



paradigm
TRANSPORTATION SOLUTIONS LIMITED

6309 Pack Road, London

**Transportation Impact
Assessment**

Paradigm Transportation Solutions Limited

2024-12
240373



Project Number:

240373

Date and Version:

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Client:**Southside Group**

75 Blackfriars Street
London ON N6H 1K8

c/o Casey Kulchycki
Zelinka Priamo Ltd.

Consultant Project Team

Rajan Philips, M.Sc. (PI), P.Eng.
Patrick Neal, P.Eng.

Paradigm Transportation Solutions Limited

5A-150 Pinebush Road
Cambridge ON N1R 8J8

p: 519.896.3163

905.381.2229

416.479.9684

www.ptsl.com

6309 Pack Road, London Transportation Impact Assessment



Rajan Philips, P.Eng.

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Assessment (TIA) for a proposed Residential Subdivision located at 6309 Pack Road in the City of London.

This TIA includes an analysis of existing traffic conditions, a description of the proposed development, analysis of future traffic conditions, and assessment of development traffic impacts with recommendations as appropriate to accommodate the proposed development.

Proposed Subdivision

The subject lands, located on the south side of Pack Road to the east of Colonel Talbot Road, are in the Bostwick Residential Neighbourhood and North Lambeth Residential Neighbourhood of the Southwest Area Secondary Plan (SWAP), and are designated for Medium Density and Low-Density Residential development.

The lands are surrounded by existing residential development to the north of Pack Road, and by future development lands to the west, east and south – all located on the south side of Pack Road.

The surrounding road system includes Colonel Talbot Road (N/S) to the west, Pack Road (E/W) to the north, and Bostwick Road (N/S) to the east. Both Colonel Talbot Road and Bostwick Road connect to Southdale Road (E/W) to the north, and provide connection to Highway 402 to the south.

The subject development is proposed to include about 4,200 dwelling units, comprising 210 single detached units, 47 townhouse units, 454 medium-density housing units, and 3,489 high-density housing units located in six development blocks.

Two main access points are located on Pack Road, connecting to the existing subdivision roads to the north, viz., Pioneer Parkway to the east and Frontier Avenue to the west. Other internal roadways will connect to road systems in the future subdivisions to the east and south.

The subdivision is assumed to be built-out by 2033.



Network Improvements

The City of London is planning to implement the extension of Bradley Avenue to connect to Pack Road at Bostwick Road in a new roundabout is expected to be completed by 2028.

Bradley Avenue and Bostwick Road south of Pack Road are expected to have a four-lane cross-section. Based on development traffic projections for the subject development and the surrounding developments in the study area, Pack Road is assumed to include four lanes east of Frontier Avenue.

Also, based on future traffic projections, traffic signal control is identified as warranted for the intersection of Pack Road and Frontier Avenue and is assumed in the analysis. In addition, westbound left-lanes are assumed at Pioneer Parkway (with 15-metre storage) and at Frontier Avenue (with 30-metre storage) consistent with the existing eastbound left-turn lanes at the two intersections.

The above improvements are assumed in the analysis of future traffic conditions.

TIA Scope

The scope of the Transportation Impact Assessment for the proposed development includes:

- ▶ **Study Area Intersections:**
 - Colonel Talbot Road & Pack Road (signalized);
 - Pack Road & Pioneer Parkway (unsignalized);
 - Pack Road & Frontier Avenue (unsignalized); and
 - Pack Road & Bostwick Road (unsignalized).
- ▶ **Analysis Periods:** Weekday AM and PM peak hours.
- ▶ **Background Developments:**
 - 3563 Bostwick Road;
 - 3614-3630 Colonel Talbot Road;
 - 3680 Colonel Talbot Road (W3 Sunset Creek);
 - 3700 Colonel Talbot Road; and
 - 3924 Colonel Talbot Road.
- ▶ **Traffic Conditions:** Base Year (2024) and five years after subdivision completion (2038).



Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Existing Traffic Conditions:** The study area intersections are operating at acceptable levels of service, except for the eastbound movement at the intersection of Bostwick Road and Pack Road, which is operating at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours.
- ▶ **Subdivision Trip Generation:** The subdivision is forecast to generate 1,853 trips during the AM peak hour and 1,801 trips during the PM peak hour.
- ▶ **2038 Background Traffic Conditions:** The study area intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours, except for the following critical movements at the intersection of Colonel Talbot Road and Pack Road:
 - The 95th percentile queue length of the westbound left-turn movement is projected to exceed the existing storage of 40 metres during the PM peak hour;
 - The westbound shared through/right-turn movement is forecast to operate at LOS E with a v/c ratio of 0.98 during the PM peak hour;
 - The northbound shared through/right-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours; and
 - The southbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours. The 95th percentile queue length is projected to exceed the existing storage of 100 metres during the AM peak hour.
- ▶ **2038 Total Traffic Conditions:** The study area intersections are forecast to operate at similar levels of service as under 2038 background traffic conditions, with the following additional critical movements:

Colonel Talbot Road and Pack Road

- The westbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 and a 95th percentile queue length that exceeds the existing storage of 40 metres during the PM peak hour;



- The westbound shared through/right-turn movement is forecast to operate at LOS E with a v/c ratio greater than 1.00 during the AM peak hour;
- The 95th percentile queue length of the southbound left-turn movement is projected to exceed the existing storage of 100 metres during the PM peak hour; and

Pack Road and Pioneer Parkway

- The southbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 and a 95th percentile queue length that exceeds the assumed storage of 30 metres during the AM and PM peak hours.
- ▶ **Site Accesses:** The inbound and outbound movements to/from the subject site are forecast to operate at acceptable levels of service. It is noted that the southbound left-turn movement at Pack Road and Pioneer Parkway is forecast to operate with high delays and v/c ratios greater than 1.00. However, high delays are expected for side-street stop-control movements on an arterial roadway. The southbound traffic volumes at Pack Road and Pioneer Parkway will also likely re-assign to the Pack Road and Frontier Avenue intersection if it is under traffic signal control.



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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Assessment (TIA) for the Residential Subdivision located at 6309 Pack Road in the City of London. **Figure 1.1** details the subject development location.

The subject lands, located on the south side of Pack Road to the east of Colonel Talbot Road, are in the Bostwick Residential Neighbourhood and North Lambeth Residential Neighbourhood of the Southwest Area Secondary Plan (SWAP) and are designated for Medium Density and Low-Density Residential development.

The lands are surrounded by existing residential development to the north of Pack Road, and by future developments to the west, east and south – all located on the south side of Pack Road.

The surrounding road system includes Colonel Talbot Road (N/S) to the west, Pack Road (E/W) to the north, and Bostwick Road (N/S) to the east. Both Colonel Talbot Road and Bostwick Road connect to Southdale Road (E/W) to the north.

The subject development is proposed to include about 4,200 dwelling units, comprising 210 single detached units, 47 townhouse units, 454 medium-density housing units, and 3,489 high-density housing units located in six development blocks.

The main access points are located on Pack Road, and the new access roadways will be connected to the existing subdivision roads to the north, viz., Pioneer Parkway to the east and Frontier Avenue to the west. Other internal roadways will connect to road systems in the future subdivisions to the east and south.

The subdivision is assumed to be built-out by 2033.

1.2 Purpose and Scope

The purpose of this report is to identify and assess the potential traffic impact resulting from the proposed development. The scope of the study, developed in consultation with City of London staff via e-mail in April 2024, includes:

- ▶ assessment of the current traffic and site conditions within the study area;



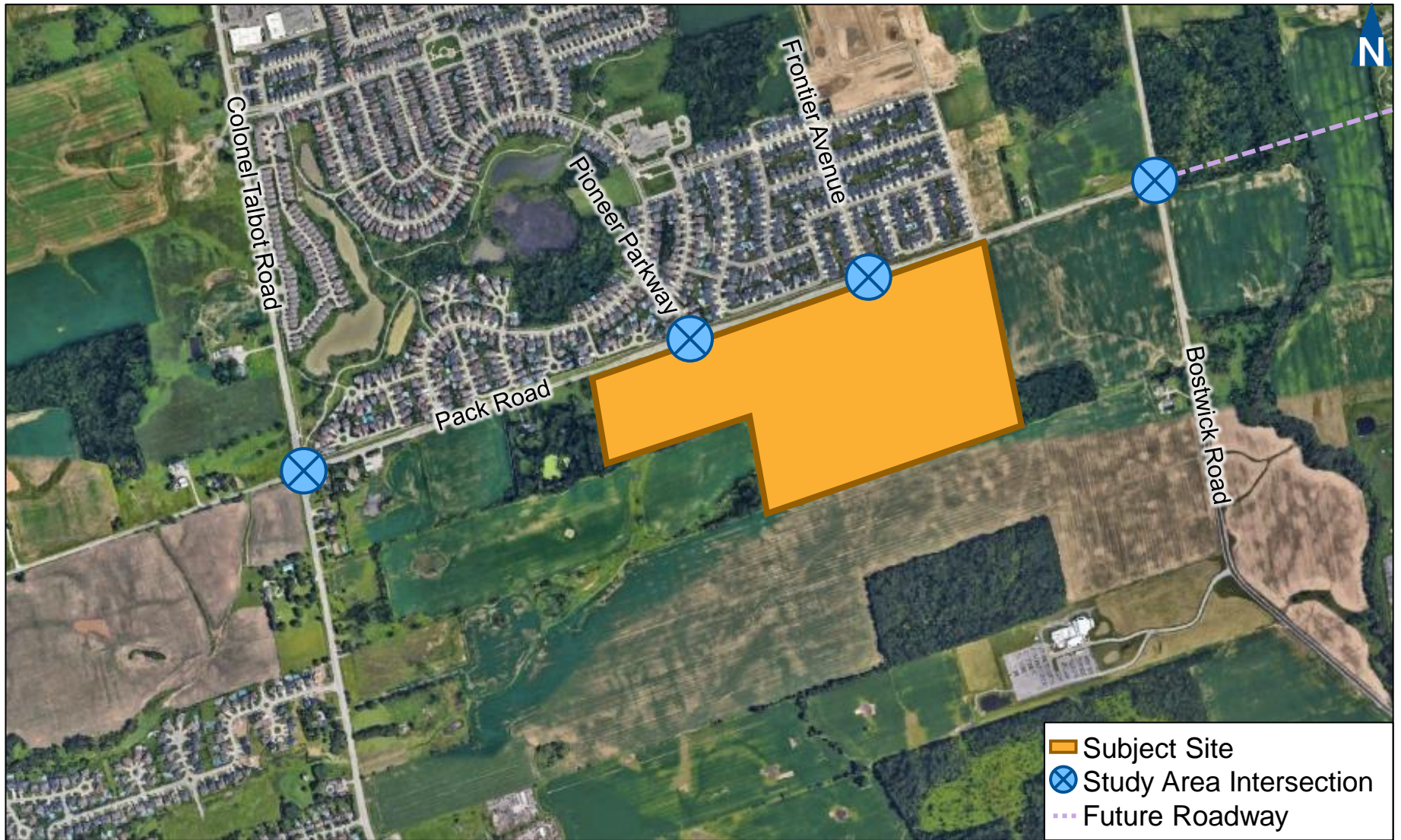
- ▶ estimates of background traffic growth for five years after subdivision completion (2038);
- ▶ the following developments are included in background traffic forecasts:
 - 3563 Bostwick Road;
 - 3614-3630 Colonel Talbot Road;
 - 3680 Colonel Talbot Road (W3 Sunset Creek);
 - 3700 Colonel Talbot Road; and
 - 3924 Colonel Talbot Road.
- ▶ estimates of additional traffic generated by the subject site;
- ▶ analyses of the impact of the future traffic on the surrounding road network, including the following study area intersections:
 - Colonel Talbot Road & Pack Road (signalized);
 - Pack Road & Pioneer Parkway (unsignalized);
 - Pack Road & Frontier Avenue (unsignalized); and
 - Pack Road & Bostwick Road (unsignalized).
- ▶ recommendations, if necessary, to mitigate the site generated traffic in a satisfactory manner.

