2026-07-13
Project: 240128

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Josiah Latone
Commercial Manager – Aggregates
Drain Bros. Excavating Limited
2130 8th Line Road, North Dummer
Douro-Dummer, ON K0L 2H0

RE: TRAFFIC IMPACT BRIEF – PROPOSED HIGHWAY 7 PIT, 3749 HIGHWAY 7 AND 926 SAND ROAD, TOWNSHIP OF ASPHODEL-NORWOOD, COUNTY OF PETERBOROUGH

Drain Bros. Excavating Limited (Drain Bros.) has retained Paradigm Transportation Solutions Limited (Paradigm) to prepare a Traffic Impact Brief for the above-noted development proposal in the Township of Asphodel-Norwood.

Figure 1 illustrates the subject site location.

Purpose and Scope

This Brief assesses the potential transportation impacts resulting from the Highway 7 pit and recommends any necessary improvements. The scope of the study has been reviewed and confirmed by Township of Asphodel-Norwood, County of Peterborough, and Ontario Ministry of Transportation (MTO) (the review agencies) staff between August and October 2024.

To note, since the pre-study consultation, the location of the site access has been clarified to be at Highway 7, not Sand Road. This Highway 7 access is an existing access that was previously used to access the site. As we understand, access to Sand Road is not viable due to environmental constraints. Sand Road is also not a viable haul route for aggregate trucks given its limited right-of-way width and design. Furthermore, the east portion of Sand Road is a forced road and cannot support site trips. This study assesses transportation impacts based on the Highway 7 access location.

This Brief includes the following elements:

- Assessing current traffic conditions in the study area
- Analysing future traffic impacts on the study area road network, including the following intersections:
  - Highway 7 and Asphodel 7th Line (unsignalized)
  - Asphodel 7th Line and Sand Road (unsignalized)
  - Highway 7 and the site access (unsignalized)

- Documenting the study methodology, findings, and conclusions in a draft report for review.

Appendix A contains the pre-study consultation correspondence.

Development Concept

Known as the Highway 7 Pit, the subject site is located at 3749 Highway 7 and 926 Sand Road in the Township of Asphodel-Norwood. Located south of Highway 7, approximately four kilometres west of the community of Norwood, the surrounding lands are predominantly rural, with greenspace, low-density farmland, and residential land use.

Drain Bros. is proposing to extract aggregate from the site in Phases 1 and 2 of their operations. The proposed pit includes a licensed area of 35.2 hectares, an extraction area of 25 hectares and a maximum tonnage limit of 350,000 tonnes per year.

Vehicle access is proposed via the existing all-moves private driveway connection on Highway 7, east of North Asphodel 6th Line.

Figure 2 illustrates the proposed plan.

Existing Conditions

Road Characteristics

The roads near the subject site include:

- **Asphodel 7th Line** is a north-south, two-lane collector road under the jurisdiction of Township of Asphodel-Norwood.[1] Within the study area, the posted speed limit is 50 km/h. The surrounding lands are predominantly rural, with greenspace, farmland, and low-density rural residential land use.
- **Sand Road** is an east-west, two-lane unpaved collector road under the jurisdiction of Township of Asphodel-Norwood.[1] Within the study area, the posted speed limit is 60 km/h. The surrounding lands are predominantly rural, with greenspace, farmland and aggregate extraction activity.
- **Highway 7** is a two-lane provincial highway. [1] Within the study area, the posted speed limit is 80 km/h. The surrounding lands are predominantly rural, with greenspace and farmland.

All study intersections are unsignalized. None of the study area roads have dedicated walking or cycling infrastructure.

[1] Township of Asphodel-Norwood, *Township of Asphodel-Norwood – Public Works,* https://www.antownship.ca/en/township-services/public-works.aspx, 2024.

Figure 3 illustrates the existing traffic control and lane configurations of the study intersections.

Traffic Operations

Existing Traffic Volumes

To assess intersection operations, Turning Movement Counts (TMCs) are used to quantify the movement of vehicles, pedestrians, trucks, buses, and cyclists through an intersection. Existing traffic data at an intersection or on a road section forms the foundation for operational analyses. The counts are usually completed during peak periods to complete analysis under its worst-case operating conditions.

Paradigm collected TMCs at the study area intersections, with data collected on Wednesday, 4 September 2024 between the time periods of 7:00 AM to 10:00 AM, 11:30 AM to 1:30 PM, and 3:30 PM to 6:30 PM.

Through pre-study consultation, review agency staff confirmed that detailed intersection capacity analysis using Synchro software is not required. The site is located in a rural area and the surrounding land uses are predominantly greenspace, farmland, and low-density rural residential. The proposed maximum annual tonnage limit is 350,000 tonnes.

Figure 4 illustrates the existing traffic volumes in the AM and PM peak hours.

Appendix B contains the raw turning movement count data.

Transit Service

The Township and County do not operate transit services near the site. The nearest public transit service is in the City of Peterborough, located approximately 30 km driving distance from the subject site. Employees are not expected to use public transit to access or egress the site due to its remote location.

Active Transportation

Walking

The site is located in a rural area far from major residential areas, thus reducing the demand for commuter walking trips. Sand Road and Asphodel 7th Line do not have sidewalks. Highway 7 is a provincial highway where pedestrian conditions are not ideal. There are no marked pedestrian crossings at any of the study area intersections. Similar to transit, pedestrians are not expected to access the site to any significant extent due to its remote location.

Cycling

The site is in a rural area far from major residential areas, thus reducing the demand for commuter cycling trips. Sand Road and Asphodel 7th Line do not have cycling infrastructure near the site. Highway 7 is a provincial highway where cycling conditions are not ideal. There are no marked cycling crossings at any of the study intersections. Similar to transit and

pedestrians, cyclists are not expected to access the site to any significant extent due to its remote location.

Future Traffic Conditions

Trip Generation

Weekday AM and PM peak hour trip generation related to the proposed land use change is based on a first principles approach related to the operation of the site. These include the following:

- The annual amount of aggregate extraction from the pit is expected to be a maximum of 350,000 tonnes per year;
- The transfer of material will typically occur between 6:00 AM and 7:00 PM on weekdays, except holidays. The site will operate for approximately 240 days per year;
- Trips generated by the site are directly related to the weight of the trucks being loaded at the site. Based on discussions with the Client, it is estimated that tandem trucks, tri-axle trucks and trailers will be transporting approximately 15 tonnes, 21 tonnes and 40 tonnes of material per trip, respectively. On average, a truck will typically carry approximately 25 tonnes of material per trips, regardless of truck type; and
- The transfer of material to and from the site is anticipated to be consistent through the entire day with no peaking periods. This is in part due to the need for a steady flow of material at the processing plants.

Table 1 summarizes the trip generation calculations based on first principles.

TABLE 1: FIRST PRINCIPLES OF TRIP GENERATION ESTIMATE

Criteria		Assumption
Annual Rate of Extraction		350,000 tonnes/year
Operating Days per Year		240
Average Extraction per Day		1,460 tonnes/day
Average Load per Truck		25 tonnes/truck
Average Number of Trucks per Day		59 trucks/day
Operating Hours per Day		13 hours/day
Average Number of Loads per Hour		5 loads/hour
Estimated Trip Generation	**Truck trips/hour**	**5**
	Two-way truck trips	**10**
	Passenger-car equivalent trips/hour	**30**

Vehicle trips generated by the updated site have been compared with the existing TMC data. The existing site is observed to generate zero truck trips in the AM peak hour and four truck trips (two entering and two exiting the site) in the PM peak hour. No major changes are anticipated in terms of site generated trips on the public road network. However, this study applies conservative assumptions in the study analysis to confirm impacts on the study area road network under various potential conditions.

Conservatively, it is anticipated that a total of ten trucks (five entering and five exiting the site) per hour will operate at the site with the future change in land use, aligning with the first principles estimate found in **Table 1**. Using this estimate of ten truck trips per hour results in a net increase of ten trucks (five entering and five exiting the site) in the AM peak hour and six trucks (three entering and three exiting the site) in the PM peak hour.

In accordance with the *Highway Capacity Manual (HCM) (7th Edition)*, each truck trip is estimated to represent three passenger-car equivalent (PCE) trips.[2] This results in worst-case scenario of 30 PCE trips (15 entering and 15 exiting the site).

The number of employee-generated trips was also considered in the estimate, based on the TMC data. It was observed there were three car-based trips (two entering and one exiting the site) in the AM peak hour and two car-based trips (one entering and one exiting the site) in the PM peak hour. These car-based trips are included in the base scenario and maintained in the future scenarios in order to account for employees entering and exiting the site.

Table 2 summarizes the existing trips, detailing passenger-car equivalents and employee trips.

TABLE 2: TRIP GENERATION CALCULATIONS

Scenario	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Initial Trips	0	0	**0**	2	2	**4**
PCE Factor (x3)	0	0	**0**	6	6	**12**
Employee Car Trips	2	1	**3**	1	1	**2**
Total Trips (PCE)	2	1	**3**	7	7	**14**

Table 3 summarizes the total trip generation, detailing PCEs and employee trips.

[2] Transportation Research Board, *HCM 2022: Highway Capacity Manual 7th Edition*, (Washington, DC: TRB, 2022),

TABLE 3: TOTAL TRIP GENERATION CALCULATIONS

Scenario	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Expected Trips	5	5	**10**	5	5	**10**
PCE Factor (x3)	15	15	**30**	15	15	**30**
Employee Car Trips	2	1	**3**	1	1	**2**
Total Trips (PCE)	17	16	**33**	16	16	**32**

Site activities can fluctuate on a daily basis depending on operational demands, weather conditions, and production schedules. While the observed truck volumes are lower than the first principles estimate, for the purposes of this analysis it is conservatively estimated that the site could generate up to ten truck trips (five entering and five exiting the site) during both AM and PM peak hours under peak demand conditions.

Trip Distribution and Assignment

The trip distribution is based on a review of existing traffic patterns. The distribution reflects the route choice within the study area (derived from the existing travel patterns). The site trips were assigned to the study area roads based on the most logical route choice.

Table 4 depicts the expected site generated trip distribution during the AM and PM peak hours for traffic entering and exiting the site.

Figure 5 illustrates the traffic assignment of site generated traffic volume.

TABLE 4: SITE GENERATED TRIP DISTRIBUTION FOR AM PEAK HOUR AND PM PEAK HOUR

Trip Distribution	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
North via Asphodel 7th Line	1%	1%	1%	1%
South via Asphodel 7th Line	2%	3%	2%	1%
East via Highway 7	60%	37%	37%	61%
West via Highway 7	37%	59%	60%	37%
Total	**100%**	**100%**	**100%**	**100%**

Traffic Operations

Horizon Years

Consistent with the Ontario Ministry of Transportation (MTO) *General Guidelines for the Preparation of Traffic Impact Studies* and the established terms of reference, traffic forecasts and analyses have been completed for an anticipated opening year (2025), a period of five years (2030) and ten years (2035) after the opening year.[3]

Future Roadway Improvements

During pre-study consultation, review agency staff confirmed that there are no road network improvements planned within the study area within the future horizon years. Therefore, the existing road network and intersection lane configurations have been applied to all future traffic operational analyses.

Background Traffic Forecasts

Background traffic volumes within the study area are expected to comprise general background growth, and traffic generated by approved and/or in-stream developments near the subject site.

General Background Growth

General background traffic reflects increases in traffic unrelated to development within the immediate vicinity of the subject site. Background traffic growth has been estimated through the application of a compounded 2% per annum growth rate. This growth rate was confirmed with review agency staff during pre-study consultation. It is acknowledged this growth rate is likely conservative given the continued emergence of a more balanced modal split in the study area.

Background Developments

As per the direction received from review agency staff, there are no background developments in the vicinity of the study area that would impact the planned update.

Traffic generated by any other new development is assumed to be captured in the general background growth rate.

Figure 6 illustrates the 2025 forecast background traffic volumes in the AM and PM peak hours, respectively.

Figure 7 illustrates the 2030 forecast background traffic volumes in the AM and PM peak hours, respectively.

[3] Ontario Ministry of Transportation, *General Guidelines for the Preparation of Traffic Impact Studies*, 2021.

Figure 8 illustrates the 2035 forecast background traffic volumes in the AM and PM peak hours, respectively.

Total Traffic Forecasts

The forecast total traffic volumes are estimated as the summation of the forecast site generated traffic volumes to the forecast background traffic volumes.

Figure 9 illustrates the 2025 forecast total traffic volumes in the AM and PM peak hours, respectively.

Figure 10 illustrates the 2030 forecast total traffic volumes in the AM and PM peak hours, respectively.

Figure 11 illustrates the 2035 forecast total traffic volumes in the AM and PM peak hours, respectively.

Through pre-study consultation, the review agency staff confirmed that detailed intersection capacity analysis using Synchro software is not required.

A total of ten trucks (five entering and five exiting the site) per hour are expected at the site access. Based on existing trip distribution, all trucks will use Highway 7. The peak hour demand will result in approximately five trucks travelling in each direction on Highway 7. In addition, the site is expected to generate three car-based employee trips during the AM peak hour (two entering and one exiting the site) and two car-based employee trips during the PM peak hour (one entering and one exiting the site).

In terms of magnitude, the total number of trips projected for the site is equivalent to approximately one trip occurring every five minutes during both AM and PM peak hours. The site generated traffic would be less than the daily traffic variations typically experienced in the study area. Given the relatively low trip generation, the site is projected to have very minor impacts on the study area transportation network.

Auxiliary Turn Lane Warrant Analysis

The following section analyzes the need for left turn, right turn and acceleration lanes. The need for these lanes has been assessed using the Ontario Ministry of Transportation (MTO) Design Supplement to the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads (GDGCR)* as well as the TAC GDGCR itself.[4,5]

[4] Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queen's Printer for Ontario, 2020)
[5] *Geometric Design Guide for Canadian Roads. 3rd ed.* Transportation Association of Canada, Ottawa, ON, Canada, 2017.

Left Turn Lane Warrant Assessment

The need for a left turn lane on at the site access is analyzed under AM and PM peak hour traffic conditions for the 2035 future total traffic operations scenario. The movement is analyzed using the nomographs for left turn lanes on two-lane undivided highways at unsignalized intersections, as per TAC guidance. This warrant nomograph is based on the following criteria:

- Design speed of the road (posted speed + 20 km/h);
- Advancing volume;
- Opposing volume; and
- Percent of advancing vehicles performing a left-turn maneuver.

The data indicates a left-turning volume of 10 and six PCE vehicles in AM and PM peak hours, respectively. The opposing volume for the left turn movement is estimated to be 419 vehicles and 936 vehicles for AM and PM peak hours, respectively.

Based on the guidance found in the MTO Design Supplement to TAC GDGCR, a left turn lane is warranted at the site access. This requirement is largely attributable to the high volume of advancing vehicles. Refer to the TAC GDGCR and MTO Design Supplement for design details.

Figure 12 illustrates the left turn lane warrant analysis graphs for the AM and PM peak hours.

Right Turn Lane Warrant Assessment

The TAC GDGCR does not provide warrants for the application of right turn lanes. However, the guide does note that implementation should consider many factors, including speed, design volume, right-of-way availability, collision potential, access location, intersection spacing, cycling and pedestrian needs, and implications on transit operation.

At unsignalized intersections, the TAC GDGCR suggests implementing a right turn auxiliary lane when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard. The data for the 2035 analysis scenario indicates right-turning volumes of seven and 10 PCE vehicles in the AM and PM peak hours, respectively. This total turning volume in both AM and PM peak hours is low, which reduces the frequency of hazards occurring. This right-turning volume will conservatively account for less than 2% of the through traffic. Therefore, the implementation of a right-turn lane is not recommended.

The TAC GDGCR indicates that a threshold volume of approximately 60 vehicles per hour can be used to determine the need for right turn channelization. Additionally, municipal guidelines such as the Durham Region *Right-Turn Lane Policy* and *Design Guideline Development* specify a lower threshold of 40-50 vehicles per hour for higher-speed, higher-risk, two-lane

roads.[6] This guideline recommends a right turn taper when at least 10-20 right turn movements occur. The conservative estimate of 10 PCE vehicles in the peak hour entering the site is at the minimum threshold, indicating that a turn lane or taper would not be impactful to operations.

The Virginia Department of Transportation (VDOT) also provides guidance related to right turn lane justification.[7] Appendix F of the VDOT *Road Design Manual* provides threshold volumes for a right turn lane. The volumes and speeds of right-turning and through traffic are the primary factors considered, and the research is limited to two-lane and four-lane highway treatments. The subject site access is located on a two-lane highway.

Figure 13 shows the warrant nomograph for two-lane roadways.

The VDOT Road Design Manual suggests that a right turn lane is warranted when at least 20 right turn movements occur in an hour. Based on the conservative estimate of 10 PCE vehicles entering the site during the peak hour, a right turn lane is not warranted for the site access.

Acceleration Lane Warrant Assessment

An acceleration lane is an auxiliary lane located adjacent to through lanes to allow vehicles to speed up when entering the roadway.[8] When applied in the proper context, these lanes allow vehicles to merge with free flow traffic at the operating speed of the free flow traffic.

Based on the TAC GDGCR, acceleration lanes are commonly used for higher-speed rural roads.[9] For unsignalized intersections, these lanes should be considered if there is a substantial volume of accelerating vehicles compared to through traffic volume, which can pose a safety hazard. For unsignalized intersections, the TAC GDGCR does not provide any explicit volume or proportion of turning vehicles compared to through movement vehicles that warrants an acceleration lane. For signalized intersections, an acceleration is suggested when turning traffic exceeds 10% of the total approach volume.[10]

For the 2035 analysis scenario, the northbound right turn movement volume at the site access is forecast to be 7 and 10 PCE vehicles in the AM and PM peak hours, respectively. These total volumes as well as their proportion to the approach volumes are both below guidance thresholds. Therefore, an acceleration lane at the site access is not recommended.

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[6] Regional Municipality of Durham, *Right-Turn Lane Policy and Design Guideline Development*, 2006.
[7] Virginia Department of Transportation, *Road Design Manual – Appendix F,* 2025.
[8] Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide (GDG) for Canadian Roads*, 2023, pp. 19.
[9] *Geometric Design Guide for Canadian Roads. 3rd ed.* Transportation Association of Canada, Ottawa, ON, Canada, 2017, pp. 9-98.
[10] *Geometric Design Guide for Canadian Roads. 3rd ed.* Transportation Association of Canada, Ottawa, ON, Canada, 2017, pp. 9-99.

Conclusions

Based on the above analysis, it is concluded that:

- The subject site is proposed to have a maximum tonnage limit of 350,000 tonnes per year.
- Considering first principles trip generation estimates, it is anticipated that up to ten trucks (five entering and five exiting the site) per hour will operate at the site.
- The site is forecast to have a minor impact on traffic operations for the study area network. With the site-generated traffic expected to remain similar to the current levels, the study intersections are forecast to operate at similar levels of service in comparison to background traffic conditions.
- The site generated traffic volumes warrant the need for a westbound left turn lane on Highway 7, based on MTO Design Supplement to TAC GDGCR. Right turn and acceleration lanes are not recommended based on industry guidance.

Recommendations

The following recommendations are provided based on the study results:

- The contents of this report be considered; and
- A westbound left turn lane be installed at the site access on Highway 7 in accordance with MTO guidance.

