50 The Driveway SPA

TIA Strategy Report

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TIA Strategy Report

Parsons has been retained by Canadian Nurses Association, to prepare a Transportation Impact Assessment (TIA) in support of a Site Plan Application for a residential development located at 50 The Driveway. This document follows the TIA process, as outlined in the City Transportation Impact Assessment (TIA) Guidelines (2017). As discussed in subsequent sections below, the proposed development is expected to generate less than 60 person trips, and therefore the study will focus on planning and safety elements rather than trip analysis.

1. Screening Form

The screening form confirmed the need for a TIA Report based on the site meeting the location and safety triggers. The trip generation trigger is not met as the development is anticipated to generate less than 60 person trips during peak hours. The location trigger is met due to the development being located within a Transit Oriented Development Zone (TOD). The safety trigger is met due to potential safety concerns on boundary streets and sight line limitations at the proposed driveways. The Screening Form and responses to City comments have been provided in Appendix A.

2. Scoping Report

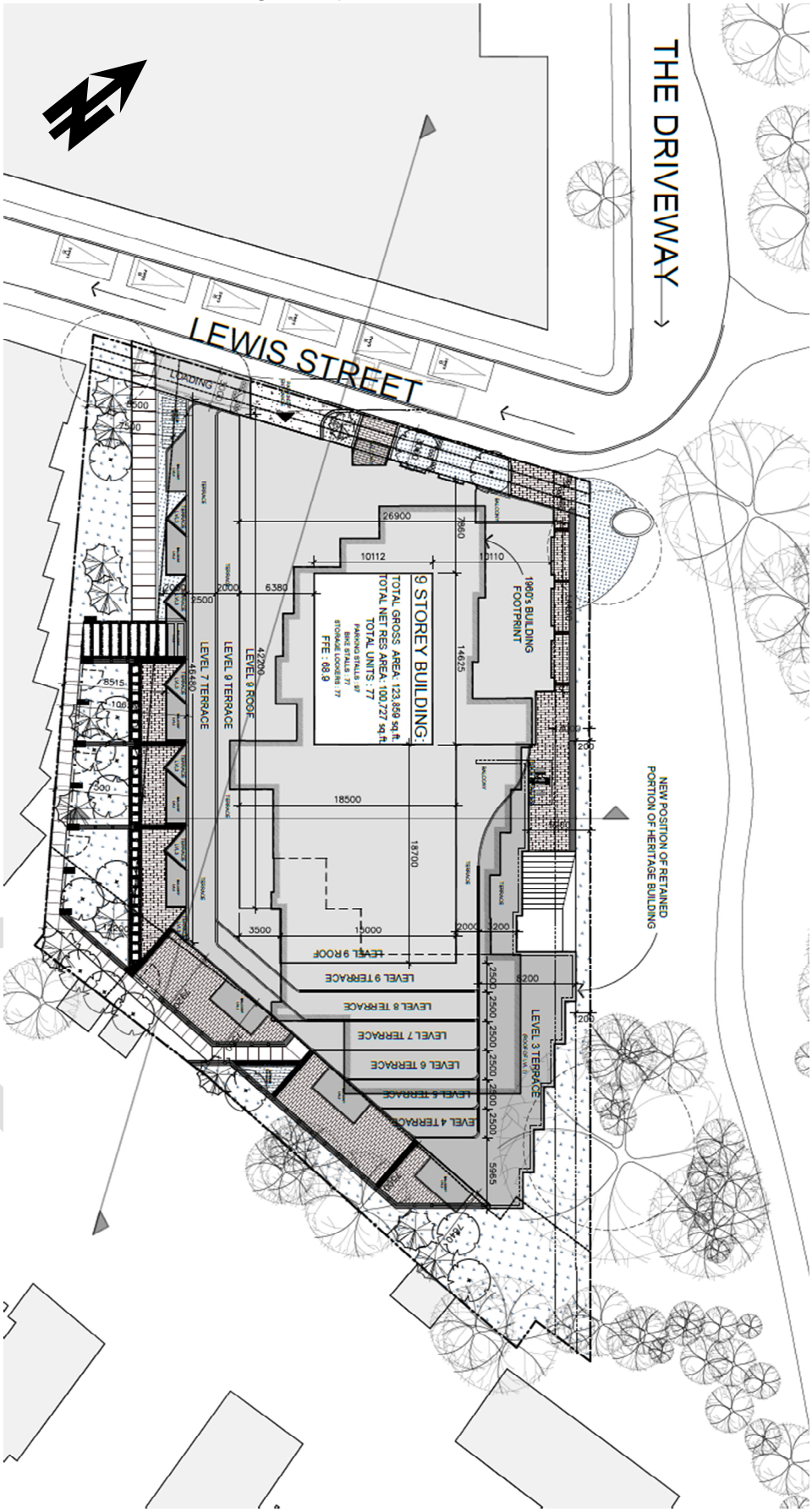
2.1. Existing and Planned Conditions

2.1.1. Proposed Development

The proposed development is located at the south end of The Driveway and borders Lewis St, at the municipal address of 50 The Driveway. The site is currently occupied by the Canadian Nurses Association building, which will be replaced by the proposed development. The proposed development consists of a nine-storey residential building, with 77 condominium units and two levels of underground parking with 97 vehicle parking spaces and 77 bicycle parking spaces. The underground parking lot can be accessed along Lewis St via a ramp located on the south side of the road. The development is anticipated to be constructed in a single phase by 2025. The site is currently zoned as R4U C[478]. Figure 1 illustrates the local context of the site, while Figure 2 illustrates the proposed Site Plan.

Figure 1: Local Context

Figure 2: Proposed Site Plan



2.1.2. Existing Conditions

Area Road Network

The Driveway is a north-south local municipal road that is approximately 300m in length and extends from Cooper St in the north to Lewis St in the south. The road operates as a one-way southbound road between Cooper St and Somerset St W and between Gilmour St and Lewis St. The assumed speed limit of the road is 50km/h.

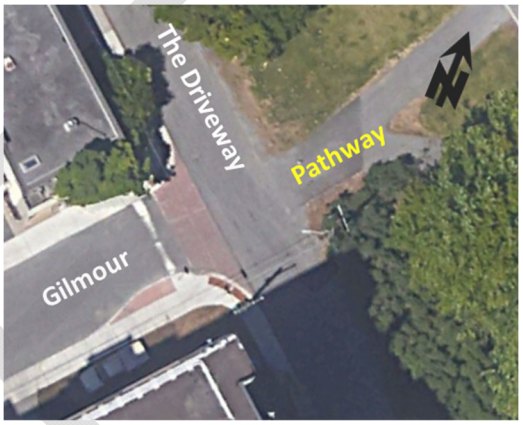
Lewis St is an east-west municipal local road that is approximately 630m in length and extends from The Driveway in the east to Jack Purcell Ln in the west. The road operates as a one-way westbound road for the entirety of its length, with on-street parking permitted on the north side and an assumed speed limit of 40km/h.

Existing Study Area Intersections

The following describes the existing physical geometry of the study area intersections.

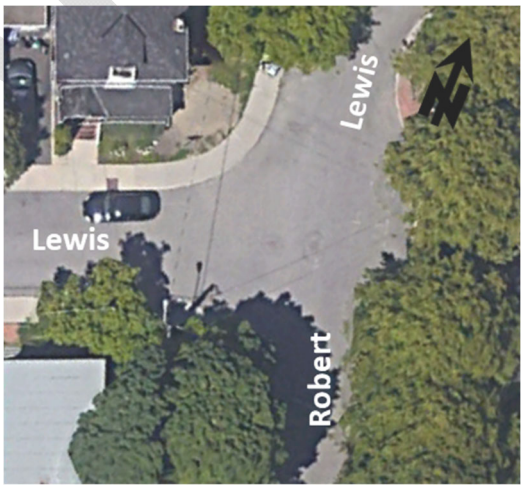
Gilmour / The Driveway

The Gilmour/The Driveway intersection is an unsignalized three-legged intersection, with stop control on the Gilmour EB movement. Both the west leg and the south leg are restricted to one-way EB and SB travel, respectively, while the north leg on The Driveway permits two-way travel. On the east side of the intersection is a pathway leading to Queen Elizabeth Dr.



Lewis / Robert

The Lewis/Robert intersection is an unsignalized three-legged intersection with no intersection control. Lewis St is restricted to one-way WB travel, while Robert St permits two-way travel.



Existing Driveways to Adjacent Developments

A single adjacent development access named Cornerstone Priv. is located approximately 15m west of the proposed development access. The accesses are located along a section of Lewis St where only one-way westbound traffic is permitted. As such, there are no major interferences anticipated between the proposed development's access and the adjacent development's existing access.

Existing Area Traffic Management Measures

Existing area traffic management measures within the study area include:

- On-street parking;
- One-way traffic operations along study area roadways.
- Curb extensions in some locations; and,
- Road curvature that forces speed reduction at the frontage of the site.

Pedestrian/Cycling Network

Figure 3 illustrates active transportation facilities within the study area. Sidewalks are provided along both sides of most roads, except for the east side of The Driveway. Along Queen Elizabeth Dr, the Rideau Canal Western Pathway, a Multi-Use Pathway (MUP) is provided on the east side, which can be used by pedestrians and cyclists travelling in both directions. The MUP runs parallel to the entirety of Queen Elizabeth Dr and connect to various pathway networks. Note that Somerset St W is a suggested cycling route and is designated as a Spine Route in the City of Ottawa Transportation Master Plan (TMP). Notably, pedestrians and cyclists can cross the Rideau Canal via the Corktown Footbridge at the end of Somerset St W.

Figure 3: Existing Pedestrian and Cycling Network

Transit Network

The existing transit network surrounding the proposed development site is illustrated in Figure 4. It is noted that no bus routes currently operate along roads surrounding the proposed development site, within the study area. The nearest transit routes to the site are bus route #5, bus route #14 and LRT Line 1 (Confederation Line) at uOttawa Station. Transit stop locations are identified by blue circles in Figure 5. Note that the blue circles along Queen Elizabeth Dr are for bus stops that operate only during the Winterlude event in Ottawa. As such, the nearest bus stops are along Elgin St, within an approximately 550m walking distance.

The uOttawa LRT Station is located across the Rideau Canal within an approximately 600m walking distance, where the Rideau Canal can be crossed via the Corktown Footbridge at the end of Somerset St W. Walking and cycling routes between the proposed development site and the uOttawa Station are illustrated in Figure 6 and Figure 7, respectively, where the walk has a duration of approximately 8 minutes and the cycling has a duration of approximately 5 minutes.

Brief descriptions regarding the operations of the nearby transit routes are provided below:

- O-Train Confederation Line: an east-west 12.5km Light-Rail Transit (LRT) that runs from Blair Station in the east to Tunney's Pasture in the west, providing service to 13 stations. During peak hours, service is provided every 5 minutes or less and every 15 minutes or less at all other times.
- Bus route #14 (St Laurent <-> Tunney's Pasture) is designated as a "frequent route" that operates 7 days a week and provides service every 15 minutes or less.
- Bus route #5 (Rideau <-> Billings Bridge) is designated as "local route" that provides custom routing to local destinations.

