Alliance BroadStone Silveray

Traffic Impact Analysis

South of US-60
East of Goldfield Road
in Apache Junction, Arizona

August 2022
Project No. 22-1180

Prepared For:
Alliance Residential Company
7135 East Camelback Road, Suite 360
Scottsdale, AZ 85251

For Submittal to:
Arizona Department of Transportation
Town of Apache Junction

Prepared By:

CivTech

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EXECUTIVE SUMMARY

Alliance Residential Company proposes the development of a 275-unit multi-family residential complex located south of US-60 (Superstition Freeway) and east of Goldfield Road on property that is currently undeveloped desert landscape. Access to the site is provided by four (4) future access points along Resort Boulevard and one (1) future access point along Chevron Access.

CivTech, Inc. has been retained by Alliance Residential Company to perform the traffic impact analysis for the proposed development. The purpose of this assessment is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections.

The following conclusions and recommendations have been documented in this study.

GENERAL

- The proposed development is anticipated to generate 2,038 daily trips, 124 (30 in/ 94 out) trips during the AM peak hour, and 139 (89 in/ 51 out) trips during the PM peak hour.
- The existing zoning of the site would be anticipated to generate 7,596 weekday daily trips, 564 (388 in/ 176 out) trips during the AM peak hour, and 747 (294 in/ 453 out) trips during the PM peak hour.
    - The proposed land uses generate approximately 5,558 fewer daily trips, 439 (359 in/ 80 out) fewer AM peak hour volumes, and 602 (203 in/ 399 out) fewer PM peak hour trips than the existing zoning allows.

CRASH HISTORY

- In total, there were 13 incidents within the study area from 2018-2020. There was a total of 15 injuries and 4 fatalities.

EXISTING

- The results of the existing conditions analysis indicate that all study intersections operate with acceptable levels of service (LOS B or better).

OPENING YEAR

- The results of the Synchro analysis indicate that all study intersections operate with overall acceptable levels of service (LOS B or better) with the lane configurations and stop controls as shown in **Figure 11**.

2027 CAPACITY ANALYSIS

- The results of the Synchro analysis indicate that all study intersections operate with overall acceptable levels of service (LOS B or better) with the lane configurations and stop controls as shown in **Figure 11**.

QUEUE STORAGE

- The recommended storage lengths are provided for study horizon year 2027 using the total traffic projections.

SIGHT DISTANCE

- Sight visibility should be provided at all driveways according to the distances and sight triangles at public intersections should be maintained according to Section 10-3-4 of the City Code.

INTRODUCTION

Alliance Residential Company proposes the development of a 275-unit multi-family residential complex located south of US-60 (Superstition Freeway) and east of Goldfield Road on property that is currently undeveloped desert landscape. Access to the site is provided by four (4) future access points along Resort Boulevard and one (1) future access point along Chevron Access. The vicinity of the site is provided in **Figure 1**.

CivTech, Inc. has been retained by Alliance Residential Company to perform the traffic impact analysis for the proposed development. The purpose of this assessment is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections.

STUDY REQUIREMENTS

This study analyzes the traffic impact due to the proposed complex on the surrounding street network. The study has been prepared in conformance with the Arizona Department of Transportation (ADOT) *Traffic Engineering Guidelines and Processes* (TGP) *Section 240* Traffic Impact Analysis and Statement, August 2021. The specific objectives of the study are:

- To determine whether the planned street system in the vicinity of the site is adequate to accommodate the increased traffic that results from the proposed development.
- To recommend additional street improvements or traffic control devices, where necessary, to mitigate the additional site-generated traffic; and,
- Evaluate the internal site circulation and provide recommendations if necessary.

STUDY AREA

The study area has been defined as including the following intersections:

- Goldfield Road & Old West Highway
- Goldfield Road & US 60 WB Off-Ramp
- Goldfield Road & Chevron Access
- Chevron Access & Resort Boulevard
- Goldfield Road & US 60/Old West Highway Exit
- Goldfield Road & US 60 EB Off-Ramp
- Goldfield Road & Resort Boulevard

HORIZON YEARS

This study has been conducted to conform to ADOT TGP 240 Traffic Impact Analysis and Statement, prepared by ADOT in August 2021. Based on trip generation rates in the 11th edition of the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, the proposed development is anticipated to generate more than 100 but less than 500 trips during the highest peak hour. Therefore, ADOT requires the TIA for this development to evaluate the opening year and three years after build-out. It is assumed that the complex will open during 2024.