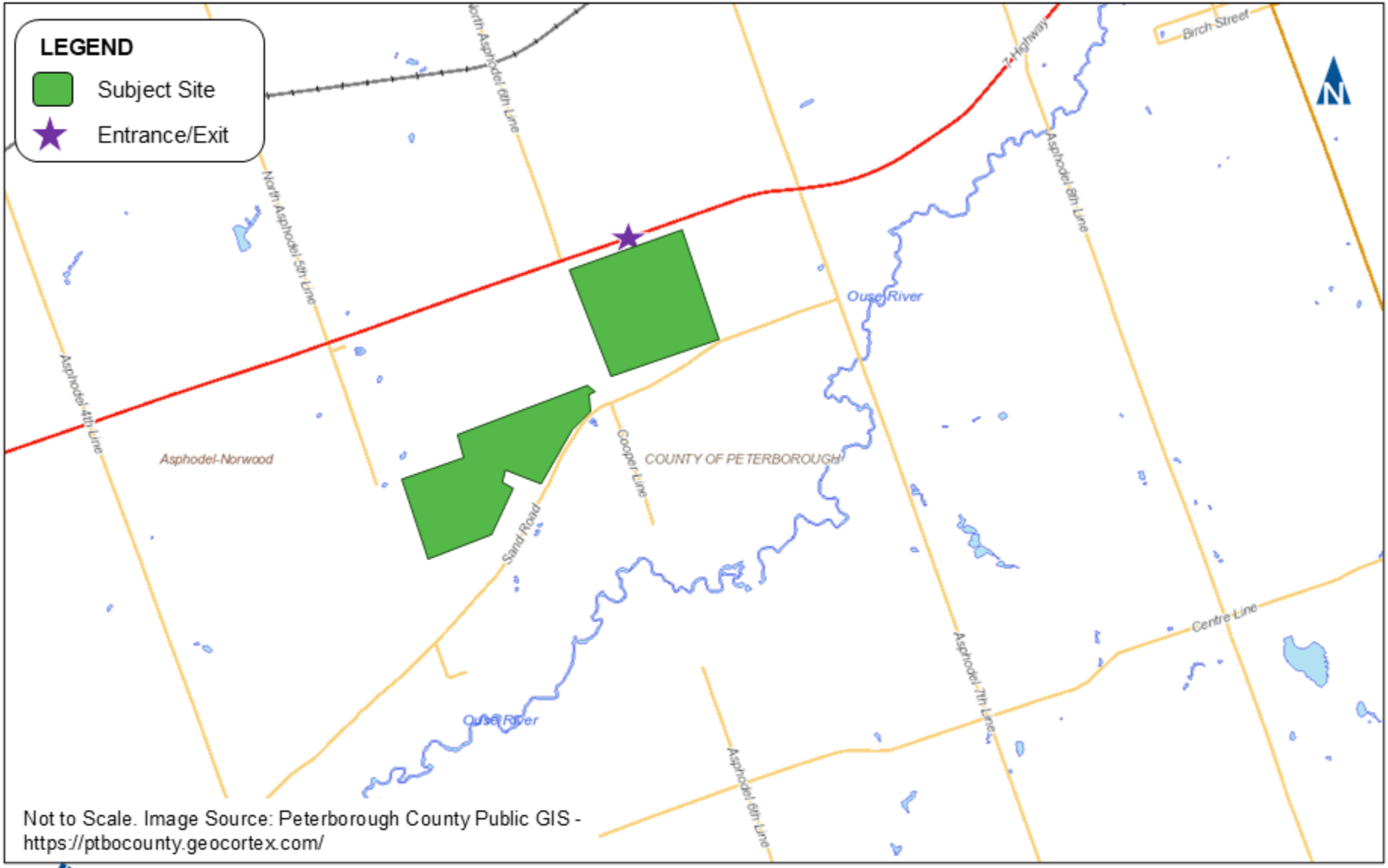
We trust that this Traffic Impact Brief sufficiently outlines the impacts of the planned update and its impacts on the surrounding road network.

Yours truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED

<< Original Signed By >>

Joshua de Boer
M. Eng., P. Eng., PTOE
Executive Principal, Finance and Strategy

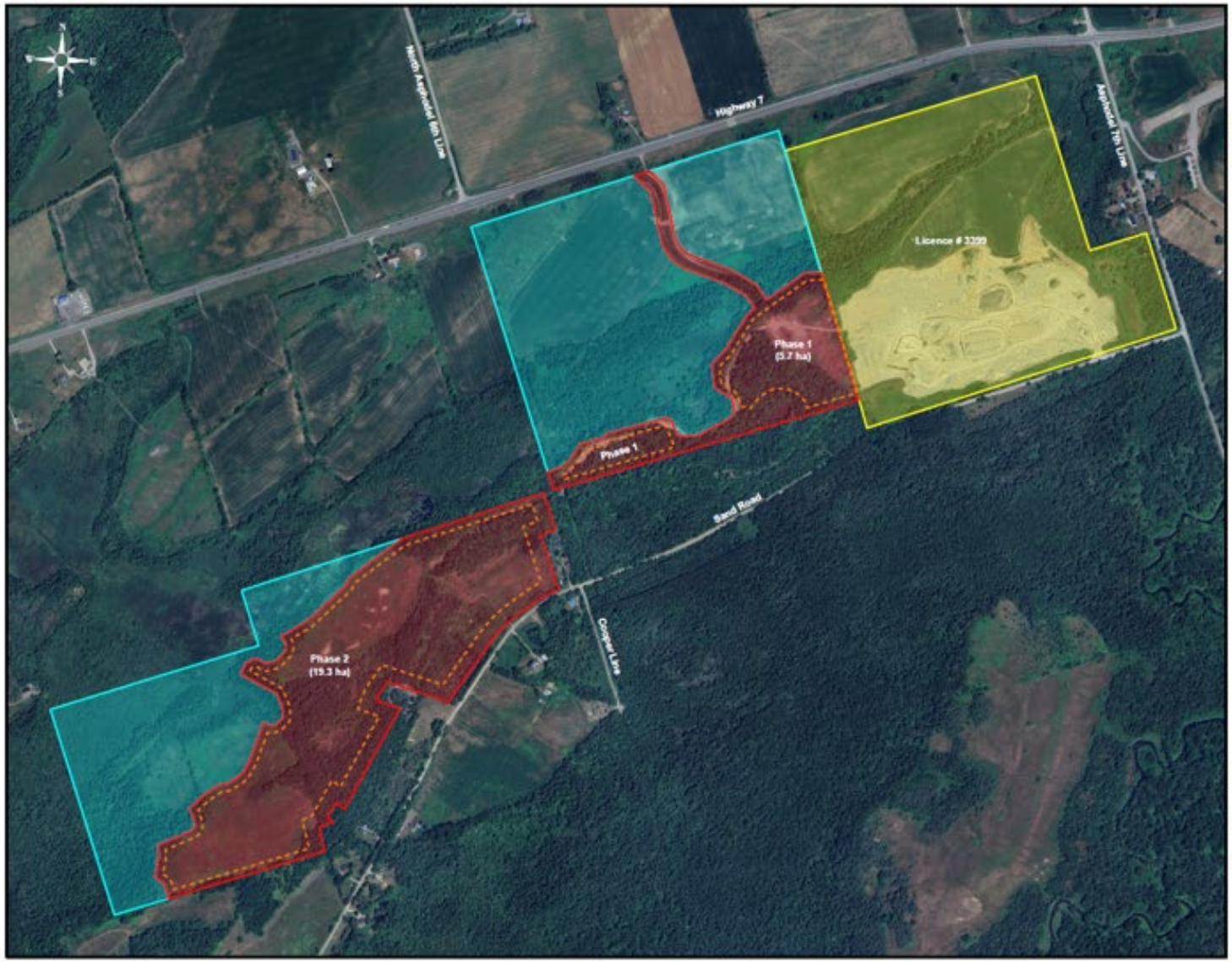


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Subject Site Location

3749 Highway 7 TIB
240128

Figure 1



Proposed Highway 7 Pit

Part of Lot 14, Concession 5 and Part of Lot 15, Concession 6
(former geographic Township of Asphodel)
Township of Asphodel-Norwood
County of Peterborough

Legend

- Highway 7 Pit Licence Boundary - 35.2 ha
- Highway 7 Pit Limit of Extraction - 25.0 ha
- Existing ARA Licence
- Other Land Owned by Drain Bros.

Date: May 2026

Source: Google Earth Pro aerial photography captured on July 15, 2023

Scale = 1:7500

0 120 240

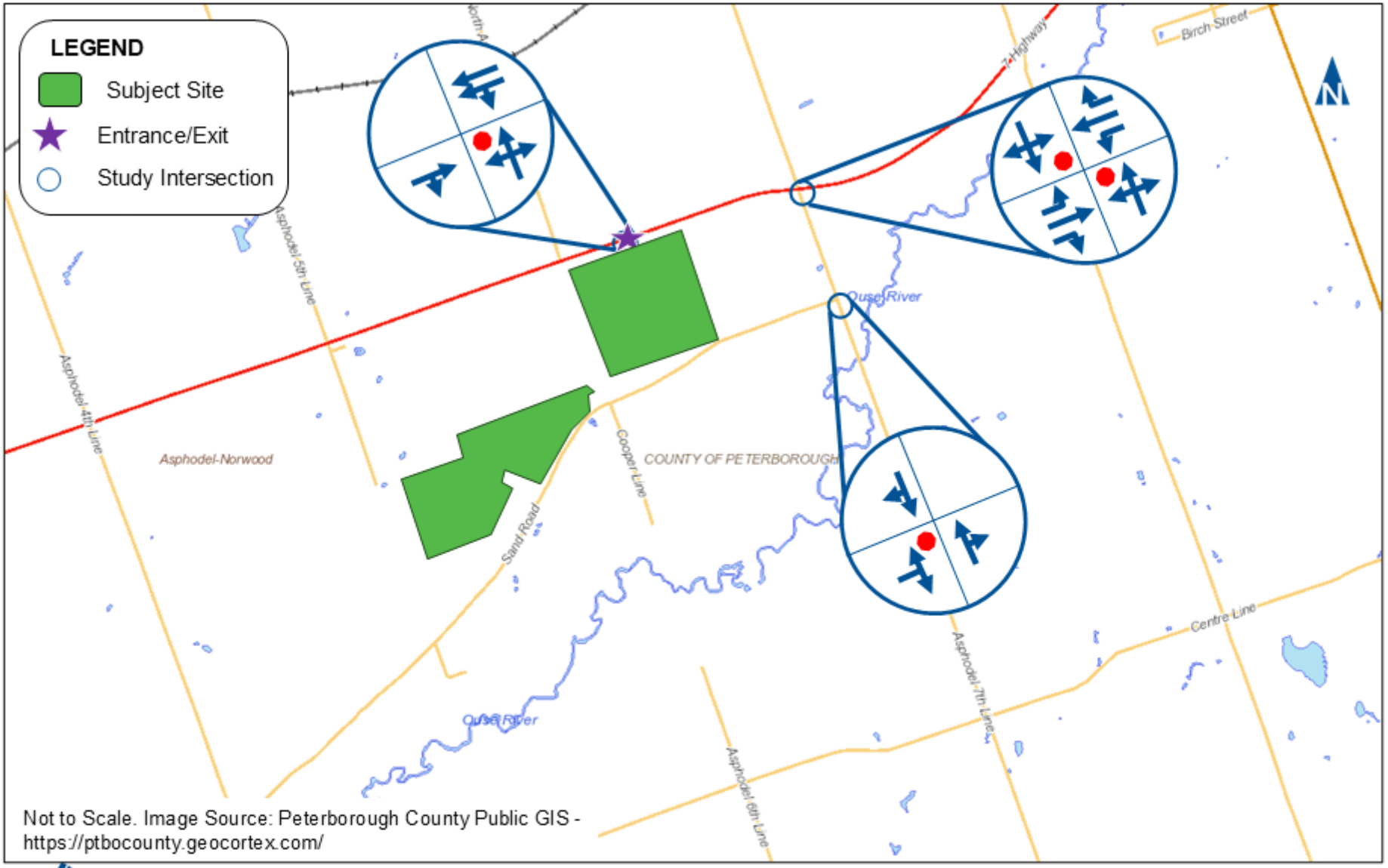
MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

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Proposed Extension Plan

3749 Highway 7 TIB
240128

Figure 2



Not to Scale. Image Source: Peterborough County Public GIS - https://ptbocounty.geocortex.com/

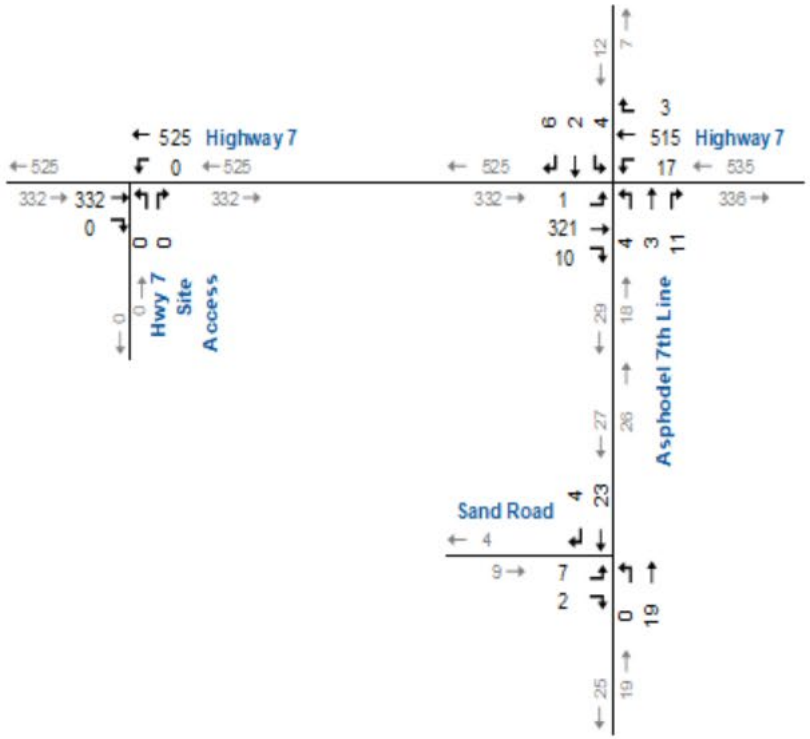
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Existing Lane Configurations and Traffic Control

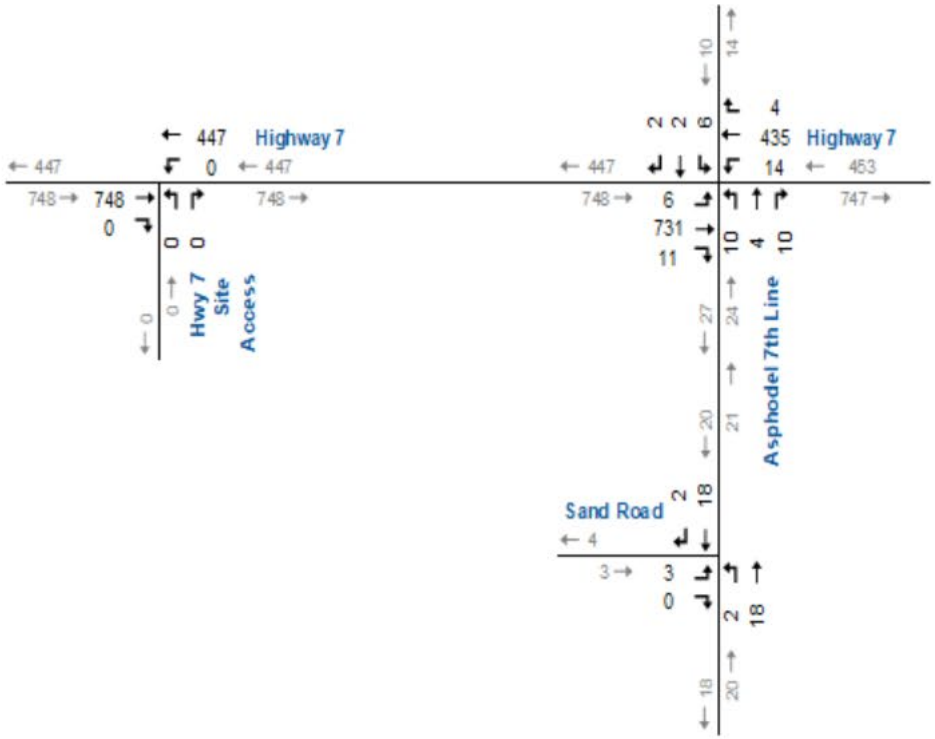
3749 Highway 7 TIB
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Figure 3

AM PEAK HOUR



PM PEAK HOUR



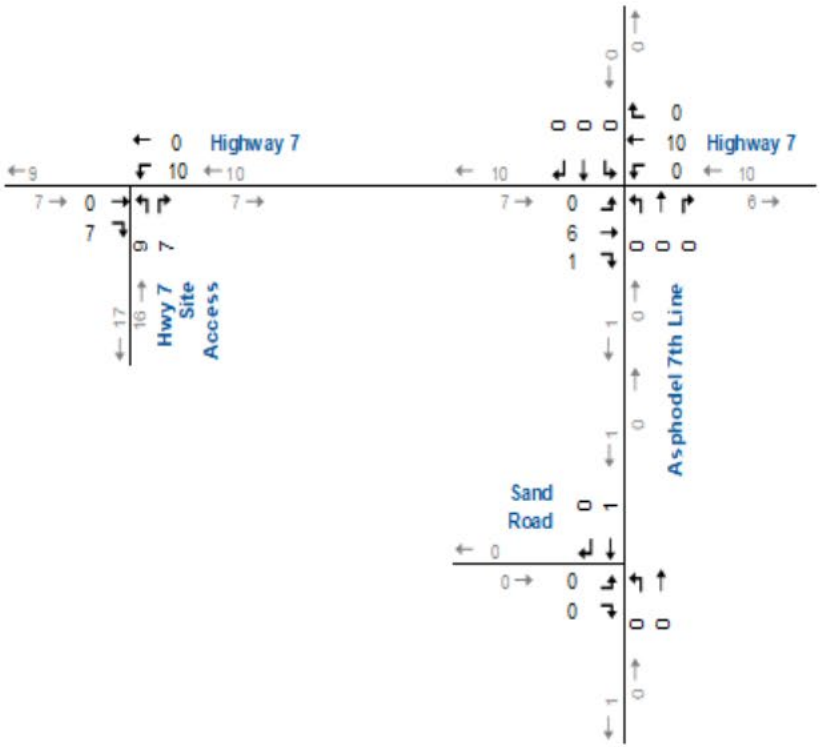
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Existing Traffic Volumes
AM Peak Hour and PM Peak Hour

