provided by MTO for a highway exhibiting a *low tourist* traffic variation pattern (i.e. Highway 6, as per MTO), a seasonal factor of 1.35 has been applied to the through volumes on Highway 6 (MTO seasonal adjustment factors are provided in Appendix C).

The local road network is not subject to the same seasonal variation observed on Highway 6. As such, no seasonal adjustments have been applied to the volumes on the local roads.

Growth Factor

To reflect 2025 conditions, the 2023 volumes on Highway 6 were adjusted by an annual growth rate of 2% (additional discussion with respect to background growth is provided in Section 4.1).

The local road network is not subject to the same growth in traffic volumes as considered for Highway 6. As such, the 2023 traffic volumes have been carried through to 2025.

2.2.3 2025 Volumes

The resulting 2025 volumes (reflective of the 2023 observed volumes, adjusted as noted above) are illustrated in Figure 4.

2.3 TRAFFIC OPERATIONS

The assessment of existing conditions provides the baseline from which the future traffic volumes and operations can be assessed. As the capacity, and hence operations of a road system are effectively dictated by its intersections, the analysis focused on the operations of the noted study area intersection based on the following:

- the 2025 traffic volumes;
- the existing intersection configuration and control; and
- procedures outlined in the *2000 Highway Capacity Manual*³ (using Synchro v.11 software).

For unsignalized intersections, the analysis considers:

- average delay (measured in seconds);

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



- level of service (LOS); and
- volume to capacity (v/c) for the critical movements (i.e. those operating under stop control).

With respect to the noted metrics:

- LOS A corresponds to the best operating conditions with minimal delays, whereas LOS F corresponds to poor operations resulting from high intersection delays (detailed LOS definitions are provided in Appendix D); and
- a v/c ratio of less than 1.0 indicates the intersection movement or approach is operating at less than capacity while a v/c ratio of 1.0 indicates capacity has been reached.

A summary of the analysis is provided in Table 1, whereas detailed worksheets are included in Appendix E. Based on the existing volumes, both intersections provide good levels of service (LOS C or better) with minor delays experienced at the critical movements.

Table 1: Intersection Operations – 2025 Conditions

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
McInnis St & Highway 6	SB LR	stop	17	C	0.08	17	C	0.04
Main St & McInnis St	EB LTR	stop	9	A	0.03	9	A	0.02
	WB LTR	stop	9	A	0.01	9	A	0.01

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

Given the significant reserve capacity noted (i.e. v/c values suggestive of the intersection movements operating at 1 to 8% of their respective capacities), increased traffic volumes can be readily accommodated should the seasonal and/or growth factors exceed those otherwise assumed.

2.4 NEED FOR IMPROVEMENTS

Given the good levels of service realized through the intersection operations assessment, no improvements are required under existing conditions.



3 Proposed Development

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

3.1 LOCATION

The subject site located in the community of Shallow Lake, Township of Georgian Bluffs in Grey County (as per Figure 1).

3.2 LAND USE

The proposed development will consist of 27 single family lots. The site plan is provided in Figure 5.

3.3 ACCESS

The site will be served by a new municipal road network with connections to Main Street and Howe Drive. Each lot will have direct driveway access to the new municipal road. The road network will be constructed as per the Township's typical requirements for a local road. It is noted that the road network will not introduce a new intersection to Highway 6.

3.4 PARKING

The *Township of Georgian Bluffs Zoning By-Law 2020-020*⁴ requires detached residential dwellings to provide 2 parking spaces. It is understood that each unit will provide a minimum of 2 spaces per unit.

3.5 TRAFFIC

3.5.1 Trip Generation

The number of vehicle trips expected to be generated by the proposed development during the weekday AM and PM peak hour periods has been determined based on the type of use, developments size and trip generation rates published in the *ITE Trip Generation Manual, 11th Edition*⁵. Based on the proposed development, trip rates for the *single family detached* (ITE code 210) have been applied.

⁴ *Township of Georgian Bluffs Zoning By-Law 2020-020*. Township of Georgian Bluffs. January 22, 2020.

⁵ *ITE Trip Generation Manual, 11th Edition*. Institute of Transportation Engineers. September 2021.



The associated trip rates and trip estimates are provided in Table 2.

Table 2: Trip Generation – Nagel Subdivision

LAND USE	RATE/ ESTIMATE	VARIABLE/ SIZE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			In	Out	Total	In	Out	Total
single family detached (ITE 210)	rate	units	0.18	0.53	0.71	0.59	0.35	0.94
	estimate	27	5	14	19	16	9	25

As indicated, the proposed development is expected to generate 19 new trips during the AM peak hour and 25 new trips during the PM peak hour (total of inbound and outbound trips).

3.5.2 Trip Distribution & Assignment

The distribution and assignment of the site generated traffic to the road system has been established based on the traffic patterns observed during the traffic counts, the location of the site in context of surrounding population/employment centres and anticipated travel routes. Based on the above, the following has been assumed:

- 60% to/from the east on Highway 6; and
- 40% to/from the west on Highway 6.

The resulting site generated traffic volumes are illustrated in Figure 6. To ensure a conservative, it has been assumed that all site traffic will access Highway 6 via McInnis Street.



4 Future Conditions

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

- intersection operations, including the site access operations; and
- potential improvements to the study area road network, if necessary.

For the purpose of this study and in consideration of the limited trips to be generated by the site, the assessment has considered a single 5-year horizon (2030).

4.1 ROAD NETWORK

There are no planned improvements to the area road network within the study horizon considered herein. As such, the road network described previously has been maintained.

4.2 TRAFFIC VOLUMES

Traffic volumes expected for the 2030 horizon year have been determined based on the existing traffic volumes, historical and projected growth, and additional volumes associated with the subject development

4.2.1 Background Growth

Traffic Growth

Historical traffic data published by MTO for the section of Highway 6 between Concession 5 West and Bruce Road 10 (within which the subject site is located) was analyzed for the latest 5-year period available. As shown in Table 3, the annual average daily traffic (AADT) volumes along this corridor have remained relatively stable, with little to no growth between 2016 and 2021, whereas the summer average daily traffic (SADT) volumes experienced a significant increase between 2016 and 2017 but have since experienced no material growth. It is noted that data for the year 2020 was not published by the MTO due to the Covid-19 pandemic.

Table 3: Historical Traffic Volumes – Highway 6

YEAR	2016	2017	2018	2019	2020	2021
Average Annual Daily Traffic (AADT)	7,200	7,200	7,250	7,250	n/a	7,250
Summer Average Daily Traffic (SADT)	9,400	10,100	10,100	10,200	n/a	9,950



Population Growth

Based on data from the 2021 census, the population of the Township increased from 10,479 in 2016 to 11,100 persons in 2021, translating to an annual growth of approximately 1.2% over the 5-year period.

Grey County's *Official Plan* indicates a 2031 population forecast of 11,910 persons for the Township which translates to an annual growth rate of 0.7% when considering the 2021 census population of 11,100 persons.

Overall Background Growth

Notwithstanding the limited historical traffic growth on the highway and the limited historical and projected population growth for the Township, an annual growth rate of 2% has been applied to the through volumes on Highway 6.

No annual growth has been applied to the volumes on the local road network, recognizing that local roads are not typically subject to year over year growth.

4.2.2 Background Volumes

The resulting background traffic volumes for the 2030 horizon, reflective of the existing volumes adjusted by the noted growth rate, are illustrated in Figure 7.

4.2.3 Total Volumes

The site generated traffic was combined with the background traffic volumes to establish the future total volumes for the 2030 horizon, as illustrated in Figure 8.

4.3 TRAFFIC OPERATIONS

The study area road intersections were analyzed again under future conditions. Results of the operational analyses are summarized in Table 4, with detailed worksheets provided in Appendix F. As indicated, both study area intersections will continue to provide good levels of service (LOS C or better) with minor delays experiences at the critical movements.

While it is acknowledged that the site will add traffic to the intersection of Main Street with Howe Drive (noting that the road network will connect to both Main Street and Howe Drive), the operations have not been explicitly considered. The operations at the intersection of Main Street with McInnis Street are considered to provide an accurate, if not conservative, representation of the operations to be experienced at the intersection of Main Street with Howe Drive. As such, the intersection is expected to provide excellent operations, typical of a low volume residential intersection.



Table 4: Intersection Operations – 2030 Total Conditions

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
McInnis St & Highway 6	SB LR	stop	19	C	0.14	21	C	0.09
Main St & McInnis St	EB LTR	stop	9	A	0.04	9	A	0.03
	WB LTR	stop	9	A	0.02	9	A	0.01

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

4.4 NEED FOR IMPROVEMENTS

4.4.1 Traffic Operations

Given the good levels of service realized through the intersection operations assessment, no improvements are required under future total conditions. As such, no improvements are required to accommodate the subject development.