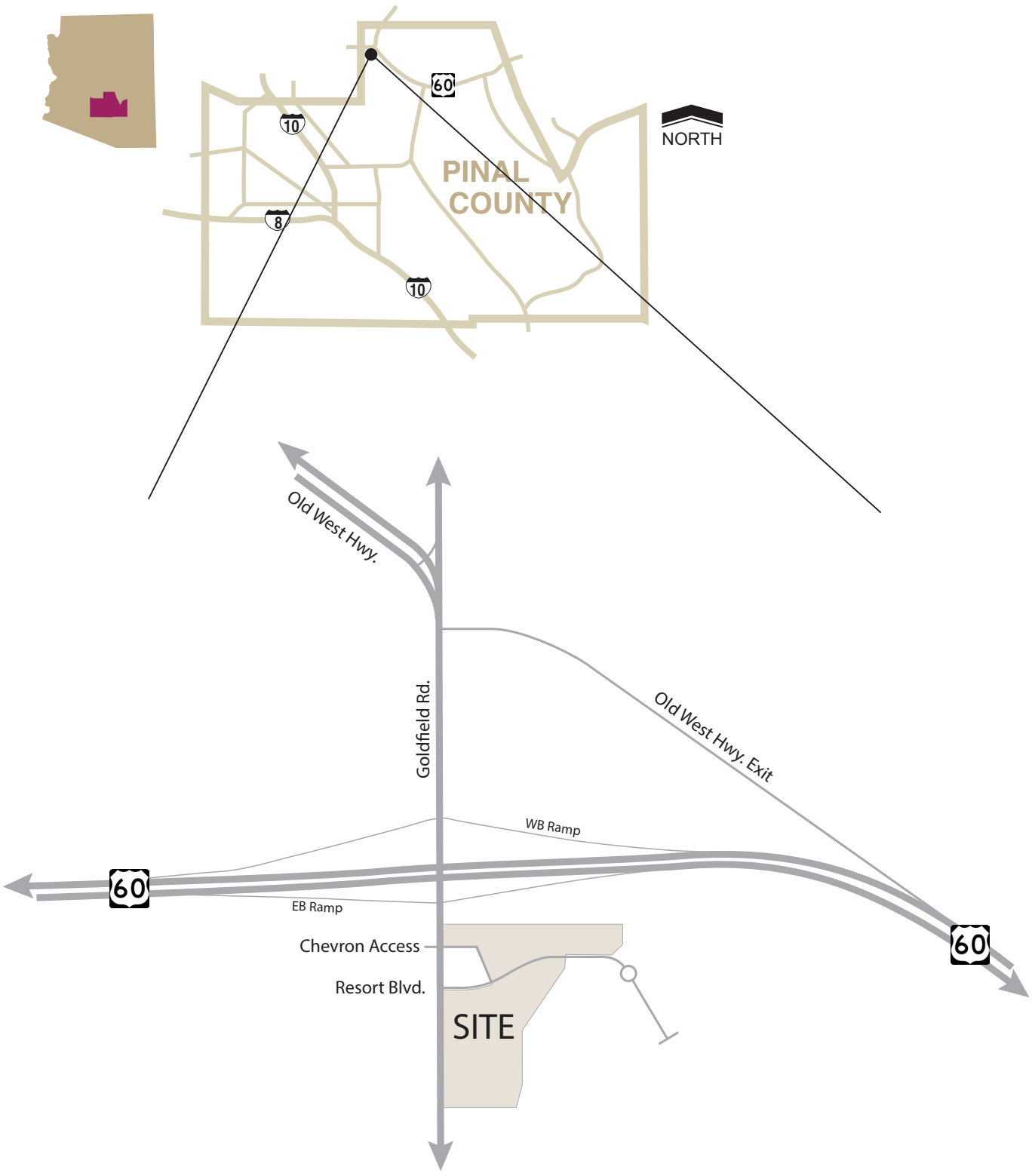


Figure 1: Vicinity Map

EXISTING CONDITIONS

LAND USE

The existing site is an approximately 17-acre section consisting of 7 parcels of undeveloped desert landscape.

SURROUNDING LAND USE

Surrounding the site are primarily single-family residential developments and retail uses. Approximately a mile north of the site is Mountain View Lutheran Church, Crossroads Southern Baptist Church, and some single-family homes. The existing Chevron gas station is located in an outparcel on the western edge of the project area and southeast of the site is a mobile home resort. East of the site is predominantly undeveloped land with single-family residential homes east of Mountain View Road. West of the site is more single-family homes and Golden Vista 55+ Resort. Per TGP 240, the project corresponds to a 'Small Development' and would require a Category I analysis. Such a TIA requires analysis of site access driveways and "adjacent signalized intersections and/or major unsignalized street intersections within a minimum of ½ mile."

ROADWAY NETWORK

The existing roadway network within the study area includes Goldfield Road, Old West Highway, US-60 Highway, Chevron Access, and Resort Boulevard.

Goldfield Road is a north-south road classified by the City of Apache Junction as a principal arterial roadway. South of Old West Highway, Goldfield Road consists of two travel lanes in each direction with a center two-way-left-turn lane (TWLTL); north of Old West Highway, Goldfield Road consists of only one lane in each direction of travel. Goldfield Road begins at the intersection with Baseline Road, south of the US 60, and continues north until terminating at the intersection with Lost Dutchman Boulevard. The posted speed limit is 35 miles per hour (mph) within the vicinity of the site.

Old West Highway is a southeast-northwest road classified by the City of Apache Junction as a principal arterial. Old West Highway consists of two lanes in each direction of travel and a bicycle lane, separated by a 65-foot median along the entire length of road. Old West Highway begins east of the intersection with State Route (SR) 88 after transitioning from Apache Trail and continues southeast until merging with Goldfield Road at the northeast corner of the proposed site. The posted speed limit is 45 mph within the vicinity of the site.

US 60 (Superstition Freeway) is an east-west United States highway north of the proposed site. Just east of the Goldfield Road interchange, US 60 is a divided highway with two travel lanes in each direction separated by a 45-foot raised median. West of the Goldfield interchange, the US 60 becomes an access-controlled freeway. US 60 provides direct access to SR-202, SR-87, SR-101, SR-79, SR-188, I-10, and Old West Highway via an off-shoot just before the Goldfield Road interchange. The posted speed limit is 65 mph within the vicinity of the site.

Chevron Access is a curvilinear unmarked driveway with a width large enough for one (1) lane of travel in direction. Chevron Access is located east of Goldfield Road and north of Resort Boulevard. There is no posted speed limit.

Resort Boulevard is an east-west local road with one (1) lane in each direction of travel. Resort Boulevard begins east of Goldfield Road and terminates approximately 860-feet east of Chevron Access where it becomes Dolce Vista Way. There is no posted speed limit.

INTERSECTION CONFIGURATION

The intersection of **Goldfield Road and Old West Highway (SE bound lanes)** is a three-legged unsignalized "T" intersection with a stop sign on the southwest-bound approach. The southeast-bound approach consists of one dedicated left turn lane and two (2) through lanes. The southbound approach consists of a dedicated left turn lane only. Please note that the left turn lane intersects Goldfield Road "behind" a waiting westbound vehicle. Therefore, the movement is considered to be an approach to the next intersection.

The intersection of **Goldfield Road and Old West Highway (NW bound lanes)** operates as a three-way/four-legged unsignalized intersection with a stop sign on the southwest-bound approach. The northwest-bound approach consists of two through lanes and a bicycle lane; there is a "no left turn" sign on this approach and right turns are channelized. The southeast-bound approach is a single left turn lane. The southwest-bound approach consists of one through lane and a dedicated right turn lane. The through lane goes across this intersection to allow for left turns onto southeast-bound Old West Highway.

The intersection of **Goldfield Road and US 60/Old West Highway Exit** operates as an unsignalized "T" intersection with stop control on the westbound approach. The northbound and southbound approach consist of two (2) through lanes. The westbound approach consists of one (1) dedicated right-turn lane. The US-60 WB off ramp is a one-way road that allows access to the northbound Goldfield Road or northwest-bound Old West Highway.

The intersections of **Goldfield Road and US 60 Ramps** operate as a diamond traffic interchange within the vicinity of the site with protected-permitted left turn phasing on the northbound and southbound approaches. The northbound approach consists of one dedicated left turn lane, two through lanes and one dedicated right turn lane. The westbound approach consists of one dedicated left turn lane, one shared left-turn/through/right-turn lane and one dedicated right turn lane. The southbound approach consists of one (1) dedicated left turn lane, two (2) through lanes and a dedicated right turn lane. The eastbound approach consists of an exclusive left turn lane, one (1) shared left-turn/through/right-turn lane, and one dedicated right turn lane.

