

### Northwest Quadrant of Oil Tank Road and Highway 67, Iroquois Falls, ON

### Proposed Industrial Park Development

**Traffic Impact Study** 

Paradigm Transportation Solutions Limited

April 2024 240078





### **Project Summary**



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### Northwest Quadrant of Oil Tank Road and Highway 67, Iroquois Falls Proposed Industrial Park Development Traffic Impact Study



Adrian Soo, P.Eng.

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### **Executive Summary**

### Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Traffic Impact Study (TIS) for a proposed industrial park development located generally in the northwest quadrant of Oil Tank Road and Highway 67 (Ambridge Drive), Iroquois Falls, Ontario. This study has been prepared in support of a Schedule B Municipal Class Environmental Assessment (MCEA).

This TIS includes a description of the proposed development, an assessment of existing transportation infrastructure, site trip generation forecasts, traffic impact assessment, and recommendations for future transportation requirements and/or considerations, if any.

The findings, conclusions, and recommendations of this study are summarized below and outlined in further detail in the body of the report.

### **Proposed Development**

The subject site is generally located in the northwest quadrant of Oil Tank Road and Highway 67 (Ambridge Drive) in the Town of Iroquois Falls, Ontario. The developable property is approximately 44 acres in size.

The property owner proposes to develop the vacant lands to construct an industrial park. It is understood the land uses would range from light industrial to heavy industrial developments, with lots approximately 10 acres in size.

Vehicle access is proposed via a full-movement connection with Oil Tank Road. The industrial road will be located approximately 300 metres west of Highway 67 (Ambridge Drive). Specifically, an 800-metre-long two-lane paved asphalt roadway would be constructed ending with a cul-de-sac at its northern terminus. The site access intersection will be unsignalized with the driveway approach operating under stop control.

As we understand, as part of the development the following would be completed:

 Approximately 300 metres of existing Oil Tank Road will be upgraded with new paved asphalt, westerly from Highway 67 (Ambridge Drive); and ► The Oil Tank Road intersection/crossing with the ONR spur rail line and Highway 67 (Ambridge Drive) will be reconstructed, specifically to address the grade on Oil Tank Road.

For assessment purposes full build-out and occupancy of the proposed development is assumed to occur by 2026.

### **Conclusions**

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

- Under base year (2024) traffic conditions, the study area intersections are operating at good levels of service and well within capacity during the weekday AM and PM peak hours;
- Under 2026 and 2036 background (without the subject development) traffic conditions, the study area intersections and their associated traffic movements are forecast to continue operating at good levels of service and well within capacity during both peak periods;
- Development of the proposed industrial park site is conservatively forecast to generate a total of 130 AM and 130 PM peak hour vehicular trips; and
- Under 2026 and 2036 total (with the subject development) traffic conditions, the study area intersections and their associated traffic movements are forecast to continue operating at good levels of service and well within capacity during the weekday AM and PM peak hours.

The site-generated traffic is determined to be accommodated by the existing transportation network without the need for any intersection geometric improvements or traffic control upgrades.

The proposed development will not adversely affect capacity, safety, or operations on the adjacent transportation network.

### Recommendations

The recommendations of the study area are as follows:

- The review agencies recognize the conclusions drawn above;
- ► The applicable roadway jurisdiction to confirm the implementation of all-way stop control (AWSC) at Ambridge Drive/Oil Tank Road. Based on the analysis, there are no anticipated future operational issues in maintaining the current



- intersection control type (stop control on the Oil Tank Road approach), or converting to AWSC. The provision of AWSC would provide a safer environment in consideration of the adjacent rail line crossing; and
- ► From a transportation perspective, the required planning applications to allow the proposed development should be approved.

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### 1 Introduction

Paradigm Transportation Solutions Limited (Paradigm) was retained by EXP Services Inc. (EXP) to prepare this Traffic Impact Study (TIS) for a proposed industrial park development in the Town of Iroquois Falls, Ontario. This study has been prepared in support of a Schedule B Municipal Class Environmental Assessment (MCEA).

**Figure 1.1** illustrates the site location. The subject site is generally located in the northwest quadrant of the Oil Tank Road and Highway 67 (Ambridge Drive) intersection. The subject lands are currently zoned as "M2 – Heavy Industrial" under the Town's Zoning By-law.

The scope of the study is as follows:

- A study area comprising the following intersections:
  - Highway 67 (Ambridge Drive) and Nosov Drive (unsignalized);
  - Highway 67 (Ambridge Drive) and Oil Tank Road (unsignalized);
  - Highway 11 and Highway 67/Cemetery Road (unsignalized); and
  - Oil Tank Road and the proposed site access (proposed unsignalized).
- ➤ Traffic forecasts for the horizon years 2026 and 2036, representing the anticipated full build-out year, and a period of ten years beyond full build-out; and
- Analysis time periods including the weekday AM and PM peak hours.

The methodology used in the study is summarized below:

- ▶ Estimate future peak hour background traffic conditions for the 2026 and 2036 horizon years by applying a growth rate to the base year traffic volumes, and inclusion of other area background developments (approved and/or in-stream), if any;
- Estimate the net increase in traffic due to the proposed development using data from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11<sup>th</sup> Edition);
- ► Combine future background traffic forecasts with the net increase in site traffic for the future horizon years;



- Analyze the peak hour intersection operations for future background and total traffic conditions; and
- Determine the net impact on operational performance due to the site traffic, and the need for any road and/or operational traffic control improvements to address any identified impacts.

This study has been carried out in general accordance with the Ministry of Transportation Ontario (MTO) *General Guidelines for the Preparation of Traffic Impact Studies* (March 2023).<sup>1</sup>

Ministry of Transportation Ontario, General Guidelines for the Preparation of Traffic Impact Studies, March 2023.







**Site Location** 

### 2 Proposed Development

The subject site is generally located in the northwest quadrant of Oil Tank Road and Highway 67 (Ambridge Drive) in the Town of Iroquois Falls, Ontario. The developable property is approximately 44 acres in size.

The property owner proposes to develop the vacant lands to construct an industrial park. It is understood the land uses would range from light industrial to heavy industrial developments, with lots approximately 10 acres in size.

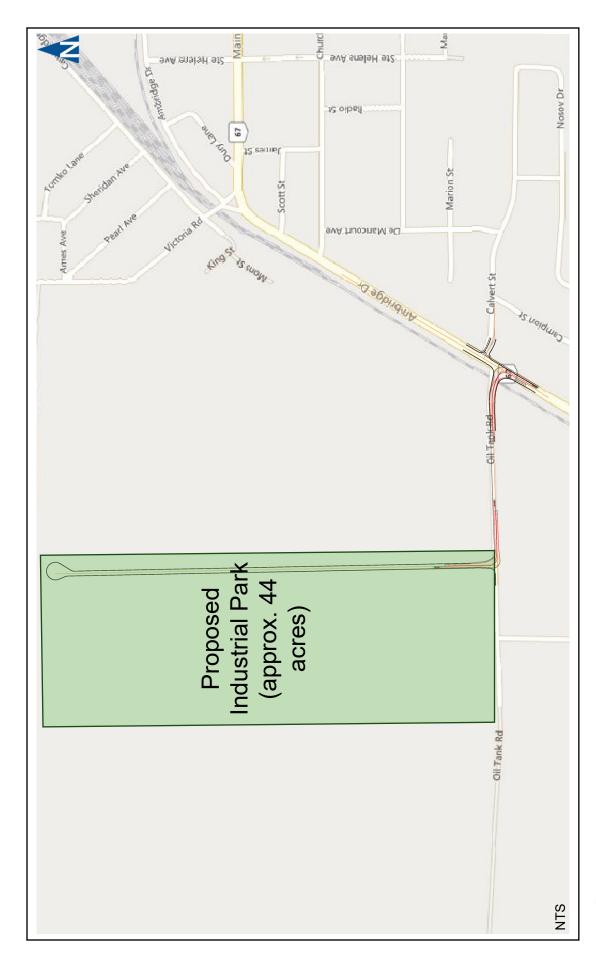
Vehicle access is proposed via a full-movement connection with Oil Tank Road. The industrial road will be located approximately 300 metres west of Highway 67 (Ambridge Drive). Specifically, an 800-metre-long two-lane paved asphalt roadway would be constructed ending with a cul-de-sac at its northern terminus. The site access intersection will be unsignalized with the driveway approach operating under stop control.

As we understand, as part of the development the following would be completed:

- Approximately 300 metres of existing Oil Tank Road will be upgraded with new paved asphalt, westerly from Highway 67 (Ambridge Drive); and
- ► The Oil Tank Road intersection/crossing with the ONR spur rail line and Highway 67 (Ambridge Drive) will be reconstructed, specifically to address the grade on Oil Tank Road.

For assessment purposes full build-out and occupancy of the proposed development is assumed to occur by 2026.

**Figure 2.1** illustrates the proposed development concept site plan.





## **Concept Site Plan**

### 3 Existing Conditions

### 3.1 Roads and Traffic Control

The characteristics of the roads in the vicinity of the subject site are described below. Reference was made to the Town of Iroquois Falls *Official Plan* (Draft to Public/Ministry).<sup>2</sup>

Highway 67 (Ambridge Drive) is an undivided roadway with two travel lanes (one lane in each direction) within the study area. Highway 67 is a provincial highway that operates under the jurisdiction of the Ministry of Transportation, Ontario (MTO); however, the section of Highway 67 from the boundary of the Urban Settlement Area (approximately 200 metres south of Majestic Street) to Synagogue Avenue is a municipal road operating under the jurisdiction of the Town of Iroquois Falls. This section is referred to as Ambridge Drive.

Highway 67 (Ambridge Drive) runs in a north-east/south-west diagonal fashion within the study area. The posted speed limit is 80 km/h; however, as the highway transitions into Town the posted speed limit transitions to 40 km/h at the boundary of the Urban Settlement Area (approximately 200 metres south of Majestic Street).

It is noted a rail line crosses Highway 67 approximately 215 metres east of Highway 11. Signage and pavement marking delineations are provided on the eastbound and westbound approaches to the rail crossing;

- ▶ **Highway 11** is a north-south undivided provincial highway with two travel lanes (one lane in each direction) with paved shoulders. Highway 11 is part of the northern route of the TransCanada Highway and runs north-south through the rural area of the Town of Iroquois Falls. Highway 11 operates under the jurisdiction of the MTO with a posted speed limit of 90 km/h;
- ▶ Oil Tank Road is an east-west municipal road providing two travel lanes (one lane in each direction). The road operates under the jurisdiction of the Town of Iroquois Falls. No posted speed limit signage was observed within the study area; therefore, it is assumed the statutory limit of 50 km/h governs.

A truck load restriction sign is posted advising trucks should be limited to "5 tonnes per axle".

<sup>&</sup>lt;sup>2</sup> Town of Iroquois Falls, *Official Plan (Draft to Public/Ministry), Schedule A – Urban Area,* February 2022.



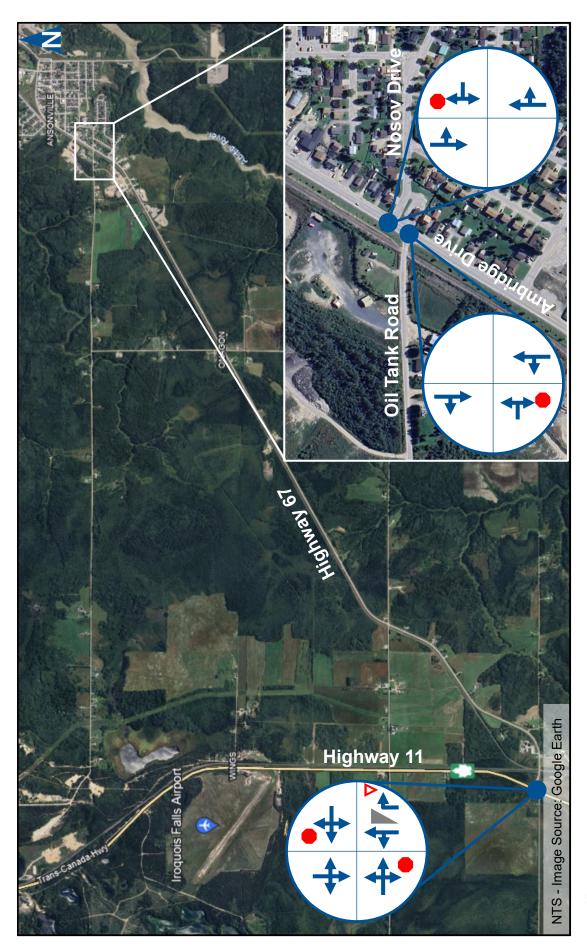
It is noted a rail line crosses Oil Tank Road approximately 15 metres west of Highway 67 (Ambridge Drive). It was confirmed by Ontario Northland Railway (ONR) that the rail line is not abandoned, but is currently not in use;

- Nosov Drive is an east-west municipal road providing two travel lanes (one lane in each direction). The road operates under the jurisdiction of the Town of Iroquois Falls. No posted speed limit signage was observed within the study area; therefore, it is assumed the statutory limit of 50 km/h governs. This roadway is slightly offset from Oil Tank Road; and
- Cemetery Road is an east-west roadway providing two travel lanes (one lane in each direction). The roadway intersects with Highway 11 and continues as Highway 67 east of Highway 11. No posted speed limit signage was observed within the study area; therefore, it is assumed the statutory limit of 50 km/h governs.

All study area intersections are unsignalized with stop control provided on the minor road approaches (i.e., Oil Tank Road and Nosov Drive approaches).

At the intersection of Highway 67/Cemetery Road and Highway 11, the Highway 67 and Cemetery Road approaches operate under stop control. A channelized northbound auxiliary right-turn lane is provided at the intersection.

**Figure 3.1** illustrates the existing lane configurations and traffic control at the study area intersections.





# **Existing Lane Configurations and Traffic Control**

### 3.2 Transit

There are no transit services provided or serving the study area.

### 3.3 Active Transportation

There is no dedicated active transportation infrastructure provided or serving the study area.

### 3.4 Traffic Volumes

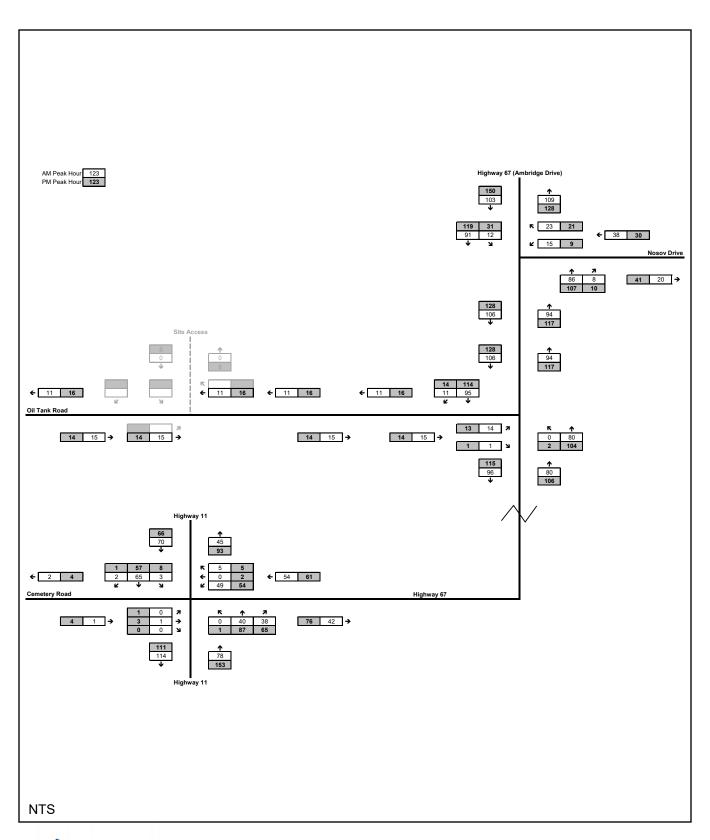
To assess intersection operations, turning movement counts (TMCs) are used to quantify the movement of vehicles, pedestrians, trucks, buses, and cyclists through an intersection. Existing traffic data at an intersection or on a road section forms the foundation for operational analysis. The counts are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

TMCs at the study area intersections were collected on Monday, February 26, 2024, from 7:00 AM to 10:00 AM, and from 2:00 PM to 6:00 PM. The data was counted in 15-minute intervals and vehicles were classified by type.

**Figure 3.2** illustrates the base year (2024) weekday AM and PM peak hour traffic volumes. **Appendix A** contains the raw traffic data for reference.

The MTO document "Provincial Highways, Traffic Volumes, 1988-2019" was also referenced to review historical volumes and trends.

The most recent daily traffic volume data reports the subject section of Highway 67 carries less than 2,000 vehicles per day. This is considered a low volume highway, and one that operates well within capacity. For context, a two-lane highway that exhibits near capacity or capacity conditions during the peak hours would typically have a daily traffic volume in the order of 15,000 vehicles per day.





**Base Year (2024) Traffic Volumes** 

### 3.5 Traffic Operations

The quality of intersection operations at signalized intersections and unsignalized intersections is evaluated in terms of level of service (LOS) and volume to capacity (v/c) as defined by the Highway Capacity Manual (HCM). LOS is evaluated based on average control delay per vehicle which includes deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS ranges from LOS A for 10 seconds or less average delay to LOS F for average delay greater than 80 seconds. For unsignalized intersections, LOS ranges from LOS A for 10 seconds or less average delay to LOS F for average delay greater than 50 seconds. Capacity is evaluated in terms of the ratio of demand flow to capacity with an at capacity condition represented by a v/c ratio of 1.00 (i.e., volume demand equals capacity).

While the LOS and v/c for each movement are related, they are calculated independently. Therefore, it is possible to have a poor intersection LOS associated with a low v/c ratio or a good LOS associated with a high v/c ratio. The designation LOS F does not automatically imply that the volume demands at an intersection or on a specific movement exceed the theoretical capacity, nor does a LOS better than E automatically imply that unused capacity is available.

The MTO General Guidelines for the Preparation of Traffic Impact Studies<sup>3</sup> indicates at signalized intersections, movements with a v/c ratio of or greater than 0.85 (85% of capacity) are deemed to be "critical" in terms of operations. For ramps, a v/c ratio for terminal approaches with a value greater than 0.75 would be deemed critical and shall be evaluated for possible operational improvements.

To assess the base year peak hour automobile conditions, a level of service analysis was conducted using Synchro software, which implements the methods of the Highway Capacity Manual. The key parameters include:

- Existing lane configurations;
- Heavy vehicles percentages and pedestrian volumes as derived from the existing turning movement counts;
- Calculated intersection peak hour factors (PHF), which facilitates an assessment of the busiest 15-minute period within the peak hour; and

Ministry of Transportation Ontario, *General Guidelines for the Preparation of Traffic Impact Studies*, March 2023, p17.



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Synchro default values for all other inputs.

**Table 3.1** summarizes the results of the base year automobile conditions, indicating the existing level of service (LOS), average vehicular delay, v/c ratio, and 95<sup>th</sup> percentile queues experienced within the study area for the weekday AM and PM peak hours. Any movements identified as critical movements are highlighted within the results table. **Appendix B** contains the Synchro analysis outputs for reference.

The analysis of base year conditions indicates all intersections and traffic movements are currently operating at good levels of service (LOS A) and well within capacity (v/c < 0.85).

The 95<sup>th</sup> percentile queue lengths were checked for all movements. No spillback issues are identified.

As advised by ONR, the spur rail line which crosses Oil Tank Road approximately 15 metres west of Highway 67 (Ambridge Drive) is currently not in use; therefore, train crossings currently do not result in any impacts to the traffic operations at the adjacent Oil Tank Road/Highway 67 (Ambridge Drive) intersection.

### **TABLE 3.1: BASE YEAR (2024) TRAFFIC OPERATIONS**

р										Direct	ion/Mo	oveme	nt/App	roach						
erio					Eastb	ound			Westk	oound			North	bound			South	bound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	IJeЛ	Through	Right	Approach	<del>µ</del> ец	Through	Right	Approach	IJeЛ	Through	Right	Approach	Overall
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.06 2		^ ^ ^	A 10		A 0 0.07 0	v v v	0	v v v	A 1 0.01 0		A 1	
AM Peak Hour	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	A 10 0.02 1		v v v v	A 10					v v v	A 0 0		0		A 0 0.07 0	v v v v	0	
AM Pe	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	v v v v v	A 10 0 0	^ ^ ^ ^ ^	A 10	· · · · · · · · ·	A 10 0.08 2 -	^ ^ ^ ^ ^	A 10	· · · · · · · · · · · · · · · · · · ·	A 0 0 0 -	A 0 0.03 0 70 70	A 0	<td>A 0 0 0 -</td> <td>^ ^ ^ ^ ^</td> <td>A 0</td> <td></td>	A 0 0 0 -	^ ^ ^ ^ ^	A 0	
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.04 1		<b>^ ^ ^ ^</b>	A 10		A 0 0.08	^ ^ ^	A 0	< < < <	A 2 0.02 1		A 2	
PM Peak Hour	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	A 10 0.02 1		^ ^ ^	A 10					v v v	A 0 0		A 0		A 0 0.08 0	^ ^ ^	A 0	
PM Pe	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	·	A 10 0.01 0 -	^ ^ ^ ^ ^ ^ ^	A 10	v v v v v	A 10 0.08 2 - - 	^ ^ ^ ^ ^ ^ ^	A 10	v v v v v	A 0 0 0 -	A 0.04 0 70 70 d with t	A 0	v v v v v	A 1 0.01 0 -	^ ^ ^ ^ ^ ^ ^	A 1	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TWSC - Two-Way Stop Control

### 4 Forecasts

### 4.1 Horizon Years and Future Background Traffic

For the purpose of this assessment, horizon years of 2026 and 2036 have been analyzed representing the anticipated full build-out year, and a period of ten years beyond full build-out, respectively.

The future background traffic volumes comprise higher non-site traffic volumes due to the application of a growth factor and inclusion of site-traffic generated by other area developments, if any.

### 4.1.1 Generalized Background Growth

General background traffic growth reflects increase in traffic unrelated to developments within the immediate area of the subject site.

Background traffic growth has been estimated through the application of a compounded per annum growth rate. Specifically, a 1.0% per annum compounded growth rate was applied to the base year traffic volumes to derive background traffic growth.

This growth rate was adopted based on a review of the Town's Official Plan (Draft to Public/Ministry)<sup>4</sup> and was further confirmed applicable by Town staff.

The 1.0% growth rate represents a conservative approach (i.e., errs on the high side). Based upon population data available through Statistics Canada, the population of the Town of Iroquois Falls reported a slight decrease from 2016 to 2021 (4,537 to 4,418).

Additionally, reference was made to the MTO document, "Provincial Highways, Traffic Volumes, 1988-2019". The historical annual average daily traffic (AADT) along Highway 67 within the study area indicates negative growth between 2009 and 2019.

### 4.1.2 Other Area Developments

Town staff confirmed there are no other area developments (active and/or in-stream) to be accounted for within the traffic forecasts.

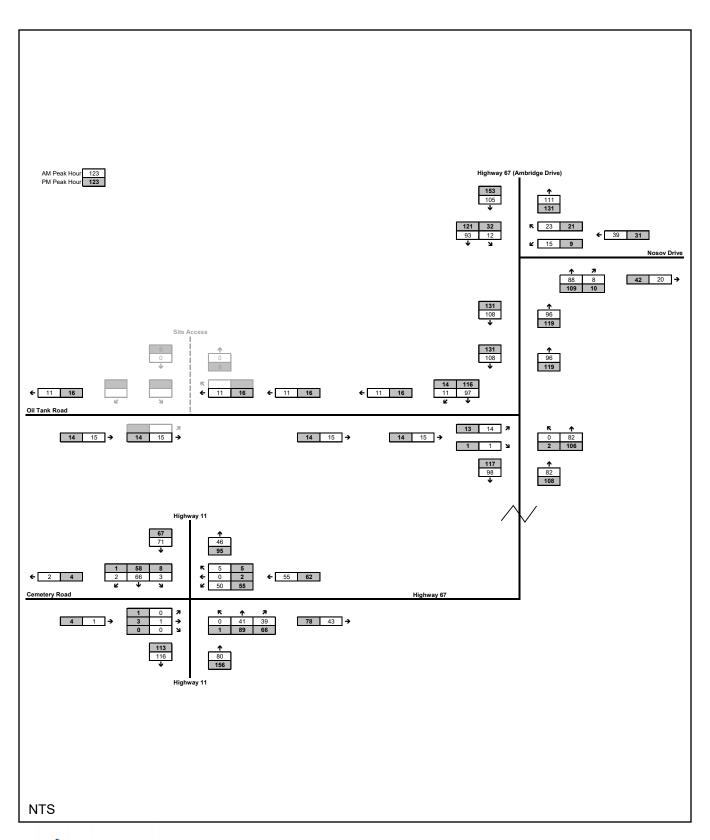
**Figure 4.1** illustrates the 2026 background traffic forecasts for the weekday AM and PM peak hours.

Town of Iroquois Falls, Official Plan (Draft to Public/Ministry), February 10, 2022, p5.



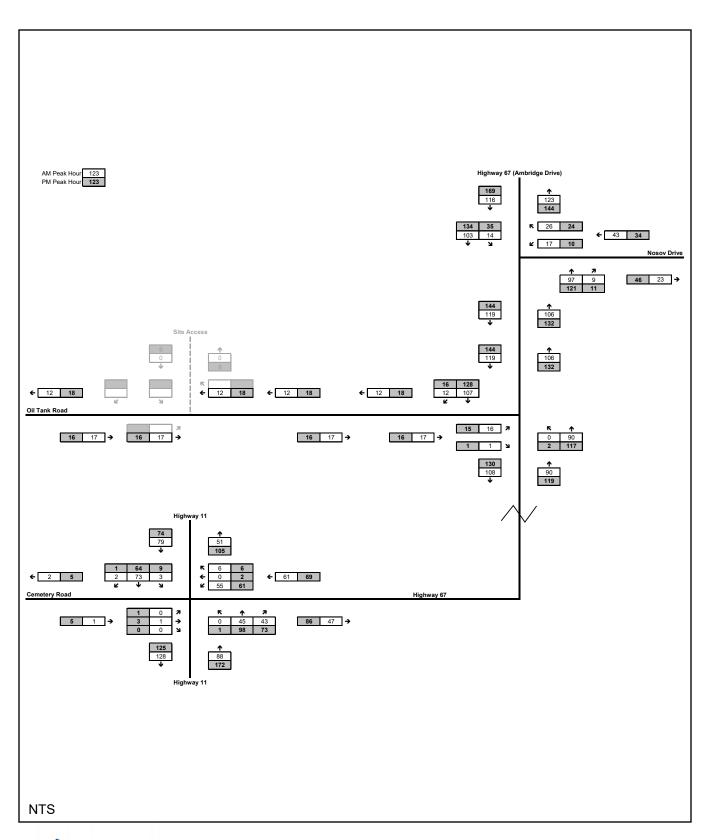
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**Figure 4.2** illustrates the 2036 background traffic forecasts for the weekday AM and PM peak hours.





