TRAFFIC IMPACT ASSESSMENT (TIA)
RECREATIONAL VEHICLE CAMPGROUND DEVELOPMENT, LAC STE ANNE, AB

ZALIG CONSULTING LTD.

ZALIG
SUSTAINABLE ENGINEERING BY DESIGN

Appendix 3: Traffic Impact Assessment

TRAFFIC IMPACT ASSESSMENT (TIA) REPORT

for

RECREATIONAL VEHICLE CAMPGROUND DEVELOPMENT

LAC STE ANNE COUNTY, ALBERTA

Client: VIVCOR HOLDINGS INC.

Project Number: 1601-21MY

Submitted: July 12th, 2021

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1 INTRODUCTION

1.1 General

Vivcor Holdings Inc. retained ZALIG Consulting Ltd. (ZALIG) to undertake a traffic impact assessment (TIA) in support of the proposed Recreational Vehicle Campground Development to be in the Lac Ste Ann County just north of Summer Village of Sandy Beach, Alberta. The proposed project will be built on a 151.2-acre lot. The development will be located along the west side of Range Road 12A / Shedden Drive and will be accessed via three access points on Shedden Drive. This traffic impact assessment is being prepared to assess potential transportation impacts of the proposed development and to satisfy the Lac Ste Anne County and Summer Village of Sunrise Beach requirements for such a study as a result of the proposed development.

Figure 1a presents a site map that shows the general location of the proposed development, and **Figure 1b** presents a local context aerial map.

1.2 Planned Development

The proposed campground development will consist of 300 total recreational vehicle (RV) campsites to be developed in two phases. Phase 1 would consist of 97 campsites and expected to open in 2022. Phase 2 would consist of another 203 campsites and expected to be fully operational and reaching full capacity by 2026. The access application documents to the Summer Village of Sunrise Beach including title are attached in **Appendix A** of this report.

1.3 Purpose of Study

The primary purposes of this traffic impact assessment study are:

- To evaluate the traffic operations and levels of service (LOS) at the following study intersections:
  - Highway 642 and Range Road 12A intersection.
  - Victory Road and Shedden Drive intersection.
  - The three site access intersections on Shedden Drive.

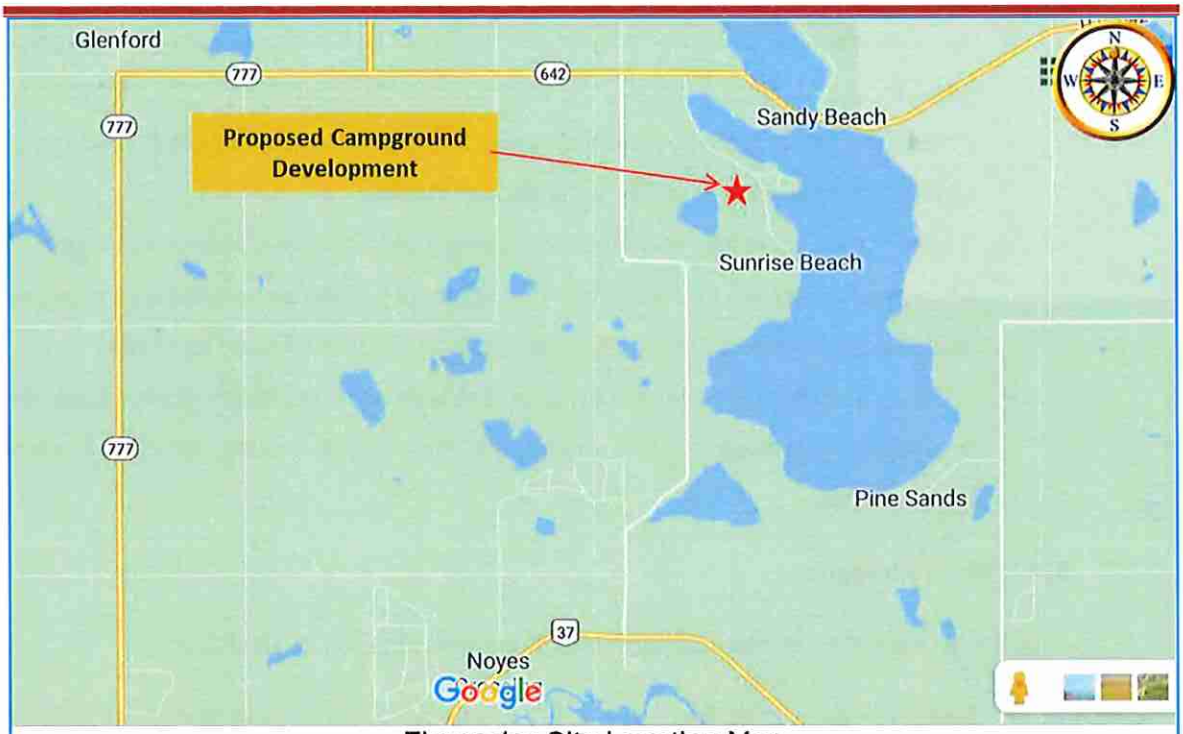


Figure 1a: Site Location Map

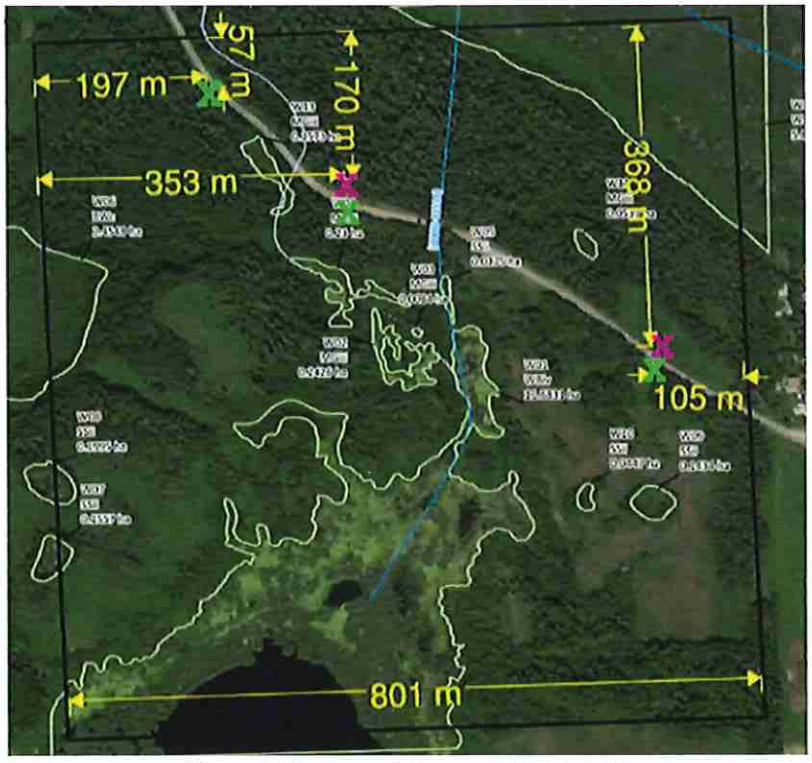


Figure 1b: Local Context Aerial Map

- To evaluate any potential project traffic impacts of the proposed development to the surrounding roadway network, and to determine if the roadways, site access and traffic circulations in the project vicinities would be suitable for the intended development and the amount of development traffic volumes anticipated.
- To identify suitable intersection control and geometric configurations that would be required to properly service the proposed development including conducting a signal warrant analyses for Highway 642 and the Range Road 12A intersection as needed.
- Also, to identify any needed short-term and long-term roadway improvements in the areas to enable acceptable traffic operations that would satisfy Alberta Transportation's requirements.

1.4 Methodologies

This traffic impact assessment utilizes the following evaluation methodologies:

- Data collection including but not limited to existing roadway and intersection geometric characteristic, pavement markings, traffic control types, and intersection turning movement traffic counts.
- The forecast of background peak hour traffic volumes without the site traffic for the 20-year horizon (2041).
- Trip generation estimate for the proposed development based on appropriate Trip Generation land use categories and corresponding trip generation rates by the Institute of Transportation Engineers (ITE).
- Distribution of the site generated trips to/from the development site based on population, land uses, roadway network, and existing traffic patterns in the project vicinities.
- Assignment of the project trips to the adjacent roadways based on the proposed project site plan and the estimated roadway trip distribution characteristics.
- Existing, background, and future traffic capacity analysis for the study area intersections and roadways to identify possible capacity constraints and to assess overall traffic impacts of the proposed development, which is based on the latest Highway Capacity Manual (HCM) methodologies by the Transportation Research Board, the US National Academies of Sciences, Engineering and Medicine.

2 EXISTING CONDITIONS

2.1 Area Road Network

There are three roadways providing access to the site as described below. These roadways are Highway 642, Range Road 12A / Shedden Drive and Victory Road. A brief description of each of these roadways follows.

Highway 642 is a two-lane two-way undivided provincial highway that runs in the east / west directions in the vicinity of the proposed development. Highway 642 is a major highway that provides connectivity between Lac Ste. Anne County and County of Barrhead. The speed limit of Highway 642 in the vicinity of the proposed development is posted at 100 Km/hr.

Range Road 12A / Shedden Drive is a two-lane two-way paved roadway that runs in the north / south directions in the vicinity of the development site and intersects with Highway 642 to the north of the proposed development. To the south of the proposed development, this road is known as Shedden Drive, and it intersects with Victory Road in Summer Village of Sunrise Beach. It should be noted that Shedden Drive south of Victory Road is unpaved road. The speed limit of Range Road 12A is posted at 50 Km/hr. The speed limit of Shedden Drive in the Vicinity of Victory Road is posted at 30 Km/hr.

Victory Road is a two-lane two-way paved roadway that runs in the east / west directions. The speed limit on Victory Road is posted at 50 Km/hr.

The intersection of Highway 642 and Range Road 12A is an unsignalized intersection with stop-control signs on the Range Road 12A approach and a free flow operation on Highway 642 east/west approaches. There is a private access with a closed gate existing on the north approach of this intersection. Since the north approach has a closed gate and no traffic was observed during the data collection, this intersection has been treated as a T-intersection. All intersection approaches consist of one shared lane per approach.

The intersection of Victory Road and Shedden Drive is an unsignalized intersection with stop-control sign on Victory Road approach and a free flow on the Shedden Drive approaches. An unpaved local road opposing Victory Road exists, which is called Willow Way. This intersection has one shared left/through/right lane on each approach.

2.2 Historical Roadway Traffic Volumes

The past 20-year historical weekday Average Annual Daily Traffic (AADT) Volumes along Highway 642 were obtained from Alberta Transportation's (AT) Traffic Count Database and were reviewed. The AADT for selected years between year 2000 to year 2020 are presented in **Table 1** below for the Hwy 642 section between Highway 777 east junction and Sandy Beach.

Table 1: AADT Traffic Volume History for Selected Years

Roadway Link	2000	2005	2010	2015	2020	ASDT*
Highway 642 (E OF 777 W OF SANDY BEACH EJ)	380	440	390	460	520	590

* ASDT: The Average Summer Daily Traffic in 2020

A review of Table 1 indicates that traffic volumes along Highway 642 fluctuated up and down during the period from 2000 to 2020 with a general increasing pattern. The overall average annual growth of traffic between year 2000 and year 2020 has been calculated and determined to be 1.84% per year. To be conservative a traffic growth factor of 2% will be utilized to estimate future horizons traffic volumes for this study.

2.3 Existing Traffic Volumes and Conditions

A field reconnaissance of the site and its surroundings was conducted to establish a database of the existing conditions. The peak periods considered for analysis for the proposed RV Campground were the weekday morning and the late afternoon periods.

Turning movement traffic count data was collected on Wednesday and Thursday June 2nd and June 3rd, 2021, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM for the a.m. and p.m. peak periods respectively at the following two study intersections:

- Highway 642 and Range Road 12A Intersection.
- Victory Road and Shedden Drive intersection.

The observed 2021 AM and PM peak-hour traffic volumes for the above study intersections are illustrated on **Figure 2a.** Details of the collected traffic count data for the study intersections as well as AT's historical traffic data at Hwy 642/Hwy 777 intersection are contained in **Appendix B**.

Figure 2a also presents the approaching / departing 2020 peak hour traffic volumes obtained from AT's traffic count database at Hwy 642/Hwy 777 intersection.

COVID-19 Impact on Traffic:

ZALIG understands that COVID-19 may have some impacts on highway traffic due to some people working from home. Therefore, the 2021 observed traffic count data along Highway 642 were compared with Alberta Transportation's 2020 traffic data as obtained from Hwy 642/Hwy 777 intersection, which are presented on Figure 2a. A review of Figure 2a for Highway 642 two-way peak hour volumes indicates that AT's 2020 volumes versus observed 2021 volumes east of Highway 777 are as follows:

- AM Peak Hour: AT's 2020 = 63 VPH, Observed 2021 = 54 VPH, AT/OB = 1.17
- PM Peak Hour: AT's 2020 = 55 VPH, Observed 2021 = 68 VPH, AT/OB = 0.81

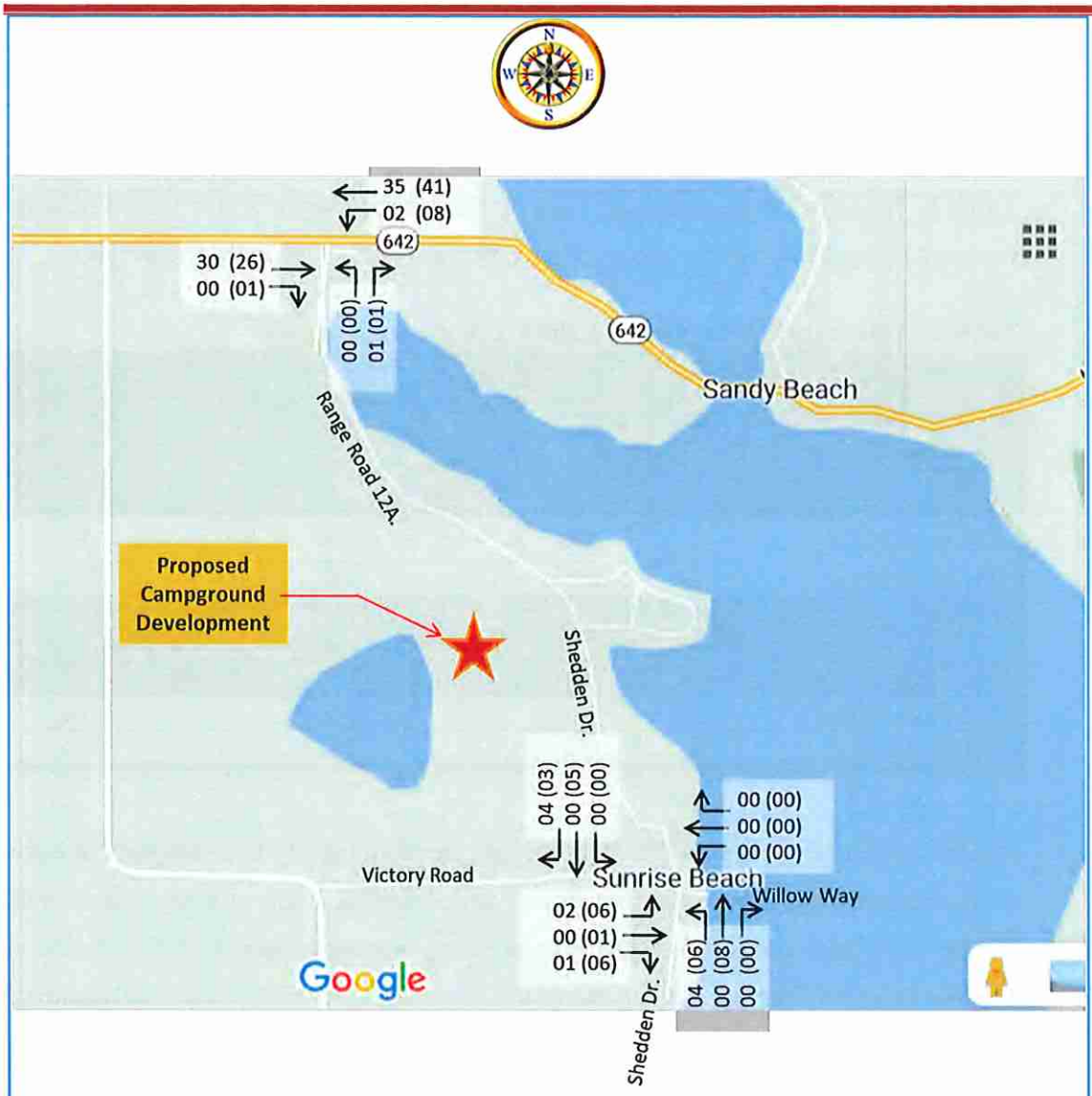
Where AT/OB represent the calculated factor determined by dividing AT's 2020 volumes by Observed 2021 volumes.

The above calculated factors indicate that the observed AM peak hour volumes are very low compared to AT's 2020 data; therefore, they should be grown by a factor of 1.17 to match the 2020 data. To be conservative in this analysis a factor of **1.20** has been utilized to grow the AM observed volumes.

With respect to the PM peak hour, the calculated factor of 0.81 indicates that the observed PM volumes are significantly higher than AT's 2020, which is around 23% higher than 2020 volumes. Therefore, there is no need to apply any factor on observed 2021 PM peak hour volumes to account for COVID-19 impact.

As mentioned above, the 1.20 factor has been applied on the observed 2021 AM peak hour traffic volumes at the two study intersections and the resulted estimated Existing 2021 peak hour volumes are illustrated on **Figure 2b**.

Figure 2a: Observed 2021 Peak Hour Traffic Volumes at Study Intersections and AT's 2020 Approach Volumes on Highway 642



LEGEND

XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 2b: Existing 2021 Peak Hour Traffic Volumes at Study Intersections
(With 20% Growth Applied on Observed AM Peak to Account for COVID Impact)

2.4 Existing Heavy Vehicle Composition

The AM peak hour and PM peak hour heavy vehicle compositions were determined from the intersection turning movement traffic count performed at the study intersection and are presented in **Table 2**. Note that the sum of Single Unit Trucks and the Tractor Trailer Unit were considered to represent heavy vehicle traffic and their percentages are presented in the below table.

Table 2: Adjacent Highway Heavy Vehicle Composition (in %)

Description	2021 Traffic Count Data		
	Highway 642		Range Road 12A
	West of Range Road 12A	West of Range Road 12A	South of Highway 642
AM Peak Hour	32%	23%	0%
PM Peak Hour	4%	8%	0%
Description	**Shedden Drive**		**Victory Road**
	North of Victory Road	South of Victory Road	West of Shedden Drive
AM Peak Hour	33%	0%	0%
PM Peak Hour	0%	7%	8%

A review of Table 2 indicates that Highway 642 carries relatively large amounts of heavy vehicle traffic during the AM peak hour. However, it carries small amounts of heavy vehicle traffic during the PM peak hour. Range Road 12A does not carry any heavy vehicle traffic. In the vicinity of Shedden Drive / Victory Road intersection, these two roads carry relatively small amounts of Based on the above results, the capacity analysis for the study intersections utilized the 2021 observed heavy vehicle percentages as noted in Table 2. Noting that for the approaches where the observed percentage was less than 2% a heavy vehicle percentage of 2% was utilized in the existing and background capacity analysis software for that approach.

Future Conditions Heavy Vehicle Percentages:

For the Opening 2020, Interim 2026, and Future 2041 scenarios capacity analysis, the following heavy vehicle percentage were utilized because of the proposed Campground Park Development:

- 100% heavy vehicle percentage at all site access intersections on Shedden Drive.
- 50% heavy vehicle percentages at Range Road 12A NB approach, Highway 642 EB right-turn movement, and Highway 642 WB Left-turn movement.

- 50% heavy vehicle percentages at Victory Road and Shedden Drive intersection, all movements.

2.5 Planned Roadway Improvements

The Lac Ste Anne County website was reviewed thoroughly to find out if there are any plans for any roadway improvements within the study area in the near future. The results of this review indicated there are no plans available at this time for any improvements within the project's study area.

3 PROJECTED TRAFFIC VOLUMES

3.1 Trip Generation for Known Background Developments

Background traffic takes into account additional traffic on the roadway systems that will be generated by approved developments in the area that may be completed by the time of the site build-out. The current project's phase 1 is projected to be built-out within the coming year, and the full development of phase 2 is expected to occur in 2026. Based on ZALIG's reviews of Lac Ste Anne County website, there are no approved developments in the vicinity of the project site that are being developed. Therefore, background development traffic has not been considered for this TIA.

