TATHAM ENGINEERING

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1191 County Road 42

TRANSPORTATION IMPACT STUDY

Mamta Homes

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	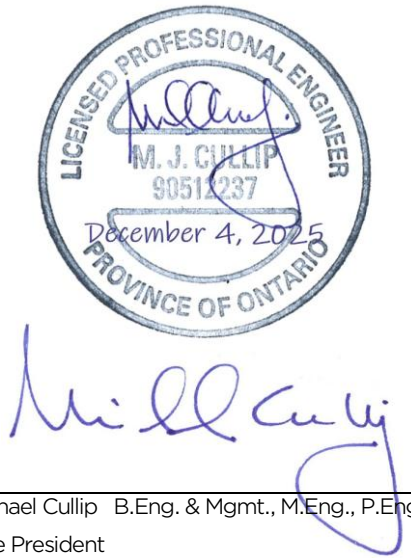
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Issue	Date	Description
1	December 4, 2025	Final Report

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1 Introduction

Tatham Engineering Limited was retained by Mamta Homes to address the traffic impacts associated with the proposed residential development to be located at 1191 County Road 42 in the Township of Clearview. 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 study and to address the requirements of the Township of Clearview and 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.

This study has been completed in context of the Terms of Reference provided in Appendix A.

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);
- 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);
- Chapter 6: 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 consists of County Road 42 (Airport Road), Margaret Street and their respective intersection. Aerial mapping of the road network is provided in Figure 2.

2.1.1 Roads

County Road 42 (Airport Road)

As per the *County of Simcoe Official Plan*[1], County Road 42 from Margaret Street proceeding south is designated a Primary Arterial, under the jurisdiction of Simcoe County. Similarly, *The Official Plan Township of the Township of Clearview*[2] designates the road as a County Primary Arterial south of Margaret Street and a Township Arterial north of Margaret Street (extending to Wyant Drive, beyond which it is designated a Provincial Highway). Notwithstanding the noted limit of County/Township jurisdiction as per the respective Official Plans, County staff have indicated that the limit has been extended to the south boundary of the Stayner settlement area, approximately 430 metres south of Margaret Street. For ease of reference, the road is hereinafter referred to as County Road 42

Throughout the study area, County Road 42 (Airport Road) has a two-lane rural cross-section, providing one lane of travel per direction with asphalt/gravel shoulders and open ditches. The speed limit is 80 km/h upon approach to Stayner, reduced to 50 km/h in advance of Margaret Street.

Margaret Street

As per *The Official Plan Township of the Township of Clearview*, Margaret Street is an east-west collector road under the jurisdiction of the Township. The road is oriented east-west and has a 2-lane rural cross-section (gravel/grass shoulders with open ditches) providing one travel lane per direction. The speed limit is unposted and thus a speed limit of 50 km/h has been assumed (as is typical in built-up areas including Stayner).

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[1] *County of Simcoe Official Plan,* Office Consolidation February 2023.
[2] *The Official Plan Township of the Township of Clearview,* May 2024.

2.1.2 Intersection

County Road 42 & Margaret Street

The intersection of County Road 42 with Margaret Street is a 3-leg, unsignalized intersection with stop control on Margaret Street. The north approach (County Road 42) consists of a shared left-through lane, while the south approach consists of a shared through-right lane. The east approach (Margaret Street) consists of a shared left-right turn lane.

2.2 ACTIVE TRANSPORTATION NETWORK

There are currently no active transportation facilities (i.e. sidewalks, bike lanes, multi-use trails, etc.) provided on Margaret Street, County Road 42 or the other residential roads in the immediate vicinity of the site.

2.3 PUBLIC TRANSIT NETWORK

Clearview Public Transit operates one bus serving Stayner with a connection to Wasaga Beach. The service operates 7-days a week (6:30AM to 8:30PM Monday to Saturday and 8:30AM to 5:30PM on Sunday) on a 1-hour headway. The closest bus stops to the subject site are located at the intersection of Christopher Street with Huron Street (1.25 km) and at the intersection of Charles Street with Oak Street (1 km).

Linx Transit, operated by the County of Simcoe, also provides service to the Stayner area. Route 2, which connects the City of Barrie with the Town of Wasaga Beach includes a stop at the Clearview Administration Centre in Stayner. The service operates on a 1-hour headway, Monday to Friday (5:30AM to 6:30PM). Clearview Public Transit also stops at the Clearview Administration Centre, facilitating connection to the Linx Transit service and access to Barrie and Wasaga Beach.

The existing transit services are illustrated in Figure 3.

2.4 TRAFFIC VOLUMES

2.4.1 Traffic Counts

To determine existing traffic volumes on the study area road network, traffic counts were conducted on Tuesday May 6, 2025 (7:00AM to 10:00PM and 3:00PM to 6:00PM) at the intersection of County Road 42 with Margaret Street. The observed volumes are illustrated in Figure 4, whereas the count details are provided in Appendix B.

2.4.2 Seasonal Adjustment

As noted, the traffic counts were collected in May and thus are considered reflective of spring conditions. To determine whether a seasonal adjustment is required, seasonal average daily

traffic (ADT) volumes were obtained from the County for County Road 42, south of Stayner. The ADT volumes for the spring, summer and fall of 2024 (the most recent data available) are summarized in Table 1.

Table 1: County Road 42 Traffic Volumes (Stayner South Limits to County Road 9)

YEAR	SPRING	SUMMER	FALL	SEASONAL FACTOR (SUMMER/SPRING)
2024	5,361	6,162	6,139	1.15

As evident, daily volumes on County Road 42 were greatest during the summer period (albeit comparable to the fall period). In comparison to the spring period, the summer daily volumes are 15% greater. In this regard, a seasonal factor of 1.15 has been applied to the observed traffic counts to reflect the peak summer season. While Margaret Street is a residential collector road within Stayner and not likely to experience seasonal variations, the adjustment factor has nonetheless been applied to the volumes on Margaret Street to ensure a conservative approach.

2.4.3 2025 Traffic Volumes

The resulting 2025 traffic volumes, reflective of the volumes observed during May 2025 counts and adjusted for seasonal variation, are illustrated in Figure 5.

2.5 TRAFFIC OPERATIONS

The capacity, and hence operations, of a road system is effectively dictated by its intersections. As such, the traffic assessment has focused on the operations of the 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 the following for the critical movements (i.e. stop controlled movements the minor approach and uncontrolled left turn movements from the major approach):

- the average delay (measured in seconds);

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

- level of service (LOS) - LOS A corresponds to the best operating condition with minimal delays whereas LOS F corresponds to poor operations resulting from high intersection delays (LOS definitions are provided in Appendix C); and
- volume to capacity (v/c) ratios - 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 analysis is provided in Table 2, whereas detailed worksheets are included in Appendix D.

Table 2: Intersection Operations – 2025

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	10	A	0.03	11	B	0.01
	SB LT	free	1	A	0.01	1	A	0.02

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

2.6 NEED FOR IMPROVEMENTS

2.6.1 Traffic Operations

Based on the existing volumes, intersection configuration and control, the intersection of County Road 42 with Margaret Street provides excellent overall levels of service (LOS B or better) with minor delays during the peak hours. As such, no intersection improvements are required to support the existing conditions.

2.6.2 Turn Lane Requirements

Despite the otherwise excellent operations provided at the intersection of County Road 42 with Margaret Street, the need for exclusive left and right turn lanes on County Road 42 has been reviewed. The review has been conducted in consideration of TAC/MTO guidance and warrant criteria for exclusive left and right turn lanes at unsignalized intersections.

Right Turn Lane

TAC guidelines suggest that exclusive right turn lanes be considered where right turn volumes exceed 60 vehicles per hour and impede the operations of through traffic. Based on the existing northbound right turn volumes (6 vehicles per hour or less), an exclusive right turn lane is not warranted at the subject intersection.

Left Turn Lane

With respect to left turn lanes, the need for such is based on TAC/MTO warrant criteria for unsignalized intersections on undivided two-lane highways. The warrants consider the volume of advancing and opposing traffic, the percentage of left turning traffic in the advancing volumes and the design speed of the road (in this case 60 km/h, reflective of the posted speed on County Road 42 + 10 km/h). The completed warrants are provided in Appendix E, with results of the warrant analysis summarized in Table 3 for the AM and PM peak hour conditions. As indicated, an exclusive southbound left turn lane on County Road 42 at Margaret Street is not warranted under existing conditions.

Table 3: Left Turn Lane Warrant – County Road 42 (2025)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	229	222	10	NO
PM Peak Hour	southbound	275	320	18	NO

3 Future Background Conditions

This chapter will describe the road network and background traffic volumes expected for the years 2035, 2040 and 2045. The 2035 horizon year has been adopted to reflect full build-out of the proposed development, whereas the 2040 and 2045 horizons will address the longer-term impacts (5 and 10 years beyond build-out).

3.1 ROAD NETWORK

As denoted in the Township's Official Plan, Margaret Street is to be extended to the east to Warrington Road. As per Township staff, the extension is expected to be constructed by the 2040 horizon. In reviewing the proposed extension of Margaret Street in context of traffic patterns through subject study area, the impact of the extension is expected to be limited given the orientation of Warrington Road and lack of a direct connection to Highway 26 (i.e. it is unlikely to serve as an alternative route through the area). In this regard, impacts to the immediate study area considered in this study (i.e. the intersection of County Road 42 with Margaret Street) will be minimal.

The *Ashton Meadows Traffic Impact Study*[4] identifies the need for exclusive turn lanes on County Road 42 at Margaret Street by 2024 in support of the Ashton Meadows development. Recognizing that the pace of development assumed in the *Ashton Meadows TIS* has not materialized as anticipated and further noting that the improvements have not been implemented, the need for the exclusive turn lanes on County Road 42 has been re-assessed as part of the analysis contained herein and considers the updated traffic volumes and future projections.

3.2 TRAFFIC VOLUMES

Future background traffic volumes expected for the 2035, 2040 and 2045 horizon years have been determined based on the existing traffic volumes, historical and projected growth, and additional traffic associated with other planned development within the immediate area (apart from the subject development).

[4] *Ashton Meadows Traffic Impact Study.* AECOM, May 25, 2020.

3.2.1 Background Growth

Population & Employment

To establish recent growth trends in the area, census data for the Township and County for the years 2011, 2016 and 2021 was reviewed. The data and corresponding annual growth rates are summarized in Table 4. As indicated, the Township and County have experienced annual growth in the order of 0.8% and 2.3%, respectively, over the noted 10-year horizon. Annual growth over the more recent 5-year period (2016 to 2021) is slightly greater at 0.9% and 2.8%.

Table 4: Historical Population Growth

AREA	POPULATION			ANNUAL GROWTH RATE		
	2011	2016	2021	2011-16	2016-21	2011-21
Clearview	13,734	14,151	14,814	0.60%	0.92%	0.76%
Simcoe County	279,414	307,035	351,929	1.90%	2.77%	2.33%

The County of Simcoe's *Growth Forecasts and Land Needs Assessment*[5] report provides population and employment forecasts for the Township from 2021 to 2051. The report identifies a projected population of 21,820 persons by 2051, representing a population growth rate of approximately 1.3% per annum when considering the 2021 census data.

Regarding employment, the County's report identifies that Clearview provided approximately 4,350 jobs in 2021 and is forecast to provide 6,290 jobs by 2051. This translates to an average employment growth rate of approximately 1.2% per annum.

For the County overall, population and employment growth are expected to be approximately 1.5% and 1.8%, respectively, over the 2021 to 2051 period.

Traffic Volumes

Historical Annual Average Daily Traffic volumes (AADT) published by the County and summarized in Table 5, indicate that volumes on County Road 42 have experienced growth in the order of 0.9% per annum between 2018 and 2024 and 1.8% per annum between 2021 and 2024.

[5] *Growth Forecasts and Land Needs Assessment*. Hemson Consulting Ltd., March 31, 2022.

Table 5: Historical Traffic Volume Growth

ROAD SECTION	ANNUAL AVERAGE DAILY TRAFFIC			ANNUAL GROWTH RATE	
	2018	2021	2024	2018 to 2024	2021 to 2024
County Road 42 - County Road 9 to south Stayner Limits	5,600	5,600	5,900	0.90%	1.8%

Background Growth Rate

In consideration of historical and projected growth within the Township and County, a background growth rate of 2% per annum has been applied to the through volumes on County Road 42. For traffic volumes to/from Margaret Street, an annual growth rate of 1% has been applied. It is noted that these rates have been confirmed as appropriate with Township staff through the Terms of Reference.

3.2.2 Background Development

In addition general background growth, Township staff identified the following developments for consideration in the establishment of future background volumes:

- Mamta Homes (Margaret Street);
- Ashton Meadows Phase 1; and
- Ashton Meadows Phase 2 & 3.

The locations of the aforementioned background developments are illustrated in Figure 6, whereas excerpts from the corresponding traffic studies (where available) are provided in Appendix F. Additional development details are provided below.

Mamta Homes (Margaret Street)

The Mamta Homes Margaret Street subdivision is located at 209 Margaret Street, immediately east of the subject development. The proposed development has received draft approval and is to consist of 69 single detached residential units.

Trip estimates for the development have been established based on trip generation rates provided in the ITE *Trip Generation Manual*[6]*, 12th Edition* for the *single family detached* (ITE code

[6] *Trip Generation Manual, 12th Edition.* Institute of Transportation Engineers, August 2025.

210) land use. For the purpose of this assessment it is assumed that all units will be constructed by 2035. The ITE trip rates and the resulting trip estimates are summarized in Table 6.

Table 6: Trip Generation – Mamta Homes (Margaret Street)

LAND USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
single family detached (ITE 210)	units	0.19	0.51	0.70	0.58	0.35	0.93
Mamta Homes (Margaret Street)	69	13	35	48	40	24	64

As noted, the Mamta Homes Margaret Street development is expected to generate 48 new trips during the weekday AM peak hour and 64 trips during the weekday PM peak hour upon full build-out. The development traffic has been assigned to the study area road network based on the trip distribution/assignment assumptions provided in Section 4.7.2 The assignment of trips through the road network is illustrated in Figure 7.

Ashton Meadows Phase 1

The Ashton Meadows (Phase 1) development is located immediately east of the Mamta Homes Margaret Street development. As noted in the *Village Green Residential Subdivision Phase 1 Traffic Impact Study*[7], Phase 1 of the development was to consist of 189 single-family units. Subsequent revisions to the development plan resulted in an additional 35 units being added to Phase 1, for a total of 224 units (as indicated in the *Ashton Meadows Traffic Impact Study* for Phases 2 and 3). Phase 1 is currently being developed in two subphases: Phase 1A (72 units) and Phase 1B (152 units). As determined through a review of aerial imagery and a site visit conducted in April 2025, Phase 1A is fully built out, whereas Phase 1B is currently under construction.

The Phase 1 development traffic, as presented in the *Village Green TIS*, has been revised to reflect both the additional 35 units not otherwise included in the initial study and the completion of Phase 1A (recognizing that the trips associated with Phase 1A were captured in the May 2025 traffic counts). For reference, the assignment of Phase 1 trips through the study area as per the *Village Green TIS* is illustrated in Figure 8, whereas the revised volumes are illustrated in Figure 9 (reflective of the current development plan and completion of Phase 1A).

For the purpose of this study, full build-out of Phase 1B has been assumed by 2030.

[7] *Village Green Residential Subdivision Phase 1 Traffic Impact Study.* UMA Engineering Ltd. October 20, 2008.

Ashton Meadows Phase 2 & 3

The Ashton Meadows (Phase 2 & 3) development is located east of the Mamta Homes development, immediately east of the Ashton Meadows Phase 1 development.

As noted in the *Ashton Meadows Traffic Impact Study*, Phases 2 and 3 will consist of a combined 357 residential units (214 single family detached houses plus 143 medium density housing units) and is expected to generate approximately 229 to 293 new peak hour trips. The assignment of the associated traffic volumes through the study area road network is illustrated in Figure 10, reflective of the assignment presented in the respective TIS.

For the purposes of this study, the development is assumed to be 50% completed by the 2030 horizon, with full build out by 2035.

3.2.3 Background Volumes

The future background traffic volumes for the 2035, 2040 and 2045 horizon years are illustrated in Figure 11 through Figure 13 and reflect the following:

- the 2025 traffic volumes as per Figure 5;
- the noted annual background growth rates; and
- the additional traffic volumes associated with the noted background developments.

3.3 TRAFFIC OPERATIONS

The study area intersection was again analyzed for each horizon year, the results of which are summarized in Table 7 through Table 9, with detailed worksheets provided in Appendix G.

Table 7: Intersection Operations – 2035 Background

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	14	B	0.38	23	C	0.42
	SB LT	free	2	A	0.05	4	A	0.17

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

Table 8: Intersection Operations – 2040 Background

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	15	C	0.40	26	D	0.47
	SB LT	free	2	A	0.05	4	A	0.17

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

Table 9: Intersection Operations – 2045 Background

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	16	C	0.42	31	D	0.52
	SB LT	free	2	A	0.05	5	A	0.18

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

3.4 NEED FOR IMPROVEMENTS

3.4.1 Traffic Operations

The intersection of County Road 42 with Margaret Street is expected to continue to provide acceptable operations (LOS D or better) with average delays. As such, no intersection improvements are required to support the traffic operations under background conditions.

3.4.2 Speed Limit

Given the continued development within the area, consideration could be given to extending the existing 50 km/h speed zone on County Road 42 to the south to coincide with the point where jurisdiction transitions from the County to the Township. This would ensure approaching motorists have opportunity to reduce their operating speed prior to entering the built-up area of Stayner.

3.4.3 Turn Lane Requirements

Despite the acceptable operating conditions at the intersection of County Road 42 and Margaret Street, the need for exclusive left and right turn lanes on County Road 42 to accommodate turning traffic has been re-evaluated to consider the future background conditions. The methodology outlined in Section 2.6.2 has bee maintained.

Right Turn Lane

Based on the projected right turn volumes (78 vehicles during the PM peak hour), an exclusive northbound right turn lane is warranted at the subject intersection by the 2035 horizon. In consideration of the design guidance provided in the *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*[8], and assuming a design speed of 60 km/h (reflective of the 50 km/h speed limit on County Road 42, south of Margaret Street), the right turn lane should consist of a 50 metre taper and a 30 metre parallel lane for a total length of 80 metres.

Left Turn Lane

The completed left turn warrant analysis is provided in Appendix E, with a summary of the results presented in Table 10 through Table 12 for both the AM and PM peak hour conditions.

Table 10: Left Turn Lane Warrant – County Road 42 (2035 Background)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	323	292	56	YES – 15m
PM Peak Hour	southbound	476	460	163	YES – 25m

Table 11: Left Turn Lane Warrant – County Road 42 (2040 Background)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	351	320	57	YES – 15m
PM Peak Hour	southbound	509	501	164	YES – 30m

[8] *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads.* Ontario Ministry of Transportation, Standards & Contracts Branch, Highway Design Office. June 2023.

Table 12: Left Turn Lane Warrant – County Road 42 (2045 Background)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	382	351	58	YES – 15m
PM Peak Hour	southbound	546	545	169	YES – 40m

As indicated, a southbound left turn lane with 25 metres of storage is warranted by 2035, with the storage requirement increasing to 40 metres by the 2045 horizon. As per the *MTO Design Supplement,* the left turn lane with a 60 km/h design speed should include a 100-metre taper and 30-metre parallel lane. A runout lane on the south leg of the intersection to revert the road back to a 2-lane cross-section is also required. The runout lane consists of a 30 metre offset from the centre of the intersection and a 100-metre departure taper.

4 Proposed Development

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

4.1 LOCATION

As previously noted and illustrated in Figure 1, the subject site is located at 1191 County Road 42 in the Township of Clearview.

4.2 LAND USE & PHASING

The proposed development will consist of 128 condominium residential units. A breakdown by unit type is provided below:

- 31 single detached units;
- 61 townhouse units; and
- 36 apartment units (3-storey apartment building).

The draft plan and site plan are provided in Figure 14 and Figure 15, respectively. For the purpose of this report, full build-out has been assumed by 2035.

4.3 ACCESS

4.3.1 Location

Access to the site will be provided via a single connection to Margaret Street, located approximately 100 metres east of County Road 42 (measured centre to centre). Provisions for future internal connections to the adjacent development to the east are also noted, as evident in the draft plan and site plan.

An emergency access to County Road 42 is also proposed, located at the southwest corner of the site in the vicinity of the apartment building.

4.3.2 Sight Line Assessment

As per the TAC *Geometric Design Guide for Canadian Roads*[9], the minimum stopping sight distance for a design speed of 60 km/h (posted speed limit + 10 km/h) is 85 metres. This provides sufficient distance for an approaching motorist to observe a stationary hazard in the

[9] *Geometric Design Guide for Canadian Roads,* Transportation Association of Canada. June 2017

road (i.e. a vehicle slowing or stopped to turn into the subject site) and bring their vehicle to a complete stop prior to the hazard.

The available sight lines to and from the east along Margaret Street at the access point exceed 200 metres, whereas the available sight lines to/from the west are approximately 90 metres, limited by the termination of Margaret Street at County Road 42 (as illustrated in Figure 16).

In consideration of the above, the available sight lines satisfy the TAC guidelines for minimum stopping sight distance and thus are considered acceptable.

4.4 ON-SITE CIRCULATION

The site will be served by a private internal road network. As per the Township's *Comprehensive Zoning By-law*[10], any aisle providing access to parking spaces must have a minimum width of 7.0 metres. As shown on the site plan, the internal road network will maintain a minimum width of 7.0 metres. The exception being a 6.0-metre-wide aisle adjacent to the apartment building that will serve as a fire route connection to the emergency access on County Road 42. The reduced aisle width in this instance is not considered problematic in that it does not provide direct access to any parking spaces and still meets the minimum width requirement for a fire route as per the Ontario Building Code.

To further demonstrate the ability of the internal road network to accommodate the manoeuvring requirements of typical design vehicles (i.e. fire truck, waste collection, delivery truck), a swept path assessment was completed. The results are provided in Appendix H. Overall, the proposed internal aisle layout is considered sufficient to accommodate the circulation of site-generated traffic.

4.5 ACTIVE TRANSPORTATION NETWORK

As noted under the existing conditions, there are no active transportation facilities (such as sidewalks or bike lanes) on Margaret Street, County Road 42, or other roads in the immediate vicinity of the site. Regardless, the proposed development will include an internal sidewalk network throughout the development, with provision for connections to the development lands to the east. The sidewalk will also extend to Margaret Street for connection to any future active transportation infrastructure that may be implemented along the corridor. The site plan also allows for a connection to County Road 42, should a municipal sidewalk be introduced along County Road 42 at a later date.

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[10] *Clearview Township Comprehensive Zoning By-law 06-54.* Clearview Township. Consolidated April 2025.

4.6 PARKING

As per the Township's *Comprehensive Zoning-By law*[11], the residential uses are required to provide 2 parking spaces per unit (regardless of the dwelling type).

4.6.1 Detached & Townhouse Units

The detached and townhouse units will each be provided with a driveway space and a garage space, or 2 spaces per units as per the by-law. An additional 9 spaces will be provided as visitor spaces for the townhouse units. In this respect, the parking supply for the townhouse units will be provided at 2.15 spaces per unit.

4.6.2 Apartment Units

As per the site plan, 58 parking spaces will be provided for the apartment units, resulting in a parking supply of 1.61 spaces per unit (58 spaces/36 units = 1.61 spaces per unit). While the parking supply does not satisfy the Township's zoning requirement, it is consistent with parking rates adopted by other municipalities with characteristics similar to those of the Township of Clearview. A summary of parking standards adopted by comparable municipalities for apartment or equivalent residential uses are summarized in Table 13.

Table 13: Parking Rates by Municipality – Apartment

MUNICIPALITY	PARKING RATES		
	BASE	VISITOR	TOTAL
Clearview, Township of	**2.0**	**not specified**	**2.0**
Collingwood, Town of	0.5	0.25	0.75
East Gwillimbury, Town of	1.0	0.25	1.25
Gravenhurst, Town of	1.0	0.25	1.25
Huntsville, Town of	1.5	not specified	1.5
Midland, Town of	1.125 (75%)	0.375 (25%)	1.5
Oro-Medonte, Township of	1.5	not specified	1.5
Parry Sound, Town of	1.25	not specified	1.25
Shelburne, Town of	1.0	not specified	1.0

[11] *Comprehensive Zoning By-law, 06-54*. Clearview Township, July 14, 2023.

In context of the parking rates adopted by other municipalities, which range from 0.75 to 1.5 spaces per unit, the proposed parking supply of 1.61 spaces per unit for the apartment units is not considered unrealistic.

4.7 SITE TRAFFIC

4.7.1 Trip Generation

The number of vehicle trips to be generated by the proposed development has been determined based on the type of use, development size and trip generation rates as per *ITE Trip Generation Manual, 12th Edition* for the *single family detached* (ITE code 210), *single family attached* (ITE code 215) and *multifamily housing low-rise* (ITE code 220) land uses. The associated trip rates and trip rates and estimates are provided in Table 14 and Table 15, respectively.

Table 14: Trip Rates – 1191 County Road 42

LAND-USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Single family detached (ITE 210)	units	0.19	0.51	0.70	0.58	0.35	0.93
Single family attached (ITE 215)	units	0.12	0.35	0.47	0.29	0.22	0.51
Multifamily housing – low-rise (ITE 220)	units	0.09	0.21	0.30	0.27	0.18	0.45

Table 15: Trip Estimates – 1191 County Road 42

LAND-USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Detached (ITE 210)	31 units	6	16	22	18	11	29
Townhouses (ITE 215)	61 units	7	22	29	18	13	31
Apartments (ITE 220)	36 units	3	8	11	9	7	16
Total	**128 units**	**16**	**46**	**62**	**45**	**31**	**76**

As indicated, the proposed development is expected to generate 62 trips during the weekday AM peak hour and 76 trips during the weekday PM peak hour.

4.7.2 Trip Distribution & Assignment

The distribution of the site generated trips has been developed based on the results of the *Transportation Tomorrow Survey* (TTS) conducted in 2022. The TTS is a comprehensive travel survey conducted in the Greater Golden Horseshoe area once every five years. As per the *TTS 2022 Data Guide,* the development site resides in Traffic Boundary Zone 17120. Trip data was filtered to consider trips to, from and internal to the respective traffic zone (the summary of the TTS data is provided in Appendix I). The following distribution was established:

- to/from north - 45%;
- to/from south - 10%;
- to/from east - 40%; and
- to/from west - 5%.

The site traffic was assigned to the study area road network in context of the noted distribution and anticipated travel routes. A majority of the site traffic (80%) has been assumed to travel to/from the north on County Road 42 where it will connect with other travel routes (Highway 26 north and east, and County Road 91 west). The small portion of site traffic (10%) has been assigned to/from the east along Margaret Street, to destinations in Stayner or to connect with Highway 26 via other local roads. The remaining 10% has been assigned to/from the south along County Road 42.

The assignment of site traffic to the road network is illustrated in Figure 17.

5 Future Total Conditions

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

- total traffic volumes (background volumes + site volumes);
- operations at the study area intersections including the site access; 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 2035, 2040 and 2045 background traffic volumes. The resulting total traffic volumes are presented in Figure 18 to Figure 20.

5.2 TRAFFIC OPERATIONS

The study area intersection was analyzed again to consider the future total traffic volumes. In addition, the operations of the site access to Margaret Street have also been reviewed. The site access configuration is expected to consist of single lane approaches with stop control on the access. The results of the operational review are provided in Table 16 through Table 18, whereas detailed worksheets are provided in Appendix J. It is noted that the exclusive left and right turn lanes on County Road 42 at Margaret Street recommended under background conditions have not been considered in the operations assessment, thus considering a conservative approach. Should the left and right turn lanes be implemented, improved intersection operations can be expected.

Table 16: Intersection Operations – 2035 Total

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	16	C	0.45	28	D	0.54
	SB LT	free	2	A	0.06	5	A	0.21
Margaret Street & Site Access	WB LT	free	1	A	0.00	1	A	0.00
	NB LR	stop	11	B	0.07	12	B	0.06

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

Table 17: Intersection Operations – 2040 Total

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	17	C	0.47	34	D	0.60
	SB LT	free	2	A	0.06	5	A	0.21
Margaret Street & Site Access	WB LT	free	1	A	0.00	1	A	0.00
	NB LR	stop	11	B	0.07	12	B	0.06

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

Table 18: Intersection Operations – 2045 Total

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
County Road 42 & Margaret Street	WB LR	stop	18	C	0.51	42	E	0.67
	SB LT	free	2	A	0.06	5	A	0.22
Margaret Street & Site Access	WB LT	free	1	A	0.00	1	A	0.00
	NB LR	stop	11	B	0.07	12	B	0.06

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

5.3 NEED FOR IMPROVEMENTS

5.3.1 Traffic Operations

The intersection of County Road 42 with Margaret Street is expected to continue to provide acceptable levels of service (LOS E or better) through to the 2045 horizon. The site access intersection with Margaret Street is projected to provide excellent operations (LOS B or better). As such, no intersection improvements are required to support the total conditions.

5.3.2 Turn Lane Requirements

County Road 42

The need for exclusive right and left turn lanes on County Road 42 at Margaret Street was confirmed under background conditions, with both warranted by 2035. With respect to the left turn lane, an initial storage requirement of 25 metres was identified in 2035, increasing to 40

metres by 2045. Recognizing that the need for turning lanes has been confirmed under background conditions (and further noting that right turn lanes at unsignalized intersections do not typically have storage requirements, as they consist of tapers and parallel lengths), the review under total conditions has focused on the left turn storage length required to accommodate the additional traffic generated by the subject site. The completed left turn warrant nomographs are provided in Appendix E, whereas a summary of the results presented in Table 19 through Table 21 for both the AM and PM peak hour conditions.

Table 19: Left Turn Lane Warrant – County Road 42 (2035 Total)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	335	294	69	YES – 15m
PM Peak Hour	southbound	512	465	199	YES – 30m

Table 20: Left Turn Lane Warrant – County Road 42 (2040 Total)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	364	322	70	YES – 15m
PM Peak Hour	southbound	546	505	200	YES – 40m

Table 21: Left Turn Lane Warrant – County Road 42 (2045 Total)

PEAK PERIOD	TRAVEL DIRECTION	TRAFFIC VOLUMES			WARRANTED
		Advancing	Opposing	Left Turns	
AM Peak Hour	southbound	395	353	70	YES – 15m
PM Peak Hour	southbound	583	549	201	YES – 40m

As indicated, the left turn storage length under 2035 total conditions is 30 metres, reflecting a 5 metre increase over that required under background conditions for the same horizon. Under the 2045 horizon, the required storage length is 40 metres which is consistent with that required

under 2045 background conditions. It is recommended that the turn lane be constructed to its ultimate configuration initially (as opposed to a stage construction).

Margaret Street

Given the relatively low volume of traffic generated by the site, exclusive turn lanes on Margaret Street at the site access are not considered necessary, nor would they otherwise be warranted.

6 Summary

Proposed Development

The proposed residential development, to be located at 1191 County Road 42 in the Township of Clearview, will consist of 31 single family detached units, 61 townhouse units and 36 apartment units. Upon build-out, the development is expected to generate 62 new trips during the AM peak hour and 76 new trips during the PM peak hour.

Transportation Impacts

In assessing traffic operations within the study area, the intersection of County Road 42 and Margaret Street was analyzed under existing (2025) and future (2035, 2040 and 2045) conditions. The results of the operational analysis indicate that the intersection currently provides, and will continue to provide, acceptable operations through the 2045 horizon under both background and total conditions. The site access on Margaret Street will provide excellent operations through the 2045 horizon. No intersection improvements are required to support the future traffic volumes from an intersection operations perspective.

Overall, the subject site is not expected to have any material impact on the operations of the adjacent road network.

