



**STRIK
BALDINELLI
MONIZ**

PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL

TRANSPORTATION IMPACT ASSESSMENT

723 LORNE AVENUE & 25 QUEENS PLACE

LONDON, ONTARIO

PROPOSED RESIDENTIAL DEVELOPMENT

HABITAT FOR HUMANITY HEARTLAND ONTARIO INC.

UPDATED OCTOBER 2022

SBM-20-1299

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Transportation Impact Assessment

CERTIFICATE OF OWNERSHIP

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Company or Firm: **Strik, Baldinelli, Moniz Ltd.**

Original Submission or Addendum: **Update**

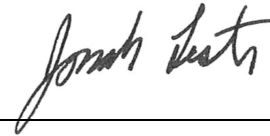
Original Report Name: **Transportation Impact Assessment - 723 Lorne Avenue & 25 Queens Place**

I hereby certify that the attached document has been prepared accurately and to the best of my knowledge. The assumptions and analysis contained herein have been formulated using sound transportation planning and traffic operations methodologies.

Individual accepting corporate responsibility:

Name: **Jonah Lester, P.Eng.**

Signature:



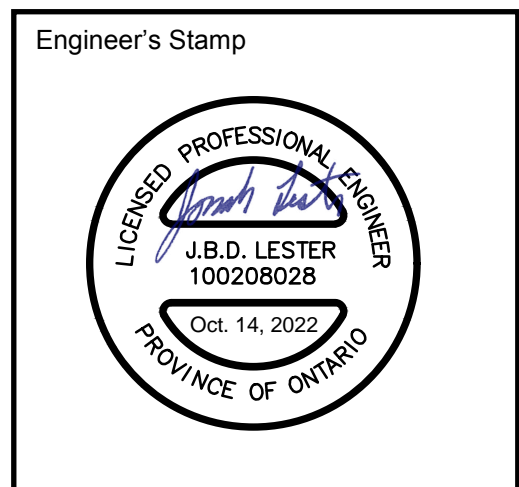
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October 14, 2022
SBM-20-1299

**Re: Transportation Impact Assessment
725 Lorne Avenue & 25 Queens Place – Residential Development
London, Ontario**

Strik, Baldinelli, Moniz Ltd. is pleased to provide you with the enclosed updated Transportation Impact Assessment report for the proposed residential development at 725 Lorne Avenue and 25 Queens Place in London, Ontario.

We trust this submission meets your satisfaction and will assist with the approval of your development. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,
Strik, Baldinelli, Moniz Ltd.
Civil • Structural • Mechanical • Electrical



Jonah Lester, P.Eng.
Transportation Engineer

EXECUTIVE SUMMARY

This updated Transportation Impact Assessment (TIA) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for Habitat for Humanity to identify transportation impacts associated with the proposed residential development located at 723 Lorne Avenue and 25 Queens Place in London, Ontario. A previous version of the TIA was completed in April 2022 and this updated TIA provides additional analysis and details, as requested by City of London (City) staff.

The development is proposed to include 12 single detached dwellings with access from an extension of Queens Place northerly to Lorne Avenue.

Based on the analysis completed, the following key conclusions and recommendations are made in this TIA:

- The proposed 12 new homes on the extension of Queens Place are expected to generate 13 new trips during the AM peak hour (3 in and 10 out) and 13 new trips during the PM peak hour (8 in and 5 out).
- The combination of the existing and proposed residences on Queens Place are expected to generate a total of 26 trips during the AM peak hour (6 in and 20 out) and 26 trips during the PM peak hour (16 in and 10 out).
- The proposed extension of Queens Place to Lorne Avenue provides an opportunity to introduce one-way operation to eliminate the existing safety issue with the single-lane section of Queens Place at the south extent. Three options for one-way operation were considered, and the Partial One-Way Operation Southbound option is recommended, which involves making the southerly narrow (single-lane) section of Queens Place one-way southbound and allowing two-way operation on the rest of Queens Place. This configuration is recommended to provide the most flexibility for traffic circulation and minimize the amount of new traffic using the existing section of Queens Place, while adequately accommodating servicing requirements (i.e. snow removal, garbage and recycling collection, and emergency access).
- A southbound one-way operation (as opposed to northbound one-way operation) of the southerly narrow section of Queens Place is required with the proposed two-way operation of the north section in order to avoid creating a dead-end condition without turnaround provisions for the southbound traffic in the north section. The southbound one-way operation should also reduce the potential for conflicts between motorists and cyclists at the Queens Avenue and Queens Place intersection by eliminating the possibility of side-swipe collisions between westbound right-turning vehicles and cyclist in the bike lane.
- It is recommended that the Queens Place extension have sidewalks on both sides of the road (as currently exist on Queens Place) to provide good pedestrian connectivity to the surrounding sidewalk network and Lorne Avenue Park.
- It is recommended that the Queens Place extension have a 5.4 m pavement width, which, with 0.4 m gutters, will match the curb-to-curb width of the existing north end of Queens Place. This road width will provide sufficient width for two-way operation and emergency access needs, while working with the road alignment constraints and leaving enough boulevard width on the east side to include a sidewalk.

- On-street parking is not recommended on Queens Place due to existing/proposed road width, which may cause vehicles parked on the street to interfere with driveway ingress and egress movements.
- No improvements to the external road network are required to accommodate the proposed development other than installing the appropriate one-way traffic signage for the southerly single-lane section of Queens Place once the Queens Place extension is operational. If it is ever determined that there is a lack of motorist compliance with the one-way operation of the south section of Queens Place, the City could consider modifying the northeast corner of Queens Avenue and Queens Place to physically prevent any westbound-to-northbound right turn movements.

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1 INTRODUCTION

This updated Transportation Impact Assessment (TIA) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for Habitat for Humanity to identify transportation impacts associated with the proposed residential development located at 723 Lorne Avenue and 25 Queens Place in London, Ontario. A previous version of the TIA was completed in April 2022 and this updated TIA provides additional analysis and details, as requested by City of London (City) staff.

The development is proposed to include 12 single detached dwellings with access from an extension of Queens Place northerly to Lorne Avenue. The location of the proposed development is illustrated in Figure 1.

Figure 1: Site Location



Aerial Image Source: Google Earth

1.1 STUDY SCOPE

The general TIA scope was discussed with City staff prior to commencing this assessment. Since the proposed development will only include 12 single detached dwellings, the new traffic generated by the development will be negligible from a road network capacity perspective, therefore this TIA does not include any intersection capacity analysis. Instead, the focus of this TIA is on providing recommendations for the operation of Queens Place (e.g. one-way operation once it is extended to Lorne Avenue) and the proposed road width for the Queens Place extension based on the following:

- Comparison of estimated Queens Place traffic volumes through Queens Place and adjacent intersections under various one-way operation scenarios (e.g. one-way northbound, one-way southbound, partial one-way southbound)
- Review of operational issues with the existing Queens Place and Queens Avenue intersection
- Review of collision history at the Queens Place and Queens Avenue intersection

- Review of existing/proposed Queens Place intersection sightlines
- Review of road width considerations (minimum lane requirements, on-street parking, driveway access, emergency vehicle access, etc.).

After submission of the original TIA, the City requested additional information and updates including additional analysis of the one-way northbound and southbound options and which is preferred, more details about specific operations (i.e. garbage collection, snow removal and emergency access), cross-sections of the lower portion of Queens Place, a summary of the one-way options evaluated, and identification of any external works required. The requested information is provided in this updated TIA.

2 EXISTING CONDITIONS

2.1 SITE CONTEXT

The proposed development site has an area of approximately 0.75 hectares and is part of the former Lorne Avenue Public School land. The school was closed in 2016 and demolished in 2018 with a plan to redevelop the land as park space and residential lots. The park space (named Lorne Avenue Park) has already been implemented to the northeast of the subject site and the site is surrounded by existing residential lots on all other sides, except where it abuts the Lorne Avenue and Queens Place right-of-ways (ROWs), as shown in Figure 2.

Figure 2: Site Area

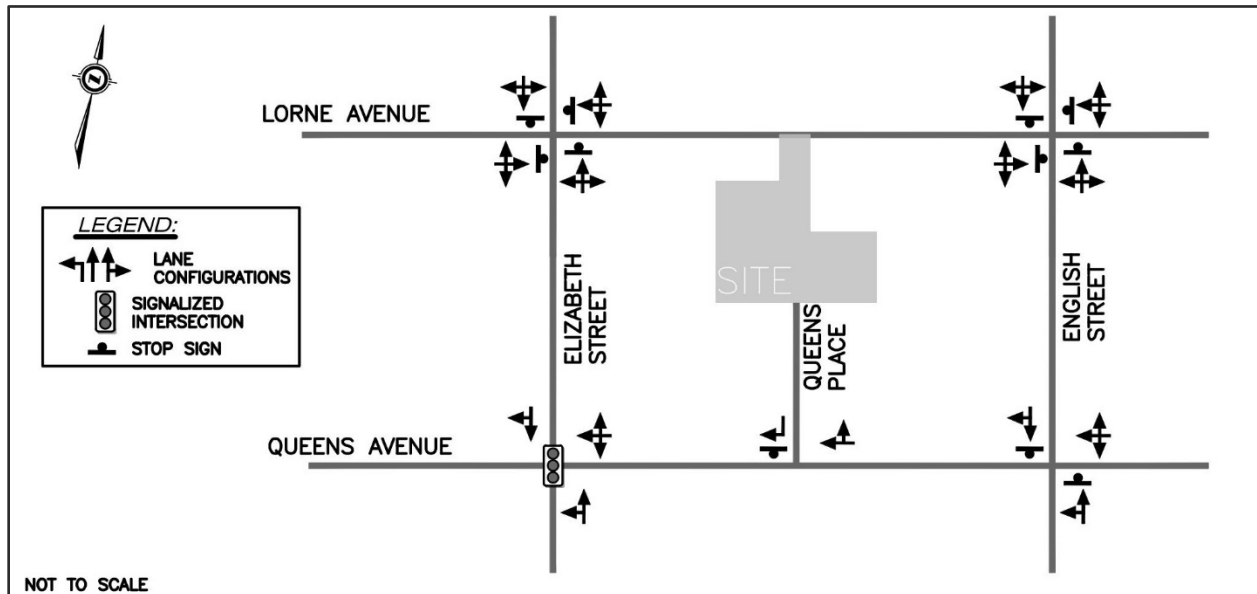


Map Source: City of London, London City Map (2021 imagery)

2.2 EXISTING ROAD NETWORK

A site visit was conducted on January 7th, 2022 to review current road and intersection conditions in the study area. The existing road network is described in this section and the existing lane configurations and traffic controls are illustrated in Figure 3. The City has recently implemented an Area Speed Limit program, lowering the speed limit to 40 km/h in certain areas of the City. The 40 km/h speed limit applies to all roads within the study area.

Figure 3: Existing Study Area Traffic Control and Lane Configuration



Queens Avenue is a single-lane one-way arterial road running westbound, approximately 100 m south of the subject site. It has an urban cross-section (curb and gutter) with a bike lane and on-street parking lane along the north side. Sidewalks are provided on both sides of Queens Avenue. Typical existing traffic volumes on Queens Avenue are approximately 6,500 vehicles per day through the study area with up to 700 vehicles during the peak hour.

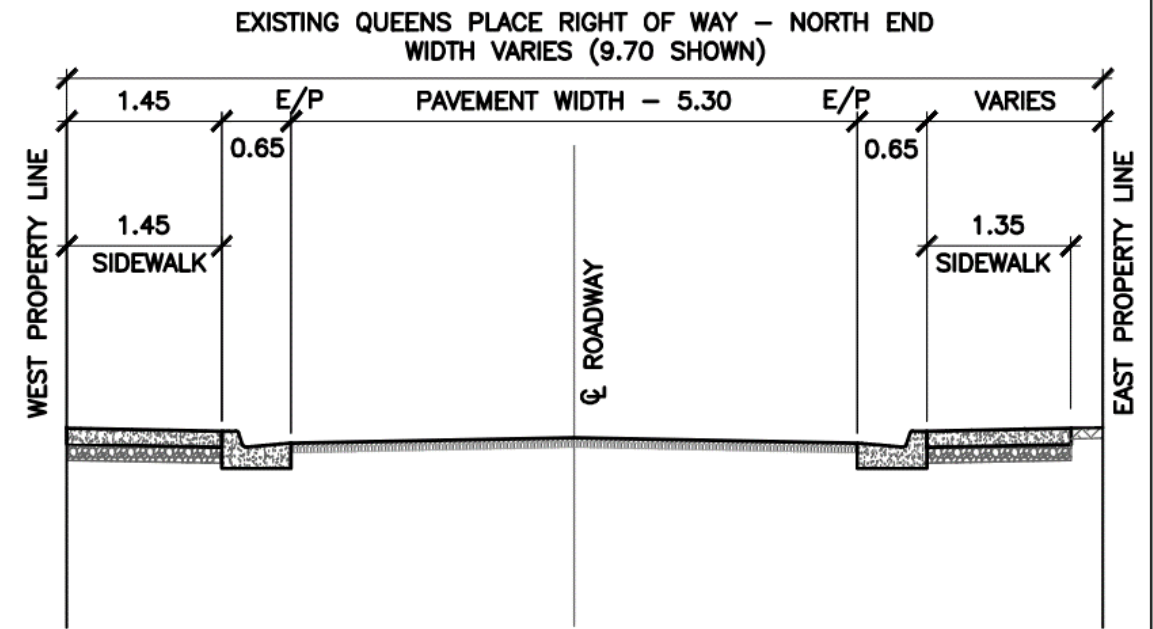
Queens Place is a local cul-de-sac that runs north-south for approximately 100 m north of Queens Avenue. Queens Place has an urban cross-section with a sidewalk on both sides of the road. On-street parking is prohibited on Queens Place. The existing Queens Place ROW width is very narrow, ranging from approximately 10.3 m down to only 4.5 m at the south limit. Due to the narrow ROW, the average road (pavement) width at the southern end of Queens Place is approximately 2.0 m (varies from 2.2 m down to 1.8 m at narrowest point), allowing only one direction of travel at a time. The northern section of Queens Place has an approximate road width of 5.3 m. The existing concrete gutters are 0.45 m wide, which means the curb-to-curb width at the north end is 6.2 m and minimum curb-to-curb width at the south end is 2.7 m. Figure 4 shows an aerial view of the Queens Place ROW with typical cross-sections of the north and south parts of the street.