Appendix A contains the pre-study consultation material and responses from the City of London.

This study has been prepared in accordance with the requirements detailed by the City of London Transportation Impact Assessment Guidelines¹.

¹ Transportation Impact Assessment Guidelines, City of London, April 2012.





2 Existing Conditions

2.1 Existing Roadways

The main roadways near the subject development considered in assessing the traffic impacts of the development include:

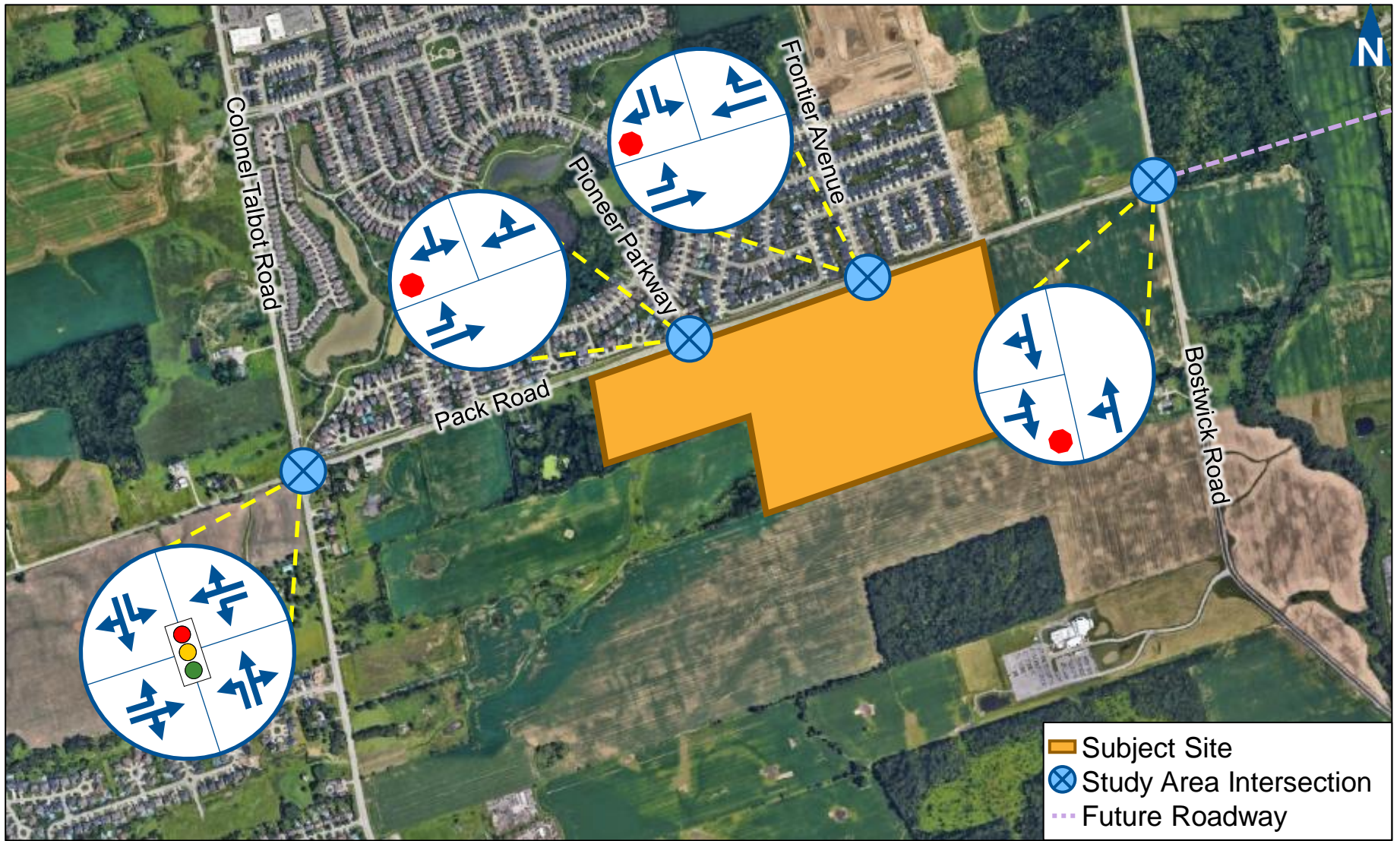
- ▶ **Colonel Talbot Road** is a north-south civic boulevard² with a two-lane cross section. Sidewalks are provided on the west side of the roadway. Cycling facilities are not provided along Colonel Talbot Road within the study area. The posted speed limit is 60 km/h.
- ▶ **Bostwick Road** is a north-south civic boulevard with a two-lane cross-section. Neither sidewalks nor cycling lanes are provided along the roadway. The posted speed limit is 70 km/h.
- ▶ **Pack Road** is an east-west civic boulevard with a two-lane cross-section. Sidewalks are provided on the north side of the roadway east of Colonel Talbot Road and on the south side of the road to the west of Colonel Talbot Road. Cycling facilities are not provided along Pack Road within the study area. The posted speed limit is 60 km/h.
- ▶ **Frontier Avenue** is a north-south neighbourhood connector with a two-lane cross section. Sidewalks are provided on both sides of the roadway. Cycling facilities are not provided along Pioneer Parkway. The posted speed limit is 50 km/h.
- ▶ **Pioneer Parkway** is a north-south neighbourhood connector with a two-lane cross section. Sidewalks are provided on both sides of the roadway. Cycling facilities are not provided along Pioneer Parkway. The assumed speed limit is 50 km/h.

Traffic signals are provided at the intersection of Colonel Talbot Road and Pack Road, and side-street stop control is provided at the intersections of Pack Road and Bostwick Road; Pack Road and Pioneer Parkway; and Pack Road and Frontier Avenue.

Figure 2.1 illustrates the traffic control and lane configuration at the study area intersections.

² The London Plan, May 2019.





Existing Lane Configuration and Traffic Control

2.2 Transit Service

London Transit does not currently provide transit service within a walking distance to the subject site.

2.3 Traffic Volumes

Paradigm conducted turning movement counts at the intersections of Pack Road and Bostwick Road; Pack Road and Frontier Avenue; and Pack Road and Pioneer Parkway on 25 June 2024. The City provided a turning movement count at the intersection of Pack Road and Colonel Talbot Road, recorded on 20 September 2022.

Figure 2.2 illustrates the existing AM and PM weekday peak hour turning movement traffic volumes. **Table 2.1** summarizes the peak hours at each intersection.