3.2 Historical Traffic Growth Rate

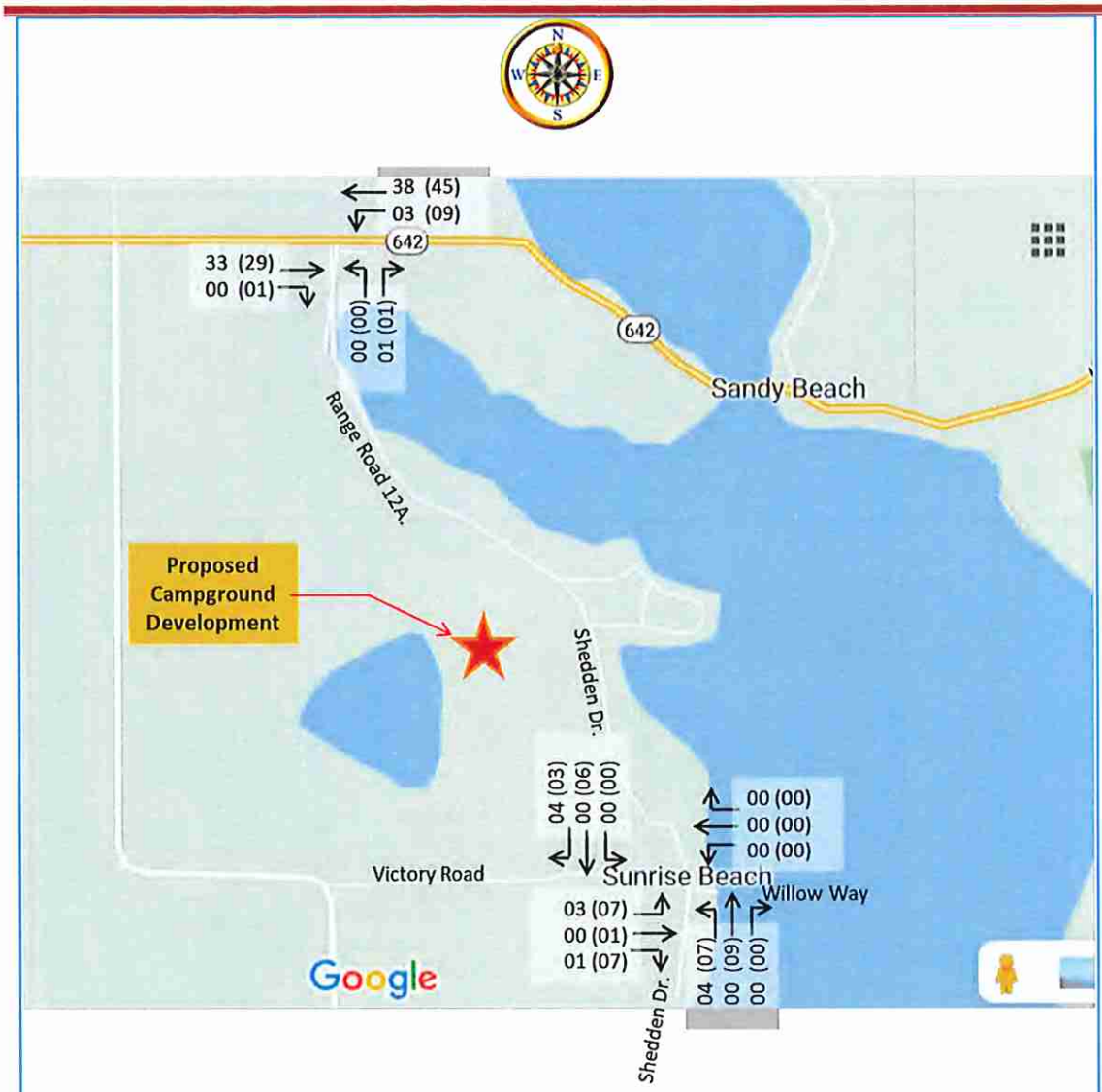
To account for inherited growth in traffic and that traffic generated by other unknown developments that may occur at the build-out of the proposed project, a traffic growth factor was applied to the existing traffic volumes to forecast the future traffic conditions. A 2.0% annual growth rate was used to estimate traffic growth for all future horizons including the 20-year horizon. The 2% growth rate was applied to the 2021 existing traffic volumes to derive the 2041 background growth traffic volumes for future development impact analyses. Note that the 2.0% annual growth rate is in accordance with Alberta Transportation's acceptable long-range growth standards. Also, it is higher than the 20-year historical growth rate of 1.84% as determined earlier.

3.3 Total Background Traffic

The 2.0% background growth due to unknown developments was applied on the Existing 2021 traffic volumes for 1-year, 5-years, and 20-years to estimate the total Background 2022, total

background 2026, and total Background 2041 scenarios that are presented on **Figure 3, Figure 4**, and **Figure 5**, respectively.

Figure 3: Background 2022 Peak Hour Traffic Volumes
(Existing 2021 + 2% Traffic Growth Rate Applied on Existing for 1 Year)



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XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 4: Background 2026 Peak Hour Traffic Volumes
(Existing 2021 + 2% Traffic Growth Rate Applied on Existing for 5 Years)

LEGEND

XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 5: Background 2041 Peak Hour Traffic Volumes
(Existing 2021 + 2% Traffic Growth Rate Applied on Existing for 20 Years)

3.4 Site Generated Trips

To estimate the number of vehicle trips expected to be generated by a development, trip generation rates are applied based on the proposed land uses and intensity. The number of trips that would be generated by a proposed development would be estimated based on the rates published in Trip Generation Manual, 10th Edition by the Institute of Transportation Engineers (ITE). The trip generation rates along with the proposed land uses and the corresponding ITE land use codes are presented in **Table 3**. The proposed development generated trips by each of the planned phases and total development are presented in **Table 4**.

Table 3: Trip Generation Rates ITE 10th Edition Trip Generation Manual

Land Use	ITE Code	Unit	AM Peak Hour			PM Peak Hour			Daily
			In	out	total	in	out	total	total
Campground / Recreational Vehicle Park	416	Occupied Campsites	36%	64%	0.21	65%	35%	0.27	NA

Table 4: Projected Site-Generated Peak-Hour and Daily Traffic Volumes

Development	ITE Code	Density (# of Units)	AM Peak Hour			PM Peak Hour			Daily Trips
			in	out	total	in	out	total	
Proposed RV Park **Phase 1**	416	97 Campsites	7	13	20	17	9	26	-
Proposed RV Park **Phase 2**	416	203 Campsites	16	27	43	36	19	55	-
RV Full Development		300	23	40	63	53	28	81	-

3.4.1 Pass-by Trips

Pass-by trips are not new trips, but they are the trips that are attracted from the traffic passing the site on adjacent roadways. While pass-by trips are new trips at the access points to the site, they are not new trips on the adjacent roadway systems. Since the proposed development will include a campground park, no pass-by trips are expected for such development. Therefore, no reduction for pass-by trips considered.

3.4.2 Internal Trips

An internal trip is a trip that has both its origin and destination within a multi-use development area under investigation, which should be deducted from the total number of trips departing and entering the study site. The appropriate internal trip reduction rates are based on the characteristics of the mixed land uses. Since the proposed development will include a campground park, no internal trips are expected for such development. Therefore, no reduction for internal trips considered.

3.5 Trip Distribution

The directions from which vehicles will approach and depart a site is a function of several variables, including the population and employment distribution within the development's area of influence, the operational characteristics of the road system, and the ease with which drivers can travel over various sections of the roadway network without encountering congestion. The directional distribution of new project trips by the proposed RV Campground development was estimated based on the consideration of all the pertinent factors above including existing traffic patterns. The resulting directional distributions are as follows:

- 49% of site generated trips will travel to and from the east on Highway 642.
- 45% of site generated trips will travel to and from the west on Highway 642.
- 06% of site generated trips will travel to and from the west on Victory Road.

The resulting final direction of approach is illustrated on **Figure 6a and Figure 6b** for Phase 1 and Phase 2, respectively.

3.6 Trip Assignment

3.6.1 Opening Phase 1 Traffic Volumes

The project's peak-hour trips for the proposed RV Campground Development were assigned to the adjacent roadways based on the estimated directional distribution discusses above. The resulted Phase 1 and Phase 2 (Interim) site generated AM peak hour and PM peak hour trips are illustrated on **Figure 7a and Figure 7b**.

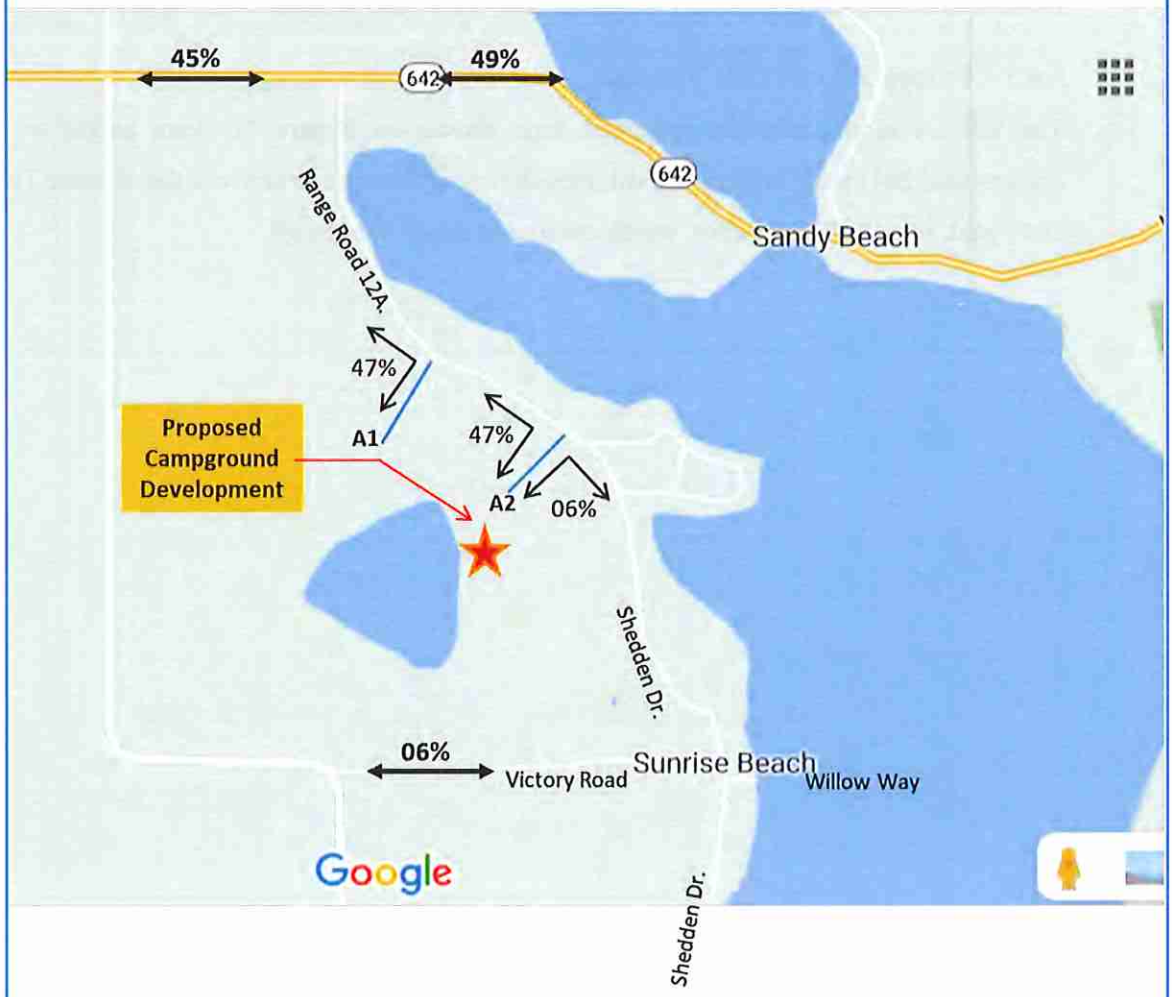
The site-generated trips shown on **Figure 7a** were then added to the Total Background 2022 peak-hour traffic volumes shown on **Figure 3** to arrive at the Phase 1 Opening 2022 peak-hour traffic volumes, which are illustrated on **Figure 8**.

3.6.2 Interim 2026 Traffic Volumes

The full Development's site-generated trips (Phase 1 + Phase 2) shown on **Figure 7b** were then added to the Total Background 2026 peak-hour traffic volumes shown on **Figure 4** to arrive at the Phase 2 Interim 2026 peak-hour traffic volumes, which are illustrated on **Figure 9**.

3.6.3 Future 2041 Traffic Volumes

The full Development's site-generated trips shown on **Figure 7b** were added to the Total Background 2041 peak-hour traffic volumes shown on **Figure 5** to arrive at the ultimate Total Future 2041 peak-hour traffic volumes, which are illustrated on **Figure 10**.



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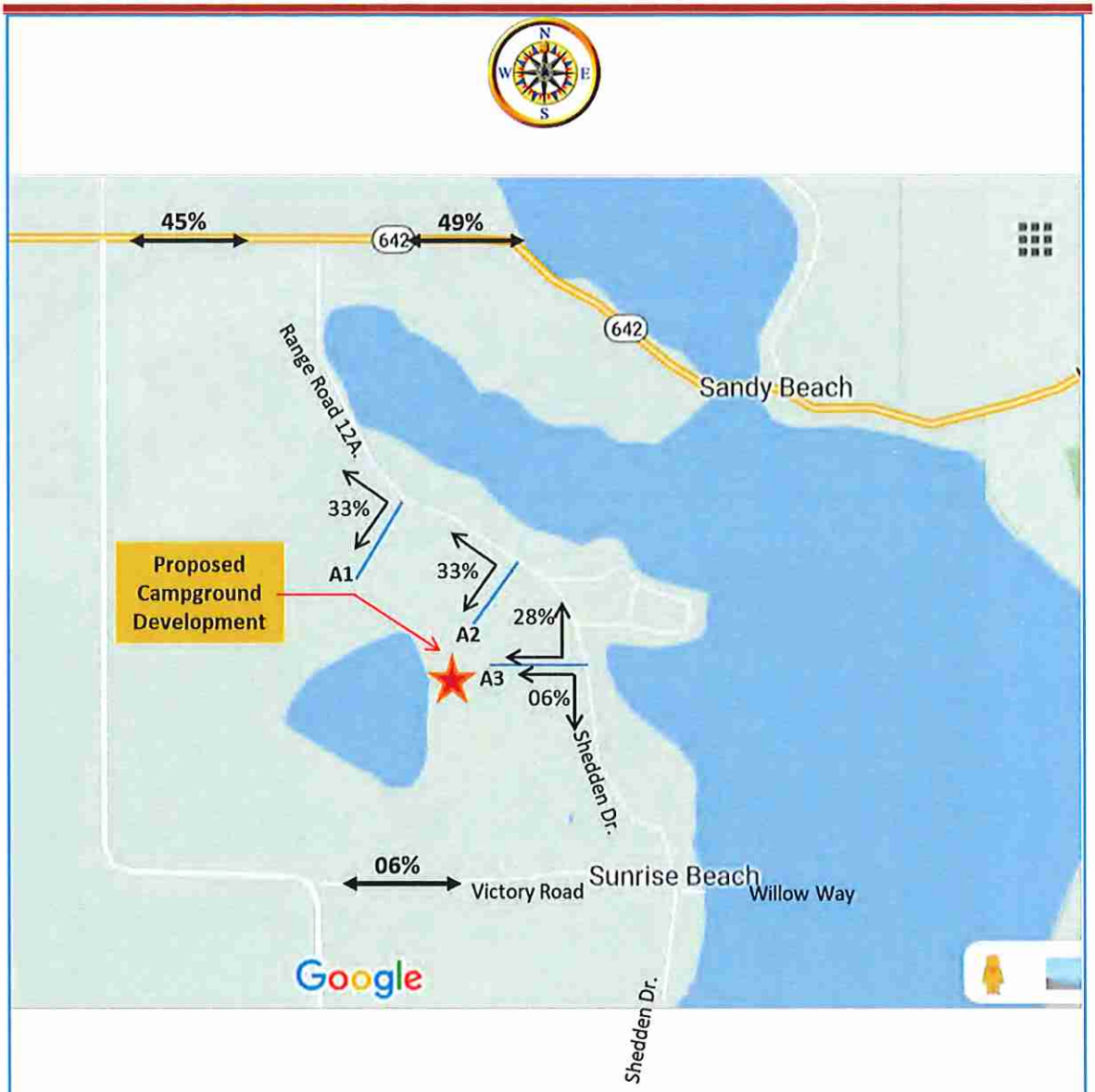
XX%	External Direction of Approach
XX%	Site Access Distribution
——	Site Access Point

Figure 6a: Direction of Approach and Site Access Distribution (Phase 1)



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XX%	External Direction of Approach
XX%	Site Access Distribution
——	Site Access Point

Figure 6b: Direction of Approach and Site Access Distribution (Full Development)

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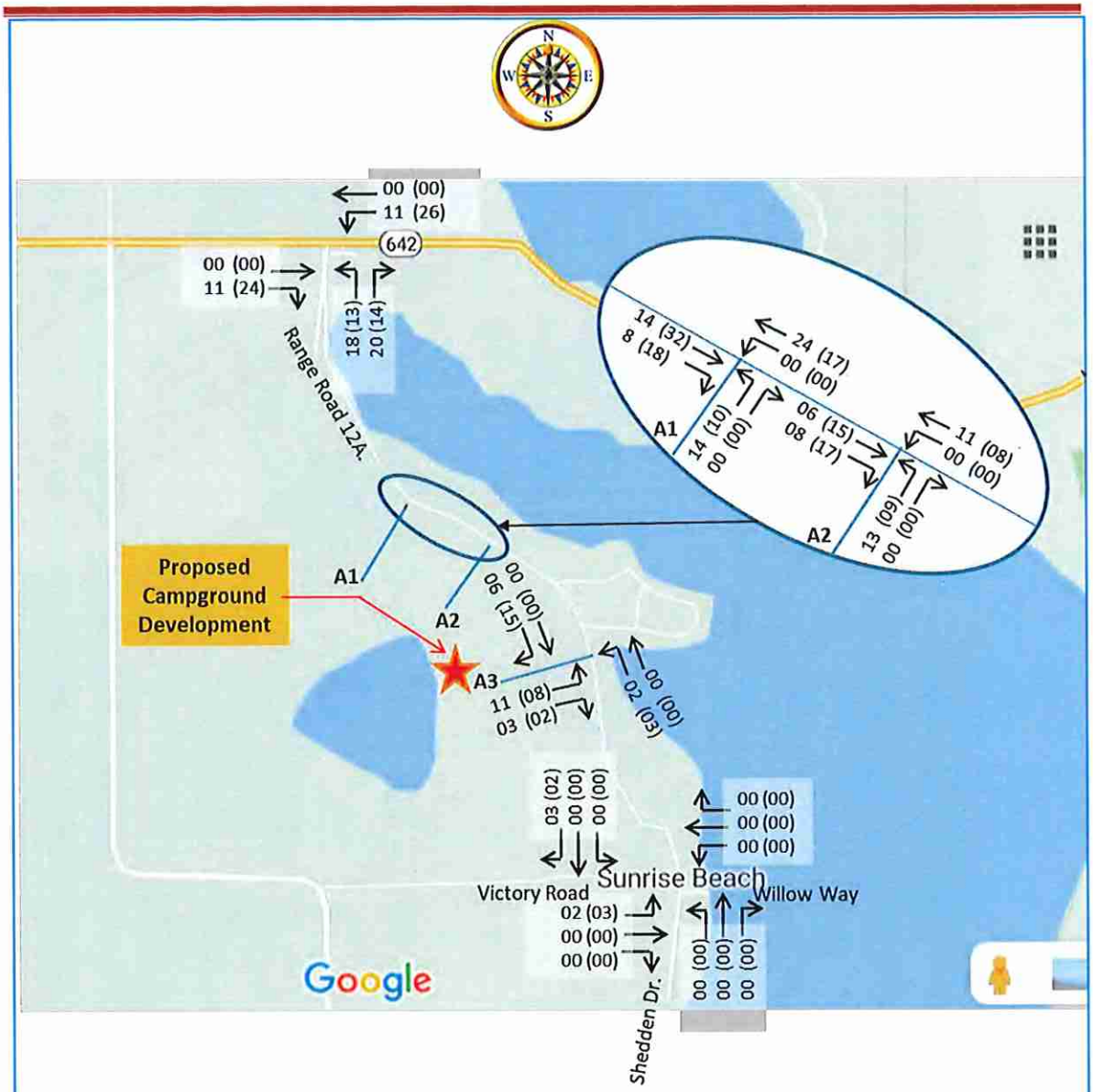
XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 7a: Site Generated Peak Hour Traffic Volumes (Phase 1)



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XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 7b: Site Generated Peak Hour Traffic Volumes (Phase 1 + Phase 2)