Figure 4: Queens Place – Existing Right of Way



Map Source: City of London, London City Map (2021 imagery)

SECTION A-A



SECTION B-B

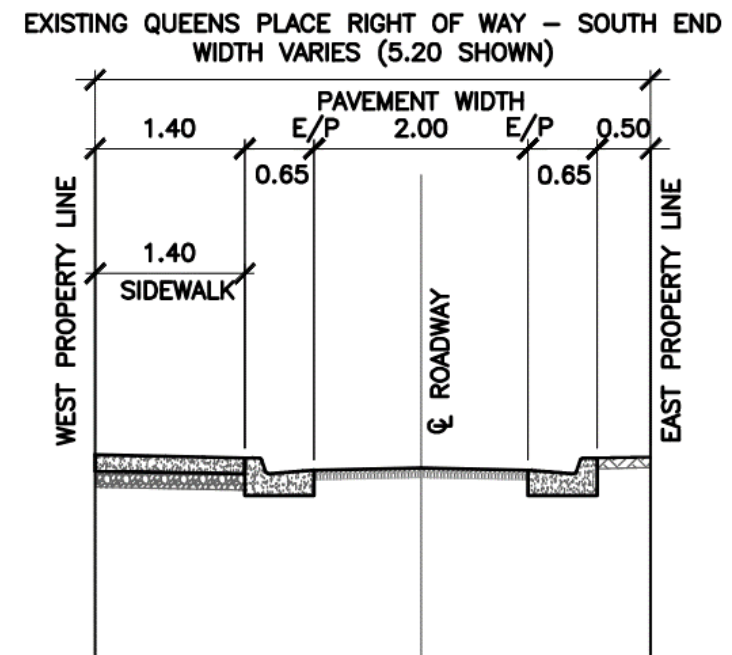


Figure 5 shows a photo of the southern, single-lane section of Queens Place taken from the Queens Avenue intersection. The photo in Figure 5 is from Google StreetView in April 2015 because that dataset provided the best view of the Queens Place ROW during non-winter conditions. It is worth noting that when Lorne Avenue Public School was still operational, Queens Place provided the sole access to the school's staff parking lot, which had approximately 36 parking spaces.

Figure 5: Photo of Queens Place – Looking Northbound from Queens Avenue (April 2015)



Photo Source: Google StreetView (April 2015)

Lorne Avenue is a two-lane local road on the north side of the subject site that runs east-west. Lorne Avenue has an urban cross-section with a sidewalk on both sides of the road. On-street parking is generally permitted on the north side of the road, but is mostly prohibited along the frontage of Lorne Avenue Park. Based on traffic count data for Lorne Avenue at Adelaide Street North and at Quebec Street (included in Appendix A), it is estimated that Lorne Avenue has a daily traffic volume of approximately 1,200 vehicles per day through the study area.

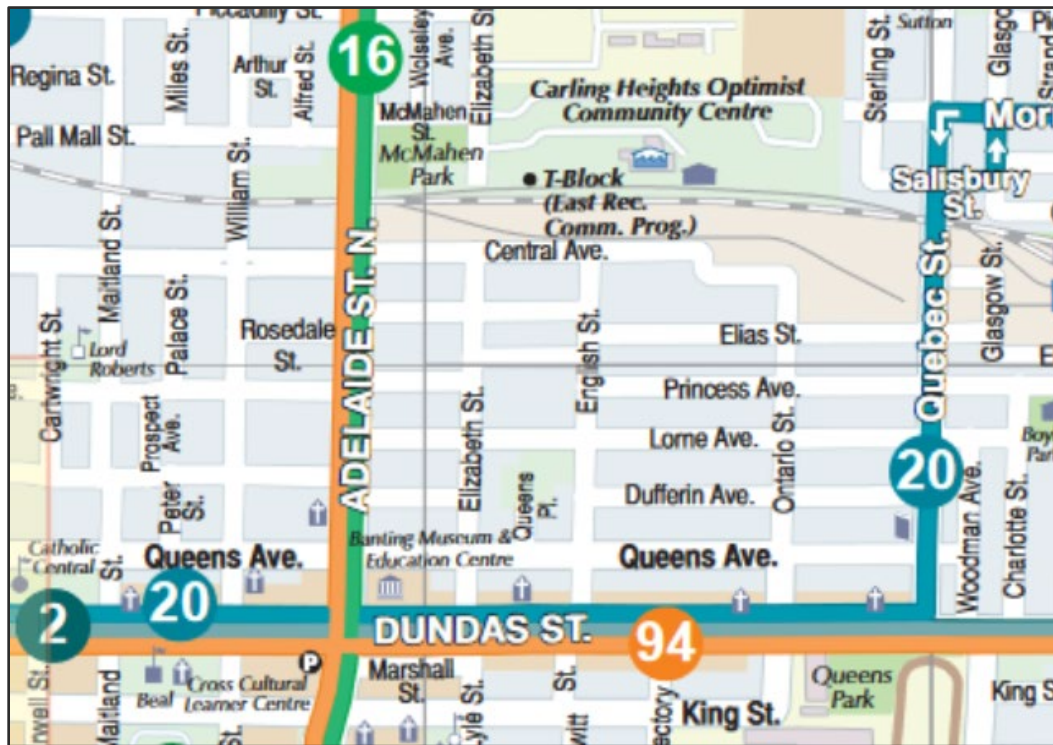
English Street is a two-lane local road running north-south to the east of the subject site. English Street has an urban cross-section with a sidewalk on both sides of the road. On-street parking is generally permitted on the west side of English Street, but is prohibited along the frontage of Lorne Avenue Park. The existing traffic on English Street is estimated to be 1,500 vehicles per day.

Elizabeth Street is a two-lane local road running north-south to the west of the subject site. Elizabeth Street has an urban cross-section with a sidewalk on both sides of the road and on-street parking is permitted on the west side of the road. The existing traffic on English Street is estimated to be 1,000 vehicles per day.

2.3 EXISTING TRANSIT SERVICES

Although transit service does not run directly through the study area, bus routes are available within walking distance of the site. As shown in the excerpt from the London Transit Commission (LTC) Ride Guide (service map) in Figure 6, bus route 16 operates on Adelaide Street North, which is approximately 400 m west of the site, and bus routes 2, 20 and 94 operate along Dundas Street, approximately 350 m south of the site.

Figure 6: Transit Service Map

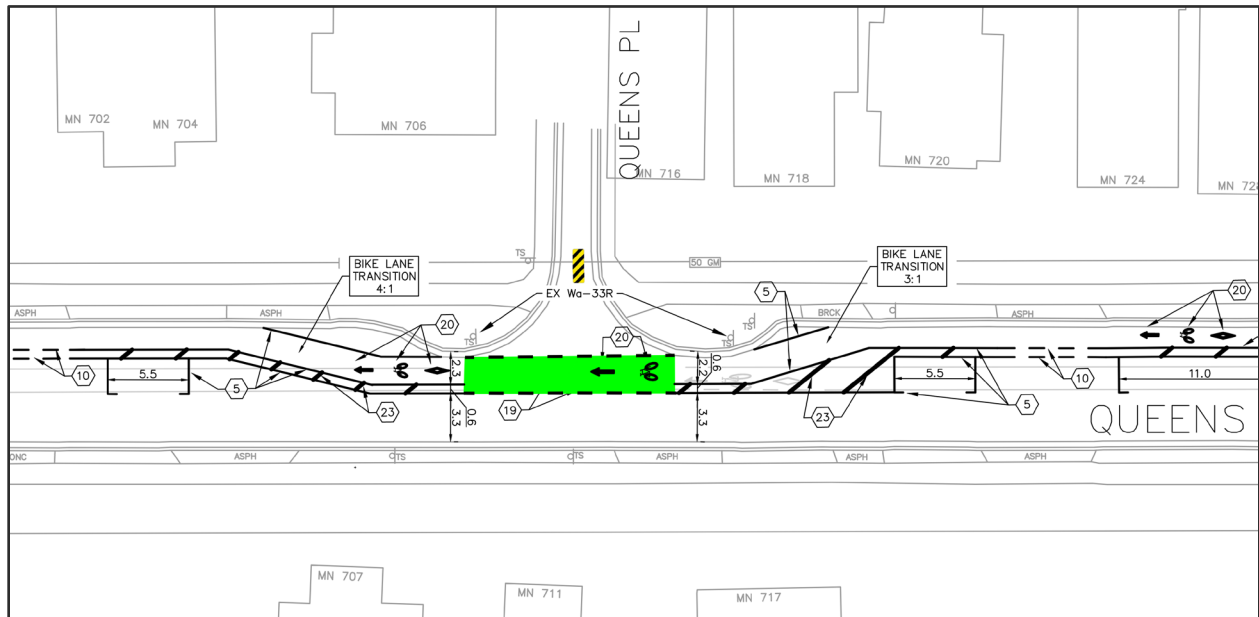


Source: London Transit Commission Ride Guide (September 2019)

2.4 ACTIVE TRANSPORTATION FACILITIES

In the study area, sidewalks exist on both sides of all roads. The only dedicated cycling facility in the area is the bike lane on Queens Avenue. The bike lane on Queens Avenue is located on the north side of the road, between the travel lane and the on-street parking lane. However, the City is currently undertaking infrastructure and active transportation improvements on Queens Avenue that will modify the bike lane configuration to reverse the position of the bike lane and parking lane (i.e. the bike lane will be located along the north curb line, with the parking lane in between the travel lane and bike lane). Figure 7 is an excerpt from the preliminary design drawings (prepared by IBI Group) showing the improvements in the vicinity of Queens Place.

Figure 7: Queens Avenue Bike Lane Modifications at Queens Place



Source: Queens Avenue Active Transportation Improvements Preliminary Design (IBI Group / City of London)

2.5 COLLISION HISTORY REVIEW

Historical collision data from the past five years was requested from the City for Queens Avenue in the vicinity of Queens Place. The provided collision reports were reviewed to determine if there is any recent history of collisions that could be related to the narrow road width at the south end of Queens Place.

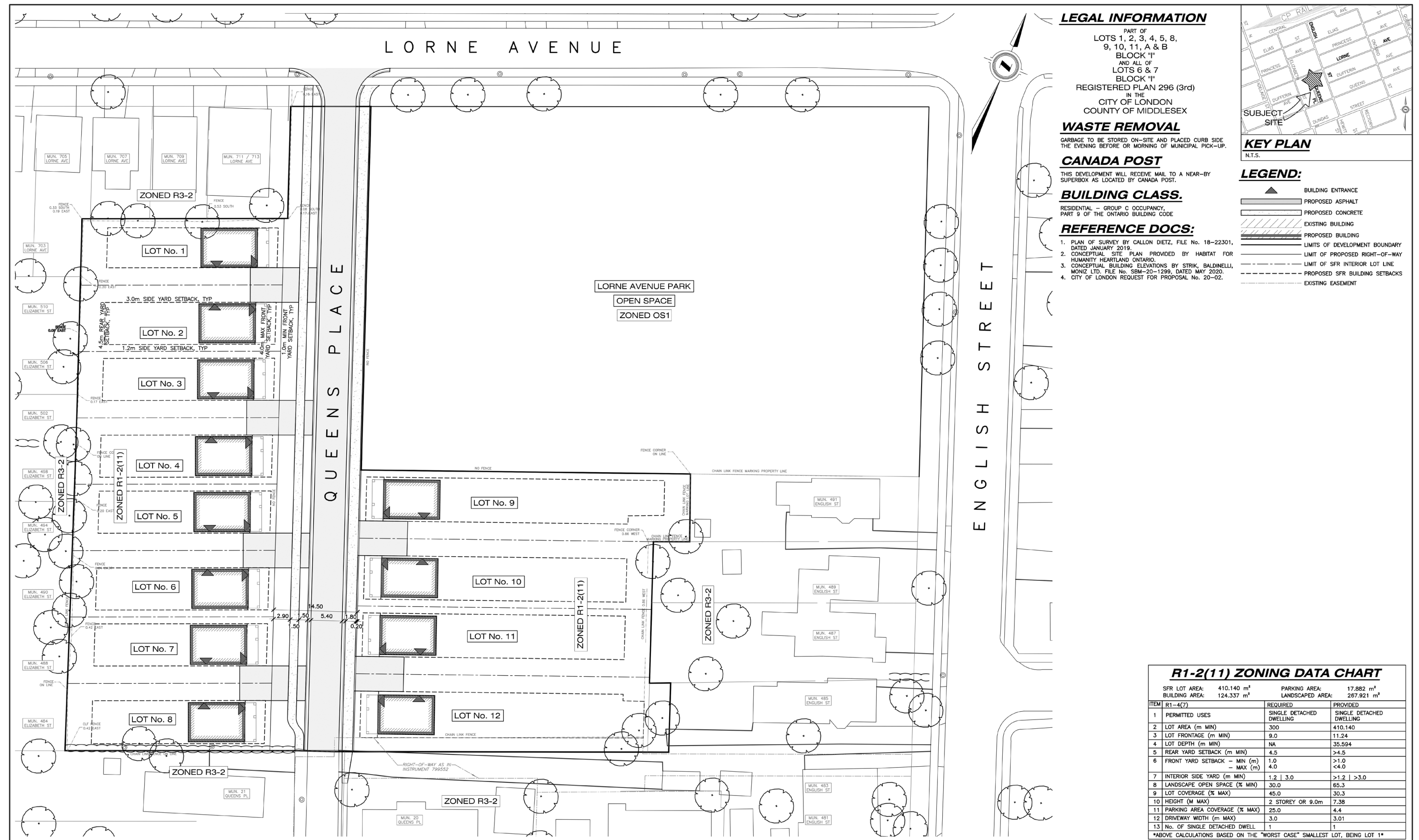
The data provided showed only two reported collisions on Queens Avenue between English Street and Elizabeth Street and only one collision that could have potentially been related to the existing Queens Place operation. This collision was a rear-end collision between English Street and Queens Place. While the exact cause of the collision cannot be determined from the report, this is the type of collision that could result from a motorist on Queens Avenue desiring to go northbound on Queens Place, but having to stop and wait for a southbound vehicle on Queens Place to turn onto Queens Avenue first, since a following vehicle on Queens Avenue would not be expecting the vehicle ahead to come to a complete stop. This highlights the potential safety issue with the current two-way operation of the narrow section of Queens Place.

3 PROPOSED DEVELOPMENT

3.1 DEVELOPMENT PLAN

The development is proposed to include 12 single detached dwellings along an extension of Queens Place northerly to Lorne Avenue. A cropped version of the Conceptual Development Plan is presented in Figure 8. The full version of the drawing along with the Draft Plan of Subdivision are included in Appendix B.

