

3113 Carp Road

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Strategy Report

Prepared for:

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Ottawa, ON K2H 7W1

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PN: 2025-103

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1 Screening

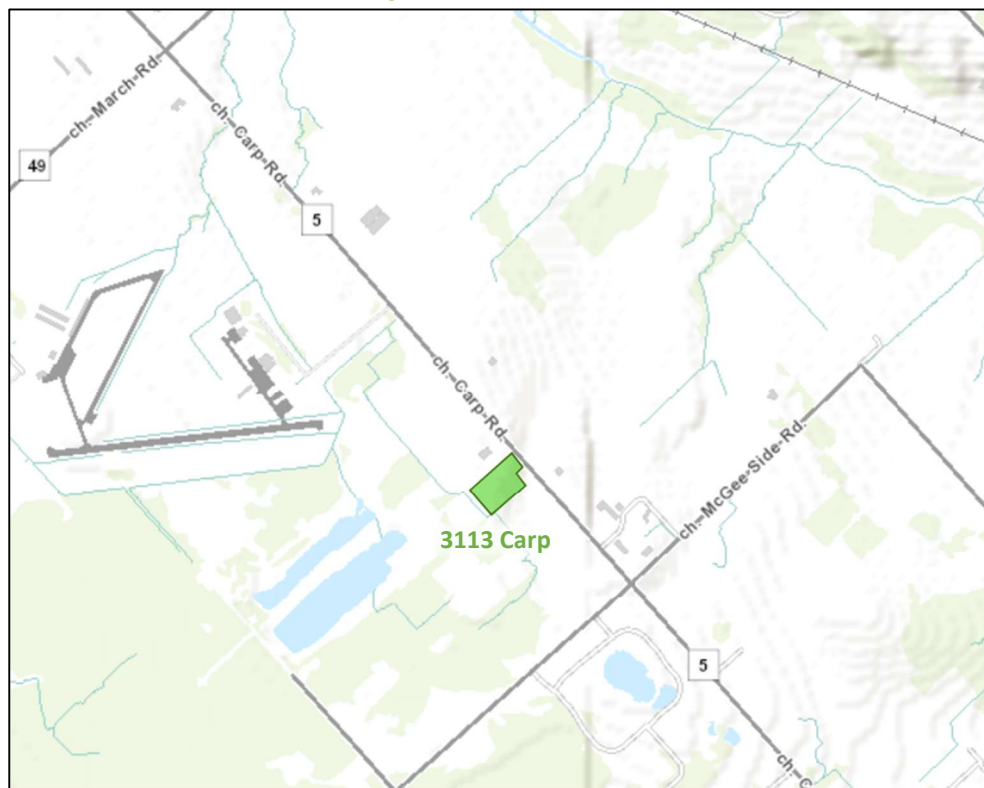
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines, incorporating the 2023 Revision to Transportation Impact Assessment Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required, and this study has been prepared to support a site plan application.

2 Existing and Planned Conditions

2.1 Proposed Development

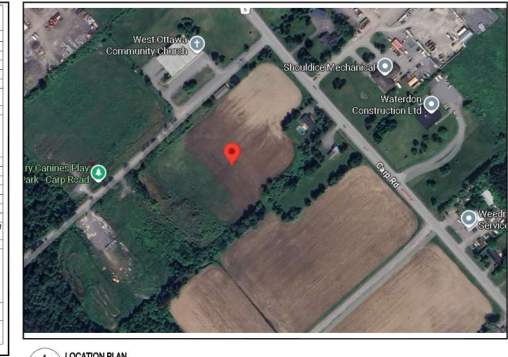
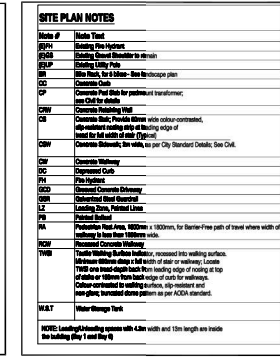
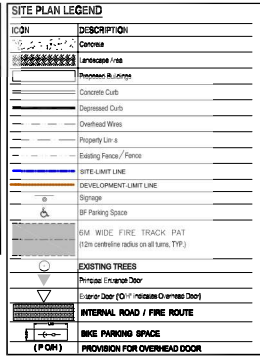
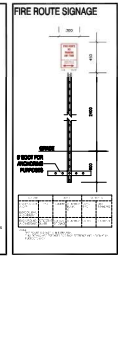
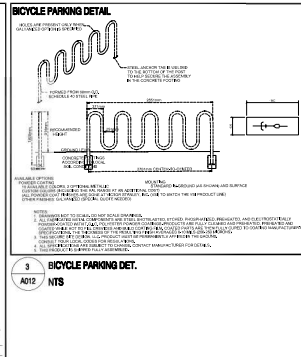
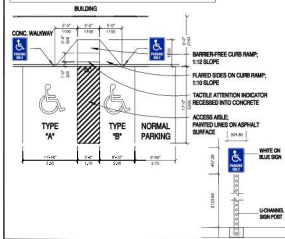
The development site, located at 3113 Carp Road, is zoned as a Rural Commercial Zone (RC 9), and is within the Carp Road Corridor Business Improvement Area and the Carp Road Corridor Community Design Plan area. As such, it is subject to the planning policies outlined in the CDP. The proposed development consists of 107,830 square feet of warehouse space. The proposed development has six bays for a total of 22 loading doors on the north side of the site. Additionally, 89 parking spaces are proposed, six of which are planned to be accessible parking stalls, and 24 bicycle parking spaces are also proposed. There will be a single phase of development with an anticipated buildout of 2027. The proposed development will be served by a single access on Carp Road approximately 350 metres south of the intersection of William Mooney Road and Carp Road. Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: June 17, 2025

ALL PARKING SPACES SHALL BE PROVIDED WITH VERTICAL SIGNAGE.
1. MIN. SIGNING HEIGHT SHALL BE 1.5m. 2.0m FROM THE GROUND.
3. CONTRASTING COLOUR WITH THE BACKGROUND.
4. MIN. SIGNING HEIGHT SHALL BE 1.5m. 2.0m FROM THE GROUND.
5. SIGNING SHALL BE THROUGH THE USE OF HIGH CONTRAST TO THE SURFACE OF THE PARKING SPACE LOCATED NEAR THE BACK OF THE SPACE.



2. BP PARKING PLAN
A012 / 1:100

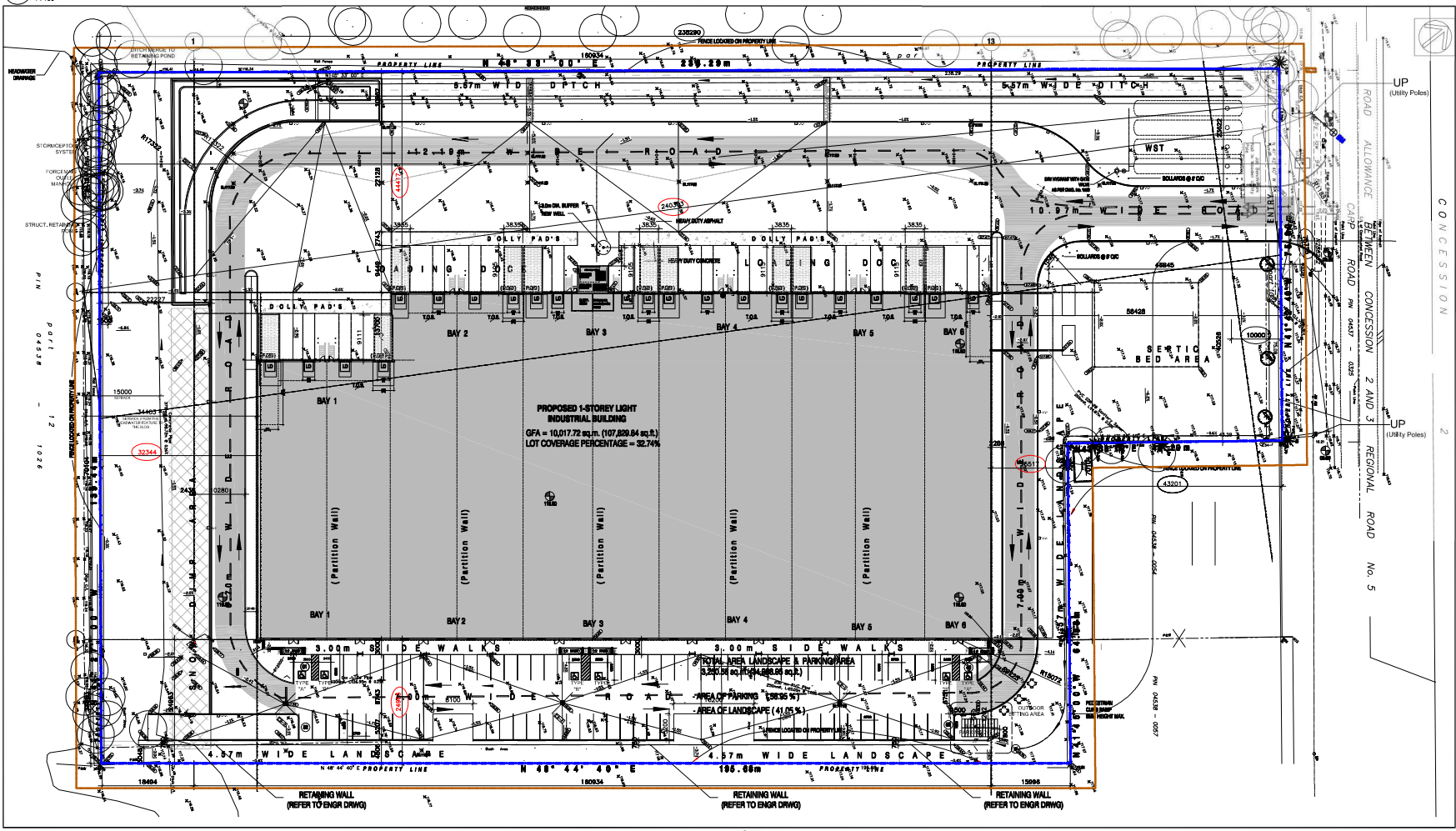
3. BICYCLE PARKING DET.
NTS

4. FIRE ROUTE SIGNAGE
NTS

5. SITE PLAN LEGEND
NTS

6. SITE PLAN NOTES
NTS

7. LOCATION PLAN
A002 / N.T.S.



1. SITE PLAN
A012 / Scale: 1/400m

2. BP PARKING PLAN
A012 / 1:100

3. BICYCLE PARKING DET.
NTS

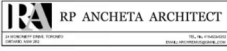
4. FIRE ROUTE SIGNAGE
NTS

5. SITE PLAN LEGEND
NTS

6. SITE PLAN NOTES
NTS

7. LOCATION PLAN
A002 / N.T.S.

NOTE
SITE PLAN: INFORMATION SHOWN HAS BEEN TAKEN FROM ANNIS O'SULLIVAN VOLLEBEKK LTD. DATED JUNE 22, 2022



DATE	ISSUED FOR	REV
2023-04-09	ISSUED FOR CLIENT REVIEW	1
2023-04-11	ISSUED FOR STREET, ASP, LANDSCAPE & DIAL	2
2023-05-01	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	3
2023-05-12	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	4
2023-05-24	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	5
2023-07-03	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	6
2023-07-07	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	7
2023-07-10	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	8
2023-07-13	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	9
2023-07-17	ISSUED FOR CLIENTS, LANDSCAPE & DIAL	10

This drawing has been prepared solely for the use of J.L. CANADA-EAST and there are no representations of any kind made by

GENERAL NOTES:
1. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT FOR HIS WRITTEN PERMISSION BEFORE PROCEEDING WITH THE WORK.
2. NOT FOR CONSTRUCTION UNLESS SIGNED BY THE ARCHITECT
3. NOT TO BE SCALED OR REPRODUCED WITHOUT WRITTEN PERMISSION

Consultants:
Surveyor: TOPOGRAFFICAL PLAN GP
PART OF LOT 12
CONCESSION 3
GEOGRAPHIC TOWNSHIP OF HUNTERLEY
CITY OF OTTAWA
Property No. 010000, 010001, 010002, 010003, 010004, 010005, 010006, 010007, 010008, 010009, 010010, 010011, 010012, 010013, 010014, 010015, 010016, 010017, 010018, 010019, 010020, 010021, 010022, 010023, 010024, 010025, 010026, 010027, 010028, 010029, 010030, 010031, 010032, 010033, 010034, 010035, 010036, 010037, 010038, 010039, 010040, 010041, 010042, 010043, 010044, 010045, 010046, 010047, 010048, 010049, 010050, 010051, 010052, 010053, 010054, 010055, 010056, 010057, 010058, 010059, 010060, 010061, 010062, 010063, 010064, 010065, 010066, 010067, 010068, 010069, 010070, 010071, 010072, 010073, 010074, 010075, 010076, 010077, 010078, 010079, 010080, 010081, 010082, 010083, 010084, 010085, 010086, 010087, 010088, 010089, 010090, 010091, 010092, 010093, 010094, 010095, 010096, 010097, 010098, 010099, 010100, 010101, 010102, 010103, 010104, 010105, 010106, 010107, 010108, 010109, 010110, 010111, 010112, 010113, 010114, 010115, 010116, 010117, 010118, 010119, 010120, 010121, 010122, 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2.2 Existing Conditions

2.2.1 Area Road Network

Carp Road: Carp Road is a City of Ottawa arterial road with a two-lane rural cross-section including paved shoulders. Cycling lanes are shown approximately 200 metres north of March Road to 200 metres south of March Road. The posted speed limit within the study area is 80 km/h and the City protected right-of-way is 26.0 meters approximately 600 meters north of March Road and 30.0 meters between March Road and Richardson Side Road. Carp Road is designated as a truck route.

March Road: March Road is a City of Ottawa arterial road with a two-lane rural cross-section with gravel shoulders. The posted speed limit within the study area is 80 km/h. The measured right-of-way is 33.5 west of Carp Road and varies between 30.5 and 41.5 east of Carp Road within the study area. March Road is designated as a truck route.

McGee Side Road: McGee Side Road is a City of Ottawa collector road with a two-lane rural cross-section including gravel shoulders. The posted speed limit within the study area is 70km/h. The measured right-of-way is approximately 20 metres.

2.2.2 Existing Intersections

The existing study area intersections surrounding the site have been summarized below:

McGee Side Road at Carp Road

The intersection of McGee Side Road at Carp Road is an unsignalized intersection with stop control on the minor approach of McGee Side Road. All approaches consist of a shared all-movement lane. Trucks are restricted on the east leg.

March Road at Carp Road

The intersection of March Road at Carp Road is a signalized intersection. All approaches consist of an auxiliary left turn lane, a shared through/right-turn lane, and a curbside bike lane. No turn restrictions were noted.

2.2.3 Existing Driveways

There are eight existing driveways within 200 metres of the proposed site access on Carp Road. These driveways serve as accesses to private residences and small industrial land uses. There are four driveways to the north, and four driveways to the south of the site access. None of the driveways are expected to provide access to significant traffic generators and would therefore have no impact on this TIA. Figure 3 illustrates the existing driveways.

Figure 3: Existing Driveways



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: June 17, 2025

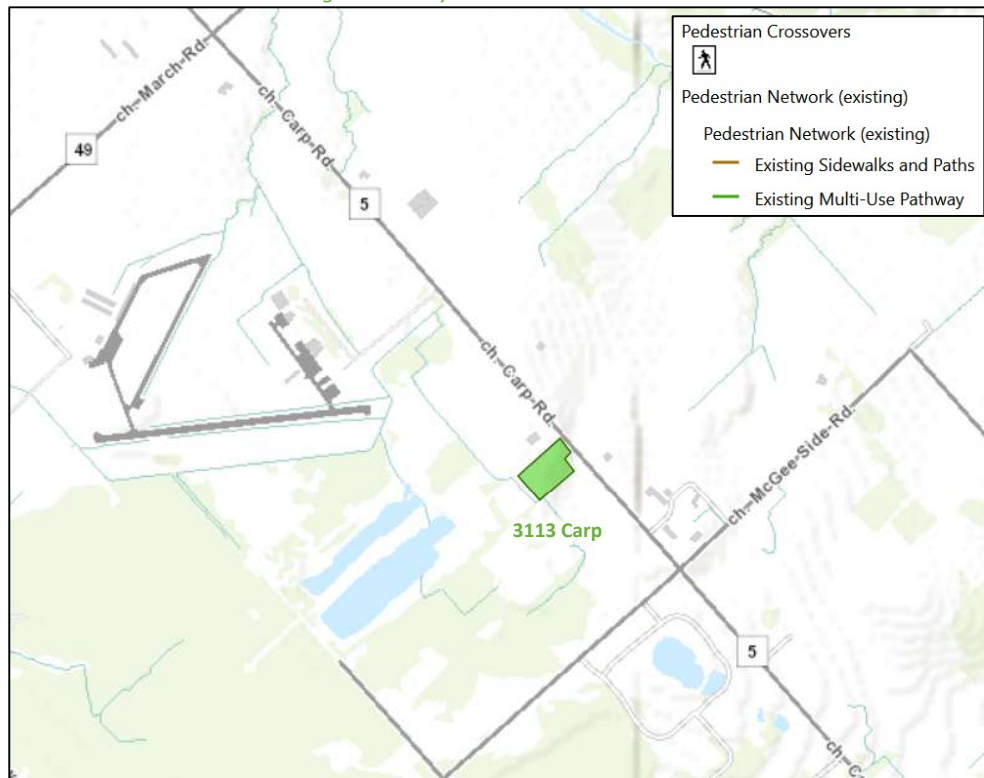
2.2.4 Cycling and Pedestrian Facilities

Figure 4 illustrates the pedestrian facilities in the study area and Figure 5 illustrates the cycling facilities.

As shown, there are no sidewalks or crosswalks provided within the study area.

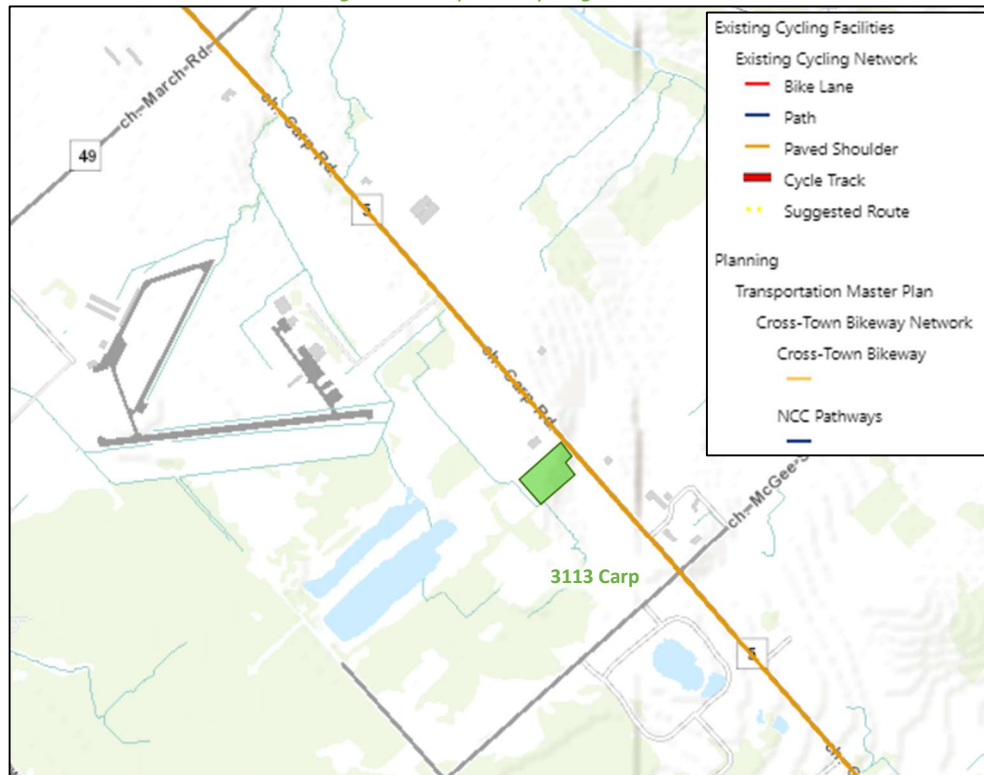
Cycling facilities are present on March Road and Carp Road. As discussed above, cycling lanes are shown approximately 200 metres north of March Road to 200 metres south of March Road on Carp Road, and approximately 230 metres east of Carp Road to 230 metres west of Carp Road along March Road. Carp Road is also noted to have paved shoulders suitable for cycling within the study area.