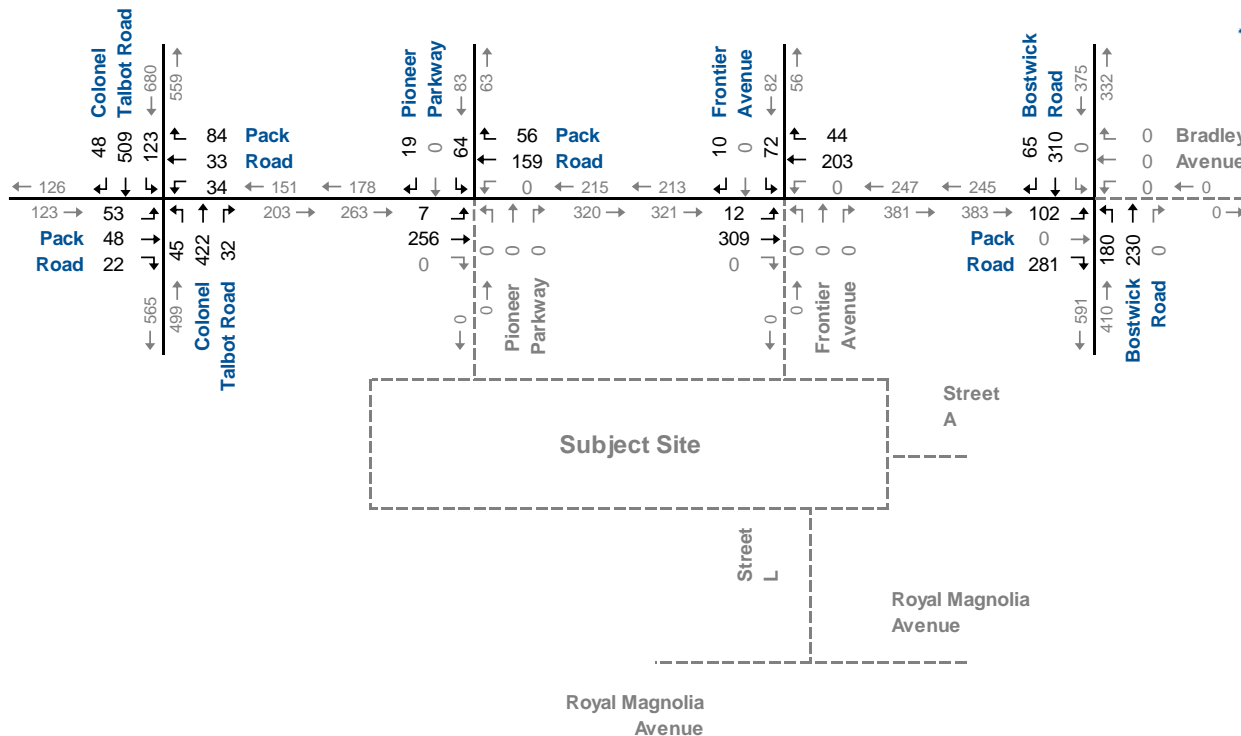
TABLE 2.1: INTERSECTION PEAK HOURS

Intersection	Source	Date	AM Peak Hour	PM Peak Hour
Pack Road and Colonel Talbot Road	City	20 September 2022	7:45 – 8:45	4:30 – 5:30
Pack Road and Bostwick Road	Paradigm	25 June 2024	8:30 – 9:30	4:30 – 5:30
Pack Road and Frontier Avenue	Paradigm	25 June 2024	8:30 – 9:30	4:30 – 5:30
Pack Road and Pioneer Parkway	Paradigm	25 June 2024	8:30 – 9:30	4:45 – 5:45

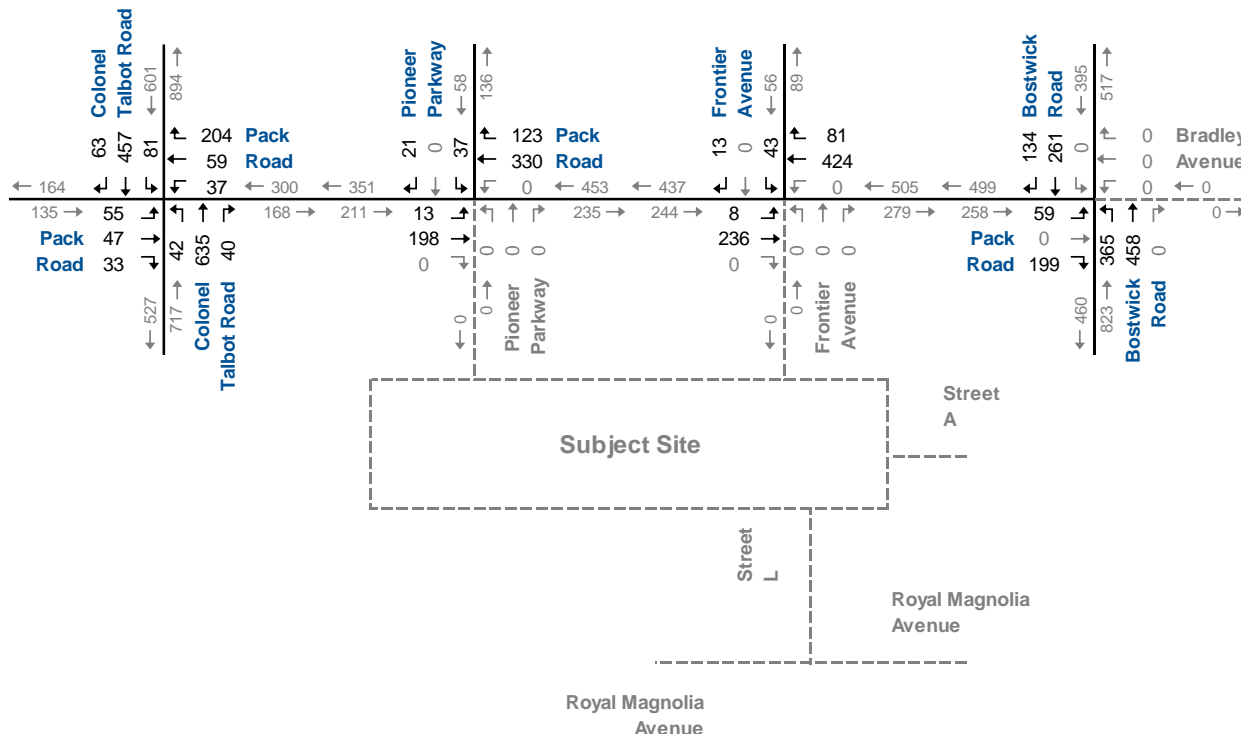
Appendix B contains the detailed traffic counts and signal timings at the study area intersections.



AM Peak Hour



PM Peak Hour



Existing Traffic Volumes

2.4 Traffic Operations

The level of service conditions at the study area intersections have been assessed through intersection operational analysis using Synchro 11.

Intersection level of service (LOS) is a recognized method of quantifying the average delay experienced by drivers at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles intending to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows and intersection geometry.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume to capacity (v/c) ratio is greater than 1.00, the movement is classed as LOS F and remedial measures are usually implemented if they are feasible. LOS E is usually used as a guideline for the determination of road improvement needs on through lanes, while LOS F may be acceptable for left-turn movements at peak times, depending on delays.

Movements are considered critical under the following conditions:

- ▶ v/c ratios for overall intersection operations, through movements or shared through/turning movements increased to 0.90 or above and LOS 'E' or worse;
- ▶ v/c ratios for dedicated turning movements increased to 0.90 or above and LOS 'E' or worse; or
- ▶ 95th percentile queue lengths for individual movements exceeds available lane storage.

Table 2.2 summarizes the results of the intersection operational analysis under existing conditions, including the AM and PM peak hour LOS, v/c ratios, and 95th percentile queues experienced.

The results indicate that the study area intersections are operating at acceptable levels of service, except for the eastbound movement at the intersection of Bostwick Road and Pack Road, which is theoretically operating at LOS F with a theoretical v/c ratio greater than 1.00 during the AM and PM peak hours.

Appendix C contains the detailed Synchro 11 reports.



TABLE 2.2: EXISTING TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Colonel Talbot Road & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	C 31 0.28 5 40 35	C 25 0.26 5 -	> > > > >	C 28	C 27 0.14 3 40 37	C 28 0.52 10 -	> > > > >	C 28	B 10 0.11 1 65 64	A 7 0.43 5 -	> > > > >	A 7	B 10 0.24 2 100 98	A 8 0.52 8 -	> > > > >	A 8	B 12
	Pack Road & Pioneer Parkway	TWSC	LOS Delay V/C Q Stor. Avail.	A 8 0.01 0 80 80	A 0 0.00 0 -	> > > > >	A 0	A 0 0.00 -	> > > >	A 0						B 13 0.16 4 -	> > > > >	B 13		
	Pack Road & Frontier Avenue	TWSC	LOS Delay V/C Q Stor. Avail.	A 8 0.01 0 90 90	A 0 0.00 0 -	> > > > >	A 0	A 0 0.00 -	A 0 0.00 15 15	> > > > >	A 0					B 14 0.17 4 45 41	A 9 0.01 0 -	> > > > >	B 14	
	Bostwick Road & Pack Road	TWSC	LOS Delay V/C Q	F 78 1.01 94	> > > >	F 78							< < < <	A 9 0.17 4		A 4	A 0 0.00 0	> > > >	A 0	
PM Peak Hour	Colonel Talbot Road & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	C 34 0.32 4 40 36	C 23 0.21 4 -	> > > > >	C 28	C 25 0.11 2 40 38	C 30 0.71 15 -	> > > > >	C 29	B 14 0.10 1 65 64	B 13 0.66 8 -	> > > > >	B 13	C 21 0.26 4 100 96	B 11 0.53 4 -	> > > > >	B 12	B 17
	Pack Road & Pioneer Parkway	TWSC	LOS Delay V/C Q Stor. Avail.	A 8 0.01 0 80 80	A 0 0.00 0 -	> > > > >	A 0	A 0 0.00 -	> > > >	A 0						B 14 0.13 4 -	> > > > >	B 14		
	Pack Road & Frontier Avenue	TWSC	LOS Delay V/C Q Stor. Avail.	A 9 0.01 0 90 90	A 0 0.00 0 -	> > > > >	A 0	A 0 0.00 -	A 0 0.00 15 15	> > > > >	A 0					C 16 0.12 3 45 42	B 11 0.02 1 -	> > > > >	B 15	
	Bostwick Road & Pack Road	TWSC	LOS Delay V/C Q	F 269 1.44 127	> > > >	F 269							< < < <	A 10 0.35 12		A 4	A 0 0.00 0	> > > >	A 0	

MOE - Measure of Effectiveness
 LOS - Level of Service
 Delay - Average Delay per Vehicle in Seconds
 V/C - Volume to Capacity Ratio
 Q - 95th Percentile Queue Length (m)
 Stor. - Existing Storage (m)
 Avail. - Available Storage (m)
 TCS - Traffic Control Signal
 TWSC - Two-Way Stop Control
 </> - Shared with through movement



3 Proposed Subdivision

3.1 Subdivision Description

The subject lands, located on the south side of Pack Road to the east of Colonel Talbot Road, are in the Bostwick Residential Neighbourhood and North Lambeth Residential Neighbourhood of the Southwest Area Secondary Plan (SWAP) and are designated for Medium Density and Low-Density Residential development.

The lands are surrounded by existing residential development to the north of Pack Road, and by future developments to the west, east and south – all located on the south side of Pack Road.

The surrounding road system includes Colonel Talbot Road (N/S) to the west, Pack Road (E/W) to the north, and Bostwick Road (N/S) to the east. Both Colonel Talbot Road and Bostwick Road connect to Southdale Road (E/W) to the north.