Figure 8: Conceptual Development Plan



The proposed Queens Place extension generally has a ROW width of 14.5 m, but it is reduced to 13.9 m for approximately 20 m at the north end, and the centerline of the ROW extension is offset by approximately 1.5 m from the existing ROW centerline. The development concept proposes that the road extension match the existing widest section of Queens Place with a curb-to-curb width of 6.2 m (i.e. 5.4 m pavement width and 0.4 m gutters), with no on-street parking, and sidewalks continued northerly on both sides of the road. The rationale for this plan is discussed later in this section.

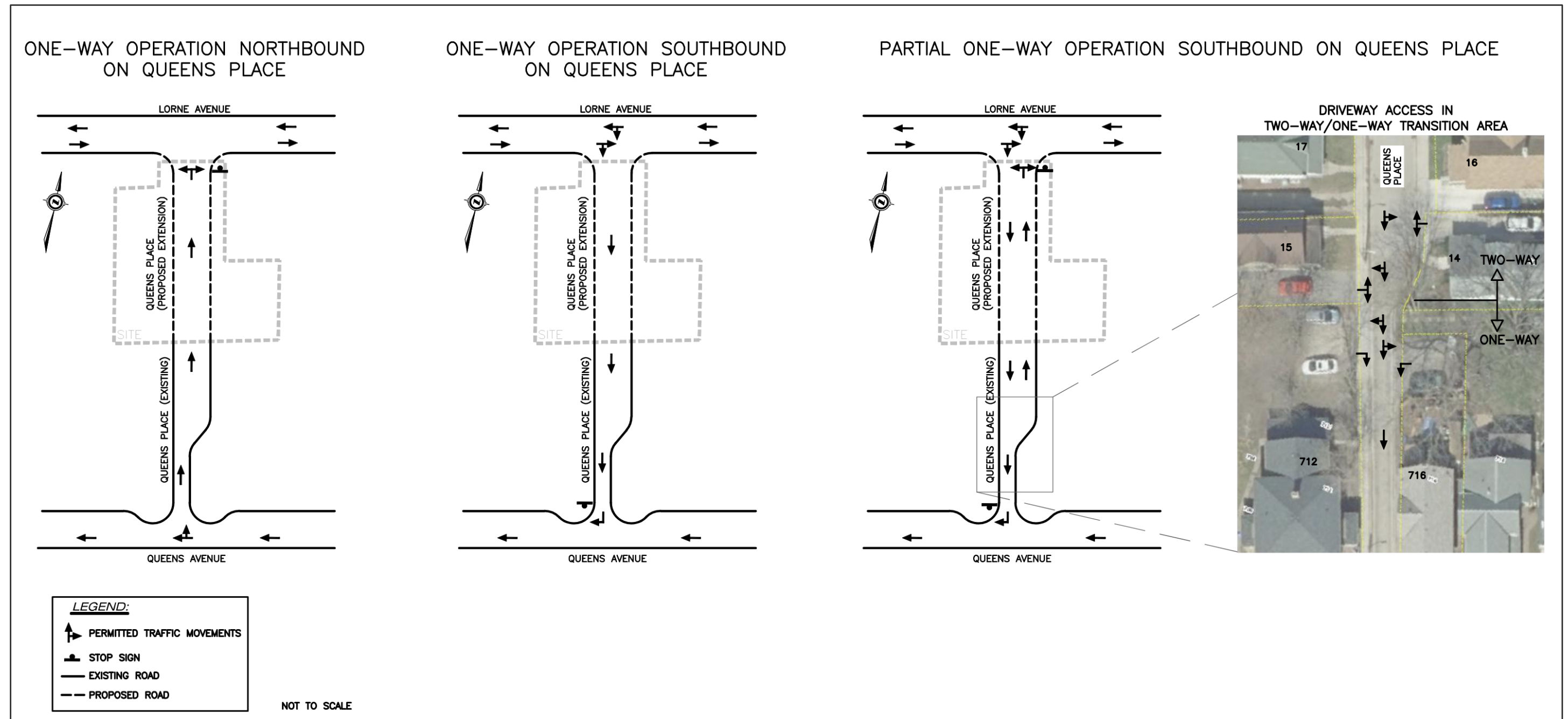
The extension of Queens Place to Lorne Avenue also provides an opportunity to address safety and operational issues associated with the existing single-lane section of the road at the south end by introducing a one-way operation. Three options are possible for the one-way operation of Queens Place, which are:

- One-way Operation Northbound – all traffic can only travel northbound on Queens Place (i.e. all traffic enters from Queens Avenue and exits at Lorne Avenue)
- One-way Operation Southbound – all traffic can only travel southbound on Queens Place (i.e. all traffic enters from Lorne Avenue and exits at Queens Avenue)
- Partial One-way Operation Southbound – southbound one-way operation would be limited to the single-lane section (south end) of Queens Place only, and two-way operation would be permitted on Queens Place to the north (i.e. all traffic enters from Lorne Avenue, but traffic can exit at Queens Avenue or Lorne Avenue).

A partial one-way operation in the northbound direction (i.e. single-lane section of Queens Place allows northbound travel only) would not be possible because it would create a dead-end condition for the northerly section of Queens Place without the provision of a cul-de-sac or turning circle for southbound traffic to turn around.

Figure 9 illustrates the one-way operation options showing permitted traffic movements, including specific driveway movements in the two-way to one-way transition area for the Partial One-Way Operation Southbound option.

Figure 9: Queens Place One-Way Operation Options



As shown in Figure 9, the traffic operation of the northbound and southbound one-way options is straightforward with all travel on Queens Place in one direction. With the Partial One-Way Operation Southbound option residents of Queens Place will be able to enter Queens Place from Lorne Avenue and exit to Lorne Avenue or Queens Avenue, but the rear driveways of 712 and 716 Queens Avenue, which are located on the single-lane section of Queens Place that would operate as one-way southbound, will need to enter from Lorne Avenue and exit to Queens Avenue.

Overall, the Partial One-way Operation Southbound option is recommended based on the considerations discussed in the following sub-sections.

3.2 SITE TRAFFIC GENERATION AND DISTRIBUTION

The site traffic (traffic expected to be generated by the proposed development) has been estimated to help assess the three potential options for the one-way operation of Queens Place by comparing how the options would affect turning movement volumes through the study area.

The traffic associated with the existing residences on Queens Place has also been included since those trips would also be redistributed.

Traffic volumes from the existing Queens Avenue residences and the proposed development were estimated based on trip rate information contained in the *ITE Trip Generation Manual 10th Edition* (ITE September 2017). The “Single Family Detached” (Land Use Code 210) land use was used for the trip generation estimates.

The applicable unit quantities and resulting trip generation estimates are summarized in Table 1.

It is noted that no adjustments for non-auto mode trips have been applied.

Table 1: Queens Place Trip Generation Summary

ITE LAND USE DESCRIPTION	Units	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Existing - Single Family Detached LUC 210	12	3	10	13	8	5	13
Proposed - Single Family Detached LUC 210	12	3	10	13	8	5	13
Total Trips		6	20	26	16	10	26

As shown in Table 1, the new trip generation (two-way) for the proposed development is forecast to be only 13 trips in both the AM and PM peak hours, and the total Queens Place traffic (existing plus proposed) is forecast to be 26 trips in the AM and PM peak hours.

The Queens Avenue traffic has been distributed through the study area road network based on the expected origins/destinations, which, given the site’s central location within the city, is fairly evenly distributed in all directions. Table 2 summarizes the trip distribution applied in this study.

Table 2: Trip Distribution Summary

DIRECTION TO / FROM	VIA	IN	OUT
North	Adelaide Street	20%	20%
	Quebec Street	20%	20%
South	Adelaide Street	20%	20%
West	Queens Avenue	0%	20%
	Dundas Street	20%	0%
East	Dundas Street	20%	20%
Total		100%	100%

When assigning the Queens Place traffic to the study area, it was assumed that motorists would take the route with the least number of stops and/or traffic signals.

The resulting Queens Place traffic within the study area is illustrated in Figure 10, Figure 11, and Figure 12 for the Northbound, Southbound, and Partial Southbound one-way operation scenarios, respectively.

Figure 10: Queens Place Traffic With One-Way Operation Northbound

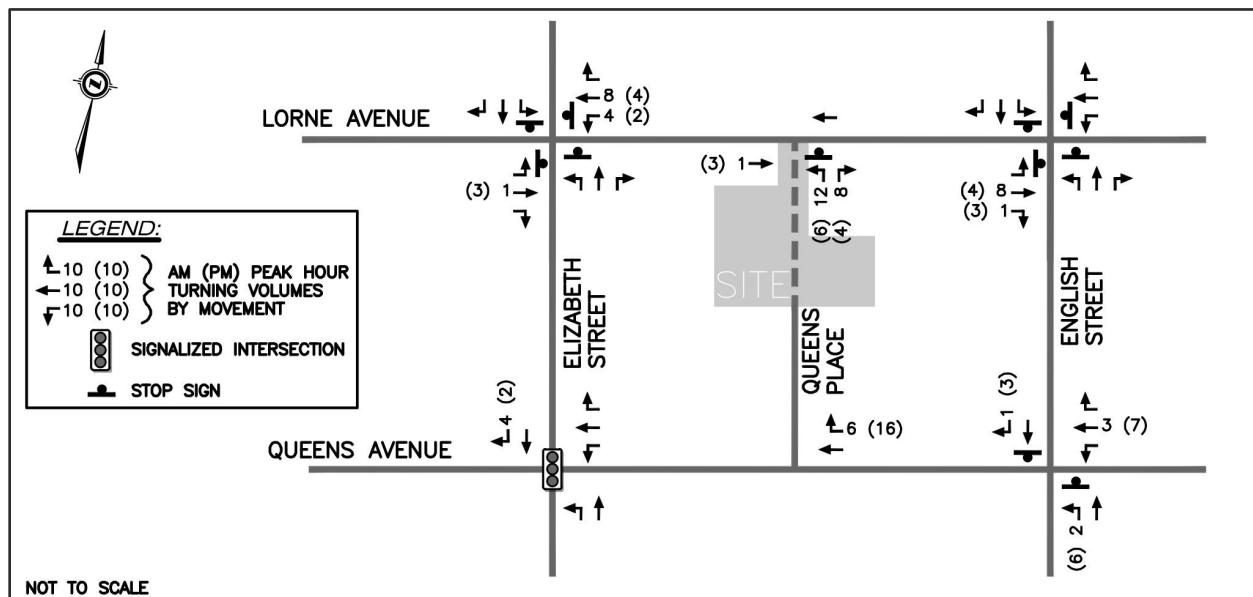


Figure 11: Queens Place Traffic With One-Way Operation Southbound

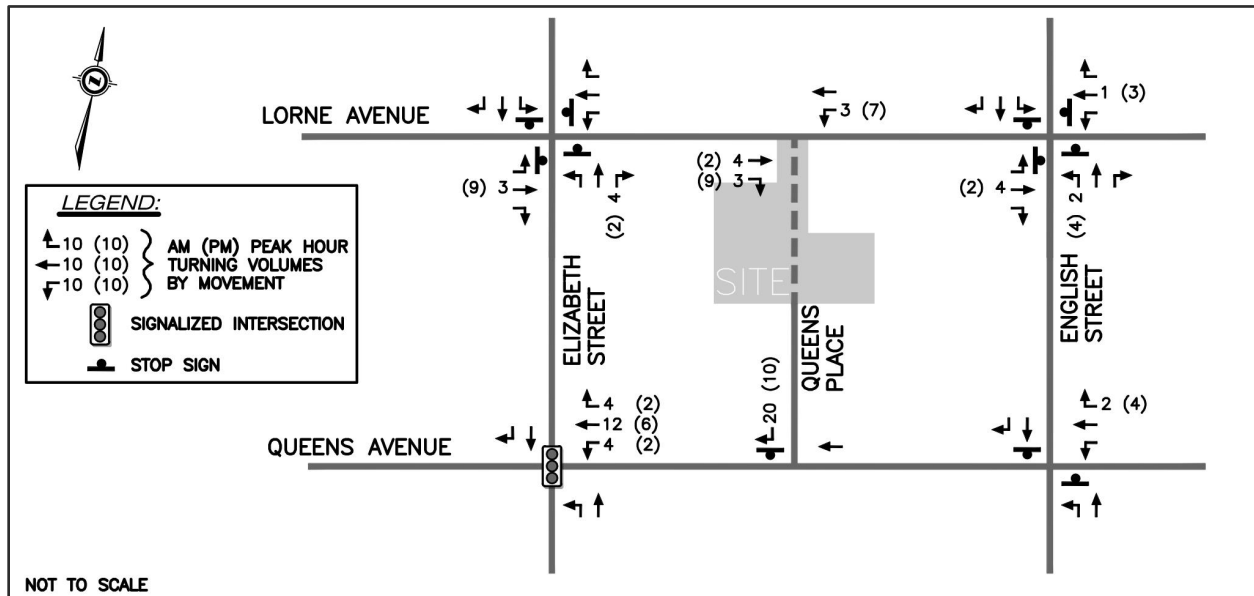
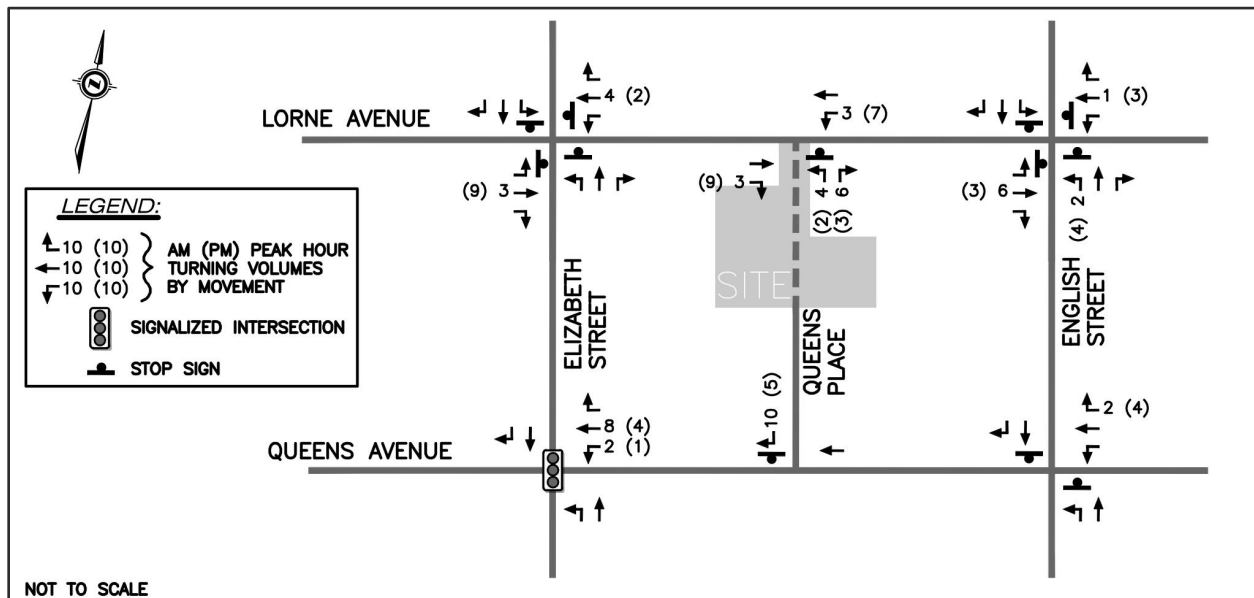


Figure 12: Queens Place Traffic With Partial One-Way Operation Southbound



From Figure 10, Figure 11 and Figure 12, it can be seen that traffic generated by the Queens Place residences does not add a significant volume to any particular intersection. While there are minor differences in the traffic volumes between the one-way operation options, the differences are not significant enough to have any effect on the capacity or operations of the surrounding intersections.