### **2026 Background Traffic Forecasts**





**2036 Background Traffic Forecasts** 

### 4.2 Future Transportation Network Improvements

No planned infrastructure improvements have been identified within the study area. Accordingly, the existing road network and intersection lane configurations are utilized for all future traffic operational analyses.

### 4.3 Site Trip Generation

The Institute of Transportation Engineers (ITE) publication "*Trip Generation Manual (11th Edition)*" was referenced to estimate the peak hour vehicular traffic volumes generated by the proposed industrial park development.

Specifically, trip rates for Land Use Code (LUC) 130 – Industrial Park are used. This land use is defined as:

"An industrial park contains several individual industrial or related facilities. It is characterized by a mix of manufacturing, service, and warehouse facilities with a wide variation in the proportion of each type of use from one location to another."

Through a review of other similar industrial park sites, it was conservatively assumed that 20% of the developable land will be covered by industrial buildings. With a total size of the subject lands being 44 acres; accordingly, 8.8 acres could be developed for industrial use.

**Table 4.1** summarizes the resultant weekday AM and PM peak hour site trip generation. The proposed industrial park development is estimated to generate a total of 130 AM and 130 PM peak hour vehicular trips.

**TABLE 4.1: SITE TRIP GENERATION** 

LUC	GFA	AM	Peak H	our	PM Peak Hour						
	GFA	ln	Out	Total	ln	Out	Total				
130¹	8.8 acres (383,328 SF)	105	25	130	29	101	130				
	Total	105	25	130	29	101	130				

<sup>1</sup> AM: Average trip rate of 0.34 per 1,000 SF of GFA (81% in, 19% out); PM: Average trip rate of 0.34 per 1,000 SF of GFA (22% in, 78% out).

It is noted of the 130 AM and 130 PM peak hour vehicular trips, 15 truck trips are estimated to be generated during each peak hour

Institute of Transportation Engineers, *Trip Generation Manual (11<sup>th</sup> Edition)*, September 2021.



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(approximately 12% of the vehicular trips) based upon ITE data. Under future total traffic analyses, the heavy vehicle percentages for all movements at the study area intersections have been accounted for.

### 4.4 Site Trip Distribution and Assignment

The directional distribution of traffic approaching and departing the subject lands is a function of several variables including population density, existing travel patterns, and efficiency of the roadways leading to the site.

Trip distribution for traffic to and from the subject lands was estimated based on a review of the existing trip patterns documented in the turning movement count data. **Table 4.2** summarizes the estimated trip distribution.

**TABLE 4.2: SITE TRIP DISTRIBUTION** 

To/Erom	Via	AM Pea	ak Hour	PM Peak Hour					
To/From	Via	In	Out	In	Out				
North	Highway 67	56%	53%	59%	53%				
South	(Ambridge Drive)	44%	47%	41%	47%				
	Total	100%	100%	100%	100%				

The site trips were assigned to the transportation network in accordance with the noted trip distribution.

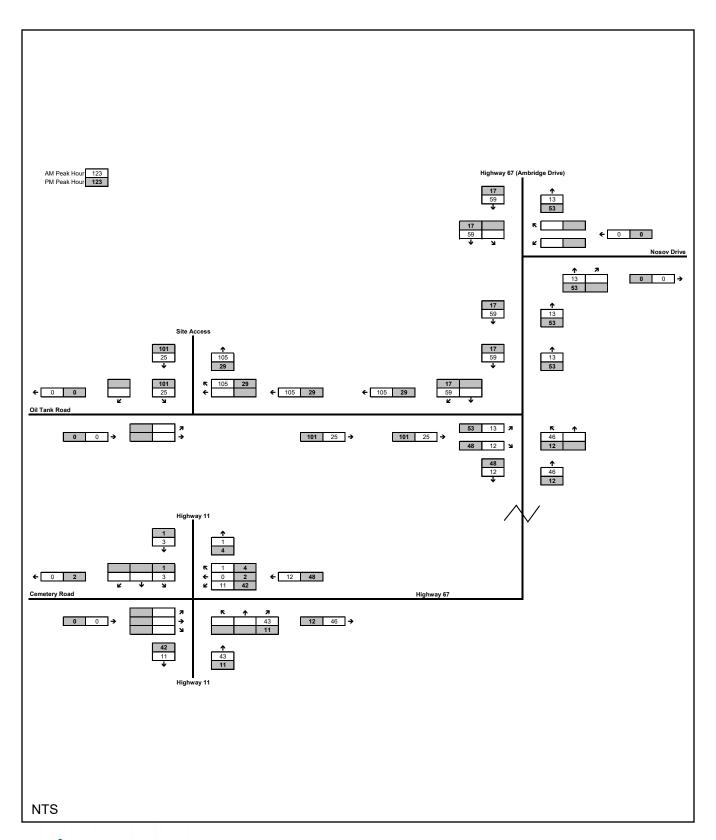
**Figure 4.3** illustrates the trip assignments for the site-generated trips during the weekday AM and PM peak hours.

### 4.5 Future Total Traffic

The weekday AM and PM peak hour background traffic forecasts were combined with the site traffic assignments to determine the total traffic forecasts for the 2026 and 2036 horizon years.

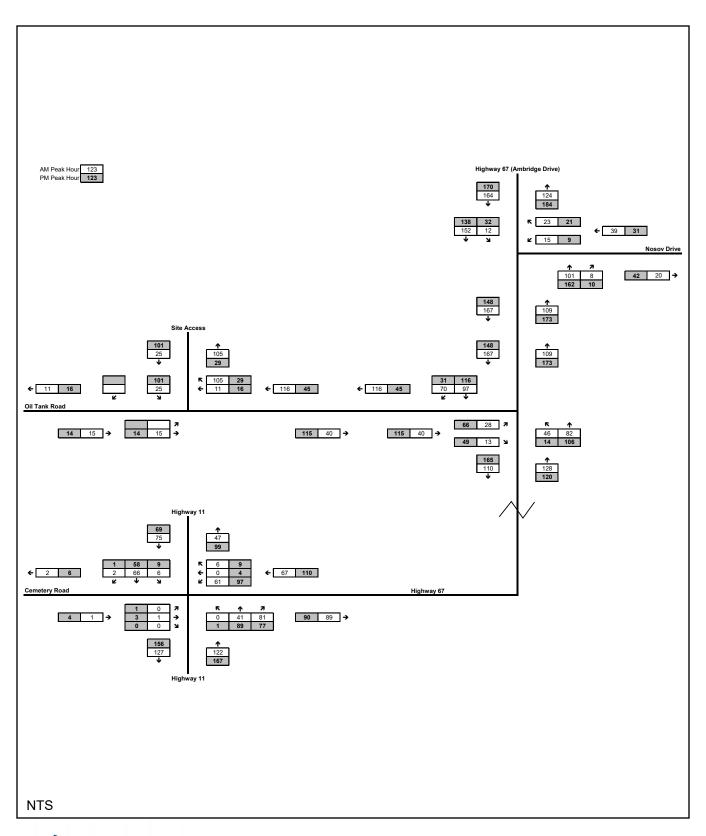
**Figure 4.4** illustrates the 2026 total traffic forecasts for the weekday AM and PM peak hours.

**Figure 4.5** illustrates the 2036 total traffic forecasts for the weekday AM and PM peak hours.



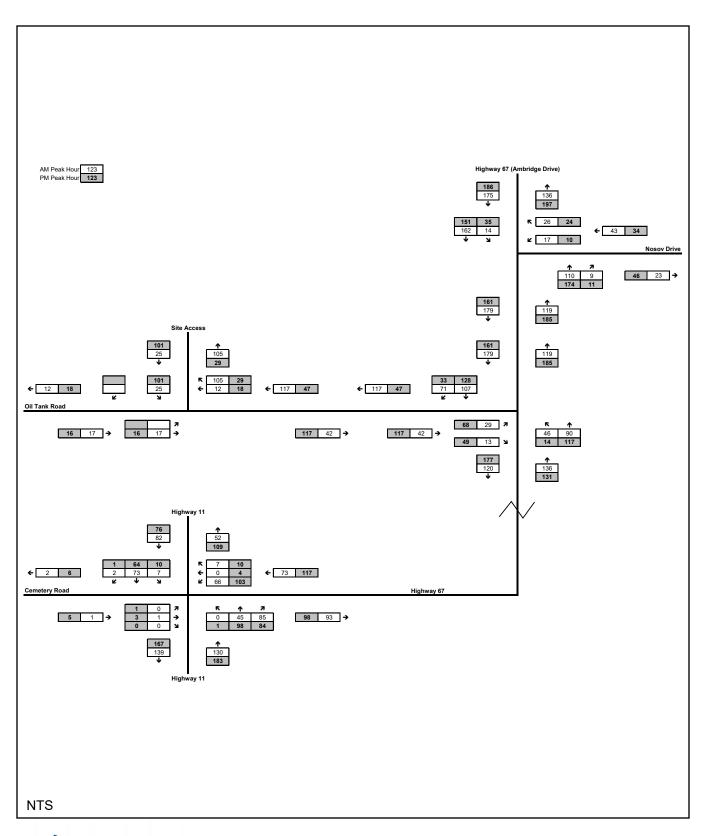


### **Site-Generated Traffic Forecasts**





### **2026 Total Traffic Forecasts**





### **2036 Total Traffic Forecasts**

### 5 Traffic Impact Assessment

### 5.1 Future Background Traffic

To assess the operating conditions for the weekday AM and PM peak hour background traffic forecasts, a level of service analysis was undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of base year conditions.

EXP advised they are proposing the intersection of Ambridge Drive/Oil Tank Road to operate under all-way stop control (AWSC). This proposal is in consideration of the works related to address roadway grades, as well of the proximity to the rail line crossing. The intersection has been assessed with only stop-control on the Oil Tank Road approach, and under all-way stop control.

**Table 5.1** and **Table 5.2** summarize the results of the operational analysis for the 2026 and 2036 background traffic conditions (without the proposed development). Any movements identified as critical movements are highlighted within the results tables. **Appendix C** contains the Synchro analysis outputs for reference.

### Highway 67 (Ambridge Drive)/Oil Tank Road Operating Under TWSC

The results indicate the study area intersections are forecast to continue operating at similar levels of service as noted under base year conditions, but slightly exacerbated accounting for background growth.

Under the 2026 and 2036 background conditions (without the subject development), the study area intersections are forecast to continue operating at good levels of service and well within capacity (v/c < 0.85). No critical movements are identified.

The 95<sup>th</sup> percentile queue lengths were checked for all movements. No spillback issues are identified.

### Highway 67 (Ambridge Drive)/Oil Tank Road Operating Under AWSC

With the intersection of Highway 67 (Ambridge Drive)/Oil Tank Road operating under AWSC, the intersections of Highway 67 (Ambridge Drive) with Oil Tank Road and Nosov Drive are forecast to continue operating at acceptable levels of service and well within capacity (v/c < 0.85).

It is noted the 95<sup>th</sup> percentile queue lengths of all approaches at Highway 67 (Ambridge Drive) with Oil Tank Road and Nosov Drive are slightly exacerbated during the AM and PM peak hours under both horizons, due to Highway 67 (Ambridge Drive)/Oil Tank Road being AWSC. However, no major queuing issues are found.

Under the furthest horizon (2036) which represents the worst-case scenario, at Highway 67 (Ambridge Drive)/Oil Tank Road the southbound shared through/right-turn movement is anticipated to experience a 95<sup>th</sup> percentile queue length of up to 21 metres. This queue length encroaches the upstream intersection of Highway 67 (Ambridge Drive)/Nosov Drive; however, the forecast queue length does not block the intersection.

The anticipated vehicular queues for the southbound approach is not considered a critical issue as the 95<sup>th</sup> percentile queue length would not fully block the upstream intersection of Highway 67 (Ambridge Drive)/Nosov Drive.

Furthermore, it is noted the 95<sup>th</sup> percentile queue is an estimate of the longest queue that could occur during the peak hour; however, this level of queuing only has a five percent probability of occurring during the analysis period. It is not typical of what a motorist would experience on average. The 50<sup>th</sup> percentile average queue length for the southbound shared movement is estimated to be 10 to 13 metres and would not block the upstream intersection of Highway 67 (Ambridge Drive)/Nosov Drive.

### **TABLE 5.1: 2026 BACKGROUND TRAFFIC OPERATIONS**

		I		Direction/Movement/Approach																
rioc					Eastk	ound			West	oound		Venic		bound			South	bound		
Analysis Period	Intersection	Control Type	MOE	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Overall
	Amrbidge Drive & Oil Ta	nk Road		ng und	der TW	ISC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.06 2		^	A 10		A 0 0.07 0	> > >	A 0	< < <	A 1 0.01 0		A 1	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	A 10 0.02 1		^ ^ ^ ^	A 10					v v v	A 0 0		<b>A</b> 0		A 0 0.07 0	^ ^ ^ ^	<b>4</b> 0	
AM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	V V V V V	A 10 0 0	^ ^ ^ ^ ^ ^	A 10	V V V V V	A 10 0.08 2 -	^ ^ ^ ^ ^ ^	A 10	v v v v v	A 0 0 0	A 0 0.03 0 70 70	A 0	V V V V V	A 0 0 0 · ·	^	<b>Q</b> 0	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AV	/SC														_
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.06 16		> > >	A 10		A 0 0.07 4	>	A 0	< < <	A 1 0.01 12		A 1	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.02 8		<b>^ ^ ^ ^ ^</b>	A 8					\ \ \ \	A 8 0.11 18		A 8		A 8 0.15 19	^ ^ ^	A 8	
	Amrbidge Drive & Oil Tank Road Operating under TWSC																			
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.04 1		<b>&gt;</b>	A 10		A 0 0.08 0	>	A 0	< < <	A 2 0.02 1		A 2	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	A 10 0.02 1		^ ^ ^ ^	A 10					\ \ \ \	A 0 0		A 0		A 0 0.09 0	^ ^ ^	A 0	
PM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	< < < < < <	A 10 0.01 0 -	· · · · · ·	A 10	< < < < <	A 10 0.09 2 -	^ ^ ^ ^ ^	A 10	· · · · · · · · · · · · · · · · · · ·	A 0 0 0 -	A 0 0.04 0 70 70	A 0	< < < < < < < < < < < < < < < < < < <	A 1 0.01 0 -	^ ^ ^ ^ ^ ^	A 1	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AV	/SC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.04 14		^ ^ ^ ^	A 10		A 0 0.08 0	^ ^ ^ ^	A 0	< < <	A 2 0.02 12		A 2	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.02 8		^ ^ ^ ^	A 8					v v v	A 8 0.14 17		A 8		A 8 0.16 14	^ ^ ^ ^	A 8	
MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m)																				

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds V/C - Volume to Capacity Ratio

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

</> - Shared with through movement



### **TABLE 5.2: 2036 BACKGROUND TRAFFIC OPERATIONS**

				T .						Direct	tion/M	ovemo	nt/App	roach						1
<u>100</u>					Faeth	ound				ound		overne		bound		1	South	hound		
Pel		Control				Journa	_			Journa				l				bound		=
Analysis Period	Intersection	Туре	MOE	Left	Through	Right	Approach	ij	Through	Right	Approach	Heft	Through	Right	Approach	Left	Through	Right	Approach	Overall
	Amrbidge Drive & Oil Ta	nk Road		ng und	der TW	ISC	1				1									
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.07 2		>  >	A 10		A 0 0.08 0	> > >	A 0	< < <	A 1 0.01 0		A 1	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	A 10 0.03 1		^ ^ ^ ^	A 10					v v v	A 0 0		A 0		A 0 0.08 0	^ ^ ^ ^	A 0	
AM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	V V V V V	A 10 0	^ ^ ^ ^ ^ ^	A 10	v v v v v	A 10 0.09 2 -	^ ^ ^ ^ ^ ^	A 10	v v v v v	A 0 0 0	A 0 0.03 0 70 70	0 >	v v v v v	A 0 0 0	v v v v v	0 >	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AV	/SC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C					A 10 0.07 18		> > >	A 10		A 0 0.08 5	· · · · ·	A 0	< < < < < < < < < < < < < < < < < < <	A 1 0.01 13		A 1	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.03 9		^ ^ ^	A 8					v v v	A 8 0.12 19		A 8		A 8 0.17 21	^ ^ ^ ^	A 8	
	Amrbidge Drive & Oil Ta	nk Road	Operati	ng und	der TW	ISC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.05 1		>	A 10		A 0 0.09	^ ^ ^	A 0	< < < < < < < < < < < < < < < < < < <	A 2 0.03 1		A 2	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 10 0.03 1		^ ^ ^	B 10					V V V	A 0 0		A 0		A 0 0.09 0	^ ^ ^	A 0	
PM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	< < < < < <	B 10 0.01 0 -		B 10	· · · · · · ·	B 10 0.1 3 -	<pre></pre>	B 10	· · · · · · · · · · · · · · · · · · ·	A 0 0 0	A 0 0.05 0 70 70	A 0		A 1 0.01 0 -	^ ^ ^ ^ ^ ^	A 1	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AW	vsc														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					A 10 0.05 13		^ ^ ^ ^	A 10		A 0 0.09 0	^ ^ ^ ^	A 0	< < <	A 2 0.03 17		A 2	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.02 9		^ ^ ^	A 8					v v v	A 8 0.15 17		A 8		A 8 0.18 15	^ ^ ^	A 8	
М	DE - Measure of Effectivene	ss			Q - 95	th Per	centile	Queue	Lengt	h (m)										

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m) TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control </>- Shared with through movement



### **5.2 Future Total Traffic**

To assess the operating conditions for the weekday AM and PM peak hour total traffic forecasts, an operational analysis was undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of background conditions. The exceptions include the following:

- Inclusion and assessment of the proposed site access intersection with Oil Tank Road.
  - Based upon direction provided it is assumed the site access driveway will operate under stop control; and
- Recalculated heavy vehicle percentages for all movements at the study area intersections to reflect the additional trucks on the network.

Similar to Section 5.1, the Highway 67 (Ambridge Drive)/Oil Tank Road intersection has also been assessed operating under all-way stop control (AWSC).

**Table 5.3** and **Table 5.4** present the results of the operational analysis for the 2026 and 2036 total traffic conditions (with the proposed development). Any movements identified as critical movements are highlighted within the results tables. **Appendix D** contains the Synchro analysis outputs for reference.

### Highway 67 (Ambridge Drive)/Oil Tank Road Operating Under TWSC

It is forecast under the 2026 and 2036 total traffic conditions (with the proposed development) the study area intersections would operate similar to background conditions, albeit slightly exacerbated with the inclusion of site-generated traffic. All intersections and traffic movements are forecast to operate at good levels of service and well within capacity.

The site access intersection is forecast to operate at good levels of service and well within capacity. No auxiliary turn lanes (i.e., westbound right turn lane or eastbound left turn lane) on Oil Tank Road are required to accommodate the site-generated traffic from an operational perspective.

The 95<sup>th</sup> percentile queue lengths were checked for all movements. No spillback issues are identified.

The adjacent spur rail line that crosses Oil Tank Road approximately 15 metres west of Highway 67 (Ambridge Drive) was acknowledged by ONR not to be in use; however, it is understood that train activities may

resume in the future at a frequency of potentially two trips a day, three to four days a week pending the redevelopment of the Old Mill Property.

With the projected low train activity and a lack of detailed information (i.e., time and schedule of train crossings), it is anticipated the potential future train crossings will result in minimal impacts to the traffic operations at the adjacent Oil Tank Road/Highway 67 (Ambridge Drive) intersection.

### Highway 67 (Ambridge Drive)/Oil Tank Road Operating Under AWSC

With Highway 67 (Ambridge Drive)/Oil Tank Road operating under AWSC, the intersection is anticipated to operate with acceptable levels of service and with all movements operating well within capacity (v/c < 0.85).

Similar to the discussion provided in Section 5.1, vehicle queuing is anticipated to be further exacerbated for all movements at the intersection when operating under AWSC.

The reported 95<sup>th</sup> percentile queue length for the southbound shared movement is less than 20 metres under the furthest horizon 2036, and is not anticipated to block the upstream intersection of Highway 67 (Ambridge Drive)/Nosov Drive.

Furthermore, the more commonly anticipated average 50<sup>th</sup> percentile queue length is estimated to be 10 to 13 metres and would not extend to the upstream intersection.

### **TABLE 5.3: 2026 TOTAL TRAFFIC OPERATIONS**

ō										Direct	ion/Mo	oveme	nt/App	roach			-			
erio					Eastb	ound			Westl	oound			North	bound			South	bound		
<b>Analysis Period</b>	Intersection	Control Type	MOE	ње	Through	Right	Approach	ње	Through	Right	Approach	ijeŢ	Through	Right	Approach	Left	Through	Right	Approach	Overall
	Amrbidge Drive & Oil Ta	nk Road (		ng und	der TW	SC	1													
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.06 2		^ ^ ^ ^	B 10		A 0 0.08 0	^ ^ ^ ^	<b>A</b> 0	< < <	A 1 0.01 0		<b>A</b> 1	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 11 0.07 2		^ ^ ^ ^	B 11					v v v	A 3 0.04 1		A 3		A 0 0.12 0	v v v v	0 >	
AM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	· · · · · · · · · · · · · · · · · · ·	A 10 0 0	^ ^ ^ ^ ^ ^ ^ ^ ^	A 10	· · · · · · · · · · · · · · · · · · ·	A 10 0.1 3 -	^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^ ^	A 10	· · · · · · · · · · · · · · · · · · ·	A 0 0 0 -	A 0 0.06 0 70 70	A 0		A 1 0 0	^ ^ ^ ^ ^ ^	A 1	
AM P	Oil Tank Road & Site Access	TWSC	LOS Delay V/C Q	< < <	A 0 0		A 0		A 0 0.07 0	> > >	A 0					A 9 0.03 1		^ ^ ^	A 9	
	Amrbidge Drive & Oil Ta	nk Road (		ng und	der AW	/SC	1	_			_						_			
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.06 16			10		A 0 0.08 5	^ ^ ^	A 0	< < <	A 1 0.01 19		A 1	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.07 18		^ ^ ^	A 8					v v v	A 8 0.18 20		A 8		A 8 0.23 20	^ ^ ^ ^	A 8	
	Amrbidge Drive & Oil Ta	nk Road (		ng und	der TW	SC	,													
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.05 1			B 10		A 0 0.11 0	^ ^ ^	A 0	< < <	A 2 0.03 1		A 2	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 11 0.17 5		> > >	B 11					· · · ·	A 1 0.01 0		A 1		A 0 0.1 0	^ ^ ^	A 0	
eak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	· · · · · · · ·	A 10 0.01 0 -	^ ^ ^ ^ ^ ^	A 10	V V V V V	B 10 0.16 4 -	^ ^ ^ ^ ^ ^	B 10	V V V V V	A 0 0 0	A 0 0.05 0 70 70	A 0	V V V V V	A 1 0.01 0	^ ^ ^ ^ ^ ^	A 1	
PM P	Oil Tank Road & Site Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0		A 0		A 0 0.03 0	<b>^ ^ ^ ^ ^</b>	A 0					A 9 0.12 3		^ ^ ^ ^	A 9	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AW	/SC	1						٠.							
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.05 13		> > >	10		A 0 0.11 4	> > >	A 0	< < <	A 2 0.03 16		A 2	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.16 18		<pre>^</pre>	A 8						A 8 0.17 19		A 8		A 8 0.20 17	^ ^ ^	A 8	
MC	E - Measure of Effectivene	22			Q - 95	th Pen	centile	Queue	Lenat	h (m)										

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

TWSC - Two-Way Stop Control

AWSC - All-Way Stop Control

</>- Shared with through movement



### **TABLE 5.4: 2036 TOTAL TRAFFIC OPERATIONS**

D										Direct	ion/Mo	oveme	nt/App	roach						
erio					Eastb	ound			Westl	ound			North	bound			South	bound		
<b>Analysis Period</b>		Control Type	MOE	ње	Through	Right	Approach	ње	Through	Right	Approach	IJeТ	Through	Right	Approach	ње	Through	Right	Approach	Overall
	Amrbidge Drive & Oil Ta	nk Road (		ng und	der TW	SC	1	I 5	ı		1									•
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.07 2		>	B 10		A 0 0.09 0	^ ^ ^ ^	<b>A</b> 0	v v v v	A 1 0.01 0		<b>A</b> 1	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 11 0.08 2		^ ^ ^ ^	B 11					v v v	A 3 0.04 1		A 3		A 0 0.12 0	v v v v	0 >	
AM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	· · · · · · · · · · · · · · · · · · ·	A 10 0 0		A 10	· · · · · · · · · · · · · · · · · · ·	B 10 0.11 3 -	^ ^ ^ ^	B 10	· · · · · · · · · · · · · · · · · · ·	A 0 0 0	A 0 0.06 0 70 70	A 0	· · · · · · · · · · · · · · · · · · ·	A 1 0.01 0 -	^ ^ ^ ^ ^ ^	A 1	
AM P	Oil Tank Road & Site Access	TWSC	LOS Delay V/C Q		A 0 0		A 0		A 0 0.07 0	· · ·	A 0					A 9 0.03 1		^ ^ ^	A 9	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AW	/SC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.07 17		>	B 10		A 0 0.09 5	^ ^ ^	A 0		A 1 0.01 19		A 1	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 8 0.07 16			<b>A</b> 8					v v v	A 8 0.20 20		A 8		A 8 0.24 20	^ ^ ^ ^	<b>A</b> 8	
	Amrbidge Drive & Oil Ta	nk Road (	Operati	ng und	der TW	SC						-								
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 10 0.05 1		<b>^ ^ ^ ^</b>	B 10		A 0 0.12 0	^ ^ ^	A 0	< < <	A 2 0.03 1		A 2	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 11 0.18 5		>	B 11					V V V	A 1 0.01 0		A 1		A 0 0.11 0	^ ^ ^	A 0	
eak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	· · · · · · · · · · · · · · · · · · ·	B 10 0.01 0	^ ^ ^ ^ ^ ^	B 10	· · · · · · · · · · · · · · · · · · ·	B 11 0.17 5 -	· · · · · ·	B 11	v v v v v	A 0 0 0	A 0 0.05 0 70 70	A 0	V V V V V	A 1 0.01 0 -	^ ^ ^ ^ ^ ^	A 1	
A WA	Oil Tank Road & Site Access	TWSC	LOS Delay V/C Q	<td>A 0 0</td> <td></td> <td>A 0</td> <td></td> <td>A 0 0.03 0</td> <td>&gt; &gt; &gt;</td> <td>A 0</td> <td></td> <td></td> <td></td> <td></td> <td>A 9 0.12 3</td> <td></td> <td>^ ^ ^</td> <td>A 9</td> <td></td>	A 0 0		A 0		A 0 0.03 0	> > >	A 0					A 9 0.12 3		^ ^ ^	A 9	
	Amrbidge Drive & Oil Ta Ambridge Drive & Nosov Drive	TWSC	Operati LOS Delay V/C Q	ng und	der AW	/SC		B 10 0.05 13		^ ^ ^	B 10		A 0 0.12 3	^ ^ ^ ^	A 0	V V V	A 2 0.03 15		A 2	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 9 0.17 16		> > >	A 9					< < < < < < < < < < < < < < < < < < <	A 9 0.18 20		A 9		A 9 0.22 17	^ ^ ^	A 9	
M	DE - Measure of Effectivene	222			O = 95	th Pen	centile	OHEHE	lenat	n (m)										

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

TWSC - Two-Way Stop Control AWSC - All-Way Stop Control

</>- Shared with through movement



### 5.3 Sensitivity Analysis

A sensitivity analysis was conducted where all site-generated traffic was assigned to/from the north along Highway 67 (Ambridge Drive), assuming all staff/employees of the proposed industrial park development reside in Town.