The intersection of **Goldfield Road and Chevron Access** operates as a four-legged unsignalized intersection with stop control in the eastbound and westbound approach. The northbound approach consists of two (2) through lanes and one (1) dedicated right-turn lane. The southbound approach consists of one (1) through lane and one (1) shared through/right-turn lane. The eastbound and westbound approach consist of one (1) shared left/through/right-turn lane.

The intersection of **Goldfield Road and Resort Boulevard** operates as a "T" intersection with stop control in the westbound approach. The northbound approach consists of one (1) through lane and one (1) shared through/right-turn lane. The southbound approach consists of two (2) through lanes and a TWLTL that allows storage for left-turns. The westbound approach consists of one (1) shared left/right-turn lane.

The intersection of **Chevron Access and Resort Boulevard** operates as a "T" intersection with stop control in the southbound approach. The southbound approach consists of one (1) shared left/right-turn lane. The eastbound approach consists of one (1) shared left-turn/through lane. The westbound approach consists of one (1) shared through/right-turn lane.

The existing intersection lane configurations and traffic control is illustrated in **Figure 2**.

TRAFFIC VOLUMES

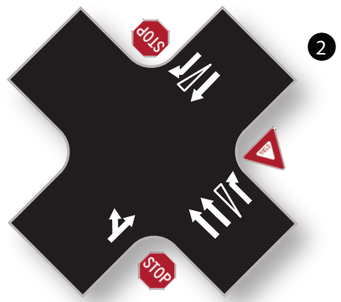
CivTech engaged Field Data Services of Arizona, Inc. to record traffic volumes at seven (7) study intersections within the project vicinity. Peak hour volume turning movement counts were performed from 7:00-9:00 AM and 4:00-6:00 PM on Thursday, July 13, 2022. Peak hour turning movement counts were conducted at the following study intersections:

- Goldfield Road & Old West Highway
- Goldfield Road & US 60 WB Off-Ramp
- Goldfield Road & Chevron Access
- Chevron Access & Resort Boulevard
- Goldfield Road & US 60 WB Off-Ramp (north)
- Goldfield Road & US 60 EB Off-Ramp
- Goldfield Road & Resort Boulevard

The existing traffic volumes observed for this study are presented in **Figure 3** for the weekday AM and PM peak hours. Traffic volume data obtained for this study have been included in **Appendix B**.

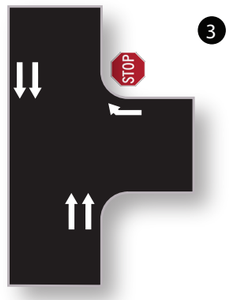
1

Goldfield Rd & Old West Hwy SEB



2

Goldfield Rd & Old West Hwy NWB



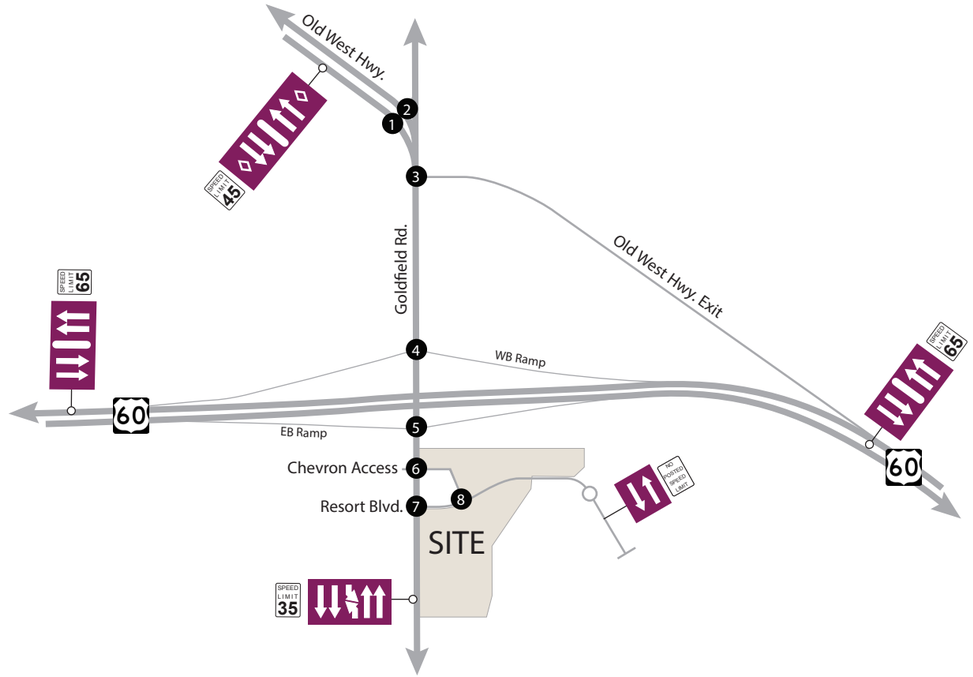
3

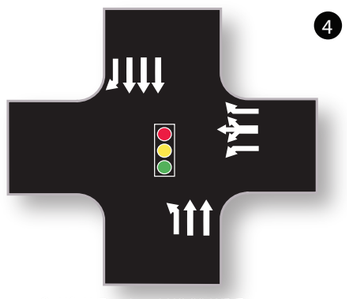
Goldfield Rd & US-60/Old West Highway Exit

LEGEND

NORTH

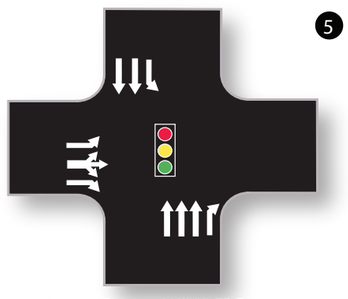
- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Channelized Turn Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- Yield Sign





