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# 3810-3814 Colonel Talbot Road London Transportation Impact Assessment

Paradigm Transportation Solutions Limited

March 2023  
220728



**Project Number**  
220728

## 3810-3814 Colonel Talbot Road, London Transportation Impact Assessment

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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 Development located at 3810-3814 Colonel Talbot Road in the City of London.

This TIA includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts for five years from the date of development completion (2032), and assessment of traffic impacts with recommendations to accommodate the proposed development as appropriate.

## Development Concept

The subject properties are located on the east side of Colonel Talbot Road to the north of the intersection of Kilbourne Road and Colonel Talbot Road.

The proposed development will include 55 apartment units and 105 townhouse units, for a total of 160 units and a total parking supply of 336 spaces (where 133 are required).

Two driveways are proposed on Colonel Talbot Road.

The development is anticipated to be completed by 2027.

## TIA Scope

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

- ▶ **Study Area Intersections:**
  - Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue;
  - Colonel Talbot Road and Kilbourne Road; and
  - two access intersections on Colonel Talbot Road.
- ▶ **Analysis Periods:** Weekday AM and PM peak hours.
- ▶ **Background Developments:**
  - 3493 Colonel Talbot Road;
  - 3510-3524 Colonel Talbot Road;



- 3700 Colonel Talbot Road; and
- 3924 Colonel Talbot Road.
- ▶ **Traffic Conditions:** Existing (2023) and five years after development (2032).

## Conclusions

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

- ▶ **Existing Traffic Conditions:** All study area intersections are currently operating at acceptable levels of service.
- ▶ **Development Trip Generation:** The development is forecast to generate 62 and 81 trips during the AM and PM peak hours, respectively.
- ▶ **2032 Background Traffic Conditions:** All study area intersections are forecast to operate at acceptable levels of service with the exception of the following movements at the intersection of Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue:
  - The eastbound shared left/through/right movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the PM peak hour; and
  - The westbound shared through/left movement is forecast to operate at LOS F with a v/c ratio of 0.99 during the AM peak hour.
- ▶ **2032 Total Traffic Conditions:** All study area intersections are forecast to operate at similar levels of service as under background traffic conditions during the AM and PM peak hours, with the following additional critical movements:
 

Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue

  - The eastbound shared left/through/right movement is forecast to operate at LOS F with a v/c ratio of 0.97 during the AM peak hour.

Colonel Talbot Road and Kilbourne Road / 3924 Colonel Talbot Access

  - The westbound left-turn movement is forecast to operate with a 95<sup>th</sup> percentile queue length that exceeds the assumed storage length by five metres during the PM peak hour.
- ▶ **Site Accesses:** The Site Access intersections on Colonel Talbot Road are forecast to operate at acceptable levels of



service. It is noted that the westbound movement at Access B is forecast to operate at LOS F during the PM peak hour; however, the movement is within capacity with a v/c ratio of 0.20.

Both access locations satisfy the sight distance requirements. An auxiliary southbound left-turn lane is not warranted on Colonel Talbot Road at Site Access A or Site Access B.

## Recommendations

Based on the findings and conclusions of this study, it is recommended that the development be considered for approval as proposed.



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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 a proposed Residential Development located at 3810-3814 Colonel Talbot Road in the City of London. **Figure 1.1** details the subject development location.

The subject properties are located on the east side of Colonel Talbot Road to the north of the intersection of Kilbourne Road and Colonel Talbot Road.

The proposed development will include 55 apartment units and 105 townhouse units, for a total of 160 units and a total parking supply of 336 spaces (where 133 are required).

Two driveways are proposed on Colonel Talbot Road.

The development is anticipated to be completed by 2027.

## 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 January 2023, includes:

- ▶ assessment of the current traffic and site conditions within the study area;
- ▶ estimates of background traffic growth for five years after development (2032);
- ▶ the following developments are included in background traffic forecasts:
  - 3493 Colonel Talbot Road;
  - 3510-3524 Colonel Talbot Road;
  - 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 and Diane Crescent / Royal Magnolia Avenue;
  - Colonel Talbot Road and Kilbourne Road; and
  - two access intersections on Colonel Talbot Road.
- ▶ 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 Guidelines<sup>1</sup>.

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<sup>1</sup> Transportation Impact Assessment Guidelines, City of London, April 2012.





## Location of Subject Site

## 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 boulevard<sup>2</sup> with a two-lane cross section. Sidewalks and cycling facilities are not provided along this roadway within the study area. The posted speed limit is 60 km/h.
- ▶ **Kilbourne Road** is an east-west neighbourhood collector with a two-lane cross section and a posted speed limit of 60 km/h. Sidewalks are provided on both sides of the roadway.
- ▶ **Diane Crescent / Royal Magnolia Avenue** is a two-lane, east-west neighbourhood connector to the east of Colonel Talbot Road and a local road to the west. A sidewalk is provided on the south side of the roadway west of Colonel Talbot Road. The posted speed limit is 50 km/h.

The Colonel Talbot Road intersections with Diane Crescent / Royal Magnolia Avenue and Kilbourne Road operate under side-street stop control.