**Table 5.5** summarizes the sensitivity analysis results, which indicates with all site traffic assigned to/from the north via Highway 67 (Ambridge Drive), the study area intersections, specifically, the intersection of Highway 67 (Ambridge Drive) and Oil Tank Road is determined to operate at good levels of service and well within capacity.

**Appendix E** contains the Synchro analysis outputs for reference.

### **TABLE 5.5: 2036 TOTAL TRAFFIC OPERATIONS – SENSITIVITY ANALYSIS**

D										Direct	ion/Mo	oveme	nt/App	roach						
erio					Eastk	ound			Westk	ound			North	bound			South	bound		
<b>Analysis Period</b>	Intersection	Control Type	MOE	цец	Through	Right	Approach	Teft	Through	Right	Approach	цец	Through	Right	Approach	џеŢ	Through	Right	Approach	Overall
	Amrbidge Drive & Oil Ta	nk Road (		ng und	der TW	ISC		_			_									
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 11 0.08 2		^ ^ ^ ^	B 11		A 0 0.1 0	^ ^ ^ ^	<b>A</b> 0	v v v v	A 1 0.01 0		A 1	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 11 0.07 2		^ ^ ^	B 11					v v v	0000		0 >		A 0 0.16 0	^ ^ ^ ^	0 >	
AM Peak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	· · · · · · · · · · · · · · · · · · ·	A 10 0 0 -	^ ^ ^ ^ ^ ^	A 10	· · · · · · · · · · · · · · · · · · ·	A 10 0.09 2 -	^ ^ ^ ^ ^ ^	A 10	V V V V V	A 0 0 0	A 0 0.03 0 70 70	A 0	v v v v v	A 0 0 0	^ ^ ^ ^ ^ ^	A 0	
AM P	Oil Tank Road & Site Access	TWSC	LOS Delay V/C Q	v v v	A 0 0		A 0		A 0 0.07 0	^	0 >					A 9 0.03 1		^ ^ V	6 7	
	Amrbidge Drive & Oil Ta	nk Road		ng un	der AV	/SC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 11 0.08 21		^ ^ ^	B 11		A 0 0.1 3	^ ^ ^	<b>A</b> 0	v v v	A 1 0.01 28		A 1	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 9 0.07 17		^ ^ ^ ^	A 9					<td>A 8 0.13 19</td> <td></td> <td>A 8</td> <td></td> <td>A 9 0.30 21</td> <td>^ ^ ^</td> <td>A 9</td> <td></td>	A 8 0.13 19		A 8		A 9 0.30 21	^ ^ ^	A 9	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der TW	ISC		_			1									
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 11 0.06 2		^ ^ ^ ^	B 11		A 0 0.15 0	^ ^ ^	<b>A</b> 0	v v v v	A 2 0.03 1		A 2	
	Ambridge Drive & Oil Tank Road	TWSC	LOS Delay V/C Q	B 12 0.19 6		^ ^ ^	B 12					v v v	0000		0 >		A 0 0.11 0	^ ^ V	0 >	
eak Hour	Highway 11 & Cemetery Road/Highway 67	TWSC	LOS Delay V/C Q Stor. Avail.	· · · · · · · · · · · · · · · · · · ·	B 10 0.01 0 -	· · · · · ·	B 10	· · · · · · · · · · · · · · · · · · ·	B 10 0.1 3 -	^ ^ ^ ^ ^ ^	B 10	· · · · · · · · · · · · · · · · · · ·	A 0 0 0	A 0 0.05 0 70 70	A 0	· · · · · · ·	A 1 0.01 0 -	<pre>^</pre>	A 1	
PM P	Oil Tank Road & Site Access	TWSC	LOS Delay V/C Q		A 0 0		A 0		A 0 0.03 0	^ ^ ^	A 0					A 9 0.12 3		<b>^ ^ ^ ^ ^</b>	A 9	
	Amrbidge Drive & Oil Ta	nk Road		ng und	der AV	/SC														
	Ambridge Drive & Nosov Drive	TWSC	LOS Delay V/C Q					B 11 0.06 15		^ ^ ^ ^	B 11		A 0 0.15 2	^ ^ ^ ^	A 0	v v v v	A 2 0.03 21		A 2	
	Ambridge Drive & Oil Tank Road	AWSC	LOS Delay V/C Q	A 9 0.18 18		^ ^ ^	A 9					< < < < < < < < < < < < < < < < < < <	A 8 0.17 17		A 8		A 9 0.23 18	<b>&gt;</b>	A 9	
140	F - Measure of Effectivene				· 0	th Dor	oontilo	Ouous	Lenat	h /ma)							-			

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

TWSC - Two-Way Stop Control AWSC - All-Way Stop Control

</>
</>- Shared with through movement



### 5.4 Impact Assessment Summary

As reported in **Section 5.2** and **Section 5.3**, all intersections and traffic movements are forecast to operate at good levels of service and well within capacity under 2026 and 2036 total traffic conditions. Therefore, the site-generated traffic can be accommodated by the existing transportation network without the need for any intersection geometric improvements or traffic control upgrades.

The exception being EXP's proposal for the intersection of Highway 69 (Ambridge Drive)/Oil Tank Road to operate under all-way stop control. This proposal is in consideration of the adjacent rail line crossing.

From a traffic volume perspective, **Table 5.6** provides a summary of how traffic volumes are anticipated to increase with the subject development. The proposed industrial park development is anticipated to generate 130 vehicular trips (two-way) during each study peak hour. Even though the subject development site trips are forecast to increase traffic volumes by 15 to 60% during each study peak hour, the overall magnitude of additional traffic is relatively low and would not pose any traffic operational issues within the study area.

In conclusion, no intersection geometric improvements or traffic control upgrades are determined to be required to accommodate the proposed industrial park development.

**TABLE 5.6: TRAFFIC VOLUME INCREASE** 

Intersection	% Volume	nd vs. 2036 Total e Increase ntering)
	AM Peak Hour	PM Peak Hour
Highway 67 (Ambridge Drive) and Nosov Drive	27%	21%
Highway 67 (Ambridge Drive) and Oil Tank Road	57%	47%
Highway 11 and Highway 67/Cemetery Road	25%	19%

### 6 Conclusions and Recommendations

### 6.1 Conclusions

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

- Under base year (2024) traffic conditions, the study area intersections are operating at good levels of service and well within capacity during the weekday AM and PM peak hours;
- Under 2026 and 2036 background (without the subject development) traffic conditions, the study area intersections and their associated traffic movements are forecast to continue operating at good levels of service and well within capacity during both peak periods;
- Development of the proposed industrial park site is conservatively forecast to generate a total of 130 AM and 130 PM peak hour vehicular trips; and
- Under 2026 and 2036 total (with the subject development) traffic conditions, the study area intersections and their associated traffic movements are forecast to continue operating at good levels of service and well within capacity during the weekday AM and PM peak hours.

The site-generated traffic is determined to be accommodated by the existing transportation network without the need for any intersection geometric improvements or traffic control upgrades.

The proposed development will not adversely affect capacity, safety, or operations on the adjacent transportation network.

### 6.2 Recommendations

The recommendations of the study area are as follows:

- The review agencies recognize the conclusions drawn above;
- The applicable roadway jurisdiction to confirm the implementation of all-way stop control (AWSC) at Ambridge Drive/Oil Tank Road. Based on the analysis, there are no anticipated future operational issues in maintaining the current intersection control type (stop control on the Oil Tank Road approach), or converting to AWSC. The provision of AWSC would provide a safer environment in consideration of the adjacent rail line crossing; and

► From a transportation perspective, the required planning applications to allow the proposed development should be approved.

### **Appendix A**

### **Turning Movement Count Data**

Intersection Location:

Street 1: Hwy 11 (North & South)

Date: Feb 24/26 Tech: Austin Gilbert

Arrive at least 15 before start, setup camera to record.

 Vehicle Under 5t
 Semi Truck 5t plus
 School Bus + Other

 ticks in groups of 5
 T'
 B'

23008853 Phitoo

eet 2: Cemetery Rd &	Hwy 67 (East & West)	-	Tech: Austin Gill			-		HWY 67 WEST BO	UND		CEMETERY RD EAST	BOUND
ETUP @ 6:45		HWY 11 NORTH BOT			HWY 11 SOUTH BOUT	RIGHT TURN	LEFT TURN	STRAIGHT THRU	RIGHT TURN	LEFT TURN	STRAIGHT THRU	RIGHT TURN
	LEFT TURN	STRAIGHT THRU	RIGHT TURN LANE	LEFT TURN	TITITITE TIT	Morn rous	B		1	_		
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9.43-10.00		HTT I	HHT							l-		

Intersection Location:

Street 1: Hwy 11 (North & South)

Date: Feb 26/24 PM Tech: Austin Gilbert

Arrive at least 15 before start, setup camera to record.

I	Vehicle Under 5t	Semi Truck 5t plus	School Bus + Other
ł	ticks in groups of 5	T'	B'

treet 2: Cemetery Rd &	mwy b/ (cast & west)		ND.		HWY 11 SOUTH BOUND			HWY 67 WEST BO	UND	0	EMETERY RD EAST	עאטטפ
ETUP @ 1:45		HWY 11 NORTH BOU	ND				L SET TUDA!	STRAIGH THRU	RIGHT TURN	LEFT TURN	STRAIGH THRU	RIGHT TURN
me Period:	LEFT TURN	STRAIGH THRU	RIGHT TURN LANE	LEFT TURN		HT TURN	LEFT TURN	STRAIGHTHING	31		11	1
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## - PARKED FACING SOUTH

Intersection Location:

Street 1: Ambridge Drive (North & South)

Street 2: Oil Tank Road & Nosov Drive (East & West)

Date: FEB 26/24 A1
Tech: S. MEDLAND

Arrive at least 15 before start, setup camera to record.

Vehicle Under 5t	Semi Truck 5t plus	School Bus + Other
ticks in groups of 5	Г	B'

23008853-00

SETUP @ 6:45		DGE DRIVE - NORT			RIDGE DRIVE - SOUT		NOS	OV DRIVE - WEST	BOUND	OIL T	ANK ROAD - EAS	T BOUND
Time Period:	DILTANK	STRAIGHT THRU	NOSOV RIGHT TURN LANE	N)050√ LEFT TURN	STRAIGHT THRU	OIL TANK RIGHT TURN	LEFT TURN OF	STRAIGHT THRU	RIGHT TURN	LEFT TURN VIN	STRAIGHT THRU	RIGHT TURN OUT
7:00-7:15		HT LHT BACKHOE SKID STEER	HTT	1	HT HT LHT BACKHOE	ſ	1	1	-1	,,,		1)
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7:45-8:00		IHT HIT B	1	11	HH HK	)	1		1	1		1
8:00-8:15		HHT HT III	11.	11	HTH BT HT IIII LOADER	))))		SKIDSTEER	II B	11	I B	1
8:15-8:30		州州州	81	11	HT HT HT HT B LOADER	111	SKIDSTEER		HH HH	141		
8:30-8:45		批批批	LOADER	TI	HHT HT II BBTTBB		m		1111 B	11		
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\* EQUIPMENT + ATU DUR TO SNOW REMOVAL

CAMERA STOP

Intersection Location:

Street 1: Ambridge Drive (North & South)

Date: FEB 26/24 F

Arrive at least 15 before start, setup camera to record.

 Vehicle Under 5t
 Semi Truck 5t plus
 School Bus + Other

 ticks in groups of 5
 T'
 B'

SETUP @ 1:45		IDGE DRIVE - NORT			RIDGE DRIVE - SOUT		1 NO	SOV DRIVE - WEST	BOUND	OIL T	ANK ROAD - EAS	T BOUND
Time Period:	LEFT TURN	STRAIGH THRU	NOSOV RIGHT TURN LANE	LEFT TURN	STRAIGH THRU	RIGHT TURN	LEFT TURN OUT	STRAIGH THRU	RIGHT TURN (A)	LEFT TURN //	STRAIGH THRU	RIGHT TURN OUT
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### **Appendix B**

### **Base Year (2024) Traffic Operation Reports**

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

	-	1	-	4	۶	<b>→</b>	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	>		£			€	
Traffic Volume (veh/h)	15	23	- 98	∞	12	9	
Future Volume (Veh/h)	15	23	98	∞	12	91	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	19	78	106	10	15	112	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right tum flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	253	111			116		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	253	11			116		
tC, single (s)	6.5	6.3			4.1		
tC, 2 stage (s)							
tF (s)	3.6	3.4			2.2		
p0 queue free %	97	26			66		
cM capacity (veh/h)	701	913			1485		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	47	116	127				
Volume Left	19	0	15				
Volume Right	78	10	0				
SH	814	1700	1485				
Volume to Capacity	90:0	0.07	0.01				
Queue Length 95th (m)	1.5	0.0	0.2				
Control Delay (s)	9.7	0:0	1.0				
Lane LOS	∢		4				
Approach Delay (s)	9.7	0.0	1:0				
Approach LOS	∢						
Intersection Summary							
Average Delay			00				
Internaction Consolity   Hillinatio	5		22 40%	2	Oll Lovel of Congo	Conviou	<
mersection capacity unitation	E O		27.170	5	O Level o	Service	<b>X</b>
Analysis Period (min)			15				

Synchro 11 Report Page 1

Paradigm Transportation Solutions Limited

Base Year (2024) AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

																																							<	•
•	SBR		= +	=		0.85	13																																Coningo	Service
<b>→</b>	NBT SBT	<b>€</b>	80 95	ш			94 112						None None																										ال ال	ICO Level of Service
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	Movement	Lane Configurations	Frame Volume (ven/n)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	作(s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Inforception Consolity Hillingtion	Intersection Capacity Utiliz Analysis Period (min)

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67

Movement ane Configurations Traffic Volume (veh/h) Sign Control Grade Peak Hour Factor Houring How rate (veh/h)	EBL	FBT										
Configurations c Volume (veh/h) e Volume (Veh/h) Control e Hur Factor Hour Ractor		3	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
c Volume (veh/h) e Volume (Veh/h) Control a Hour Factor		4			4			€	*		4	
e Volume (Veh/h) Control a Hour Factor	0	<del>-</del>	0	49	0	2	0	40	38	က	9	2
Control e Hour Factor	0	-	0	46	0	2	0	40	38	က	65	2
e Hour Factor		Stop			Stop			Free			Free	
Hour Factor		%0			%0			%0			%0	
ly flow rate (vnh)	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
y now rate (vp)	0	-	0	26	0	9	0	48	46	4	78	2
Pedestrians												
-ane Width (m)												
Nalking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Jpstream signal (m)												
X, platoon unblocked												
C, conflicting volume	141	135	79	136	136	48	8			48		
C1, stage 1 conf vol												
vC2, stage 2 conf vol												
/Cu, unblocked vol	141	135	79	136	136	48	8			48		
C, single (s)	7.1	6.5	6.2	7.2	6.5	6.4	4.1			4.1		
C, 2 stage (s)												
F (s)	3.5	4.0	3.3	3.6	4.0	3.5	2.2			2.2		
on dueue free %	100	100	100	8	100	66	100			100		
cM capacity (veh/h)	827	758	286	820	757	972	1531			1572		
Direction, Lane #	EB 1	WB1	NB 1	NB 2	SB 1							
/olume Total	-	65	48	46	8							
/olume Left	0	29	0	0	4							
/olume Right	0	9	0	46	2							
	758	832	1531	1700	1572							
Volume to Capacity	0.00	0.08	0.00	0.03	0.00							
Queue Length 95th (m)	0.0	2.0	0.0	0.0	0.1							
Control Delay (s)	8.6	9.7	0.0	0.0	0.4							
ane LOS	V	∢			⋖							
Approach Delay (s)	8.6	9.7	0.0		0.4							
pproach LOS	A	⋖										
ntersection Summary												
Average Delay			2.7									
ntersection Capacity Utilization	on		22.3%	₫	ICU Level of Service	f Service			∢			
Analysis Period (min)			15									

Novement	WBL	WBR	NBT	NBR	SBL	SBT	
ane Configurations	Þ		£3			€3	
raffic Volume (veh/h)	<u> </u>	21	107	10	31	119	
-uture Volume (Veh/h)	ത	21	107	10	31	119	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	9	24	120	=	32	134	
Pedestrians							
ane Width (m)							
Valking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Jpstream signal (m)							
oX, platoon unblocked							
vC, conflicting volume	330	126			131		
C1, stage 1 conf vol							
AC2, stage 2 conf vol							
/Cu, unblocked vol	330	126			131		
C, single (s)	9.9	6.2			4.1		
C, 2 stage (s)							
₽ (s)	3.7	3.3			2.2		
on due ue free %	8	97			86		
cM capacity (veh/h)	615	930			1448		
Direction, Lane #	WB 1	NB 1	SB 1				
/olume Total	怒	131	169				
/olume Left	9	0	35				
/olume Right	24	7	0				
SSH	808	1700	1448				
/olume to Capacity	0.04	0.08	0.02				
Queue Length 95th (m)	<del>[</del> -	0.0	9.0				
Control Delay (s)	9.6	0.0	1.7				
-ane LOS	⋖		∢				
Approach Delay (s)	9.6	0.0	1.7				
Approach LOS	A						
ntersection Summary							
Average Delay			1.9				
ntersection Capacity Utilization	ation		24 6%	_	CILI aval of Service	f Service	Δ
			2.0.7	2	0 500	20170	c

Synchro 11 Report Page 3

Paradigm Transportation Solutions Limited

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

Base Year (2024) PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67
--

/

Base Year (2024) PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

0.91

0.91

0.91

0.91

0.91

0.91

0.91

Stop 0% 0.91

None

None

96

64

96

180

181

64

4.1

4.1

96

6.2

2.2 99 1510

2.2 100 1551

3.3 99 966

4.0 100 713

3.5 92 779

3.3

73 9

71 71 71 71 71 70 0.04 0.0

0.01 0.01 1.0 A A 1.0

0.00 0.00 0.1 A A

57 57 0% 0.91 63

87 87 87 0% 0.91

**65** 65

54

Part	•		٠	-	-						
1	lovement	EBL	EBR	NBL	NBT	SBT	SBR		Mov	vement	
Vertificial Control (Vertificial Control (Vertifi	onfigurations	>			4	÷			Lan	ne Configurations	
1   1   2   10   14   14   14   14   14   14   14	raffic Volume (veh/h)	13	_	2	104	114	14		Tra	(ffic Volume (veh/h)	_
Stop   Free Free Free Free Free Free Free Fr	uture Volume (Veh/h)	13	-	2	4	114	14		Fut	ure Volume (Veh/h)	_
Control   Cont	Sign Control	Stop			Free	Free			Sig	in Control	0)
clor         0 90         0.90 <th< td=""><td></td><td>%0</td><td></td><td></td><td>%0</td><td>%0</td><td></td><td></td><td>Gra</td><td></td><td></td></th<>		%0			%0	%0			Gra		
Percent Books   Percent Book		06.0	06:0	0.30	0.30	06.0	06:0		Pea		
Control Delay (100)		14	-	2	116	127	16		19	urly flow rate (vph)	-
Making Space (mis)	Pedestrians								Pec	destrians	
A control of mise)   Percent Policyage	-ane Width (m)								Lan	ne Width (m)	
Percent Blockage	Valking Speed (m/s)								Wa	Iking Speed (m/s)	
Part	Percent Blockage								Per	roent Blockage	
None	Right tum flare (veh)								Rig	ht turn flare (veh)	
Medital storage veth   Dispersion   Disper	Median type					None			Mec	dian type	
255 135 143   Upstream signal (m)   256 135 143   Participate   Particip	Aedian storage veh)								Med	dian storage veh)	
255   135   143   24   25   25   25   25   25   25   25	Jpstream signal (m)								san n	stream signal (m)	
255         135         143         N.C. conflicting volume         186           256         135         143         V.C. single (s)         7.1           64         6.2         4.1         V.C. single (s)         7.1           35         3.3         2.2         Single (s)         7.7           36         100         100         V.C. single (s)         7.7           37         3.4         2.2         Single (s)         7.7           38         100         100         V.C. single (s)         7.7           17         2.2         P.C. Single (s)         7.7           18         14.2         D.C. Single (s)         7.7           14         2.0         O.C. C. Single (s)         7.7           100         0.0         O.C. C. Single (s)         7.7           14         2.0         O.C. C. Single (s)         7.7           10         0.0	X, platoon unblocked								Xd	platoon unblocked	
1, 1, 1, 2, 2, 3, 3		255	135	143					Ò	conflicting volume	186
1	C1, stage 1 conf vol								VC	1, stage 1 conf vol	
255         135         143         Acu unbiocked vol         186           64         6.2         4.1         C. single (s)         7.1           1         6.4         6.2         4.1         C. single (s)         7.1           1         1.0         100         100         100         100           1         1.0         1.0         1.0         1.0         1.0         1.0           1         1.0	age 2 conf vol								VCZ	2, stage 2 conf vol	
C. single (s) 7.1	blocked vol	255	135	143					NO	u, unblocked vol	186
3.5     3.3     2.2     F(s)     3.5       98     100     100     100       98     100     100     100       737     919     1452     100       EB1     NB1     SB1     100       EB1     NB1     SB1     100       14     2     0     0     10       14     2     0     16     0     10       14     2     0     16     0     10       14     2     0     16     0     10       14     2     0     16     0     10       14     2     0     16     0     10       15     14     2     0     0     0     0       16     0     0     0     0     0     0     0       18     1     0	le (s)	6.4	6.2	4.1					Ç	single (s)	7.1
3.5   3.2   2.2	age (s)								<b>\$</b>	2 stage (s)	
100   100		3.5	3.3	2.2					) 4	(S)	
FB 1 NB 1 SB 1   Accident Lane # EB 1 N	e free %	86	9	100					od .	dnene free %	
EB 1 NB 1 SB 1	icity (veh/h)	737	919	1452					cM	capacity (veh/h)	
15   118   143   145   143		EB 1	NB 1	SB 1					Dire		
14   2   0   0   10   1   1   1   1   1   1	Total	15	118	143					lo/	ume Total	4
1 0 16   16   16   16   1727	Left	14	2	0					Nol	nme Left	<del>-</del>
727   747   745   740   742   747   745   747   745   747   745   747   745   747   745   747   745   747   745	Right	_	0	16					Nol	ume Right	
0.02 0.00 0.08   Volume to Capacity   0.01		747	1452	1700					-SS	_	
March   Marc		0.02	0.00	0.08					lo/	ume to Capacity	
9.9         0.1         0.0         Contro Delay (s)         10.0           A         A         Lane LOS         A           A         A         Approach Delay (s)         10.0           A         A         Approach Delay (s)         10.0           A         Approach Delay (s)         10.0         Approach Delay (s)         10.0           A         Annicroscolor Capacity Utilization         Annicroscolor Capacity Utilization         Annicroscolor Capacity Utilization	Length 95th (m)	0.5	0.0	0.0					Que	eue Length 95th (m)	
A A Lane LOS A A Lane LOS A A A Lane LOS A A A A A A A A A A A A A A A A A A A	Delay (s)	6.6	0.1	0.0					Š	ntrol Delay (s)	
9.9 0.1 0.0 Approach Delay (s) 10.0 Approach Delay (s)	SC	4	∢						Lan	ne LOS	
y 0.6 Ubilization 17.1% ICU Level of Service A 15.1	ch Delay (s)	6.6	0.1	0.0					App	proach Delay (s)	
y 0.6 Unitzation 17.1% ICU Level of Service A 15.15	SOT HO	4							App	proach LOS	V
0.6 Utilization 17.1% ICU Level of Service A 15. 15.	tion Summary								Inte	ersection Summary	
Utilization 17.1% ICU Level of Service A	Delay			0.6					AVA	rade Delay	
15	tion Capacity Utilization			17.1%	<u></u>	l evel of	Service	A.	lnte	ersection Capacity Utilization	
2	Period (min)			4	é					alucio Doriod (min)	

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ICU Level of Service

2.5 26.2% 15

### **Appendix C**

### **Future Background Traffic Operation Reports**

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

	Background AM Peak Hou	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
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2026 Background AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

\*

•

0.85

0.85

Sign Control Grade Peak Hour Factor Hourly flow rate (vph)

None

None

127

120

216

Pedestrians
Lane Width (m)
Walking Speed (m/s)
Percent Blockage
Right tun flare (veh)
Median type
Median type
Median storage veh)
Dy patroam signal (m)
Dy patroam signal (m)
Dy stage 1 cont vol
CC, conficting volume
vC1, stage 2 cont vol
CC, stage 2 cont vol
CC, stage 6 cont vol
CC, stage 8 (s)
F( s)
F( s)
DG queue free %
dM capacity (veh/h)

2.2 100 1472

3.3 100 936

3.5 98 776

127

127 0 13 1700 0.07 0.0 0.0

96 0 0 0.00 0.00 0.00

Direction, Lane #
Volume Total
Volume Left
Solume Right
SSH
Volume to Capacity
Queue Length Sth (m)
Control Delay (s)
Lane LOS

=

97 97 0% 0.85

82 82 82 0% 0.85

Stop 0.85

Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h)

																																							A	:
<b>→</b>	SBT	<b>₩</b> 8	93	Free	%0	0.81	115						None																										Service	
٠	SBL	12	12			0.81	15										119			119	4.1		2.2	66	1482														ICU Level of Service	
•	NBR	∞	00			0.81	9																																0	!
<b>←</b>	NBT	<b>₹</b> &	88	Free	%0	0.81	109						None													SB 1	130	15	0	1482	0.01	0.2	6:0	∢	6.0			2.0	22.2%	15
4	WBR	23	23			0.81	78										114			114	6.3		3.4	26	910	NB 1	119	0	9	1700	0.07	0.0	0.0		0.0					
-	WBL	<b>≯</b> −₹	15	Stop	%0	0.81	19										259			259	6.5		3.6	97	695	WB 1	47	19	88	808	90.0	1.5	9.7	⋖	9.7	∢				
	Movement	Lane Configurations Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF(s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

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ICU Level of Service

0.7 15.8% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

0.0

0.0

Approach Delay (s) Approach LOS

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67

2026 Background AM Peak Hour	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
------------------------------	--

0.83
138
138
7.2
3.6
816
NB 2
47
47
1700
0.03
0.0
OILL aval of Capaiga

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HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2026 Background PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

