



**1447-1449 Dundas Street &
684-690 Hale Street, London**

Transportation Impact Assessment

Paradigm Transportation Solutions Limited

April 2025
250032



Project Summary



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Client:

Peter and Andy Lerikos
Holdco-Holdings

Client Contact:

Aliyah Richards
Zelinka Priamo Ltd.
318 Wellington Road
London ON N6C 4P4

Consultant Project Team

Rajan Philips, M.Sc. (PI), P.Eng.
Maddison Murch, 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

1447-1449 Dundas Street & 684-690 Hale Street, London Transportation Impact Assessment



Rajan Philips, M.Sc. (PI), 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 mixed-use development located at 1447-1449 Dundas Street and 684-690 Hale Street in the City of London.

This TIA includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts and analysis for a five-year horizon from development completion (2035), assessment of development traffic impacts with recommendations as appropriate to accommodate the proposed development, and Transportation Demand Management (TDM) measures appropriate to the proposed development.

Development Concept

The subject site consists of four properties, two located along Dundas Street and two located along Hale Street. The lands currently consist of three buildings with two driveways to Dundas Street and two driveways to Hale Street.

The proposed redevelopment of all four properties includes two 18-storey towers accommodating 340 residential units (170 units each) and 2,230 sq. ft. Gross Floor Area (GFA) of ground floor retail. Vehicle access is proposed to be consolidated into a single access to Hale Street with an emergency access via Dundas Street.

The development is expected to be completed by 2030.

TIA Scope

The scope of the TIA for the proposed development includes:

- ▶ **Study Area Intersections:**
 - Dundas Street and Hale Street (signalized);
 - Future site access on Hale Street (unsignalized).
- ▶ **Analysis Periods:** Weekday AM and PM peak hours.
- ▶ **Background Developments:**
 - 850 Highbury Avenue N (5,059 units and 393,000 sq. ft. GFA commercial);



- 1414 Dundas Street (Humane Society of London and Middlesex);
 - 1472 Dundas Street (839 sq. m. GFA of retail and 314 units); and
 - 1390 Dundas Street (256 long-term care beds).
- **Traffic Conditions:** Base year (2025) and five years after development completion (2035).

Conclusions

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

- **Base Year Traffic Conditions:** The results indicate that the intersection of Dundas Street and Hale Street is operating at acceptable levels of service, except for the northbound left-turn movement which is operating with 95th percentile queues exceeding the existing storage of 20 metres during the AM and PM peak hours.
- The site driveway intersections on Dundas Street and Hale Street are operating at acceptable levels of service.
- **Development Trip Generation:** The development is forecast to generate 65 AM peak hour trips and 82 PM peak hour trips.
- **Background Traffic Conditions:** The results indicate that the study area intersections are forecast to operate at similar levels of service as under existing traffic conditions, with the addition of the westbound left-turn movement at Dundas Street and Hale Street which is forecast to operate with 95th percentile queues exceeding the available storage of 45 metres during the PM peak hour.
- **Total Traffic Conditions:** The results indicate that the intersection of Dundas Street and Hale Street is forecast to operate at similar levels of service as under background traffic conditions.
- The proposed site access on Hale Street is forecast to operate at acceptable levels of service.
- **Site Access:** A southbound left-turn lane with 15 metres of storage is warranted on Hale Street at the proposed site access under 2035 total traffic conditions. It is noted; however, that left-turn lanes are not provided at any other private access on Hale Street. Additionally, the total traffic operations indicate that the southbound approach at the proposed site access is forecast to operate with LOS A.



- ▶ **Transportation Demand Management:** The following TDM measures are proposed on-site:
 - On-site walkways with connections between main building entrances and the existing municipal sidewalks;
 - Short-term and long-term bicycle parking on-site which exceeds the minimum Zoning By-law requirements for residential and commercial uses; and
 - Access to multiple bus transit routes and the future BRT service that provides good connectivity to the broader network and access to major destinations.

In addition to the above, the following measures are appropriate for consideration:

- Parking unbundled from the sale/rent of apartment units;
- Carshare space/vehicle(s) in a premium location on-site; and
- Transit, carshare, and active transportation information provided in a welcome package to new residents and/or posted in central locations on-site.

Recommendations

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



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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 mixed-use development located at 1447-1449 Dundas Street and 684-690 Hale Street in the City of London.

Figure 1.1 details the subject development location.

The subject site consists of four properties, two located along Dundas Street and two located along Hale Street. The lands currently consist of three buildings with two driveways to Dundas Street and two driveways to Hale Street.

The proposed redevelopment of all four properties includes two 18-storey towers accommodating 340 residential units (170 units each) and 2,230 sq. ft. Gross Floor Area (GFA) of ground floor retail. Vehicle access is proposed to be consolidated into a single access to Hale Street with an emergency access via Dundas Street.

The development is expected to be completed by 2030.

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 February 2025, includes:

- ▶ Assessment of the current traffic and site conditions within the study area;
- ▶ Estimates of background traffic growth for five years after development completion (2035);
- ▶ 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:
 - Dundas Street and Hale Street (signalized); and
 - Future site access on Hale Street (unsignalized).
- ▶ Recommendations, if necessary, to mitigate the site generated traffic in a satisfactory manner; and



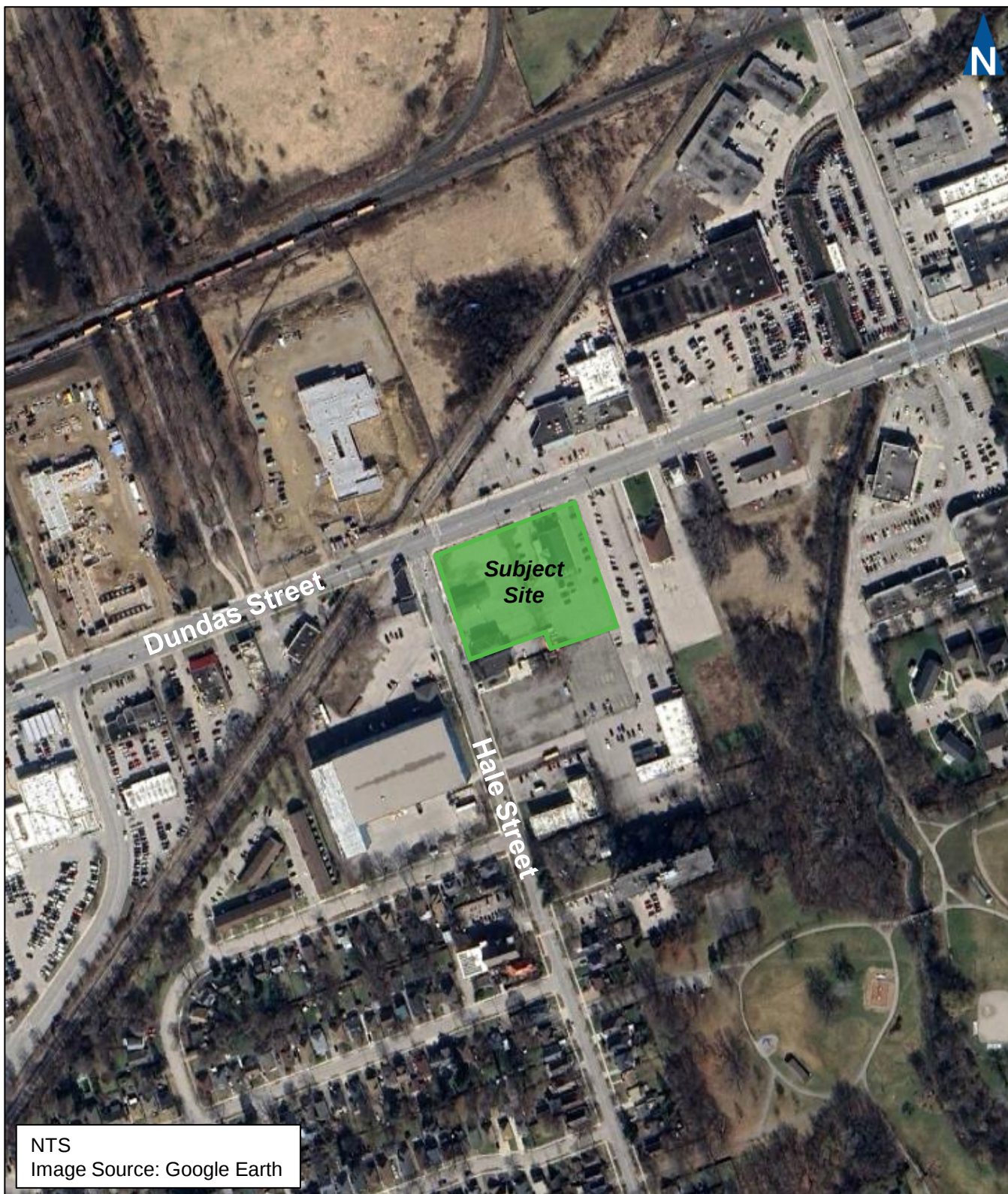
- ▶ Transportation Demand Management (TDM) measures appropriate to the proposed development.