Figure 4: Area Transit Network

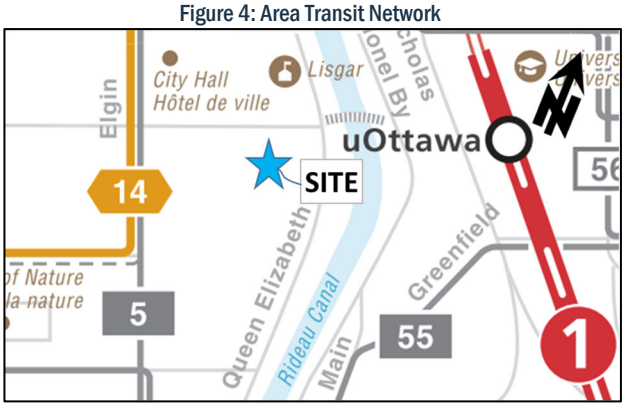


Figure 5: Area Transit Stop Locations

Figure 6: Pedestrian Walk Route to uOttawa LRT Station

Figure 7: Bike Route to uOttawa LRT Station

Peak Hour Travel Demands

Vehicle Travel Demands

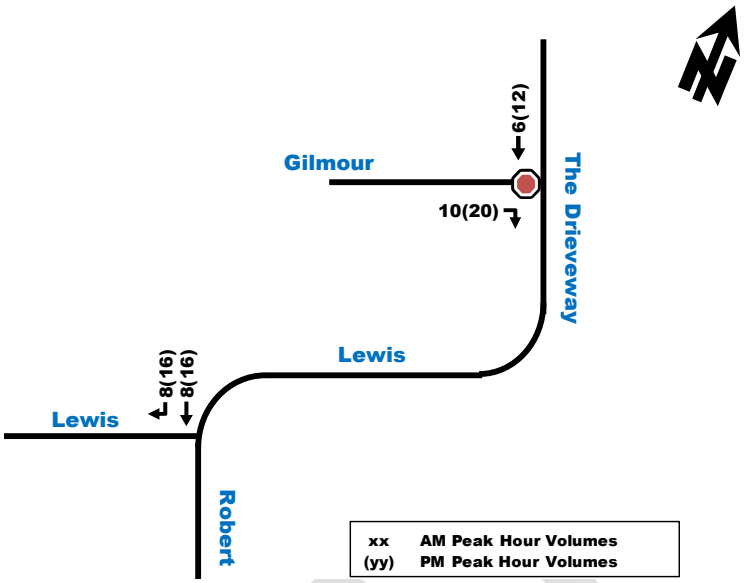
The peak hour traffic volume count was performed at the intersection of Gilmour/The Driveway on June 9, 2021 during the afternoon, noting that the observations reflect conditions during the COVID-19 Provincial lockdown measures. The following was observed:

- Queen Elizabeth Drive was closed to vehicles between the hours of 8:00AM-8:00PM (NCC initiative), which impacts normal traffic operations on the local road network during the peak periods;
- Vehicular traffic was very light (less than 20veh/h); and,
- Due to the lack of vehicle activity, drivers would occasionally disobey directional signs and head the wrong way along Gilmour St.

Since normal vehicle operations within the area have been impacted by the Queen Elizabeth Drive closure and there are limited data for the local road network, the data from the intersection of Somerset/The Driveway conducted on Nov. 28, 2019 was used in combination with the aforementioned Gilmour/The Driveway count to

approximate normal traffic volumes at the study area intersections shown in Figure 8. It is noted that the proposed development is anticipated to generate few vehicle trips during the peak hours and likely have little impact on operational performance of the study area intersections.

Figure 8: Estimated Existing Peak Hour Vehicle Traffic Volumes



Active Travel Demands

Due to Queen Elizabeth Drive being currently dedicated for walking and cycling, active modes using the study area roadways may be dramatically affected and is difficult to approximate. However, it was observed that cyclists and pedestrians were using study area roadways and not always using dedicated facilities.

Existing Road Safety Conditions

Five-year collision history data (2015-2019, inclusive) was obtained from the City of Ottawa for the study area. Based on the data, only two (2) collisions have occurred in the five-year period, both of which were along The Driveway, between Central Ave and Lewis St. Both collisions resulted in property damage only. The Collision Details Report is provided in Appendix C.

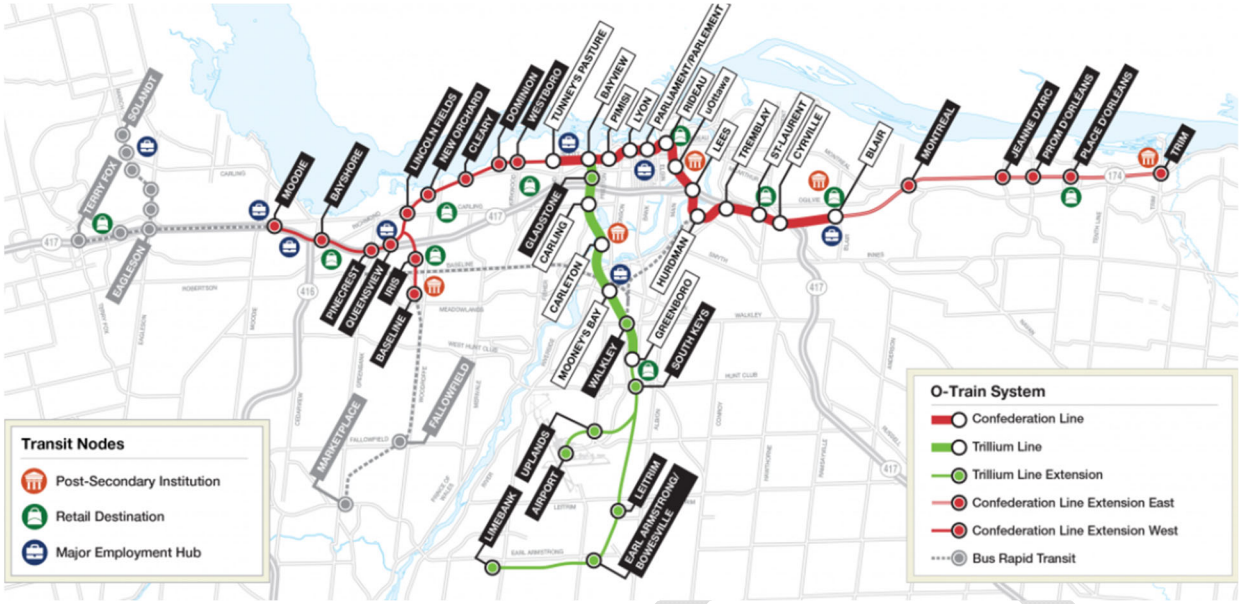
2.1.3. Planned Conditions

Planned Study Area Transportation Network Changes

LRT Stage 2

Stage 2 of the City of Ottawa LRT system is currently under construction. Stage 2, as shown in Figure 9, is a combination of three extensions – south, east and west – totaling 44 km of new rail and 24 new LRT stations. As mentioned previously, the proposed development site is within 600m of the LRT's uOttawa Station.

Figure 9: Stage 2 LRT System Map



Centretown Community Design Plan (CDP)

The purpose of the CDP is to create a comprehensive design plan to guide and manage future growth in the Centretown area of Ottawa. While the CDP study area encompasses lands from Rideau Canal in the east to Bronson Ave in the west and from Hwy 417 in the south to Gloucester St in the north, the main focus of the CDP was on an area bounded by Elgin St to the east, Kent St to the west, Highway 417 to the south and Gloucester St to the north. Therefore, the only suggested improvements in the study area of the proposed 50 The Driveway development were for improved landscaping and pedestrian connectivity given its proximity within 600m of the uOttawa LRT Station.

Other Area Developments

Based on the City of Ottawa Development Applications Tool, there are no significant active development applications in the area at this time.

2.2. Study Area and Time Periods

Full buildout of the proposed residential development is assumed to be 2025. Since the proposed development is expected to generate less than 60 person trips during the morning and afternoon peak hour only, no performance analysis will be performed at area intersections.

Proposed study area intersections and boundary roads are outlined below and highlighted in Figure 10. Note that the arrows provided in the figure indicate locations and directions of one-way travel, where Gilmour St is one-way eastbound east of Sudbury Pl, The Driveway is one-way southbound south of Gilmour St and Lewis St is one-way westbound along the entirety of its length.

- Gilmour / The Driveway (Unsignalized)
- Lewis / Robert (Unsignalized)
- Lewis St, between The Driveway and Robert St
- The Driveway, between Gilmour St and Lewis St

Figure 10: Study Area Intersections

2.3. Exemption Review

The following modules/elements of the TIA process recommended to be exempt in the subsequent steps of the TIA process, based on the City's TIA guidelines and the subject site:

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.5 – 4.9 Network Impact Component	All elements	Since the proposed development does not meet the trip generation trigger, network impacts are anticipated to be minimal. Only brief descriptions may be provided in these sections.

3. Forecasting Report

3.1. Development Generated Travel Demand

3.1.1. Trip Generation and mode shares

Note that this development does not meet the minimum threshold for trip generation and this section has been included to reaffirm the limited vehicle traffic increase to the local area transportation network.

The proposed development will consist of 77 residential condominium units within a 9-storey high-rise apartment building. The appropriate trip generation rates for a high-rise apartment land use were obtained from the 2020 TRANS Trip Generation Manual. Table 3 in the Manual provides person-trip rates during the peak AM and PM periods (7am-9:30am and 3:30PM-6PM). The trip rates are summarized in Table 2 below.

Table 2: Trip Generation Trip Rates

Land Use	Data Source	Trip Rates	
		AM Peak Period (7-9:30am)	PM Peak Period (3:30-6pm)
High-Rise Apartments (9 floors)	TRANS 2020	T = 0.8(du);	T = 0.9(du);
Notes: *T = Average Vehicle Trip Ends* *du = Dwelling unit*			

Using the trip rates provided in Table 2, the total number of person trips generated during the morning and afternoon peak periods can be found in Table 3.

Table 3: Residential Units Peak Period Person Trip Generation

Land Use	Dwelling Units	AM Peak Period Person Trips	PM Peak Period Person Trips
High-Rise Apartments (9 floors)	77	62	69

The proposed development is anticipated to generate 62 and 69 person trips during the morning and afternoon peak periods, respectively. The total peak period person trips in Table 3 are then categorized into different travel

modes, as shown in Table 4, using mode share percentages obtained from the 2020 TRANS Manual, which is aggregated for the Ottawa Inner Area zone.