4.4.2 Turn Lane Requirements

Despite the otherwise good operations anticipated at the intersection of Highway 6 with McInnis Street, the need for exclusive turn lanes on Highway 6 has been reviewed in consideration of MTO warrant criteria and guidance.

Right Turn Lane

TAC/MTO guidance suggests that an exclusive right turn lane be considered where right turning volumes exceed 60 vehicles per hour (vph) and/or impede the operations of through traffic. As per the volume projections provided in Figure 8, the right turning volumes on Highway 6 at McInnis Street are in the order of 9 to 21 vph – well below the 60 vph threshold. As such, an exclusive right turn lane is not warranted.

Left Turn Lane

The left turning volumes from Highway 6 to McInnis Street are in the order of 8 to 12 vph and constitute approximately 2% of the advancing volume or less. Given the limited left turn volumes and noting that MTO left turn nomographs reflect left turn volumes constituting 5% of the advancing volumes or more, a left turn lane on Highway 6 at McInnis Street is not considered necessary.



5 Summary

Proposed Development

The study has addressed the transportation impacts associated with the proposed residential development to be located in the community of Shallow Lake, Township of Georgian Bluffs in Grey County. Upon completion, the development is expected to generate an additional 19 trips during AM peak hour and 25 trips during PM peak hour.

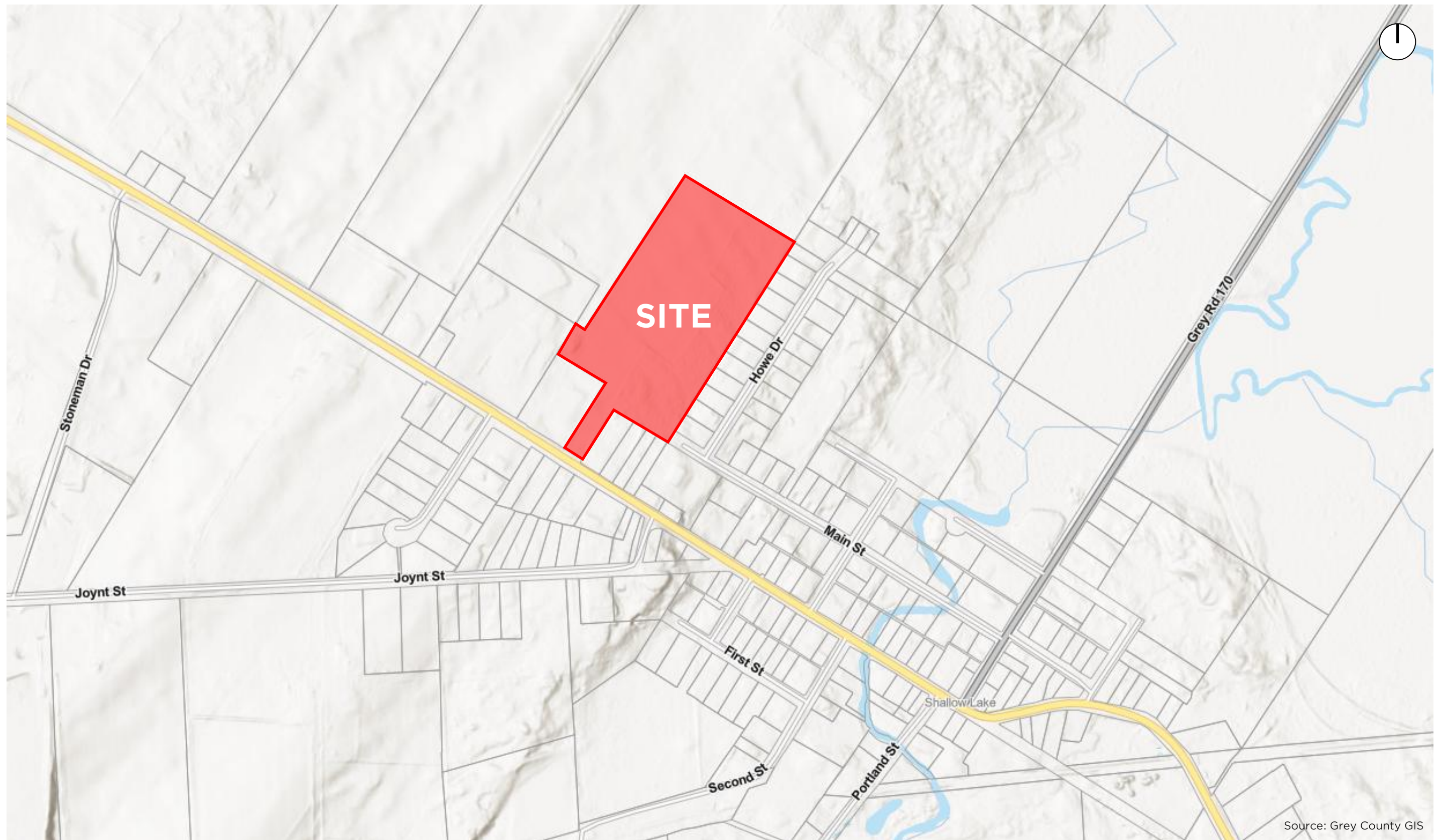
Transportation Impacts

In addressing the study area traffic operations, the intersections of McInnis Street with Highway 6 and Main Street with McInnis Street were analysed under existing (2025) and future (2030) horizon periods. Based on the assessment of existing and future conditions, no improvements are required to support the proposed development.

Turn Lane Requirements

In consideration of the limited left and right turning volumes from Highway 6 to McInnis Street, exclusive turn lanes are not considered necessary to accommodate the future traffic volumes.