Figure 4: Study Area Pedestrian Facilities



Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: June 17, 2025

Figure 5: Study Area Cycling Facilities



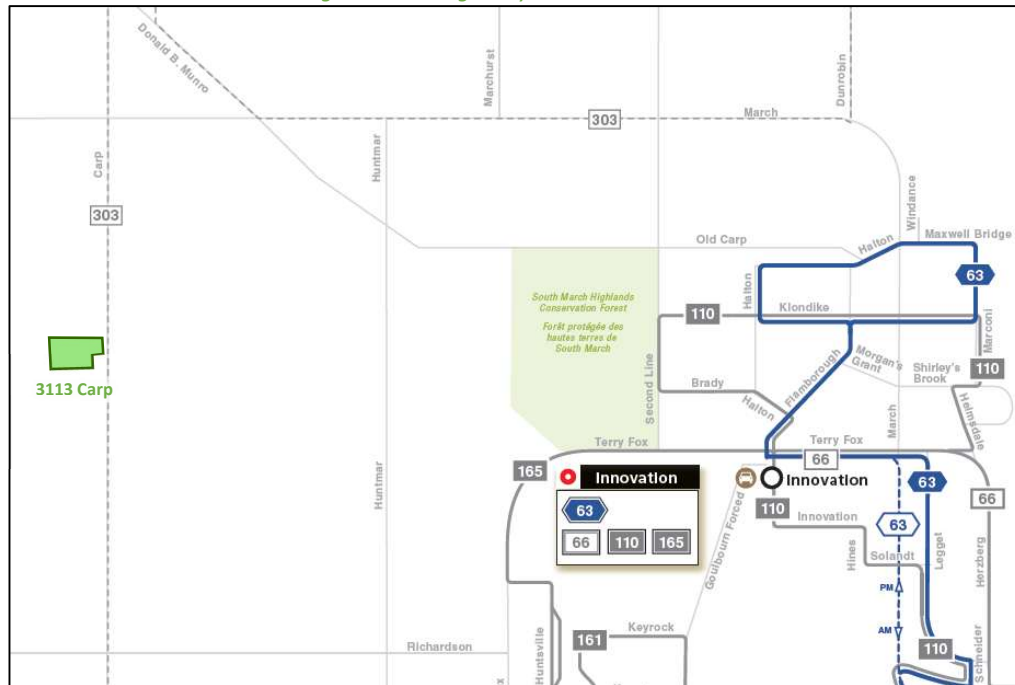
Source: <http://maps.ottawa.ca/geoOttawa/> Accessed: June 17, 2025

No pedestrian and cyclist volumes are noted in the study area intersection counts, presented in Section 2.2.7. This is reflective of the limited pedestrian and cycling facilities within the study area and the rural context.

2.2.5 Existing Transit

Figure 6 illustrates the transit system map in the study area. As shown, within the study area, there are no transit services available.

Figure 6: Existing Study Area Transit Service



Source: <http://www.octranspo.com/> Accessed: June 17, 2025

2.2.6 Existing Area Traffic Management Measures

There are no existing area traffic management measures within the study area.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were collected for the existing study area intersections by the Traffic Specialist. Table 1 summarizes the intersection count dates.

Table 1: Intersection Count Date

Intersection	Count Date	Source
March Road at Carp Road	Wednesday, November 9 th , 2022	Traffic Specialist
McGee Side Road at Carp Road	Wednesday, November 9 th , 2022	Traffic Specialist

It is noted that an accident was recorded at the intersection of March Road and Carp Road during the PM peak period of data collection. The accident did not occur during the PM peak hour, and it was indicated that traffic was able to progress through the intersection during the time of the accident. Additionally, the option to use the PM peak hour volumes counted in 2018 and provided by the City of Ottawa was explored, however given inconsistent growth rates identified between the AM peak hours, the 2018 count was not used. Appendix B illustrates the comparison calculations.

Figure 7 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. The level of service for signalized is based on volume to capacity ratio (v/c) calculations for individual lane movements

and MMLOS Guidelines weighted v/c methodology for the overall intersection, per direction from Transportation Engineering Services, and average delay for unsignalized intersections. Detailed turning movement count data and signal timing plan data is included in Appendix C and the Synchro worksheets are provided in Appendix D.

Figure 7: Existing Traffic Counts

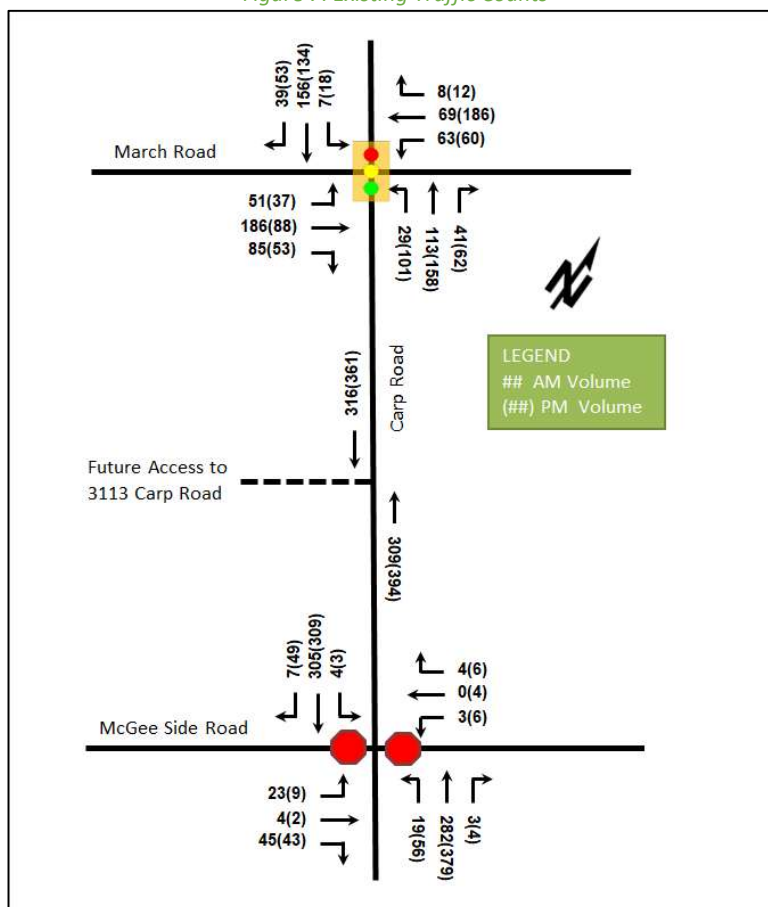


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95 th)	LOS	V/C	Delay (s)	Q (95 th)
Carp Road & March Road Signalized	EBL	A	0.12	16.5	13.2	A	0.09	16.2	10.3
	EBT/R	A	0.43	18.3	52.5	A	0.24	13.0	24.5
	WBL	A	0.21	18.4	16.5	A	0.16	17.2	15.4
	WBT/R	A	0.12	14.8	16.6	A	0.30	18.2	40.0
	NBL	A	0.08	16.1	8.7	A	0.25	18.4	23.8
	NBT/R	A	0.27	15.3	29.2	A	0.34	16.8	41.5
	SBL	A	0.02	15.1	3.3	A	0.05	15.6	6.1
	SBT/R	A	0.30	16.9	37.6	A	0.29	15.7	34.7
	Overall	A	0.38	16.9	-	A	0.32	16.5	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95 th)	LOS	V/C	Delay (s)	Q (95 th)
Carp Road & McGee Side Road <i>Unsignalized</i>	EB	B	0.17	13.9	4.6	B	0.13	14.0	3.0
	WB	B	0.02	13.7	0.8	C	0.07	19.2	1.5
	NB	A	0.02	8.1	0.8	A	0.06	8.5	1.5
	SB	A	0.01	8.6	0.0	A	0.01	8.7	0.0
	Overall	A	-	1.8	-	A	-	1.8	-

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 0.90

Delay = average vehicle delay in seconds
m = metered queue
= volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections operate well. No capacity issues are noted.

2.2.8 Collision Analysis

Collision data has been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study area road network (2018-2022). Table 3 summarizes the collision types and conditions in the study area, Figure 8 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data is included in Appendix E.

Table 3: Study Area Collision Summary, 2018-2022

		Number	%
Total Collisions		17	100%
Classification	Fatality	0	0%
	Non-Fatal Injury	3	18%
	Property Damage Only	14	82%
Initial Impact Type	Approaching	1	6%
	Angle	2	12%
	Rear End	5	29%
	Sideswipe	1	6%
	Turning Movement	4	24%
	SMV Unattended	0	0%
	SMV Other	4	24%
	Other	0	0%
Road Surface Condition	Dry	9	53%
	Wet	5	29%
	Loose Snow	1	6%
	Slush	0	0%
	Packed Snow	0	0%
	Ice	2	12%
	Loose Sand or Gravel	0	0%
	Unknown	0	0%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

Figure 8: Study Area Collision Records



Table 4: Summary of Collision Locations, 2018-2022

Intersections / Segments	Number	%
	17	100%
Carp Road between John Cavanaugh Drive and Russ Bradley Road	6	35%
Carp Road at McGee Side Road	4	24%
Carp Road between March Road and Russ Bradley Road	4	24%
Carp Road between John Cavanaugh Drive and McGee Side Road	1	6%
Carp Road between McGee Side Road and Olive Road	1	6%
Carp Road at John Cavanaugh Drive	1	6%

Within the study area, the segment of Carp Road between John Cavanaugh Drive and Russ Bradley Road are noted to have experienced higher collisions than other locations. Table 5 summarize the collision types and conditions for this location.

Table 5: Carp Road between John Cavanaugh Drive and Russ Bradley Road Collision Summary

		Number	%
Total Collisions		6	100%
Classification	Fatality	0	0%
	Non-Fatal Injury	2	33%
	Property Damage Only	4	67%
Initial Impact Type	Approaching	1	17%
	Angle	0	0%
	Rear End	3	50%
	Sideswipe	0	0%
	Turning Movement	2	33%
	SMV Unattended	0	0%
	SMV Other	0	0%
	Other	0	0%
Road Surface Condition	Dry	4	67%
	Wet	1	17%
	Loose Snow	0	11%
	Slush	0	6%
	Packed Snow	0	6%
	Ice	1	17%
	Loose Sand or Gravel	0	0%
	Unknown	0	0%
Pedestrian Involved		0	0
Cyclists Involved		0	0

The segment of Carp Road between John Cavanaugh Drive and Russ Bradley Road had a total of six collisions during the 2018-2022 time period, with four involving property damage only and the remaining two having a non-fatal injury. The collision types are most represented by rear end with three collisions, followed by turning movement with two collisions, and the remaining collision represented by the approaching initial impact type. Weather conditions do not affect collisions at this location.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The subject development is within the Carp Road Corridor Community Design Plan Area. As such, it is subject to the planning policies outlined in the CDP. The CDP does not propose any future changes to the area transportation network within the study area that should be noted.

Within the Transportation Master Plan, the Road Network's Network Concept diagram does not indicate any planned roadway improvements within the study area. Additionally, no changes to the future pedestrian or cycling facilities within the study area are noted.

2.3.2 Other Study Area Developments

147 Langstaff Drive

The proposed development application includes a site plan application and plan of subdivision application to allow the construction of the subject property with a residential land use. The site will consist of 68 semi-detached townhome units, and 128 mid-rise apartment units for a total of 196 residential units. The development is expected to generate a total of 73 new AM and 118 new PM peak hour two-way vehicle trips. The TIA was initially anticipated to be built out by 2023; however, the construction has not yet commenced. (McIntosh Perry, 2022)

232 Donald B. Munro Drive

The proposed development application includes a zoning by-law amendment, site plan application, and plan of subdivision application to allow the construction of the subject property with a total of 117 residential units. These residential units consist of 57 single-family homes and 60 semi-detached homes or townhomes. The development is expected to generate a total of 73 new AM and 80 new PM peak hour two-way vehicle trips. The TIA was initially anticipated to be built out and fully occupied by 2024; however, the construction has not yet commenced. (IBI Group, 2021)

437 Donald B. Munro Drive

The proposed development application includes a site plan application to allow the construction of two office spaces on the ground floor with a combined GFA of 4,200 square feet and two residential units on the second floor. The development is expected to generate eight AM and seven PM peak hour two-way vehicle trips. The TIA was initially anticipated to be built out by 2020; however, the construction has not yet commenced. (Novatech, 2019)

3711, 3715, 3719 & 3725 Carp Road

The proposed development application includes a plan of subdivision application to allow the construction of a total of 78 residential units and 18 commercial units with a total GFA of 1,606 square metres. The proposed development is anticipated to be built out by 2027 and to generate 40 AM, 86 PM and 103 Saturday peak hour two-way vehicle trips. (Novatech, 2023)

233 Russ Bradley & 1500 Thomas Argue

The proposed development application includes a site plan application and to allow the construction of a mixed-use building consisting of an office unit, indoor and outdoor storage, and two speculative rental units. There is an additional speculative rental unit to be included as a future expansion to the development. No TIA is available for this development.

1500 Thomas Argue Road

The proposed development application includes a zoning by-law amendment, site plan application, and plan of subdivision applications to allow the construction of 107 residential units, servicing, open space, and future development blocks. No TIA is available for this development.

273 & 275 Russ Bradley Road

The proposed development application includes a site plan application to allow the construction of 12 of self storage warehouse buildings containing a total of 423 storage units and accessory office space with a GFA of 6,326 square metres. No TIA is available for this development.

3119 Carp Road

The proposed development application includes a site plan application and plan of subdivision application to allow the construction of a rural commercial/industrial development with a GFA of 300,000 square feet. The development is expected to generate a total of 270 new AM and PM peak hour two-way vehicle trips. The development was initially anticipated to be built out by 2023; however, the construction has not yet commenced. (Delcan, 2014)

2167 McGee Side Road

The proposed development application includes a site plan application to allow the construction of a 2-storey warehouse and office building. No TIA is available for this development.

2885 Carp Road

The proposed development application includes a site plan application to allow the construction of a one-storey warehouse building with a GFA of 700 square metres. No TIA is available for this development.

2822 Carp Road

The proposed development application includes a site plan application for the construction of a multi-use multi-tenant commercial building with a total combined GFA of 599 square metres. The land uses that are expected to occupy the site include: auto sales, auto body repair, retail, and general warehousing. The development is expected to generate a total of 36 new AM and 43 new PM peak hour two-way vehicle trips. The TIA was initially anticipated to be built out by 2023; however, the construction has not yet commenced and will be assumed to be built out by 2032. (Dillon Consulting, 2022)

2966 Carp Road

The proposed development application includes a zoning amendment to allow the change in use of an existing warehouse and office to a cheerleading school/studio. Should the zoning be approved, the change in use is assumed to be completed by 2026 at which time the site would be expected to generate 74 two-way PM peak hour auto trips. (CGH, 2025)

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersections of March Road at Carp Road, McGee Side Road at Carp Road, and the intersection of the site access at Carp Road.

The boundary road will be Carp Road. No screenlines are present within proximity to the site.

3.2 Time Periods

As the proposed development is composed of industrial uses, the AM and PM peak hours will be examined.

3.3 Horizon Years

The anticipated build-out year is 2027. As a result, the full build-out plus five years horizon year is 2032.

4 Development-Generated Travel Demand

4.1 Mode Shares

Examining the mode shares recommended in the TRANS Trip Generation Manual (2020) for the subject district, derived from the most recent National Capital Region Origin-Destination survey (OD Survey), the existing average district mode shares by land use for Rural West have been summarized in Table 6.

Table 6: TRANS Trip Generation Manual Mode Shares – Rural Districts

Travel Mode	Warehousing
	AM & PM
Auto Driver	85%
Auto Passenger	5%
Transit	9%
Cycling	1%
Walking	1%
Total	100%

Considering the low density as well as the lack of transit and cyclist and pedestrian facilities in the Study Area, a conclusion can be made that the average employment generator mode shares in the rural Ottawa districts are not representative of the localised travel behaviour that can be expected at 3113 Carp Road. Therefore, a 100% auto mode share was carried forward in the analysis.

4.2 Trip Generation

This TIA has been prepared using the vehicle and person trip rates for the warehouse and tenant space using the ITE Trip Generation Manual 11th Edition (2021). The City-prescribed conversion factor of 1.28 was used to convert the vehicle trip rates to person trip rates. Table 7 summarizes the person trip rates for the proposed land use for each peak period.

Table 7: Trip Generation Person Trip Rates by Peak Hour

Land Use	Land Use Code	Peak Hour	Vehicle Trip Rates	Person Trip Rates
Warehousing	150 (ITE)	AM	0.32	0.41
		PM	0.34	0.44

Using the above person trip rates, the total person trip generation has been estimated. Table 8 summarizes the total person trip generation for the warehousing land use.

Table 8: Total Person Trip Generation by Peak Hour

Land Use	GFA	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Warehousing	107,830 sq ft	36	11	47	14	37	51

Using the 100% auto mode share for the subject site, the proposed auto trip generation is equal to the total person trip generation. As shown above, a total of 47 AM and 51 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

4.3 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed, and these patterns were applied based on the build-out of Rural West. Table 9 below summarizes the distributions.

Table 9: OD Survey Distribution – Rural West

To/From	% of Trips
North	15%
South	20%
East	50%
West	15%
Total	100%

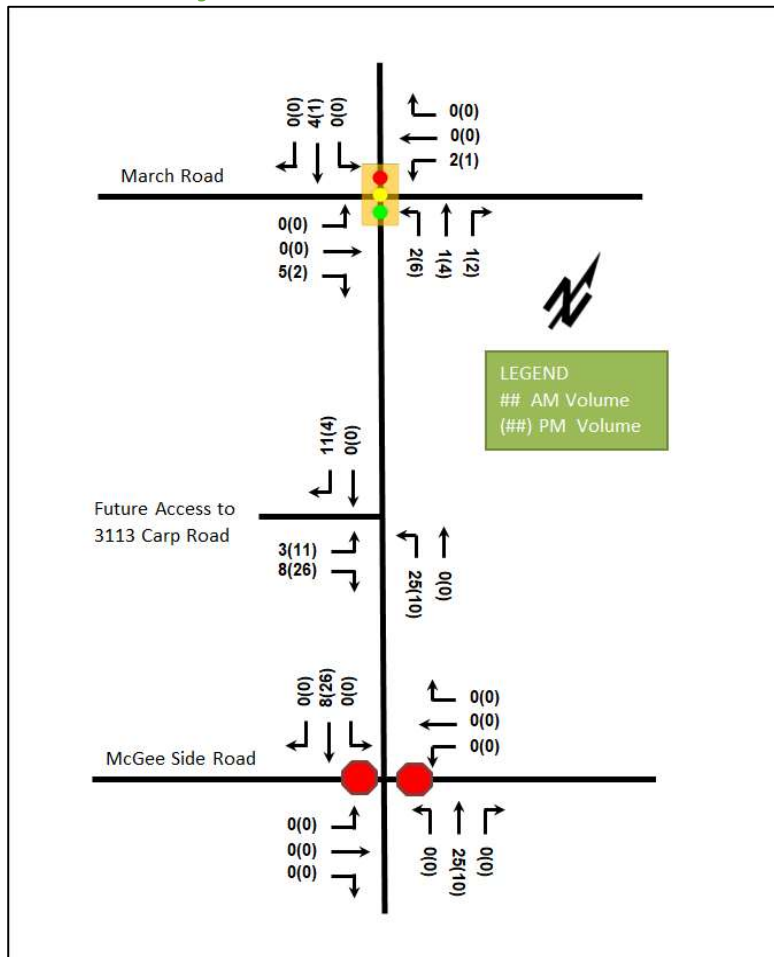
4.4 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Table 10 summarizes the proportional assignment to the study area roadways, and Figure 9 illustrates the new site-generated volumes.