Table 4: Peak Period Trips Mode Shares Breakdown

Travel Mode	Mode Share	AM Peak Period Person Trip	Mode Share	PM Peak Period Person Trips
Auto Driver	26%	16	25%	18
Auto Passenger	6%	4	8%	6
Transit	28%	17	21%	15
Cycling	5%	3	6%	4
Walking	34%	21	39%	27
Total Person Trips	**100%**	**62**	**100%**	**69**

Standard traffic analysis is usually conducted using the morning and afternoon peak hour trips as they represent a worst-case scenario. In the 2020 TRANS Manual, Table 4 provides conversion rates from peak period to peak hours for different mode shares. The conversion rates are provided in Table 5 below.

Table 5: Peak Period to Peak Hour Conversion Factors (2020 TRANS Manual)

Travel Mode	Peak Period to Peak Hour Conversion Factors	
	AM	PM
Auto Driver and Passenger	0.48	0.44
Transit	0.55	0.47
Bike	0.58	0.48
Walk	0.58	0.52

Using the conversion rates in Table 5 and the peak period person trips for different travel modes in Table 4, the peak hour trips for different travel modes can be calculated as shown in Table 6. Inbound and outbound percentages were obtained from Table 9 of the 2020 TRANS Manual.

Table 6: Peak Hour Travel Mode Trips

Travel Mode	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
	In (31%)	Out (69%)	Total	In (58%)	Out (42%)	Total
Auto Driver	2	5	8	4	3	8
Passenger	1	1	2	1	1	2
Transit	3	7	9	4	3	7
Bike	1	1	2	1	1	2
Walk	4	8	12	8	6	14
Total Person Trips	**10**	**23**	**33**	**19**	**14**	**33**

As shown in Table 6, the total person trips anticipated to be generated by the proposed development is 33 during both the morning and afternoon peak hours. Vehicle trips are anticipated to be a minimal 8 veh/h during both the morning and afternoon peak hours. Active transportation mode shares (bike and walk) generate the highest number of trips for the proposed development, which is expected given the location of the development in a core sector of the City of Ottawa.

As described above, the proposed development is anticipated to have minimal impact on the local transportation network due to the low generated traffic volumes and does not meet the minimum trip generation trigger described in the 2017 City of Ottawa TIA Guidelines.

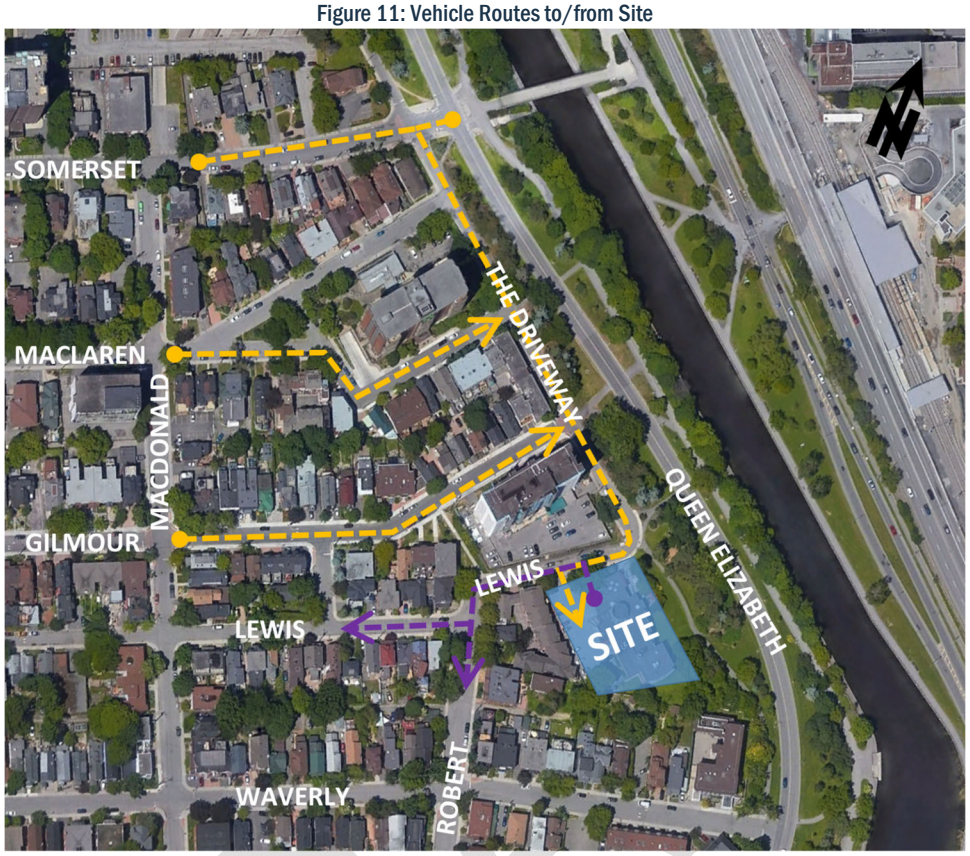
3.1.2. Trip Distribution and Assignment

As determined in Section 3.1.1, the number of vehicle trips anticipated to be generated by the proposed development are very minimal.

Vehicle routes to and from the site are illustrated in Figure 11 to show the unique one-way travel operations of the surrounding road network. Vehicle routes for vehicles travelling to the site are illustrated in orange, where vehicle would have to use east-west roads Somerset St, MacLaren St or Gilmour St to access The Driveway,

followed by Lewis St. Vehicle routes for vehicles traveling from the site are illustrated in purple, where vehicles exiting the site would have to continue west onto Lewis St or travel south along Robert St.

Figure 11: Vehicle Routes to/from Site



3.2. Background Network Traffic

3.2.1. Transportation Network Plans

Refer to Section 2.1.3: Planned Study Area Transportation Network Changes.

3.2.2. Background Growth

The development is to be located in a quiet residential area that is well-developed and provides limited access to vehicles. As such, there is no anticipated future background growth along study area intersections.

3.2.3. Other Developments

As mentioned in Section 2.1.3, based on the City of Ottawa Development Applications Tool, there are no significant active development applications in the area at this time.

3.3. Demand Rationalization

Since this site is expected to generate very low vehicle trips during the morning and afternoon peak hours it is anticipated that the additional trips will have negligible impact on the vehicle operations along the study area intersections.

4. Analysis

4.1. Development Design

4.1.1. Design for Sustainable Modes

Vehicle and bicycle parking spaces will be provided in a two-level underground parking garage. Vehicle parking spaces will be 2.6m wide and 5.2m long as per the Parking Space Provisions. The parking aisles are proposed to be 6.0m wide to accommodate two-way traffic in two-lanes.

Active transportation and transit facilities will continue to be maintained and operated as in existing conditions, including the sidewalks at the frontage of the site. The existing 1.8m sidewalk on the south side of Lewis St at

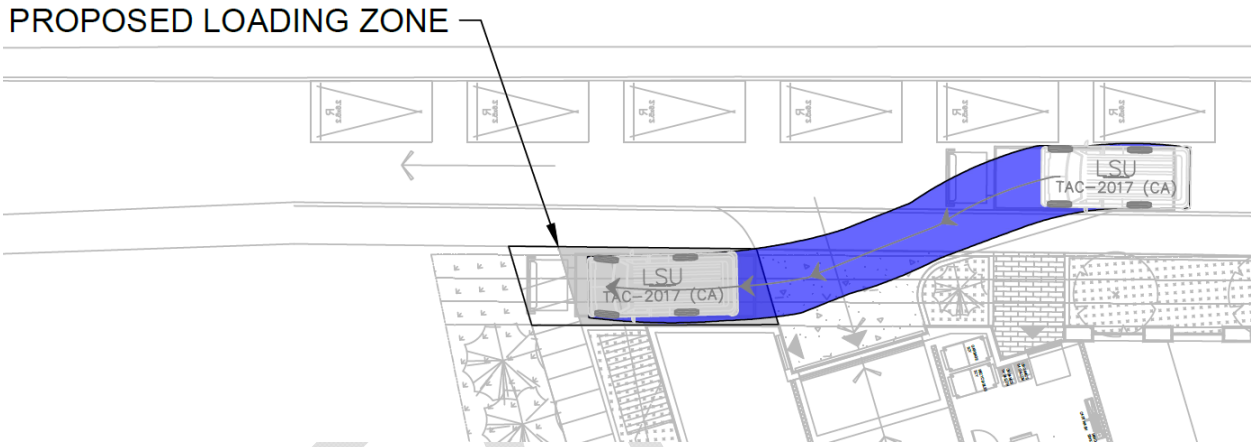
the frontage of the development will be maintained/reinstated as needed once the proposed development is constructed.

The City of Ottawa's TDM-supportive Development Design and Infrastructure checklist has been provided in Appendix D and discussed in more detail in Section 4.5.

4.1.2. Circulation and Access

A garbage pickup area for the development will be located along Lewis St, directly east of the proposed site access, for private waste management trucks. A loading/unloading area for short-stay and move-in trucks and vehicles will be provided within the site and can be accessed via the proposed site access. Truck turning templates for trucks entering and exiting the loading/unloading zone have been provided in Appendix E. The templates illustrate the movements of both Light and Medium Single Unit (LSU and MSU) trucks, which are expected to utilize the zone. The location of the loading zone directly west of the site access is illustrated in Figure 12 along with a sample LSU truck movement into the zone.

Figure 12: Loading Zone Location and LSU Truck Movement



Based on the depicted truck movements, the zone is expected to be able to accommodate smaller moving trucks (i.e. LSU) easily, however, it may provide a tighter space for the larger MSU trucks (up to 10m long) as shown in the Appendix E drawings, with potential conflict with a small portion of the sidewalk.

In addition to the truck turning templates, passenger car turning templates have been provided in Appendix E, which demonstrate no issues for passenger vehicles turning left into and out of the proposed site access.

4.2. Parking

On-Site Parking

A total of 97 vehicle parking spaces and 77 bicycle spaces will be provided in the two-level underground parking lot. Parking level 1 will provide 46 vehicle parking spaces and 25 bicycle parking stalls, while level 2 will provide 51 vehicle parking spaces and 52 bicycle parking stalls. Table 7 provides a summary of the total required vehicle and bicycle parking spaces, based on parking rates from the City of Ottawa's Parking Provisions, and the proposed number of spaces provided.

Table 7: Required and Proposed Vehicle and Bicycle Parking Spaces

Land Use	Units	Parking Rates			Required Spaces			Proposed Spaces		
		Base	Visitor	Bicycle	Base	Visitor	Bicycle	Base	Visitor	Bicycle
Residential Condo Building	77	0.5 per unit (not required for first 12 units)	0.1 per unit (not required for first 12 units)	0.5 per unit	33	7	39	77	20	77
				Total	40			97		

As shown in Table 7, the proposed number of parking spaces is anticipated to exceed the requirements for both the vehicle and bicycle parking. The main purpose for providing additional parking spaces is to allow a multi-vehicle ownership for residents.