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*¹.

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





Location of Subject Site

1447-1449 Dundas Street & 684-690 Hale Street, London T1A
250032

Figure 1.1

2 Existing Conditions

2.1 Road Network

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

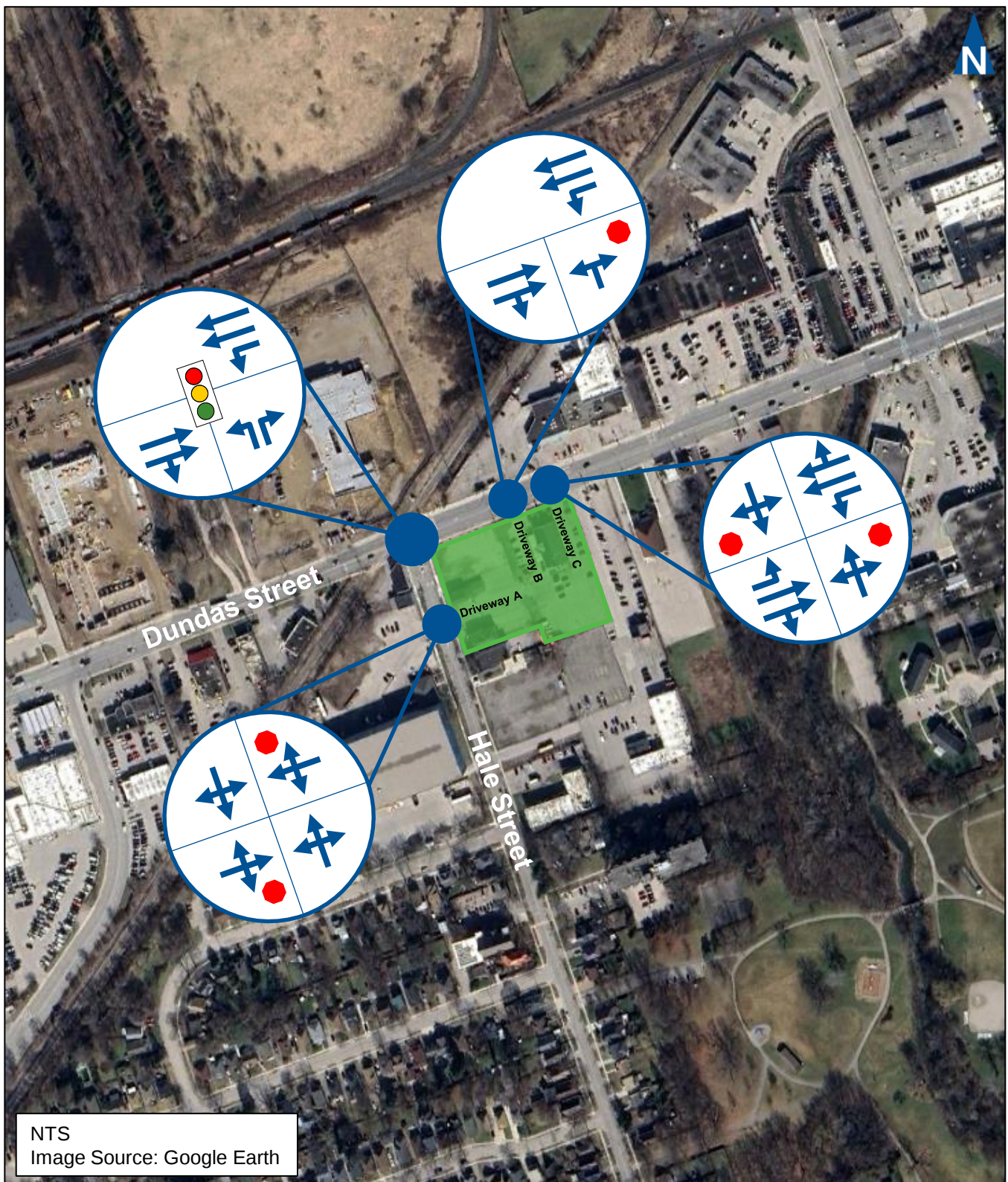
- ▶ **Dundas Street** is an east-west Civic Boulevard² with a primarily five-lane cross section within the study area. The roadway has a posted speed limit of 50 km/h. Sidewalks are provided on both sides of the roadway.
- ▶ **Hale Street** is a north-south Neighbourhood Connector with a two-lane cross-section and a posted speed limit of 40 km/h. Sidewalks are provided on both sides of the roadway.

The intersection of Dundas Street and Hale Street operates under traffic signal control and the site driveway intersections on Dundas Street and Hale Street all operate under side-street stop-control.

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

² The City of London, *The London Plan Map 3 – Street Classifications*, 2024.