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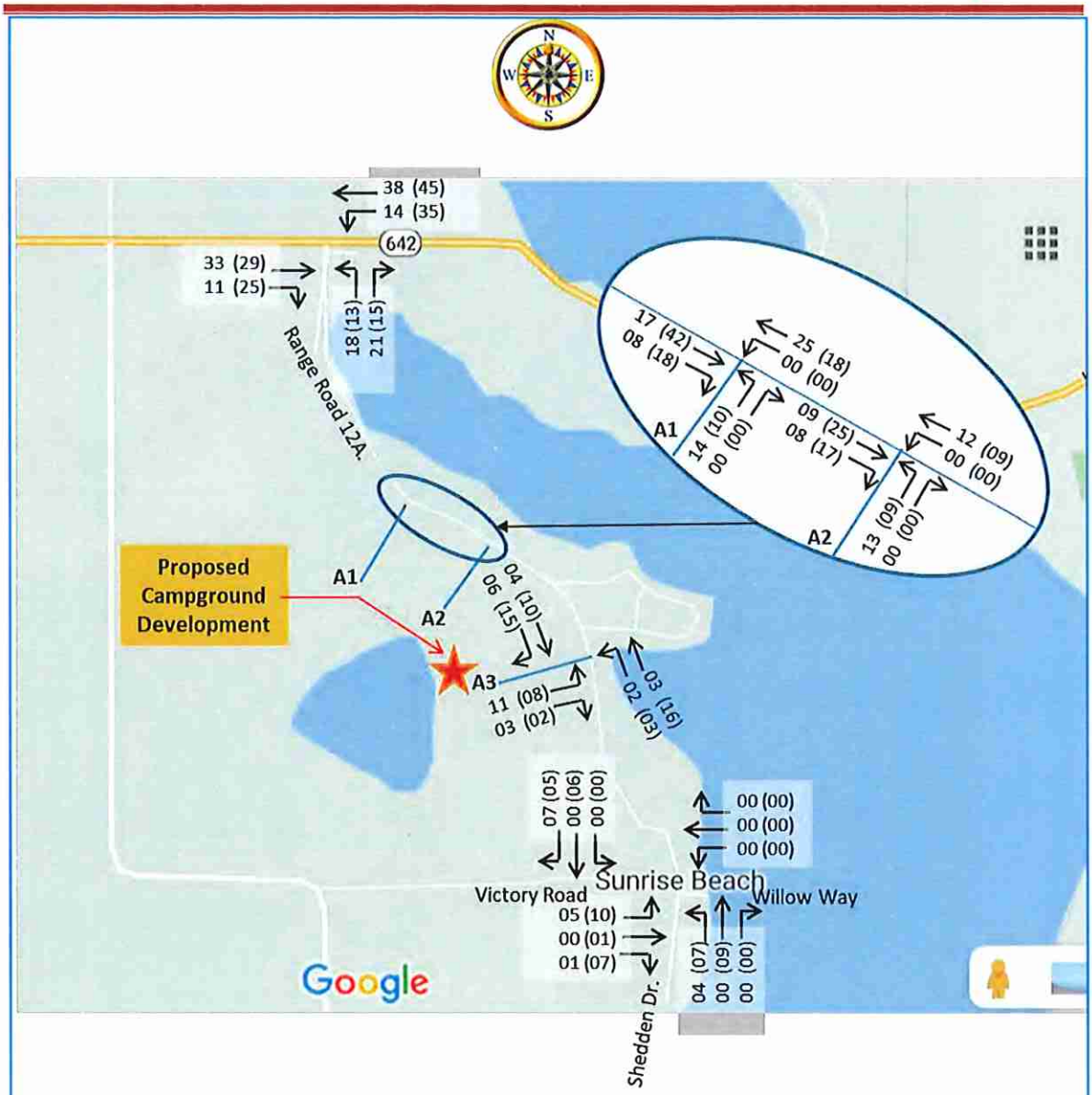
XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 8: Opening 2022 Peak Hour Traffic Volumes (Phase 1)
(Figure 3 + Figure 7a)



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XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 9: Interim 2026 Peak Hour Traffic Volumes, Opening of Phase 2 (Figure 4 + Figure 7b)

LEGEND

XX AM Peak Hour Volume
(YY) PM Peak Hour Volume

Figure 10: Future 2041 Peak Hour Traffic Volumes
(Figure 5 + Figure 7b)

4 EVALUATION AND RECOMMENDED IMPROVEMENTS

4.1 Level of Service Criteria for Intersections

The intersections identified for the study were analyzed according to the methodologies presented in the 2016 Highway Capacity Manual (HCM 6th Edition). The analysis determines the "Level of Service (LOS)" of unsignalized intersections considering the factors including but not limited to number and types of lanes, traffic volumes, heavy vehicle composition, peak hour factors, pedestrian activities, etc. Levels of service are expressed in a range from "A" through "F," with "A" being the highest level of service, and "F" representing the lowest level of service. **Table 5** presents the thresholds for Levels of Service "A" through "F" for unsignalized intersections that were evaluated under the current study. For comparison purpose, **Table 6** presents the LOS criteria for signalized intersections.

Table 5: Level of Service Criteria for Unsignalized Intersections *

Level of Service	Delay/Vehicle (seconds)	Description
A	< 10.0	Little or no delay, very low main street traffic.
B	10.1 to 15.0	Short traffic delays, many acceptable gaps.
C	15.1 to 25.0	Average traffic delays, frequent gaps still occur.
D	25.1 to 35.0	Long traffic delays, limited number of acceptable gaps.
E	35.1 to 50.0	Very long traffic delays, very small number of acceptable gaps.
F	> 50.0	Extreme traffic delays, virtually no acceptable gaps in traffic.

* Note: Capacity analysis for two-way stop-controlled intersection provides the LOS for the critical movements, not of the overall intersection.

Table 6: Level of Service Criteria for Signalized Intersections

Level of Service	Delay/Vehicle (seconds)	Description
A	≤ 10.0	Most vehicles do not stop at all.
B	10.1 to 20.0	Some vehicles stop.
C	20.1 to 35.0	The number of vehicles stopping is significant, although many passes through without stopping.
D	35.1 to 55.0	Many vehicles stop. Individual cycle failures are noticeable.
E	55.1 to 80.0	Considered to be the limit of acceptable delay. Individual cycle failures are frequent.
F	> 80.0	Unacceptable delay.

4.2 Capacity and Level of Service Analyses

Capacity and level of service analyses were conducted for the following conditions:

- Existing 2021 Conditions.
- Background 2022 Conditions (without site traffic).
- Background 2026 Conditions (without site traffic).
- Background 2041 Conditions (without site traffic).
- Opening 2022 – Phase 1 Conditions (with site traffic).
- Interim 2026 – Full Development Conditions (with site traffic).
- Future 2041 Conditions (with the site traffic).

The software package Synchro 10 was utilized for the capacity analyses of all study intersections and site accesses. The Synchro software utilizes **Highway Capacity Manual (6th Edition)** methodologies for the evaluations.

Note that the observed heavy vehicle percentages and peak hour factors (PHF) were utilized in the capacity analysis of study intersection. Also note that the Opening 2020, Interim 2026, and Future 2041 capacity analyses were analyzed with the heavy vehicle percentages earlier under **subsection 2.4** of this report.

4.2.1 Existing 2021 Traffic Conditions

Existing 2021 capacity and level of service analysis results for the two study intersections are presented in **Table 7**. These results were taken from the HCM 6th Edition Un-Signalized Intersection Capacity Analyses Reports produced by Synchro software.

The detailed capacity and LOS analyses reports for all Synchro capacity analyses scenarios are contained in **Appendix C** of this report.

A review of **Table 7** indicates that the two study intersections are currently operating at acceptable levels of service with the stop controls during both the AM and the PM peak hours. Therefore, no mitigation is needed under existing 2021 traffic conditions.

Table 7: Capacity Analysis for Existing 2021 Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[a] Ratio	95th % Queue (m)	Delay "Sec"	LOS	V/C[a] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.002	0.0	0.4	A	0.006	0.0	1.2	A
	NB	0.002	0.0	8.6	A	0.001	0.0	8.5	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.016	0.7	8.7	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.003	0.0	7.2	A	0.005	0.0	3.1	A
	SB	-	-	0.0	A	-	-	0.0	A

[a] The V/C values presented are for the movements with highest V/C within that approach

4.2.2 Background 2022, 2026, and 2041 Conditions

LOS and capacity analyses results for the Background 2022, Background 2026, and Background 2041 traffic conditions (without site development generated traffic) are presented in **Table 8, Table 9, and Table 10**, respectively.

Table 8: Capacity Analysis for Background 2022 Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[a] Ratio	95th % Queue	Delay "Sec"	LOS	V/C[a] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.002	0.0	0.4	A	0.006	0.0	1.2	A
	NB	0.002	0.0	8.6	A	0.001	0.0	8.5	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.016	0.7	8.7	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.003	0.0	7.2	A	0.005	0.0	3.1	A
	SB	-	-	0.0	A	-	-	0.0	A

[a] The V/C values presented are for the movements with highest V/C within that approach

A review of **Table 8** indicates that the two study intersections would continue to operate at acceptable levels of service with the stop controls during both AM and PM peak hours. Therefore, no mitigation would be needed under background 2022 conditions.

Table 9: Capacity Analysis for Background 2026 Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS	V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.004	0.0	0.6	A	0.007	0.0	1.2	A
	NB	0.002	0.0	8.6	A	0.001	0.0	8.5	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.019	0.7	8.7	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.003	0.0	7.2	A	0.006	0.0	3.2	A
	SB	-	-	0.0	A	-	-	0.0	A

[(a)] The V/C values presented are for the movements with highest V/C within that approach

A review of **Table 9** indicates that the two study intersections would continue to operate at acceptable levels of service with the stop controls during both AM and PM peak hours. Therefore, no mitigation would be needed under background 2026 conditions.

Table 10: Capacity Analysis for Background 2041 Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS	V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.004	0.0	0.4	A	0.008	0.0	1.2	A
	NB	0.004	0.0	8.7	A	0.001	0.0	8.5	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.022	0.7	8.8	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.004	0.0	7.2	A	0.006	0.0	3.1	A
	SB	-	-	0.0	A	-	-	0.0	A

[(a)] The V/C values presented are for the movements with highest V/C within that approach

A review of **Table 10** indicates that the two study intersections would continue to operate at acceptable levels of service with the stop controls during both AM and PM peak hours. Therefore, no mitigation would be needed under background 2041 conditions.

4.2.3 Opening 2022 and Interim 2026 Traffic Conditions

LOS and capacity analysis results for the Opening 2022, Phase 1, and Interim 2026, Full Development, traffic conditions for the two study intersections and site access intersections are presented in **Table 11 and Table 12**, respectively.

Table 11: Capacity Analysis for Opening 2022 – Phase 1 Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[a] Ratio	95th % Queue	Delay "Sec"	LOS	V/C[a] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.007	0.0	1.0	A	0.014	0.0	2.1	A
	NB	0.028	0.7	9.5	A	0.012	0.0	9.3	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.020	0.7	9.1	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.004	0.0	7.7	A	0.006	0.0	3.3	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A1 and Shedden Drive	EB	0.008	0.0	9.6	A	0.006	0.0	9.6	a
	NB	-	0.0	0.0	A	-	0.0	0.0	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A2 and Shedden Drive	EB	0.009	0.0	9.5	A	0.007	0.0	9.5	A
	NB	0.001	0.0	4.1	A	0.001	0.0	4.1	A
	SB	-	-	0.0	A	-	-	0.0	A

[a] The V/C values presented are for the movements with highest V/C within that approach

A review of **Table 11** indicates that the two study intersections as well as all proposed site access intersections would operate at acceptable levels of service with the stop controls and with Phase 1 traffic volumes during both AM and PM peak hours. Therefore, no mitigation would be needed under Opening 2022 traffic conditions.

Table 12: Capacity Analysis for Interim 2026 (Phase 1 + Phase 2) Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS	V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.019	0.7	2.1	A	0.031	0.7	3.5	a
	NB	0.088	2.1	10.1	B	0.040	0.7	9.8	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.026	0.7	9.2	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.004	0.0	7.7	A	0.007	0.0	3.4	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A1 and Shedden Drive	EB	0.020	0.7	9.8	A	0.015	0.0	10.0	B
	NB	-	0.0	0.0	A	-	0.0	0.0	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A2 and Shedden Drive	EB	0.018	0.7	9.7	A	0.013	0.0	9.8	A
	NB	-	0.0	0.0	A	-	0.0	0.0	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A3 and Shedden Drive	EB	0.019	0.7	9.5	A	0.014	0.0	9.7	A
	NB	0.002	0.0	3.3	A	0.003	0.0	1.3	A
	SB	-	-	0.0	A	-	-	0.0	A

[(a)] The V/C values presented are for the movements with highest V/C within that approach

A review of **Table 12** indicates that the two study intersections as well as all proposed site access intersections would operate at acceptable levels of service with the stop controls and with Full development traffic volumes during both AM and PM peak hours. Therefore, no mitigation would be needed under future Interim 2026 traffic conditions.

4.2.4 Future 2041 Traffic Conditions

LOS and capacity analysis results for the Future 2041, Full Development, traffic conditions for the two study intersections and all site access intersections are presented in **Table 13**.

Table 13: Capacity Analysis for Future 2041 Traffic Conditions

Intersection	App.	AM Peak Hour				PM Peak Hour			
		V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS	V/C[(a)] Ratio	95th % Queue	Delay "Sec"	LOS
Highway 642 and Range Road 12A (Unsignalized)	EB	-	-	0.0	A	-	-	0.0	A
	WB	0.020	0.7	1.8	A	0.033	0.7	3.1	a
	NB	0.093	2.1	10.3	B	0.041	0.7	9.9	A
Victory Road and Shedden Drive (Unsignalized)	EB	-	-	0.0	A	0.033	0.7	9.3	A
	WB	-	-	0.0	A	-	-	0.0	A
	NB	0.006	0.0	7.7	A	0.008	0.0	3.3	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A1 and Shedden Drive	EB	0.020	0.7	9.8	A	0.015	0.0	10.0	B
	NB	-	0.0	0.0	A	-	0.0	0.0	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A2 and Shedden Drive	EB	0.018	0.7	9.7	A	0.013	0.0	9.8	A
	NB	-	0.0	0.0	A	-	0.0	0.0	A
	SB	-	-	0.0	A	-	-	0.0	A
Access A3 and Shedden Drive	EB	0.019	0.7	9.6	A	0.014	0.0	9.7	A
	NB	0.002	0.0	2.7	A	0.003	0.0	1.0	A
	SB	-	-	0.0	A	-	-	0.0	A

[(a)] The V/C values presented are for the movements with highest V/C within that approach

A review of **Table 13** indicates that the two study intersections as well as all proposed site access intersections would continue to operate at acceptable levels of service with the stop controls and with Full development traffic volumes during both AM and PM peak hours. Therefore, no mitigation would be needed under Future 2041 traffic conditions.

4.3 Traffic Control Signal Warrants

The traffic signal installation warrant analysis for Highway 642 and Range Road 12A intersection was not conducted. The reason is that this major study intersection has ample capacity to accommodate background and proposed development's traffic volumes with no issues. Also, no safety concerns or operational concerns were noted at this intersection. Pedestrian warrants were not conducted because no significant pedestrian activity occurring in this vicinity.

4.4 Intersection Layout Assessment

The Intersection layout analyses were conducted using Alberta Transportation's Excel Program prepared for Rural Two-Lane Undivided Highways. The analyses were completed for Highway 642 Range Road 12A intersection. All intersection layout analyses worksheets with the threshold diagrams are provided in **Appendix D**. It should be noted that the existing intersection configuration for this intersection is Type Ia. Summaries of the analyses results for all scenarios analyzed are presented in **Table 14**.

Table 14: Intersection Layout Assessment Analyses Results

Intersection	Scenario / Analyses Year	AM Peak Hour		PM Peak Hour	
		Intersection Treatment Type	Additional EB Left-Turn Storage Length	Intersection Treatment Type	Additional EB Left-Turn Storage Length Required (m)
Highway 642 and Range Road 12A	Background 2041	I(a)	0	I(a)	0
	Opening 2022	I(a)	0	I(a)	0
	Future 2026	II(a)	0	II(a)	0
	Future 2041	II(a)	0	II(a)	0

A review of **Table 14** indicates that Type I(a) intersection treatment is required at the Highway 642 and Range Road 12A intersection starting under Background 2041 and Opening 2022, Phase 1 traffic conditions. However, under the Future 2026 and Future 2041 traffic conditions Type II(a) intersection treatment would become required. No additional WB left-turn storage lengths would be required under Future 2026 or Future 2041 scenarios.

EXCLUSIVE EASTBOUND RIGHT TURN ANALYSIS

Right turn analysis was also performed at the Highway 642 and Range Road 12A intersection. The analysis was completed for eastbound direction under the Future 2041 traffic conditions and presented below. The intersection layout analysis worksheets are provided in **Appendix D**.

Warrant for Exclusive Eastbound Right Turn Lane:

The following three conditions must all be met, to warrant an exclusive right turn lane at a two-lane highway intersection as indicated in the August 1999. Alberta Infrastructure "Highway Geometric Design Guide":

1. Main (or through) road AADT > 1800
2. Intersecting road AADT > 900
3. Right turn daily traffic volume > 360 for the movement in question.

In review the traffic volumes at Highway 642 and Range Road 12A intersection, none of the above three conditions would be met. Therefore**, exclusive right-turn only lane would NOT be warranted** under Future 2041 traffic conditions on Highway 642.

4.5 Intersection Lighting Warrants

The purpose of the lighting warrants is to establish a consistent determination whether an intersection requires illumination and what type of lighting should be provided. A lighting installation warrant was performed using TAC's Guide for Design of Roadway Lighting. The intersection lighting warrant calculation sheets are provided in **Appendix E**.

The lighting warrants were completed for the intersection of Highway 642 and Range Road 12A for future 2041 conditions. Lighting score for the analyzed scenario follows:

Scenario	Lighting Score
Future 2041	33

Since the score is below 120 points, therefore, illumination of the intersection would NOT be required under the Future 2041 traffic conditions.

5 CONCLUSIONS AND RECOMMENDATIONS

This study analyzed the traffic impacts of the proposed Recreational Vehicle Campground Development to be located in the Lac Ste Anne County just north of Summer Village of Sunrise Beach, Alberta. The proposed project will be built on a 151.2-acre lot and will have a total of 300 campsites developed in two Phases. Phase 1 is expected to open in 2022 and the full development of site is expected to be in 2026. The estimated number of total site generated trips entering and exiting the development would be 63 trips during the AM peak hour and 81 trips during the PM peak hour. The following conclusions have been reached by this traffic impact assessment study:

- LOS and capacity analyses indicated that under the Existing 2021 traffic conditions, the two study intersections are currently operating at acceptable levels of service with ample capacities and no vehicle queuing. Therefore, no intersection improvements are required for any of the study intersections under existing conditions.

- Background 2022, Background 2026, and Background 2041 without the Project Site Traffic LOS analyses indicated that the two study intersections would continue to operate at acceptable levels of service with ample capacities at all intersection approaches with no queuing issues. Therefore, no mitigations would be needed under any of the background conditions analyzed in background 2041 conditions.

- Opening 2022, Phase 1 and Interim 2026 with full development Traffic LOS analyses indicated that the two study intersections would continue to operate at acceptable levels of service with ample capacities at all intersection approaches with no queuing issues. Additionally, all site access intersections proposed on Shedden Drive would operate acceptably. Therefore, no mitigations would be needed under Opening 2022 or Interim 2026 traffic conditions.

- Future 2041 with Full Project Site Traffic LOS analyses indicated that the two study intersections as well as all site access intersections would continue to operate at acceptable levels of service with ample capacities at all intersection approaches with no queuing issues. Therefore, no mitigations would be needed under future 2041 traffic conditions.

- The traffic signal control installation warrant analysis for Highway 642 and Range Road 12A intersection was not conducted. The reason is that this study intersection would have ample capacity and no safety concerns were observed under the future 2041 conditions. Therefore, a traffic signal installation would not be warranted.

- The Intersection layout analyses were conducted for Highway 642 and Range Road 12A intersection for several scenarios. The results indicated the following:

    - Under Background 2041 traffic volume conditions, without site traffic Type I(a) intersection treatment is required, which is the same as the existing intersection layout.
    - Under the Opening 2022 traffic conditions, with Phase 1 site traffic, Type I(a) intersection treatment is required, which is the same as the existing intersection layout.
    - Under Interim 2026 and Future 2041 with full site traffic volumes, Type II(a) intersection treatment would be required.

- Warrants for Exclusive Right Turn Lane analysis indicated that an exclusive right turn lane would NOT be warranted on the eastbound direction of Highway 642 at Range Road 12A under the 2041 traffic conditions.

- Intersection lighting warrant analyses were performed using TAC's Guide for Design of Roadway Lighting. The completed analysis indicated that lighting would NOT be required under the Future 2041 traffic conditions at the study intersection of Highway 642 and Range Road 12A.

In summary, this traffic impact assessment concludes that the proposed Recreational Vehicle Campground Development will have some impact on the traffic operations of the future road network. However, this impact would be alleviated by implementing the recommended improvements discussed above.

Yours truly,

Prepared by:

PERMIT TO PRACTICE
ZALIG CONSULTING LTD.
RM SIGNATURE:
RM APEGA ID #: 163197
DATE: JULY 12, 2021
PERMIT NUMBER: P014511
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

July 12, 2021

Emad Alsaidi, PhD, PEng, PE

Appendix A

Project's Access Application Document and Title

Summer Village of Sunrise Beach
Council Policy

Number	Title			
C-ENV-CUL-1	**Culvert Policy**			
Approval	**Originally Approved**		**Last Revised**	
(CAO Initials)	Resolution No:		Resolution No:	
	Date:		Date:	

Purpose

To establish the responsibility and size for culverts in the Summer Village. The Summer Village of Sunrise Beach requires proper and adequate drainage throughout the ditching system in the Summer Village. Each residential driveway is required to have a proper culvert installed to aid in the removal of water away from their property.