Off-Site Parking

In addition to providing the on-site parking for the proposed development, it is noted that on-street parking is currently located along the north side of Lewis St and will continue to exist in the future. Approximately six on-street parking spaces are available for 1-hour of permissible parking between 7:00 am and 7:00 pm. Permit holders are exempt from this restriction.

4.3. Boundary Street Design

Multi-Modal Level of Service (MMLOS) analysis was conducted for the two boundary streets, Lewis St and The Driveway, based on the City of Ottawa's MMLOS Analysis Guidelines.

Lewis St is a local road that consists of the following features within the study area:

- 1 westbound only vehicle travel lane,
- Approximately 1.8 m wide sidewalks and no boulevard on both sides of the road,
- Less than 3000 average daily curb lane traffic,
- On-street parking on the north side,
- No bike lanes or transit facilities,
- Assumed speed limit of 40 km/h, and
- Approximately 3.2 m wide lane (at its narrowest point between south sidewalk and on-street parking).

The Driveway is a local road that consists of the following features within the study area:

- 1 southbound only vehicle travel lane,
- Approximately 1.5 m wide sidewalks and no boulevard on the west side of the road only,
- Less than 3000 average daily curb lane traffic,
- No on-street parking, bike lanes or transit facilities,
- Assumed speed limit of 50 km/h, and
- Approximately 5.6 m wide travel lane.

The multi-modal level of service analysis for the adjacent road segments of Lewis St and The Driveway is summarized in Table 8, with detailed analysis provided in Appendix F. The table also identifies the target LOS, with respect to each mode, based on the land-use designation and road classification of the development site and the boundary streets. The Transportation Master Plan (TMP) of the City of Ottawa identifies the land-use designation of the development site as a General Urban Area. The road classifications of each of the boundary streets were noted in the descriptions of features above.

Table 8: MMLOS - Boundary Road Analysis

Road Segment	Level of Service							
	Pedestrian (PLOS)		Bicycle (BLOS)		Transit (TLOS)		Truck (TkLOS)	
	PLOS	Target	BLOS	Target	TLOS	Target	TkLOS	Target
Lewis St	B	C	B	D	N/A	N/A	E	No target
The Driveway	E	C	B	D	N/A	N/A	B	No target

As shown in Table 8, the pedestrian LOS minimum desirable target is not met along The Driveway. This is mainly due to the narrower 1.5 m wide sidewalks. Note that a transit LOS is not applicable as there are no transit facilities along the boundary roads. Also, there are not minimum desirable LOS targets for trucks along these boundary streets, based on the MMLOS Guidelines.

4.4. Access Intersection Design

The proposed development access will be located on the south side of Lewis St, at the west end of the property and will provide access to the underground parking garage entrance. The access will use STOP Control for vehicles existing the site. An adjacent driveway (Cornerstone Priv) is located on Lewis St approximately 20m west of the proposed development access. No signalized intersections are in close proximity to the proposed development access.

The Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads, Chapter 8 (Access), was reviewed, where clear throat length provided by the proposed development access was determined to be sufficient. Additionally, the Private Approach By-Law requirements of the City of Ottawa were reviewed, with the following noted:

- As required, the width of the proposed development access does not exceed 9m.
- As required, given the proposed number of parking spaces, the distance between the proposed access and the nearest adjacent intersecting street line (i.e., Cornerstone Priv) is greater than 18m.
- As required, the distance between the proposed access and the property line is at least 3m.
- As required, given the number of parking spaces, the proposed access's grade does not exceed 2% for a distance of 9m from the road (Lewis St).

Therefore, the design parameters of the access are acceptable.

Sight Lines

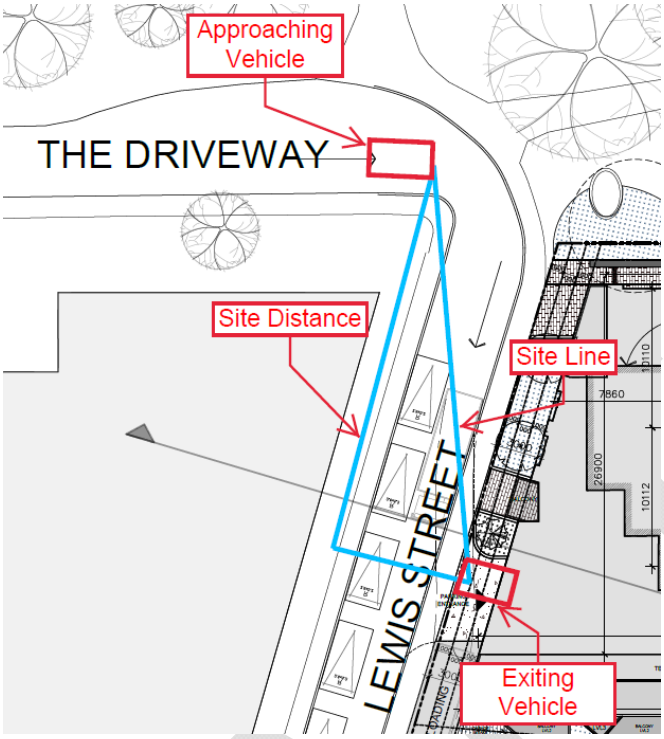
Departure sight triangles indicate the sight distance needed for a stopped vehicle to depart from a minor approach and enter or cross a major two-way road. TAC Guidelines Chapter 9 (Intersections) was reviewed with regards to the sight distances needed for left-turn vehicles from the minor road (site access) to the major road (Lewis St).

The departure site triangle for left-turning vehicles at the proposed site access is illustrated in Figure 13, which represents the viewing of traffic approaching from the right for the vehicle at the site access. Site distances have been checked with regards to horizontal obstructions only (i.e. approaching vehicles), as there are no anticipated major vertical obstructions (i.e. trees, poles, road grades) in the illustrated sight triangle. Based on the available site line, the available site distance was measured to be approximately 30m.

Given the narrowness and sharpness of the road bend transition from The Driveway to Lewis St, it was assumed that vehicles travel through the bend at a speed of 20km/h or less. Based on the TAC Guidelines, an approximately 42m sight distance would be required for a 20km/h design speed. However, it should be noted that this distance assumes that the left-turn is completed onto a two-way two-lane road, which typically requires a 7.5 second gap time for a vehicle to complete the left-turn. In contrast, Lewis St is a one-way one-lane road with on-street parking and a narrow 3.2m wide travel lane. Therefore, assuming a slightly lower gap time of 5 seconds, the required site distance would be approximately 28m, making the available 30m sight distance sufficient.

Given the available and required sight distances, the urban cross-section resulting in low travel speeds and the driver expectations of a local roadway, sight lines are not anticipated to result in an undue safety concern.

Figure 13: Site Triangles for Left-Turning Vehicles at Site Access



4.5. Transportation Demand Management

The TDM Infrastructure and TDM Measures Checklists for the residential land use have been provided in Appendix D. The proposed measures for each respective checklist are provided below.

<u>Proposed measures identified in the TDM Measures Checklist are:</u>

- Display local area maps with walking/cycling access routes and key destinations at major entrances,
- Display relevant transit schedules and route maps at entrances,
- Contract with provider to install on-site carshare vehicles and promote their use by residents. (Note that this measure is being considered but it has not been confirmed yet),
- Unbundle parking cost from purchase price (condominium),
- Provide a multimodal travel option information package to new residents,

<u>Proposed measures identified in the TDM-supportive Development Design and Infrastructure Checklist are:</u>

- Locate building close to the street, and do not locate parking areas between the street and building,
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations,
- Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort,
- Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations,
- Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing

walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible,

- Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks,
- Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps,
- Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on- road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians,
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops,
- Ensure that walking routes to transit stops are secure and lighted wherever possible,
- Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails,
- Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible,
- Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well- used areas,
- Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored,
- Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers,
- Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi- family residential developments,
- Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for.

4.6. Neighbourhood Traffic Management

Exempt – see Table 1.

Local streets providing access to/from the development include Gilmour St, Lewis St and The Driveway, all of which have minimal traffic in existing conditions, as shown in Figure 8. Additionally, the future development was anticipated to generate a less than 10 veh/h during the morning and afternoon peak hours. As such, the neighborhood streets surrounding the development is expected to experience little impact with respect to vehicular traffic.

4.7. Transit

Exempt – see Table 1.

The development is anticipated to generate 9 or less transit person trips during the peak hours, which can be well accommodated by the existing transit network.

4.8. Review of Network Concept

Exempt – see Table 1.

4.9. Intersection Design

4.9.1. Intersection control

Exempt – see Table 1.

A STOP Control is anticipated to be sufficient for vehicles exiting the proposed development site. There are no safety concerns given the low traffic volumes of the site and on Lewis St.

4.9.2. Intersection design

Exempt – see Table 1.

Given the low traffic volumes expected to be generated by the proposed development, there are no anticipated concerns with regards to traffic operations within the study area.

5. Findings, Conclusions and Recommendations

Based on the results summarized herein, the following transportation related conclusions are offered:

- The proposed development will be located at 50 The Driveway and will consist of a high-rise condo building housing a total of 77 residential units.
- Proposed development does not meet minimum Trip Generation; However, does meet Location and Safety Triggers
- The development buildout is anticipated by horizon year 2025.
- Access will be provided via a driveway along the south side of Lewis St, at the west end of the site. The proposed access is anticipated to meet the requirements of the TAC Guidelines and Private Approach By-Law.
- Private waste management trucks will have access to garbage pickup along Lewis St, directly east of the proposed development access. Additionally, move-in trucks may access a loading/unloading zone within the site, where the largest trucks anticipated to access the zone (MSU, up to 10m long) may conflict with a small portion of the sidewalk. Passenger cars are expected to have no issues entering and exiting the site access.
- A total of 97 vehicle parking spaces and 77 bicycle parking spaces are proposed, all of which will be located in a 2-level underground parking lot. Vehicle parking spaces will be 2.6m wide and 5.2m long. Vehicle and bicycle parking spaces provided meet the requirements of the City of Ottawa's Parking Space Provisions.
- The development is anticipated to generate a minimal 33 total person trips during the morning and afternoon peak hours. Vehicle trips make up only 8 trips of the total person trips during peak hours.
- Traffic volumes along study area roads are currently low, ranging from 16 to 34 vehicles during the peak hours.
- Only two collisions have occurred in the study area in a five-year period (2015-2019), both of which were along The Driveway and resulted in property damage only.
- The nearest bus stops to the site are located along Elgin St, within a 550 m walking distance. Additionally, the Confederation Line uOttawa LRT station is location across the Rideau Canal, within a 600 m walking distance and can be accessed via Rideau Canal Pathways and Corktown Footbridge.
- MMLOS analysis for boundary streets, Lewis St and The Driveway, indicated that the pedestrian LOS along The Driveway does not meet the minimum desirable LOS target based on MMLOS Guidelines, due to having narrower 1.5 m wide sidewalks.
- STOP Control will be provided at the site access for vehicles exiting the site.
- Given the available and required sight distances, the low travel speeds along Lewis St and the driver expectations of a local roadway, sight lines for vehicles exiting the site are not anticipated to result in an undue safety concern.