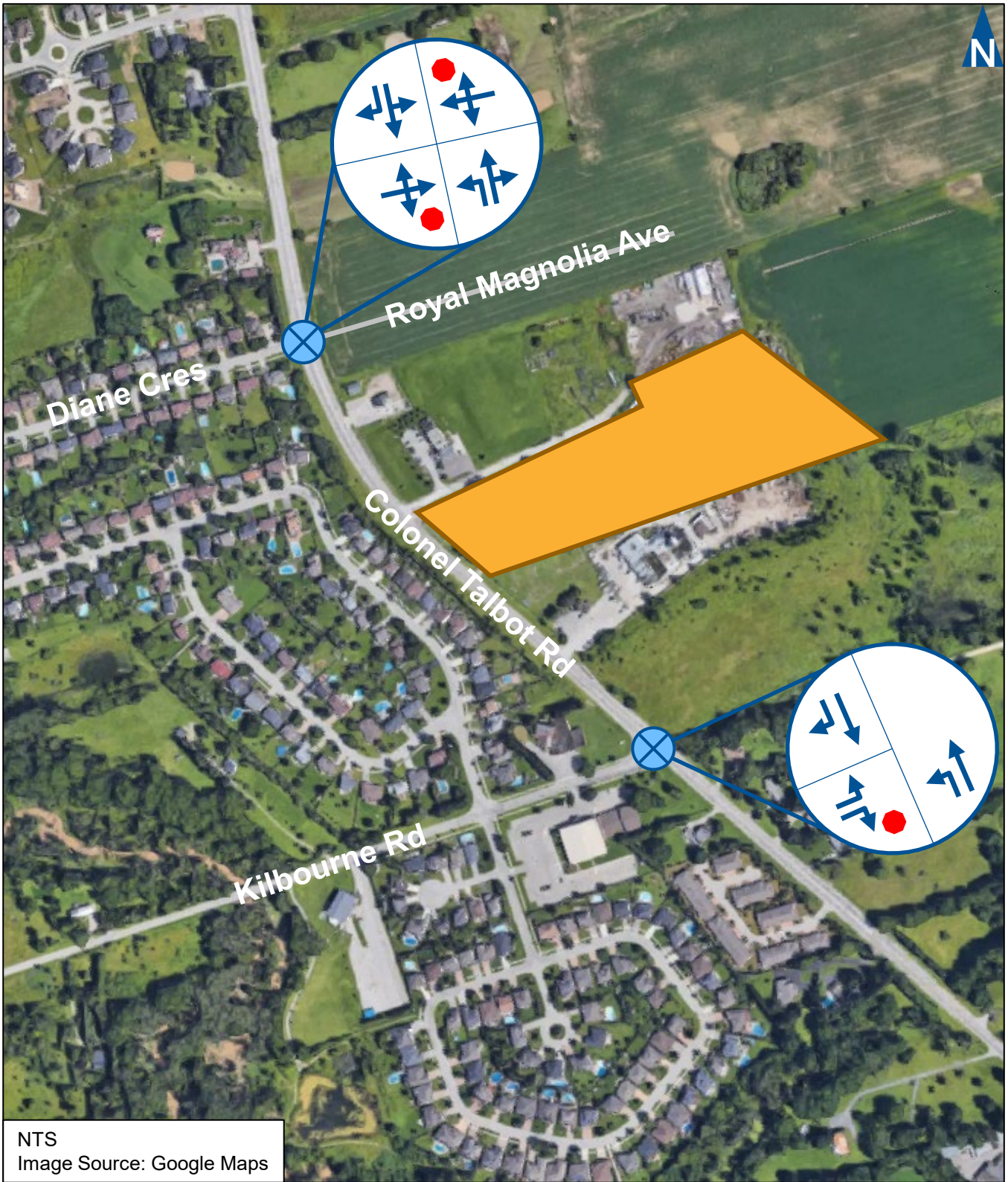
**Figure 2.1** illustrates the traffic control and lane configuration at the study area intersections.

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<sup>2</sup> The London Plan, May 2019.







## 2.2 Transit Service

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

## 2.3 Traffic Volumes

The City provided the turning movement counts for the intersection of Colonel Talbot Road and Kilbourne Road, conducted on 20 September 2022. Paradigm conducted the turning movement counts at the intersection of Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue on 01 March 2023.

**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	AM Peak Hour	PM Peak Hour
Colonel Talbot Road and Kilbourne Road	8:00 AM – 9:00 AM	4:45 PM – 5:45 PM
Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue	7:45 AM – 8:45 AM	4:15 PM – 5:15 PM

**Appendix B** contains the detailed traffic counts for the study area intersections.







## 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 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, and with no problem movements.

**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 & Diane Crescent/Royal Magnolia Avenue	TWSC	LOS Delay V/C Q Stor. Avail.	< < < < < <	D 21 0.16 4 - -	> > > > > >	C 21	< < < < < <	B 14 0.05 1 - -	> > > > > >	B 14	A 8 0.00 0 35 35	A 0 0.00 0 - -	> > > > > >	A 0	< < < < < <	A 8 0.03 1 - -	A 0 0.00 0 27 27	A 0	
	Colonel Talbot Road & Kilbourne Road	TWSC	LOS Delay V/C Q Stor. Avail.	D 25 0.17 4 - -		B 14 0.17 4 25 21	C 17					A 9 0.06 2 25 23	A 0 0.00 0 - -		A 1		A 0 0.00 0 - -	A 0 0.00 0 40 40	A 0	
PM Peak Hour	Colonel Talbot Road & Diane Crescent/Royal Magnolia Avenue	TWSC	LOS Delay V/C Q Stor. Avail.	< < < < < <	D 31 0.19 5 - -	> > > > > >	D 31	< < < < < <	C 23 0.18 5 - -	> > > > > >	C 23	A 8 0.01 0 35 35	A 0 0.00 0 - -	> > > > > >	A 0	< < < < < <	A 9 0.01 0 - -	A 0 0.00 0 27 27	A 0	
	Colonel Talbot Road & Kilbourne Road	TWSC	LOS Delay V/C Q Stor. Avail.	E 40 0.25 7 - -		B 12 0.11 3 25 22	C 22					A 9 0.09 2 25 23	A 0 0.00 0 - -		A 1		A 0 0.00 0 - -	A 0 0.00 0 40 40	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)  
 TWSC - Two-Way Stop Control  
 </> - Shared with through movement





## 3 Development Concept

### 3.1 Development Description

The subject properties are located on the east side of Colonel Talbot Road to the north of the intersection of Kilbourne Road and Colonel Talbot Road.

The proposed development will include 55 apartment units and 105 townhouse units, for a total of 160 units and a total parking supply of 336 spaces (where 133 are required).

Two driveways are proposed on Colonel Talbot Road.