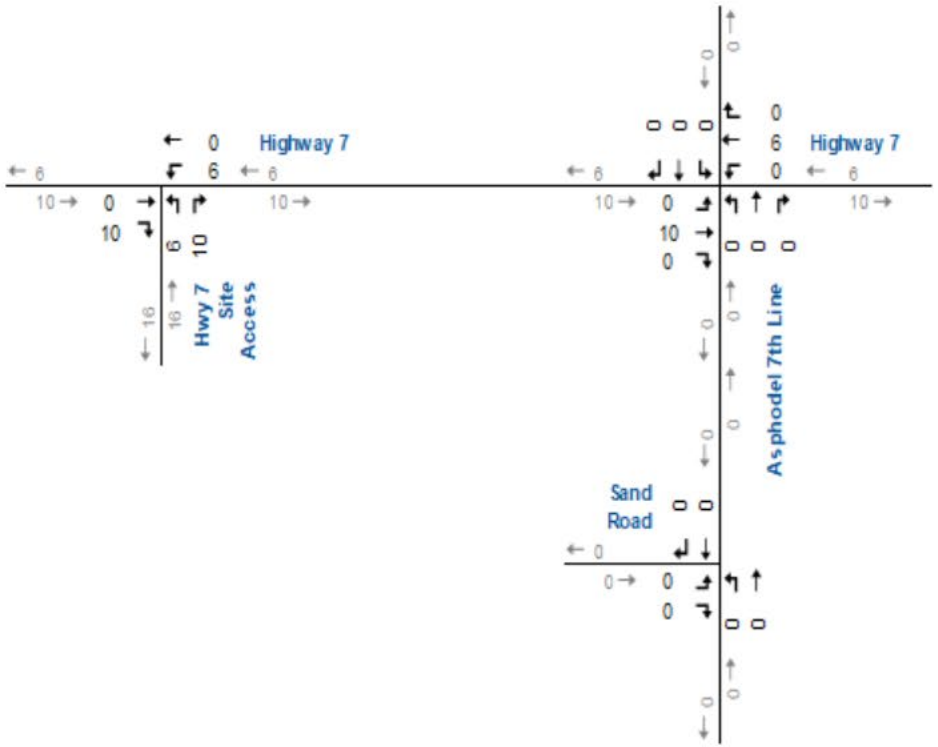
3749 Highway 7 TIB
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Figure 4

AM PEAK HOUR



PM PEAK HOUR



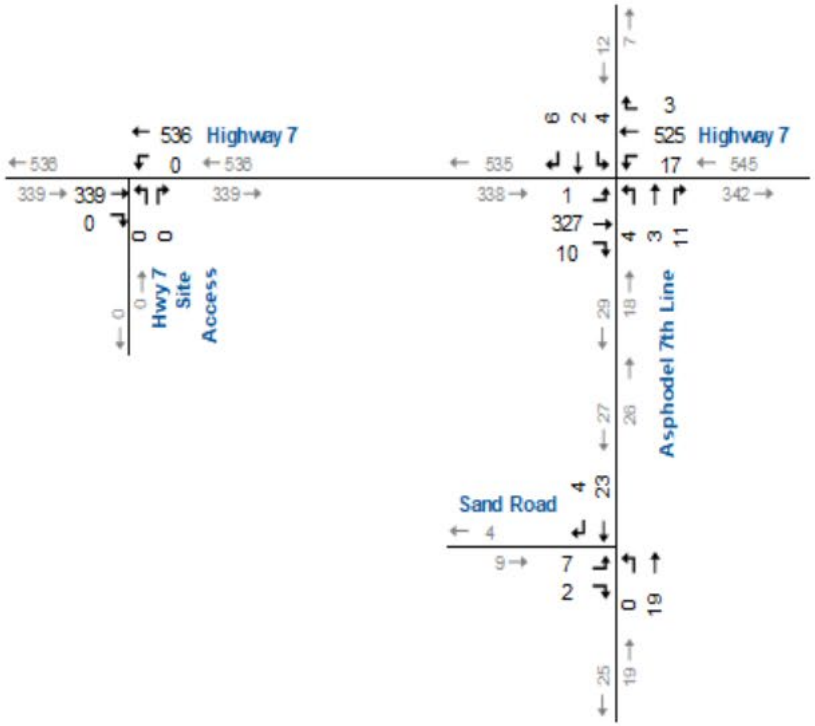
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Site Generated Traffic
AM Peak Hour and PM Peak Hour

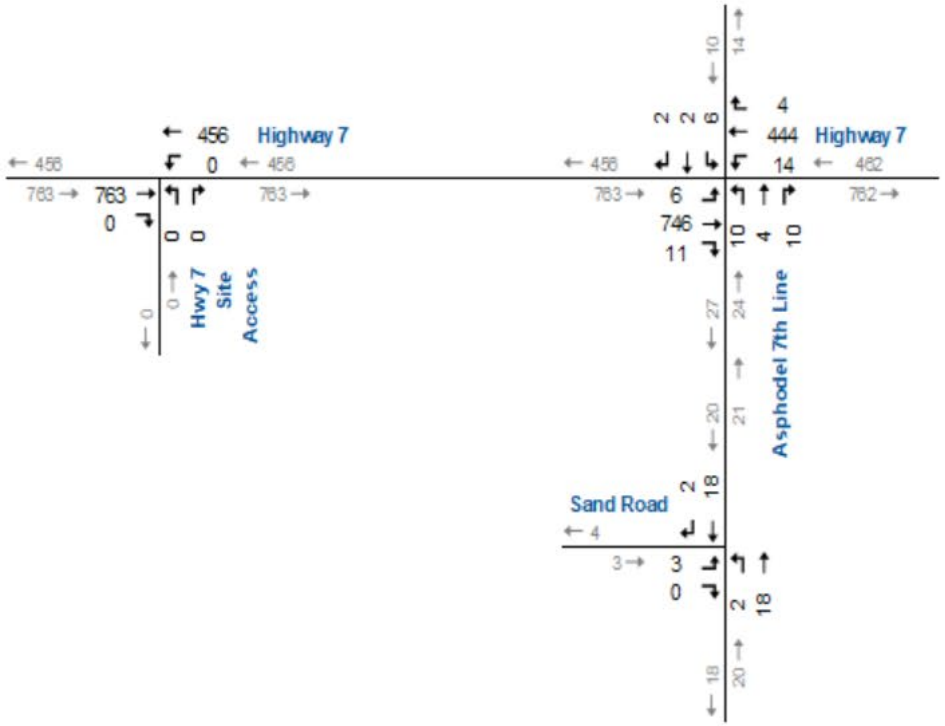
3749 Highway 7 TIB
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Figure 5

AM PEAK HOUR



PM PEAK HOUR



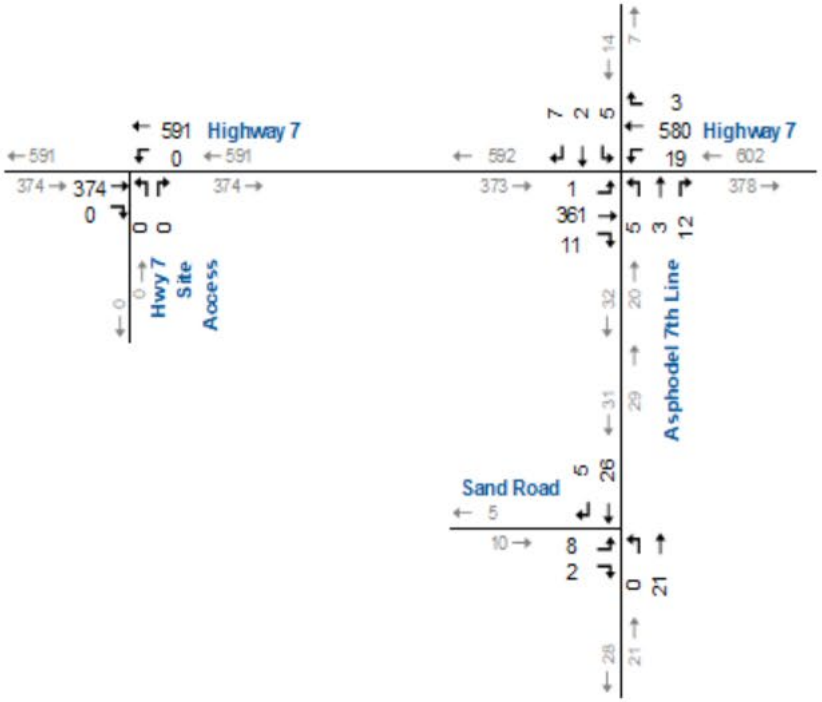
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2025 Background Traffic
AM Peak Hour and PM Peak Hour

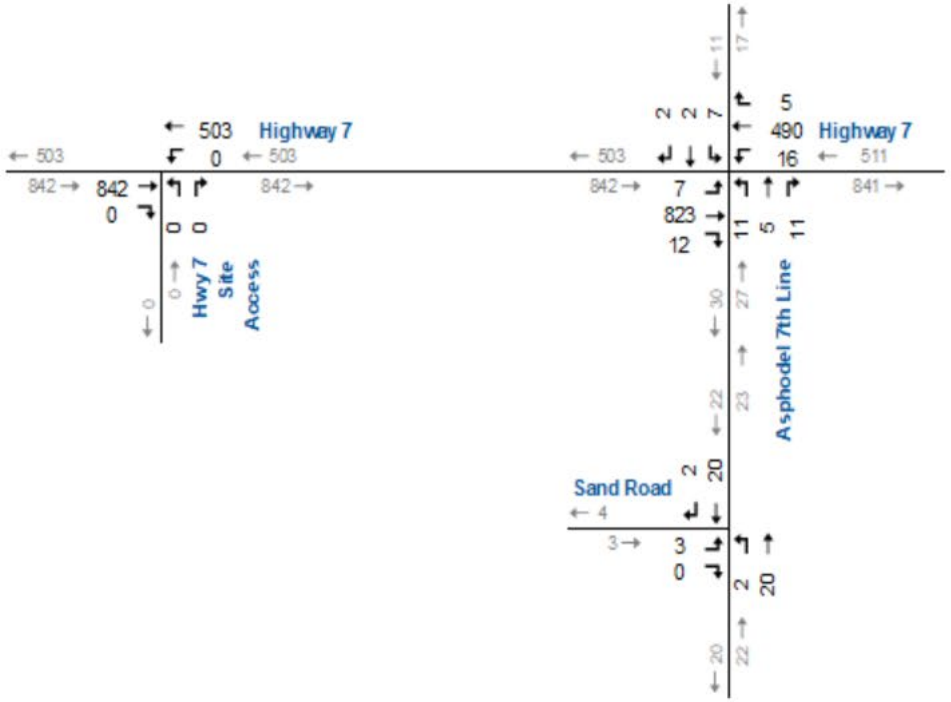
3749 Highway 7 TIB
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Figure 6

AM PEAK HOUR



PM PEAK HOUR



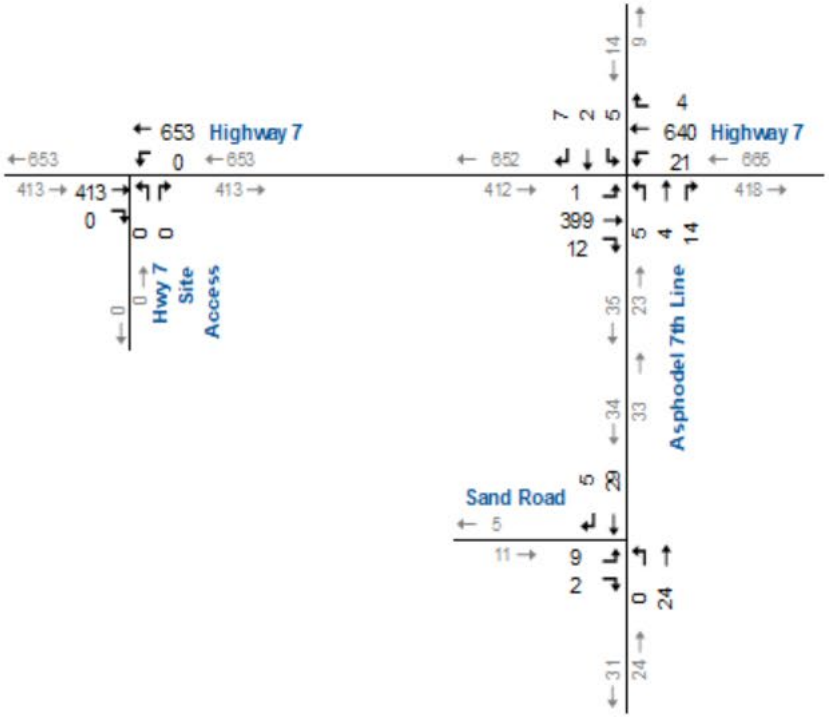
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2030 Background Traffic
AM Peak Hour and PM Peak Hour

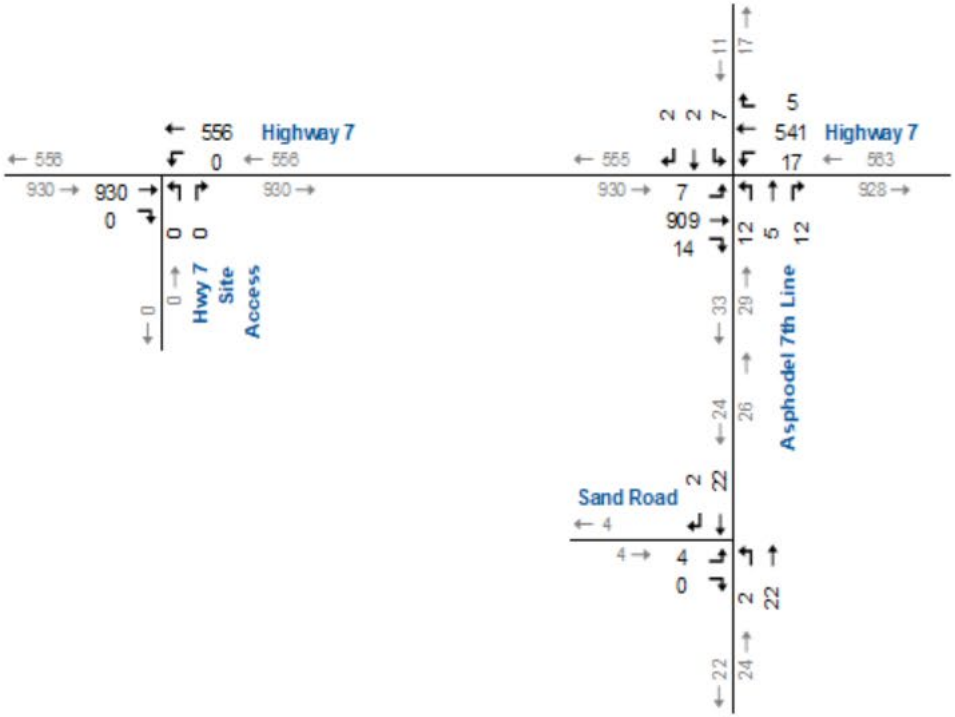
3749 Highway 7 TIB
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Figure 7

AM PEAK HOUR



PM PEAK HOUR



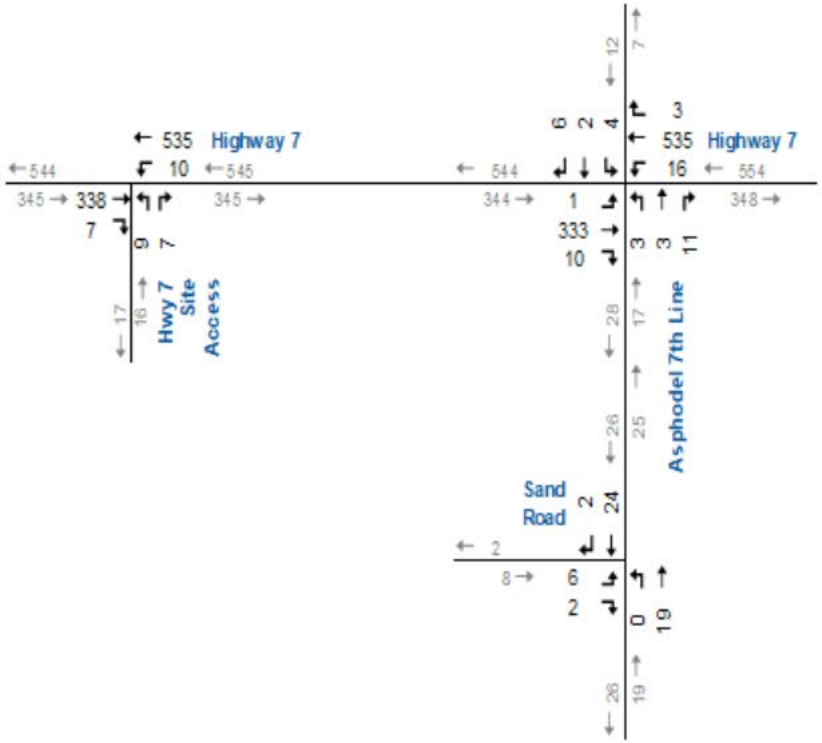
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2035 Background Traffic
AM Peak Hour and PM Peak Hour