Additional considerations for the one-way operation options are discussed in the next section.

3.3 ONE-WAY OPERATION OPTIONS REVIEW AND ACCESS CONSIDERATIONS

3.3.1 TRAFFIC VOLUMES AND CIRCULATION

From a traffic and circulation perspective, the One-Way Operation Northbound and One-Way Operation Southbound options do not offer any particular benefit over one another, however, the Partial One-Way Operation Southbound option distributes the traffic the most evenly and reduces the amount of out-of-way travel since it allows for the most flexibility for traffic to exit Queens Place. It is also worth noting that the Partial One-Way Operation Southbound option would reduce the amount of traffic that needs to use the existing section of Queens Place (i.e. less traffic using the single-lane section and less new traffic passing existing Queens Place residences). Therefore, the Partial One-Way Southbound option is considered to be the most beneficial (i.e. least disruptive) one-way option with respect to traffic circulation.

3.3.2 INTERSECTION SIGHTLINES

Sightlines at the Queens Place and Queens Avenue intersection and the proposed Queens Place and Lorne Avenue intersection were reviewed. Both Queens Avenue and Lorne Avenue are straight and flat, so there are no sight limitations due to road geometry.

At Queens Place and Queens Avenue, there are no significant sight obstructions in the Queens Avenue boulevard and the on-street parking on Queens Avenue is set back from the intersection sufficiently, so there are no visibility concerns at this existing intersection.

At the proposed Queens Place and Lorne Avenue intersection, there are generally no sight obstructions in the Lorne Avenue boulevard. It is noted that the driveway for 713 Lorne Avenue is immediately west of the proposed intersection and if a vehicle were parked at the north end of the driveway (i.e. right up to the sidewalk), the sightline to the west, as measured from a distance of 4.4 m from the edge of the Lorne Avenue traveled way (per Transportation Association of Canada (TAC) guidelines), would be limited to approximately 65 m. However, since that distance is equal to the safe stopping distance at a design speed of 50 km/h, plus motorists on the Queens Place extension could pull up closer to the Lorne Avenue traveled way to increase their sight distance to the west, we have no concerns about the visibility at this location.

3.3.3 CYCLIST SAFETY

Although the existing/proposed traffic volumes on Queens Place are relatively low, there is always a potential for conflict between vehicular traffic and cyclists using the bike lane on Queens Avenue. The one-way operation options considered would interact differently with the bike lane operation.

The One-Way Operation Northbound option would have vehicles making right turns from Queens Avenue to Queens Place across the bike lane, which has the highest potential for conflict (e.g. side-swipe collisions) between motorists and cyclists. The One-Way Operation Southbound and Partial One-Way Operation Southbound options would mean traffic from Queens Place would be turning onto Queens Avenue from a stop condition with a clear view of on-coming cyclists in the bike lane, therefore the southbound operation of Queens Place is considered safer for cyclists on Queens Avenue. Furthermore, the Partial One-Way Operation Southbound option is expected to have less turning movement between Queens Place and Queens Avenue, resulting in the least potential conflict with the bike lane operations.

3.3.4 SNOW REMOVAL

From discussion with City staff, it is our understanding that snow on Queens Place is currently cleared by a contractor tractor that is small enough to get down the narrow road, as well as a City 4x4 pickup truck

when needed. With the proposed extension of Queens Place, the same equipment would be used for snow removal. This equipment has the capability to angle the plow blade in either direction (i.e. push snow to the right or left) and all three one-way operation options would involve the same snow clearing procedure of performing multiple passes in the direction of one-way travel (i.e. looping around the block between passes) to clear the full width of the road.

For the One-Way Operation Northbound and Southbound options, this would be typical procedure for a one-way road. However, for the Partial One-Way Operation Southbound option, since all passes would have to be in the southbound direction, clearing the west side of the road would be typical (i.e. drive on right and push snow to the right), but clearing the east side of the road would require driving on the left side of the road (against the flow of traffic) and pushing snow to the left. While this procedure may not be considered ideal, it would be acceptable given the low speed, low traffic volume, and short length of Queens Place.

3.3.5 GARBAGE AND RECYCLING COLLECTION

Based on correspondence with City staff, it is our understanding that garbage and recycling trucks currently back into Queens Place from Queens Avenue due to the large trucks having difficulty making the right turn into the narrow roadway. Roadside collection is then done on one side while reversing to the north end of Queens Place, followed by the other side when returning southbound, or alternatively, operators may sometimes collect both sides of the street in one pass (i.e. carry containers/bags across the street to the truck).

With the proposed extension of Queens Place, it is expected that garbage and recycling would be collected by making two passes along Queens Place in the direction of one-way travel (i.e. collect one side, loop around the block, then collect the other side). For the One-Way Operation Northbound and Southbound options, this would be typical procedure for a one-way road, but the Northbound option would require trucks to make multiple right turns onto Queens Place from Queens Avenue, which is currently avoided because it is quite challenging, so the Northbound option would be less preferred.

For the Partial One-Way Operation Southbound option, as with the snow removal process, since both passes would have to be in the southbound direction, collecting the west side of the road would be typical (i.e. drive on right and collect on the right), but collecting the east side of the road would require driving on the left side of the road against the flow of traffic while collecting on the left. Since there would only be waste from eight residences to collect on the east side Queens Place (four existing and four proposed homes) and traffic volumes will remain quite low, there are no concerns with that approach.

3.3.6 EMERGENCY ACCESS

The proposed extension of Queens Place to Lorne Avenue will provide improved emergency access by introducing a second point of access.

It is assumed that in a time-critical emergency situation, emergency vehicles could cautiously ignore any one-way operation implemented on Queens Place and access the street from whichever end is closest to their direction of approach. However, for cases where the one-way operation would be followed, both the One-Way Operation Southbound and Partial One-Way Operation Southbound options would allow access to Queens Place from the east and west via Lorne Avenue, whereas the One-Way Operation Northbound option would only allow access from the east via Queens Avenue. Additionally, the southbound options would allow easier passage through the single-lane section of Queens Place (i.e. easier for larger emergency vehicles to pass straight through and turn right onto Queens Avenue than turn into the narrow section from Queens Avenue), therefore the southbound options would be slightly preferred.

3.3.7 ONE-WAY OPERATION COMPLIANCE

To convert Queens Place (or part thereof) to one-way operation, no modifications should be required to the road, just the installation of the appropriate 'One-Way and 'Do Not Enter' signage (discussed further in Section 3.6). While there is nothing to suggest that motorists would not comply with a one-way operation of Queens Place, if a lack of compliance were to become a problem, the options with southbound one-way operations would offer the greatest ability to introduce physical measures that would deter wrong-way travel. With Queens Avenue being one-way westbound, a one-way operation southbound of Queens Place would mean that the only permissible turning movement at the Queens Place and Queens Avenue intersection would be the southbound right turn movement. This would allow for the curb line on the northeast corner of the intersection to be reconfigured to channelize the southbound right turn movement and prohibit westbound right turns. However, this measure should only be considered if non-compliance were to become a serious issue, since the physical restriction of the right turn movements would also hinder emergency access from Queens Avenue.

If the One-Way Operation Northbound option were implemented, there would not be the same ability to block wrong-way movements from Lorne Avenue since vehicles leaving Queens Place need to turn in both directions onto Lorne Avenue.

3.3.8 ONE-WAY OPERATION OPTIONS SUMMARY

Table 3 summarizes and evaluates the main considerations related to the one-way operation options discussed in the previous subsections. For the evaluation, each option is given a score out of four for each factor considered, with higher scores being the most preferred.

Table 3: Queens Place One-Way Operation Options Evaluation Summary

FACTORS CONSIDERED	ONE-WAY OPERATION NORTHBOUND		ONE-WAY OPERATION SOUTHBOUND		PARTIAL ONE-WAY OPERATION SOUTHBOUND	
	SCORE		SCORE		SCORE	
Traffic Circulation	1	<ul style="list-style-type: none"> Less flexibility for traffic exiting Queens Place. More traffic on existing section of Queens Place. 	1	<ul style="list-style-type: none"> Less flexibility for traffic exiting Queens Place. More traffic on existing section of Queens Place. 	4	<ul style="list-style-type: none"> Most flexibility for traffic exiting Queens Place. Less traffic on existing section of Queens Place.
Cyclist Safety	1	<ul style="list-style-type: none"> Right turns from Queens Avenue have higher potential for conflict between motorists and cyclists in the bike lane (side-swipe collisions). 	3	<ul style="list-style-type: none"> Vehicles from Queens Place would have stop control at Queens Avenue and clear view of oncoming cyclists in bike lane. 	4	<ul style="list-style-type: none"> Vehicles from Queens Place would have stop control at Queens Avenue and clear view of oncoming cyclists in bike lane. Least traffic volume conflicting with the bike lane.
Snow Removal	3	<ul style="list-style-type: none"> Snow could be cleared on Queens Place with multiple northbound passes (looping around block in between). It is assumed that it would be more difficult to turn onto the narrow section of Queens Place from Queens Avenue. 	4	<ul style="list-style-type: none"> Snow could be cleared on Queens Place with multiple southbound passes (looping around the block in between passes). 	3	<ul style="list-style-type: none"> Snow could be cleared on Queens Place with multiple southbound passes (looping around the block in between passes). Would require driving on the left side of the road (against flow of traffic) to clear the east side of road, however, this is expected to be acceptable due to low speed, low traffic volume and short length of Queens Place.
Garbage and Recycling Collection	1	<ul style="list-style-type: none"> Garbage and recycling on Queens Place could be collected in two northbound passes (collect one side, loop around the block, collect the other side). Would be very difficult for trucks to turn onto the narrow section of Queens Place from Queens Avenue. 	4	<ul style="list-style-type: none"> Garbage and recycling could be collected on Queens Place in two southbound passes (collect one side, loop around the block, collect the other side). 	3	<ul style="list-style-type: none"> Garbage and recycling could be collected on Queens Place in two southbound passes (collect one side, loop around the block, collect the other side). Would require driving on the left side of the road (against flow of traffic) to collect from the east side, however, there would only eight residences to collect and traffic volume is low, so no concerns.
Emergency Access	3	<ul style="list-style-type: none"> It is assumed that emergency vehicles could ignore one-way operation on Queens Place and access the road from whichever end provides the most direct route, however, when one-way operation would be obeyed, large emergency vehicles would have more difficulty accessing Queens Place from the south due to turning constraints caused by the narrow road width. 	4	<ul style="list-style-type: none"> It is assumed that emergency vehicles could ignore one-way operation on Queens Place and access the road from whichever end provides the most direct route, however, when one-way operation would be obeyed, a southbound direction provides access from the east and west on Lorne Avenue and reduces turning constraints for large emergency vehicles at the Queens Place and Queens Avenue intersection. 	4	<ul style="list-style-type: none"> It is assumed that emergency vehicles could ignore one-way operation on Queens Place and access the road from whichever end provides the most direct route, however, when one-way operation would be obeyed, a southbound direction provides access from the east and west on Lorne Avenue and reduces turning constraints for large emergency vehicles at the Queens Place and Queens Avenue intersection.
One-Way Operation Compliance	3	<ul style="list-style-type: none"> Less opportunity to modify Queens Place and Lorne Avenue intersection to physically restrict wrong-way movements if a lack of compliance with the one-way operation were to become a problem. 	4	<ul style="list-style-type: none"> Since Queens Avenue and Queens Place would both be one-way, the northeast corner of their intersection could be reconstructed to channelize the southbound right turn movement and prohibit westbound right turns, if a lack of compliance with the one-way operation were to become a problem. 	4	<ul style="list-style-type: none"> Since Queens Avenue and Queens Place would both be one-way, the northeast corner of their intersection could be reconstructed to channelize the southbound right turn movement and prohibit westbound right turns, if a lack of compliance with the one-way operation were to become a problem.
Total Score		12		20		22

As shown in Table 3, the Partial One-Way Operation Southbound option is the most preferred, primarily due to better traffic circulation over the One-Way Operation Southbound option (secondary preference), recognizing that it would provide the most flexibility for access (reduce out-of-way travel) and result in lower traffic volumes using the existing section of Queens Place.

The One-Way Operation Southbound option would be the second preference and the One-Way Operation Northbound option is the least preferred, mostly due to the issues with large vehicles turning onto Queens Place from Queens Avenue, plus a higher potential for conflict with cyclists using the Queens Avenue bike lane.

3.4 PEDESTRIAN CONNECTIONS

Sidewalks currently exist on both sides of Queens Place and it is recommended that the extension of Queens Place also include sidewalks on both sides to provide good pedestrian connectivity to the existing sidewalk network and Lorne Avenue Park.

3.5 ROW AND ROAD WIDTH CONSIDERATIONS

The City of London standard for a Neighbourhood Street (serving 0-44 units) is a 20 m ROW with a 6.5 m road. The proposed ROW is 14.5 m, therefore the proposed road width needs to be minimized to consider the rest of the space requirements for the ROW, such as sidewalk provisions and boulevard width for utility locations, as well as the alignment of the road within the ROW.