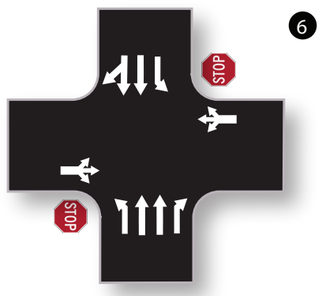
4

Goldfield Road and US-60 WB Ramps



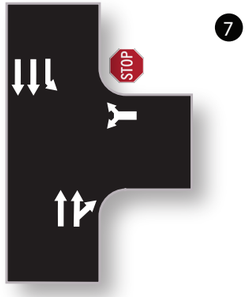
5

Goldfield Road and US-60 EB Ramps



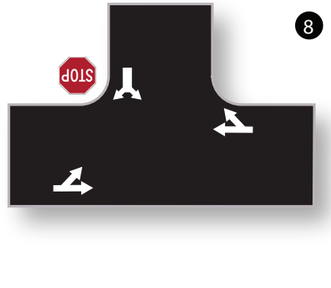
6

Goldfield Road and Chevron Access



7

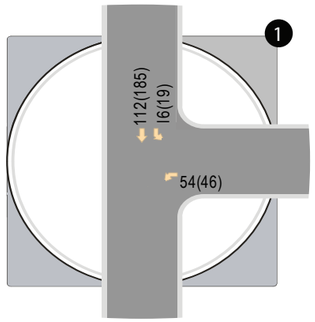
Goldfield Road and Resort Boulevard



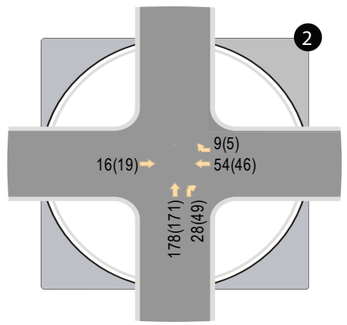
8

Chevron Access and Resort Boulevard

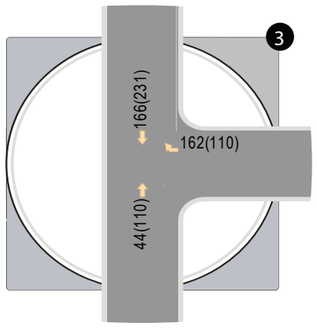
Figure 2: Existing Lane Configurations and Traffic controls



Goldfield Rd & Old West Hwy SEB



Goldfield Rd & Old West Hwy NWB

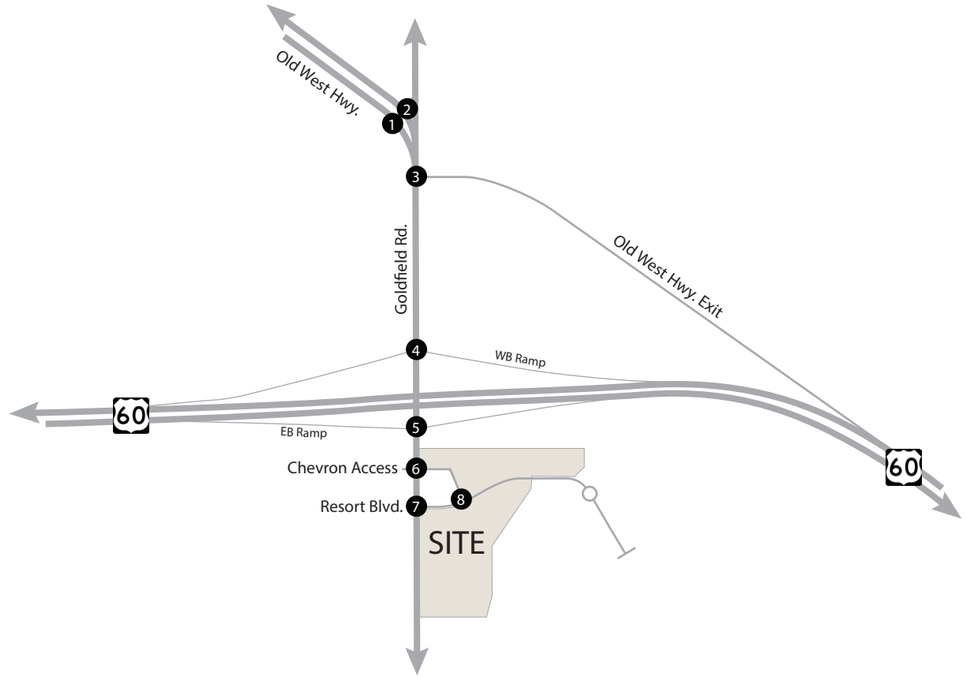


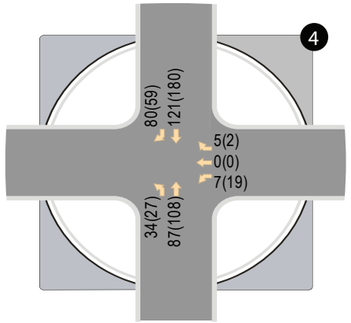
Goldfield Rd & US-60/Old West Highway Exit

Legend

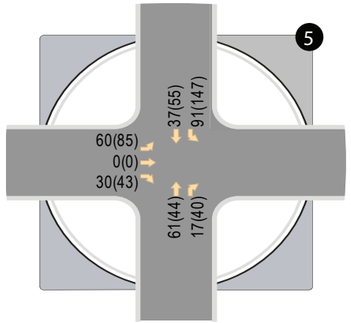
XX(XX) - AM (PM) Peak Hour Traffic Volumes

NORTH

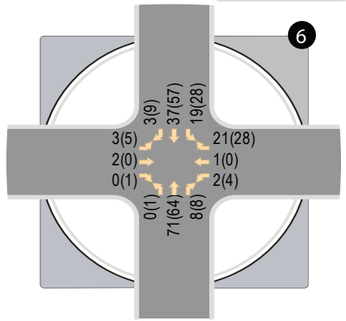




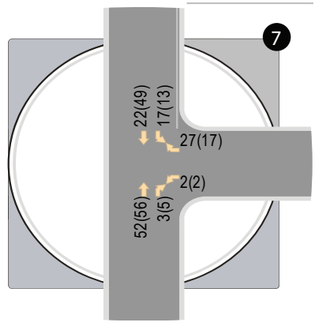
Goldfield Road and US-60 WB Ramps



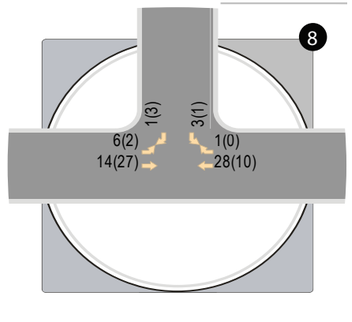
Goldfield Road and US-60 EB Ramps



Goldfield Road and Chevron Access



Goldfield Road and Resort Boulevard



Chevron Access and Resort Boulevard

Figure 3: Existing Traffic Volumes

CAPACITY ANALYSIS

Peak hour capacity analyses have been conducted for the study intersections based on existing intersection configurations and traffic volumes. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual (HCM),* Updated 2016, *Special Report 209,* and using Synchro software, version 11.0 under the HCM 6th edition (2016) methodology.