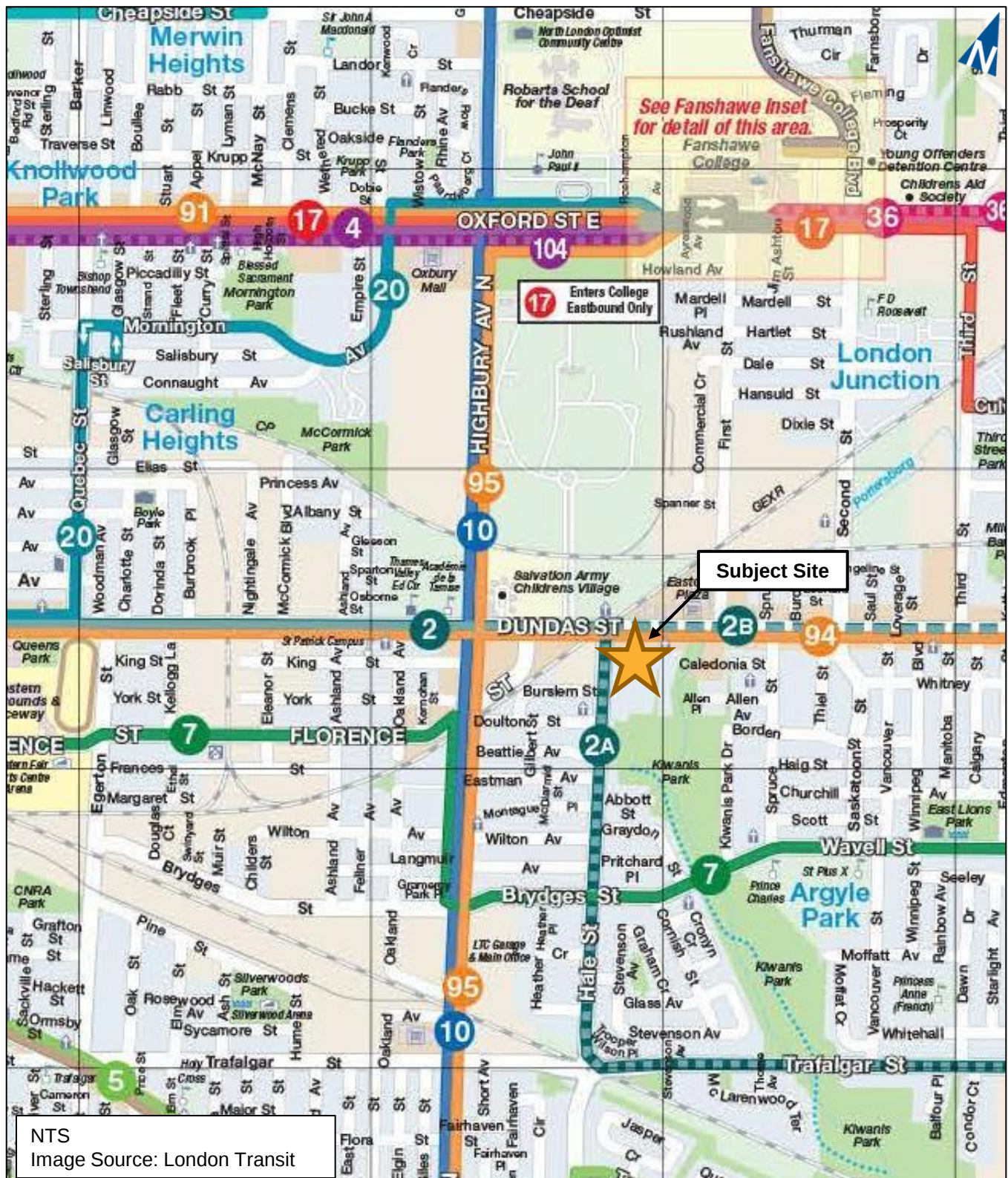
2.2 Transit Service

London Transit operates the following four routes within the study area:

- ▶ **Route 2 (Natural Science – Trafalgar Heights/ Bonaventure)** operates along Dundas Street with major stops in Downtown London and at Argyle Mall. This route operates Monday to Sunday and Holidays with 15 to 30-minute headways. The closest stops are located on Hale Street fronting the subject site and on Dundas Street at the Hale Street intersection (less than 60 metres from the subject site).
- ▶ **Route 10 (Barker at Huron – Natural Science / Masonville Place)** operates along Highbury Avenue with major stops at White Oaks Mall and Masonville Place. This route operates Monday to Sunday and Holidays with 15 to 30-minute headways. The closest stop is located at Highbury Avenue and Dundas Street (430 metres from the subject site).
- ▶ **Route 94 (Express Natural Science – Argyle Mall)** provides the same service as Route 2 but as a limited stop express route. This route operates only on Monday to Friday with 20 to 30-minute headways. The closest stop is located at Highbury Avenue and Dundas Street (430 metres from the subject site).
- ▶ **Route 95 (Express White Oaks Mall – Fanshawe College)** operates along Highbury Avenue with major stops at White Oaks Mall and Fanshawe College. The route operates only Monday to Friday with 30-minute headways. The closest stop is located at Highbury Avenue and Dundas Street (430 metres from the subject site).

Figure 2.2 illustrates the existing transit service.





2.3 Traffic Volumes

Paradigm conducted turning movement counts at the intersection of Dundas Street and Hale Street on 23 March 2023 and the site driveway intersections on 19 September 2023.

Table 2.1 summarizes the peak hours for each study area intersection.

TABLE 2.1: INTERSECTION PEAK HOURS

Intersection	AM Peak Hour	PM Peak Hour
Dundas Street and Hale Street	7:45 – 8:45	3:45 – 4:45
Hale Street and Driveway A	7:30 – 8:30	4:15 – 5:15
Dundas Street and Driveway B	7:30 – 8:30	4:00 – 5:00
Dundas Street and Driveway C	7:30 – 8:30	4:00 – 5:00

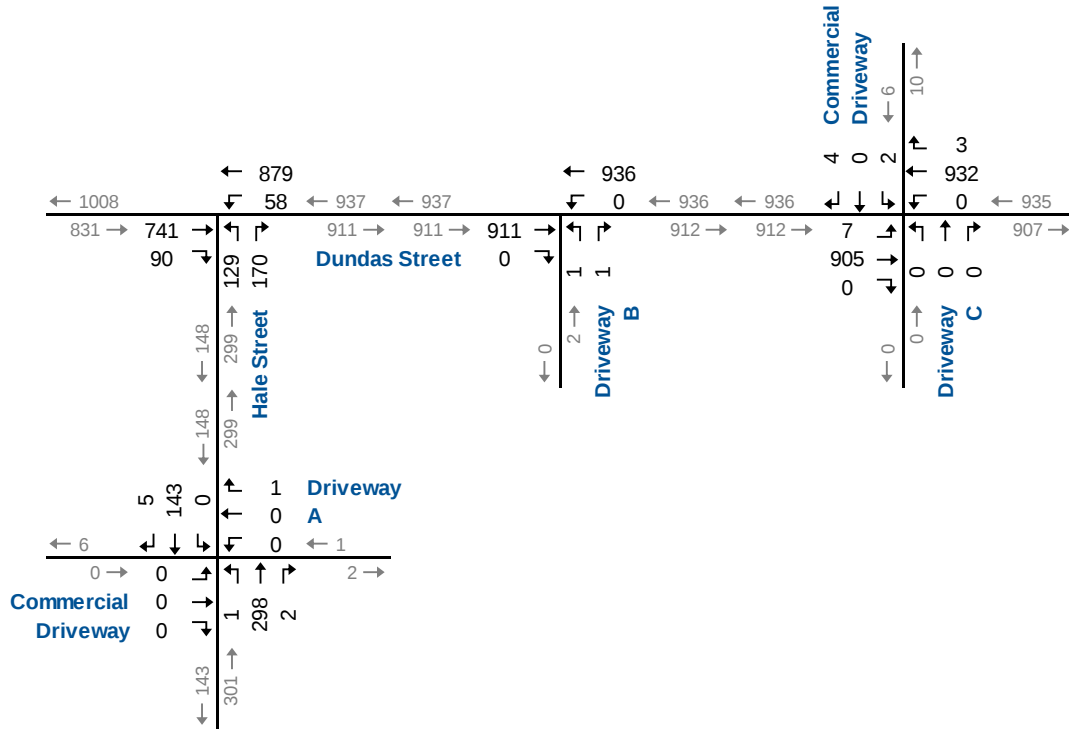
The 2023 traffic counts have been increased to 2025 using a 1.5% growth rate. Traffic volumes along both Dundas Street and Hale Street have been balanced.

Figure 2.3 illustrates the base year (2025) AM and PM weekday peak hour turning movement traffic volumes.