The development is anticipated to be completed by 2027.

**Figure 3.1** shows the concept site plan.





### 3.2 Development Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual<sup>3</sup> rates and equations were used to estimate the peak hour traffic volumes generated by the subject development based on the following ITE Land Use Codes:

- ▶ 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
<b>215: Single-Family Attached Housing</b>	105 Units	Eq	15	34	<b>49</b>	Eq	34	25	<b>59</b>
<b>221: Multifamily Housing (Mid-Rise)</b>	55 Units	Eq	3	10	<b>13</b>	Eq	13	9	<b>22</b>
<b>Total Trip Generation</b>			<b>18</b>	<b>44</b>	<b>62</b>		<b>47</b>	<b>34</b>	<b>81</b>

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

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

### 3.3 Development Trip Distribution and Assignment

The trip distribution was determined based on existing travel patterns on Colonel Talbot Road, Kilbourne Road, Southdale Road, and Longwoods Road / Main Street. **Table 3.2** displays the breakdown of trip distributions used in this study.

**TABLE 3.2: ESTIMATED TRIP DISTRIBUTION**

Origin/Destination	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North via Colonel Talbot	60%	55%	55%	66%
South via Colonel Talbot	37%	42%	42%	31%
West via Kilbourne Road	3%	3%	3%	3%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

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

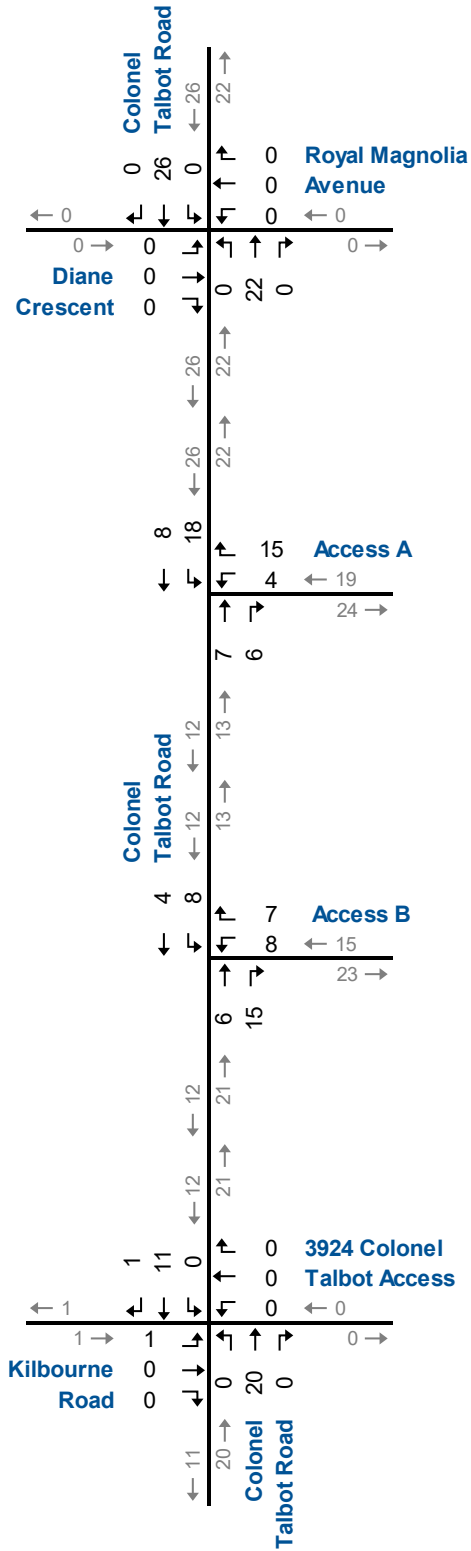
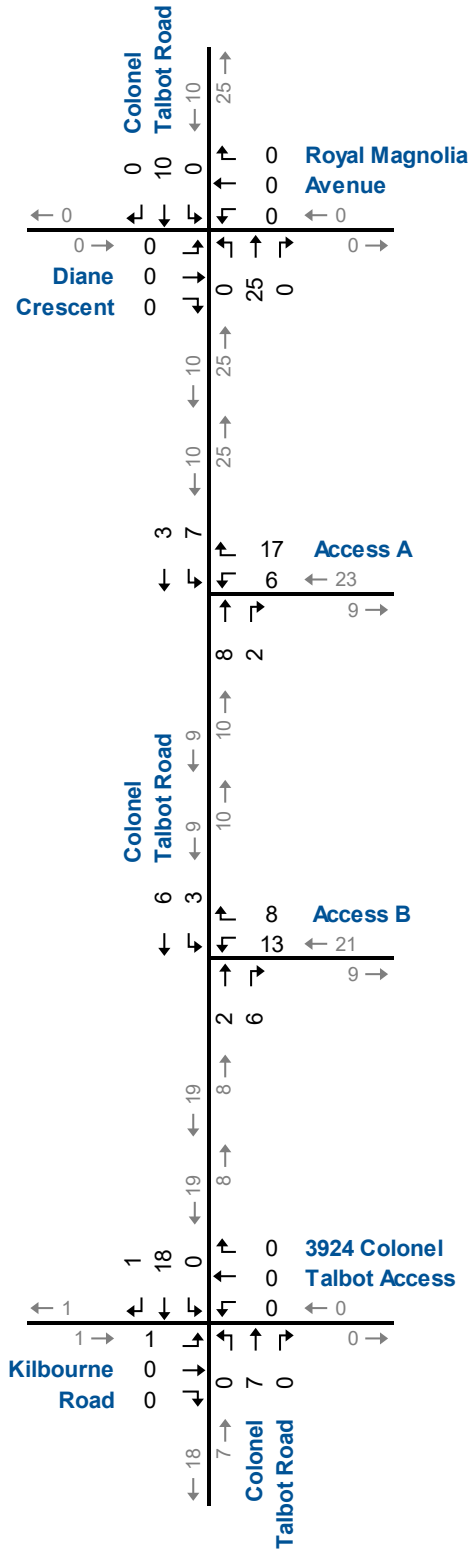
<sup>3</sup> Institute of Transportation Engineers, *Trip Generation Manual*, 11th ed., (Washington, DC: ITE, 2021).