NAGEL SUBDIVISION - TRANSPORTATION IMPACT BRIEF

Figure 1: Site Location





Source: Grey County GIS

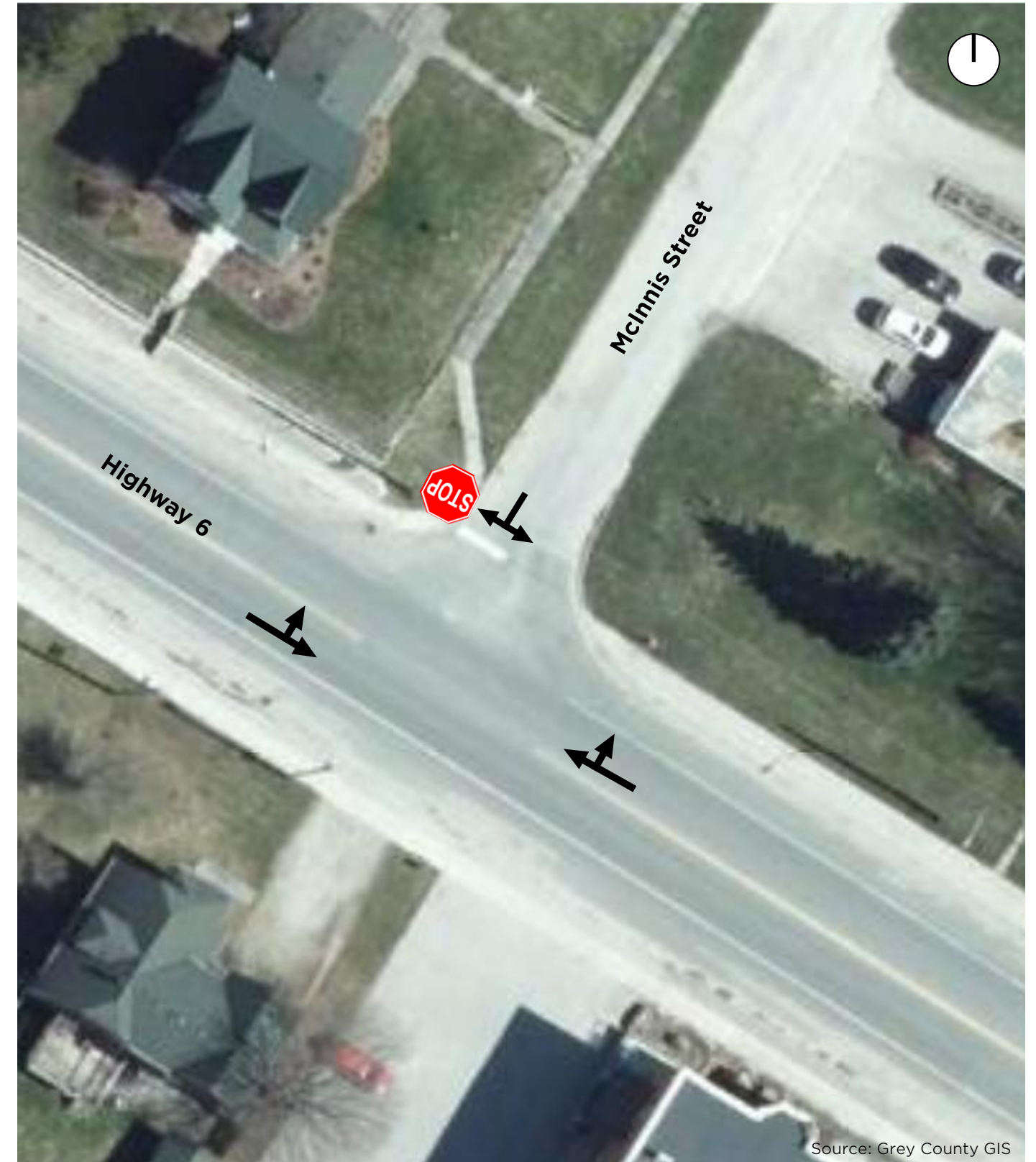
NAGEL SUBDIVISION - TRANSPORTATION IMPACT BRIEF

Figure 2A: Area Road Network





Intersection of Main Street with McInnis Street



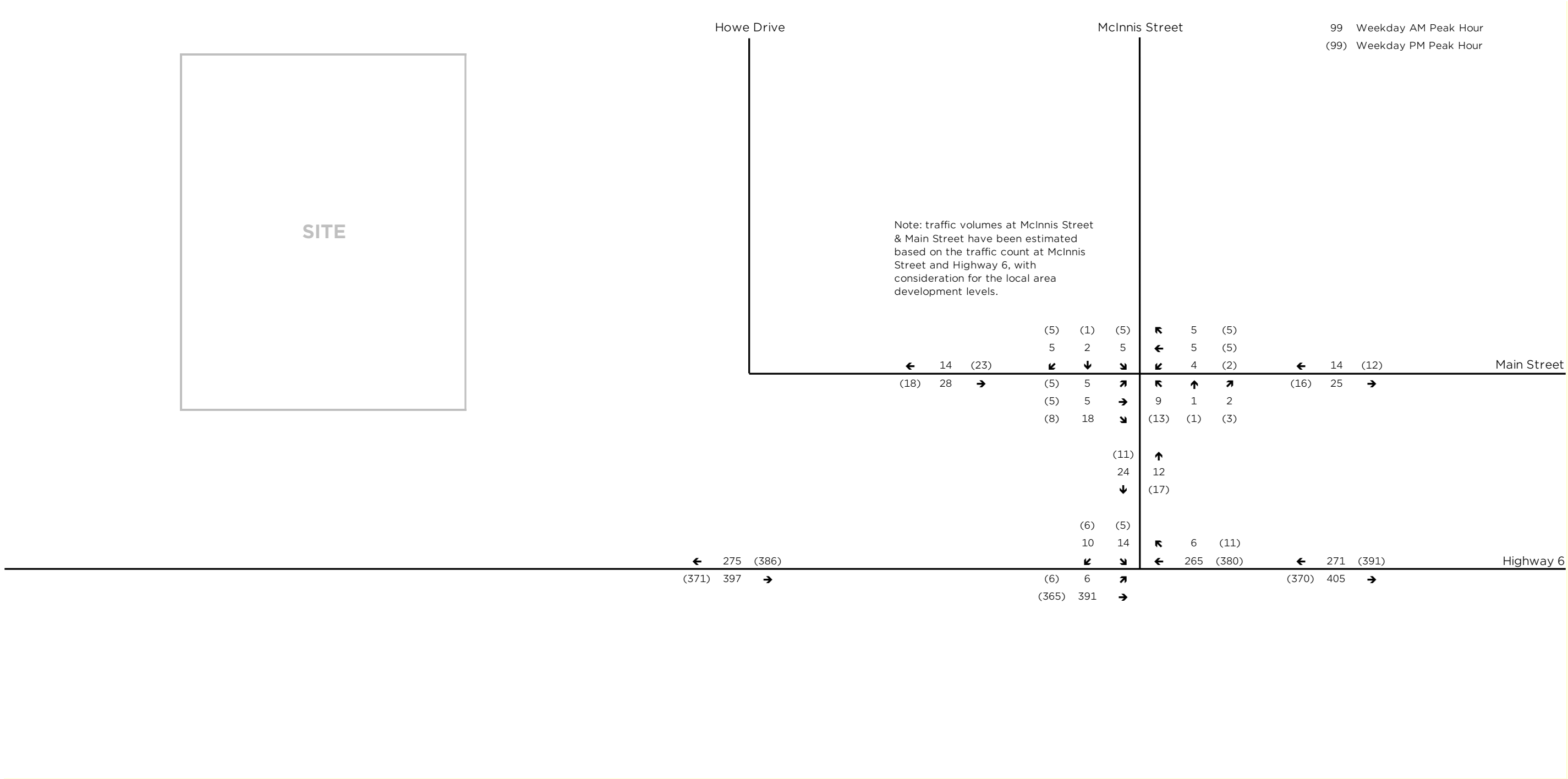