																																								ď	:
<b>→</b>	SBT	₩	121	121	Free	%0	0.89	136						None																										ICU Level of Service	
۶	SBL		32	32			0.89	36										133			133	4.1		2.2	86	1446														Ulevelo	
•	NBR		10	10			0.89	Ξ																																2	2
<b>←</b>	NBT	£,	109	109	Free	%0	0.89	122						None													SB 1	172	36	0	1446	0.02	9.0	1.7	∢	1.7			1 9	24.8%	15
4	WBR		21	21			0.89	24										128			128	6.2		3.3	97	928	NB 1	133	0	Ξ	1700	0.08	0.0	0.0		0.0					
<b>\</b>	WBL	>	တ	6	Stop	%0	0.89	10										336			336	9.9		3.7	86	609	WB 1	8	9	54	804	0.04	1.1	9.7	∢	9.7	A			ation	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	<ul><li>vC, conflicting volume</li></ul>	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF(s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

HCM Unsignalized Intersection Capacity Analysis 2026 F 2: Ambridge Drive & Oil Tank Road (240078) - N

4 4

116 176 0.90 129

106 106 0.90 118

Stop 0.90 14

0.90

0.90

06:0

None

None

Traffic Volume (veh/h)
Stuture Volume (veh/h)
Stuture Volume (veh/h)
Stuture Volume (veh/h)
Grade
Peak Huo Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Median type
Median tonge veh
Median stonge veh
Upstream signal (m)
Po, platoon unblocked
vC, confricting volume
vC1, stage 1 confr vol
vC2, stage 2 confr vol
vC3, stage 2 confr vol
vC4, stage 2 confr vol
vC2, stage 6)
EC, Stage 6)
EC, Stage 6)
EC, Stage 60
EC, St

145

137

259

2.2 100 1450

3.3 100 917

3.5 98 733

145

137

259 6.4 145 0 0 1700 0.09 0.00

> € 5 4

NB 1 120 120 0 0.00 0.00 0.1 A A A O.1

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
CSH
Volume Bight (m)
Queue Length 96th (m)
Lane LOS

0.02 0.02 0.5 9.9 A 9.9 A A

2026 Background PM Peak Hour	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
HCM Unsignalized Intersection Capacity Analysis	3: Highway 11 & Cemetery Road/Highway 67

Movement	<b>→</b>	SBT	4	28	28	Free	%0	0.91	2						None																											
ent EBL EBT WBL WBT WBR NBL NBT Advolume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 55 2 5 1 89 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 3 0 60 2 5 1 98 of volume (vehln) 1 8 182 64 184 183 98 65 of volume (vehln) 1 1 65 6.2 7.1 6.5 6.2 4.1 of volume (vehln) 1 1 6.5 6.2 7.1 6.5 6.2 4.1 of volume (vehln) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	٠	SBL		∞	80			0.91	တ										86			86	4.1		2.2	66	1508															
Compact   Comp	•	NBR	¥C.	99	99			0.91	73																																∢	
and the tebr. EBI EBI WBL WBT WBR NBL of the tebr. EBI EBI WBL WBT WBR NBL of the tebr. Solutions (vehln) 1 3 0 55 2 5 1 1 3 0 55 2 5 1 1 3 0 55 2 5 1 1 3 0 55 2 5 1 1 1 3 0 55 2 5 1 1 1 3 0 55 2 5 1 1 1 3 0 55 2 5 1 1 1 1 3 0 55 2 5 1 1 1 1 3 0 55 2 5 1 1 1 1 3 0 55 2 5 1 1 1 1 1 3 0 55 2 5 1 1 1 1 1 1 3 0 50 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<b>—</b>	NBT	÷	83	88	Free	%0	0.91	86						None																											
ent EBL EBT EBR WBL  Jofume (velvh) 1 3 0 55  Jofume (velvh) 1 3 0 55  John (velvh) 1 3 0 60  John (velvh) 1 3 3 3.5  John (velvh) 1 6.5 6.2  John (velvh) 1 6.5 6.2  John (velvh) 1 6.7  John (velv	•	NBL		_	-			0.91	-										65			9	4.1		2.2	100	1550															
ent EBL EBT EBR WBL  Jofume (velvh) 1 3 0 55  Jofume (velvh) 1 3 0 55  John (velvh) 1 3 0 60  John (velvh) 1 3 3 3.5  John (velvh) 1 6.5 6.2  John (velvh) 1 6.5 6.2  John (velvh) 1 6.7  John (velv	1	WBR		2	2			0.91	2										86			86	6.2		3.3	66	963														Service	
ent EBL EBT EBR WBL  Jofume (velvh) 1 3 0 55  Jofume (velvh) 1 3 0 55  John (velvh) 1 3 0 60  John (velvh) 1 3 3 3.5  John (velvh) 1 6.5 6.2  John (velvh) 1 6.5 6.2  John (velvh) 1 6.7  John (velv	ļ	WBT	4	5	2	Stop	%0	0.91	2										183			183	6.5		4.0	100	710	SB 1	74	တ	<del>-</del>	1508	0.01	0.1	6.0	∢	6.0				Level of	
## Part   Part	<b>\</b>	WBL		22	22			0.91	09										184			184	7.1		3.5	92	77.5	NB 2	73	0	73	1700	0.04	0.0	0.0						ਹ	
## Part   Part	>	EBR		0	0			0.91	0										64			64	6.2		3.3	100	1005	NB 1	66	<del>-</del>	0	1550	0.00	0.0	0.1	∢	0.0			2.5	26.5%	2
ent fer infigurations folume (veh/h) (volume (veh/h) (volume (veh/h) (volume (veh/h) (volume (veh/h) (volume (veh/h) (volume (veh) (volume (volu	†	EBT	4	က	က	Stop	%0	0.91	က										182			182	6.5		4.0	100	710	WB 1	29	09	2	784	0.09	2.2	10.0	Ω	10.0	ш				
Movement Lane Configurations Traffic Volume (vehin) Sign Control Grade Peak Hour Factor Hourly flow rate (vph) Pedestirans Lane Width (m) Walking Speed (m/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (m) pX, paboran unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC3, stage 2 conf vol vC4, stage 1 conf vol vC4, stage 2 conf vol vC3, stage 8 (s) ff (s) p0 queue free % dA capacity (vehin) Direction, Lane # Volume Lotal Volume Lotal Volume Lotal Volume Lotal Volume Lotal Volume Bight SSH Volume Lotal Volume Bight SSH Volume Lotal Vo	4	EBL		_	-			0.91	-										188			188	7.1		3.5	100	792	EB 1	4	-	0	724	0.01	0.1	10.0	Ω	10.0	ш			_	
		Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	(s) ₄	% eauf eneng 0d	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

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ICU Level of Service

0.6 17.2% 15

Intersection Summary
Average Delay
Intersection Capacity Utilization
Analysis Period (min)

0.0

Approach Delay (s) Approach LOS Synchro 11 Report Page 2

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HCM Unsignalized Intersection Capacity Analysis 2026 Background AM Peak Hour (AWSC) 1: Ambridge Drive & Nosov Drive (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

1: Ambridge Drive & Nosov Drive	Nosov	, Drive					(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
	<b>&gt;</b>	4	<b>←</b>	•	۶	<b>→</b>	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	>		£,			₩	
Traffic Volume (veh/h)	15	23	88	∞	12	93	
Future Volume (Veh/h)	15	23	88	∞	12	93	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	19	78	109	10	12	115	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right tum flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	259	114			119		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	259	114			119		
tC, single (s)	6.5	6.3			4.1		
tC, 2 stage (s)							
tF (s)	3.6	3.4			2.2		
p0 queue free %	26	97			66		
cM capacity (veh/h)	695	910			1482		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	47	119	130				
Volume Left	19	0	15				
Volume Right	78	9	0				
cSH	808	1700	1482				
Volume to Capacity	90:0	0.07	0.01				
Queue Length 95th (m)	1.5	0.0	0.2				
Control Delay (s)	9.7	0.0	6:0				
Lane LOS	∢		⋖				
Approach Delay (s)	9.7	0.0	6.0				
Approach LOS	4						
Intersection Summary							
Average Delay	l		2.0			l	
Intersection Canacity I Hilization			20 00	2	CIII ovel of Service	Convice	٧
Analysis Period (min)			15	2	- FG AG		
and bone cooking			2				

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2026 Backgrd 2: Ambridge Drive & Oil Tank Road (240078) -

2026 Background AM Peak Hour (AWSC) (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

																					A	
SBR			1	11	0.85	13															f Service	
SBT	æ	Stop	97	97	0.85	114															CU Level o	
NBT	€	Stop	82	82	0.85	96															⊆	
NBL			0	0	0.85	0	SB 1	127	0	13	0.21	4.2	0.15	837	8.0	8.0	⋖		7.9	∢	15.8%	15
EBR			_	_	0.85	~	NB 1	96	0	0	0.15	4.2	0.11	835	7.8	7.8	⋖					
EBF	>	Stop	4	14	0.85	16	EB 1	17	16	_	0.15		0.02	751	7.6	7.6	×				Itilization	
Movement	Lane Configurations	Sign Control	Traffic Volume (vph)	Future Volume (vph)	Peak Hour Factor	Hourly flow rate (vph)	Direction, Lane #	Volume Total (vph)	Volume Left (vph)	Volume Right (vph)	Hadj (s)	Departure Headway (s,	Degree Utilization, x	Capacity (veh/h)	Control Delay (s)	Approach Delay (s)	Approach LOS	Intersection Summary	Delay	Level of Service	Intersection Capacity L	Analysis Period (min)
	EBL EBR NBL NBT SBT	Gurations **	EBL EBR NBL NBT SBT rations ** C	EBL EBR NBL NBT SBT  guations	EBL EBR NBL NBT SBT   Indicate   State   Sta	EBL   EBR   NBL   NBT   SBT   SBR																

Queuing and Blocking Report

2026 Background AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Intersection: 1: Ambridge Drive & Nosov Drive

Movement Directions Served Maximum Gueue (m) Average Queue (m) 93th Queue (m) Link Distance (m) Link Distance (m) Cupstream Bir Time (%) Outsing Doods (mod %)	WB LR 22.4 7.0 16.1 102.8	NB TR 4.1	SB LT 17.4 3.0 11.5 207.6	
Queuing Penaity (ven) Storage Bay Dist (m) Storage Blk Time (%) Queuing Penalty (veh)		>		

Intersection: 2: Ambridge Drive & Oil Tank Road

Movement	8	R	SB	
Directions Served	R	占	꼰	
Maximum Queue (m)	7.5	21.8	19.7	
Average Queue (m)	5.6	10.2	12.0	
95th Queue (m)	8.4	17.7	18.5	
Link Distance (m)		169.0	5.4	
Upstream Blk Time (%)			7	
Queuing Penalty (veh)			7	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 7

SimTraffic Report Page 1

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2026 Background PM Peak Hour (AWSC) 1: Ambridge Drive & Nosov Drive (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

																																								A	
<b>→</b>	SBT	€	121	121	Free	%0	0.89	136						None																										of Service	
<u>ب</u> د	NBR SBL		10 32	10 32			0.89 0.89											133			133	4.1		2.2	86	1446														ICU Level of Service	
<b>←</b>	NBT NE	43		109	Free		0.89 0.8							None													SB 1	172	36	0	1446	0.02	9.0	1.7	⋖	1.7			1.9	24.8%	15
4	WBR		21	21			0.89	24										128			128	6.2		3.3	26	928	NB 1	133	0	=	1700	0.08	0.0	0.0		0.0				.,	
<b>&gt;</b>	WBL	>	တ	တ	Stop	%0	0.89	9										336			336	9.9		3.7	86	609	WB 1	34	9	24	804	0.04	7:	9.7	∢	9.7	A			ion	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	(s) ₄	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

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2026 Background PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	5						(270010) - INV CACATATIC OF OIL TAIN IN GIRL LIMY OF
	4	~	•	<b>←</b>	<b>→</b>	*	
Aovement	EBL	EBR	NBL	NBT	SBT	SBR	
-ane Configurations	>			4	2,		
Sign Control	Stop			Stop	Stop		
raffic Volume (vph)	13	-	2	106	116	14	
uture Volume (vph)	13	_	2	106	116	14	
Peak Hour Factor	06:0	06.0	06:0	0.90	06:0	06:0	
Hourly flow rate (vph)	14	_	2	118	129	16	
Direction, Lane #	EB 1	B 1	SB 1				
Volume Total (vph)	15	120	145				
/olume Left (vph)	14	5	0				
Volume Right (vph)	_	0	16				
Hadj (s)	0.15	0.0	0.01				
Departure Headway (s)	4.6	4.2	4.1				
Degree Utilization, x	0.02	0.14	0.16				
Capacity (veh/h)	725	847	875				
Control Delay (s)	7.7	7.8	7.9				
Approach Delay (s)	7.7	7.8	6.7				
Approach LOS	Υ	⋖	⋖				
ntersection Summary							
Delay			7.8				
evel of Service			∢				
ntersection Capacity Utilization	uo		17.2%	೦	U Level o	ICU Level of Service	A
Analysis Pariod (min)			75				

Intersection: 1: An	nbridge L	Intersection: 1: Ambridge Drive & Nosov Drive	
Movement	WB	SB	
Directions Served	H	LT	
Maximum Queue (m)	18.7	15.5	
Average Queue (m)	5.5	3.9	
95th Queue (m)	14.2	12.3	
Link Distance (m)	102.8	207.6	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Ambridge Drive & Oil Tank Road

Directions Served LR LT TR Maximum Queue (m) 7.5 21.0 17.8 Average Queue (m) 2.6 10.7 10.1 95th Queue (m) 8.3 16.7 14.2 Link Distance (m) 169.0 5.4 Upstream Bit Time (%) 7 Storage Bay Dist (m) 9 Storage Bay Dist (m) 9 Storage Bay Dist (m) 9	
75 21.0 2.6 10.7 8.3 16.7 169.0	
2.6 10.7 8.3 16.7 169.0	
8.3 16.7 (169.0)	
169.0 5.0	
Storage Bay Dist (m) Storage BIK Time (%)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

# Zone Summary Zone wide Queuing Penalty: 9

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Synchro 11 Report Page 2

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HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Background AM Peak Hc (240078) - NW Quadrant of Oil Tank Rd and Hw

HCM Unsignalized	2: Ambridge Drive
ak Hour	and Hwy 67

2036 Background AM Peak Hour	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67	
zed Intersection Capacity Analysis	ve & Oil Tank Road	

																																								A	
•	SBR		12	12			0.85	14																																ICU Level of Service	
<b>→</b>	SBT	<b>\$</b>	107	107	Free	%0	0.85	126						None																										<b>SU Level</b>	
<b>←</b>	NBT	4	90	6	Free	%0	0.85	106						None																										$\subseteq$	
•	NBL		0	0			0.85	0										140			140	4.1		2.2	100	1456	SB 1	140	0	14	1700	0.08	0.0	0.0		0.0			0.7	16.4%	15
<b>*</b>	EBR		~	-			0.85	~										133			133	6.2		3.3	100	922	NB 1	106	0	0	1456	0.00	0.0	0.0		0.0					
1	EBL	>	16	16	Stop	%0	0.85	19										239			239	6.4		3.5	26	754	EB 1	20	19	_	761	0.03	9.0	6.6	∢ ;	6.6	∢			ilization	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	₽(s)	b0 dueue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

Synchro 11 Report Page 1

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HCM Unsigna 3: Highway 11

Movement	HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67	ersed	Cemetery Road/Highway 67	Highw	ay 67			(240078) - NW Quadrant of Oil Tank Rd and Hwy 67	1444				:
FBL   FBT   FBR   WBL   WBT   WBR   NBL   NBT   NBR   SBL   SBT	·	4	†	<i>&gt;</i>	<b>\</b>	ļ	4	•	<b>←</b>	•	۶	<b>→</b>	*
1		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
None   1	Lane Configurations		4			4			÷	¥.		4	
The color of the	Traffic Volume (veh/h)	0	<del>-</del>	0	22	0	9	0	45	43	က	73	2
Sing	Future Volume (Veh/h)	0	τ-	0	22	0	9	0	42	43	ო	73	2
0.83 0.83 0.83 0.83 0.83 0.83 0.83 0.83	Sign Control		Stop			Stop			Free			Free	
0 83 083 083 083 083 083 083 083 083 083			%0			%0			%0			%0	
1		0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
None  158 151 89 152 152 54 90 54  1 158 151 89 152 152 54 90 54  7.1 6.5 6.2 72 6.5 6.4 4.1 4.1  3.5 4.0 33 3.6 4.0 3.5 2.2  100 100 100 92 100 99 100 100  805 742 975 800 741 965 1518 1564  EB1 WB1 NB1 NB2 SB1  0 6 6 0 4 4  0 7 0 52 2  742 813 1518 1700 1564  0.00 0.00 0.03 0.00  m) 0.00 2.4 0.0 0.0 0.1  9.9 9.9 0.0 0.0 0.3  A A A  A A  1 7 8  9 9 9.0 0.0 0.3 3  A A A  1 8 8 152 152 54 90 54  1 6.5 6.2 72 6.5 6.4 4.1 4.1  4.1  4.1  4.1  4.1  4.1  4.1	Hourly flow rate (vph)	0	-	0	99	0	7	0	24	52	4	88	2
None  158 151 89 152 152 54 90 54  1 158 151 89 152 152 54 90 54  1 158 151 89 152 152 54 90 54  1 158 151 89 152 152 54 90 54  1 1 158 151 89 152 152 54 90 554  1 1 158 151 89 152 152 54 90 554  1 1 158 151 89 152 152 54 90 554  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pedestrians												
None  158 151 89 152 152 54 90 54  165 62 72 65 64 4.1 4.1  158 151 89 152 152 54 90 54  7.1 6.5 62 72 6.5 64 4.1 4.1  100 100 100 92 100 99 100 100  805 742 975 800 741 965 1518 1564  805 742 975 800 741 965 1518 1564  806 0 0 4 4  0 66 0 0 4  0 7 0 52 2  742 813 1518 1700 1564  0 0 0 0 0.0 0.1  9 9 9 9 0.0 0.0 0.1  9 9 9 9 0.0 0.0 0.1  9 9 9 9 0.0 0.0 0.3  7 Wilization 23.1% ICU Level of Service A	Lane Width (m)												
Mone  158 151 89 152 152 54 90 54  151 89 152 152 54 90 54  7.1 6.5 6.2 7.2 6.5 6.4 4.1 4.1  35 4.0 33 36 4.0 35 2.2  100 100 100 92 100 99 100  805 742 975 800 741 965 1518 1564  EB1 WB1 NB1 NB2 SB1  1 73 54 52 94  1 742 813 1518 1700 1564  0.00 0.00 0.03 0.00  m) 0.00 2.4 0.0 0.0 0.1  9.9 9.9 0.0 0.0 0.3  A A A  1 7 8 81 1518 1700 1564  1 8 9 9.9 0.0 0.0 0.3  A A A  1 8 9.9 9.9 0.0 0.0 0.3  A A A  1 8 9.9 9.9 0.0 0.0 0.3  A A A  1 8 9.9 9.0 0.0 0.3  A A A  1 8 9.9 9.0 0.0 0.3  A A A  1 8 8 10 10 10 10 10 10 10 10 10 10 10 10 10	Walking Speed (m/s)												
None   158   151   89   152   152   54   90   54     158   151   89   152   152   54   90   54     158   151   89   152   152   54   90   54     158   151   89   152   152   54   90   54     158   151   89   152   152   54   90   54     160   100   100   92   100   99   100   100     100   100   100   92   100   99   100   100     100   100   100   92   100   99   100   100     100   100   100   92   100   100   100     100   100   100   100   100     100   100   100   100   100   100     100   100   100   100   100     100   100   100   100   100     100   100   100   100   100     100   100   100   100   10	Percent Blockage												
None  158 151 89 152 152 54 90 54  1 158 151 89 152 152 54 90 54  1 1 158 151 89 152 152 54 90 54  1 1 158 151 89 152 152 54 90 54  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Right tum flare (veh)												
e 158 151 89 152 152 54 90  1 158 151 89 152 152 54 90  7.1 6.5 6.2 72 6.5 6.4 4.1  3.5 4.0 33 3.6 4.0 35 22  100 100 100 92 100 99 100  805 742 975 800 741 965 1518 11  EB1 WB1 NB1 NB2 SB1  1 73 54 52 94  0 66 0 0 4 4  0 7 0 52 2  742 813 1518 1700 1564  0 00 0.0 0.0 0.0 0.0 0.1  9 9 99 0.0 0.0 0.3 0.00  M A A A A A A A A A A A A A A A A A A	Median type								None			None	
e 158 151 89 152 152 54 90  1 158 151 89 152 152 54 90  7.1 6.5 6.2 72 6.5 6.4 4.1  3.5 4.0 3.3 3.6 4.0 3.5 2.2  100 100 100 92 100 99 100  805 742 975 800 741 965 1518 11  EB1 WB1 NB1 NB2 SB1  0 66 0 4  0 7 0 52 2  742 813 1518 1700 1564  0 00 0.09 0.00 0.03 0.00  m) 0.0 2.4 0.0 0.0 0.1  9.9 9.9 0.0 0.0 0.0 0.3  A A A A A A A  9.9 9.9 0.0 0.0 0.3  Y  2.8  Y  2.8  Y  158 151 89 152 152 54 90  160 0.0 3.5 122  170 100 100 99 100  170 100 100 0.0 4  180 100 100 0.0 100  180 100 100 0.0 0.0 100  180 100 100 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Median storage veh)												
158 151 89 152 152 54 90  158 151 89 152 152 54 90  17.1 6.5 6.2 72 6.5 6.4 4.1  3.5 4.0 3.3 3.6 4.0 3.5 2.2  100 100 92 100 99 100  805 742 975 800 741 965 1518 11  EB1 WB1 NB1 NB2 SB1  0 66 0 0 4 4  0 66 0 0 0 44  0 66 0 0 0 3 000  m) 0.00 0.09 0.00 0.01  m) 0.00 2.4 0.0 0.0 0.1  9.9 9.9 0.0 0.0 0.3 0.00  A A A A A  158 1618 100 103 A  9.9 9.9 0.0 0.0 0.3 0.00  A A A A A A A A A A A A A A A A A A	Upstream signal (m)												
e 158 151 89 152 54 90  118 151 89 152 152 54 90  12 158 151 89 152 152 54 90  13 1 6.5 6.2 72 6.5 6.4 4.1  35 4.0 33 3.6 4.0 3.5 22  100 100 100 92 100 99 100  805 742 975 800 741 965 1518 11  EB1 WB1 NB1 SB1  1 7 3 54 52 94  1 7 3 54 52 94  1 7 3 54 52 94  0 0 66 0 0 4 4  0 7 0 52 2  742 813 1518 1700 1564  0 0 0 0 0 0.0 0.0 0.0  M) 0.0 2.4 0.0 0.0 0.1  9 9 9 9 0.0 0 0.3 0.00  A A A A A A A A A A A A A A A A A A	pX, platoon unblocked												
158   151   89   152   152   54   90   152   152   54   90   152   152   54   90   152   152   54   90   152   152   54   90   152   152   54   90   152	vC, conflicting volume	128	151	88	152	152	72	6			54		
158   151   89   152   152   54   90     7.1   6.5   6.2   7.2   6.5   6.4   4.1     3.5   4.0   3.3   3.6   4.0   3.5   2.2     100   100   100   92   100   99   100     806   742   975   807   741   965   1518     11   73   54   52   94     0   66   0   0   4     0   7   0   52   2     742   813   1518   1700   1564     m)   0.00   0.03   0.00     m)   0.00   2.4   0.0   0.0   0.3     m)   0.00   2.4   0.0   0.0   0.3     m)   0.00   2.4   0.0   0.0     m)   0.00   0.9   0.0   0.3     m   A	vC1, stage 1 conf vol												
158 151 89 152 152 54 90 7.1 6.5 6.2 72 6.5 6.4 4.1 3.5 4.0 3.3 3.6 4.0 3.5 2.2 100 100 100 92 100 99 100 805 742 975 800 741 965 1518 11 7 3 5 4.0 3.0 741 965 1518 11 7 8 5 6 4 5 8 4 4.1  1 7 8 6 6 0 0 0 4 4 0 6 6 0 0 0 4 4 0 6 6 0 0 0 0 4 0 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	vC2, stage 2 conf vol												
7.1 6.5 6.2 7.2 6.5 6.4 4.1  3.5 4.0 3.3 3.6 4.0 3.5 2.2  100 100 100 92 100 99 100  805 742 975 800 741 965 1518 11  EB1 WB1 NB1 SB1  1 7 3 54 52 94  0 66 0 0 4 4  0 7 0 52 2  742 813 1518 1700 1564  0 00 0.09 0.00 0.03 0.00  m) 0.00 2.4 0.0 0.0 0.1  9 9 99 0.0 0.0 0.3  A A A A A A A A A A A A A A A A A A A	vCu, unblocked vol	128	151	8	152	152	72	6			24		
3.5 4.0 3.3 3.6 4.0 3.5 2.2 100 100 100 100 92 100 99 100 100 100 100 92 100 99 100 100 100 100 100 100 100 100	tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.4	4.1			4.1		
3.5 4,0 3.3 3.6 4,0 3.5 2.2 100 100 92 100 99 100 100 100 92 100 99 100 11	tC, 2 stage (s)												
100	tF (s)	3.5	4.0	3.3	3.6	4.0	3.5	2.2			2.2		
B05 742 975 800 741 965 1518   B1	p0 queue free %	9	100	100	92	100	66	100			100		
EB1 WB1 NB1 SB1  1 73 54 52 94  0 6 6 0 0 4  7 0 52 2  7 1 0 52 2  7 2 2 2  7 2 813 1518 1700 1564  0.00 0.09 0.09 0.00 0.01  m) 0.0 2.4 0.0 0.0 0.1  9.9 9.9 0.0 0.0 0.3  A A A A CONTRICTOR Service  1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	cM capacity (veh/h)	802	742	975	800	741	965	1518			1564		
1 73 54 52 94 0 66 0 0 4 0 7 0 52 2 742 813 1518 1700 1564 0.00 0.09 0.00 0.03 0.00 0.0 24 0.0 0.0 0.1 0.0 24 0.0 0.0 0.3 A A A A A A A A A A A A A A A A A A A		EB 1	WB1	NB 1	NB 2	SB 1							
0 66 0 0 4 0 7 0 52 2 742 813 1518 1700 1564 0.00 0.09 0.00 0.03 0.00 0.0 24 0.0 0.0 0.1 9.9 9.9 0.0 0.0 0.3 A A A 9.9 9.9 0.0 0.3 A A A 9.9 9.9 0.0 0.3 7 2.8 ICU Level of Service 15 2.1% ICU Level of Service	Volume Total	-	73	25	25	8							
742 813 1518 1700 1564 0.00 0.09 0.00 0.03 0.00 0.00 2.4 0.0 0.0 0.1 9.9 9.9 0.0 0.0 0.3 A A A A  9.9 9.9 0.0 0.3  Y  2.8  Y  2.8  Y  2.8  Y  2.8  Y  2.8  Y  1.0 lijization  1.1 (10 Level of Service  1.1 (20 Level of Service	Volume Left	0	99	0	0	4							
m) 0.00 0.09 0.00 0.00 0.00 0.00 0.00 0.0	Volume Right	0	7	0	25	2							
m) 0.00 0.09 0.00 0.03 0.00 m) 0.00 2.4 0.0 0.0 0.1 9.9 9.9 0.0 0.0 0.3 A A A A A 9.9 9.9 0.0 0.0 3.3 A A A A A 9.9 2.0 0.0 3.3 Y 2.8 CU Level of Service		742	813	1518	1700	1564							
m) 000 2.4 0.0 0.0 0.1 9.9 9.9 0.0 0.0 0.3 A A A A A A A A A A A A A A A A A A A		0.00	0.0	0.00	0.03	0.00							
9.9 9.9 0.0 0.3 A A A A A A A A A A A A A A A A A A A	Queue Length 95th (m)	0.0	2.4	0.0	0.0	0.1							
9.9 9.9 0.0 0.3 A A A Y 2.8 CUltication 23.1% ICU Level of Service	Control Delay (s)	9.9	9.9	0.0	0.0	0.3							
9.9 9.9 0.0 0.3  A A A  y	Lane LOS	∢	⋖			⋖							
y 2.8 CU Level of Service 15.1% ICU Level of Ser	Approach Delay (s)	6.6	6.6	0.0		0.3							
2.8 2.0 Utilization 23.1% ICU Level of Service 1.5	Approach LOS	∢	∢										
2.8 Utilization 23.1% ICU Level of Service 15	Intersection Summary												
Utilization 23.1% ICU Level of Service	Average Delay		l	2.8	l	l	l	l	l	l	l	l	
	Intersection Capacity Utilization			23.1%	ō	J Level o	f Service			∢			
	Analysis Period (min)			15									