In summary, the proposed development will have a minor impact on the study area and is recommended to proceed from a transportation perspective.

APPENDIX A

SCREENING FORM AND COMMENT RESPONSES

1223 Michael Street North, Suite 100 | Ottawa, ON K1J 7T2
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31 May 2022

City of Ottawa
Development Review Services
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: Neeti Paudel

Dear Neeti:

Re: 50 The Driveway TIA

Step 4 – Response to City Forecasting Comments

The following response has been prepared as part of Site Plan Application in response to City of Ottawa comments received on November 15, 2021, for Zoning By-Law and Official Amendment Applications. City comments have been noted in black with the corresponding responses from Parsons in Green.

Forecasting Comments

1. Please proceed with the next TIA step.
   TIA Step 4 completed.

2. Update to the TIA Guideline Forecasting Report

   a. We would like to inform all consultants making TIA Forecasting Report submissions to the City of Ottawa as part of a development application, that all new applications (pre-consultation meetings dated after March 3, 2021) must use the NEW TRANS Trip Generation Manual when forecasting site generated trips using this manual (see attached).
      Report already uses 2020 TRANS Manual for Trip Generation.

   b. The TRANS committee (a joint transportation planning committee serving the National Capital region) finalized a new manual early in March 2021. The document will be available in French and English on the TRANS website http://www.ncr-trans-rcn.ca/surveys/2009-trip-generation.
      Report already uses 2020 TRANS Manual for Trip Generation.

   c. The new manual has simplified the conversion from vehicle trips to person trips and then trips by modal share. The City has also developed a spreadsheet that will apply the factors of location and building type to quickly provide the existing trip numbers by mode share.
      Report updated using spreadsheet.

General Notes

3. The Driveway is classified as a Local road. There are no additional protected ROW limits identified in the OP.
   Noted.

4. Permanent structures such as curbing, stairs, retaining walls, and underground parking foundation also bicycle parking racks are not to extend into the City's right-of-way limits.
   Noted. No structures extend into the City's ROW limits.

5. Safety- Review any safety concerns with respect to the access. Review collisions in the area and identify any mitigations/measures that can be taken to reduce collisions.
   TAC Guidelines and Private Approach By-Law have been reviewed in the TIA (Section 4.4) and no safety concerns were identified. TIA report identified 2 property damage only type collisions between 2015 - 2019, which indicates low collision propensity.

6. Site is within a TOD area – therefore TOD measures would apply. To achieve target mode shares within TOD zones, we highly recommend developments to provide as many TDM measures as possible to enable and encourage travel by sustainable modes.
   TDM Measures sheet included in the TIA.

7. Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
   Truck turning templates have been provided for trucks entering and exiting the proposed loading zone.
   Passenger vehicle turning templates have been provided for vehicles entering and exiting the site access.

8. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.
   Proponent notified.

9. Show lane/aisle widths.
   Proponent notified.

10. As the site proposed is residential, AODA legislation applies for all areas accessible to the public (i.e. outdoor pathways, parking, etc.). Consider using the City's Accessibility Design Standards. The Tactile Walking Surface Indicator (TWSI) should be provided at pedestrian crossings. Under the Integrated Accessibility Standards of the Accessibility for Ontarians with Disabilities Act, 2005, and the City of Ottawa Accessibility Design Standards, TWSI's are required for new construction and the redevelopment of elements in public spaces, such as for exterior paths of travel (e.g. sidewalks and at the top of stairs).
    Proponent notified.

11. Upgrade the sidewalk along the frontage of Lewis street to City standards. The concrete sidewalks should be 2.0 metres in width and be continuous and depressed through the proposed access.
    As per the minimum requirements of the City of Ottawa's design guidelines, the existing 1.8m sidewalks will be maintained/reinstated as needed and will be continuous and depressed through the proposed access.

12. The proponent shall comply with the Private Approach By-Law 2003-447.
    Noted. Proposed access has been determined to comply with the Private Approach By-Law.

13. No private approach shall be constructed within 0.3 metres of any adjacent property measured at the highway line, and at the curb line or roadway edge.
    Noted. The proposed access is not located within 0.3m of the adjacent property.

14. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.
    Noted. Sidewalks, shoulder, curb and boulevard will be maintained/reinstated as needed.

15. The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.
    Noted.

16. Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather.
    Noted. All bicycle parking spaces are proposed to be provided in the underground parking garage.

Public Comment

17. The TIA erroneously states there are no driveways or intersections on Lewis between Robert and Driveway. This ignores the existence of Cornerstone Private. Update TIA accordingly.
    Report updated.

PARSONS

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1223 Michael Street, Suite 100|Ottawa, ON K1J 7T2

City of Ottawa 2017 TIA Guidelines

TIA Screening Form

Date	May 25, 2022
Project	50 Queen Elizabeth Drive
Project Number	477912-01000

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	No
Development Satisfies the Location Trigger	Yes
Development Satisfies the Safety Trigger	Yes

Module 1.1 - Description of Proposed Development	
Municipal Address	50 Queen Elizabeth Drive
Description of location	located at the south end of The Driveway, east of Robert/Lewis intersection.
Land Use	Residential
Development Size	9-Storey residential building with 77 units
Number of Accesses and Locations	1 Access located west side of th property frontage along The Driveway
Development Phasing	1 Phase assumed
Buildout Year	2023
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger		
Land Use Type	Townhomes or Apartments	
Development Size	77	Units
Trip Generation Trigger Met?	No	

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	No
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes
Location Trigger Met?	Yes

Module 1.4 - Safety Triggers		
Posted Speed Limit on any boundary road	<80	km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	Yes	
A proposed driveway is within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions) or within auxiliary lanes of an intersection;	No	
A proposed driveway makes use of an existing median break that serves an existing site	No	
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	Yes	
The development includes a drive-thru facility	No	
Safety Trigger Met?	Yes	

APPENDIX B

TRAFFIC VOLUME COUNTS

Parsons
1223 Michael St
Ottawa , ON,

Turn Count Summary

Location: Driveway at Somerset W, Ottawa
GPS Coordinates:
Date: 2019-11-28
Day of week: Thursday
Weather: Partially Cloudy
Analyst: Juan Lavin

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	5	0	2	5	37	0	1	1	1	0	35	2	89
07:45	4	0	3	0	54	0	1	0	3	0	35	1	101
08:00	4	2	0	2	39	0	1	1	7	0	30	0	86
08:15	3	0	2	2	39	0	0	0	4	0	37	1	88
08:30	8	2	2	3	41	0	1	0	6	0	38	2	103
08:45	10	1	2	3	54	0	0	2	4	0	41	2	119

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	5	0	2	5	33	0	1	0	1	0	34	2	83
07:45	4	0	3	0	46	0	1	0	3	0	31	1	89
08:00	4	1	0	2	35	0	1	0	7	0	30	0	80
08:15	3	0	2	2	35	0	0	0	4	0	29	1	76
08:30	8	2	2	3	33	0	1	0	6	0	34	2	91
08:45	10	0	2	3	49	0	0	0	4	0	39	2	109

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30	0	0	0	0	4	0	0	1	0	0	1	0	6
07:45	0	0	0	0	8	0	0	0	0	0	4	0	12
08:00	0	1	0	0	4	0	0	1	0	0	0	0	6
08:15	0	0	0	0	4	0	0	0	0	0	8	0	12
08:30	0	0	0	0	8	0	0	0	0	0	4	0	12
08:45	0	1	0	0	5	0	0	2	0	0	2	0	10

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:30	0	38	38	8	1	9	3	37	40	5	0	5	92
07:45	0	39	39	17	2	19	3	49	52	11	0	11	121
08:00	0	57	57	23	0	23	3	44	47	7	0	7	134
08:15	0	68	68	44	0	44	7	53	60	12	0	12	184
08:30	0	69	69	4	1	5	9	27	36	4	0	4	114
08:45	0	60	60	10	3	13	4	30	34	16	0	16	123

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	25	5	6	10	173	0	2	3	21	0	146	5	396
Factor	0.62	0.62	0.75	0.83	0.80	0.00	0.50	0.38	0.75	0.00	0.89	0.62	0.83
Approach Factor	0.69			0.80			0.72			0.88			

Peak Hour Vehicle Summary

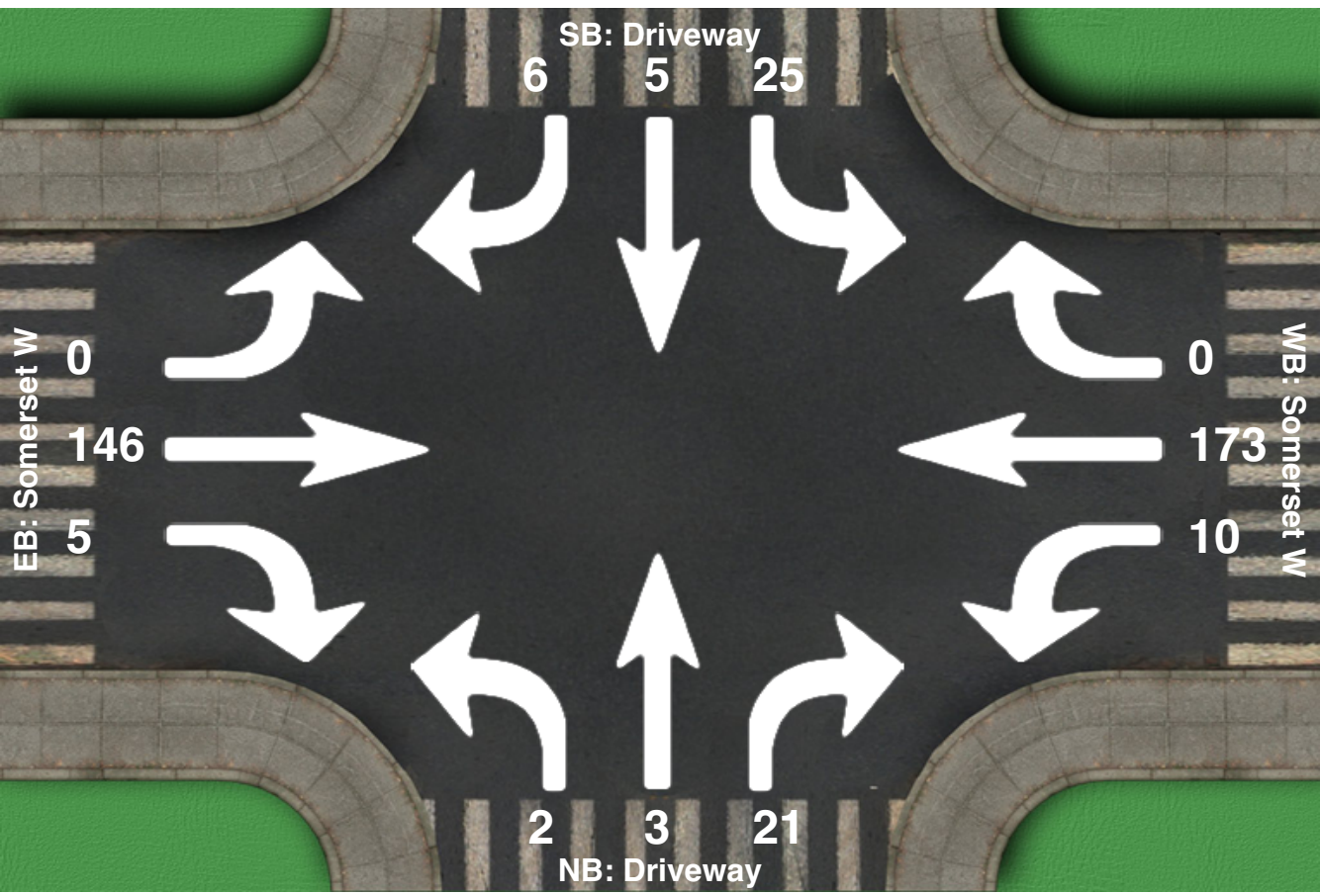
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	25	3	6	10	152	0	2	0	21	0	132	5	356
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	2	0	0	21	0	0	3	0	0	14	0	40