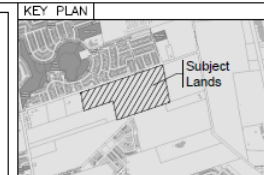
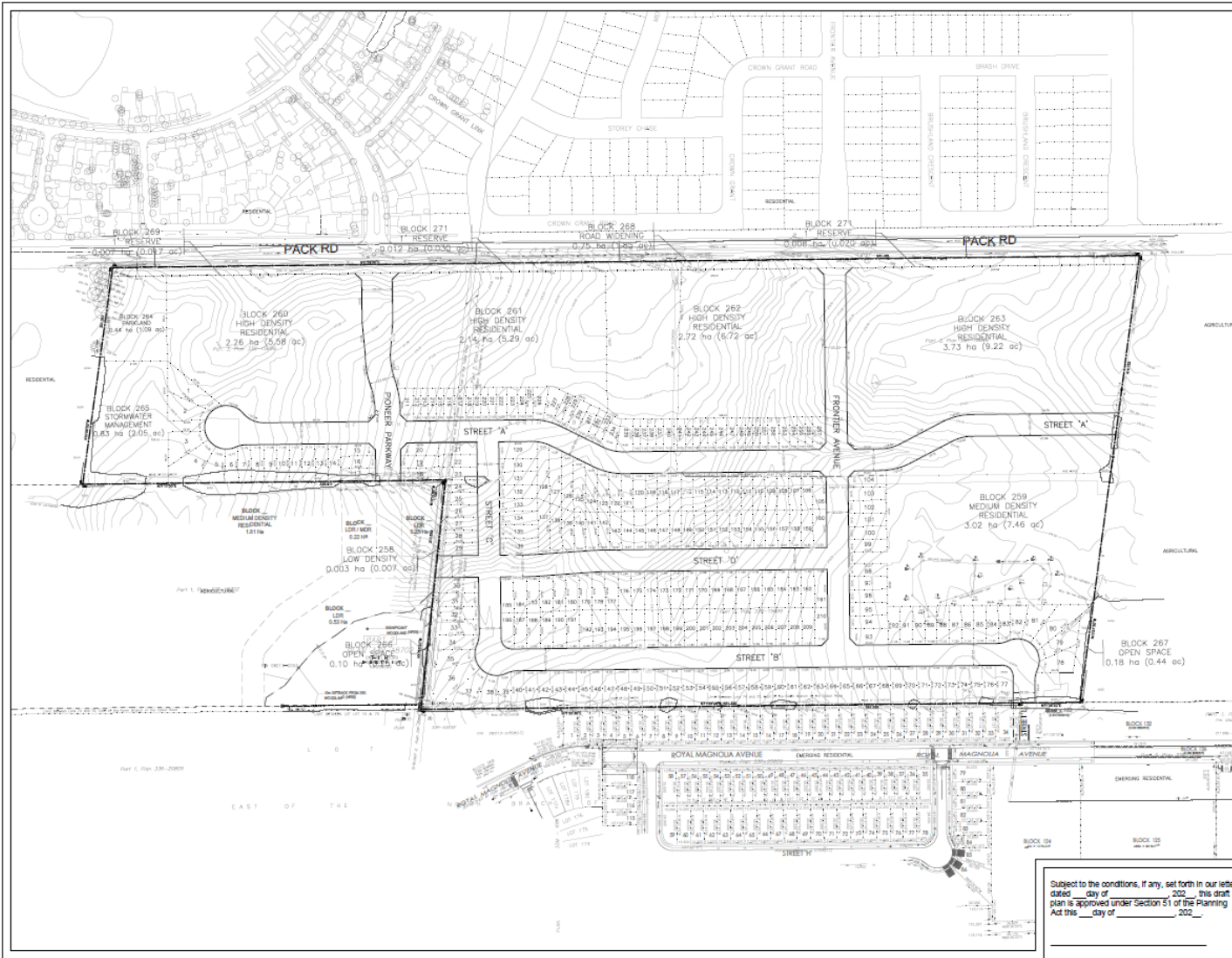
The subject development is proposed to include about 4,200 dwelling units, comprising 210 single detached units, 47 townhouse units, 454 medium-density housing units, and 3,489 high-density housing units located in six development blocks.

The main access points are located on Pack Road, and the new access roadways will be connected to the existing subdivision roads to the north, viz., Pioneer Parkway to the east and Frontier Avenue to the west. Other internal roadways will connect to road systems in the future subdivisions to the east and south.

The subdivision is assumed to be built-out by 2033.

Figure 3.1 shows the draft plan of subdivision.





DRAFT PLAN OF SUBDIVISION
OF PART OF
LOT 75, CONCESSION EAST OF THE NORTH BRANCH OF THE TALBOT ROAD
(GEOGRAPHIC TOWNSHIP OF WESTMINSTER)
AND ALL OF
PARTS 1-3, PLAN 33R-15699

CITY OF LONDON
COUNTY OF MIDDLESEX

INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT

A) As shown G) As shown
B) As shown H) Municipal water supply available
C) As shown I) Mix of city sand & city clay
E) As shown J) As shown
F) As shown K) All municipal services to be available
L) As shown

PROPOSED LAND USES AND AREAS

RESIDENTIAL, MEDIUM DENSITY (BLOCK 259)	1.81 ha
RESIDENTIAL, STREET FRONTAGE (BLOCK 259)	1.81 ha
LOW DENSITY RESIDENTIAL (BLOCK 257)	0.003 ha
MEDIUM DENSITY RESIDENTIAL (BLOCK 256)	0.63 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 254)	0.44 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 255)	0.63 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 258)	0.003 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 259)	3.02 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 260)	2.26 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 261)	2.14 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 262)	2.72 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 263)	3.73 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 267)	0.18 ha
RESIDENTIAL, MEDIUM DENSITY (BLOCK 259)	0.003 ha
TOTAL	18.003 ha

OWNER'S CERTIFICATE
SOUTHIDE CONSTRUCTION LIMITED
HEREBY CONSENTS TO THE FILING OF THIS PLAN IN DRAFT FORM

Signature: _____ Date: _____

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY SHOWN ON THIS PLAN.

Signature: _____ Date: _____

NO.	REVISION	DATE	INITIAL

SOUTHIDE CONSTRUCTION MANAGEMENT LTD.
6309 PACK ROAD

ZELINKA PRILANO LTD.
A Professional Planning Practice
215 Wellington Road, London, Ontario N6C 4H4
Tel: (519) 474-7137 Fax: (519) 474-2334 e-mail: zpl@zpl.com

DATE: 05/20/2024 11:50 AM
DATE: DECEMBER 2024 SCALE: 1:1,500

Subject to the conditions, if any, set forth in our letter dated _____ day of _____, 2024, this draft plan is approved under Section 51 of the Planning Act this _____ day of _____, 2024.



Draft Plan of Subdivision

6309 Pack Road, London T1A 240373

Figure 3.1

3.2 Subdivision Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual³ equations were used to estimate the peak hour traffic volumes generated by the subject development based on the following ITE Land Use Codes:

- ▶ 210, Single Family Detached Housing;
- ▶ 215 Single-Family Attached Housing; and
- ▶ 221, Multifamily Housing (Mid-Rise).

Table 3.1 summarizes the forecast number of net new trips generated by the proposed development.

TABLE 3.1: TRIP GENERATION

Land Use Code	Units	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
210: Single-Family Detached Housing	210	Eq	37	109	146	Eq	126	74	200
215: Single-Family Attached Housing	47	Eq	5	14	19	Eq	15	9	24
220: Multifamily Housing (Low-Rise)	454	Eq	39	125	164	Eq	136	80	216
221: Multifamily Housing (Mid-Rise)	3489	Eq	351	1173	1524	Eq	830	531	1361
Total Trip Generation			432	1421	1853		1107	694	1801

LUC 210 | AM: $\ln(T) = 0.91 \ln(X) + 0.12$ | PM: $\ln(T) = 0.94 \ln(X) + 0.27$

LUC 215 | AM: $T = 0.52(X) - 5.70$ | PM: $T = 0.60(X) - 3.93$

LUC 220 | AM: $T = 0.31(X) + 22.85$ | PM: $T = 0.43(X) + 20.55$

LUC 221 | AM: $T = 0.44(X) - 11.61$ | PM: $T = 0.39(X) + 0.34$

3.3 Subdivision Trip Distribution and Assignment

The trip distribution was determined based on existing and expected future traffic patterns on Colonel Talbot Road, Pack Road, Bostwick Road, and the future Bradley Avenue extension to connect to the intersection at Bostwick Road and Pack Road.

The trip distribution used herein is noted to be similar to the distribution used in the other area developments noted in **Section 4.1.1**.

Table 3.2 displays the breakdown of trip distributions used in this study.

³ Institute of Transportation Engineers, *Trip Generation Manual*, 11th ed., (Washington, DC: ITE, 2021).



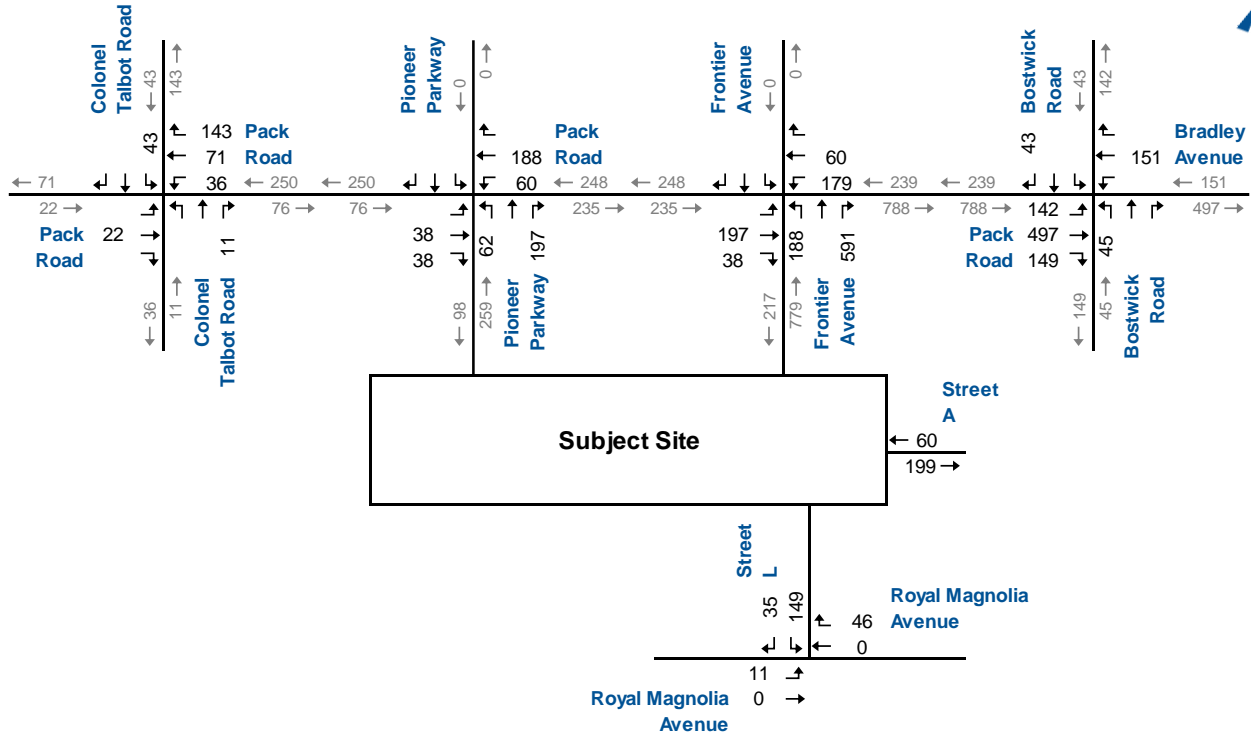
TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	Distribution
North via Colonel Talbot Road	10%
North via Bostwick Road	15%
South via Colonel Talbot Road	10%
South via Bostwick Road	15%
East via Pack Road	45%
West via Pack Road	5%
Total	100%