Policy Statement

The Summer Village of Sunrise Beach recognizes the need to establish a culvert policy as culverts are an integral part of the Summer Village storm sewer system

Responsibility

No person shall obstruct any drainage ditch or impede the flow of water within the Summer Village of Sunrise Beach.

No person shall install any culvert within the Summer Village of Sunrise Beach without authorization of the municipality.

Culverts for new property access are the responsibility of the property owner. Installation must be undertaken by an experienced contractor and authorized.

Culvert Size and Installation

All driveways into residential properties shall have a culvert of 12" (300mm) in diameter and shall be 20' (6m) in length excepting those streets designated as main drainage routes where culvert sizes and lengths are to be determined by the municipality.

Installation must be a at the direction of the Summer Village so as to reatain proper grade level and drainage and is to be undertaken by an experienced contractor on behalf of the resident. An approach Installation Application must be completed and is attached as Schedule "A".

Summer Village of Sunrise Beach
Council Policy

Policy Notes

Requests for the purchase of culverts, replacement culverts and/or culverts for additional approaches or extensions to existing approaches must be made in writing to Council and will be authorized at Council's discretion.

Requests for the Municipality to cost-share in ditching/drainage work and/or the installation of a culvert must be made in writing to Council and will be authorized at Council's discretion.

Revisions:

Resolution Number	MM/DD/YY

Summer Village of Sunrise Beach
Council Policy

Proposed Approach Location			
Plan	Block	Lot	Municipal Address See attached drawing.

Applicant/Landowner Information

Applicant	Registered Owner Name(s) if different from Applicant:
Name: Vivcor Holdings Inc	Mailing Address:
Mailing Address: 421 Cowan Point	City Province:
City, Province Sherwood Park, Alberta	Postal Code:
Postal Code T8H 0E6	Phone: Cell:
Phone: 780-554-7877 Cell	Email:
Email: russ@auinc.ca	

Reason for Changing Existing Approach or Request

Provide access to our property which is restricted by the number of wetlands on the property. As such, this requires additional approaches along Shedden Drive.

X New Approach ___ Existing Approach

Authorization

I hereby make application to construct an approach in accordance with the plan, and at the location shown on the sketch plan on the reverse of this form.

2021-05-05 _____

Date of Application | Signature of Applicant

For Summer Village Use Only – Application Approval

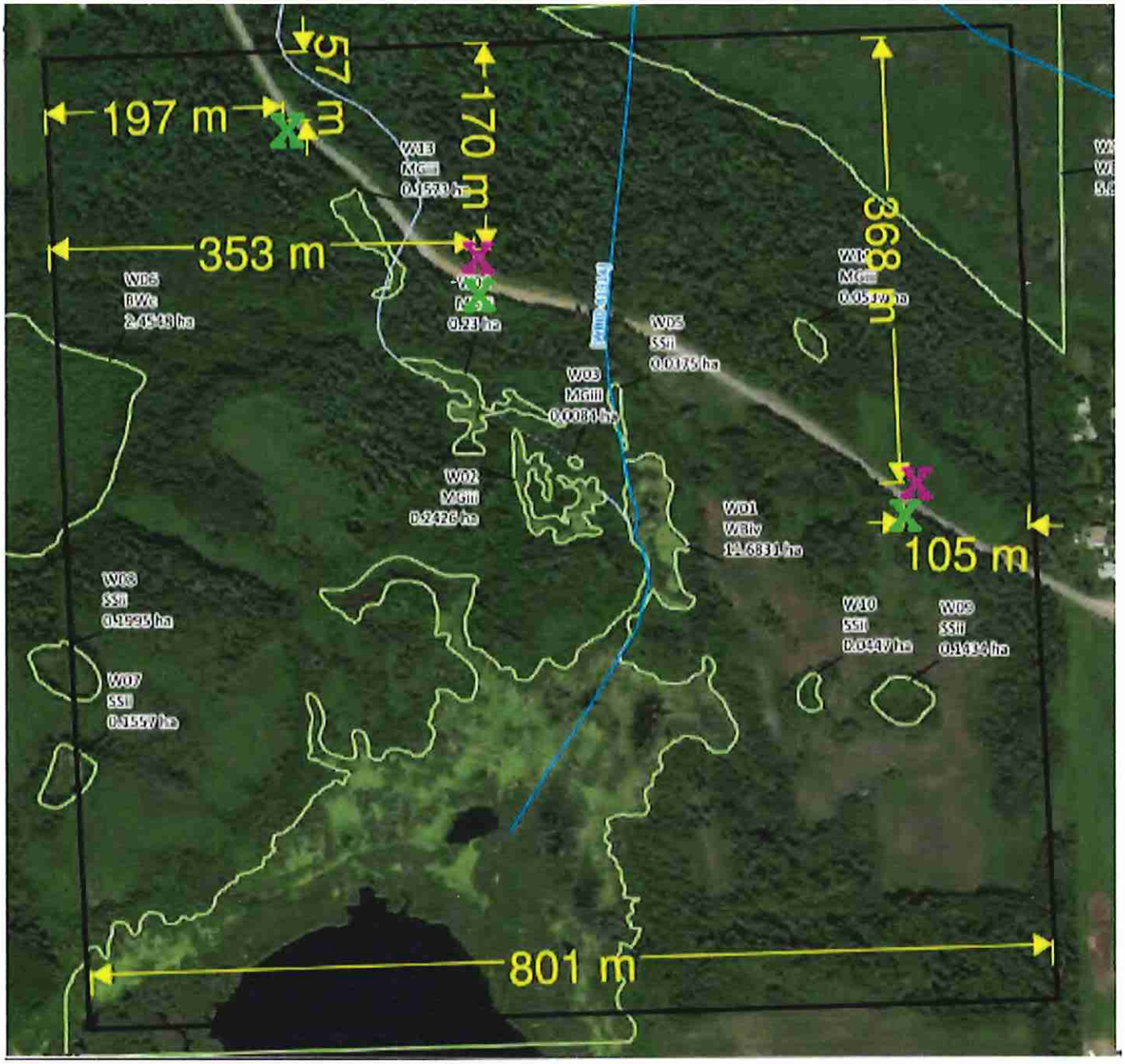
Application Number: _____

Date of Approval | Name of SV Of Sunrise Beach Representative | Signature

Special Provisions: _____

Final Inspection Accepted:

Date of Approval | Name of SV Of Sunrise Beach Representative | Signature


197 m
57 m
170 m
353 m
368 m
105 m
801 m
WD6
BWc
2.4548 ha
WD3
MGIII
0.0084 ha
WD2
MGIII
0.2426 ha
WD1
WBIV
14.6831 ha
WD8
SSII
0.1925 ha
WD7
SSII
0.1557 ha
WD10
SSII
0.0447 ha
WD9
SSII
0.1434 ha

CERTIFIED COPY OF

Certificate of Title

S

LINC 0022 865 936

SHORT LEGAL 5;1;55;34;SE

TITLE NUMBER: 202 285 020
TRANSFER OF LAND
DATE: 23/12/2020

AT THE TIME OF THIS CERTIFICATION

VIVCOR HOLDINGS INC.
OF 421 COWAN POINT
SHERWOOD PARK
ALBERTA T8H 0E6

IS THE OWNER OF AN ESTATE IN FEE SIMPLE
OF AND IN

MERIDIAN 5 RANGE 1 TOWNSHIP 55
SECTION 34
ALL THAT PORTION OF THE SOUTH EAST QUARTER
NOT COVERED BY THE WATERS OF SANDY LAKE AT THE TIME OF
THE SURVEY OF THE SAID LAKE
AS SHOWN UPON A PLAN OF SURVEY OF THE SAID TOWNSHIP DATED
29 JULY AD 1899
CONTAINING 61.2 HECTARES (151.20 ACRES) MORE OR LESS
EXCEPTING THEREOUT
1.62 HECTARES (4 ACRES) MORE OR LESS
AS SHOWN ON ROAD PLAN 2609NY

EXCEPTING THEREOUT ALL MINES AND MINERALS

SUBJECT TO THE ENCUMBRANCES,LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDER-WRITTEN OR ENDORSED HEREON,OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
3388OR	16/12/1965	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC. 320-17 AVE SW CALGARY ALBERTA T2S2V1 AS TO PORTION OR PLAN:1119NY "CONTAINING 1.25 ACRES" (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 022197030) (DATA UPDATED BY: CHANGE OF ADDRESS 092057659) (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 122365965)

(CONTINUED)

Certificate of Title

TITLE NUMBER: 202 285 020

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 23 DAY OF DECEMBER ,2020

SUPPLEMENTARY INFORMATION
VALUE: $220,000
CONSIDERATION: $220,000
MUNICIPALITY: LAC STE. ANNE COUNTY / SUMMER VILLAGE OF SUNRISE BEACH
REFERENCE NUMBER:
172 247 686 +1
TOTAL INSTRUMENTS: 001

Appendix B

Existing 2021 Intersection Turning Movement Traffic Counts

Intersection: Highway 642 and Range Road 12A / Shedden Dr.
Count Date: 06/3/2021
Count Day: Thursday
Counted By: Addoz Engineering Inc.

ALL VEHICLES

AM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB			Highway 642 WB			Range Road 12A NB			Private Access - closed Gate			Sum	4-P Total	PHF
AM	L	T	R	L	T	R	L	T	R	L	T	R			
7:00 - 7:15	0	2	0	0	0	0	0	0	1	0	0	0	3		
7:15 - 7:30	0	2	0	0	4	0	0	0	1	0	0	0	7		
7:30 - 7:45	0	6	1	0	3	0	1	0	1	0	0	0	12		
7:45 - 8:00	0	2	0	0	5	0	0	0	1	0	0	0	8	30	
8:00 - 8:15	0	3	0	1	4	0	0	0	0	0	0	0	8	35	
8:15 - 8:30	0	12	0	0	12	0	0	0	1	0	0	0	25	53	
8:30 - 8:45	0	5	0	0	4	0	0	0	0	0	0	0	9	50	
8:45 - 9:00	0	5	0	1	9	0	0	0	0	0	0	0	15	57	0.57
Peak Hour	0	25	0	2	29	0	0	0	1	0	0	0	57		
App Total	25			31			1			0			57		
HV %	32%			23%			0%			0%			26%		

ALL VEHICLES

PM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB			Highway 642 WB			Range Road 12A NB			Private Access - closed Gate			Sum	4-P Total	PHF
PM	L	T	R	L	T	R	L	T	R	L	T	R			
4:00 – 4:15	0	4	0	1	7	0	0	0	3	0	0	0	15		
4:15 – 4:30	0	6	1	1	5	0	1	0	1	0	0	0	15		
4:30 – 4:45	0	4	0	2	5	0	0	0	1	0	0	0	12		
4:45 – 5:00	0	7	1	3	11	0	0	0	0	0	0	0	22	64	
5:00 – 5:15	0	6	0	2	11	0	0	0	0	0	0	0	19	68	
5:15 – 5:30	0	9	0	1	10	0	0	0	1	0	0	0	21	74	
5:30 – 5:45	0	4	0	2	9	0	0	0	0	0	0	0	15	77	0.88
5:45 – 6:00	0	6	0	0	9	0	0	0	2	0	0	0	17	72	
Peak Hour	0	26	1	8	41	0	0	0	1	0	0	0	77		
App Total	27			49			1			0			77		
HV %	4%			8%			0%			0%			6%		

Intersection: Highway 642 and Range Road 12A / Shedden Dr.
Count Date: 06/3/2021
Count Day: Thursday
Counted By: Addoz Engineering Inc.

TRUCKS, MULTI-AXLE VEHICLE, CITY BUS OR SCHOOL BUS

AM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB			Highway 642 WB			Range Road 12A NB			Private Access - closed Gate			Sum
AM	L	T	R	L	T	R	L	T	R	L	T	R	
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 - 7:30	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 - 7:45	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 - 8:00	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 - 8:15	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:15 - 8:30	**0**	**6**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**
8:30 - 8:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 - 9:00	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
Peak Hour	**0**	**8**	**0**	**1**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**
App Total		**8**			**7**			**0**			**0**		**15**

TRUCKS, MULTI-AXLE VEHICLE, CITY BUS OR SCHOOL BUS

PM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB			Highway 642 WB			Range Road 12A NB			Private Access - closed Gate			Sum
PM	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 – 4:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	1
4:15 – 4:30	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
4:30 – 4:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 – 5:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 – 5:15	0	1	0	0	1	0	0	0	0	0	0	0	2
5:15 – 5:30	0	0	0	0	2	0	0	0	0	0	0	0	2
5:30 – 5:45	0	0	0	1	0	0	0	0	0	0	0	0	1
5:45 – 6:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
App Total		**1**			**4**			**0**			**0**		**5**

Intersection: Highway 642 and Range Road 12A / Shedden Dr.
Count Date: 06/3/2021
Count Day: Thursday
Counted By: Addoz Engineering Inc.

PASSENGER CARS, MINI-VANS, TWO AXLE TRUCKS, MOTOR CYCLES AND STATION WAGONS

AM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB			Highway 642 WB			Range Road 12A NB			Private Access - closed Gate			Sum
AM	L	T	R	L	T	R	L	T	R	L	T	R	
7:00 - 7:15	0	2	0	0	0	0	0	0	1	0	0	0	3
7:15 - 7:30	0	2	0	0	4	0	0	0	1	0	0	0	7
7:30 - 7:45	0	5	1	0	3	0	1	0	1	0	0	0	11
7:45 - 8:00	0	2	0	0	4	0	0	0	1	0	0	0	7
8:00 - 8:15	**0**	**3**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**
8:15 - 8:30	**0**	**6**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**13**
8:30 - 8:45	**0**	**5**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**
8:45 - 9:00	**0**	**3**	**0**	**1**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**
Peak Hour	**0**	**17**	**0**	**1**	**23**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**42**
App Total		**17**			**24**			**1**			**0**		**42**

PASSENGER CARS, MINI-VANS, TWO AXLE TRUCKS, MOTOR CYCLES AND STATION WAGONS

PM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB			Highway 642 WB			Range Road 12A NB			Private Access - closed Gate			Sum
PM	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 – 4:15	0	4	0	1	7	0	0	0	2	0	0	0	14
4:15 – 4:30	0	5	1	1	4	0	1	0	1	0	0	0	13
4:30 – 4:45	0	4	0	2	5	0	0	0	1	0	0	0	12
4:45 – 5:00	0	7	1	3	11	0	0	0	0	0	0	0	**22**
5:00 – 5:15	0	5	0	2	10	0	0	0	0	0	0	0	**17**
5:15 – 5:30	0	9	0	1	8	0	0	0	1	0	0	0	**19**
5:30 – 5:45	0	4	0	1	9	0	0	0	0	0	0	0	**14**
5:45 – 6:00	0	6	0	0	9	0	0	0	2	0	0	0	17
Peak Hour	**0**	**25**	**1**	**7**	**38**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**72**
App Total		**26**			**45**			**1**			**0**		**72**

Intersection: Highway 642 and Range Road 12A / Shedden Dr.
Count Date: 06/3/2021
Count Day: Thursday
Counted By: Addoz Engineering Inc.

BICYCLE AND PEDESTRIAN TRAFFIC

AM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB				Highway 642 WB				Range Road 12A NB				Private Access - Closed Gate			
AM	L	T	R	PED S. Side	L	T	R	PED N. Side	L	T	R	PED E. Side	L	T	R	PED W. Side
7:00 - 7:15																
7:15 - 7:30																
7:30 - 7:45		1														
7:45 - 8:00						1										
8:00 - 8:15																
8:15 - 8:30																
8:30 - 8:45																
8:45 - 9:00																
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BICYCLE AND PEDESTRIAN TRAFFIC

PM Peak Hour Traffic Count at Highway 642 and Range Road 12A / Shedden Dr. Intersection

Time Period	Highway 642 EB				Highway 642 WB				Range Road 12A NB				Private Access - Closed Gate			
PM	L	T	R	PED S. Side	L	T	R	PED N. Side	L	T	R	PED E. Side	L	T	R	PED W. Side
4:00 – 4:15																
4:15 – 4:30																
4:30 – 4:45																
4:45 – 5:00																
5:00 – 5:15																
5:15 – 5:30																
5:30 – 5:45																
5:45 – 6:00																
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection: Victory Road and Shedden Dr.
Count Date: 06/2/2021
Count Day: Wednesday
Counted By: Addoz Engineering Inc.

ALL VEHICLES

AM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB			Willow Way WB			Shedden Drive NB			Shedden Drive SB			Sum	4-P Total	PHF
AM	L	T	R	L	T	R	L	T	R	L	T	R			
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	3	3		
7:15 - 7:30	0	0	0	0	0	0	2	0	0	0	0	0	2		
7:30 - 7:45	1	0	0	0	0	0	1	0	0	0	0	0	2		
7:45 - 8:00	0	0	0	0	0	0	1	0	0	0	0	0	1	8	
8:00 - 8:15	0	0	0	0	0	0	1	0	0	0	0	2	3	8	
8:15 - 8:30	0	0	1	0	0	0	0	0	0	0	0	1	2	8	
8:30 - 8:45	1	0	0	0	0	0	1	0	0	0	0	0	2	8	
8:45 - 9:00	1	0	0	0	0	0	1	0	0	0	0	0	2	**9**	**0.75**
Peak Hour	**2**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**9**		
App Total	3			0			3			3			9		
HV %	**0%**			**0%**			**0%**			**33%**			**11%**		

ALL VEHICLES

PM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB			Willow Way WB			Shedden Drive NB			Shedden Drive SB			Sum	4-P Total	PHF
PM	L	T	R	L	T	R	L	T	R	L	T	R			
4:00 – 4:15	2	0	1	0	0	0	1	0	0	0	0	1	5		
4:15 – 4:30	1	0	1	0	1	0	0	1	0	0	1	1	6		
4:30 – 4:45	2	0	0	0	0	0	1	1	0	0	1	2	7		
4:45 – 5:00	3	1	1	0	0	0	1	2	0	0	2	0	10	28	
5:00 – 5:15	1	0	4	0	0	0	0	4	0	0	1	1	11	34	
5:15 – 5:30	0	0	1	0	0	0	4	1	0	0	1	0	7	**35**	**0.80**
5:30 – 5:45	2	0	1	0	0	0	0	0	0	0	0	0	3	31	
5:45 – 6:00	3	0	0	0	0	0	1	1	0	0	0	1	6	27	
Peak Hour	**6**	**1**	**6**	**0**	**0**	**0**	**6**	**8**	**0**	**0**	**5**	**3**	**35**		
App Total	13			0			14			8			35		
HV %	**8%**			**0%**			**7%**			**0%**			**6%**		

Intersection: Victory Road and Shedden Dr.
Count Date: 06/2/2021
Count Day: Wednesday
Counted By: Addoz Engineering Inc.

TRUCKS, MULTI-AXLE VEHICLE, CITY BUS OR SCHOOL BUS

AM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB			Willow Way WB			Shedden Drive NB			Shedden Drive SB			Sum
AM	L	T	R	L	T	R	L	T	R	L	T	R	
7:00 - 7:15													0
7:15 - 7:30													0
7:30 - 7:45													0
7:45 - 8:00													0
8:00 - 8:15												1	**1**
8:15 - 8:30													**0**
8:30 - 8:45													**0**
8:45 - 9:00													0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
App Total		**0**			**0**			**0**			**1**		**1**

TRUCKS, MULTI-AXLE VEHICLE, CITY BUS OR SCHOOL BUS

PM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB			Willow Way WB			Shedden Drive NB			Shedden Drive SB			Sum
PM	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 – 4:15													0
4:15 – 4:30								1					1
4:30 – 4:45													0
4:45 – 5:00	1												**1**
5:00 – 5:15								1					**1**
5:15 – 5:30													**0**
5:30 – 5:45													**0**
5:45 – 6:00													0
Peak Hour	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**
App Total		**1**			**0**			**1**			**0**		**2**

Intersection: Victory Road and Shedden Dr.
Count Date: 06/2/2021
Count Day: Wednesday
Counted By: Addoz Engineering Inc.

PASSENGER CARS, MINI-VANS, TWO AXLE TRUCKS, MOTOR CYCLES AND STATION WAGONS

AM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB			Willow Way WB			Shedden Drive NB			Shedden Drive SB			Sum
AM	L	T	R	L	T	R	L	T	R	L	T	R	
7:00 - 7:15	0	0	0	0	0	0	0	0	0	0	0	3	3
7:15 - 7:30	0	0	0	0	0	0	2	0	0	0	0	0	2
7:30 - 7:45	1	0	0	0	0	0	1	0	0	0	0	0	2
7:45 - 8:00	0	0	0	0	0	0	1	0	0	0	0	0	1
8:00 - 8:15	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**
8:15 - 8:30	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**
8:30 - 8:45	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**
8:45 - 9:00	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**
Peak Hour	**2**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**2**	**8**
App Total	**3**			**0**			**3**			**2**			**8**

PASSENGER CARS, MINI-VANS, TWO AXLE TRUCKS, MOTOR CYCLES AND STATION WAGONS

PM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB			Willow Way WB			Shedden Drive NB			Shedden Drive SB			Sum
PM	L	T	R	L	T	R	L	T	R	L	T	R	
4:00 – 4:15	2	0	1	0	0	0	1	0	0	0	0	1	5
4:15 – 4:30	1	0	1	0	1	0	0	0	0	0	1	1	5
4:30 – 4:45	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**2**	**7**
4:45 – 5:00	**2**	**1**	**1**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**0**	**9**
5:00 – 5:15	**1**	**0**	**4**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**1**	**10**
5:15 – 5:30	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**7**
5:30 – 5:45	2	0	1	0	0	0	0	0	0	0	0	0	3
5:45 – 6:00	3	0	0	0	0	0	1	1	0	0	0	1	6
Peak Hour	**5**	**1**	**6**	**0**	**0**	**0**	**6**	**7**	**0**	**0**	**5**	**3**	**33**
App Total	**12**			**0**			**13**			**8**			**33**

Intersection: Victory Road and Shedden Dr.
Count Date: 06/2/2021
Count Day: Wednesday
Counted By: Addoz Engineering Inc.

