



TRANSPORTATION MASTER PLAN AND  
TRANSPORTATION IMPACT ASSESSMENT FOR

# THREE SISTERS MOUNTAIN VILLAGE RESORT CENTRE ASP

OCTOBER 2016



## STANDARD LIMITATIONS

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### Revisions Summary

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1.0	21 June, 2016	Draft Submission to Client	MS	ML
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# 1.0 INTRODUCTION

## 1.1 General

MMM, a WSP Company, has been retained by QuantumPlace Developments Ltd, on behalf of Three Sisters Mountain Village Properties Ltd, to prepare this Transportation Master Plan (TMP) and Transportation Impact Assessment (TIA) in support of the Three Sisters Mountain Village Resort Centre Area Structure Plan (ASP), located in the Town of Canmore (Town). The intent of this report is to provide relevant information to the Resort Centre ASP, however the report refers to an additional development area known as Smith Creek. The development of Smith Creek is anticipated to follow full build-out of the Resort Centre although the exact timeline is currently unknown, and it's likely there may be overlapping phasing between the two developments. The Smith Creek development has been referenced in this report to provide the best possible understanding of the future transportation system using all currently available information.

## 1.2 Study Objectives

The purpose of a TIA is to estimate the likely impacts to the transportation system of a proposed development. A whole system TIA examines the complete transportation system including walking, cycling, and transit facilities, and not just the future capacity and operation of select intersections. This TIA is a whole system TIA and aims to follow the policy direction set by the Town in the 2014 Integrated Transportation Plan. As such, this document contains principles and information consistent with a master planning approach to the local transportation system. This TIA follows the Integrated Transportation Plan Active Transportation Network and Street Classifications, and the planned Roam transit service operated by the Bow Valley Regional Transit Service Commission. This document will be referred to as a TMPTIA (Transportation Master Plan and Transportation Impact Assessment).

## 1.3 Site Description

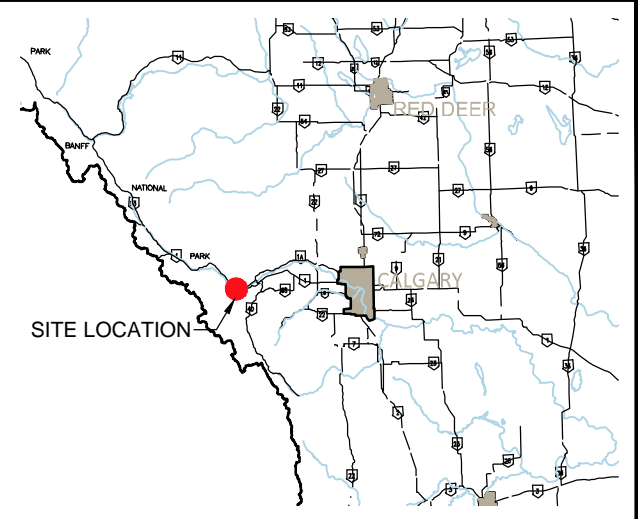
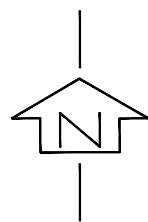
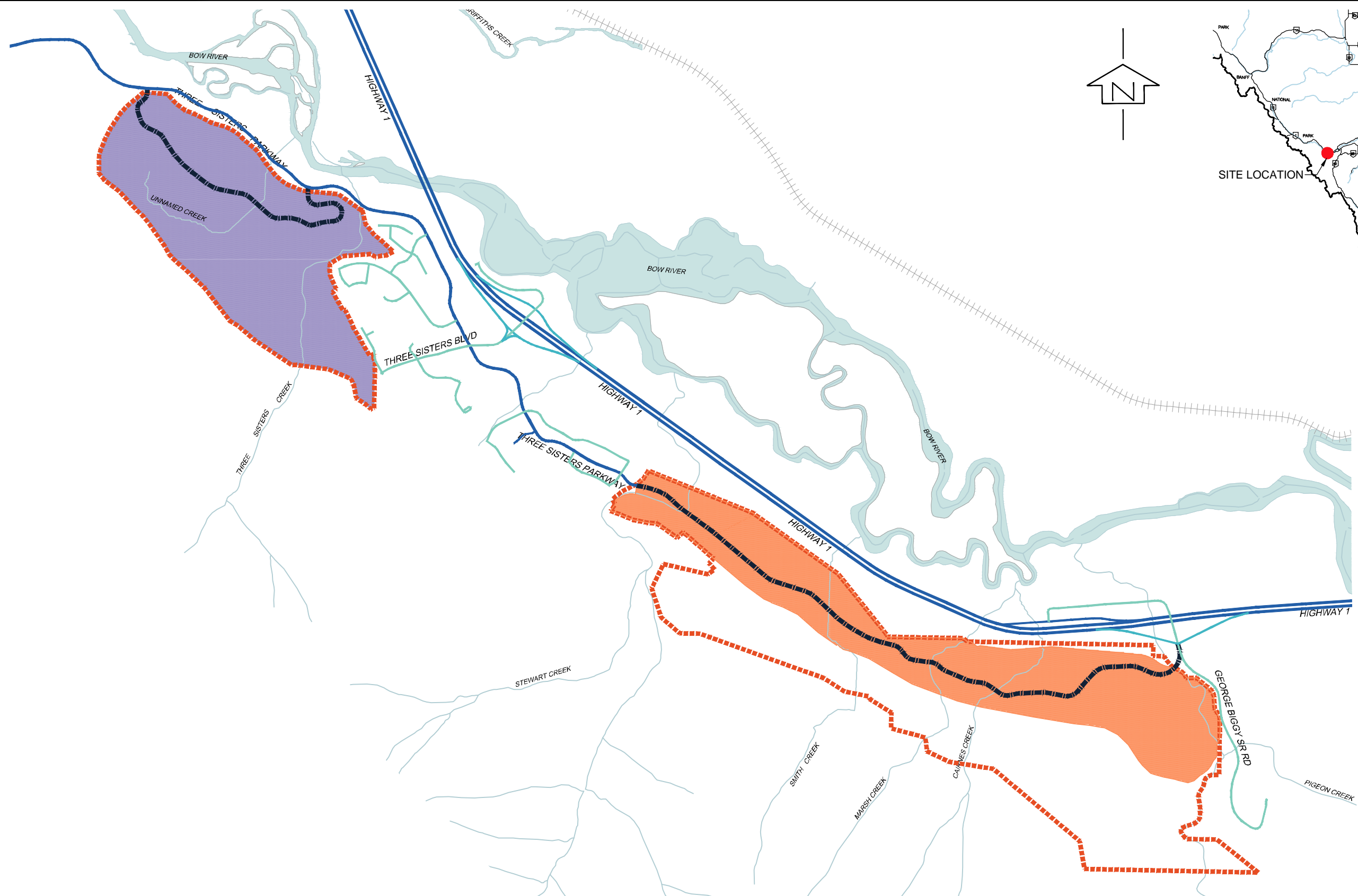
The Resort Centre site is located in eastern Canmore, south of Highway 1, and approximately between the Three Sisters Parkway interchange on Highway 1 and the main urbanized area of the Town. Access to the ASP area will be via the Three Sisters Parkway.

The ASP area features mixed land use and vibrant communities defined by many principles of sustainability including a complete streets philosophy. Walking, cycling, and public transit will be significantly integrated into this community and will form the backbone of the mobility system linking with the Town's multimodal network as described in the Integrated Transportation Plan. As such, this TMPTIA focuses on all modes of transportation and makes recommendations that go beyond intersection configuration and control that generally serve to maximize vehicle levels of service.

A site location map is provided in Figure 1.



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- LEGEND**
- THREE SISTERS MOUNTAIN VILLAGE ASP BOUNDARIES
  - RESORT CENTRE ASP
  - SMITH CREEK ASP
  - POTENTIAL ROADWAY

These design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract.



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SCALE:	DATE:	PROJECT No:	DRAWING No:
NTS	2016-09-21	5215046-000	FIGURE 1



## 2.0 CANMORE MOBILITY BACKGROUND

### 2.1 Policy

The Town approved an Integrated Transportation Plan in 2014. This plan includes a vision statement and guiding principles.

#### Vision Statement

“The Integrated Transportation Plan builds on [a] strategic initiative to define a multi-modal transportation system that helps Canmore become the kind of community its residents want it to be. It is recommended that through actions set out in the Integrated Transportation Plan, the Town of Canmore is envisioned to be Alberta’s premiere walking and cycling community and achieve a 30% mode share of sustainable modes by 2020. This goal is reflected in the recommendations for the Town, particularly through focusing on the design of complete streets and improving the active transportation network” (Integrated Transportation Plan page 5).

#### Guiding Principles (from the Integrated Transportation Plan)

- A multi-modal transportation network will connect neighbourhoods and places of interest.
- The transportation system will provide mobility and access for all.
- The transportation system will reinforce the Town Centre as a commercial, civic, and cultural focal point in Canmore.
- Transportation corridors will be aesthetically pleasing and inviting as destinations as well as movement spaces.
- The transportation system will be developed and maintained in a responsible and sustainable manner.

This vision statement and guiding principles provide the framework in which this TMPTIA has been completed. This TMPTIA focuses on the multimodal transportation networks identified in the Integrated Transportation Plan, but these are future networks to be implemented. The full success of this Resort Centre ASP area and the transportation network therein depend on the implementation by the Town of the identified networks in the Integrated Transportation Plan.

### 2.2 Street Network

The Town’s street network is shown below in Figure 2 – an excerpt from the Integrated Transportation Plan. The key street for this TMPTIA shown below is the Three Sisters Parkway which has been designated as a Multi-modal Local Arterial street by the Town, though it is Highway 742 within Alberta Transportation’s jurisdiction. The Three Sisters Parkway is adjacent to and provides the main access points to the Resort Centre. This designation is defined in the Integrated Transportation Plan as follows:

“Local Arterial Streets carry low to medium through traffic volumes, but primarily serve a through function connecting individual neighbourhoods or sectors of the town. With medium levels of vehicular traffic and

speeds, cyclists should be accommodated with conventional bike lanes at minimum, while sidewalks should have separation from vehicular traffic. Local Arterial Streets will typically serve residential neighbourhoods and town centre areas, and may provide access to commercial or retail properties. Local transit services are common on Local Arterial Streets” (Integrated Transportation Plan page 12).

Further to the street network, Figure 3 below shows the cycling network. This network features green, blue, and black routes – similar in definition to ski trails. Green routes are intended for cyclists of all skill levels and are often paths separated from moving vehicles. Green routes serve recreational trips well, and can serve commuter cycling also. Blue routes are intended for intermediate cyclists and may have some steeper terrain compared to the green routes. Blue routes may be off-street paths or on-street facilities like bike lanes with a buffer with moving traffic. Black routes are intended for more advanced cyclists and may involve bike lanes immediately adjacent to moving traffic of moderate to high volume.

Figure 2 Street Classifications (Source: Integrated Transportation Plan 2014)

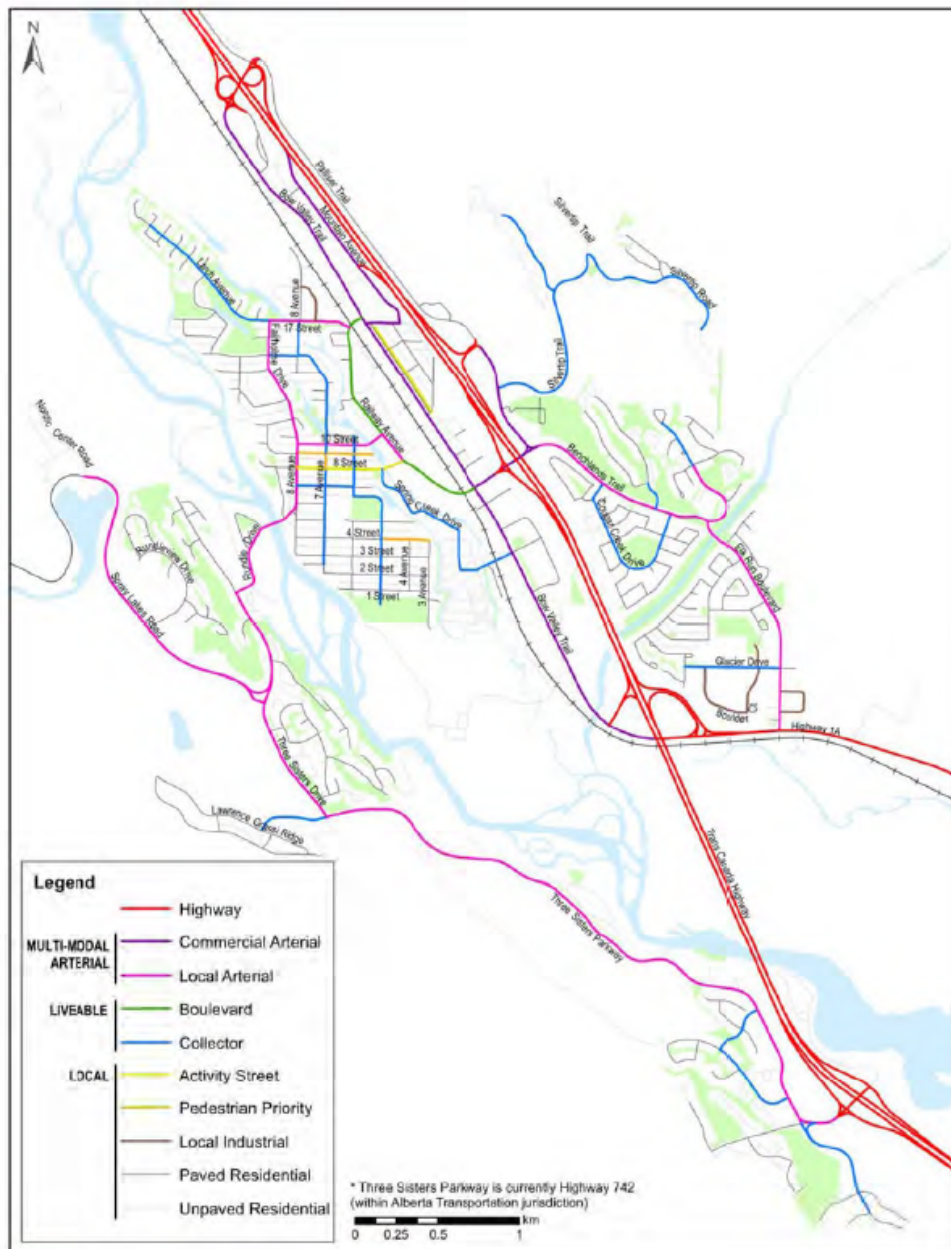
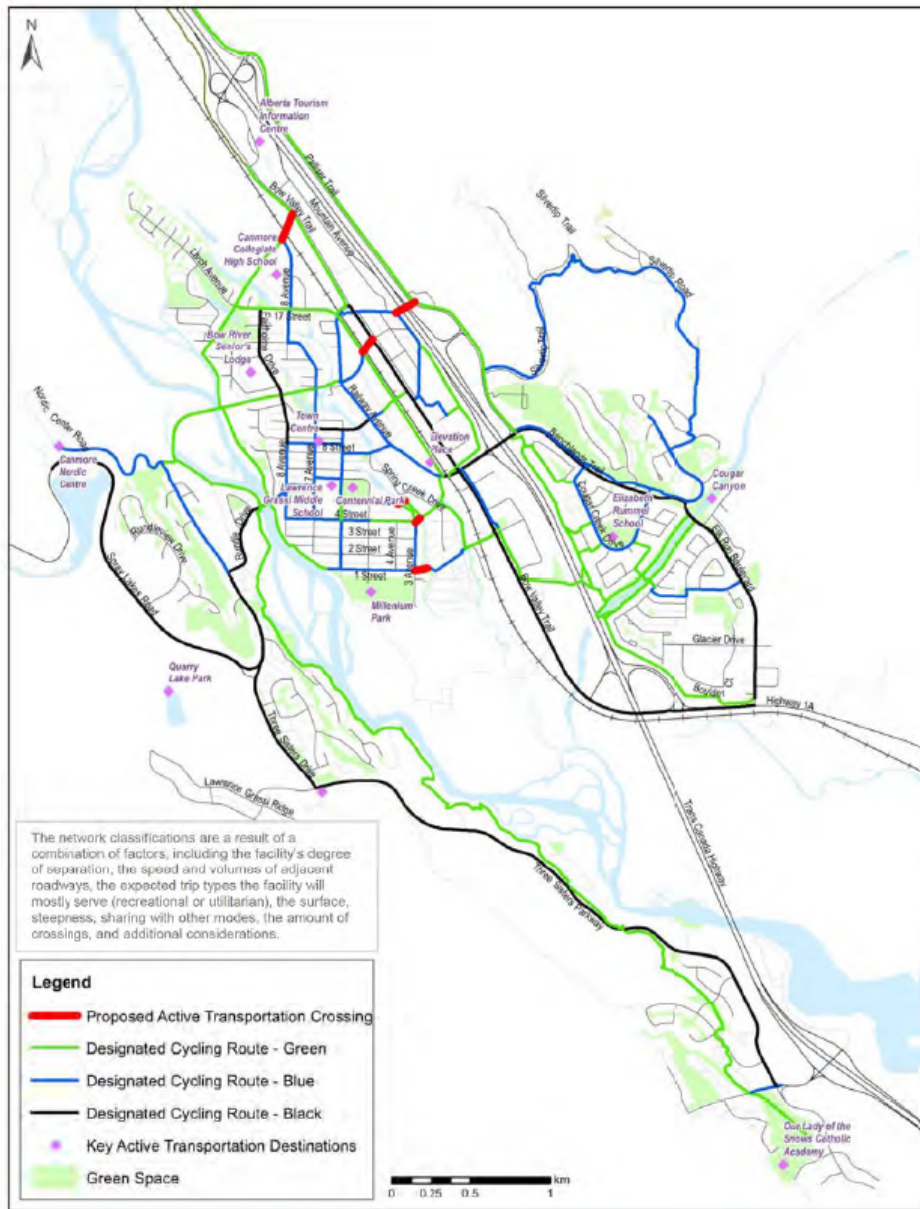