The concept of level of service (LOS) uses qualitative measures that characterize operational conditions within the traffic stream. The individual levels of service are described by factors that include speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations A through F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions. Levels of service for intersections are defined within ranges of average control delay per vehicle, the number of seconds a vehicle can expect to wait due to the presence of a traffic control device. **Table 1** lists the level of service criteria for signalized and unsignalized intersections, respectively.

Table 1 – Level of Service Criteria for Controlled Intersections

Level-of-Service	Signalized Control Delay (sec/veh)	Unsignalized Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80 (or v/c > 1)	> 50 (or v/c > 1)

Source: Exhibits 19-8, 20-2, 21-8, and 22-8, Highway Capacity Manual, 6th Edition (2016)

Synchro 11.0 software calculates the LOS per the HCM 6th edition (2016) methodology. The 6th edition HCM documents the signalized LOS calculation methodology which takes into account lane geometry, traffic volumes and cycle length/phasing to compute LOS. Synchro analysis worksheets report individual movement delay/LOS and overall delay/LOS for signalized intersections; unsignalized intersection worksheets report the worst-case delay/LOS and the average overall intersection delay. Results of the existing level of service analyses are shown in **Table 2** for both AM and PM peak hours. The existing conditions analysis worksheets have been included in **Appendix C**.

Table 2 – Existing Peak Hour Levels of Service

ID	Intersection	Control	Approach/ Movement	Existing LOS AM (PM)
1	Goldfield Road and Old West Highway SEB	1-way Stop (WB)	WB Left	A (A)
2	Goldfield Road and Old West Highway NWB	2-way stop (EB/WB)	EB Thru WB Thru WB Right	B (B) B (B) A (A)
3	Goldfield Road and US-60/Old West Highway Exit	1-way stop (WB)	WB Right	A (A)
4	Goldfield Road and US-60 WB Ramp	Signal	NB SB WB	A (A) A (A) D (D)
			Overall	**A (A)**
5	Goldfield Road and US-60 EB Ramp	Signal	NB SB EB	A (A) A (A) D (D)
			Overall	**B (B)**
6	Goldfield Rd & Chevron Access	2-way stop (EB/WB)	NB Left SB Left EB Shared WB Shared	A (A) A (A) A (A) A (A)
7	Goldfield Road & Resort Boulevard	1-way stop (WB)	SB Left WB Shared	A (A) A (A)
8	Chevron Access & Resort Boulevard	1-way stop (SB)	SB Shared EB Left	A (A) A (A)

The results of the existing conditions analysis summarized in **Table 2** indicate that all study intersections operate with acceptable levels of service (LOS B or better).

FUTURE ROADWAY IMPROVEMENTS

Upon review of the City of Apache Junction ongoing construction projects and current ADOT projects, there are no additional improvements proposed by ADOT or the City or Apache Junction within the study area.

CRASH HISTORY

Crash data for the study area was obtained from the City of Apache Junction for the last three (3) calendar years for which data is available (2018-2020). Crash data for all study intersections were provided. In total, there have been 13 incidents within the study area since the beginning of 2018. All crashes occurred at intersections along the length of Goldfield Road within the vicinity of the site. The summary of intersection crash data is presented in **Table 3**.

Table 3 – Intersection Crash Data Summary

Intersection	Total	2020	2019	2018	Injury	Fatality	Angle	Left Turn	Rear End	Head On	Sideswipe	Other	DUI	Pedestrian	Bicycle
Goldfield Rd & Old West Hwy SEB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goldfield Rd & Old West Hwy NWB	3	1	2	0	4	1	0	2	0	0	0	0	1	0	0
Goldfield Rd & Old West Hwy Exit	6	0	2	4	5	2	0	0	0	0	0	1	5	0	0
Goldfield Rd & US-60 WB Ramp	4	2	0	1	6	1	0	0	1	0	0	3	0	0	0
Goldfield Rd & US-60 EB Ramp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goldfield Rd & Chevron Access	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goldfield Rd & Resort Blvd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chevron Access & Resort Blvd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The crash analysis worksheets are included in **Appendix D**.

PROPOSED DEVELOPMENT

SITE LOCATION

The Alliance Residential Company proposed plan consists of a 17-acre multi-family residential complex located south of US-60 and east of Goldfield Road on currently undeveloped land. The complex is composed of approximately 275 proposed multi-family dwelling units (DU).

SITE DENSITY / INTENSITY

This development consists of approximately 275 units of proposed multi-family apartment complex. The complex is comprised of the following:

- 3 Bedroom Townhomes – 82 DU's
- 2 Bedroom Apartments – 104 DU's
- 1 Bedroom Apartments – 89 DU's

SITE ACCESS

There is a total of five (5) proposed access points.

- *Access A* – is a full movement access located approximately 100 feet east of Goldfield Road along Chevron Access.
- *Access B* – is a full movement access located approximately 445 feet east of Goldfield Road along Resort Boulevard.
- *Access C* – is a full movement access located approximately 735 feet east of Goldfield Road along Resort Boulevard.

- *Access D* – is a full movement access located approximately 925 feet east of Goldfield Road along Resort Boulevard.

- *Access E* – is a full movement access located approximately 1055 feet east of Goldfield Road along Resort Boulevard.

The proposed development site plans are provided in **Figure 4**.

TRIP GENERATION

The potential trip generation for the proposed development was estimated utilizing the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* and *Trip Generation Handbook, 3rd Edition*. The ITE *Trip Generation Manual* contains data collected by various transportation professionals for a wide range of different land uses. The data are summarized in the report and average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The report provides information for daily and peak hour trips. The anticipated trip generation is summarized in **Table 4**. Detailed trip generation calculations are provided in **Appendix E**.