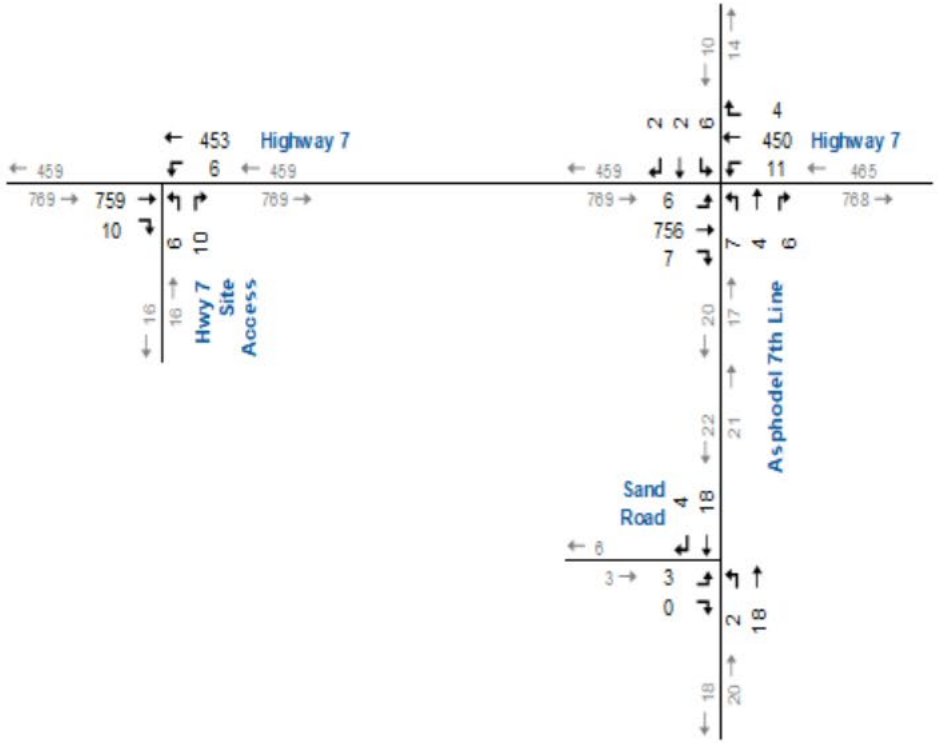
3749 Highway 7 TIB
240128

Figure 8

AM PEAK HOUR



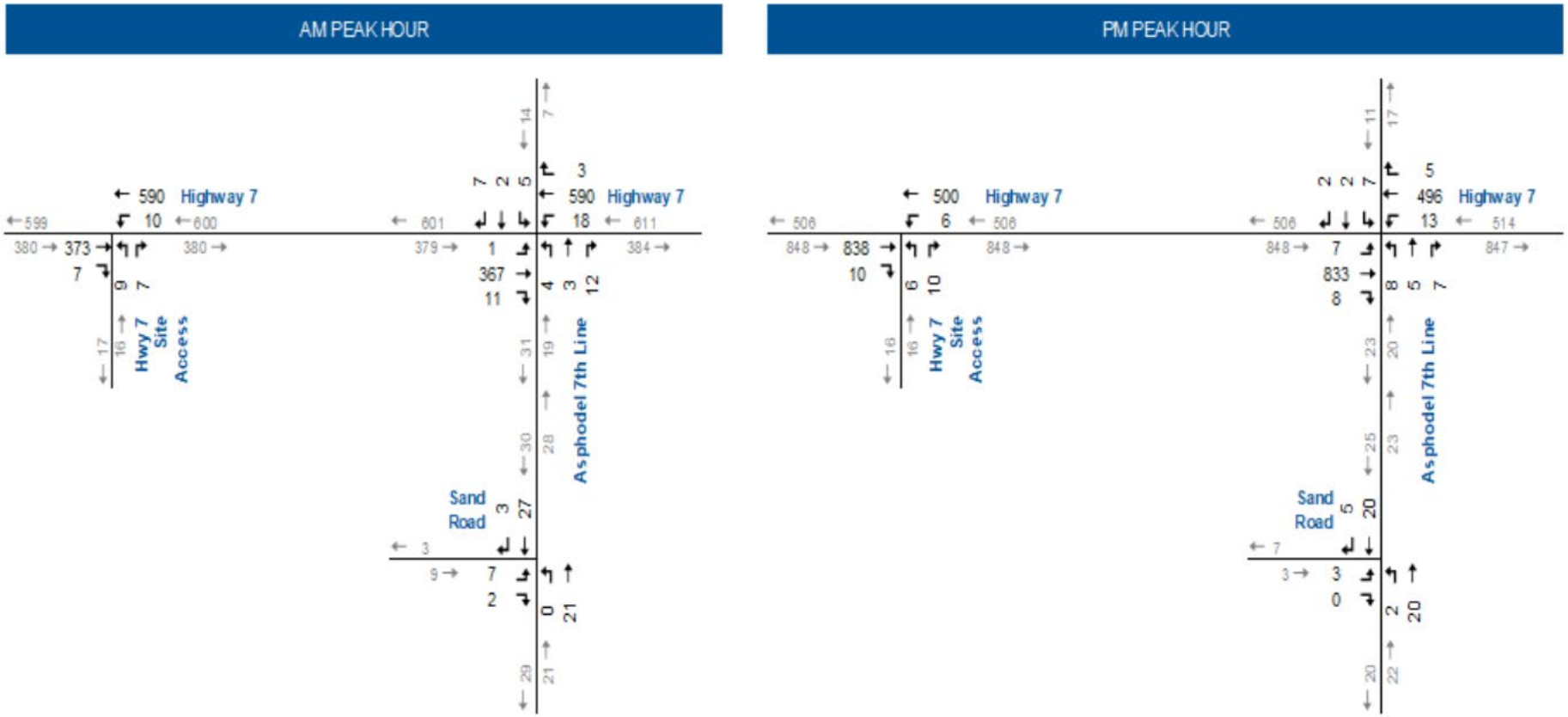
PM PEAK HOUR



2025 Total Traffic
AM Peak Hour and PM Peak Hour

3749 Highway 7 TIB
240128

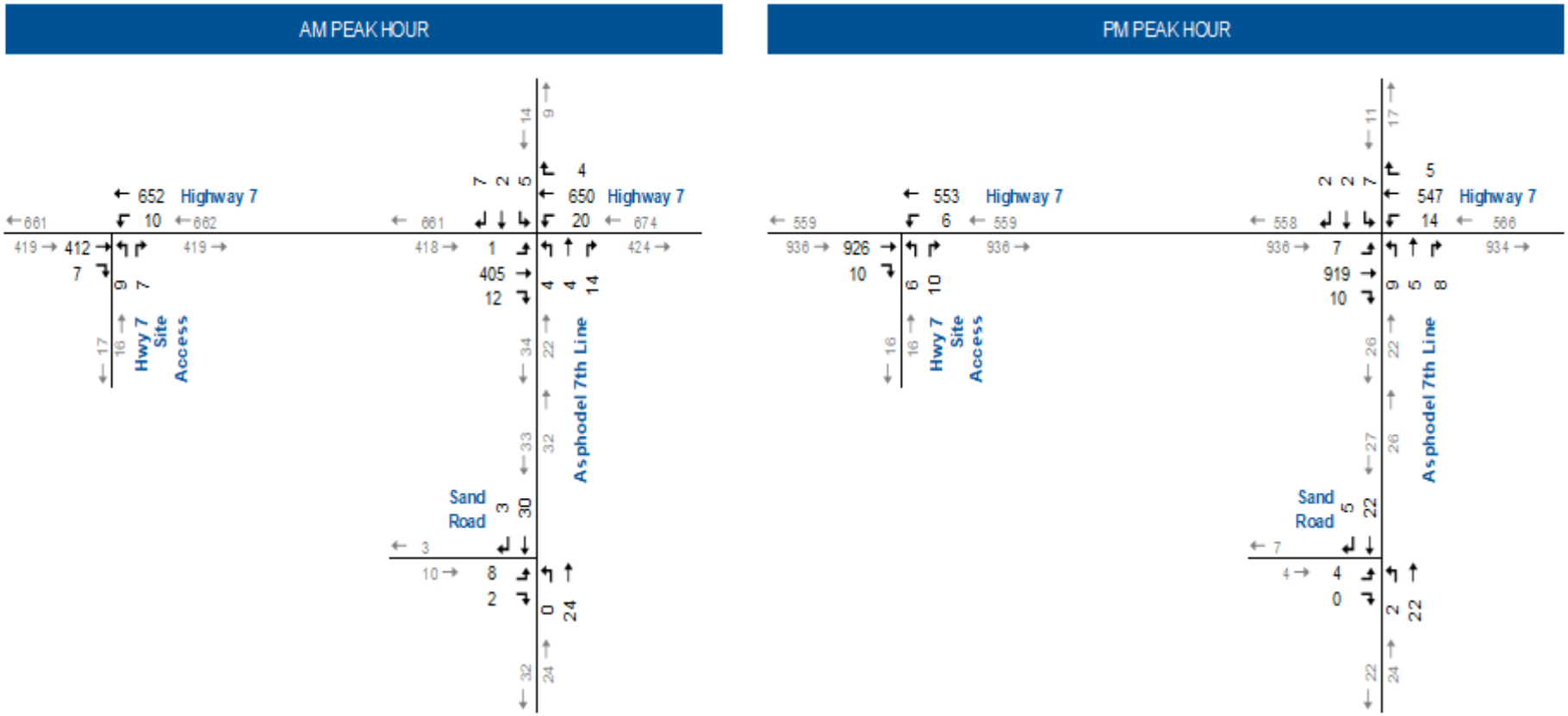
Figure 9



2030 Total Traffic
AM Peak Hour and PM Peak Hour

3749 Highway 7 TIB
240128

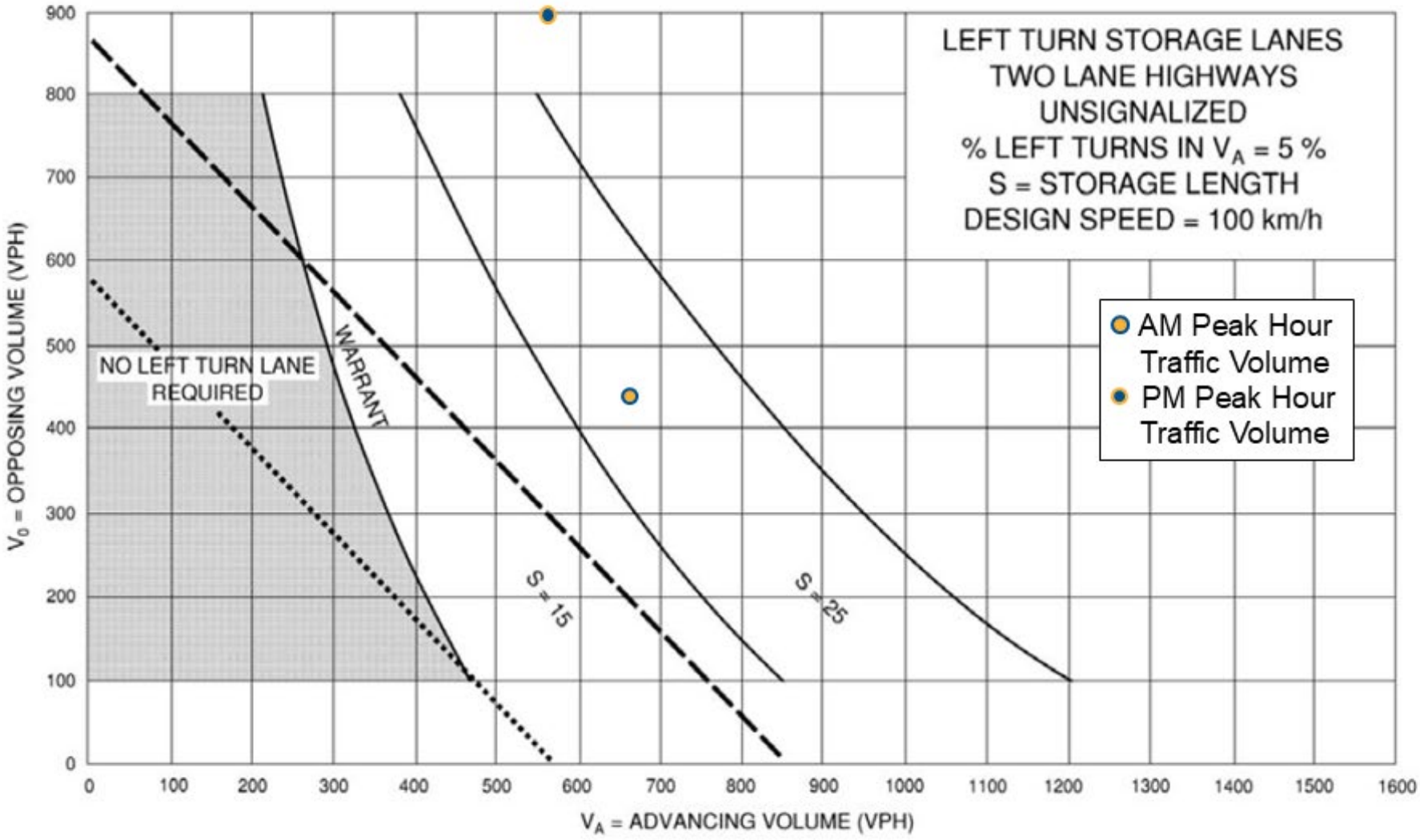
Figure 10



2035 Total Traffic
AM Peak Hour and PM Peak Hour

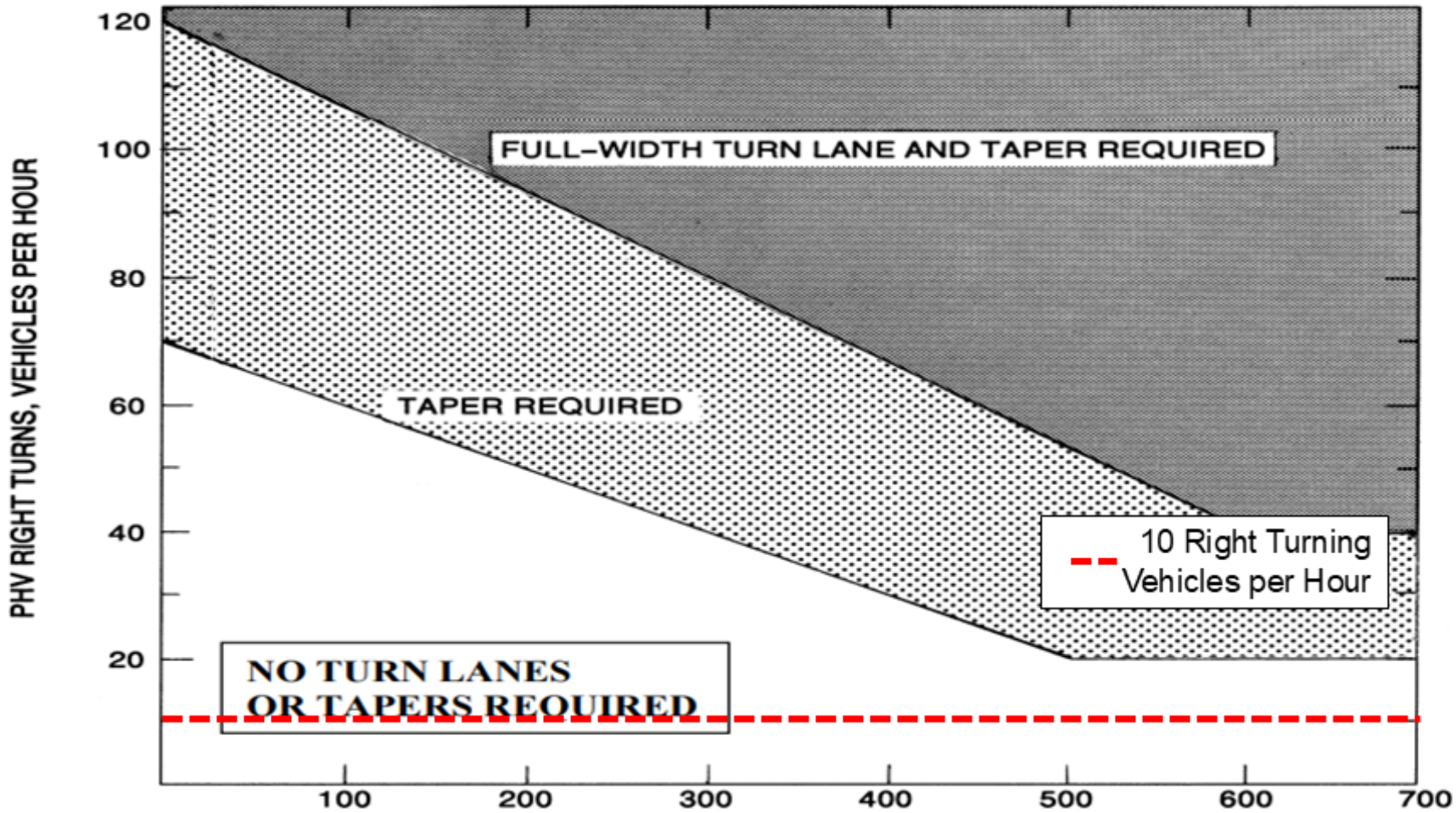
3749 Highway 7 TIB
240128

Figure 11



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Left Turn Lane Warrant Assessment Details



WARRANTS FOR RIGHT TURN TREATMENT (2-LANE HIGHWAY)

paradigm TRANSPORTATION SOLUTIONS LIMITED

Right Turn Lane Warrant Assessment Details

Appendix A

Pre-Study Consultation Materials



From:	**Prateek Jain** <pjain@ptsl.com>
To:	**Taylor, George (MTO)** <George.Taylor2@ontario.ca>
CC:	**Josh de Boer** <jdeboer@ptsl.com>
Subject:	RE: (240128) Proposed Sand Road Pit Extension - Terms of Reference
Date:	08.10.2024 19:38:23 (+02:00)

Hi George

Thank you for your reply, we really appreciate it.

Our client plans to shift excavation from one section of the site to another, while maintaining the same truck fleet. The existing site covers 34.9 hectares, with a potential future extraction area of 8.81 hectares for Phase 1 and 22.5 hectares for Phase 2. A combined annual tonnage limit of 350,000 tonnes will be maintained, consistent with the approved tonnage for Licence No. 3399.

Despite no new site trips being added to the intersection of Highway 7 and Asphodel 7 th Line, we can review left turn queue lengths on Highway 7 and determine if any extensions are needed.

Kind regards,

Prateek Jain, M.A.Sc.
Transportation Consultant
(He/Him)

paradigm TRANSPORTATION SOLUTIONS LIMITED

Great Place To Work. Certified NOV 2023 - NOV 2024 CANADA

5A-150 Pinebush Road, Cambridge ON, N1R 8J8
m: 647.687.6877
e: pjain@ptsl.com
w: www.ptsl.com

From: Taylor, George (MTO) < George.Taylor2@ontario.ca>
Sent: October 3, 2024 9:40 AM
To: Prateek Jain < pjain@ptsl.com>
Subject: RE: (240128) Proposed Sand Road Pit Extension - Terms of Reference

Good morning, Prateek,

I do apologize for the delayed response, but the Ministry 's Traffic office has been extremely busy with requests for review. At this time, the Ministry is unable to accept the Terms of Reference as submitted. The Ministry requests that the proponent/traffic consultant,

- undertake a sensitivity analysis showing a proportional increase in the number of trucks when compared to the overall geographic size increase of the pit.
- It is the Ministry 's concern that the existing left turn lanes could be impacted due to the proposed pit expansion. With the expansion it is not unreasonable to believe that there will be a substantial increase in truck volumes which would necessitate a lengthening of these turn lanes. The Ministry request that the consultant check the warrant calculations in their traffic study.

If you require additional clarification on the Ministry 's position, I can arrange a meeting between yourself and MTO traffic Office.

Should you have any additional questions and/or concerns please feel free to contact me.
George Taylor
Planner – Area West
Corridor Management Section | East Operations
Ministry of Transportation
1355 John Counter Boulevard
Postal Bag 4000
Kingston, ON K7L 5A3
Mobile (613)483-5307
George.Taylor2@Ontario.ca

From: Prateek Jain < pjain@ptsl.com >
Sent: Tuesday, September 10, 2024 2:28 PM
To: Taylor, George (MTO) < George.Taylor2@ontario.ca >
Cc: Josh de Boer < jdeboer@ptsl.com >
Subject: RE: (240128) Proposed Sand Road Pit Extension - Terms of Reference

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi George,

Hope you are doing well.

I wanted to follow up regarding the Sand Road Pit TIB Terms of Reference (ToR), as mentioned in the email chain below.
Please let us know if there 's any information or clarification needed from our end. We look forward to your response.

Kind regards,

Prateek Jain, M.A.Sc.
Transportation Consultant
(He/Him)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8
m: 647.687.6877
e: pjain@ptsl.com
w: www.ptsl.com

From: Prateek Jain
Sent: August 13, 2024 3:08 PM
To: George.Taylor2@Ontario.ca
Cc: Josh de Boer < jdeboer@ptsl.com >
Subject: (240128) Proposed Sand Road Pit Extension - Terms of Reference

Good afternoon George,

Paradigm Transportation Solutions Limited (Paradigm) has been retained by MHBC Planning, Urban Design & Landscape Architecture to prepare a Traffic Impact Brief (TIB) for the proposed Sand Road Pit extension at 3749 Highway 7 and 926 Sand Road in the Township of Asphodel-Norwood and County of Peterborough. The TIB will follow the Ministry of Transportation (MTO)

General Guidelines for the Preparation of Traffic Impact Studies (2023) and the County of Peterborough *Traffic Impact Assessment Guidelines* .

The purpose of this email is to establish a Terms of Reference (ToR) for the TIB. We are seeking agreement and/or direction on our proposed scope of work that is discussed below.

Background

The subject site is located in the Township of Asphodel-Norwood and the County of Peterborough. An existing excavation pit, known as the Sand Road Pit, is located at 1104 Sand Road.
The property owner is proposing to extend this existing excavation pit to 3749 Highway 7 in Phase 1 and 926 Sand Road in Phase 2, respectively. **The sand pit extension will maintain its current combined tonnage limit of 273,000 tonnes per year, resulting in no anticipated traffic volumes to and from the site.**

Vehicle access is proposed via the existing all-moves private driveway connection on Sand Road. No changes are proposed to the access.

Analysis

- The study area road network will primarily have auto trips assigned and the vehicle traffic forecasts will be prepared for the planned site at full build-out.
- Based on the site statistics, it is estimated that approximately six truck trips per hour are generated from the site. This trip generation is expected to remain consistent with the current levels, with **no change in truck volume anticipated at the site** .
- Trip distribution will be based on current travel patterns and the most logical routes to and from the site. Any assumptions regarding the distribution of trips to the site accesses will be outlined within the report.
- The weekday AM and PM peak hours will be analyzed.
- A detailed intersection capacity analysis using Synchro software will not be considered, based on pre-consultation comments from MTO staff.