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Background PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Movement Lane Configurations	WBL WBL	₩ WBR	<b>→</b> NBT	₩ H	♪ BB *	→ SBT	
Traffic Volume (veh/h) Future Volume (Veh/h)	<b>e</b> e	24	121	= =	32	134	
Sign Control	Stop	i	Free	:	:	Free	
Grade	%0	080	%0	0 89	0.89	0% 0 89	
Hourly flow rate (vph)	=	27	136	12	39	151	
Pedestrians							
ane Width (m)							
Valking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Jpstream signal (m)							
oX, platoon unblocked							
vC, conflicting volume	371	142			148		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
/Cu, unblocked vol	371	142			148		
C, single (s)	9.9	6.2			4.1		
C, 2 stage (s)							
	3.7	3.3			2.2		
on due ue free %	86	97			97		
cM capacity (veh/h)	226	911			1427		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	88	148	190				
/olume Left	=	0	33				
/olume Right	27	12	0				
	781	1700	1427				
Volume to Capacity	0.05	0.09	0.03				
Queue Length 95th (m)	1.2	0.0	0.7				
Control Delay (s)	8.6	0.0	1.7				
Lane LOS	⋖		⋖				
ch Delay (s)	8.6	0.0	1.7				
Approach LOS	∢						
Intersection Summary							
0.100							
Average Delay			5.	3			4
intersection Capacity Utilization			29.4%	3	ICU Level of Service	Service	¥
Analysis Period (min)			15				

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

Sto 75 15 00.90 0.90 17

HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67
•

2036 Background PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

98 98 98 0.91 108

232

10.91

0.91

0.91

None

None

108

7

2.2 99 1495

2.2 100 1542

108

4.1

4	WBR			9		0.91	7										201		108	6.2		3.3	99	<u>S</u>												of Servia	
ţ	WBT	4	2	2	Stop 0%	0.91	2										207		201	6.5		4.0		Ì	"	<del>2</del> <del>2</del> <del>2</del>					1.0		1.0			ICU Level of Service	
-	WBL		61	61		0.91	29									0	707		202	7.1		3.5	75.1	754	NB Z	80	0 6	1700	0 05	0.0	0.0						
1	EBR		0	0		0.91	0									í	2		20	6.2	0	3.3	000	288	NB 1	109	- <	1542	000	0.0	0.1	∢	0.0			27.8%	15
†	EBT	<del>(</del>	က	က	Stop 0%	0.91	က									0	700		200	6.5		4.0	001	694	WB 1	76	70	727	0 10	2.6	10.2	В	10.2	Ω			
1	EBL		<del>-</del>	~		0.91	~									0	208		208	7.1		3.5	242	747	EB 1	4 -	- <	705	000	0.1	10.1	В	10.1	В		5	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC2 stane 2 confivol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	F(s)	own granding (wob/h)	dvi capadity (ven/n)	Ulrection, Lane #	Volume Total	Volume Lett	Volume Right	Volume to Canacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay Intersection Capacity Utilization	Analysis Period (min)
																																				٧	
`	SBR		16	16		0.90	18																														
<b>→</b>	SBT SBR				Free 0%		142 18						None																								
<b>→</b> +		ęt	128	128	Free Free 0% 0% 0%	0.90	142						None None																							ICU Level of Service A	
<b>→</b>	. SBT	4	117 128	128	_	06.0 06.0	142										160		160	4.1		2.2	100	1432	58.1	160	0 %	100	00.01 60.01	0.0	0.0		0.0			ICU Level of Service	15

3.5 98 709

285

285

Traffic Volume (verhir)
Stutze Volume (verhir)
Stutze Volume (verhir)
Stutze Volume (verhir)
Grade
Peak Hun Factor
Hourly flow rate (vph)
Pedestrians
Lane Width (m)
Pedestrians
Lane Width (m)
Pedestrians
Right tum flare (veh)
Median type
Median type
Median type
Median storage veh
Upstream signal (m)
Pc, Confidence veh
C

1717 0.03 0.6 10.1 B

Direction, Lane #
Volume Total
Volume Left
cSH
Volume Right
CSH
Volume Bight (m)
Queue Length 96th (m)
Lane LOS

Intersection Summary
Average Delay
Intersection Capacity Utilization
Analysis Period (min)

Approach Delay (s) Approach LOS

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HCM Unsignalized Intersection Capacity Analysis 2036 Background AM Peak Hour (AWSC) 1: Ambridge Drive & Nosov Drive (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

																																								٥	
<b>→</b>	SBT	₩	103	103	Free	%0	0.81	127						None																											
۶ ۱	NBR SBL		9 14				0	11 17										131			131	4.1		2.2	66	1467														ICII Level of Service	5
<b>←</b>	NBT N		97		Free		0.81							None				<b>.</b>			<b>~</b>	~		_	<b>.</b>	<b>,</b>	I SB 1	_				_	0.3		∢				2.0	22 0%	4.578
\ \	WBL WBR	>-	17 26		Stop	%0		21 32										286 126				6.5 6.3			96 26		WB 1 NB 1	53 131	21 0		790 1700	_	1.7 0.0	9.9	⋖	9.9 0.0	٧			u	5
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right tum flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF (s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity I Hilization	Analysis Borind (min)

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2036 Background AM Peak Hour (AWSC) 2: Ambridge Drive & Oil Tank Road (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

																						Ą	
•	SBR			12	12	0.85	14															ICU Level of Service	
-	SBT	æ	Stop	107	107	0.85	126															U Level o	
<b>←</b>	NBT	4	Stop	90	06	0.85	106															೨	
•	NBL			0	0	0.85	0	SB 1	140	0	14	0.22	4.3	0.17	833	8.1	8.1	¥		8.0	∢	16.4%	15
*	EBR			~	_	0.85	-	NB 1	106	0	0	0.15	4.2	0.12	830	7.8	7.8	⋖					
4	EBL	*	Stop	16	16	0.85	19	EB 1	20	19	<del>-</del>	0.16	4.6	0.03	739	7.7	7.7	⋖				_	
	Movement	Lane Configurations	Sign Control	Traffic Volume (vph)	Future Volume (vph)	Peak Hour Factor	Hourly flow rate (vph)	Direction, Lane #	Volume Total (vph)	Volume Left (vph)	Volume Right (vph)	Hadj (s)	Departure Headway (s)	Degree Utilization, x	Capacity (veh/h)	Control Delay (s)	Approach Delay (s)	Approach LOS	Intersection Summary	Delay	Level of Service	Intersection Capacity Utilization	Analysis Period (min)

Queuing and Blocking Report

2036 Background AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Intersection: 1: Ambridge Drive & Nosov Drive

NB SB		10.0 19.3	0.5 3.3	5.1 12.6	5.4 207.6	0	0			
WB	LR	22.4	7.8	17.5	102.8					
Movement	Directions Served	Maximum Queue (m)	Average Queue (m)	95th Queue (m)	Link Distance (m)	Upstream Blk Time (%)	Queuing Penalty (veh)	Storage Bay Dist (m)	Storage Blk Time (%)	

Intersection: 2: Ambridge Drive & Oil Tank Road

Movement	EB	NB	SB	
Directions Served	LR	L	エ	
Maximum Queue (m)	7.5	23.4	23.1	
Average Queue (m)	3.0	11.1	12.9	
95th Queue (m)	8.9	19.1	20.9	
Link Distance (m)		169.0	5.4	
Upstream Blk Time (%)			7	
Queuing Penalty (veh)			œ	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 9

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HCM Unsignalized Intersection Capacity Analysis 2036 Background PM Peak Hour (AWSC) 1: Ambridge Drive & Nosov Drive (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

<b>→                                    </b>	NBR SBL SBT			11 35 134	Free	%0	0.89	12 39 151						None				148			148	4.1		2.2	97	1427														A
<b>-</b>	NBT N	<b>£</b>	121	121	Free	%0	0.89	136						None													SB 1	190	36	0	1427	0.03	0.7	1.7	∢	1.7			10	20.40.
1	WBR		24	24			0.89	27										142			142	6.2		3.3	97	911	NB 1	148	0	12	1700	0.09	0.0	0.0		0.0				
-	WBL	>	9	9	Stop	%0	0.89	#										371			371	9.9		3.7	86	219	WB 1	88	=======================================	27	781	0.02	1.2	9.8	∢	9.8	∢			
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	₽(s)	b0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Literate Constitution

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HCM Unsignalized Intersection Capacity Analysis 2036 Background PM Peak Hour (AWSC) 2: Ambridge Drive & Oil Tank Road (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Queuing and Blocking Report

2036 Background PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

*	SBR			16	16	06:0	18															
<b>→</b>	SBT	£\$	Stop	128	128	0.90	142															
<b>←</b>	NBT	₩	Stop	117	117	0.90	130															
•	NBL			2	2	0.30	2	SB1	160	0	9	0.01	4.1	0.18	870	8.0	8.0	⋖		8.0	∢	
<u> </u>	EBR			Ψ	_	06:0	~	NB 1	132	2	0	0.09	4.2	0.15	842	7.9	7.9	⋖				
4	EBL	>	Stop	15	15	06.0	17	EB 1	18	17	~	0.16	4.7	0.02	712	7.8	7.8	¥				
	Movement	Lane Configurations	Sign Control	Traffic Volume (vph)	Future Volume (vph)	Peak Hour Factor	Hourly flow rate (vph)	Direction, Lane #	Volume Total (vph)	Volume Left (vph)	Volume Right (vph)	Hadj (s)	Departure Headway (s)	Degree Utilization, x	Capacity (veh/h)	Control Delay (s)	Approach Delay (s)	Approach LOS	Intersection Summary	Delay	Level of Service	

ntersection: 1: Ambridge Drive & Nosov Drive	WB SB	LR LT	15.3 26.2	5.5 5.3	12.8 16.5	102.8 207.6					
Intersection: 1: Amk	Movement	Directions Served	Maximum Queue (m)	Average Queue (m)	95th Queue (m)	Link Distance (m)	Upstream Blk Time (%)	Queuing Penalty (veh)	Storage Bay Dist (m)	Storage Blk Time (%)	

Intersection: 2: Ambridge Drive & Oil Tank Road

(		2	OD.	
		LT	TR	
	2.6	20.2	19.5	
Average Queue (m) 2		11.1	10.0	
	8.8	17.1	14.9	
Link Distance (m)	Ę.	0.691	5.4	
Upstream Blk Time (%)			œ	
Queuing Penalty (veh)			12	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 12

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### **Appendix D**

### **Future Total Traffic Operation Reports**

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

M Peak Hour	Tank Rd and Hwy 67
2026 Total AM I	(240078) - NW Quadrant of Oil Tank

Mail		<b>\</b>	1	<b>—</b>	4	۶	<b>→</b>	
15	ment	WBL	WBR	NBT	NBR	SBL	SBT	
15 23 101 8 12 152 Stop Free O% 0% 0% 0% 0% 0 81 0.81 0.81 0.81 0.81 19 28 125 10 15 188  348 130 135 6.5 6.3 4.1 47 87 97 99 617 8 125 36 3.4 22 38 130 135 618 0.00 0.00 10.00 0.00 10.1 0.0 0.6 B A 10.1 0.0 0.	Configurations	>		£			€\$	
Supp Free Free Ow	: Volume (veh/h)	15	23	101	œ	12	152	
Stop Free Free O%	e Volume (Veh/h)	15	23	101	œ	12	152	
0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81	Control	Stop		Free			Free	
19 28 125 10 15 188  None None None 1348 130 135 6.5 6.3 4.1 6.5 6.3 4.1 6.7 87 97 99 617 881 1462  WB1 NB1 SB1 1462  WB1 0 15 00 02 10.1 0.0 0.6 B A 10.1 0.0	m	%0		%0			%0	
19 28 125 10 15 188  None None None 135  348 130 135  6.5 6.3 4.1  36 3.4 2.2  97 97 97 99  617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 0 15 99  756 1700 1462  0.06 0.01  1.1 0.0 0.6  B A 10.1 0.0	Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
348 130 135 348 130 135 6.5 6.3 4.1 6.5 6.3 4.1 89 617 891 1462 WB 1 NB 1 SB 1 1462 WB 1 NB 1 SB 1 1462 0.06 0.08 0.01 1.1 0.0 0.6 B A 10.1 0.	y flow rate (vph)	19	78	125	10	15	188	
348 130 135 348 130 135 6.5 6.3 4.1 8.6 6.3 4.1 8.7 97 97 99 617 891 1462 WB 1 NB 1 SB 1 1462 WB 1 NB 2 203 19 0 15 28 10 0 0 756 1700 1462 0.06 0.08 0.01 10.1 0.0 0.6 B A 10.1	strians							
348 130 135  348 130 135  6.5 6.3 4.1  3.6 3.4 2.2  97 97 97 99  617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 0 0 15  1.0 0 0.2  1.0 0 0.6  B A 10.1 0.0 0.6  B A	Width (m)							
348 130 135  348 130 135  6.5 6.3 41  36 3.4 22  97 97 97 99  617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 NB 1 SB 1 1462  0.00 0.01 15  0.00 0.01 15  1.6 0.0 0.02  10.1 0.0 0.6  B A 10.1 0.0 0.6	ng Speed (m/s)							
None   None   None   None	ent Blockage							
None None None None None 135  348 130 135  6.5 6.3 4.1  3.6 3.4 2.2  97 97 97 99  617 8B 1 SB 1 1462  WB 1 NB 1 SB 1 1462  WB 1 NB 2 203  19 0 15  28 10 0 15  0.06 0.02  1.16 0.0 0.2  1.10 0.0 6  B A 10.1 0.0 0.6  B A 10.1 0.0 0	tum flare (veh)							
348 130 135  348 130 135  6.5 6.3 4.1  36 3.4 22  97 97 97 99  617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 0 15  28 10 0 15  1.6 0.0 0.2  10.1 0.0 0.6  B A 10.1	an type			None			None	
348 130 135  348 130 135  6.5 6.3 4.1  3.6 3.4 2.2  97 97 99  617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 NB 1 SB 1 1462  0.06 0.08 0.01  1.1 0.0 0.6  B A 10.1	an storage veh)							
348 130 135  348 130 135  6.5 6.3 4.1  36 3.4 2.2  37 97 97 99  617 87 1462  WB 1 NB 1 SB 1 1462  WB 1 NB 2 203  47 135 203  19 0 15  28 10 0 0  756 1700 1462  0.06 0.08 0.01  10.1 0.0 0.6  B A 10.1 0.0 0.6  B	eam signal (m)							
348 130 135  348 130 135  6.5 6.3 4.1  36 3.4 22  97 97 97 99  617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 0 15  28 10 0 5  1.6 0.0 0.2  10.1 0.0 0.6  B A 10.1	atoon unblocked							
348 130 135 6.5 6.3 4.1 3.6 3.4 2.2 97 97 99 617 891 1462 WB 1 NB 1 SB 1 1462 47 135 203 47 135 203 19 0 15 28 10 0 756 1700 1462 0.06 0.08 0.01 1.1 0.0 0.6 B A 10.1 0.0 0.6 15 16 10.0 0.6 17 18 10.1 0.0 0.6 18 1 16 17 19 18 18 18	onflicting volume	348	130			135		
348 130 135 6.5 6.3 4.1 36 3.4 2.2 97 97 99 617 891 1462  WB 1 NB 1 SB 1 1462  WB 1 O 0 15 28 10 0 0 756 1700 1462 0.06 0.08 0.01 16 0.0 0.2 10.1 0.0 0.6 B A 1	stage 1 conf vol							
3.48 130 135 6.5 6.3 4.1 3.6 3.4 2.2 3.7 97 97 99 6.17 891 1462  WB 1 NB 1 SB 1 1462  4 7 15 203 19 0 15 28 10 0 15 756 1700 1462 0.06 0.02 1.16 0.0 0.2 1.11 0.0 0.6 B A 10.1 0	stage 2 conf vol							
6.5 6.3 4.1  3.6 3.4 2.2  97 97 97 99  6.17 891 1462  WB 1 NB 1 SB 1  47 135 203  19 0 15  28 10 0  756 1700 1462  0.08 0.01  1.6 0.0 0.2  10.1 0.0 0.6  B A I O.1 0.0 0.6  B A	Inblocked vol	348	130			135		
3.6 3.4 2.2 97 97 99 617 891 1462 WB 1 NB 1 SB 1 1462 47 135 203 47 135 203 19 0 15 28 10 0 756 7700 1462 0.06 0.08 0.01 1.16 0.0 0.2 1.01 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 1.00 0.2 1.00 0.2 1.00 0.2 1.00 0.2 1.01 0.0 0.6 1.01 0.0 0.6	ıgle (s)	6.5	6.3			4.1		
3.6 3.4 2.2 97 97 99 617 891 1462 WB 1 NB 1 SB 1 1462 47 135 203 19 0 15 28 10 0 0 756 1700 1462 0.06 0.08 0.01 16 0.0 0.2 16 0.0 0.2 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6	stage (s)							
97 97 97 99 617 891 1462 WB 1 NB 1 5B 1 47 135 203 19 0 15 28 10 0 5 0.06 0.00 0.01 1.6 0.0 0.2 10.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 16 0.0 0.2 17 0.0 0.6 18 1 0.0 0.6 19 1 0.0 0.6 10 1 0.0 0.6		3.6	3.4			2.2		
617         891         7462           WB 1         NB 1         SB 1         7462           47         135         203         756           28         10         0         756           756         1700         1462           0.06         0.01         0.01           1.6         0.0         0.0           B         A           10.1         0.0           B         A           1.6         0.0           B         A           1.6         0.0           B         A           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.0         0.0	ene free %	97	97			66		
WB 1         NB 1         SB 1           47         135         203           49         0         15           28         10         0           756         1700         1462           0.06         0.03         0.01           1.6         0.0         0.2           10.1         0.0         6           B         A           1.6         0.0           B         A           1.6         0.0           B         A           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0           1.6         0.0	pacity (veh/h)	617	891			1462		
47 135 203 28 10 15 28 1700 1462 0.06 0.08 0.01 1.16 0.0 0.2 10.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 10.3 0.6 10.4 0.0 0.6 10.5 0.6 10.5 0.6 10.6 0.6 10.7 0.6 10.7 0.6 10.8 0.6 10.9	ion, Lane #	WB 1	NB 1	SB 1				
19 0 15 28 10 0 756 1700 1462 0.06 0.08 0.01 116 0.0 0.5 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 1.6 B A 10.1 0.0 0.6	ne Total	47	135	203				
28 10 0 756 1700 1462 0.06 0.08 0.01 1.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 10.3 3% ICU Level of Service	ne Left	19	0	15				
756 1700 1462 0.06 0.08 0.01 1.6 0.0 0.2 10.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 1.6 1.6 1.6 1.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	ne Right	28	10	0				
0.06 0.08 0.01 1.6 0.0 0.2 10.1 0.0 0.6 B A 10.1 0.0 0.6 B A 10.1 0.0 0.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1		756	1700	1462				
16 0.0 0.2 10.1 0.0 0.6 B A 10.1 0.0 0.6 B 1.6 Ilization 25.3% ICU Level of Service	ne to Capacity	90.0	0.08	0.01				
10.1 0.0 0.6 B A 10.1 0.0 0.6 B 1.6 Ilization 25.3% CU Level of Service	e Length 95th (m)	1.6	0.0	0.2				
B A 10.1 0.0 0.6 B 1.6 Ulization 25.3% ICU Level of Service 15	ol Delay (s)	10.1	0.0	9.0				
10.1 0.0 0.6  B 1.6  Utilization 25.3% ICU Level of Service 15	SOT	ω		∢				
/ / 16	ach Delay (s)	10.1	0.0	9.0				
1.6 1.6 Uilization 25.3% ICU Level of Service 15	ach LOS	В						
1.6 Uilization 25.3% ICU Level of Service 15	ection Summary							
Utilization 25.3% ICU Level of Service 15	ge Delay			1.6				
	ection Capacity Utilization	_		25.3%	ਹ	J Level of	Service	A
	sis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

2026 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

																																							¥	
<b>~</b>	SBR	i	70	0/		900	0.00	70																															Service	
<b>→</b>	TBS .		97		_	%0 0							None																										ICU Level of Service	
<b>←</b>	NBL NBT		46 82	L	Liee	%0 90 90 90 90	54 06						None				196			196	4.2		2.3	96	1347	SB 1	196	0	82	1700	0.12	0.0	0.0		0.0			2.5	29.6%	
<i>*</i>	EBR		<u>ლ</u> წ	2		300		2									155			155	6.5		3.6		825 1	NB 1 S		54			_			A	3.0				29	
1	EBF	>-	8 8	87 5	dois No	%n	0.03	3									329			328	6.5		3.6	8	290	EB 1	48	33	15	647	0.07	1:9	11.0	ш	11.0	മ			tion	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Ven/h)	Sign Control	Grade Dook Hour Footer	Hourist flow rate (unb)	Pedestrians	l ane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF(s)	% ea y en en e po	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization Analysis Period (min)	

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2026 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67 HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67

	1	†	1	-	ļ	1	•	<b>←</b>	*	۶	<b>→</b>	*
Movement	EBF	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		€			4			4	¥C.		4	
raffic Volume (veh/h)	0	_	0	61	0	9	0	41	81	9	99	2
uture Volume (Veh/h)	0	-	0	61	0	9	0	41	81	9	99	2
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	_	0	73	0	7	0	49	86	7	80	2
Pedestrians												
-ane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right tum flare (veh)												
Median type								None			None	
Median storage veh)												
Jpstream signal (m)												
oX, platoon unblocked												
<ul><li>C, conflicting volume</li></ul>	151	4	8	4	145	49	85			49		
C1, stage 1 conf vol												
/C2, stage 2 conf vol												
/Cu, unblocked vol	151	14	8	144	145	49	85			49		
C, single (s)	7.1	6.5	6.2	7.2	6.5	6.4	4.1			4.1		
C, 2 stage (s)												
F (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.2			2.2		
on dueue free %	100	100	100	91	100	66	100			100		
cM capacity (veh/h)	812	748	982	962	747	981	1528			1571		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
/olume Total	-	8	49	88	88							
/olume Left	0	73	0	0	7							
/olume Right	0	7	0	86	7							
HSS	748	810	1528	1700	1571							
Volume to Capacity	0.00	0.10	0.00	90.0	0.00							
Queue Length 95th (m)	0.0	5.6	0.0	0.0	0.1							
Control Delay (s)	9.8	6.6	0.0	0.0	9.0							
ane LOS	A	∢			∢							
Approach Delay (s)	9.8	6.6	0.0		9.0							
Approach LOS	×	∢										
Intersection Summary												
Average Delay			2.7									
ntersection Capacity Utilization	tion		25.7%	೦	ICU Level of Service	f Service			⋖			
Analysis Period (min)			15									

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 4: Oil Tank Road & Site Access

2026 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	١	Ť	Ļ	1	۶	*	
Movement	EBF	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		4	£		>		
Traffic Volume (veh/h)	0	15	=	105	25	0	
Future Volume (Veh/h)	0	15	£	105	22	0	
Sign Control		Free	Free		Stop		
Grade		%0	%0		%0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	16	12	114	27	0	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	126				82	69	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	126				85	69	
tC, single (s)	4.1				6.7	6.2	
tC, 2 stage (s)							
作(s)	2.2				3.8	3.3	
po queue free %	100				26	100	
cM capacity (veh/h)	1473				848	1000	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	16	126	27				
Volume Left	0	0	27				
Volume Right	0	114	0				
cSH	1473	1700	848				
Volume to Capacity	0.00	0.07	0.03				
Queue Length 95th (m)	0.0	0.0	8.0				
Control Delay (s)	0.0	0.0	9.4				
Lane LOS			∢				
Approach Delay (s)	0.0	0.0	9.4				
Approach LOS			∢				
Intersection Summary							
Average Delay	l	l	7.		l		
Intersection Capacity Utilization			17 1%	₫	o leve I	ICIII evel of Service	A
Analysis Period (min)			15	2		8	

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2026 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	<b>\</b>	1	<b>—</b>	4	٠	<b>-</b>	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	>		£\$			€\$	
Traffic Volume (veh/h)	O	21	162	9	32	138	
Future Volume (Veh/h)	6	21	162	10	32	138	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	10	24	182	1	36	155	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right tum flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	414	188			193		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	414	188			193		
tC, single (s)	9.9	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.7	3.3			2.2		
p0 queue free %	86	26			26		
cM capacity (veh/h)	547	860			1374		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	83	193	191				
Volume Left	9	0	98				
Volume Right	24	7	0				
cSH	736	1700	1374				
Volume to Capacity	0.05	0.11	0.03				
Queue Length 95th (m)	1.2	0.0	9.0				
Control Delay (s)	10.1	0.0	1.6				
Lane LOS	ш		∢				
Approach Delay (s)	10.1	0.0	1.6				
Approach LOS	മ						
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utilization	_		31.5%	ರ	ICU Level of Service	Service	
Analysis Period (min)			12				