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Table 4 – Trip Generation

Land Use	ITE Code	ITE Land Use Name	Quantity	Units+	AM Distribution		PM Distribution	
					In	Out	In	Out
Proposed Alliance Residential Complex								
Single-Family Rental Units	220	Apartments	275	DUs	23%	67%	63%	37%
Existing Zoned Land Use								
Lot 1: Sit Down Restaurant	931	Sit Down Restaurant	10.803	KSF	55%	45%	61%	39%
Lot 3: Hotel or Motel	310	Hotel	178	Rooms	56%	44%	51%	49%
Lot 4: Medical Office	720	Medical-Dental Office	8.276	KSF	79%	21%	30%	70%
Lot 5: Medical Office	720	Medical-Dental Office	8.102	KSF	88%	12%	17%	83%
Lot 6: Medical Office	720	Medical-Dental Office	7.928	KSF	79%	21%	30%	70%
Lot 7: Sit Down Restaurant	931	Sit Down Restaurant	6.447	KSF	80%	20%	67%	33%
Lot 8: Medical Office	720	Medical-Dental Office	100.014	KSF	79%	21%	30%	70%

Land Use	ADT		AM Peak Hour				PM Peak Hour			
	Avg. Rate*	Total	Avg. Rate*	In	Out	Total	Avg. Rate*	In	Out	Total
Proposed Alliance Residential Complex										
Single-Family Rental Units	7.41	2,038	0.45	30	94	124	0.50	89	51	139
Existing Zoned Land Use										
Lot 1: Sit Down Restaurant	107.2	1,158	9.57	57	46	103	9.05	60	38	98
Lot 3: Hotel or Motel	7.99	1,426	0.46	46	36	82	0.58	53	51	104
Lot 4: Medical Office	29.92	248	3.09	21	5	26	3.69	9	22	31
Lot 5: Medical Office	29.64	240	3.10	20	5	25	3.93	10	22	32
Lot 6: Medical Office	29.35	232	3.10	20	5	25	3.93	9	22	31
Lot 7: Sit Down Restaurant	107.2	692	9.57	34	28	62	9.05	35	23	58
Lot 8: Medical Office	36.0	3,600	2.41	190	51	241	3.93	118	275	393
Total Proposed Trips		2,038		30	94	124		89	51	139
Total Existing Zoned Trips		7,596		388	176	564		294	453	747
Proposed Difference		**5,558**		**359**	**80**	**439**		**203**	**399**	**602**

Notes: *All average rates were calculated by dividing total trips generated using regression equation by the number of dwelling units. (See below.)
+ KSF = 1,000 square feet; DUs = Dwelling Units

CALCULATIONS (Equations shown only where applicable)			
Land Use [Units]	***Daily***	***AM Peak Hour***	***PM Peak Hour***
Apartments [275 DU]	T_{Day} = 275*7.41 = 2,038	T_{AM} = 275*0.45 = 124	T_{PM} = 275*0.5 = 139
Restaurant [10.803 KSF]	T_{Day} = 10.803*107.2 = 1,158	T_{AM} = 10.803*9.57 = 103	T_{PM} = 10.803*9.05 = 98
Hotel [178 DU]	T_{Day} = 178*7.99 = 1,426	T_{AM} = 0.5*178 - 7.45 = 82	T_{PM} = 0.74*178 - 27.89 =104
Medical [8.276 KSF]	T_{Day} = 42.97*8.276 - 108.01 = 248	T_{AM} = 0.9*LN(8.276) + 1.34 = 26	T_{PM} = 4.07*8.276 - 3.17 = 31
Medical [8.102 KSF]	T_{Day} = 42.97*8.102 – 108.01 = 240	T_{AM} = 8.102*3.1 = 25	T_{PM} = 8.102*3.93 = 32
Medical [7.928 KSF]	T_{Day} = 42.97*7.928 - 108.01 = 232	T_{AM} = 0.9*LN(7.928) + 1.34 = 25	T_{PM} = 7.928*3.93 = 31
Restaurant [6.447 KSF]	T_{Day} = 6.447*107.2 = 692	T_{AM} = 6.447*9.57 = 62	T_{PM} = 6.447*9.05 = 58
Medical [100.014 KSF]	T_{Day} = 100.014*36 = 3,600	T_{AM} = 0.9*LN(100.014) + 1.34 = 241	T_{PM} = 100.014*3.93 = 393

The proposed development is anticipated to generate 2,038 daily trips, 124 (30 in/ 94 out) trips during the AM peak hour, and 139 (89 in/ 51 out) trips during the PM peak hour. By comparison, the existing zoning of the site would be anticipated to generate 7,596 weekday daily trips, 564 (388 in/ 176 out) trips during the AM peak hour, and 747 (294 in/ 453 out) trips during the PM peak hour.

The proposed land uses generate 5,558 fewer daily trips, 439 (359 in/ 80 out) fewer AM peak hour volumes, and 602 (203 in/ 399 out) fewer PM peak hour trips than the existing zoning allows.

Figure 4: Site Plan and Access

VEHICLE TRIP DISTRIBUTION AND ASSIGNMENT

A single trip distribution pattern was assumed for the proposed development. It is expected that the proposed development will generate trips based on future employment within a 7-mile radius of the site. Future total employment within a 7-mile radius of the site, as projected by the 2030 socio-economic data compiled by the Maricopa Association of Governments (MAG), was used as a basis to estimate trip distribution. The resulting trip distribution percentages for the study area are shown in **Table 5**. The trip distribution calculations are included in **Appendix F**.

Table 5 – Site Trip Distribution

Direction (To/From)	Percentage
North on Goldfield Road (north of Old West Highway)	5%
Northwest on Old West Highway (west of Goldfield Road)	25%
East on US-60 (east of Goldfield Road)	65%
West on US-60 (west of Goldfield Road)	5%
Total	**100%**

Figure 5 illustrates the trip distribution percentages noted in **Table 5** on the roadway network within the study area. The percentages presented in **Figure 5** were applied to the site trips generated to determine the AM and PM peak hour site traffic at the intersections within the study area. **Figure 6** presents the resulting site generated traffic for the proposed development.

FUTURE BACKGROUND TRAFFIC

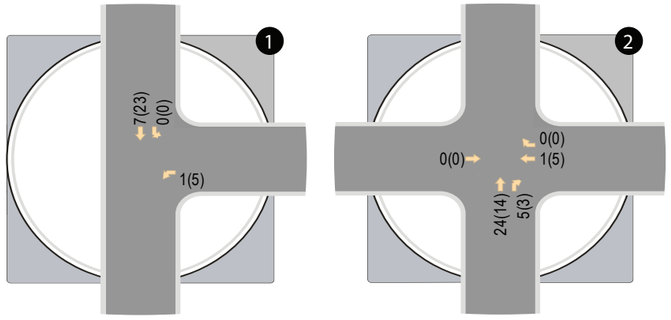
CivTech took historical daily traffic volumes from the ADOT's Transportation Management System website to estimate an average annual growth rate. Average daily traffic volumes at US-60 Exit 198 just west of Goldfield Road (Location ID: 6980) were considered. The location experienced an average annual increase of 1.9% per year from 2018 to 2019. To be conservative, this growth rate was rounded up so that a 2% annual growth rate (1.040 annual expansion factor for 2024, 1.104 for 2027) was applied to the volumes at the study intersections to obtain the future background traffic volumes.