Table 10: Trip Assignment

To/From	Assigned Via
North	10% Carp Rd (N) 5% March (E)
South	20% Carp Rd (S)
East	50% Carp Rd (S)
West	15% March Rd (W)
Total	100%

Figure 9: New Site Generation Auto Volumes



5 Exemption Review

Table 11 summarizes the exemptions for this TIA.

Table 11: Exemption Review

Module	Element	Explanation	Exempt/Required
Site Design and TDM			
Development Design	4.1.2 Circulation and Access	Only required for site plan and zoning by-law applications	Required
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt

Module	Element	Explanation	Exempt/Required
Parking	4.2.1 Parking Supply	Only required for site plan and zoning by-law applications	Required
Boundary Street Design		All applications	Required
Transportation Demand Management	All Elements	Only required when the development generates more than 60 person-trips	Required
Network Impact			
Background Network Travel Demand	All Elements	Only required when one or more other Network Impact Modules are triggered when the development generates more than 75 auto or transit trips	Exempt
Demand Rationalization		Only required when one or more other Network Impact Modules when the development generates more than 75 auto trips	Exempt
Neighbourhood Traffic Calming	4.6.1 Adjacent Neighbourhoods	If the development meets all of the following criteria along the route(s) site generated traffic is expected to utilize between an arterial road and the site's access: 1. Access to Collector or Local; 2. "Significant sensitive land use presence" exists, where there is at least two of the following adjacent to the subject street segment: • School (within 250m walking distance); • Park; • Retirement / Older Adult Facility (i.e. long-term care and retirement homes); • Licenced Child Care Centre; • Community Centre; or • 50%, or greater, of adjacent property along the route(s) is occupied by residential lands and a minimum of 10 occupied residential units are present on the route. 3. Application is for Zoning By-Law Amendment or Draft Plan of Subdivision; 4. At least 75 site-generated auto trips; 5. Site Trip Infiltration is expected. Site traffic will increase peak hour vehicle volumes along the route by 50% or more.	Exempt
Transit	4.7.1 Transit Route Capacity	Only required when the development generates more than 75 transit trips	Exempt
	4.7.2 Transit Priority Requirements	Only required when the development generates more than 75 auto trips	Exempt
Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

Module	Element	Explanation	Exempt/Required
Intersection Design	4.4.1-2/4.9.1 Intersection Control	Only required when the development generates more than 75 auto trips	Exempt
	4.4.3/4.9.2 Intersection Design	Only required when the development generates more than 75 auto trips	Exempt –Access Intersection Design required

6 Development Design

6.1 Design for Sustainable Modes

The proposed development includes a 107,830 square foot warehouse and 89 vehicular parking spaces, six of which are planned to be accessible parking stalls, and 24 bicycle parking spaces.

A 3.0-metre-wide walkway is proposed along south side of the warehouse, on the north side of the parking lot, connecting to an approximately 2.0-metre-wide walkway on each the east and west sides of the building.

Currently, there is no pedestrian and cyclist infrastructure along Carp Road in the vicinity of the proposed development for the site to connect to, and no sustainable infrastructure has been proposed for the Study Area as part of the 2021 City of Ottawa Official Plan.

6.2 Circulation and Access

Access is provided via a 10.97-metre-wide two-way full-movement access on Carp Road, with connections to loading areas to the north and parking on the south side of the building. The curb return radii between the access and Carp Road are recommended to be 9.0-metre on the north side of the access and to comprise a compound curve with a 7.0-metre radius adjoining a 33.0-metre radius on the south side of the access to permit outbound right turns for truck trailers. Trucks will load and unload at the loading docks on the north side of the site. Garbage collection takes place at the loading doors. All driveways within the site are two-way driveways, with minimum driveway width of 6.7 meters. A turning template analysis was conducted for the above-mentioned design vehicles to ensure adequate internal circulation within the site. The turning template analysis can be found in Appendix F.

7 Parking

7.1 Parking Supply

The site is currently proposed to include a total 89 vehicle parking spaces. According to the Zoning By-Law (2008-250), a minimum parking ratio of 0.8 per 100 m² for the first 5,000 m² of gross floor area and 0.4 per 100 m² above the 5,000 m² of gross floor area are required. Therefore, a total of 60 vehicle parking spaces is required by Zoning By-Law for the proposed land use. The parking spaces proposed for the development exceed the Zoning By-Law minimum parking requirements.

Within the provided parking spaces, a total of six accessible parking spaces are proposed and meet the minimum requirement of the Zoning By-Law.

The site proposes a total of 24 bicycle parking spaces. Based on the minimum requirement of 1.0 bicycle parking space per 1000 m² of gross floor area, a total of 10 bicycle parking would be required by Zoning By-Law. Therefore, the bicycle parking spaces proposed for the development exceed the Zoning By-Law minimum requirements.

8 Boundary Street Design

Table 12 summarizes the MMLOS analysis for the boundary street of Carp Road. The existing and future conditions for Carp Road will be the same and are considered in one row. The boundary street analysis is based on the policy area of General Rural Area. The MMLOS worksheets has been provided in Appendix G.

Table 12: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
Site Frontage at Carp Road (west side)	F	No Target	F	No Target	N/A	N/A	C	C

There are no pedestrian and cyclist MMLOS targets in General Rural Areas, and the pedestrian and cyclist LOS along the site frontage is F. This is expected due to lack of pedestrian and cyclist infrastructure and high posted speed along Carp Road. Additionally, there are no transit facilities or transit facility LOS targets in the study area. The target truck LOS C is met.

9 Transportation Demand Management

Given the proposed development's land use is a warehouse, the subject site has been assumed to rely entirely on auto modes. Therefore, no TDM measures are anticipated to be provided as part of the TDM measure checklist.

10 Access Intersections Design

10.1 Location and Design of Access

Site Access will be provided on Carp Road, approximately 350 metres south of William Mooney Road (pavement edge to pavement edge) and will be a full-movement access. Using Figure 8.8.2 in the 2017 TAC Geometric Guide for Canadian Roads, the spacing between the site access and William Mooney Road has been checked for suggested minimum corner clearances. It has been found that the suggested minimum clearance is 35 meters for an arterial road, and thus the proposed site access meets this suggested minimum value. The approximate distance between the shared access to the 3119 and 3123 Carp Road parcels and the site access is 39 meters, pavement edge to pavement edge. No turn lanes are proposed at the site access, which is proposed to include stop control on the minor (eastbound) approach.

The access is proposed to be 10.97-metre-wide in its typical dimension and is recommended to be 11.2 metres in width at the right-of-way line. Accounting for the curb returns, at the roadway edge, the access is recommended to have a 9.0-metre curb return radius on the north side and a compound curve with a 7.0-metre radius into a 33.0 metre radius on the south side of the access and to be 42.9 metres at the roadway edge.

According to Ottawa's Private Approach By-Law, private approaches in excess of 9.0 metres in width at the street line, and at the curb line or edge of roadway, may be permitted for off-street bus loading areas, transport loading areas and stations operated by the Ottawa Fire Department. Therefore, the access on Carp Road meets the width requirements of Ottawa's Private Approach By-Law.

The throat length to the first on-site conflict is approximately 49.9 metres and meets the suggested minimum throat length per TAC of 30.0 metres for light industrial development between 10,000 m² and 45,000 m² accessing an arterial road.

11 Summary of Improvements Indicated and Modifications Options

The following summarizes the analysis and results presented in this TIA report:

Proposed Site and Screening

- The development site is within the Carp Road Corridor Business Improvement Area and the Carp Road Corridor Community Design Plan area
- The proposed development includes a 107,830 square foot warehouse and 89 vehicular parking spaces, six of which are planned to be accessible parking stalls and 24 bicycle parking spaces
- The proposed development will be served by a single access on Carp Road approximately 350 metres south of the intersection of William Mooney Road and Carp Road
- The development is proposed to be completed as a single phase by 2027
- The trip generation, location and safety triggers were met for the TIA Screening

Existing Conditions

- Carp Road and March Road are arterial roads, and McGee Side Road is a collector road in the study area
- Cycling lanes are provided approximately 200 metres north of March Road to 200 metres south of March Road on Carp Road, and approximately 230 metres east of Carp Road to 230 metres west of Carp Road along March Road
- Carp Road is also noted to have paved shoulders suitable for cycling within the study area
- The segment of Carp Road between John Cavanaugh Drive and Russ Bradley Road have experienced high number of collisions, predominantly represented by rear end collisions
- No further collision analysis is required as part of this study
- During both the AM and PM peak hours, the study area intersections operate well

Planned Conditions

- No changes to the study area transportation network are noted

Development Generated Travel Demand

- The proposed development is forecasted produce 47 two-way vehicle trips during the AM peak hour and 51 two-way vehicle trips during the PM peak hour
- Of the forecasted trips, 15% are anticipated to travel north and west, 20% to travel south, and 50% to travel east

Development Design

- Pedestrian facilities proposed as part of the site plan include a 3.0-metre-wide walkway along the south side of the warehouse and an approximately 2.0-metre-wide walkways on the east and west sides of the building
- A full-movement access to Carp Road will be provided, with connections to the loading areas to the north and parking on the south sides of the building
- Garbage collection will occur at the loading doors

Parking

- The development proposed 89 parking spaces, and it meets the City of Ottawa Zoning By-Law (2008-250) requirement

- The development proposed ten bicycle parking spaces and it meets the Zoning By-Law requirement

Boundary Street Design

- The pedestrian and cyclist LOS along the site frontage is F due to a lack of pedestrian and cyclist infrastructure and high posted speed along Carp Road

TDM

- No TDM measures are recommended to be included within the proposed development

Access Intersections Design

- The site access is provided as a full-movement access onto Carp Road, approximately 350 metres south of William Mooney Road
- The site access will include stop control on the minor (eastbound) approach
- The access is recommended to have a 9.0-metre curb return radius on the north side and a compound curve with a 7.0-metre radius into a 33.0 metre radius on the south side of the access
- The throat length of site access is 49.9 metres, and it meets the clear throat length requirements
- The site access meets TAC corner clearance suggested minimum values and the Private Approach By-Law provisions

12 Conclusion

It is recommended that, from a transportation perspective, the proposed development applications proceed.

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Reviewed By:



Andrew Harte, P.Eng.
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Appendix A

TIA Screening Form and Certification Form

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 08-Nov-22
Project Number: 2022-145
Project Reference: 3113 Carp Road

1.1 Description of Proposed Development	
Municipal Address	3113 Carp Road
Description of Location	Irregular parcel with frontage on west side of Carp Road north of John Cavanaugh Drive
Land Use Classification	RC 9
Development Size	115,558 Sq Ft Warehouse
Accesses	One Access - on Carp Road
Phase of Development	Single
Buildout Year	2024
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Industrial	
Development Size	115,558	G.F.A.
Trip Generation Trigger	Yes	

1.3 Location Triggers	
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	Yes
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	No
Location Trigger	Yes

1.4. Safety Triggers	
Are posted speed limits on a boundary street 80 km/hr or greater?	Yes
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No
Is the proposed driveway 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)?	No
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
Does the development include a drive-thru facility?	No
Safety Trigger	Yes



Certification Form for TIA Study PM

TIA Plan Reports

On April 14, 2022, the Province's Bill 109 received Royal Assent providing legislative direction to implement the More Homes for Everyone Act, 2022 aiming to increase the supply of a range of housing options to make housing more affordable. Revisions have been made to the TIA guidelines to comply with Bill 109 and streamline the process for applicants and staff.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that they meet the four criteria listed below.

CERTIFICATION



I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines; (Update effective July 2023)



I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;



I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and



I am either a licensed or registered¹ professional in good standing, whose field of expertise



is either transportation engineering



or transportation planning.

¹ License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

Dated at Ottawa this 17 day of August, 20 23.
(City)

Name : Andrew Harte

Professional title: Senior Transportation Engineer / Vice-President Ottawa



Signature of individual certifier that s/he/they meet the above criteria

Office Contact Information (Please Print)
Address: <u>6 Plaza Court</u>
City / Postal Code: <u>Ottawa, K2H 7W1</u>
Telephone / Extension: <u>613-697-3797</u>
Email Address: <u>andrew.harte@cghtransportation.com</u>

Stamp



Revision Date: June 2023

Appendix B

March Road at Carp Road TMC Comparison

2022													Total	Peak Hour
	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR		
AM	29	113	41	63	69	8	7	156	39	51	186	85	847	0730-0830
PM	101	158	62	60	186	12	18	134	53	37	88	53	962	1530-1630

2018													Total	Peak Hour
	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR		
AM	16	99	35	60	54	2	11	181	15	56	265	86	880	0715-0815
PM	147	245	44	39	277	5	11	138	48	38	55	25	1072	1615-1715

CAGR													Total	
	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR		
AM	16%	3%	4%	1%	6%	41%	-11%	-4%	27%	-2%	-8%	0%	-1%	

Appendix C

Turning Movement Count Data



Turning Movement Count Summary Report Including AM and PM Peak Hours All Vehicles Except Bicycles



Carp Road & March Road Carp, ON

Survey Date: Wednesday, November 09, 2022 Start Time: 0700 AADT Factor: 0.9
Weather AM: Clear -3° C Survey Duration: 6 Hrs. Survey Hours: 0700-1000 & 1500-1800
Weather PM: Clear 10° C Surveyor(s): T. Carmody

Time Period	March Rd.				March Rd.				Carp Rd.				Carp Rd.				S/B Tot.	Street Tot.	Grand Total				
	Eastbound				Westbound				Northbound				Southbound										
	LT	ST	RT	UT	E/B Tot.	LT	ST	RT	UT	W/B Tot.	Street Tot.	LT	ST	RT	UT	N/B Tot.				LT	ST	RT	UT
0700-0800	56	164	79	0	299	57	68	6	0	131	430	43	74	37	0	154	9	152	27	0	188	342	772
0800-0900	34	160	61	0	255	65	58	5	0	128	383	28	114	50	0	192	4	128	37	0	169	361	744
0900-1000	36	83	49	0	168	48	64	5	0	117	285	40	104	31	0	175	10	121	30	0	161	336	621
1500-1600	36	84	42	0	162	48	144	8	0	200	362	98	147	60	0	305	17	106	45	0	168	473	835
1600-1700	41	107	57	0	205	54	200	12	0	266	471	76	124	49	0	249	12	131	61	0	204	453	924
1700-1800	28	88	32	0	148	26	138	8	0	172	320	115	218	45	0	378	5	83	43	0	131	509	829
Totals	231	686	320	0	1237	298	672	44	0	1014	2251	400	781	272	0	1453	57	721	243	0	1021	2474	4725

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 → 12 expansion factor of 1.39																							
Equi. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9																							
AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31																							
AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor → 0.88												Highest Hourly Vehicle Volume Between 0700h & 1000h											
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0730-0830	51	186	85	0	322	63	69	8	0	140	462	29	113	41	0	183	7	156	39	0	202	385	847

PM Peak Hour Factor → 0.90												Highest Hourly Vehicle Volume Between 1500h & 1800h											
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1530-1630	37	88	53	0	178	60	186	12	0	258	436	101	158	62	0	321	18	134	53	0	205	526	962

Comments:

OC Transpo buses, private buses and school buses comprise 25.96% of the heavy vehicle traffic. There were neither cyclists nor pedestrians observed. There was a collision at 1630 and was cleared by 1730. Northbound traffic was slightly affected; however, all lanes were open.

Notes:

- Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
- When expansion and AADT factors are applied, the results will differ slightly due to rounding.

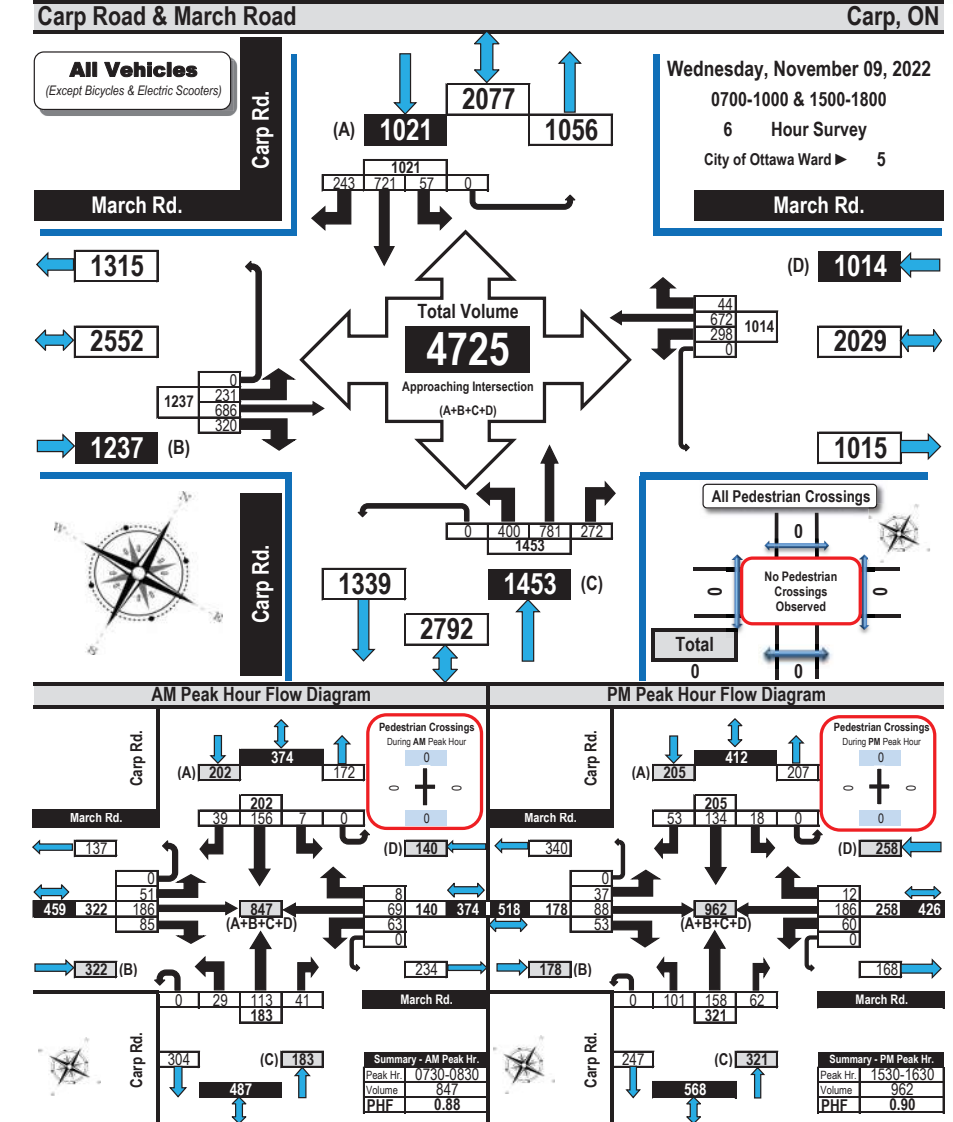
Printed on: 11/21/2022

Prepared by: thetrafficspecialist@gmail.com

Summary: All Vehicles



Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams All Vehicles Except Bicycles