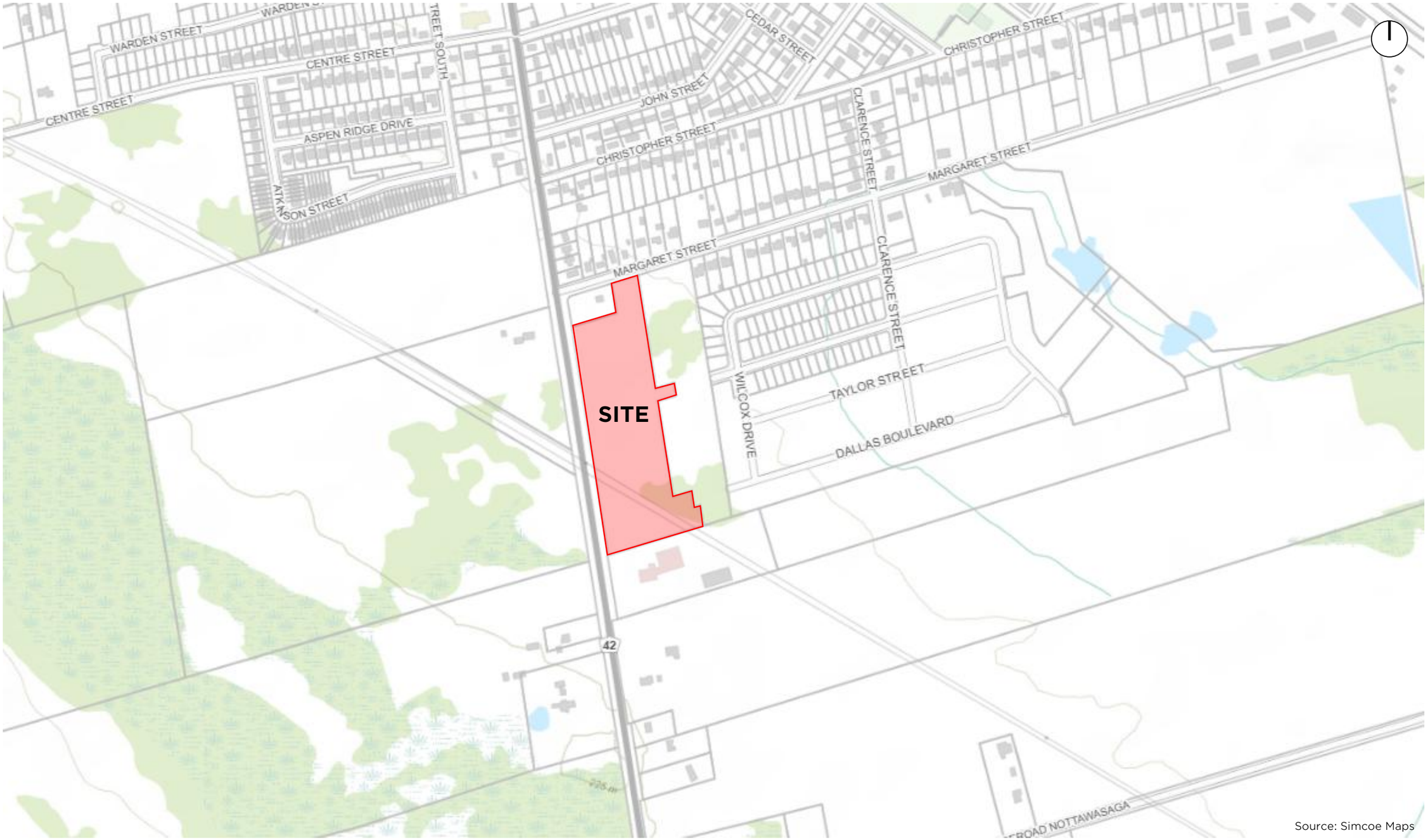
Turn Lane Requirements

The need for exclusive turn lanes was evaluated at the intersections of County Road 42 with Margaret Street (under existing, background and total conditions). Based on a review of relevant guidance and warrant criteria for exclusive turn lanes, it was concluded that right and left-turn lanes on County Road 42 at Margaret Street are warranted by 2035 under both background and total conditions. Given the various developments occurring in the area, the recommended turn lanes should be development charge eligible, recognizing that the need for such is premised on future traffic growth associated with several developments in the area.

Exclusive turn lanes are not considered necessary (nor warranted) on Margaret Street at the site access.

Sight Line Assessment

The available sight lines along Margaret Street at the proposed site access were reviewed in context of TAC design guidelines for minimum stopping sight distance. Based on the results of the review, the sight lines were found to be appropriate.



Source: Simcoe Maps

Figure 1: Site Location

1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 2: Area Road Network

BUS STOP

Look for the bus stop sign at the numbered locations

1st STOP

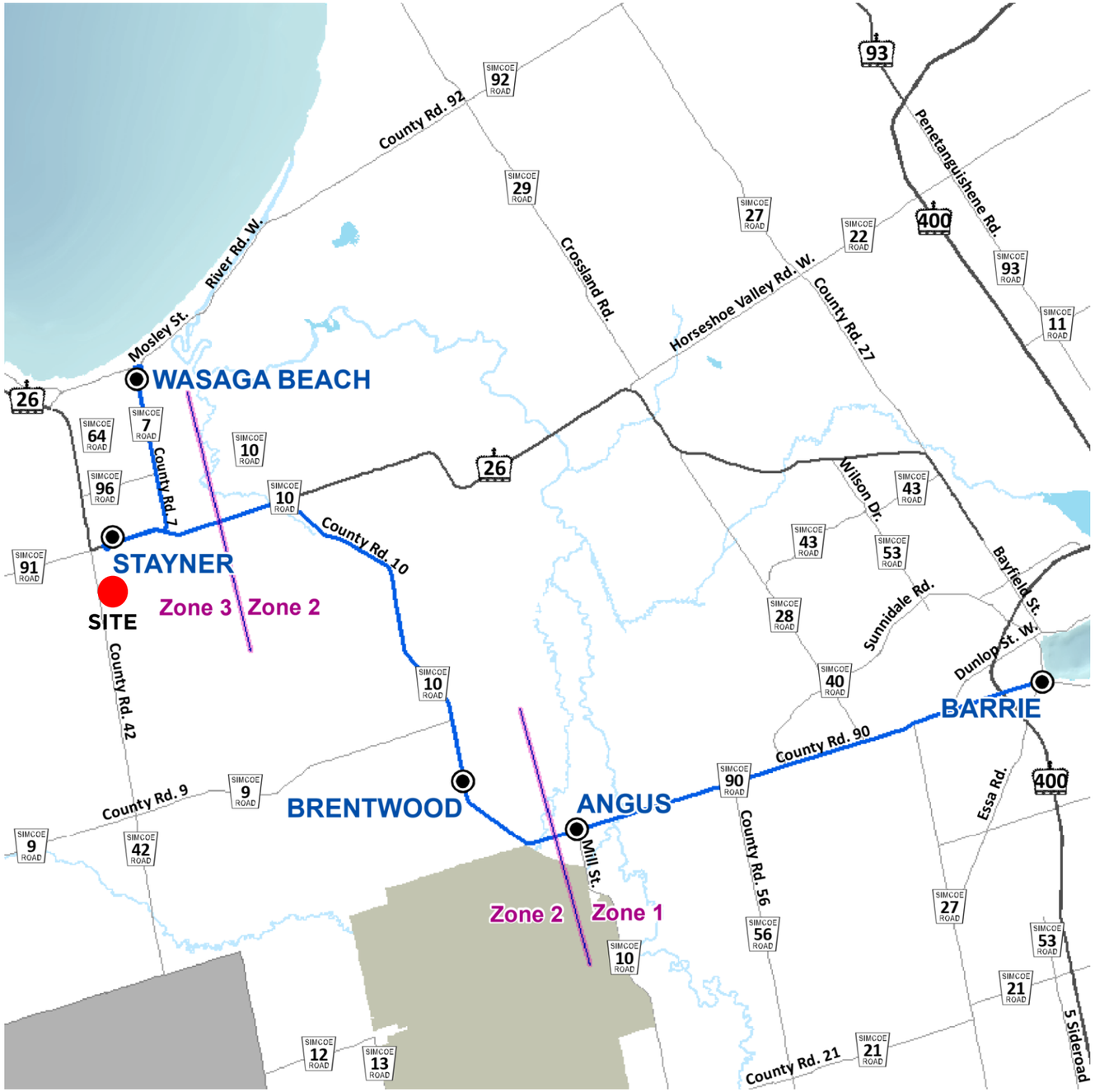
To Wasaga Beach with stops at Superstore & Ramblewood Medical Centre

SITE

1:40,000

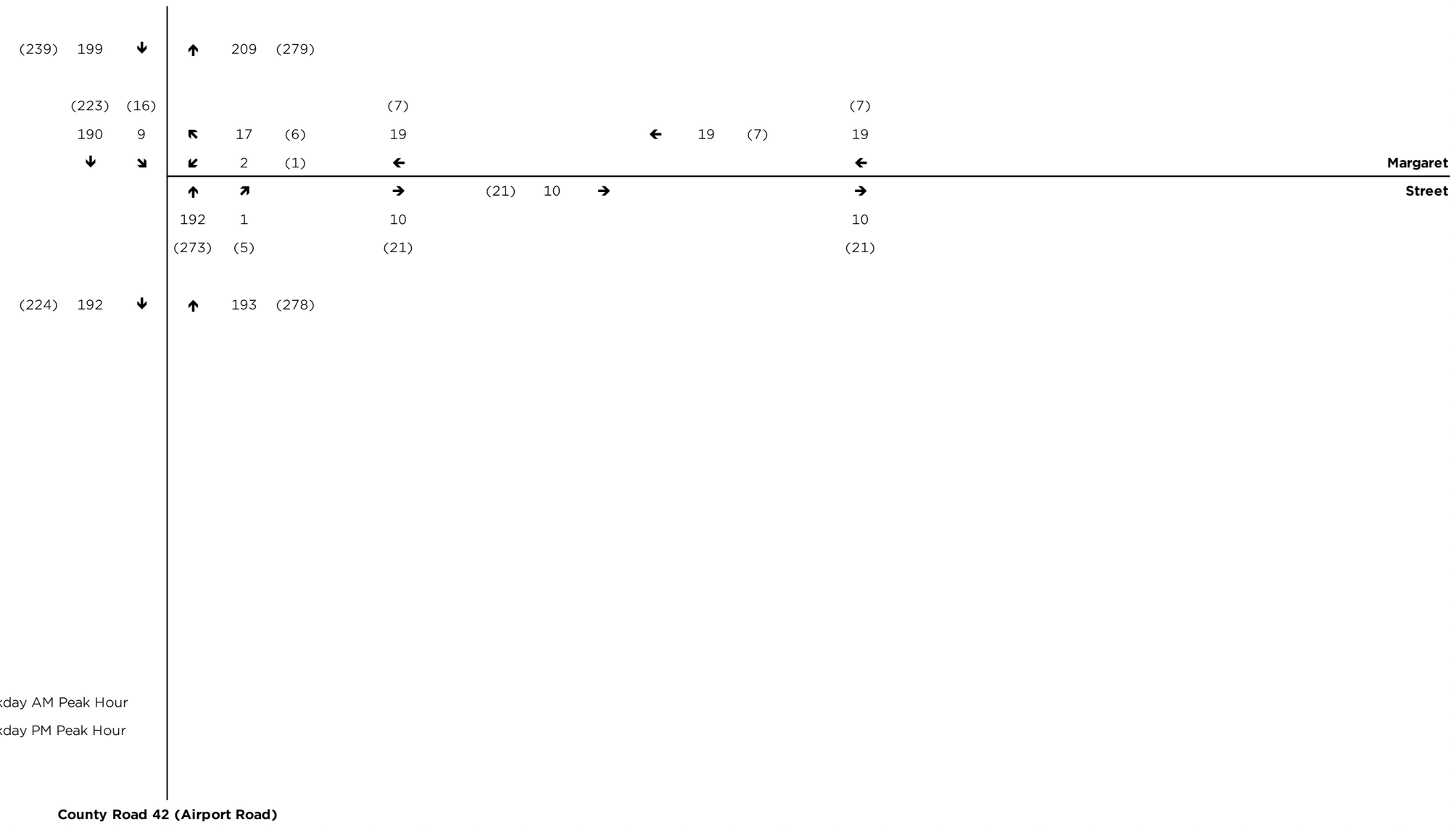
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 3A: Transit Network – Clearview Public Transit



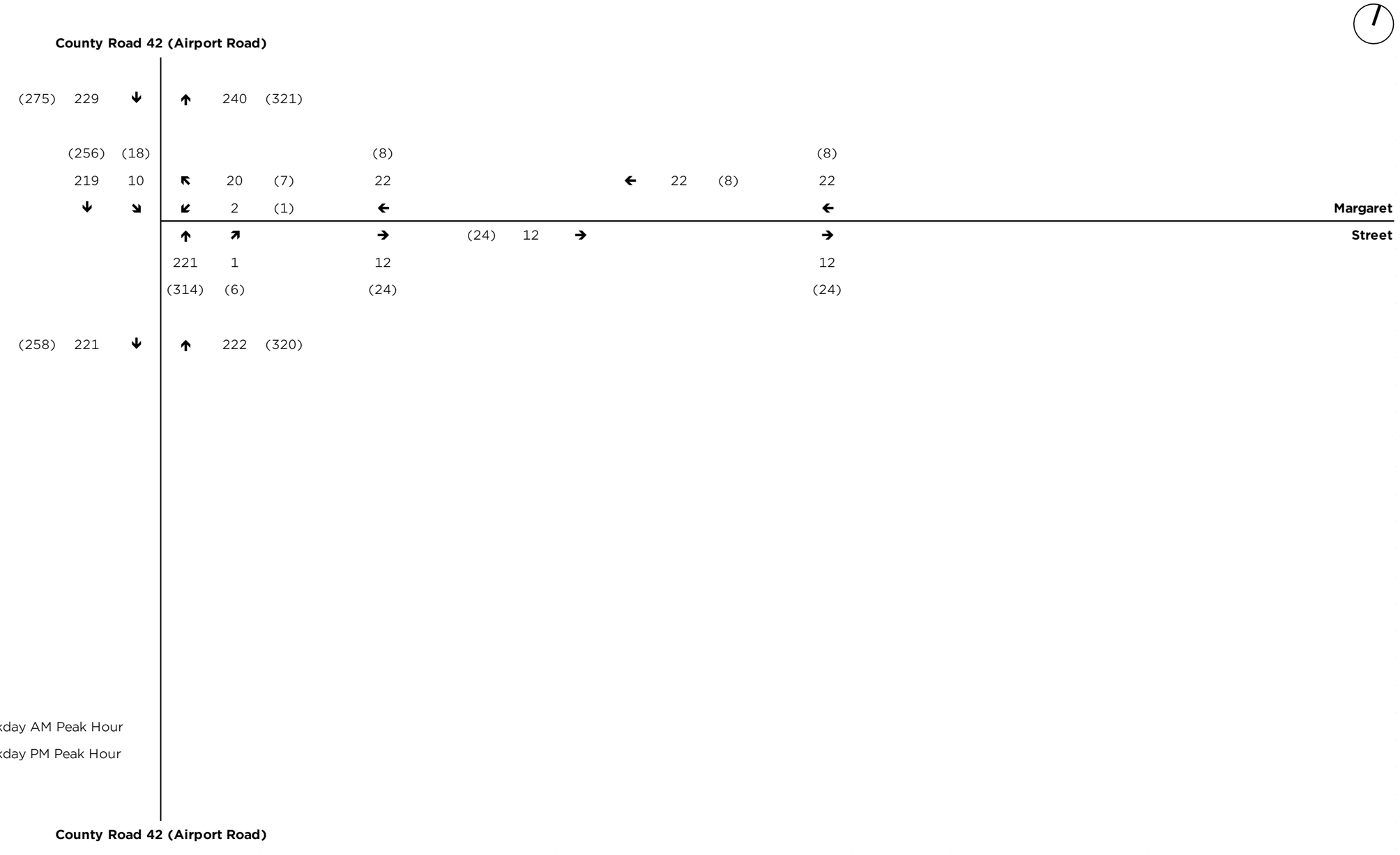
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 3B: Transit Network – Linx Transit



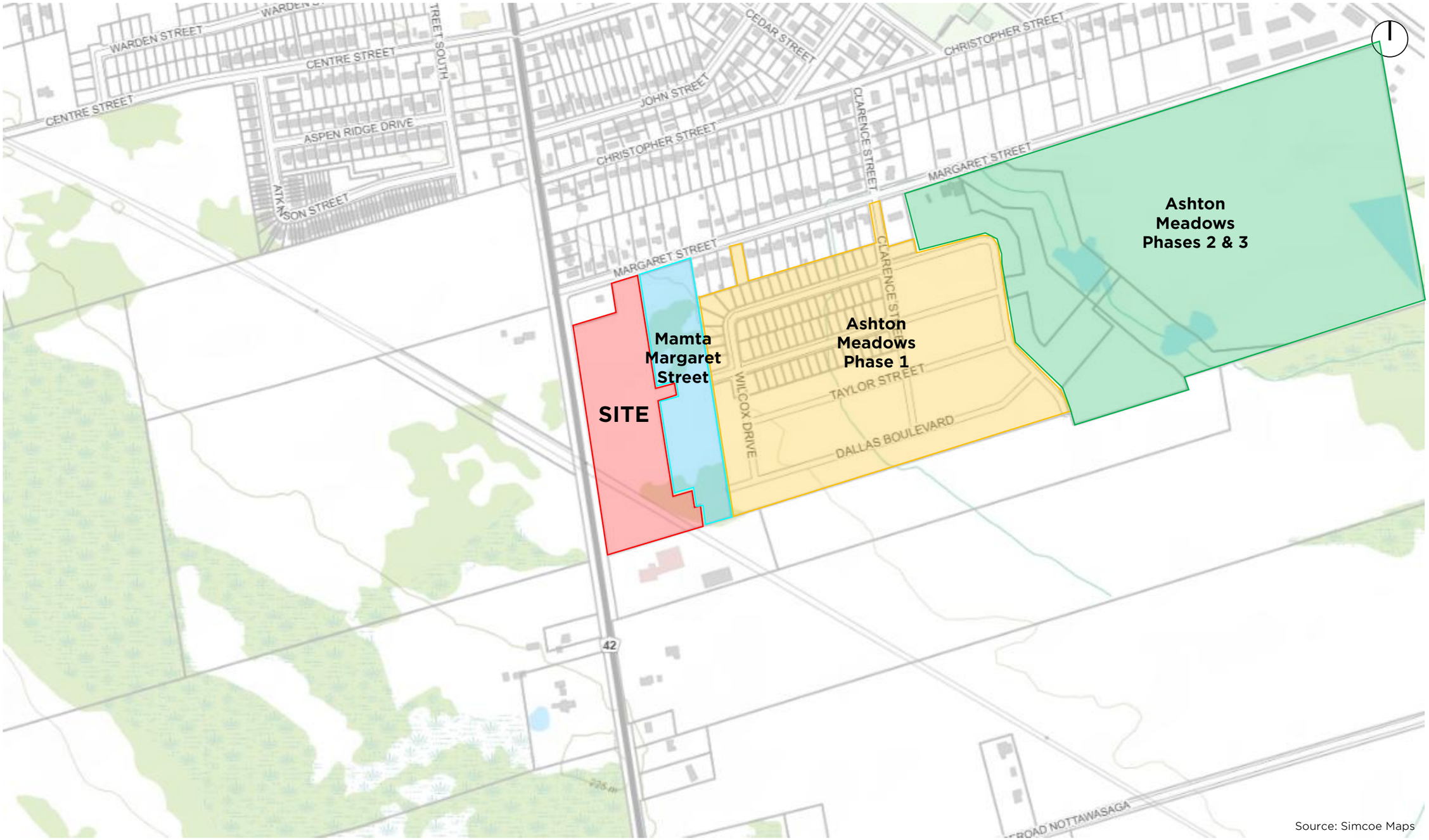
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 4: Traffic Volumes – 2025 Counts



1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 5: Traffic Volumes – 2025 (Adjusted)



Source: Simcoe Maps

1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 6: Background Development Locations

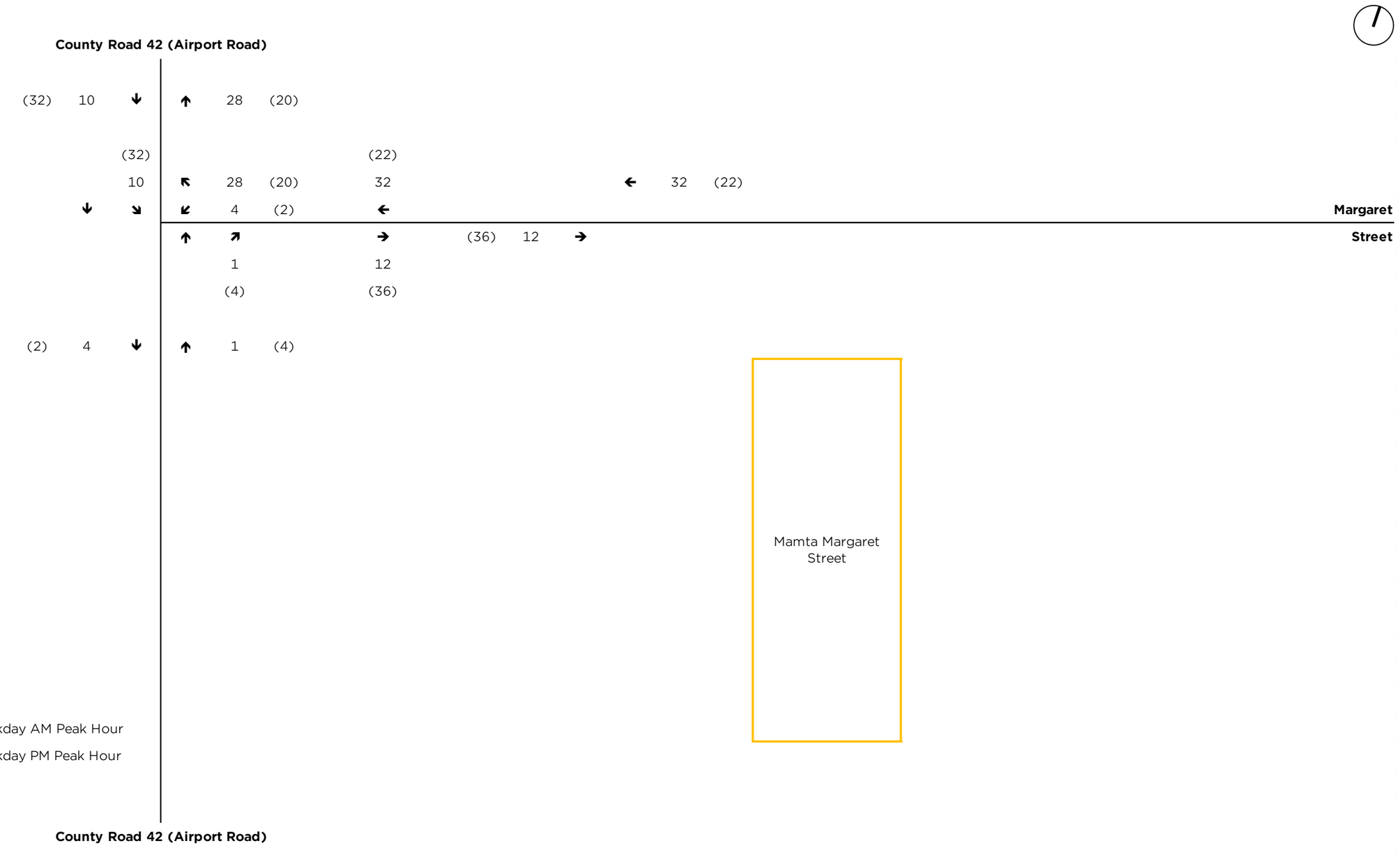
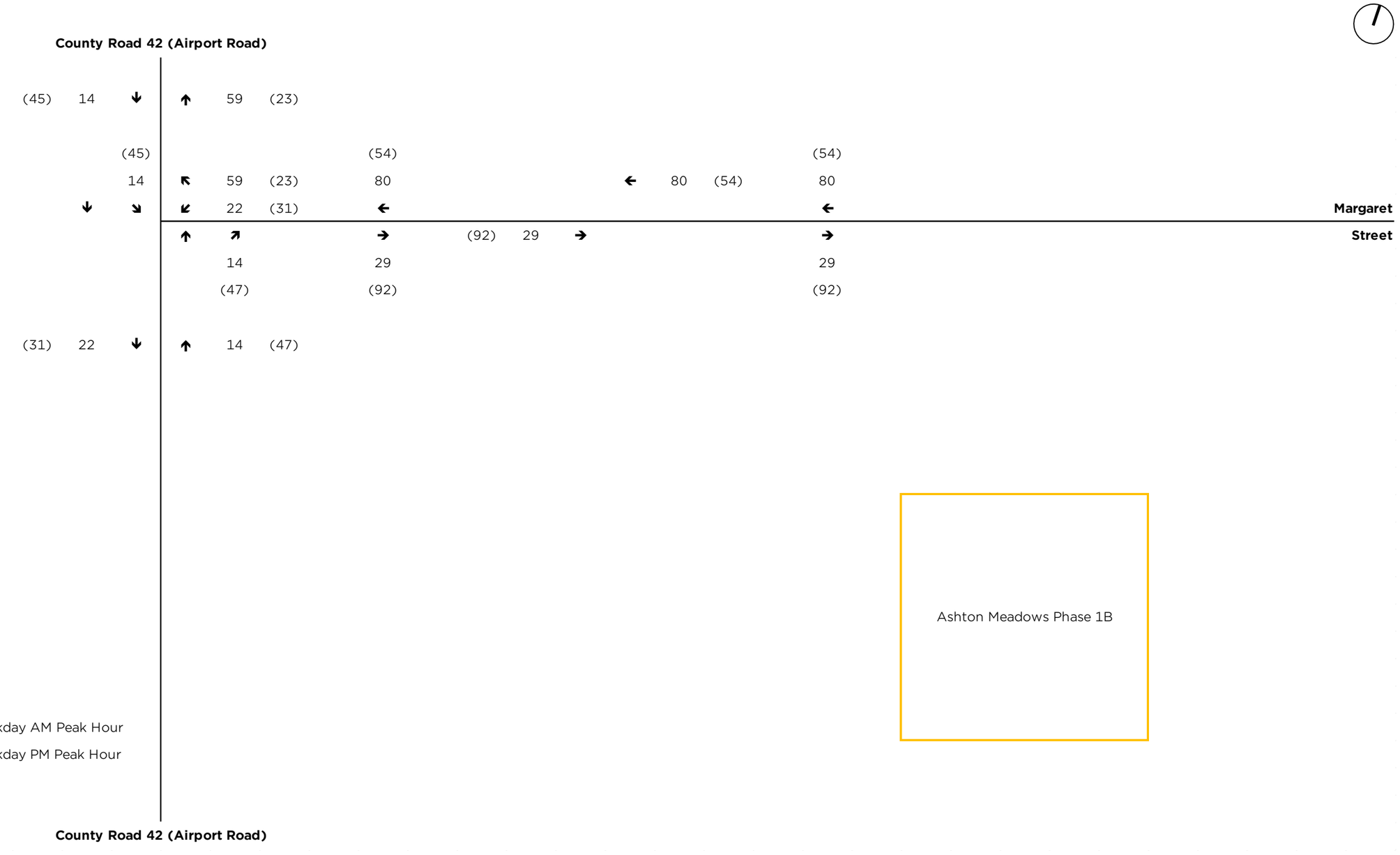


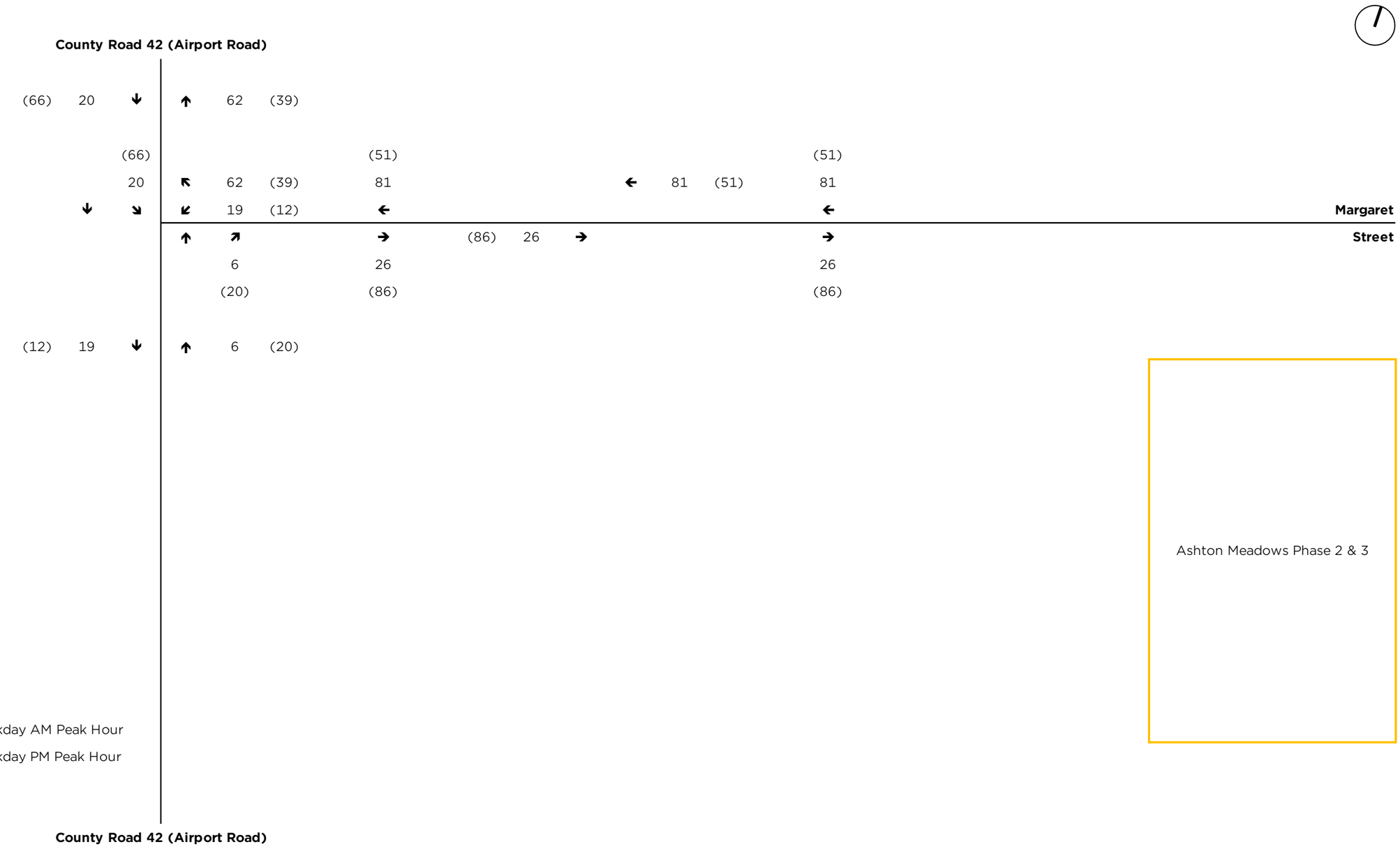
Figure 7: Traffic Volumes – Mamta Homes Margaret Street (Background Development)

Figure 8: Traffic Volumes – Ashton Meadows Phase 1 (Background Development)



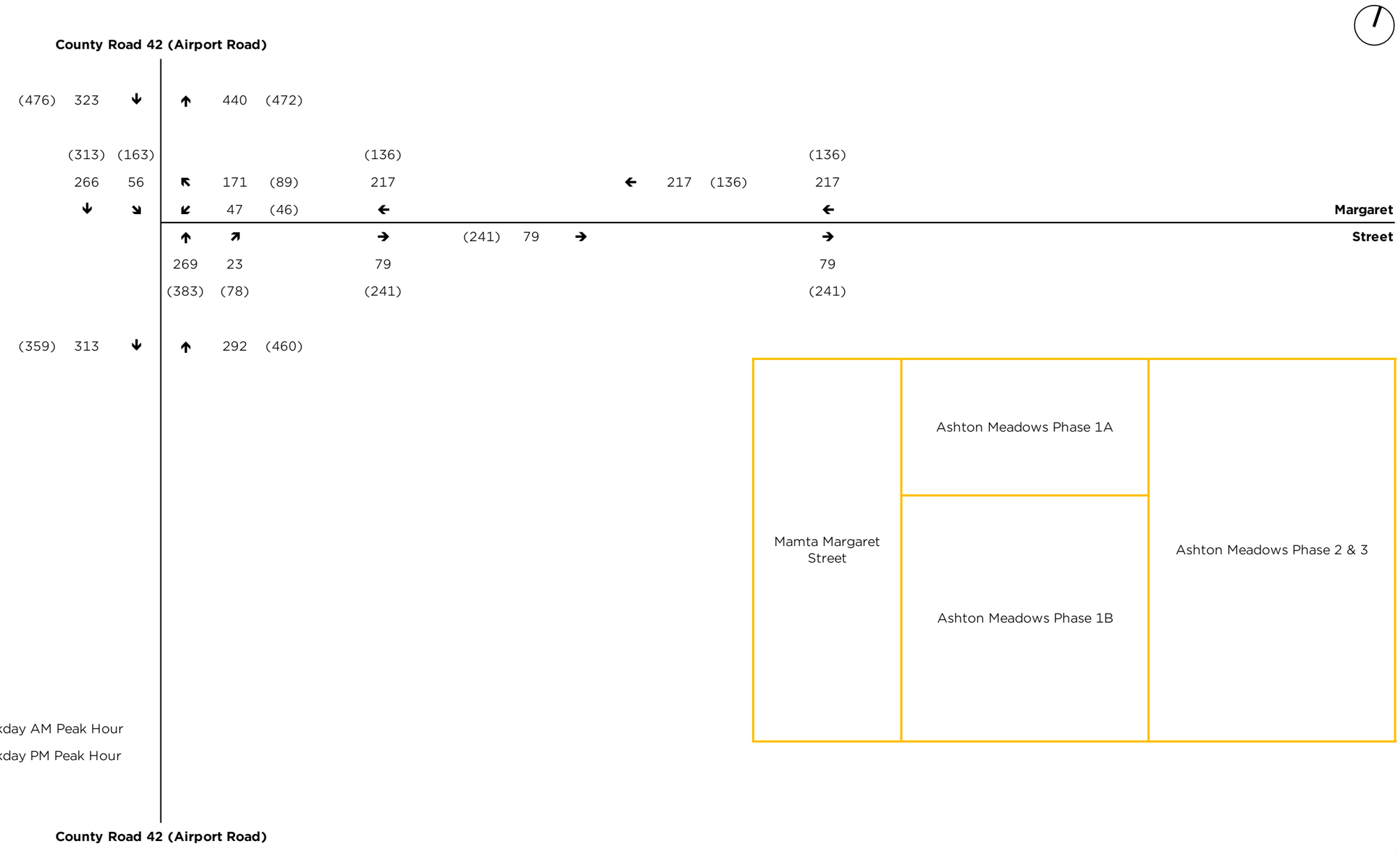
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 9: Traffic Volumes – Ashton Meadows Phase 1B (Background Development)