The background volumes for the opening year of 2024 are presented in **Figure 7**. The background volumes for the horizon year of 2027 are presented in **Figure 8**. Background traffic calculations are located within **Appendix G**.

TOTAL TRAFFIC

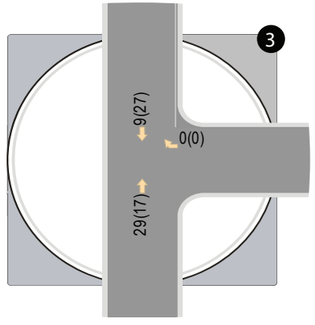
Total traffic was determined by adding the site generated traffic to the estimated projected background traffic. Total peak hour traffic volumes for the opening year of 2024 are shown in **Figure 9**. Total peak hour traffic volumes for the horizon year of 2027 are shown in **Figure 10**.

Figure 5: Trip Distribution



Goldfield Rd & Old West Hwy SEB

Goldfield Rd & Old West Hwy NWB

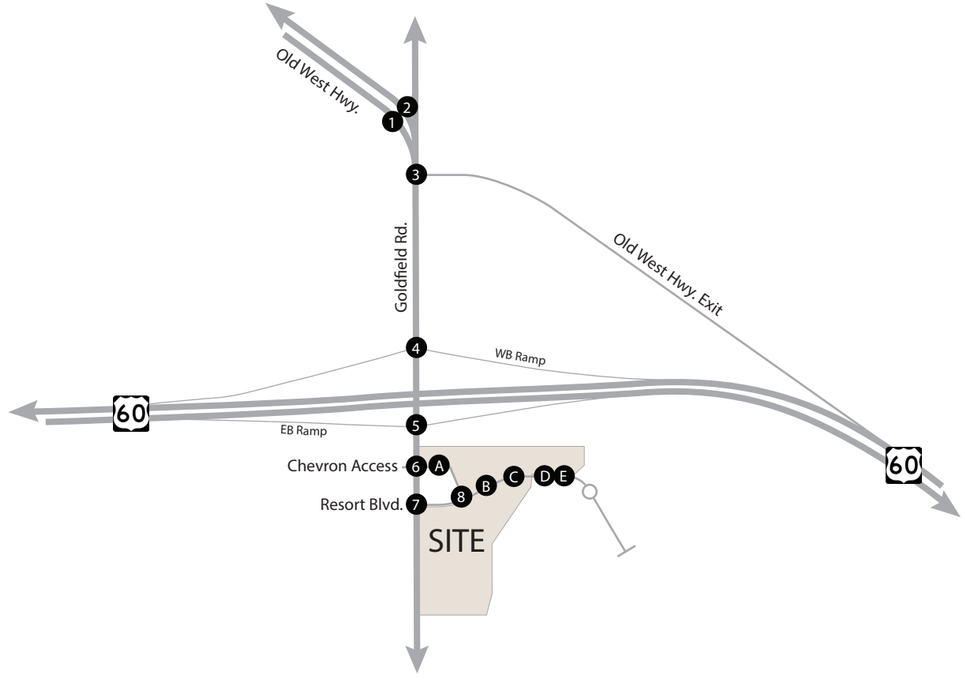


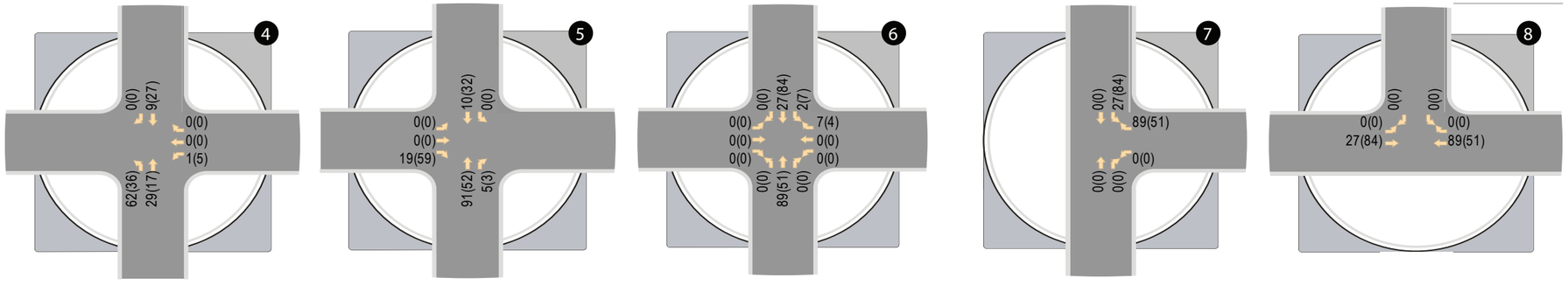
Goldfield Rd & US-60/Old West Highway Exit