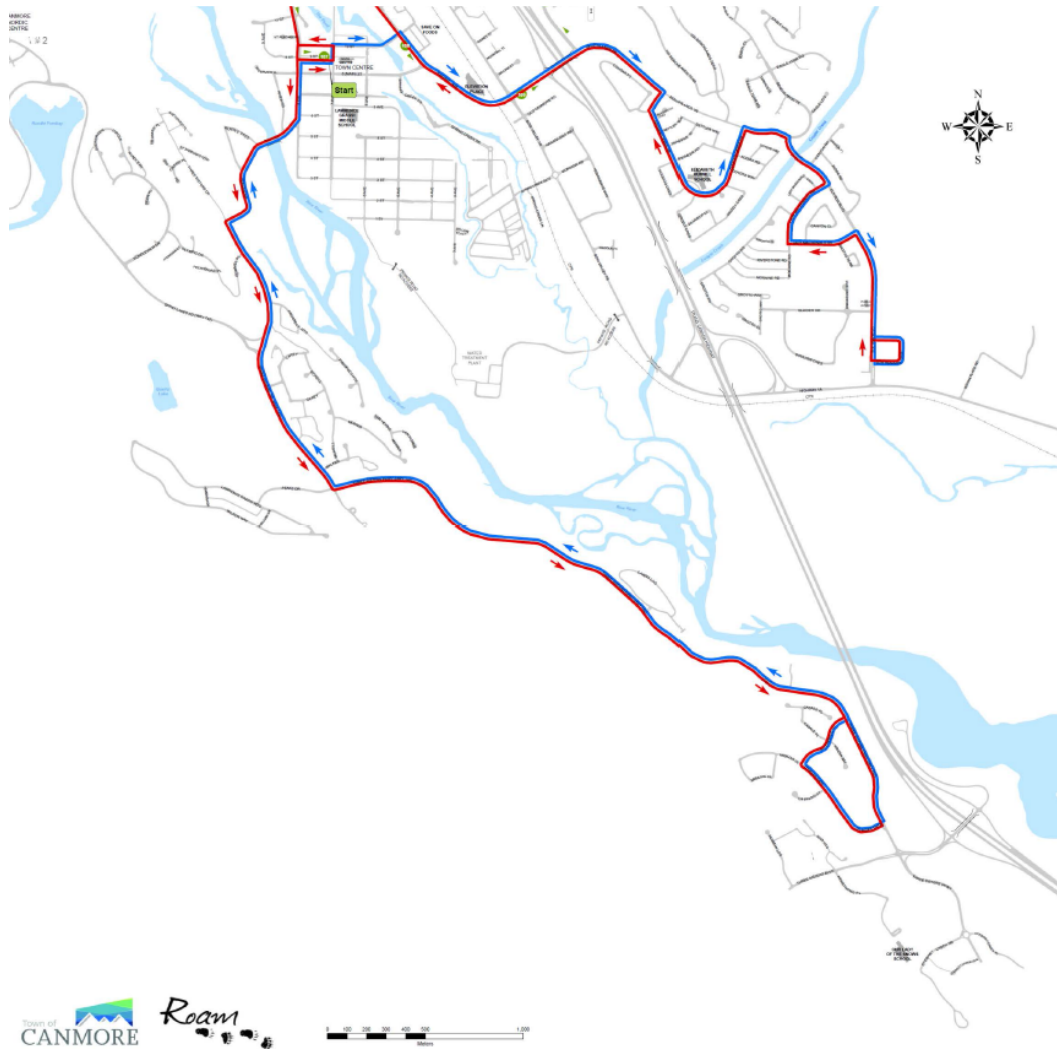
Figure 3 Active Transportation Network (Source: Integrated Transportation Plan 2014)



## 2.3 Transit

The Bow Valley Regional Transit Service Commission operates Roam transit in the Town area. Roam transit has planned to operate the route shown in Figure 4 through the Town beginning in late 2016. Monday, Tuesday and Wednesday will have service from 6:00 – 21:00; and Thursday and Friday will have 6:00 – 22:00. Peak period will have service every 30 minutes (7:00 – 10:30 and 15:00 – 18:30) and the rest of the day (off-peak) will have 60 minute frequency. The community will also have Saturday and Sunday service.

Figure 4 Roam Transit Weekday Route, 2016 Implementation (Source: Town of Canmore)



## 2.4 Study Horizon

Three Sisters Mountain Village Properties Ltd. expects the Resort Centre to develop and achieve full build-out in approximately 10 – 15 years. The development timeframe for Smith Creek is uncertain at this time.

Further to this horizon and according to the Alberta Transportation Traffic Impact Assessment Guideline, an existing conditions and 20 year horizons have also been analyzed.

Study horizons:

- Existing conditions
- Resort Centre full build out in 10 – 15 years
- 20 years

## 2.5 Study Intersections for Driving Analysis

For this TMPTIA, the intersections listed below were assessed. These intersections either provide direct access to the proposed development or are located very closely to the proposed development.

- Dead Man's Flats interchange eastbound intersection
- Three Sisters interchange intersections
- Resort Centre West Access with Three Sisters Parkway
- Resort Centre East Access with Three Sisters Parkway

## 3.0 PROPOSED DEVELOPMENT

### 3.1 Resort Centre

The Resort Centre area is bounded by the Three Sisters Parkway on the north side and sits immediately west of the existing Stewart Creek neighbourhood. It will be a vibrant mixed land use community with multiple types of housing and commercial spaces. Land uses and densities are described in the below Table 1.

Consistent with the Integrated Transportation Plan, principles of multimodality will guide the development of the mobility network and the design of streets. A main street will connect the area to the Three Sisters Parkway with two proposed access points – an East Access and a West Access. This main street will be a Liveable Urban Boulevard and street design shall be consistent with the intended street functions as described in the Integrated Transportation Plan.



Table 1 Resort Centre Land Use

LAND USE	GROSS FLOOR AREA/UNITS	UNIT OF MEASUREMENT
Retail	12,459	m <sup>2</sup>
Hotel	37,134	m <sup>2</sup>
Leisure	15,739	m <sup>2</sup>
Retirement	24,630	m <sup>2</sup>
Apartments	1,232	Units
Townhouse	645	Units
Single Family	465	Units

### 3.2 Smith Creek Development Area

The Smith Creek development area is not the primary focus of this report, but it is a large proposed development area which will impact significantly upon the completed Resort Centre area. It is generally bounded by Highway 1 on the north side and is immediately west of the existing Dead Man's Flats interchange with Highway 1. It will be a vibrant mixed land use community also with multiple types of housing and commercial spaces. Land uses and densities are described in Table 2.

Consistent with the Integrated Transportation Plan, principles of multimodality will guide the development of the mobility network and the design of streets. An extension to the east of the existing Three Sisters Parkway will provide the main community connection for mobility and access.

Table 2 Smith Creek Development Area Land Use

LAND USE	GROSS FLOOR AREA/UNITS	UNIT OF MEASUREMENT
Commercial	34,956	m <sup>2</sup>
Retail	48,334	m <sup>2</sup>
Industrial	19,706	m <sup>2</sup>
Apartments	305	Units
Townhouse	522	Units
Single Family	677	Units

## **4.0 BASE MOBILITY DEMAND**

### **4.1 Base**

The traffic turning movements at the Highway 1 ramp terminal intersections were estimated based on Alberta Transportation's 2015 traffic volumes which are the latest available traffic data posted on Alberta Transportation's website. To estimate the 2016 traffic, a 2.5% (Alberta provincial average traffic growth rate) increase was applied to the 2015 traffic volumes. The existing traffic volumes on the Three Sisters Parkway were estimated based on the traffic counts conducted by Bunt & Associates in 2015 in the Stewart Creek Phase 3 TIA and the Three Sisters Resort TIA conducted by UMA Engineering Ltd. in 2008.

### **4.2 Future Base**

To estimate future base traffic, the existing base traffic was increased linearly at 2.5% per year (Alberta provincial average traffic growth rate). This was completed for each future horizon.

## 5.0 DEVELOPMENT GENERATED DEMAND

### 5.1 Trip Generation

To estimate the development-generated transportation demand, the industry-typical data source has been used – the Institute of Transportation Engineers’ (ITE) Trip Generation Manual. Though the data is based on many suburban site studies, this data source is commonly used in many impact assessment studies around Alberta and Canada.

Table 3 Resort Centre

LAND USE	TRIP GENERATION SUMMARY					
	AM			PM		
	TOTAL	IN	OUT	TOTAL	IN	OUT
Residential	1292	322	970	1523	953	570
Retail	186	116	71	729	350	379
Hotel	285	168	117	323	165	158
Leisure	347	229	118	464	227	237
Residential Total	1292	322	970	1523	953	570
Internal Trips (10%)	129	32	97	152	95	57
Mode Share (30%)	349	87	262	411	257	154
Residential Sub-total	<b>814</b>	<b>203</b>	<b>611</b>	<b>960</b>	<b>600</b>	<b>359</b>
Commercial Total	186	116	71	729	350	379
Internal Trips (10%)	19	12	7	73	35	38
Mode Share (30%)	50	31	19	197	95	102
Pass-by Trips (35%)	41	25	16	161	77	84
Commercial Sub-total	<b>76</b>	<b>47</b>	<b>29</b>	<b>299</b>	<b>143</b>	<b>155</b>
Hotel Total	285	168	117	323	165	158
Internal Trips (10%)	29	17	12	32	16	16
Mode Share (30%)	77	45	32	87	44	43
Hotel Sub-total	<b>180</b>	<b>106</b>	<b>74</b>	<b>203</b>	<b>104</b>	<b>100</b>
Leisure Total	347	229	118	464	227	237
Internal Trips (90%)	313	206	106	418	205	213
Mode Share (30%)	10	7	4	14	7	7
Leisure Sub-total	<b>24</b>	<b>16</b>	<b>8</b>	<b>32</b>	<b>16</b>	<b>17</b>
<b>Total New Trips</b>	<b>1094</b>	<b>372</b>	<b>722</b>	<b>1494</b>	<b>863</b>	<b>631</b>

Table 4 Smith Creek Development Area

LAND USE	TRIP GENERATION SUMMARY					
	AM			PM		
	TOTAL	IN	OUT	TOTAL	IN	OUT
Residential	830	184	646	1006	647	359
Business and Industrial	748	658	90	706	110	596
Retail	426	264	162	1809	868	941
Residential Trips Total	830	184	646	1006	647	359
Internal Trips (10%)	83	18	65	101	65	36
Mode Share (30%)	224	50	174	272	175	97
Residential Sub-total	<b>523</b>	<b>116</b>	<b>407</b>	<b>634</b>	<b>407</b>	<b>226</b>
Business and Industrial Trips Total	748	658	90	706	110	596
Internal Trips (10%)	75	66	9	71	11	60
Mode Share (30%)	202	178	24	191	30	161
Business and Industrial Trips Sub-total	<b>471</b>	<b>414</b>	<b>57</b>	<b>445</b>	<b>69</b>	<b>375</b>
Commercial Total	426	264	162	1809	868	941
Internal Trips (10%)	43	26	16	181	87	94
Mode Share (30%)	115	71	44	488	234	254
Pass-by Trips (35%)	94	58	36	399	191	207
Commercial Non-Pass-by Trips Sub-total	<b>175</b>	<b>108</b>	<b>66</b>	<b>741</b>	<b>356</b>	<b>385</b>
<b>Total New Trips</b>	<b>1169</b>	<b>639</b>	<b>530</b>	<b>1819</b>	<b>832</b>	<b>987</b>

## 5.2 Internal and Pass-by Trips

Internal trips should be considered for a multi-use development. According to the ITE Trip Generation Handbook, a multi-use development is typically a single real-estate project that consists of two or more ITE land use classifications between which trips can be made without using the off-site street system. The internal trips can be made either by walking, cycling, or by vehicles using internal streets. In this study, the proposed development is a multi-use development (residential, shopping centre, and commercial), therefore to estimate the trips made on the external streets, the internal trips that are not made on the external street system should be deducted from the total trips. To account for the internal trips, a 10% rate of internal capture was used in this study.

According to the ITE Trip Generation Handbook, pass-by trips are defined as the trips that are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. Pass-by trips will not add new traffic to the adjacent street system. In this study, the proposed retail and commercial developments will attract pass-by trips. In accordance with the ITE Trip Generation Handbook, an average 34% of the trips generated by retail are pass-by trips. In this study, it is assumed that 35% of the total trips generated by the commercial development will be pass-by trips.

### 5.3 Trip Distribution

Trip distribution patterns for the proposed Resort Centre and Smith Creek development areas were estimated based on the location of the Town Center and the surrounding road and street networks. Tables 5 and 6 summarize the development trip distribution patterns used in this study.

Table 5 Trip Distribution – Resort Centre

DIRECTION	RESIDENTIAL	COMMERCIAL	HOTEL	LEISURE
Hwy 1 West	20%	10%	40%	0%
Hwy 1 East	20%	10%	40%	0%
Three Sisters Pkwy West	50%	40%	20%	50%
Three Sisters Pkwy East	5%	40%	0%	50%
Three Sisters Blvd South	5%	0%	0%	0%

Table 6 Trip Distribution – Smith Creek Potential Development Area

DIRECTION	RESIDENTIAL	RETAIL	BUSINESS & INDUSTRIAL
Hwy 1 West	25%	20%	25%
Hwy 1 East	25%	20%	25%
Three Sisters Pkwy West	50%	60%	50%

### 5.4 Mode Share

Further to trip distribution, a mode share analysis was undertaken. To inform the analysis, research was completed on observed mode shares in other mountain resort communities with comparable land use and mobility network patterns, and travel behaviour. Through literature research and contact with BC Transit, data was found for the community of Whistler in BC Transit’s Transit Future Plan Sea to Sky 2015. In 2015, the Whistler annual transit mode share of all trips was 15% - this does not include the walking or

cycling mode share. The author of this report has not compared BC Transit’s transit service level in Whistler to that of Roam transit in Canmore, however given the policy direction of the Town in the Integrated Transportation Plan it is assumed that a 15% annual transit mode share is a rational assumption for these developments. Whistler has transit mode share targets greater than 15% in the next five to 10 years – see Table 7 below.

Table 7 BC Transit Whistler Mode Share 2015 and Future Targets

	SEA TO SKY REGION	SQUAMISH	WHISTLER	PEMBERTON VALLEY
2015 Transit Mode Share	50% by 2030	1.3 %	15%	1.5%
2020 Transit Mode Share Target		2.5%	16%	2%
2025 Transit Mode Share Target		5%	20%*	4%
2040 Transit Mode Share Target		10%	25%*	6%

Table 8 below contains the Town’s commute to work mode share sourced from the Town’s 2014 Municipal Census. The Work in Canmore row below shows the mode shares of those people who work within the Town, versus Work All Locations which shows the mode shares of all working Town people in all areas including Calgary and other jurisdictions. These data show many people are walking or cycling to work in 2014.

Table 8 2014 Canmore Municipal Census Commute to Work Mode Shares

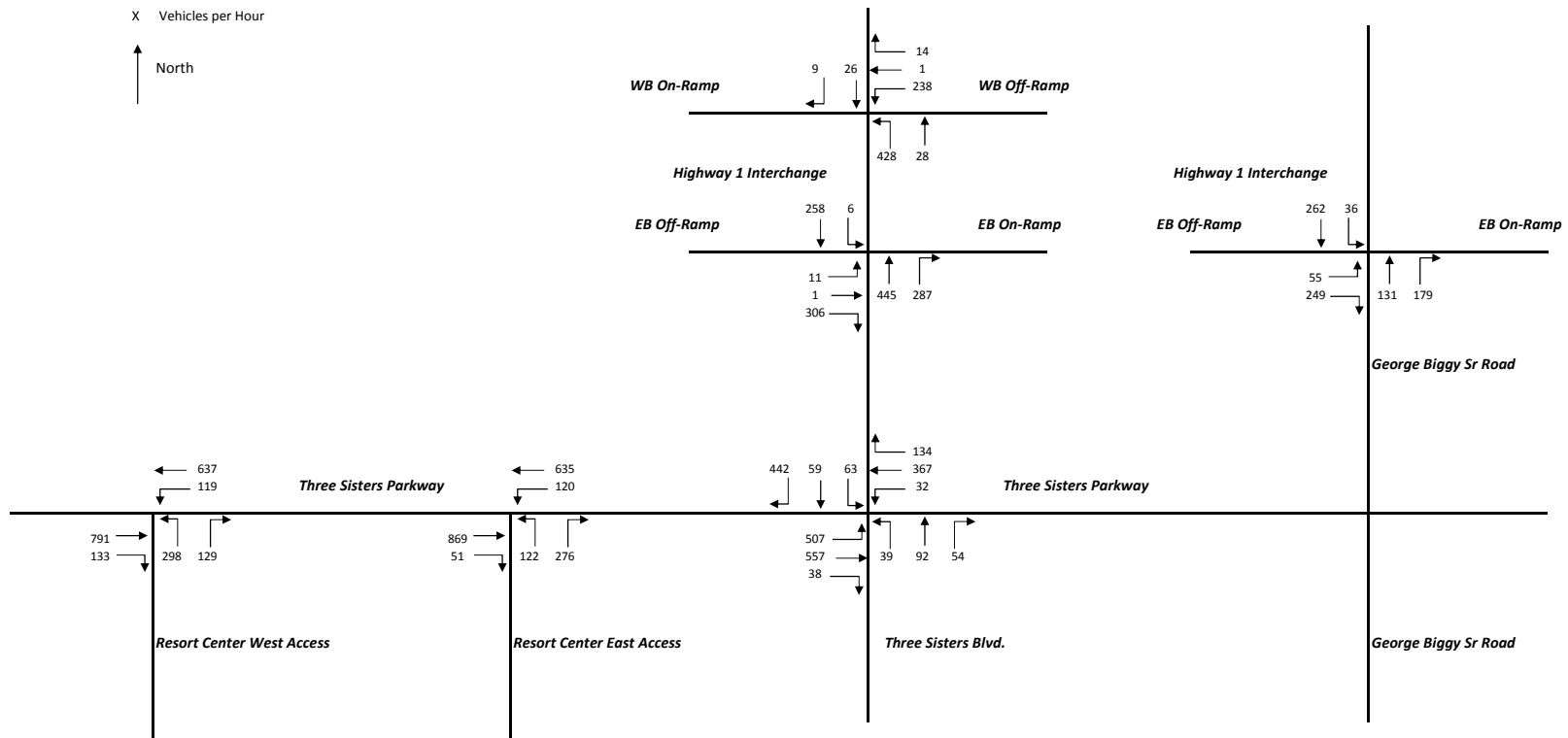
	BICYCLE	OTHER	PASSENGER	CAR	TRANSIT	WALK	NO ANSWER	UNKNOWN	TOTAL
Work in Canmore	359	94	104	2736	7	802	19	20	4141
Percentage	9%	2%	3%	66%	0%	19%	0%	0%	100%
Work All Locations	372	279	257	4697	58	812	1525	42	8042
Percentage	5%	3%	3%	58%	1%	10%	19%	1%	100%

From all above data combined with the Town’s policy direction in the Integrated Transportation Plan, it is assumed that at least 30% of weekday peak hour trips will not be single occupant vehicle trips – these trips will use the walking, cycling, or transit modes of transportation. 30% mode share is also consistent with the Town’s vision for the year 2020.