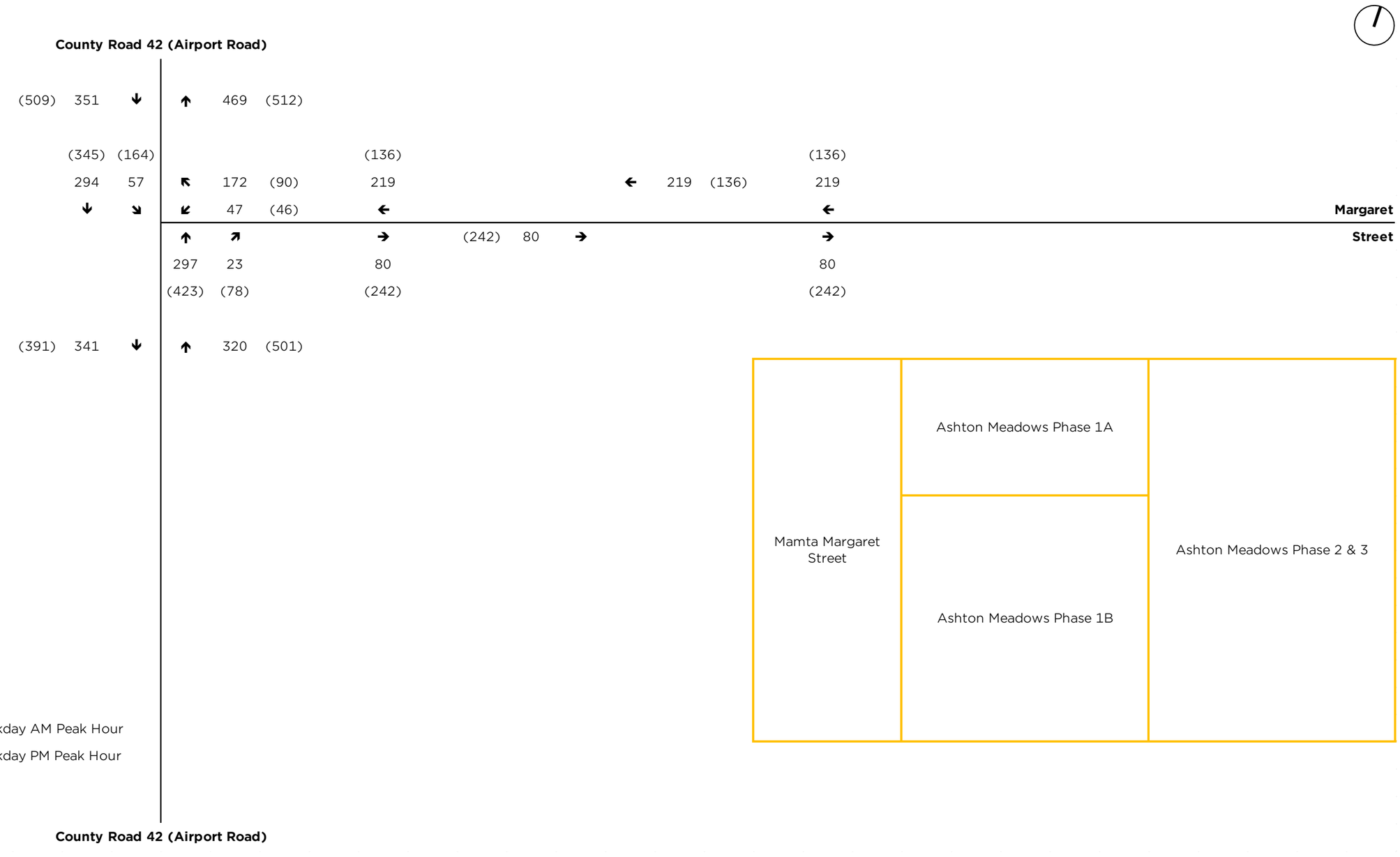
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 10: Traffic Volumes – Ashton Meadows Phase 2 & 3 (Background Development)



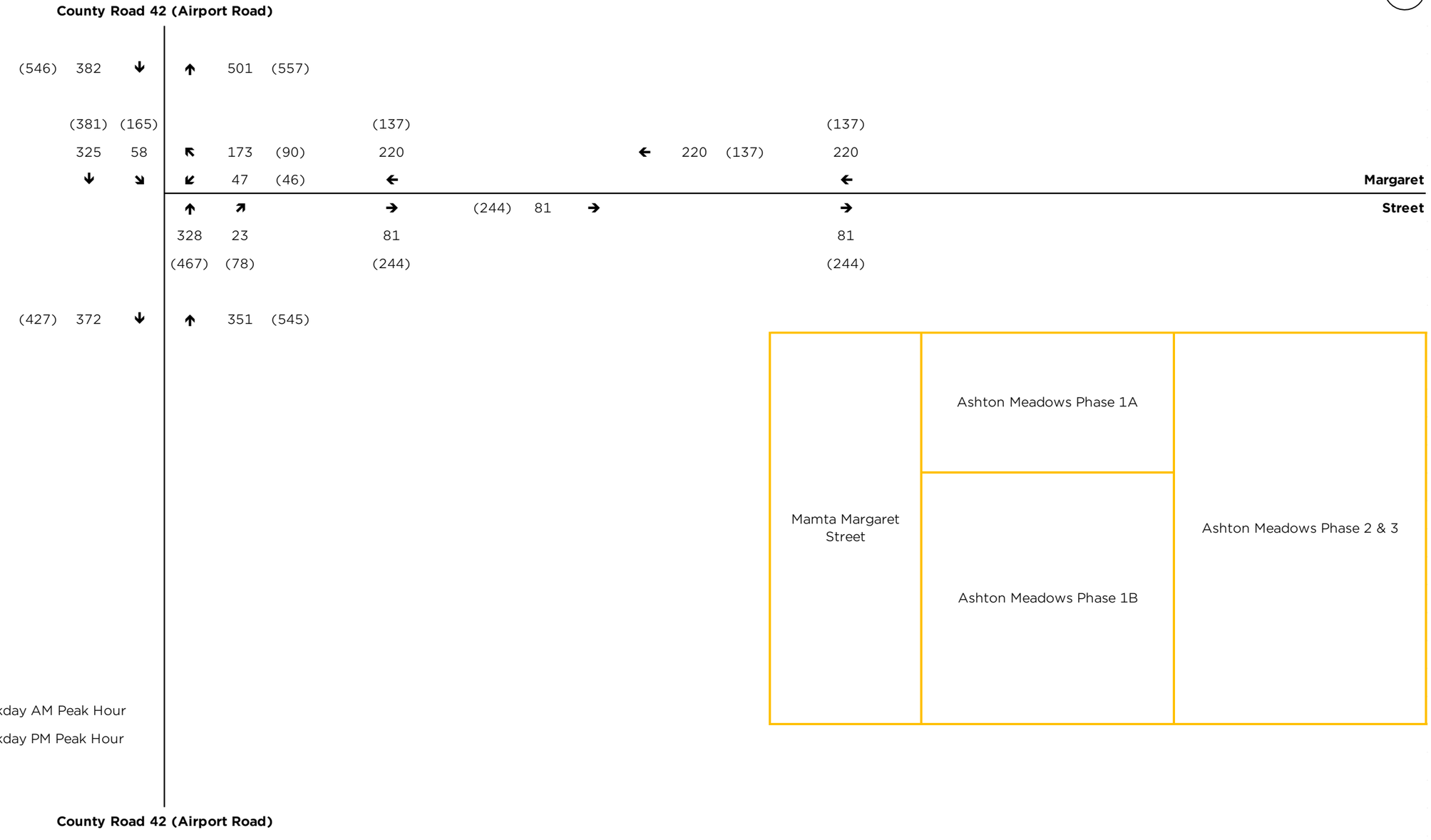
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 11: Traffic Volumes – 2035 Background



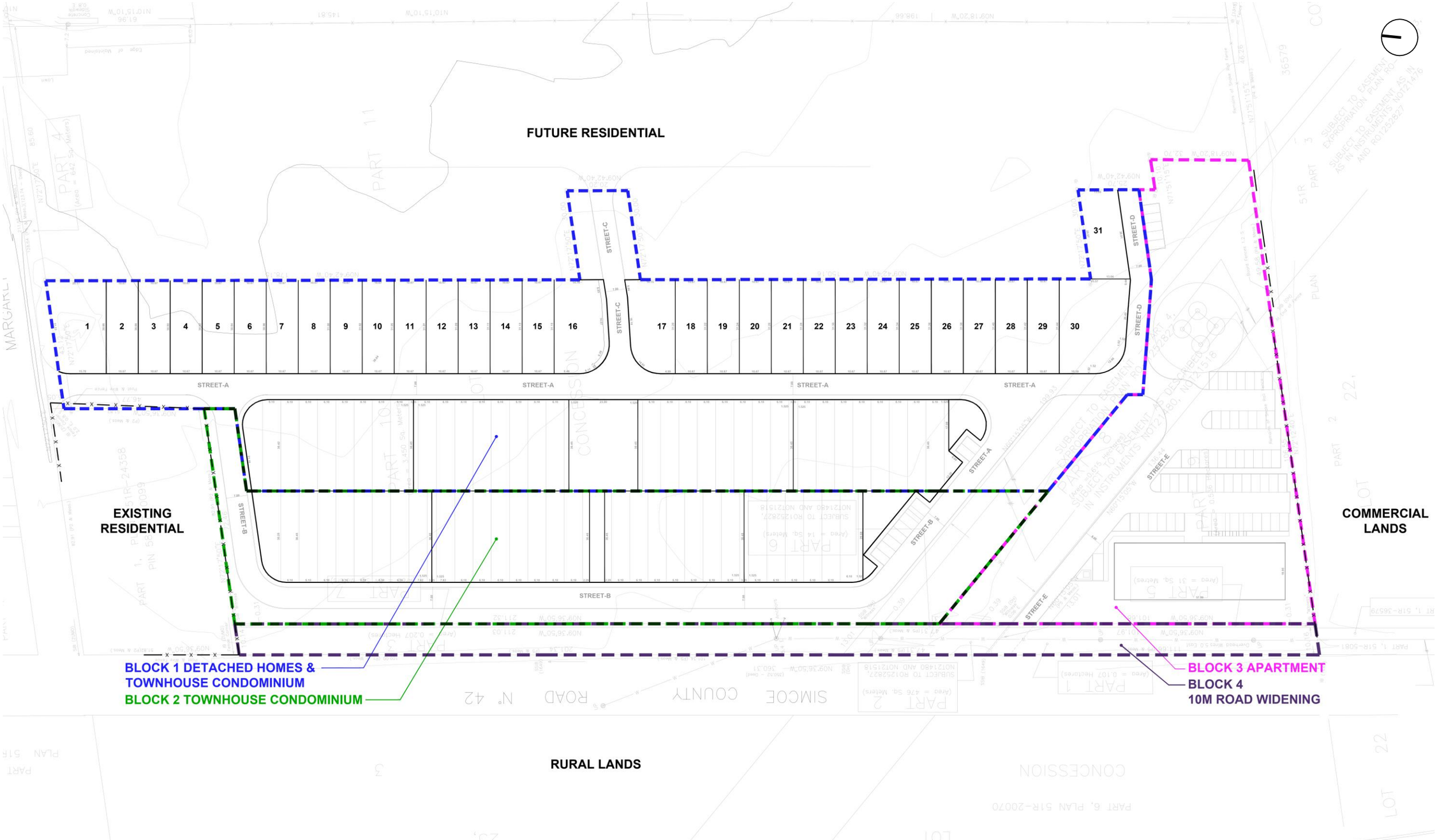
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 12: Traffic Volumes – 2040 Background



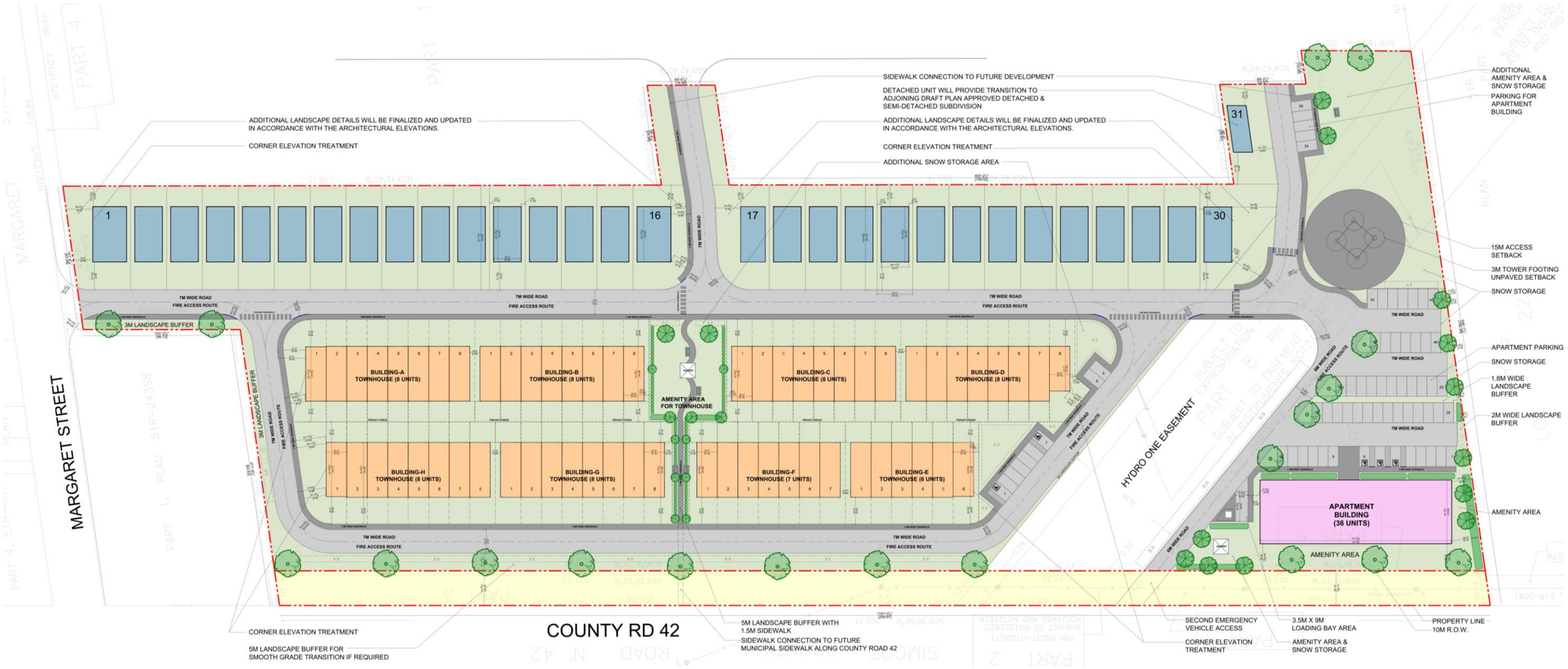
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 13: Traffic Volumes – 2045 Background



1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 14: Draft Plan

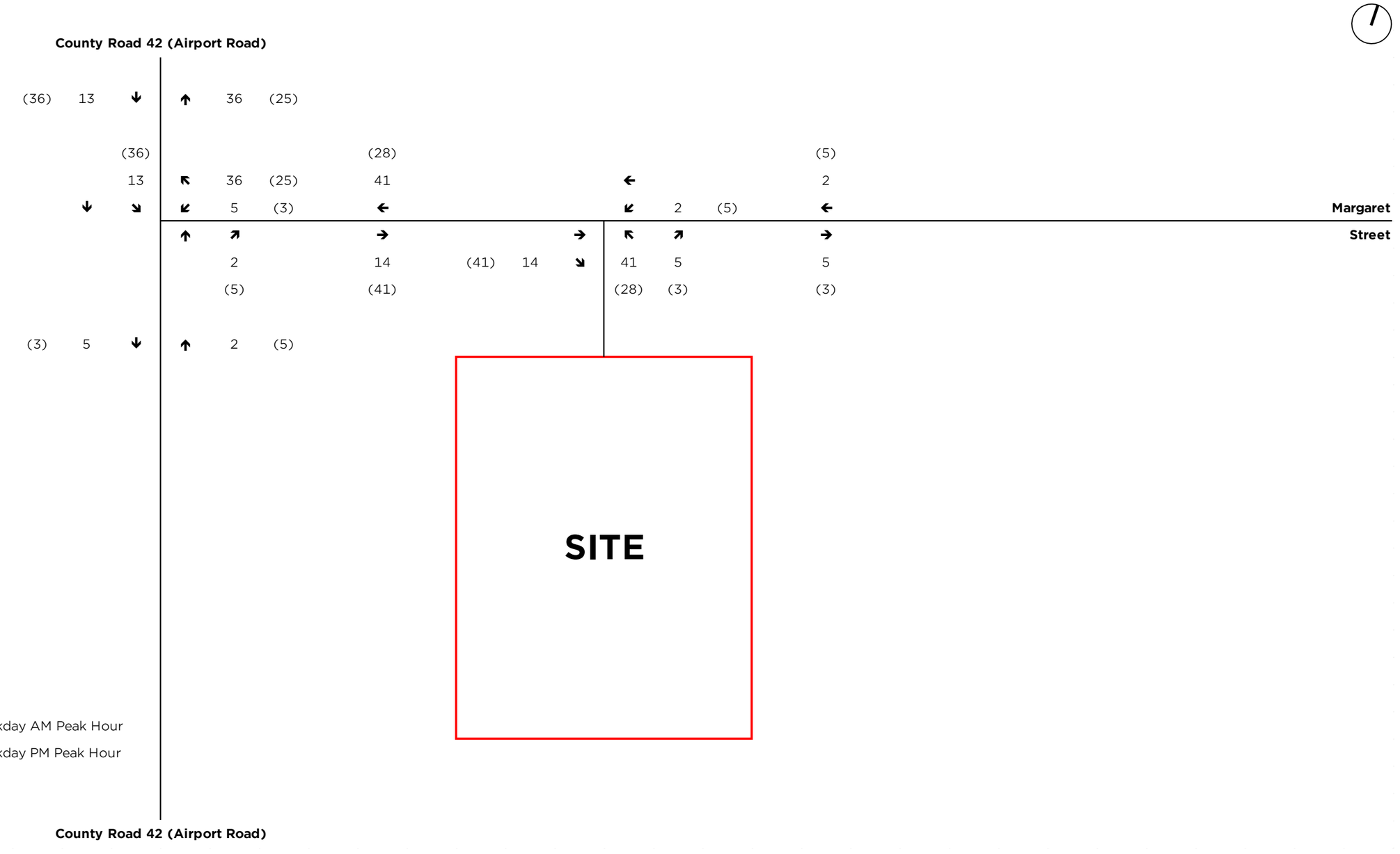


1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 15: Site Plan

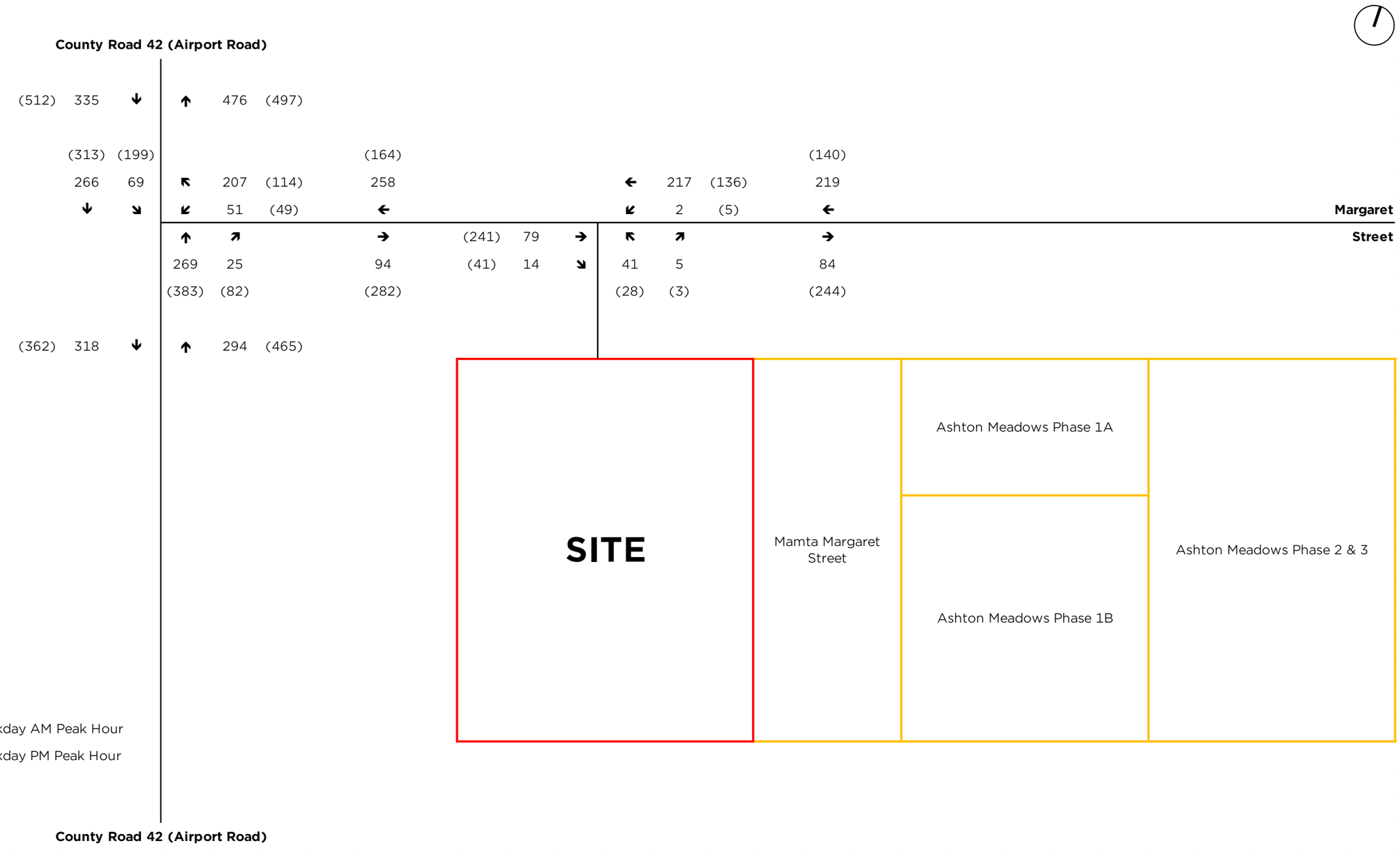
Looking west along Margaret Street from site access

Looking east along Margaret Street from site access



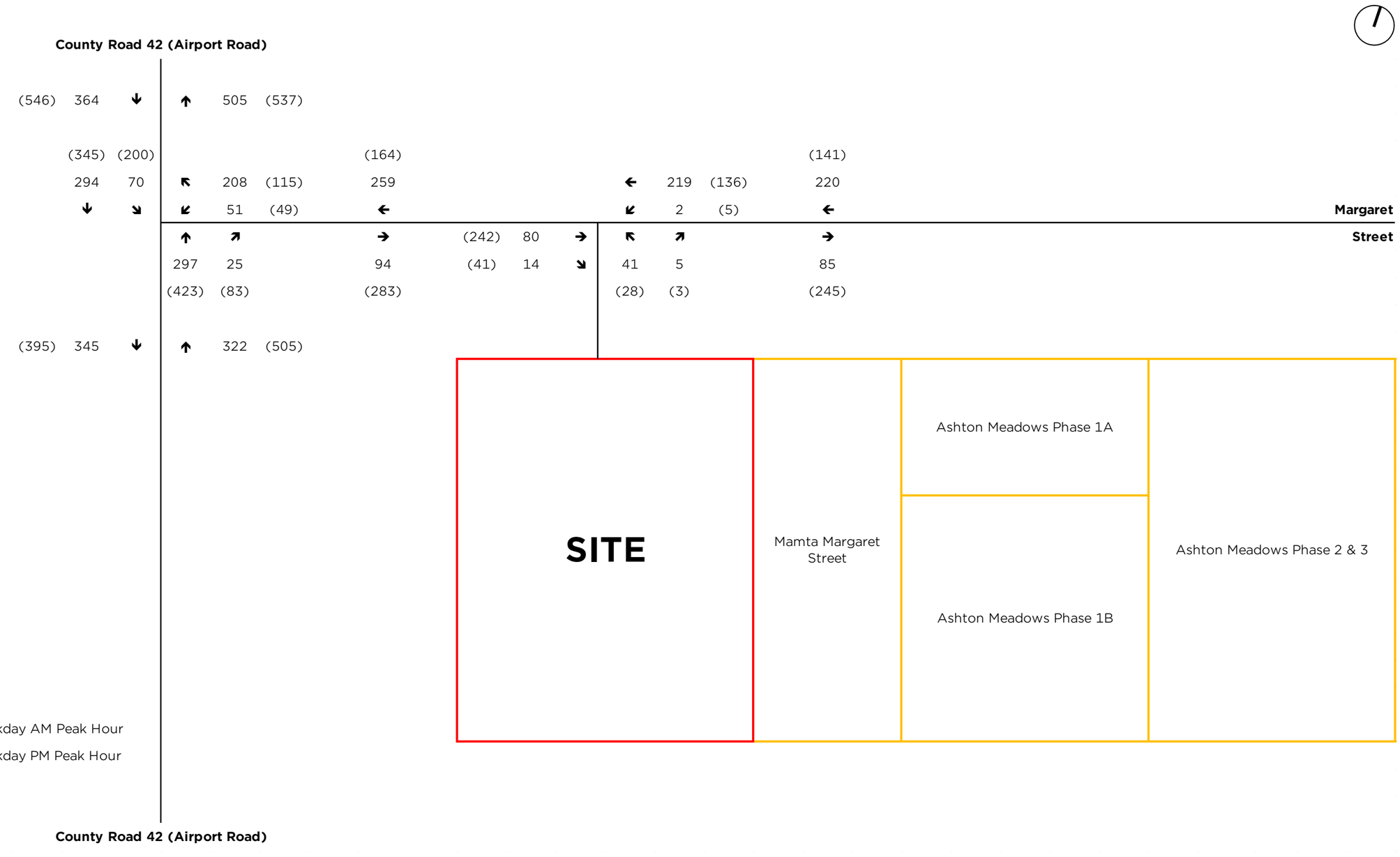
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 17: Site Traffic



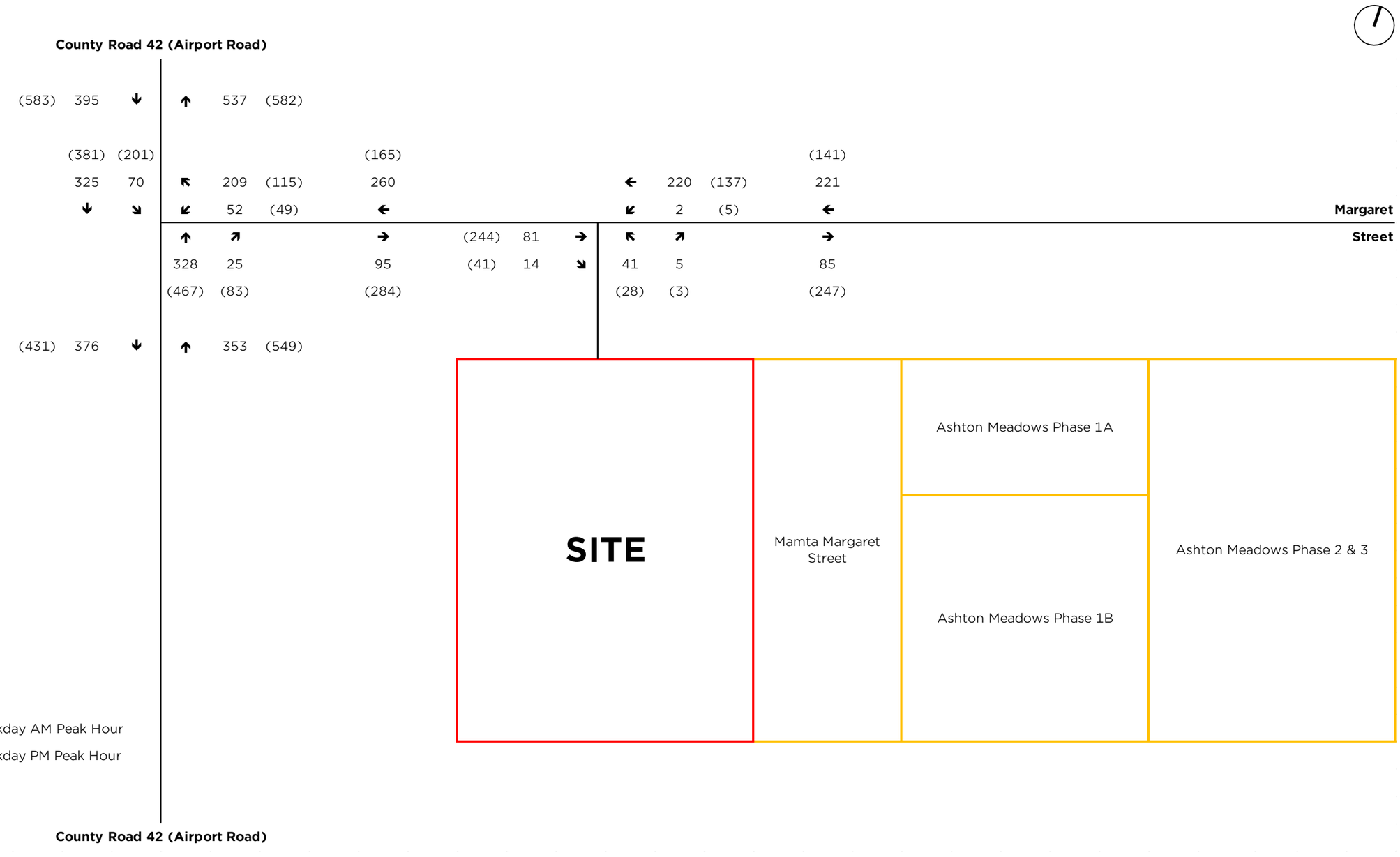
1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 18: Traffic Volumes – 2035 Total



1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 19: Traffic Volumes – 2040 Total



1191 COUNTY ROAD 42 – TRANSPORTATION IMPACT STUDY

Figure 20: Traffic Volumes – 2045 Total

Appendix A:
Terms of Reference

Karolina Kukielka

From: Rossalyn Workman <rworkman@clearview.ca>
Sent: Thursday, May 15, 2025 1:43 PM
To: Karolina Kukielka
Cc: David Perks; Patti Kennedy; Christine Taggart; Jennifer Georgas; Harjinder Kang; Raj Patel; Clayton Capes
Subject: FW: Terms of Reference - 1191 County Road 42

Hi Karolina
Jennifer Georgas responded to your questions, see the email attached, below.
Thanks Rossalyn

Rossalyn Workman MURP, Dipl.MM, MCIP, RPP (she/her)
Manager of Planning
Township of Clearview
705-428-6230 ext. 248
rworkman@clearview.ca

From: Jennifer Georgas <Jennifer.Georgas@rjburnside.com>
Sent: May 15, 2025 1:35 PM
To: Rossalyn Workman <rworkman@clearview.ca>
Cc: 300044301 1192 County Road 42 (Mamta Condos) <3000443011192countyroad42mamtacondos@rjburnside.com>
Subject: RE: Terms of Reference - 1191 County Road 42

Hi Rossalyn,

I've provided the responses to you instead of responding to the group in case you wanted to keep the one point of contact. Here are the responses:

- *Background growth rates can be assumed to be 2% per annum, compounded, on CR42 and 1% per annum, compounded, on Margaret Street.*

- *Background development traffic should include the remainder of Phase 1 of the Ashton Meadows development by the 2030 horizon and the completion of Phase 2 and Phase 3 by the 2035 horizon. Analysis should consider the Margaret Street extension to Warrington being in place by the 2035 horizon and also without the Margaret Street Extension being in place in the 2035 horizon. The Margaret Street extension can be considered to be in place for the 2040 horizon.*

Thanks,
Jennifer

Jennifer Georgas, P.Eng.
Manager - Municipal Review
R.J. Burnside & Associates Limited | rjburnside.com
Office: +1 800-265-9662 Direct: +1 705-797-4271

From: Rossalyn Workman <rworkman@clearview.ca>
Sent: Wednesday, May 14, 2025 11:06 AM
To: Karolina Kukielka <kkukielka@tathameng.com>
Cc: David Perks <dperks@tathameng.com>; Patti Kennedy <pkennedy@clearview.ca>; Christine Taggart <ctaggart@clearview.ca>; Jennifer Georgas <Jennifer.Georgas@rjburnside.com>; Harjinder Kang <harjinder@mamtahomes.com>; Raj Patel <raj@rpdstudio.ca>; Clayton Capes <clayton@capesengineering.com>
Subject: RE: Terms of Reference - 1191 County Road 42

Hi Karolina
I'm forwarding your questions to our team.