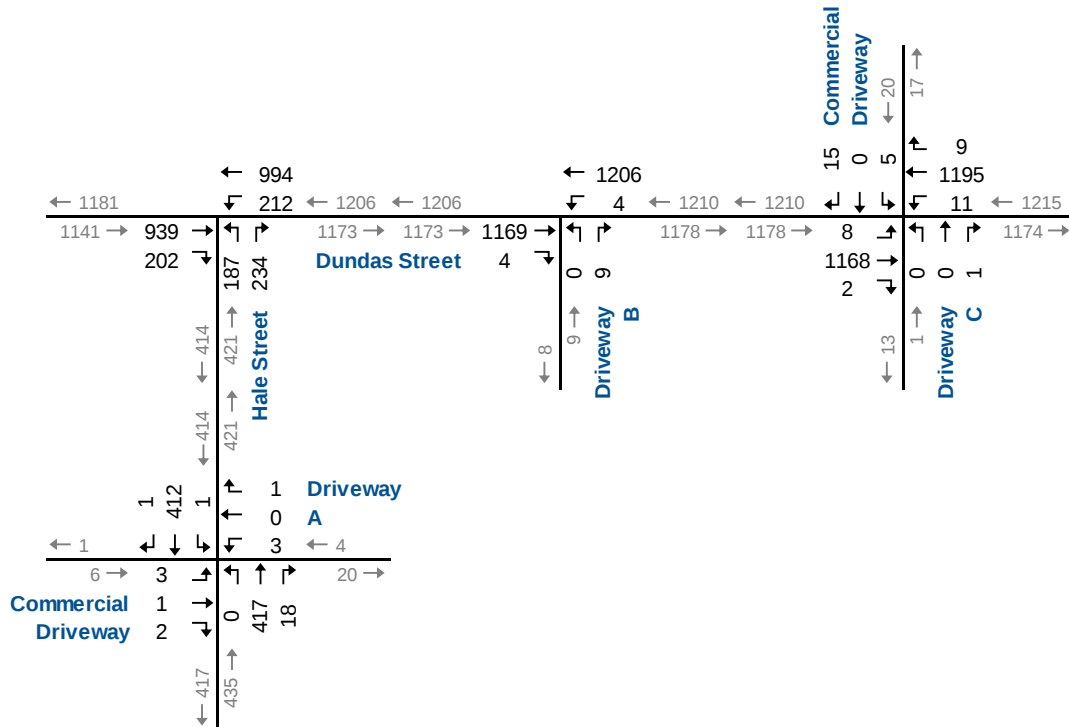
Appendix B contains the detailed traffic counts and signal timings for the study area intersections.



AM Peak Hour



PM Peak Hour



NTS



Base Year Traffic Volumes

1447-1449 Dundas Street & 684-690 Hale Street, London TIA
250032

Figure 2.3

2.4 Traffic Operations

The level of service conditions at the study area intersections have been assessed using Synchro 12. 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 level of service (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.

Intersection 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 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.

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

The results indicate that the intersection of Dundas Street and Hale Street is operating with acceptable levels of service, except for the northbound left-turn movement which is operating with 95th percentile queues exceeding the existing storage of 20 metres during the AM and PM peak hours.

The existing site driveway intersections on Dundas Street and Hale Street are operating at acceptable levels of service.

Appendix C contains the detailed Synchro 12 reports.



TABLE 2.2: BASE YEAR TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hale Street & Dundas Street	TCS	LOS Delay V/C Stor. Avail.		A 9 0.40 - -	> > > >	A 9	A 4 0.14 7 45 38	A 5 0.37 47 -		A 5	D 51 0.60 45 20 -25		B 15 0.44 28 -	C 31					B 10
	Hale Street & Commercial Driveway/Driveway A	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 10 0.00 0	> > > >	B 10	< < < <	A 8 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	
	Driveway B & Dundas Street	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.00 0 - -	> > > >	A 0	A 0 0.00 0 15 15	A 0 0.00 0 - -		A 0	C 16 0.01 0 - -		> > > >	C 16					
	Driveway C/Commercial Driveway & Dundas Street	TWSC	LOS Delay V/C Q Stor. Avail.	B 10 0.01 0 15 15	A 0 0.00 0 - -	> > > >	A 0	A 0 0.00 0 15 15	A 0 0.00 0 - -	> > > >	A 0	< < < <	A 0 0.00 0 - -	> > > >	A 0	< < < <	E 35 0.05 2 - -	> > > >	E 35	
PM Peak Hour	Hale Street & Dundas Street	TCS	LOS Delay V/C Q Stor. Avail.		B 16 0.58 135 - -	> > > >	B 16	B 14 0.63 33 45 12	A 6 0.41 69 -		A 8	E 62 0.73 70 20 -50		C 26 0.54 53 -	D 42					B 16
	Hale Street & Commercial Driveway/Driveway A	TWSC	LOS Delay V/C Q	< < < <	C 16 0.02 1	> > > >	C 17	< < < <	C 18 0.01 0	> > > >	C 18	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 8 0.00 0	> > > >	A 0	
	Driveway B & Dundas Street	TWSC	LOS Delay V/C Q Stor. Avail.		A 0 0.00 0 - -	> > > >	A 0	B 12 0.01 0 15 15	A 0 0.00 0 - -		A 0	B 14 0.02 1 - -		> > > >	B 14					
	Driveway C/Commercial Driveway & Dundas Street	TWSC	LOS Delay V/C Q Stor. Avail.	B 12 0.02 1 15 14	A 0 0.00 0 - -	> > > >	A 0	B 12 0.02 1 15 14	A 0 0.00 0 - -	> > > >	A 0	< < < <	B 14 0.00 0 - -	> > > >	B 14	< < < <	E 45 0.19 5 - -	> > > >	E 45	

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 Development Concept

3.1 Development Description

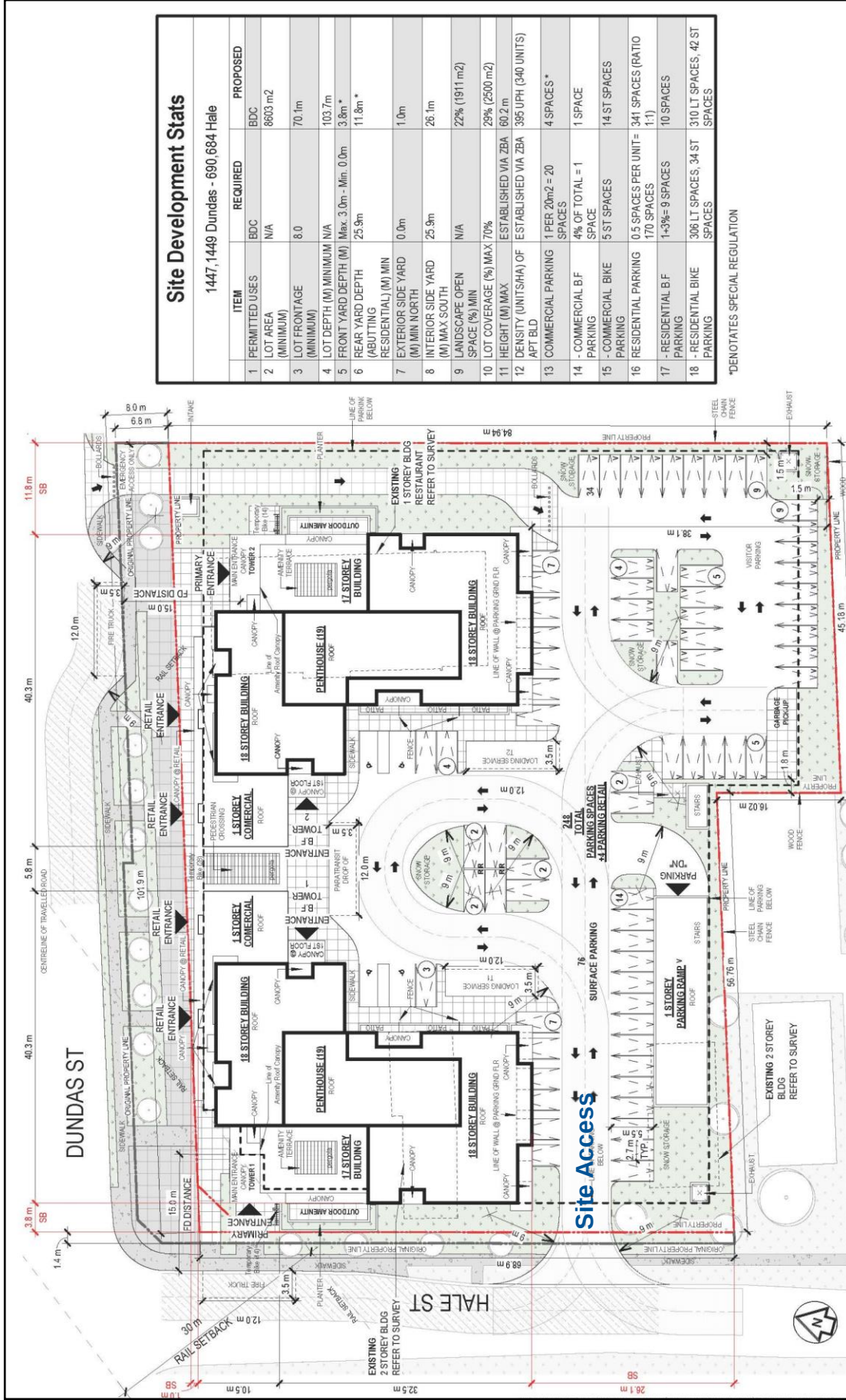
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The proposed redevelopment of all four properties includes two 18-storey towers accommodating 340 residential units (170 units each) and 2,230 sq. ft. Gross Floor Area (GFA) of ground floor retail. Vehicle access is proposed to be consolidated into a single access to Hale Street with an emergency access via Dundas Street.