With respect to the road alignment of the Queens Place extension, there are two main constraints to consider. At the south end of the extension, the road needs to tie into the existing Queens Place roadway, which has its centerline offset approximately 2 m east of the centerline of the proposed extension ROW. At the north end of the extension, the Queens Place roadway should be aligned as far east as practical within the ROW in order to maximize the separation distance from the driveway for 713 Lorne Avenue (i.e. allow for a reasonable curb radius on the southwest corner that will not extend into the driveway).

The TAC Geometric Design Guide for Canadian Roads (GDGCR) suggests that 2.7 m is the practical lower limit for lane width for an urban roadway, which should be sufficient for the low-volume, low-speed environment of Queens Place. With two lanes, that would equate to a pavement width of 5.4 m. With 0.4 m wide gutters on both sides, this would produce a curb-to-curb width of 6.2 m, which would match the curb-to-curb width of the existing north section of Queens Place, and be sufficient for emergency access needs (i.e. exceed the Ontario Building Code fire route minimum width of 6.0 m).

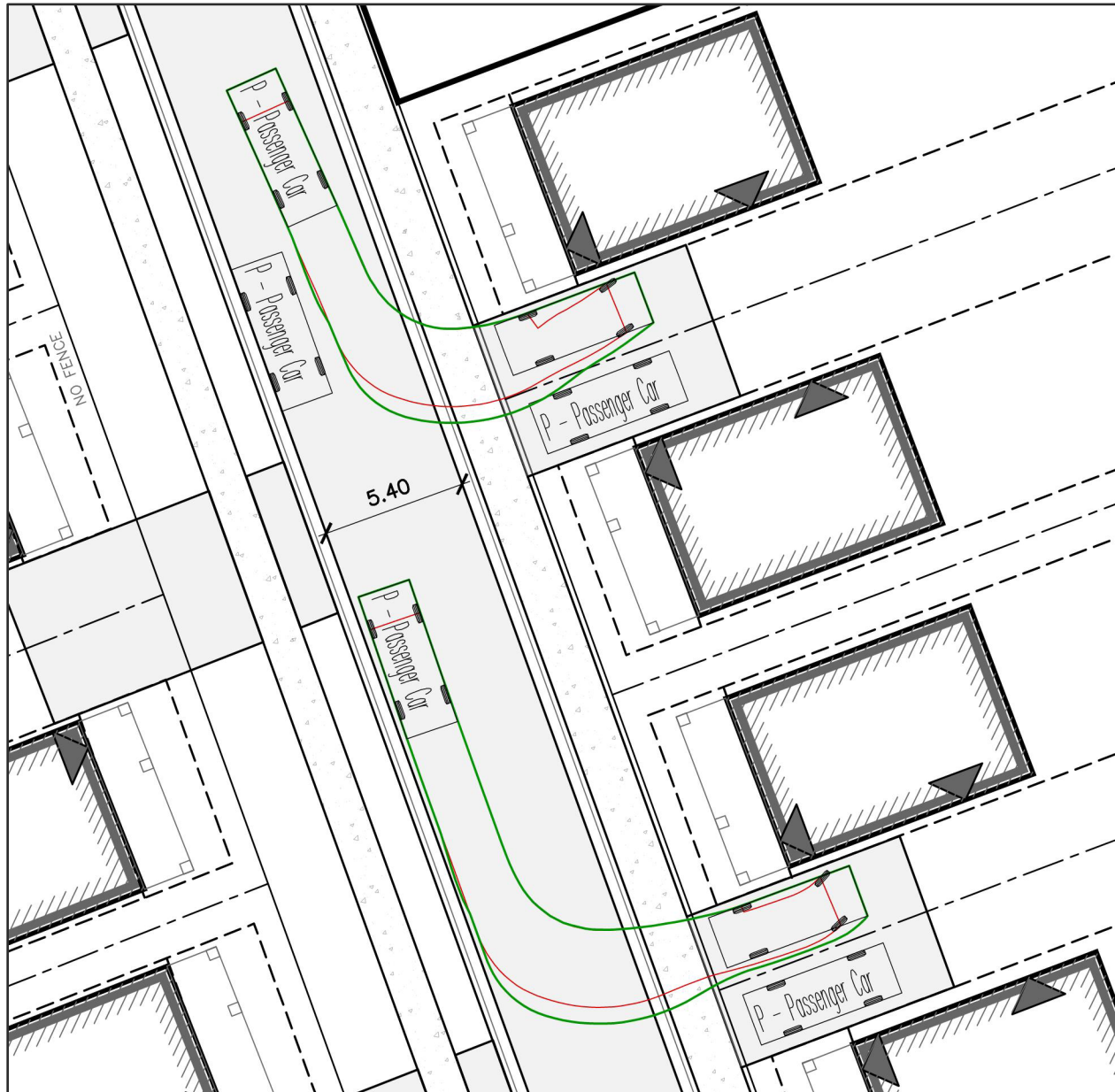
A 5.4 m wide road extension tied into the existing Queens Place roadway (i.e. road centerline offset 1.95 m east of ROW centerline) and run parallel to the extension ROW would allow a standard boulevard width (6.0 m or more) for accommodating typical utility locations on the west side of the ROW and still leave enough space in the east boulevard to provide a 1.8 m sidewalk along the curb line. At the intersection with Lorne Avenue, this combination of offset alignment and road width would allow for a 6 m curb radius to be implemented on the southwest corner without encroaching into the driveway of 713 Lorne Avenue, which is less than the City standard of 7.5 m, but still a functional size.

Based on the above, a 5.4 m pavement width is recommended for the extension of Queens Place (as shown in the Conceptual Development Plan).

The potential for on-street parking was considered, however, with the proposed 5.4 m pavement width, parked vehicles could interfere with driveway ingress and egress movements. This is demonstrated in Figure 13, which shows the vehicle paths of two passenger cars entering driveways, but one has to adjust their path for a vehicle parked on the street. The vehicle path for that vehicle shows that it would have difficulty entering the driveway without conflicting with a vehicle in the adjacent parking space. Similar

difficulties occur for egress movements, and obviously the issue would be exacerbated with larger vehicles (e.g. full-size pickup trucks) trying to make the movements. Based on this, on-street parking is not recommended on Queens Place.

Figure 13: Vehicle Path Analysis Showing Driveway Ingress Movements



Additional vehicle path analysis performed suggests that the City's standard 6.5 m road width would be required to have on-street parking without significantly affecting driveway movements.

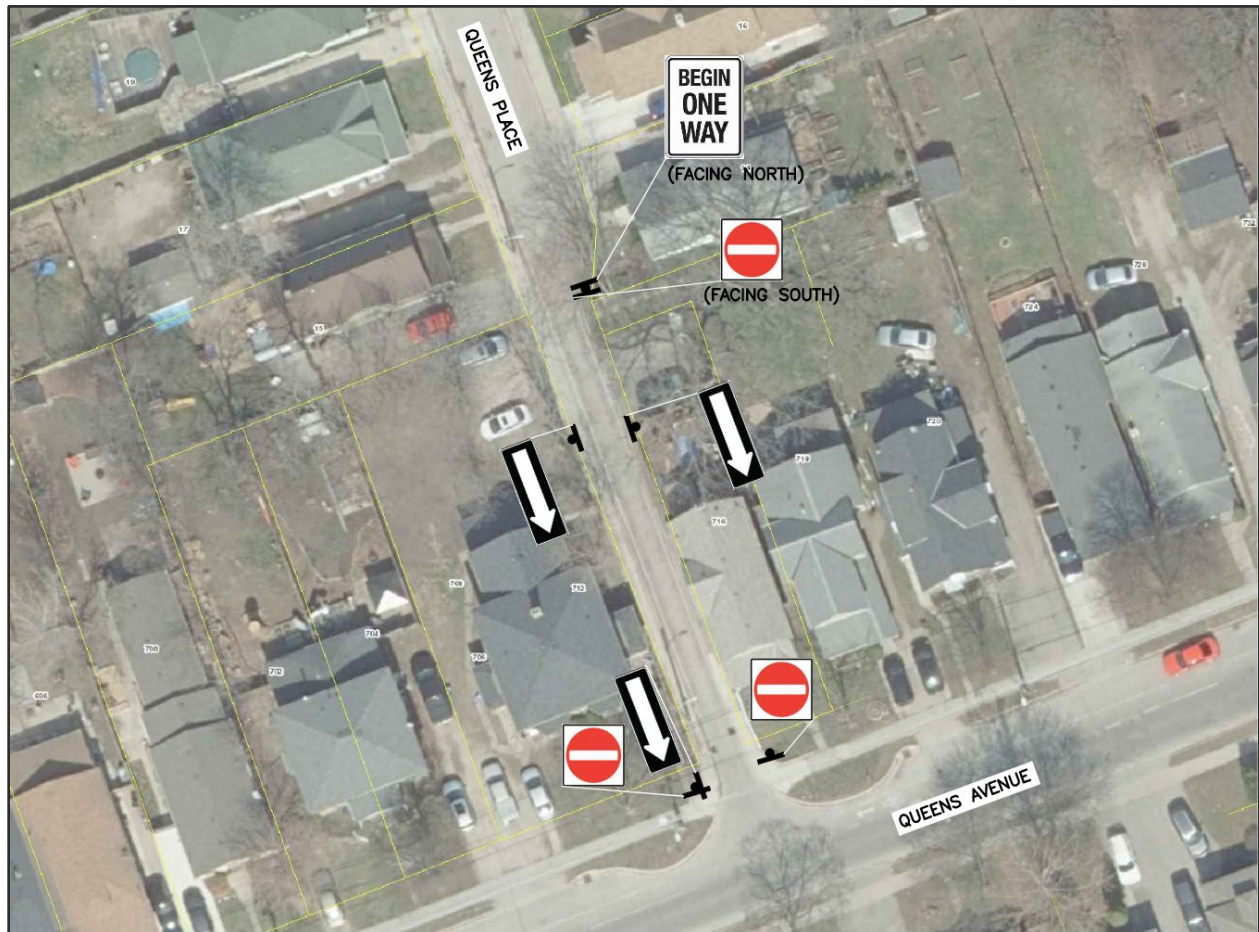
It is worth noting that if a fully one-way operation option were being recommended, the TAC GDGCR suggests that a 4.6 m pavement width could be considered, which is supposed to provide additional lane width to allow passage around a stopped or stalled vehicle. However, we would recommend a 5.2 m pavement width in order to provide 6.0 m between curb faces for emergency access purposes, as well as to provide more space for driveway access movements. Therefore, the recommended 5.4 m pavement

width for two-way operation of the Queens Place extension is only 0.2 m wider than the pavement width we would propose if a one-way operation option were being recommended.

3.6 EXTERNAL WORKS

The proposed extension of Queen Place will tie into the north end of the existing Queens Place and no other road works are required on Queens Place, other than installing signage to implement the recommended one-way operation of the south end of Queens Place. The recommended signage is shown in Figure 14.

Figure 14: Recommended Signage (Partial One-Way Operation Southbound Option)



As shown in Figure 14, “Do Not Enter” and “One Way” signs would be required at the Queens Place and Queens Avenue intersection. “One Way” signs are also recommended next to the driveways in the rear of the 712 and 716 Queens Avenue properties.

Although it is not a standard regulatory sign, to make it clear that the one-way operation only applies to the single-lane section at the south, a “Begin One Way” sign (or alternatively a “One Way Begins” sign as is used by the City of Toronto) is also recommended to be installed at the north end of the narrow section (facing north) and a “Do Not Enter/Wrong Way” sign could be added on the back on that sign (facing south) to reinforce the one-way southbound travel to vehicles exiting the 712 and 716 Queens Avenue driveways.

4 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis completed, the following key conclusions and recommendations are made in this TIA:

- The proposed 12 new homes on the extension of Queens Place are expected to generate 13 new trips during the AM peak hour (3 in and 10 out) and 13 new trips during the PM peak hour (8 in and 5 out).
- The combination of the existing and proposed residences on Queens Place are expected to generate a total of 26 trips during the AM peak hour (6 in and 20 out) and 26 trips during the PM peak hour (16 in and 10 out).
- The proposed extension of Queens Place to Lorne Avenue provides an opportunity to introduce one-way operation to eliminate the existing safety issue with the single-lane section of Queens Place at the south extent. Three options for one-way operation were considered, and the Partial One-Way Operation Southbound option is recommended, which involves making the southerly narrow (single-lane) section of Queens Place one-way southbound and allowing two-way operation on the rest of Queens Place. This configuration is recommended to provide the most flexibility for traffic circulation and minimize the amount of new traffic using the existing section of Queens Place, while adequately accommodating servicing requirements (i.e. snow removal, garbage and recycling collection, and emergency access).
- A southbound one-way operation (as opposed to northbound one-way operation) of the southerly narrow section of Queens Place is required with the proposed two-way operation of the north section in order to avoid creating a dead-end condition without turnaround provisions for the southbound traffic in the north section. The southbound one-way operation should also reduce the potential for conflicts between motorists and cyclists at the Queens Avenue and Queens Place intersection by eliminating the possibility of side-swipe collisions between westbound right-turning vehicles and cyclist in the bike lane.
- It is recommended that the Queens Place extension have sidewalks on both sides of the road (as currently exist on Queens Place) to provide good pedestrian connectivity to the surrounding sidewalk network and Lorne Avenue Park.
- It is recommended that the Queens Place extension have a 5.4 m pavement width, which, with 0.4 m gutters, will match the curb-to-curb width of the existing north end of Queens Place. This road width will provide sufficient width for two-way operation and emergency access needs, while working with the road alignment constraints and leaving enough boulevard width on the east side to include a sidewalk.
- On-street parking is not recommended on Queens Place due to existing/proposed road width, which may cause vehicles parked on the street to interfere with driveway ingress and egress movements.
- No improvements to the external road network are required to accommodate the proposed development other than installing the appropriate one-way traffic signage for the southerly single-lane section of Queens Place once the Queens Place extension is operational. If it is ever determined that there is a lack of motorist compliance with the one-way operation of the south section of Queens Place, the City could consider modifying the northeast corner of Queens Avenue and Queens Place to physically prevent any westbound-to-northbound right turn movements.

5 LIMITATIONS

This Report was prepared by Strik, Baldinelli, Moniz Ltd. (the Consultant) for Habitat for Humanity Heartland Ontario Inc. (owner) and the City of London. Use of this Report by any third party, or any reliance upon its findings, is solely the responsibility of that party. Strik, Baldinelli, Moniz Ltd. accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this Report. Third party use of this Report, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this Report are based on information as it appeared during the period of the investigation. This Report is not intended to be exhaustive in scope, or to imply a risk-free development. It should be recognized that the passage of time may alter the opinions, conclusions, and/or recommendations provided herein.