**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 development opening (2032).

### 4.1 Background Traffic Forecasts

In order to derive the 2032 generalized background traffic volumes, a growth rate of 2.0% 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:

- ▶ 3493 Colonel Talbot Road: Residential and commercial development located on the south side of Pack Road west of Colonel Talbot Road. The development is proposed to consist of 177 single family homes, 314 condominium/townhouse units, and 10,765 sq. ft. GFA of commercial space. The development is forecast to generate 273 AM peak hour trips and 356 PM peak hour trips<sup>4</sup> and is anticipated to be completed in 2024.
- ▶ 3510-3524 Colonel Talbot Road: Mixed-use development located in the southeast corner of Pack Road and Colonel Talbot Road. The development is proposed to consist of a four-storey building with 37 residential units and 434 m<sup>2</sup> GFA of ground floor commercial space. The development is forecast to generate 17 AM peak hour trips and 73 PM peak hour trips<sup>5</sup> and is assumed to be completed in 2024.
- ▶ 3700 Colonel Talbot Road: Residential development located north of the subject site and is bounded 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

<sup>4</sup> Prepared by Paradigm Transportation Solutions Limited, *3493 Colonel Talbot Road, London, Ontario Traffic Impact Study Update*, April 2015.

<sup>5</sup> Prepared by Strik, Baldinelli, Moniz Ltd., *Transportation Impact Assessment 3510-3524 Colonel Talbot Road, London, Ontario*, January 2021.



562 AM peak hour trips and 327 PM peak hour trips<sup>6</sup> and is anticipated to be fully built-out in 2024.

- ▶ 3924 Colonel Talbot Road: Residential subdivision located south of the subject site on the east side of Colonel Talbot 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 trips<sup>7</sup> 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.

#### 4.1.2 Network Improvements

The City of London staff identified Colonel Talbot Road for a two-lane road upgrade between Southdale Road and James Street. However, it is assumed that the upgrade will primarily involve urbanization of the existing roadway with no road widening or capacity change.

The TIA for 3924 Colonel Talbot Road has identified traffic signal control for the intersection of Colonel Talbot Road and Kilbourne Road under 2020 total traffic conditions. Therefore, traffic signal control is assumed to be in place at the intersection under background and total traffic conditions with the lane configuration identified in this TIA.

It is also noted that the TIA for 3700 Colonel Talbot Road identifies an auxiliary northbound right-turn lane with 50 metres of storage and an auxiliary southbound left-turn lane with 75 metres of storage at the intersection of Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue. Both auxiliary turn lanes are included in the analysis of background and total traffic conditions herein.

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

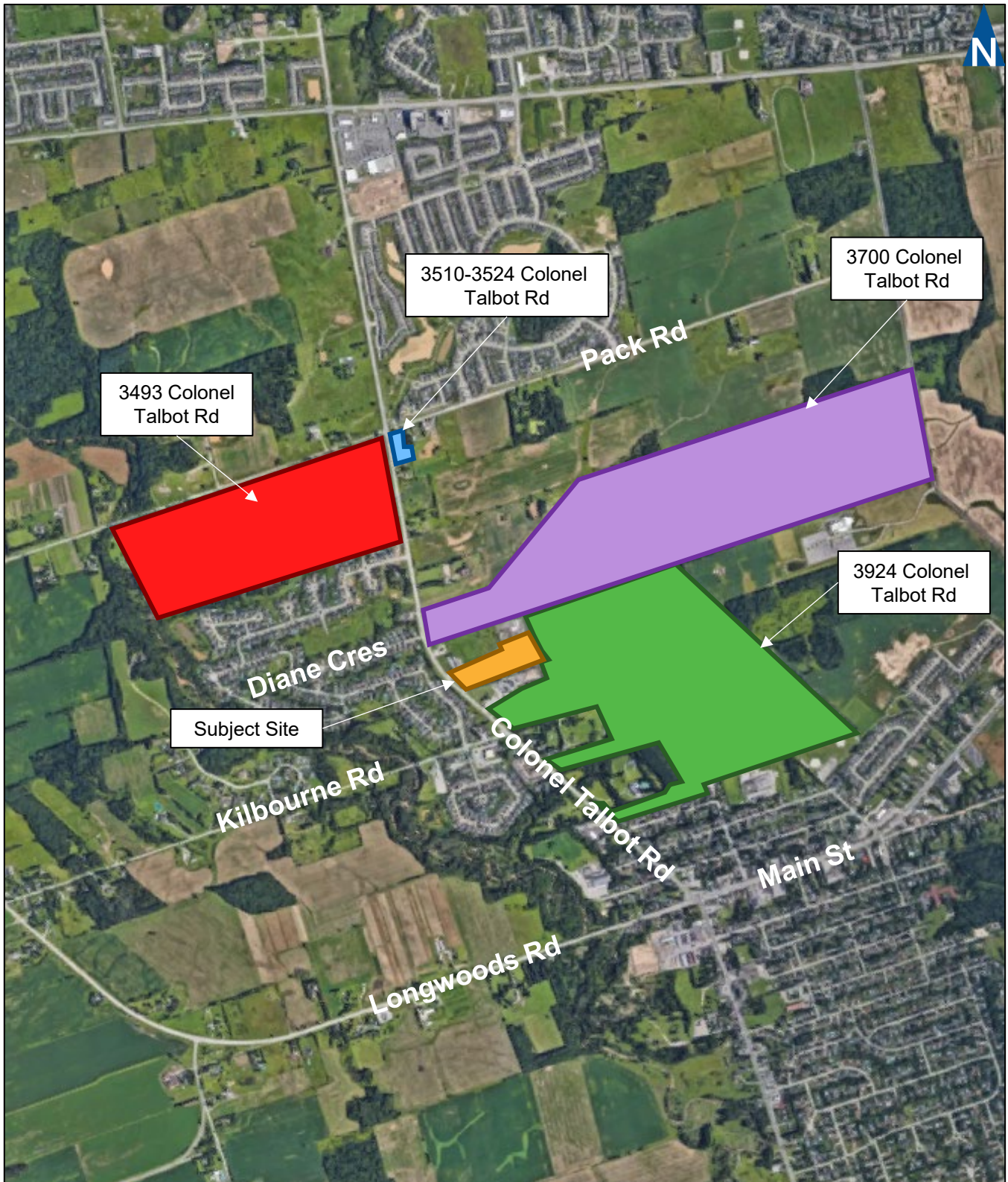
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<sup>6</sup> Prepared by BT Engineering, *W3 Farms Residential Development Transportation Impact Assessment*, February 2017.