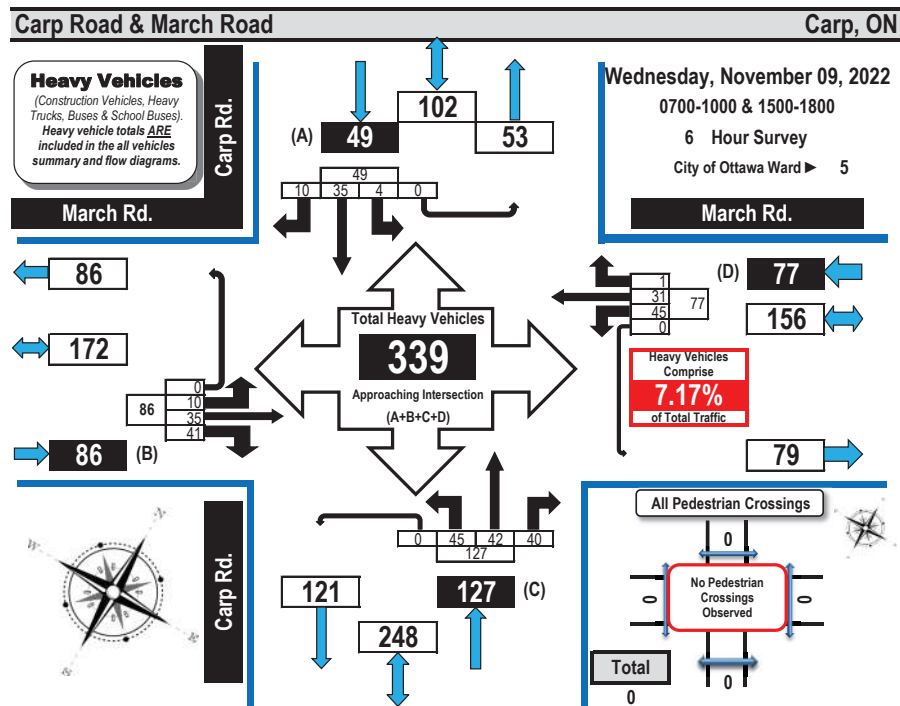
Printed on: 11/21/2022

Prepared by: thetrafficspecialist@gmail.com

Flow Diagrams: AM PM Peak



Turning Movement Count Heavy Vehicle Summary (FHWA Class 4-13) Flow Diagram



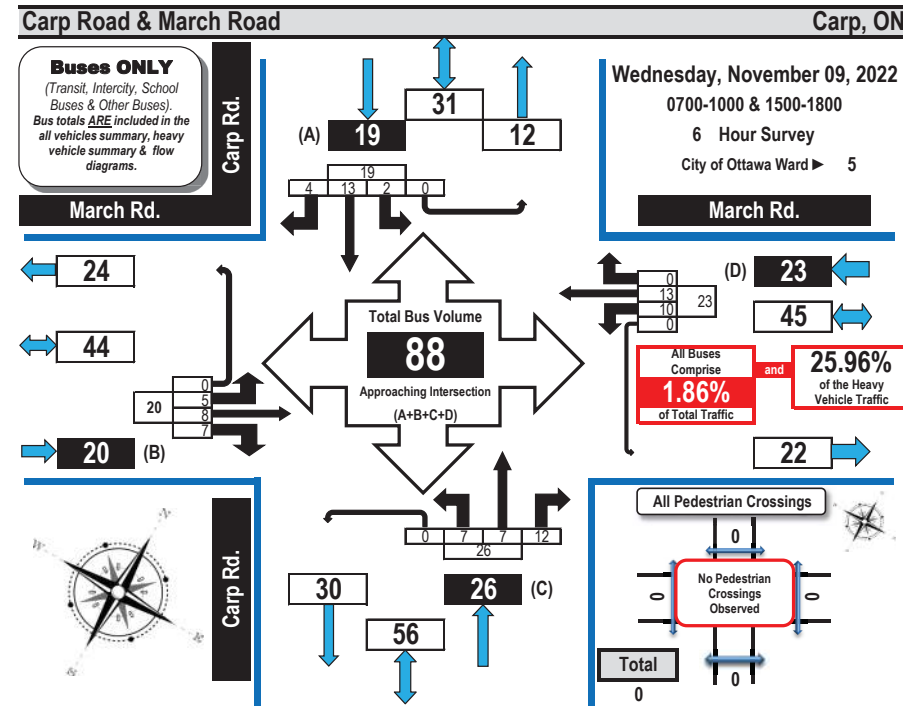
Time Period	March Rd. Eastbound					March Rd. Westbound					Carp Rd. Northbound					Carp Rd. Southbound					GR Tot
	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	
0700-0800	4	12	3	0	19	8	2	1	0	11	10	6	14	0	30	2	4	2	0	8	68
0800-0900	3	8	3	0	14	11	4	0	0	15	4	17	9	0	30	0	8	6	0	14	73
0900-1000	2	6	9	0	17	7	9	0	0	16	13	11	8	0	32	1	10	1	0	12	77
1500-1600	0	4	10	0	14	6	5	0	0	11	10	3	7	0	20	1	2	0	0	3	48
1600-1700	1	3	12	0	16	13	10	0	0	23	3	3	2	0	8	0	9	1	0	10	57
1700-1800	0	2	4	0	6	0	1	0	0	1	5	2	0	0	7	0	2	0	0	2	16
Totals	10	35	41	0	86	45	31	1	0	77	45	42	40	0	127	4	35	10	0	49	339

Comments:

OC Transpo buses, private buses and school buses comprise 25.96% of the heavy vehicle traffic. There were neither cyclists nor pedestrians observed. There was a collision at 1630 and was cleared by 1730. Northbound traffic was slightly affected; however, all lanes were open.



Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram



Time Period	March Rd. Eastbound					March Rd. Westbound					Carp Rd. Northbound					Carp Rd. Southbound					GR Tot
	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	
0700-0800	4	1	1	0	6	0	0	0	0	0	4	2	7	0	13	1	0	0	0	1	20
0800-0900	0	2	0	0	2	2	1	0	0	3	1	3	2	0	6	0	4	3	0	7	18
0900-1000	0	1	1	0	2	1	6	0	0	7	0	0	1	0	1	0	4	0	0	4	14
1500-1600	0	4	1	0	5	0	1	0	0	1	1	1	1	0	3	1	1	0	0	2	11
1600-1700	1	0	3	0	4	7	5	0	0	12	1	1	1	0	3	0	4	1	0	5	24
1700-1800	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals	5	8	7	0	20	10	13	0	0	23	7	7	12	0	26	2	13	4	0	19	88

Comments:

OC Transpo buses, private buses and school buses comprise 25.96% of the heavy vehicle traffic. There were neither cyclists nor pedestrians observed. There was a collision at 1630 and was cleared by 1730. Northbound traffic was slightly affected; however, all lanes were open.

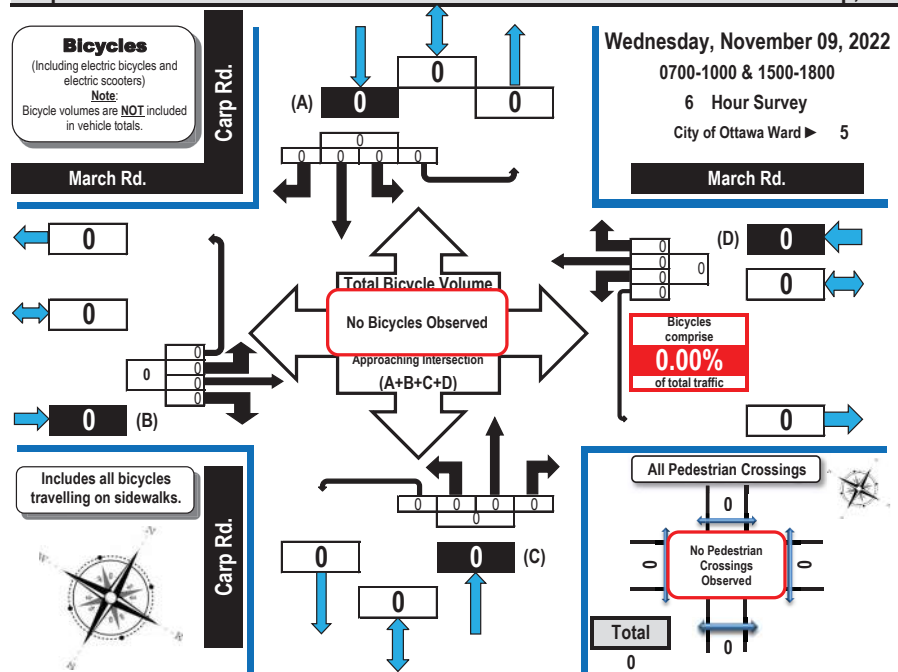


Turning Movement Count Bicycle Summary Flow Diagram



Carp Road & March Road

Carp, ON



Time Period	March Rd. Eastbound				March Rd. Westbound				Carp Rd. Northbound				Carp Rd. Southbound				GR Tot
	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

OC Transpo buses, private buses and school buses comprise 25.96% of the heavy vehicle traffic. There were neither cyclists nor pedestrians observed. There was a collision at 1630 and was cleared by 1730. Northbound traffic was slightly affected; however, all lanes were open.

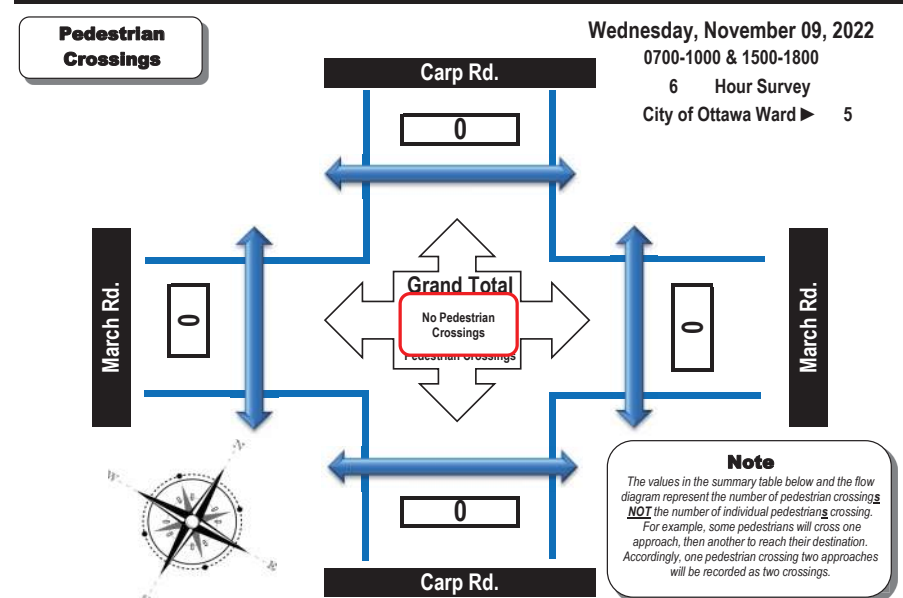


Turning Movement Count Pedestrian Crossings Summary and Flow Diagram



Carp Road & March Road

Carp, ON



Time Period	West Side Crossing March Rd.	East Side Crossing March Rd.	Street Total	South Side Crossing Carp Rd.	North Side Crossing Carp Rd.	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0

Comments:

OC Transpo buses, private buses and school buses comprise 25.96% of the heavy vehicle traffic. There were neither cyclists nor pedestrians observed. There was a collision at 1630 and was cleared by 1730. Northbound traffic was slightly affected; however, all lanes were open.

Carp Road & McGee Side Road

Survey Date:	Wednesday, November 09, 2022	Start Time:	0700	AADT Factor:	0.9
Weather AM:	Mainly Clear -3° C	Survey Duration:	6 Hrs.	Survey Hours:	0700-1000 & 1500-1800
Weather PM:	Mainly Clear +10° C	Surveyor(s):	J. Mousseau		

McGee Side Rd.						McGee Side Rd.						Carp Rd.						Carp Rd.					
Eastbound						Westbound						Northbound						Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	22	4	30	0	56	3	1	6	0	10	66	9	246	3	0	258	2	296	6	0	304	562	628
0800-0900	12	5	45	0	62	4	2	3	0	9	71	20	248	3	0	271	8	260	8	0	276	547	618
0900-1000	8	2	27	0	37	2	2	5	0	9	46	15	219	8	0	242	2	235	11	0	248	490	563
1500-1600	11	3	30	0	44	12	7	18	0	37	81	47	278	2	0	327	4	260	11	0	275	602	636
1600-1700	11	1	42	0	54	8	4	7	0	19	73	52	365	4	0	421	4	312	38	0	354	775	848
1700-1800	3	1	32	0	36	0	4	4	0	8	44	42	318	0	0	360	6	211	34	0	251	611	655
Totals	67	16	206	0	289	29	20	43	0	92	381	185	1674	20	0	1879	26	1574	108	0	1708	3587	3968

**Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count**

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

[illegible]

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.88						Highest Hourly Vehicle Volume Between 0700h & 1000h																		
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Total	
0730-0830	23	4	45	0	72	7	3	0	4	0	7	79	19	282	3	0	304	4	305	7	0	316	620	699

PM Peak Hour Factor ➡ 0.94						Highest Hourly Vehicle Volume Between 1500h & 1800h																		
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.	
1615-1715	9	2	43	0	54	6	4	6	0	16	70		56	379	4	0	439	3	309	49	0	361	800	870

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



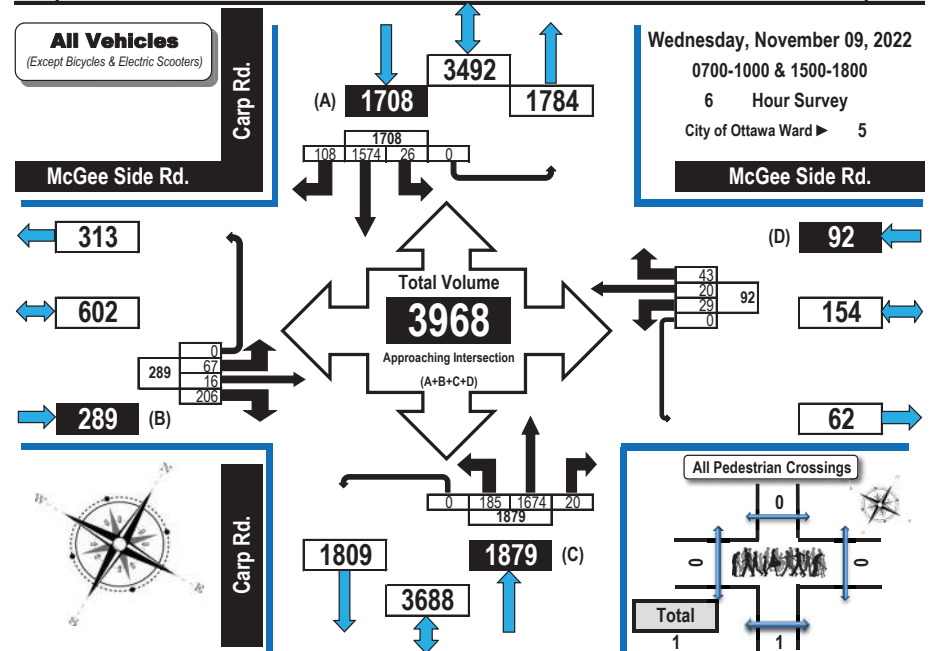
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams



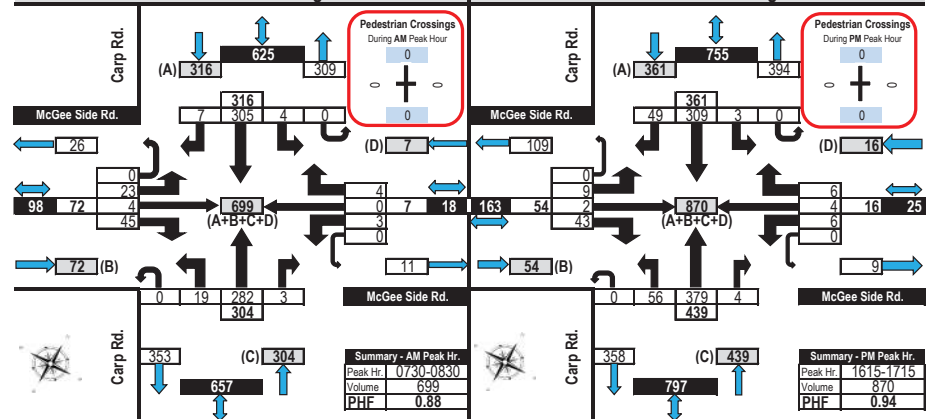
Carp Road & McGee Side Road

Carp, ON

All Vehicles
(Except Bicycles & Electric Scooters)



AM Peak Hour Flow Diagram



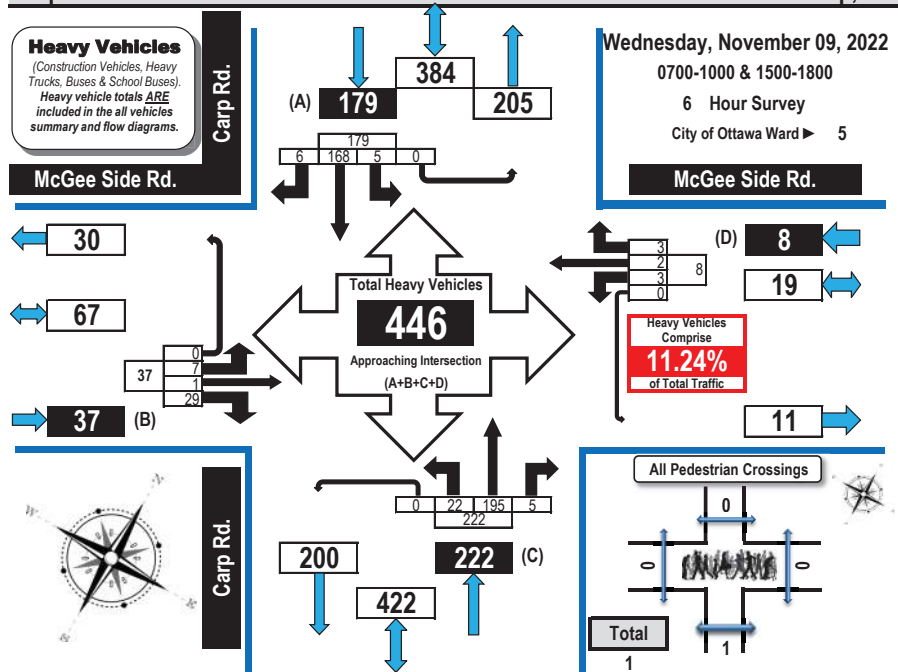
PM Peak Hour Flow Diagram



Turning Movement Count Heavy Vehicle Summary (FHWA Class 4-13) Flow Diagram



Carp Road & McGee Side Road Carp, ON



Time Period	McGee Side Rd. Eastbound					McGee Side Rd. Westbound					Carp Rd. Northbound					Carp Rd. Southbound					GR Tot
	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	
0700-0800	4	1	3	0	8	0	0	0	0	0	1	38	1	0	40	0	37	1	0	38	86
0800-0900	1	0	4	0	5	2	0	0	0	2	1	44	1	0	46	4	31	0	0	35	88
0900-1000	0	0	1	0	1	0	1	2	0	3	0	40	2	0	42	0	40	1	0	41	87
1500-1600	0	0	9	0	9	0	0	0	0	0	6	26	0	0	32	0	24	1	0	25	66
1600-1700	2	0	7	0	9	1	0	1	0	2	11	23	1	0	35	1	28	3	0	32	78
1700-1800	0	0	5	0	5	0	1	0	0	1	3	24	0	0	27	0	8	0	0	8	41
Totals	7	1	29	0	37	3	2	3	0	8	22	195	5	0	222	5	168	6	0	179	446

Comments:

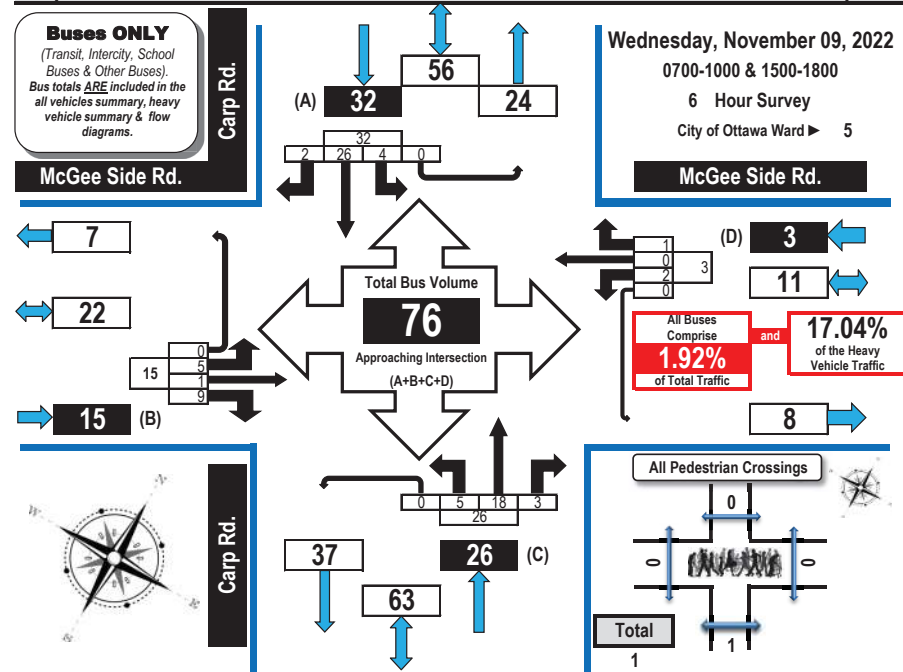
Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.



Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram



Carp Road & McGee Side Road Carp, ON



Time Period	McGee Side Rd. Eastbound					McGee Side Rd. Westbound					Carp Rd. Northbound					Carp Rd. Southbound					SB Tot	GR Tot
	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT			
0700-0800	4	1	3	0	8	0	0	0	0	0	1	10	1	0	12	0	0	1	0	1	21	
0800-0900	0	0	3	0	3	1	0	0	0	1	0	4	1	0	5	4	3	0	0	7	16	
0900-1000	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	6	0	0	6	8	
1500-1600	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	1	0	3	5	
1600-1700	1	0	1	0	2	1	0	1	0	2	4	1	1	0	6	0	9	0	0	9	19	
1700-1800	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	7	
Totals	5	1	9	0	15	2	0	1	0	3	5	18	3	0	26	4	26	2	0	32	76	

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

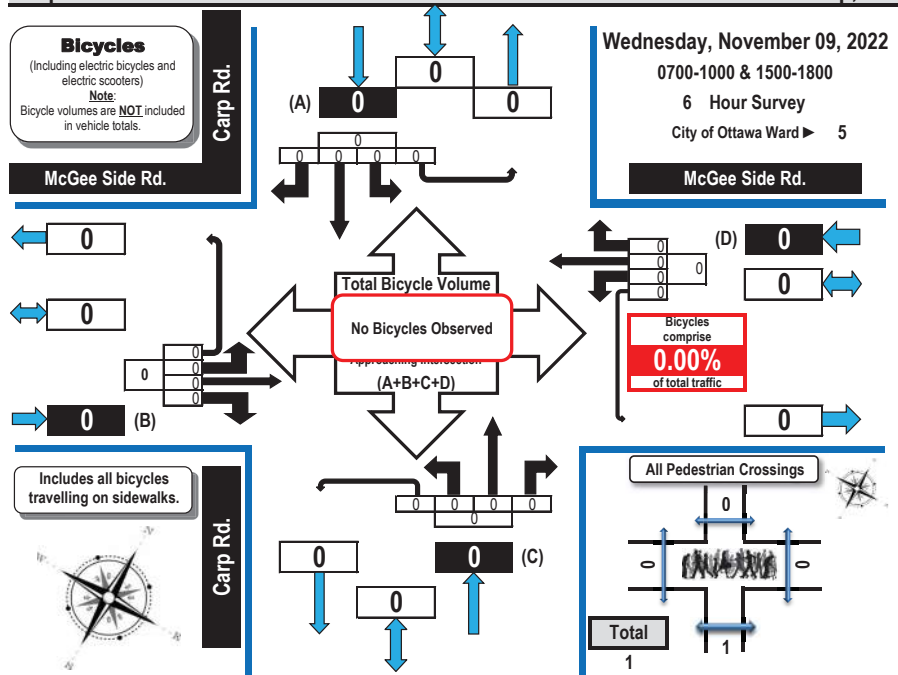


Turning Movement Count Bicycle Summary Flow Diagram



Carp Road & McGee Side Road

Carp, ON



Time Period	McGee Side Rd. Eastbound				McGee Side Rd. Westbound				Carp Rd. Northbound				Carp Rd. Southbound				GR Tot
	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	LT	ST	RT	UT	
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

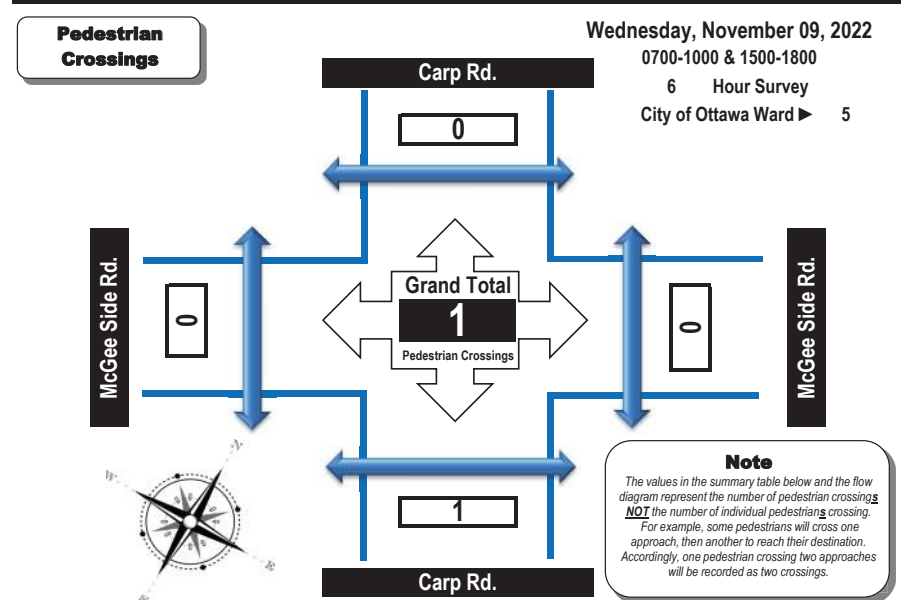


Turning Movement Count Pedestrian Crossings Summary and Flow Diagram



Carp Road & McGee Side Road

Carp, ON



Time Period	West Side Crossing McGee Side Rd.	East Side Crossing McGee Side Rd.	Street Total	South Side Crossing Carp Rd.	North Side Crossing Carp Rd.	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	1	0	1	1
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0
Totals	0	0	0	1	0	1	1

Comments:

Private buses and school buses comprise 17.04% of the heavy vehicle traffic. No bicycles were observed.

Appendix D

Synchro Intersection Worksheets – Existing Conditions

Lanes, Volumes, Timings
1: Carp Road & March Road

2022 Existing AM
3113 Carp Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Traffic Volume (vph)	51	186	85	63	69	8	29	113	41	7	156	39
Future Volume (vph)	51	186	85	63	69	8	29	113	41	7	156	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		0.0	40.0		0.0	35.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.953			0.984			0.960			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1566	1620	0	1458	1669	0	1364	1475	0	1483	1641	0
Flt Permitted	0.701			0.521			0.613			0.649		
Satd. Flow (perm)	1155	1620	0	799	1669	0	880	1475	0	1013	1641	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			8			26			17	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		515.6			525.5			3055.1			612.2	
Travel Time (s)		23.2			23.6			137.5			27.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	5%	4%	16%	4%	13%	24%	11%	29%	14%	4%	10%
Adj. Flow (vph)	57	207	94	70	77	9	32	126	46	8	173	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	301	0	70	86	0	32	172	0	8	216	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

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CGH Transportation
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Lanes, Volumes, Timings
1: Carp Road & March Road

2022 Existing AM
3113 Carp Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		27.4	27.4		27.4	27.4	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.12	0.43		0.21	0.12		0.08	0.27		0.02	0.30	
Control Delay	16.5	18.3		18.4	14.8		16.1	15.3		15.1	16.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.5	18.3		18.4	14.8		16.1	15.3		15.1	16.9	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		18.1			16.4			15.4			16.8	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	5.8	31.4		7.4	7.9		3.2	15.5		0.8	21.7	
Queue Length 95th (m)	13.2	52.5		16.5	16.6		8.7	29.2		3.3	37.6	
Internal Link Dist (m)		491.6			501.5			3031.1			588.2	
Turn Bay Length (m)	35.0			40.0			35.0			30.0		
Base Capacity (vph)	491	707		340	714		377	647		434	713	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.43		0.21	0.12		0.08	0.27		0.02	0.30	
Intersection Summary												
Area Type:		Other										
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.43												
Intersection Signal Delay: 16.9					Intersection LOS: B							
Intersection Capacity Utilization 57.1%					ICU Level of Service B							
Analysis Period (min) 15												

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Lanes, Volumes, Timings
1: Carp Road & March Road

2022 Existing AM
3113 Carp Road

Splits and Phases: 1: Carp Road & March Road

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HCM Signalized Intersection Capacity Analysis
1: Carp Road & March Road

2022 Existing AM
3113 Carp Road

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations												
Traffic Volume (vph)	51	186	85	63	69	8	29	113	41	7	156	39
Future Volume (vph)	51	186	85	63	69	8	29	113	41	7	156	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.96		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1566	1621		1458	1670		1364	1475		1483	1642	
Flt Permitted	0.70	1.00		0.52	1.00		0.61	1.00		0.65	1.00	
Satd. Flow (perm)	1156	1621		800	1670		880	1475		1013	1642	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	207	94	70	77	9	32	126	46	8	173	43
RTOR Reduction (vph)	0	18	0	0	5	0	0	15	0	0	10	0
Lane Group Flow (vph)	57	283	0	70	81	0	32	157	0	8	206	0
Heavy Vehicles (%)	8%	5%	4%	16%	4%	13%	24%	11%	29%	14%	4%	10%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Effective Green, g (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	491	689		340	710		377	632		434	704	
v/s Ratio Prot		c0.17			0.05			0.11			c0.13	
v/s Ratio Perm	0.05			0.09			0.04			0.01		
v/c Ratio	0.12	0.41		0.21	0.11		0.08	0.25		0.02	0.29	
Uniform Delay, d1	15.6	18.0		16.3	15.6		15.2	16.4		14.8	16.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	1.8		1.4	0.3		0.4	0.9		0.1	1.1	
Delay (s)	16.1	19.8		17.6	15.9		15.7	17.4		14.9	17.8	
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)		19.2			16.7			17.1			17.7	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay		18.0			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.1				
Intersection Capacity Utilization		57.1%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 2010 TWSC
2: Carp Road & McGee Side Road

2022 Existing AM
3113 Carp Road

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	4	45	3	0	4	19	282	3	4	305	7
Future Vol, veh/h	23	4	45	3	0	4	19	282	3	4	305	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	13	25	9	33	2	2	5	15	33	50	11	14
Mvmt Flow	26	4	50	3	0	4	21	313	3	4	339	8

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	710	709	343	735	712	315	347	0	0	316	0	0
Stage 1	351	351	-	357	357	-	-	-	-	-	-	-
Stage 2	359	358	-	378	355	-	-	-	-	-	-	-
Critical Hdwy	7.23	6.75	6.29	7.43	6.52	6.22	4.15	-	-	4.6	-	-
Critical Hdwy Stg 1	6.23	5.75	-	6.43	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.23	5.75	-	6.43	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.617	4.225	3.381	3.797	4.018	3.318	2.245	-	-	2.65	-	-
Pot Cap-1 Maneuver	335	332	684	299	358	725	1195	-	-	1017	-	-
Stage 1	643	593	-	601	628	-	-	-	-	-	-	-
Stage 2	637	589	-	585	630	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	326	323	684	269	349	725	1195	-	-	1017	-	-
Mov Cap-2 Maneuver	326	323	-	269	349	-	-	-	-	-	-	-
Stage 1	629	590	-	588	615	-	-	-	-	-	-	-
Stage 2	620	577	-	535	627	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.9	13.7	0.5	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1195	-	-	484	420	1017	-	-
HCM Lane V/C Ratio	0.018	-	-	0.165	0.019	0.004	-	-
HCM Control Delay (s)	8.1	0	-	13.9	13.7	8.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.1	0	-	-

Lanes, Volumes, Timings
1: Carp Road & March Road

2022 Existing PM
3113 Carp Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	88	53	60	186	12	101	158	62	18	134	53
Future Volume (vph)	37	88	53	60	186	12	101	158	62	18	134	53
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		0.0	40.0		0.0	35.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944			0.991			0.958			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1642	1514	0	1445	1698	0	1580	1645	0	1595	1647	0
Flt Permitted	0.613			0.657			0.622			0.580		
Satd. Flow (perm)	1059	1514	0	1000	1698	0	1035	1645	0	974	1647	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			4			27			28	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		515.6			525.5			3055.1			612.2	
Travel Time (s)		23.2			23.6			137.5			27.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	5%	21%	17%	4%	2%	7%	2%	8%	6%	4%	2%
Adj. Flow (vph)	41	98	59	67	207	13	112	176	69	20	149	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	157	0	67	220	0	112	245	0	20	208	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

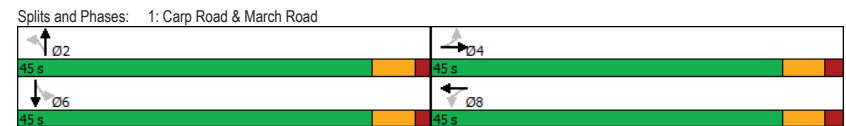
Lanes, Volumes, Timings
1: Carp Road & March Road

2022 Existing PM
3113 Carp Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	27.7	27.7		27.7	27.7		27.4	27.4		27.4	27.4	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6		4.6	4.6	
All-Red Time (s)	2.1	2.1		2.1	2.1		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
v/c Ratio	0.09	0.24		0.16	0.30		0.25	0.34		0.05	0.29	
Control Delay	16.2	13.0		17.2	18.2		18.4	16.8		15.6	15.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.2	13.0		17.2	18.2		18.4	16.8		15.6	15.7	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		13.7			18.0			17.3			15.7	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	4.1	12.0		6.9	23.9		12.1	24.2		2.0	19.4	
Queue Length 95th (m)	10.3	24.5		15.4	40.0		23.8	41.5		6.1	34.7	
Internal Link Dist (m)		491.6			501.5			3031.1			588.2	
Turn Bay Length (m)	35.0			40.0			35.0			30.0		
Base Capacity (vph)	450	668		425	724		443	720		417	722	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.09	0.24		0.16	0.30		0.25	0.34		0.05	0.29	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.34												
Intersection Signal Delay: 16.5	Intersection LOS: B											
Intersection Capacity Utilization 54.0%	ICU Level of Service A											
Analysis Period (min) 15												

Lanes, Volumes, Timings
1: Carp Road & March Road

2022 Existing PM
3113 Carp Road



HCM Signalized Intersection Capacity Analysis
1: Carp Road & March Road

2022 Existing PM
3113 Carp Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Traffic Volume (vph)	37	88	53	60	186	12	101	158	62	18	134	53
Future Volume (vph)	37	88	53	60	186	12	101	158	62	18	134	53
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.99		1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1642	1513		1445	1698		1580	1644		1595	1648	
Flt Permitted	0.61	1.00		0.66	1.00		0.62	1.00		0.58	1.00	
Satd. Flow (perm)	1059	1513		1000	1698		1036	1644		974	1648	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	98	59	67	207	13	112	176	69	20	149	59
RTOR Reduction (vph)	0	24	0	0	2	0	0	15	0	0	16	0
Lane Group Flow (vph)	41	133	0	67	218	0	112	230	0	20	192	0
Heavy Vehicles (%)	3%	5%	21%	17%	4%	2%	7%	2%	8%	6%	4%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Effective Green, g (s)	38.3	38.3		38.3	38.3		38.6	38.6		38.6	38.6	
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.43	0.43		0.43	0.43	
Clearance Time (s)	6.7	6.7		6.7	6.7		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	450	643		425	722		444	705		417	706	
v/s Ratio Prot	0.09			c0.13			c0.14			0.12		
v/s Ratio Perm	0.04			0.07			0.11			0.02		
v/c Ratio	0.09	0.21		0.16	0.30		0.25	0.33		0.05	0.27	
Uniform Delay, d1	15.4	16.3		15.9	17.0		16.5	17.1		15.0	16.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.7		0.8	1.1		1.4	1.2		0.2	0.9	
Delay (s)	15.8	17.0		16.7	18.1		17.8	18.3		15.2	17.6	
Level of Service	B			B			B			B		
Approach Delay (s)	16.8			17.8			18.1			17.4		
Approach LOS	B			B			B			B		

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.1
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 TWSC
2: Carp Road & McGee Side Road

2022 Existing PM
3113 Carp Road

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰			↰			↰			↰	
Traffic Vol, veh/h	9	2	43	6	4	6	56	379	4	3	309	49
Future Vol, veh/h	9	2	43	6	4	6	56	379	4	3	309	49
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	22	2	16	17	25	17	16	6	25	33	7	6
Mvmt Flow	10	2	48	7	4	7	62	421	4	3	343	54

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	929	925	370	948
Stage 1	376	376	-	547
Stage 2	553	549	-	401
Critical Hdwy	7.32	6.52	6.36	7.27
Critical Hdwy Stg 1	6.32	5.52	-	6.27
Critical Hdwy Stg 2	6.32	5.52	-	6.27
Follow-up Hdwy	3.698	4.018	3.444	3.653
Pot Cap-1 Maneuver	228	269	646	226
Stage 1	607	616	-	495
Stage 2	483	516	-	597
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	209	248	646	195
Mov Cap-2 Maneuver	209	248	-	195
Stage 1	561	614	-	458
Stage 2	437	477	-	549

Approach	EB	WB	NB	SB
HCM Control Delay, s	14	19.2	1.1	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1090	-	-	459	271	987	-	-
HCM Lane V/C Ratio	0.057	-	-	0.131	0.066	0.003	-	-
HCM Control Delay (s)	8.5	0	-	14	19.2	8.7	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.2	0	-	-