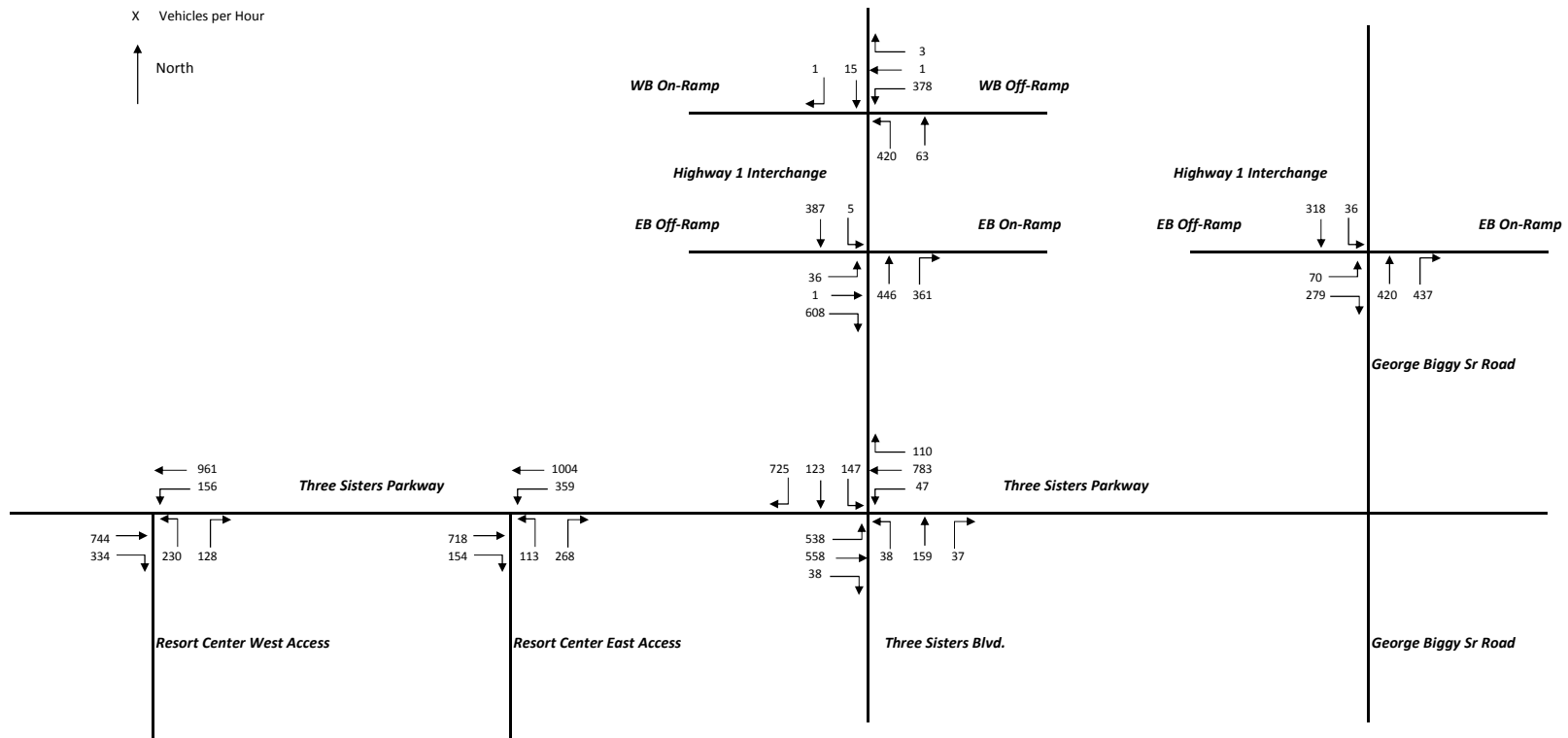
## 6.0 COMBINED DEMAND

The estimated combined travel demand for the driving transportation mode is shown on Figures 5 to 8. These peak hour volumes were input into a developed model to estimate the operational impacts on the key intersections listed above in this report.



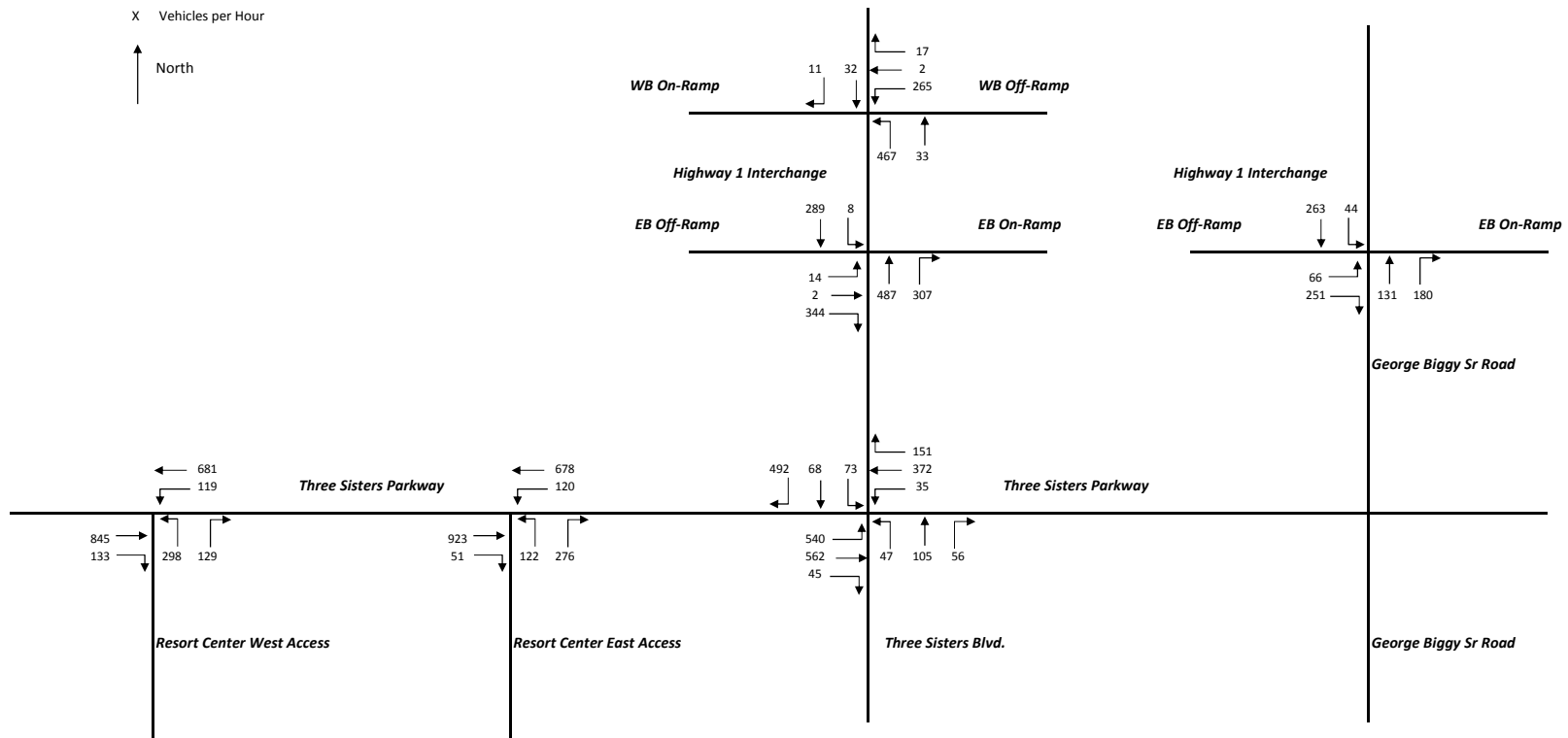
161-03959-00 Resort Center TMPTIA

Figure 5: 2026 AM Peak Hour Total Traffic Volumes



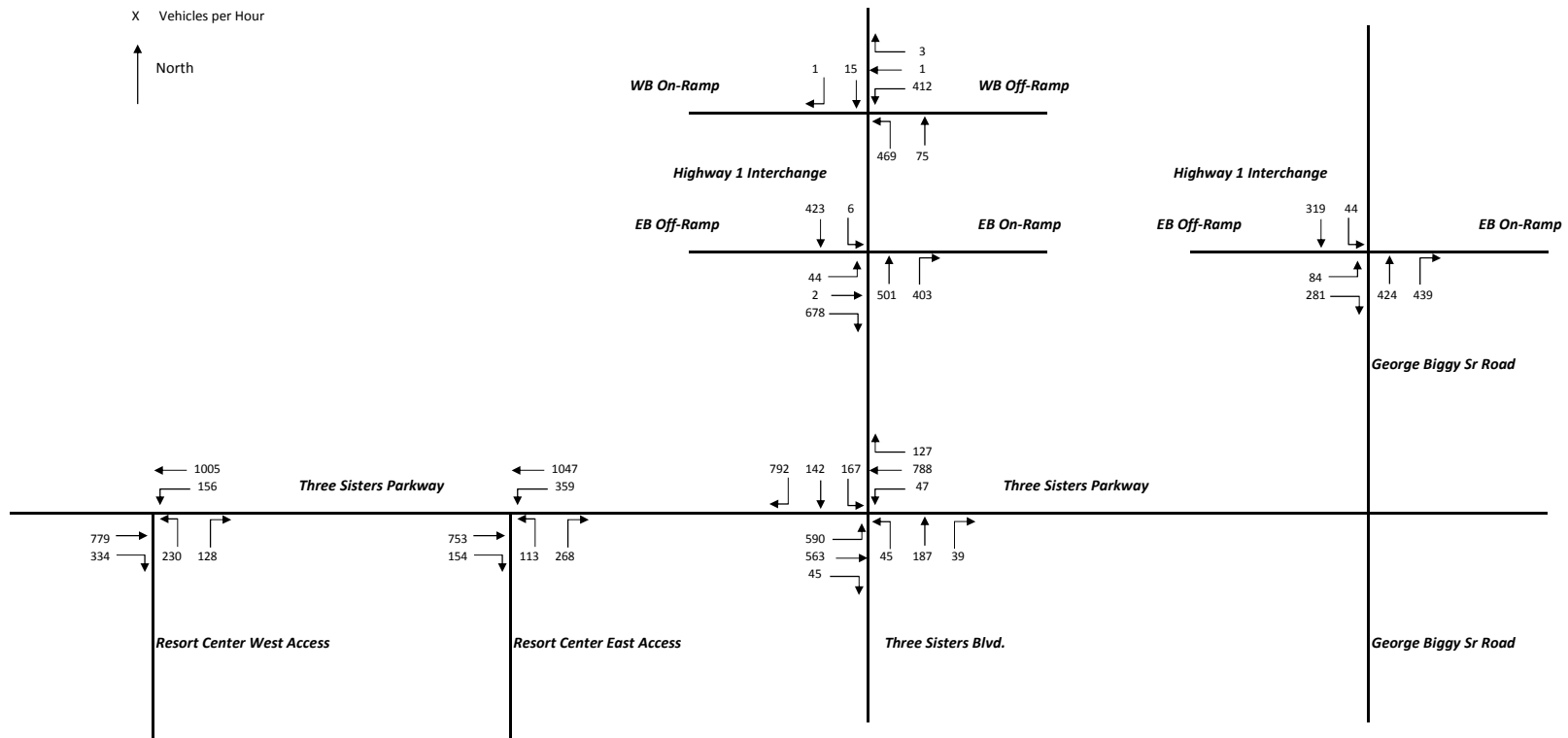
161-03959-00 Resort Center TMPTIA

Figure 6: 2026 PM Peak Hour Total Traffic Volumes



161-03959-00 Resort Center TMPTIA

Figure 7: 2036 AM Peak Hour Total Traffic Volumes



161-03959-00 Resort Center TMPTIA

Figure 8: 2036 PM Peak Hour Total Traffic Volumes

## 7.0 MOBILITY FACILITIES OPERATION AND DISCUSSION

### 7.1 Walking

The walking mode of transportation is the most basic of all modes – all trips begin and end with some amount of walking. It is also the most sustainable mode requiring minimal capital and operational costs and emitting no pollution during operation. Walking also achieves common public policy objectives like increasing our daily physical activity and contributing to chronic illness reduction. For these reasons, and to minimize single occupant vehicle demand along with the impacts of this development, facilities for walking should be provided.

- Streets should have sidewalks on both sides of the street, where appropriate
- Sidewalks should be a minimum width of 1.5 – 2 m
- Sidewalks should be wider on streets with higher intensity adjacent land uses
- Provision of curb ramps and universal access principles should influence all sidewalk design
- Intersections should have crosswalks on each approach with clear pavement markings and automatic pedestrian signal phases, only where signals are required, that do not require the pedestrian to activate the signal phase.

### 7.2 Cycling

Cycling is the second most sustainable mode of transportation and it allows a larger range of travel for the user compared with walking. Cycling is very low cost for both the user and the jurisdiction building and maintaining facilities, and also achieves common public policy objectives like increasing our daily physical activity and contributing to chronic illness reduction. Cycling facilities should be provided to minimize single occupant vehicle demand; to help the Town achieve the 30% more sustainable mode share target; and to minimize the impacts of this development.

- Most Arterial and Liveable (collector) streets should have dedicated cycling facilities
- Cycling facilities should be a minimum of 1.5 m wide
- Streets with higher volumes should have a buffer between the dedicated cycling facility and the moving vehicles – and a buffer with an on-street parking lane if exists (see below image from NACTO).





### 7.3 Riding Public Transit

Public transit is an important part of a complete neighbourhood and the provision of public transit allows a more socially equitable community. Transit is currently operated in the Town by Roam. Service is expected to expand to cover this new ASP area. Transit has a high operational cost, but provides significant benefit to the community. Transit facilities should be provided to minimize single occupant vehicle demand; to help the Town achieve the 30% more sustainable mode share target; and to minimize the impacts of this development.

- The street network should be planned to be as direct as possible, minimizing confusion and trip time for transit riders
- Development should be the most intense along transit corridors; both increasing ridership and minimizing vehicle transportation impacts through the transit use
- The streets surrounding the transit corridor should be walkable with relatively small block sizes and provision of sidewalks on both sides of the street
- The public realm of transit corridors should be of good quality, encouraging walking and the use of transit.

### 7.4 Driving and Intersection Design and Control

To determine the operating conditions of an intersection or street, the concept of level of service (LOS) is generally used. The LOS of an intersection is a qualitative measure of capacity and operating conditions and is directly related to vehicle delay. LOS is given a letter designation from A to F, with LOS A representing very short delays and LOS F representing very long delays.

For this study, MMM developed Synchro Studio 9 (Synchro) intersection simulation models for the study intersections. Synchro 9 implements the methods of the Highway Capacity Manual, 2010 (HCM 2010) and follows the LOS criteria that are listed in Table 9.

Table 9 Level of Service Criteria for Intersections (HCM 2010)

SIGNALIZED CONTROL DELAY (S)	UNSIGNALIZED CONTROL DELAY (S)	LOS BY VOLUME-TO-CAPACITY RATIO	
		V/C ≤ 1.0	V/C > 1.0
≤ 10	≤ 10	A	F
> 10 and ≤ 20	> 10 and ≤ 15	B	F
> 20 and ≤ 35	> 15 and ≤ 25	C	F
> 35 and ≤ 55	> 25 and ≤ 35	D	F
> 55 and ≤ 80	> 35 and ≤ 50	E	F
> 80	> 50	F	F

## 7.4.1 Capacity Analysis Results

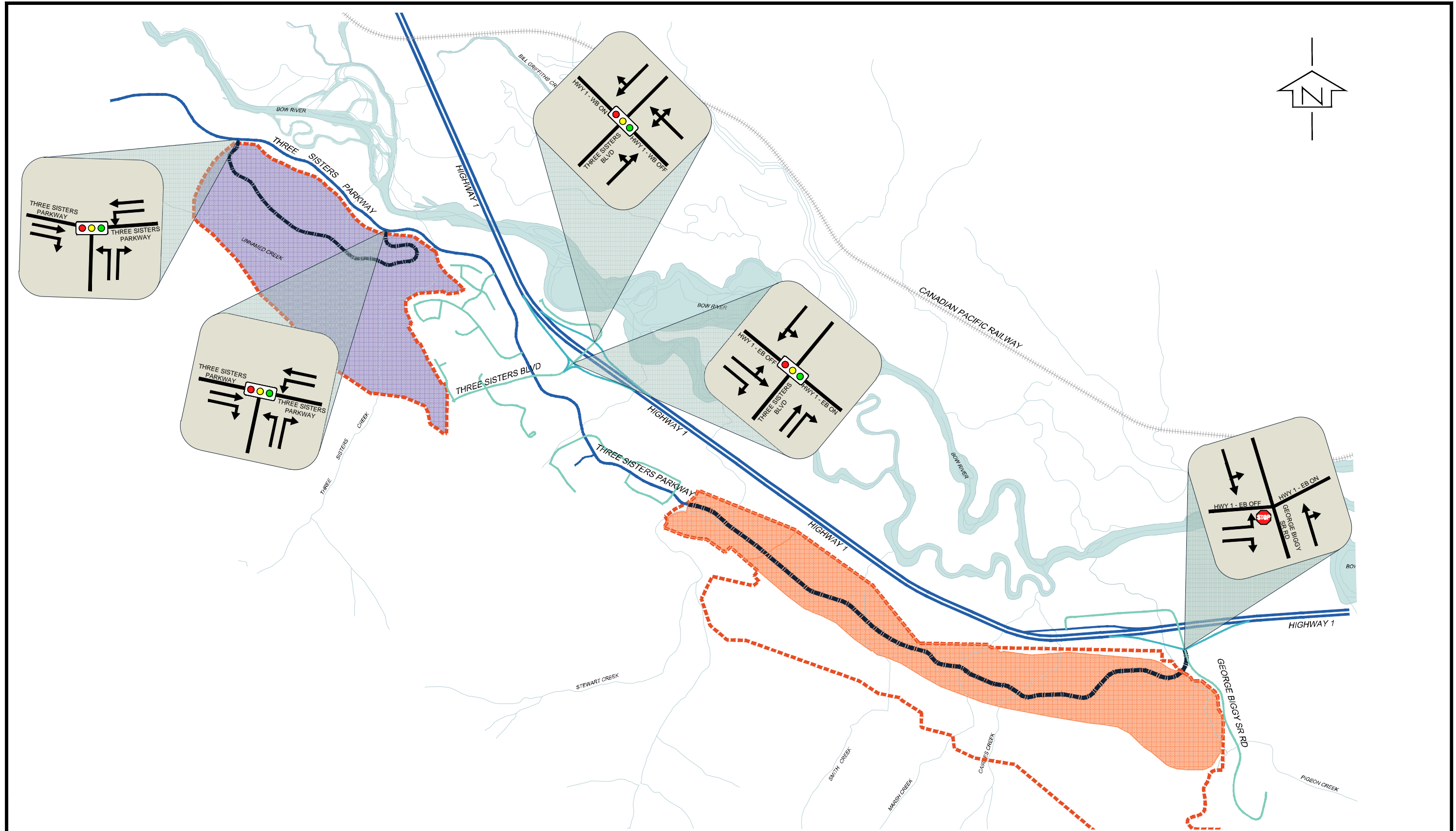
### 7.4.1.1 Three Sisters Parkway / Resort Center West Access

It is anticipated that traffic signals will be warranted at the Three Sisters Parkway / Resort Center West Access intersection when the proposed Resort Center is fully built out (10 to 15 years). The following lane configurations are recommended for this intersection:

- Eastbound: one through lane and one auxiliary right turn lane.
- Westbound: one auxiliary left turn lane and one through lane.
- Northbound: one left turn lane and one auxiliary right turn lane.