Study Intersections

- Highway 7 and Asphodel 7 th Line (unsignalized)
- Asphodel 7 th Line and Sand Road (unsignalized)
- Sand Road and Site Access (unsignalized)

Requested Information

1. **Trip volume data** . Any data that may be pertinent to the analysis, including TMCs, AADTs, ATRs, PCSs, pedestrian studies and/or cycling counts.
2. **Growth rate** . A growth rate of 2% will be applied to through movement volumes on all study roadways. If an alternate rate is required, please advise.
3. **Background developments** . Information on planned background developments that will impact the identified road network.
4. **Future road improvements** . Information on future road and/or network improvements that will impact the identified road network.

Thank you for reviewing project details and providing information where available. If there are any questions, please do not hesitate to contact us. We look forward to your response.

Regards,

Prateek Jain, M.A.Sc.
Transportation Consultant
(He/Him)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8
m: 647.687.6877
e: pjain@ptsl.com
w: www.ptsl.com

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From:	**Hynes, Pete** <PHynes@ptbocounty.ca>
To:	**Prateek Jain** <pjain@ptsl.com>
CC:	**Josh de Boer** <jdeboer@ptsl.com>
Subject:	RE: (240128) Proposed Sand Road Pit Extension - Terms of Reference
Date:	14.08.2024 16:08:34 (+02:00)

Jain,

For this one, the County has no comments on the term of reference.

We did not request a TIA, however, we would like to be kept in the loop with any copies of the TIA that are issued.

Based on the site location, we will rely on MTO as to reach any of the intersections we control, traffic must pass through MTO-controlled intersections.

Our only concern is the haul routes. As was discussed in the pre-con meeting:

"Applicant noted the haul route agreement with LaFarge, Drain and the Twp is for north of Sand Road on 7th Line, not south. They will take the feedback re road usage south, and consider suggestions like signage restricting truck usage along specific sections of road. Trucks are not expressly authorized to use the 7th Line south route but some inevitably do, so they will revisit ways to address this."

and

"County PW asked whether the proposal increases daily usage of the existing pit. Issue is how that may affect County Road 45 (eg. Changes to haul route increasing traffic heading south on 7th Line). Applicant clarified that the proposal is for a continuation of production rather than increased quantity at the existing site, and intention is to maintain Highway 7 as the desired haul route."

Pete Hynes, P.Eng. (he/him)
Senior Project Coordinator, Transportation Planning
Engineering and Design, County of Peterborough
705-775-7076
www.ptbocounty.ca

Peterborough County

From: Prateek Jain < pjain@ptsl.com>
Sent: Tuesday, August 13, 2024 2:30 PM
To: Hynes, Pete < PHynes@ptbocounty.ca>
Cc: Josh de Boer < jdeboer@ptsl.com>
Subject: (240128) Proposed Sand Road Pit Extension - Terms of Reference

Good afternoon Pete,

Paradigm Transportation Solutions Limited (Paradigm) has been retained by MHBC Planning, Urban Design & Landscape Architecture to prepare a Traffic Impact Brief (TIB) for the proposed Sand Road Pit extension at 3749 Highway 7 and 926 Sand Road in the Township of Asphodel-Norwood and County of Peterborough. The TIB will follow the Ministry of Transportation (MTO)

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- A detailed intersection capacity analysis using Synchro software will not be considered, based on pre-consultation comments from MTO staff.

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- Highway 7 and Asphodel 7 th Line (unsignalized)
- Asphodel 7 th Line and Sand Road (unsignalized)
- Sand Road and Site Access (unsignalized)

Requested Information

1. **Trip volume data** . Any data that may be pertinent to the analysis, including TMCs, AADTs, ATRs, PCSs, pedestrian studies and/or cycling counts.
2. **Growth rate** . A growth rate of 2% will be applied to through movement volumes on all study roadways. If an alternate rate is required, please advise.
3. **Background developments** . Information on planned background developments that will impact the identified road network.
4. **Future road improvements** . Information on future road and/or network improvements that will impact the identified road network.

Thank you for reviewing project details and providing information where available. If there are any questions, please do not hesitate to contact us. We look forward to your response.

Regards,

Prateek Jain, M.A.Sc.
Transportation Consultant
(He/Him)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8
m: 647.687.6877
e: pjain@ptsl.com
w: www.ptsl.com

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From:	**Prateek Jain** <pjain@ptsl.com>
To:	**Jeff Waldon** <jwaldon@antownship.ca>
CC:	**Josh de Boer** <jdeboer@ptsl.com>
Subject:	RE: Planned Sand Road Pit Extension-Terms of Reference
Date:	15.08.2024 15:28:40 (+02:00)

Hi Jeff

We really appreciate your prompt response.

We don't anticipate any changes in the current truck volumes. We'll conduct a preliminary review and provide you with the existing truck volumes and the haul routes in a few weeks.

Kind regards,

Prateek Jain, M.A.Sc.

Transportation Consultant

(He/Him)

5A-150 Pinebush Road, Cambridge ON, N1R 8J8

m: 647.687.6877

e: pjain@ptsl.com

w: www.ptsl.com

-----Original Message-----

From: Jeff Waldon <jwaldon@antownship.ca>

Sent: Thursday, August 15, 2024 6:40 AM

To: Prateek Jain <pjain@ptsl.com>

Subject: RE: Planned Sand Road Pit Extension-Terms of Reference

Hi Prateek

Sorry for the delay, I am just circling back. I will fill in some blanks as soon as I can and see what I can find for your requested info. I do notice a lot of heavy truck traffic heading south on the 7th line to Centre Line, and I see that area isn't in your study area, I would be curious how many heavy trucks head south and are out side of your data zone?

Kindest regards

Jeff Waldon

Manager of Public Works & Environmental Services

Township of Asphodel Norwood

2357 County Road 45

PO Box 29

Norwood ON K0L 2V0

P:705-837-2046 F:705-639-1880

www.antownship.ca

-----Original Message-----

From: info@antownship.ca <info@antownship.ca> On Behalf Of Prateek Jain

Sent: Tuesday, August 13, 2024 2:41 PM

To: Jeff Waldon <jwaldon@antownship.ca>

Subject: Planned Sand Road Pit Extension-Terms of Reference

Good afternoon Jeff,

Paradigm Transportation Solutions Limited (Paradigm) has been retained by MHBC Planning, Urban Design & Landscape Architecture to prepare a Traffic Impact Brief (TIB) for the proposed Sand Road Pit extension at 3749 Highway 7 and 926 Sand Road in the Township of Asphodel-Norwood and County of Peterborough. The TIB will follow the Ministry of Transportation (MTO) General Guidelines for the

Preparation of Traffic Impact Studies (2023) and the County of Peterborough Traffic Impact Assessment Guidelines.

The purpose of this correspondence is to establish a Terms of Reference (ToR) for the TIB. We are seeking agreement and/or direction on the proposed scope of work attached below.

Thank you for reviewing project details and providing information where available. If there are any questions, please do not hesitate to contact us. We look forward to your response.

Regards,

Prateek Jain

Transportation Consultant

Paradigm Transportation Solutions Limited

6476876877

pjain@ptsl.com

Origin: https://www.antownship.ca/Modules/contact/search.aspx?s=PB2ke5lA5HQITcirK8Movga67QeQuAleQuAl

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This email was sent to you by Prateek Jain<pjain@ptsl.com> through https://www.antownship.ca/.

Appendix B

Turning Movement Count Data

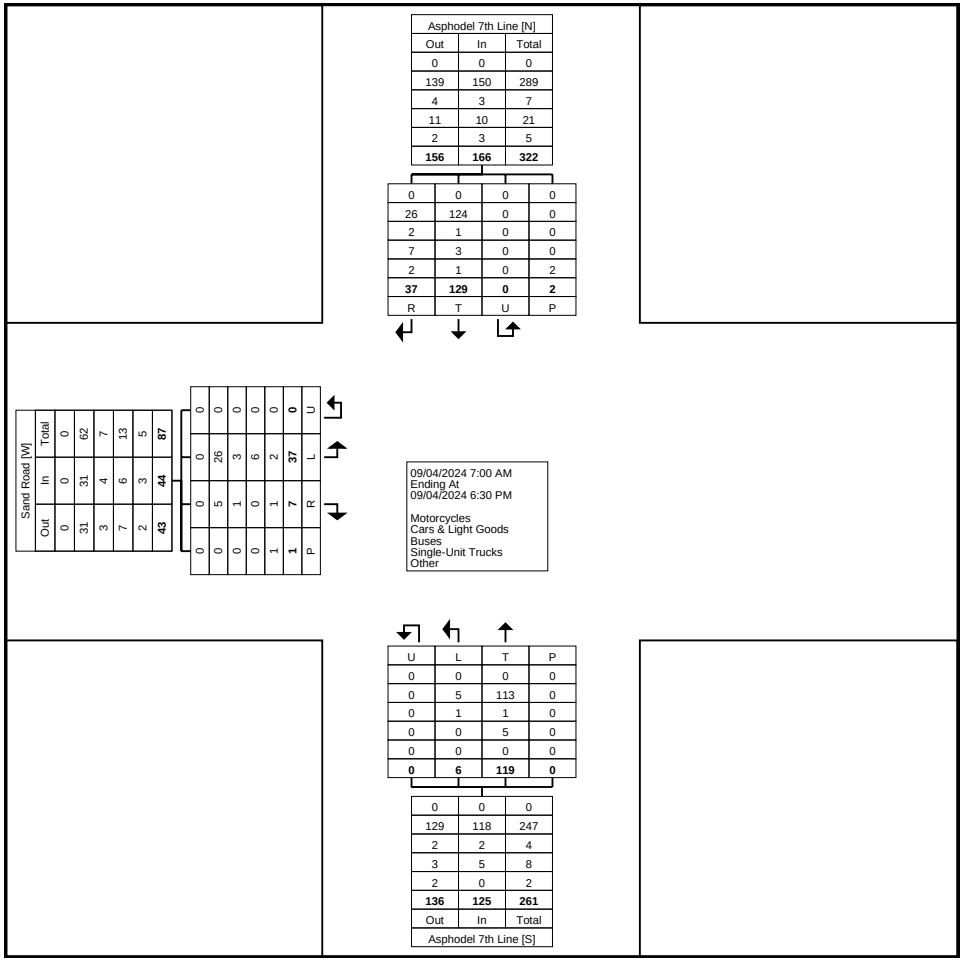


Count Name: Asphodel 7th Line & Sand Road
Site Code: 240128
Start Date: 09/04/2024
Page No: 1

Turning Movement Data

Start Time	Sand Road Eastbound					Asphodel 7th Line Northbound					Asphodel 7th Line Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	4	0	0	0	4	0	4	0	0	4	0	1	0	0	1	9
7:15 AM	1	1	0	0	2	0	2	0	0	2	2	0	0	0	2	6
7:30 AM	2	0	0	1	2	0	3	0	0	3	1	2	0	1	3	8
7:45 AM	0	1	0	0	1	0	3	0	0	3	8	2	0	0	10	14
Hourly Total	7	2	0	1	9	0	12	0	0	12	11	5	0	1	16	37
8:00 AM	1	0	0	0	1	0	4	0	0	4	8	1	0	0	9	14
8:15 AM	0	0	0	0	0	0	4	0	0	4	5	0	0	1	5	9
8:30 AM	4	0	0	0	4	0	5	0	0	5	6	0	0	0	6	15
8:45 AM	2	2	0	0	4	0	6	0	0	6	4	3	0	0	7	17
Hourly Total	7	2	0	0	9	0	19	0	0	19	23	4	0	1	27	55
9:00 AM	2	1	0	0	3	0	2	0	0	2	6	1	0	0	7	12
9:15 AM	2	0	0	0	2	0	0	0	0	0	7	1	0	0	8	10
9:30 AM	0	0	0	0	0	1	2	0	0	3	7	1	0	0	8	11
9:45 AM	1	0	0	0	1	0	1	0	0	1	8	2	0	0	10	12
Hourly Total	5	1	0	0	6	1	5	0	0	6	28	5	0	0	33	45
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	1	0	0	0	1	0	10	0	0	10	5	1	0	0	6	17
11:45 AM	0	0	0	0	0	0	6	0	0	6	1	0	0	0	1	7
Hourly Total	1	0	0	0	1	0	16	0	0	16	6	1	0	0	7	24
12:00 PM	1	0	0	0	1	1	4	0	0	5	1	3	0	0	4	10
12:15 PM	4	0	0	0	4	0	6	0	0	6	4	1	0	0	5	15
12:30 PM	0	0	0	0	0	1	8	0	0	9	4	4	0	0	8	17
12:45 PM	1	1	0	0	2	0	3	0	0	3	2	1	0	0	3	8
Hourly Total	6	1	0	0	7	2	21	0	0	23	11	9	0	0	20	50
1:00 PM	1	1	0	0	2	0	4	0	0	4	3	2	0	0	5	11
1:15 PM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	4
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	1	0	0	2	0	5	0	0	5	6	2	0	0	8	15
3:30 PM	4	0	0	0	4	0	4	0	0	4	1	3	0	0	4	12
3:45 PM	1	0	0	0	1	0	4	0	0	4	4	1	0	0	5	10
Hourly Total	5	0	0	0	5	0	8	0	0	8	5	4	0	0	9	22
4:00 PM	0	0	0	0	0	1	3	0	0	4	4	2	0	0	6	10
4:15 PM	0	0	0	0	0	0	4	0	0	4	5	1	0	0	6	10
4:30 PM	0	0	0	0	0	0	6	0	0	6	3	0	0	0	3	9
4:45 PM	2	0	0	0	2	0	4	0	0	4	4	2	0	0	6	12
Hourly Total	2	0	0	0	2	1	17	0	0	18	16	5	0	0	21	41
5:00 PM	0	0	0	0	0	1	7	0	0	8	3	0	0	0	3	11
5:15 PM	1	0	0	0	1	1	1	0	0	2	8	0	0	0	8	11
5:30 PM	0	0	0	0	0	0	4	0	0	4	2	1	0	0	3	7
5:45 PM	0	0	0	0	0	0	3	0	0	3	5	1	0	0	6	9

Hourly Total	1	0	0	0	1	2	15	0	0	17	18	2	0	0	20	38
6:00 PM	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3	4
6:15 PM	1	0	0	0	1	0	1	0	0	1	2	0	0	0	2	4
Grand Total	37	7	0	1	44	6	119	0	0	125	129	37	0	2	166	335
Approach %	84.1	15.9	0.0	-	-	4.8	95.2	0.0	-	-	77.7	22.3	0.0	-	-	-
Total %	11.0	2.1	0.0	-	13.1	1.8	35.5	0.0	-	37.3	38.5	11.0	0.0	-	49.6	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	26	5	0	-	31	5	113	0	-	118	124	26	0	-	150	299
% Cars & Light Goods	70.3	71.4	-	-	70.5	83.3	95.0	-	-	94.4	96.1	70.3	-	-	90.4	89.3
Buses	3	1	0	-	4	1	1	0	-	2	1	2	0	-	3	9
% Buses	8.1	14.3	-	-	9.1	16.7	0.8	-	-	1.6	0.8	5.4	-	-	1.8	2.7
Single-Unit Trucks	6	0	0	-	6	0	5	0	-	5	3	7	0	-	10	21
% Single-Unit Trucks	16.2	0.0	-	-	13.6	0.0	4.2	-	-	4.0	2.3	18.9	-	-	6.0	6.3
Articulated Trucks	2	1	0	-	3	0	0	0	-	0	1	2	0	-	3	6
% Articulated Trucks	5.4	14.3	-	-	6.8	0.0	0.0	-	-	0.0	0.8	5.4	-	-	1.8	1.8
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

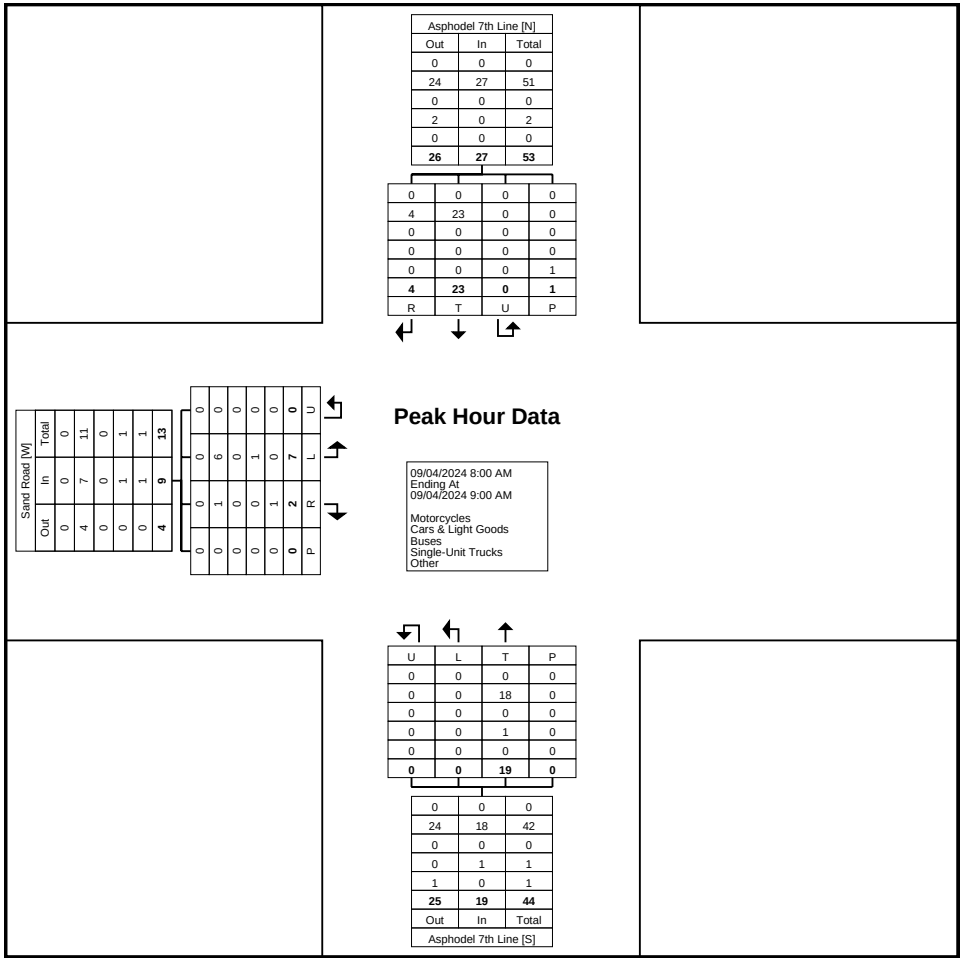


Turning Movement Data Plot

Count Name: Asphodel 7th Line & Sand Road
Site Code: 240128
Start Date: 09/04/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Sand Road Eastbound					Asphodel 7th Line Northbound					Asphodel 7th Line Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
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8:30 AM	4	0	0	0	4	0	5	0	0	5	6	0	0	0	6	15
8:45 AM	2	2	0	0	4	0	6	0	0	6	4	3	0	0	7	17
Total	7	2	0	0	9	0	19	0	0	19	23	4	0	1	27	55
Approach %	77.8	22.2	0.0	-	-	0.0	100.0	0.0	-	-	85.2	14.8	0.0	-	-	-
Total %	12.7	3.6	0.0	-	16.4	0.0	34.5	0.0	-	34.5	41.8	7.3	0.0	-	49.1	-
PHF	0.438	0.250	0.000	-	0.563	0.000	0.792	0.000	-	0.792	0.719	0.333	0.000	-	0.750	0.809
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	6	1	0	-	7	0	18	0	-	18	23	4	0	-	27	52
% Cars & Light Goods	85.7	50.0	-	-	77.8	-	94.7	-	-	94.7	100.0	100.0	-	-	100.0	94.5
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Single-Unit Trucks	14.3	0.0	-	-	11.1	-	5.3	-	-	5.3	0.0	0.0	-	-	0.0	3.6
Articulated Trucks	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Articulated Trucks	0.0	50.0	-	-	11.1	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	1.8
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