I'm hoping Jennifer, can answer whether the assumptions for growth that you are proposing are appropriate and whether to include the Phases 2 and 3 of Ashton Meadows as well.

Thanks Rossalyn

Rossalyn Workman MURP, Dipl.MM, MCIP, RPP (she/her)
Manager of Planning
Township of Clearview
705-428-6230 ext. 248
rworkman@clearview.ca

From: Karolina Kukielka <kkukielka@tathameng.com>
Sent: May 13, 2025 3:35 PM
To: Rossalyn Workman <rworkman@clearview.ca>
Cc: David Perks <dperks@tathameng.com>
Subject: RE: Terms of Reference - 1191 County Road 42

Good afternoon Rossalyn,

I would like to confirm the background growth rates and background developments to be included in our TIS. Based on the 1.79% annual growth observed between 2021 and 2024 for County Road 42 (just south of the proposed development), the 2016–2021 census data indicating a 0.92% population growth for Clearview, and future projections from Simcoe's Growth Forecasts and Land Needs Assessment

(2021–2051) showing a 1.2% annual population increase, we propose applying a 2% annual growth rate for County Road 42 and a 1% annual growth rate for Margaret Street.

Regarding background developments, after reviewing the Township's development mapping, we intend to include Ashton Meadows Phase 1B and Mamta's Margaret Street development. Should we also include Phases 2 and 3 of the Ashton Meadows development, given that Phase 1 is not yet fully built out and does not appear on the interactive mapping website?

Kind regards,

Karolina Kukielka C.E.T., EIT, rcsi
Engineering Intern

kkukielka@tathameng.com **T** 705-733-9037 x2238
645 Veterans Drive, Unit D, Barrie, Ontario L4N 9H8

tathameng.com

From: Karolina Kukielka
Sent: Tuesday, May 13, 2025 11:46 AM
To: Rossalyn Workman <rworkman@clearview.ca>
Subject: RE: Terms of Reference - 1191 County Road 42

Good morning Rossalyn,

I hope you're doing well. Could you please provide the TIS for Phase 1 of the Ashton Meadows development?

Kind regards,

Karolina Kukielka C.E.T., EIT, rcsi
Engineering Intern

kkukielka@tathameng.com **T** 705-733-9037 x2238
645 Veterans Drive, Unit D, Barrie, Ontario L4N 9H8

tathameng.com

From: Rossalyn Workman <rworkman@clearview.ca>
Sent: Monday, April 28, 2025 8:39 AM
To: Karolina Kukielka <kkukielka@tathameng.com>
Cc: David Perks <dperks@tathameng.com>; Patti Kennedy <pkennedy@clearview.ca>; Christine Taggart <ctaggart@clearview.ca>; Jennifer Georgas <Jennifer.Georgas@rjburnside.com>; harjinder@mamtahomes.com; raj@rpdstudio.ca; Clayton Capes <clayton@capesengineering.com>
Subject: FW: Terms of Reference - 1191 County Road 42

Hi Karolina
Please find the response from Jennifer Georgas, Burnsides, to your TOR imbedded in red, in the email below.
Let me know if you have any additional questions.
Thanks Rossalyn

Rossalyn Workman MURP, Dipl.MM, MCIP, RPP (she/her)
Manager of Planning
Township of Clearview
705-428-6230 ext. 248
rworkman@clearview.ca

From: Karolina Kukielka <kkukielka@tathameng.com>
Sent: April 16, 2025 5:55 PM
To: Rossalyn Workman <rworkman@clearview.ca>
Cc: David Perks <dperks@tathameng.com>
Subject: Terms of Reference - 1191 County Road 42

Good afternoon Rossalyn,

Tatham Engineering Limited has been retained to prepare a Traffic Impact Brief (TIB) in support of a proposed residential development located at 1192 Airport Road (County Road 42) in the Township of Clearview. The development will consist of 128 residential units.

Upon review of the background information and previous studies, it has been determined that a new study is required, rather than an update, due to the age of the existing reports. Additionally, the site plan has been revised since the completion of those studies, and the development now fully comprises residential units (128 units in total).

Given the limited number of trips expected to be generated by the proposed development (approximately 64 AM peak hour trips and 78 PM peak hour trips, total of inbound and outbound), a reduced-scope Traffic Brief is proposed rather than a full Traffic Impact Study (most jurisdictions and industry standards require a full TIS when peak hour trips exceed 100). A full TIS should be provided, given the cumulative traffic volumes being generated by developments in the immediate area. The proposed work program is outlined below:

1. The study area will include County Road 42, Margaret Street, and their intersection. Intersection of CR42/Margaret St. and Site Access/Margaret St. to be considered. Also potential for impact to the draft approved subdivision to the east to be considered.
2. Existing volumes will be established using new traffic counts (if data from the last two years is not available). Volumes will be adjusted as necessary to reflect peak seasonal conditions.
3. The assessment will consider weekday AM and PM peak hour conditions.
4. Using historical data and projected growth in the area, future background traffic volumes will be identified. Special consideration will be given to the adjacent development to the east currently under construction. Background growth and background development growth to be considered. Background developments to be identified by consultant through consultation with the Township.
   (Could you please provide the Traffic Impact Study for that development?) TIS for Ashton Meadows is attached. Extent of occupancies of developments to be confirmed to determine whether included in new counts.
   Projections will be developed for:

   - 2030: Year of full build-out
   - 2035: 5-year planning horizon beyond full build-out
   - Add 2040: 10-year planning horizon beyond full build-out

5. Trip generation will be based on the ITE Trip Generation Manual, 11th Edition, for land uses consistent with the proposed development. Identify potential for road network revisions to 2040, including potential for extension of Margaret Street to Warrington Road. Trips will be assigned to the road network based on:

   - Existing traffic patterns
   - Available distribution data
   - Anticipated travel routes

6. The operational analysis of the study area intersection and site access on Margaret Street will be conducted using Synchro traffic analysis software. Synchro 12. Operational analysis to include LOS (delay), v/c, queuing, MTO turning lane analysis.

7. Following the traffic analysis, any road improvements or mitigation measures required to support the subject development will be identified, along with the appropriate timing for implementation. Operational analysis to also be provided with the road improvements implemented.
8. An evaluation of available sight lines at the proposed site access will be provided in accordance with TAC guidelines and other relevant industry standards.
9. All findings and recommendations will be documented in a Traffic Impact Brief for submission to the Township and County for review and approval. The County should be circulated with the TOR for this TIS for their approval.

Parking analysis to be provided in the TIS. If proposed parking does not meet parking required by the Zoning By-law a detailed TOR for a parking justification should be provided for review. Proximity of parking to on-site uses should be confirmed.
Connectivity of active transportation (pedestrian, cycling) and transit should be reviewed in the TIS.
AutoTURN swept path analysis should be provided for cars, delivery trucks, waste trucks and fire trucks.
Skewed alignment of internal private road intersections should be reviewed.
Cross sections for internal private roads to be confirmed.
Emergency access to be reviewed.
Connectivity requirements between private condo roads and public subdivision roads to the east to be reviewed, including timing.

Please let me know if the above Terms of Reference is acceptable and do not hesitate to contact me if you have any comments/questions.

TATHAM ENGINEERING

Karolina Kukielka C.E.T., EIT, rcsi
Engineering Intern

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Appendix B:
Traffic Counts

County Road 42 & Margaret St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

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

Municipality: Stayner
Site #: 0000002500
Intersection: County Road 42 & Margaret St
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy
Person(s) who counted:

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

Major Road: County Road 42 runs N/S

North Leg Total: 408
North Entering: 199
North Peds: 0
Peds Cross: ⋈

Heavys	5	0	5
Trucks	5	0	5
Cars	180	9	189
Totals	190	9	

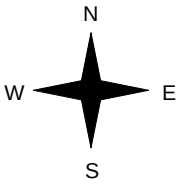
Heavys	11
Trucks	12
Cars	186
Totals	209

East Leg Total: 29
East Entering: 19
East Peds: 0
Peds Cross: ⋈

County Road 42

Cars	Trucks	Heavys	Totals
15	0	2	17

2	0	0	2
17	0	2	



Margaret St

Cars	Trucks	Heavys	Totals
10	0	0	10

County Road 42

Cars	182
Trucks	5
Heavys	5
Totals	192

Cars	171	1	172
Trucks	12	0	12
Heavys	9	0	9
Totals	192	1	

Peds Cross: ⋈
South Peds: 0
South Entering: 193
South Leg Total: 385

Comments

County Road 42 & Margaret St

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: Stayner
Site #: 0000002500
Intersection: County Road 42 & Margaret St
TFR File #: 1
Count date: 6-May-2025

Weather conditions:
Cloudy
Person(s) who counted:

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

Major Road: County Road 42 runs N/S

North Leg Total: 528
North Entering: 249
North Peds: 0
Peds Cross: ⋈

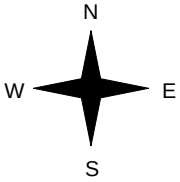
Heavys	6	1	7
Trucks	10	0	10
Cars	217	15	232
Totals	233	16	

Heavys	8
Trucks	6
Cars	265
Totals	279

East Leg Total: 28
East Entering: 7
East Peds: 0
Peds Cross: ⋈

County Road 42

Cars	Trucks	Heavys	Totals
6	0	0	6
1	0	0	1
7	0	0	



Margaret St

Cars	Trucks	Heavys	Totals
20	0	1	21

County Road 42

Cars	218
Trucks	10
Heavys	6
Totals	234

Cars	259	5	264
Trucks	6	0	6
Heavys	8	0	8
Totals	273	5	

Peds Cross: ⋈
South Peds: 0
South Entering: 278
South Leg Total: 512

Comments

County Road 42 & Margaret St

Total Count Diagram

Municipality: Stayner
Site #: 0000002500
Intersection: County Road 42 & Margaret St
TFR File #: 1
Count date: 6-May-2025

Weather conditions: Cloudy
Person(s) who counted:

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

Major Road: County Road 42 runs N/S

North Leg Total: 2537
North Entering: 1225
North Peds: 1
Peds Cross: ⋈

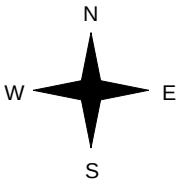
Heavys	31	1	32
Trucks	36	1	37
Cars	1090	66	1156
Totals	1157	68	

Heavys	43
Trucks	50
Cars	1219
Totals	1312

East Leg Total: 163
East Entering: 79
East Peds: 0
Peds Cross: ⋈

County Road 42

Cars	Trucks	Heavys	Totals
60	1	2	63
16	0	0	16
76	1	2	



Margaret St

Cars	Trucks	Heavys	Totals
81	2	1	84

County Road 42

Cars	1106		
Trucks	36		
Heavys	31		
Totals	1173		

Cars	1159	15	1174
Trucks	49	1	50
Heavys	41	0	41
Totals	1249	16	

Peds Cross: ⋈
South Peds: 0
South Entering: 1265
South Leg Total: 2438

Comments

County Road 42 & Margaret St
Traffic Count Summary

Intersection: County Road 42 & Margaret St | **Count Date:** 6-May-2025 | **Municipality:** Stayner

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	2	195	0	197	0	342
9:00:00	9	190	0	199	0	392
10:00:00	10	189	0	199	0	348
15:00:00	0	0	0	0	0	0
16:00:00	10	175	0	185	0	423
17:00:00	16	233	0	249	0	527
18:00:00	21	175	0	196	1	458
Totals:	68	1157	0	1225	1	2490

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	145	0	145	0
9:00:00	0	192	1	193	0
10:00:00	0	149	0	149	0
15:00:00	0	0	0	0	0
16:00:00	0	235	3	238	0
17:00:00	0	273	5	278	0
18:00:00	0	255	7	262	0
	0	1249	16	1265	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	4	0	11	15	0	15
9:00:00	2	0	17	19	0	19
10:00:00	0	0	9	9	0	9
15:00:00	0	0	0	0	0	0
16:00:00	7	0	9	16	0	16
17:00:00	1	0	6	7	0	7
18:00:00	2	0	11	13	0	13
Totals:	16	0	63	79	0	79

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
10:00:00	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
	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	15:00	16:00	17:00	18:00
Crossing Values:	0	4	2	0	0	7	1	3

COUNTY OF SIMCOE

TRANSPORTATION AND ENGINEERING DEPARTMENT
MIDHURST, ON
705-726-9300

County Road 42 - Fall 2024
County Road 9 to
Stayner South Limits

Site Code: 042 02

Date Start: 16-Sep-24
Date End: 19-Sep-24

Start	16-Sep-24		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	5	29	15	18	6	24	4	18	*	*	*	*	*	*	8	22
01:00	10	16	10	14	5	17	6	15	*	*	*	*	*	*	8	16
02:00	11	23	11	10	11	7	9	7	*	*	*	*	*	*	10	12
03:00	22	11	22	5	15	3	20	4	*	*	*	*	*	*	20	6
04:00	54	20	44	15	54	10	54	14	*	*	*	*	*	*	52	15
05:00	115	30	130	42	137	38	137	33	*	*	*	*	*	*	130	36
06:00	121	70	164	99	177	81	153	85	*	*	*	*	*	*	154	84
07:00	205	130	186	148	195	157	**208**	139	*	*	*	*	*	*	198	144
08:00	**208**	185	**204**	**170**	**203**	**195**	196	**203**	*	*	*	*	*	*	**203**	**188**
09:00	188	189	181	169	177	186	170	143	*	*	*	*	*	*	179	172
10:00	207	**226**	157	150	169	167	173	172	*	*	*	*	*	*	176	179
11:00	185	210	166	164	202	177	192	162	*	*	*	*	*	*	186	178
12:00 PM	182	208	198	206	203	207	195	245	*	*	*	*	*	*	194	216
01:00	207	181	179	218	169	169	201	208	*	*	*	*	*	*	189	194
02:00	200	183	208	231	199	217	197	236	*	*	*	*	*	*	201	217
03:00	205	247	**255**	**307**	239	266	**242**	256	*	*	*	*	*	*	**235**	269
04:00	**235**	**258**	223	273	**261**	306	222	**323**	*	*	*	*	*	*	235	**290**
05:00	207	239	205	246	216	**308**	203	257	*	*	*	*	*	*	208	262
06:00	159	159	135	211	127	221	143	228	*	*	*	*	*	*	141	205
07:00	120	128	112	113	131	141	126	155	*	*	*	*	*	*	122	134
08:00	104	89	118	83	95	100	78	103	*	*	*	*	*	*	99	94
09:00	61	53	59	77	58	72	51	107	*	*	*	*	*	*	57	77
10:00	32	45	38	43	36	45	48	51	*	*	*	*	*	*	38	46
11:00	11	27	10	26	12	33	11	32	*	*	*	*	*	*	11	30
Lane	3054	2956	3030	3038	3097	3147	3039	3196	0	0	0	0	0	0	3054	3086
Day	6010		6068		6244		6235		0		0		0		6140	
AM Peak	08:00	10:00	08:00	08:00	08:00	08:00	07:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	208	226	204	170	203	195	208	203	-	-	-	-	-	-	203	188
PM Peak	16:00	16:00	15:00	15:00	16:00	17:00	15:00	16:00	-	-	-	-	-	-	15:00	16:00
Vol.	235	258	255	307	261	308	242	323	-	-	-	-	-	-	235	290

Comb. Total	6010	6068	6244	6235	0	0	0	6140

ADT ADT 6,139 AADT 6,139

COUNTY OF SIMCOE

TRANSPORTATION AND ENGINEERING
Midhurst, ON
705-726-9300

County Road 42 - Spring 2024
County Road 9 to
Stayner Southern Limits

Site Code: 042 02

Date Start: 29-Apr-24
Date End: 02-May-24

Start	29-Apr-24		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	6	26	6	22	11	24	11	25	*	*	*	*	*	*	8	24
01:00	4	16	0	14	2	21	3	12	*	*	*	*	*	*	2	16
02:00	8	15	11	15	8	13	10	9	*	*	*	*	*	*	9	13
03:00	15	10	16	5	22	13	26	9	*	*	*	*	*	*	20	9
04:00	44	12	42	13	52	14	48	12	*	*	*	*	*	*	46	13
05:00	102	30	114	31	128	34	107	35	*	*	*	*	*	*	113	32
06:00	123	72	146	60	133	70	124	76	*	*	*	*	*	*	132	70
07:00	**183**	123	**186**	107	**190**	132	**194**	119	*	*	*	*	*	*	**188**	120
08:00	175	**187**	150	**167**	174	**179**	185	**178**	*	*	*	*	*	*	171	**178**
09:00	146	169	139	135	168	122	178	146	*	*	*	*	*	*	158	143
10:00	180	178	162	143	144	149	175	159	*	*	*	*	*	*	165	157
11:00	161	163	163	155	157	169	169	166	*	*	*	*	*	*	162	163
12:00 PM	172	145	163	146	173	142	181	152	*	*	*	*	*	*	172	146
01:00	165	149	153	146	170	176	157	188	*	*	*	*	*	*	161	165
02:00	183	185	174	160	175	182	191	222	*	*	*	*	*	*	181	187
03:00	166	**232**	176	237	195	236	185	239	*	*	*	*	*	*	180	236
04:00	**208**	223	191	240	**217**	248	**233**	266	*	*	*	*	*	*	**212**	244
05:00	192	230	**199**	**246**	206	**279**	212	**275**	*	*	*	*	*	*	202	**258**
06:00	100	161	116	178	132	172	122	214	*	*	*	*	*	*	118	181
07:00	84	106	83	105	87	138	111	143	*	*	*	*	*	*	91	123
08:00	60	78	58	82	72	101	67	96	*	*	*	*	*	*	64	89
09:00	53	71	39	67	51	66	53	77	*	*	*	*	*	*	49	70
10:00	27	34	27	48	39	47	47	44	*	*	*	*	*	*	35	43
11:00	9	20	12	25	14	21	17	34	*	*	*	*	*	*	13	25
Lane	2566	2635	2526	2547	2720	2748	2806	2896	0	0	0	0	0	0	2652	2705
Day	5201		5073		5468		5702		0		0		0		5357	
AM Peak	07:00	08:00	07:00	08:00	07:00	08:00	07:00	08:00	-	-	-	-	-	-	07:00	08:00
Vol.	183	187	186	167	190	179	194	178	-	-	-	-	-	-	188	178
PM Peak	16:00	15:00	17:00	17:00	16:00	17:00	16:00	17:00	-	-	-	-	-	-	16:00	17:00
Vol.	208	232	199	246	217	279	233	275	-	-	-	-	-	-	212	258

Comb. Total	5201	5073	5468	5702	0	0	0	5357

ADT ADT 5,361 AADT 5,361

COUNTY OF SIMCOE

TRANSPORTATION AND ENGINEERING
Midhurst, ON
705-726-9300

County Road 42 - Summer 2024
County Road 9 to
Stayner South Limits

Site Code: 042 02

Date Start: 19-Aug-24
Date End: 22-Aug-24

Start	19-Aug-24		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	10	22	12	23	11	26	11	20	*	*	*	*	*	*	11	23
01:00	4	13	4	17	6	8	6	10	*	*	*	*	*	*	5	12
02:00	10	17	10	20	8	12	10	9	*	*	*	*	*	*	10	14
03:00	21	11	22	7	17	4	15	12	*	*	*	*	*	*	19	8
04:00	50	10	54	13	61	16	48	8	*	*	*	*	*	*	53	12
05:00	83	25	124	25	127	22	114	26	*	*	*	*	*	*	112	24
06:00	103	75	139	92	134	91	145	77	*	*	*	*	*	*	130	84
07:00	161	104	182	120	164	114	171	118	*	*	*	*	*	*	170	114
08:00	160	145	**193**	**189**	178	179	178	172	*	*	*	*	*	*	177	171
09:00	177	197	168	137	203	155	177	164	*	*	*	*	*	*	181	163
10:00	**217**	229	163	168	193	199	184	169	*	*	*	*	*	*	189	191
11:00	213	**269**	180	159	**243**	**201**	**185**	**210**	*	*	*	*	*	*	**205**	**210**
12:00 PM	**227**	**295**	184	207	200	236	215	211	*	*	*	*	*	*	206	237
01:00	213	276	230	197	**246**	225	190	212	*	*	*	*	*	*	220	228
02:00	192	238	207	259	195	211	220	235	*	*	*	*	*	*	204	236
03:00	214	271	241	231	235	274	207	229	*	*	*	*	*	*	224	251
04:00	221	238	**242**	**276**	222	**294**	232	243	*	*	*	*	*	*	**229**	263
05:00	211	235	229	258	222	249	**254**	**335**	*	*	*	*	*	*	229	**269**
06:00	118	162	172	192	147	210	158	222	*	*	*	*	*	*	149	196
07:00	101	124	101	158	124	151	127	169	*	*	*	*	*	*	113	150
08:00	71	88	80	120	87	117	104	126	*	*	*	*	*	*	86	113
09:00	50	83	66	69	64	74	79	95	*	*	*	*	*	*	65	80
10:00	43	44	39	43	55	56	31	60	*	*	*	*	*	*	42	51
11:00	12	17	12	27	11	29	15	32	*	*	*	*	*	*	12	26
Lane	2882	3188	3054	3007	3153	3153	3076	3164	0	0	0	0	0	0	3041	3126
Day	6070		6061		6306		6240		0		0		0		6167	
AM Peak	10:00	11:00	08:00	08:00	11:00	11:00	11:00	11:00	-	-	-	-	-	-	11:00	11:00
Vol.	217	269	193	189	243	201	185	210	-	-	-	-	-	-	205	210
PM Peak	12:00	12:00	16:00	16:00	13:00	16:00	17:00	17:00	-	-	-	-	-	-	16:00	17:00
Vol.	227	295	242	276	246	294	254	335	-	-	-	-	-	-	229	269

Comb. Total	6070	6061	6306	6240	0	0	0	6167

ADT ADT 6,162 AADT 6,162

Appendix C:
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 D:
Traffic Operations – Existing

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	20	221	1	10	219
Future Volume (Veh/h)	2	20	221	1	10	219
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	21	233	1	11	231
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	486	234			234	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	486	234			234	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	100	97			99	
cM capacity (veh/h)	536	781			1333	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	234	242
Volume Left	2	0	11
Volume Right	21	1	0
cSH	751	1700	1333
Volume to Capacity	0.03	0.14	0.01
Queue Length 95th (m)	0.7	0.0	0.2
Control Delay (s)	9.9	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.4
Approach LOS	A		

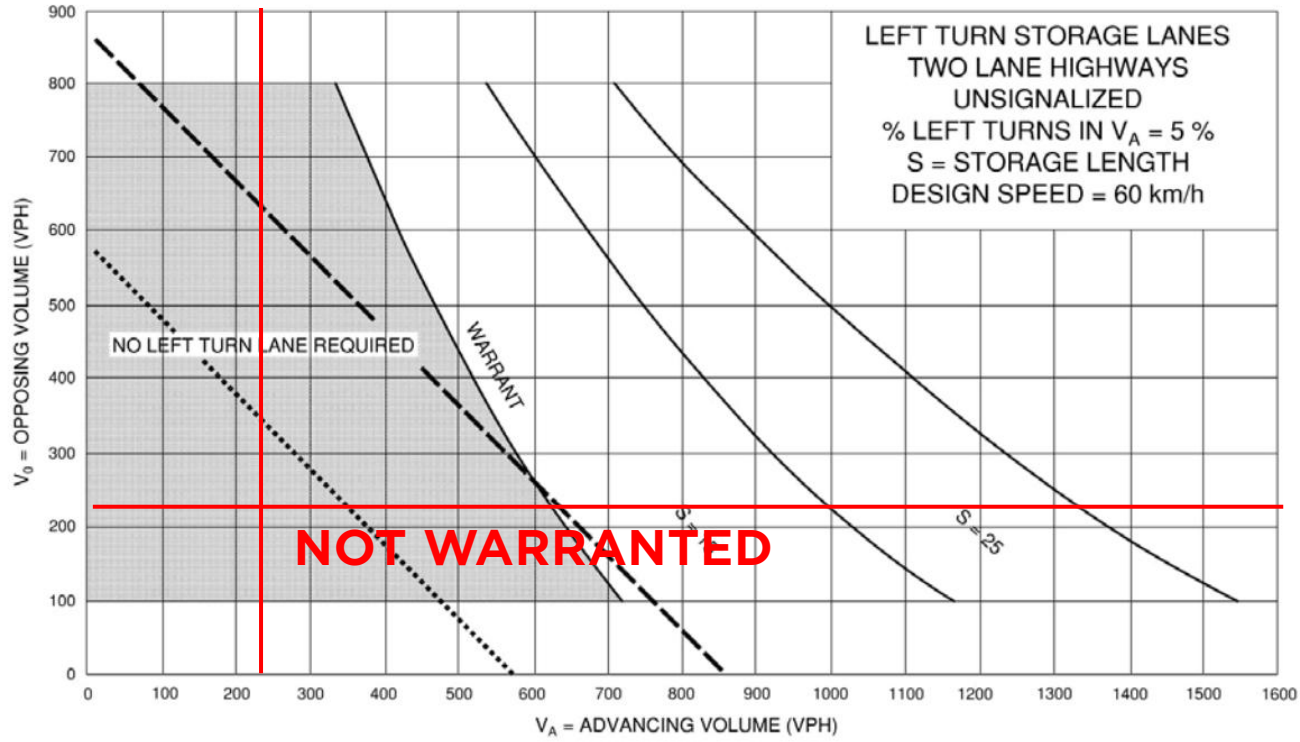
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	7	314	6	18	256
Future Volume (Veh/h)	1	7	314	6	18	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	8	338	6	19	275
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	654	341			344	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	654	341			344	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	100	99			98	
cM capacity (veh/h)	425	701			1193	

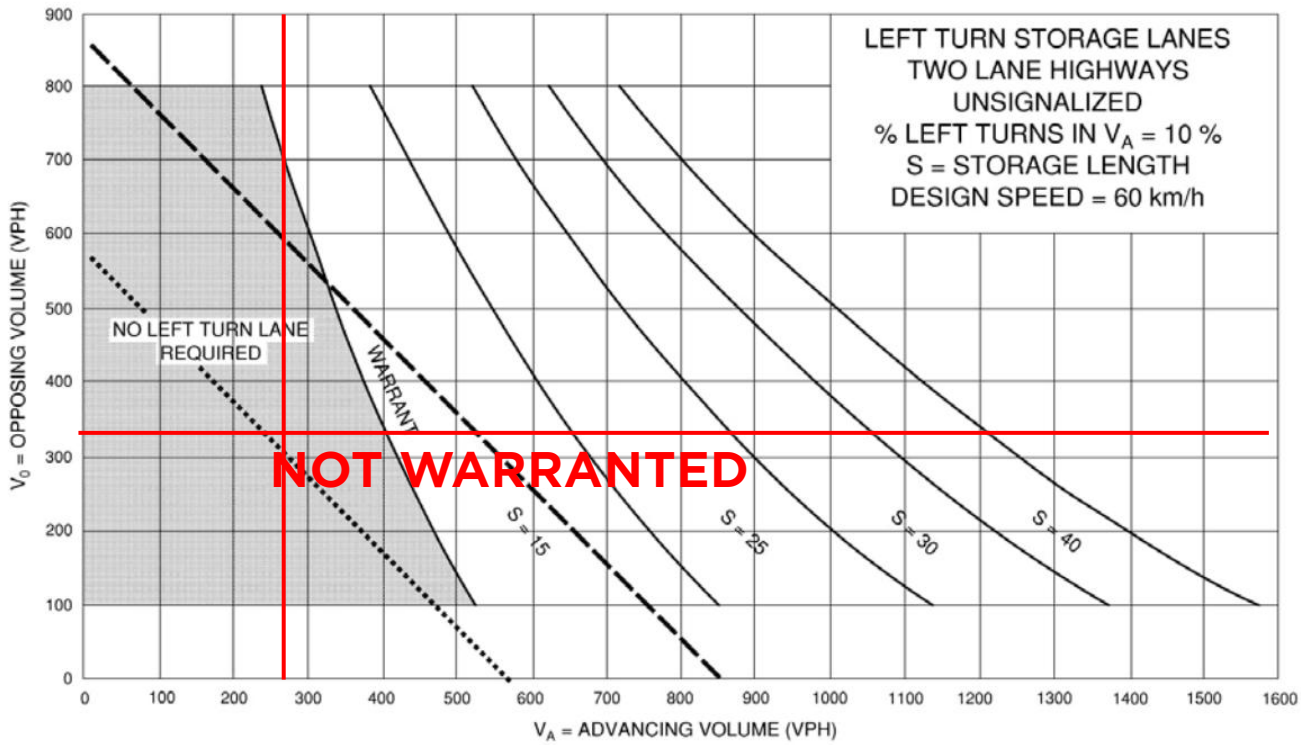
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	344	294
Volume Left	1	0	19
Volume Right	8	6	0
cSH	654	1700	1193
Volume to Capacity	0.01	0.20	0.02
Queue Length 95th (m)	0.3	0.0	0.4
Control Delay (s)	10.6	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		38.3%	ICU Level of Service
Analysis Period (min)		15	