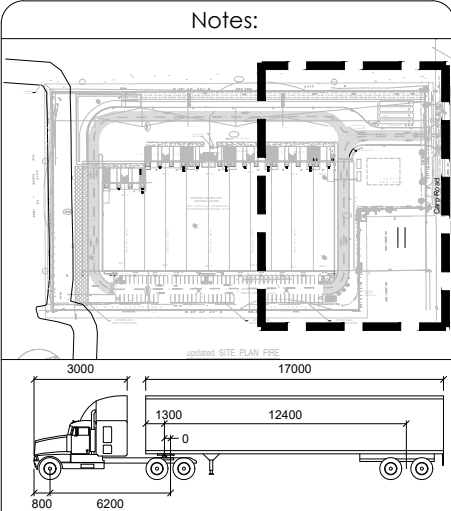
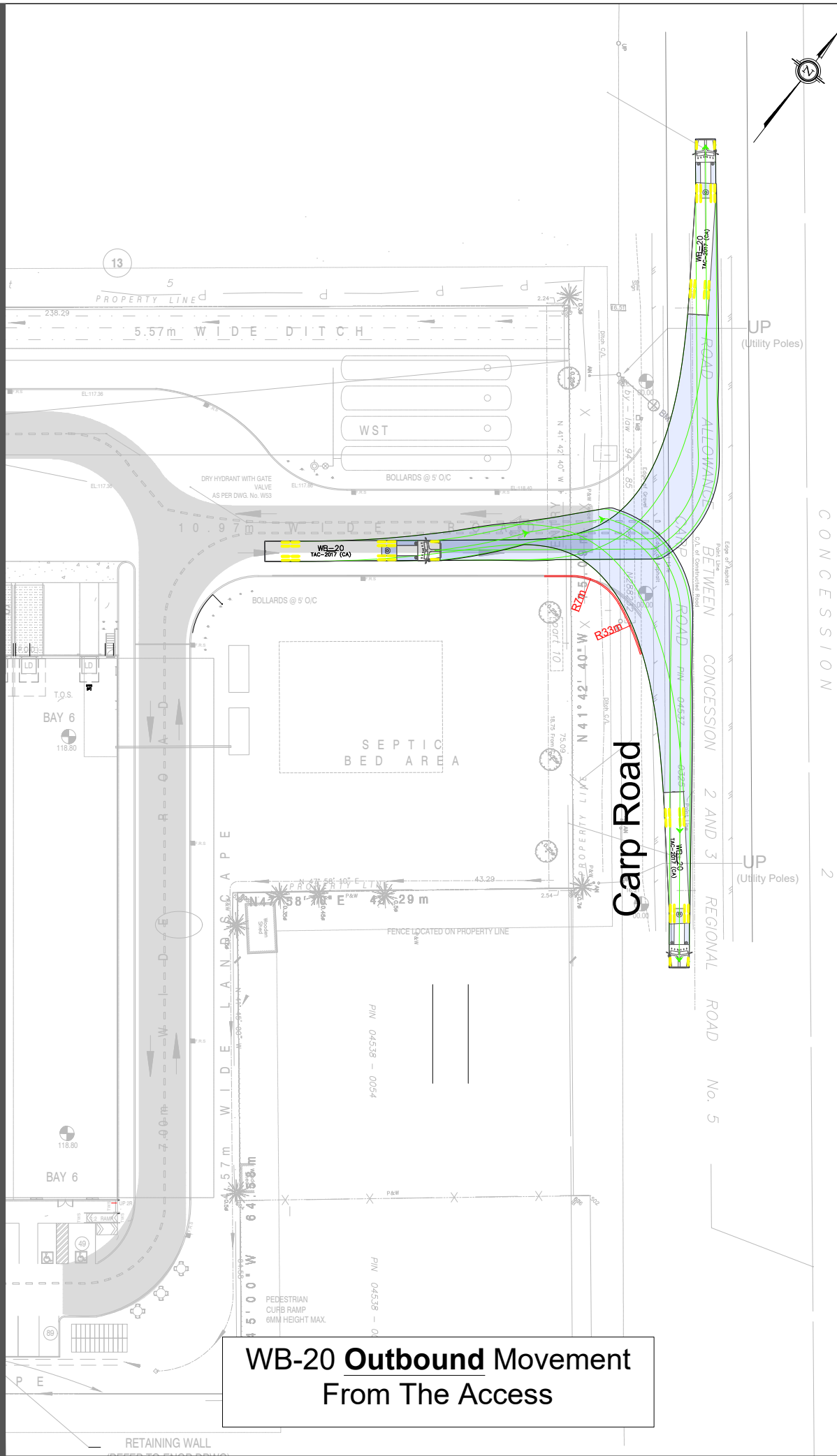
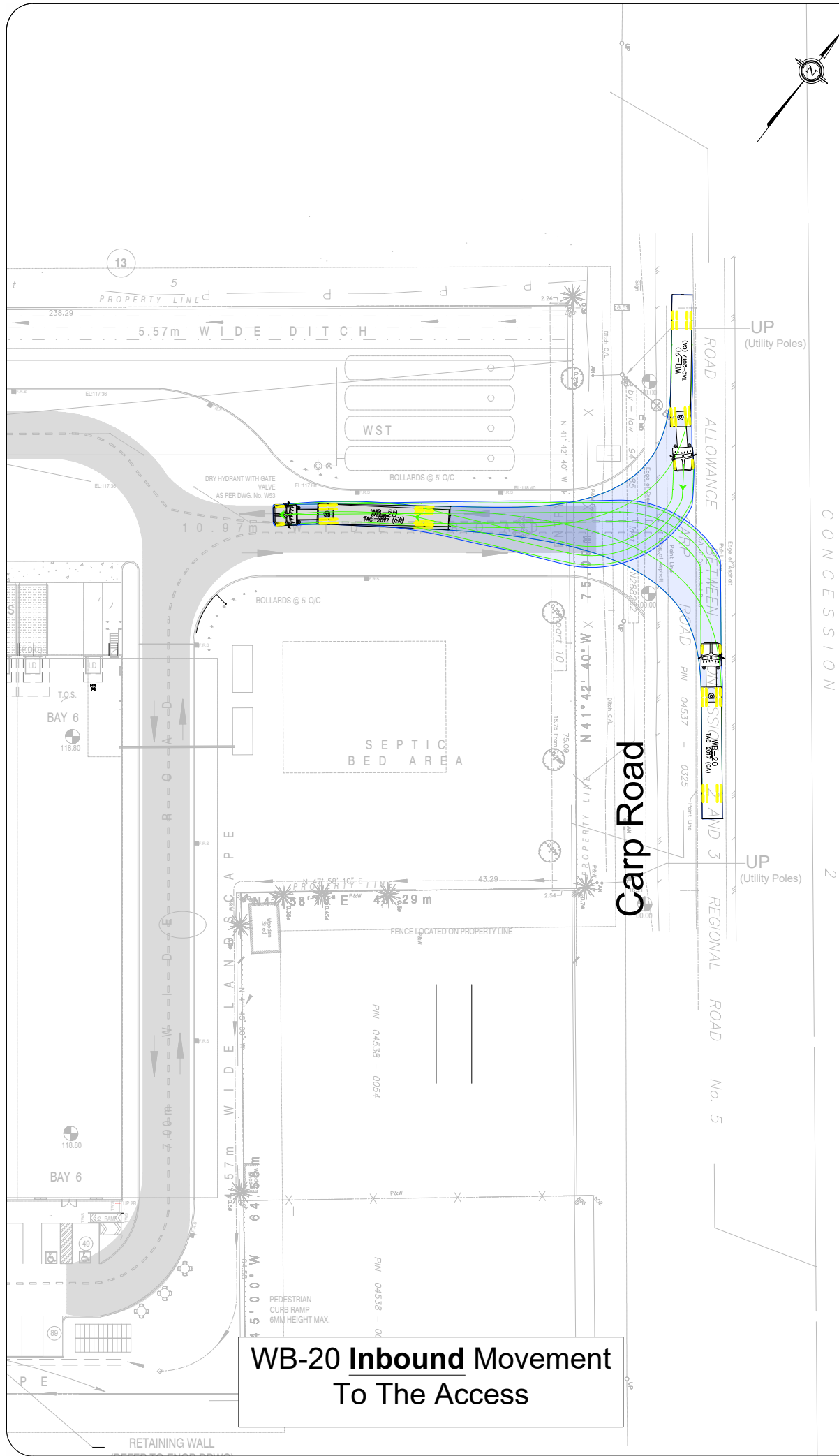
Appendix E

Collision Data

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition	# Vehicles	# Motorcycles	# Bicycles	# Pedestrians
2018-03-09	2018	Unknown	CARP RD @ MCGEE SIDE RD (0005760)	01 - Clear	07 - Dark	02 - Stop sign	0	03 - P.D. only	04 - Sideswipe	02 - Wet	2	0	0	0
2019-09-06	2019	15:13	CARP RD @ MCGEE SIDE RD (0005760)	02 - Rain	01 - Daylight	02 - Stop sign	0	03 - P.D. only	03 - Rear end	02 - Wet	2	0	0	0
2020-12-01	2020	17:09	CARP RD @ MCGEE SIDE RD (0005760)	02 - Rain	07 - Dark	02 - Stop sign	0	03 - P.D. only	05 - Turning movement	02 - Wet	2	0	0	0
2021-12-21	2021	8:43	CARP RD @ MCGEE SIDE RD (0005760)	01 - Clear	01 - Daylight	02 - Stop sign	0	03 - P.D. only	02 - Angle	02 - Wet	3	0	0	0
2020-03-06	2020	9:12	CARP RD btwn JOHN CAVANAUGH DR & MCGEE SIDE RD (_32093A)	03 - Snow	01 - Daylight	10 - No control	0	03 - P.D. only	03 - Rear end	06 - Ice	2	0	0	0
2018-10-17	2018	7:58	CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD (e__2IPC)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
2019-08-09	2019	21:31	CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD (e__2IPC)	02 - Rain	07 - Dark	10 - No control	0	02 - Non-fatal injury	05 - Turning movement	02 - Wet	2	0	0	0
2020-01-20	2020	9:28	CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD (e__2IPC)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	03 - Rear end	06 - Ice	2	0	0	0
2020-11-05	2020	13:06	CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD (e__2IPC)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	05 - Turning movement	01 - Dry	2	0	0	0
2021-06-07	2021	8:01	CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD (e__2IPC)	01 - Clear	01 - Daylight	10 - No control	0	02 - Non-fatal injury	01 - Approaching	01 - Dry	2	0	0	0
2022-06-15	2022	13:15	CARP RD btwn JOHN CAVANAUGH DR & RUSS BRADLEY RD (e__2IPC)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
2019-03-29	2019	20:03	CARP RD btwn MARCH RD & RUSS BRADLEY RD (_320538)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	1	0	0	0
2019-07-22	2019	20:47	CARP RD btwn MARCH RD & RUSS BRADLEY RD (_320938)	01 - Clear	05 - Dusk	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	1	0	0	0
2019-08-24	2019	9:16	CARP RD btwn MARCH RD & RUSS BRADLEY RD (_320938)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	07 - SMV other	01 - Dry	1	0	0	0
2021-03-19	2021	16:03	CARP RD btwn MARCH RD & RUSS BRADLEY RD (_320938)	01 - Clear	01 - Daylight	10 - No control	0	02 - Non-fatal injury	07 - SMV other	01 - Dry	1	0	0	0
2022-01-28	2022	11:40	CARP RD btwn MCGEE SIDE RD & OLIVE RD (e__2HIG)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0
2020-01-26	2020	8:00	JOHN CAVANAUGH DR @ CARP RD (0001585)	03 - Snow	01 - Daylight	02 - Stop sign	0	03 - P.D. only	05 - Turning movement	03 - Loose snow	2	0	0	0

Appendix F

Turning Templates



WB-20

Tractor Width	: 2600	Lock to Lock Time	: 6.0
Trailer Width	: 2600	Steering Angle	: 28.2
Tractor Track	: 2600	Articulating Angle	: 70.0
Trailer Track	: 2600		

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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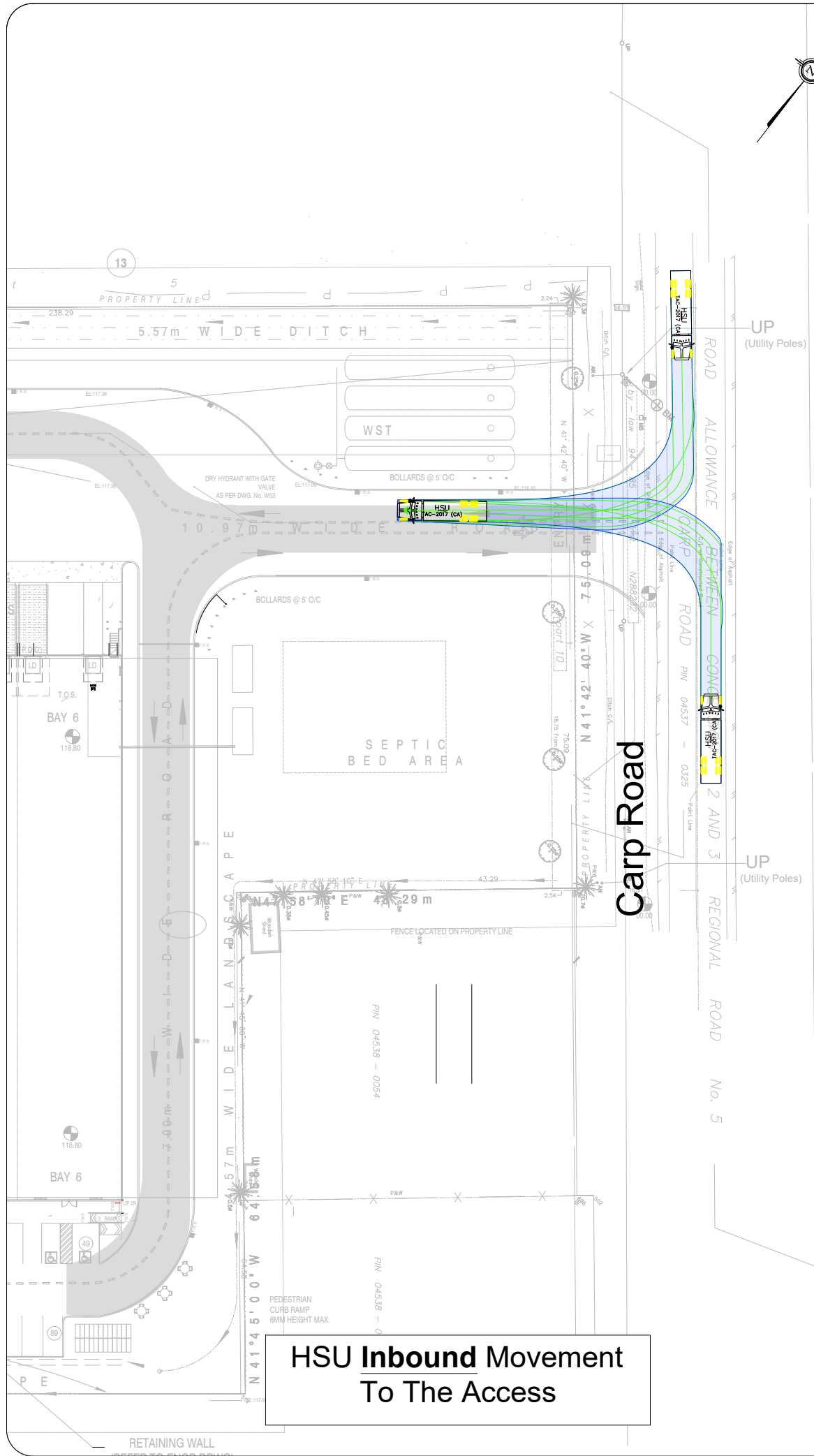
CLIENT: Megha Holdings Inc

ARCHITECT:

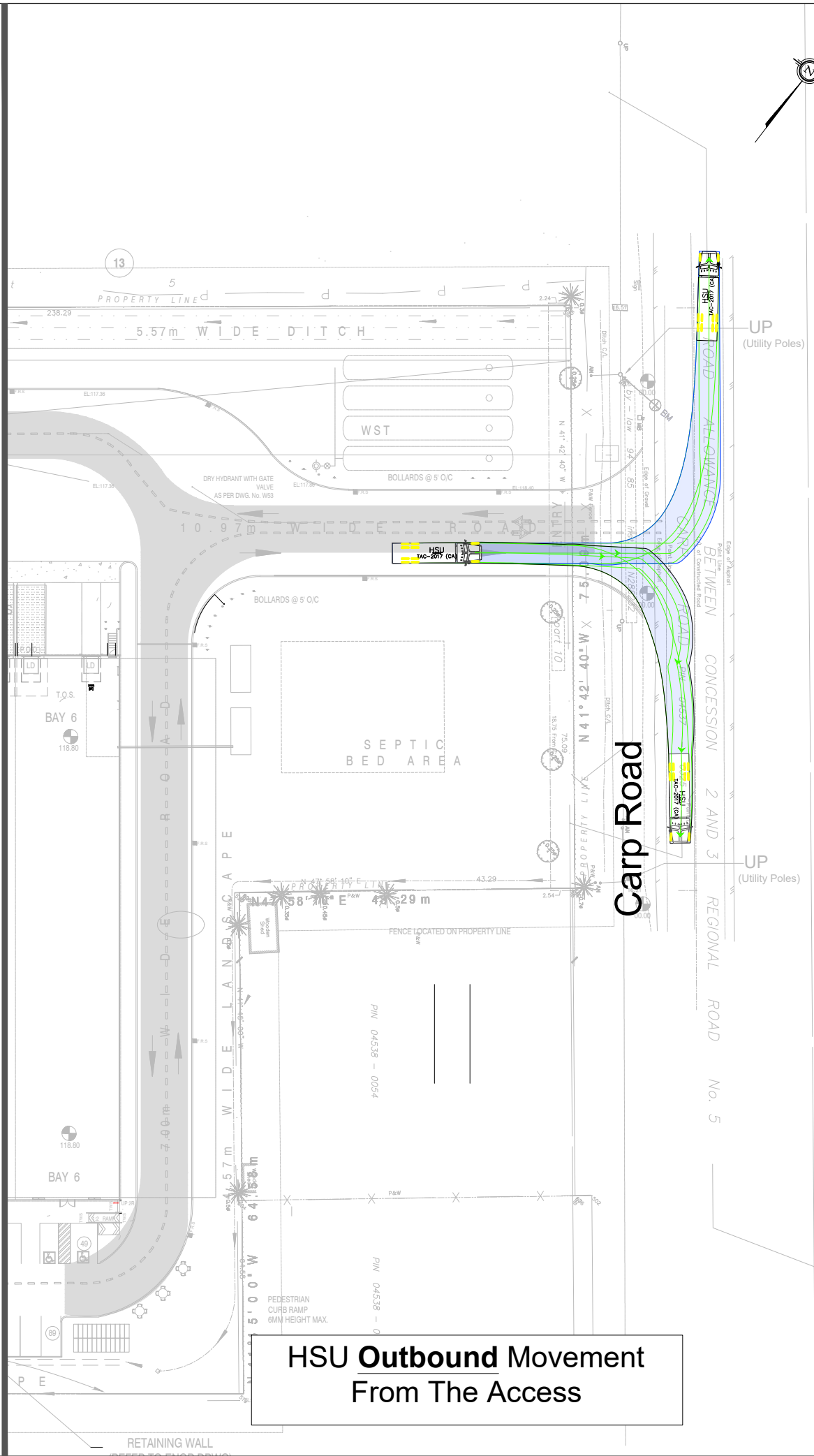
SITE: 3113 Carp Road

TITLE: Turning Movement Analysis
And Access Review

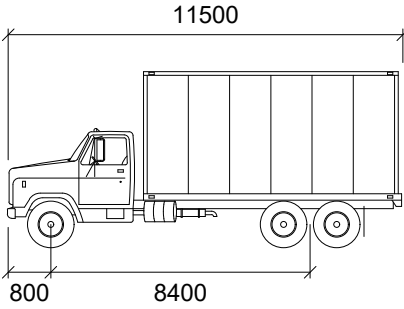
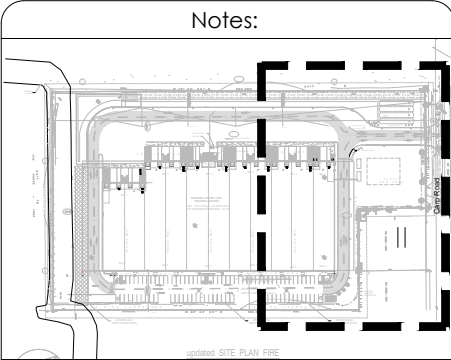
SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 001	REVISION: 03	