Source: Grey County GIS

Intersection of McInnis Street with Highway 6

NAGEL SUBDIVISION - TRANSPORTATION IMPACT BRIEF

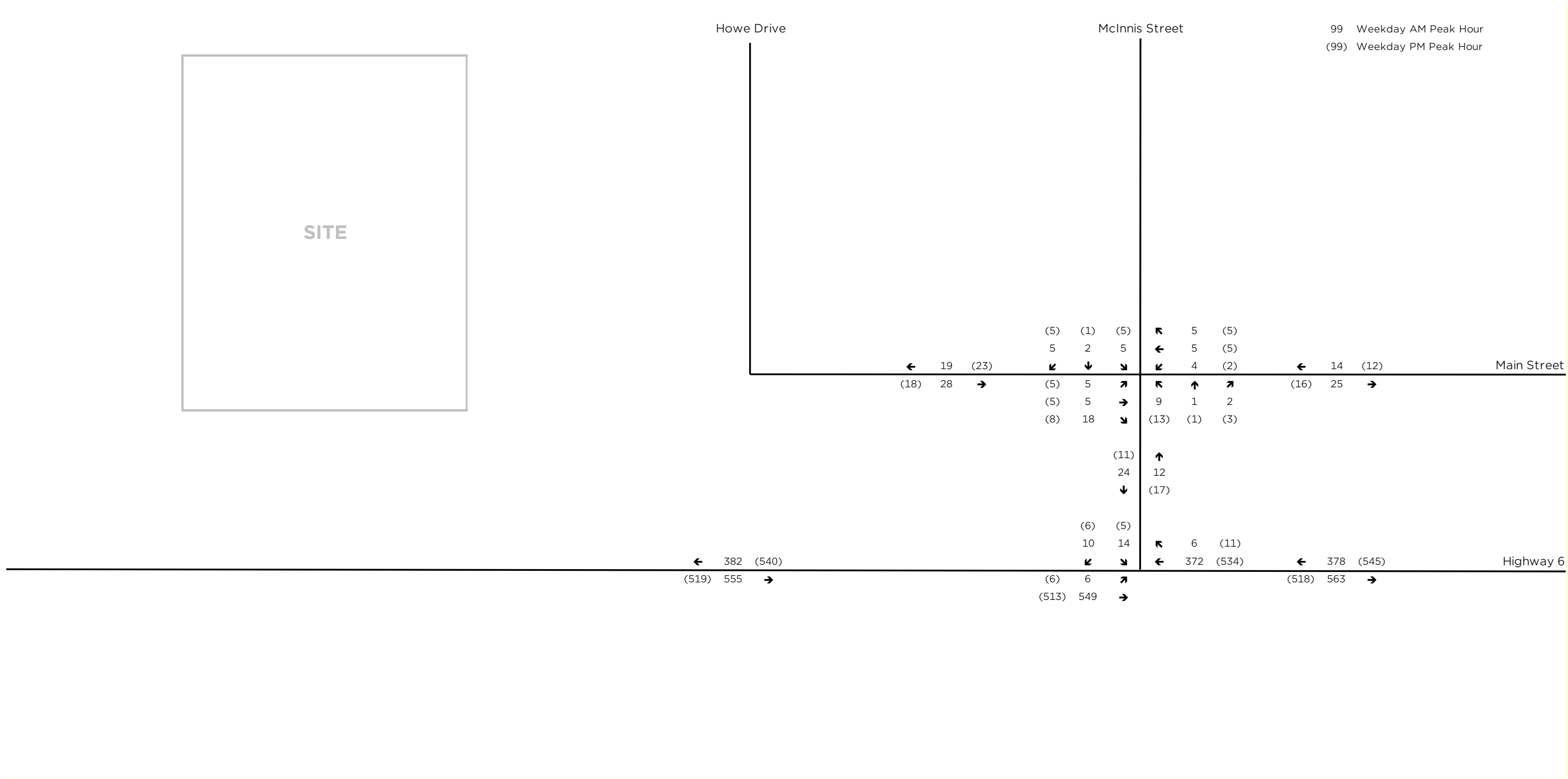
Figure 2B: Area Road Network

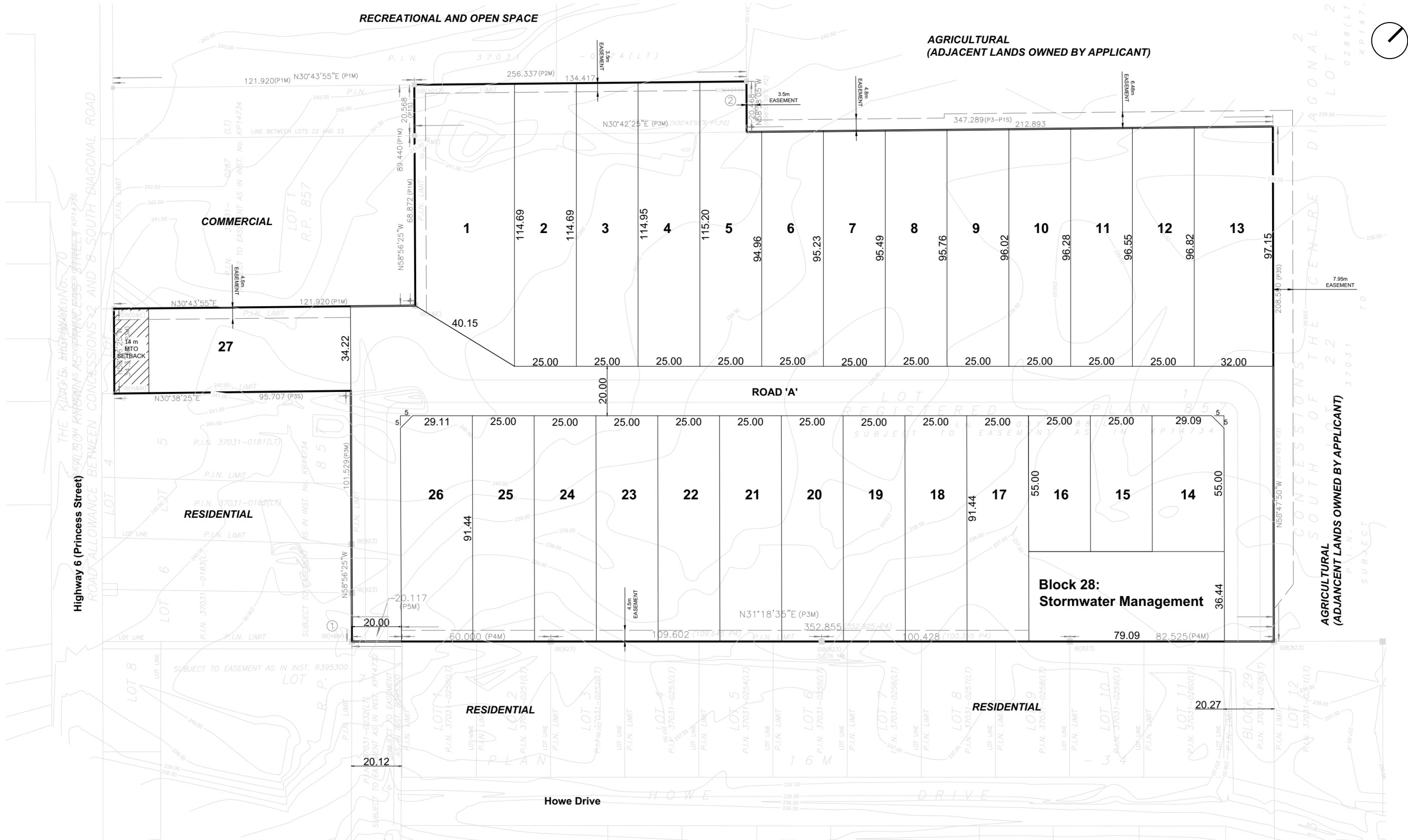




NAGEL SUBDIVISION - TRANSPORTATION IMPACT BRIEF
Figure 3: Traffic Volumes – 2023 Counts