The analysis was limited to the documents referenced herein. Strik, Baldinelli, Moniz Ltd. accepts no responsibility for the accuracy of the information provided by others. All opinions, conclusions, and/or recommendations presented in this Report are based on the information available at the time of the review.

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Appendix A – Traffic Data



Turning Movements Report - AM Period

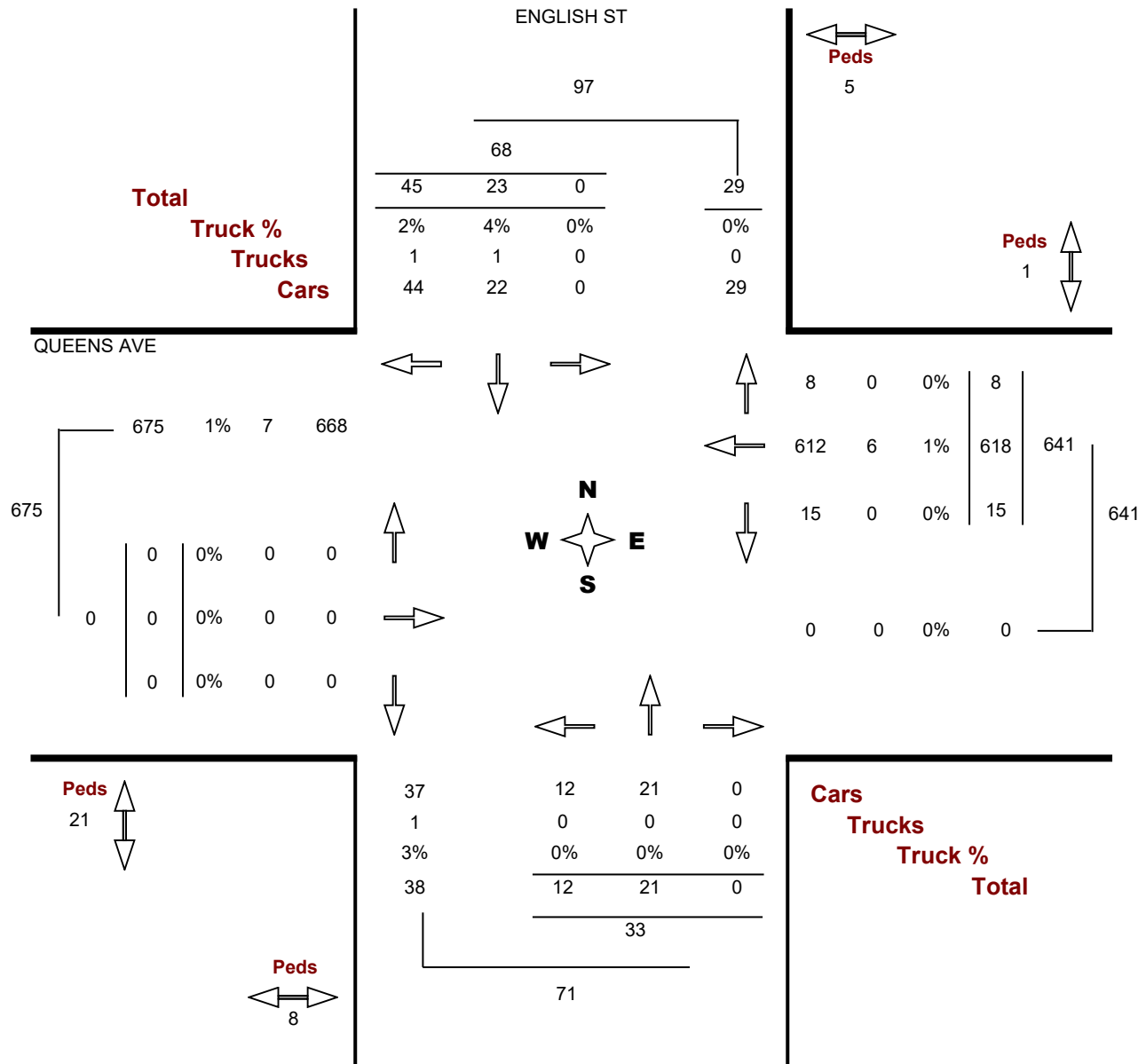
Location..... ENGLISH ST @ QUEENS AVE

Municipality..... LONDON

GeoID..... INT2568

Count Date..... Tuesday, 25 September, 2018

Peak Hour..... 07:30 AM — 08:30 AM





Turning Movements Report - PM Period

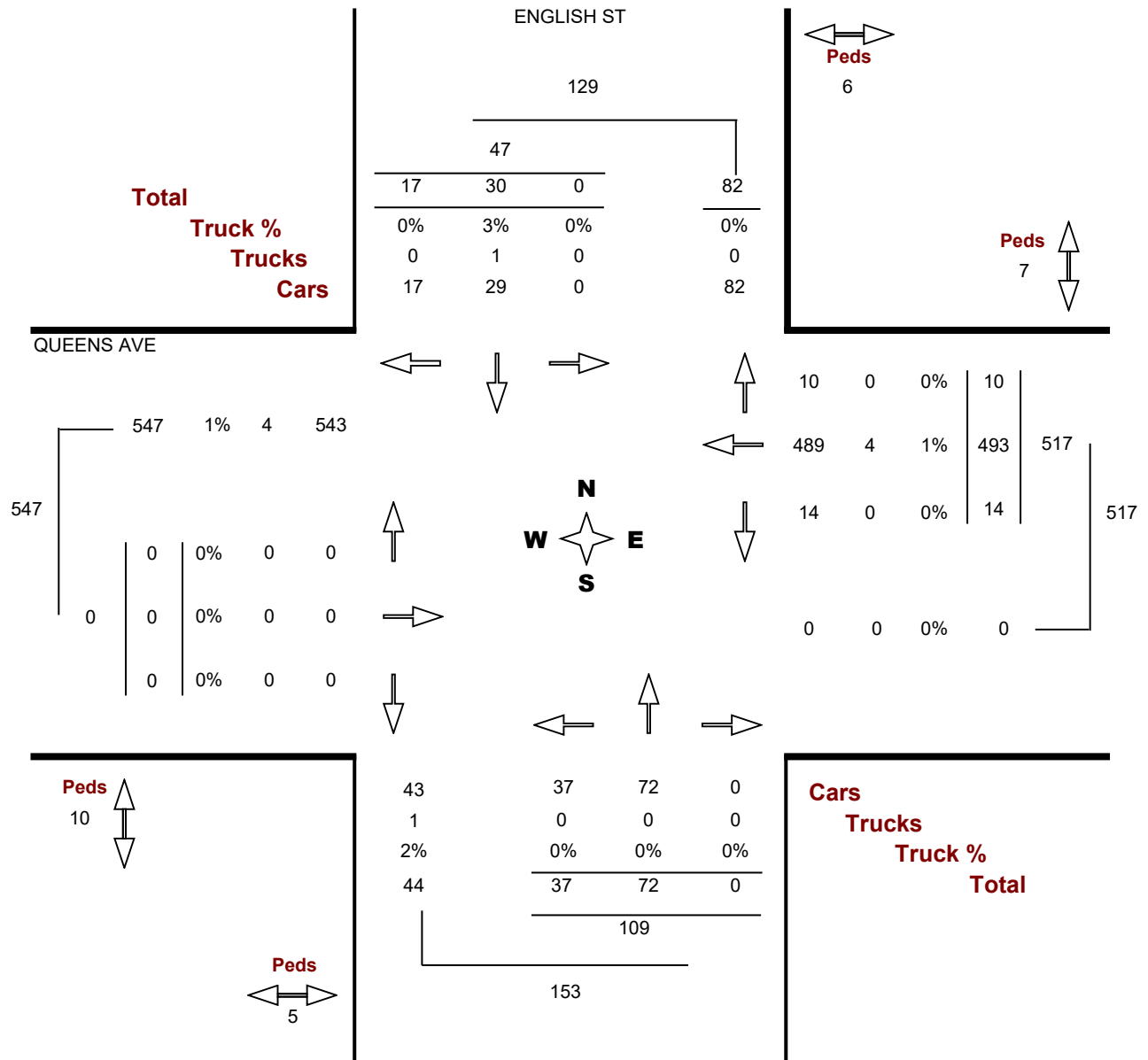
Location..... ENGLISH ST @ QUEENS AVE

Municipality..... LONDON

GeoID..... INT2568

Count Date..... Tuesday, 25 September, 2018

Peak Hour..... 04:15 PM — 05:15 PM





Turning Movements Report - AM Period

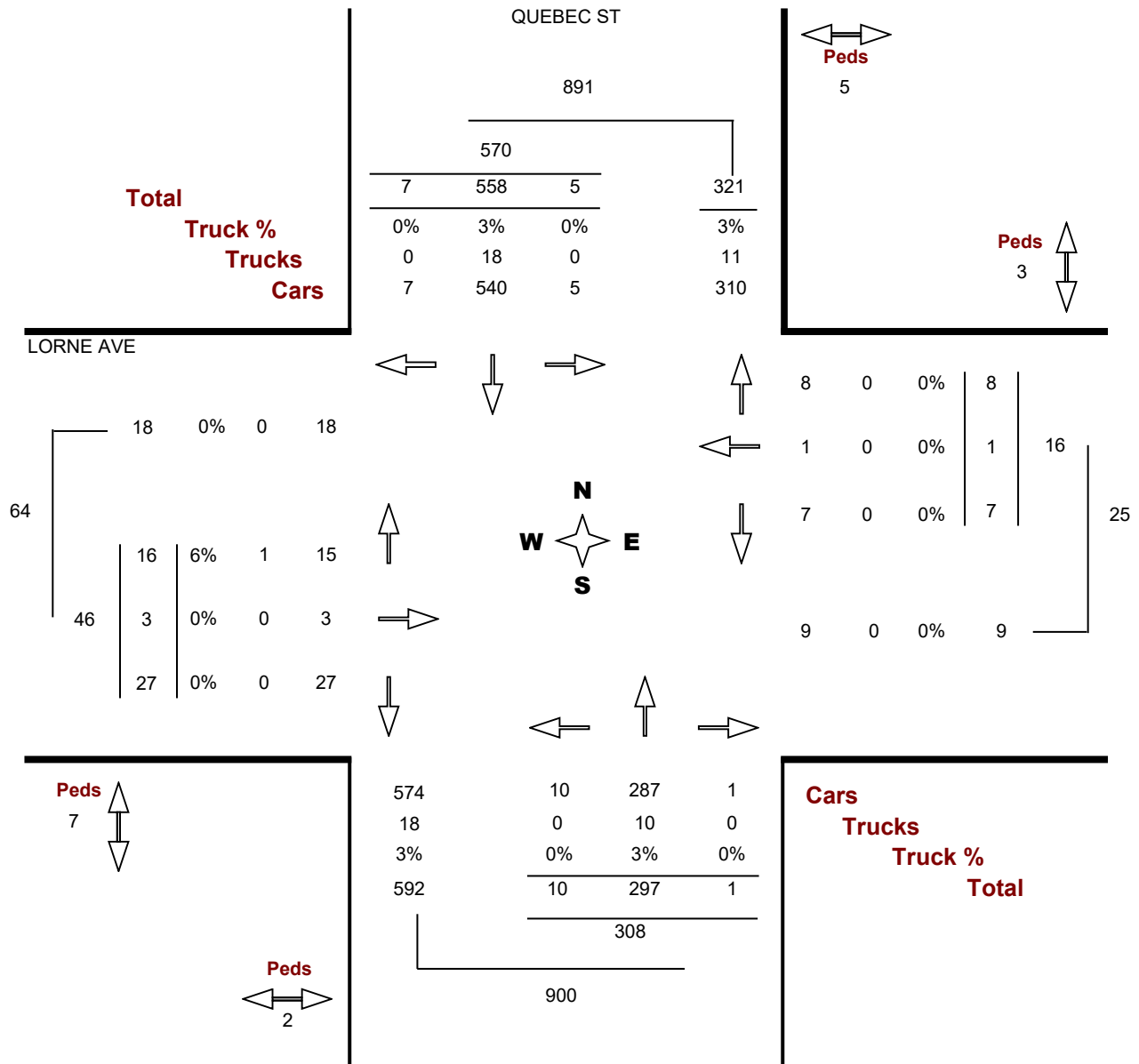
Location..... LORNE AVE @ QUEBEC ST

Municipality..... LONDON

GeoID..... INT2258

Count Date..... Wednesday, 03 October, 2018

Peak Hour..... 07:45 AM — 08:45 AM





Turning Movements Report - PM Period