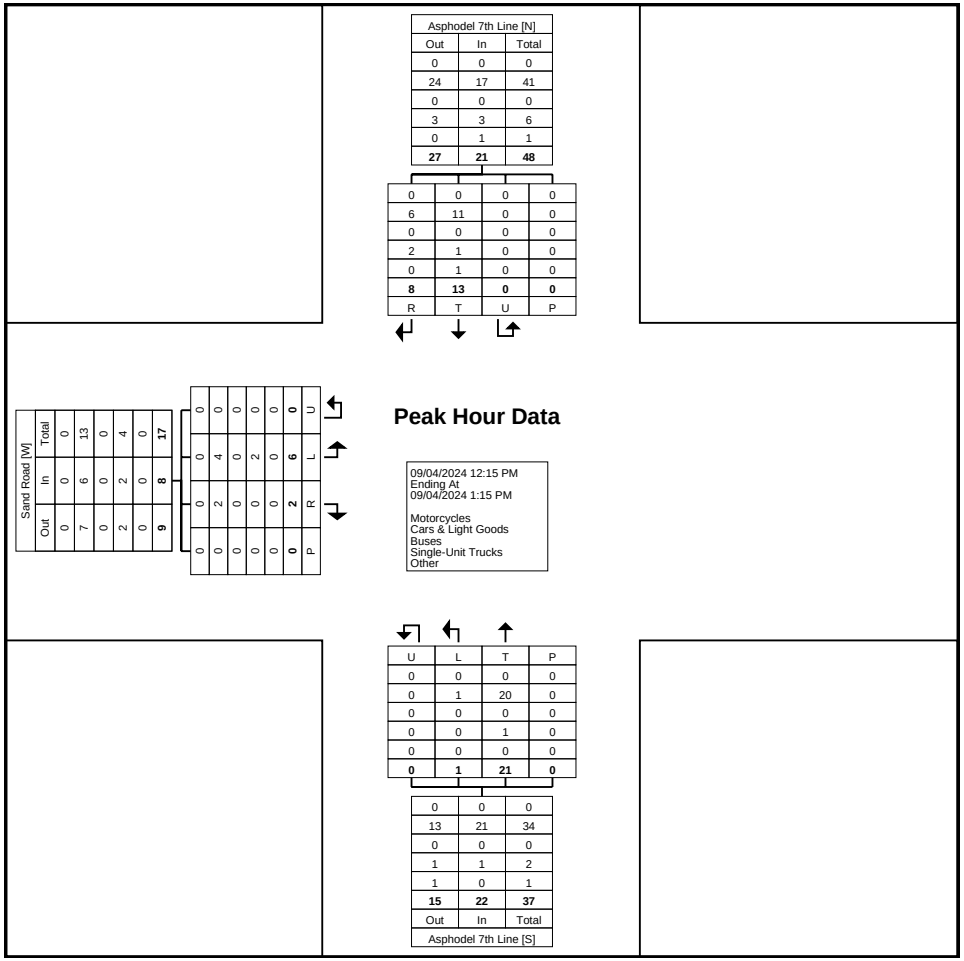


Turning Movement Peak Hour Data Plot (8:00 AM)

Count Name: Asphodel 7th Line & Sand Road
Site Code: 240128
Start Date: 09/04/2024

Turning Movement Peak Hour Data (12:15 PM)

Start Time	Sand Road Eastbound					Asphodel 7th Line Northbound					Asphodel 7th Line Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:15 PM	4	0	0	0	4	0	6	0	0	6	4	1	0	0	5	15
12:30 PM	0	0	0	0	0	1	8	0	0	9	4	4	0	0	8	17
12:45 PM	1	1	0	0	2	0	3	0	0	3	2	1	0	0	3	8
1:00 PM	1	1	0	0	2	0	4	0	0	4	3	2	0	0	5	11
Total	6	2	0	0	8	1	21	0	0	22	13	8	0	0	21	51
Approach %	75.0	25.0	0.0	-	-	4.5	95.5	0.0	-	-	61.9	38.1	0.0	-	-	-
Total %	11.8	3.9	0.0	-	15.7	2.0	41.2	0.0	-	43.1	25.5	15.7	0.0	-	41.2	-
PHF	0.375	0.500	0.000	-	0.500	0.250	0.656	0.000	-	0.611	0.813	0.500	0.000	-	0.656	0.750
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	4	2	0	-	6	1	20	0	-	21	11	6	0	-	17	44
% Cars & Light Goods	66.7	100.0	-	-	75.0	100.0	95.2	-	-	95.5	84.6	75.0	-	-	81.0	86.3
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	2	0	0	-	2	0	1	0	-	1	1	2	0	-	3	6
% Single-Unit Trucks	33.3	0.0	-	-	25.0	0.0	4.8	-	-	4.5	7.7	25.0	-	-	14.3	11.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	7.7	0.0	-	-	4.8	2.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

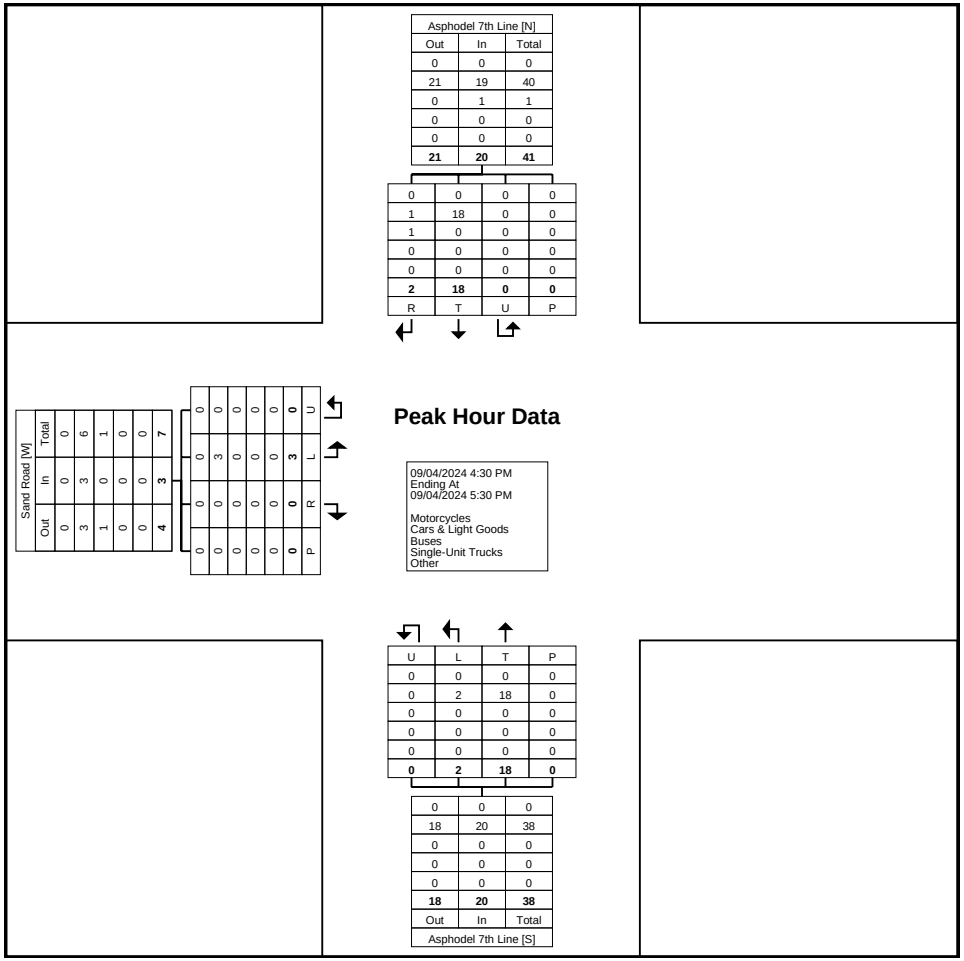


Turning Movement Peak Hour Data Plot (12:15 PM)

Count Name: Asphodel 7th Line & Sand Road
Site Code: 240128
Start Date: 09/04/2024
Page No: 8

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Sand Road Eastbound					Asphodel 7th Line Northbound					Asphodel 7th Line Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:30 PM	0	0	0	0	0	0	6	0	0	6	3	0	0	0	3	9
4:45 PM	2	0	0	0	2	0	4	0	0	4	4	2	0	0	6	12
5:00 PM	0	0	0	0	0	1	7	0	0	8	3	0	0	0	3	11
5:15 PM	1	0	0	0	1	1	1	0	0	2	8	0	0	0	8	11
Total	3	0	0	0	3	2	18	0	0	20	18	2	0	0	20	43
Approach %	100.0	0.0	0.0	-	-	10.0	90.0	0.0	-	-	90.0	10.0	0.0	-	-	-
Total %	7.0	0.0	0.0	-	7.0	4.7	41.9	0.0	-	46.5	41.9	4.7	0.0	-	46.5	-
PHF	0.375	0.000	0.000	-	0.375	0.500	0.643	0.000	-	0.625	0.563	0.250	0.000	-	0.625	0.896
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	3	0	0	-	3	2	18	0	-	20	18	1	0	-	19	42
% Cars & Light Goods	100.0	-	-	-	100.0	100.0	100.0	-	-	100.0	100.0	50.0	-	-	95.0	97.7
Buses	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Buses	0.0	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	50.0	-	-	5.0	2.3
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Single-Unit Trucks	0.0	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



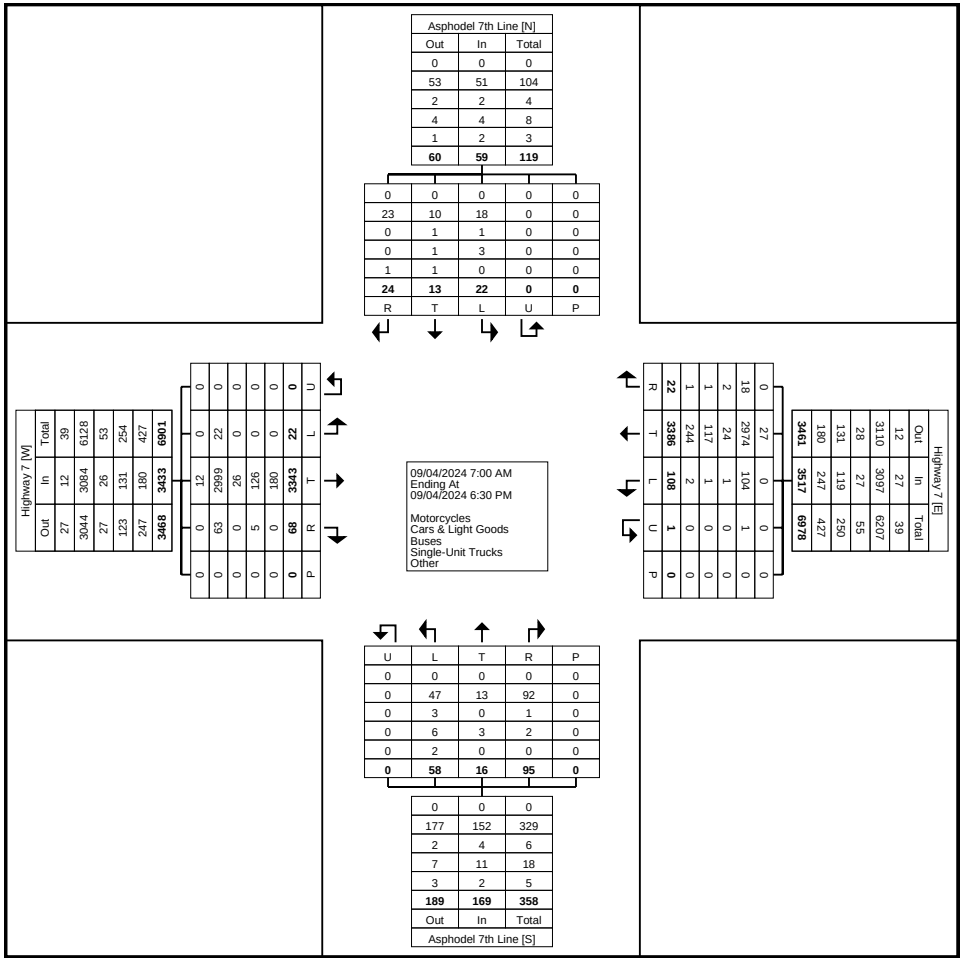
Turning Movement Peak Hour Data Plot (4:30 PM)

Count Name: Highway 7 & Asphodel 7th Line
Site Code: 240128
Start Date: 09/04/2024
Page No: 1

Turning Movement Data

Start Time	Highway 7 Eastbound						Highway 7 Westbound						Asphodel 7th Line Northbound						Asphodel 7th Line Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	39	0	0	0	39	1	108	1	0	0	110	4	0	3	0	0	7	0	0	1	0	0	1	157
7:15 AM	0	47	1	0	0	48	2	131	2	0	0	135	3	0	2	0	0	5	0	0	1	0	0	1	189
7:30 AM	0	89	1	0	0	90	1	149	1	0	0	151	0	1	3	0	0	4	2	2	1	0	0	5	250
7:45 AM	0	72	4	0	0	76	6	118	0	0	0	124	2	0	2	0	0	4	1	0	1	0	0	2	206
Hourly Total	0	247	6	0	0	253	10	506	4	0	0	520	9	1	10	0	0	20	3	2	4	0	0	9	802
8:00 AM	0	79	4	0	0	83	6	127	1	0	0	134	2	1	2	0	0	5	1	0	2	0	0	3	225
8:15 AM	1	81	1	0	0	83	4	121	1	0	0	126	0	1	4	0	0	5	0	0	2	0	0	2	216
8:30 AM	2	86	3	0	0	91	2	113	1	0	0	116	2	2	3	0	0	7	0	2	0	0	0	2	216
8:45 AM	1	64	1	0	0	66	9	120	3	1	0	133	2	0	8	0	0	10	2	1	1	0	0	4	213
Hourly Total	4	310	9	0	0	323	21	481	6	1	0	509	6	4	17	0	0	27	3	3	5	0	0	11	870
9:00 AM	0	65	2	0	0	67	4	89	1	0	0	94	1	1	3	0	0	5	1	0	1	0	0	2	168
9:15 AM	0	64	2	0	0	66	5	130	0	0	0	135	0	0	2	0	0	2	1	0	0	0	0	1	204
9:30 AM	0	74	8	0	0	82	1	116	1	0	0	118	0	0	3	0	0	3	0	0	0	0	0	0	203
9:45 AM	0	64	2	0	0	66	9	122	1	0	0	132	1	0	1	0	0	2	0	0	2	0	0	2	202
Hourly Total	0	267	14	0	0	281	19	457	3	0	0	479	2	1	9	0	0	12	2	0	3	0	0	5	777
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	102	0	0	0	102	4	102	0	0	0	106	2	2	6	0	0	10	1	0	0	0	0	1	219
11:45 AM	0	96	0	0	0	96	2	98	0	0	0	100	3	0	5	0	0	8	0	0	2	0	0	2	206
Hourly Total	0	198	0	0	0	198	6	200	0	0	0	206	5	2	11	0	0	18	1	0	2	0	0	3	425
12:00 PM	0	93	2	0	0	95	2	92	0	0	0	94	0	0	4	0	0	4	0	0	1	0	0	1	194
12:15 PM	0	92	2	0	0	94	3	97	1	0	0	101	4	0	5	0	0	9	1	0	0	0	0	1	205
12:30 PM	1	125	1	0	0	127	6	97	1	0	0	104	6	0	4	0	0	10	1	1	0	0	0	2	243
12:45 PM	0	90	2	0	0	92	2	97	0	0	0	99	0	2	4	0	0	6	0	1	1	0	0	2	199
Hourly Total	1	400	7	0	0	408	13	383	2	0	0	398	10	2	17	0	0	29	2	2	2	0	0	6	841
1:00 PM	0	109	2	0	0	111	3	99	0	0	0	102	1	0	3	0	0	4	2	1	0	0	0	3	220
1:15 PM	1	81	2	0	0	84	2	122	1	0	0	125	1	1	0	0	0	2	0	0	0	0	0	0	211
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	190	4	0	0	195	5	221	1	0	0	227	2	1	3	0	0	6	2	1	0	0	0	3	431
3:30 PM	3	129	3	0	0	135	3	108	2	0	0	113	3	1	4	0	0	8	1	0	2	0	0	3	259
3:45 PM	4	134	1	0	0	139	3	94	0	0	0	97	4	0	2	0	0	6	1	1	0	0	0	2	244
Hourly Total	7	263	4	0	0	274	6	202	2	0	0	210	7	1	6	0	0	14	2	1	2	0	0	5	503
4:00 PM	0	104	1	0	0	105	5	118	0	0	0	123	2	0	3	0	0	5	1	1	1	0	0	3	236
4:15 PM	2	152	3	0	0	157	3	108	0	0	0	111	1	0	1	0	0	2	0	0	2	0	0	2	272
4:30 PM	3	170	3	0	0	176	5	95	1	0	0	101	4	2	2	0	0	8	1	0	1	0	0	2	287
4:45 PM	0	223	3	0	0	226	2	117	0	0	0	119	2	2	3	0	0	7	1	1	1	0	0	3	355
Hourly Total	5	649	10	0	0	664	15	438	1	0	0	454	9	4	9	0	0	22	3	2	5	0	0	10	1150
5:00 PM	0	157	1	0	0	158	3	106	0	0	0	109	2	0	4	0	0	6	4	0	0	0	0	4	277
5:15 PM	3	181	4	0	0	188	4	117	3	0	0	124	2	0	1	0	0	3	0	1	0	0	0	1	316
5:30 PM	0	137	1	0	0	138	3	67	0	0	0	70	2	0	3	0	0	5	0	0	1	0	0	1	214