<sup>7</sup> Prepared by Stantec Consulting Ltd., *Colonel Talbot Subdivision Transportation Impact Assessment*, December 2016.











NTS  
Image Source: Google Maps



## Future Lane Configuration and Traffic Control



## 4.2 2032 Background Traffic Operations

**Figure 4.3** illustrates the 2032 background traffic volumes, including road traffic growth and other area development traffic.

The 2032 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions.

**Table 4.1** summarizes the results of the 2032 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 movements at the intersection of Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue:

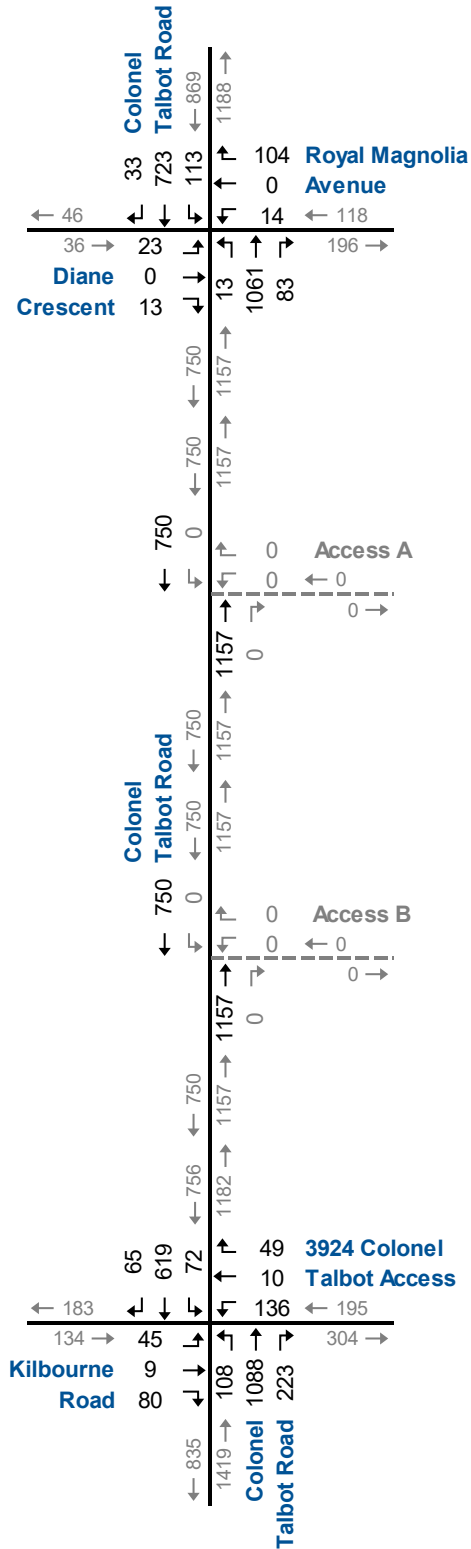
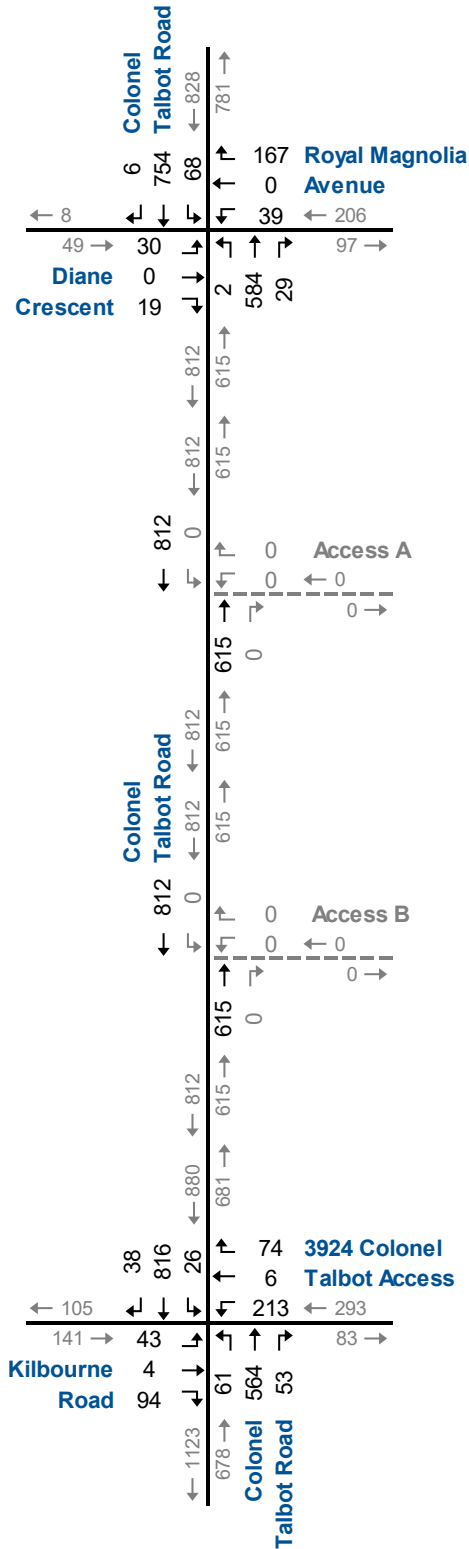
- ▶ The eastbound shared left/through/right movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the PM peak hour; and
- ▶ The westbound shared through/left movement is forecast to operate at LOS F with a v/c ratio of 0.99 during the AM peak hour.