The development is expected to be completed by 2030.

Figure 3.1 shows the concept site plan.





Site Plan

Figure 3.1

3.2 Development Trip Generation

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

- ▶ LUC 222 - Multifamily Housing (High Rise); and
- ▶ LUC 822 - Strip Retail Plaza (<40k).

Appendix D contains the ITE data sheets.

Given the minimal commercial trip generation, internal capture and pass-by reductions have not been applied.

The development is located within close proximity to the future Bus Rapid Transit (BRT) network and multiple existing bus routes. The proximity to transit services will encourage alternative mode use including walking, cycling and transit. The City of London 2030 Transportation Master Plan⁴ identifies a 2030 target of 20% transit and 15% walking/cycling. This mode share was also confirmed with City staff during pre-study consultation.

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
222: Multifamily Housing (High-Rise)	340 units	Eq	24	70	94	Eq	69	43	112
822: Strip Retail Plaza (<40k)	2,230 sq. ft.	2.36	3	2	5	6.59	7	8	15
Total Trip Generation			27	72	99		76	51	127
<i>Mode Share Reduction</i>		35%	9	25	34	35%	27	18	45
Net Trip Generation			18	47	65		49	33	82

LUC 222 - AM: $T = 0.22(X) + 18.85$ | PM: $T = 0.26(X) + 23.12$

3.3 Development Trip Distribution and Assignment

The trip distribution is based on existing traffic patterns within the study area and the location of the subject site at the easterly end of the City.

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).

⁴ City of London, *2030 Transportation Master Plan: Smart Moves*, January 2013.



TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

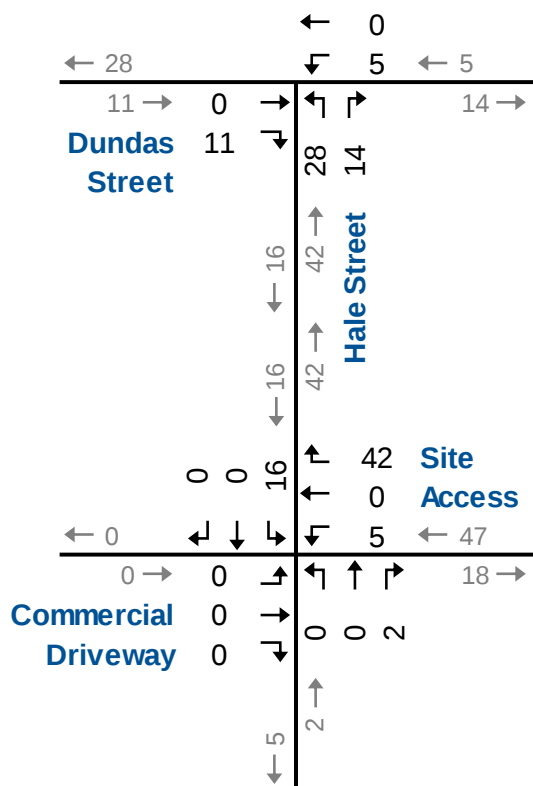
Origin/Destination	Distribution
East via Dundas Street	40%
West via Dundas Street	50%
South via Hale Street	10%
Total	100%

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

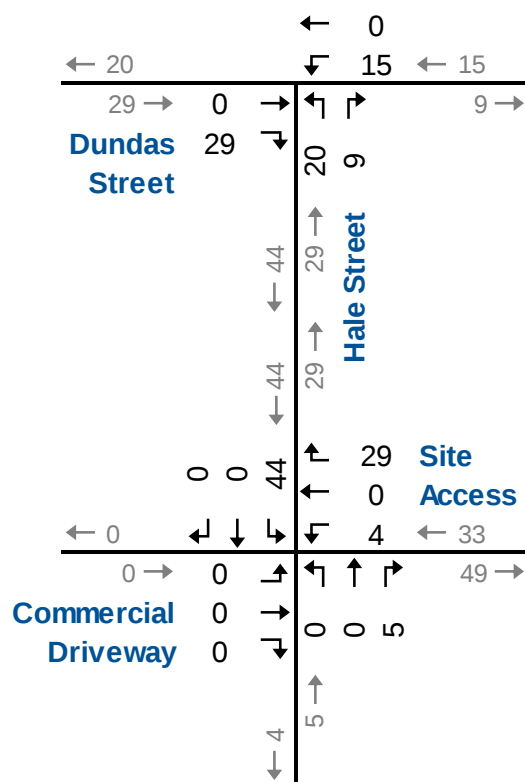




AM Peak Hour



PM Peak Hour



NTS



Site Generated Traffic Volumes

1447-1449 Dundas Street & 684-690 Hale Street, London TIA
250032

Figure 3.2

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 2035 horizon year.

4.1 Background Traffic Forecasts

To derive the 2035 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 addition to the above general traffic growth, the following nearby developments have been included in the background traffic forecasts:

- ▶ 850 Highbury Avenue: A mixed-use subdivision accommodating 30 single-family units, 2,290 medium density units, 2,739 high density units, and 393,000 sq. ft. GFA of commercial uses. The TIA completed in November 2022⁵ indicates that the development is forecast to generate 1,441 AM peak hour trips and 1,715 PM peak hour trips.
- ▶ 1390 Dundas Street: A long-term care facility with 256 beds. The TIA completed in April 2023⁶ indicates that the development is forecast to generate 46 AM peak hour trips and 61 PM peak hour trips.
- ▶ 1414 Dundas Street: A single storey building for the Humane Society of London and Middlesex. The TIA completed⁷ indicates that the development is forecast to generate 132 AM peak hour trips and 120 PM peak hour trips.
- ▶ 1472 Dundas Street: Mixed-use development with 314 residential units and 839 sq. m. GFA retail. Based on ITE rates, the development is forecast to generate 109 AM peak hour trips and 177 PM peak hour trips.

Figure 4.1 illustrates the location of the other area developments.

⁵ Paradigm Transportation Solutions Limited, *850 Highbury Avenue Transportation Impact Assessment Addendum*, November 2022.