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

2026 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Movement   EBI   EBR   NBI   SBT   SBR		١	<u> </u>	•	<b>—</b>	<b>→</b>	*	
orifigurations (verlif) 66 49 14 106 116 31  Volume (verlif) 66 49 14 106 116 31  Volume (verlif) 66 49 14 106 116 31  Mont attem (verlif) 66 49 14 106 116 31  Owr Factor 0.99 0.99 0.90 0.90 0.90 0.90  Owr Factor 0.99 0.99 0.99 0.99 0.99 0.99  Inding (verlif) 73 54 16 118 129 34  Inding (verlif) 73 54 16 163  Inding (verlif) 89 94 99  Inding (verlif) 89 94 99  Inding (verlif) 87 134 163  Inding (verlif) 87 134 163  Inding (verlif) 87 134 163  Inding (verlif) 87 10 0.0  Inding (verlif) 97 10 0.0  Inding	Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Volume (verly)         66         49         14         106         116         31           Volume (verly)         66         49         14         106         116         31           our Factor         0%         0%         0%         0%           stored (mr)         73         4         1         1         1           stored (mr)         10         0.0         0.0         0.0         0.0         0.0         0.0           stored (mr)         2%         146         16.3         4.3         3         4         3         4         3         4         3         4         3         4         3         4	Lane Configurations	>			₩	£3,		
Volume (Vehrh) 66 49 14 106 116 31  volume (Vehrh) 66 49 14 106 116 31  volume (Vehrh) 73 54 16 118 129 34  ians our Factor 0.90 0.90 0.90 0.90 0.90  our rate (vph) 73 54 16 118 129 34  ians our rate (veh) 73 54 16 118 129 34  ians our rate (veh) 73 54 16 18 129 34  ians our rate (veh) 73 54 16 18 18 18 18 18 18 18 18 18 18 18 18 18	Traffic Volume (veh/h)	99	49	14	106	116	31	
our Factor 0'9% 0'9% 0'9% 0'9% 0'9% 0'9% 0'9% 0'9%	Future Volume (Veh/h)	99	49	14	106	116	31	
our Factor 0.90 0.90 0.90 0.90 0.90 0.90 our Factor 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.9	Sign Control	Stop			Free	Free		
73 54 16 118 129 34  None None None None Section 129 34  None Section 129 34  None None Section 129 34  None Sect	Grade	%0			%0	%0		
73 54 16 118 129 34  None None None Section 146 163 296 146 163 6.5 6.3 4.3 89 94 99 676 883 1324 EB 1 NB 1 SB 1 127 134 1700 0.17 0.10 10 0.10 11 0.0 12 134 0.3 134 0.4 14 163 15 1324 16 0 17 1324 1700 0.17 0.10 18 1.0 0.0 18 1.0 0.0 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 18 1.0 0.0 19 19 19 19 19 19 19 19 19 19 19 19 19 1	Peak Hour Factor	0.30	06:0	0.30	0.90	0.30	06.0	
296 146 163 296 146 163 296 146 163 296 146 163 6.5 6.3 4.3 6.5 6.3 4.3 6.5 83 1324 EB 1 NB 1 SB 1 127 134 163 73 16 0 017 010 017 0.0 B A 108 1.0 0.0 B A 108 1.0 0.0 B A 108 1.0 0.0 15 33.5 16 10 0.0 17 30.7% ICU Level of Service	Hourly flow rate (vph)	73	24	16	118	129	34	
296 146 163 226 146 163 6.5 6.3 4.3 6.5 6.3 4.3 89 94 99 676 89 1324 89 94 99 676 89 04 99 677 00 34 73 16 0 74 1324 1700 0.17 0.01 0.10 10.8 1.0 0.0 B A 0.3 0.0 10.8 1.0 0.0 B A 0.3 0.0 10.8 1.0 0.0	Pedestrians							
296 146 163 296 146 163 6.5 6.3 4.3 6.5 6.3 4.3 89 94 99 676 883 1324 EB 1 NB 1 SB 1 127 132 16 0.17 0.10 0.17 0.10 10.8 1.0 0.0 B A A 10.8 1.0 0.0 B B 1.3 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	Lane Width (m)							
296 146 163  296 146 163  296 146 163  6.5 6.3 4.3  6.5 6.3 4.3  6.5 83 1324  EB 1 NB 1 SB 1  127 134 163  73 16 0  73 16 0  0.17 0.0  10 0.0  B A  10 0.0  B A  10 0.0  10 30.7% ICU Level of Service  15 135 15 15 15 15 15 15 15 15 15 15 15 15 15	Walking Speed (m/s)							
296 146 163 296 146 163 6.5 6.3 4.3 6.5 6.3 4.3 89 99 676 883 1324 EB 1 NB 1 SB 1 127 134 163 54 0 34 751 130 0.0 0.17 0.01 0.10 B A 0.3 0.0 B A 10.8 1.0 0.0 B B 1.0 0.0 B A 10.8 1.0 0.0 B B 3.5 1.0 0.0 B A 10.8 1.0 1.0 1.0	Percent Blockage							
None None  296 146 163  296 146 163  6.5 6.3 4.3  6.5 6.3 4.3  89 94 99  676 89 34 24  89 94 99  676 81 324  EB1 NB1 SB1  127 134 163  73 16 0  73 16 0  74 0.0 0.0  10 0.0 0.0  B A O A  108 1.0 0.0  B A A  108 1.0 0.0	Right turn flare (veh)							
296 146 163 296 146 163 296 146 163 6.5 6.3 4.3 3.6 3.4 2.4 89 94 99 676 883 1324 EB 1 NB 1 SB 1 127 134 163 73 16 0 0.17 0.10 0.17 0.10 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 15 33.7 16 0.0 17 30.7% ICU Level of Service	Median type				None	None		
296 146 163 296 146 163 6.5 6.3 4.3 6.5 6.3 4.3 8.9 94 99 676 883 1324 EBJ NBJ SBJ 1324 73 16 0 34 751 1324 1700 0.17 0.01 0.10 0.18 A 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 1 3.5 ICU Level of Service 15 15 15 15 15 15 15 15 15 15 15 15 15 1	Median storage veh)							
296 146 163 226 146 163 6.5 6.3 4.3 6.5 6.3 4.3 89 94 99 676 89 1324 89 94 99 676 89 1324 127 134 163 73 16 0 34 751 1324 1700 0.17 0.01 0.10 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 F A 10.8 1.0 0.0 F A 10.8 1.0 0.0 F A 10.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Upstream signal (m)							
296 146 163 296 146 163 6.5 6.3 4.3 3.6 3.4 2.4 89 94 99 676 883 1324 EB 1 NB 1 SB 1 127 1324 1700 0.17 0.01 0.10 0.17 0.01 0.10 B 1.0 0.0 B A A 108 1.0 0.0 B A A 108 1.0 0.0 F B 3.5  Utilization 30.7% ICU Level of Service	pX, platoon unblocked							
296 146 163 6.5 6.3 4.3 8.9 3.4 2.4 89 94 99 676 883 1324 127 134 163 73 16 0 6.17 0.01 0.10 0.17 0.01 0.10 0.18 1.0 0.0 B A A 10.8 1.0 0.0 10.8 1.0 0.0 10.8 1.0 0.0 10.8 1.0 0.0 10.9 1.0 0.0 10.	vC, conflicting volume	296	146	163				
2.96 146 163 6.5 6.3 4.3 8.6 8.3 4.2 8.8 9.4 99 676 883 1324 EB 1 NB 1 SB 1 127 134 163 73 16 0 34 751 1324 1700 0.17 0.01 0.10 0.18 1.0 0.0 B 8 1.0 0.0 B 8 1.0 0.0 C 8 1.0 0.0 C 9 10 0.0 C 9 10 0.0 C 9 10 0.0 C 10 0.0	vC1, stage 1 conf vol							
296 146 163 6.5 6.3 4.3 8.6 3.4 2.4 8.9 94 99 676 883 1324 676 883 1324 127 134 163 73 16 0 34 751 1324 1700 0.17 0.01 0.10 10.8 1.0 0.0 B A 10.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	vC2, stage 2 conf vol							
6.5 6.3 4.3 3.6 3.4 2.4 8.9 94 99 6.76 883 1324 EB1 NB1 SB1 127 134 163 73 16 0 34 751 1324 1700 0.17 0.01 0.10 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 10.8 1.0 0.0 10.8 1.0 0.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.8 1.0 1.0 1.0 10.9 1.0 1.0 1.0 10.9 1.0 1.0 1.0 1.0 10.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	vCu, unblocked vol	296	146	163				
3.6 3.4 2.4 89 94 99 676 883 1324 EB1 NB1 SB1 127 134 163 73 16 0 54 0 34 751 1324 1700 (m) 4.8 0.3 0.0 B A 10 0.0 B B 1.0 0.0 B B 1.0 0.0 B A 10 0.0	tC, single (s)	6.5	6.3	4.3				
3.6 3.4 2.4 6.8 9.4 99 6.76 8.8 13.24 EB1 NB1 SB1 1.27 134 16.3 5.4 0 34 7.51 16.00 0.17 0.01 0.10 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 B A 10.8 1.0 0.0 1.0	tC, 2 stage (s)							
(m) 4.8 0.3 0.0 (m) 8.1 (m) 8.1 (m) 8.1 (m) 9.1 (m) 9.	tF(s)	3.6	3.4	2.4				
EB 1 NB 1 SB 1 127 134 163 73 16 0 54 0 34 751 1324 1700 (m) 14,8 0.3 0.0 (m) 2,8 0.3 0.0 B A 10 0.0 B A 10 0.0 B A 1.0 0.0 B A 10 0.0 10,8 1.0 0.0 10,8 1.0 10.0 10,8 1.0 10.0 10,8 1.0 10.0 10,8 1.0 10.0 10,8 1.0 10.0	p0 queue free %	88	94	66				
al 127 134 163 t 127 134 163 t 73 16 0 tht 54 0 34 tht 751 1324 1700 2apacity 0.17 0.01 0.10 by (s) 10.8 1.0 0.0 OS B A OS OS B Summary 3.5 riod (min) 15	cM capacity (veh/h)	929	883	1324				
al 127 134 163  ht 54 0 34  ht 551 1324 1700  capacity 0.17 0.01 0.10  ay (s) 108 1.0 0.0  OS B A  Summary  3.5  ICU Level of Service ridge (min) 15	Direction, Lane #	EB 1	NB 1	SB 1				
t 73 16 0  ht 54 0 34  754 1700  2apacity 0.17 0.01 0.10  yt) 95th (m) 48 0.3 0.0  yt) 9 10 8 1.0 0.0  OS B A  Summary  Asy  Asy  Asy  Asy  Asy  Asy  Asy  A	Volume Total	127	134	163				
ht 751 1324 7700 Specity 0.17 0.01 0.10 gth 95th (m) 4.8 0.3 0.0 ay (s) 10.8 1.0 0.0 OS B 1.0 0.0 Summary 3.5 riod (min) 16 15 17 17 17 17 17 17 17 17 17 17 17 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18	Volume Left	73	16	0				
249 acity 0.17 0.01 0.10  34 (s) 8 0.3 0.0  37 (s) 8 1.0 0.0  Summary 3.5  Ico Devel of Service 15 15 15 15 15 15 15 15 15 15 15 15 15	Volume Right	Ŗ	0	34				
January 0,17 0.01 0,10  January 0,17 0.01 0,10  January 0,10 0,0  January 0,0  Janu	SH	751	1324	1700				
yth 95th (m)         4.8         0.3         0.0           ay (s)         10.8         1.0         0.0           B         A         B         A           OS         B         1.0         0.0           Summary         3.5         ICU Level of Service ridd (min)           15         15         17%           16         16         16           17         16         16           18         17         16           18         17         16           18         17         16           18         16         16           18         16         16           18         17         16           18         16         16           18         16         16           18         16         16           18         16         16           18         16         16           18         16         16           18         16         16           18         16         16           18         17         16           18         17         16	Volume to Capacity	0.17	0.01	0.10				
ay (s) 10.8 1.0 0.0  leav (s) 10.8 1.0 0.0  So B A  Summary 3.5  Icou Level of Service ridd (min) 15	Queue Length 95th (m)	4.8	0.3	0.0				
B A	Control Delay (s)	10.8	1.0	0.0				
108 1.0 0.0 B 3.5 3.7% ICU Level of Service 15	Lane LOS	Ω	∢					
3.5 30.7% ICU Level of Service 15	Approach Delay (s)	10.8	1.0	0.0				
3.5 30.7% ICU Level of Service 15	Approach LOS	В						
3.5 30.7% ICU Level of Service 15	Intersection Summary							
30.7% ICU Level of Service 15	Average Delay			3.5				
	Intersection Capacity Utilizat	tion		30.7%	೦	U Level o	Service	Ą
	Analysis Period (min)			15				

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2026 Total PM Peak Hour 3: Highway 11 & Cemetery Road/Highway 67 (240078). NW Quadrant of Oil Tank Rd and Hwy 67

		ì	<b>*</b>	•			-	-			۰	,
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			÷			4	¥C.		4	
Traffic Volume (veh/h)	<del>-</del>	က	0	26	4	6	<del>-</del>	68	77	0	28	
Future Volume (Veh/h)	Ψ.	က	0	97	4	တ	τ-	88	77	တ	28	_
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	<del>-</del>	က	0	107	4	10	<del>-</del>	86	82	10	64	_
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked		į	į			:						
vC, conflicting volume	196	<u>\$</u>	22	188	185	8	92			86		
vC1, stage 1 conf vol												
vC2, stage 2 cont vol												
vCu, unblocked vol	196	<u>\$</u>	28	186	185	88	92			86		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	8	66	100			66		
cM capacity (veh/h)	752	208	1005	764	208	963	1550			1508		
Direction, Lane #	EB 1	WB1	NB 1	NB 2	SB 1							
Volume Total	4	121	66	82	75							
Volume Left	_	107	_	0	9							
Volume Right	0	9	0	82	Ψ.							
cSH	719	775	1550	1700	1508							
Volume to Capacity	0.01	0.16	0.00	0.05	0.01							
Queue Length 95th (m)	0.1	4.4	0.0	0.0	0.2							
Control Delay (s)	10.0	10.5	0.1	0.0	1.0							
Lane LOS	ω	В	∢		⋖							
Approach Delay (s)	10.0	10.5	0.0		1.0							
Approach LOS	В	В										
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization	Ē		29.7%	<u>0</u>	U Level o	ICU Level of Service			⋖			

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 4: Oil Tank Road & Site Access

2026 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	4	†	Ļ	4	۶	*	
Movement	田田	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		÷	2,		>		
Traffic Volume (veh/h)	0	14	16	59	101	0	
Future Volume (Veh/h)	0	14	16	59	101	0	
Sign Control		Free	Free		Stop		
Grade		%0	%0		%0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	15	17	32	110	0	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	49				48	33	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	49				48	33	
tC, single (s)	4.1				6.5	6.2	
tC, 2 stage (s)							
tF(s)	2.2				3.6	3.3	
p0 queue free %	100				88	100	
cM capacity (veh/h)	1571				944	1046	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	15	49	110				
Volume Left	0	0	110				
Volume Right	0	32	0				
cSH	1571	1700	944				
Volume to Capacity	0.00	0.03	0.12				
Queue Length 95th (m)	0.0	0.0	3.2				
Control Delay (s)	0.0	0.0	9.3				
Lane LOS			∢				
Approach Delay (s)	0.0	0.0	9.3				
Approach LOS			∢				
Intersection Summary							
Average Delay			5.9				
Intersection Capacity Utilization	E		15.6%	⊴	J Level of	ICU Level of Service	∢
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2026 Total AM Peak Hour (AWSC) (240078) - NW Quadrant of Oil Tank Rd and Hwy 67	(aa)
2026	

\*

1

70 70 0.85 82

Stop 97 97 0.85 114

Stop 82 82 0.85 96

46 46 0.85 54

13 0.85 15

Stop 28 28 0.85 33

196 0 0 82 4.2 0.23 850 850 8.4 A A

150 150 0.21 4.4 0.21 4.4 0.18 790 8.4 8.4

48 33 15 15 0.02 672 8.3 8.3 8.3

	Movement	rrations	Sign Control  Traffe Volume (vmb)	Future Volume (vph)		Hourly flow rate (vph)	GT # Case   moistoning		Volume Lotal (Vpn)	Volume Lert (vpn)	Volume Right (vpn)		(s)	л, х	Capacity (Vervn) 67	Approach Delay (s)	Approact LOS	Intersection Summary	Delay	Level of Service	Intersection Capacity Utilization	Analysis Period (min)															
																																				A	
<b>→</b>	SBL SBT		12 152		%0	0.81 0.81	15 188						None			135			135	4.1		2.2	66	1462												ICU Level of Service	
<b>←</b> ✓	WBR NBT NBR	ţ	23 101 8	Free	%0	0.81 0.81 0.	78						None			130			130				26		NB 1 SB 1	135	0 15	10	1700 1462	0.00	0.0	0.0	0.0		1.6		15
•	Movement WBL		Traffic Volume (veh/h) 15		Grade 0%	Peak Hour Factor 0.81	Hourly flow rate (vph) 19	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	vC, conflicting volume 348	vC1, stage 1 conf vol	О	vCu, unblocked vol 348		stage (s)	tF (s) 3.6		cM capacity (veh/h) 617	Direction, Lane # WB 1	_		ne Right	Volume to Consolity		Control Delay (c)		elav (s)	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

ICU Level of Service

A 29.6% 15

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Queuing and Blocking Report

2026 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Intersection: 1: Ambridge Drive & Nosov Drive

8 R	LR TR LT	11.5	6.9 0.5 6.5	16.4 5.1 19.1	102.8 5.4 207.6	0	0			
WB	R	21.2	6.9	16.4	102.8					
Movement	Directions Served	Maximum Queue (m)	Average Queue (m)	95th Queue (m)	Link Distance (m)	Upstream Blk Time (%)	Queuing Penalty (veh)	Storage Bay Dist (m)	Storage Blk Time (%)	

Intersection: 2: Ambridge Drive & Oil Tank Road

Movement	EB	NB	SB	
Directions Served	LR	L	TR	
Maximum Queue (m)	21.9	25.6	23.2	
Average Queue (m)	7.4	12.2	12.6	
95th Queue (m)	17.5	19.8	19.7	
Link Distance (m)	342.9	169.0	5.4	
Upstream Blk Time (%)			10	
Queuing Penalty (veh)			17	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 17

SimTraffic Report Page 1

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HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2026 Total PM Peak Hour (AWSC) (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	<b>\</b>	<b>√</b>	<b>←</b> §	•	<u>*</u>	<b>→</b>	
Movement	WBL	WBR	NBT	NBK	SBL	SBT	
Lane Configurations	>		£			₩	
Traffic Volume (veh/h)	တ	21	162	10	32	138	
Future Volume (Veh/h)	6	21	162	10	32	138	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	10	24	182	11	36	155	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
oX, platoon unblocked							
vC, conflicting volume	414	188			193		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
/Cu, unblocked vol	414	188			193		
.C, single (s)	9.9	6.2			4.1		
.C, 2 stage (s)							
F(s)	3.7	3.3			2.2		
p0 queue free %	8	97			6		
cM capacity (veh/h)	247	860			1374		
Direction, Lane #	WB 1	NB 1	SB 1				
/olume Total	怒	193	191				
Volume Left	9	0	36				
Volume Right	24	7	0				
SH	736	1700	1374				
Volume to Capacity	0.05	0.11	0.03				
Queue Length 95th (m)	1.2	0.0	9.0				
Control Delay (s)	10.1	0.0	1.6				
Lane LOS	ω		∢				
Approach Delay (s)	10.1	0.0	1.6				
Approach LOS	В						
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utilization	lion		31.5%	0	ICU Level of Service	Service	A
Analysis Period (min)			15	2			
, and a confirm to the confirmation to the con							

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HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

026 Total PM Peak Hour (AWSC)	0078) - NW Quadrant of Oil Tank Rd and Hwy 67
2026	(240078)

	١	>	•	-	<b>→</b>	*	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	×			4	43		
Sign Control	Stop			Stop	Stop		
Traffic Volume (vph)	99	49	14	106	116	31	
Future Volume (vph)	99	49	4	106	116	31	
Peak Hour Factor	06.0	06:0	0.90	06.0	06:0	06:0	
Hourly flow rate (vph)	73	¥	16	118	129	8	
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total (vph)	127	134	163				
Volume Left (vph)	73	16	0				
Volume Right (vph)	72	0	怒				
Hadj (s)	-0.01	0.14	-0.02				
Departure Headway (s)	4.6	4.5	4.3				
Degree Utilization, x	0.16	0.17	0.20				
Capacity (veh/h)	735	763	793				
Control Delay (s)	8.4	8.4	8.4				
Approach Delay (s)	8.4	8.4	8.4				
Approach LOS	A	⋖	∢				
Intersection Summary							
Delay			8.4				
Level of Service			⋖				
Intersection Capacity Utilization	_		30.7%	⊴	ICU Level of Service	Service	A
Analysis Period (min)			15				

Queuing and Blocking Report

Intersection: 1: Ambridge Drive & Nosov Drive

2026 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Directions Served Maximum Queue (m)	꿈 :	≅ :	占	
Maximum Queue (m)				
	14.6	9.9	18.4	
Average Queue (m)	5.2	0.3	0.9	
95th Queue (m)	12.6	4.0	15.5	
Link Distance (m)	102.8	5.4	207.6	
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				
Movement	EB	NB	SB	
Directions Served	씸	느	꿈	
Maximum Queue (m)	23.8	23.0	21.7	
Average Queue (m)	10.1	11.8	10.9	
95th Queue (m)	18.0	19.1	16.9	
Link Distance (m)	342.9	169.0	5.4	
Upstream Blk Time (%)			6	
Queuing Penalty (veh)			13	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Carried Agency				

Zone Summary

Zone wide Queuing Penalty: 13

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Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Total AM Peak Hour	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
	(240078

	Т	£	2	2	Φ	%	_	0							Ф																										A
<b>*</b>	NBR SBL SBT			9 14 16	Free	%0	0.81 0.81 0.81	17	:					:	None			1	14/			147	4.1		2.2	66	1447														ICU Level of Service
_	WBR NBT N		26 110		Free		0.81	32 136						:	None			9	142			142	6.3		3.4	96	878	NB 1 SB 1	147 217	0 17		1700 1447		0.0 0.3			0.0			1.7	%U 9C
	WBL	*	17		Stop	%0	0.81	21											3/6			376	6.5		3.6	96	594	WB 1	53	21	32	738		1.9	10.3	В	10.3	В			Hilization
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	l ane Width (m)	Molking Chood (m/o)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage ven)	Upstream signal (m)	pX, piatoon unbiocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF (s)	% eauf enenb 0d	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization

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Synchro 11 Report Page 2

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

2036 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	SBR		71	71			0.85	84																																A A
<b>*</b>	SBT		107	107	_	%0	0.85							None																										Oll Level of Service
<b>←</b>	NBL NBT	₩	46 90	46 90	Free		0.85 0.85							None				210			210	4.2		2.3	96	1331	SB 1	210	0	84	1700	0.12	0.0	0.0		0.0			2.4	
· /-	EBR		13	13			0.85											168			168	6.5		3.6		811 1	NB1		54		`		1.0	2.9	⋖	2.9				30
1	EBL	>	53	53	Stop	%0	0.85	ਲ										382			382	6.5		3.6	장	572	EB 1	49	ਲ	12	628	0.08	2.0	11.2	m	11.2	В			noitez
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	1E (S)	b0 dueue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Canacity I Hilization

2036 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67 HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67

	SBR	ı	2	2			0.83	2																				l													
<b>*</b>	SBT S	4	73	73	Free			88						None																											
٠	SBL		7	7			0.83	œ						_				54			24	4.1		2.2	66	1564															
•	NBR	*-	82	82			0.83	102																																⋖	
<b>←</b>	NBT	4	45	45	Free	%0	0.83	24						None																											
•	NBL		0	0			0.83	0										6			6	4.1		2.2	100	1518															
4	WBR		7	7			0.83	∞										72			72	6.4		3.5	8	972														ICU Level of Service	
ţ	WBT	4	0	0	Stop	%0	0.83	0										160			160	6.5		4.0	100	732	SB 1	86	∞	2	1564	0.01	0.1	9.0	∢	9.0				U Level o	
-	WBL		99	99			0.83	8										160			160	7.2		3.6	6	778	NB 2	102	0	102	1700	90.0	0.0	0.0						2	
<i>&gt;</i>	EBR		0	0			0.83	0										88			8	6.2		3.3	100	975	NB 1	32	0	0	1518	0.00	0.0	0.0		0.0			2.8	27.2%	15
†	EBT	4	_	-	Stop	%0	0.83	~										159			159	6.5		4.0	100	733	WB1	88	8	∞	792	0.11	3.0	10.1	Ω	10.1	Ω				
1	EBF		0	0			0.83	0										167			167	7.1		3.5	100	792	EB 1	-	0	0	733	0.00	0.0	6.6	∢	6.6	∢			uo	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF(s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	cSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

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HCM Unsignalized Intersection Capacity Analysis 4: Oil Tank Road & Site Access

2036 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

	۸	†	ļ	4	۶	•	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
ane Configurations		₩	æ		>		
Fraffic Volume (veh/h)	0	17	12	105	25	0	
-uture Volume (Veh/h)	0	17	12	105	22	0	
Sign Control		Free	Free		Stop		
Grade	0	% 8	%8		%0		
eak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourry flow rate (vpn)	>	<u>o</u>	2	_ _ _	17	>	
ane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Jpstream signal (m)							
X, platoon unblocked							
vC, conflicting volume	127				88	70	
/C1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	127				88	20	
C, single (s)	4.1				6.7	6.2	
.C, 2 stage (s)							
作(s)	2.2				3.8	3.3	
on due ue free %	100				97	100	
cM capacity (veh/h)	1472				844	866	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	18	127	27				
Volume Left	0	0	27				
/olume Right	0	114	0				
cSH	1472	1700	844				
/olume to Capacity	0.00	0.07	0.03				
Queue Length 95th (m)	0.0	0.0	0.8				
Control Delay (s)	0.0	0.0	9.4				
Lane LOS			∢				
Approach Delay (s)	0.0	0.0	9.4				
Approach LOS			⋖				
ntersection Summary							
Average Delay			1.5				
ntersection Capacity Utilization	۰		17.1%	0	U Level o	ICU Level of Service	A
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive	tersec Nosov	tion C	apacity	Analy	sis	2036 To (240078) - NW Quadrant	2036 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67
	<b>\</b>	4	<b>—</b>	•	٠		
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	>		¢\$			₩	
Traffic Volume (veh/h)	9	24	174	=	32	151	
Future Volume (Veh/h)	9	54	174	Ξ	35	151	
Sign Control	Stop		Free			Free	
Grade	%0		%0			%0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	Ξ	27	196	12	හි	170	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right tum flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	450	202			208		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	450	202			208		
tC, single (s)	9.9	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.7	3.3			2.2		
p0 queue free %	88	26			26		
cM capacity (veh/h)	519	844			1357		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	88	208	209				
Volume Left	=	0	ස				
Volume Right	27	12	0				
cSH	715	1700	1357				
Volume to Capacity	0.05	0.12	0.03				
Queue Length 95th (m)	1.3	0.0	0.7				
Control Delay (s)	10.3	0.0	1.6				
Lane LOS	ш		⋖				
Approach Delay (s)	10.3	0.0	1.6				
Approach LOS	മ						
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utilization	_		33.0%	ICO	ICU Level of Service	arvice	
Analysis Period (min)			15				