**Appendix E** contains the supporting detailed Synchro 11 reports.



**AM Peak Hour**

**PM Peak Hour**



**2032 Background Traffic Volumes**

**TABLE 4.1: 2032 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 & Diane Crescent/Royal Magnolia Avenue	TWSC	LOS	<	F	>	<b>F</b>	<	F	C	<b>F</b>	A	A	A	<b>A</b>	A	A	A	<b>A</b>	
			Delay	<	190	>	<b>190</b>	<	278	19	<b>68</b>	9	0	0	<b>0</b>	9	0	0	<b>1</b>	
			V/C	<	0.87	>		<	0.99	0.41		0.00	0.00	0.00		0.08	0.00	0.00		
			Q	<	30	>		<	29	15		0	0	0		2	0	0		
Stor.	<	-	>		<	-	60		35	-	50		75	-	27					
Avail.	<	-	>		<	-	45		35	-	50		73	-	27					
AM Peak Hour	Colonel Talbot Road & Kilbourne Road/3924 Colonel Talbot Access	TCS	LOS	C	B	>	<b>B</b>	C	B	>	<b>C</b>	C	B	A	<b>B</b>	B	C	A	<b>C</b>	<b>C</b>
			Delay	20	19	>	<b>19</b>	27	19	>	<b>24</b>	34	13	7	<b>14</b>	16	25	7	<b>24</b>	<b>20</b>
			V/C	0.12	0.25	>		0.61	0.21	>		0.37	0.64	0.07		0.08	0.89	0.05		
			Q	1	2	>		9	2	>		4	7	0		1	25	0		
Stor.	15	-	>		15	-	>		25	-	15		15	-	40					
Avail.	14	-	>		6	-	>		21	-	15		14	-	40					
PM Peak Hour	Colonel Talbot Road & Diane Crescent/Royal Magnolia Avenue	TWSC	LOS	<	F	>	<b>F</b>	<	F	D	<b>F</b>	A	A	A	<b>A</b>	B	A	A	<b>A</b>	
			Delay	<	984	>	<b>984</b>	<	278	32	<b>61</b>	10	0	0	<b>0</b>	13	0	0	<b>2</b>	
			V/C	<	2.17	>		<	0.61	0.47		0.02	0.00	0.00		0.22	0.00	0.00		
			Q	<	40	>		<	14	17		1	0	0		6	0	0		
Stor.	<	-	>		<	-	60		35	-	50		75	-	27					
Avail.	<	-	>		<	-	43		34	-	50		69	-	27					
PM Peak Hour	Colonel Talbot Road & Kilbourne Road/3924 Colonel Talbot Access	TCS	LOS	C	C	>	<b>C</b>	D	C	>	<b>D</b>	B	B	A	<b>B</b>	D	A	A	<b>B</b>	<b>B</b>
			Delay	33	32	>	<b>32</b>	40	31	>	<b>37</b>	12	19	5	<b>16</b>	43	7	4	<b>10</b>	<b>17</b>
			V/C	0.17	0.32	>		0.58	0.21	>		0.25	0.88	0.21		0.47	0.51	0.06		
			Q	4	7	>		15	5	>		2	24	1		9	4	0		
Stor.	15	-	>		15	-	>		25	-	15		15	-	40					
Avail.	11	-	>		0	-	>		23	-	14		6	-	40					

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 2032 Total Traffic Operations

**Figure 4.4** illustrates the 2032 total traffic volumes, including trips generated by the proposed development.

The 2032 total traffic volumes have been analyzed using the same methodology as under existing and background traffic conditions.

**Table 4.2** summarizes the results of the 2032 total traffic operations. The results indicate that the study area intersections are forecast to operate at similar levels of service as background traffic conditions during the AM and PM peak hours, with the following additional critical movements:

### **Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue**

- ▶ The eastbound shared left/through/right movement is forecast to operate at LOS F with a v/c ratio of 0.97 during the AM peak hour.

### **Colonel Talbot Road and Kilbourne Road / 3924 Colonel Talbot Access**

- ▶ The westbound left-turn movement is forecast to operate with a 95<sup>th</sup> percentile queue length that exceeds the assumed storage by five metres during the PM peak hour.