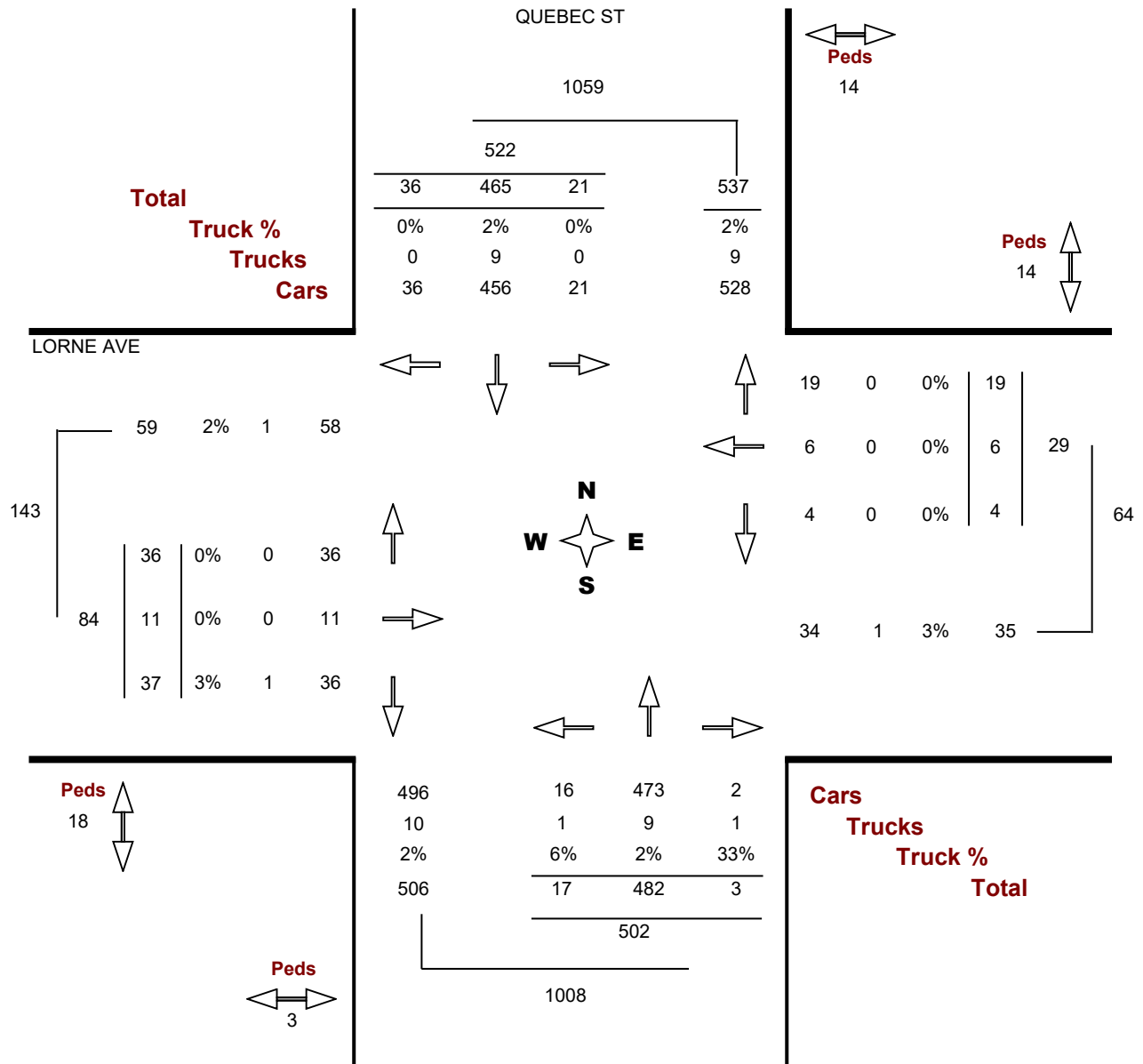
Location..... LORNE AVE @ QUEBEC ST

Municipality..... LONDON

GeoID..... INT2258

Count Date..... Wednesday, 03 October, 2018

Peak Hour..... 04:30 PM — 05:30 PM





Turning Movements Report - AM Period

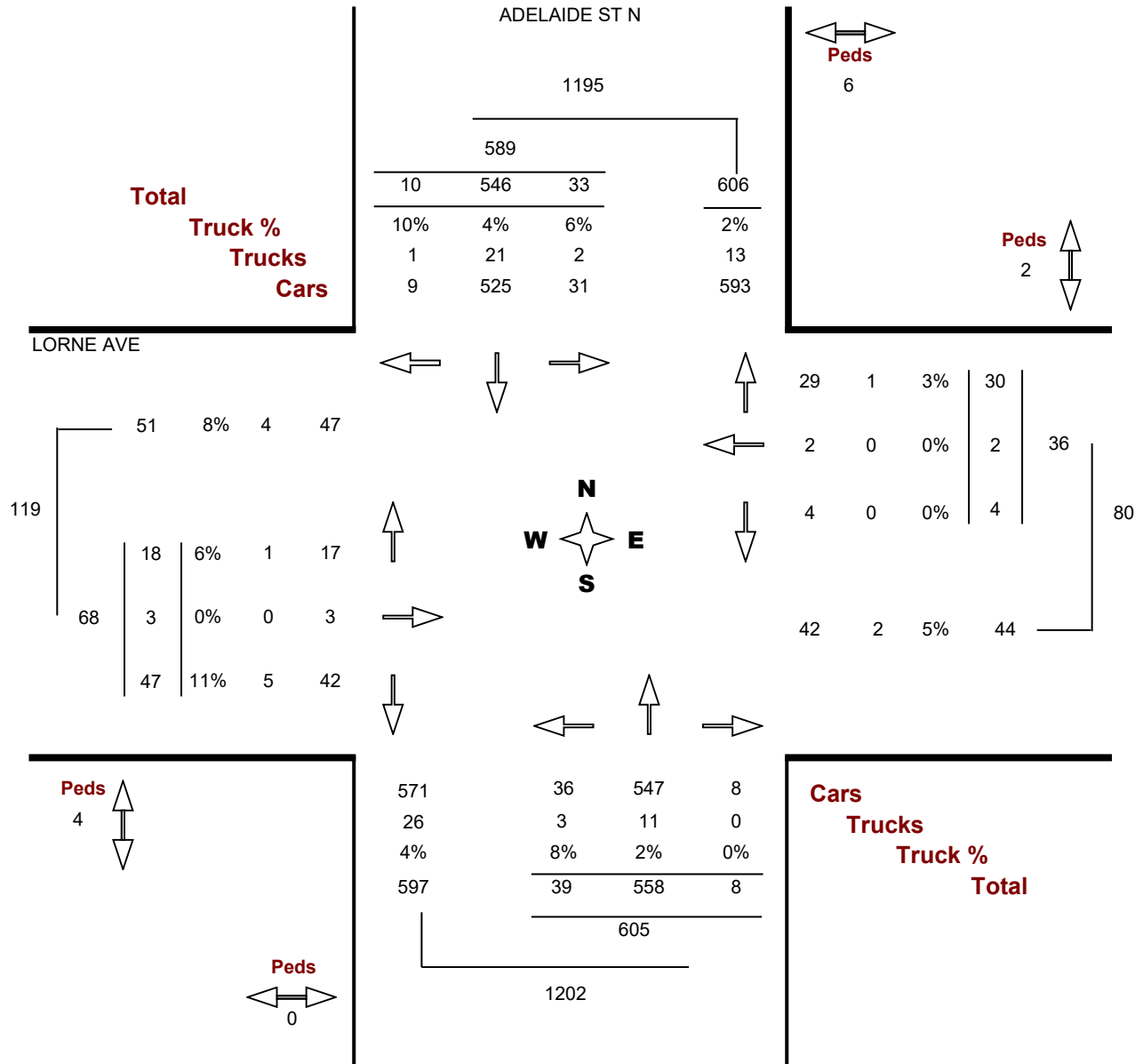
Location..... ADELAIDE ST N @ LORNE AVE

Municipality..... LONDON

GeoID..... INT2543

Count Date..... Wednesday, 26 September, 2018

Peak Hour..... 08:00 AM — 09:00 AM





Turning Movements Report - PM Period

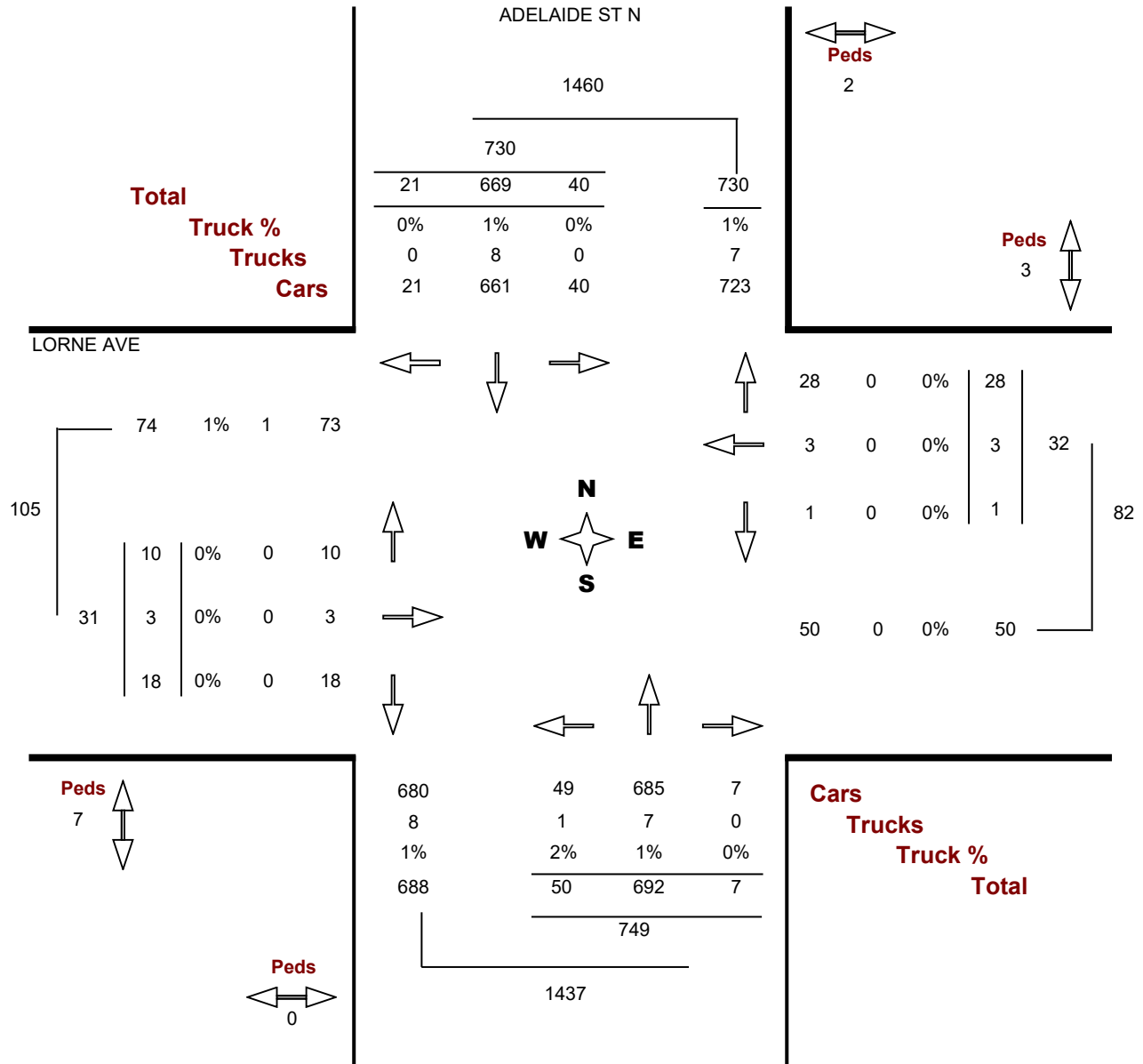
Location..... ADELAIDE ST N @ LORNE AVE

Municipality..... LONDON

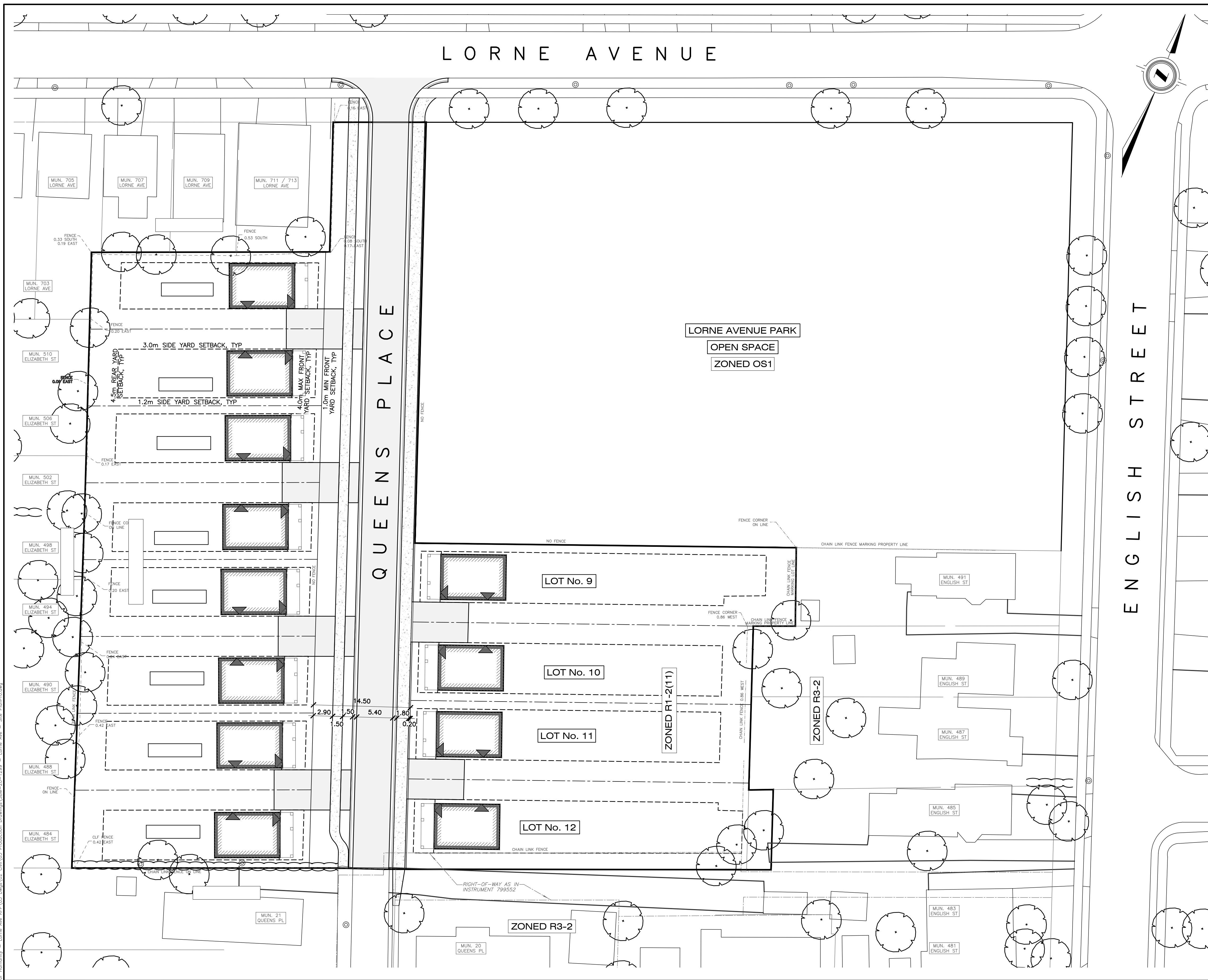
GeoID..... INT2543

Count Date..... Wednesday, 26 September, 2018

Peak Hour..... 04:15 PM — 05:15 PM

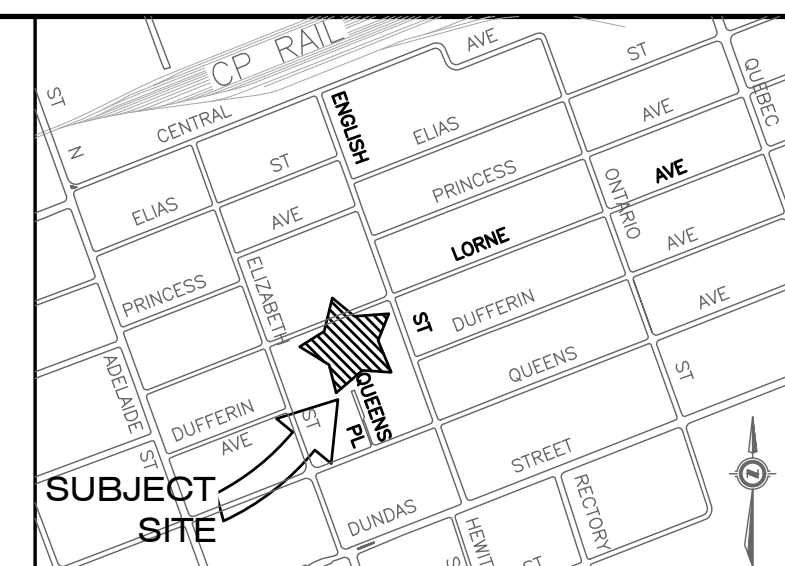


Appendix B – Conceptual Development Plan and Draft Plan of Subdivision



LEGAL INFORMATION

PART OF
 LOTS 1, 2, 3, 4, 5, 8,
 9, 10, 11, A & B
 BLOCK "I"
 AND ALL OF
 LOTS 6 & 7
 BLOCK "I"
 REGISTERED PLAN 296 (3rd)
 IN THE
 CITY OF LONDON
 COUNTY OF MIDDLESEX



WASTE REMOVAL

GARBAGE TO BE STORED ON-SITE AND PLACED CURB SIDE THE EVENING BEFORE OR MORNING OF MUNICIPAL PICK-UP.