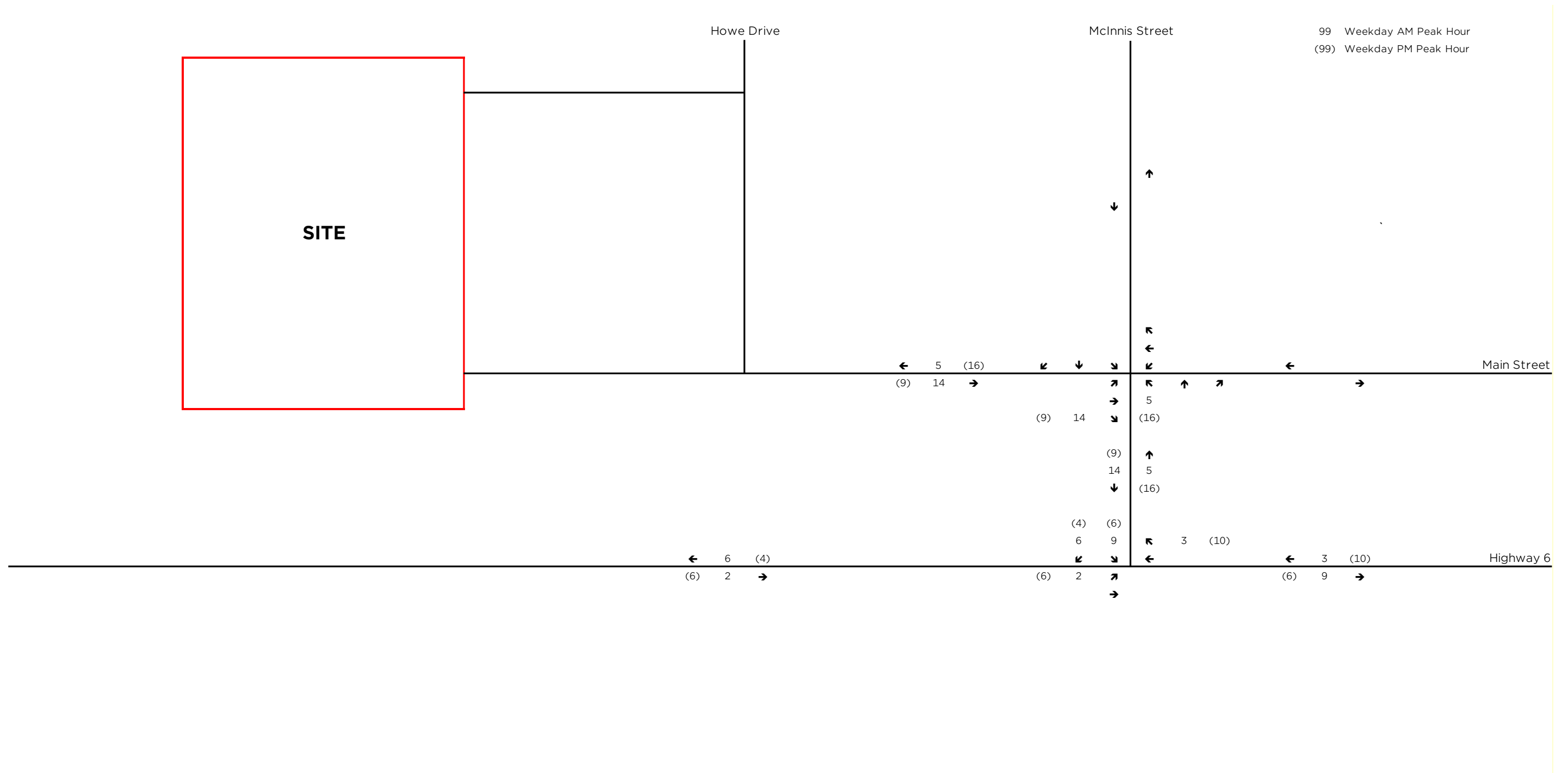




NAGEL SUBDIVISION - TRANSPORTATION IMPACT BRIEF

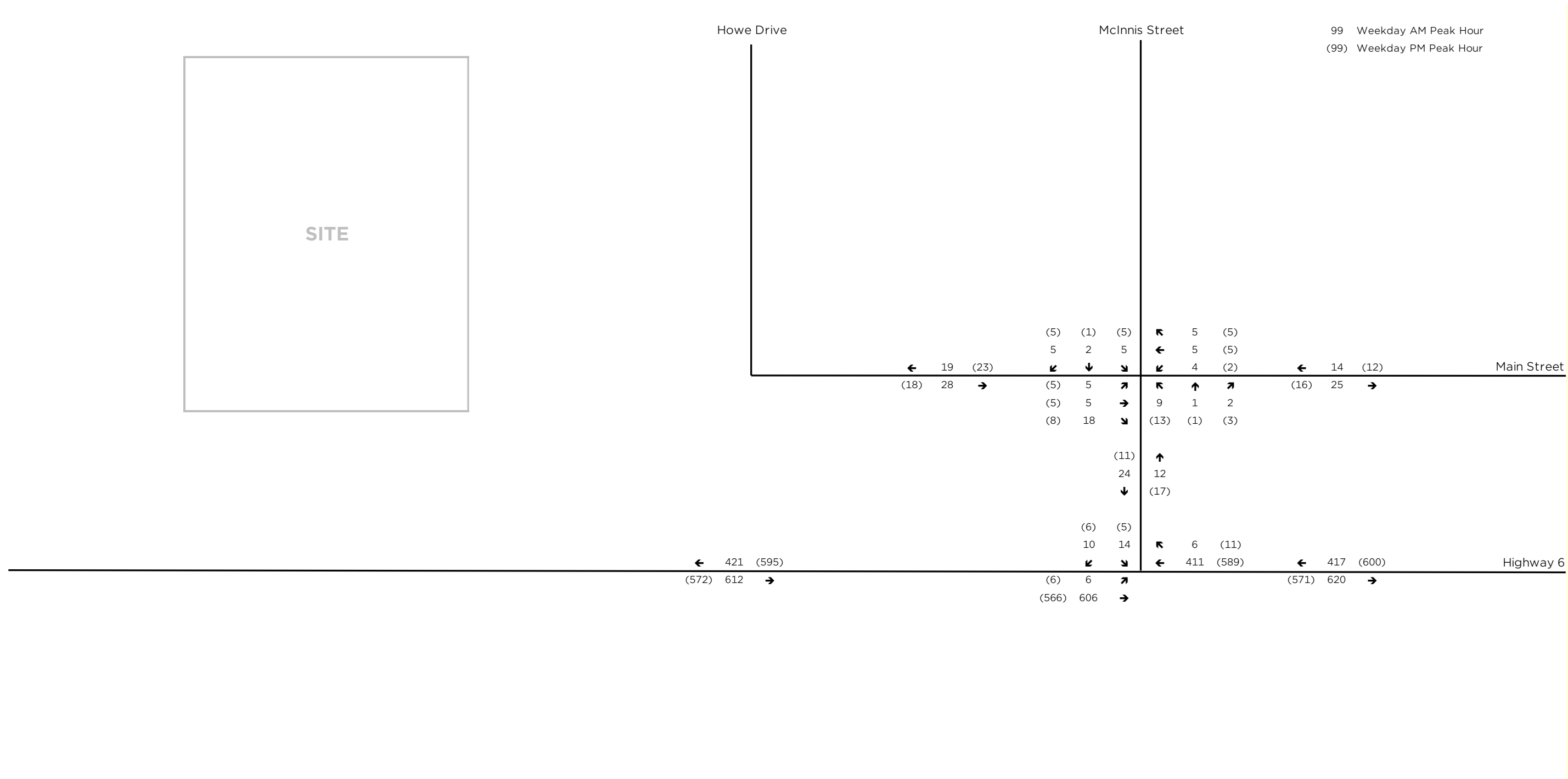
Figure 5: Site Plan

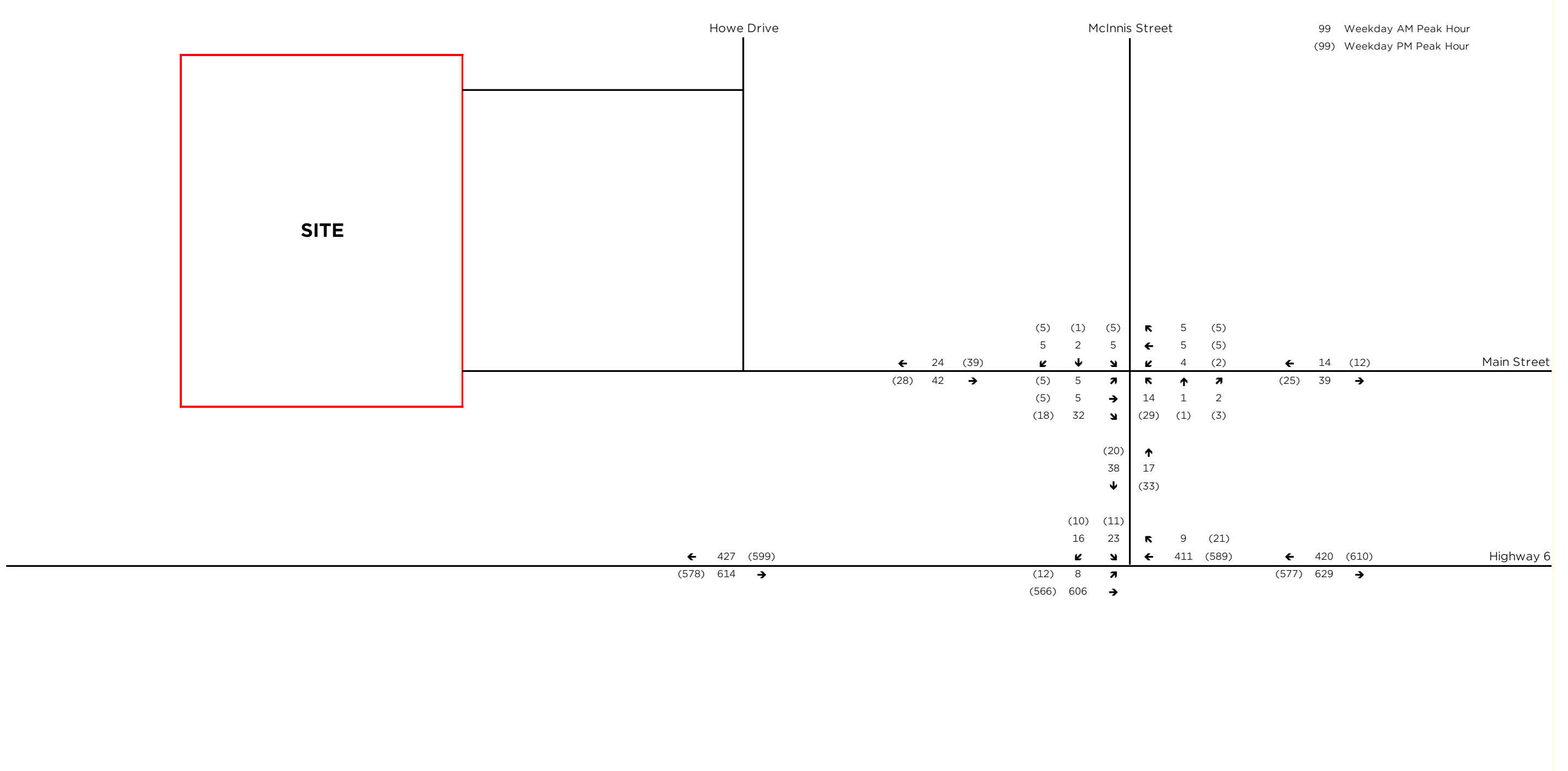




NAGEL SUBDIVISION - TRANSPORTATION IMPACT BRIEF
Figure 6: Site Generated Traffic







Appendix B: Traffic Counts

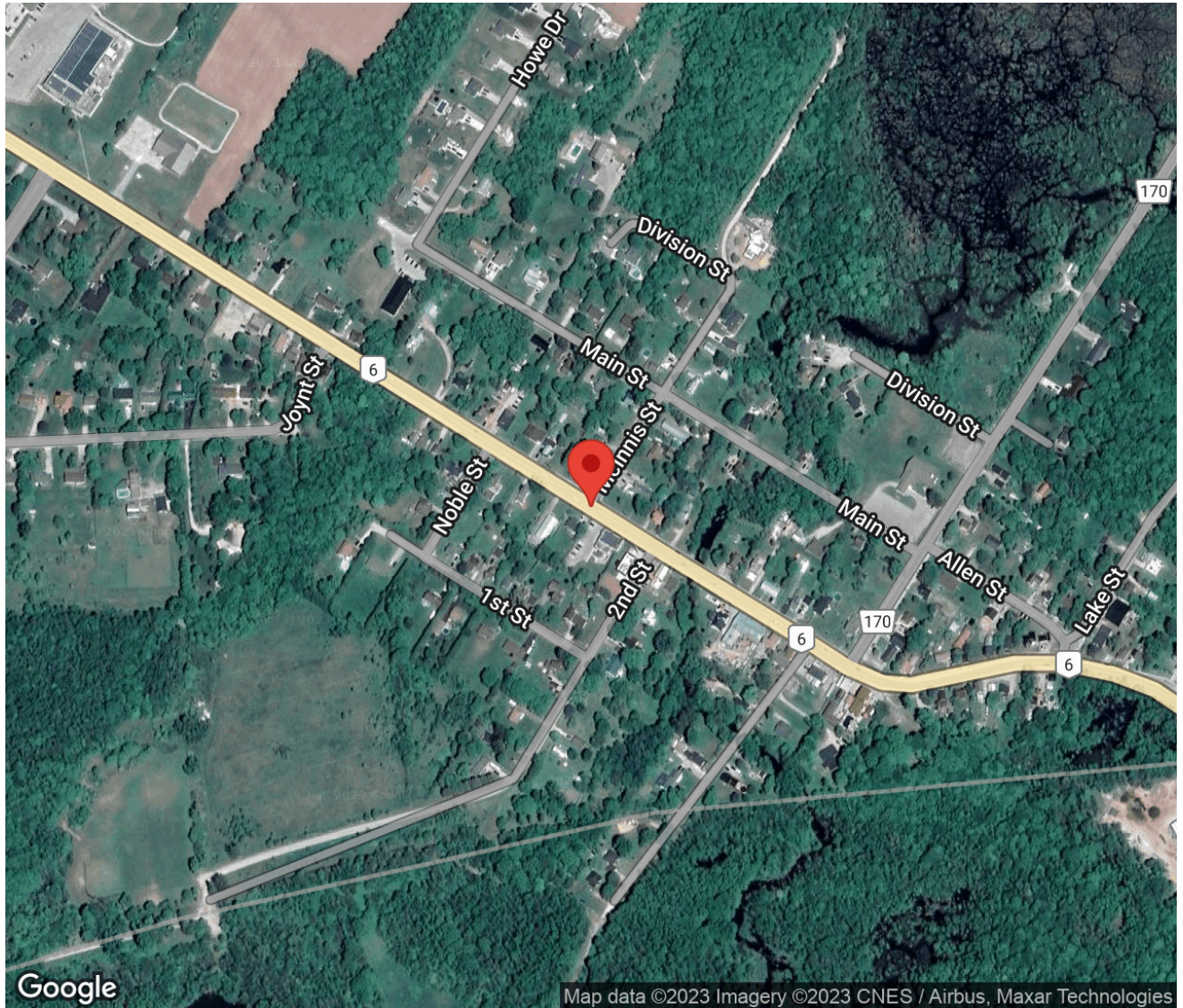
Project #23-275 - Tatham Engineering Ltd