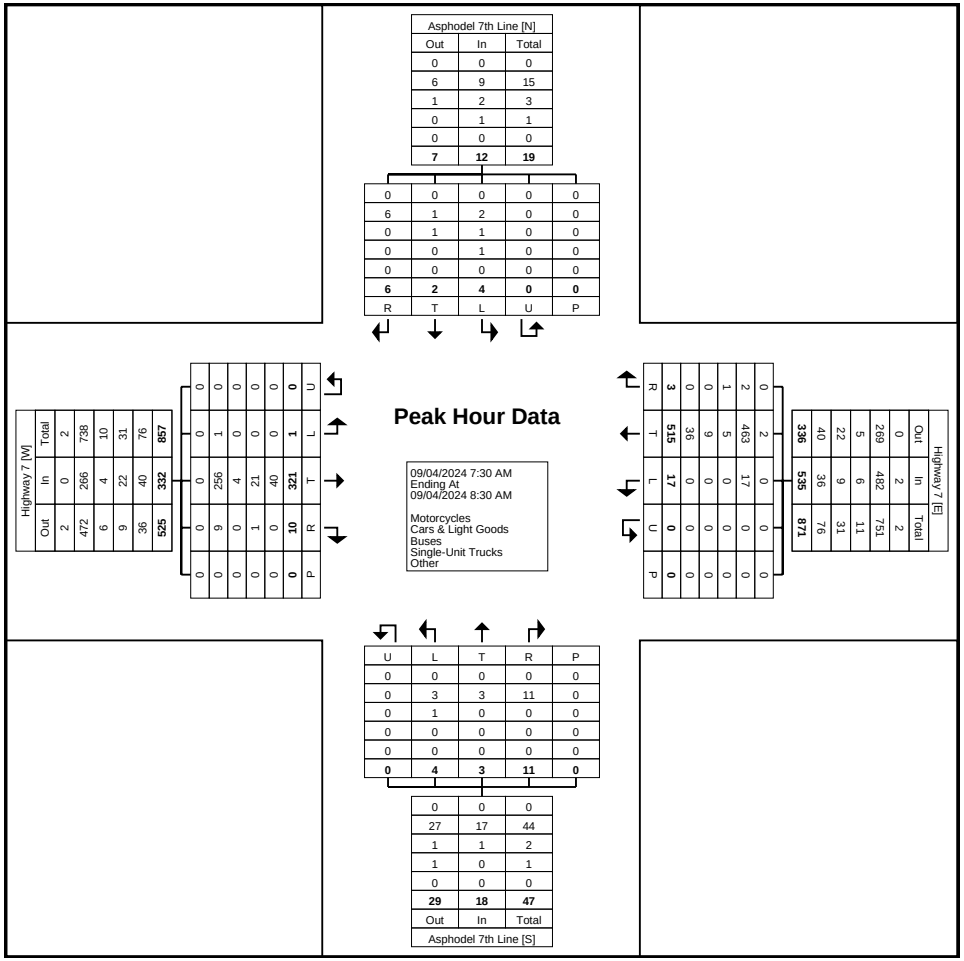
5:45 PM	0	115	3	0	0	118	2	83	0	0	0	85	2	0	2	0	0	4	0	1	0	0	0	1	208
Hourly Total	3	590	9	0	0	602	12	373	3	0	0	388	8	0	10	0	0	18	4	2	1	0	0	7	1015
6:00 PM	1	117	3	0	0	121	1	60	0	0	0	61	0	0	1	0	0	1	0	0	0	0	0	0	183
6:15 PM	0	112	2	0	0	114	0	65	0	0	0	65	0	0	2	0	0	2	0	0	0	0	0	0	181
Grand Total	22	3343	68	0	0	3433	108	3386	22	1	0	3517	58	16	95	0	0	169	22	13	24	0	0	59	7178
Approach %	0.6	97.4	2.0	0.0	-	-	3.1	96.3	0.6	0.0	-	-	34.3	9.5	56.2	0.0	-	-	37.3	22.0	40.7	0.0	-	-	-
Total %	0.3	46.6	0.9	0.0	-	47.8	1.5	47.2	0.3	0.0	-	49.0	0.8	0.2	1.3	0.0	-	2.4	0.3	0.2	0.3	0.0	-	0.8	-
Motorcycles	0	12	0	0	-	12	0	27	0	0	-	27	0	0	0	0	-	0	0	0	0	0	-	0	39
% Motorcycles	0.0	0.4	0.0	-	-	0.3	0.0	0.8	0.0	0.0	-	0.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.5
Cars & Light Goods	22	2999	63	0	-	3084	104	2974	18	1	-	3097	47	13	92	0	-	152	18	10	23	0	-	51	6384
% Cars & Light Goods	100.0	89.7	92.6	-	-	89.8	96.3	87.8	81.8	100.0	-	88.1	81.0	81.3	96.8	-	-	89.9	81.8	76.9	95.8	-	-	86.4	88.9
Buses	0	26	0	0	-	26	1	24	2	0	-	27	3	0	1	0	-	4	1	1	0	0	-	2	59
% Buses	0.0	0.8	0.0	-	-	0.8	0.9	0.7	9.1	0.0	-	0.8	5.2	0.0	1.1	-	-	2.4	4.5	7.7	0.0	-	-	3.4	0.8
Single-Unit Trucks	0	126	5	0	-	131	1	117	1	0	-	119	6	3	2	0	-	11	3	1	0	0	-	4	265
% Single-Unit Trucks	0.0	3.8	7.4	-	-	3.8	0.9	3.5	4.5	0.0	-	3.4	10.3	18.8	2.1	-	-	6.5	13.6	7.7	0.0	-	-	6.8	3.7
Articulated Trucks	0	179	0	0	-	179	2	244	1	0	-	247	2	0	0	0	-	2	0	1	1	0	-	2	430
% Articulated Trucks	0.0	5.4	0.0	-	-	5.2	1.9	7.2	4.5	0.0	-	7.0	3.4	0.0	0.0	-	-	1.2	0.0	7.7	4.2	-	-	3.4	6.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Data Plot

Turning Movement Peak Hour Data (7:30 AM)

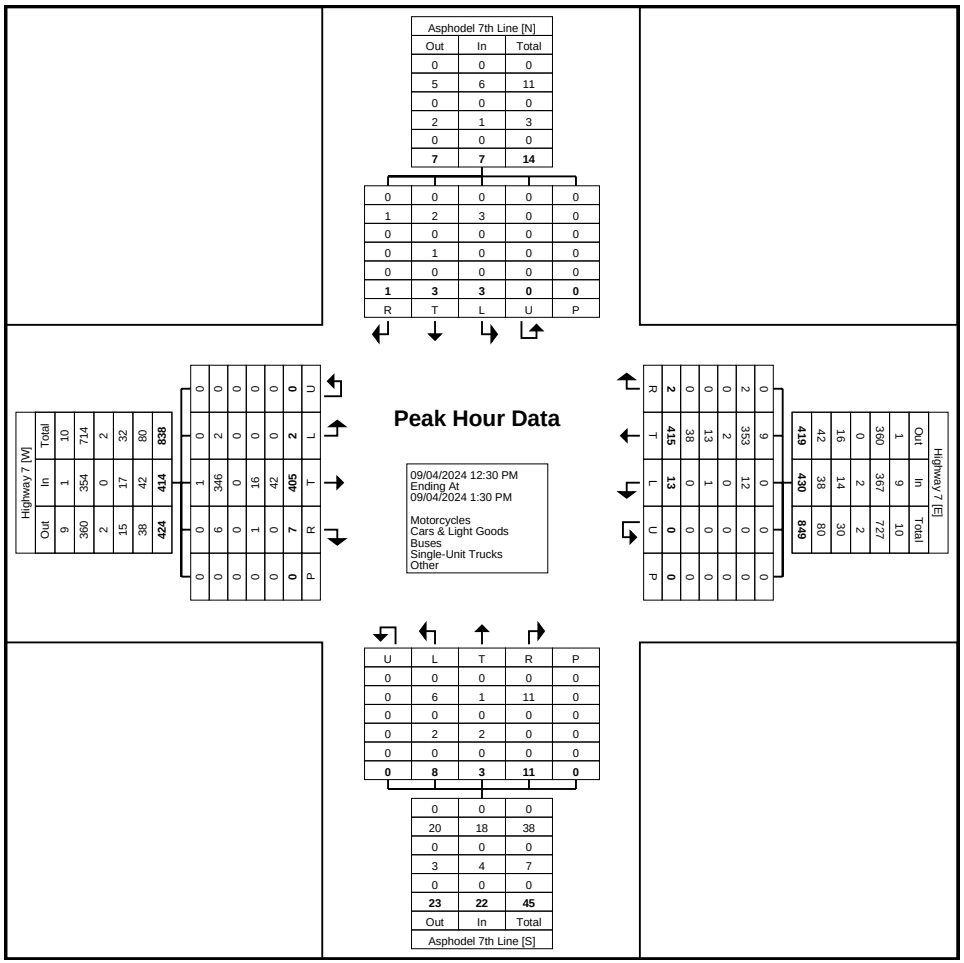
Start Time	Highway 7 Eastbound						Highway 7 Westbound						Asphodel 7th Line Northbound						Asphodel 7th Line Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	89	1	0	0	90	1	149	1	0	0	151	0	1	3	0	0	4	2	2	1	0	0	5	250
7:45 AM	0	72	4	0	0	76	6	118	0	0	0	124	2	0	2	0	0	4	1	0	1	0	0	2	206
8:00 AM	0	79	4	0	0	83	6	127	1	0	0	134	2	1	2	0	0	5	1	0	2	0	0	3	225
8:15 AM	1	81	1	0	0	83	4	121	1	0	0	126	0	1	4	0	0	5	0	0	2	0	0	2	216
Total	1	321	10	0	0	332	17	515	3	0	0	535	4	3	11	0	0	18	4	2	6	0	0	12	897
Approach %	0.3	96.7	3.0	0.0	-	-	3.2	96.3	0.6	0.0	-	-	22.2	16.7	61.1	0.0	-	-	33.3	16.7	50.0	0.0	-	-	-
Total %	0.1	35.8	1.1	0.0	-	37.0	1.9	57.4	0.3	0.0	-	59.6	0.4	0.3	1.2	0.0	-	2.0	0.4	0.2	0.7	0.0	-	1.3	-
PHF	0.250	0.902	0.625	0.000	-	0.922	0.708	0.864	0.750	0.000	-	0.886	0.500	0.750	0.688	0.000	-	0.900	0.500	0.250	0.750	0.000	-	0.600	0.897
Motorcycles	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	1	256	9	0	-	266	17	463	2	0	-	482	3	3	11	0	-	17	2	1	6	0	-	9	774
% Cars & Light Goods	100.0	79.8	90.0	-	-	80.1	100.0	89.9	66.7	-	-	90.1	75.0	100.0	100.0	-	-	94.4	50.0	50.0	100.0	-	-	75.0	86.3
Buses	0	4	0	0	-	4	0	5	1	0	-	6	1	0	0	0	-	1	1	1	0	0	-	2	13
% Buses	0.0	1.2	0.0	-	-	1.2	0.0	1.0	33.3	-	-	1.1	25.0	0.0	0.0	-	-	5.6	25.0	50.0	0.0	-	-	16.7	1.4
Single-Unit Trucks	0	21	1	0	-	22	0	9	0	0	-	9	0	0	0	0	-	0	1	0	0	0	-	1	32
% Single-Unit Trucks	0.0	6.5	10.0	-	-	6.6	0.0	1.7	0.0	-	-	1.7	0.0	0.0	0.0	-	-	0.0	25.0	0.0	0.0	-	-	8.3	3.6
Articulated Trucks	0	40	0	0	-	40	0	36	0	0	-	36	0	0	0	0	-	0	0	0	0	0	-	0	76
% Articulated Trucks	0.0	12.5	0.0	-	-	12.0	0.0	7.0	0.0	-	-	6.7	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	8.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)

Turning Movement Peak Hour Data (12:30 PM)

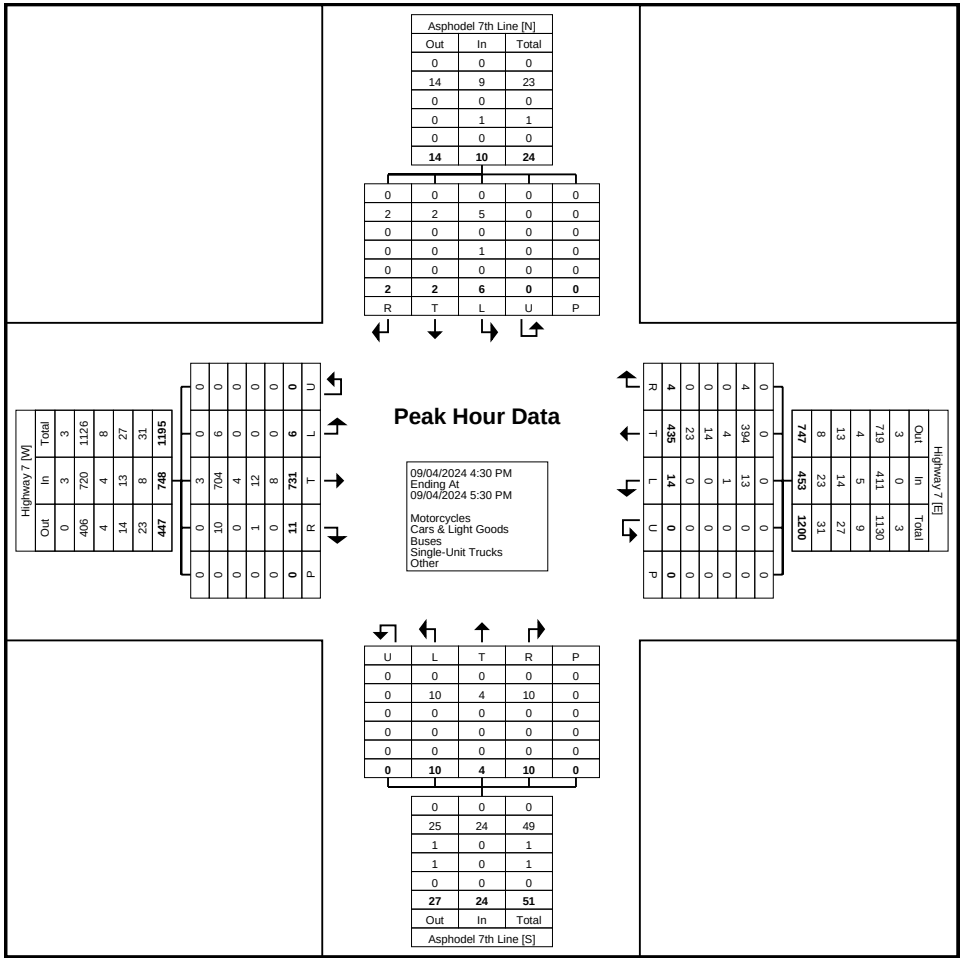
Start Time	Highway 7 Eastbound						Highway 7 Westbound						Asphodel 7th Line Northbound						Asphodel 7th Line Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:30 PM	1	125	1	0	0	127	6	97	1	0	0	104	6	0	4	0	0	10	1	1	0	0	0	2	243
12:45 PM	0	90	2	0	0	92	2	97	0	0	0	99	0	2	4	0	0	6	0	1	1	0	0	2	199
1:00 PM	0	109	2	0	0	111	3	99	0	0	0	102	1	0	3	0	0	4	2	1	0	0	0	3	220
1:15 PM	1	81	2	0	0	84	2	122	1	0	0	125	1	1	0	0	0	2	0	0	0	0	0	0	211
Total	2	405	7	0	0	414	13	415	2	0	0	430	8	3	11	0	0	22	3	3	1	0	0	7	873
Approach %	0.5	97.8	1.7	0.0	-	-	3.0	96.5	0.5	0.0	-	-	36.4	13.6	50.0	0.0	-	-	42.9	42.9	14.3	0.0	-	-	-
Total %	0.2	46.4	0.8	0.0	-	47.4	1.5	47.5	0.2	0.0	-	49.3	0.9	0.3	1.3	0.0	-	2.5	0.3	0.3	0.1	0.0	-	0.8	-
PHF	0.500	0.810	0.875	0.000	-	0.815	0.542	0.850	0.500	0.000	-	0.860	0.333	0.375	0.688	0.000	-	0.550	0.375	0.750	0.250	0.000	-	0.583	0.898
Motorcycles	0	1	0	0	-	1	0	9	0	0	-	9	0	0	0	0	-	0	0	0	0	0	-	0	10
% Motorcycles	0.0	0.2	0.0	-	-	0.2	0.0	2.2	0.0	-	-	2.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.1
Cars & Light Goods	2	346	6	0	-	354	12	353	2	0	-	367	6	1	11	0	-	18	3	2	1	0	-	6	745
% Cars & Light Goods	100.0	85.4	85.7	-	-	85.5	92.3	85.1	100.0	-	-	85.3	75.0	33.3	100.0	-	-	81.8	100.0	66.7	100.0	-	-	85.7	85.3
Buses	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	16	1	0	-	17	1	13	0	0	-	14	2	2	0	0	-	4	0	1	0	0	-	1	36
% Single-Unit Trucks	0.0	4.0	14.3	-	-	4.1	7.7	3.1	0.0	-	-	3.3	25.0	66.7	0.0	-	-	18.2	0.0	33.3	0.0	-	-	14.3	4.1
Articulated Trucks	0	41	0	0	-	41	0	38	0	0	-	38	0	0	0	0	-	0	0	0	0	0	-	0	79
% Articulated Trucks	0.0	10.1	0.0	-	-	9.9	0.0	9.2	0.0	-	-	8.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	9.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.2	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (12:30 PM)

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Highway 7 Eastbound						Highway 7 Westbound						Asphodel 7th Line Northbound						Asphodel 7th Line Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	3	170	3	0	0	176	5	95	1	0	0	101	4	2	2	0	0	8	1	0	1	0	0	2	287
4:45 PM	0	223	3	0	0	226	2	117	0	0	0	119	2	2	3	0	0	7	1	1	1	0	0	3	355
5:00 PM	0	157	1	0	0	158	3	106	0	0	0	109	2	0	4	0	0	6	4	0	0	0	0	4	277
5:15 PM	3	181	4	0	0	188	4	117	3	0	0	124	2	0	1	0	0	3	0	1	0	0	0	1	316
Total	6	731	11	0	0	748	14	435	4	0	0	453	10	4	10	0	0	24	6	2	2	0	0	10	1235
Approach %	0.8	97.7	1.5	0.0	-	-	3.1	96.0	0.9	0.0	-	-	41.7	16.7	41.7	0.0	-	-	60.0	20.0	20.0	0.0	-	-	-
Total %	0.5	59.2	0.9	0.0	-	60.6	1.1	35.2	0.3	0.0	-	36.7	0.8	0.3	0.8	0.0	-	1.9	0.5	0.2	0.2	0.0	-	0.8	-
PHF	0.500	0.820	0.688	0.000	-	0.827	0.700	0.929	0.333	0.000	-	0.913	0.625	0.500	0.625	0.000	-	0.750	0.375	0.500	0.500	0.000	-	0.625	0.870
Motorcycles	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	3
% Motorcycles	0.0	0.4	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	6	704	10	0	-	720	13	394	4	0	-	411	10	4	10	0	-	24	5	2	2	0	-	9	1164
% Cars & Light Goods	100.0	96.3	90.9	-	-	96.3	92.9	90.6	100.0	-	-	90.7	100.0	100.0	100.0	-	-	100.0	83.3	100.0	100.0	-	-	90.0	94.3
Buses	0	4	0	0	-	4	1	4	0	0	-	5	0	0	0	0	-	0	0	0	0	0	-	0	9
% Buses	0.0	0.5	0.0	-	-	0.5	7.1	0.9	0.0	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.7
Single-Unit Trucks	0	12	1	0	-	13	0	14	0	0	-	14	0	0	0	0	-	0	1	0	0	0	-	1	28
% Single-Unit Trucks	0.0	1.6	9.1	-	-	1.7	0.0	3.2	0.0	-	-	3.1	0.0	0.0	0.0	-	-	0.0	16.7	0.0	0.0	-	-	10.0	2.3
Articulated Trucks	0	8	0	0	-	8	0	23	0	0	-	23	0	0	0	0	-	0	0	0	0	0	-	0	31
% Articulated Trucks	0.0	1.1	0.0	-	-	1.1	0.0	5.3	0.0	-	-	5.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	2.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