Synchro 11 Report Page 1

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

2036 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

<b>→</b>	SBT SBR	£25	128 33		Free		0.90 0.90							None																										A
<b>←</b>	NBL NBT	4	14 117	14 117	Free		06.0 06.0	16 130						None				179			179	4.3		2.4	66	1311	SB 1	179	0	37	1700	0.11	0.0	0.0		0.0			3.5	
* *	EBR		49	49			0.90	24										160				6.3		3.4		867	NB1 S	146	16		•		0.3		⋖	6.0				•
1	盟	>	- 89	89	Stop	%0	0.90	9/										322			322	6.5		3.6	88	653	EB 1	130	9/	72	727	0.18	5.2	11.0	മ	11.0	Ω			
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF(s)	% eeu eu un boud	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	and of the second

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HCM Unsignalized Intersection Capacity An: 3: Highway 11 & Cemetery Road/Highway 6

2036 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

HCM Unsignalized Intersection Capacity Analysis 4: Oil Tank Road & Site Access

1

0.92

0.92

0.92

Grade Peak Hour Factor Hourly flow rate (vph)

Stop 0.92 110

18 18 0.92 0.92 20

16 16 0% 0.92

29

Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h)

Sign Control

NBI NBR SBI 1 98 84 10 1 98 84 10 1 98 84 10 0.91 0.91 0.91 1 108 92 11 1 108 92 11 71 108 71 4.1 2.2 2.2 100 99 1542 1495		4	†	>	<b>&gt;</b>	ļ	4	•	<b>←</b>	•	۶	<b>→</b>	*
1   44   10   1   1   10   10   10   1		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1   3   0   103   4   10   1   98   84   10   64     1   3   0   103   4   10   1   98   84   10   64     2   0   0   0   0   0   0   0     3   0   103   0   0   0   0   0     4   1   3   0   113   4   11   108   92   11   70     5   0   0   0   113   4   11   1   108   92   11   70     5   0   0   1   0   0   0     5   0   0   0   0   0     6   0   0   0   0     7   0   0   0   0   0     8   0   0   0   0     9   0   0   0   0     9   0   0   0   0     9   0   0   0     9   0   0   0     9   0   0   0     9   0   0   0     1   0   0   0   0     1   0   0   0   0     1   0   0   0   0     1   0   0   0   0     1   0   0   0   0     1   0   0   0   0     1   0   0   0   0     1   0   0   0     1   0   0   0   0     1   0	gurations		4			4			4	¥C		4	
1	me (veh/h)	<del>-</del>	က	0	103	4	9	~	86	84	10	64	_
Stop   Stop   Stop   Stop   Stop   Stop   O%   O%   O%   O%   O%   O%   O%   O	ıme (Veh/h)	_	က	0	103	4	10	-	86	84	10	64	_
0.91 0.94 0.95 0.97 0.97 0.97 0.97 0.91 0.91 0.91 0.91 0.91 0.91 0.91 0.91	<u> </u>		Stop			Stop			Free			Free	
1   3   0   113   4   11   1   108   92   11   70		2	% 5	2	2	% 5	2	5	% &	Š	2	% 6	2
1 3 0 113 4 11 1 108 92 11	Factor	1.6.0	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	1.6.0	0.91	0.9
None  2 16 202 70 204 203 108 71 108  2 16 202 70 204 203 108 71 108  7 1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  3 5 40 33 35 40 33 22 2.2  100 100 100 85 99 99 100 99  7 29 692 998 743 691 951 1542 1495  EB1 WB1 NB1 NB2 SB1  4 128 109 92 11  0 11 0 92 1  701 755 1542 1700 1495  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	rate (vph)	~	က	0	113	4	=	-	108	92	=	20	_
None  2 16 202 70 204 203 108 71 108  1 216 202 70 204 203 108 71 108  7 1 6.5 6.2 7.1 6.5 6.2 4.1 41.1  2 16 202 70 204 203 108 71 108  7 1 6.5 6.2 7.1 6.5 6.2 4.1 41.4  1 2 10 100 100 85 99 99 100 99 99 100 99 729 82 100 100 100 100 100 100 100 100 11 0 11 11													
None	(m)												
Mone  2 16 202 70 204 203 108 71 108  1 216 202 70 204 203 108 71 108  7 1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  7 1 6.5 6.2 7.1 6.5 6.2 4.1 4.1  7 2 6 20 398 743 691 951 1542 1495  100 100 100 85 99 90 100 99  7 29 692 998 743 691 951 1542 1495  1 1 13 1 0 11  7 1 6 5 6 7 1 6 5 6 7 1 6 6 6 7 1  1 1 1 0 92 1  7 1 4 12 10 92 1  7 1 4.9 0.0 0.0 0.0 0.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.2 10.7 0.0 0.0 0.2  9 9 100 0.0 0.0 0.0 0.0  9 9 100 0.0 0.0 0.0 0.0  1 10 2 10.7 0.0 0.0 0.0 0.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.0 1.0 1.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.0 1.0 1.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.0 1.0 1.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.0 1.0 1.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.0 1.0 1.0  9 9 100 0.0 0.0 0.0 0.0  1 10 10.0 1.0 1.0  9 9 9 100 0.0 0.0 0.0  1 10 10.0 0.0 0.0 0.0 0.0  1 10 10.0 0.0 0.0 0.0 0.0  1 10 10.0 0.0 0.0 0.0 0.0  1 10 10.0 0.0 0.0 0.0 0.0 0.0  1 10 10.0 0.0 0.0 0.0 0.0 0.0 0.0  1 10 10.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	eed (m/s)												
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84 216 202 70 204 203 108 71  216 202 70 204 203 108 71  216 202 70 204 203 108 71  7.1 6.5 6.2 7.1 6.5 6.2 4.1  3.5 4.0 3.3 3.5 4.0 3.3 2.2  100 100 100 85 99 9100  729 692 998 743 691 951 1542  1 113 10 92 82  1 113 10 0 11  0 11 0 0 005 0.01  m) 0.1 4.9 0.0 0.0 0.2  10.2 10.7 0.1 0.0 1.0  B B B  7 4 A A A A A A A B A A A A A A A A A B A A A A A A A B A A A A A A A A A A A A A B A	ignal (m)												
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216 202 70 204 203 108 71 7.1 6.5 6.2 7.1 6.5 6.2 4.1 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 100 100 100 88 99 99 100 729 692 743 691 951 1542 1.1 EB1 WB1 NB1 SB1 4 128 109 92 82 1 1 113 1 0 11 0 11 0 00 00 00 00 10 0.1 0.7 00 00 00 00 10 0.1 0.0 00 00 10 B B A A A A 102 B B B B A A A A A 102 B B B B A A A A A 102 B B B B A A A A A A 102 B B B B A A A A A A A A A A A A A A A A	1 conf vol												
216 202 70 204 203 108 71 7.1 6.5 6.2 7.1 6.5 6.2 4.1 3.5 4.0 3.3 3.5 4.0 3.3 2.2 100 100 100 85 99 9100 729 692 998 743 691 951 1542 1 113 10 92 82 1 1 113 10 0 11 0 11 13 0 00 0.0 0 0.1 0.7 0.0 0.05 0.01 0 0.1 4.9 0.0 0.0 0.2 0 0.1 0.7 0.1 0.0 1.0 0 B B B B B A A A I U.Z 10.7 0.0 1 0.0 1.0 B B B B B A A A I U.Z 10.7 0.0 1.0 B B B A A A I U.Z 10.7 0.0 1.0 B B B A A A I U.Z 10.7 0.0 1.0 B B B A A A I U.Z 10.7 0.0 1.0 B B B A A A I U.Z 10.7 0.0 1.0 B B B A A A I U.Z 10.7 0.0 1.0 B B B A A A A I U.Z 10.7 0.0 1.0 B B B A A A A A A A A A A A A A A A A A	2 conf vol												
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3.5 4.0 3.3 3.5 4.0 3.3 2.2 100 100 100 85 99 99 100 729 692 998 743 691 951 1542 1-1 EB1 WB1 NB1 NB2 SB1 4 128 109 92 82 1 113 1 0 11 0 11 00 005 0.01 0.01 0.17 0.00 0.05 0.01 0.01 0.17 0.00 0.05 0.01 0.01 0.17 0.00 0.05 0.01 B B A A A 10.2 10.7 0.0 1.0 B B B A A A 10.2 10.7 0.0 1.0 B B B A A A 10.2 10.7 0.0 1.0 B B B A A A 10.2 10.7 0.0 1.0 10.8 10.8 A A A 10.2 10.7 0.0 1.0 10.8 10.8 A A A 10.9 10.7 0.0 1.0 10.8 10.8 A A A A 10.9 10.7 0.0 1.0 10.8 10.8 A A A A 10.9 10.7 0.0 1.0 10.8 10.8 A A A A A 10.9 10.7 0.0 1.0 10.8 10.8 A A A A A A A A A A A A A A A A A A A		7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
3.5 4,0 3.3 3.5 4,0 3.3 2.2 100 100 88 99 99 100 729 692 743 691 951 1542 11 EB1 WB1 NB1 SB1 4 128 109 92 82 1 1 113 1 0 11 0 11 10 00 0.5 0.01 0 0.1 0.17 0.00 0.05 0.01 0 0.1 0.17 0.00 0.00 0.0 0 0.1 0.17 0.00 0.00 0.01 0 0.1 0.17 0.00 0.00 0.01 0 0.1 0.17 0.00 0.00 0.01 0 0.1 0.17 0.00 0.00 0.01 0 0.1 0.17 0.00 0.00 0.01 0 0.1 0.17 0.00 0.00 0.00 0 0.1 0.10 0.00 0.00 0 0.1 0.10 0.00 0.0	(s)												
100		3.5	4.0	33.3	3.5	4.0	3.3	2.2			2.2		
T29   692   998   743   691   951   1542	% әе	100	100	100	82	8	8	100			66		
EB1 WB1 NB1 SB1  4 128 109 92 82  1 113 1 0 11  0 11 0 92 11  701 755 1542 1700 1495  0.01 0.17 0.00 0.05 0.01  0.1 4.9 0.0 0.0 0.2  B B A A A A 10.2 10.7 0.0 1.0  Y 3.6 ICU Level of Service  1 Utilization 30.5% ICU Level of Service	r (veh/h)	729	692	866	743	691	921	1542			1495		
H 128 109 92 82 1 113 1 0 11 0 11 0 92 1 701 755 1542 1700 1495 0.01 0.17 0.00 0.05 0.01 102 10.7 0.1 0.0 1.0 B B A A A 102 10.7 0.0 1.0 B B B A A A 102 10.7 0.0 1.0 1.0 30.5% ICU Level of Service	ane #	EB 1	WB 1	NB 1	NB 2	SB 1							
m) 0 11 0 11 11 11 1 0 11 1	a	4	128	109	95	82							
701 756 1542 1700 1495 0.01 0.17 0.00 0.05 0.01 0.01 4.9 0.0 0.0 0.2 10.2 10.7 0.1 0.0 1.0 10.8 A A A 110.2 10.7 0.0 1.0 B B B A A A 10.2 10.7 0.0 1.0 B B B C A A 10.2 10.7 0.0 1.0 B B B A A A 10.2 10.7 0.0 0.0 B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B B B A A A 10.2 10.7 0.0 0.0 B B A A A 10.2 10.7 0		_	113	~	0	=							
701 755 1542 1700 1495  0.01 0.17 0.00 0.05 0.01  1 0.1 4.9 0.0 0.05 0.01  1 0.2 10.7 0.1 0.0 1.0  B B A A A A A A A A A A A A A A A A A	ht	0	Ξ	0	35	Ψ.							
m) 0.01 0.17 0.00 0.05 0.01 0.11 4.9 0.0 0.0 0.2 10.2 10.7 0.1 0.0 1.0 B B A A A 10.2 10.7 0.0 1.0 B B B A A 10.2 10.7 0.0 1.0 1.0 30.5% (CU Level of Service)		701	755	1542	1700	1495							
m) 0.1 4.9 0.0 0.0 0.2 10.2 10.7 0.1 0.0 1.0 B B A A A A A A A A A A A A A A A A A A	Capacity	0.01	0.17	0.00	0.05	0.01							
102 107 0.1 0.0 1.0 B B A A 10.2 10.7 0.0 1.0 B B B Y 3.6 Y 3.5 CU Level of Service	gth 95th (m)	0.1	4.9	0.0	0.0	0.2							
102 10,7 0.0 1.0 B B A A A 102 10,7 0.0 1.0 B B B 3.6 Tuliization 30.5% ICU Level of Service 1.0	ay (s)	10.2	10.7	0.1	0.0	1.0							
10.2 10.7 0.0 1.0 B B B 3.6 Vitilization 30.5% ICU Level of Service		ш	ш	⋖		⋖							
y 3.6 ICU Level of Service 15	belay (s)	10.2	10.7	0.0		1.0							
y 3.6 Utilization 30.5% ICU Level of Service 15	SO	മ	Ф										
3.6 Utilization 30.5% ICU Level of Service 15	Summary												
Utilization 30.5% ICU Level of Service 15	lav			3.6									
15	Capacity Utilization			30.5%	0	U Level o	f Service			⋖			
	riod (min)			15									

3.3

3.6 88 938

2.2 100 1567

53 6.5

36

53

25

Pedestrians
Lane Width (m)
Walking Speed (m/s)
Percent Blockage
Right tun flare (veh)
Median type
Median type
Median storage veh)
Dy patroam signal (m)
Dy patroam signal (m)
Dy stage 1 cont vol
CC, conficting volume
vC1, stage 2 cont vol
CC, stage 2 cont vol
CC, stage 6 cont vol
CC, stage 8 (s)
F(s)
F(c)
Di queue free %
dM capacity (veh/h)

None None

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ICU Level of Service

5.7 15.6% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

0.12 0.12 3.2 9.3 A A 9.3 A A A

0.0

Approach Delay (s) Approach LOS

52 0 32 1700 0.03 0.0

Direction, Lane #
Volume Total
Volume Left
Solume Right
SSH
Volume Right
SCH
Control Delay (s)
Lane LOS

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Total AM Peak Hour (AWSC)

2036 Total AM Peak Hour (AWSC) (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

WEL WER NET NER SEL SET  WEL WER NET NER SEL SET  17 26 110 9 14 162  Stop Free Free Free  O. W.	1: Ambridge Drive & Nosov Drive	✓ Drive	•	4	-	-	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
WBR NBT SBL SBT  26 110 9 14 162  26 110 9 14 162  27 170 9 14 162  28 136 11 17 200  142   147   17 200  142   147   17 200  142   147		/	<b>—</b>	•	۶	<b>→</b>	
110 9 14 162 110 9 14 162 110 9 14 162 10% 0% 0,81 0,81 0,81 1,36 11 17 200 1,17		WBR	NBT	NBR	SBL	SBT	
110 9 14 162 110 9 14 162 Free 0% 0,81 0,81 0,81 0,81 136 11 17 200 147 147 147 4.1 217 17 18 19 1447 0,01 0,3 0,7 A A 0,7 15 17 17 18 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19			\$			₩	
Free Free O%		56	110	တ	4	162	
Free 0% 0% 0% 0% 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81		56	110	6	14	162	
0% 0% 11 17 200 None None None None None 147 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1			Free			Free	
0.81 0.81 0.81 136 11 17 200 None None None 147 147 4.1 2.2 99 1447 0.01 0.01 0.3 0.7 A A CU Level of Service 15			%0			%0	
136 11 17 200  None None None 147  147  4.1  2.2  99 1447  0.01  0.01  0.3  0.7  A  1.7  CU Level of Service 15		0.81	0.81	0.81	0.81	0.81	
None None 147 147 147 4.1 2.2 99 1447 0.01 0.3 0.7 A A 0.7 1.7 26.0% ICU Level of Service 15		32	136	=	17	200	
None None 147 147 4.1 2.2 99 1447 0.01 0.03 0.7 A A 0.7 A 0.7 1.7 26.0% 1CU Level of Service 15							
None None  147  147  4.1  2.2  99  1447  0.01  0.01  0.3  0.7  A  1.7  CU Level of Service 15							
None None 147 147 147 4.1 2.2 99 1447 0.01 0.3 0.7 A A 0.7 A 0.7 1.7 26.0% ICU Level of Service 15							
None None 147 147 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.9 1447 0.01 0.01 0.3 0.7 A A 0.7 A A 0.7 1.7 26.0% 1CU Level of Service 15							
None None  147  147  4.1  2.2  99 1447  217  1447  0.01  0.3  0.7  A  1.7  CU Level of Service 15							
147 147 4.1 2.2 99 1447 0.01 0.01 0.3 0.7 A 0.7 0.7 A 0.7 0.7 1.7 1.7 26.0% ICU Level of Service			None			None	
147 4.1 4.1 4.1 4.1 4.1 4.1 5.2 99 1447 88.1 7 17 0.01 0.01 0.01 0.3 0.7 A A 0.7 A A 0.7 1.7 26.0% ICU Level of Service							
147 4.1 4.1 4.1 4.1 5.8 99 1447 0.01 0.01 0.3 0.7 A A 0.7 A 0.7 17 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19							
147 147 4.1 4.1 2.2 99 1447 0.01 0.01 0.01 0.7 A A 0.7 A 0.7 A 0.7 A 0.7 A 1.7 26.0% ICU Level of Service							
147 4.1 4.1 2.2 99 1447 7 0.01 0.03 0.3 0.7 A A 0.7 A 0.7 A 0.7 1.7 26.0% ICU Level of Service	_	42			147		
147 4.1 2.2 99 1447 SB.1 217 17 17 0.01 0.01 0.3 0.7 A 0.7 A 0.7 A 0.7 A 0.7 1.7 26.0% ICU Level of Service							
147 4.1 4.1 2.2 99 1447 0.01 0.01 0.3 0.7 A A 0.7 A 0.7 A 0.7 A 0.7 1.7 26.0% ICU Level of Service							
22 99 1447 217 17 0.01 0.3 0.7 A 0.7 A 0.7 A 0.7 1.7 26.0% ICU Level of Service		142			147		
22 99 1447 217 17 0 1447 0.01 0.03 0.3 0.7 A A 0.7 A 0.7 A 0.7 A 1.7 26.0% ICU Level of Service		6.3			4.1		
2.2 99 1447 217 17 17 10 10.01 0.3 0.7 A 0.7 A 0.7 A 0.7 A 0.7 1.7 CU Level of Service							
99 1447 17 17 10 1447 0.01 0.3 0.7 A 0.7 A 0.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1		3.4			2.2		
SB 1 217 217 17 0 1447 0.01 0.3 0.7 A A 0.7 A 0.7 1.7 26.0% ICU Level of Service		96			ගි		
217 217 17 00 1447 0.01 0.03 0.7 A 0.7 A 0.7 1.7 26.0% ICU Level of Service		878			1447		
217 17 0 1447 0.01 0.03 0.7 A A 0.7 1.7 26.0% ICU Level of Service 15		NB 1	SB 1				
17 0 1447 0.01 0.3 0.7 A 0.7 A 0.7 1.7 1.7 ICU Level of Service 15		147	217				
0 0.01 0.3 0.7 A A 0.7 1.7 26.0% ICU Level of Service 15		0	17				
1447 0.01 0.3 0.7 A 0.7 1.7 26.0% ICU Level of Service 15		7	0				
0.01 0.3 0.7 A A 0.7 1.7 26.0% ICU Level of Service 15		1700	1447				
0.3 0.7 A A 0.7 1.7 28.0% ICU Level of Service 15		60.0	0.01				
0.7 A 0.7 0.7 1.7 CU Level of Service 15		0.0	0.3				
A 0.7 1.7 26.0% ICU Level of Service 15		0.0	0.7				
0.7 1.7 26.0% ICU Level of Service 15			⋖				
ICU Level of Service		0.0	0.7				
ICU Level of Service							
ICU Level of Service							
ICU Level of Service			1.7				
		ľ	26.0%	ਹ	J Level of	Service	
			15				

•	SBR			7.1	71	0.85	84															ICU Level of Service A	
<b>→</b>	NBT SBT	÷	Stop Stop	90 107			106 126															ICU Level	
<b>√</b>	EBR NBL			13 46		0.85 0.85	15 54	NB 1 SB 1	160 210	54 0		0.21 -0.02	4.5 4.2		787 844	8.5 8.5	8.5 8.5	A		8.5	V	30.6%	15
1		<u>&gt;</u>	Stop	29		0.85 0.	8	EB 1 NE		8		0.28 0.					8.4	Α				ion	
	Movement	Lane Configurations	Sign Control	Traffic Volume (vph)	Future Volume (vph)	Peak Hour Factor	Hourly flow rate (vph)	Direction, Lane #	Volume Total (vph)	Volume Left (vph)	Volume Right (vph)	Hadj (s)	Departure Headway (s)	Degree Utilization, x	Capacity (veh/h)	Control Delay (s)	Approach Delay (s)	Approach LOS	Intersection Summary	Delay	Level of Service	Intersection Capacity Utilization	Analysis Period (min)

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Paradigm Transportation Solutions Limited

2036 Total AM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Intersection: 1: Ambridge Drive & Nosov Drive SB LT 27.8 7.1 19.4 207.6 NB 8.0 8.0 0.4 6.5 0 0 WB LR 19.8 8.5 8.5 16.9 102.8 Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blik Time (%)
Queuing Penalty (veh)
Storage Bly Time (%)
Queuing Penalty (veh)

Intersection: 2: Ambridge Drive & Oil Tank Road

Movement	EB	NB	SB	
Directions Served	H	占	TL	
Maximum Queue (m)	19.9	23.3	21.0	
Average Queue (m)	7.2	13.0	13.1	
95th Queue (m)	15.5	20.4	20.2	
Link Distance (m)	342.9	169.0	5.4	
Upstream Blk Time (%)			7	
Queuing Penalty (veh)			20	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 20

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HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Total PM Peak Hour (AWSC) (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

<b>→</b> •	SBL SBT	€3	35 151		Free	0.89 0.89	39 170						None				208			208	4.1		2.2	26	1357															ICU Level of Service A	
<b>←</b>	NBT NBR	¢\$	174 11	174 11	Free	0.89 0.89	196 12						None													SB 1	209	39	0	1357	0.03	0.7	1.6	⋖	1.6						
4	L WBR		0 24		d	6 0.89											0 202				6 6.2				9 844	1 NB 1	38 208				_	3 0.0		В	3 0.0	В		ı			
•	Movement WBL	Lane Configurations	Traffic Volume (veh/h) 10	Future Volume (Veh/h) 10	Sign Control Stop	Peak Hour Factor 0.89	Hourly flow rate (vph) 11	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume 450	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol 450	tC, single (s) 6.6	stage (s)			cM capacity (veh/h) 519	Direction, Lane # WB 1	Volume Total 36	Volume Left 11	ne Right	cSH 715		Queue Length 95th (m) 1.3	ay (s)		Approach Delay (s) 10.3		Intersection Summary		Average Delay	Intersection Capacity Utilization	

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HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road

36 Total PM Peak Hour (AWSC)	78) - NW Quadrant of Oil Tank Rd and Hwy 67
2036	(240078)

	\	>	•	<b>—</b>	<b>→</b>	*	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	×			4	43		
Sign Control	Stop			Stop	Stop		
Traffic Volume (vph)	89	49	14	117	128	33	
Future Volume (vph)	89	49	4	117	128	33	
Peak Hour Factor	06:0	0.30	0.00	0.30	0.90	0.90	
Hourly flow rate (vph)	9/	Ŗ	16	130	142	37	
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total (vph)	130	146	179				
Volume Left (vph)	9/	16	0				
Volume Right (vph)	72	0	37				
Hadj (s)	0.00	0.13	-0.02				
Departure Headway (s)	4.6	4.6	4.4				
Degree Utilization, x	0.17	0.18	0.22				
Capacity (veh/h)	721	759	286				
Control Delay (s)	9.6	9.8	9.6				
Approach Delay (s)	9.6	9.8	9.8				
Approach LOS	⋖	⋖	⋖				
Intersection Summary							
Delay			9.8				
Level of Service			⋖				
Intersection Capacity Utilization	_		31.3%	ਹ	ICU Level of Service	Service	
Analysis Period (min)			15				

Intersection: 1: Ambridge Drive & Nosov Drive

2036 Total PM Peak Hour (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Movement	Se Se	SB	
Directions Served LR	¥	L	
Maximum Queue (m) 16.4	4.7	19.6	
Average Queue (m) 5.8	3 0.2	0.9	
35th Queue (m) 13.4	1 2.7	15.4	
Link Distance (m) 102.8	5.4	207.6	
Jpstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Movement	EB	NB	SB	
Directions Served	R	П	TR	
Maximum Queue (m)	22.7	25.0	18.9	
Average Queue (m)	9.3	12.4	10.8	
95th Queue (m)	16.4	20.3	16.7	
Link Distance (m)	342.9	169.0	5.4	
Upstream Blk Time (%)			10	
Queuing Penalty (veh)			16	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 16

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## **Appendix E**

**2036 Total Traffic Operation Reports – Sensitivity Analysis** 

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Total AM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

2036 Total AM Peak Hour - Sensitivity	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67
apacity Analysis	pe

HCM Unsignalized Intersection Capacity / 2: Ambridge Drive & Oil Tank Road

	*
	-
	<b>←</b>
5	•
	>
E. 1	4
5	
3	
2	
i	l

0.85

0.85

None

None

264

195

264

195

117

107 107 107 Free 0% 0.85 126

90 90 90 0% 0.85

*	Movement EBL	Lane Configurations 🐈	Traffic Volume (veh/h) 41		Grade 0%	Peak Hour Factor 0.85	ate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	vC, conflicting volume 301	vC1, stage 1 conf vol	vC2, stage 2 conf vol		tC, single (s) 6.6	stage (s)		p0 queue free % 93	cM capacity (veh/h) 654	Direction, Lane # EB 1	_	Volume Left 48	e Right	CSH 658		Queue Length 95th (m) 1.9	ay (s)		) (S)	Approach LOS B	Intersection Summary	Average Delay	Intersection Capacity Utilization	ליוווין)
																																						∢	
<b>→</b>	SBT	₩	208	Free	%0	0.81	257						None																									f Service	
<u>ب</u>	NBR SBL		9 4			0.81 0.81										162			162	4.1		2.2	66	1429														ICU Level of Service	
<b>-</b>	NBT	æ	122	Free Free	%0	0.81							None												SB 1	274	17	0	1429	0.01	0.3	9.0	∢ 0	0.0			1.5	32.0%	2
4	WBR		92 28			0.81										156				6.3			8		NB 1		0		1700		0.0			0.0					
•	Iovement WBL	-ane Configurations	raffic Volume (veh/h) 17		Grade 0%		ate (vph)	oedestrians oedestrians	.ane Width (m)	Valking Speed (m/s)	Percent Blockage	Right tum flare (veh)	Aedian type	ledian storage veh)	Jpstream signal (m)	/C, conflicting volume 448	C1, stage 1 conf vol	/C2, stage 2 conf vol		C, single (s) 6.5	stage (s)	IF (s) 3.6		oM capacity (veh/h) 539	Direction, Lane # WB 1	Volume Total 53		ne Right		/olume to Capacity 0.08	th (m)	lay (s)		(S)	pproach LOS B	ntersection Summary	Average Delay	ntersection Capacity Utilization	

tC, 2 stage (s)				
tF (s)	3.7	3.3	2.2	
p0 queue free %	93	100	100	
cM capacity (veh/h)	654	821	1312	
Direction, Lane #	EB 1	NB 1	SB 1	
Volume Total	49	106	264	
Volume Left	48	0	0	
Volume Right	<del>-</del>	0	138	
SSH	658	1312	1700	
Volume to Capacity	0.07	0.00	0.16	
Queue Length 95th (m)	1.9	0.0	0.0	
Control Delay (s)	10.9	0.0	0.0	
Lane LOS	Ω			
Approach Delay (s)	10.9	0.0	0.0	
Approach LOS	Ф			
Intersection Summary				
Average Delay			1.3	
Intersection Capacity Utilization	_		22.8%	ICU Level of Service
Analysis Period (min)			15	