Intersection Count Report

Intersection: Hwy 6 & McInnis St
Municipality: Georgian Bluffs
Count Date: Wednesday, Sep 06, 2023
Site Code: 2327500001
Count Categories: Cars, Trucks, Bicycles, Pedestrians
Count Period: 07:00-09:00, 12:00-14:00, 15:00-18:00
Weather: Clear
Comments:

Traffic Count Map

Intersection:	Hwy 6 & McInnis St
Site Code:	2327500001
Municipality:	Georgian Bluffs
Count Date:	Sep 06, 2023



Traffic Count Summary

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

Hwy 6 - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	5	310	0	0	315	0	0	234	4	0	238	3	553
08:00 - 09:00	4	392	0	0	396	1	0	248	5	0	253	1	649
BREAK													
12:00 - 13:00	2	297	0	0	299	0	0	290	5	0	295	0	594
13:00 - 14:00	8	324	0	0	332	0	0	322	2	0	324	1	656
BREAK													
15:00 - 16:00	6	346	0	0	352	0	0	353	12	0	365	0	717
16:00 - 17:00	7	316	0	0	323	0	0	389	9	0	398	2	721
17:00 - 18:00	11	286	0	0	297	0	0	291	17	0	308	0	605
GRAND TOTAL	43	2271	0	0	2314	1	0	2127	54	0	2181	7	4495

Traffic Count Summary

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

McInnis St - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	14	0	14	0	28	3	0	0	0	0	0	0	28
08:00 - 09:00	9	0	9	0	18	3	0	0	0	0	0	0	18
BREAK													
12:00 - 13:00	4	0	11	0	15	0	0	0	0	0	0	0	15
13:00 - 14:00	5	0	2	0	7	0	0	0	0	0	0	0	7
BREAK													
15:00 - 16:00	5	0	6	0	11	0	0	0	0	0	0	0	11
16:00 - 17:00	5	0	2	0	7	0	0	0	0	0	0	0	7
17:00 - 18:00	5	0	4	0	9	0	0	0	0	0	0	0	9
GRAND TOTAL	47	0	48	0	95	6	0	0	0	0	0	0	95

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

North Approach - Hwy 6

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	52	0	0	53	0	3	0	0	3	0	0	0	0	0	0
07:15	1	77	0	0	78	0	2	0	0	2	0	0	0	0	0	0
07:30	2	96	0	0	98	0	2	0	0	2	0	0	0	0	0	0
07:45	1	72	0	0	73	0	6	0	0	6	0	0	0	0	0	0
08:00	1	100	0	0	101	1	7	0	0	8	0	0	0	0	0	1
08:15	1	104	0	0	105	0	4	0	0	4	0	0	0	0	0	0
08:30	1	95	0	0	96	0	0	0	0	0	0	0	0	0	0	0
08:45	0	72	0	0	72	0	9	0	0	9	0	1	0	0	1	0
SUBTOTAL	8	668	0	0	676	1	33	0	0	34	0	1	0	0	1	1

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

North Approach - Hwy 6

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:00	1	77	0	0	78	0	5	0	0	5	0	0	0	0	0	0
12:15	0	56	0	0	56	0	8	0	0	8	0	0	0	0	0	0
12:30	0	74	0	0	74	0	4	0	0	4	0	0	0	0	0	0
12:45	1	66	0	0	67	0	7	0	0	7	0	0	0	0	0	0
13:00	4	71	0	0	75	0	7	0	0	7	0	0	0	0	0	0
13:15	2	77	0	0	79	0	3	0	0	3	0	0	0	0	0	0
13:30	1	81	0	0	82	0	2	0	0	2	0	0	0	0	0	0
13:45	1	79	0	0	80	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	10	581	0	0	591	0	40	0	0	40	0	0	0	0	0	0

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

North Approach - Hwy 6

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	1	75	0	0	76	0	4	0	0	4	0	0	0	0	0	0
15:15	0	73	0	0	73	0	7	0	0	7	0	0	0	0	0	0
15:30	3	105	0	0	108	0	8	0	0	8	0	0	0	0	0	0
15:45	2	70	0	0	72	0	4	0	0	4	0	0	0	0	0	0
16:00	1	93	0	0	94	0	5	0	0	5	0	0	0	0	0	0
16:15	1	63	0	0	64	0	5	0	0	5	0	0	0	0	0	0
16:30	2	64	0	0	66	0	7	0	0	7	0	0	0	0	0	0
16:45	3	73	0	0	76	0	6	0	0	6	0	0	0	0	0	0
17:00	5	66	0	0	71	0	10	0	0	10	0	0	0	0	0	0
17:15	1	90	0	0	91	0	2	0	0	2	0	0	0	0	0	0
17:30	5	64	0	0	69	0	1	0	0	1	0	0	0	0	0	0
17:45	0	51	0	0	51	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	24	887	0	0	911	0	61	0	0	61	0	0	0	0	0	0
GRAND TOTAL	42	2136	0	0	2178	1	134	0	0	135	0	1	0	0	1	1

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

South Approach - Hwy 6

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	31	0	0	31	0	4	0	0	4	0	0	0	0	0	0
07:15	0	59	0	0	59	0	3	0	0	3	0	0	0	0	0	0
07:30	0	67	1	0	68	0	9	0	0	9	0	0	0	0	0	3
07:45	0	57	2	0	59	0	4	1	0	5	0	0	0	0	0	0
08:00	0	56	1	0	57	0	1	0	0	1	0	0	0	0	0	1
08:15	0	64	1	0	65	0	7	0	0	7	0	0	0	0	0	0
08:30	0	47	2	0	49	0	7	0	0	7	0	0	0	0	0	0
08:45	0	58	1	0	59	0	8	0	0	8	0	0	0	0	0	0
SUBTOTAL	0	439	8	0	447	0	43	1	0	44	0	0	0	0	0	4

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

South Approach - Hwy 6

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
12:00	0	64	1	0	65	0	5	0	0	5	0	0	0	0	0	0
12:15	0	68	1	0	69	0	4	0	0	4	0	0	0	0	0	0
12:30	0	64	1	0	65	0	7	0	0	7	0	0	0	0	0	0
12:45	0	76	2	0	78	0	2	0	0	2	0	0	0	0	0	0
13:00	0	75	1	0	76	0	6	0	0	6	0	0	0	0	0	0
13:15	0	87	1	0	88	0	11	0	0	11	0	0	0	0	0	0
13:30	0	70	0	0	70	0	4	0	0	4	0	0	0	0	0	1
13:45	0	67	0	0	67	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	0	571	7	0	578	0	41	0	0	41	0	0	0	0	0	1