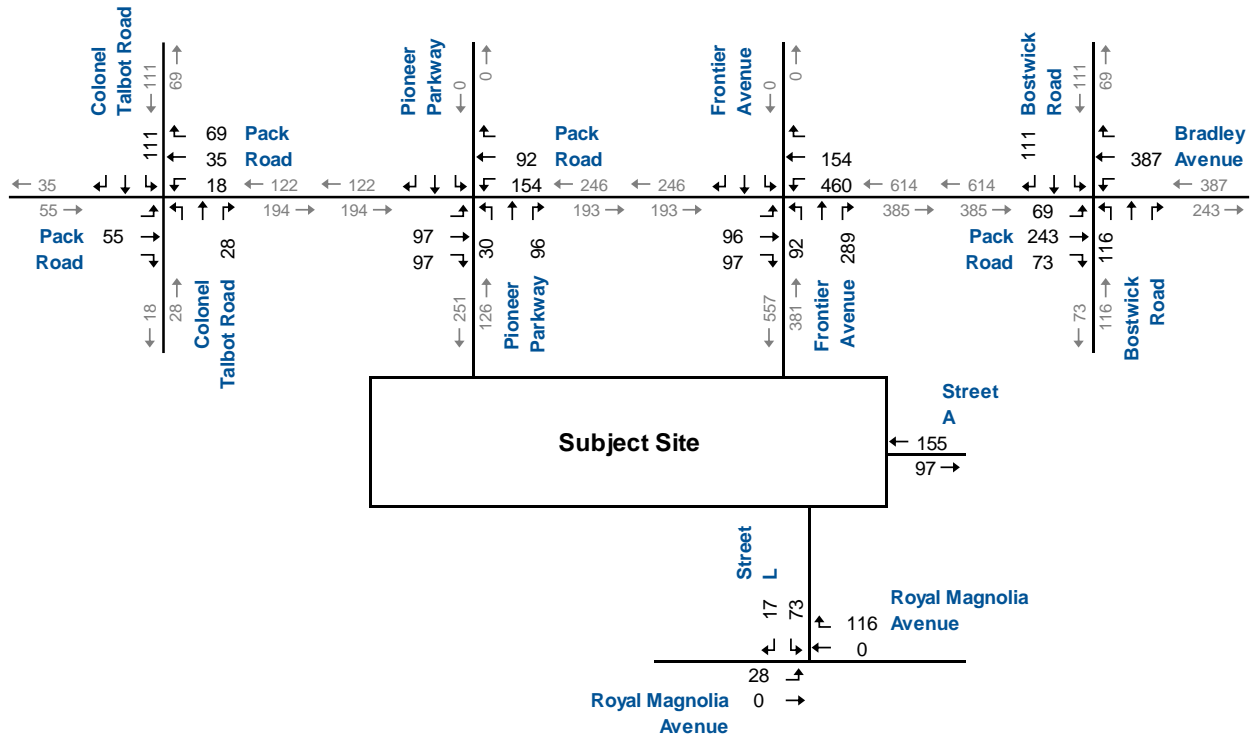
Figure 3.2 illustrates the site-generated traffic volumes during the AM and PM peak hours.



AM Peak Hour



PM Peak Hour



Site Generated Traffic Volumes

4 Evaluation of Future Traffic Conditions

The assessment of future traffic conditions contained in this section includes estimates of future background and total traffic volumes, and the analyses for the traffic conditions five years after subdivision completion (2038).

4.1 Background Traffic Forecasts

In order to derive the 2038 generalized background traffic volumes, a growth rate of 1.5% per annum was applied to the existing roadway traffic volumes. This growth rate was confirmed with City during the pre-study consultation.

4.1.1 Other Area Developments

In consultation with City staff, the following developments have been included in estimating background traffic volumes:

- ▶ 3563 Bostwick Road: Residential subdivision located at the southwest corner of Pack Road and Bostwick Road. The development is proposed to consist of 1,340 residential units. The development is forecast to generate 254 AM peak hour trips and 284 PM peak hour trips⁴ and is anticipated to be completed in 2030.
- ▶ 3614 & 3630 Colonel Talbot Road: Residential subdivision located on the east side of Colonel Talbot Road approximately 200 metres south of Pack Road. The subdivision is proposed to comprise a total of 927 units including single detached housing and apartment buildings. The subdivision development is forecast to generate 279 AM peak hour trips and 366 PM peak hour trips⁵ and is assumed to be completed by 2028.
- ▶ 3680 Colonel Talbot Road (W3 Sunset Creek): Residential development located south and west of the subject site Colonel Talbot Road. The development consists of 163 single-family homes, 16 street townhouses, 522 cluster houses, and 614 apartment units. The development is forecast to generate 545 AM peak hour trips and 589 PM peak hour trips⁶ and is anticipated to be fully built-out in 2033.

⁴ Prepared by Arcadis IBI Group, *Westwinds Subdivision – Site-Specific Transportation Assessment Addendum #1*, 04 January 2024.

⁵ Prepared by Paradigm Transportation Solutions Limited, *3614 & 3630 Colonel Talbot Road, London, Ontario Traffic Impact Assessment*, November 2024.

⁶ Prepared by BT Engineering, *W3 Farms Residential Development Transportation Impact Assessment*, February 2017.



- ▶ **3700 Colonel Talbot Road:** Residential development located immediately south of the subject site and is abutted by Bostwick Road to the east and Colonel Talbot Road to the west. The development consists of 376 single-family homes, 383 townhouses, and 476 apartment units. The development also includes an elementary school as well as commercial uses on the ground floor of the apartment buildings. The development is forecast to generate 562 AM peak hour trips and 327 PM peak hour trips⁷ and is assumed to be fully built-out in 2025.

It is noted that an access connection to the subject development is to be provided via the road system in the 3700 Colonel Talbot Road subdivision.

- ▶ **3924 Colonel Talbot Road:** Residential subdivision located on the east side of Colonel Talbot Road, opposite Kilbourne Road. The full build-out is proposed to consist of 538 single family lots and 776 townhouse lots. The development is forecast to generate 652 AM peak hour trips and 801 PM peak hour trips⁸ and is anticipated to be fully built-out in 2025.

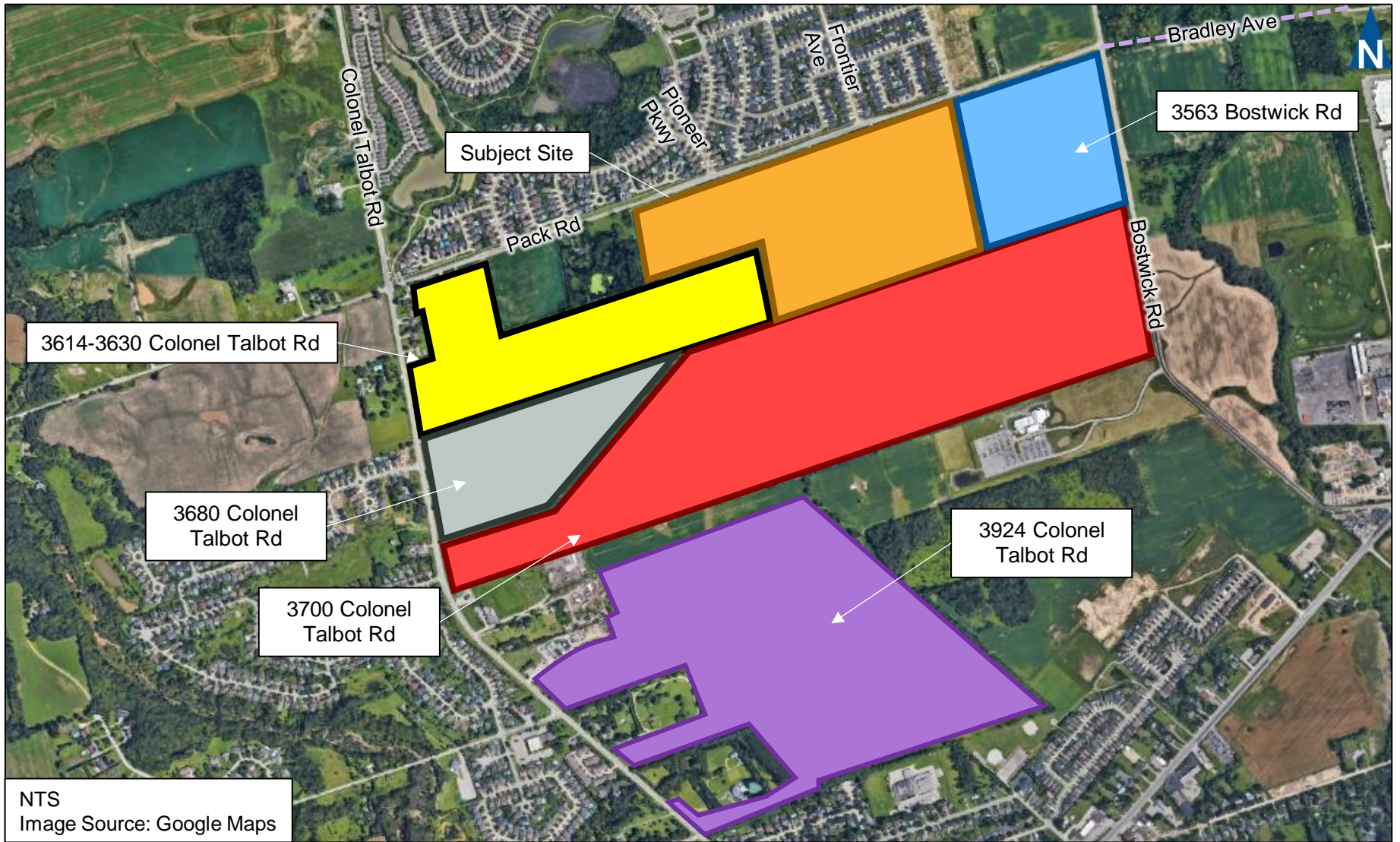
Figure 4.1 illustrates the location of the background developments.