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	254	254	81	4	85	23	154	177	39	0	39	555

Intersection Peak Hour

Location: Driveway at Somerset W, Ottawa
GPS Coordinates:
Date: 2019-11-28
Day of week: Thursday
Weather: Partially Cloudy
Analyst: Juan Lavin



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	25	5	6	10	173	0	2	3	21	0	146	5	396
Factor	0.62	0.62	0.75	0.83	0.80	0.00	0.50	0.38	0.75	0.00	0.89	0.62	0.83
Approach Factor	0.69			0.80			0.72			0.88			

Parsons
1223 Michael St
Ottawa , ON,

Turn Count Summary

Location: Driveway at Somerset W, Ottawa
GPS Coordinates:
Date: 2019-11-28
Day of week: Thursday
Weather: Mostly Sunny
Analyst: Juan Lavin

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	11	0	4	2	31	0	0	1	3	0	39	4	95
16:00	10	4	8	1	40	0	3	0	0	0	68	1	135
16:15	22	3	3	3	25	0	0	0	3	0	59	0	118
16:30	6	0	4	4	42	0	0	0	5	0	54	1	116
16:45	8	2	3	4	31	0	0	1	2	0	63	2	116
17:00	14	2	7	4	38	0	0	0	1	0	43	1	110
17:15	0	0	0	0	0	0	0	0	0	0	1	0	1

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	11	0	4	2	30	0	0	0	3	0	37	4	91
16:00	10	2	8	1	35	0	3	0	0	0	66	1	126
16:15	22	0	3	3	22	0	0	0	2	0	56	0	108
16:30	6	0	4	4	34	0	0	0	5	0	50	1	104
16:45	8	0	3	4	28	0	0	0	2	0	59	2	106
17:00	14	1	7	4	36	0	0	0	1	0	42	1	106
17:15	0	0	0	0	0	0	0	0	0	0	1	0	1

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	0	0	0	1	0	0	1	0	0	2	0	4
16:00	0	2	0	0	5	0	0	0	0	0	2	0	9
16:15	0	3	0	0	3	0	0	0	1	0	3	0	10
16:30	0	0	0	0	8	0	0	0	0	0	4	0	12
16:45	0	2	0	0	3	0	0	1	0	0	4	0	10
17:00	0	1	0	0	2	0	0	0	0	0	1	0	4
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
15:45	0	17	17	24	3	27	1	14	15	29	0	29	88
16:00	0	18	18	30	1	31	1	18	19	34	0	34	102
16:15	0	24	24	22	4	26	0	15	15	25	0	25	90
16:30	0	23	23	36	2	38	1	13	14	37	0	37	112
16:45	0	23	23	31	3	34	2	22	24	42	0	42	123
17:00	0	24	24	33	1	34	1	17	18	34	0	34	110
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	46	9	18	12	138	0	3	1	10	0	244	4	485
Factor	0.52	0.56	0.56	0.75	0.82	0.00	0.25	0.25	0.50	0.00	0.90	0.50	0.90
Approach Factor	0.65			0.82			0.70			0.90			

Peak Hour Vehicle Summary

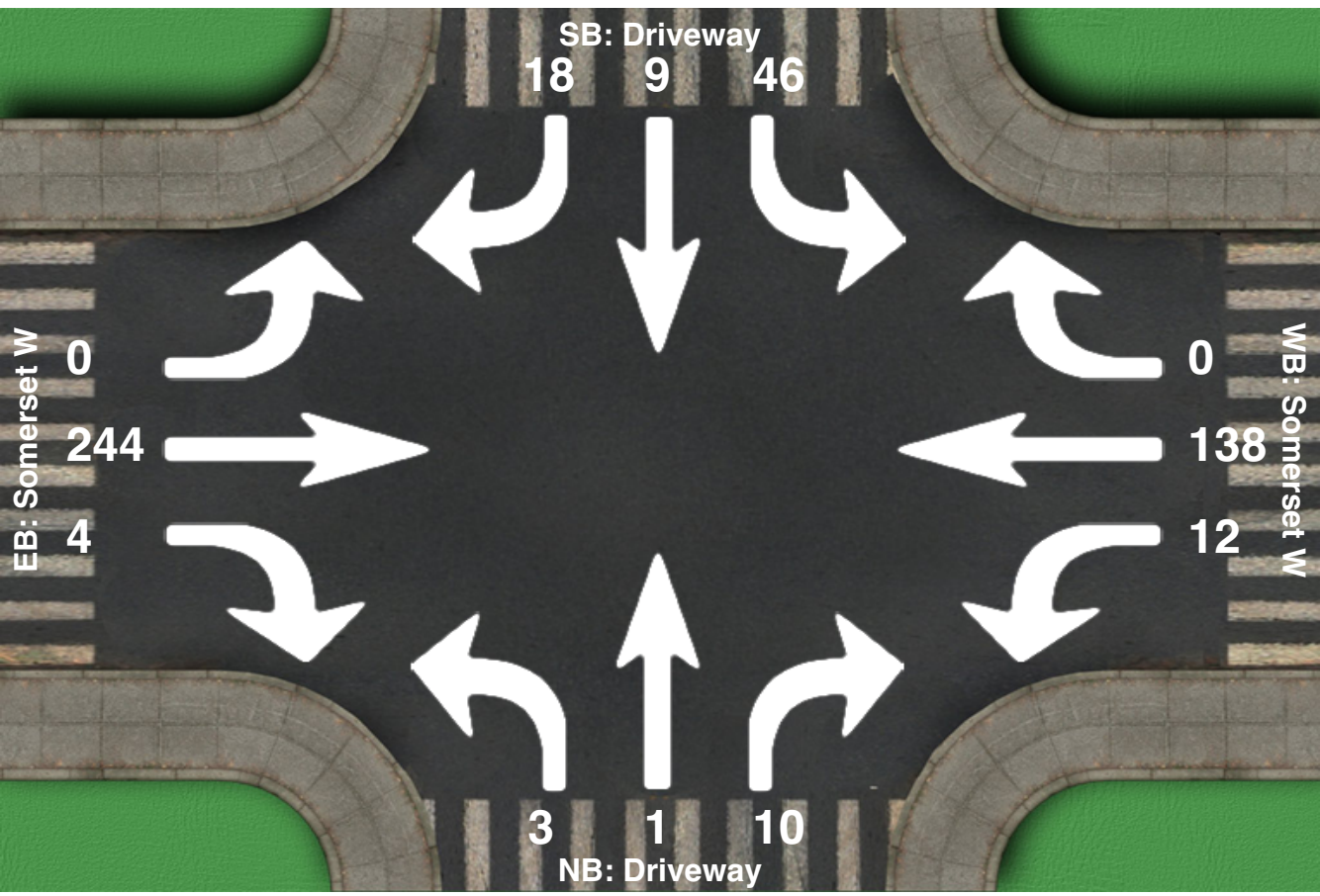
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	46	2	18	12	119	0	3	0	9	0	231	4	444
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	7	0	0	19	0	0	1	1	0	13	0	41

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	88	88	119	10	129	4	68	72	138	0	138	427

Intersection Peak Hour

Location: Driveway at Somerset W, Ottawa
GPS Coordinates:
Date: 2019-11-28
Day of week: Thursday
Weather: Mostly Sunny
Analyst: Juan Lavin



Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	46	9	18	12	138	0	3	1	10	0	244	4	485
Factor	0.52	0.56	0.56	0.75	0.82	0.00	0.25	0.25	0.50	0.00	0.90	0.50	0.90
Approach Factor	0.65			0.82			0.70			0.90			

APPENDIX C

COLLISIONS DATA

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: DRIVEWAY (THE) btwn CENTRAL AVE & GILMOUR ST

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jun-17, Fri,19:00	Clear	SMV unattended vehicle	P.D. only	Dry	West	Unknown	Unknown	Unattended vehicle	0

Location: DRIVEWAY (THE) btwn GILMOUR ST & LEWIS ST

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Nov-08, Sun,04:09	Clear	Other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Fire Hydrant	0
					West	Stopped	Police vehicle	Other motor vehicle	

APPENDIX D

TDM CHECKLISTS

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☑
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☑
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☑
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

	TDM-supportive design & infrastructure measures: *Residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☑
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	1.	**TDM PROGRAM MANAGEMENT**	
	1.1	**Program coordinator**	
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☐
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
	2.	**WALKING AND CYCLING**	
	2.1	**Information on walking/cycling routes & destinations**	
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER		3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2	**Transit fare incentives**	
BASIC	★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐
BETTER		3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3	**Enhanced public transit service**	
BETTER	★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4	**Private transit service**	
BETTER		3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4.	**CARSHARING & BIKESHARING**	
		4.1	**Bikeshare stations & memberships**	
BETTER		4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2	**Carshare vehicles & memberships**	
BETTER		4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☐ This measure is being considered and will be confirmed at a later time.
BETTER		4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
		5.	**PARKING**	
		5.1	**Priced parking**	
BASIC	★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☑
BASIC	★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☐

TDM measures: *Residential developments*			Check if proposed & add descriptions
6. TDM MARKETING & COMMUNICATIONS			
6.1 Multimodal travel information			
BASIC	★	6.1.1 Provide a multimodal travel option information package to new residents	☑
6.2 Personalized trip planning			
BETTER	★	6.2.1 Offer personalized trip planning to new residents	☐