BICYCLE AND PEDESTRIAN TRAFFIC

AM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

Time Period	Victory Road EB				Willow Way WB				Shedden Drive NB				Shedden Drive SB			
AM	L	T	R	PED S. Side	L	T	R	PED N. Side	L	T	R	PED E. Side	L	T	R	PED W. Side
7:00 - 7:15																
7:15 - 7:30																
7:30 - 7:45												1				
7:45 - 8:00																
8:00 - 8:15																1
8:15 - 8:30																
8:30 - 8:45																
8:45 - 9:00																
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

BICYCLE AND PEDESTRIAN TRAFFIC

PM Peak Hour Traffic Count at Victory Road and Shedden Dr. Intersection

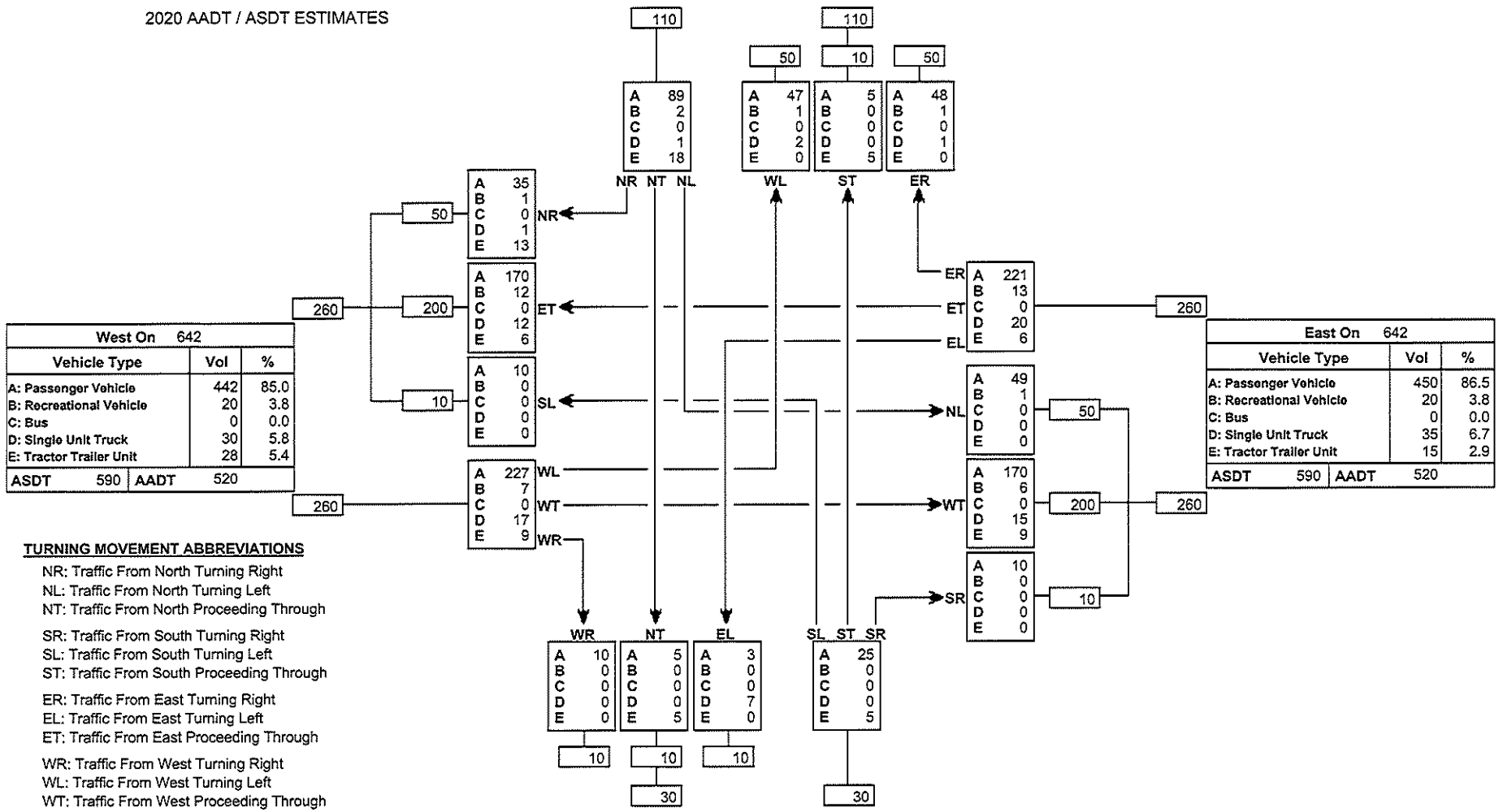
Time Period	Victory Road EB				Willow Way WB				Shedden Drive NB				Shedden Drive SB			
PM	L	T	R	PED S. Side	L	T	R	PED N. Side	L	T	R	PED E. Side	L	T	R	PED W. Side
4:00 – 4:15																
4:15 – 4:30																
4:30 – 4:45																
4:45 – 5:00																
5:00 – 5:15												4				
5:15 – 5:30																
5:30 – 5:45												4			1	
5:45 – 6:00	1															
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0

Turning Movement Summary Diagram

Reference No.: 74560

Intersection of:
642 & 777 W OF SANDY BEACH EJ

2020 AADT / ASDT ESTIMATES



North On 777		
Vehicle Type	Vol	%
A: Passenger Vehicle	189	85.9
B: Recreational Vehicle	4	1.8
C: Bus	0	0.0
D: Single Unit Truck	4	1.8
E: Tractor Trailer Unit	23	10.5
ASDT 250	AADT 220	

West On 642		
Vehicle Type	Vol	%
A: Passenger Vehicle	442	85.0
B: Recreational Vehicle	20	3.8
C: Bus	0	0.0
D: Single Unit Truck	30	5.8
E: Tractor Trailer Unit	28	5.4
ASDT 590	AADT 520	

East On 642		
Vehicle Type	Vol	%
A: Passenger Vehicle	450	86.5
B: Recreational Vehicle	20	3.8
C: Bus	0	0.0
D: Single Unit Truck	35	6.7
E: Tractor Trailer Unit	15	2.9
ASDT 590	AADT 520	

South On Rge Rd 15		
Vehicle Type	Vol	%
A: Passenger Vehicle	43	71.7
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	7	11.7
E: Tractor Trailer Unit	10	16.7
ASDT 70	AADT 60	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through

SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through

ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through

WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

TURNING MOVEMENT ABBREVIATIONS

AADT: Annual Average Daily Traffic
Average daily traffic expressed as vehicles per day fo
period of January 1 to December 31 (365 days)

ASDT: Average Summer Daily Traffic
Average daily traffic expressed as vehicles per day fo
period of May 1 to September 30 (153 days)

Turning Movement Summary Diagram

Reference No.: 74560

Intersection of:
642 & 777 W OF SANDY BEACH EJ

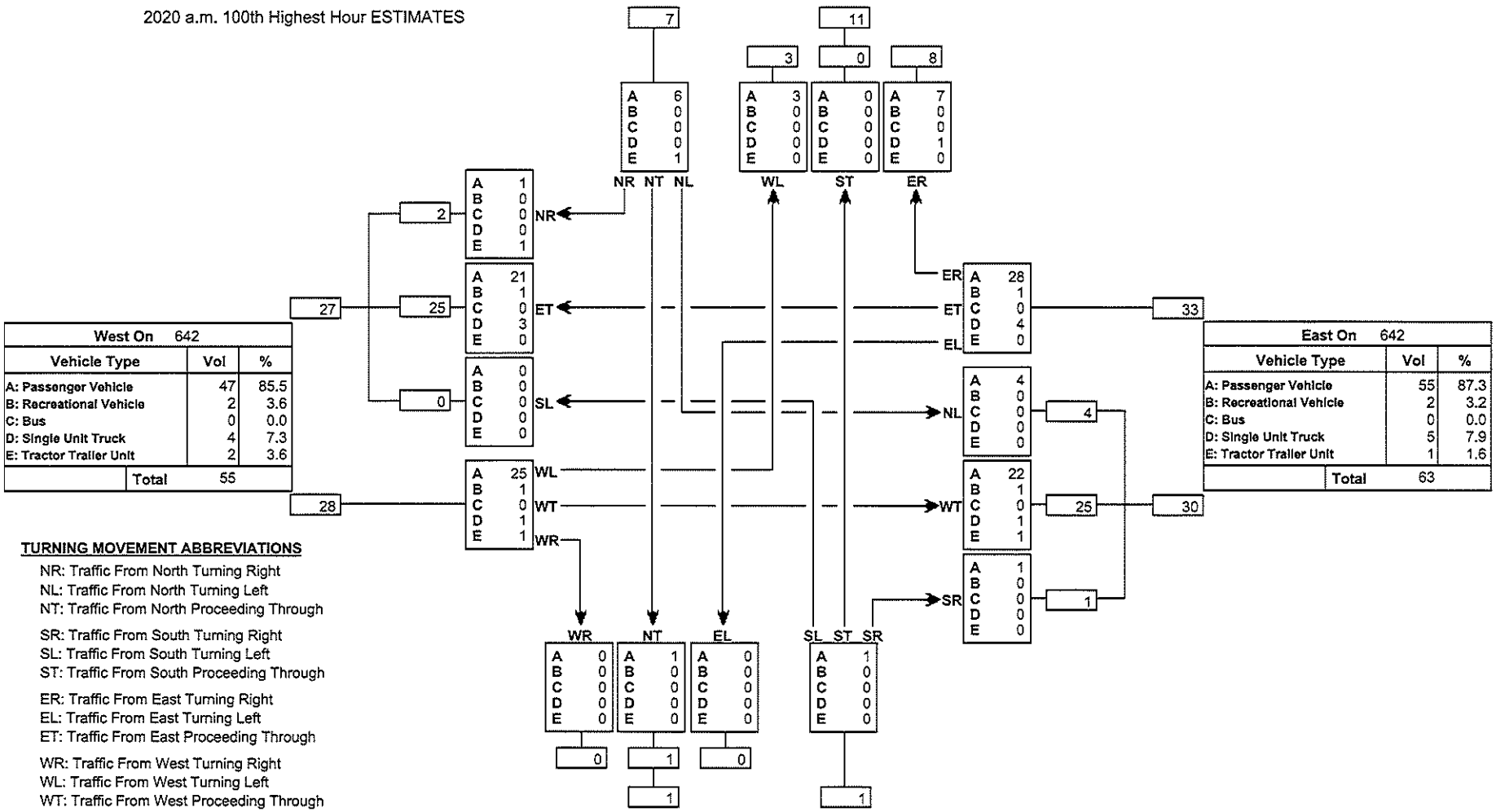
2020 a.m. 100th Highest Hour ESTIMATES

North On 777		
Vehicle Type	Vol	%
A: Passenger Vehicle	16	88.9
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	1	5.6
E: Tractor Trailer Unit	1	5.6
Total	18	

West On 642		
Vehicle Type	Vol	%
A: Passenger Vehicle	47	85.5
B: Recreational Vehicle	2	3.6
C: Bus	0	0.0
D: Single Unit Truck	4	7.3
E: Tractor Trailer Unit	2	3.6
Total	55	

East On 642		
Vehicle Type	Vol	%
A: Passenger Vehicle	55	87.3
B: Recreational Vehicle	2	3.2
C: Bus	0	0.0
D: Single Unit Truck	5	7.9
E: Tractor Trailer Unit	1	1.6
Total	63	

South On Rge Rd 15		
Vehicle Type	Vol	%
A: Passenger Vehicle	2	100.0
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	0	0.0
Total	2	



TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through

SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through

ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through

WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

Turning Movement Summary Diagram

Reference No.: 74560

Intersection of:
642 & 777 W OF SANDY BEACH EJ

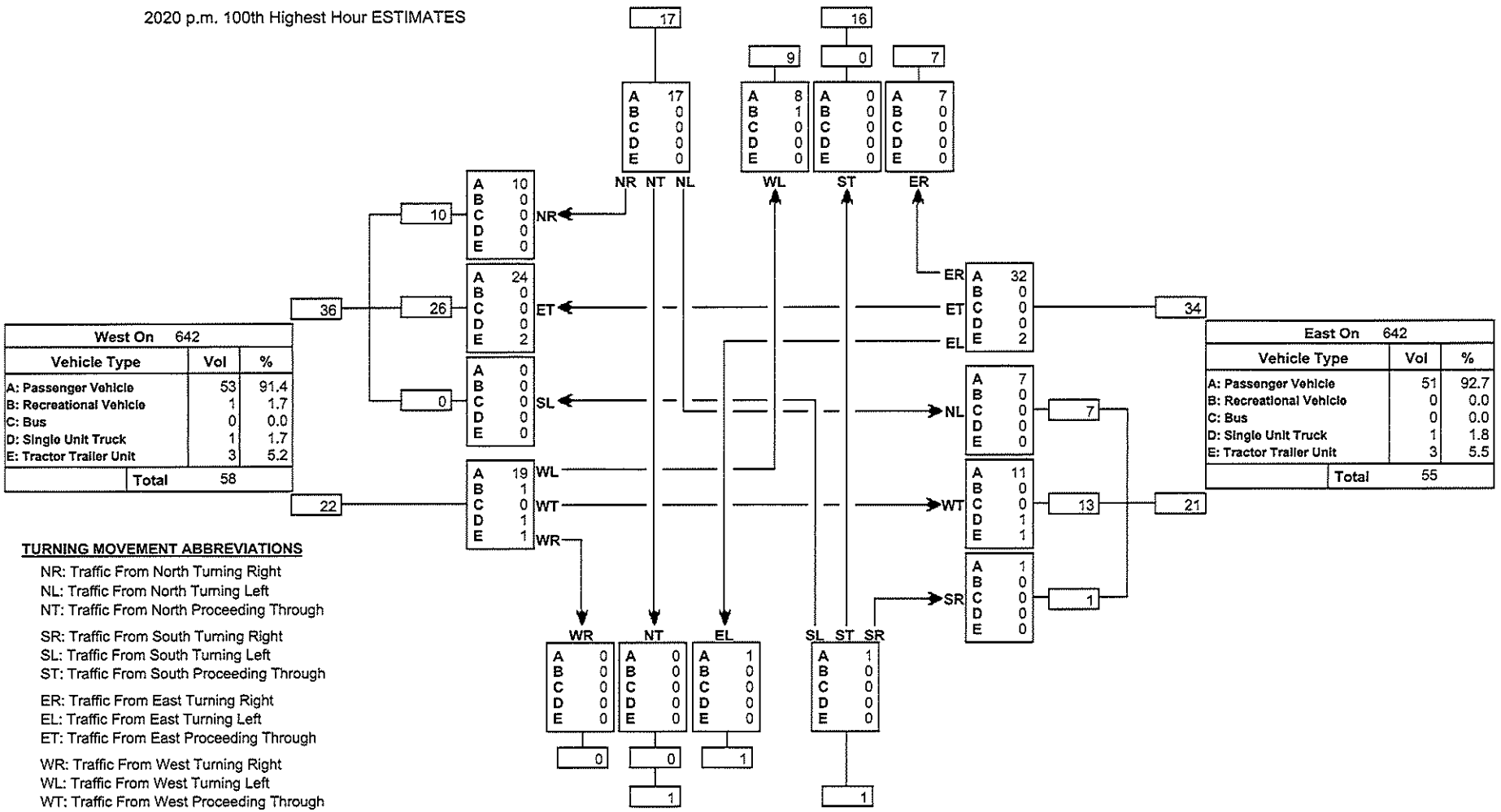
2020 p.m. 100th Highest Hour ESTIMATES

North On 777		
Vehicle Type	Vol	%
A: Passenger Vehicle	32	97.0
B: Recreational Vehicle	1	3.0
C: Bus	0	0.0
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	0	0.0
Total	33	

West On 642		
Vehicle Type	Vol	%
A: Passenger Vehicle	53	91.4
B: Recreational Vehicle	1	1.7
C: Bus	0	0.0
D: Single Unit Truck	1	1.7
E: Tractor Trailer Unit	3	5.2
Total	58	

East On 642		
Vehicle Type	Vol	%
A: Passenger Vehicle	51	92.7
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	1	1.8
E: Tractor Trailer Unit	3	5.5
Total	55	

South On Rge Rd 15		
Vehicle Type	Vol	%
A: Passenger Vehicle	2	100.0
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	0	0.0
Total	2	



TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
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ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through

WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

Appendix C

Synchro - HCM 6th Edition Capacity Analysis Reports

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	0	2	35	0	1
Future Vol, veh/h	30	0	2	35	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	32	23	23	2	2
Mvmt Flow	53	0	4	61	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	53	0	122	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	69	-
Critical Hdwy	-	-	4.33	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.407	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1428	-	873	1014
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1428	-	870	1014
Mov Cap-2 Maneuver	-	-	-	-	870	-
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	951	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1014	-	-	1428	-
HCM Lane V/C Ratio	0.002	-	-	0.002	-
HCM Control Delay (s)	8.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	1	0	0	0	4	0	0	0	0	4
Future Vol, veh/h	2	0	1	0	0	0	4	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	33	33	33
Mvmt Flow	3	0	1	0	0	0	5	0	0	0	0	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	13	13	3	13	15	0	5	0	0	0	0	0
Stage 1	3	3	-	10	10	-	-	-	-	-	-	-
Stage 2	10	10	-	3	5	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.43	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.497	-	-
Pot Cap-1 Maneuver	1004	881	1081	1004	879	-	1616	-	-	-	-	-
Stage 1	1020	893	-	1011	887	-	-	-	-	-	-	-
Stage 2	1011	887	-	1020	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	878	1081	1000	876	-	1616	-	-	-	-	-
Mov Cap-2 Maneuver	-	878	-	1000	876	-	-	-	-	-	-	-
Stage 1	1017	893	-	1008	884	-	-	-	-	-	-	-
Stage 2	1008	884	-	1019	892	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.2	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1616	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	-
HCM Control Delay (s)	7.2	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	1	8	41	0	1
Future Vol, veh/h	26	1	8	41	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	4	8	8	2	2
Mvmt Flow	30	1	9	47	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	31	0	96	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	65	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1543	-	903	1043
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	958	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1543	-	898	1043
Mov Cap-2 Maneuver	-	-	-	-	898	-
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1043	-	-	1543	-
HCM Lane V/C Ratio	0.001	-	-	0.006	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	6	0	0	0	6	8	0	0	5	3
Future Vol, veh/h	6	1	6	0	0	0	6	8	0	0	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	8	8	8	2	2	2	7	7	7	2	2	2
Mvmt Flow	8	1	8	0	0	0	8	10	0	0	6	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	34	34	8	39	36	10	10	0	0	10	0	0
Stage 1	8	8	-	26	26	-	-	-	-	-	-	-
Stage 2	26	26	-	13	10	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.12	6.52	6.22	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.518	4.018	3.318	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	958	847	1057	966	856	1071	1577	-	-	1610	-	-
Stage 1	998	877	-	992	874	-	-	-	-	-	-	-
Stage 2	976	862	-	1007	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	954	843	1057	954	852	1071	1577	-	-	1610	-	-
Mov Cap-2 Maneuver	954	843	-	954	852	-	-	-	-	-	-	-
Stage 1	993	877	-	987	870	-	-	-	-	-	-	-
Stage 2	971	858	-	998	887	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	0	3.1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1577	-	-	988	-	1610	-	-
HCM Lane V/C Ratio	0.005	-	-	0.016	-	-	-	-
HCM Control Delay (s)	7.3	0	-	8.7	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	0	2	36	0	1
Future Vol, veh/h	31	0	2	36	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	32	23	23	2	2
Mvmt Flow	54	0	4	63	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	54	0	125	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.33	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.407	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1427	-	870	1013
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1427	-	867	1013
Mov Cap-2 Maneuver	-	-	-	-	867	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	949	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1013	-	-	1427	-
HCM Lane V/C Ratio	0.002	-	-	0.002	-
HCM Control Delay (s)	8.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	1	0	0	0	4	0	0	0	0	4
Future Vol, veh/h	2	0	1	0	0	0	4	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	33	33	33
Mvmt Flow	3	0	1	0	0	0	5	0	0	0	0	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	13	13	3	13	15	0	5	0	0	0	0	0
Stage 1	3	3	-	10	10	-	-	-	-	-	-	-
Stage 2	10	10	-	3	5	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.43	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.497	-	-
Pot Cap-1 Maneuver	1004	881	1081	1004	879	-	1616	-	-	-	-	-
Stage 1	1020	893	-	1011	887	-	-	-	-	-	-	-
Stage 2	1011	887	-	1020	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	878	1081	1000	876	-	1616	-	-	-	-	-
Mov Cap-2 Maneuver	-	878	-	1000	876	-	-	-	-	-	-	-
Stage 1	1017	893	-	1008	884	-	-	-	-	-	-	-
Stage 2	1008	884	-	1019	892	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.2	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1616	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	-
HCM Control Delay (s)	7.2	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	1	8	42	0	1
Future Vol, veh/h	27	1	8	42	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	4	8	8	2	2
Mvmt Flow	31	1	9	48	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	32	0	98	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1542	-	901	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1542	-	896	1042
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	951	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1042	-	-	1542	-
HCM Lane V/C Ratio	0.001	-	-	0.006	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	6	0	0	0	6	8	0	0	5	3
Future Vol, veh/h	6	1	6	0	0	0	6	8	0	0	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	8	8	8	2	2	2	7	7	7	2	2	2
Mvmt Flow	8	1	8	0	0	0	8	10	0	0	6	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	34	34	8	39	36	10	10	0	0	10	0	0
Stage 1	8	8	-	26	26	-	-	-	-	-	-	-
Stage 2	26	26	-	13	10	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.12	6.52	6.22	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.518	4.018	3.318	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	958	847	1057	966	856	1071	1577	-	-	1610	-	-
Stage 1	998	877	-	992	874	-	-	-	-	-	-	-
Stage 2	976	862	-	1007	887	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	954	843	1057	954	852	1071	1577	-	-	1610	-	-
Mov Cap-2 Maneuver	954	843	-	954	852	-	-	-	-	-	-	-
Stage 1	993	877	-	987	870	-	-	-	-	-	-	-
Stage 2	971	858	-	998	887	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	0	3.1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1577	-	-	988	-	1610	-	-
HCM Lane V/C Ratio	0.005	-	-	0.016	-	-	-	-
HCM Control Delay (s)	7.3	0	-	8.7	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	0	3	38	0	1
Future Vol, veh/h	33	0	3	38	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	32	23	23	2	2
Mvmt Flow	58	0	5	67	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	58	0	135	58
Stage 1	-	-	-	-	58	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	-	-	4.33	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.407	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1422	-	859	1008
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	946	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1422	-	856	1008
Mov Cap-2 Maneuver	-	-	-	-	856	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	942	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1008	-	-	1422	-
HCM Lane V/C Ratio	0.002	-	-	0.004	-
HCM Control Delay (s)	8.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	1	0	0	0	4	0	0	0	0	4
Future Vol, veh/h	3	0	1	0	0	0	4	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	33	33	33
Mvmt Flow	4	0	1	0	0	0	5	0	0	0	0	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	13	13	3	13	15	0	5	0	0	0	0	0
Stage 1	3	3	-	10	10	-	-	-	-	-	-	-
Stage 2	10	10	-	3	5	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.43	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.497	-	-
Pot Cap-1 Maneuver	1004	881	1081	1004	879	-	1616	-	-	-	-	-
Stage 1	1020	893	-	1011	887	-	-	-	-	-	-	-
Stage 2	1011	887	-	1020	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	878	1081	1000	876	-	1616	-	-	-	-	-
Mov Cap-2 Maneuver	-	878	-	1000	876	-	-	-	-	-	-	-
Stage 1	1017	893	-	1008	884	-	-	-	-	-	-	-
Stage 2	1008	884	-	1019	892	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.2	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1616	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-	-	-	-	-
HCM Control Delay (s)	7.2	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	29	1	9	45	0	1
Future Vol, veh/h	29	1	9	45	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	4	8	8	2	2
Mvmt Flow	33	1	10	51	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	34	0	105	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1540	-	893	1039
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1540	-	887	1039
Mov Cap-2 Maneuver	-	-	-	-	887	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	945	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1039	-	-	1540	-
HCM Lane V/C Ratio	0.001	-	-	0.007	-
HCM Control Delay (s)	8.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	1	7	0	0	0	7	9	0	0	6	3
Future Vol, veh/h	7	1	7	0	0	0	7	9	0	0	6	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	8	8	8	2	2	2	7	7	7	2	2	2
Mvmt Flow	9	1	9	0	0	0	9	11	0	0	8	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	39	39	10	44	41	11	12	0	0	11	0	0
Stage 1	10	10	-	29	29	-	-	-	-	-	-	-
Stage 2	29	29	-	15	12	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.12	6.52	6.22	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.518	4.018	3.318	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	951	842	1054	958	851	1070	1575	-	-	1608	-	-
Stage 1	996	875	-	988	871	-	-	-	-	-	-	-
Stage 2	973	859	-	1005	886	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	946	837	1054	945	846	1070	1575	-	-	1608	-	-
Mov Cap-2 Maneuver	946	837	-	945	846	-	-	-	-	-	-	-
Stage 1	990	875	-	982	866	-	-	-	-	-	-	-
Stage 2	967	854	-	995	886	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	0	3.2	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	985	-	1608	-	-
HCM Lane V/C Ratio	0.006	-	-	0.019	-	-	-	-
HCM Control Delay (s)	7.3	0	-	8.7	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	0	3	49	0	2
Future Vol, veh/h	42	0	3	49	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	32	23	23	2	2
Mvmt Flow	74	0	5	86	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	74	0	170	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.33	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.407	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1402	-	820	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1402	-	817	988
Mov Cap-2 Maneuver	-	-	-	-	817	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	924	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	988	-	-	1402	-
HCM Lane V/C Ratio	0.004	-	-	0.004	-
HCM Control Delay (s)	8.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	2	0	0	0	5	0	0	0	0	5
Future Vol, veh/h	3	0	2	0	0	0	5	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	33	33	33
Mvmt Flow	4	0	3	0	0	0	7	0	0	0	0	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	18	18	4	19	21	0	7	0	0	0	0	0
Stage 1	4	4	-	14	14	-	-	-	-	-	-	-
Stage 2	14	14	-	5	7	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.43	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.497	-	-
Pot Cap-1 Maneuver	996	876	1080	995	873	-	1614	-	-	-	-	-
Stage 1	1018	892	-	1006	884	-	-	-	-	-	-	-
Stage 2	1006	884	-	1017	890	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	872	1080	989	870	-	1614	-	-	-	-	-
Mov Cap-2 Maneuver	-	872	-	989	870	-	-	-	-	-	-	-
Stage 1	1014	892	-	1002	880	-	-	-	-	-	-	-
Stage 2	1002	880	-	1014	890	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.2	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1614	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.004	-	-	-	-	-	-	-
HCM Control Delay (s)	7.2	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	1	11	57	0	1
Future Vol, veh/h	36	1	11	57	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	4	8	8	2	2
Mvmt Flow	41	1	13	65	0	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	42	0	133	42
Stage 1	-	-	-	-	42	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1529	-	861	1029
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1529	-	853	1029
Mov Cap-2 Maneuver	-	-	-	-	853	-
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	925	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1029	-	-	1529	-
HCM Lane V/C Ratio	0.001	-	-	0.008	-
HCM Control Delay (s)	8.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	1	8	0	0	0	8	11	0	0	7	4
Future Vol, veh/h	8	1	8	0	0	0	8	11	0	0	7	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	8	8	8	2	2	2	7	7	7	2	2	2
Mvmt Flow	10	1	10	0	0	0	10	14	0	0	9	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	46	46	12	51	48	14	14	0	0	14	0	0
Stage 1	12	12	-	34	34	-	-	-	-	-	-	-
Stage 2	34	34	-	17	14	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.12	6.52	6.22	4.17	-	-	4.12	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.518	4.018	3.318	2.263	-	-	2.218	-	-
Pot Cap-1 Maneuver	941	834	1051	948	844	1066	1572	-	-	1604	-	-
Stage 1	993	874	-	982	867	-	-	-	-	-	-	-
Stage 2	967	855	-	1002	884	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	936	829	1051	934	839	1066	1572	-	-	1604	-	-
Mov Cap-2 Maneuver	936	829	-	934	839	-	-	-	-	-	-	-
Stage 1	987	874	-	976	862	-	-	-	-	-	-	-
Stage 2	961	850	-	991	884	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	0	3.1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1572	-	-	979	-	1604	-	-
HCM Lane V/C Ratio	0.006	-	-	0.022	-	-	-	-
HCM Control Delay (s)	7.3	0	-	8.8	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	3	5	36	6	7
Future Vol, veh/h	31	3	5	36	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	50	50	23	50	50
Mvmt Flow	54	5	9	63	11	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	138	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	81	-
Critical Hdwy	-	-	4.6	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.65	-	3.95	3.75
Pot Cap-1 Maneuver	-	-	1287	-	754	889
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	834	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1287	-	749	889
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	828	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	818	-	-	1287	-
HCM Lane V/C Ratio	0.028	-	-	0.007	-
HCM Control Delay (s)	9.5	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	1	0	0	0	4	0	0	0	0	5
Future Vol, veh/h	3	0	1	0	0	0	4	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	4	0	1	0	0	0	5	0	0	0	0	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	14	14	4	14	17	0	7	0	0	0	0	0
Stage 1	4	4	-	10	10	-	-	-	-	-	-	-
Stage 2	10	10	-	4	7	-	-	-	-	-	-	-
Critical Hdwy	7.6	7	6.7	7.6	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	892	794	955	892	791	-	1350	-	-	-	-	-
Stage 1	907	806	-	900	801	-	-	-	-	-	-	-
Stage 2	900	801	-	907	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	791	955	888	788	-	1350	-	-	-	-	-
Mov Cap-2 Maneuver	-	791	-	888	788	-	-	-	-	-	-	-
Stage 1	903	806	-	896	798	-	-	-	-	-	-	-
Stage 2	896	798	-	906	803	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.7	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.004	-	-	-	-	-	-	-
HCM Control Delay (s)	7.7	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	0	0	7	8	3
Future Vol, veh/h	6	0	0	7	8	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	7	0	0	8	9	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	19	11	12	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	8	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	796	844	1148	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	844	1148	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1148	-	796	-	-
HCM Lane V/C Ratio	-	-	0.008	-	-
HCM Control Delay (s)	0	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	1	1	2	3
Future Vol, veh/h	6	1	1	1	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	7	1	1	1	2	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	7	4	5	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	810	852	1156	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	809	852	1156	-	-	-
Mov Cap-2 Maneuver	809	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	4.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1156	-	815	-	-
HCM Lane V/C Ratio	0.001	-	0.009	-	-
HCM Control Delay (s)	8.1	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	9	16	42	4	5
Future Vol, veh/h	27	9	16	42	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	50	50	8	50	50
Mvmt Flow	31	10	18	48	5	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	41	0	120	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	-	-	4.6	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.65	-	3.95	3.75
Pot Cap-1 Maneuver	-	-	1309	-	773	915
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1309	-	762	915
Mov Cap-2 Maneuver	-	-	-	-	762	-
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	819	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	840	-	-	1309	-
HCM Lane V/C Ratio	0.012	-	-	0.014	-
HCM Control Delay (s)	9.3	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	1	6	0	0	0	6	8	0	0	5	4
Future Vol, veh/h	7	1	6	0	0	0	6	8	0	0	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	9	1	8	0	0	0	8	10	0	0	6	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	35	35	9	39	37	10	11	0	0	10	0	0
Stage 1	9	9	-	26	26	-	-	-	-	-	-	-
Stage 2	26	26	-	13	11	-	-	-	-	-	-	-
Critical Hdwy	7.6	7	6.7	7.6	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	863	772	948	857	770	947	1345	-	-	1346	-	-
Stage 1	901	801	-	881	787	-	-	-	-	-	-	-
Stage 2	881	787	-	896	800	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	859	767	948	845	765	947	1345	-	-	1346	-	-
Mov Cap-2 Maneuver	859	767	-	845	765	-	-	-	-	-	-	-
Stage 1	896	801	-	876	782	-	-	-	-	-	-	-
Stage 2	876	782	-	888	800	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	0	3.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1345	-	-	887	-	1346	-	-
HCM Lane V/C Ratio	0.006	-	-	0.02	-	-	-	-
HCM Control Delay (s)	7.7	0	-	9.1	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	5	21	8
Future Vol, veh/h	4	0	0	5	21	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	4	0	0	5	23	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	33	28	32	0	-	0
Stage 1	28	-	-	-	-	-
Stage 2	5	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	780	824	1125	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	780	824	1125	-	-	-
Mov Cap-2 Maneuver	780	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	813	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1125	-	780	-	-
HCM Lane V/C Ratio	-	-	0.006	-	-
HCM Control Delay (s)	0	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	1	1	9	8
Future Vol, veh/h	4	1	1	1	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	4	1	1	1	10	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	18	15	19	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	797	839	1140	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	839	1140	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	4.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1140	-	804	-	-
HCM Lane V/C Ratio	0.001	-	0.007	-	-
HCM Control Delay (s)	8.2	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	11	14	38	18	21
Future Vol, veh/h	33	11	14	38	18	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	50	50	23	50	50
Mvmt Flow	58	19	25	67	32	37

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	77	0	185	68
Stage 1	-	-	-	-	68	-
Stage 2	-	-	-	-	117	-
Critical Hdwy	-	-	4.6	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.65	-	3.95	3.75
Pot Cap-1 Maneuver	-	-	1266	-	706	876
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1266	-	691	876
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	785	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	780	-	-	1266	-
HCM Lane V/C Ratio	0.088	-	-	0.019	-
HCM Control Delay (s)	10.1	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	1	0	0	0	4	0	0	0	0	7
Future Vol, veh/h	5	0	1	0	0	0	4	0	0	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	7	0	1	0	0	0	5	0	0	0	0	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	15	15	5	15	19	0	9	0	0	0	0	0
Stage 1	5	5	-	10	10	-	-	-	-	-	-	-
Stage 2	10	10	-	5	9	-	-	-	-	-	-	-
Critical Hdwy	7.6	7	6.7	7.6	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	890	793	954	890	789	-	1347	-	-	-	-	-
Stage 1	906	805	-	900	801	-	-	-	-	-	-	-
Stage 2	900	801	-	906	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	790	954	886	786	-	1347	-	-	-	-	-
Mov Cap-2 Maneuver	-	790	-	886	786	-	-	-	-	-	-	-
Stage 1	902	805	-	896	798	-	-	-	-	-	-	-
Stage 2	896	798	-	905	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.7	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1347	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.004	-	-	-	-	-	-	-
HCM Control Delay (s)	7.7	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	0	0	25	17	8
Future Vol, veh/h	14	0	0	25	17	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	15	0	0	27	18	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	50	23	27	0	-	0
Stage 1	23	-	-	-	-	-
Stage 2	27	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	761	830	1131	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	761	830	1131	-	-	-
Mov Cap-2 Maneuver	761	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	793	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1131	-	761	-	-
HCM Lane V/C Ratio	-	-	0.02	-	-
HCM Control Delay (s)	0	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	0	12	9	8
Future Vol, veh/h	13	0	0	12	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	14	0	0	13	10	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	28	15	19	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	13	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	786	839	1140	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	806	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	786	839	1140	-	-	-
Mov Cap-2 Maneuver	786	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	806	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1140	-	786	-	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	0	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	3	2	3	4	6
Future Vol, veh/h	11	3	2	3	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	12	3	2	3	4	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	15	8	11	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	7	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	801	847	1149	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	799	847	1149	-	-	-
Mov Cap-2 Maneuver	799	-	-	-	-	-
Stage 1	809	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	3.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1149	-	809	-	-
HCM Lane V/C Ratio	0.002	-	0.019	-	-
HCM Control Delay (s)	8.1	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	29	25	35	45	13	15
Future Vol, veh/h	29	25	35	45	13	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	50	50	8	50	50
Mvmt Flow	33	28	40	51	15	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	61	0	178	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.6	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.65	-	3.95	3.75
Pot Cap-1 Maneuver	-	-	1285	-	713	901
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	789	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1285	-	690	901
Mov Cap-2 Maneuver	-	-	-	-	690	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	764	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.5	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	789	-	-	1285	-
HCM Lane V/C Ratio	0.04	-	-	0.031	-
HCM Control Delay (s)	9.8	-	-	7.9	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	1	7	0	0	0	7	9	0	0	6	5
Future Vol, veh/h	10	1	7	0	0	0	7	9	0	0	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	13	1	9	0	0	0	9	11	0	0	8	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	40	40	11	45	43	11	14	0	0	11	0	0
Stage 1	11	11	-	29	29	-	-	-	-	-	-	-
Stage 2	29	29	-	16	14	-	-	-	-	-	-	-
Critical Hdwy	7.6	7	6.7	7.6	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	856	767	946	849	764	946	1341	-	-	1345	-	-
Stage 1	899	800	-	878	785	-	-	-	-	-	-	-
Stage 2	878	785	-	893	797	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	852	762	946	835	759	946	1341	-	-	1345	-	-
Mov Cap-2 Maneuver	852	762	-	835	759	-	-	-	-	-	-	-
Stage 1	893	800	-	872	780	-	-	-	-	-	-	-
Stage 2	872	780	-	883	797	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	0	3.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1341	-	-	880	-	1345	-	-
HCM Lane V/C Ratio	0.007	-	-	0.026	-	-	-	-
HCM Control Delay (s)	7.7	0	-	9.2	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	0	18	42	18
Future Vol, veh/h	10	0	0	18	42	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	11	0	0	20	46	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	76	56	66	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	733	792	1088	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	733	792	1088	-	-	-
Mov Cap-2 Maneuver	733	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1088	-	733	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-
HCM Control Delay (s)	0	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	0	0	9	25	17
Future Vol, veh/h	9	0	0	9	25	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	10	0	0	10	27	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	46	36	45	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	10	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	765	814	1111	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	765	814	1111	-	-	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	809	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1111	-	765	-	-
HCM Lane V/C Ratio	-	-	0.013	-	-
HCM Control Delay (s)	0	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	2	3	16	10	15
Future Vol, veh/h	8	2	3	16	10	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	9	2	3	17	11	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	42	19	27	0	-	0
Stage 1	19	-	-	-	-	-
Stage 2	23	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	770	834	1131	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	768	834	1131	-	-	-
Mov Cap-2 Maneuver	768	-	-	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	796	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1131	-	780	-	-
HCM Lane V/C Ratio	0.003	-	0.014	-	-
HCM Control Delay (s)	8.2	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	42	11	14	49	18	22
Future Vol, veh/h	42	11	14	49	18	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	57	57	57	57	57	57
Heavy Vehicles, %	32	50	50	23	50	50
Mvmt Flow	74	19	25	86	32	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	93	0	220	84
Stage 1	-	-	-	-	84	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	-	-	4.6	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.65	-	3.95	3.75
Pot Cap-1 Maneuver	-	-	1248	-	673	858
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1248	-	659	858
Mov Cap-2 Maneuver	-	-	-	-	659	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	769	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	755	-	-	1248	-
HCM Lane V/C Ratio	0.093	-	-	0.02	-
HCM Control Delay (s)	10.3	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	2	0	0	0	6	0	0	0	0	9
Future Vol, veh/h	6	0	2	0	0	0	6	0	0	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	8	0	3	0	0	0	8	0	0	0	0	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	22	22	6	24	28	0	12	0	0	0	0	0
Stage 1	6	6	-	16	16	-	-	-	-	-	-	-
Stage 2	16	16	-	8	12	-	-	-	-	-	-	-
Critical Hdwy	7.6	7	6.7	7.6	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	881	786	952	878	779	-	1344	-	-	-	-	-
Stage 1	904	804	-	893	796	-	-	-	-	-	-	-
Stage 2	893	796	-	902	799	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	781	952	872	774	-	1344	-	-	-	-	-
Mov Cap-2 Maneuver	-	781	-	872	774	-	-	-	-	-	-	-
Stage 1	899	804	-	888	791	-	-	-	-	-	-	-
Stage 2	888	791	-	899	799	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	7.7	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1344	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-	-	-	-
HCM Control Delay (s)	7.7	0	-	-	0	0	-	-
HCM Lane LOS	A	A	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	0	0	26	17	8
Future Vol, veh/h	14	0	0	26	17	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	15	0	0	28	18	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	51	23	27	0	-	0
Stage 1	23	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	760	830	1131	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	760	830	1131	-	-	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1131	-	760	-	-
HCM Lane V/C Ratio	-	-	0.02	-	-
HCM Control Delay (s)	0	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	0	13	9	8
Future Vol, veh/h	13	0	0	13	9	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	14	0	0	14	10	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	29	15	19	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	14	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	785	839	1140	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	785	839	1140	-	-	-
Mov Cap-2 Maneuver	785	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	805	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1140	-	785	-	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	0	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	3	2	4	6	6
Future Vol, veh/h	11	3	2	4	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	12	3	2	4	7	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	19	11	14	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	8	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	796	844	1145	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	794	844	1145	-	-	-
Mov Cap-2 Maneuver	794	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	811	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1145	-	804	-	-
HCM Lane V/C Ratio	0.002	-	0.019	-	-
HCM Control Delay (s)	8.2	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	25	37	57	13	15
Future Vol, veh/h	36	25	37	57	13	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	4	50	50	8	50	50
Mvmt Flow	41	28	42	65	15	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	69	0	204	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.6	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	2.65	-	3.95	3.75
Pot Cap-1 Maneuver	-	-	1276	-	688	892
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1276	-	665	892
Mov Cap-2 Maneuver	-	-	-	-	665	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	748	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	770	-	-	1276	-
HCM Lane V/C Ratio	0.041	-	-	0.033	-
HCM Control Delay (s)	9.9	-	-	7.9	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	2	9	0	0	0	9	12	0	0	7	7
Future Vol, veh/h	12	2	9	0	0	0	9	12	0	0	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	15	3	11	0	0	0	11	15	0	0	9	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	51	51	14	58	55	15	18	0	0	15	0	0
Stage 1	14	14	-	37	37	-	-	-	-	-	-	-
Stage 2	37	37	-	21	18	-	-	-	-	-	-	-
Critical Hdwy	7.6	7	6.7	7.6	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	6	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	841	756	942	832	752	941	1336	-	-	1340	-	-
Stage 1	895	797	-	869	778	-	-	-	-	-	-	-
Stage 2	869	778	-	887	794	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	836	750	942	815	746	941	1336	-	-	1340	-	-
Mov Cap-2 Maneuver	836	750	-	815	746	-	-	-	-	-	-	-
Stage 1	888	797	-	862	772	-	-	-	-	-	-	-
Stage 2	862	772	-	874	794	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	0	3.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1336	-	-	865	-	1340	-	-
HCM Lane V/C Ratio	0.008	-	-	0.033	-	-	-	-
HCM Control Delay (s)	7.7	0	-	9.3	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	0	18	44	18
Future Vol, veh/h	10	0	0	18	44	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	11	0	0	20	48	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	78	58	68	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	20	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	731	789	1086	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	731	789	1086	-	-	-
Mov Cap-2 Maneuver	731	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	799	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1086	-	731	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-
HCM Control Delay (s)	0	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	0	0	13	27	17
Future Vol, veh/h	9	0	0	13	27	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	10	0	0	14	29	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	52	38	47	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	14	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	759	812	1109	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	759	812	1109	-	-	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	805	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1109	-	759	-	-
HCM Lane V/C Ratio	-	-	0.013	-	-
HCM Control Delay (s)	0	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	2	3	21	12	15
Future Vol, veh/h	8	2	3	21	12	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	100	100	100
Mvmt Flow	9	2	3	23	13	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	50	21	29	0	-	0
Stage 1	21	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	7.4	7.2	5.1	-	-	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	4.4	4.2	3.1	-	-	-
Pot Cap-1 Maneuver	761	832	1129	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	791	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	759	832	1129	-	-	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1129	-	773	-	-
HCM Lane V/C Ratio	0.003	-	0.014	-	-
HCM Control Delay (s)	8.2	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Appendix D