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67

2036 T∩

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1

2036 Total AM Peak Hour - Sensitivity	(240078) - NW Quadrant of Oil Tank Rd and Hwy 67

0.83

0.83

0.83

0.83

0.83

0.83

0.83

0.83

Sign Control Grade Peak Hour Factor Hourly flow rate (vph)

Lane Width (m)
Walking Speed (m/s)
Percent Blockage
Right tum flare (veh)

Median type

Stop 0% 0.83

73 73 0.83 88

45 45 45 0% 0.83

22

Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h)

43 43 **-**

None

None

24

8

攻

152

152

8

151

158

2036 Total AM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

HCM Unsignalized Intersection Capacity Analysis 4: Oil Tank Road & Site Access

																																								A	
*	SBR		0	0			0.92	0										20			20	6.2		3.3	100	866														f Service	
۶	SBL	>	25	25	Stop	%0	0.92	27										88			88	6.7		3.8	26	844														ICU Level of Service	
1	WBR		105	105			0.92	114																																2	
Ļ	WBT	2,	12	12	Free	%0	0.92	13						None													SB 1	27	27	0	844	0.03	0.8	9.4	⋖	9.4	∢		1.5	17.1%	15
Ť	EBT	4	17	17	Free	%0	0.92	18						None													WB 1	127	0	114	1700	0.07	0.0	0.0		0.0					
1	盟		0	0			0.92	0										127			127	4.1		2.2	100	1472	EB 1	18	0	0	1472	0.00	0:0	0.0		0.0				c	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2. stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	F(s)	% eauf enenb 0d	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)

2.2 100 1564

2.2 100 1518

3.5 99 965

4.0 100 741

3.6 800

3.3 100 975

4.0 742

3.5 100 805

SB 1 94 4 4 4 4 4 4 1564 0.00 0.00 0.3 0.3 0.3

62 52 0 52 52 1700 0.03 0.03

54 0 0 0.00 0.00 0.0

Direction, Lane #
Volume Total
Volume Eleft
Solume Right
SSH to Capacity
Couceu Length 95th (m)
Couceu Length 95th (m)
Lane LOS
Lane LOS

73 66 7 7 7 0.09 9.9 813 9.9 A A

0.00 0.00 9.9 A 9.9

4.1

6 1.1

6.4

152 6.5

152 7.2

6.2

151

7.1

Maddan storage veh)
Upstream signal (m)
Dy, platon unblocked
VC, conflicting volume
VC1, stage 1 conf vol
VC2, stage 2 conf vol
VC4, unblocked vol
C5, single (s)
C6, single (s)
C6, single (s)
C6, single (s)
C7, stage (with)

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ICU Level of Service

23.1%

Average Delay Intersection Capacity Utilization Analysis Period (min)

0.0

Approach Delay (s) Approach LOS

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Synchro 11 Report Page 4

HCM Unsignalized Intersection Capacity Analysis 1: Ambridge Drive & Nosov Drive

2036 Total PM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

20	
HCM Unsignalized Intersection Capacity Analysis 2: Ambridge Drive & Oil Tank Road	

2036 Total PM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

1	EBL	>	116	116	Stop	%	0.90	129										301			8	6.5		3.6	<u>@</u>	219	EB 1	130	139	_	678	0.19	5.6	11.6	Ω	11.6	Ω			E	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right turn flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	F(s)	% denene free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	HS3	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Period (min)
																																								A	
<b>→</b>	SBL SBT		35 163		Free		0.89 0.89							None				261			261	4.1		2.2	26	1298														ICU Level of Service	
•	NBR		=	=			0.89	12																																_	
<b>←</b>	NBT	\$	222	222	Free	%0	0.89	249						None													SB 1	222	ස	0	1298	0.03	0.7	1.6	∢	1.6			1.5	36.2%	<u>0</u>
4	WBR		24	54			0.89	27										255			255	6.2		3.3	26	789	NB 1	261	0	12	1700	0.15	0.0	0.0		0.0					
<b>/</b>	WBL	≱	9	10	Stop	%0	0.89	1										516			516	9.9		3.7	86	474	WB 1	88	=	27	662	90:0	1.5	10.8	В	10.8	Ω			zation	
	Movement	Lane Configurations	Traffic Volume (veh/h)	Future Volume (Veh/h)	Sign Control	Grade	Peak Hour Factor	Hourly flow rate (vph)	Pedestrians	Lane Width (m)	Walking Speed (m/s)	Percent Blockage	Right tum flare (veh)	Median type	Median storage veh)	Upstream signal (m)	pX, platoon unblocked	vC, conflicting volume	vC1, stage 1 conf vol	vC2, stage 2 conf vol	vCu, unblocked vol	tC, single (s)	tC, 2 stage (s)	tF (s)	p0 queue free %	cM capacity (veh/h)	Direction, Lane #	Volume Total	Volume Left	Volume Right	SSH	Volume to Capacity	Queue Length 95th (m)	Control Delay (s)	Lane LOS	Approach Delay (s)	Approach LOS	Intersection Summary	Average Delay	Intersection Capacity Utilization	Analysis Penod (min)

	4	<i>&gt;</i>	•	<b>←</b>	<b>→</b>	*	
Movement	EBE	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	>			4	2,		
Traffic Volume (veh/h)	116	<del>-</del>	2	117	128	45	
ne (Veh/h)	116	-	2	117	128	45	
Sign Control	Stop			Free	Free		
	%0			%0	%0		
	06.0	06:0	06:0	0.90	0.00	0.90	
Hourly flow rate (vph)	139	-	5	130	142	50	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	301	167	192				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	301	167	192				
tC, single (s)	6.5	6.2	4.1				
tC, 2 stage (s)							
IF(s)	3.6	3.3	2.2				
p0 queue free %	8	100	100				
cM capacity (veh/h)	212	882	1394				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	130	132	192				
Volume Left	129	2	0				
Volume Right	-	0	20				
	829	1394	1700				
	0.19	0.00	0.11				
ith (m)	9.6	0.0	0.0				
ay (s)	11.6	0.1	0.0				
	ш	⋖					
(s)	11.6	0.1	0.0				
Approach LOS	В						
Intersection Summary							
Average Delay			3.3				
Intersection Capacity Utilization			22.6%	ਹ	ICU Level of Service	Service A	
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 11 & Cemetery Road/Highway 67

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2036 Tol (240078)
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0.91

Stop 0% 0.91

0.91

0.91

0.91

0.91

Sign Control Grade Peak Hour Factor Hourly flow rate (vph)

Lane Width (m)
Walking Speed (m/s)
Percent Blockage
Right tum flare (veh)

Median type

Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h)

2036 Total PM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

36 To (240078)	tal PM NW QL	36 Total PM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67	Hour - Oil Tank	Sens Rd and	itivity Hwy 67	HCM Unsignalized Intersection Capacity Analysis 4: Oil Tank Road & Site Access	apacity Ar	nalysis	2036 Total (240078) - N
•	<b>←</b>	4	۶	<b>→</b>	*	† *\	<b>↓</b>	ا ر	*
NBL	NBT	NBR	SBL	SBT	SBR	Movement EBL EBT	WBT WBR	IR SBL	SBR
	₩	¥C		4					
_	86	73	6	64	_	Traffic Volume (vehVh) 0 16	18	29 101	0
-	98	73	6	64	_	Future Volume (Veh/h) 0 16			0
	Free			Free		Sign Control Free	Free	Stop	
	%0			%0		Grade 0%	%0	%0	
0.91	0.91	0.91	0.91	0.91	0.91	Peak Hour Factor 0.92 0.92	0.92 0.9	0.92 0.92	0.92
~	108	80	10	70	_	Hourly flow rate (vph) 0 17			0
						Pedestrians			
						Lane Width (m)			
						Walking Speed (m/s)			
						Percent Blockage			
						e (veh)			
	None			None		Median type None	None		
						Median storage veh)			
						Upstream signal (m)			
						pX, platoon unblocked			
71			108			vC, conflicting volume 52		53	36
						vC1, stage 1 conf vol			
						vC2, stage 2 conf vol			
71			108			vCu, unblocked vol 52		53	36
4.1			4.1			tC, single (s) 4.1		6.5	6.2
						tC, 2 stage (s)			
2.2			2.2					3.6	3.3
100			66			p0 queue free % 100		88	100
1542			1495			cM capacity (veh/h) 1567		938	1042
						Direction Lane # EB 1 WB 1	SB 1		
						17	110		
						0	110		
						0	0		
						1567 1	938		
						Volume to Capacity 0.00 0.03	0.12		
						(m) 0:0	3.2		
						0.0	9.3		
							A		
						Approach Delay (s) 0.0 0.0	9.3		
						Approach LOS	A		
						Intersection Summary			
						Average Delay	5.7		
		∢				pacity Utilization	15.6%	ICU Level	ICU Level of Service
						Analysis Period (min)	15		

108

201

202

2

200

208

108

201

6.2

200

208

Madian storage veh)
Upstream signal (m)
Dystream signal (m)
Dx, Batton unblocked
VC, conflicting volume
VC1, stage 1 conf vol
VC2, stage 2 conf vol
VC4, unblocked vol
C4, unblocked vol
C5, single (s)
C6, single (s)
C6, single (s)
C7, stage (s)
C6, single (s)
C7, stage (s)
C6, single (s)
C7, single (s)
C8, single (s)
C9, single (s)
C9,

3.3 99 951

4.0 100 693

3.5 94 754

3.3 100 998

4.0 694

3.5 100 742

100 100

76

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ICU Level of Service

2.6 27.8% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Approach Delay (s) Approach LOS

0.01 0.2 1.0 A 1.0

0.00 0.00 0.1 0.1 0.0

0.01

Direction, Lane #
Volume Total
Volume Left
Solume Right
SSH
Volume Right (SSH
Volume to Capacity
Queue Length 95th (m)
Lane LOS
Lane LOS

767 0.10 2.6 10.2 B

NB2 80 80 80 1700 0.05 0.00 0.00

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HCM Unsignalized Intersection Capacity Analys (2003) Total AM Peak Hour - Sensitivity (AWSC) 1: Ambridge Drive & Nosov Drive

HCM Unsignalized Intersection Capacity Analys (2003) Total AM Peak Hour - Sensitivity (AWSC) 2: Ambridge Drive & Oil Tank Road

•

117 117 0.85 138

0.85

0.85

Traffic Volume (vph)
Future Volume (vph)
Peak Hour Factor
Hourly flow rate (vph)

Lane Configurations Sign Control

Stop 411 411 48

SB 1

106

48 49

0 138 -0.11 4.0 0.30 878 8.7 8.7 A

0.15 4.4 0.13 785 8.1 8.1

0.52 5.2 0.07 638 8.6 8.6 8.6

Direction, Lane #
Volume Total (vph)
Volume Left (vph)
Volume Right (vph)
Hadi (s)
Departure Headway (s)
Degree Utilization, x
Capacity (vehrh)
Control Delay (s)
Approach Delay (s)
Approach LOS

Stop 107 107 0.85 126 Stop 90 90 0.85 106

MBL WBR N WBL WBR N Stop								
WBI   WBR   NBI   NBR   SBI   SBI		1	1	<b>←</b>	•	۶	<b>→</b>	
Mel Welt Nell Nell Sel Sel Sel Nell Nell Nell Sel Sel Sel Nel Sel Nell Nel						į		
1	Movement	WBL	WBR	NBT	NBR	SBL	SBT	
17 26 122 9 14 208     18	Lane Configurations	>		æ.			₩.	
(a) Stop Free Free Free O.8 (a) O.81 (a	Traffic Volume (veh/h)	17	26	122	တ	4	208	
Stop Free Pree O%	Future Volume (Veh/h)	17	26	122	6	14	208	
0,81 0,81 0,81 0,81 0,81 0,81 0,81 0,81	Sign Control	Stop		Free			Free	
0 88 0 88 0 88 0 88 0 88 0 88 0 88 0 8	Grade	%0		%0			%0	
21 32 151 11 17 257  None None None None 165 6.3 4.1  448 156 6.3 4.1  6.5 6.3 4.1  8.6 96 96 99 99 99 99 96 99 96 99 96 96 96	Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Mone None None None None 162 162 162 162 162 163 148 156 162 163 149 164 165 163 147 179 170 1429 170 1429 170 170 170 170 170 170 170 170 170 170	Hourly flow rate (vph)	51	32	151	7	17	257	
sed 448 156 162  le 448 156 162  l 448 156 162  l 539 861 4.1  S3 3.4 2.2  96 99 99  539 861 1429  NB 1 NB 1 SB 1 1429  S3 11 0 17  21 0 17  21 0 17  21 0 0 17  S2 11 0 0 17  S2 10 0 01  H) 2.0 0.0 0.3  H) 6 0.0 0.6  B A 156  I 162  A 1 1 28  A 2 2 39  B 6 1 1 0 0 17  B 7 1 1 0 0 17  B 7 1 1 0 0 0 18  B 7 1 1 1 0 0 18  B 7 1 1 0 0 0 18  B 7 1 1 1 0 0 0 18  B 7 1 1 1 0 0 0 18  B 7 1 1 1 0 0 18  B 7 1 1 1 0 0 0 18  B 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pedestrians							
Mone None None  1 448 156 162  1 448 156 162  1 448 156 162  1 448 156 162  1 53 861 4.1  1 429  1 81 81 1429  1 98 861 1700 1429  1 0 17  2 1 0 17  3 11 0 0 01  8 98 1700 1429  1 0 0 03  1 0 0 0 03  1 0 0 0 0 05  B A A A A A A A A A A A A A A A A A A	Lane Width (m)							
ad 448 156 162  al 448 156 162  al 448 156 162  al 6.5 6.3 4.1  al 8 34 2.2  g6 96 96 99  b7 96 96  b7 90 03  c0 00 03  c0 00 03  co 00 06  b	Walking Speed (m/s)							
Mone None None None None None None None N	Percent Blockage							
Mone None None None None None None None N	Right tum flare (veh)							
ad 448 156 162  1 448 156 162  6 5 6.3 4.1  3 6 34 22  9 6 96 96 99  5 3 162 274  2 1 0 17  2 1 0 0.01  m) 2.0 0.0 0.3  10 6 0.0 0.6  B A  15 0.0 0.0 0.6  16 0.0 0.6  17 0.0 0.0 0.6  18 0.0 0.0 0.6  19 0.0 0.0 0.6  10 0.0 0.0 0.0 0.6  10 0.0 0.0 0.0 0.6  10 0.0 0.0 0.0 0.6  10 0.0 0.0 0.0 0.0 0.6  10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Median type			None			None	
e 448 156 162  1 448 156 162  6 5 6.3 4.1  3 6 3.4 2.2  9 6 96 96 99  5 39 861 1429  WB 1 NB 1 SB 1 1429  XB 11 0 17  2 0 17  3 2 11 0 0 17  3 2 0 0 0 0.3  10 6 0.0 0.0  B A 15  10 6 0.0 0.6  10 6 0.0 0.6  10 6 0.0 0.6  10 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Median storage veh)							
sed 448 156 162  1 448 156 162  1 448 156 142  3 6 3.4 2.2  3 6 3.4 2.2  9 8 96 99  5 39 861 1429  1 0 17  2 1 0 17  2 1 0 17  2 1 0 17  3 11 0 600 65  1 0 001  1 0	Upstream signal (m)							
He 448 156 162  H 448 156 162  S 6.3 4.1  S 6 34 22  S 96 96 99  S 39 861 1429  WB 1 NB 1 SB 1  WB 1 NB 1 SB 1  S 16 274  S 10 0 77  S 2 0 0 0 0.3  M 2 0 0 0 0.6  B A A  1 0 0 0.6  B A A  1 0 0 0.6  B A A  1 0 0.0  1 0 0 0.6  B A A  1 1 0 0.0  1 0 0 0.6  B A A  1 1 0 0.0  1 0 0.0	pX, platoon unblocked							
448 156 162 6.5 6.3 4.1 3.6 3.4 2.2 96 96 96 99 5.39 861 1429  MB 1 NB 1 SB 1 2.1 0 17 3.2 11 0 6.96 1700 1429 0.08 0.10 0.01 m) 2.0 0.0 0.3 10.6 0.0 0.6 B 7	vC, conflicting volume	448	156			162		
448 156 162 65 6.3 4.1 36 3.4 2.2 36 861 1429  WB 1 SB 1 1429  1 0 17 32 14 0 17 32 11 0 0.01  m) 2.0 0.0 0.3 106 0.0 0.6 B A 1  1 106 0.0 0.0 0	vC1, stage 1 conf vol							
448 156 162 65 6.3 4.1 86 3.4 2.2 36 3.4 2.2 96 96 99 539 861 1429 87 21 0 17 21 0 17 22 74 21 0 17 22 0.0 0.0 1429 0.08 0.10 0.01 0.0 0.5 0.0 0.5 0.0 0.5 0.0 0.5 0.0 0.5 0.0 0.6 0.6	vC2, stage 2 conf vol							
3.6 3.4 2.2 9.6 96 96 99 5.39 861 1429 MB1 NB1 SB1 1429 2.1 0 17 3.2 11 0 6.96 1700 1429 0.08 0.10 0.01 m) 2.0 0.0 0.3 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 10.6 0.0 0.6	vCu, unblocked vol	448	156			162		
3.6 3.4 2.2 96 96 99 99 539 861 1429 WB 1 NB 1 SB 1 1429 23 162 274 21 0 17 32 10 0.01 (m) 2.0 0.0 0.3 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 15 10.6 0.0 0.6 B A 1.5 10.6 1.0 0.6 B A 1.5 B A 1.5	tC, single (s)	6.5	6.3			4.1		
36 34 22 96 96 96 99 539 1429 WB 1 NB 1 SB 1 1429 21 0 17 22 10 17 696 1700 1429 0.08 0.10 0.01 m) 2.0 0.0 0.3 116 0.0 0.6 B A A 116 0.0 0.6 B A A 116 0.0 0.6 117 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	tC, 2 stage (s)							
96 96 99 99 539 86f1 1429  WB 1 NB 1 SB 1 53 162 274 21 0 17 32 11 0 696 1700 1429 0.08 0.10 0.01 MB A A 106 0.0 0.6 B A 15 106 0.0 0.6 B A 15 107 108 0.0 0.6 109 0.0 0.6 119	tF (s)	3.6	3.4			2.2		
WB 1 NB 1 SB 1  WB 1 NB 1 SB 1  23 162 274  24 0 17  32 11 0  6.96 1700 1429  0.08 0.10 0.01  m) 2.0 0.0 0.3  1.06 0.0 0.6  B A  1.06 0.0 0.6  B A  1.07 1.5  1.08 1.00 0.6  1.09 1.5  1.00 0.6  1.0	p0 queue free %	96	96			66		
WB 1 NB 1 SB 1 53 162 274 21 0 17 32 11 0 696 1700 1429 0.08 0.10 0.01 106 0.0 0.6 B A A 106 0.0 0.6 B A A 106 0.0 0.6 B A A 106 0.0 0.6 B A A 106 100 0.6 107 1.5 108 1.5 109 1.0 109	cM capacity (veh/h)	233	861			1429		
53 162 274 21 0 17 32 11 0 696 1700 1429 0.08 0.10 0.01 106 0.0 0.6 B A 106 0.0 0.6 B A 106 0.0 0.6 1 15 0.0	Direction, Lane #	WB 1	NB 1	SB 1				
21 0 17 32 11 0 696 170 1429 0.08 0.10 0.01 106 0.0 0.6 B A 106 0.0 0.6 B A 106 0.0 0.6 B A 106 0.0 0.6 15 0.0 0.6 15 0.0 0.6 16 0.0 0.6 17 0.0 0.6 18 0.0 0.6 19 0.0 0.6 10 0.0 0.6 10 0.0 0.6 10 0.0 0.6 10 0.0 0.6 11 0.0 0.0 0.6 11 0.0 0.0 0.6 12 0.0 0.0 0.6	Volume Total	53	162	274				
32 11 0 696 1700 1429 0.08 0.10 0.01 10.6 0.0 0.3 10.6 0.0 0.6 10.6 0.0 0.6 10.6 0.0 0.6 10.0	Volume Left	7	0	17				
696 1700 1429  0.08 0.10 0.01  2.0 0.0 0.3  10.6 0.0 0.6  B A  10.6 0.0 0.6  B A  1.5  1.5  1.5  1.5  1.5  1.5  1.5  1.	Volume Right	35	#	0				
m) 0.08 0.10 0.01 20 0.0 0.3 10.6 0.0 0.6 B A 10.6 0.0 0.6 B A 10.6 0.0 0.6 B A 1.5 A	cSH	969	1700	1429				
(m) 2.0 0.0 0.3 10.6 0.0 0.6 B A A A A A A A A A A A A A A A A A A A	Volume to Capacity	0.08	0.10	0.01				
106 0.0 06 B A 106 0.0 0.6 B A 15 Y 15 HOUlization 32.0% ICU Level of Service	Queue Length 95th (m)	2.0	0.0	0.3				
106 0.0 0.6 B 1.5 Y 1.5 (CU Level of Service 1.5 (1.5 (1.5 (1.5 (1.5 (1.5 (1.5 (1.5	Control Delay (s)	10.6	0.0	9.0				
10.6 0.0 0.6  B 1.5  1.5 (CU Level of Service 1.5)	Lane LOS	ш		⋖				
7 15 10U Level of Service 15 15 15 15 15 15 15 15 15 15 15 15 15	Approach Delay (s)	10.6	0.0	9.0				
15 15 ICU Level of Service 15 ICU Level of Service 15 ICU Level of Service	Approach LOS	Ф						
1,5 1.5 acity Utilization 32.0% ICU Level of Service (min) 15	Intersection Summary							
oacity Utilization 32.0% ICU Level of Service frinin 15.0%	Average Delay			1.5				
15	Intersection Capacity Utilization	5		32.0%	<u></u>	Jevelo		
	Analysis Period (min)			15				

ICU Level of Service

A 22.8% 15

Delay Level of Service Intersection Capacity Utilization Analysis Period (min)

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Paradigm Transportation Solutions Limited

Synchro 11 Report Page 2

2036 Total AM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Intersection: 1: Ambridge Drive & Nosov Drive

Movement	WB	R	SB	
Directions Served	LR	꼰	LT	
Maximum Queue (m)	30.2	2.0	35.1	
Average Queue (m)	8.7	0.2	11.8	
95th Queue (m)	21.0	3.0	27.5	
Link Distance (m)	102.8	5.4	207.6	
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Ambridge Drive & Oil Tank Road

Movement	EB	NB	SB	
Directions Served	LR	L	ĸ	
Maximum Queue (m)	18.8	23.1	23.2	
Average Queue (m)	7.8	11.4	13.5	
95th Queue (m)	16.7	19.0	20.5	
Link Distance (m)	342.9	169.0	5.4	
Upstream Blk Time (%)			4	
Queuing Penalty (veh)			32	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary
Zone wide Queuing Penalty: 33

SimTraffic Report Page 1

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analys (240078) - Total PM Peak Hour - Sensitivity (AWSC) 1: Ambridge Drive & Nosov Drive

f Service
ICU Level of Service
36.2%
ilization
Average Deray Intersection Capacity Utilization Analysis Period (min)

Paradigm Transportation Solutions Limited

HCM Unsignalized Intersection Capacity Analys (23036 Total PM Peak Hour - Sensitivity (AWSC) 2: Ambridge Drive & Oil Tank Road (240078) - NW Quadrant of Oil Tank Ro and Hwy 67

	•	<i>&gt;</i>	•	<b>←</b>	<b>→</b>	*	
Novement	EBL	EBR	NBL	NBT	SBT	SBR	
ane Configurations	>			4	æ		
	Stop			Stop	Stop		
ie (vph)	116	<del>-</del>	7	117	128	45	
uture Volume (vph)	116	<del>-</del>	7	117	128	45	
	06.0	06.0	06:0	06:0	06:0	0.90	
Hourly flow rate (vph)	129	_	2	130	142	20	
Virection, Lane #	EB 1	NB 1	SB 1				
/olume Total (vph)	130	132	192				
Volume Left (vph)	129	2	0				
Volume Right (vph)	_	0	20				
	0.33	0.0	-0.04				
Departure Headway (s)	2.0	4.5	4.4				
n, x	0.18	0.17	0.23				
Capacity (veh/h)	229	758	789				
Control Delay (s)	9.1	8.5	8.7				
Approach Delay (s)	9.1	8.5	8.7				
SOT HO	V	⋖	V				
ntersection Summary							
			8.7				
evel of Service			٧				
ntersection Capacity Utilization			22.6%	0	ICU Level of Service	Service	
Analysis Period (min)			15				

2036 Total PM Peak Hour - Sensitivity (240078) - NW Quadrant of Oil Tank Rd and Hwy 67

Intersection: 1: Ambridge Drive & Nosov Drive

Novement	WB	8	SB	
Directions Served	쏨	ĸ	느	
Maximum Queue (m)	22.9	3.6	25.9	
Average Queue (m)	6.2	0.2	8.4	
95th Queue (m)	15.2	2.1	20.8	
Link Distance (m)	102.8	5.4	207.6	
Jpstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (m)				
Storage Blk Time (%)				
Acron Bonolin (Acro)				

## Intersection: 2: Ambridge Drive & Oil Tank Road

Movement	EB	NB	SB	
Directions Served	LR	П	TR	
Maximum Queue (m)	22.1	21.2	21.7	
Average Queue (m)	10.2	11.0	11.7	
95th Queue (m)	17.8	16.7	18.2	
Link Distance (m)	342.9	169.0	5.4	
Upstream Blk Time (%)			=	
Queuing Penalty (veh)			19	
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

## Zone Summary

Zone wide Queuing Penalty: 20

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Synchro 11 Report Page 2

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SimTraffic Report Page 1