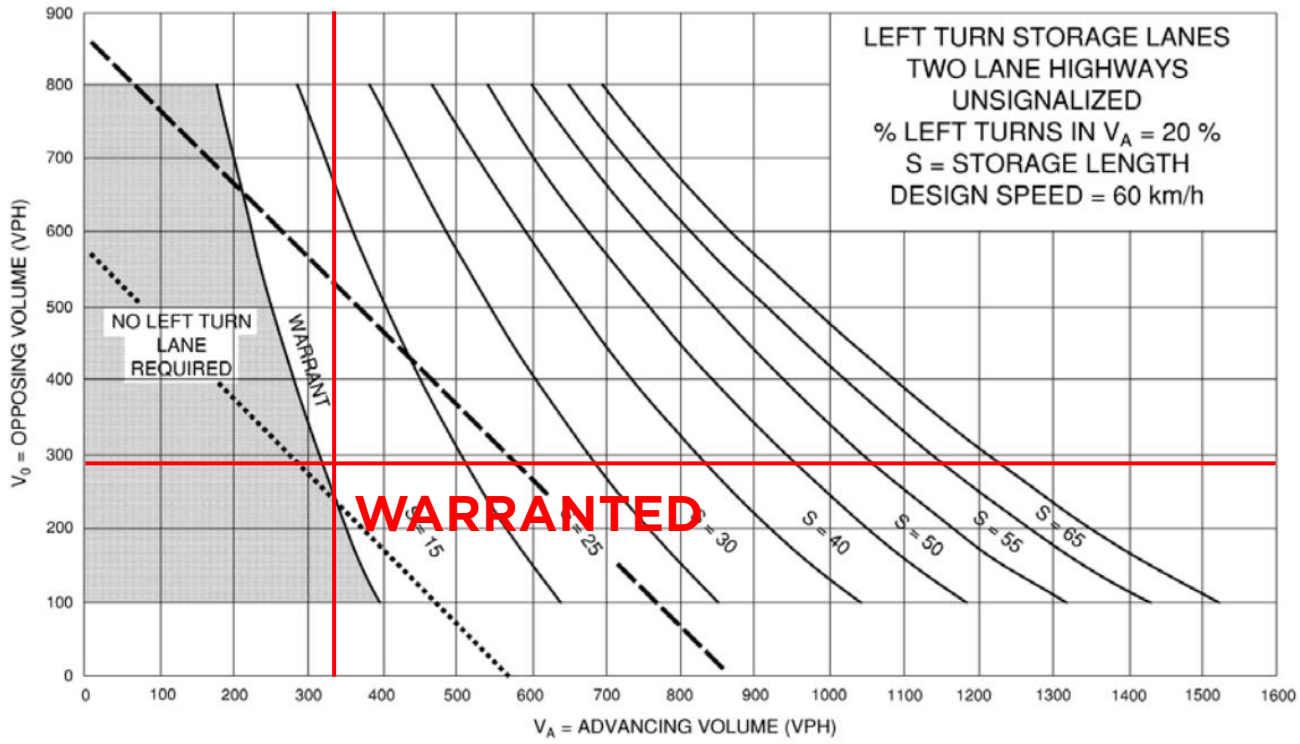
Appendix E:
Left Turn Nomographs



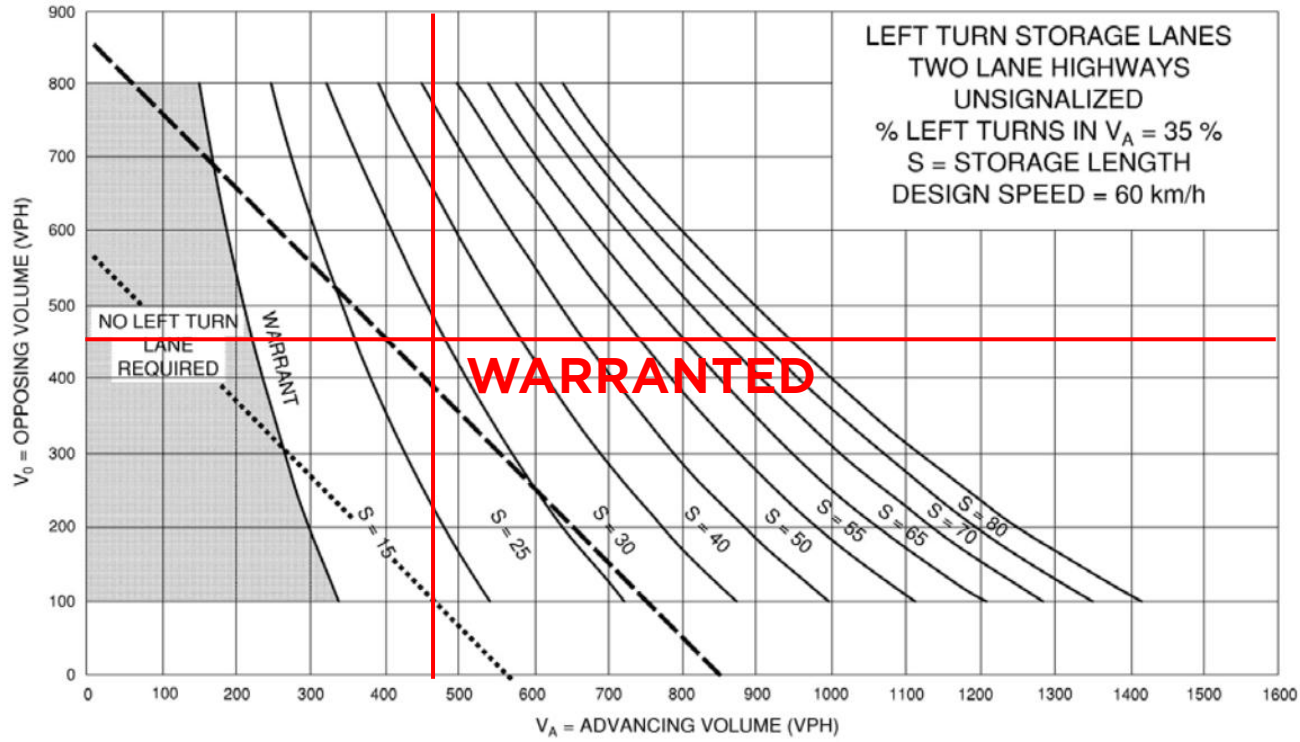
County Road 42 & Margaret Street – 2025 Existing Conditions AM Peak



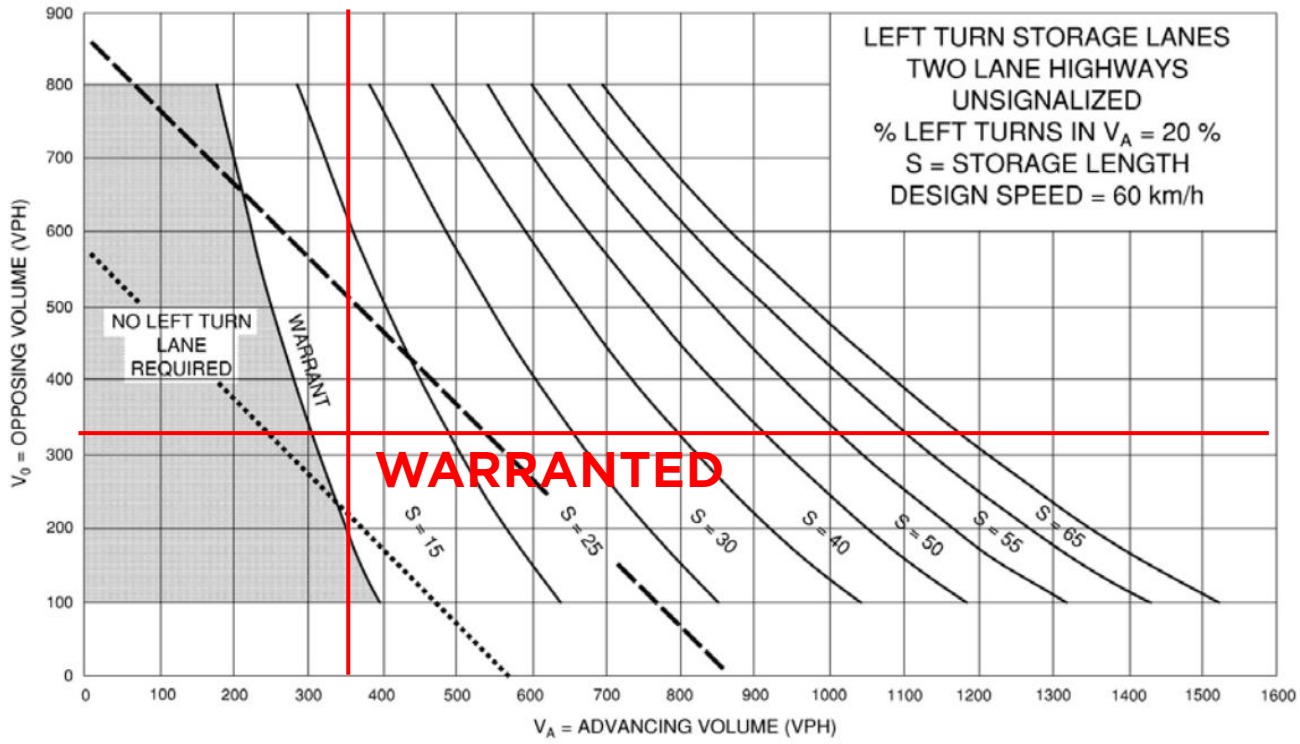
County Road 42 & Margaret Street – 2025 Existing Conditions PM Peak



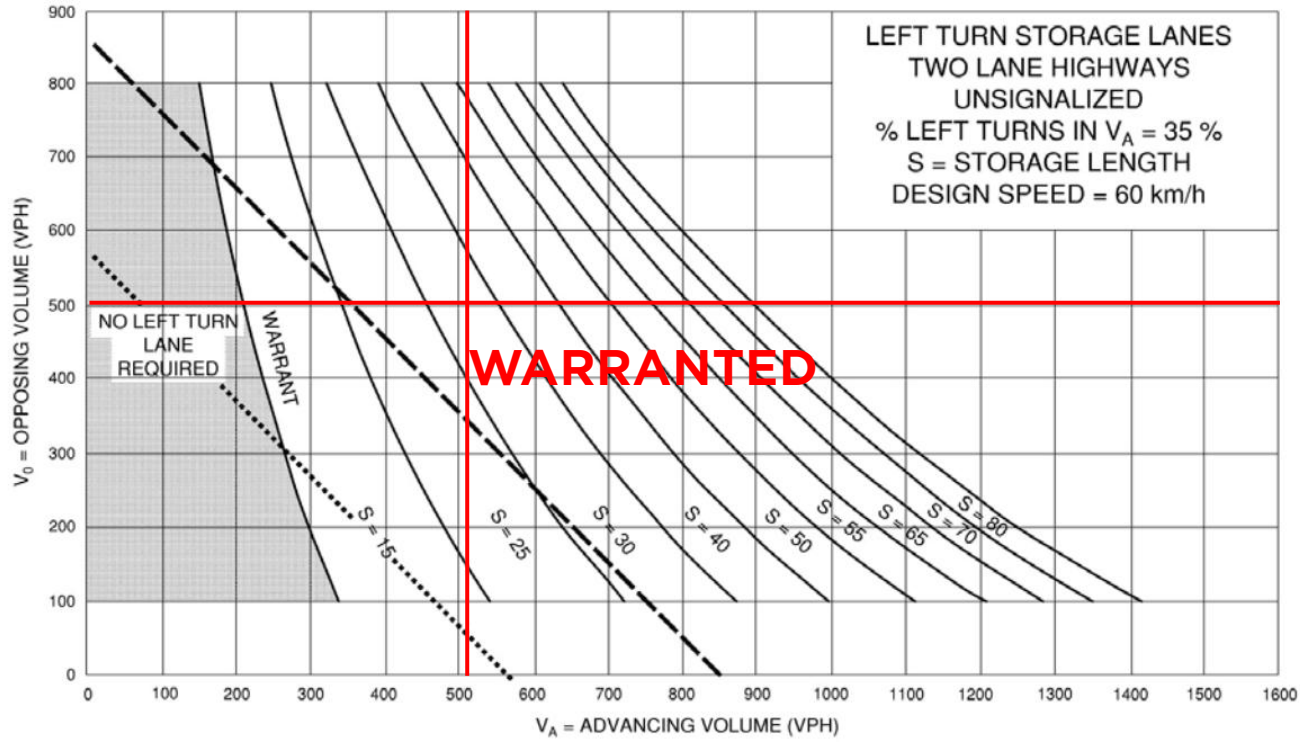
County Road 42 & Margaret Street – 2035 Background Conditions AM Peak



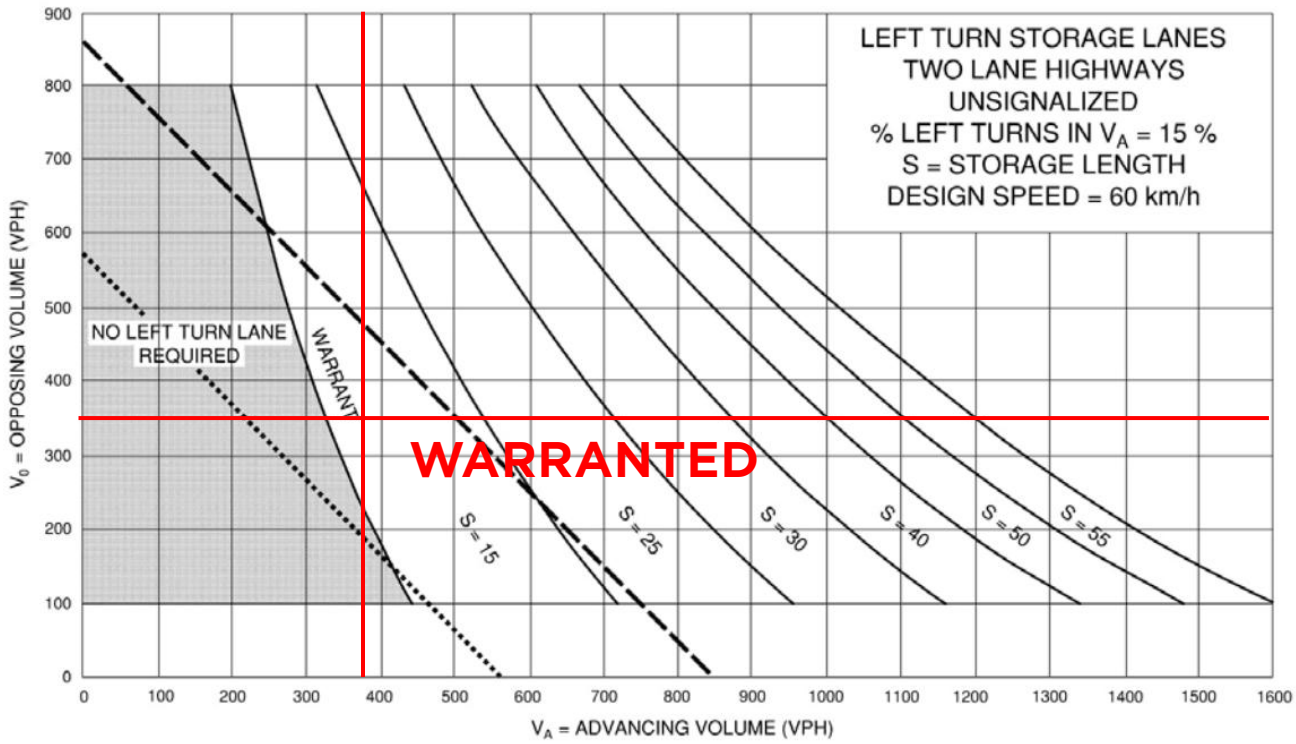
County Road 42 & Margaret Street – 2035 Background Conditions PM Peak



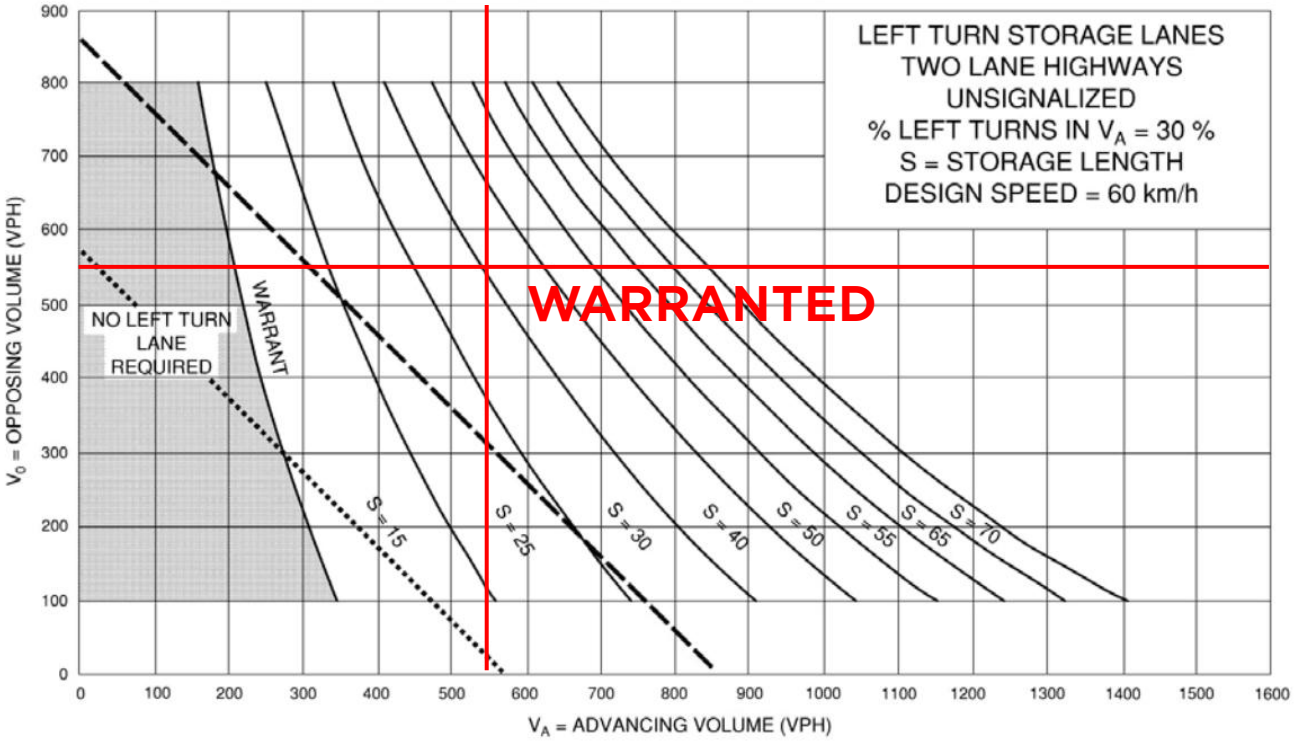
County Road 42 & Margaret Street – 2040 Background Conditions AM Peak



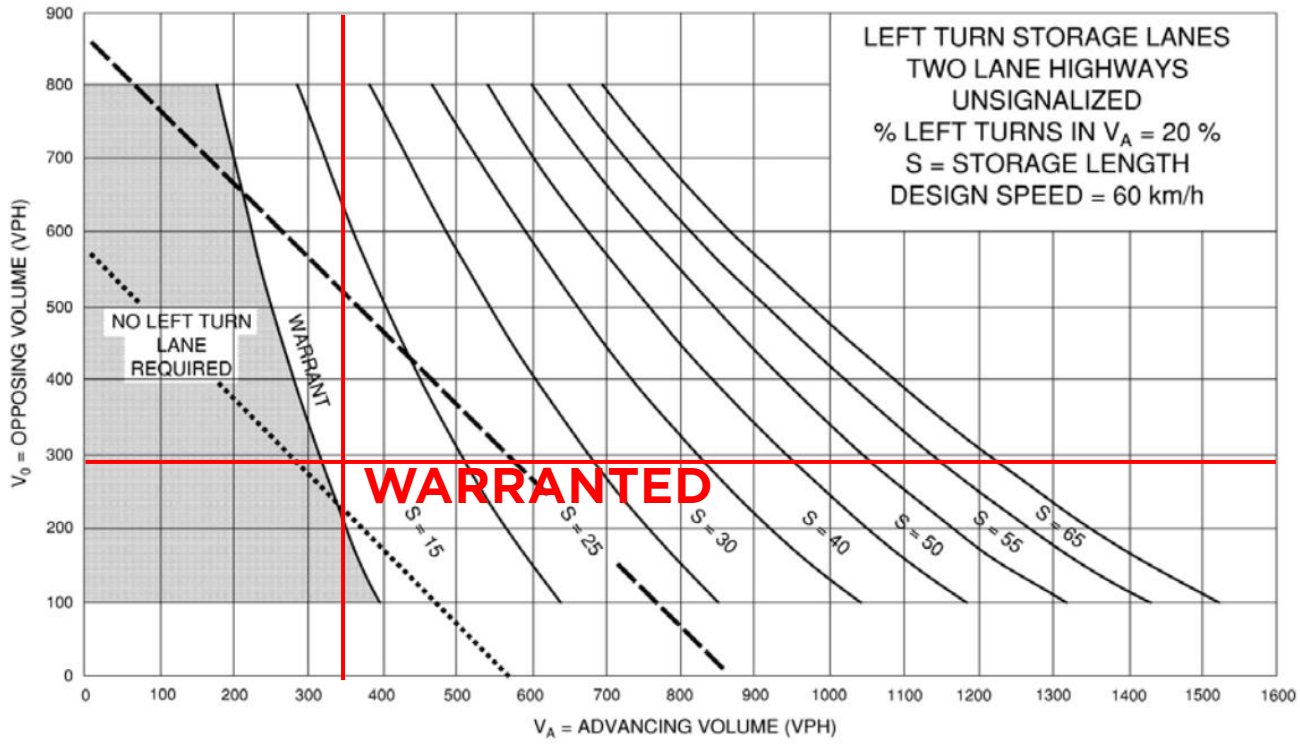
County Road 42 & Margaret Street – 2040 Background Conditions PM Peak



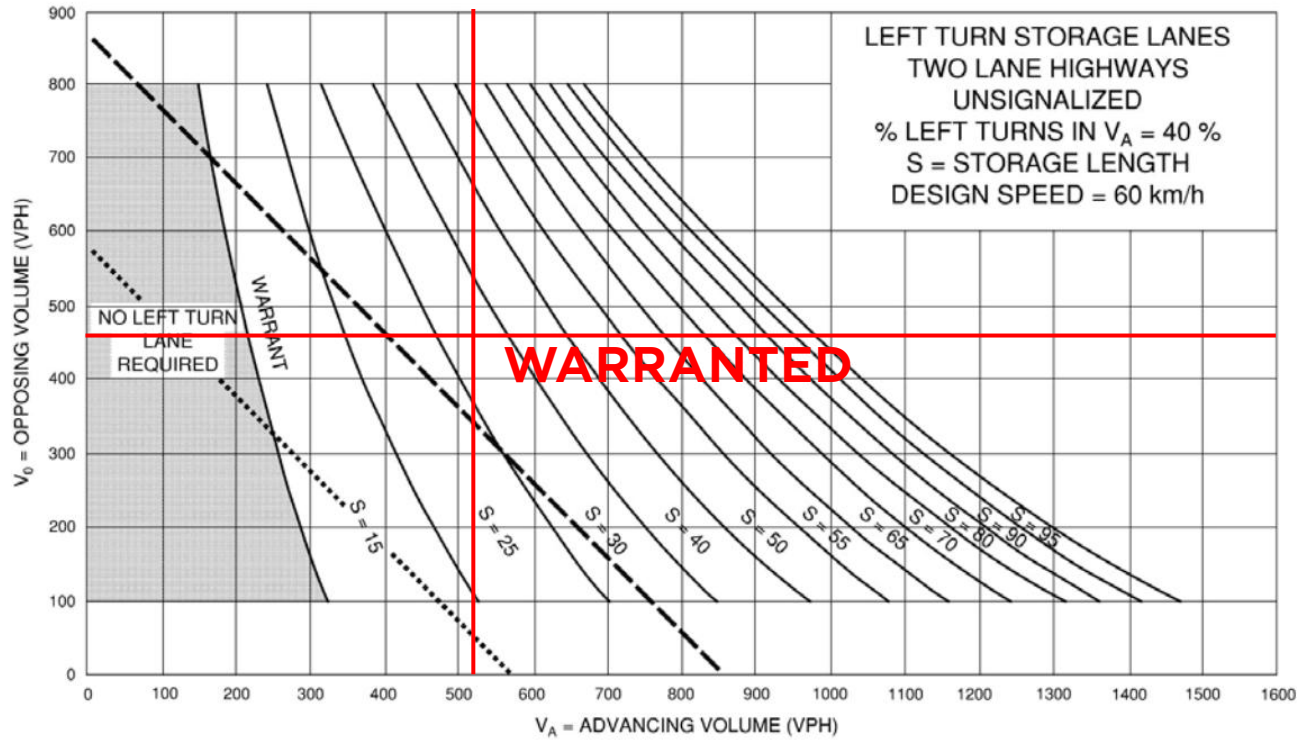
County Road 42 & Margaret Street – 2045 Background Conditions AM Peak



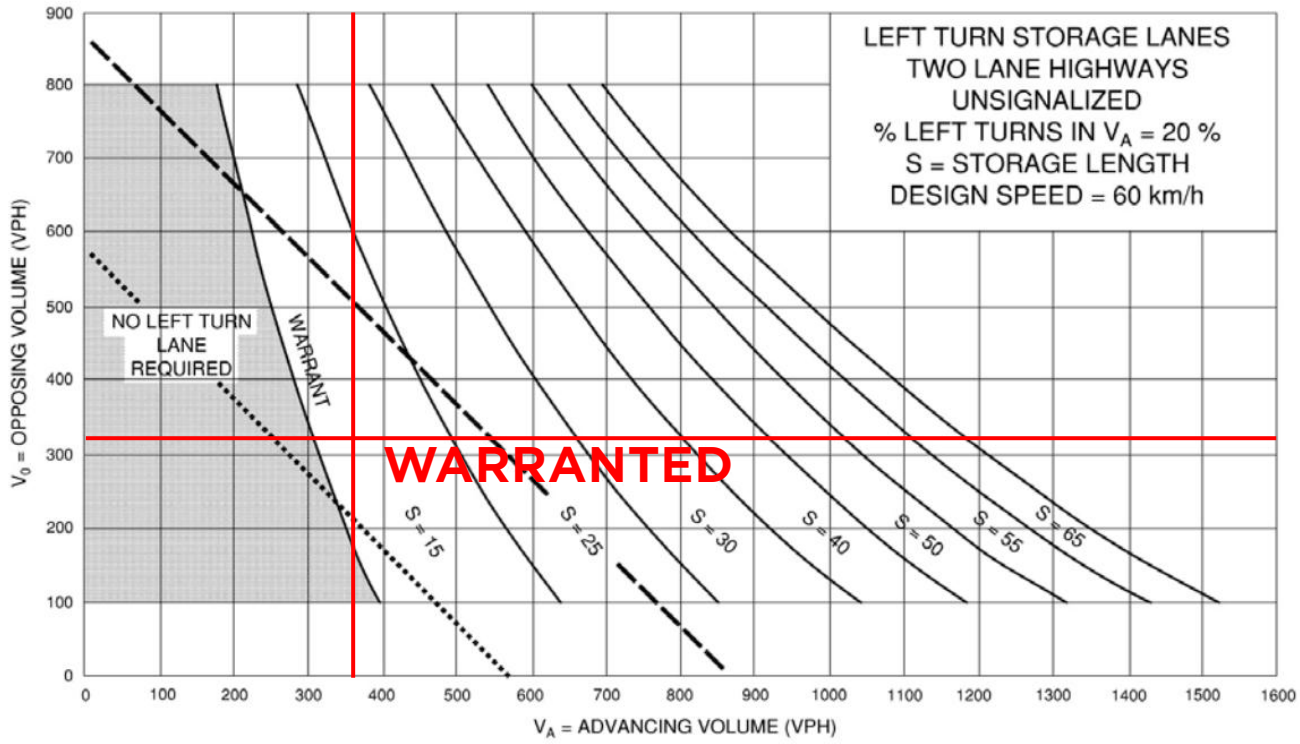
County Road 42 & Margaret Street – 2045 Background Conditions PM Peak



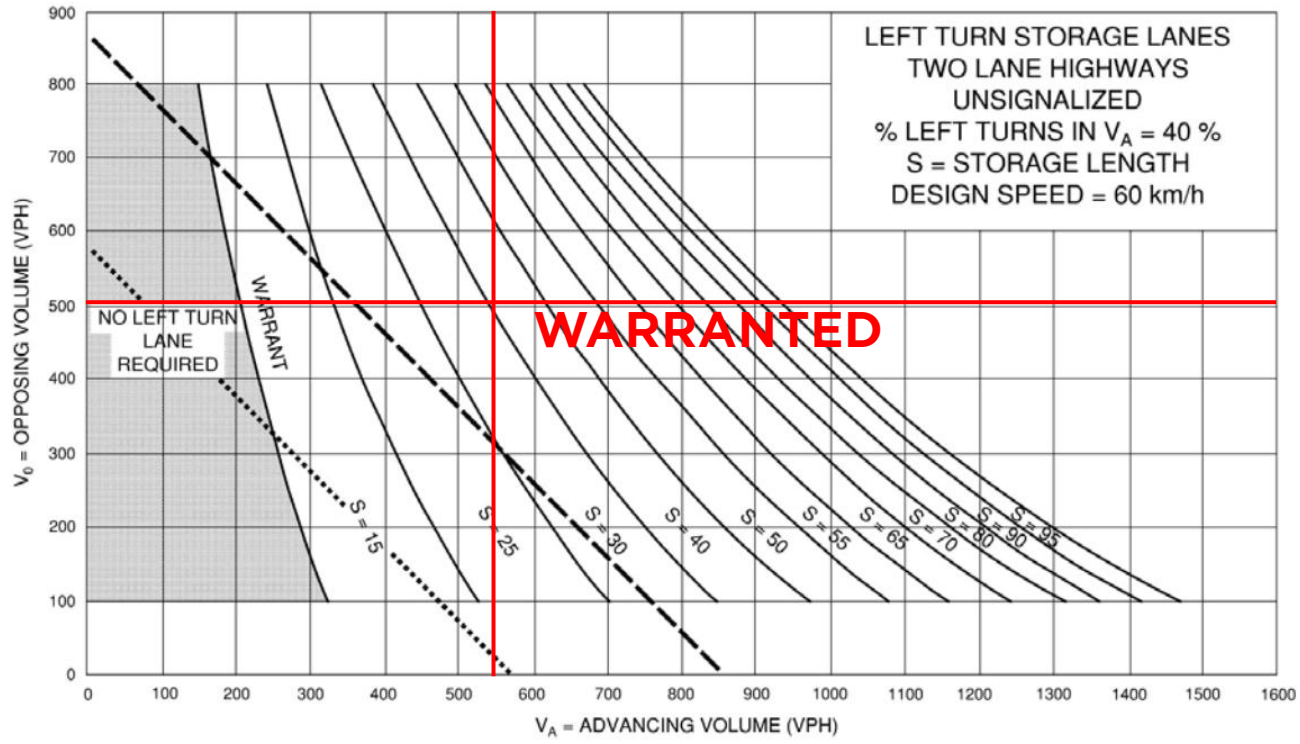
County Road 42 & Margaret Street – 2035 Total Conditions AM Peak



County Road 42 & Margaret Street – 2035 Total Conditions PM Peak

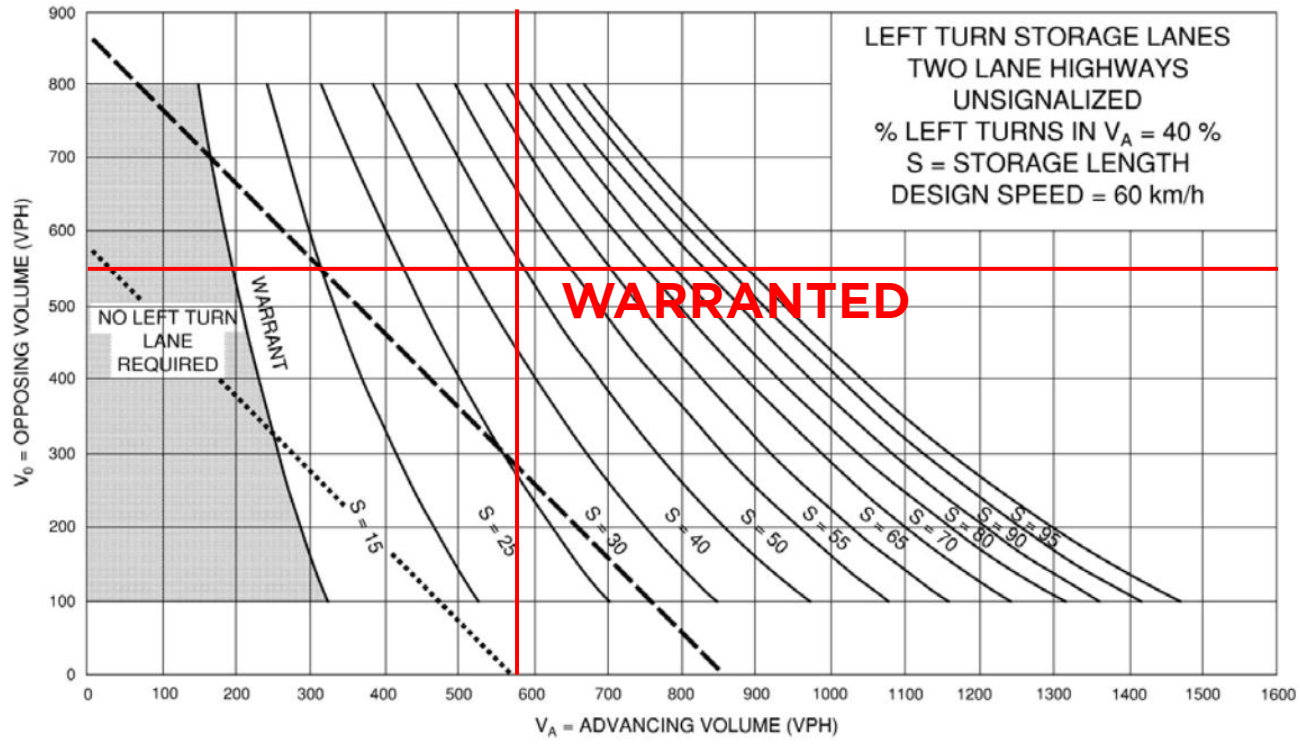


County Road 42 & Margaret Street – 2040 Total Conditions AM Peak



County Road 42 & Margaret Street – 2040 Total Conditions PM Peak

County Road 42 & Margaret Street – 2045 Total Conditions AM Peak



County Road 42 & Margaret Street – 2045 Total Conditions PM Peak

Appendix F:
Background Developments

CLEARVIEW

Staff Recommendation Report

To:	**Mayor and Council**
From:	**Rossalyn Workman, Community Planner**
Date:	**March 21, 2022**
Subject:	**CS-007-2022 – Draft Plan of Subdivision Extension – 209 Margaret Street, Stayner**

Recommendation

Be It Resolved that Council of the Township of Clearview hereby:

1) Receive report CS-007-2022 (Draft Plan of Subdivision Extension) dated March 21, 2022; and,
2) That Council support the recommendation of the Community Services Department to extend the Draft Plan of Subdivision for File 2017-068-SD, property known as 209 Margaret Street, Stayner, for an additional five (5) year period, with the new lapse date being March 21, 2027.

Background

The Draft Plan of Subdivision approval for 209 Margaret Street, Stayner was initially given on January 28, 2013. The approval is for 25 single detached dwellings and 22 semi detached dwellings (44 dwelling units). The total number of dwelling units proposed are 69 units and one new road is also proposed. See proposed Draft Plan of Subdivision layout in Appendix “B”.