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

South Approach - Hwy 6

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↺	Total	←	↑	→	↺	Total	←	↑	→	↺	Total	
15:00	0	61	3	0	64	0	10	0	0	10	0	0	0	0	0	0
15:15	0	84	1	0	85	0	3	0	0	3	0	0	0	0	0	0
15:30	0	75	3	0	78	0	7	0	0	7	0	0	0	0	0	0
15:45	0	105	5	0	110	0	8	0	0	8	0	0	0	0	0	0
16:00	0	94	2	0	96	0	4	0	0	4	0	0	0	0	0	0
16:15	0	79	1	0	80	0	1	0	0	1	0	0	0	0	0	2
16:30	0	97	3	0	100	0	1	0	0	1	0	0	0	0	0	0
16:45	0	111	3	0	114	0	2	0	0	2	0	0	0	0	0	0
17:00	0	82	5	0	87	0	3	0	0	3	0	0	0	0	0	0
17:15	0	83	3	0	86	0	1	1	0	2	0	0	0	0	0	0
17:30	0	79	6	0	85	0	1	0	0	1	0	0	0	0	0	0
17:45	0	41	2	0	43	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	991	37	0	1028	0	42	1	0	43	0	0	0	0	0	2
GRAND TOTAL	0	2001	52	0	2053	0	126	2	0	128	0	0	0	0	0	7

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

East Approach - McInnis St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0
07:15	2	0	7	0	9	1	0	0	0	1	0	0	0	0	0	1
07:30	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0
07:45	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	2
08:00	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0	0
08:15	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	3
08:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:45	2	0	3	0	5	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	22	0	22	0	44	1	0	1	0	2	0	0	0	0	0	6

[illegible]

Traffic Count Data

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Municipality: Georgian Bluffs
Count Date: Sep 06, 2023

East Approach - McInnis St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
15:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
15:15	2	0	0	0	2	0	0	1	0	1	0	0	0	0	0	0
15:30	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	0
16:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:15	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
16:45	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
17:15	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
17:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
17:45	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	14	0	10	0	24	1	0	2	0	3	0	0	0	0	0	0
GRAND TOTAL	45	0	45	0	90	2	0	3	0	5	0	0	0	0	0	6

Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 07:30:00
To: 08:30:00

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Count Date: Sep 06, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
	377	254	631
	20	21	41
	0	0	0
Totals	397	275	672

Hwy 6

	0	0	0
	19	1	0
	372	5	0
Totals	391	6	0

↓ ↘ ↻

East Approach

	Out	In	Total
	24	10	34
	0	2	2
	0	0	0
Totals	24	12	36

Peds: 1



Peds: 4

	↑	↘	↻
Totals	265	6	0
	244	5	0
	21	1	0
	0	0	0

Hwy 6

McInnis St

Totals			
0	0	0	0
10	10	0	0
14	14	0	0

↻ ↻ ↓

South Approach

	Out	In	Total
	249	386	635
	22	19	41
	0	0	0
Totals	271	405	676

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Count Date: Sep 06, 2023
Period: 07:00 - 09:00

Peak Hour Data (07:30 - 08:30)

Start Time	North Approach Hwy 6						South Approach Hwy 6						East Approach McInnis St						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:30	2	98		0	0	100		76	1	0	3	77	5		1	0	0	6					0		183
07:45	1	78		0	0	79		61	3	0	0	64	4		4	0	2	8					0		151
08:00	2	107		0	1	109		57	1	0	1	58	3		3	0	0	6					0		173
08:15	1	108		0	0	109		71	1	0	0	72	2		2	0	3	4					0		185
Grand Total	6	391		0	1	397		265	6	0	4	271	14		10	0	5	24					0	0	692
Approach %	1.5	98.5		0	-	-		97.8	2.2	0	-	-	58.3		41.7	0	-	-					-	-	-
Totals %	0.9	56.5		0	-	57.4		38.3	0.9	0	-	39.2	2		1.4	0	-	3.5					0	-	-
PHF	0.75	0.91		0	-	0.91		0.87	0.5	0	-	0.88	0.7		0.63	0	-	0.75					0	-	0.94
Cars	5	372		0	-	377		244	5	0	-	249	14		10	0	-	24					0	-	650
% Cars	83.3	95.1		0	-	95		92.1	83.3	0	-	91.9	100		100	0	-	100					0	-	93.9
Trucks	1	19		0	-	20		21	1	0	-	22	0		0	0	-	0					0	-	42
% Trucks	16.7	4.9		0	-	5		7.9	16.7	0	-	8.1	0		0	0	-	0					0	-	6.1
Bicycles	0	0		0	-	0		0	0	0	-	0	0		0	0	-	0					0	-	0
% Bicycles	0	0		0	-	0		0	0	0	-	0	0		0	0	-	0					0	-	0
Peds					1	-					4	-					5	-					0	-	10
% Peds					10	-					40	-					50	-					0	-	-

Peak Hour Diagram

Specified Period

From: 12:00:00
To: 14:00:00

One Hour Peak

From: 12:45:00
To: 13:45:00

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Count Date: Sep 06, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
	303	313	616
	19	23	42
	0	0	0
Totals	322	336	658

Hwy 6

	0	0	0
	19	0	0
	295	8	0
Totals	314	8	0

↓ ↘ ↻

East Approach

	Out	In	Total
	10	12	22
	0	0	0
	0	0	0
Totals	10	12	22

Peds: 0



Peds: 1

	331	4	0
	23	0	0
	0	0	0
Totals	331	4	0

↑ ↘ ↻

Hwy 6

McInnis St

Totals			
0	0	0	0
5	5	0	0
5	5	0	0

↻ ↑ ↓

South Approach

	Out	In	Total
	312	300	612
	23	19	42
	0	0	0
Totals	335	319	654

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Count Date: Sep 06, 2023
Period: 12:00 - 14:00

Peak Hour Data (12:45 - 13:45)

	North Approach Hwy 6						South Approach Hwy 6						East Approach McInnis St						West Approach						Total Vehicle es		
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total			
12:45	1	73		0	0	74		78	2	0	0	80	0		3	0	0	3					0		157		
13:00	4	78		0	0	82		81	1	0	0	82	2		1	0	0	3					0		167		
13:15	2	80		0	0	82		98	1	0	0	99	3		1	0	0	4					0		185		
13:30	1	83		0	0	84		74	0	0	1	74	0		0	0	0	0					0		158		
Grand Total	8	314		0	0	322		331	4	0	1	335	5		5	0	0	10					0	0	667		
Approach %	2.5	97.5		0		-		98.8	1.2	0		-	50		50	0		-					-				
Totals %	1.2	47.1		0		48.3		49.6	0.6	0		50.2	0.7		0.7	0		1.5					0				
PHF	0.5	0.95		0		0.96		0.84	0.5	0		0.85	0.42		0.42	0		0.63					0		0.9		
Cars	8	295		0		303		308	4	0		312	5		5	0		10					0		625		
% Cars	100	93.9		0		94.1		93.1	100	0		93.1	100		100	0		100					0		93.7		
Trucks	0	19		0		19		23	0	0		23	0		0	0		0					0		42		
% Trucks	0	6.1		0		5.9		6.9	0	0		6.9	0		0	0		0					0		6.3		
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0					0		0		
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0					0		0		
Peds						0	-						1	-						0	-						1
% Peds						0	-						100	-						0	-						

Peak Hour Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 15:15:00
To: 16:15:00

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Count Date: Sep 06, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Hwy 6 runs N/S

North Approach

	Out	In	Total
	347	362	709
	24	24	48
	0	0	0
Totals	371	386	757

Hwy 6

	0	0	0
	24	0	0
	341	6	0
Totals	365	6	0

↓ ↘ ↻

East Approach

	Out	In	Total
	9	17	26
	2	0	2
	0	0	0
Totals	11	17	28

Peds: 0



McInnis St

Totals			
0	0	0	0
6	4	2	0
5	5	0	0

↻ ↗ ↓

Peds: 0

	↑	↘	↻
Totals	380	11	0
	358	11	0
	22	0	0
	0	0	0

South Approach

	Out	In	Total
	369	346	715
	22	24	46
	0	0	0
Totals	391	370	761

Hwy 6

 - Cars

 - Trucks

 - Bicycles

Comments

Peak Hour Summary

Intersection: Hwy 6 & McInnis St
Site Code: 2327500001
Count Date: Sep 06, 2023
Period: 15:00 - 18:00

Peak Hour Data (15:15 - 16:15)

	North Approach Hwy 6						South Approach Hwy 6						East Approach McInnis St						West Approach						Total Vehicle es
Start Time	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
15:15	0	80		0	0	80		87	1	0	0	88	2		1	0	0	3					0		171
15:30	3	113		0	0	116		82	3	0	0	85	2		2	0	0	4					0		205
15:45	2	74		0	0	76		113	5	0	0	118	0		3	0	0	3					0		197
16:00	1	98		0	0	99		98	2	0	0	100	1		0	0	0	1					0		200
Grand Total	6	365		0	0	371		380	11	0	0	391	5		6	0	0	11					0	0	773
Approach %	1.6	98.4		0		-		97.2	2.8	0		-	45.5		54.5	0		-					-		
Totals %	0.8	47.2		0		48		49.2	1.4	0		50.6	0.6		0.8	0		1.4					0		
PHF	0.5	0.81		0		0.8		0.84	0.55	0		0.83	0.63		0.5	0		0.69					0		0.94
Cars	6	341		0		347		358	11	0		369	5		4	0		9					0		725
% Cars	100	93.4		0		93.5		94.2	100	0		94.4	100		66.7	0		81.8					0		93.8
Trucks	0	24		0		24		22	0	0		22	0		2	0		2					0		48
% Trucks	0	6.6		0		6.5		5.8	0	0		5.6	0		33.3	0		18.2					0		6.2
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0					0		0
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0					0		0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Appendix C: MTO Seasonal Factors