CANADA POST

THIS DEVELOPMENT WILL RECEIVE MAIL TO A NEAR-BY SUPERBOX AS LOCATED BY CANADA POST.

BUILDING CLASS.

RESIDENTIAL - GROUP C OCCUPANCY, PART 9 OF THE ONTARIO BUILDING CODE

REFERENCE DOCS:

1. PLAN OF SURVEY BY CALLON DIETZ, FILE No. 18-22301, DATED JANUARY 2019.
2. CONCEPTUAL SITE PLAN PROVIDED BY HABITAT FOR HUMANITY HEARTLAND ONTARIO.
3. CONCEPTUAL BUILDING ELEVATIONS BY STRIK, BALDINELLI, MONIZ LTD, FILE No. SBM-20-1299, DATED MAY 2020.
4. CITY OF LONDON REQUEST FOR PROPOSAL No. 20-02.

KEY PLAN
N.T.S.

LEGEND:

- BUILDING ENTRANCE
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING BUILDING
- PROPOSED BUILDING
- LIMITS OF DEVELOPMENT BOUNDARY
- LIMIT OF PROPOSED RIGHT-OF-WAY
- LIMIT OF SFR INTERIOR LOT LINE
- PROPOSED SFR BUILDING SETBACKS
- EXISTING EASEMENT

R1-2(11) ZONING DATA CHART

ITEM	R1-4(7)	REQUIRED	PROVIDED
1	PERMITTED USES	SINGLE DETACHED DWELLING	SINGLE DETACHED DWELLING
2	LOT AREA (m MIN)	300	410.140
3	LOT FRONTAGE (m MIN)	9.0	11.24
4	LOT DEPTH (m MIN)	NA	35.594
5	REAR YARD SETBACK (m MIN)	4.5	>4.5
6	FRONT YARD SETBACK - MIN (m)	1.0	>1.0
	- MAX (m)	4.0	<4.0
7	INTERIOR SIDE YARD (m MIN)	1.2 3.0	>1.2 >3.0
8	LANDSCAPE OPEN SPACE (% MIN)	30.0	65.3
9	LOT COVERAGE (% MAX)	45.0	30.3
10	HEIGHT (M MAX)	2 STOREY OR 9.0m	7.38
11	PARKING AREA COVERAGE (% MAX)	25.0	4.4
12	DRIVEWAY WIDTH (m MAX)	3.0	3.01
13	No. OF SINGLE DETACHED DWELL	1	1

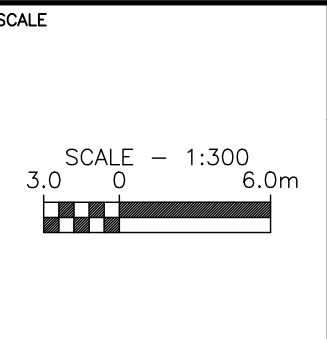
ABOVE CALCULATIONS BASED ON THE "WORST CASE" SMALLEST LOT, BEING LOT 1

AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	D/M/Y	BY	CONSULTANT
DESIGN	KEK	01	FOR CLIENT REVIEW/DISCUSSION	19/05/20	KEK	 CIVIL - STRUCTURAL - MECHANICAL - ELECTRICAL 1599 Adelaide St. N. Unit 301, London, Ontario, N5X 4E8 Tel: (519) 471-6667 Fax: (519) 471-0034 Email: sbm@sbmltd.ca
DRAWN	KEK	02	UPDATE FOR EXISTING EASEMENT	01/04/22	FZ	
CHECKED	KAM					
APPROVED	KAM					
DATE						
CAD	20-1299					

STRIK BALDINELLI MONIZ
 CIVIL - STRUCTURAL - MECHANICAL - ELECTRICAL
 1599 Adelaide St. N. Unit 301, London, Ontario, N5X 4E8
 Tel: (519) 471-6667 Fax: (519) 471-0034
 Email: sbm@sbmltd.ca

ENGINEER'S STAMP
PRELIMINARY NOT FOR CONSTRUCTION

CLIENT
HABITAT FOR HUMANITY HEARTLAND ONTARIO
 P: 519.854.1907
 E: GDEVLUGT@HABITAT4HOME.CA

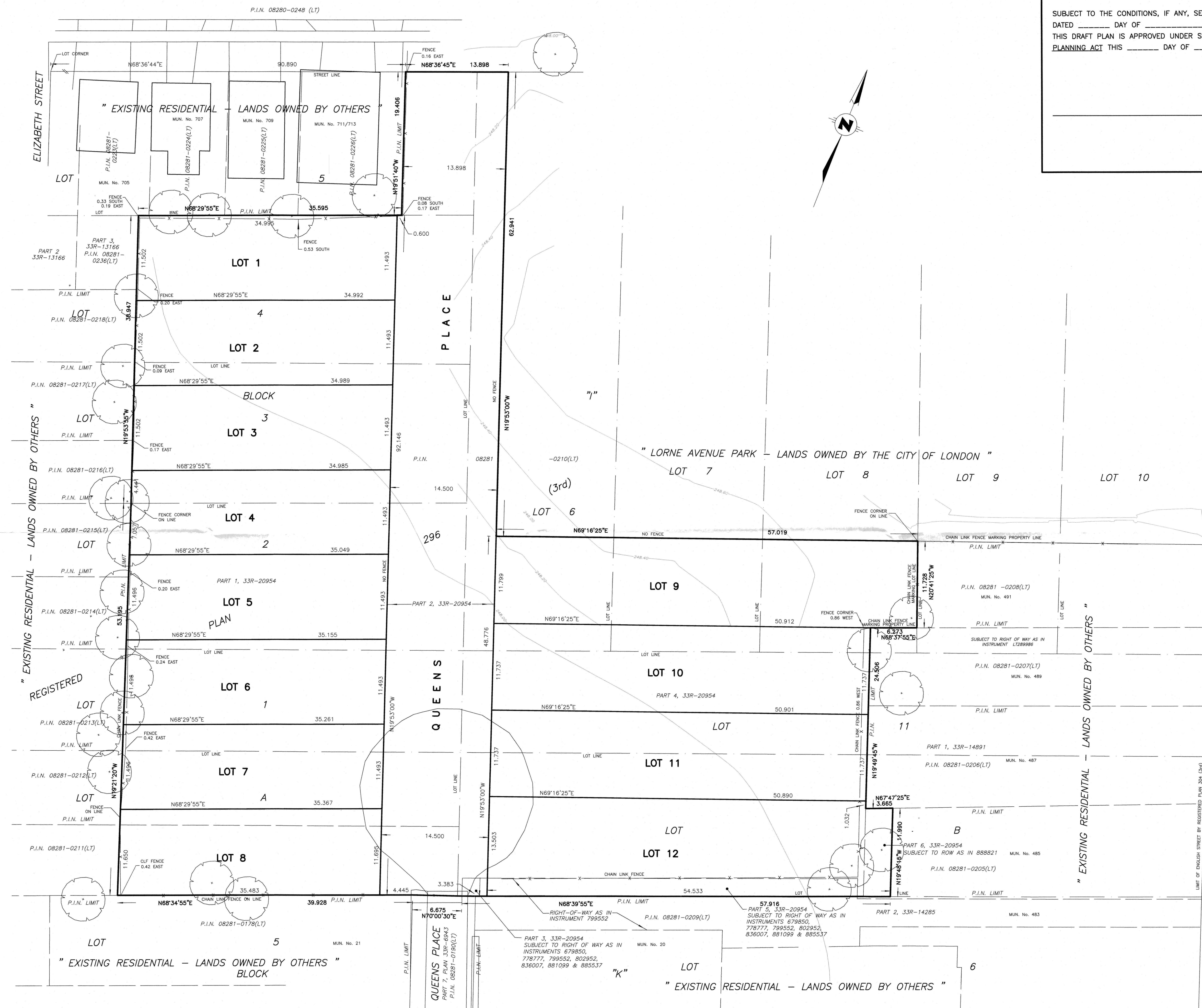


TITLE
CONCEPTUAL DEVELOPMENT PLAN, ZONING CHART, AND LEGEND
LORNE AVENUE SUBDIVISION
 723 LORNE AVENUE & 25 QUEENS PLACE
 LONDON, ON.

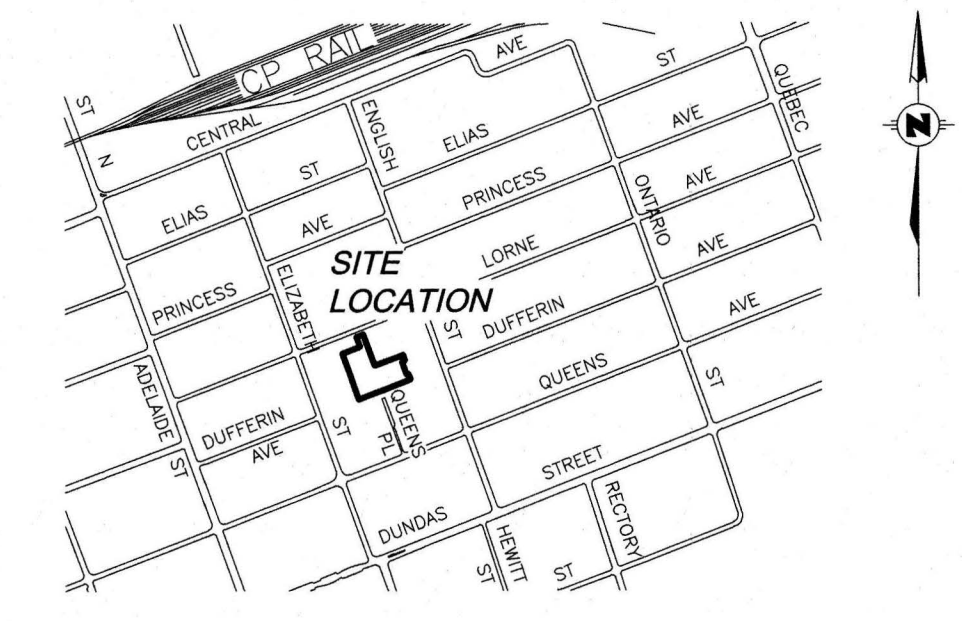
PROJECT No.
SBM-20-1299

SHEET No.
SP1

PLAN FILE No.
 -



SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED _____ DAY OF _____, 20____, THIS DRAFT PLAN IS APPROVED UNDER SECTION 51 OF THE PLANNING ACT THIS _____ DAY OF _____, 20____.



KEY MAP (NOT TO SCALE)

DRAFT PLAN OF SUBDIVISION
OF PART OF
LOTS 1, 2, 3, 4, 5, 6, 7, 8,
11, A & B
BLOCK 'I'
REGISTERED PLAN 296 (3rd)

IN THE
CITY OF LONDON
COUNTY OF MIDDLESEX
SCALE 1 : 250 (METRIC)

(SCALE IN METRES)
ONTARIO LAND SURVEYOR
J. PAUL CROCKER

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

- | | |
|-------------|--|
| a) AS SHOWN | g) AS SHOWN |
| b) AS SHOWN | h) MUNICIPAL WATER AVAILABLE |
| c) AS SHOWN | i) SILTY CLAY LOAM |
| d) AS SHOWN | j) AS SHOWN |
| e) AS SHOWN | k) STORM & SANITARY SEWERS, HYDRO, GAS |
| f) AS SHOWN | l) AS SHOWN |

LAND USE SCHEDULE

LOTS 1 TO 12 - SINGLE FAMILY RESIDENTIAL	0.582 ha. (5,820.31 sq.m.)
ROADS	0.161 ha. (1,606.94 sq.m.)
TOTAL SITE AREA:	0.743 ha. (7,427.25 sq.m.)

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE CALLON DIETZ INC. TO SUBMIT THIS PLAN OF PROPOSED SUBDIVISION TO THE CORPORATION OF THE CITY OF LONDON FOR APPROVAL.

HABITAT FOR HUMANITY HEARTLAND ONTARIO

 LONDON, ONTARIO
 BLAIR KNOX
 I HAVE THE AUTHORITY TO BIND THE CORPORATION

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ON THIS PLAN.

April 13, 2022
 LONDON, ONTARIO
 J. PAUL CROCKER
 ONTARIO LAND SURVEYOR

METRIC DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048
C:_D\soft\DWG\2010\2018\18-22301\DrawplanSubC-2741.dwg April 12, 2022

Callon + Dietz INCORPORATED
 ONTARIO LAND SURVEYORS
 CARLETON PLACE LONDON NORTH BAY
 info@callondietz.com callondietz.com

SURVEY BY: DRAWN BY: H.D. FILE NO: 18-22301 C PLAN NO: X-2741

REGISTERED 150 900