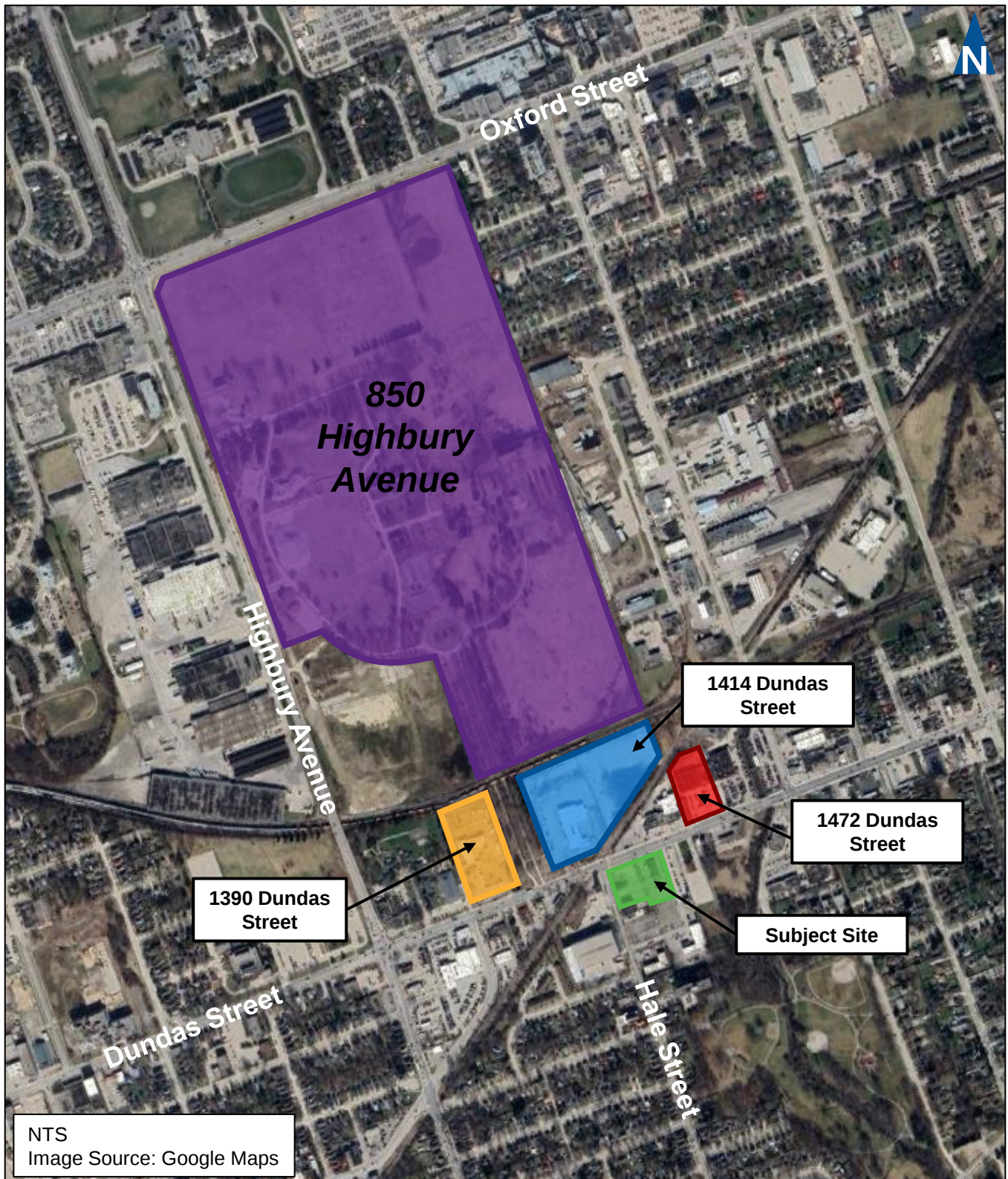
⁶ Paradigm Transportation Solutions Limited, *Long-Term Care Facility, 1390 Dundas Street, London Transportation Impact Assessment*, April 2023.

⁷ Strik, Baldinelli, Moniz Ltd., *Transportation Impact Assessment 1414 Dundas Street and Parts of 850 Highbury Avenue*, No Date.



Appendix E contains the other area development traffic volumes.





4.2 Background Traffic

Figure 4.2 illustrates the 2035 background traffic volumes, including road traffic growth and other area development traffic. Traffic volumes to/from the existing development have been removed from the study area network.

The 2035 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions. Signal timings have not been optimized.

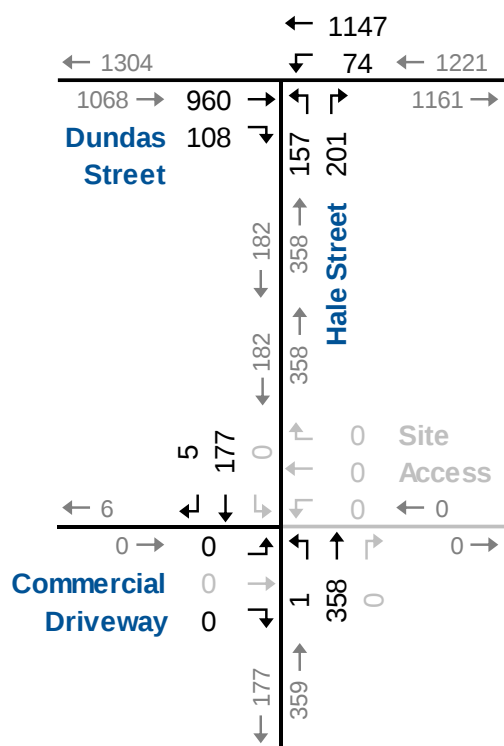
Table 4.1 summarizes the results of the 2035 background traffic operations. The results indicate that the study area intersections are forecast to operate at similar levels of service as under existing traffic conditions, with the addition of the westbound left-turn movement at Dundas Street and Hale Street which is forecast to operate with 95th percentile queues exceeding the available storage of 45 metres during the PM peak hour.

Appendix F contains the supporting detailed Synchro 12 reports.

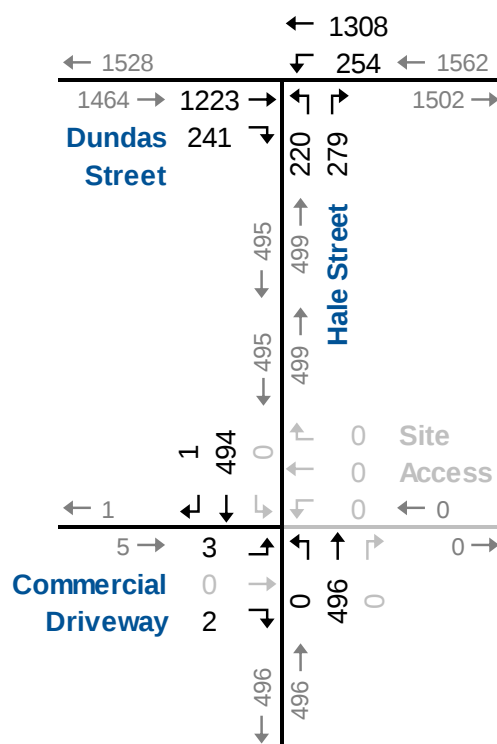




AM Peak Hour



PM Peak Hour



NTS



Background Traffic Volumes

1447-1449 Dundas Street & 684-690 Hale Street, London TIA
250032

Figure 4.2

TABLE 4.1: BACKGROUND TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hale Street & Dundas Street	TCS	LOS Delay V/C Stor. Avail.		B 12 0.54 98 -	>	B 12	A 6 0.24 9 45 36	A 7 0.50 76 -		A 7	D 51 0.65 52 20 -32	C 26 0.54 44 -	D 37					B 13	
	Hale Street & Commercial Driveway/Site Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	>	A 0	< < < <	A 0 0.00 0	>	A 0	< < < <	A 8 0.00 0	>	A 0	< < < <	A 0 0.00 0	>	A 0	
PM Peak Hour	Hale Street & Dundas Street	TCS	LOS Delay V/C Q Stor. Avail.		C 30 0.87 206 -	>	C 30	D 49 0.79 119 45 -74	A 9 0.55 113 -		B 16	E 62 0.76 80 20 -60	C 28 0.53 76 -	D 43					C 25	
	Hale Street & Commercial Driveway/Site Access	TWSC	LOS Delay V/C Q	< < < <	C 19 0.02 1	>	C 19	< < < <	A 0 0.00 0	>	A 0	< < < <	A 0 0.00 0	>	A 0	< < < <	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



4.3 Total Traffic

Figure 4.3 illustrates the 2035 total traffic volumes, including trips generated by the proposed development.