2019 S.A.D.T., S.A.W.D.T., W.A.D.T. AND D.H.V. FACTORS FOR USE IN 2020

	PATTERN TYPE	MULTIPLY A.A.D.T. BY				
		PCS #	SADT	SAWDT	WADT	DHV%
C O M M U T E R	URBAN COMMUTER	74	0.99	1.00	0.96	8.6
	SUBURBAN COMMUTER	22	1.06	1.06	0.88	5.5
	COMMUTER	90	1.09	1.09	0.91	5.5
I N T E R M E D I A T E	INTERMEDIATE COMMUTER	30	1.10	1.10	0.90	9.9
	COMMUTER RECREATION	37	1.16	1.17	0.90	8.3
	INTERMEDIATE RECREATION	4,32,43,91	1.19	1.19	0.87	10.6
	COM. TOURIST RECREATION	9	1.33	1.33	0.81	12.2
	INTERMEDIATE TOURIST	27	1.33	1.33	0.85	12.1
T O U R I S T	LOW TOURIST	33,47,49	1.34	1.34	0.80	11.9
	TOURIST	69	1.37	1.38	0.79	12.6
	HIGH TOURIST	68	1.56	1.56	0.64	19.9
R E C	LOW RECREATION	5 ,41,86	1.55	1.53	0.72	19.7
	RECREATION	36	1.79	1.76	0.61	21.6
	HIGH RECREATION	28	1.62	1.62	0.68	20.4

Based on PDCS data for the year: **2019**
 DHV % is from 2011

Appendix D: LOS Definitions

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

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 E: Existing Operations

HCM Unsignalized Intersection Capacity Analysis

3: Highway 6 & McInnis St

2025 Existing Conditions

AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (veh/h)	6	553	375	6	15	10
Future Volume (Veh/h)	6	553	375	6	15	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	601	408	7	16	11
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	415				1026	412
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415				1026	412
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				94	98
cM capacity (veh/h)	1144				258	640
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	608	415	27			
Volume Left	7	0	16			
Volume Right	0	7	11			
cSH	1144	1700	341			
Volume to Capacity	0.01	0.24	0.08			
Queue Length 95th (m)	0.1	0.0	1.9			
Control Delay (s)	0.2	0.0	16.5			
Lane LOS	A		C			
Approach Delay (s)	0.2	0.0	16.5			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			43.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: McInnis St & Main St

2025 Existing Conditions

AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	18	4	5	5	9	1	2	5	2	5
Future Volume (Veh/h)	5	5	18	4	5	5	9	1	2	5	2	5
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)	5	5	20	4	5	5	10	1	2	5	2	5
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	44	38	4	59	39	2	7	3				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	44	38	4	59	39	2	7	3				
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 %	99	99	98	100	99	100	99	100				
cM capacity (veh/h)	943	847	1079	909	845	1082	1614	1619				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	30	14	13	12								
Volume Left	5	4	10	5								
Volume Right	20	5	2	5								
cSH	1009	937	1614	1619								
Volume to Capacity	0.03	0.01	0.01	0.00								
Queue Length 95th (m)	0.7	0.3	0.1	0.1								
Control Delay (s)	8.7	8.9	5.6	3.0								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	8.9	5.6	3.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay	7.2											
Intersection Capacity Utilization	13.3%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

3: Highway 6 & McInnis St

2025 Existing Conditions

PM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	516	538	11	5	6
Future Volume (Veh/h)	6	516	538	11	5	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	561	585	12	5	7
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	597				1166	591
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597				1166	591
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	980				213	507
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	568	597	12			
Volume Left	7	0	5			
Volume Right	0	12	7			
cSH	980	1700	322			
Volume to Capacity	0.01	0.35	0.04			
Queue Length 95th (m)	0.2	0.0	0.9			
Control Delay (s)	0.2	0.0	16.6			
Lane LOS	A		C			
Approach Delay (s)	0.2	0.0	16.6			
Approach LOS			C			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		41.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: McInnis St & Main St

2025 Existing Conditions

PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	8	2	5	5	13	1	3	5	1	5
Future Volume (Veh/h)	5	5	8	2	5	5	13	1	3	5	1	5
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)	5	5	9	2	5	5	14	1	3	5	1	5
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	52	46	4	56	46	2	6			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	52	46	4	56	46	2	6			4		
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 %	99	99	99	100	99	100	99			100		
cM capacity (veh/h)	931	836	1080	922	835	1082	1615			1618		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	12	18	11								
Volume Left	5	2	14	5								
Volume Right	9	5	3	5								
cSH	965	939	1615	1618								
Volume to Capacity	0.02	0.01	0.01	0.00								
Queue Length 95th (m)	0.5	0.3	0.2	0.1								
Control Delay (s)	8.8	8.9	5.7	3.3								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.8	8.9	5.7	3.3								
Approach LOS	A	A										
Intersection Summary												
Average Delay				6.9								
Intersection Capacity Utilization				13.3%	ICU Level of Service				A			
Analysis Period (min)				15								

Appendix F: Total Operations

HCM Unsignalized Intersection Capacity Analysis

3: Highway 6 & McInnis St

2030 Total Conditions
AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	611	414	9	23	16
Future Volume (Veh/h)	8	611	414	9	23	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	664	450	10	25	17
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	460				1137	455
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				1137	455
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				89	97
cM capacity (veh/h)	1101				221	605
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	673	460	42			
Volume Left	9	0	25			
Volume Right	0	10	17			
cSH	1101	1700	298			
Volume to Capacity	0.01	0.27	0.14			
Queue Length 95th (m)	0.2	0.0	3.7			
Control Delay (s)	0.2	0.0	19.1			
Lane LOS	A		C			
Approach Delay (s)	0.2	0.0	19.1			
Approach LOS			C			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization		48.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

5: McInnis St & Main St

2030 Total Conditions

AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	32	4	5	5	14	1	2	5	2	5
Future Volume (Veh/h)	5	5	32	4	5	5	14	1	2	5	2	5
Sign Control	Stop				Stop				Free			
Grade	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)	5	5	35	4	5	5	15	1	2	5	2	5
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	54	48	4	84	49	2	7				3	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	54	48	4	84	49	2	7				3	
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 %	99	99	97	100	99	100	99				100	
cM capacity (veh/h)	927	834	1079	861	832	1082	1614				1619	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	45	14	18	12								
Volume Left	5	4	15	5								
Volume Right	35	5	2	5								
cSH	1027	917	1614	1619								
Volume to Capacity	0.04	0.02	0.01	0.00								
Queue Length 95th (m)	1.0	0.4	0.2	0.1								
Control Delay (s)	8.7	9.0	6.1	3.0								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.0	6.1	3.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilization			13.3%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: Highway 6 & McInnis St

2030 Total Conditions
PM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	570	594	21	11	10
Future Volume (Veh/h)	12	570	594	21	11	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	620	646	23	12	11
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	669				1304	658
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	669				1304	658
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	921				175	465
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	633	669	23			
Volume Left	13	0	12			
Volume Right	0	23	11			
cSH	921	1700	249			
Volume to Capacity	0.01	0.39	0.09			
Queue Length 95th (m)	0.3	0.0	2.3			
Control Delay (s)	0.4	0.0	20.9			
Lane LOS	A		C			
Approach Delay (s)	0.4	0.0	20.9			
Approach LOS			C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			49.6%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis

5: McInnis St & Main St

2030 Total Conditions

PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	18	2	5	5	29	1	3	5	1	0
Future Volume (Veh/h)	5	5	18	2	5	5	29	1	3	5	1	0
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)	5	5	20	2	5	5	32	1	3	5	1	0
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	85	79	1	100	78	2	1				4	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	85	79	1	100	78	2	1				4	
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 %	99	99	98	100	99	100	98				100	
cM capacity (veh/h)	877	793	1084	846	794	1082	1622				1618	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	30	12	36	6								
Volume Left	5	2	32	5								
Volume Right	20	5	3	0								
cSH	985	903	1622	1618								
Volume to Capacity	0.03	0.01	0.02	0.00								
Queue Length 95th (m)	0.7	0.3	0.5	0.1								
Control Delay (s)	8.8	9.0	6.5	6.0								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.8	9.0	6.5	6.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			7.6									
Intersection Capacity Utilization			13.3%	ICU Level of Service				A				
Analysis Period (min)			15									