The subdivision lands have 85.6 m of frontage on Margaret Street with an overall area of 3.25 hectares of vacant land. The property is described as Part of Lot 23, Concession 2, former Nottawasaga being located at 209 Margaret Street in Stayner. Mamta Development Inc. purchased the subject subdivision lands on November 1, 2017.

This is the second request for a Draft Plan of Subdivision Extension, the first was given November 27, 2017, with the current lapse date being November 27, 2022.

Comments and Analysis

Section 51(32), the Planning Act, states:

“*in giving approval to a draft plan of subdivision, the approval authority may provide that the approval lapses at the expiration of the time period specified by the approval authority, being not less than three years*…”

Section 51(33) states:

"*the approval authority may extend the approval for a time period specified by the approval authority and may further extend it but no extension is permissible if the approval lapses before the extension is given.*"

The Clearview Township Official Plan Section 8.9, Development Staging, states:

"*it shall be a general policy of the municipality to approve, … a draft plan (subdivision/condominium) on the basis that such approval lapses after three years. Extension of up to 18 months may be granted where the applicant demonstrates a clear intention to proceed with final approvals in a reasonable time frame and Council is satisfied that the draft plan still represents good planning.*"

In the past, the draft plan approval of subdivision was recommended for a 3-year period and draft plan extensions were given for an additional 18 months. This was done when development could proceed without constraints such as servicing or reliance on others to build needed infrastructure. Mamta Development Inc. the owners of 209 Margaret St. have been delayed by the limited water services allocation, as well they are reliant on the development of Ashton Meadows Phase 1, to utilize the stormwater management facility and other infrastructure. It is for these reasons that this development has been delayed.

Given that the Ashton Meadows Phase 1, is a final approved subdivision plan and that the solution for additional water allocations in Stayner is underway, an extension to this draft plan of subdivision is appropriate. The Owner is requesting the draft plan extension be extended for an additional 5 years. The Owner has advised that timing on their development will also be based on their additional projects in Stayner. They are currently finalizing the Simcoe Gardens development, which is slated to start construction this year.

Staff have reviewed the draft plan approval conditions and are of the opinion that all conditions are still applicable and appropriate, and no modifications are required. The proposed plan represents good planning as it will provide a mix of residential types and is a continuation of the proposed residential development in this area.

Staff are recommending Council approve of the Extension for a Draft Plan for an additional 5 years with a new lapsing date of March 21, 2027.

Clearview's Strategic Plan

The above initiative supports the following strategic pillars:

- Economic Activity
- Quality of Life

Financial Implications

The proposal to extend a Draft Plan Approval has no financial impact on the municipality.

The final approval of this development is subject to a subdivision agreement. The agreement will establish fees and securities which will ensure that the proponent is fully responsible for all local improvement costs as well as the installation of site works which are a matter of public interest (e.g. municipal sewer and water services, road infrastructure, stormwater management, trials, landscaping).

The development is subject to Development Charges in accordance with the Township's current Development Charges By-law. This allows for recovery of most development related costs which are not considered local improvements.

Report Appendices

Appendix A – Location Map

Appendix B – Draft Plan of Subdivision

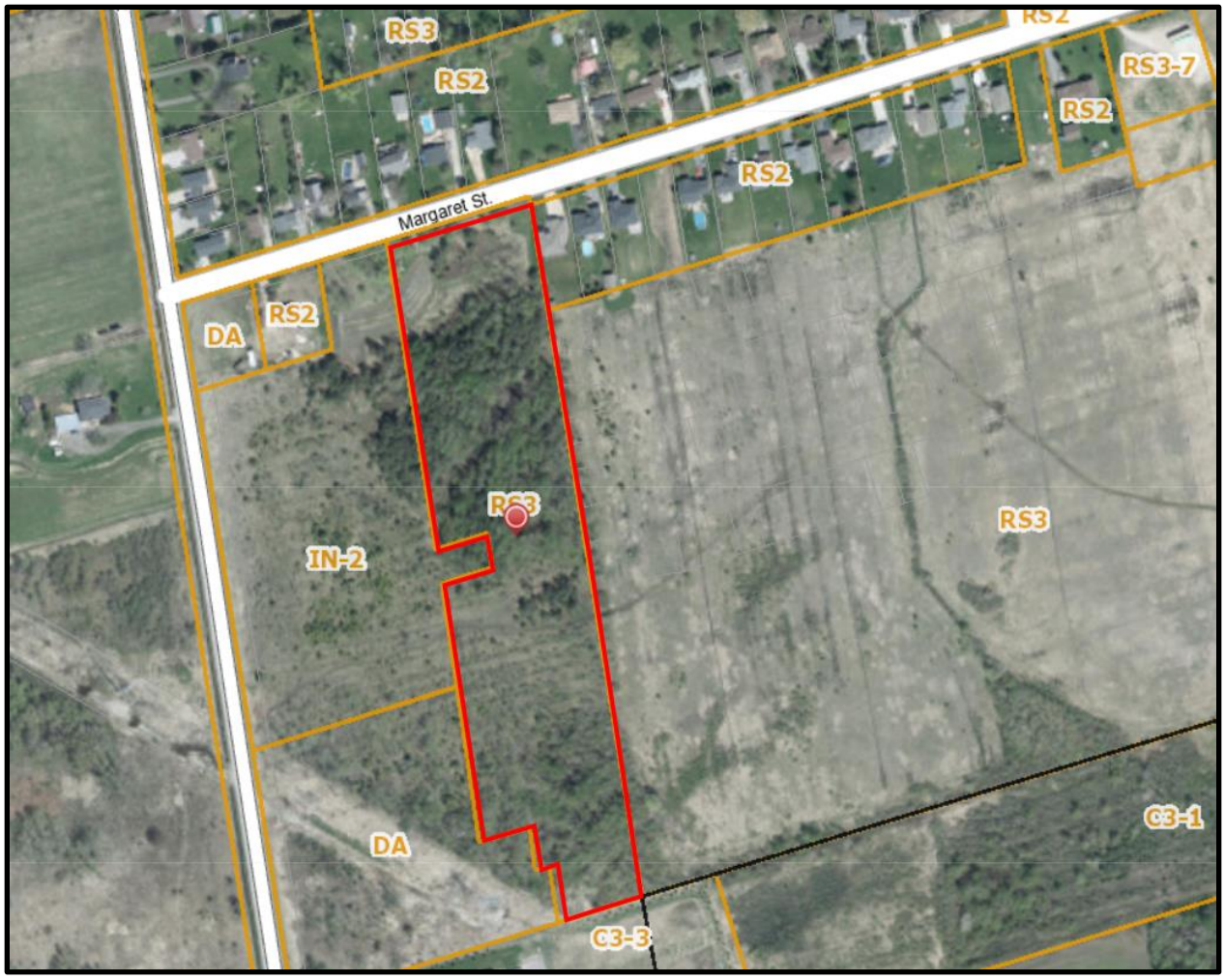
Appendix C – Letter from Requesting Extension of Draft Plan of Subdivision

Appendix D – Proposed Notice for Change in Draft Plan Condition

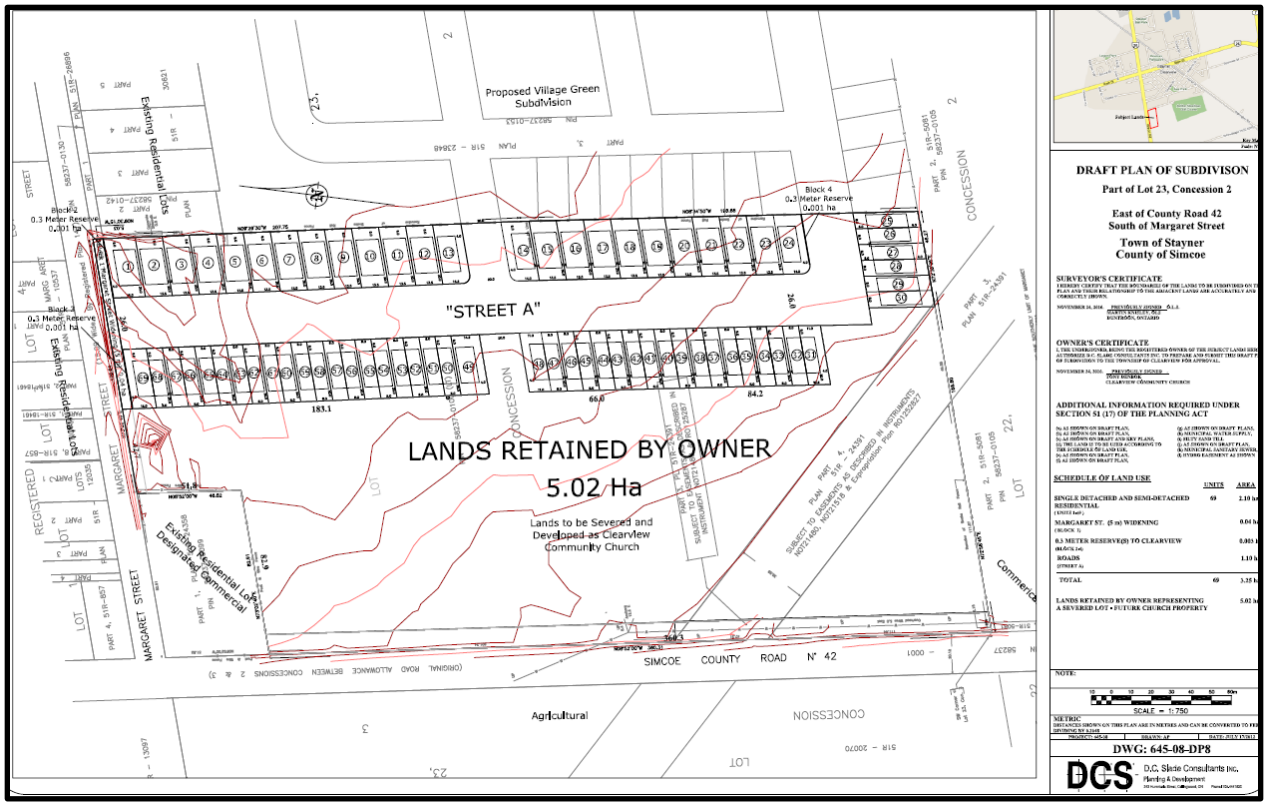
Approvals

Submitted by:	Rossalyn Workman, Community Planner
Reviewed by:	Mara Burton, Director of Community Services
Financial Implications Reviewed by:	Kelly McDonald, Treasurer
Approved by:	John Ferguson, CAO

Appendix A – Location Map



Appendix B – Draft Plan of Subdivision



Appendix C – Letter Requesting Extension of Draft Plan of Subdivision

RPDS

RECEIVED
DEC 15 2021

DECEMBER 01, 2021

Re: Proposed Residential Subdivision - 209 Margaret Street, Stayner Extension of Draft Plan Approval (File No. SD•2010-003)

Dear Mara,

We hope you are doing well.

As per our recent conversation with Rossalyn Workman, regarding the proposed residential development at 209 Margaret Street within the Township of Clearview. We are requesting an extension to the Draft Plan, Dwg. 645-08-DP8, prepared by D.C. Slade Consultants Inc., signed on November 24, 2010, that identifies a mix of 69 single detached and semi-detached units fronting a right-of-way off Margaret Street. Draft Plan Conditions were prepared to support the Approval and were signed February 4, 2013.

Section A of the Draft Plan Conditions identifies that the draft approval shall lapse if final approval is not given to the previously approved Draft Plan within five (5) years of the draft approval dates. Pursuant to subsection 51(33) of the Planning Act, R.S.O. 1990. We are respectfully requesting a five (5) year extension to support the revised Draft Plan. The development has not proceeded due to the Site Servicing and Capacity issues. And we are still working towards resolving these issues. Since, we have one more project in the town, our plan is to phase our developments in the Stayner. Since, we have limited resources like most of the small organizations, we are aiming to finish Phase 1 which is Simcoe Garden and then use the resource from Simcoe Garden into the next project. Furthermore, with the site servicing, we have participated with the town for the water service for Simcoe Gardens (Phase1). The requisite fee of $2,000 is enclosed to process this request.

An extension to the Draft Plan Approval is of paramount importance to allow a successful completion of the project.

Please feel free to contact me to discuss anything.

Sincerely,

Raj Patel, B.ARCH., MUD, OALA (int), Int'l Assoc. RAIC

Principal, RPD Studio

7895 Tranmere Dr, Suite 201B, Mississauga ON L5S 1V9

T: 1-647-285-7635

www.rpdstudio.ca

Appendix D – Proposed Notice for Change in the Draft Plan Conditions

NOTICE OF DECISION
On Application for Approval of Extension of Draft Plan of Subdivision
Subsection 51(45) of the Planning Act

Council of The Corporation of the Township of Clearview has given approval for an extension to Draft Plan Approval to the following Plan of Subdivision:

Applicant:	Mamta Development Inc.
Owner:	Mamta Development Inc.
File Number:	2017-068-SD (previous SD-2010-003)
Legal Description of Subject Lands:	Part of Lot 23, Concession 2, East of County Road 42, South of Margaret Street, formerly in the Township of Nottawasaga, now in the Township of Clearview
Related Files:	16-B24 (Consent), B21/10 (Consent), ZB-2010-030
Date of Decision:	March 21, 2022
Date of Notice:	
Last date for Filing an Appeal:	

Councils Approval is subject to the conditions attached to this notice.

If you have specific accessibility needs and would like another format or other accommodations the Township of Clearview will work to meet your needs. Please contact Human Resources at 705-428-6230 ext. 255.

Council's decision is Subject to Appeal:

Appeal Period Timeframe & Required Contents	Notice to appeal the decision to the Ontario Municipal Board must be filed no later than 20 days from the date of this notice as shown above as the last date of appeal. The notice of appeal must: i) be filed with the clerk of the Township, ii) set out the reasons for the appeal, and iii) be accompanied by the fee required by the Municipal Board. For more information on making an appeal, please visit: http://elto.gov.on.ca/omb/.
Right to Appeal Conditions	Any of the following may, at any time before the approval of the final plan of subdivision, appeal any of the conditions imposed by the approval authority to the Municipal Board by filing a notice of appeal with the Township: i) the applicant, ii) any public body that, before the approval authority made its decision, made oral submissions at a public meeting or written submissions to the approval authority, iii) the Minister, iv) If the subject land is not located in a municipality or planning area, any public body.

Who Can File An Appeal	Only individuals, corporations or public bodies may appeal decisions in respect of a proposed plan of subdivision to the Ontario Municipal Board. A notice of appeal may not be filed by an unincorporated association or group. However, a notice of appeal may be filed in the name of an individual who is a member of the association or group on its behalf. No person or public body shall be added as a party to the hearing of the appeal of the decision of the approval authority, including the lapsing provisions or the conditions, unless the person or public body, before the decision of the approval authority, made oral submissions at a public meeting or written submissions to the council or, in the Ontario Municipal Board's opinion, there are reasonable grounds to add the person or public body as a party.
How to Receive Notice of Changed Conditions	The conditions of an approval of draft plan of subdivision may be changed at any time before the final approval is given. i) You will be entitled to receive notice of any changes to the conditions of approval of the draft plan of subdivision if you make a written request to be notified of changes to the conditions. ii) No person or public body shall be added as a party to the hearing of the appeal of the decision of the approval authority, including the lapsing provisions or the conditions, unless the person or public body, before the decision of the approval authority, made oral submissions at a public meeting or written submissions to the council or, in the Ontario Municipal Board's opinion, there are reasonable grounds to add the person or public body as a party.
Getting Additional Information	Additional information about the application is available for public inspection during regular office hours at the Township of Clearview.
Mailing Address for Filing a Notice of Appeal	Township of Clearview, Box 200, 217 Gideon Street, Stayner, ON, L0M 1S0 Attention: Clerk Tel: 705-428-6230 Fax: 705-428-0288

Description of Draft Plan to Which Approval Has Been Granted:	
Plan Title:	Draft Plan of Subdivision
Plan/Drawing Number:	645-08-DP8
Plan Date:	July 17, 2012
Plan Prepared By:	D.C. Slade Consultants Inc.
Engineer:	C.C. Tatham and Associates, Jeff Akitt
Planner:	D.C. Slade Consultants Inc., Andrew Pascuzzo
Surveyor:	Martin Knisley
Purpose and Plan Number of Lots:	69 Units of Single Detached and Semi- Detached Residential
Density of Residential Lots/Blocks:	69units/3.25ha= 21.2units/ha
Purpose and Plan Number of Blocks:	Block 1 – .04 ha Margaret Street 5m road widening, Block 2 - .3 m reserve (north side of lot 1), Block 3- .3m reserve (north side lot 69), Block 4 - .3m reserve (south side of lot 24))
Roads:	Street A (1.10ha)
Other:	Land Retained by Owners (5.02ha)

Note: A reduced copy of the approved Draft Plan is attached to this notice. A larger copy of the approved Draft Plan is available for viewing at the municipal offices.

The Draft Plan submitted for review and approval has not been changed, the conditions remain the same except for the revisions shown below.

Revisions to Draft Plan Conditions to Which Approval Has Been Granted are as follows:

EXISTING CONDITIONS

A1. That this draft approval shall lapse if Final Approval is not given to this Plan within five (5) years of the draft approval date, and, no extensions have been granted. This approval may be extended pursuant to subsection 51(33) of the *Planning Ac*t, but no extensions can be granted once the approval has lapsed. **The new lapse date will be November 27, 2022.**

R3. Please be advised that the approval of this draft plan will lapse five (5) years after the date the plan is draft approved. This approval may be extended pursuant to subsection 51(33) of the *Planning Act*, but no extension can be granted once the approval has lapsed. **The new lapse date will be November 27, 2022.**

If final approval is not given to this plan within five years of the draft approval date, and no extensions have been granted, draft approval will lapse under Section 51(32) of the *Planning Act,* R.S.O. 1990. If the owner wishes to request an extension to draft approval, a written requested and explanation must be received by the Clerk of The Corporation of the Township of Clearview ninety (90) days prior to the lapsing date. A processing fee, in effect at the time of the request, will apply.

CHANGES TO CONDITIONS

A1. That this draft approval shall lapse if Final Approval is not given to this Plan within five (5) years of the draft approval date, and, no extensions have been granted. This approval may be extended pursuant to subsection 51(33) of the *Planning Ac*t, but no extensions can be granted once the approval has lapsed. **The new lapse date will be March 21, 2027.**

R3. Please be advised that the approval of this draft plan will lapse five (5) years after the date the plan is draft approved. This approval may be extended pursuant to subsection 51(33) of the *Planning Act*, but no extension can be granted once the approval has lapsed. **The new lapse date will be March 21, 2027.**

If final approval is not given to this plan within five years of the draft approval date, and no extensions have been granted, draft approval will lapse under Section 51(32) of the *Planning Act,* R.S.O. 1990. If the owner wishes to request an extension to draft

approval, a written requested and explanation must be received by the Clerk of The Corporation of the Township of Clearview ninety (90) days prior to the lapsing date. A processing fee, in effect at the time of the request, will apply.

Note: These revisions and any associated conditions or requirements form part of the approval of the Draft Plan.

Subject to the conditions and notes set forth in the following, this Draft Plan is approved under Section 51 of the *Planning Act*, R.S.O. 1990, Chapter 13, as amended.

Title	Date	Signature
Mayor		
Clerk		
Director of Planning and Development		

UMA | AECOM

The Cortel Group, Village Green Residential Subdivision – Phase 1

Village of Stayner, Township of Clearview
County of Simcoe

Traffic Impact Study Report

Prepared by:
UMA Engineering Ltd.
5080 Commerce Boulevard
Mississauga, ON L4W 4P2

Project Number: 281-001-301

October 2008

Signature Page

Report prepared by:

Mehemed Delibasic, P.Eng.
Project Manager, Transportation Planning
UMA Engineering Ltd

Report reviewed by:

Dick Gordon, P.Eng., MCIP, RPP
Manager, Transportation Planning
UMA Engineering Ltd

UMA | AECOM

UMA ENGINEERING LTD.
5080 Commerce Blvd.
Mississauga, Ontario L4W 4P2
T 905.238.0007 F 905.238.0038 www.uma.aecom.com

October 20, 2008

Ref: Our File No. 281-001-301

Gregory Gemmell
Gemmell Project and Construction Management
40 Peacock Lane
Barrie, Ontario L4N 3R8

Dear Mr. Gemmell,

Re: Traffic Impact Study Report
The Cortel Group, Village Green Residential Subdivision – Phase 1
Village of Stayner, Township of Clearview, County of Simcoe

Further to your request UMA Engineering Limited (UMA) is pleased to submit the enclosed traffic study report for the above-referenced development. This study assesses traffic operations of the roadway system adjacent to the proposed subdivision, estimates and assigns the future site-related traffic volumes, and assesses impacts to the existing/future roadways and intersections.

Based on our assessment, the traffic impact of the proposed site development is minimal at the key study area intersections, which will continue to operate at very similar (satisfactory) levels of service with minimal delays, compared to existing and future background pre-development conditions. Therefore, based on our findings, it is concluded that the proposed 189-unit residential development can be easily accommodated by the existing roadway system without modification.

We thank you for this opportunity and would be pleased to assist you if any further information or clarification is required.

Sincerely,

UMA Engineering Ltd.

Mehemed Delibasic, P.Eng
Project Manager

Samira Farahani, M.Sc.
Transportation Planer

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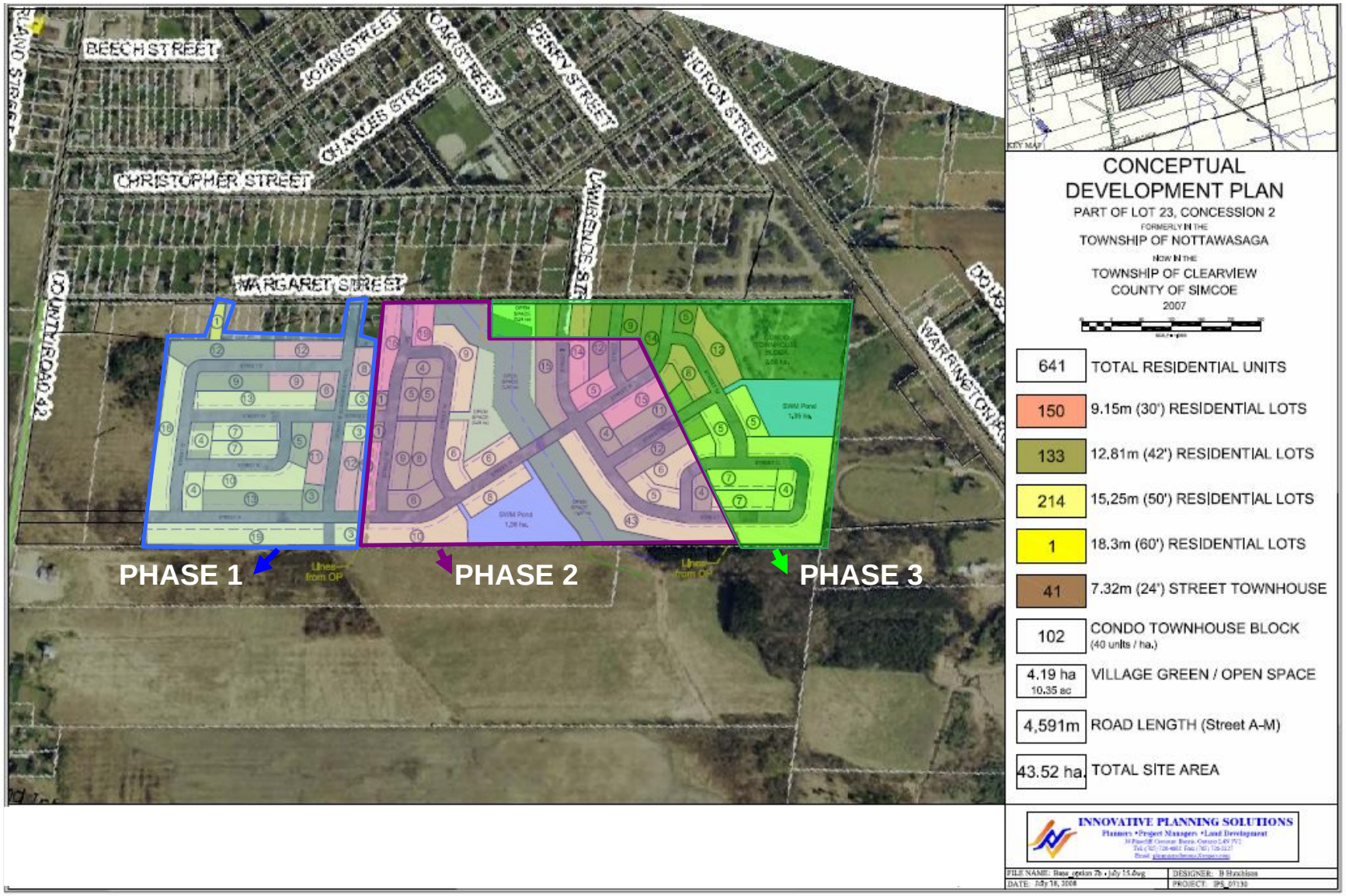


Not to Scale

FIGURE 2

Proposed Residential Development at Margaret Street, Village of Stayner , Township of Clearview

Draft Site Plan

UMA | AECOM

2.0 Proposed Development

This section will briefly describe the location of the proposed development, the intended land uses, and the proposed access points to the site.

2.1 Site Location and Adjacent Land Use

The subject site is bounded by Margaret Street to the north and Lot 22 to the south, and is horizontally centered between the Concession 2 boundaries, with Airport Road (County Road 42) and the Barrie-Collingwood CP Rail Track/Warrington Road bounding the site on the west and east sides respectively. The existing land uses to the north of the subject site are residential. The lands to the east of the site are currently vacant and will likely be developed in similar fashion to that proposed for the subject site (Phase 2 and Phase 3). The lands to the south of the site are beyond the current Urban Boundary. The lands to the west of the site are also vacant and according to the Official Plan (OP) of the Township of Clearview are designated for industrial land uses.

The adjacent land to the east of the proposed site is currently vacant and is planned to be developed in Phases 2 and 3. Additional planning applications will be required and future traffic studies will be completed for these later phases.

2.2 Current Development Concept and Site Access

The applicant ultimately proposes to develop a total of 498 single family detached residential dwellings plus 143 townhouses as shown on the site plan in Figure 2. The current planning approvals permit development of the western portion of the site (approximately 35 acre site (14.2 ha)) for residential use consisting of 189 units. It should be noted that referenced lands has been Draft Plan approved (November 2007) and are commonly known as the “Margaret Street Subdivision”. The proposed Draft Plan shows a red-line revision from 110 units to 189 units. Development Phasing has been split into two basic development stages (with 3 individual components).

The first development stage (Phase 1) consists of 189 of the 498 detached units planned to be constructed by 2013.

The second development stage (Phase 2 and Phase 3) consists of the remaining 309 detached dwellings and all 143 townhouses. It is planned to be complete by 2018. This report does not include analysis of this development, which will be the subject of a future traffic study.

The completion of these development phases will be market driven, but full-build-out of the site is expected within a ten-year time horizon (2018).

For the Phase 1 development, the access to the abutting street system is proposed through a full moves unsignalized access on Margaret Street to connect with existing Clarence Street, while Lot 1, 21 and 22 will temporarily function as a second access to the proposed subdivision until subsequent Phases are built. The Margaret Street/Clarence Street intersection is proposed to provide full turning movements and be unsignalized (with stop-control for the minor leg approaches of “Street B” and Clarence Street to Margaret Street) under free-flow conditions on Margaret Street. The feasibility of this new intersection (and their respective traffic control requirements and lane arrangements) will be addressed in later sections.

5.0 Site Traffic Summary

This section discusses the number of vehicle trips to be generated by the proposed residential development and their distribution onto the abutting road network.

5.1 Development Site Traffic

Given the proposed land uses described in Section 2.0, the Institute of Transportation Engineers (ITE) Trip Generation Manual (7th Edition) was utilized to estimate the site generated vehicle trips for the weekday AM and PM peak hours. The number of vehicle trips expected to be generated by the proposed development was based on trip generation rates for the Single-Family Detached Housing Land Use Category (Land Use Code (LUC)#10), which was considered to best reflect proposed uses of the site. **Tables 3** and **4** summarize the rates and trips estimated from the subject development respectively.

Table 3 – Trip Generation Rates (ITE)

Trip Rates (No. of Trips per Unit)	AM Peak Hour			PM Peak Hour		
Proposed Land use:	In	Out	Total	In	Out	Total
Vehicles per Single Family Detached Residential Dwellings (LUC#10)	0.195	0.555	0.750	0.634	0.372	1.006

Table 4 – Site Generated Trips

Site Generated Trips		AM Peak Hour			PM Peak Hour		
Proposed Land Use:	Units	In	Out	Total	In	Out	Total
Single Family Detached Residential Dwellings	189	37	105	142	120	70	190

Details of the trip generation calculations are contained in **Appendix F**.

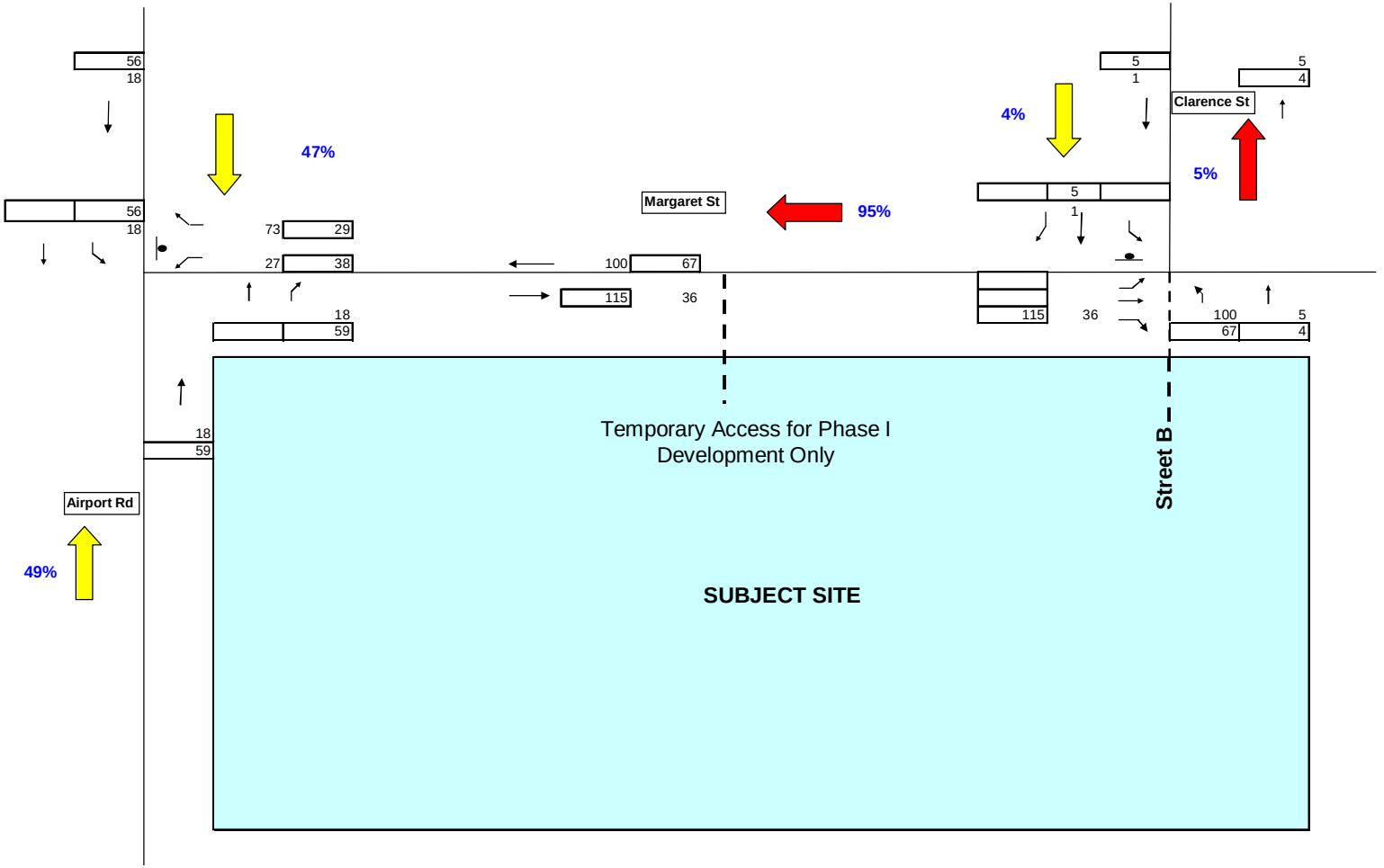
5.2 Trip Distribution and Assignment

The site generated traffic volumes were assigned to the adjacent roadway system according to the traffic distribution patterns evident from our surveys at the two intersections of Airport Road/Margaret Street and Margaret Street/Clarence Street. Since the abutting neighbourhood is similar in nature to the proposed development, this assignment method was deemed appropriate and representative of the expected distribution. Therefore, we have utilised the existing traffic patterns evident under existing (2008 baseline) traffic conditions as a guide for our site traffic distribution and assignments.