**HSU Inbound Movement
To The Access**



**HSU Outbound Movement
From The Access**



HSU

mm

Width : 2600
Track : 2600
Lock to Lock Time : 6.0
Steering Angle : 40.0

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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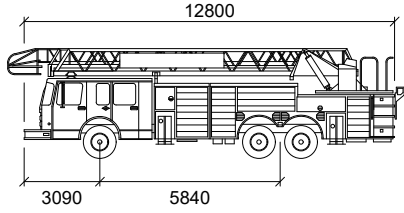
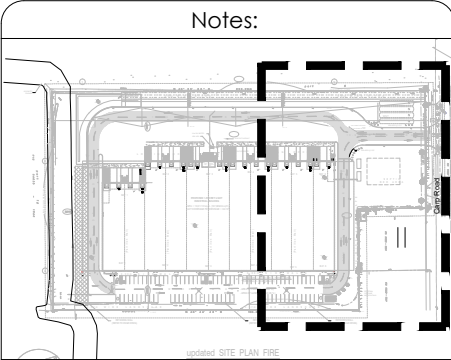
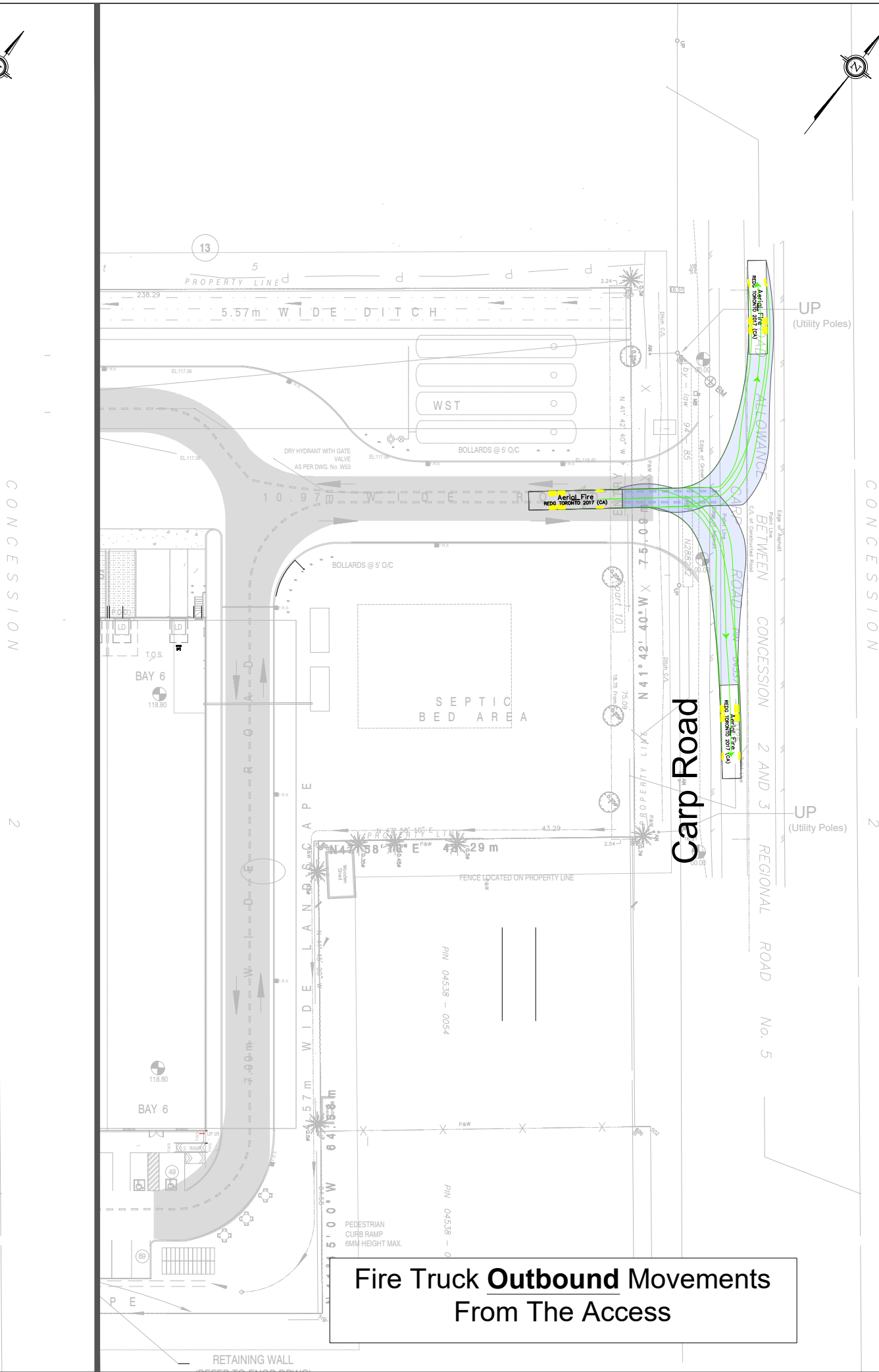
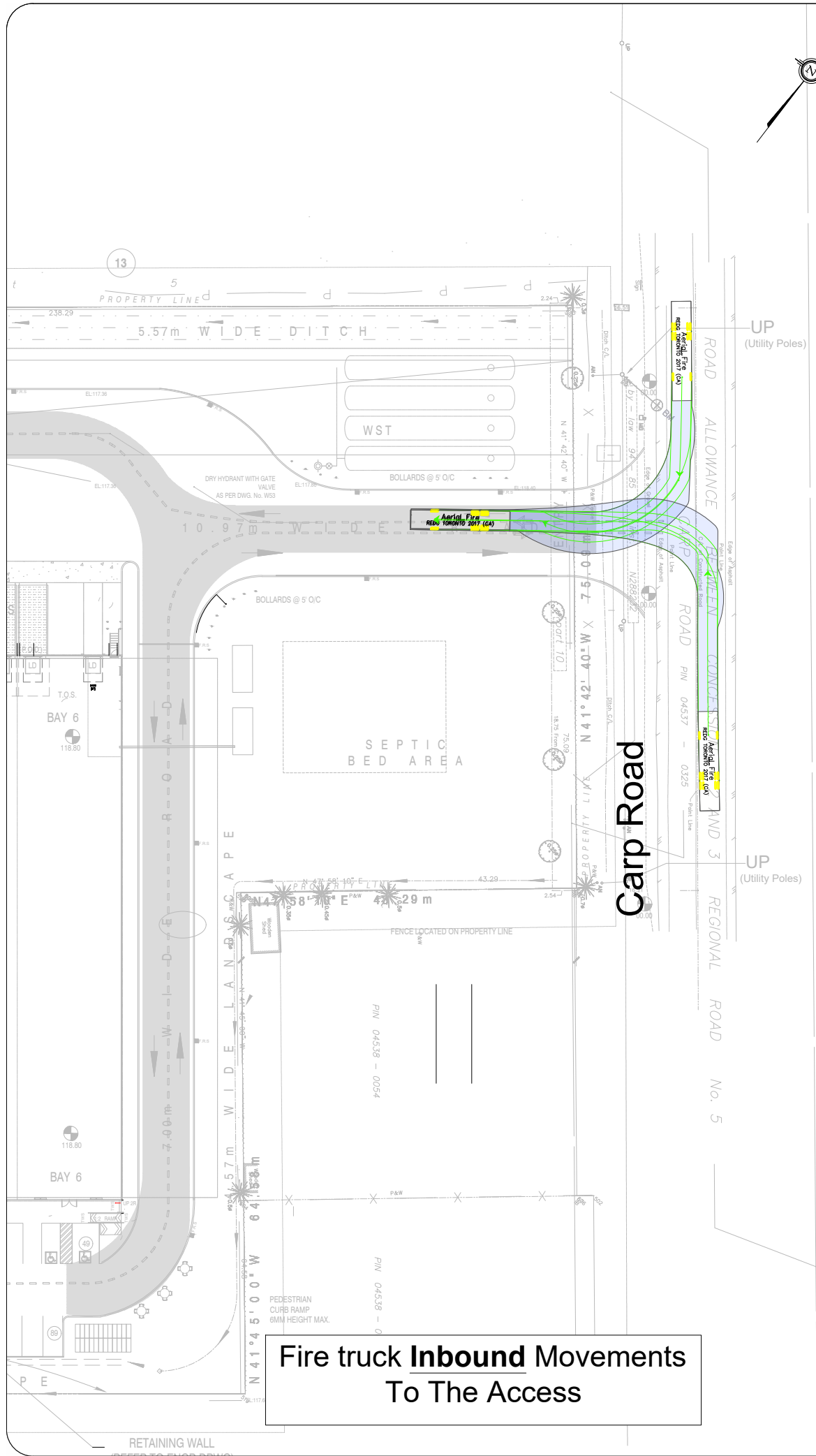
CLIENT: Megha Holdings Inc

ARCHITECT:

SITE:
3113 Carp Road

TITLE:
Turning Movement Analysis
And Access review

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 002	REVISION: 03	



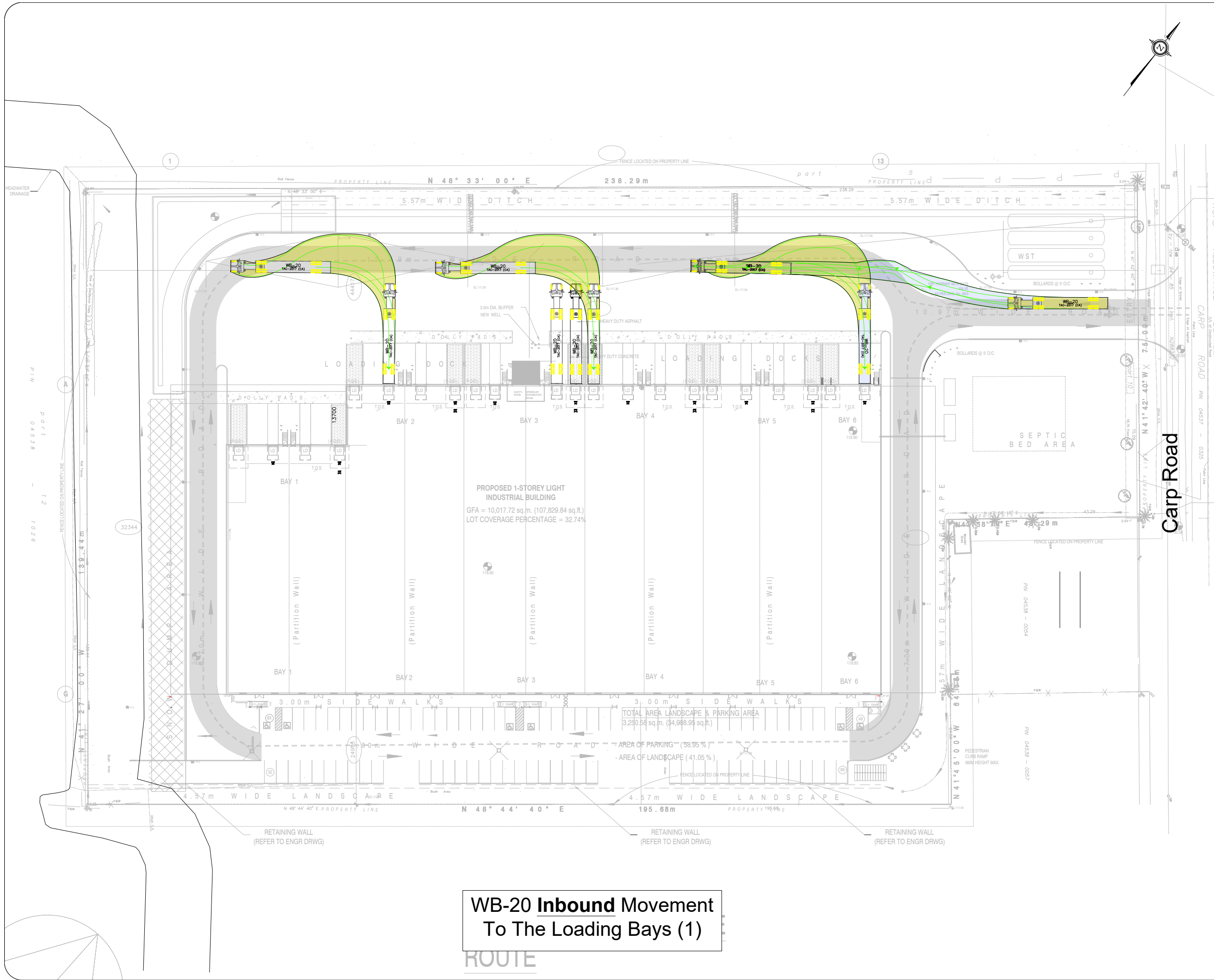
Aerial Fire		mm
Width	:	2540
Track	:	2540
Lock to Lock Time	:	6.0
Steering Angle	:	37.0

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV: DESCRIPTION:		BY:	DATE:
STATUS:			



CLIENT:	Megha Holdings Inc
ARCHITECT:	

SITE:			
3113 Carp Road			
TITLE: Turning Movement Analysis And Access review			
SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-07-31	EA	AH
PROJECT NO:	DRAWING NO:	REVISION:	
2025-103	003	03	



Notes:

WB-20

Tractor Width	: 2600	Lock to Lock Time	: 6.0
Trailer Width	: 2600	Steering Angle	: 28.2
Tractor Track	: 2600	Articulating Angle	: 70.0
Trailer Track	: 2600		

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
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STATUS:			

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ARCHITECT:

SITE:
3113 Carp Road

TITLE:
Turning Movement Analysis

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 004	REVISION: 03	

WB-20 Inbound Movement
To The Loading Bays (1)

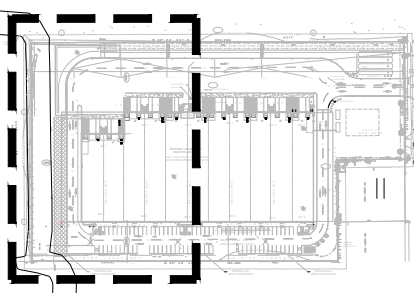


WB-20 Inbound Movement
To The Loading Bays (2)

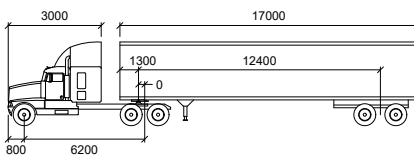


WB-20 Inbound Movement
To The Loading Bays (3)

Notes:



Updated SITE PLAN FIRE



WB-20

Tractor Width	: 2600	Lock to Lock Time	: 6.0
Trailer Width	: 2600	Steering Angle	: 28.2
Tractor Track	: 2600	Articulating Angle	: 70.0
Trailer Track	: 2600		

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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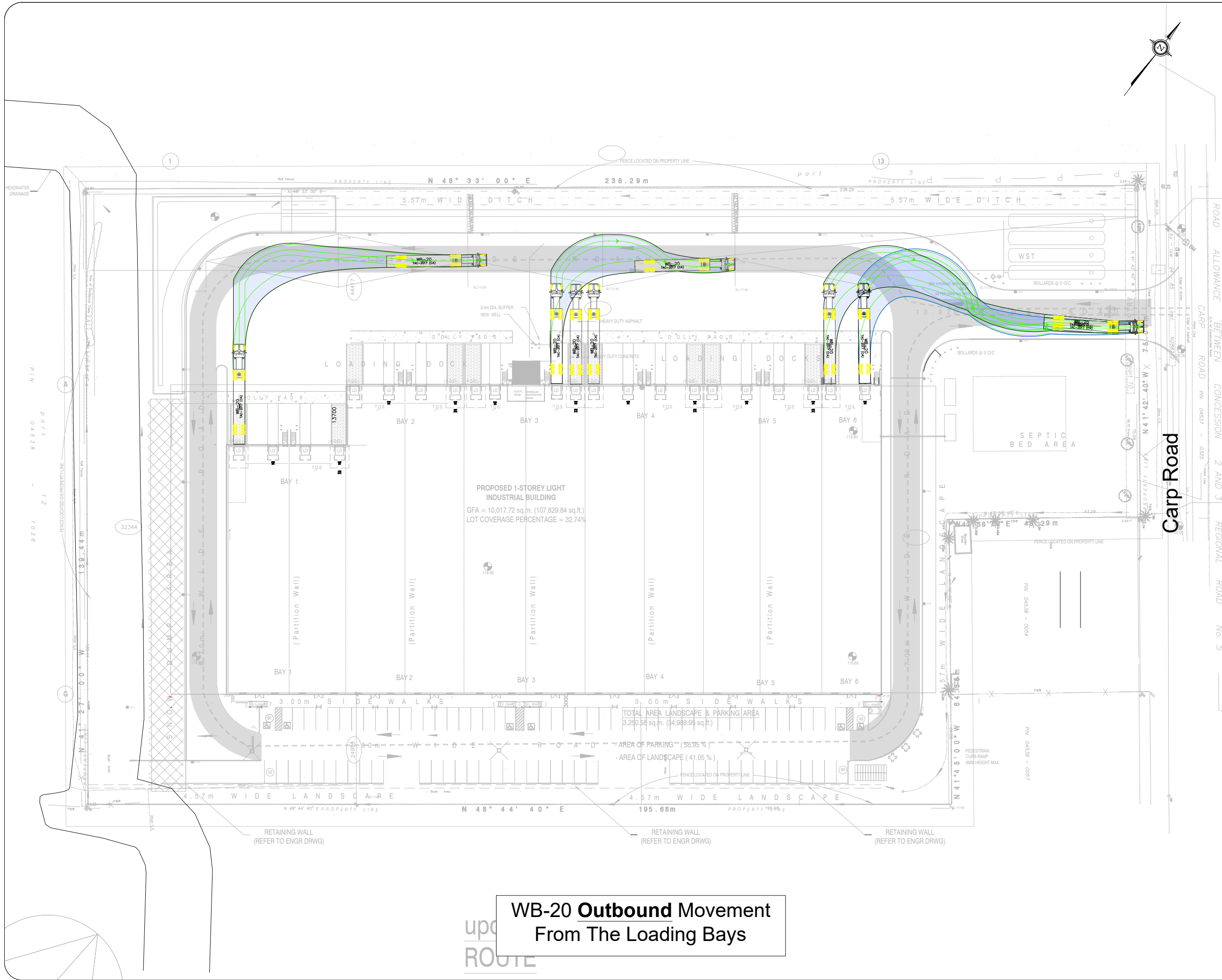
CLIENT: Megha Holdings Inc

ARCHITECT:

SITE: 3113 Carp Road

TITLE: Turning Movement Analysis

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-07-31	EA	AH
PROJECT NO:	DRAWING NO:	REVISION:	
2025-103	005	03	



Notes:

WB-20

	mm		
Tractor Width	: 2600	Lock to Lock Time	: 6.0
Trailer Width	: 2600	Steering Angle	: 28.2
Tractor Track	: 2600	Articulating Angle	: 70.0
Trailer Track	: 2600		