APPENDIX E

TRUCK TURNING TEMPLATES

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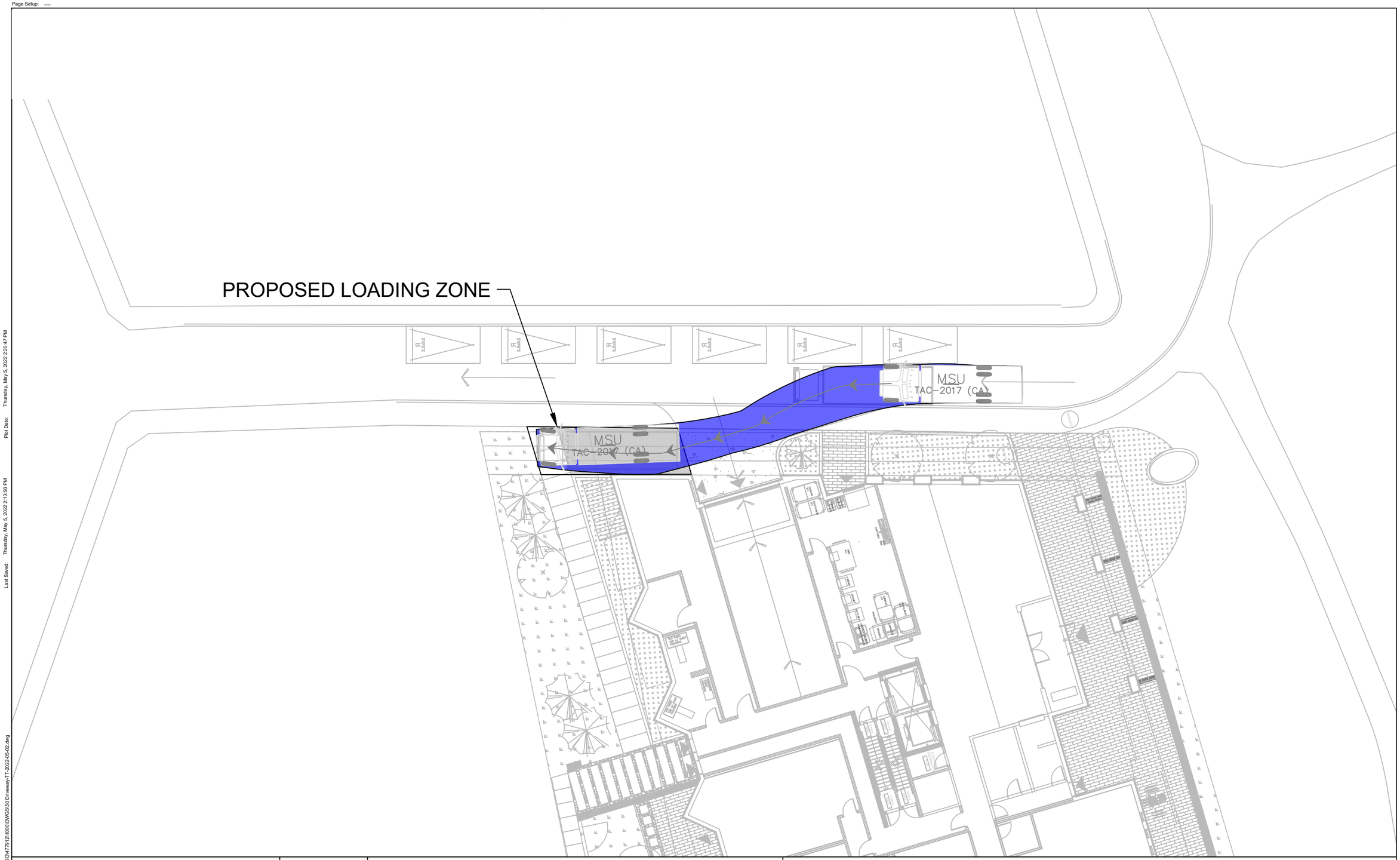
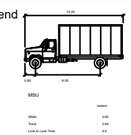


PARSONS®

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend



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Project Number: 477912	Project Description: 50 The Driveway	

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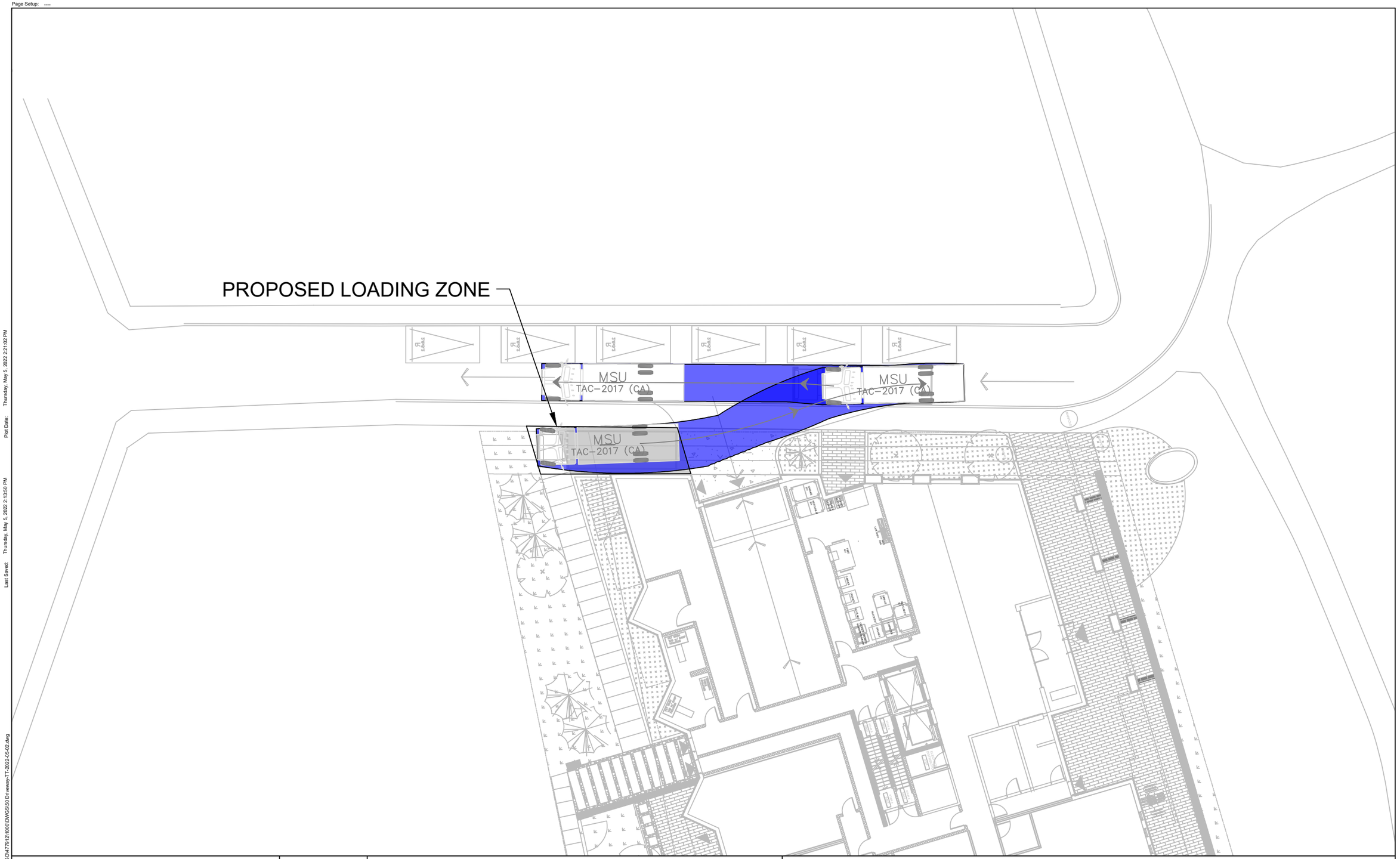

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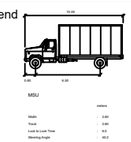

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Project Number: 477912	Project Description: 50 The Driveway	

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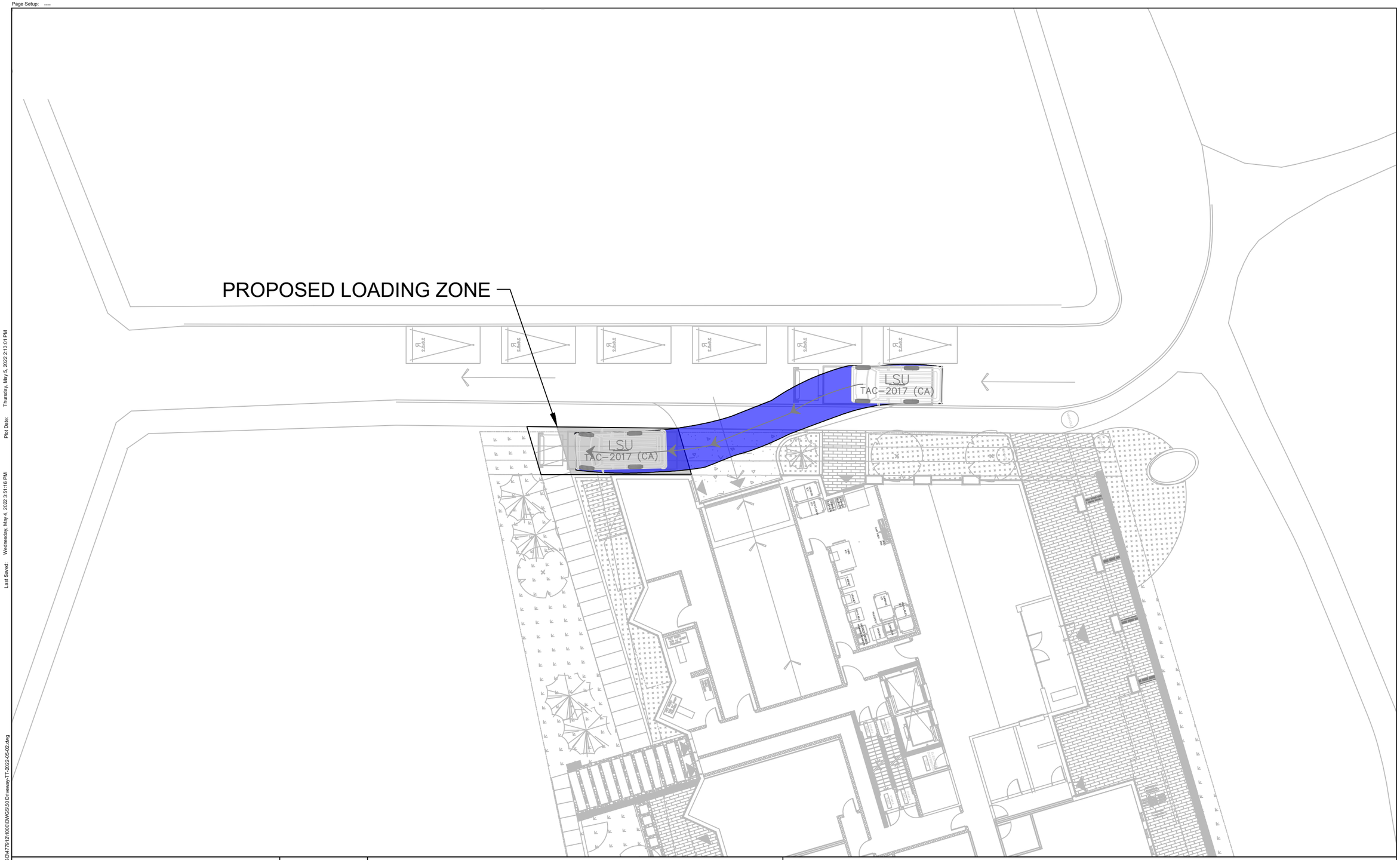