In order to test the worst case scenario we assumed that all trips generated were assigned to the Margaret Street/Clarence Street intersection and none assigned to the temporary access (Lot 1). In reality the second (temporary) access would be available to be used by residents living in the Phase 1 development, so the delays estimated represent a worst case scenario. The temporary access location is approximately 270 m east from the Airport Road/Margaret Street intersection and would not affect traffic

operations on Margaret Street. The distribution and assignment of site generated trips is presented in **Figure 6**.

With regard to the "Street A" connection, we understand that the lands required to extend and connect this future roadway to Airport Road are not owned by the applicant, therefore, the ultimate timing and construction of this site access can not be confirmed. The need for this connection will be assessed in the context of traffic generated by Phase 2 and Phase 3 development in a subsequent report.



Legend

- Roadway
- 99 / 99 — AM, PM Traffic Volume
- Stop Sign Control at Intersection
- Local Site Trip Assignment (In to the Site)
- Local Site Trip Assignment (Out from the Site)

Not to Scale

FIGURE 6

Proposed Residential Development at Margaret Street, Village of Stayner , Township of Clearview

Distribution and Assignment of Site Generation Trips

UMA | AECOM

Ashton Meadows Traffic Impact Study

Town of Stayner, County of Simcoe

May 25, 2020

Quality information

Prepared by	Checked by	Verified by	Approved by
Connor Brown EIT	Ilya Sher CET LEL		

Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	May 25, 2020				

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Executive Summary

The proposed residential site is located approximately on the southeast corner of Margaret Street and County Road 42 in the Town of Stayner, which resides within the County of Simcoe. Traffic operations were assessed for existing conditions (2019), and future background and future total conditions for both 2024 and 2039 horizon years.

Synchro 9 traffic software was used to analyse intersections within the study area. The existing traffic volumes were determined through a series of turning movement counts conducted by AECOM at key intersections within the study area. The background traffic volumes for the future horizon years were estimated through consultation with municipal staff, as well as a review of other traffic impact studies for relevant nearby developments. The overall growth rate in background traffic volumes was estimated at 3% per year, which conforms to the Stayner TMP estimates.

The proposed Phase 2 & 3 development comprises 357 residential units of the total 581 units, including Phase 1. Site Traffic volumes were derived utilizing the ITE Trip Generation Handbook 10th Edition, and the subject development is expected to produce 229 additional trips in the AM peak hour and 293 additional trips in the PM peak hour.

The analysis demonstrated that traffic associated with Phases 2 & 3 of Ashton Meadows developments in combination with future developments surrounding the subject site, as well as infrastructure changes within Stayner (i.e. Margaret Street Extension) can be accommodated by the existing road network with little operational difficulties, as a result. All intersection movement were found to display good traffic operations under the 2024 and 2039 traffic conditions with the highest V/C ratio of 0.34 and delays of up to16 seconds.

A signal warrant analysis was performed for the study area intersections, namely Margaret Street at County Road 42, and Margaret Street at Warrington Road. It was determined that traffic volumes in both the 2024 and 2039 horizon years did not warrant a traffic signal at either location, including the signal warrant performed as part of the sensitivity analysis.

The overall conclusion is that the existing road network capacity can support the proposed development under both the interim and ultimate conditions, as well as the sensitivity settings. The results of this analysis showed that no traffic operational issues are anticipated up to and including the 2039 horizon year, as a result of the new developments and future infrastructure improvements. Required intersection improvements include provision for turning lanes at the intersection of County Road 42 and Margaret Street.

Although the sensitivity analysis results demonstrated that the study area intersections would continue operating acceptably in the 2024 horizon year (short-term) without the Margaret Street extension in place, this connection is expected to provide improved traffic circulation within the road network and minimize the diversion of traffic through the core of Stayner, and therefore, should be considered.

1. Introduction

1.1 Purpose & Background

AECOM Canada on behalf of the Cortel Group was retained to undertake an update to the Traffic Impact Study (TIS) for the proposed new phase 2 & 3 Ashton Meadows residential development l located in the Town of Stayner. The initial study was undertaken by AECOM (UMA Engineering Ltd.) in October 2008. This update also addresses comments provided by RJ Burnside on behalf of the Town in a letter dated March 30, 2011. The purpose of this study was to:

- Assess the existing traffic conditions in the vicinity of the subject site;
- Forecast future traffic volumes associated with the residential phase 2 & 3;
- Assess the future operations at intersections in the vicinity of the subject site and at proposed site entrances;
- Perform a sensitivity analysis excluding the connection between Margaret Street and Warrington Road:
- Conduct a signal warrant for the intersection of Margaret Street & County Road 42 and Margaret Street & Warrington Road
- Identify operational and safety concerns, and any required mitigation measures, where appropriate;

The following Traffic Impact Study was prepared in compliance with County of Simcoe Traffic Impact Study Guidelines, and adheres to the applicable methodology, findings and recommendations associated with the proposed Phases 2 & 3 Ashton Meadows.

1.2 Study Area

The subject site is bounded by Margaret Street to the north and Lot 32 to the south, and is horizontally centred between the Concession 2 boundaries, with Airport Road (County Road 42) and the Barrie Collingwood CP Rail Track/Warrington Road bounding the site on the west and east sides respectively. The approximate site boundaries and site boundary networks are illustrated in **Figure 1-1**.

Figure 1-1; Study Area

2. Development Proposal

The applicant ultimately proposes to build a total of 438 single family detached residential dwelling units plus 143 townhouses. Development Phasing has been split into two basic development stages (with 3 individual components). The current Phase 1 development of the western portion of the site (approximately 35-acre site (14.2 ha)) have been draft approved and consists of 224 units. It should be noted that referenced lands have been Draft Plan approved (June 2017). The proposed Phase 2 & 3 development of the eastern portion of the site includes 63.65 acres of residential housing consisting of 214 single family detached dwellings and 143 townhouses. The first development stage (Phase 1) consists of 224 of the 438 detached draft approved units currently awaiting construction.

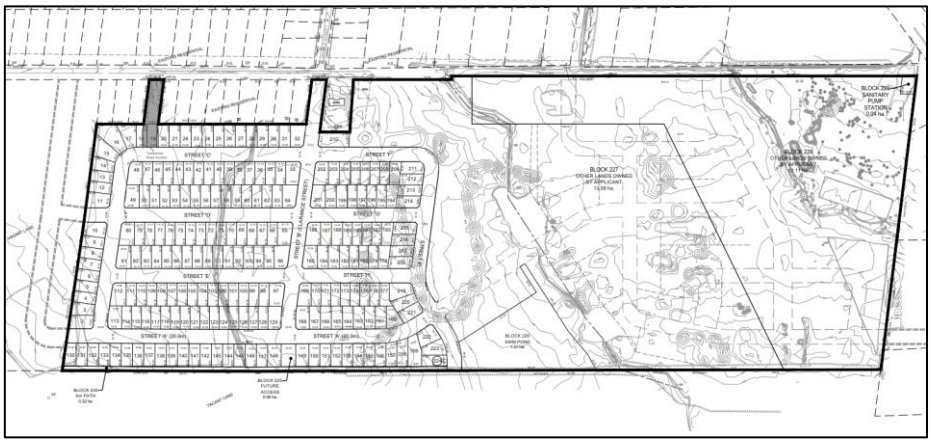


Figure 2-1; Phase 1 Site Plan

The second development stage (Phase 2 and Phase 3) consists of the remaining 214 detached dwellings and two sections of medium density units to be determined. Trips generation is discussed further in **Section 5.** For the purposes of the TIS, the original 143 condominium units are assumed.

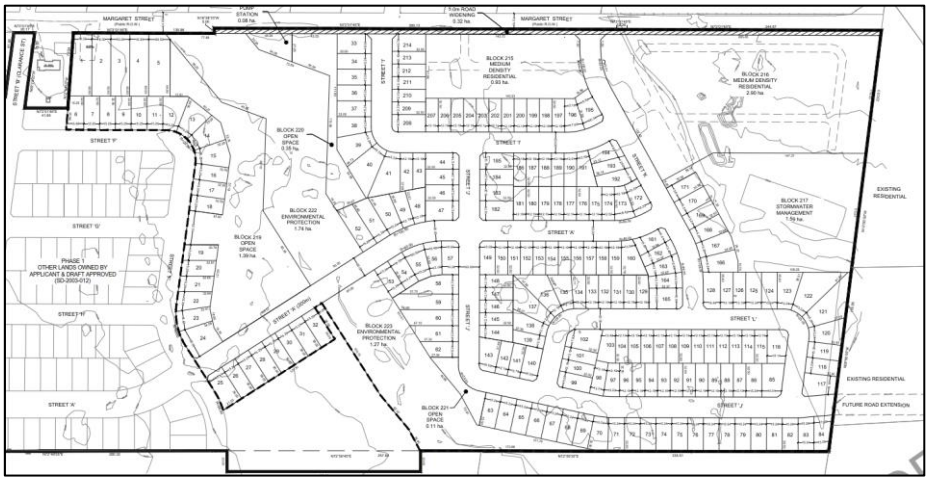


Figure 2-2; Phase 2 & 3 Site Plan

The completion of these development phases will be market driven, but full-build-out of the site is expected within a five-year time horizon (2024). For the Phase 1 development, the access to the abutting street system is proposed through a full moves unsignalized intersection on Margaret Street to connect with existing Clarence Street, while Lots 1, 21 and 22 will temporarily function as a second access to the proposed subdivision until subsequent Phases are built. The Margaret Street/Clarence Street intersection is proposed to provide full turning movements and be unsignalized (with stop-control for the minor leg approaches of “Street B” and Clarence Street to Margaret Street) with free-flow conditions on Margaret Street. The feasibility of this new intersection (and their respective traffic control requirements and lane arrangements) is discussed in detail later in this report. It is proposed that the southwest end of the future “Street A” will ultimately connect to Airport Road to provide enhanced accessibility to and from the development.

5. Site Traffic

5.1 Trip Generation

Trip generation for the subject development was determined based on the methodology outlined in the ITE Trip Generation Manual, 10th Edition. Site traffic volumes were generated separately for single family detached houses, low-rise multifamily housing. Ashton Meadows Phase 2 & 3 site plans comprise 214 single family detached houses, as well as 143 medium density housing units. As displayed below in **Table 5-1**, the site traffic is expected to generate 229 vehicle trips (56 inbound and 173 outbound) in the weekday AM peak hour and 293 trips (185 inbound and 108 outbound) during the weekday PM peak hour.

Table 5-1; Site Traffic Trip Generation Summary – Year 2024

Description	ITE Code	Residents	Generated Trips		Distribution of Generated Trips			
			AM Peak	PM Peak	AM In	AM Out	PM In	PM Out
Multifamily Housing (Low-Rise)	220	143	70	81	16	54	51	30
Single-Family Detached Housing	210	214	158	212	40	119	133	78
ITE Trip Generation Manual, 10th Edition			**229**	**293**	**56**	**173**	**185**	**108**

5.2 Trip Distribution

The inbound and outbound residential trip distribution was based on the findings of the Transportation Tomorrow Survey (TTS) 2016 data, specifically the destination of home-work related trips. The AM outbound and PM inbound distribution was derived from the TTS data. The overall distribution from the TTS Survey data is conjunctively summarized in **Table 5-2** and

Figure 5-1. The general distribution was then used to assign site related traffic volumes onto the road network.

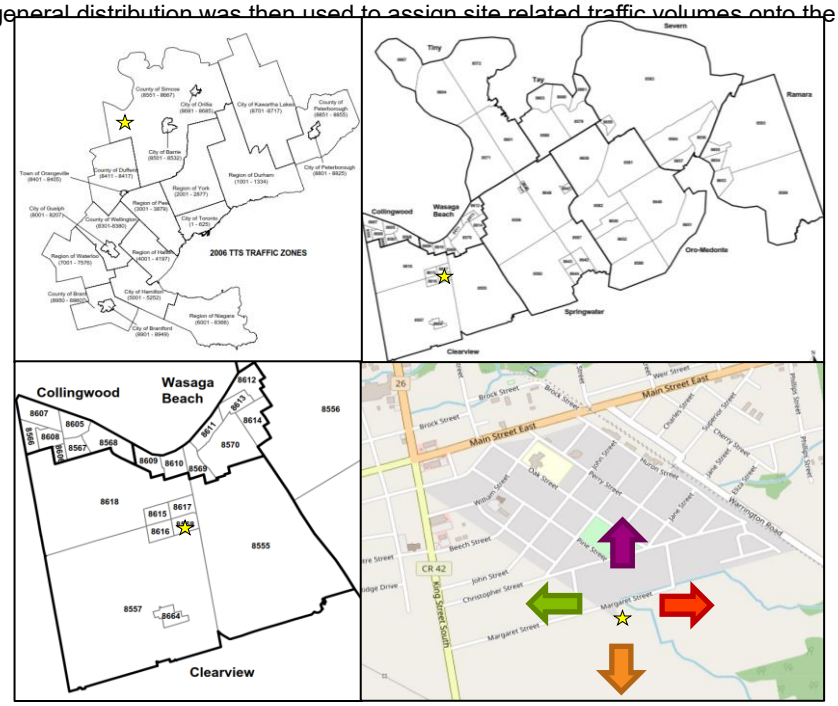


Figure 5-1; 2016 Transportation Tomorrow Survey Trip Distribution Map

In general, immediate future background volumes utilized the existing residential neighbourhood for through travel to Main Street, whereas traffic associated with developments north of Main Street only projected into the study area via County Road 42. Therefore, traffic associated with developments north of the study area within **Table 4-3** and **Table 4-4** were factored by southbound general distribution of 11% seen below.

Table 5-2; Overall Transportation Tomorrow Survey Distribution Table

York	1%		Essa	8%		8555	96	14%		North	28%
Barrie	16%		Collingwood	8%		8616	134	19%		South	11%
Dufferin	2%		Wasaga Beach	3%		8617	122	18%		East	26%
External	7%		Clearview	56%		8558	37	5%		West	29%
Simcoe	74%								★	Internal	5%

Displayed below **Figure 5-2** outlines the exact trip percentage breakdown, whereas **Figure 5-3** and **Figure 5-4** illustrate the site traffic volumes for the subject development for the AM and PM peak hours for all horizon years

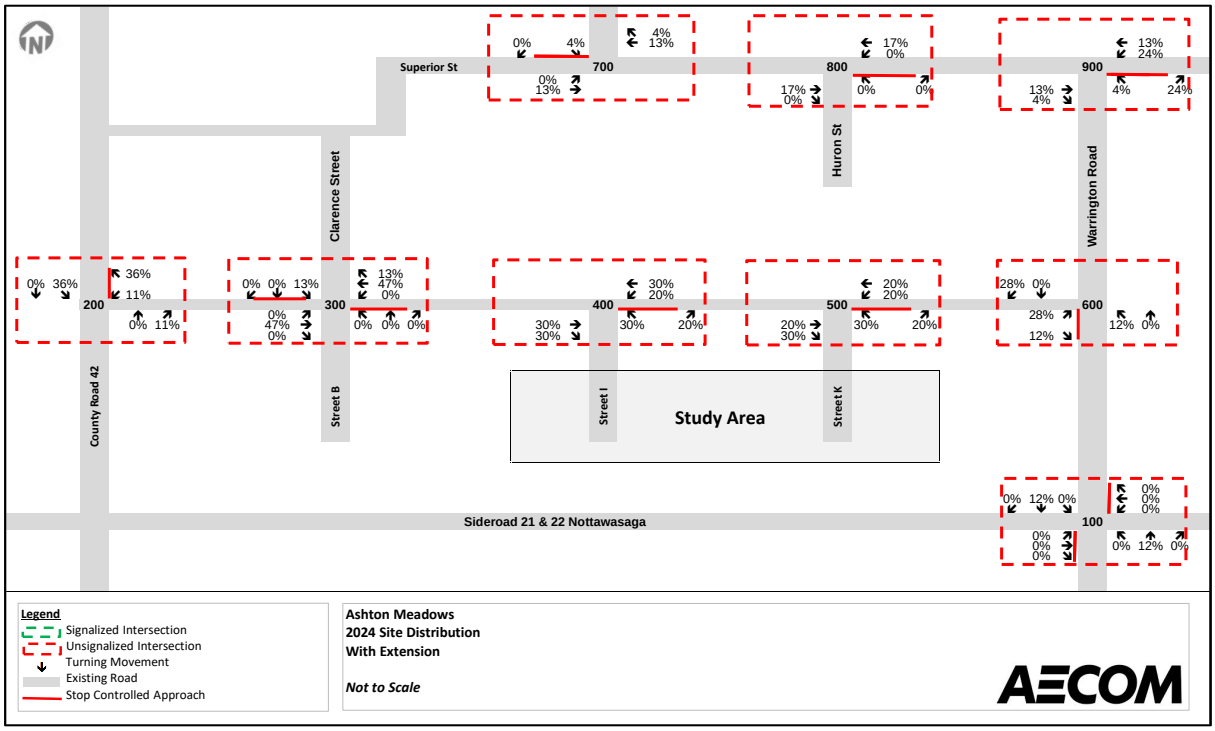


Figure 5-2; Site Traffic Distribution

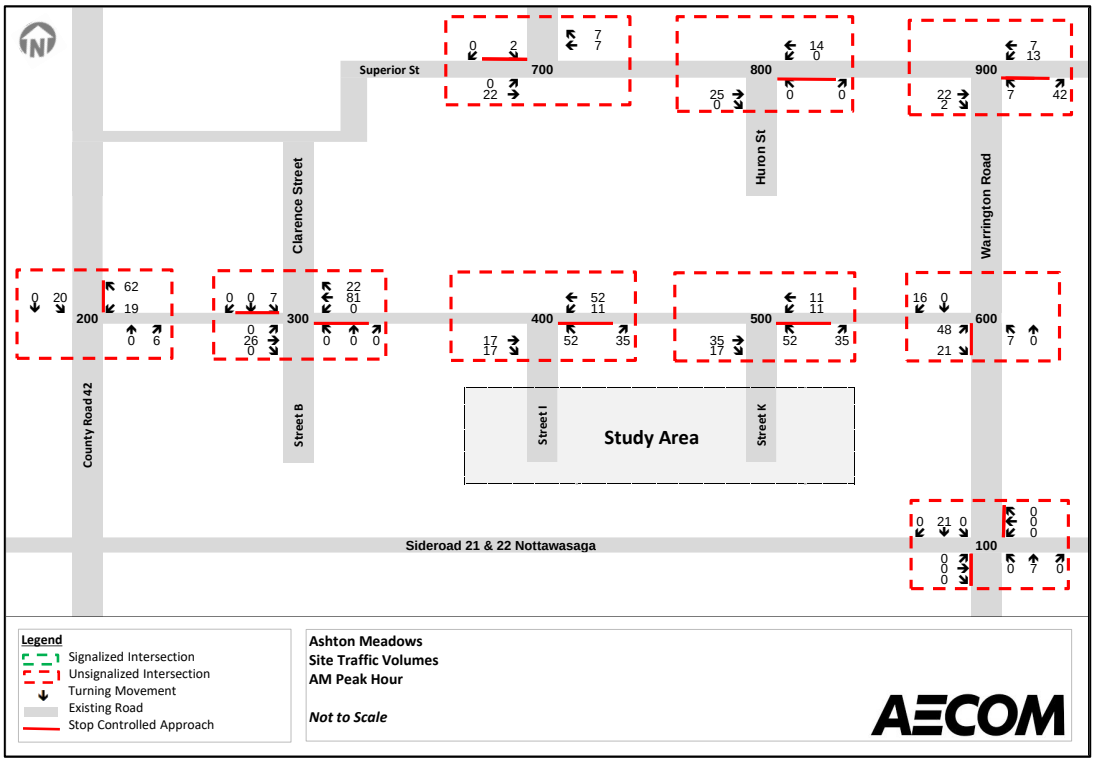


Figure 5-3; Site Traffic AM Peak Hour

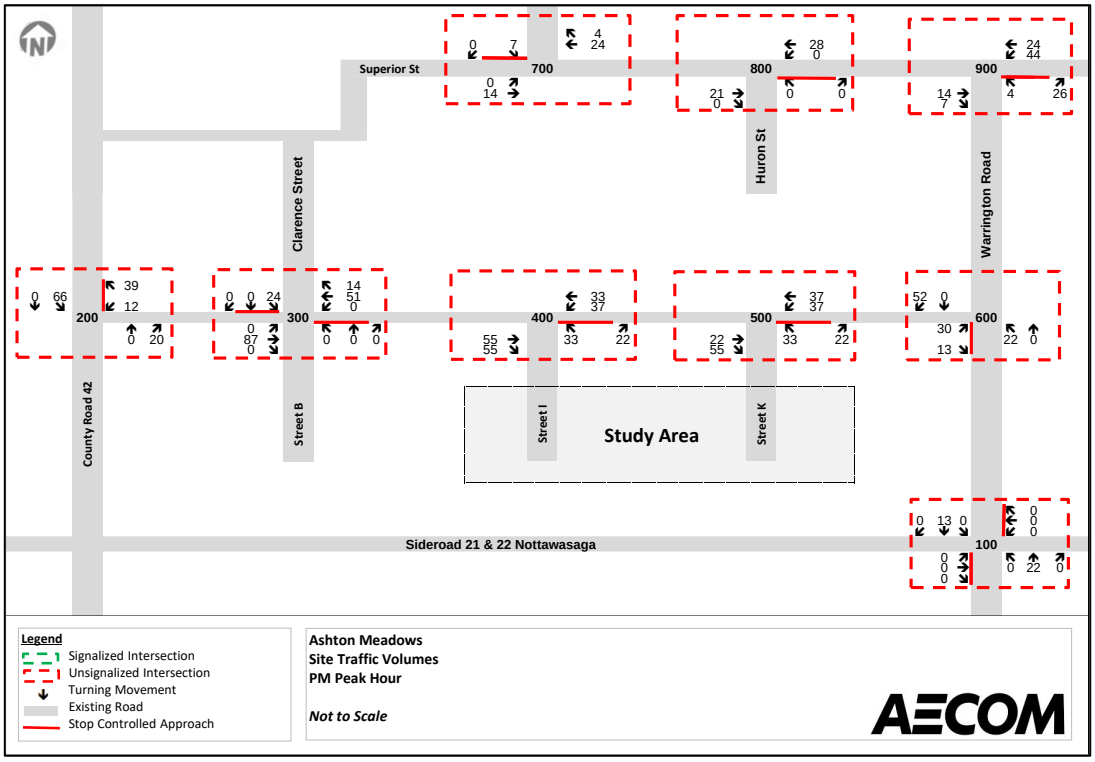


Figure 5-4; Site Traffic PM Peak Hour

Appendix G:
Traffic Operations – Background

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	47	171	269	23	56	266
Future Volume (Veh/h)	47	171	269	23	56	266
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	49	180	283	24	59	280
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	693	295			307	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	693	295			307	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	87	75			95	
cM capacity (veh/h)	390	721			1254	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	229	307	339
Volume Left	49	0	59
Volume Right	180	24	0
cSH	610	1700	1254
Volume to Capacity	0.38	0.18	0.05
Queue Length 95th (m)	13.2	0.0	1.1
Control Delay (s)	14.4	0.0	1.8
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	1.8
Approach LOS	B		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	89	383	78	163	313
Future Volume (Veh/h)	46	89	383	78	163	313
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	49	96	412	84	175	337
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	1141	454			496	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1141	454			496	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	73	84			83	
cM capacity (veh/h)	185	606			1047	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	145	496	512
Volume Left	49	0	175
Volume Right	96	84	0
cSH	342	1700	1047
Volume to Capacity	0.42	0.29	0.17
Queue Length 95th (m)	15.5	0.0	4.5
Control Delay (s)	23.0	0.0	4.4
Lane LOS	C		A
Approach Delay (s)	23.0	0.0	4.4
Approach LOS	C		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	47	172	297	23	57	294
Future Volume (Veh/h)	47	172	297	23	57	294
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	49	181	313	24	60	309
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	754	325			337	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	754	325			337	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	86	74			95	
cM capacity (veh/h)	358	694			1222	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	230	337	369
Volume Left	49	0	60
Volume Right	181	24	0
cSH	578	1700	1222
Volume to Capacity	0.40	0.20	0.05
Queue Length 95th (m)	14.4	0.0	1.2
Control Delay (s)	15.3	0.0	1.7
Lane LOS	C		A
Approach Delay (s)	15.3	0.0	1.7
Approach LOS	C		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	90	423	78	164	345
Future Volume (Veh/h)	46	90	423	78	164	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	49	97	455	84	176	371
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	1220	497			539	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1220	497			539	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	70	83			83	
cM capacity (veh/h)	164	573			1009	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	146	539	547
Volume Left	49	0	176
Volume Right	97	84	0
cSH	312	1700	1009
Volume to Capacity	0.47	0.32	0.17
Queue Length 95th (m)	18.0	0.0	4.8
Control Delay (s)	26.3	0.0	4.4
Lane LOS	D		A
Approach Delay (s)	26.3	0.0	4.4
Approach LOS	D		

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization		72.3%	ICU Level of Service C
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	47	173	328	23	58	325
Future Volume (Veh/h)	47	173	328	23	58	325
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	49	182	345	24	61	342
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	821	357			369	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	821	357			369	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	85	73			95	
cM capacity (veh/h)	327	665			1190	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	231	369	403
Volume Left	49	0	61
Volume Right	182	24	0
cSH	545	1700	1190
Volume to Capacity	0.42	0.22	0.05
Queue Length 95th (m)	15.9	0.0	1.2
Control Delay (s)	16.4	0.0	1.7
Lane LOS	C		A
Approach Delay (s)	16.4	0.0	1.7
Approach LOS	C		

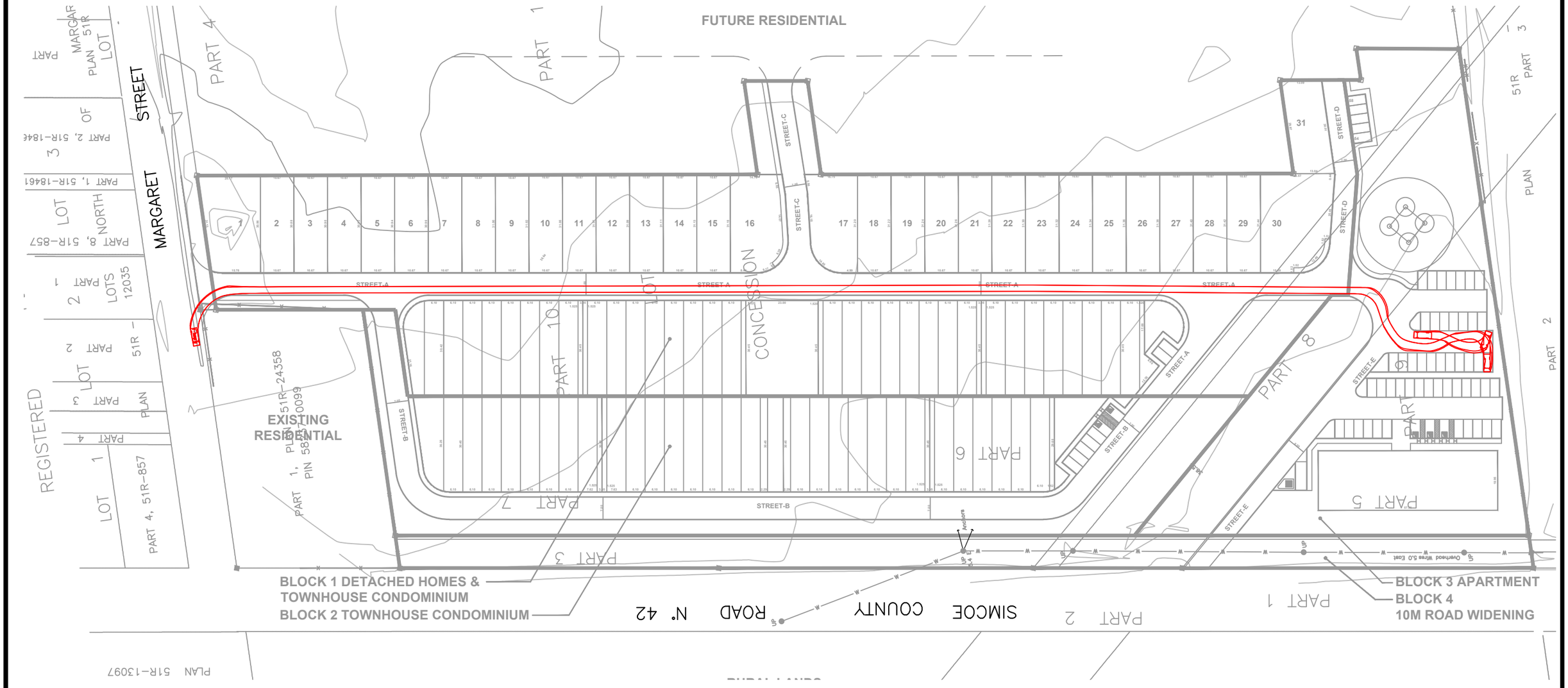
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

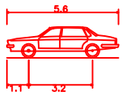
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	90	467	78	165	381
Future Volume (Veh/h)	46	90	467	78	165	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	49	97	502	84	177	410
Pedestrians						
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	1308	544			586	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1308	544			586	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	66	82			82	
cM capacity (veh/h)	144	539			969	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	146	586	587
Volume Left	49	0	177
Volume Right	97	84	0
cSH	280	1700	969
Volume to Capacity	0.52	0.34	0.18
Queue Length 95th (m)	21.2	0.0	5.1
Control Delay (s)	31.0	0.0	4.5
Lane LOS	D		A
Approach Delay (s)	31.0	0.0	4.5
Approach LOS	D		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

Appendix H:
Vehicle Swept Path Assessment





P – Passenger Car

Overall Length	5.600m
Overall Width	2.000m
Overall Body Height	1.555m
Min. Body Ground Clearance	0.340m
Track Width	2.000m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.300m

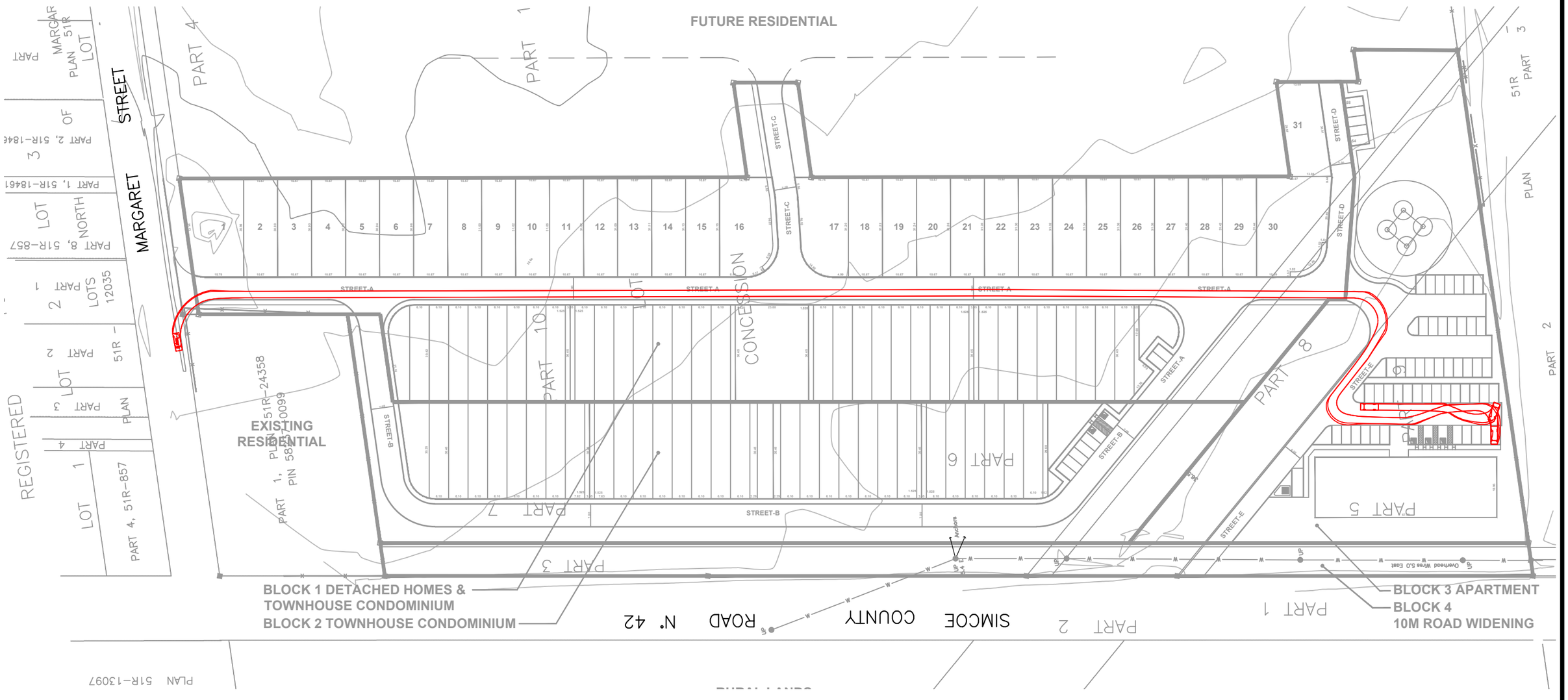
TATHAM ENGINEERING

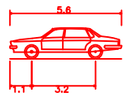
1192 COUNTY ROAD 92
PASSENGER CAR TEMPLATE