Appendix D contains the background development traffic volumes.

⁷ Prepared by BT Engineering, *W3 Farms Residential Development Transportation Impact Assessment*, February 2017.

⁸ Prepared by Stantec Consulting Ltd., *Colonel Talbot Subdivision Transportation Impact Assessment*, December 2016.





Other Area Development Locations

4.1.2 Network Improvements

Based on information provided by City staff, the planned extension of Bradley Avenue to connect to Pack Road at Bostwick Road in a new roundabout is expected to be completed in 2028.

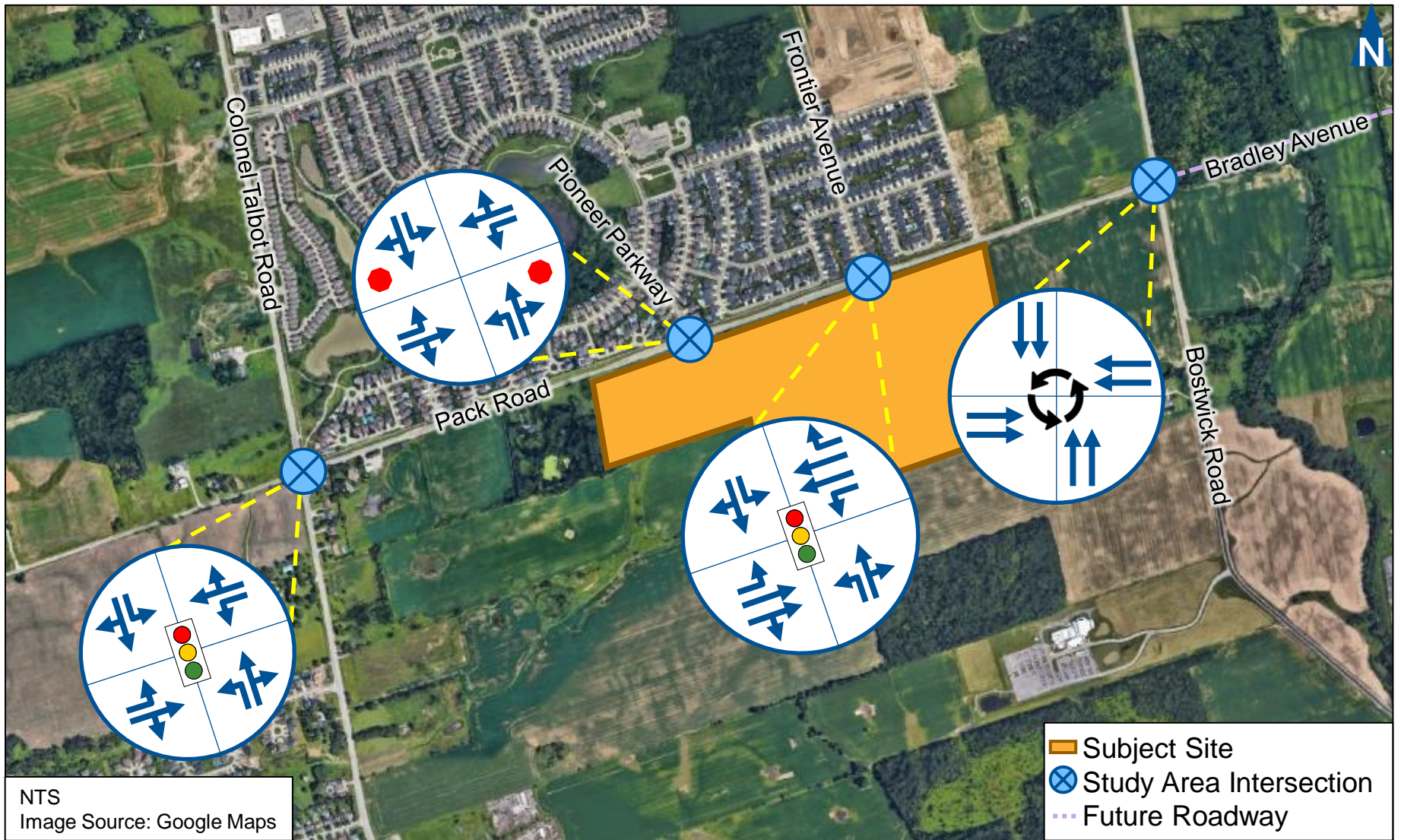
It is also expected that Bradley Avenue and Bostwick Road south of Pack Road will have a four-lane cross-section. Based on development traffic projections for the subject development and the surrounding developments in the study area, Pack Road is assumed to include four lanes east of Frontier Avenue.

Also based on future traffic projections, traffic signal control is identified as warranted for the intersection of Pack Road and Frontier Avenue and is assumed in the analysis.

It is also noted that each of the access intersections of Pack Road and Pioneer Parkway and at Pack Road and Frontier Avenue has an existing eastbound left-turn lane with a shadow lane on the east leg. The two shadow lanes could be converted to accommodate a westbound left-turn lane at each intersection, with a 15-metre storage length for the westbound left-turn lane at Pioneer Parkway and 30-metre storage for the westbound left-turn lane at Frontier Avenue, as assumed in the analyses herein.

Figure 4.2 illustrates the future traffic control and lane configuration at the study area intersections.





Future Lane Configuration and Traffic Control

6309 Pack Road, London T1A
240373

Figure 4.2

4.2 2038 Background Traffic Operations

Figure 4.3 illustrate the 2038 background traffic volumes, including road traffic growth and other area development traffic.

It is noted that the northbound and southbound roadway volumes on Colonel Talbot Road are projected to exceed the two-lane roadway capacity (900 vphpl) both north and south of Pack Road.

The 2038 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions. Signal timings have not been optimized.

It is noted that the intersection of Pack Road/Bradley Avenue and Bostwick Road was analyzed as a roundabout intersection using Arcady software.

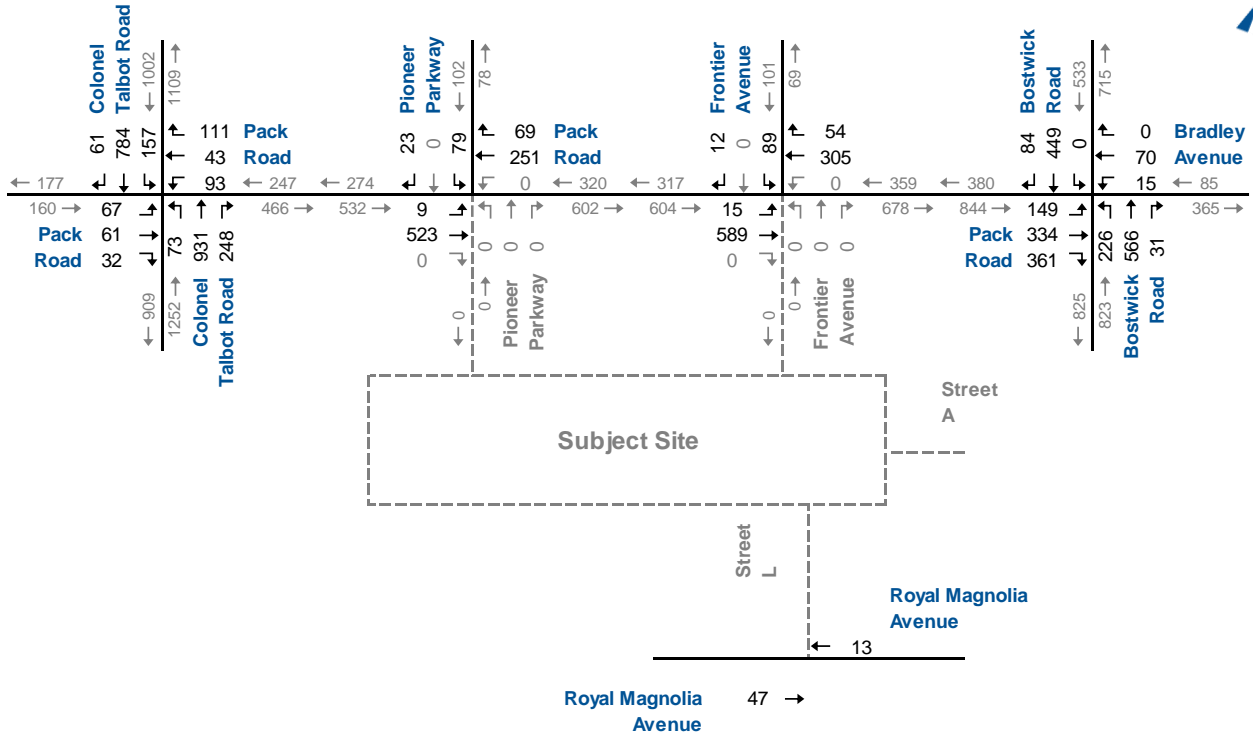
Table 4.1 summarizes the results of the 2038 background traffic operations. The results indicate that the study area intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours, except for the following critical movements at the intersection of Colonel Talbot Road and Pack Road:

- ▶ The 95th percentile queue length of the westbound left-turn movement is projected to exceed the existing storage of 40 metres during the PM peak hour;
- ▶ The westbound shared through/right-turn movement is forecast to operate at LOS E with a v/c ratio of 0.98 during the PM peak hour;
- ▶ The northbound shared through/right-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours; and
- ▶ The southbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours. The 95th percentile queue length is projected to exceed the existing storage of 100 metres during the AM peak hour.