The site intersection configurations for full build out are shown in Figure 9.

Sep 23, 2016 - 3:14pm  
 P:\5215046-000 Quantum-Smith Creek ASP\Civil\5000 - Professional Services\5410 - Design-Technical\5414 - Sketches-Figures\2016-09-21\_5215046-Traffic Volume Figures.dwg - tab:intersections



- LEGEND**
- THREE SISTERS MOUNTAIN VILLAGE ASP BOUNDARIES
  - RESORT CENTRE ASP
  - SMITH CREEK ASP
  - POTENTIAL ROADWAY

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 FUTURE POST-DEVELOPMENT INTERSECTION DETAILS

SCALE:	DATE:	PROJECT No:	DRAWING No:
NTS	2016-09-21	5215046-000	FIGURE 9

The operational performance of all traffic movements at this intersection at the analysis horizons are summarized in Tables 10 to 11. The detailed Synchro outputs are attached in Appendix B.

Table 10 Capacity Analysis: 2026 Post-development Traffic

Three Sisters Parkway/ Resort Centre West Access (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBT	29.6	C	0.86	133.6	30.3	C	0.86	181.4
EBR	3.2	A	0.17	8.6	4.5	A	0.36	20.1
WBL	7.5	A	0.31	11.2	9.6	A	0.43	16.0
WBT	10.2	B	0.55	76.2	13.3	B	0.71	124.3
NBL	36.3	D	0.69	64.8	35.1	D	0.58	57.0
NBR	7.3	A	0.27	12.5	7.6	A	0.27	13.2
INT Summary	20.0	C	0.86	-	19.0	B	0.86	-

Table 11 Capacity Analysis: 2036 Post-development Traffic

Three Sisters Parkway/ Resort Centre West Access (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBT	29.1	C	0.85	155.3	29.6	C	0.87	167.3
EBR	3.8	A	0.16	9.8	3.3	A	0.34	15.5
WBL	6.8	A	0.29	10.9	9.5	B	0.43	15.8
WBT	10.8	B	0.59	82.9	12.3	B	0.72	130.3
NBL	41.3	D	0.69	80.7	39.3	D	0.64	60.9
NBR	8.1	A	0.27	13.7	8.4	A	0.29	13.9
INT Summary	20.7	C	0.85	-	18.8	B	0.87	-

The above capacity analyses show that all traffic movements at the Three Sisters Parkway / Resort Center West Access intersection are expected to operate at an acceptable LOS during the AM and PM peak hours up to the 20 year horizon. The proposed lane configuration at this intersection is capable of accommodating the forecasted 20 year horizon post-development traffic volumes.

#### 7.4.1.2 Three Sisters Parkway / Resort Center East Access

It is anticipated that traffic signals will be warranted at the Three Sisters Parkway / Resort Center East Access intersection when the proposed Resort Center is fully built out (10 to 15 years). The following lane configurations are recommended for this intersection:

- Eastbound: one through lane and one auxiliary right turn lane.
- Westbound: one auxiliary left turn lane and one through lane.
- Northbound: one left turn lane and one auxiliary right turn lane.

The operational performance of all traffic movements at this intersection at the analysis horizons are summarized in Tables 12 to 13. The detailed Synchro outputs are attached in Appendix A.

Table 12 Capacity Analysis: 2026 Post-development Traffic

Three Sisters Parkway/ Resort Centre East Access (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBT	24.6	C	0.84	135.2	31.7	C	0.86	174.8
EBR	3.4	A	0.06	4.9	4.5	A	0.19	12.6
WBL	5.6	A	0.31	9.4	25.5	C	0.75	71.1
WBT	8.0	A	0.54	61.6	9.9	A	0.67	111.7
NBL	29.7	C	0.33	29.0	36.6	D	0.41	33.5
NBR	8.2	A	0.50	18.7	9.7	A	0.57	20.6
INT Summary	15.6	B	0.84	-	19.3	B	0.86	-

Table 13 Capacity Analysis: 2036 Post-development Traffic

Three Sisters Parkway/ Resort Centre East Access (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBT	26.6	C	0.86	170.4	32.1	C	0.88	181.9
EBR	3.8	A	0.06	5.6	4.2	A	0.19	12.0
WBL	6.6	A	0.35	11.4	32.4	C	0.80	84.0
WBT	8.9	A	0.57	82.5	10.6	B	0.70	125.1
NBL	32.7	C	0.34	32.5	37.0	D	0.42	33.8
NBR	8.6	A	0.51	19.6	9.8	A	0.58	20.8
INT Summary	17.0	B	0.86	-	20.6	C	0.88	-

The above capacity analyses show that all traffic movements at the Three Sisters Parkway / Resort Center East Access intersection are expected to operate at an acceptable LOS during the AM and PM peak hours up to the 20 year horizon. The proposed lane configuration at this intersection is capable of accommodating the forecasted 20 year horizon post-development traffic volumes. Highway 1 Eastbound Off-Ramp / Three Sisters Boulevard

The Highway 1 eastbound off-ramp / Three Sisters Boulevard intersection is currently controlled by a stop sign on the eastbound off-ramp with free flow conditions on Three Sisters Boulevard. It is anticipated that traffic signals will be required to accommodate the 2026 and 2036 post-development traffic. No material geometric improvements will be required.

The operational performance of all traffic movements at this intersection at the analysis horizons are summarized in Tables 14 to 16. The detailed Synchro outputs are attached in Appendix A.



Table 14 Capacity Analysis: Existing Traffic

Highway 1 EB Off-Ramp/ Three Sisters Boulevard (Stop Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBLT	10.5	B	0.02	0.8	11.3	B	0.05	1.6
EBR	9.8	A	0.18	5.6	11.2	B	0.35	12.0
NBT	0.0	A	0.00	0.0	0.0	A	0.00	0.0
NBR	0.0	A	0.00	0.0	0.0	A	0.0	0.0
SBL	7.6	A	0.00	0.0	7.7	A	0.00	0.1
SBT	0.0	A	0.00	0.0	0.0	A	0.00	0.0
INT Summary	3.0	A	0.18	-	4.2	A	0.35	-

Table 15 Capacity Analysis: 2026 Post-development Traffic

Highway 1 EB Off-Ramp/ Three Sisters Boulevard (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBLT	25.8	C	0.06	5.7	14.6	B	0.07	8.6
EBR	11.8	B	0.68	19.3	24.7	C	0.88	70.8
NBT	5.1	A	0.33	41.4	14.1	B	0.46	75.6
NBR	1.2	A	0.23	7.4	2.8	A	0.36	14.5
SBLT	1.5	A	0.20	2.3	5.3	A	0.39	67.6
INT Summary	5.3	A	0.68	-	13.6	B	0.88	-

Table 16 Capacity Analysis: 2036 Post-development Traffic

Highway 1 EB Off-Ramp/ Three Sisters Boulevard (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBLT	22.3	C	0.04	6.6	12.4	B	0.07	9.6
EBR	7.1	A	0.57	19.9	28.9	C	0.89	107.1
NBT	8.4	A	0.42	49.1	22.8	C	0.61	111.9
NBR	1.5	A	0.27	8.0	3.8	A	0.44	18.6
SBLT	2.1	A	0.27	2.8	6.7	A	0.51	82.0
INT Summary	5.5	A	0.57	-	17.6	B	0.89	-

The above capacity analyses show that all traffic movements at the Highway 1 EB Off-Ramp / Three Sisters Boulevard intersection are expected to operate at an acceptable LOS during the AM and PM peak hours up to the 20 year horizon, under signal control. The existing lane configuration at this intersection with signal control is capable of accommodating the forecasted 20 year horizon post-development traffic volumes.

#### 7.4.1.3 Highway 1 Westbound Off-Ramp / Three Sisters Boulevard

The Highway 1 westbound Off-Ramp / Three Sisters Boulevard intersection is currently controlled by a stop sign on the westbound off-ramp with free flow conditions on Three Sisters Boulevard. It is anticipated that the existing intersection treatment with stop control will not be capable of accommodating the post-development traffic. Thus, traffic signals are recommended to be installed at this intersection to improve the traffic operational performance. No material geometric improvements will be required.

The operational performance of all traffic movements at this intersection at the analysis horizons are summarized in Tables 17 to 19. The detailed Synchro outputs are attached in Appendix A.

Table 17 Capacity Analysis: Existing Traffic

Highway 1 WB Off-Ramp/ Three Sisters Boulevard (Stop Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
WBLTR	13.1	B	0.23	7.4	16.5	C	0.33	12.1
NBL	7.5	A	0.11	2.9	7.6	A	0.13	4.0
SBTR	0.0	A	0.02	0.0	0.0	A	0.01	0.0
INT Summary	8.4	A	0.23	0.0	9.5	A	0.33	-

Table 18 Capacity Analysis: 2026 Post-development Traffic

Highway 1 WB Off-Ramp/ Three Sisters Boulevard (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
WBLTR	18.5	B	0.36	50.2	20.6	C	0.52	72.1
NBL	23.5	C	0.80	71.1	22.4	C	0.84	99.6
SBTR	7.3	A	0.05	5.5	9.1	A	0.02	3.9
INT Summary	20.9	C	0.80	-	21.4	C	0.84	-

Table 19 Capacity Analysis: 2036 Post-development Traffic

Highway 1 WB Off-Ramp/ Three Sisters Boulevard (Signal Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
WBLTR	20.7	C	0.44	57.3	25.2	C	0.59	89.2
NBL	21.4	C	0.83	83.9	25.0	C	0.88	137.2
SBTR	6.9	A	0.06	6.3	9.6	A	0.02	4.2
INT Summary	20.4	C	0.83	-	24.8	C	0.88	-

The preceding capacity analyses show that all traffic movements at the Highway 1 WB Off-Ramp / Three Sisters Boulevard intersection are expected to operate at an acceptable LOS during the AM and PM peak hours up to the 20 year horizon. The existing lane configuration at this intersection with signal control is capable of accommodating the forecasted 20 year horizon post-development traffic volumes.

#### 7.4.1.4 Highway 1 Eastbound Off-Ramp / George Biggy Sr Road

The Highway 1 eastbound Off-Ramp / George Biggy Sr Road intersection is currently controlled by a stop sign on the Highway 1 eastbound off-ramp with free flow conditions on George Biggy Sr Road. It is anticipated that the existing intersection treatment with stop control will be capable of accommodating the forecast future post-development traffic. No material geometric improvements will be required.

The operational performance of all traffic movements at this intersection at the analysis horizons are summarized in Tables 20 to 22. The detailed Synchro outputs are attached in Appendix B.

Table 20 Capacity Analysis: Existing Traffic

Highway 1 EB Off-Ramp/ George Biggy Sr Road (Stop Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBL	9.2	A	0.05	1.3	9.3	A	0.07	1.8
EBR	8.4	A	0.01	0.0	8.4	A	0.01	0.0
NBTR	0.0	A	0.00	0.0	0.0	A	0.01	0.0
SBL	7.3	A	0.02	0.5	7.3	A	0.02	0.5
INT Summary	7.3	A	0.05	-	7.0	A	0.07	-

Table 21 Capacity Analysis: 2026 Post-development Traffic

Highway 1 EB Off-Ramp/ George Biggy Sr Road (Stop Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBL	12.8	B	0.12	3.2	22.6	C	0.27	8.8
EBR	10.5	B	0.22	7.2	13.0	B	0.38	14.4
NBTR	0.0	A	0.17	0.0	0.0	A	0.42	0.0
SBL	7.9	A	0.03	0.8	9.3	A	0.04	0.8
INT Summary	3.9	A	0.22	-	4.0	A	0.42	-

Table 22 Capacity Analysis: 2036 Post-development Traffic

Highway 1 EB Off-Ramp/ George Biggy Sr Road (Stop Control)

TRAFFIC MOVEMENTS	AM PEAK HOUR				PM PEAK HOUR			
	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)	Delay (S)	LOS	V/C	95 <sup>th</sup> Queue Length (m)
EBL	13.4	B	0.14	4.0	25.1	D	0.34	11.2
EBR	10.5	B	0.23	7.2	13.0	B	0.38	14.4
NBTR	0.0	A	0.18	0.0	0.0	A	0.42	0.0
SBL	8.0	A	0.04	0.8	9.3	A	0.05	1.6
INT Summary	4.1	A	0.23	-	4.4	A	0.42	-

The above capacity analyses show that all traffic movements at the Highway 1 EB Off-Ramp / George Biggy Sr Road intersection are expected to operate at an acceptable LOS during the AM and PM peak hours up to the 20 year horizon. The existing lane configuration at this intersection with stop control is capable of accommodating the forecasted 20 year horizon post-development traffic volumes.

## 8.0 RECOMMENDATIONS AND CONCLUSIONS

In conclusion, the Resort Centre ASP area features a mixed land use concept and vibrant community elements and, as such, has potential to both support and benefit from a complete streets philosophy of transportation planning and design.

Consistent with the Town's Integrated Transportation Plan, it is recommended that walking, cycling, and public transit be significantly integrated into this community and form the backbone of the mobility system. These modes of transportation move people more efficiently from a spatial and cost perspective, achieve several common public policy objectives like public health promotion and equity in the provision of a mobility system, and allow the creation of much more interesting and diverse public spaces. The integration of these modes also permits more compact intersection design and narrower streets. The recommendations for each mode are summarized below.

### 8.1 Walking

- Streets should have sidewalks on both sides of the street, where appropriate
- Sidewalks should be a minimum width of 1.5 – 2 m
- Sidewalks should be wider on streets with higher intensity adjacent land uses
- Provision of curb ramps and universal access principles should influence all sidewalk design
- Intersections under signal control should include pedestrian crossings and phasing. Pedestrian crossing provisions should be incorporated on the road network throughout the development, as appropriate for road function and adjacent land uses.

### 8.2 Cycling

- Arterial and Liveable (collector) streets should have dedicated cycling facilities like painted lanes or cycle tracks for example
- Cycling facilities should be designed in accordance with current best practice guidelines (including the Ontario Traffic Manual Book 18 Cycling Facilities, NACTO Urban Bikeway Design Guide and MassDOT Separated Bike Lane Planning and Design Guide), taking into consideration traffic demands, cycle volumes and road environment.
- Streets with higher volumes should have a physical separation buffer between the dedicated cycling facility and the moving vehicles – and a buffer with an on-street parking lane if it exists.

### 8.3 Riding Transit

- The street network should be planned to be as direct as possible, minimizing confusion and trip time for transit riders.

- Development should be the most intense along transit corridors, both increasing ridership and minimizing vehicle transportation impacts through the transit use.
- The streets surrounding the transit corridor should be walkable with relatively small block sizes and provision of sidewalks on both sides of the street.
- The public realm of transit corridors should be of good quality, encouraging walking and the use of transit.

## 8.4 Driving

The recommendations for the driving mode of transportation primarily involve the below intersection control devices and lane configurations. Following a complete streets philosophy, lane widths should be minimized and should be large enough to accommodate transit buses and no wider – recommended to be no wider than 3.5 m. Streets that will not accommodate transit service should have a lane width of 3.3 m.

### Resort Centre West Access

- Traffic signals
- Eastbound – one through lane and one right turn lane
- Westbound – one through lane and one left turn lane
- Northbound – one left turn lane and one right turn lane.

### Resort Centre East Access

- Traffic signals
- Eastbound – one through lane and one right turn lane
- Westbound – one through lane and one left turn lane
- Northbound – one left turn lane and one right turn lane.

### Highway 1 and Three Sisters Boulevard

- Traffic signals at both eastbound and westbound ramp intersections
- Existing lane configurations will allow reasonable traffic operations.

### Highway 1 and George Biggy Sr Road

- Stop control device at the eastbound ramp intersection
- Existing lane configuration will allow reasonable traffic operations.

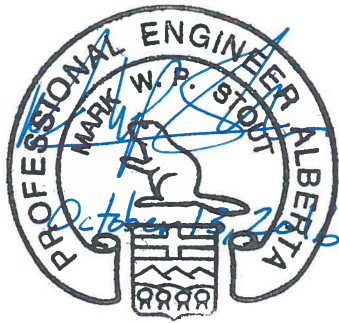
## 8.5 Classifications

The main street of this ASP, the Resort Centre Access Street, should be classified as a Liveable Urban Boulevard. An indicative cross section can be seen in Appendix A.

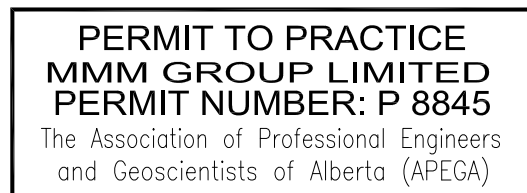
- Liveable Urban Boulevards generally have sidewalks, on-street cycling facilities, one lane in each direction, may accommodate primary transit, and may feature a median with trees and vegetation.