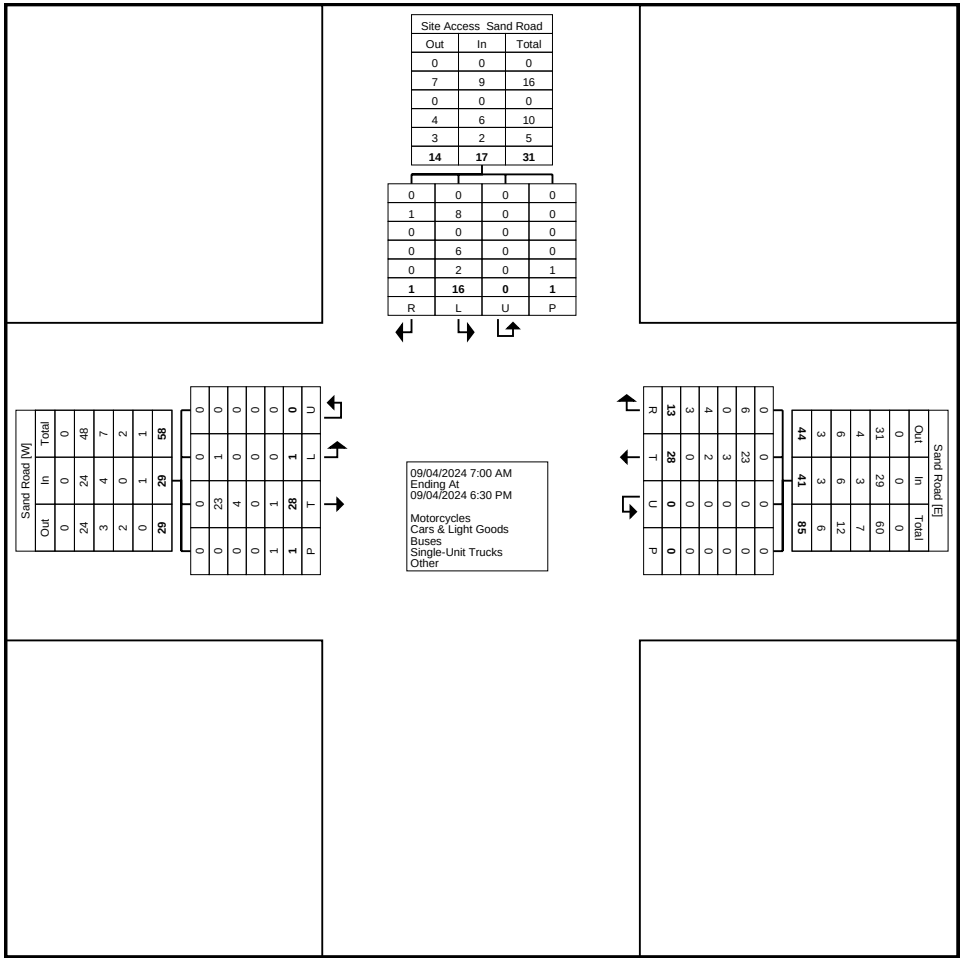
Turning Movement Peak Hour Data Plot (4:30 PM)

Count Name: Site Access Sand Road
Site Code: 240128
Start Date: 09/04/2024
Page No: 1

Turning Movement Data

Start Time	Sand Road Eastbound					Sand Road Westbound					Site Access Sand Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	0	2	0	0	2	0	1	0	0	1	2	0	0	0	2	5
7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	1	1	1	0	0	2	1	0	0	0	1	4
7:45 AM	0	1	0	1	1	1	1	0	0	2	0	0	0	0	0	3
Hourly Total	0	6	0	1	6	2	3	0	0	5	3	0	0	0	3	14
8:00 AM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	4	0	0	4	2	1	0	0	3	0	0	0	0	0	7
Hourly Total	0	8	0	0	8	3	1	0	0	4	1	0	0	1	1	13
9:00 AM	0	2	0	0	2	1	0	0	0	1	1	0	0	0	1	4
9:15 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	3
9:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
9:45 AM	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2	4
Hourly Total	0	4	0	0	4	4	2	0	0	6	3	0	0	0	3	13
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
12:00 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
12:15 PM	0	2	0	0	2	0	1	0	0	1	2	0	0	0	2	5
12:30 PM	0	0	0	0	0	4	1	0	0	5	0	0	0	0	0	5
12:45 PM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	4
Hourly Total	0	3	0	0	3	4	5	0	0	9	5	0	0	0	5	17
1:00 PM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
3:30 PM	0	3	0	0	3	1	2	0	0	3	1	0	0	0	1	7
3:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Hourly Total	0	3	0	0	3	2	2	0	0	4	2	0	0	0	2	9
4:00 PM	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
4:15 PM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2	4
Hourly Total	1	0	0	0	1	6	0	0	0	6	2	1	0	0	3	10
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1

Hourly Total	0	1	0	0	1	4	0	0	0	4	0	0	0	0	0	5
6:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	1	28	0	1	29	28	13	0	0	41	16	1	0	1	17	87
Approach %	3.4	96.6	0.0	-	-	68.3	31.7	0.0	-	-	94.1	5.9	0.0	-	-	-
Total %	1.1	32.2	0.0	-	33.3	32.2	14.9	0.0	-	47.1	18.4	1.1	0.0	-	19.5	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	1	23	0	-	24	23	6	0	-	29	8	1	0	-	9	62
% Cars & Light Goods	100.0	82.1	-	-	82.8	82.1	46.2	-	-	70.7	50.0	100.0	-	-	52.9	71.3
Buses	0	4	0	-	4	3	0	0	-	3	0	0	0	-	0	7
% Buses	0.0	14.3	-	-	13.8	10.7	0.0	-	-	7.3	0.0	0.0	-	-	0.0	8.0
Single-Unit Trucks	0	0	0	-	0	2	4	0	-	6	6	0	0	-	6	12
% Single-Unit Trucks	0.0	0.0	-	-	0.0	7.1	30.8	-	-	14.6	37.5	0.0	-	-	35.3	13.8
Articulated Trucks	0	1	0	-	1	0	3	0	-	3	2	0	0	-	2	6
% Articulated Trucks	0.0	3.6	-	-	3.4	0.0	23.1	-	-	7.3	12.5	0.0	-	-	11.8	6.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

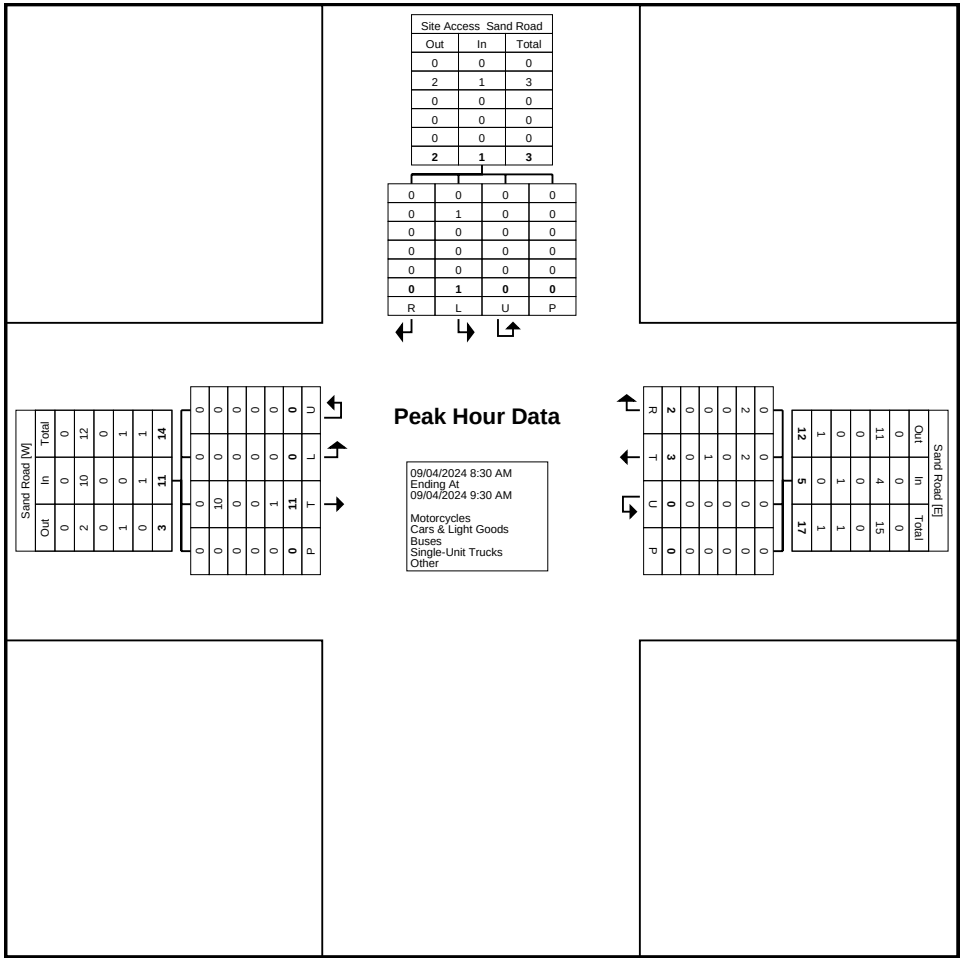


Turning Movement Data Plot

Count Name: Site Access Sand Road
Site Code: 240128
Start Date: 09/04/2024
Page No: 4

Turning Movement Peak Hour Data (8:30 AM)

Start Time	Sand Road Eastbound					Sand Road Westbound					Site Access Sand Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
8:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	4	0	0	4	2	1	0	0	3	0	0	0	0	0	7
9:00 AM	0	2	0	0	2	1	0	0	0	1	1	0	0	0	1	4
9:15 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	3
Total	0	11	0	0	11	3	2	0	0	5	1	0	0	0	1	17
Approach %	0.0	100.0	0.0	-	-	60.0	40.0	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	0.0	64.7	0.0	-	64.7	17.6	11.8	0.0	-	29.4	5.9	0.0	0.0	-	5.9	-
PHF	0.000	0.688	0.000	-	0.688	0.375	0.500	0.000	-	0.417	0.250	0.000	0.000	-	0.250	0.607
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	0	10	0	-	10	2	2	0	-	4	1	0	0	-	1	15
% Cars & Light Goods	-	90.9	-	-	90.9	66.7	100.0	-	-	80.0	100.0	-	-	-	100.0	88.2
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Single-Unit Trucks	-	0.0	-	-	0.0	33.3	0.0	-	-	20.0	0.0	-	-	-	0.0	5.9
Articulated Trucks	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Articulated Trucks	-	9.1	-	-	9.1	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	5.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

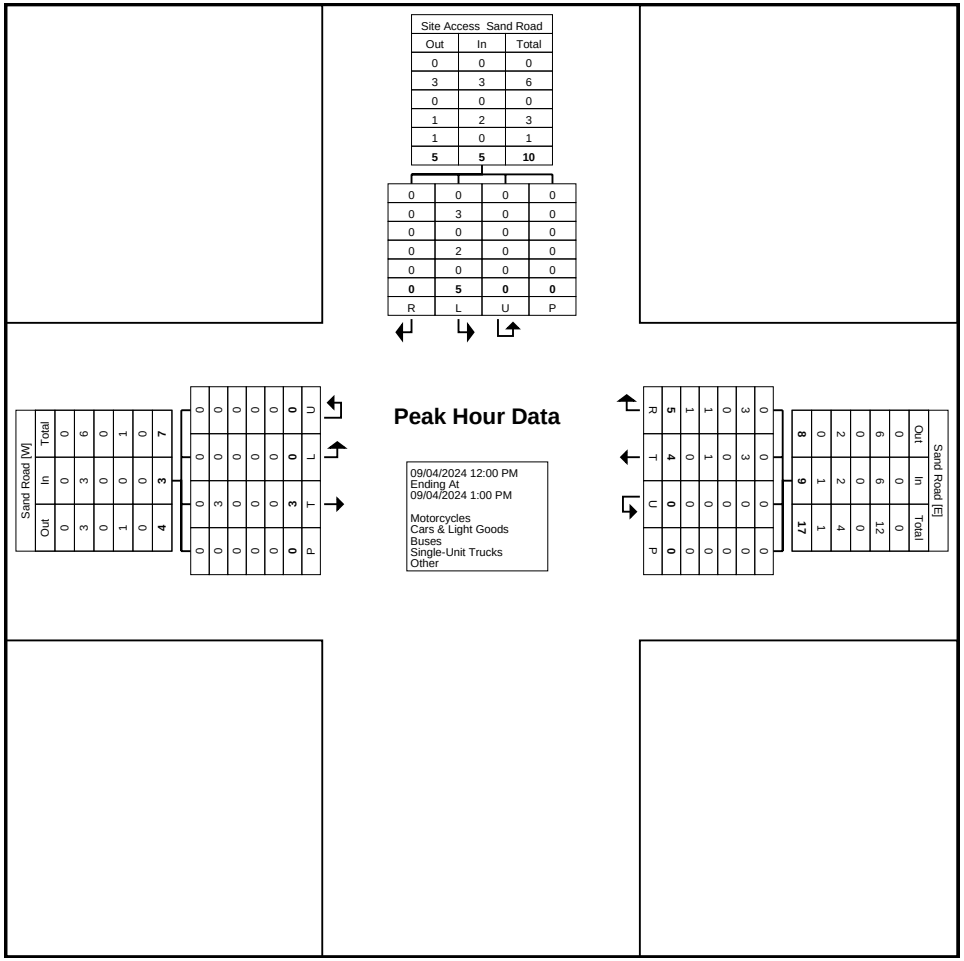


Turning Movement Peak Hour Data Plot (8:30 AM)

Count Name: Site Access Sand Road
Site Code: 240128
Start Date: 09/04/2024
Page No: 6

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Sand Road Eastbound					Sand Road Westbound					Site Access Sand Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
12:00 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
12:15 PM	0	2	0	0	2	0	1	0	0	1	2	0	0	0	2	5
12:30 PM	0	0	0	0	0	4	1	0	0	5	0	0	0	0	0	5
12:45 PM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	4
Total	0	3	0	0	3	4	5	0	0	9	5	0	0	0	5	17
Approach %	0.0	100.0	0.0	-	-	44.4	55.6	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	0.0	17.6	0.0	-	17.6	23.5	29.4	0.0	-	52.9	29.4	0.0	0.0	-	29.4	-
PHF	0.000	0.375	0.000	-	0.375	0.250	0.625	0.000	-	0.450	0.417	0.000	0.000	-	0.417	0.850
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	0	3	0	-	3	3	3	0	-	6	3	0	0	-	3	12
% Cars & Light Goods	-	100.0	-	-	100.0	75.0	60.0	-	-	66.7	60.0	-	-	-	60.0	70.6
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	-	0	1	1	0	-	2	2	0	0	-	2	4
% Single-Unit Trucks	-	0.0	-	-	0.0	25.0	20.0	-	-	22.2	40.0	-	-	-	40.0	23.5
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Articulated Trucks	-	0.0	-	-	0.0	0.0	20.0	-	-	11.1	0.0	-	-	-	0.0	5.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

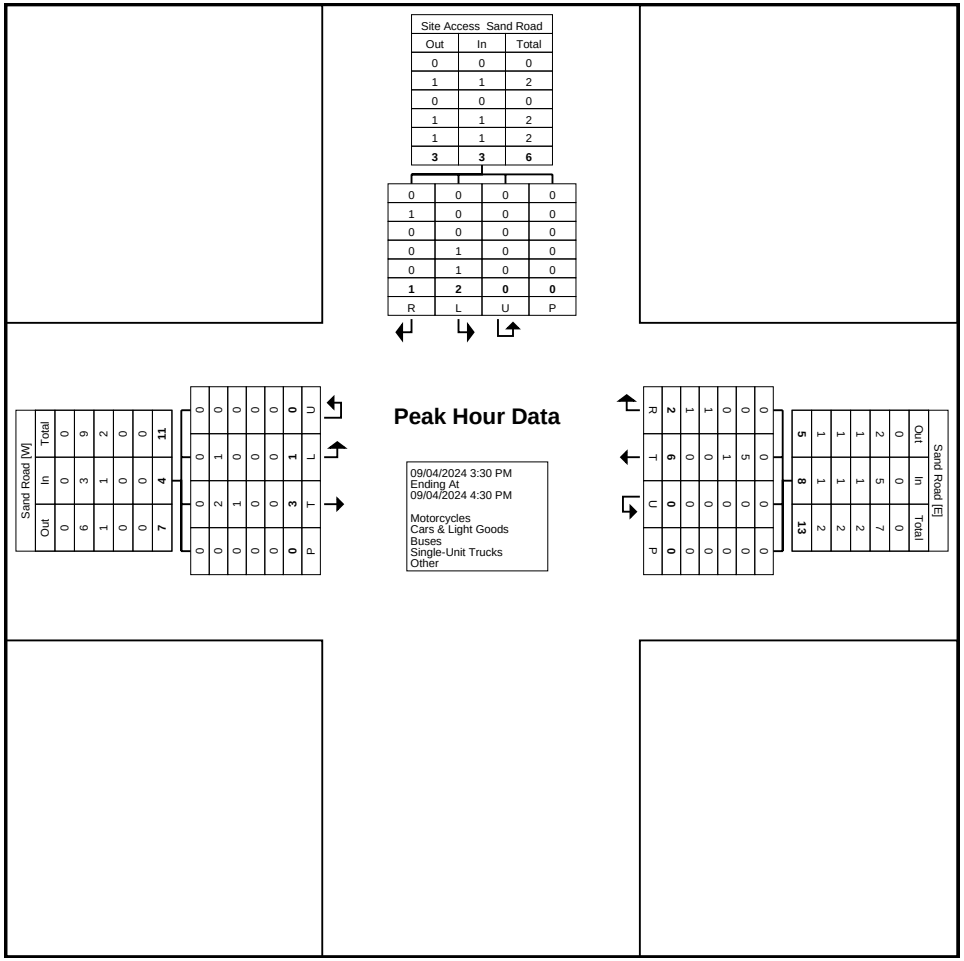


Turning Movement Peak Hour Data Plot (12:00 PM)

Count Name: Site Access Sand Road
Site Code: 240128
Start Date: 09/04/2024

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Sand Road Eastbound					Sand Road Westbound					Site Access Sand Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
3:30 PM	0	3	0	0	3	1	2	0	0	3	1	0	0	0	1	7
3:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
4:00 PM	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
4:15 PM	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	3
Total	1	3	0	0	4	6	2	0	0	8	2	1	0	0	3	15
Approach %	25.0	75.0	0.0	-	-	75.0	25.0	0.0	-	-	66.7	33.3	0.0	-	-	-
Total %	6.7	20.0	0.0	-	26.7	40.0	13.3	0.0	-	53.3	13.3	6.7	0.0	-	20.0	-
PHF	0.250	0.250	0.000	-	0.333	0.500	0.250	0.000	-	0.667	0.500	0.250	0.000	-	0.750	0.536
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	1	2	0	-	3	5	0	0	-	5	0	1	0	-	1	9
% Cars & Light Goods	100.0	66.7	-	-	75.0	83.3	0.0	-	-	62.5	0.0	100.0	-	-	33.3	60.0
Buses	0	1	0	-	1	1	0	0	-	1	0	0	0	-	0	2
% Buses	0.0	33.3	-	-	25.0	16.7	0.0	-	-	12.5	0.0	0.0	-	-	0.0	13.3
Single-Unit Trucks	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	50.0	-	-	12.5	50.0	0.0	-	-	33.3	13.3
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	50.0	-	-	12.5	50.0	0.0	-	-	33.3	13.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (3:30 PM)