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

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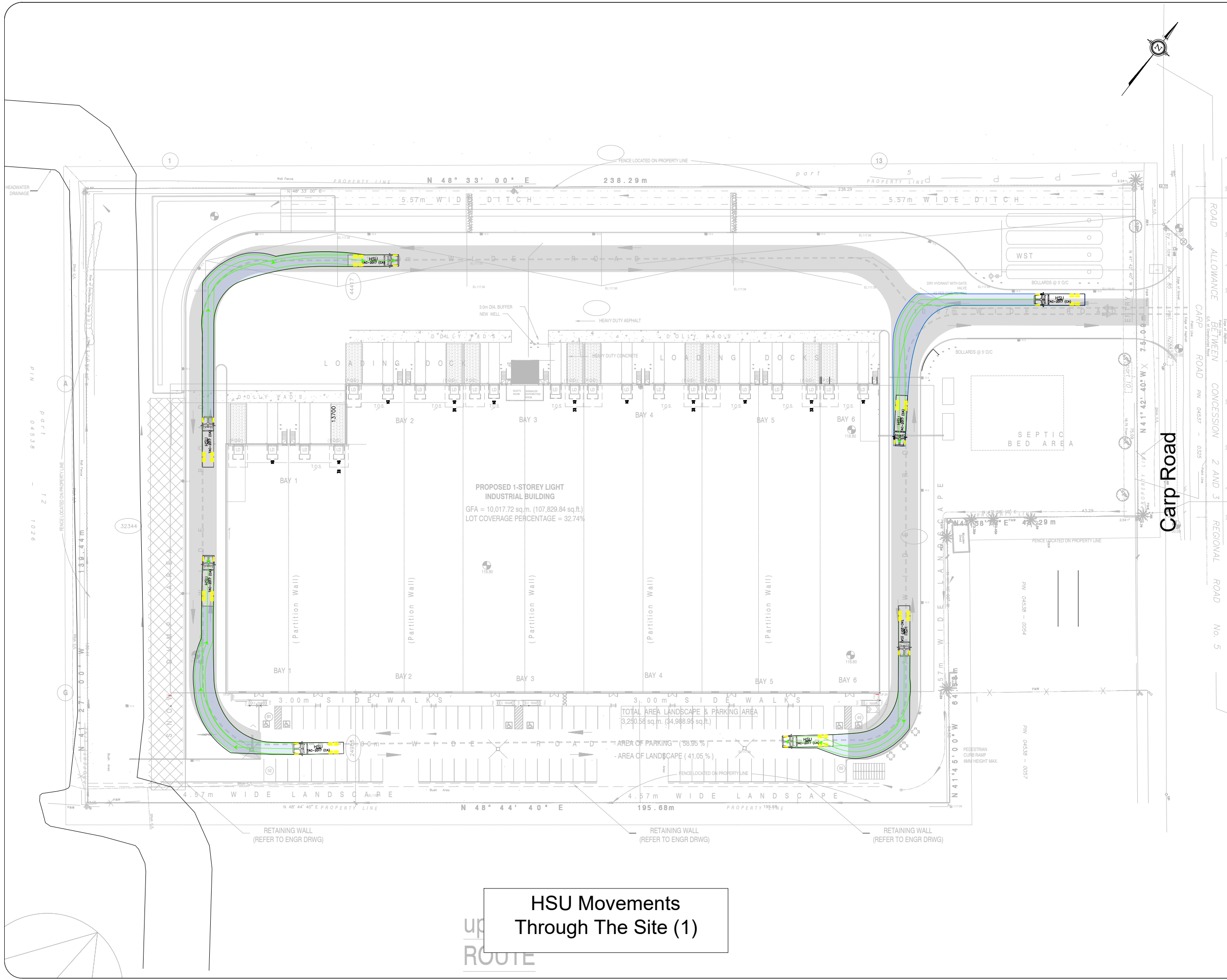
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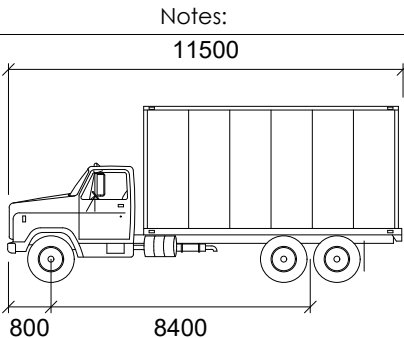
SITE: 3113 Carp Road

TITLE: Turning Movement Analysis

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 006	REVISION: 03	



HSU Movements
Through The Site (1)



HSU	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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K2H 7W1
(343) 999-9117

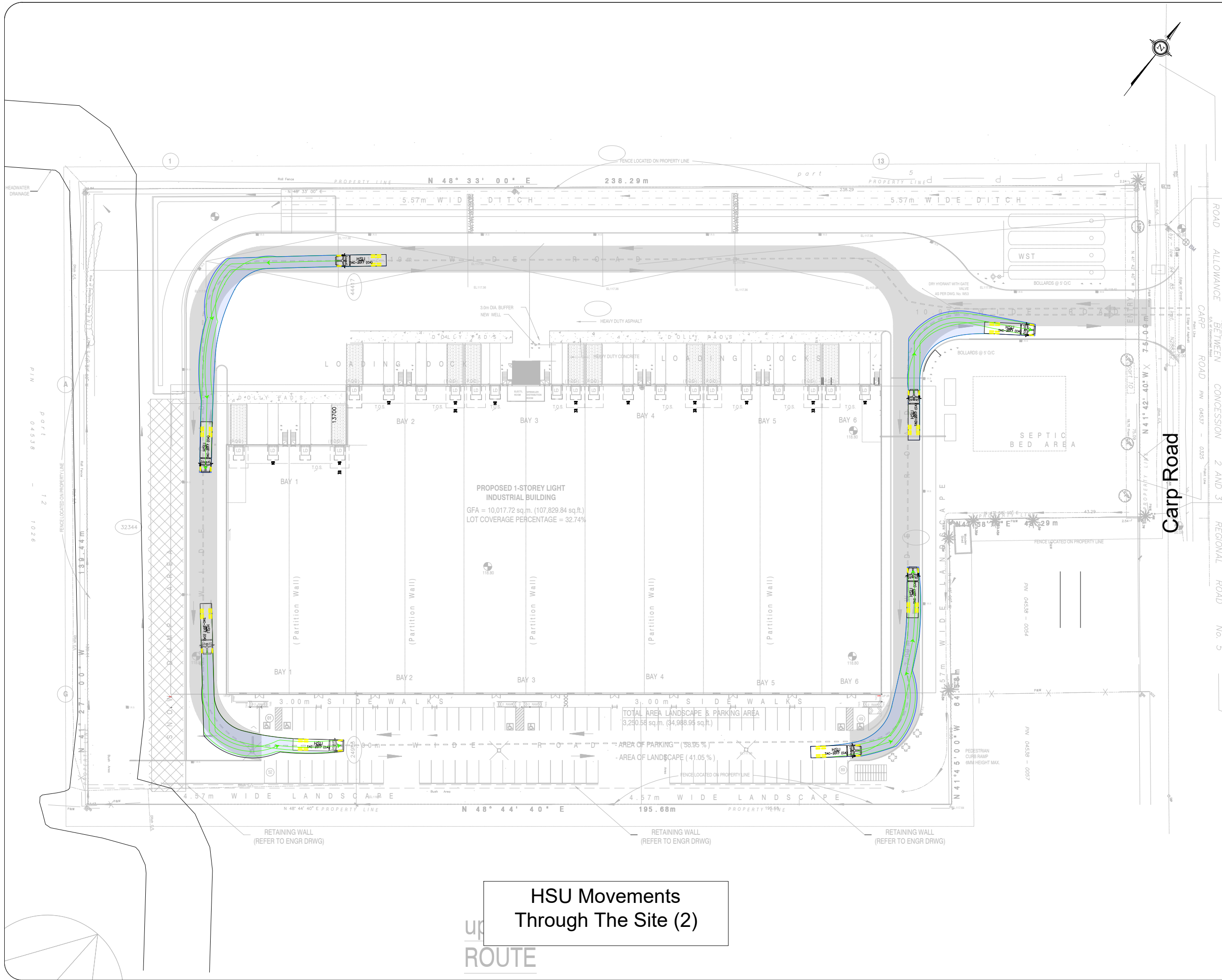
CLIENT: Megha Holdings Inc

ARCHITECT:

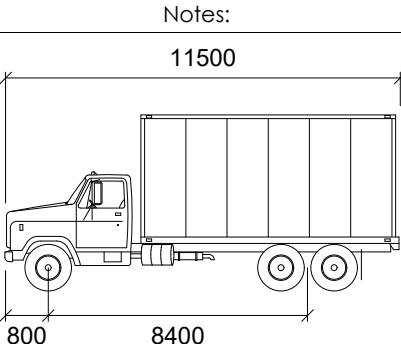
SITE:
3113 Carp Road

TITLE:
Turning Movement Analysis

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 007	REVISION: 03	



HSU Movements
Through The Site (2)



HSU

	mm
Width	: 2600
Track	: 2600
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



CGH Transportation
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Ottawa, ON
K2H 7W1
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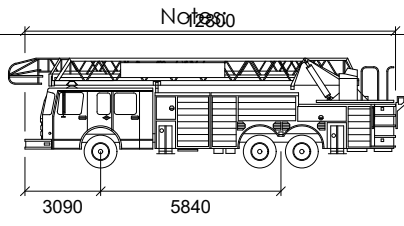
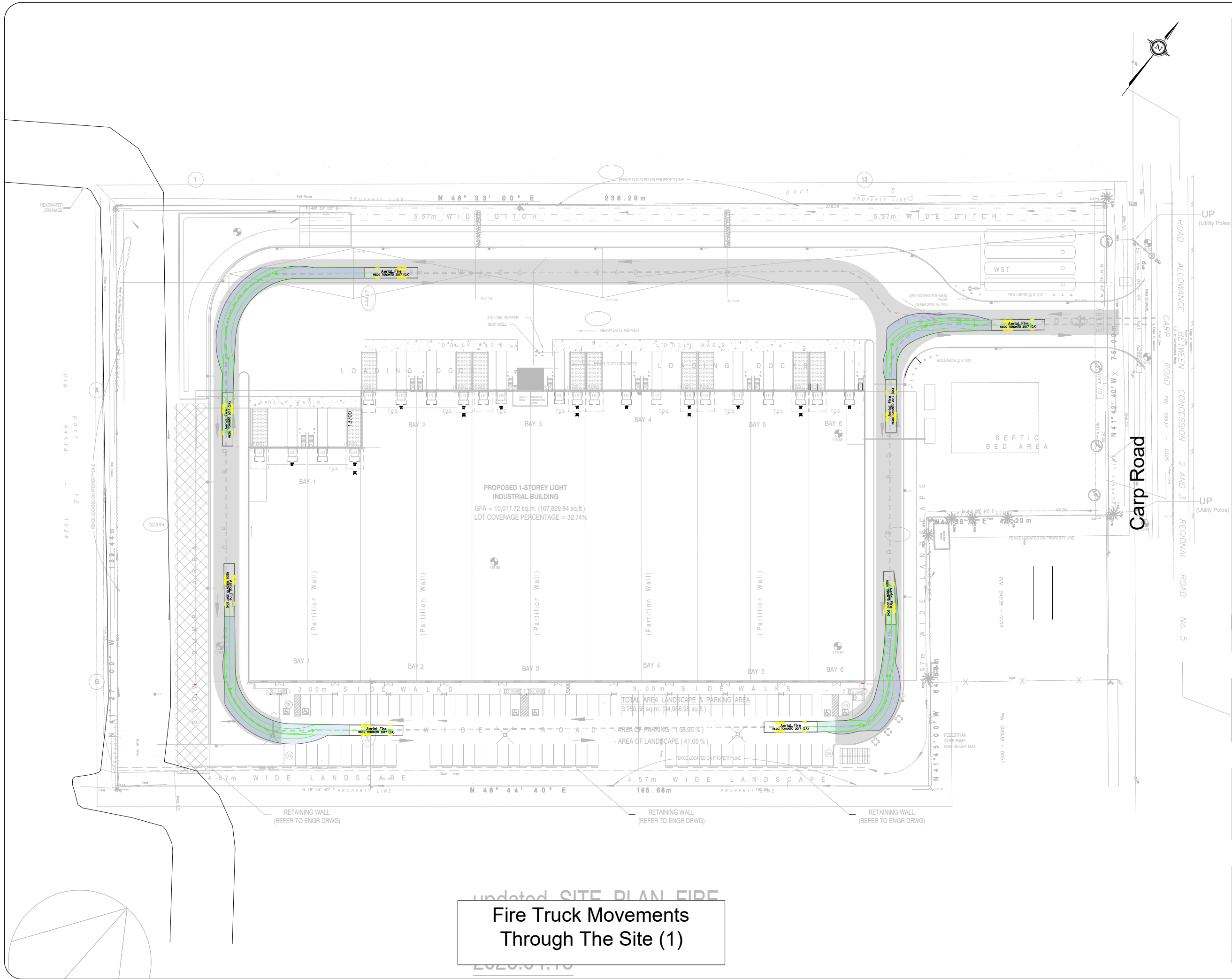
CLIENT: Megha Holdings Inc

ARCHITECT:

SITE:
3113 Carp Road

TITLE:
Turning Movement Analysis

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 008	REVISION: 03	



Aerial Fire

Width : 2540
Track : 2540
Lock to Lock Time : 6.0
Steering Angle : 37.0

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV: DESCRIPTION:		BY:	DATE:
STATUS:			



CGH Transportation
6 Plaza Court
Ottawa, ON
K2H 7W1
(343) 999-9117

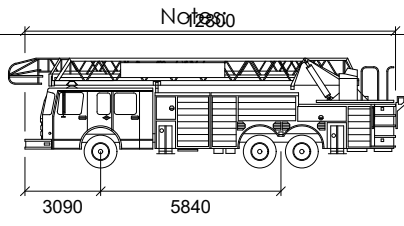
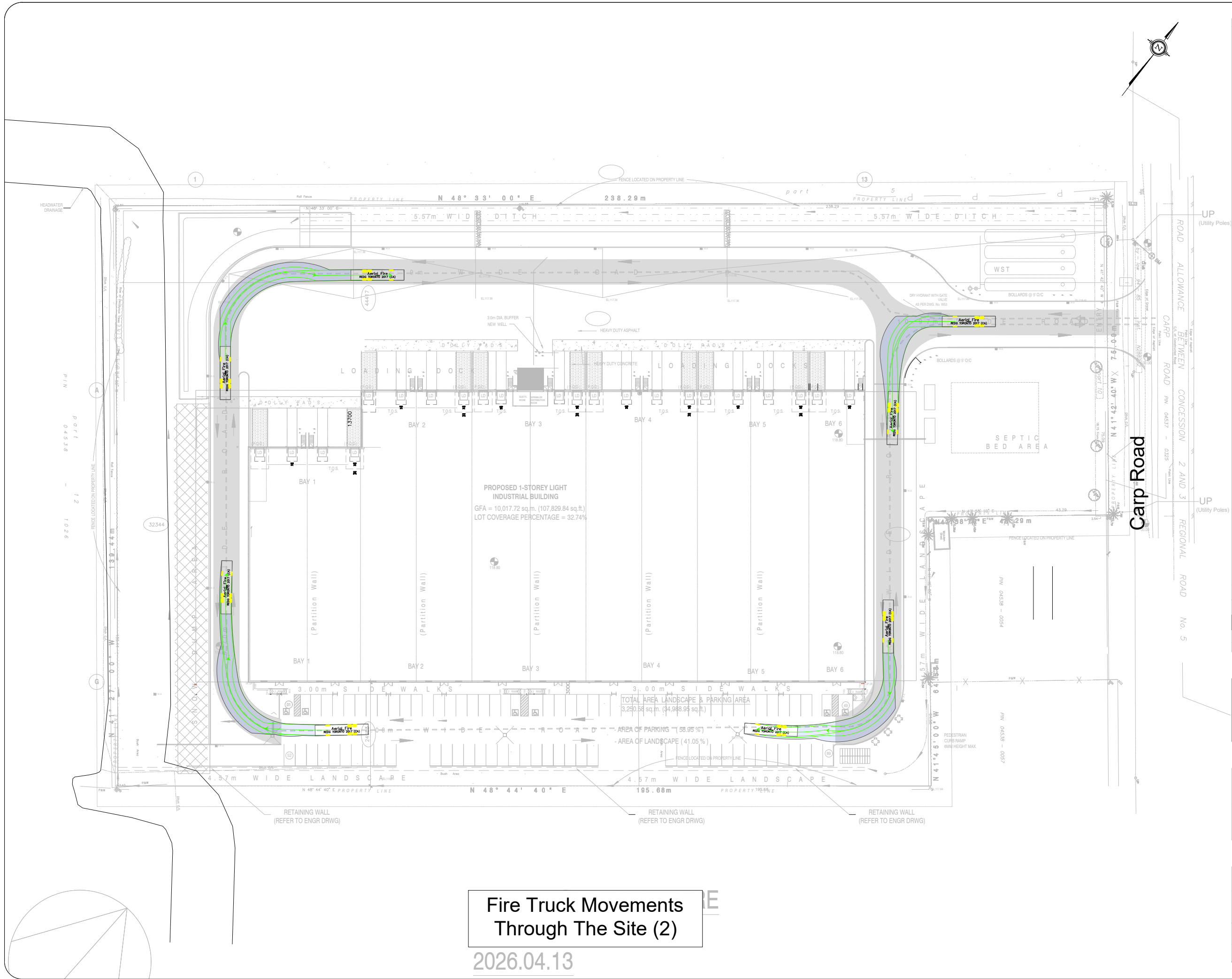
CLIENT: Megha Holdings Inc

ARCHITECT:

SITE: 3113 Carp Road

TITLE: Turning Movement Analysis

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 009	REVISION: 03	



Aerial Fire

Width : 2540 mm
Track : 2540 mm
Lock to Lock Time : 6.0 mm
Steering Angle : 37.0 mm

03	Issued for Review	EA	2026-07-31
02	Issued for Review	IVG	2025-11-10
01	Issued for Review	EA	2025-07-02
REV: DESCRIPTION:		BY:	DATE:
STATUS:			



CGH Transportation
6 Plaza Court
Ottawa, ON
K2H 7W1
(343) 999-9117

CLIENT: Megha Holdings Inc

ARCHITECT:

SITE: 3113 Carp Road

TITLE: Turning Movement Analysis

SCALE AT A3: NTS	DATE: 2026-07-31	DRAWN: EA	CHECKED: AH
PROJECT NO: 2025-103	DRAWING NO: 010	REVISION: 03	

Fire Truck Movements Through The Site (2)

2026.04.13

Appendix G

MMLOS Analysis

Multi-Modal Level of Service - Segments Form

Consultant	CGH Transportation	Project	2025-103
Scenario	Existing and Future	Date	2025-06-25
Comments			

SEGMENTS			Carp Road - site frontage	Section	Section
			1	2	3
Pedestrian	Sidewalk Width	F	no sidewalk		
	Boulevard Width		n/a		
	Avg Daily Curb Lane Traffic Volume		≤ 3000		
	Operating Speed		> 60 km/h		
	On-Street Parking		no		
	Exposure to Traffic PLoS		F	-	-
	Effective Sidewalk Width		< 1.2 m		
	Pedestrian Volume		< 250 ped /hr		
	Crowding PLoS		N/A	-	-
	Level of Service		F	-	-
Bicycle	Type of Cycling Facility	F	Mixed Traffic		
	Number of Travel Lanes		≤ 2 (no centreline)		
	Operating Speed		≥ 60 km/h		
	# of Lanes & Operating Speed LoS		F	-	-
	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		
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes		
	Sidestreet Operating Speed		≤ 40 km/h		
	Unsignalized Crossing - Lowest LoS		A	-	-
	Level of Service		F	-	-
Transit	Facility Type	N	N/A		
	Friction or Ratio Transit:Posted Speed		N/A		
	Level of Service		N/A	-	-
Truck	Truck Lane Width	C	≤ 3.5 m		
	Travel Lanes per Direction		1		
	Level of Service		C	-	-
Auto	Level of Service	Not Applicable			