## 9.0 CORPORATE AUTHORIZATION

This document entitled "TSMV Resort Centre Transportation Master Plan and Transportation Impact Assessment" was prepared by MMM Group Limited (MMM), a WSP Company, for the account of Three Sisters Mountain Village Properties Ltd. and QuantumPlace Developments Ltd. The material in this report reflects MMM's best judgment in light of the information available to them at the time of preparation. Any use which a third party makes of this report, or reliance on or decisions made based on it, are the responsibilities of such third parties, with the sole exception of the Town of Canmore. MMM accepts no responsibilities for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



**RESPONSIBLE ENGINEER**



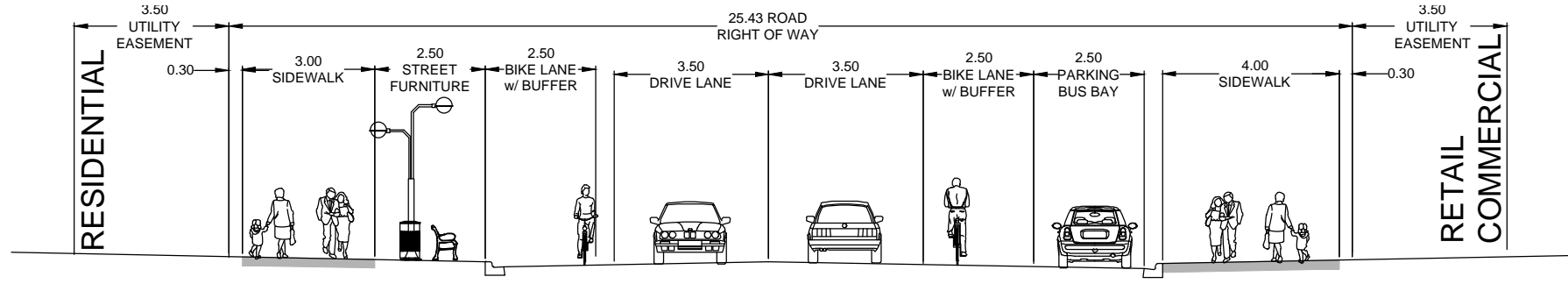
**CORPORATE AUTHORIZATION**

Analysis and Report Preparation by: Mark Stout, P.Eng

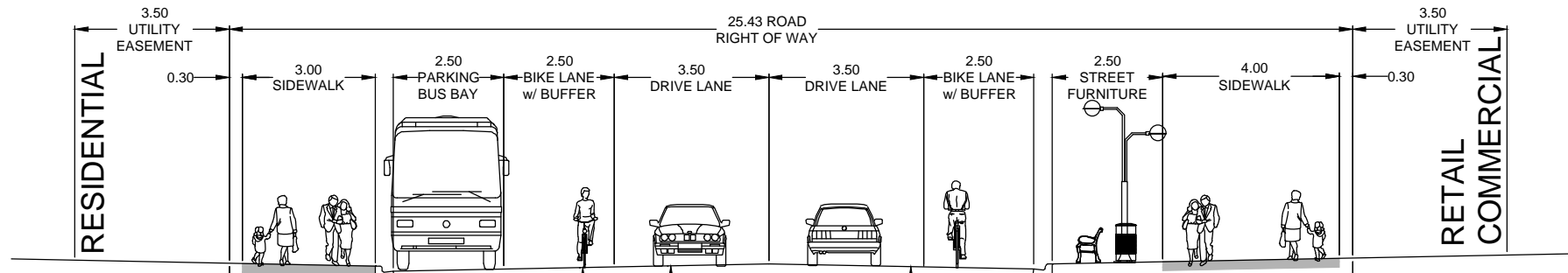
Report Review by: Matt Luik, P.Eng, PMP, LEED AP ND  
Richard Lane, P.Eng







**INDICATIVE SECTION - A**  
 NOT TO SCALE  
 URBAN - ON-ROAD BIKE LANES



**INDICATIVE SECTION - B**  
 NOT TO SCALE  
 URBAN - ON-ROAD BIKE LANES

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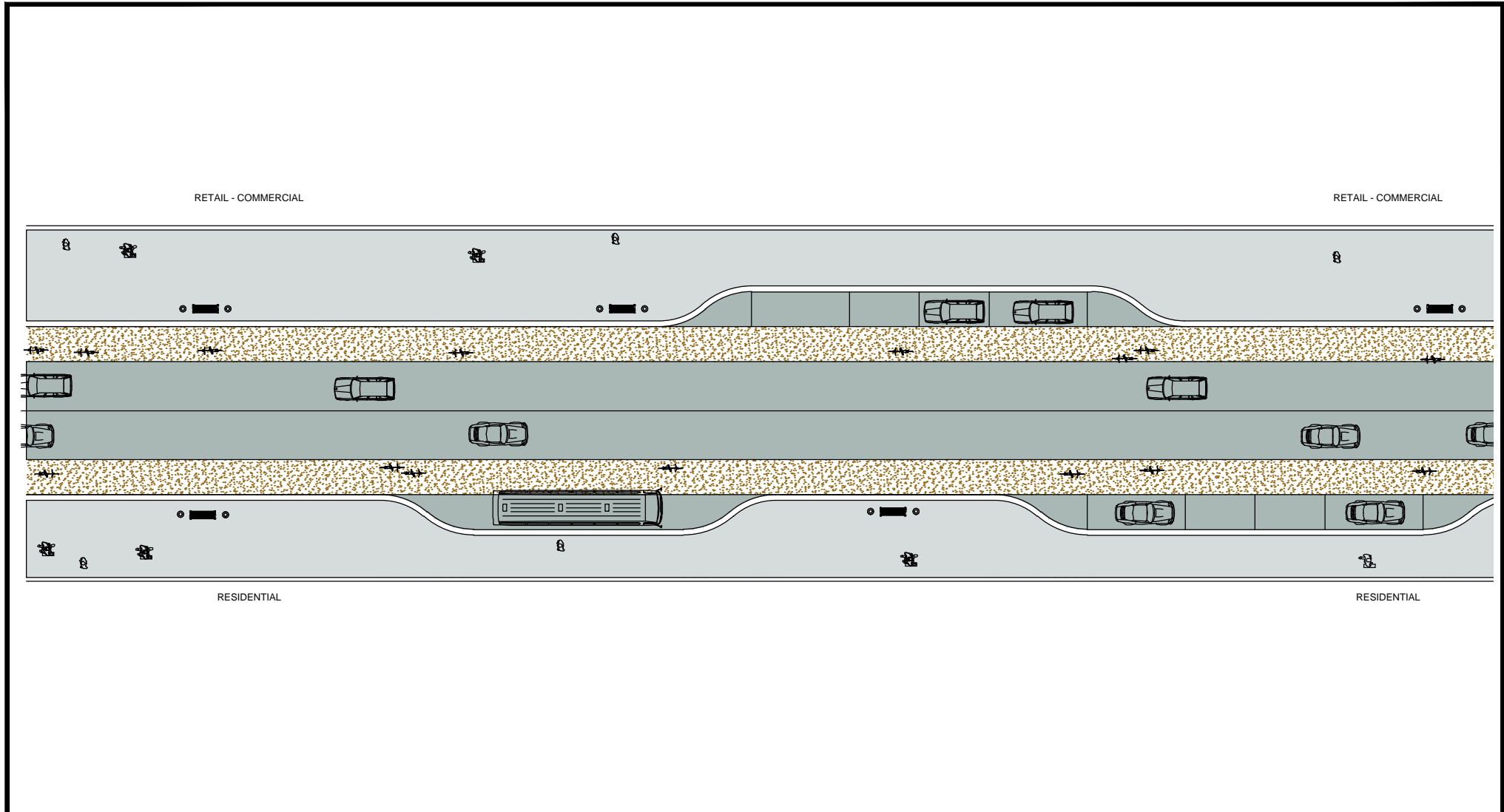


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**RESORT CENTRE  
 INDICATIVE SECTIONS**

SCALE NTS	DATE 2016-10-19	DRAWING No. SECTIONS 1.1
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RESORT CENTRE  
 INDICATIVE SECTION PLAN

SCALE NTS	DATE 2016-10-19	DRAWING No. SECTIONS 1.2
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Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔			↔	
Traffic Vol, veh/h	9	1	152	0	0	0	0	169	80	5	124	0
Future Vol, veh/h	9	1	152	0	0	0	0	169	80	5	124	0
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	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	165	0	0	0	0	184	87	5	135	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	330	330	135	-	0	0	-	0	0	184	0	0
Stage 1	146	146	-	-	-	-	-	-	-	-	-	-
Stage 2	184	184	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	665	589	914	0	-	-	0	-	-	1391	-	0
Stage 1	881	776	-	0	-	-	0	-	-	-	-	0
Stage 2	848	747	-	0	-	-	0	-	-	-	-	0
Platoon blocked, %												
Mov Cap-1 Maneuver	662	0	914	-	-	-	-	-	-	1391	-	-
Mov Cap-2 Maneuver	662	0	-	-	-	-	-	-	-	-	-	-
Stage 1	877	0	-	-	-	-	-	-	-	-	-	-
Stage 2	848	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	9.8			0			0.3					
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT						
Capacity (veh/h)	-	-	662	914	1391	-						
HCM Lane V/C Ratio	-	-	0.016	0.181	0.004	-						
HCM Control Delay (s)	-	-	10.5	9.8	7.6	0						
HCM Lane LOS	-	-	B	A	A	A						
HCM 95th %tile Q(veh)	-	-	0.1	0.7	0	-						

Intersection

Int Delay, s/veh 8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	108	1	11	156	22	0	0	21	7
Future Vol, veh/h	0	0	0	108	1	11	156	22	0	0	21	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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	117	1	12	170	24	0	0	23	8

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	390	393	24
Stage 1	363	363	-
Stage 2	27	30	-
Critical Hdwy	6.42	6.52	6.22
Critical Hdwy Stg 1	5.42	5.52	-
Critical Hdwy Stg 2	5.42	5.52	-
Follow-up Hdwy	3.518	4.018	3.318
Pot Cap-1 Maneuver	614	543	1052
Stage 1	704	625	-
Stage 2	996	870	-
Platoon blocked, %			
Mov Cap-1 Maneuver	547	0	1052
Mov Cap-2 Maneuver	547	0	-
Stage 1	627	0	-
Stage 2	996	0	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	6.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1583	-	572	-
HCM Lane V/C Ratio	0.107	-	0.228	-
HCM Control Delay (s)	7.5	0	13.1	-
HCM Lane LOS	A	A	B	-
HCM 95th %tile Q(veh)	0.4	-	0.9	-

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔			↔	
Traffic Vol, veh/h	44	0	8	0	0	0	0	2	6	29	5	0
Future Vol, veh/h	44	0	8	0	0	0	0	2	6	29	5	0
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	0	9	0	0	0	0	2	7	32	5	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	73	77	5	-	0	0	-	0	0	9	0	0
Stage 1	68	68	-	-	-	-	-	-	-	-	-	-
Stage 2	5	9	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	931	813	1078	0	-	-	0	-	-	1611	-	0
Stage 1	955	838	-	0	-	-	0	-	-	-	-	0
Stage 2	1018	888	-	0	-	-	0	-	-	-	-	0
Platoon blocked, %												
Mov Cap-1 Maneuver	912	0	1078	-	-	-	-	-	-	1611	-	-
Mov Cap-2 Maneuver	912	0	-	-	-	-	-	-	-	-	-	-
Stage 1	936	0	-	-	-	-	-	-	-	-	-	-
Stage 2	1018	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	9.1			0			6.2					
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT						
Capacity (veh/h)	-	-	912	1078	1611	-						
HCM Lane V/C Ratio	-	-	0.052	0.008	0.02	-						
HCM Control Delay (s)	-	-	9.2	8.4	7.3	0						
HCM Lane LOS	-	-	A	A	A	A						
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1	-						

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖			↖	
Traffic Vol, veh/h	29	1	283	0	0	0	0	218	170	4	143	0
Future Vol, veh/h	29	1	283	0	0	0	0	218	170	4	143	0
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	-	-	Yield	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	1	308	0	0	0	0	237	185	4	155	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	401	401	155	-	0	0	237	0	0			
Stage 1	164	164	-	-	-	-	-	-	-			
Stage 2	237	237	-	-	-	-	-	-	-			
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-			
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-			
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-			
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-			
Pot Cap-1 Maneuver	605	538	891	0	-	-	1330	-	0			
Stage 1	865	762	-	0	-	-	-	-	0			
Stage 2	802	709	-	0	-	-	-	-	0			
Platoon blocked, %												
Mov Cap-1 Maneuver	603	0	891	-	-	-	1330	-	-			
Mov Cap-2 Maneuver	603	0	-	-	-	-	-	-	-			
Stage 1	862	0	-	-	-	-	-	-	-			
Stage 2	802	0	-	-	-	-	-	-	-			
Approach	EB			NB			SB					
HCM Control Delay, s	11.2			0			0.2					
HCM LOS	B											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT						
Capacity (veh/h)	-	-	603	891	1330	-						
HCM Lane V/C Ratio	-	-	0.054	0.345	0.003	-						
HCM Control Delay (s)	-	-	11.3	11.2	7.7	0						
HCM Lane LOS	-	-	B	B	A	A						
HCM 95th %tile Q(veh)	-	-	0.2	1.5	0	-						




















Intersection												
Int Delay, s/veh	9.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	136	1	2	197	50	0	0	12	1
Future Vol, veh/h	0	0	0	136	1	2	197	50	0	0	12	1
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	148	1	2	214	54	0	0	13	1
Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				497	497	54	14	0	-	-	-	0
Stage 1				483	483	-	-	-	-	-	-	-
Stage 2				14	14	-	-	-	-	-	-	-
Critical Hdwy				6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1				5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy				3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver				532	475	1013	1604	-	0	0	-	-
Stage 1				620	553	-	-	-	0	0	-	-
Stage 2				1009	884	-	-	-	0	0	-	-
Platoon blocked, %								-				
Mov Cap-1 Maneuver				459	0	1013	1604	-	-	-	-	-
Mov Cap-2 Maneuver				459	0	-	-	-	-	-	-	-
Stage 1				534	0	-	-	-	-	-	-	-
Stage 2				1009	0	-	-	-	-	-	-	-
Approach				WB			NB			SB		
HCM Control Delay, s				16.5			6.1			0		
HCM LOS				C								
Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR								
Capacity (veh/h)	1604	-	463	-	-							
HCM Lane V/C Ratio	0.133	-	0.326	-	-							
HCM Control Delay (s)	7.6	0	16.5	-	-							
HCM Lane LOS	A	A	C	-	-							
HCM 95th %tile Q(veh)	0.5	-	1.4	-	-							

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔			↔	
Traffic Vol, veh/h	56	0	8	0	0	0	0	13	6	29	3	0
Future Vol, veh/h	56	0	8	0	0	0	0	13	6	29	3	0
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	61	0	9	0	0	0	0	14	7	32	3	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	83	87	3	-	0	0	-	0	0	21	0	0
Stage 1	66	66	-	-	-	-	-	-	-	-	-	-
Stage 2	17	21	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	919	803	1081	0	-	-	0	-	-	1595	-	0
Stage 1	957	840	-	0	-	-	0	-	-	-	-	0
Stage 2	1006	878	-	0	-	-	0	-	-	-	-	0
Platoon blocked, %												
Mov Cap-1 Maneuver	901	0	1081	-	-	-	-	-	-	1595	-	-
Mov Cap-2 Maneuver	901	0	-	-	-	-	-	-	-	-	-	-
Stage 1	938	0	-	-	-	-	-	-	-	-	-	-
Stage 2	1006	0	-	-	-	-	-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	9.2			0			6.6					
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT						
Capacity (veh/h)	-	-	901	1081	1595	-						
HCM Lane V/C Ratio	-	-	0.068	0.008	0.02	-						
HCM Control Delay (s)	-	-	9.3	8.4	7.3	0						
HCM Lane LOS	-	-	A	A	A	A						
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1	-						

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2026 Combined Traffic AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1	289	0	0	0	0	406	255	6	243	0
Future Volume (vph)	11	1	289	0	0	0	0	406	255	6	243	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	0.0		0.0	0.0		50.0	0.0		0.0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected		0.956										0.999
Satd. Flow (prot)	0	1801	1601	0	0	0	0	1883	1601	0	1882	0
Flt Permitted		0.956										0.990
Satd. Flow (perm)	0	1801	1601	0	0	0	0	1883	1601	0	1865	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			314						277			
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		540.9			568.2			284.3			200.9	
Travel Time (s)		32.5			34.1			17.1			12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1	314	0	0	0	0	441	277	7	264	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	314	0	0	0	0	441	277	0	271	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2	6		
Detector Phase	4	4	4					2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0					5.0	5.0	5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	28.0	28.0	28.0					42.0	42.0	42.0	42.0	
Total Split (%)	40.0%	40.0%	40.0%					60.0%	60.0%	60.0%	60.0%	
Maximum Green (s)	22.0	22.0	22.0					36.0	36.0	36.0	36.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		6.0	6.0					6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)		8.0	8.0					50.0	50.0		50.0	
Actuated g/C Ratio		0.11	0.11					0.71	0.71		0.71	
v/c Ratio		0.06	0.68					0.33	0.23		0.20	
Control Delay		25.8	11.8					5.1	1.2		1.5	
Queue Delay		0.0	0.0					0.0	0.0		0.0	
Total Delay		25.8	11.8					5.1	1.2		1.5	

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2026 Combined Traffic AM Peak

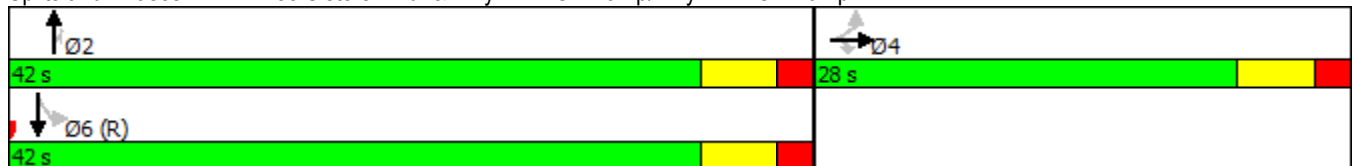
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C	B					A	A		A	
Approach Delay		12.3						3.6			1.5	
Approach LOS		B						A			A	
Queue Length 50th (m)		1.7	0.0					15.3	0.0		0.9	
Queue Length 95th (m)		5.7	19.3					41.4	7.4		2.3	
Internal Link Dist (m)		516.9			544.2			260.3			176.9	
Turn Bay Length (m)			30.0						50.0			
Base Capacity (vph)		566	718					1345	1222		1332	
Starvation Cap Reductn		0	0					0	0		0	
Spillback Cap Reductn		0	0					0	0		0	
Storage Cap Reductn		0	0					0	0		0	
Reduced v/c Ratio		0.02	0.44					0.33	0.23		0.20	

Intersection Summary

Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 70  
 Offset: 0 (0%), Referenced to phase 6:SBTL, Start of Green, Master Intersection  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 5.3  
 Intersection Capacity Utilization 48.1%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service A
