Intersection Layout Assessment Worksheets

Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

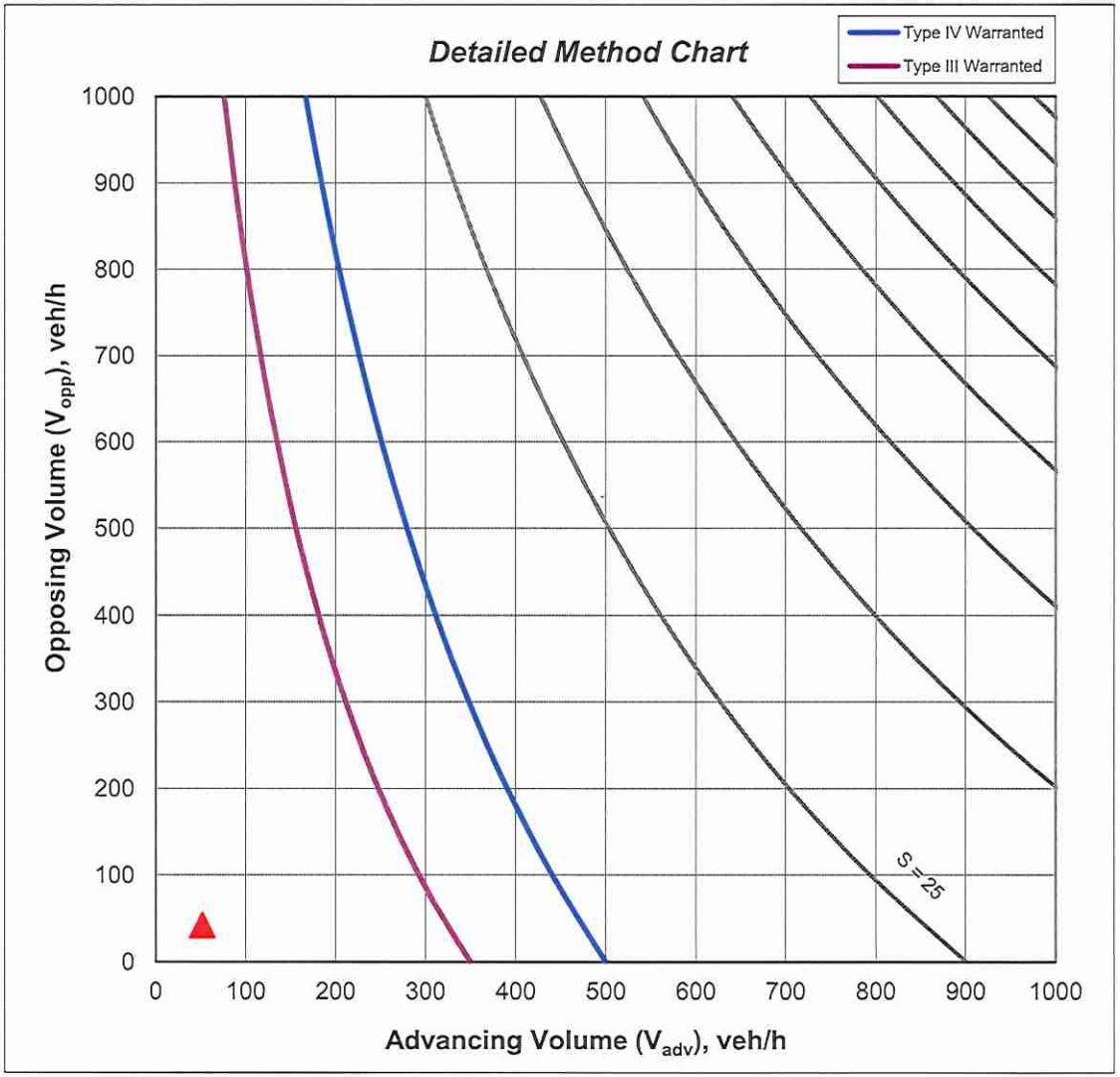
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** BG 2041
Minor Rd: Range Road 12A **Period:** AM Peak **Date of Analysis:** 13-Jun-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	728
Minor (intersecting) Road A.A.D.T	63
Left turn volume (V_{LT}), veh/h:	3
Advancing volume (V_{adv}), veh/h:	52
Opposing volume (V_{opp}), veh/h:	42
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	5.8%
Percent trucks in left turn volume:	33.3%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.0%
Calculated conflicts per hour, veh/h:	0.0
Type I	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

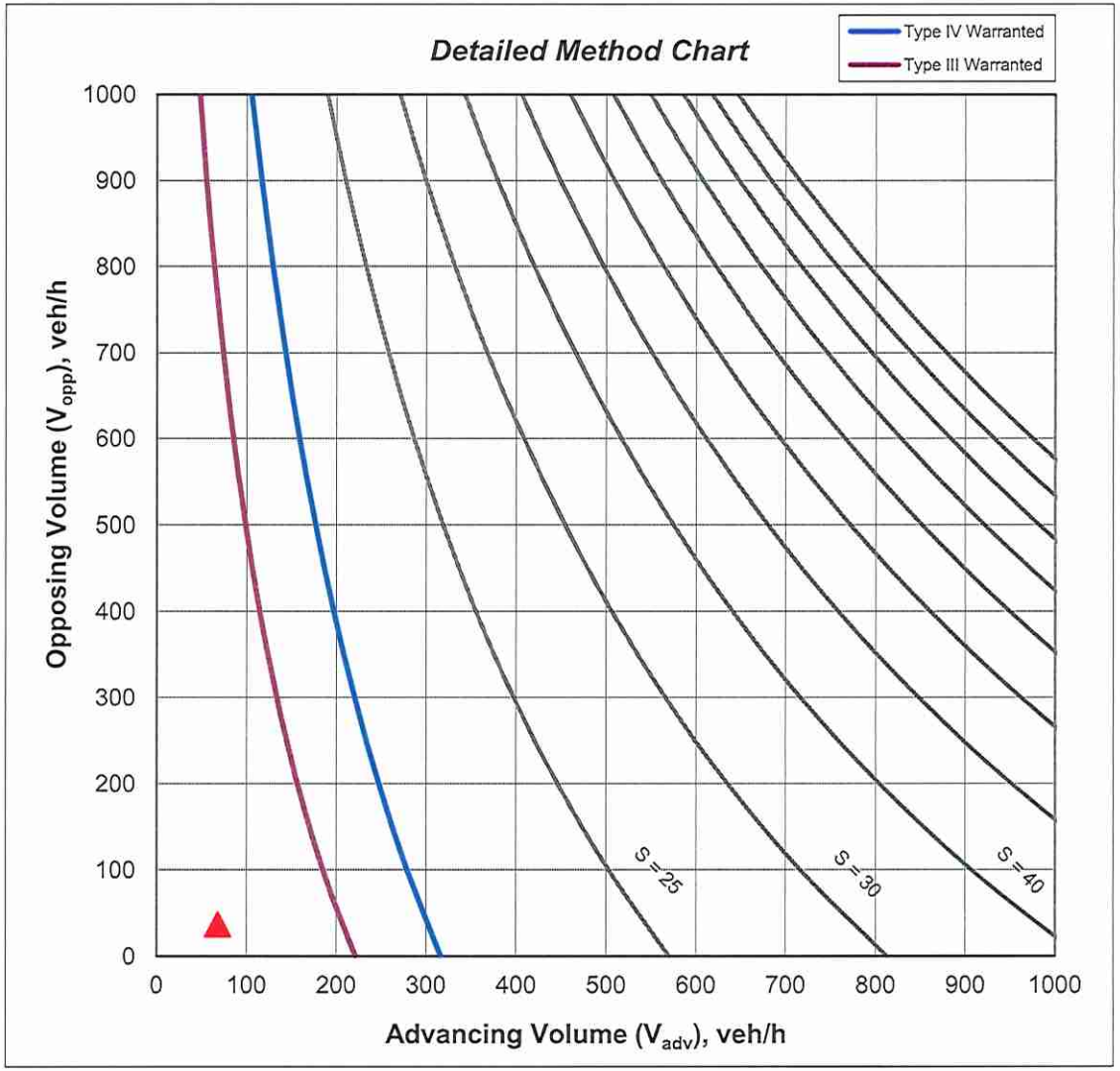
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** BG 2041
Minor Rd: Range Road 12A **Period:** PM Peak **Date of Analysis:** 13-Jun-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	728
Minor (intersecting) Road A.A.D.T	63
Left turn volume (V_{LT}), veh/h:	11
Advancing volume (V_{adv}), veh/h:	68
Opposing volume (V_{opp}), veh/h:	37
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	16.2%
Percent trucks in left turn volume:	45.5%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.0%
Calculated conflicts per hour, veh/h:	0.0
Type I	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

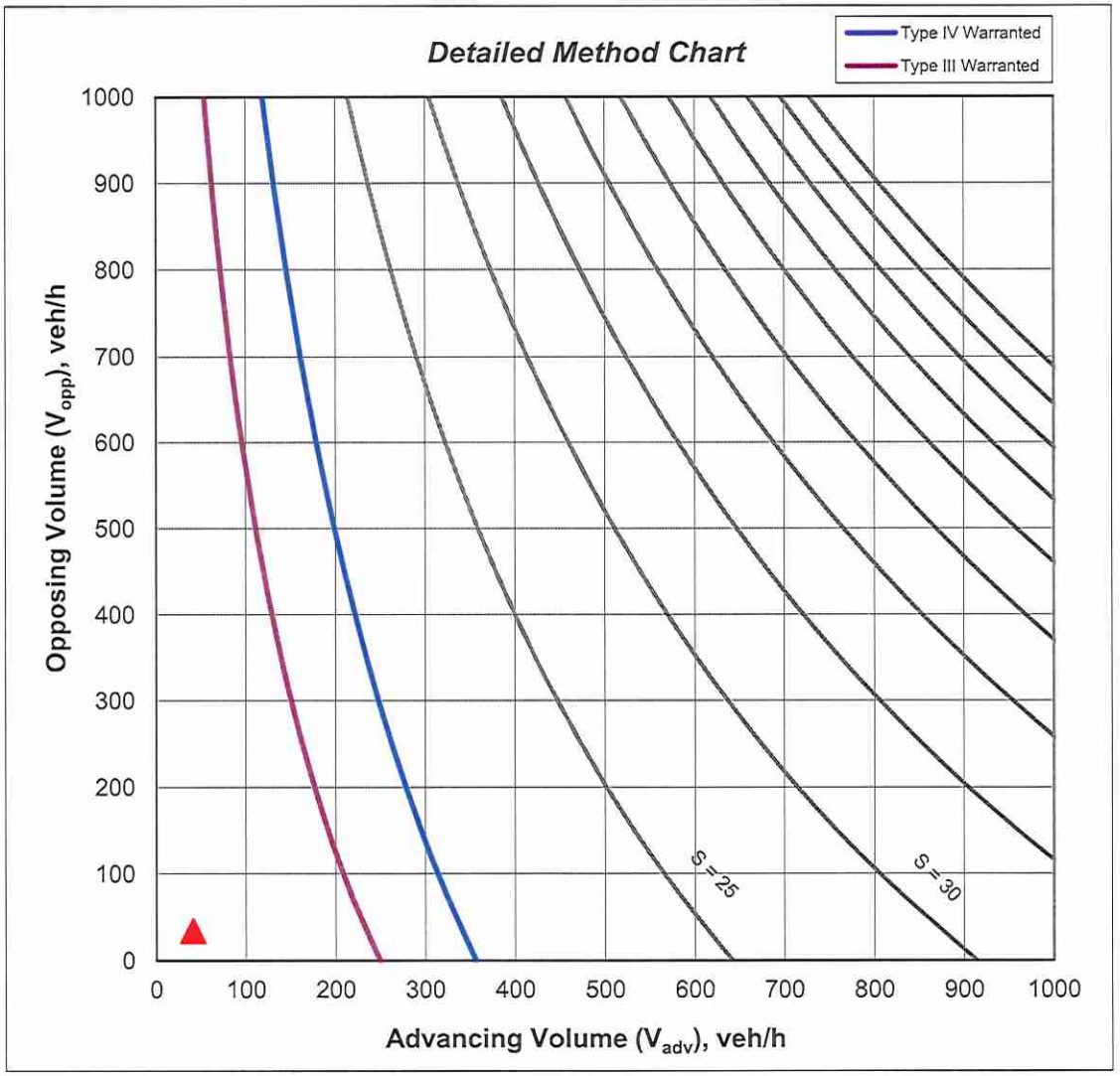
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** Opening 2022
Minor Rd: Range Road 12A **Period:** AM Peak **Date of Analysis:** 06-Jul-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	553
Minor (intersecting) Road A.A.D.T	193
Left turn volume (V_{LT}), veh/h:	5
Advancing volume (V_{adv}), veh/h:	41
Opposing volume (V_{opp}), veh/h:	34
Left turn truck volume, trucks/h:	3
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	12.2%
Percent trucks in left turn volume:	60.0%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.0%
Calculated conflicts per hour, veh/h:	0.0
Type I	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

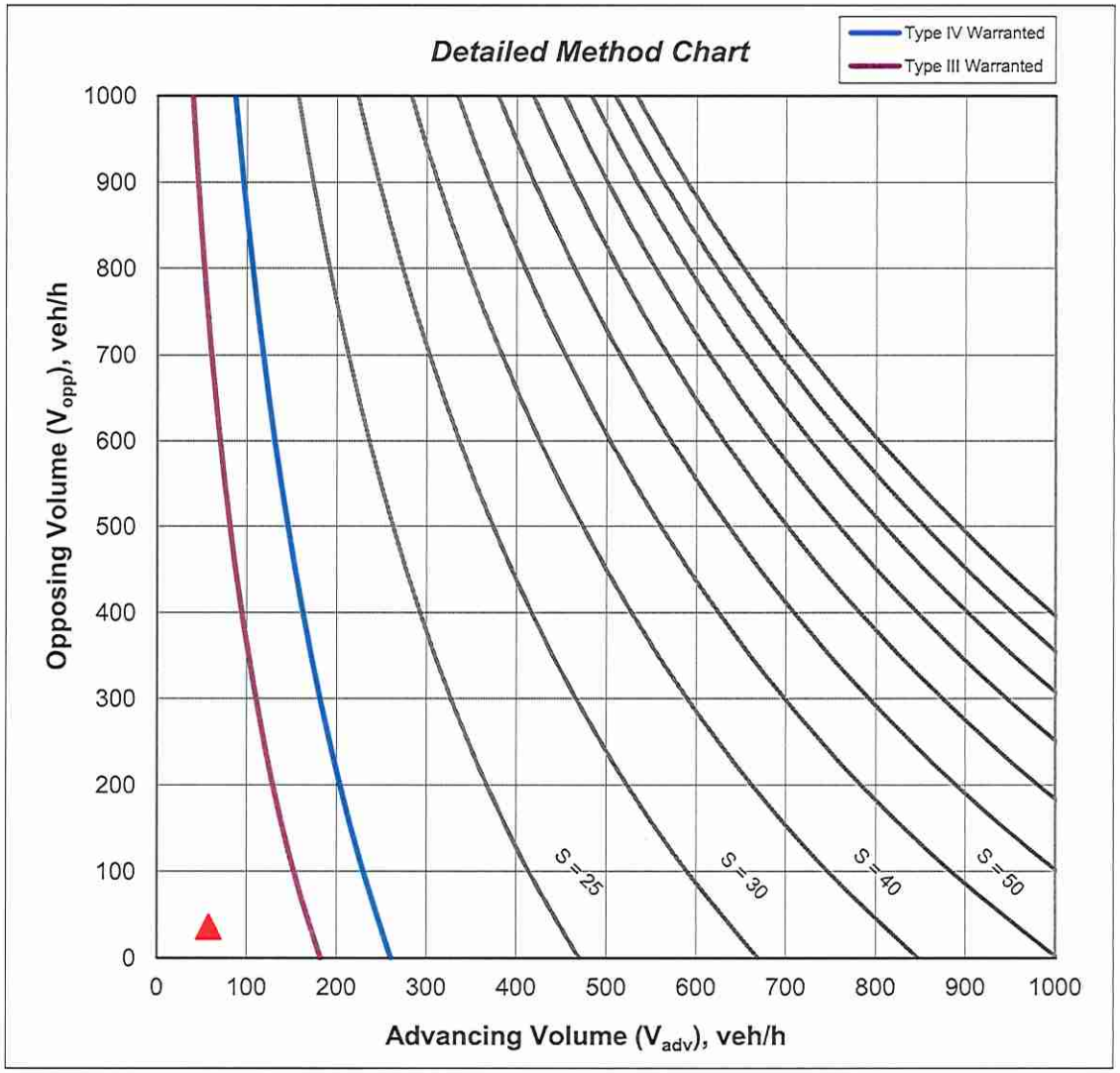
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** Opening 2022
Minor Rd: Range Road 12A **Period:** PM Peak **Date of Analysis:** 06-Jul-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	553
Minor (intersecting) Road A.A.D.T	193
Left turn volume (V_{LT}), veh/h:	16
Advancing volume (V_{adv}), veh/h:	58
Opposing volume (V_{opp}), veh/h:	36
Left turn truck volume, trucks/h:	8
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	27.6%
Percent trucks in left turn volume:	50.0%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.0%
Calculated conflicts per hour, veh/h:	0.0
Type I	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