The 2035 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 2035 total traffic operations. The results indicate that the intersection of Dundas Street and Hale Street is forecast to operate at similar levels of service as under background traffic conditions.

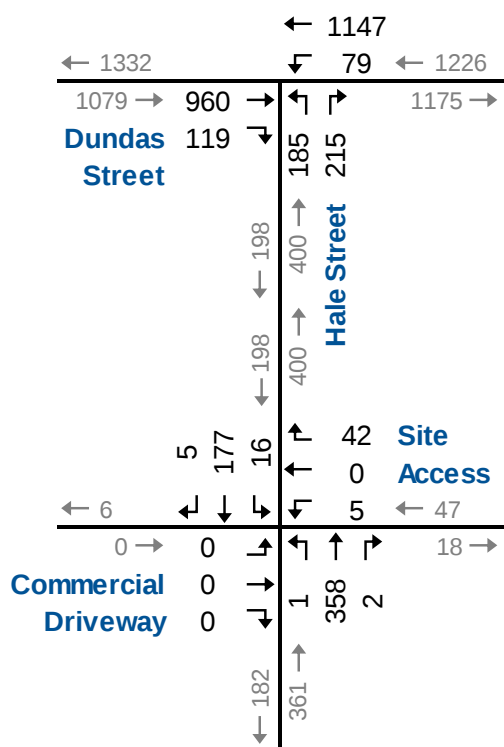
The proposed site access on Hale Street is forecast to operate at acceptable levels of service.

Appendix G contains the supporting detailed Synchro 12 reports.

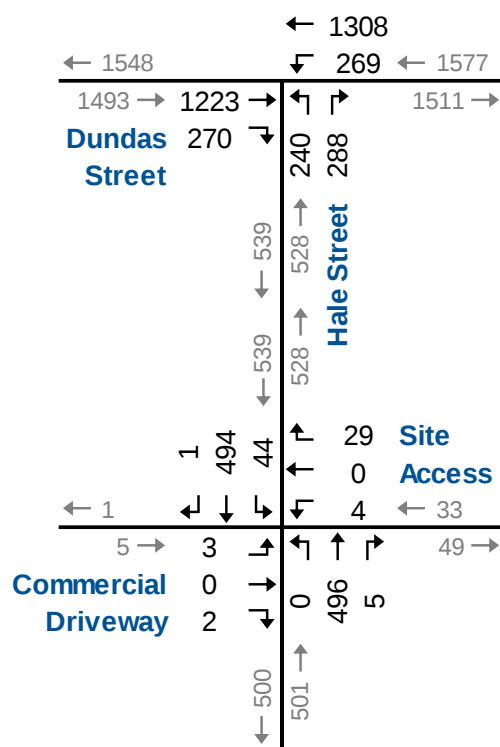




AM Peak Hour



PM Peak Hour



NTS



Total Traffic Volumes

1447-1449 Dundas Street & 684-690 Hale Street, London TIA
250032

Figure 4.3

TABLE 4.2: TOTAL TRAFFIC OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Hale Street & Dundas Street	TCS	LOS Delay V/C Q Stor. Avail.		B 14 0.56 106 -	> > > > >	B 14	A 6 0.26 10 45 35	A 8 0.51 82 -		A 8	D 51 0.69 59 20 -39		C 26 0.54 46 -	D 37					B 14
	Hale Street & Commercial Driveway/Site Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	B 11 0.08 2	> > > >	B 11	< < < <	A 8 0.00 0	> > > >	A 0	< < < <	A 8 0.01 0	> > > >	A 1	
PM Peak Hour	Hale Street & Dundas Street	TCS	LOS Delay V/C Q Stor. Avail.		C 31 0.88 214 -	> > > > >	C 31	E 62 0.88 132 45 -87	A 10 0.56 116 -		B 19	E 62 0.78 87 20 -67		C 29 0.54 79 -	D 44					C 28
	Hale Street & Commercial Driveway/Site Access	TWSC	LOS Delay V/C Q	< < < <	C 23 0.03 1	> > > >	C 23	< < < <	B 14 0.09 2	> > > >	B 15	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.05 1	> > > >	A 1	

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



4.4 Left-Turn Lanes

The need for an auxiliary southbound left-turn turning lane on Hale Street at the proposed access was assessed based on the procedures detailed in the *Ministry of Transportation Design Supplement for the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads*⁸. The assessment is based on the nomographs for left-turn lanes on a two-lane undivided highway at an unsignalized intersection with a design speed of 50 km/h (10 km/h over the posted speed limit of 40 km/h).

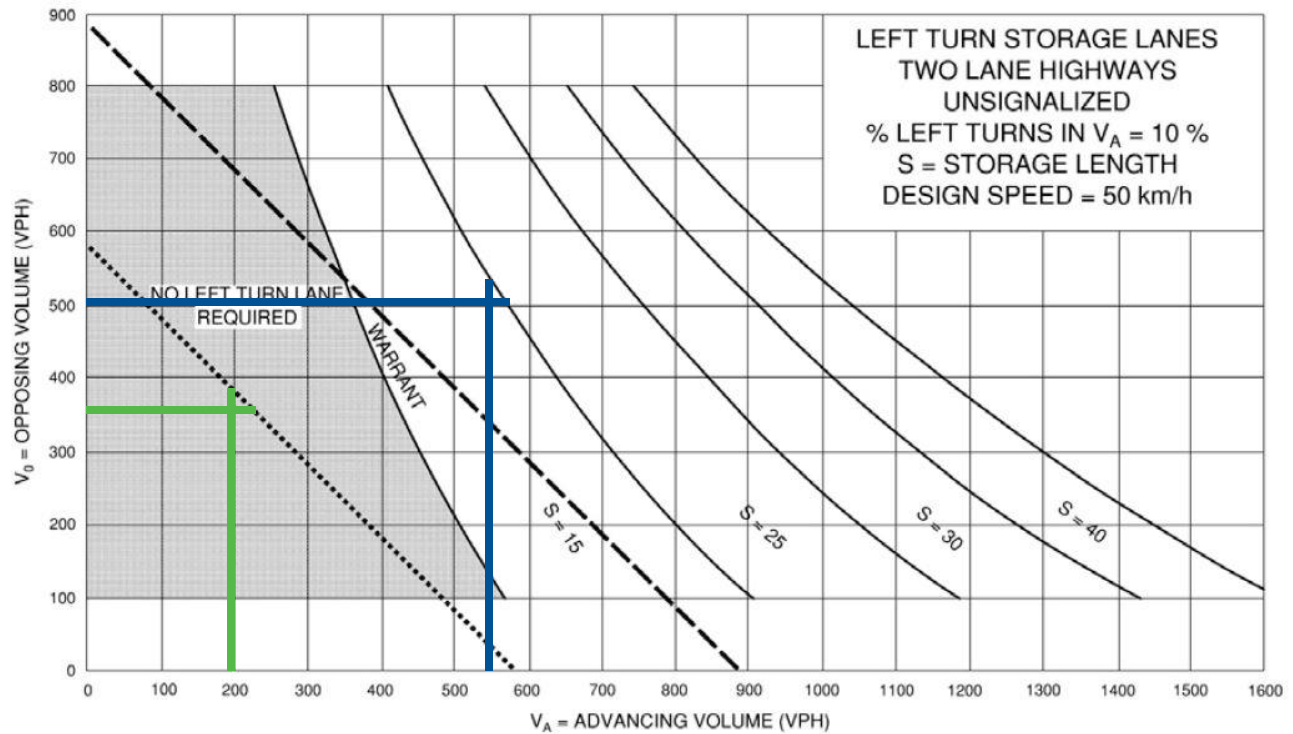
Figure 4.4 contains the warrant nomographs.