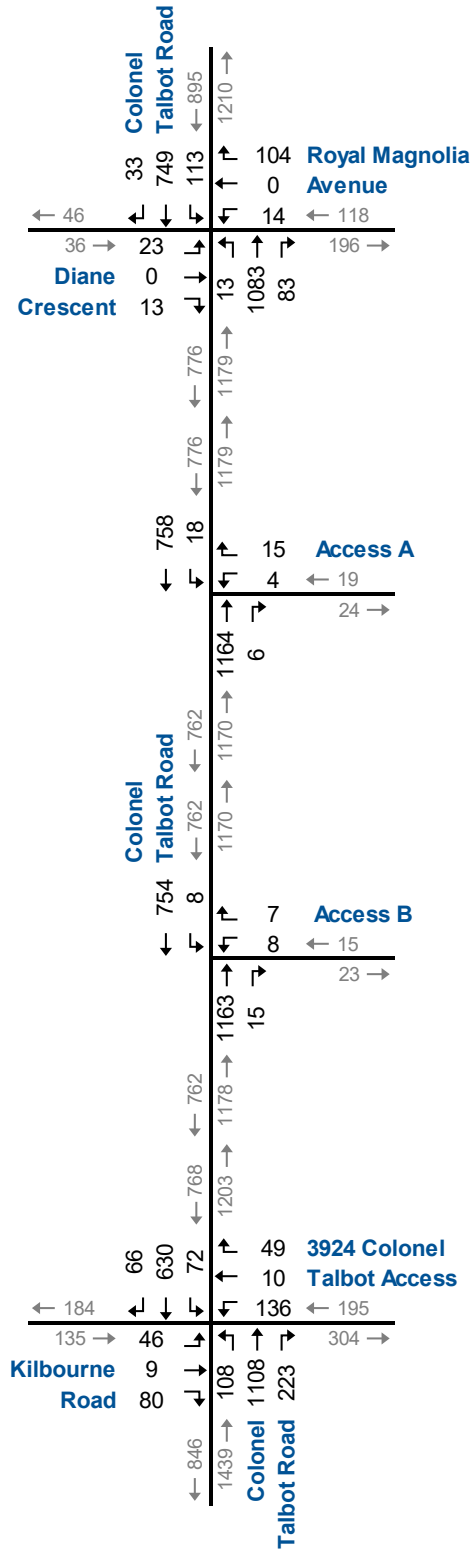
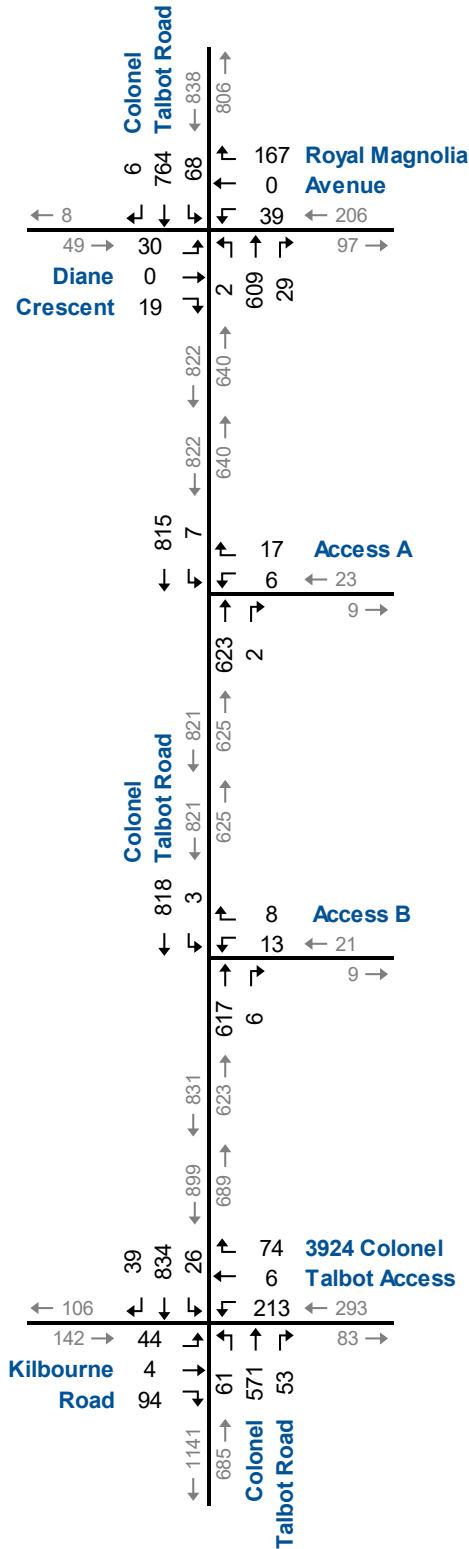
The Site Access intersections to Colonel Talbot Road are forecast to operate at acceptable levels of service. It is noted that the westbound movement at Access B is forecast to operate at LOS F during the PM peak hour; however, the movement is within capacity with a v/c ratio of 0.20.

**Appendix F** contains the supporting detailed Synchro 11 reports.



**AM Peak Hour**

**PM Peak Hour**



**2032 Total Traffic Volumes**

**TABLE 4.2: 2032 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 & Diane Crescent/Royal Magnolia Avenue	TWSC	LOS < < < < <	F > > > >	> > > >	<b>F</b> > > > >	< < < <	F > > > >	C > > > >	<b>F</b> > > > >	A > > > >	A > > > >	A > > > >	<b>A</b> > > > >	A > > > >	A > > > >	A > > > >	<b>A</b> > > > >		
	Colonel Talbot Road & Access A	TWSC	LOS < < < < <	> > > > >	> > > > >	> > > > >	C > > > >	> > > > >	> > > > >	> > > > >	> > > > >	A > > > >	A > > > >	<b>A</b> > > > >	< < < <	A > > > >	> > > > >	> > > > >	<b>A</b> > > > >	
	Colonel Talbot Road & Access B	TWSC	LOS < < < < <	> > > > >	> > > > >	> > > > >	D > > > >	> > > > >	> > > > >	> > > > >	> > > > >	A > > > >	A > > > >	<b>A</b> > > > >	< < < <	A > > > >	> > > > >	> > > > >	<b>A</b> > > > >	
	Colonel Talbot Road & Kilbourne Road/3924 Colonel Talbot Access	TCS	LOS C < < < < <	B > > > > >	> > > > >	<b>B</b> > > > >	C < < < <	B < < < <	> > > > >	> > > > >	<b>C</b> > > > >	C < < < <	B < < < <	A < < < <	<b>B</b> > > > >	B < < < <	B < < < <	A < < < <	<b>B</b> > > > >	<b>B</b> > > > >
PM Peak Hour	Colonel Talbot Road & Diane Crescent/Royal Magnolia Avenue	TWSC	LOS < < < < <	F > > > > >	> > > > >	<b>F</b> > > > >	< < < <	F > > > >	D > > > >	<b>F</b> > > > >	A > > > >	A > > > >	A > > > >	<b>A</b> > > > >	B > > > >	A > > > >	A > > > >	<b>A</b> > > > >	<b>A</b> > > > >	
	Colonel Talbot Road & Access A	TWSC	LOS < < < < <	> > > > >	> > > > >	> > > > >	E > > > >	> > > > >	> > > > >	<b>E</b> > > > >	A > > > >	A > > > >	<b>A</b> > > > >	< < < <	B > > > >	> > > > >	> > > > >	<b>A</b> > > > >		
	Colonel Talbot Road & Access B	TWSC	LOS < < < < <	> > > > >	> > > > >	> > > > >	F > > > >	> > > > >	> > > > >	<b>F</b> > > > >	A > > > >	A > > > >	<b>A</b> > > > >	< < < <	B > > > >	> > > > >	> > > > >	<b>A</b> > > > >		
	Colonel Talbot Road & Kilbourne Road/3924 Colonel Talbot Access	TCS	LOS D < < < < <	D > > > > >	> > > > >	<b>D</b> > > > >	D < < < <	D < < < <	> > > > >	> > > > >	<b>D</b> > > > >	B < < < <	C < < < <	A < < < <	<b>C</b> > > > >	E < < < <	A < < < <	A < < < <	<b>B</b> > > > >	<b>C</b> > > > >