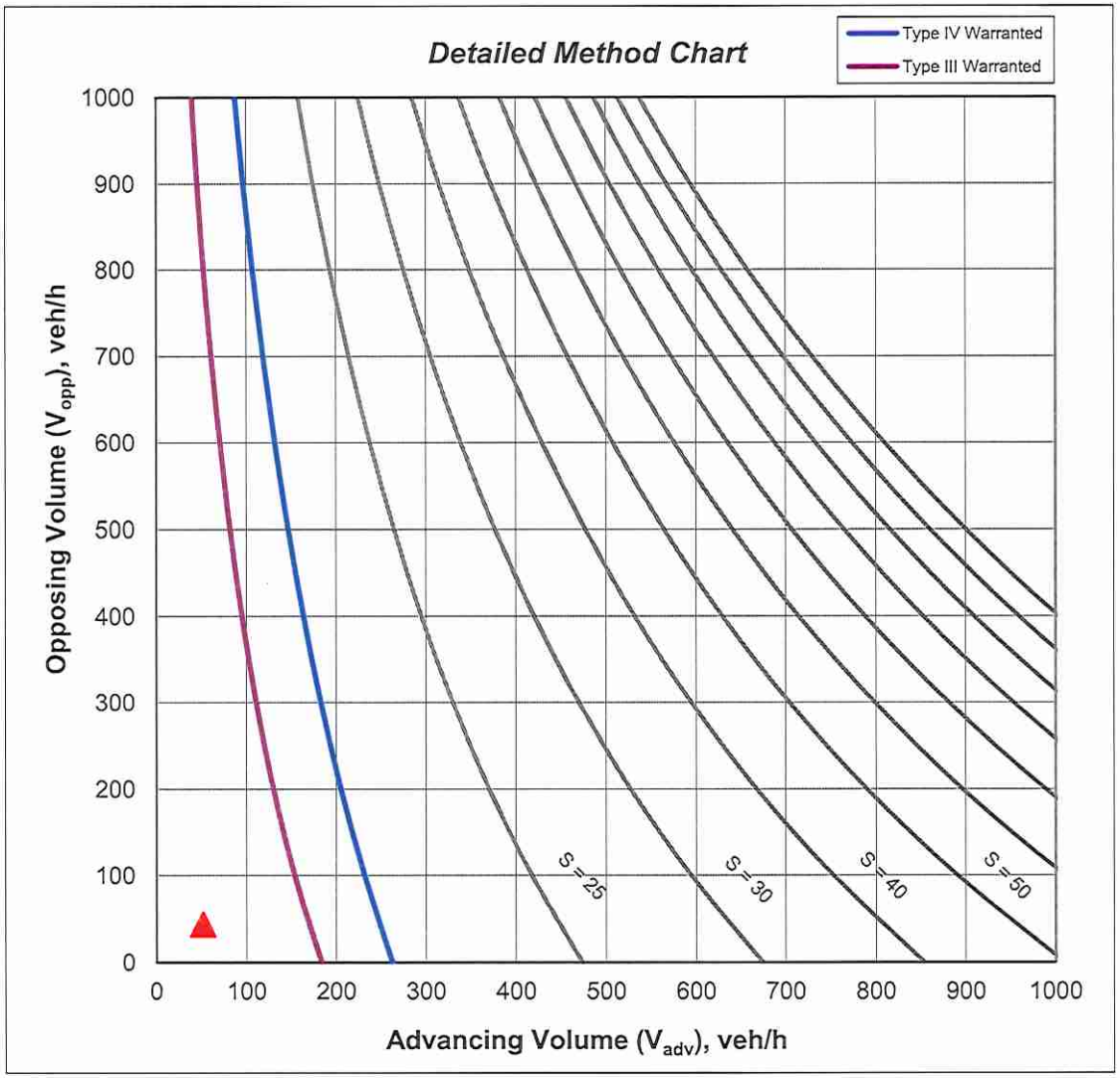
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** Interim 2026
Minor Rd: Range Road 12A **Period:** AM Peak **Date of Analysis:** 13-Jun-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	742
Minor (intersecting) Road A.A.D.T	532
Left turn volume (V_{LT}), veh/h:	14
Advancing volume (V_{adv}), veh/h:	52
Opposing volume (V_{opp}), veh/h:	44
Left turn truck volume, trucks/h:	7
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	26.9%
Percent trucks in left turn volume:	50.0%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.0%
Calculated conflicts per hour, veh/h:	0.0
Type II	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

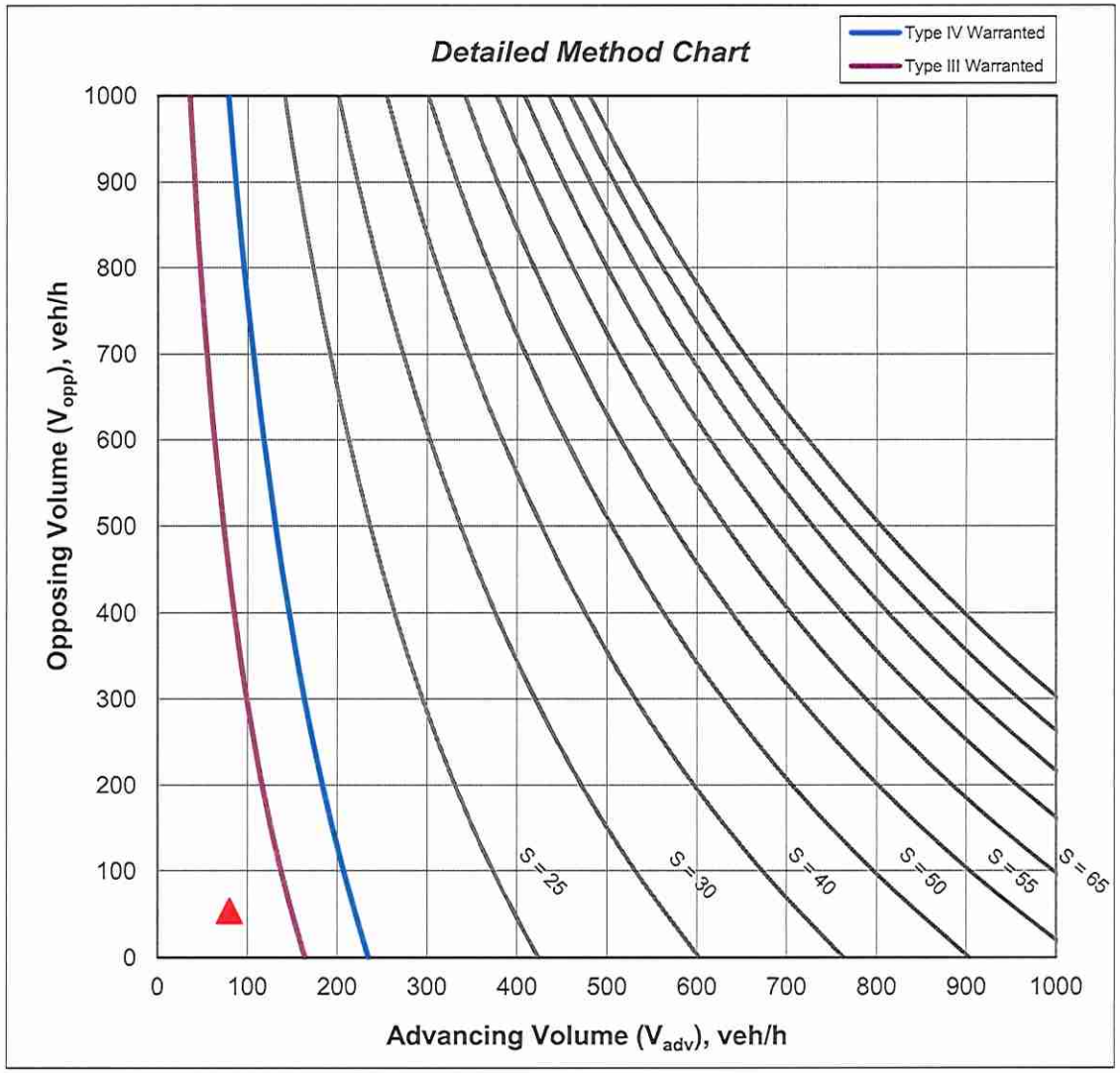
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** Interim 2026
Minor Rd: Range Road 12A **Period:** PM Peak **Date of Analysis:** 13-Jun-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	742
Minor (intersecting) Road A.A.D.T	532
Left turn volume (V_{LT}), veh/h:	35
Advancing volume (V_{adv}), veh/h:	80
Opposing volume (V_{opp}), veh/h:	54
Left turn truck volume, trucks/h:	17
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	43.8%
Percent trucks in left turn volume:	48.6%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.1
Type II	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

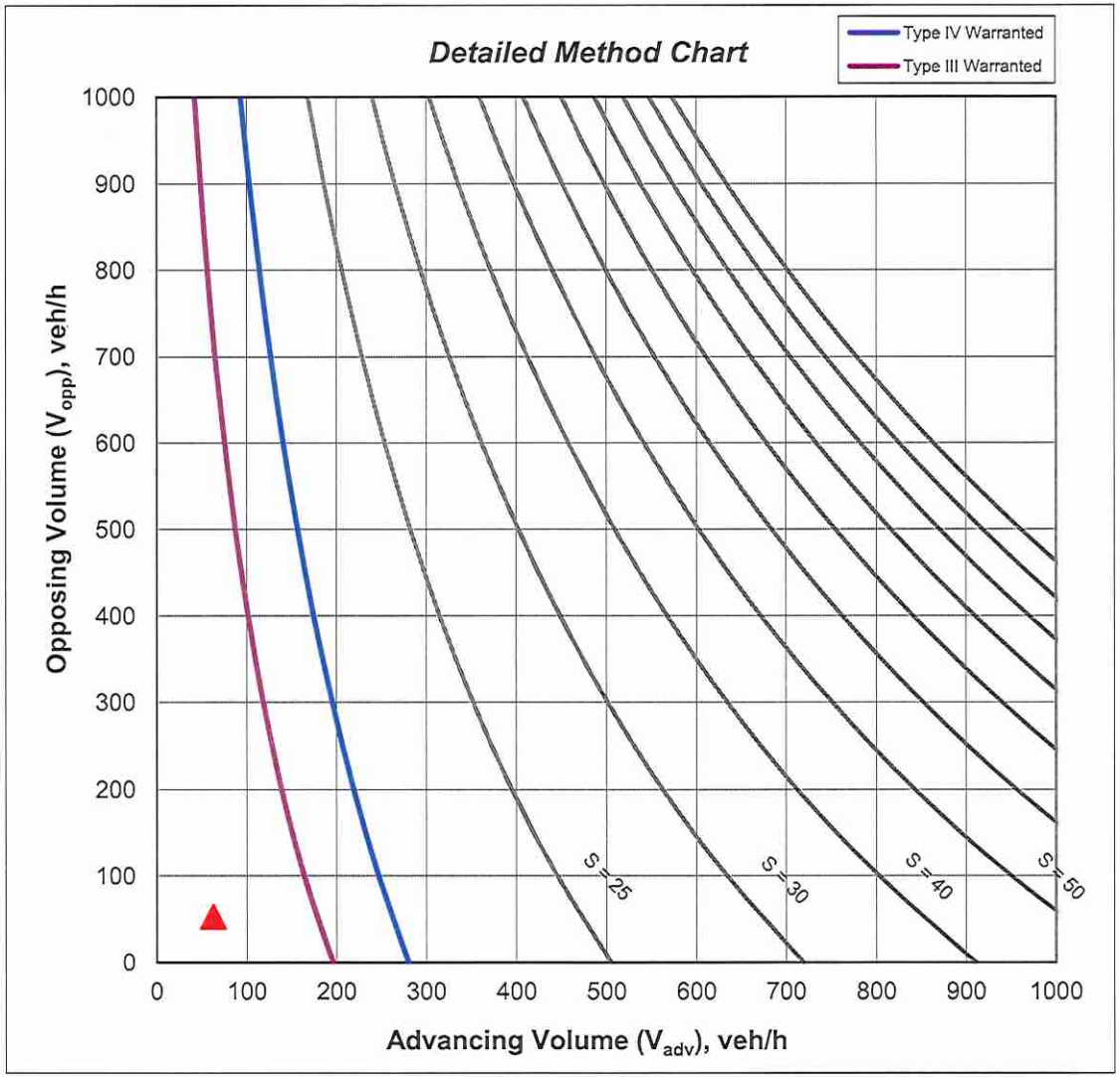
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** Future 2041
Minor Rd: Range Road 12A **Period:** AM Peak **Date of Analysis:** 13-Jun-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	879
Minor (intersecting) Road A.A.D.T	543
Left turn volume (V_{LT}), veh/h:	14
Advancing volume (V_{adv}), veh/h:	63
Opposing volume (V_{opp}), veh/h:	53
Left turn truck volume, trucks/h:	7
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	22.2%
Percent trucks in left turn volume:	50.0%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.0
Type II	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Alberta

Intersection Analysis
Rural Two-Lane Undivided Highways

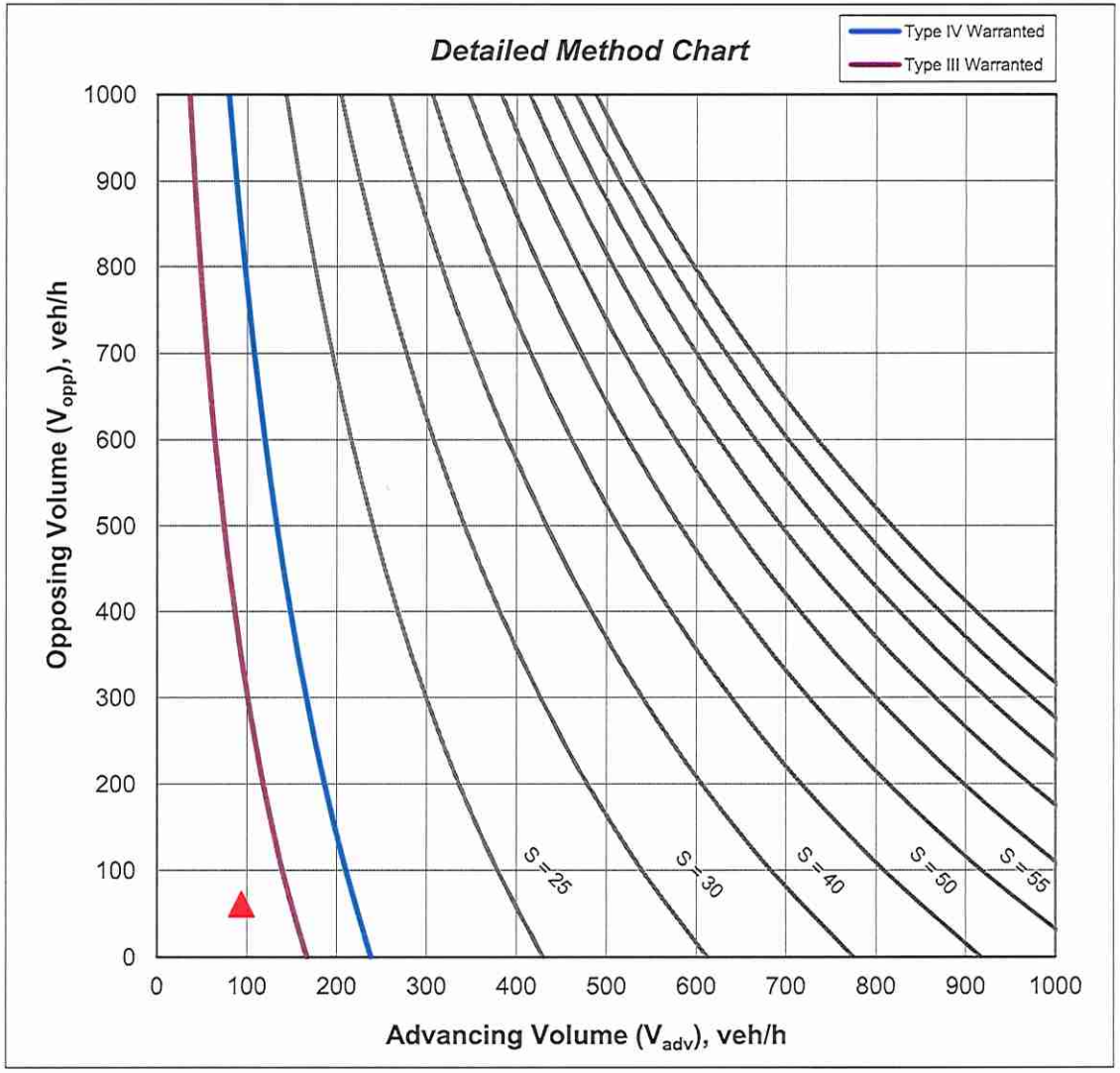
Main Rd: Highway 642 **Direction:** WB **Year of Analysis:** Future 2041
Minor Rd: Range Road 12A **Period:** PM Peak **Date of Analysis:** 13-Jun-2021

INPUT	Value
85th percentile speed, km/h:	100
Main Road A.A.D.T.	879
Minor (intersecting) Road A.A.D.T	543
Left turn volume (V_{LT}), veh/h:	37
Advancing volume (V_{adv}), veh/h:	94
Opposing volume (V_{opp}), veh/h:	61
Left turn truck volume, trucks/h:	19
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	39.4%
Percent trucks in left turn volume:	51.4%
Probability of conflict threshold:	0.89%
Calculated probability of conflicting arrival:	0.2%
Calculated conflicts per hour, veh/h:	0.2
Type II	
Detailed Method Not Required	
base storage requirement	-
- standard storage length	-
+ additional truck storage	-
= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9



Appendix E

Intersection Lighting Warrant Analyses Worksheet

Guide for the Design of Roadway Lighting Volume 2 – Design TAC

Intersection: Highway 642 and Range Road 12A Intersection – Year 2041 Future Conditions

Item No.	Classification Factor	Rating Factor "R"					Weight Subcategory (If applicable)	Weight "W"	Enter "R" Here	Score "R""W"
		0	1	2	3	4				
	Geometric Factors									
1	Channelization	None	Right and/or Left Turn Approach only	Right Turn Lanes only on Major Leg(s)	Left Turn Lane(s) on Major Leg(s)	Left and Right Turn Lanes on all legs	Raised and Operating Speed Less than 70 km/h on at least One Channelized Approach or	15	0	0
							Raised and Operating Speed Less than 70 km/h or More on at least One Channelized Approach or	20	0	0
							Painted Only	5	0	0
2	Approach Sight Distance on the Most Constrained Approach (Relative to Recommended Minimum Intersection Sight Distance)	100% or More	75% to 99%	50% to 74%	25% to 49%	< 25%		10	0	0
3	Horizontal Curvature Radius at or immediately Before Intersection on Any leg for Posted Speed limit of									
	110 Km/hr	Tangent	>1800m	1150 to 1800m	750 to 1150m	<750m		5	0	0
	90 or 100 km/hr	Tangent	>1400m	950 to 1400m	600 to 950m	<600m				
	70 or 80 km/hr	Tangent	>950m	550 to 950m	340 to 550m	<340m				
	60 km/hr	Tangent	>575	320 to 575m	190 to 320m	<190m				

4	Angle of intersection or offset intersection	90 Degree Angle	80 or 100 Degree Angle		70 to 110 Degree Angle	<70 or >110 Degree or offset intersection		5	0	0
5	Downhill Approach Grades at or immediately Before intersection on any leg	<3.0%	3.1 to 3.9% and meets design Guidelines for Type and Speed of Road	4.0 to 4.9% and meets design Guidelines for Type and Speed of Road	5.0 to 7.0% and meets design Guidelines for Type and Speed of Road	>7% or Exceeds Maximum Guidelines for Type and Speed of Road		3	0	0
6	Number of Legs		3	4	5	>6		3	1	3
Subtotal Geometric Factors										3
Operational Factors (O)										
7	Either AADT (2-Way)									
	On Major Road and	<1000	1000 to 2000	2000 to 3000	3000 to 5000	>5000		10	0	0
	On Minor Road or	<500	500 to 1000	1000 to 1500	1500 to 2000	>2000		20	0	0
	Signalization Warrant	Intersection Not Signalized and Volume based Signal Warrant is Less than 20% Satisfied	Intersection Not Signalized and Volume based Signal Warrant is Less than 20% to 40% Satisfied	Intersection Not Signalized and Volume based Signal Warrant is Less than 40% to 60% Satisfied	Intersection Not Signalized and Volume based Signal Warrant is Less than 60% to 80% Satisfied	Intersection Not Signalized and Volume based Signal Warrant is Over 80% Satisfied		30	0	0
8	Regular Nighttime Hourly Pedestrian Volume	No Pedestrian	Up to 10	10 to 30	30 to 50	Over 50		10	0	0

9	Intersection Roadway Classifications	No Primary Road Involved	Primary/ Rural Major, Primary/Rural Minor, or Primary/ Designated Community Access	Primary/Secondary	Primary/Primary	Intersection includes Divided Highway		5	2	10
10	Operating Speed or Posted Speed Limit on Major Road	50 km/h or less	60 km/hr	70 km/hr	80 km/hr	90 km/hr or Over		5	4	20
11	Operating Speed or Posted Speed Limit on Minor Road	50 km/h or less	60 km/hr	70 km/hr	80 km/hr	90 km/hr or Over		5	0	0
Subtotal Operational Factors										30
Environmental Factors (E)										
12	Lighted Development Within 150 m Radius of Intersection	-	In One Quadrant	In Two Quadrant	In Three Quadrant	In Four Quadrant		5	0	0
Subtotal Environmental Factors										0
Collision Factors (A)										
13	Average Annual Nighttime Collision Frequency or Rate over Last Three Year (Only Collisions Potentially Attributable to Inadequate Lighting)	0 Collision per year	1 Collision per year		3 or More Collisions per year or At least 1.5 Collisions per Million Entering Vehicles per Year and an Average Ratio of All Night-to-Day Collisions of at least 1.5	1 or 2 Collisions per year	15	0	0	
						1 or 2 Collisions per year				
Subtotal Collision Factors										0
Total Warranting Points										33

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