Splits and Phases: 1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp



Lanes, Volumes, Timings

2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2026 Combined Traffic AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	223	1	14	390	28	0	0	26	9
Future Volume (vph)	0	0	0	223	1	14	390	28	0	0	26	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.992						0.964	
Flt Protected					0.955			0.955				
Satd. Flow (prot)	0	0	0	0	1784	0	0	1799	0	0	1816	0
Flt Permitted					0.955			0.712				
Satd. Flow (perm)	0	0	0	0	1784	0	0	1341	0	0	1816	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4						10	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		528.1			501.5			200.9			268.2	
Travel Time (s)		38.0			30.1			12.1			16.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	242	1	15	424	30	0	0	28	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	258	0	0	454	0	0	38	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				15.0	15.0		15.0	15.0			15.0	
Minimum Split (s)				24.0	24.0		24.0	24.0			24.0	
Total Split (s)				26.0	26.0		44.0	44.0			44.0	
Total Split (%)				37.1%	37.1%		62.9%	62.9%			62.9%	
Maximum Green (s)				20.0	20.0		38.0	38.0			38.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				C-Max	C-Max		None	None			None	
Walk Time (s)				7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					28.3			29.7			29.7	
Actuated g/C Ratio					0.40			0.42			0.42	
v/c Ratio					0.36			0.80			0.05	
Control Delay					18.5			23.5			7.3	
Queue Delay					0.0			0.0			0.0	
Total Delay					18.5			23.5			7.3	
LOS					B			C			A	
Approach Delay					18.5			23.5			7.3	
Approach LOS					B			C			A	

# Lanes, Volumes, Timings

## 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

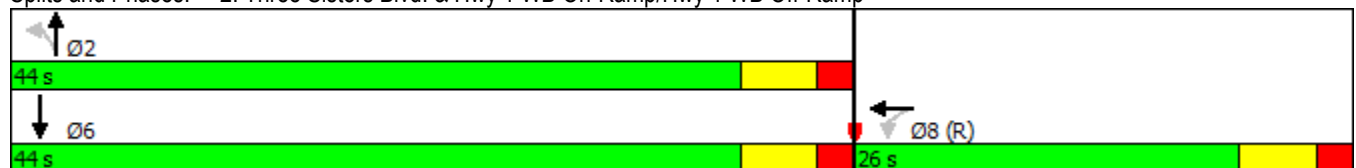
2026 Combined Traffic AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (m)					24.2			51.7			2.1	
Queue Length 95th (m)					50.2			71.1			5.5	
Internal Link Dist (m)		504.1			477.5			176.9			244.2	
Turn Bay Length (m)												
Base Capacity (vph)					722			727			990	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.36			0.62			0.04	

### Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	50 (71%), Referenced to phase 8:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	20.9
Intersection LOS:	C
Intersection Capacity Utilization	53.0%
ICU Level of Service	A
Analysis Period (min)	15

### Splits and Phases: 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp



Lanes, Volumes, Timings  
 4: Resort Center East Access & Three Sisters Pkwy

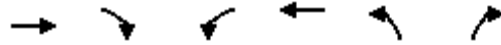
2026 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	694	46	108	576	101	232
Future Volume (vph)	694	46	108	576	101	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.179		0.950	
Satd. Flow (perm)	1883	1601	337	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		49				252
Link Speed (k/h)	60			60	50	
Link Distance (m)	1174.5			1335.6	297.9	
Travel Time (s)	70.5			80.1	21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	754	50	117	626	110	252
Shared Lane Traffic (%)						
Lane Group Flow (vph)	754	50	117	626	110	252
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	12.0	24.0	23.5	23.5
Total Split (s)	34.5	34.5	12.0	46.5	23.5	23.5
Total Split (%)	49.3%	49.3%	17.1%	66.4%	33.6%	33.6%
Maximum Green (s)	28.5	28.5	8.0	40.5	18.0	18.0
Yellow Time (s)	4.0	4.0	3.0	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	None	C-Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	37.9	37.9	49.6	47.6	10.9	10.9
Actuated g/C Ratio	0.54	0.54	0.71	0.68	0.16	0.16
v/c Ratio	0.74	0.06	0.29	0.49	0.40	0.55
Control Delay	7.5	0.2	5.3	7.2	30.8	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	0.2	5.3	7.2	30.8	8.8

Lanes, Volumes, Timings

4: Resort Center East Access & Three Sisters Pkwy

2026 Combined Traffic AM Peak

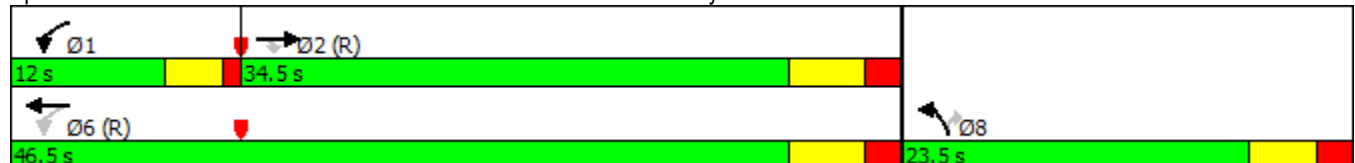


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A	A	A	C	A
Approach Delay	7.0			6.9	15.5	
Approach LOS	A			A	B	
Queue Length 50th (m)	7.1	0.0	3.8	32.3	14.1	0.0
Queue Length 95th (m)	m#145.1	m0.2	9.5	62.0	26.9	17.7
Internal Link Dist (m)	1150.5			1311.6	273.9	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	1019	889	407	1280	460	598
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.06	0.29	0.49	0.24	0.42

Intersection Summary

Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 70  
 Offset: 60 (86%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 8.6  
 Intersection LOS: A  
 Intersection Capacity Utilization 64.4%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Resort Center East Access & Three Sisters Pkwy





# Lanes, Volumes, Timings

## 5: Resort Center West Access & Three Sisters Pkwy

2026 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	632	116	101	576	248	108
Future Volume (vph)	632	116	101	576	248	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.155		0.950	
Satd. Flow (perm)	1883	1601	292	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		126				117
Link Speed (k/h)	60			60	50	
Link Distance (m)	347.3			1174.5	397.6	
Travel Time (s)	20.8			70.5	28.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	687	126	110	626	270	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	687	126	110	626	270	117
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	12.5	24.0	23.5	23.5
Total Split (s)	34.0	34.0	12.5	46.5	23.5	23.5
Total Split (%)	48.6%	48.6%	17.9%	66.4%	33.6%	33.6%
Maximum Green (s)	28.0	28.0	8.5	40.5	18.0	18.0
Yellow Time (s)	4.0	4.0	3.0	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min	C-Min	Min	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	31.4	31.4	45.5	43.5	15.0	15.0
Actuated g/C Ratio	0.45	0.45	0.65	0.62	0.21	0.21
v/c Ratio	0.81	0.16	0.30	0.54	0.71	0.27
Control Delay	28.2	3.5	5.2	8.0	35.6	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	3.5	5.2	8.0	35.6	6.4

Lanes, Volumes, Timings  
 5: Resort Center West Access & Three Sisters Pkwy

2026 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	A	A	D	A
Approach Delay	24.4			7.6	26.8	
Approach LOS	C			A	C	
Queue Length 50th (m)	79.9	0.0	2.8	44.3	34.1	0.0
Queue Length 95th (m)	#152.5	9.1	5.3	53.2	55.8	11.4
Internal Link Dist (m)	323.3			1150.5	373.6	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	845	788	371	1170	460	498
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.16	0.30	0.54	0.59	0.23

Intersection Summary

Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 70  
 Offset: 58 (83%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 18.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 66.6%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Resort Center West Access & Three Sisters Pkwy



HCM 2010 TWSC

3: George Biggy SR Road & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp 2026 Combined Traffic AM Peak

Intersection

Int Delay, s/veh 3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↘			↖	
Traffic Vol, veh/h	55	0	173	0	0	0	0	114	157	36	184	0
Future Vol, veh/h	55	0	173	0	0	0	0	114	157	36	184	0
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	0	188	0	0	0	0	124	171	39	200	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	487	573	200	-	0	0	295	0	0
Stage 1	278	278	-	-	-	-	-	-	-
Stage 2	209	295	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	540	430	841	0	-	-	1266	-	0
Stage 1	769	680	-	0	-	-	-	-	0
Stage 2	826	669	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	521	0	841	-	-	-	1266	-	-
Mov Cap-2 Maneuver	521	0	-	-	-	-	-	-	-
Stage 1	742	0	-	-	-	-	-	-	-
Stage 2	826	0	-	-	-	-	-	-	-


















Approach	EB	NB	SB
HCM Control Delay, s	11.1	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	521	841	1266	-
HCM Lane V/C Ratio	-	-	0.115	0.224	0.031	-
HCM Control Delay (s)	-	-	12.8	10.5	7.9	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.9	0.1	-

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2026 Combined Traffic PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1	570	0	0	0	0	422	340	5	355	0
Future Volume (vph)	36	1	570	0	0	0	0	422	340	5	355	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	0.0		0.0	0.0		50.0	0.0		0.0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected		0.954										0.999
Satd. Flow (prot)	0	1797	1601	0	0	0	0	1883	1601	0	1882	0
Flt Permitted		0.954										0.995
Satd. Flow (perm)	0	1797	1601	0	0	0	0	1883	1601	0	1874	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			326						370			
Link Speed (k/h)		60			50			60			60	
Link Distance (m)		540.9			568.2			284.3			200.9	
Travel Time (s)		32.5			40.9			17.1			12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	1	620	0	0	0	0	459	370	5	386	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	620	0	0	0	0	459	370	0	391	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2	6		
Detector Phase	4	4	4					2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0	15.0	15.0	
Minimum Split (s)	16.0	16.0	16.0					21.0	21.0	21.0	21.0	
Total Split (s)	35.0	35.0	35.0					35.0	35.0	35.0	35.0	
Total Split (%)	50.0%	50.0%	50.0%					50.0%	50.0%	50.0%	50.0%	
Maximum Green (s)	29.0	29.0	29.0					29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		6.0	6.0					6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					Max	Max	C-Max	C-Max	
Act Effct Green (s)		20.8	20.8					37.2	37.2		37.2	
Actuated g/C Ratio		0.30	0.30					0.53	0.53		0.53	
v/c Ratio		0.07	0.88					0.46	0.36		0.39	
Control Delay		14.6	24.7					14.1	2.8		5.3	
Queue Delay		0.0	0.0					0.0	0.0		0.0	
Total Delay		14.6	24.7					14.1	2.8		5.3	
LOS		B	C					B	A		A	
Approach Delay		24.1						9.1			5.3	
Approach LOS		C						A			A	

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2026 Combined Traffic PM Peak

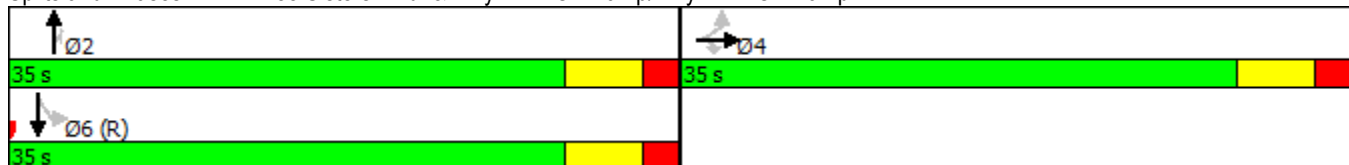


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)	29.0	29.0	29.0					29.0	29.0	29.0	29.0	
90th %ile Term Code	Max	Max	Max					Coord	Coord	Coord	Coord	
70th %ile Green (s)	27.0	27.0	27.0					31.0	31.0	31.0	31.0	
70th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord	Coord	
50th %ile Green (s)	21.6	21.6	21.6					36.4	36.4	36.4	36.4	
50th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord	Coord	
30th %ile Green (s)	16.4	16.4	16.4					41.6	41.6	41.6	41.6	
30th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord	Coord	
10th %ile Green (s)	10.0	10.0	10.0					48.0	48.0	48.0	48.0	
10th %ile Term Code	Min	Min	Min					Coord	Coord	Coord	Coord	
Queue Length 50th (m)		3.9	38.3					37.3	0.0			1.0
Queue Length 95th (m)		8.6	70.8					75.6	14.5			67.6
Internal Link Dist (m)		516.9			544.2			260.3				176.9
Turn Bay Length (m)			30.0						50.0			
Base Capacity (vph)		744	854					1000	1024			995
Starvation Cap Reductn		0	0					0	0			0
Spillback Cap Reductn		0	0					0	0			0
Storage Cap Reductn		0	0					0	0			0
Reduced v/c Ratio		0.05	0.73					0.46	0.36			0.39

Intersection Summary

Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 70  
 Offset: 0 (0%), Referenced to phase 6:SBTL, Start of Green, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 13.6  
 Intersection Capacity Utilization 64.3%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service C
















Splits and Phases: 1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp



Lanes, Volumes, Timings

2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2026 Combined Traffic PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	346	1	3	396	63	0	0	15	1
Future Volume (vph)	0	0	0	346	1	3	396	63	0	0	15	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999						0.992	
Flt Protected					0.953			0.959				
Satd. Flow (prot)	0	0	0	0	1793	0	0	1806	0	0	1868	0
Flt Permitted					0.953			0.743				
Satd. Flow (perm)	0	0	0	0	1793	0	0	1399	0	0	1868	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1						1	
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		528.1			501.5			200.9			268.2	
Travel Time (s)		38.0			30.1			12.1			16.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	376	1	3	430	68	0	0	16	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	380	0	0	498	0	0	17	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				15.0	15.0		15.0	15.0			15.0	
Minimum Split (s)				24.0	24.0		24.0	24.0			24.0	
Total Split (s)				29.0	29.0		41.0	41.0			41.0	
Total Split (%)				41.4%	41.4%		58.6%	58.6%			58.6%	
Maximum Green (s)				23.0	23.0		35.0	35.0			35.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				C-Max	C-Max		None	None			None	
Walk Time (s)				7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					28.4			29.6			29.6	
Actuated g/C Ratio					0.41			0.42			0.42	
v/c Ratio					0.52			0.84			0.02	
Control Delay					20.6			22.4			9.1	
Queue Delay					0.0			0.0			0.0	
Total Delay					20.6			22.4			9.1	
LOS					C			C			A	
Approach Delay					20.6			22.4			9.1	
Approach LOS					C			C			A	

# Lanes, Volumes, Timings

## 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2026 Combined Traffic PM Peak

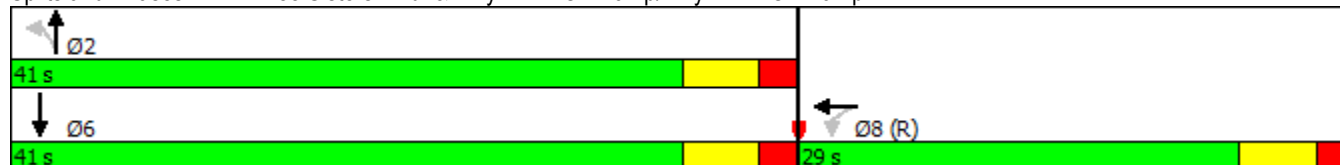


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)				23.0	23.0		35.0	35.0				35.0
90th %ile Term Code				Coord	Coord		Max	Max				Hold
70th %ile Green (s)				23.8	23.8		34.2	34.2				34.2
70th %ile Term Code				Coord	Coord		Gap	Gap				Hold
50th %ile Green (s)				26.9	26.9		31.1	31.1				31.1
50th %ile Term Code				Coord	Coord		Gap	Gap				Hold
30th %ile Green (s)				31.0	31.0		27.0	27.0				27.0
30th %ile Term Code				Coord	Coord		Gap	Gap				Hold
10th %ile Green (s)				37.4	37.4		20.6	20.6				20.6
10th %ile Term Code				Coord	Coord		Gap	Gap				Hold
Queue Length 50th (m)					39.7			59.2				1.2
Queue Length 95th (m)					72.1			99.6				3.9
Internal Link Dist (m)		504.1			477.5			176.9				244.2
Turn Bay Length (m)												
Base Capacity (vph)					728			699				934
Starvation Cap Reductn					0			0				0
Spillback Cap Reductn					0			0				0
Storage Cap Reductn					0			0				0
Reduced v/c Ratio					0.52			0.71				0.02

### Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	51 (73%), Referenced to phase 8:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	21.4
Intersection LOS:	C
Intersection Capacity Utilization:	61.3%
ICU Level of Service:	B
Analysis Period (min):	15

### Splits and Phases: 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp



Lanes, Volumes, Timings  
 4: Resort Center East Access & Three Sisters Pkwy

2026 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	661	137	323	803	105	250
Future Volume (vph)	661	137	323	803	105	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.124		0.950	
Satd. Flow (perm)	1883	1601	234	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		125				272
Link Speed (k/h)	60			60	50	
Link Distance (m)	1174.5			1335.6	297.9	
Travel Time (s)	70.5			80.1	21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	718	149	351	873	114	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	718	149	351	873	114	272
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	21.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	21.0	66.0	24.0	24.0
Total Split (%)	50.0%	50.0%	23.3%	73.3%	26.7%	26.7%
Maximum Green (s)	39.0	39.0	17.0	60.0	18.5	18.5
Yellow Time (s)	4.0	4.0	3.0	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	33.3	33.3	53.8	51.7	11.6	11.6
Actuated g/C Ratio	0.44	0.44	0.72	0.69	0.15	0.15
v/c Ratio	0.86	0.19	0.75	0.67	0.41	0.57
Control Delay	31.7	4.5	25.5	9.9	36.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	4.5	25.5	9.9	36.6	9.7



# Lanes, Volumes, Timings

## 4: Resort Center East Access & Three Sisters Pkwy

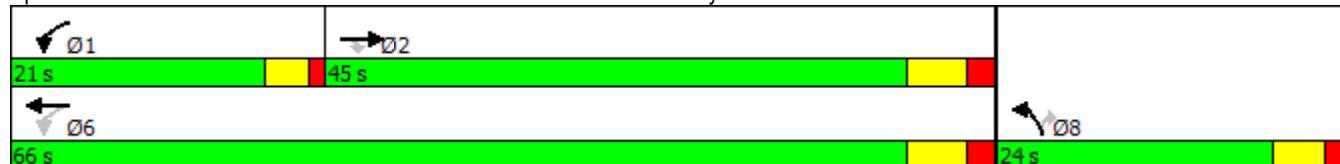
2026 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	C	A	D	A
Approach Delay	27.0			14.3	17.7	
Approach LOS	C			B	B	
90th %ile Green (s)	39.0	39.0	17.0	60.0	14.8	14.8
90th %ile Term Code	Max	Max	Max	Hold	Gap	Gap
70th %ile Green (s)	39.0	39.0	17.0	60.0	12.2	12.2
70th %ile Term Code	Max	Max	Max	Hold	Gap	Gap
50th %ile Green (s)	37.4	37.4	16.7	58.1	10.5	10.5
50th %ile Term Code	Gap	Gap	Gap	Hold	Gap	Gap
30th %ile Green (s)	30.7	30.7	13.1	47.8	10.0	10.0
30th %ile Term Code	Gap	Gap	Gap	Hold	Min	Min
10th %ile Green (s)	21.7	21.7	9.0	34.7	10.0	10.0
10th %ile Term Code	Gap	Gap	Gap	Hold	Min	Min
Queue Length 50th (m)	94.7	2.0	27.6	58.1	17.2	0.0
Queue Length 95th (m)	#174.8	12.6	#71.1	111.7	33.5	20.6
Internal Link Dist (m)	1150.5			1311.6	273.9	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	1002	910	528	1516	451	607
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.16	0.66	0.58	0.25	0.45

### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 75.1  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 19.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.9%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 86.3  
 70th %ile Actuated Cycle: 83.7  
 50th %ile Actuated Cycle: 80.1  
 30th %ile Actuated Cycle: 69.3  
 10th %ile Actuated Cycle: 56.2  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

### Splits and Phases: 4: Resort Center East Access & Three Sisters Pkwy



Lanes, Volumes, Timings  
5: Resort Center West Access & Three Sisters Pkwy

2026 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	689	288	131	777	204	108
Future Volume (vph)	689	288	131	777	204	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.119		0.950	
Satd. Flow (perm)	1883	1601	224	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		251				117
Link Speed (k/h)	60			60	50	
Link Distance (m)	347.3			1174.5	397.6	
Travel Time (s)	20.8			70.5	28.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	749	313	142	845	222	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	749	313	142	845	222	117
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	15.0	15.0
Minimum Split (s)	24.0	24.0	21.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	21.0	66.0	24.0	24.0
Total Split (%)	50.0%	50.0%	23.3%	73.3%	26.7%	26.7%
Maximum Green (s)	39.0	39.0	17.0	60.0	18.5	18.5
Yellow Time (s)	4.0	4.0	3.0	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	35.1	35.1	50.0	48.0	16.2	16.2
Actuated g/C Ratio	0.46	0.46	0.66	0.63	0.21	0.21
v/c Ratio	0.86	0.36	0.43	0.71	0.58	0.27
Control Delay	30.3	4.5	9.6	13.3	35.1	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	4.5	9.6	13.3	35.1	7.6

# Lanes, Volumes, Timings

## 5: Resort Center West Access & Three Sisters Pkwy

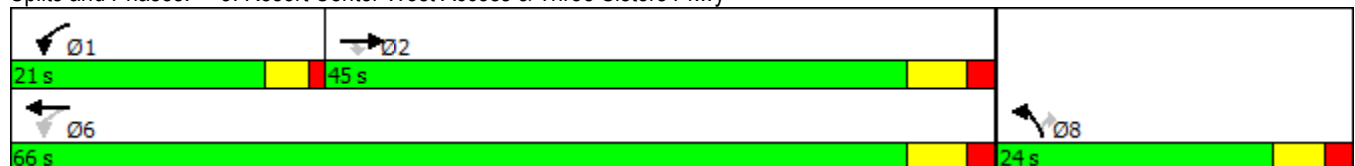
2026 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	A	B	D	A
Approach Delay	22.7			12.8	25.6	
Approach LOS	C			B	C	
90th %ile Green (s)	39.0	39.0	11.7	54.7	18.5	18.5
90th %ile Term Code	Max	Max	Gap	Hold	Max	Max
70th %ile Green (s)	39.0	39.0	8.8	51.8	17.2	17.2
70th %ile Term Code	Max	Max	Gap	Hold	Gap	Gap
50th %ile Green (s)	39.0	39.0	8.0	51.0	15.0	15.0
50th %ile Term Code	Max	Max	Min	Hold	Min	Min
30th %ile Green (s)	32.9	32.9	8.0	44.9	15.0	15.0
30th %ile Term Code	Gap	Gap	Min	Hold	Min	Min
10th %ile Green (s)	26.4	26.4	8.0	38.4	15.0	15.0
10th %ile Term Code	Gap	Gap	Min	Hold	Min	Min
Queue Length 50th (m)	90.0	4.7	6.4	70.0	31.9	0.0
Queue Length 95th (m)	#181.4	20.4	16.0	124.3	57.0	13.2
Internal Link Dist (m)	323.3			1150.5	373.6	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	977	951	502	1503	440	482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.33	0.28	0.56	0.50	0.24

### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 75.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 19.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 68.9%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 84.7  
 70th %ile Actuated Cycle: 80.5  
 50th %ile Actuated Cycle: 77.5  
 30th %ile Actuated Cycle: 71.4  
 10th %ile Actuated Cycle: 64.9  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

### Splits and Phases: 5: Resort Center West Access & Three Sisters Pkwy



HCM 2010 TWSC

3: George Biggy SR Road & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp 2026 Combined Traffic PM Peak

Intersection

Int Delay, s/veh 4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔			↔	
Traffic Vol, veh/h	70	0	255	0	0	0	0	325	339	36	290	0
Future Vol, veh/h	70	0	255	0	0	0	0	325	339	36	290	0
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	76	0	277	0	0	0	0	353	368	39	315	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	931	1115	315	-	0	0	722	0	0
Stage 1	393	393	-	-	-	-	-	-	-
Stage 2	538	722	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	296	208	725	0	-	-	880	-	0
Stage 1	682	606	-	0	-	-	-	-	0
Stage 2	585	431	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	280	0	725	-	-	-	880	-	-
Mov Cap-2 Maneuver	280	0	-	-	-	-	-	-	-
Stage 1	645	0	-	-	-	-	-	-	-
Stage 2	585	0	-	-	-	-	-	-	-


















Approach	EB	NB	SB
HCM Control Delay, s	15.1	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	280	725	880	-
HCM Lane V/C Ratio	-	-	0.272	0.382	0.044	-
HCM Control Delay (s)	-	-	22.6	13	9.3	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	1.1	1.8	0.1	-

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2036 Combined Traffic AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	2	327	0	0	0	0	449	275	8	274	0
Future Volume (vph)	14	2	327	0	0	0	0	449	275	8	274	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		40.0	0.0		0.0	0.0		50.0	0.0		0.0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected		0.958										0.999
Satd. Flow (prot)	0	1804	1601	0	0	0	0	1883	1601	0	1882	0
Flt Permitted		0.958									0.986	
Satd. Flow (perm)	0	1804	1601	0	0	0	0	1883	1601	0	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355						299			
Link Speed (k/h)		60			50			60				50
Link Distance (m)		540.9			568.2			284.3				200.9
Travel Time (s)		32.5			40.9			17.1				14.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	2	355	0	0	0	0	488	299	9	298	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	355	0	0	0	0	488	299	0	307	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		4						2				6
Permitted Phases	4		4						2	6		
Detector Phase	4	4	4					2	2	6	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0					15.0	15.0	15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	28.0	28.0	28.0					42.0	42.0	42.0	42.0	
Total Split (%)	40.0%	40.0%	40.0%					60.0%	60.0%	60.0%	60.0%	
Maximum Green (s)	22.0	22.0	22.0					36.0	36.0	36.0	36.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		6.0	6.0					6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					Min	Min	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)		15.0	15.0					43.0	43.0		43.0	
Actuated g/C Ratio		0.21	0.21					0.61	0.61		0.61	
v/c Ratio		0.04	0.57					0.42	0.27		0.27	
Control Delay		22.3	7.1					8.4	1.5		2.1	
Queue Delay		0.0	0.0					0.0	0.0		0.0	
Total Delay		22.3	7.1					8.4	1.5		2.1	

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2036 Combined Traffic AM Peak

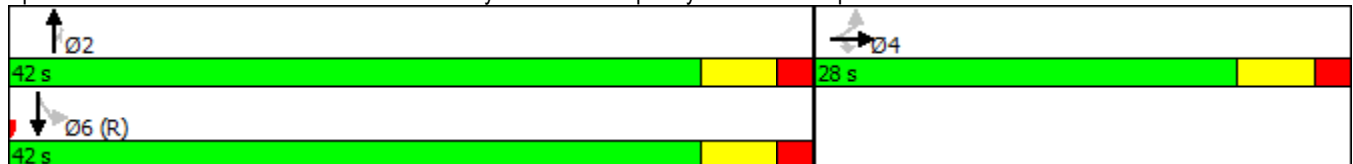
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C	A					A	A			A
Approach Delay		7.8						5.8				2.1
Approach LOS		A						A				A
90th %ile Green (s)	15.0	15.0	15.0					43.0	43.0	43.0		43.0
90th %ile Term Code	Min	Min	Min					Coord	Coord	Coord		Coord
70th %ile Green (s)	15.0	15.0	15.0					43.0	43.0	43.0		43.0
70th %ile Term Code	Min	Min	Min					Coord	Coord	Coord		Coord
50th %ile Green (s)	15.0	15.0	15.0					43.0	43.0	43.0		43.0
50th %ile Term Code	Min	Min	Min					Coord	Coord	Coord		Coord
30th %ile Green (s)	15.0	15.0	15.0					43.0	43.0	43.0		43.0
30th %ile Term Code	Min	Min	Min					Coord	Coord	Coord		Coord
10th %ile Green (s)	15.0	15.0	15.0					43.0	43.0	43.0		43.0
10th %ile Term Code	Min	Min	Min					Coord	Coord	Coord		Coord
Queue Length 50th (m)		1.9	0.0					30.8	0.0			2.0
Queue Length 95th (m)		6.6	19.9					49.1	8.0			2.8
Internal Link Dist (m)		516.9			544.2			260.3				176.9
Turn Bay Length (m)			40.0						50.0			
Base Capacity (vph)		566	746					1156	1098			1140
Starvation Cap Reductn		0	0					0	0			0
Spillback Cap Reductn		0	0					0	0			0
Storage Cap Reductn		0	0					0	0			0
Reduced v/c Ratio		0.03	0.48					0.42	0.27			0.27

Intersection Summary

Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 70  
 Offset: 0 (0%), Referenced to phase 6:SBTL, Start of Green, Master Intersection  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 5.5  
 Intersection Capacity Utilization 59.4%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service B
















Splits and Phases: 1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp



Lanes, Volumes, Timings

2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2036 Combined Traffic AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	250	2	17	429	33	0	0	32	11
Future Volume (vph)	0	0	0	250	2	17	429	33	0	0	32	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.992							0.966
Flt Protected					0.955			0.956				
Satd. Flow (prot)	0	0	0	0	1784	0	0	1801	0	0	1819	0
Flt Permitted					0.955			0.707				
Satd. Flow (perm)	0	0	0	0	1784	0	0	1332	0	0	1819	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					5							12
Link Speed (k/h)		50			60			60				60
Link Distance (m)		528.1			501.5			200.9				268.2
Travel Time (s)		38.0			30.1			12.1				16.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	272	2	18	466	36	0	0	35	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	292	0	0	502	0	0	47	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.0	24.0		24.0	24.0			24.0	
Total Split (s)				26.0	26.0		44.0	44.0			44.0	
Total Split (%)				37.1%	37.1%		62.9%	62.9%			62.9%	
Maximum Green (s)				20.0	20.0		38.0	38.0			38.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				C-Max	C-Max		None	None			None	
Walk Time (s)				7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					26.2			31.8			31.8	
Actuated g/C Ratio					0.37			0.45			0.45	
v/c Ratio					0.44			0.83			0.06	
Control Delay					20.7			21.4			6.9	
Queue Delay					0.0			0.0			0.0	
Total Delay					20.7			21.4			6.9	
LOS					C			C			A	
Approach Delay					20.7			21.4			6.9	
Approach LOS					C			C			A	

# Lanes, Volumes, Timings

## 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2036 Combined Traffic AM Peak

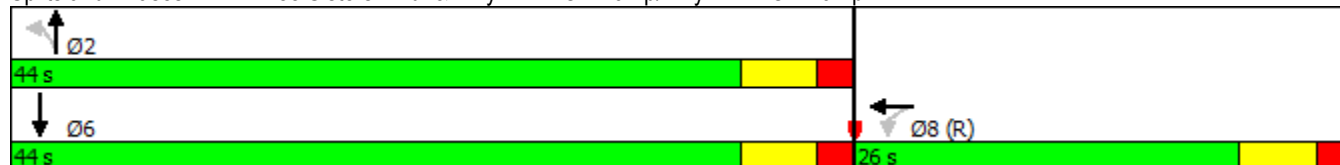


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)				20.0	20.0		38.0	38.0				38.0
90th %ile Term Code				Coord	Coord		Max	Max				Hold
70th %ile Green (s)				21.2	21.2		36.8	36.8				36.8
70th %ile Term Code				Coord	Coord		Gap	Gap				Hold
50th %ile Green (s)				24.6	24.6		33.4	33.4				33.4
50th %ile Term Code				Coord	Coord		Gap	Gap				Hold
30th %ile Green (s)				29.1	29.1		28.9	28.9				28.9
30th %ile Term Code				Coord	Coord		Gap	Gap				Hold
10th %ile Green (s)				36.2	36.2		21.8	21.8				21.8
10th %ile Term Code				Coord	Coord		Gap	Gap				Hold
Queue Length 50th (m)					30.0			56.0				2.5
Queue Length 95th (m)					57.3			83.9				6.3
Internal Link Dist (m)		504.1			477.5			176.9				244.2
Turn Bay Length (m)												
Base Capacity (vph)					671			723				992
Starvation Cap Reductn					0			0				0
Spillback Cap Reductn					0			0				0
Storage Cap Reductn					0			0				0
Reduced v/c Ratio					0.44			0.69				0.05

### Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	54 (77%), Referenced to phase 8:WBTL, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	20.4
Intersection LOS:	C
Intersection Capacity Utilization	57.2%
ICU Level of Service	B
Analysis Period (min)	15

### Splits and Phases: 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp





Lanes, Volumes, Timings  
 4: Resort Center East Access & Three Sisters Pkwy

2036 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	748	46	108	619	101	232
Future Volume (vph)	748	46	108	619	101	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.112		0.950	
Satd. Flow (perm)	1883	1601	211	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		45				252
Link Speed (k/h)	60			60	50	
Link Distance (m)	1174.5			1335.6	297.9	
Travel Time (s)	70.5			80.1	21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	813	50	117	673	110	252
Shared Lane Traffic (%)						
Lane Group Flow (vph)	813	50	117	673	110	252
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	12.0	24.0	24.0	24.0
Total Split (s)	54.0	54.0	12.0	66.0	24.0	24.0
Total Split (%)	60.0%	60.0%	13.3%	73.3%	26.7%	26.7%
Maximum Green (s)	48.0	48.0	8.0	60.0	18.0	18.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	5	5		5	5	5
Act Effct Green (s)	34.2	34.2	45.2	43.0	12.4	12.4
Actuated g/C Ratio	0.50	0.50	0.66	0.63	0.18	0.18
v/c Ratio	0.86	0.06	0.35	0.57	0.34	0.51
Control Delay	26.6	3.8	6.6	8.9	32.7	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	3.8	6.6	8.9	32.7	8.6

# Lanes, Volumes, Timings

## 4: Resort Center East Access & Three Sisters Pkwy

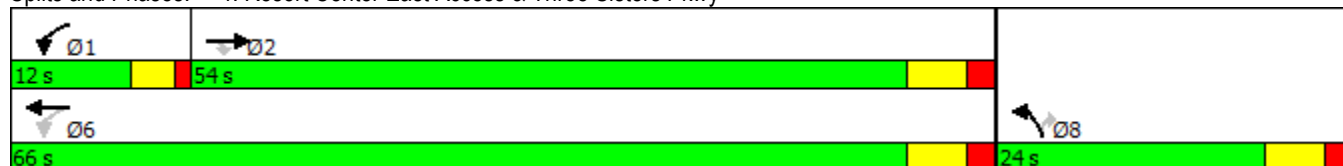
2036 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	A	A	C	A
Approach Delay	25.3			8.5	15.9	
Approach LOS	C			A	B	
90th %ile Green (s)	48.0	48.0	8.0	60.0	18.0	18.0
90th %ile Term Code	Max	Max	Max	Hold	Ped	Ped
70th %ile Green (s)	44.2	44.2	8.0	56.2	12.0	12.0
70th %ile Term Code	Gap	Gap	Max	Hold	Gap	Gap
50th %ile Green (s)	35.3	35.3	8.0	47.3	10.0	10.0
50th %ile Term Code	Gap	Gap	Max	Hold	Min	Min
30th %ile Green (s)	29.7	29.7	8.0	41.7	10.0	10.0
30th %ile Term Code	Gap	Gap	Max	Hold	Min	Min
10th %ile Green (s)	17.1	17.1	0.0	17.1	10.0	10.0
10th %ile Term Code	Gap	Gap	Skip	Hold	Min	Min
Queue Length 50th (m)	89.2	0.3	3.9	37.3	13.9	0.0
Queue Length 95th (m)	170.4	5.6	11.4	82.5	32.5	19.6
Internal Link Dist (m)	1150.5			1311.6	273.9	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	1347	1158	339	1590	510	637
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.04	0.35	0.42	0.22	0.40

### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 68.5  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 17.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 67.7%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 90  
 70th %ile Actuated Cycle: 80.2  
 50th %ile Actuated Cycle: 69.3  
 30th %ile Actuated Cycle: 63.7  
 10th %ile Actuated Cycle: 39.1

### Splits and Phases: 4: Resort Center East Access & Three Sisters Pkwy



Lanes, Volumes, Timings  
 5: Resort Center West Access & Three Sisters Pkwy

2036 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	686	116	101	619	248	108
Future Volume (vph)	686	116	101	619	248	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.125		0.950	
Satd. Flow (perm)	1883	1601	235	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		112				117
Link Speed (k/h)	60			60	50	
Link Distance (m)	347.3			1174.5	397.6	
Travel Time (s)	20.8			70.5	28.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	746	126	110	673	270	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	746	126	110	673	270	117
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	10.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	16.0	24.0	24.0	24.0
Total Split (s)	50.0	50.0	16.0	66.0	24.0	24.0
Total Split (%)	55.6%	55.6%	17.8%	73.3%	26.7%	26.7%
Maximum Green (s)	44.0	44.0	12.0	60.0	18.0	18.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	34.3	34.3	46.5	44.3	16.0	16.0
Actuated g/C Ratio	0.47	0.47	0.63	0.60	0.22	0.22
v/c Ratio	0.85	0.16	0.29	0.59	0.69	0.27
Control Delay	29.1	3.8	6.8	10.8	41.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	3.8	6.8	10.8	41.3	8.1