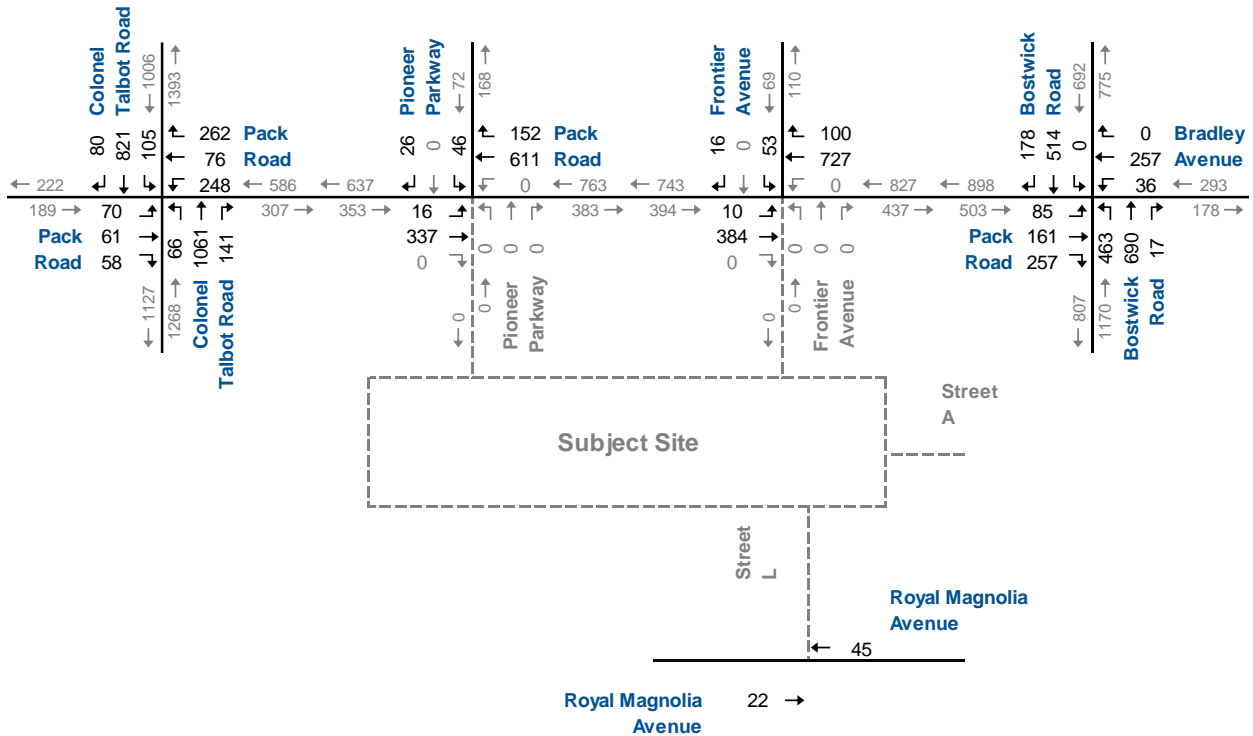
Appendix E contains the supporting detailed Synchro 11 and Arcady reports.



AM Peak Hour



PM Peak Hour



2038 Background Traffic Volumes

TABLE 4.1: 2038 BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall	
				Eastbound				Westbound				Northbound				Southbound					
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
AM Peak Hour	Colonel Talbot Road & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	C 34 0.36 9 40 31	C 26 0.29 9 -	> > > > >	C 30	C 31 0.37 10 40 30	C C 29 0.58 16 -	> > > > >	C 30	C C 27 0.33 9 65 56	F 101 1.17 296 -	> > > > >	F 96	F 439 1.81 156 100 -56	B 16 0.80 25 -	> > > > >	F 82	F 81	
	Pack Road & Pioneer Parkway	TWSC	LOS Delay V/C Q Stor. Avail.	A 8 0.01 0 80 80	A 0 0.00 0 -		A 0	A 0 0.00 0 -	> > > > >	A 0						C 21					
	Pack Road & Frontier Avenue	TCS	LOS Delay V/C Q Stor. Avail.	B 11 0.03 0 90 90	B 14 0.80 7 -		B 14	A 10 0.41 1 -	A 8 0.09 0 15 15	> > > > >	A 9					B 11	A 10 0.02 0 -		B 11	B 12	
	Bostwick Road & Pack Road	RBT	LOS Delay V/C Q	< < < <	A 5 0.57 8	> > > >	A 5	< < < <	A 2 0.06 8	> > > >	A 2	< < < <	A 3 0.45 8	> > > >	A 3	< < < <	A 3 0.33 8	> > > >	A 3	A 4	
PM Peak Hour	Colonel Talbot Road & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	E 57 0.69 18 40 22	C 26 0.33 11 -	> > > >	D 37	E 57 0.87 58 40 -18	E 60 0.94 74 -	> > > >	E 58	D 39 0.40 14 65 51	F 101 1.17 294 -	> > > >	F 97	F 222 1.27 76 100 24	C 24 0.88 43 -	> > > >	D 44	E 69	
	Pack Road & Pioneer Parkway	TWSC	LOS Delay V/C Q Stor. Avail.	A 10 0.02 1 80 79	A 0 0.00 0 -		A 0	A 0 0.00 0 -	> > > >	A 0						C 24					
	Pack Road & Frontier Avenue	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.05 1 90 89	A 10 0.45 2 -		B 10	B 16 0.83 13 -	A 8 0.14 0 15 15	> > > >	B 16					B 15	B 15 0.04 1 -		B 15	B 14	
	Bostwick Road & Pack Road	RBT	LOS Delay V/C Q	< < < <	A 3 0.35 8	> > > >	A 3	< < < <	A 3 0.25 8	> > > >	A 3	< < < <	A 4 0.58 8	> > > >	A 4	< < < <	A 5 0.52 8	> > > >	A 5	A 4	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.3 2038 Total Traffic Operations

Figure 4.4 illustrates the 2038 total traffic volumes, including trips generated by the proposed development.

As noted under 2038 background traffic conditions, the northbound and southbound roadway volumes on Colonel Talbot Road are projected to exceed the two-lane roadway capacity (900 vphpl) both north and south of Pack Road.

The 2038 total traffic volumes have been analyzed using the same methodology as under existing and background traffic conditions. Signal timings have not been optimized.

Table 4.2 summarizes the results of the 2038 total traffic operations. The results indicate that the study area intersections are forecast to operate at similar levels of service as under 2038 background traffic conditions, with the following additional critical movements:

- ▶ Colonel Talbot Road and Pack Road
 - The westbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 and a 95th percentile queue length that exceeds the existing storage of 40 metres during the PM peak hour;
 - The westbound shared through/right-turn movement is forecast to operate at LOS E with a v/c ratio greater than 1.00 during the AM peak hour;
 - The 95th percentile queue length of the southbound left-turn movement is projected to exceed the existing storage of 100 metres during the PM peak hour; and
- ▶ Pack Road and Pioneer Parkway
 - The southbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 and a 95th percentile queue length that exceeds the assumed storage of 30 metres during the AM and PM peak hours.

The inbound and outbound movements to/from the subject site are forecast to operate at acceptable levels of service. It is noted that the southbound movement at Pack Road and Pioneer Parkway is forecast to operate with high delays and v/c ratios greater than 1.00. However, high delays are expected for side-street stop-control movements on an arterial roadway.

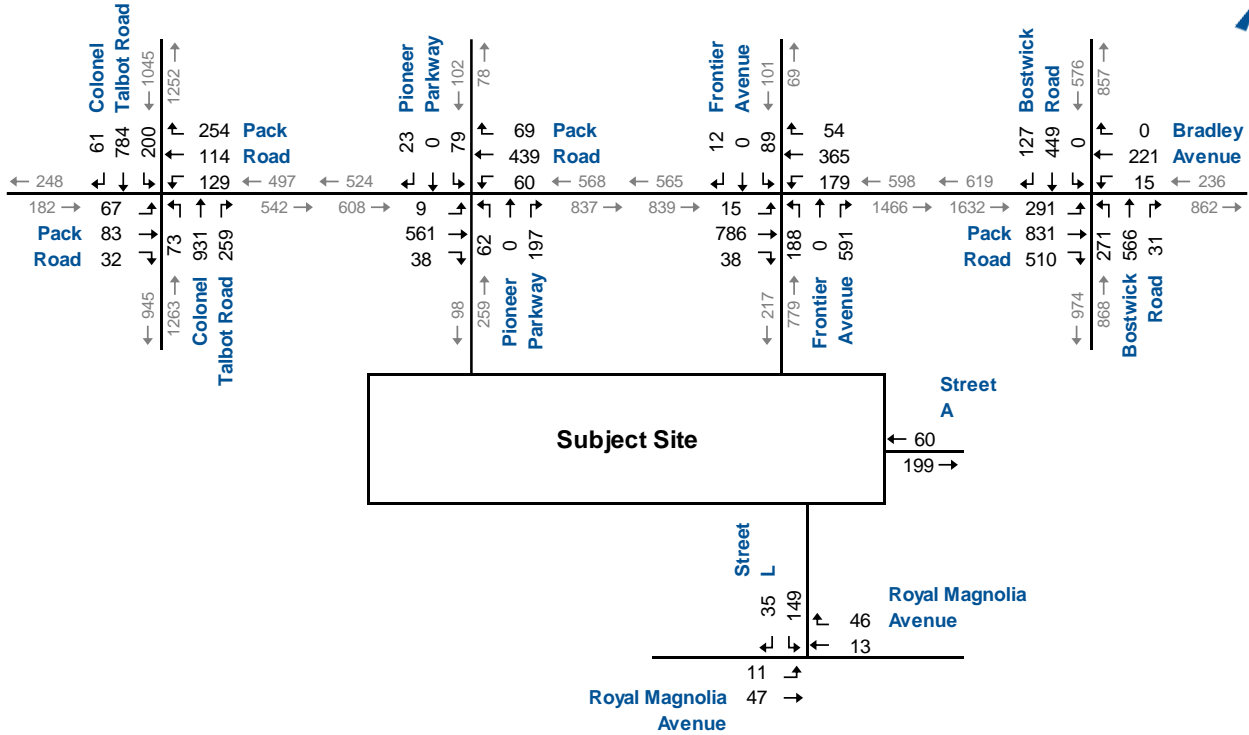


The southbound traffic volumes at Pack Road and Pioneer Parkway will also likely re-assign to the Pack Road and Frontier Avenue intersection if it is under traffic signal control.