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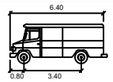

LSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.3

Not to Scale

Drawing Description: LSU Entering Loading Bay

Client:

Date: May 5, 2022

Figure Number: 003

Project Number: 477912

Project Description: 50 The Driveway

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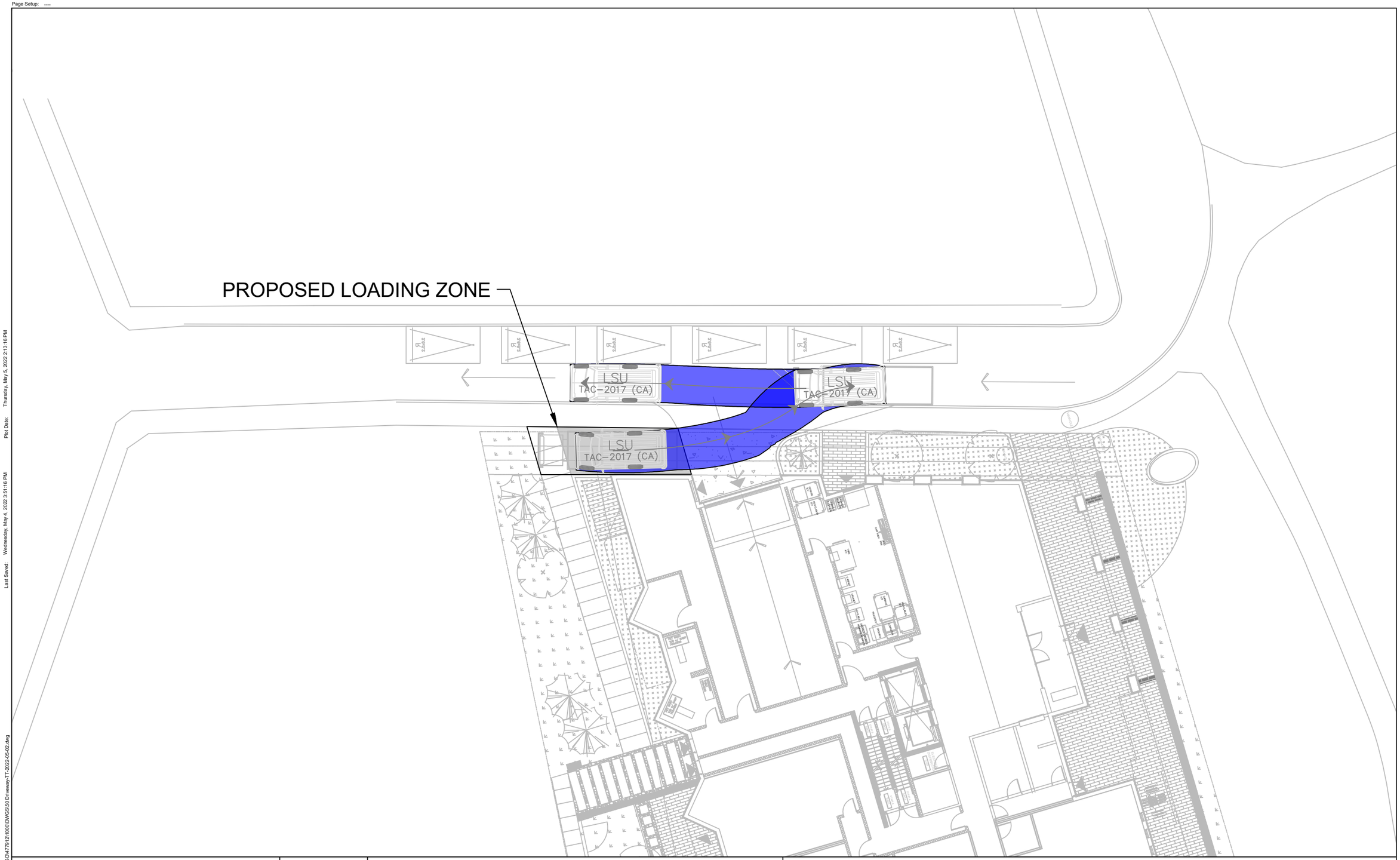

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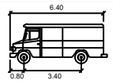

LSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.3

Not to Scale

Drawing Description: LSU Exiting Loading Bay

Client:

Date: May 5, 2022

Figure Number: 003

Project Number: 477912

Project Description: 50 The Driveway

Consultants
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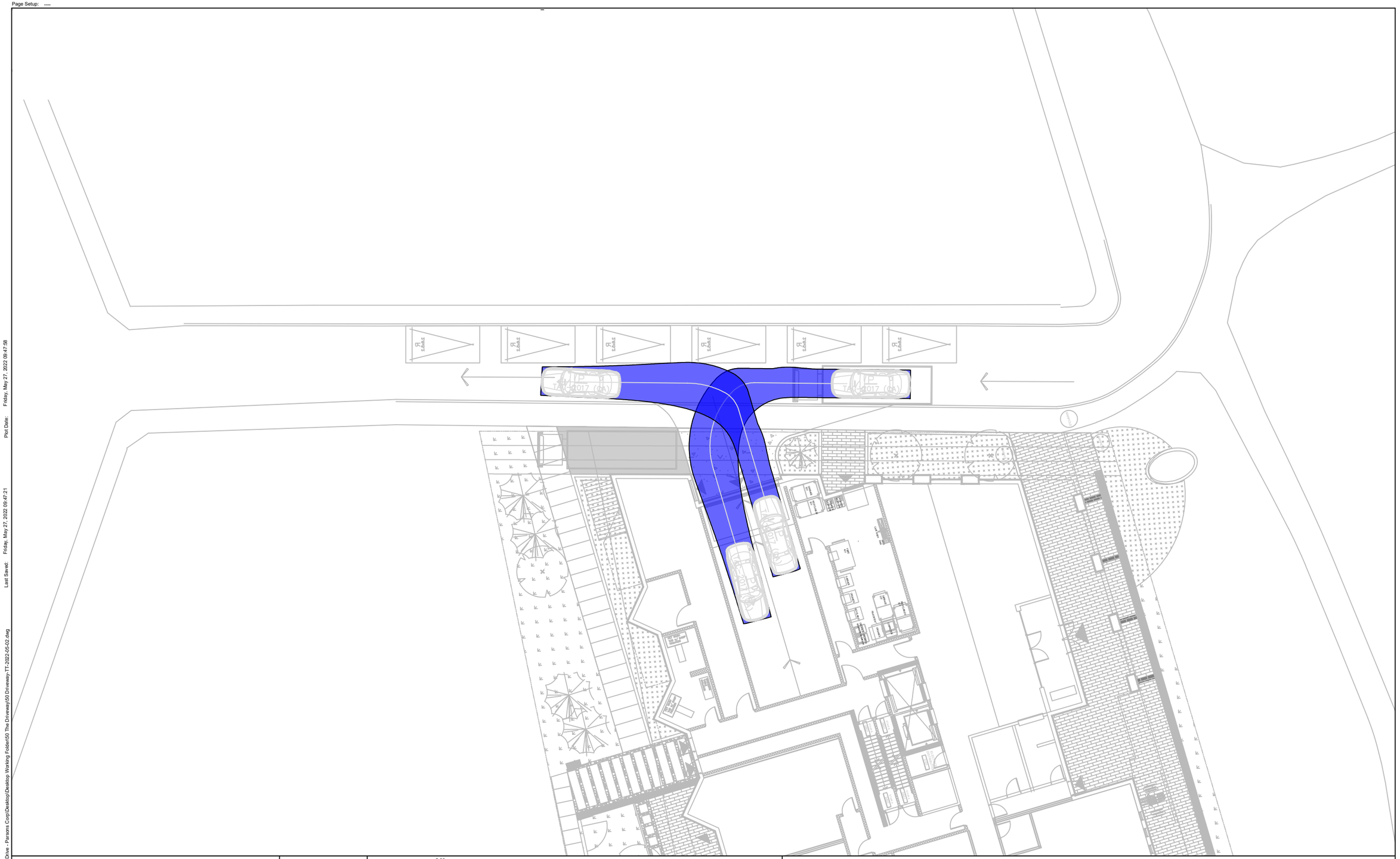

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NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

Legend

P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

Not to Scale

Drawing Description: Site Access - Passenger Car		
Client	Date: May 27, 2022	Figure Number: 005
Project Number: 477912	Project Description: 50 The Driveway	

APPENDIX F

MMLOS ANALYSIS SHEET

Multi-Modal Level of Service - Segments Form

Consultant	**Parsons**	**Project**	**477912**
Scenario	**Existing/Future**	**Date**	**22-Jun-21**
Comments			

SEGMENTS		Street A	Lewis St	The Driveway
			1	2
Pedestrian	Sidewalk Width Boulevard Width	E	1.8 m < 0.5 m	1.5 m < 0.5 m
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000
	Operating Speed On-Street Parking		> 30 to 50 km/h yes	> 30 to 50 km/h no
	Exposure to Traffic PLoS		**B**	**E**
	Effective Sidewalk Width		1.5 m	1.5 m
	Pedestrian Volume		250 ped/hr	250 ped/hr
	Crowding PLoS		**B**	**B**
	Level of Service		**B**	**E**
Bicycle	Type of Cycling Facility	B	Mixed Traffic	Mixed Traffic
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h
	# of Lanes & Operating Speed LoS		**B**	**B**
	Bike Lane (+ Parking Lane) Width			
	Bike Lane Width LoS		-	-
	Bike Lane Blockages			
	Blockage LoS		-	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		>40 to 50 km/h	>40 to 50 km/h
	Unsignalized Crossing - Lowest LoS		**B**	**B**
	Level of Service		**B**	**B**
Transit	Facility Type	-		
	Friction or Ratio Transit:Posted Speed			
	Level of Service		-	-
Truck	Truck Lane Width	E	≤ 3.2 m	> 3.7 m
	Travel Lanes per Direction		1	1
	Level of Service		**E**	**B**