Lanes, Volumes, Timings  
 5: Resort Center West Access & Three Sisters Pkwy

2036 Combined Traffic AM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	A	B	D	A
Approach Delay	25.4			10.2	31.2	
Approach LOS	C			B	C	
90th %ile Green (s)	44.0	44.0	10.0	58.0	18.0	18.0
90th %ile Term Code	Max	Max	Min	Hold	Max	Max
70th %ile Green (s)	44.0	44.0	10.0	58.0	18.0	18.0
70th %ile Term Code	Max	Max	Min	Hold	Max	Max
50th %ile Green (s)	37.9	37.9	10.0	51.9	18.0	18.0
50th %ile Term Code	Gap	Gap	Min	Hold	Max	Max
30th %ile Green (s)	31.2	31.2	10.0	45.2	14.5	14.5
30th %ile Term Code	Gap	Gap	Min	Hold	Gap	Gap
10th %ile Green (s)	16.6	16.6	0.0	16.6	10.0	10.0
10th %ile Term Code	Gap	Gap	Skip	Hold	Min	Min
Queue Length 50th (m)	104.4	1.2	5.8	55.9	40.9	0.0
Queue Length 95th (m)	155.3	9.8	10.9	82.9	#80.7	13.7
Internal Link Dist (m)	323.3			1150.5	373.6	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	1186	1050	427	1481	481	516
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.12	0.26	0.45	0.56	0.23

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 73.6  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 20.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 71.5%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 88  
 70th %ile Actuated Cycle: 88  
 50th %ile Actuated Cycle: 81.9  
 30th %ile Actuated Cycle: 71.7  
 10th %ile Actuated Cycle: 38.6  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Resort Center West Access & Three Sisters Pkwy



HCM 2010 TWSC

3: George Biggy SR Road & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp 2036 Combined Traffic AM Peak

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔					↔			↔	
Traffic Vol, veh/h	66	0	175	0	0	0	0	115	159	44	185	0
Future Vol, veh/h	66	0	175	0	0	0	0	115	159	44	185	0
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	72	0	190	0	0	0	0	125	173	48	201	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	508	595	201	-	0	0	298	0	0
Stage 1	297	297	-	-	-	-	-	-	-
Stage 2	211	298	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	525	417	840	0	-	-	1263	-	0
Stage 1	754	668	-	0	-	-	-	-	0
Stage 2	824	667	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	502	0	840	-	-	-	1263	-	-
Mov Cap-2 Maneuver	502	0	-	-	-	-	-	-	-
Stage 1	722	0	-	-	-	-	-	-	-
Stage 2	824	0	-	-	-	-	-	-	-


















Approach	EB	NB	SB
HCM Control Delay, s	11.3	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	502	840	1263	-
HCM Lane V/C Ratio	-	-	0.143	0.226	0.038	-
HCM Control Delay (s)	-	-	13.4	10.5	8	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.9	0.1	-

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

2036 Combined Traffic PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	2	641	0	0	0	0	477	382	6	390	0
Future Volume (vph)	44	2	641	0	0	0	0	477	382	6	390	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		30.0	0.0		0.0	0.0		50.0	0.0		0.0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (m)	30.0			30.0			30.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected		0.954										0.999
Satd. Flow (prot)	0	1797	1601	0	0	0	0	1883	1601	0	1882	0
Flt Permitted		0.954										0.991
Satd. Flow (perm)	0	1797	1601	0	0	0	0	1883	1601	0	1866	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			237						410			
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		540.9			568.2			284.3			200.9	
Travel Time (s)		38.9			40.9			17.1			12.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	2	697	0	0	0	0	518	415	7	424	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	697	0	0	0	0	518	415	0	431	0
Turn Type	Perm	NA	Perm					NA	Perm	Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4		4						2	6		
Detector Phase	4	4	4					2	2	6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0	15.0	15.0	
Minimum Split (s)	24.0	24.0	24.0					24.0	24.0	24.0	24.0	
Total Split (s)	45.0	45.0	45.0					35.0	35.0	35.0	35.0	
Total Split (%)	56.3%	56.3%	56.3%					43.8%	43.8%	43.8%	43.8%	
Maximum Green (s)	39.0	39.0	39.0					29.0	29.0	29.0	29.0	
Yellow Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)		6.0	6.0					6.0	6.0		6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Recall Mode	None	None	None					Max	Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0	0	0	
Act Effct Green (s)		31.9	31.9					36.1	36.1		36.1	
Actuated g/C Ratio		0.40	0.40					0.45	0.45		0.45	
v/c Ratio		0.07	0.89					0.61	0.44		0.51	
Control Delay		12.4	28.9					22.8	3.8		6.7	
Queue Delay		0.0	0.0					0.0	0.0		0.0	
Total Delay		12.4	28.9					22.8	3.8		6.7	

Lanes, Volumes, Timings

1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp

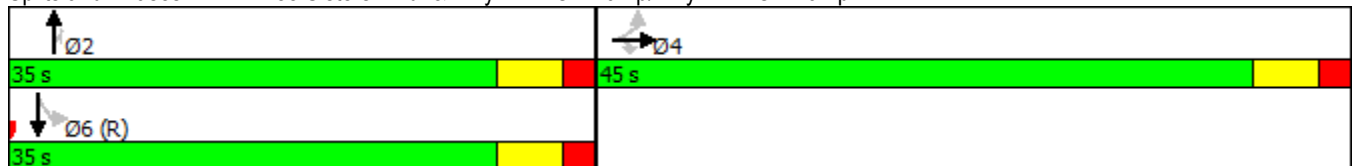
2036 Combined Traffic PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B	C					C	A			A
Approach Delay		27.8						14.4				6.7
Approach LOS		C						B				A
90th %ile Green (s)	39.0	39.0	39.0					29.0	29.0	29.0		29.0
90th %ile Term Code	Max	Max	Max					Coord	Coord	Coord		Coord
70th %ile Green (s)	38.2	38.2	38.2					29.8	29.8	29.8		29.8
70th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord		Coord
50th %ile Green (s)	34.1	34.1	34.1					33.9	33.9	33.9		33.9
50th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord		Coord
30th %ile Green (s)	28.2	28.2	28.2					39.8	39.8	39.8		39.8
30th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord		Coord
10th %ile Green (s)	19.8	19.8	19.8					48.2	48.2	48.2		48.2
10th %ile Term Code	Gap	Gap	Gap					Coord	Coord	Coord		Coord
Queue Length 50th (m)		4.6	66.7					63.7	0.4			1.6
Queue Length 95th (m)		9.6	107.1					#111.9	18.6			82.0
Internal Link Dist (m)		516.9			544.2			260.3				176.9
Turn Bay Length (m)			30.0						50.0			
Base Capacity (vph)		876	901					850	947			843
Starvation Cap Reductn		0	0					0	0			0
Spillback Cap Reductn		0	0					0	0			0
Storage Cap Reductn		0	0					0	0			0
Reduced v/c Ratio		0.06	0.77					0.61	0.44			0.51

Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 6:SBTL, Start of Green, Master Intersection  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 17.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 70.5%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.
















Splits and Phases: 1: Three Sisters Blvd. & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp



Lanes, Volumes, Timings

2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2036 Combined Traffic PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	380	1	3	445	75	0	0	15	1
Future Volume (vph)	0	0	0	380	1	3	445	75	0	0	15	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.999						0.992	
Flt Protected					0.953			0.959				
Satd. Flow (prot)	0	0	0	0	1793	0	0	1806	0	0	1868	0
Flt Permitted					0.953			0.745				
Satd. Flow (perm)	0	0	0	0	1793	0	0	1403	0	0	1868	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												1
Link Speed (k/h)		50			50			60				60
Link Distance (m)		528.1			501.5			200.9				268.2
Travel Time (s)		38.0			36.1			12.1				16.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	413	1	3	484	82	0	0	16	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	417	0	0	566	0	0	17	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				15.0	15.0		15.0	15.0			15.0	
Minimum Split (s)				24.0	24.0		24.0	24.0			24.0	
Total Split (s)				33.0	33.0		47.0	47.0			47.0	
Total Split (%)				41.3%	41.3%		58.8%	58.8%			58.8%	
Maximum Green (s)				27.0	27.0		41.0	41.0			41.0	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	
Recall Mode				C-Max	C-Max		None	None			None	
Walk Time (s)				7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)				11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)				0	0		0	0			0	
Act Effct Green (s)					31.3			36.7			36.7	
Actuated g/C Ratio					0.39			0.46			0.46	
v/c Ratio					0.59			0.88			0.02	
Control Delay					25.2			25.0			9.6	
Queue Delay					0.0			0.0			0.0	
Total Delay					25.2			25.0			9.6	
LOS					C			C			A	
Approach Delay					25.2			25.0			9.6	
Approach LOS					C			C			A	



Lanes, Volumes, Timings

2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp

2036 Combined Traffic PM Peak

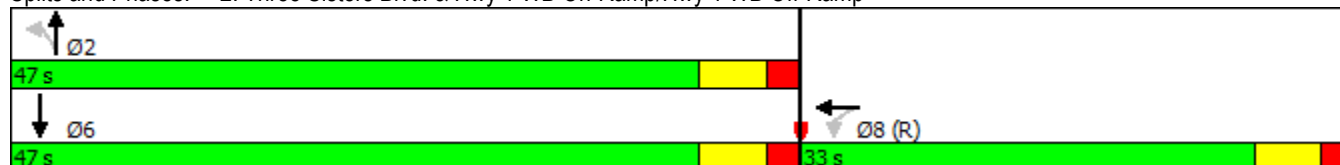


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
90th %ile Green (s)				27.0	27.0		41.0	41.0				41.0
90th %ile Term Code				Coord	Coord		Max	Max				Hold
70th %ile Green (s)				27.0	27.0		41.0	41.0				41.0
70th %ile Term Code				Coord	Coord		Max	Max				Hold
50th %ile Green (s)				29.1	29.1		38.9	38.9				38.9
50th %ile Term Code				Coord	Coord		Gap	Gap				Hold
30th %ile Green (s)				33.1	33.1		34.9	34.9				34.9
30th %ile Term Code				Coord	Coord		Gap	Gap				Hold
10th %ile Green (s)				40.2	40.2		27.8	27.8				27.8
10th %ile Term Code				Coord	Coord		Gap	Gap				Hold
Queue Length 50th (m)					54.3			90.6				1.3
Queue Length 95th (m)					89.2			#137.2				4.2
Internal Link Dist (m)		504.1			477.5			176.9				244.2
Turn Bay Length (m)												
Base Capacity (vph)					701			719				957
Starvation Cap Reductn					0			0				0
Spillback Cap Reductn					0			0				0
Storage Cap Reductn					0			0				0
Reduced v/c Ratio					0.59			0.79				0.02

Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 61 (76%), Referenced to phase 8:WBTL, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 24.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 66.5%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Three Sisters Blvd. & Hwy 1 WB On-Ramp/Hwy 1 WB Off-Ramp



# Lanes, Volumes, Timings

## 4: Resort Center East Access & Three Sisters Pkwy

2036 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↖	↗
Traffic Volume (vph)	696	137	323	847	105	250
Future Volume (vph)	696	137	323	847	105	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	60.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.108		0.950	
Satd. Flow (perm)	1883	1601	203	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		124				272
Link Speed (k/h)	60			60	50	
Link Distance (m)	1174.5			1335.6	297.9	
Travel Time (s)	70.5			80.1	21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	757	149	351	921	114	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	757	149	351	921	114	272
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	19.0	24.0	23.5	23.5
Total Split (s)	47.5	47.5	19.0	66.5	23.5	23.5
Total Split (%)	52.8%	52.8%	21.1%	73.9%	26.1%	26.1%
Maximum Green (s)	41.5	41.5	15.0	60.5	18.0	18.0
Yellow Time (s)	4.0	4.0	3.0	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	34.9	34.9	55.1	53.0	11.6	11.6
Actuated g/C Ratio	0.46	0.46	0.72	0.69	0.15	0.15
v/c Ratio	0.88	0.19	0.80	0.70	0.42	0.58
Control Delay	32.1	4.2	32.4	10.6	37.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	4.2	32.4	10.6	37.0	9.8

# Lanes, Volumes, Timings

## 4: Resort Center East Access & Three Sisters Pkwy

2036 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	C	B	D	A
Approach Delay	27.5			16.6	17.9	
Approach LOS	C			B	B	
90th %ile Green (s)	41.5	41.5	15.0	60.5	14.9	14.9
90th %ile Term Code	Max	Max	Max	Hold	Gap	Gap
70th %ile Green (s)	41.5	41.5	15.0	60.5	12.2	12.2
70th %ile Term Code	Max	Max	Max	Hold	Gap	Gap
50th %ile Green (s)	38.1	38.1	15.0	57.1	10.5	10.5
50th %ile Term Code	Gap	Gap	Max	Hold	Gap	Gap
30th %ile Green (s)	32.2	32.2	14.5	50.7	10.0	10.0
30th %ile Term Code	Gap	Gap	Gap	Hold	Min	Min
10th %ile Green (s)	23.1	23.1	10.3	37.4	10.0	10.0
10th %ile Term Code	Gap	Gap	Gap	Hold	Min	Min
Queue Length 50th (m)	98.5	2.0	31.6	64.4	16.9	0.0
Queue Length 95th (m)	#181.9	12.0	#84.0	125.1	33.8	20.8
Internal Link Dist (m)	1150.5			1311.6	273.9	
Turn Bay Length (m)		60.0	60.0			
Base Capacity (vph)	1044	943	464	1512	430	592
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.16	0.76	0.61	0.27	0.46

### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 76.3  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 20.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 75.8%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 86.9  
 70th %ile Actuated Cycle: 84.2  
 50th %ile Actuated Cycle: 79.1  
 30th %ile Actuated Cycle: 72.2  
 10th %ile Actuated Cycle: 58.9  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

### Splits and Phases: 4: Resort Center East Access & Three Sisters Pkwy



Lanes, Volumes, Timings  
 5: Resort Center West Access & Three Sisters Pkwy

2036 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↖	↗
Traffic Volume (vph)	724	288	131	821	204	108
Future Volume (vph)	724	288	131	821	204	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		60.0	80.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			30.0		30.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1883	1601	1789	1883	1789	1601
Flt Permitted			0.118		0.950	
Satd. Flow (perm)	1883	1601	222	1883	1789	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		280				117
Link Speed (k/h)	60			60	50	
Link Distance (m)	347.3			1174.5	397.6	
Travel Time (s)	20.8			70.5	28.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	787	313	142	892	222	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	787	313	142	892	222	117
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	15.0	15.0	8.0	15.0	10.0	10.0
Minimum Split (s)	24.0	24.0	13.5	23.0	23.5	23.5
Total Split (s)	52.5	52.5	13.5	66.0	24.0	24.0
Total Split (%)	58.3%	58.3%	15.0%	73.3%	26.7%	26.7%
Maximum Green (s)	46.5	46.5	9.5	61.0	18.5	18.5
Yellow Time (s)	4.0	4.0	3.0	4.0	3.5	3.5
All-Red Time (s)	2.0	2.0	1.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	5.0	5.5	5.5
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	Min	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	36.2	36.2	51.1	50.0	14.6	14.6
Actuated g/C Ratio	0.48	0.48	0.68	0.66	0.19	0.19
v/c Ratio	0.87	0.34	0.43	0.72	0.64	0.29
Control Delay	29.6	3.3	9.5	12.3	39.3	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	3.3	9.5	12.3	39.3	8.4

Lanes, Volumes, Timings  
 5: Resort Center West Access & Three Sisters Pkwy

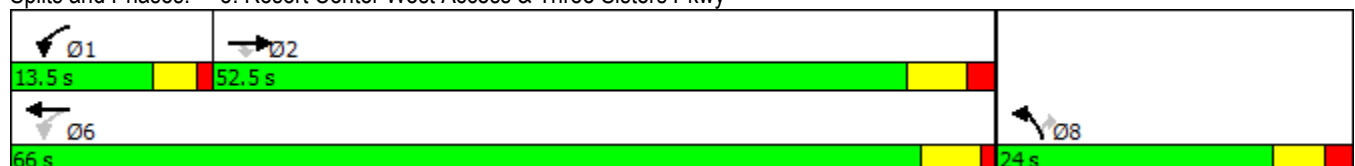
2036 Combined Traffic PM Peak

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	A	B	D	A
Approach Delay	22.1			12.0	28.7	
Approach LOS	C			B	C	
90th %ile Green (s)	46.5	46.5	9.5	61.0	18.5	18.5
90th %ile Term Code	Max	Max	Max	Hold	Max	Max
70th %ile Green (s)	46.5	46.5	8.6	60.1	18.5	18.5
70th %ile Term Code	Max	Max	Gap	Hold	Max	Max
50th %ile Green (s)	38.4	38.4	8.0	51.4	15.0	15.0
50th %ile Term Code	Gap	Gap	Min	Hold	Gap	Gap
30th %ile Green (s)	30.2	30.2	8.0	43.2	11.9	11.9
30th %ile Term Code	Gap	Gap	Min	Hold	Gap	Gap
10th %ile Green (s)	22.4	22.4	8.0	35.4	10.0	10.0
10th %ile Term Code	Gap	Gap	Min	Hold	Min	Min
Queue Length 50th (m)	97.9	2.4	6.4	73.6	31.5	0.0
Queue Length 95th (m)	167.3	15.5	15.8	130.3	60.9	13.9
Internal Link Dist (m)	323.3			1150.5	373.6	
Turn Bay Length (m)		60.0	80.0			
Base Capacity (vph)	1198	1121	353	1538	453	493
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.28	0.40	0.58	0.49	0.24

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 75.5  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 18.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 69.6%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 90th %ile Actuated Cycle: 90  
 70th %ile Actuated Cycle: 89.1  
 50th %ile Actuated Cycle: 76.9  
 30th %ile Actuated Cycle: 65.6  
 10th %ile Actuated Cycle: 55.9

Splits and Phases: 5: Resort Center West Access & Three Sisters Pkwy



# HCM 2010 TWSC

## 3: George Biggy SR Road & Hwy 1 EB Off-Ramp/Hwy 1 EB On-Ramp 2036 Combined Traffic PM Peak

### 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	84	0	257	0	0	0	0	328	340	44	290	0
Future Vol, veh/h	84	0	257	0	0	0	0	328	340	44	290	0
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	300	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	0	279	0	0	0	0	357	370	48	315	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	952	1137	315	-	0	0	726	0	0
Stage 1	411	411	-	-	-	-	-	-	-
Stage 2	541	726	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	288	202	725	0	-	-	877	-	0
Stage 1	669	595	-	0	-	-	-	-	0
Stage 2	583	430	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	269	0	725	-	-	-	877	-	-
Mov Cap-2 Maneuver	269	0	-	-	-	-	-	-	-
Stage 1	625	0	-	-	-	-	-	-	-
Stage 2	583	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	269	725	877	-
HCM Lane V/C Ratio	-	-	0.339	0.385	0.055	-
HCM Control Delay (s)	-	-	25.1	13	9.3	0
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q(veh)	-	-	1.4	1.8	0.2	-



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