Based on these criteria, a southbound left-turn lane with a 15-metre storage is warranted on Hale Street at the proposed site access under 2035 total traffic conditions.

Although a southbound left-turn lane is warranted, it is noted that left-turn lanes are not provided at any other private access on Hale Street. Additionally, the total traffic operations in **Section 4.3** indicate that the southbound approach at the proposed site access is forecast to operate with LOS A.

⁸ Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queen's Printer for Ontario, 2017).





— AM Peak Hour — PM Peak Hour

5 Transportation Demand Management

Transportation Demand Management (TDM) refers to ways of making the capacity of roads more efficient by reducing vehicle demand. TDM approaches consider how people's choices of travel mode are affected by land use patterns, development design, parking availability, parking cost, and the relative cost, convenience, and availability of alternative modes of travel. Various TDM strategies are used to influence those factors so that the alternatives are more competitive with single-occupancy travel and potentially reduce reliance on motor vehicles.

The City of London requires TIA submissions to include a suitable travel demand management plan with reasonable measures to facilitate reduced automobile reliance and promote transit, cycling and walking for trips to and from the site. This requirement is consistent with the goal established by the 2030 Transportation Master Plan to achieve a mode share target of 35% by 2030.

Potential TDM measures appropriate for the proposed development include the following.

5.1 Walking

The pedestrian accessibility of a development is essential in helping to ensure that those that can walk, have access to accessible pedestrian connections. Proper pedestrian connections from the surrounding community to the development should be available to ensure safety and to enhance the experience of those that choose to walk.

Sidewalks are provided on both sides of Dundas Street and Hale Street. The signalized intersection of Dundas Street and Hale Street provides a designated crossing location with sidewalks on the east and south approaches.

The Site Plan indicates that internal walkways are proposed with connections from the main building entrances to the existing municipal sidewalks.

5.2 Cycling

The *City's Cycling Master Plan*⁹ identifies proposed facilities on Hale Street and a segment of Dundas Street between Florence Street and First Street. These facilities would provide employees, residents, and

⁹ MMM Group, *London Bikes: City of London Cycling Master Plan*, September 2016.



visitors of the subject development with convenient access to the City's cycling network.

To promote cycling to/from the development, the Site Plan indicates 14 short-term bicycle parking spaces for the retail use, and 310 long-term and 42 short-term spaces for the residential use.

The *City's Zoning By-Law*¹⁰ requires 0.90 long-term and 0.10 short-term bicycle parking spaces per residential unit, and 3 spaces plus 0.30 spaces per 100 m² of retail GFA. This results in a requirement of 306 long-term and 34 short-term residential spaces, and 10 short-term retail spaces. Therefore, the proposed bicycle parking supply exceeds the requirement by 12 residential spaces and 4 retail spaces.

5.3 Transit

As discussed in **Section 2.2**, several transit routes currently serve the study area with stops on Dundas Street, Highbury Avenue, and Hale Street. The stops are easily accessible via the existing sidewalks along both sides of each roadway and signalized intersection with crosswalks at Dundas Street and Hale Street.

Additionally, the East London Link BRT route will traverse the west and north legs of the Dundas Street and Highbury Avenue intersection beginning in 2026. The BRT route will further enhance the connectivity of the site to the broader network and key destinations within the City.

5.4 Parking Management

To further encourage residents of the development to utilize sustainable travel modes, parking spaces could be sold separately from the cost to rent/purchase a unit. This practice of 'unbundling' parking from the unit is also more equitable and efficient since occupants are not forced to pay for parking they do not need.

5.5 Car Share

Car sharing refers to automobile rental services intended to substitute for private vehicle ownership. It makes occasional use of a vehicle affordable while providing an incentive to minimize driving and rely on alternative travel options as much as possible.

Communauto (VRTUCAR) is currently the only car share provider in the City of London and has seven locations. The closest is located at 700 King Street East (2.5 kilometres from the subject site).

¹⁰ City of London Zoning bylaw Z.-1, § Section 4.



The availability of a car share space in a premium location on-site would allow residents, visitors and employees who normally would not need a vehicle for their daily activities to be comfortable with the decision to not own a vehicle.

5.6 Wayfinding and Travel Planning

Increasing awareness of sustainable transportation opportunities for residents, visitors and employees of the development should be considered.

Providing a welcome package that outlines the available active transportation options can be helpful to encourage new residents to educate themselves on the support for alternative modes near the subject site. Posting real-time transit and active transportation information in common areas can further support this education.

General education of all modes of transportation, including their benefits and how to make the best use of them, are a key component to TDM success. The strategies require cooperation and coordination with several partners, including transit providers, building owners, area municipalities as well as residents.

By educating about sustainable modes of travel as well as providing travel demand management tools and incentives, TDM can be further integrated within the development to promote all modes of transportation.



6 Conclusions and Recommendations

6.1 Conclusions

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

- ▶ **Base Year Traffic Conditions:** The results indicate that the intersection of Dundas Street and Hale Street is operating at acceptable levels of service, except for the northbound left-turn movement which is operating with 95th percentile queues exceeding the existing storage of 20 metres during the AM and PM peak hours.

The site driveway intersections on Dundas Street and Hale Street are operating at acceptable levels of service.
- ▶ **Development Trip Generation:** The development is forecast to generate 65 AM peak hour trips and 82 PM peak hour trips.
- ▶ **Background Traffic Conditions:** The results indicate that the study area intersections are forecast to operate at similar levels of service as under existing traffic conditions, with the addition of the westbound left-turn movement at Dundas Street and Hale Street which is forecast to operate with 95th percentile queues exceeding the available storage of 45 metres during the PM peak hour.
- ▶ **Total Traffic Conditions:** The results indicate that the intersection of Dundas Street and Hale Street is forecast to operate at similar levels of service as under background traffic conditions.

The proposed site access on Hale Street is forecast to operate at acceptable levels of service.
- ▶ **Site Access:** A southbound left-turn lane with 15 metres of storage is warranted on Hale Street at the proposed site access under 2035 total traffic conditions. It is noted; however, that left-turn lanes are not provided at any other private access on Hale Street. Additionally, the total traffic operations indicate that the southbound approach at the proposed site access is forecast to operate with LOS A.
- ▶ **Transportation Demand Management:** The following TDM measures are proposed on-site:
 - On-site walkways with connections between main building entrances and the existing municipal sidewalks;



- Short-term and long-term bicycle parking on-site which exceeds the minimum Zoning By-law requirements for residential and commercial uses; and
- Access to multiple bus transit routes and the future BRT service that provides good connectivity to the broader network and access to major destinations.

In addition to the above, the following measures are appropriate for consideration:

- Parking unbundled from the sale/rent of apartment units;
- Carshare space/vehicle(s) in a premium location on-site; and
- Transit, carshare, and active transportation information provided in a welcome package to new residents and/or posted in central locations on-site.

6.2 Recommendations

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



Appendix A

Pre-Study Consultation



Appendix B

Existing Traffic Data



Appendix C

Base Year Traffic Operations Reports



Appendix D

ITE Data Sheets



Appendix E

Other Area Development Traffic Volumes



Appendix F

Background Traffic Operations Reports



Appendix G

Total Traffic Operations Reports