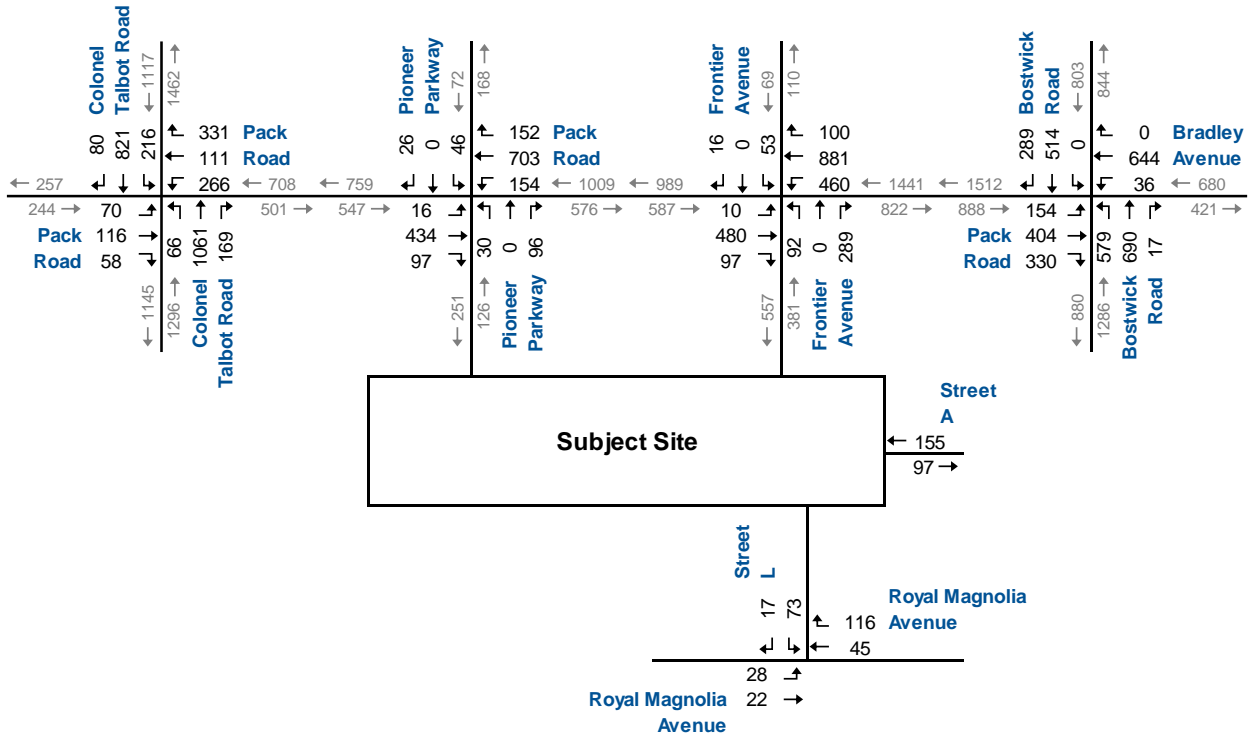
Appendix F contains the supporting detailed Synchro 11 and Arcady reports.



AM Peak Hour



PM Peak Hour



2038 Total Traffic Volumes

TABLE 4.2: 2038 TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall	
				Eastbound				Westbound				Northbound				Southbound					
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
AM Peak Hour	Colonel Talbot Road & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	F 81 0.81 25 40 15	C 25 0.30 10 -	> > > > >	D 46	C 31 0.44 16 40 24	E 79 1.01 98 -	> > > > >	E 66	C 32 0.35 11 65 54	F 105 1.18 303 -	> > > > >	F 100	F 708 2.41 239 100 -139	B 18 0.81 27 -	> > > > >	F 150	F 109	
	Pioneer Parkway & Pack Road	TWSC	LOS Delay V/C Q Stor. Avail.	A 9 0.01 0 80 80	A 0 0.00 0 -	> > > > >	A 0	A 9 0.07 2 15 13	> > > > >	A 1	F 66 0.55 20 30 10	C 18 0.45 17 -	> > > > >	D 30	F 393 1.46 57 30 -27	B 12 0.05 1 -	> > > > >	F 307			
	Frontier Avenue & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	C 28 0.05 2 90 88	D 54 0.90 99 -	> > > > >	D 53	D 35 0.75 28 30 2	B 19 0.26 16 -	18 18 0.09 4 15 11	> > > > >	C 24	C 20 0.29 22 30 8	D 43 0.90 107 -	> > > > >	D 38	F 87 0.77 42 45 3	B 16 0.02 1 -	> > > > >	E 78	D 42
	Bostwick Road & Pack Road	RBT	LOS Delay V/C Q	< < <	B 14 0.87 173	> > >	B 14	< < <	A 3 0.17 8	> > >	A 3	< < <	A 7 0.62 8	> > >	A 7	< < <	A 4 0.38 8	> > >	A 4	A 9	
PM Peak Hour	Colonel Talbot Road & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	F 88 0.84 28 40 12	C 27 0.47 17 -	> > > > >	D 45	F 123 1.10 109 40 -69	F 149 1.22 187 -	> > > > >	F 139	D 39 0.40 14 65 51	F 114 1.20 340 -	> > > > >	F 110	F 796 2.61 269 100 -169	C 24 0.88 43 -	> > > > >	F 173	F 132	
	Pioneer Parkway & Pack Road	TWSC	LOS Delay V/C Q Stor. Avail.	A 10 0.02 1 80 79	A 0 0.00 0 -	> > > > >	A 0	A 9 0.17 4 15 11	> > > > >	A 1	F 148 0.61 18 30 12	B 13 0.19 5 -	> > > > >	E 45	F 324 1.14 35 30 -5	C 16 0.08 2 -	> > > > >	F 213			
	Frontier Avenue & Pack Road	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.05 1 90 89	D 36 0.81 35 -	> > > > >	D 35	C 23 0.86 18 30 12	A 10 0.48 1 -	A 8 0.12 0 15 15	> > > > >	B 14	C 21 0.21 8 30 22	C 32 0.71 34 -	> > > > >	C 30	C 34 0.27 8 45 37	B 19 0.04 1 -	> > > > >	C 30	C 22
	Bostwick Road & Pack Road	RBT	LOS Delay V/C Q	< < <	A 4 0.49 8	> > >	A 4	< < <	A 7 0.57 8	> > >	A 7	< < <	A 6 0.71 23	> > >	A 6	< < <	C 16 0.79 85	> > >	C 16	A 8	

MOE - Measure of Effectiveness
 LOS - Level of Service
 Delay - Average Delay per Vehicle in Seconds
 V/C - Volume to Capacity Ratio
 Q - 95th Percentile Queue Length (m)
 Stor. - Existing Storage (m)
 Avail. - Available Storage (m)
 TCS - Traffic Control Signal
 TWSC - Two-Way Stop Control
 </> - Shared with through movement

5 Transportation Demand Management

The proposed development is located near the south-westerly limits of the City. There is no existing transit service close to the site and no bicycle lanes are provided on Pack Road, Colonel Talbot Road or Bostwick Road. Sidewalks are provided on the west side of Colonel Talbot Road and on Pack Road near Colonel Talbot Road.

The site design should provide for internal walkways to connect with existing and future sidewalks to facilitate active transportation and future transit connectivity. In addition, bicycle parking should be provided in accordance with bicycle parking requirements.



6 Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Existing Traffic Conditions:** The study area intersections are operating at acceptable levels of service, except for the eastbound movement at the intersection of Bostwick Road and Pack Road, which is operating at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours.
- ▶ **Subdivision Trip Generation:** The subdivision is forecast to generate 1,853 trips during the AM peak hour and 1,801 trips during the PM peak hour.
- ▶ **2038 Background Traffic Conditions:** The study area intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours, except for the following critical movements at the intersection of Colonel Talbot Road and Pack Road:
 - The 95th percentile queue length of the westbound left-turn movement is projected to exceed the existing storage of 40 metres during the PM peak hour;
 - The westbound shared through/right-turn movement is forecast to operate at LOS E with a v/c ratio of 0.98 during the PM peak hour;
 - The northbound shared through/right-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours; and
 - The southbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the AM and PM peak hours. The 95th percentile queue length is projected to exceed the existing storage of 100 metres during the AM peak hour.
- ▶ **2038 Total Traffic Conditions:** The study area intersections are forecast to operate at similar levels of service as under 2038 background traffic conditions, with the following additional critical movements:

Colonel Talbot Road and Pack Road

- The westbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 and a 95th percentile queue length that exceeds the existing storage of 40 metres during the PM peak hour;



- The westbound shared through/right-turn movement is forecast to operate at LOS E with a v/c ratio greater than 1.00 during the AM peak hour;
- The 95th percentile queue length of the southbound left-turn movement is projected to exceed the existing storage of 100 metres during the PM peak hour; and

Pack Road and Pioneer Parkway

- The southbound left-turn movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 and a 95th percentile queue length that exceeds the assumed storage of 30 metres during the AM and PM peak hours.
- ▶ **Site Accesses:** The inbound and outbound movements to/from the subject site are forecast to operate at acceptable levels of service. It is noted that the southbound left-turn movement at Pack Road and Pioneer Parkway is forecast to operate with high delays and v/c ratios greater than 1.00. However, high delays are expected for side-street stop-control movements on an arterial roadway. The southbound traffic volumes at Pack Road and Pioneer Parkway will also likely re-assign to the Pack Road and Frontier Avenue intersection if it is under traffic signal control.



Appendix A

Pre-Study Consultation



Appendix B

Existing Traffic Data



Appendix C

Existing Traffic Operations Reports



Appendix D

Background Development Traffic Volumes



Appendix E

2038 Background Traffic Operations Reports



Appendix F

2038 Total Traffic Operations Reports