FIG. No. 1

SCALE: N.T.S. | DRAWN: HDY | DATE: MAY 2025 | JOB NO. 425051

Drawing Name: 425051–Turning Templates.dwg, Plotted: May 22, 2025





P – Passenger Car

Overall Length	5.600m
Overall Width	2.000m
Overall Body Height	1.555m
Min Body Ground Clearance	0.340m
Track Width	2.000m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.300m

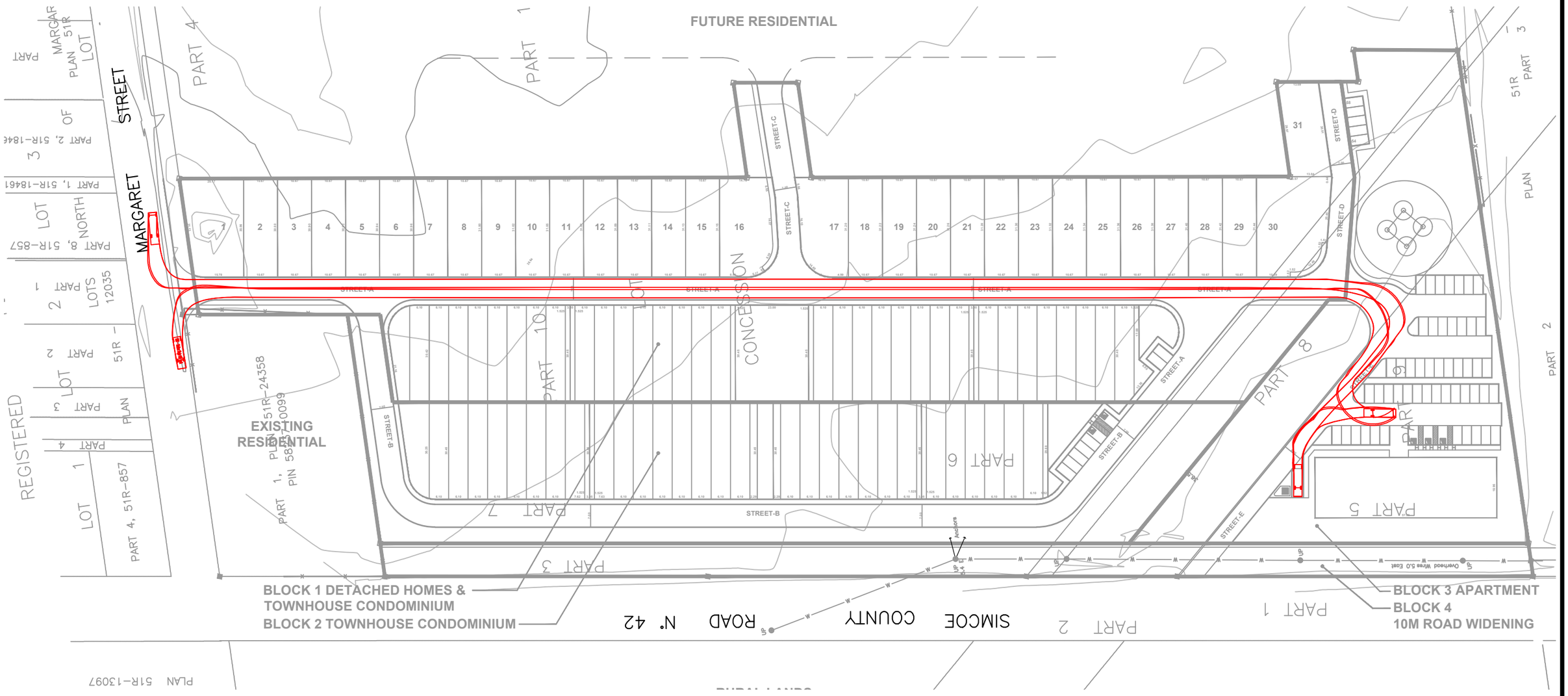
TATHAM ENGINEERING

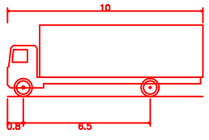
1192 COUNTY ROAD 92
PASSENGER CAR TEMPLATE

FIG. No. 2

SCALE: N.T.S. | DRAWN: HDY | DATE: MAY 2025 | JOB NO. 425051

Drawing Name: 425051-Turning Templates.dwg, Plotted: May 22, 2025





MSU – Medium Single Unit Truck

Overall Length	10.000m
Overall Width	2.600m
Overall Body Height	3.650m
Min Body Ground Clearance	0.445m
Track Width	2.600m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	11.100m

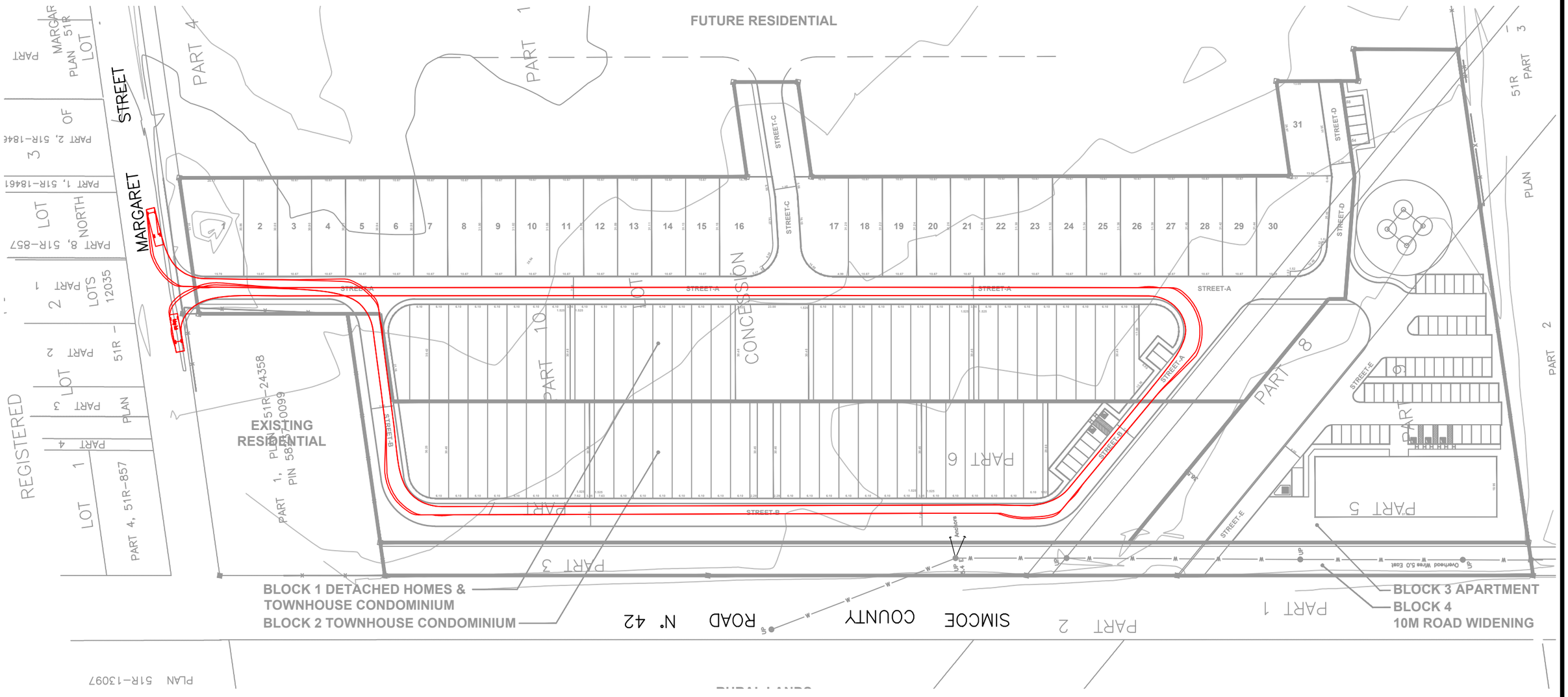
TATHAM ENGINEERING

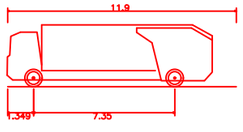
1192 COUNTY ROAD 92
MSU TEMPLATE

FIG. No. 3

SCALE: N.T.S.	DRAWN: HDY	DATE: MAY 2025	JOB NO. 425051

Drawing Name: 425051–Turning Templates.dwg, Plotted: May 23, 2025





Garbage Truck Curb Side Pickup

Overall Length	11.900m
Overall Width	2.600m
Overall Body Height	3.215m
Min. Body Ground Clearance	0.305m
Track Width	2.553m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.931m

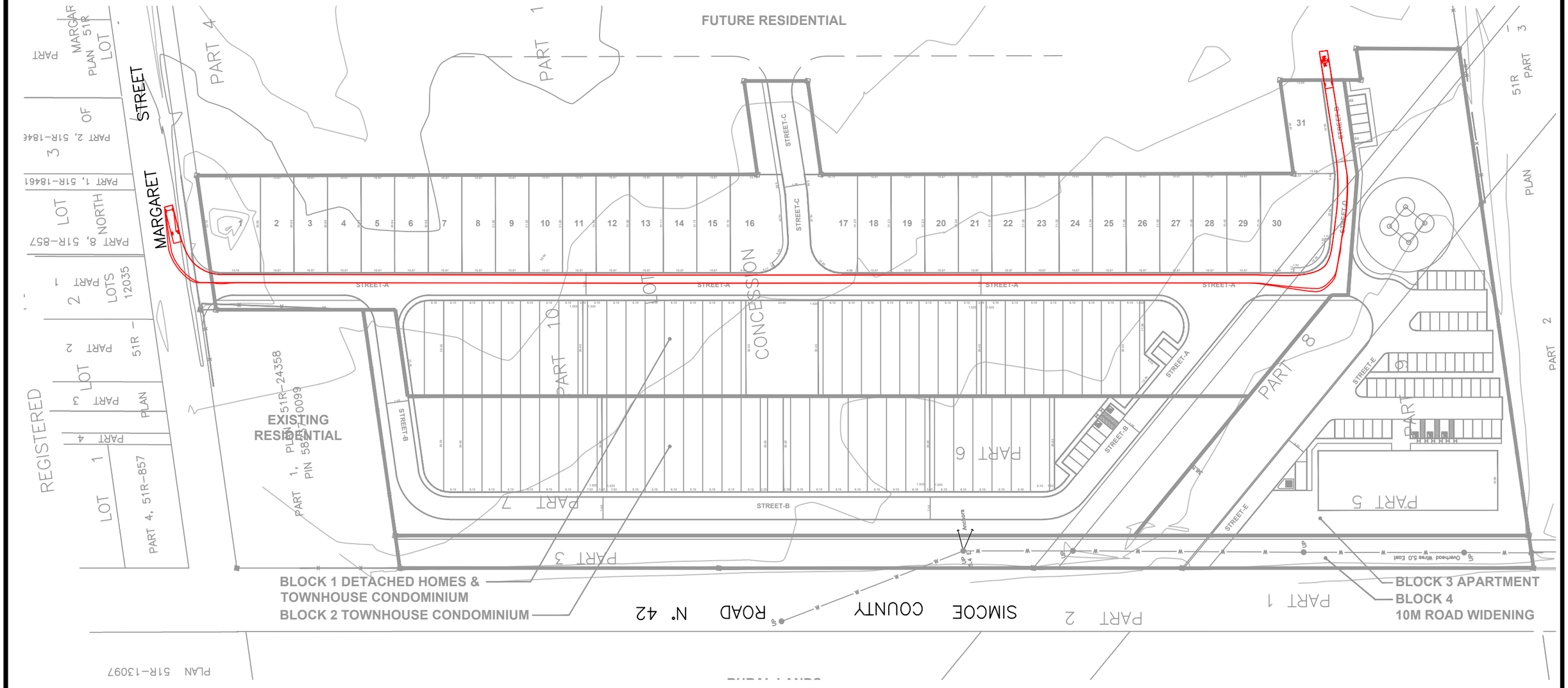
TATHAM ENGINEERING

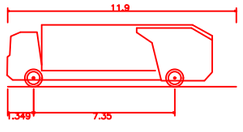
1192 COUNTY ROAD 92
GARBAGE TRUCK TEMPLATE

FIG. No. 4

SCALE: N.T.S. | DRAWN: HDY | DATE: MAY 2025 | JOB NO. 425051

Drawing Name: 425051-Turning Templates.dwg, Plotted: May 22, 2025





Garbage Truck Curb Side Pickup

Overall Length	11.900m
Overall Width	2.600m
Overall Body Height	3.215m
Min. Body Ground Clearance	0.305m
Track Width	2.553m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.931m

TATHAM ENGINEERING

1192 COUNTY ROAD 92
GARBAGE TRUCK TEMPLATE

FIG. No. 5

SCALE: N.T.S. | DRAWN: HDY | DATE: MAY 2025 | JOB NO. 425051

Drawing Name: 425051-Turning Templates.dwg, Plotted: May 22, 2025

FUTURE RESIDENTIAL

EXISTING RESIDENTIAL

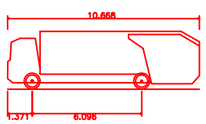
BLOCK 1 DETACHED HOMES &
TOWNHOUSE CONDOMINIUM
BLOCK 2 TOWNHOUSE CONDOMINIUM

BLOCK 3 APARTMENT
BLOCK 4
10M ROAD WIDENING

STREET-A
STREET-B
STREET-C
STREET-D
STREET-E

MARGARET STREET

SIMCOE COUNTY ROAD No. 42



Garbage Truck	
Overall Length	10.668m
Overall Width	2.553m
Overall Body Height	3.215m
Min Body Ground Clearance	0.305m
Track Width	2.553m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.931m

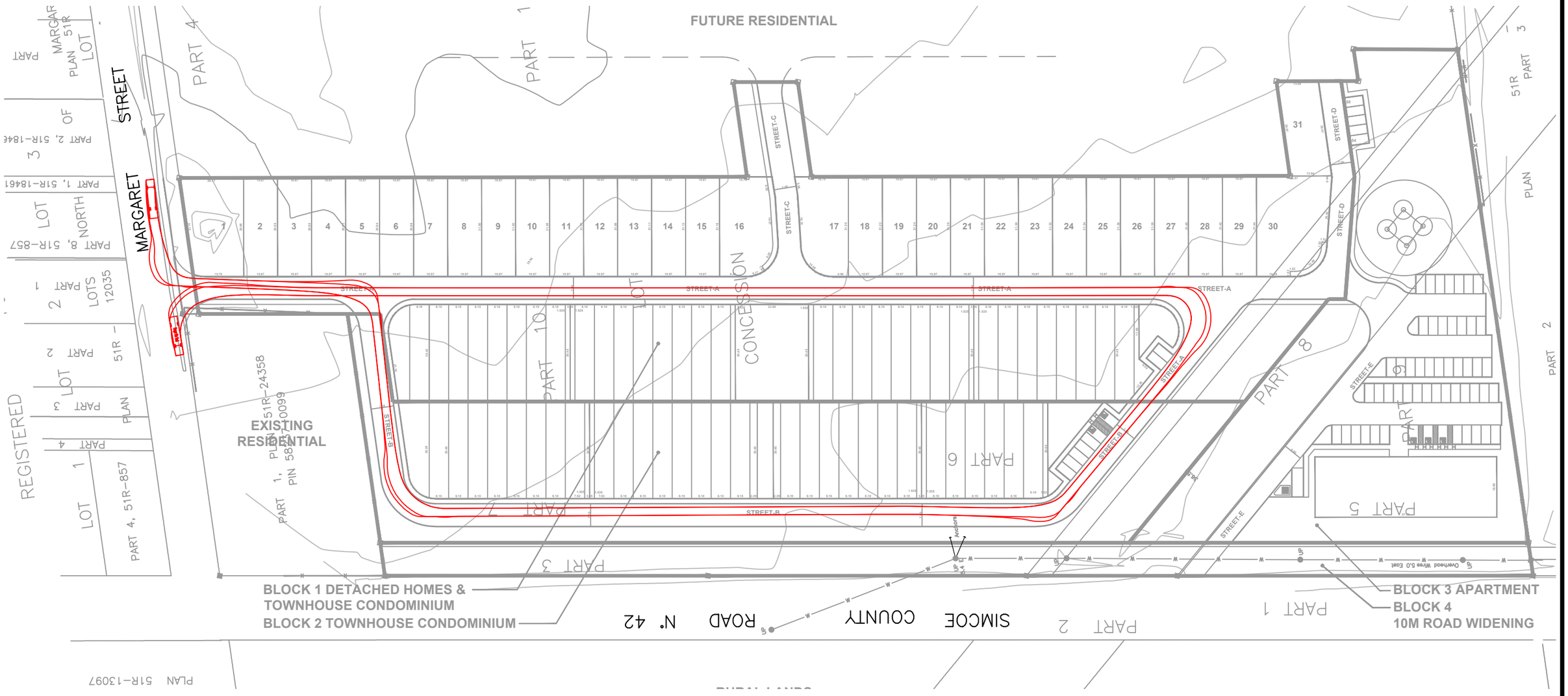
TATHAM ENGINEERING

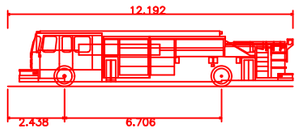
1192 COUNTY ROAD 92
GARBAGE TRUCK TEMPLATE

FIG. No. 6

SCALE: N.T.S.	DRAWN: HDY	DATE: MAY 2025	JOB NO. 425051

Drawing Name: 425051-Turning Templates.dwg, Plotted: May 23, 2025





Pumper Fire Truck	
Overall Length	12.192m
Overall Width	2.489m
Overall Body Height	2.361m
Min Body Ground Clearance	0.200m
Track Width	2.489m
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

TATHAM ENGINEERING

1192 COUNTY ROAD 92
FIRE TRUCK TEMPLATE

FIG. No. 7

SCALE: N.T.S.	DRAWN: HDY	DATE: MAY 2025	JOB NO. 425051

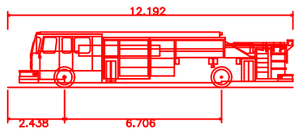
Drawing Name: 425051-Turning Templates.dwg, Plotted: May 22, 2025

FUTURE RESIDENTIAL

EXISTING RESIDENTIAL

BLOCK 1 DETACHED HOMES &
TOWNHOUSE CONDOMINIUM
BLOCK 2 TOWNHOUSE CONDOMINIUM

BLOCK 3 APARTMENT
BLOCK 4
10M ROAD WIDENING



Pumper Fire Truck	
Overall Length	12.192m
Overall Width	2.489m
Overall Body Height	2.361m
Min Body Ground Clearance	0.200m
Track Width	2.489m
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

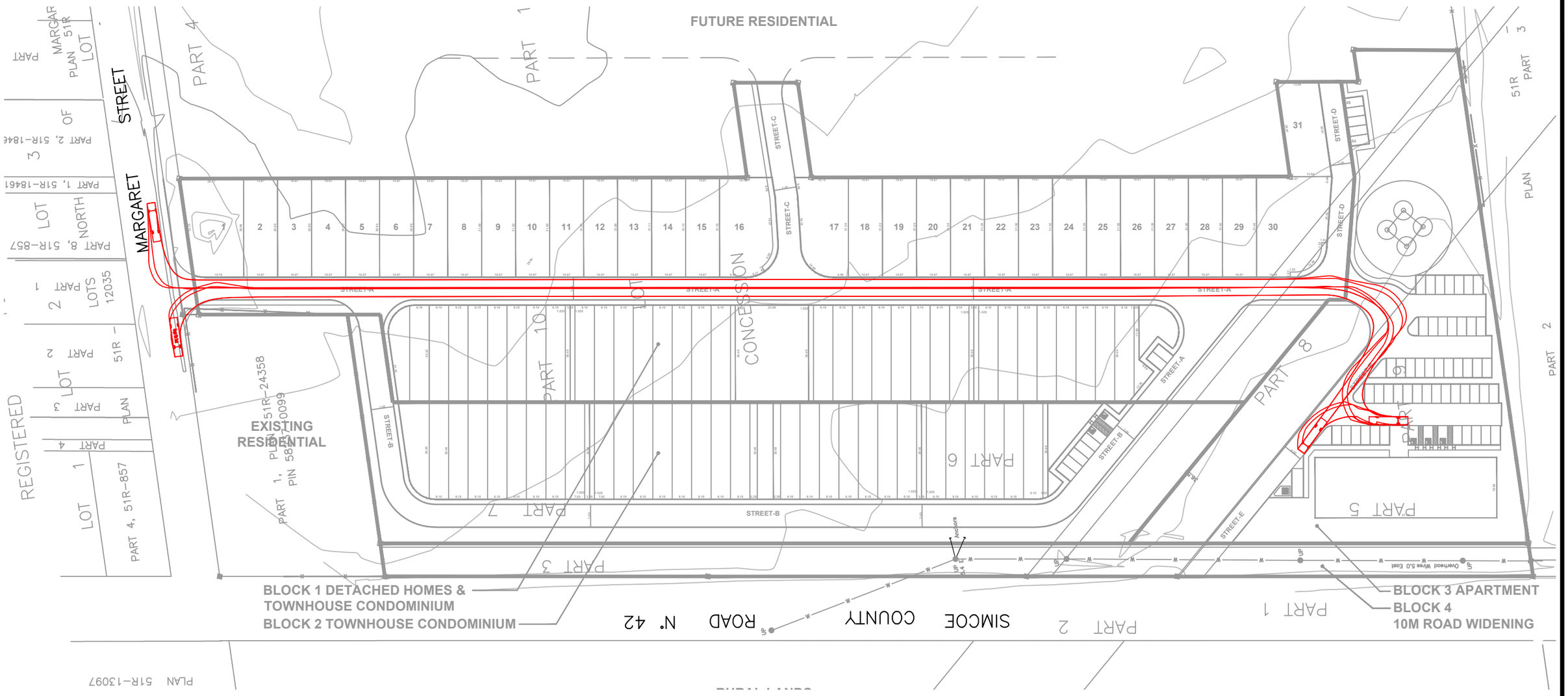
TATHAM ENGINEERING

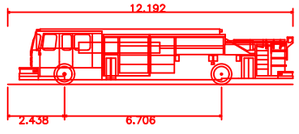
1192 COUNTY ROAD 92
FIRE TRUCK TEMPLATE

FIG. No. 8

SCALE: N.T.S. | DRAWN: HDY | DATE: MAY 2025 | JOB NO. 425051

Drawing Name: 425051-Turning Templates.dwg, Plotted: May 23, 2025





Pumper Fire Truck	
Overall Length	12.192m
Overall Width	2.489m
Overall Body Height	2.361m
Min Body Ground Clearance	0.200m
Track Width	2.489m
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

TATHAM ENGINEERING

1192 COUNTY ROAD 92
FIRE TRUCK TEMPLATE

FIG. No. 9

SCALE: N.T.S. | DRAWN: HDY | DATE: MAY 2025 | JOB NO. 425051

Drawing Name: 425051-Turning Templates.dwg, Plotted: May 23, 2025

Appendix I:
TTS Data

TTS Data Summary

TTS 2022 Search Parameters

Wed Dec 03 2025 13:28:01 GMT-0500 (Eastern Standard Time) - Run Time: 2966ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest

2022 TTS zone of destination - tts22_dest In 17120

Filters:

2022 TTS zone of destination - tts22_dest In 17120

*Note: Search criteria reflective of inbound travel during AM/PM peak periods.

Origin/Destination parameters reversed for outbound travel

Data Outputs

Planning District	Inbound Trips	Outbound Trips	Total Trips	Local Travel Direction
PD 4 of Toronto	15	15	30	south
Brampton	12	12	24	south
Barrie	71	37	108	east
New Tecumseth	29	29	58	south
Adjala-Tosorontio	8	8	16	south
Essa	4	58	62	east
Clearview	1,030	1,030	2,060	internal
Springwater	28	28	56	east
Collingwood	418	341	759	north
Mississauga	-	8	8	south
Wasaga Beach	470	443	913	north
Tiny	27	27	54	north
Midland	5	33	38	north
Oro-Medonte	73	73	146	east
Mulmur	3	9	12	south
Blue Mountains	66	12	78	west
Grey Highlands	33	176	209	west
Total	**2,292**	**2,339**	**4,631**	

Travel Summary

Local Direction of Travel

Excludes external and undefined locations

Trip Type	North	South	East	West	Internal	Total
Inbound	418	64	103	0	1,030	1,615
Outbound	0	72	123	0	1,030	1,225
Total	**418**	**136**	**226**	**0**	**2,060**	**2,840**
	15%	**5%**	**8%**	**0%**	**73%**	**100%**

Travel Proportions

Proportion	North	South	East	West	Internal	Total
Calculated	26%	4%	6%	0%	64%	100%

Redistribution of Internal/Local Trips

Trips identified as internal/local to Clearview are redistributed based on the location of the subject site

	North	South	East	West	Internal	Total
Internal Redistribution	40%	10%	40%	10%	-	100%

Revised Local Direction of Travel

Considers redistributed internal/local trips

Trip Type	North	South	East	West	Internal	Total
Inbound	830	167	515	103	-	1,615
Outbound	412	175	535	103	-	1,225
Total	**1,242**	**342**	**1,050**	**206**	**-**	**2,840**

Revised Travel Proportions

Reflective of revised trip distribution established above, these values are considered for new site traffic

Proportion	North	South	East	West	Internal	Total
Calculated	43%	12%	38%	7%	-	100%
Rounded	45%	10%	40%	5%	-	100%

Appendix J:
Traffic Operations - Total

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	51	207	269	25	69	266
Future Volume (Veh/h)	51	207	269	25	69	266
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	54	218	283	26	73	280
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	722	296			309	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	296			309	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	85	70			94	
cM capacity (veh/h)	371	720			1252	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	272	309	353
Volume Left	54	0	73
Volume Right	218	26	0
cSH	607	1700	1252
Volume to Capacity	0.45	0.18	0.06
Queue Length 95th (m)	17.6	0.0	1.4
Control Delay (s)	15.7	0.0	2.1
Lane LOS	C		A
Approach Delay (s)	15.7	0.0	2.1
Approach LOS	C		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	79	14	2	217	41	5
Future Volume (Veh/h)	79	14	2	217	41	5
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)	86	15	2	236	45	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			101		334	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			101		334	94
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	99
cM capacity (veh/h)			1491		661	963

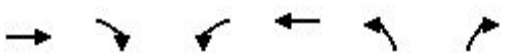
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	101	238	50
Volume Left	0	2	45
Volume Right	15	0	5
cSH	1700	1491	682
Volume to Capacity	0.06	0.00	0.07
Queue Length 95th (m)	0.0	0.0	1.8
Control Delay (s)	0.0	0.1	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.7
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	49	114	383	82	199	313
Future Volume (Veh/h)	49	114	383	82	199	313
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	53	123	412	88	214	337
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	1221	456			500	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1221	456			500	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	66	80			79	
cM capacity (veh/h)	158	604			1044	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	176	500	551
Volume Left	53	0	214
Volume Right	123	88	0
cSH	326	1700	1044
Volume to Capacity	0.54	0.29	0.21
Queue Length 95th (m)	23.0	0.0	5.8
Control Delay (s)	28.2	0.0	5.1
Lane LOS	D		A
Approach Delay (s)	28.2	0.0	5.1
Approach LOS	D		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	241	41	5	136	28	3
Future Volume (Veh/h)	241	41	5	136	28	3
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)	262	45	5	148	30	3
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			307		442	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			307		442	284
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1254		570	754

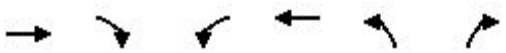
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	307	153	33
Volume Left	0	5	30
Volume Right	45	0	3
cSH	1700	1254	583
Volume to Capacity	0.18	0.00	0.06
Queue Length 95th (m)	0.0	0.1	1.4
Control Delay (s)	0.0	0.3	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	51	208	297	25	70	294
Future Volume (Veh/h)	51	208	297	25	70	294
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	54	219	313	26	74	309
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	783	326			339	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	783	326			339	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	84	68			94	
cM capacity (veh/h)	340	693			1220	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	273	339	383
Volume Left	54	0	74
Volume Right	219	26	0
cSH	575	1700	1220
Volume to Capacity	0.47	0.20	0.06
Queue Length 95th (m)	19.3	0.0	1.5
Control Delay (s)	16.8	0.0	2.1
Lane LOS	C		A
Approach Delay (s)	16.8	0.0	2.1
Approach LOS	C		

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	80	14	2	219	41	5
Future Volume (Veh/h)	80	14	2	219	41	5
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)	87	15	2	238	45	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			102		336	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			102		336	94
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	99
cM capacity (veh/h)			1490		658	962

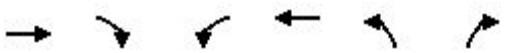
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	102	240	50
Volume Left	0	2	45
Volume Right	15	0	5
cSH	1700	1490	680
Volume to Capacity	0.06	0.00	0.07
Queue Length 95th (m)	0.0	0.0	1.8
Control Delay (s)	0.0	0.1	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.7
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	49	115	423	83	200	345
Future Volume (Veh/h)	49	115	423	83	200	345
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	53	124	455	89	215	371
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	1300	500			544	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1300	500			544	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	62	78			79	
cM capacity (veh/h)	140	571			1005	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	177	544	586
Volume Left	53	0	215
Volume Right	124	89	0
cSH	297	1700	1005
Volume to Capacity	0.60	0.32	0.21
Queue Length 95th (m)	27.2	0.0	6.2
Control Delay (s)	33.6	0.0	5.2
Lane LOS	D		A
Approach Delay (s)	33.6	0.0	5.2
Approach LOS	D		

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	242	41	5	136	28	3
Future Volume (Veh/h)	242	41	5	136	28	3
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)	263	45	5	148	30	3
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			308		444	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			308		444	286
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1253		570	754

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	308	153	33
Volume Left	0	5	30
Volume Right	45	0	3
cSH	1700	1253	582
Volume to Capacity	0.18	0.00	0.06
Queue Length 95th (m)	0.0	0.1	1.4
Control Delay (s)	0.0	0.3	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	52	209	328	25	70	325
Future Volume (Veh/h)	52	209	328	25	70	325
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	55	220	345	26	74	342
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	848	358			371	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	848	358			371	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	82	67			94	
cM capacity (veh/h)	311	664			1188	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	275	371	416
Volume Left	55	0	74
Volume Right	220	26	0
cSH	541	1700	1188
Volume to Capacity	0.51	0.22	0.06
Queue Length 95th (m)	21.7	0.0	1.5
Control Delay (s)	18.3	0.0	2.0
Lane LOS	C		A
Approach Delay (s)	18.3	0.0	2.0
Approach LOS	C		

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	81	14	2	220	41	5
Future Volume (Veh/h)	81	14	2	220	41	5
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)	88	15	2	239	45	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			103		338	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			103		338	96
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	99
cM capacity (veh/h)			1489		656	961

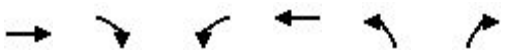
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	103	241	50
Volume Left	0	2	45
Volume Right	15	0	5
cSH	1700	1489	678
Volume to Capacity	0.06	0.00	0.07
Queue Length 95th (m)	0.0	0.0	1.8
Control Delay (s)	0.0	0.1	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.7
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	49	115	467	83	201	381
Future Volume (Veh/h)	49	115	467	83	201	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	53	124	502	89	216	410
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	1388	546			591	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1388	546			591	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	57	77			78	
cM capacity (veh/h)	122	537			965	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	177	591	626
Volume Left	53	0	216
Volume Right	124	89	0
cSH	266	1700	965
Volume to Capacity	0.67	0.35	0.22
Queue Length 95th (m)	32.7	0.0	6.5
Control Delay (s)	41.8	0.0	5.3
Lane LOS	E		A
Approach Delay (s)	41.8	0.0	5.3
Approach LOS	E		

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	244	41	5	137	28	3
Future Volume (Veh/h)	244	41	5	137	28	3
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)	265	45	5	149	30	3
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			310		446	288
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			310		446	288
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1250		567	752

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	310	154	33
Volume Left	0	5	30
Volume Right	45	0	3
cSH	1700	1250	580
Volume to Capacity	0.18	0.00	0.06
Queue Length 95th (m)	0.0	0.1	1.4
Control Delay (s)	0.0	0.3	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		