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  
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 </> - Shared with through movement

## 4.4 Traffic Controls

The requirement for traffic signal control at the intersection of Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue were assessed using the Ontario Traffic Manual (OTM) signal warrant guidelines<sup>8</sup>.

Based on the warrant analysis, traffic signal control is not warranted under the 2032 forecast total traffic conditions.

**Appendix G** contains the warrant analysis worksheets.

## 4.5 Review of Access Locations

As noted in **Section 3.1**, two Site Accesses are proposed to Colonel Talbot Road. As outlined below, the access locations were reviewed for available sight distances and left-turn lane requirements.

### 4.5.1 Sight Distance Assessment

Available sight distances for the potential access points were measured based on Google aerial photography and street view and sight distance requirements in accordance with Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads<sup>9</sup> (GDGCR).

Stopping and Decision Sight Distance requirements were reviewed for a design speed of 70 km/h corresponding to the posted speed of 60 km/h.

**Table 4.3** summarizes the sight distance measurements and requirements at the access intersections. As shown in **Table 4.3**, both driveway locations on Colonel Talbot Road satisfy the corresponding TAC sight distance requirements.

**TABLE 4.3: SIGHT DISTANCE MEASUREMENTS**

Intersection	Decision Sight Distance (m)				Stopping Sight Distance (m)	
	Left-Turn		Right-Turn		Required	Observed
	Required	Observed	Required	Observed		
Colonel Talbot Road and Access A	150	230	130	300+	105	230
Colonel Talbot Road and Access B		260		300+		260

<sup>8</sup> Ontario Traffic Manual Book 12 – Traffic Signals

<sup>9</sup> Transportation Association of Canada, Geometric Design Guide for Canadian Roads, June 2017.



#### 4.5.2 Left-Turn Lanes

The assessment of the need for auxiliary left-turning lanes is based on the requirements and procedures detailed in the Ministry of Transportation Design Supplement for the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads<sup>10</sup>.

It is noted that the forecast southbound left-turn movements on Colonel Talbot Road at Site Access A and Site Access B are less than 10 and 20 vehicles during AM and PM peak hours, respectively, which is less than 2.5% of the total southbound traffic volumes. The prohibition of left-turn lanes on Colonel Talbot Road at the two driveways is therefore not identified as warranted.

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<sup>10</sup> MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads, June 2017.





## 5 Transportation Demand Management

The proposed development is located near the south-westerly limits of the City. There is no convenient transit service close to the site and no sidewalks or bicycle lanes are provided on the section of Colonel Talbot Road fronting the development.

However, the site design should provide for internal walkways and provisions for bicycle parking which can be connected to future active transportation infrastructure including both on-street facilities and off-street trails.



## 6 Conclusions and Recommendations

### 6.1 Conclusions

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

- ▶ **Existing Traffic Conditions:** All study area intersections are currently operating at acceptable levels of service.
- ▶ **Development Trip Generation:** The development is forecast to generate 62 and 81 trips during the AM and PM peak hours, respectively.
- ▶ **2032 Background Traffic Conditions:** All study area intersections are forecast to operate at acceptable levels of service with the exception of the following movements at the intersection of Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue:
  - The eastbound shared left/through/right movement is forecast to operate at LOS F with a v/c ratio greater than 1.00 during the PM peak hour; and
  - The westbound shared through/left movement is forecast to operate at LOS F with a v/c ratio of 0.99 during the AM peak hour.
- ▶ **2032 Total Traffic Conditions:** All study area intersections are forecast to operate at similar levels of service as under background traffic conditions during the AM and PM peak hours, with the following additional critical movements:
 

Colonel Talbot Road and Diane Crescent / Royal Magnolia Avenue

  - The eastbound shared left/through/right movement is forecast to operate at LOS F with a v/c ratio of 0.97 during the AM peak hour.

Colonel Talbot Road and Kilbourne Road / 3924 Colonel Talbot Access

  - The westbound left-turn movement is forecast to operate with a 95<sup>th</sup> percentile queue length that exceeds the assumed storage length by five metres during the PM peak hour.
- ▶ **Site Accesses:** The Site Access intersections on Colonel Talbot Road are forecast to operate at acceptable levels of service. It is noted that the westbound movement at Access B is



forecast to operate at LOS F during the PM peak hour; however, the movement is within capacity with a v/c ratio of 0.20.

Both access locations satisfy the sight distance requirements. An auxiliary southbound left-turn lane is not warranted on Colonel Talbot Road at Site Access A or Site Access B.

## 6.2 Recommendations

Based on the findings and conclusions of this study, it is recommended that the development be considered for approval as proposed.



# Appendix A

## Pre-Study Consultation



# Appendix B

## Existing Traffic Data



# Appendix C

## Existing Traffic Operations Reports



# Appendix D

## Background Development Traffic Volumes



# Appendix E

## 2032 Background Traffic Operations Reports





# Appendix F

## 2032 Total Traffic Operations Reports



# Appendix G

## OTM Signal Warrants