Legend

XX(XX) - AM (PM) Peak Hour Traffic Volumes

NORTH





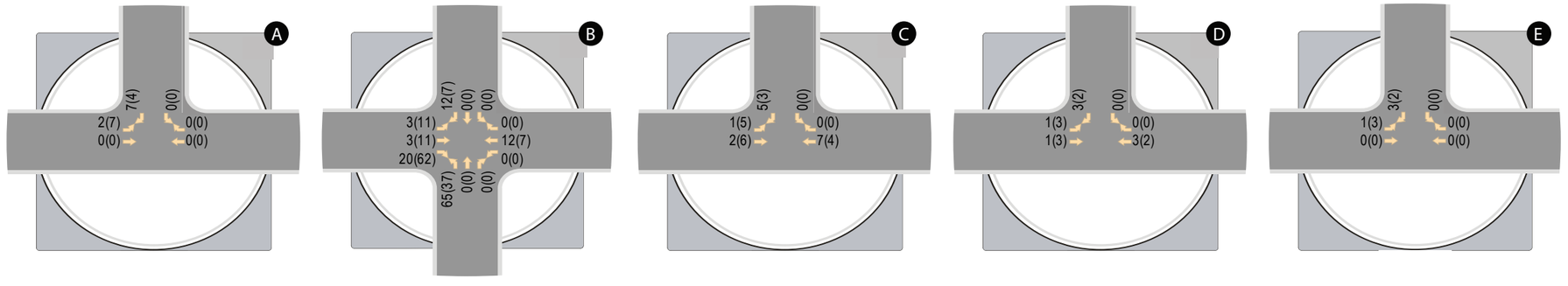
Goldfield Road and US-60 WB Ramps

Goldfield Road and US-60 EB Ramps

Goldfield Road and Chevron Access

Goldfield Road and Resort Boulevard

Chevron Access and Resort Boulevard



Access A and Chevron Access

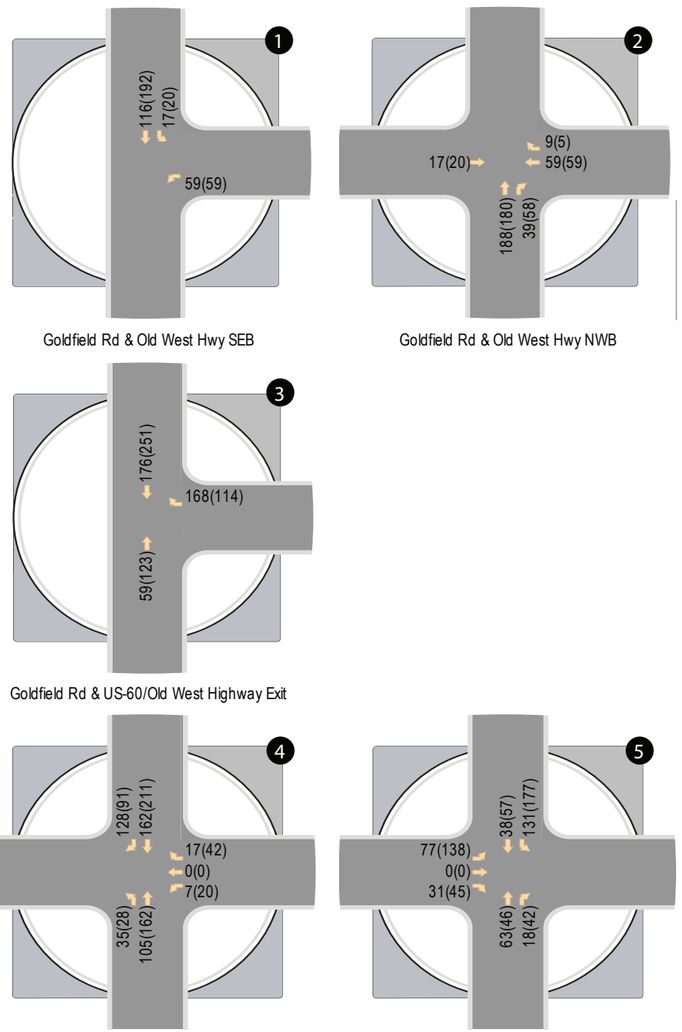
Access B and Resort Boulevard

Access C and Resort Boulevard

Access D and Resort Boulevard

Access E and Resort Boulevard

Figure 6: Site Generated Traffic Volumes



Legend

XX(XX) - AM (PM) Peak Hour Traffic Volumes

NORTH

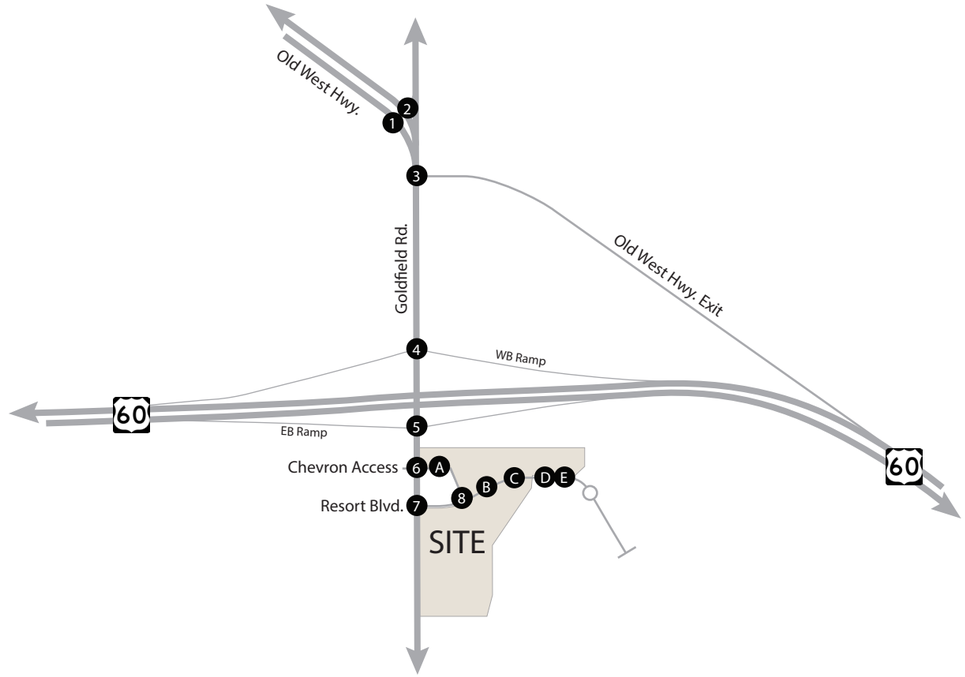
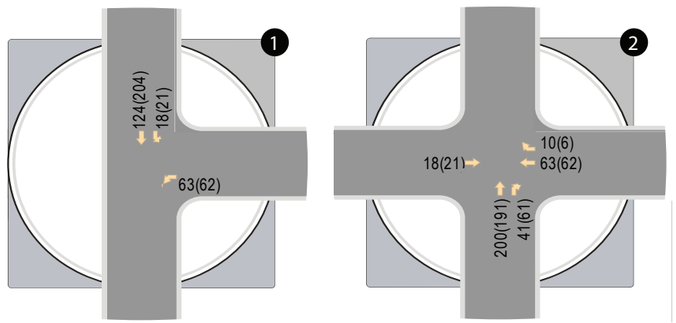
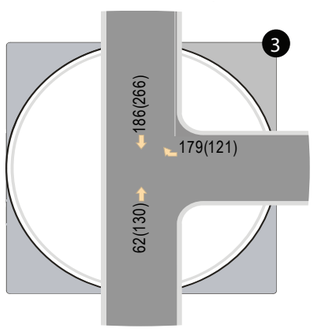


Figure 7: 2024 Background Traffic Volumes



Goldfield Rd & Old West Hwy SEB

Goldfield Rd & Old West Hwy NWB

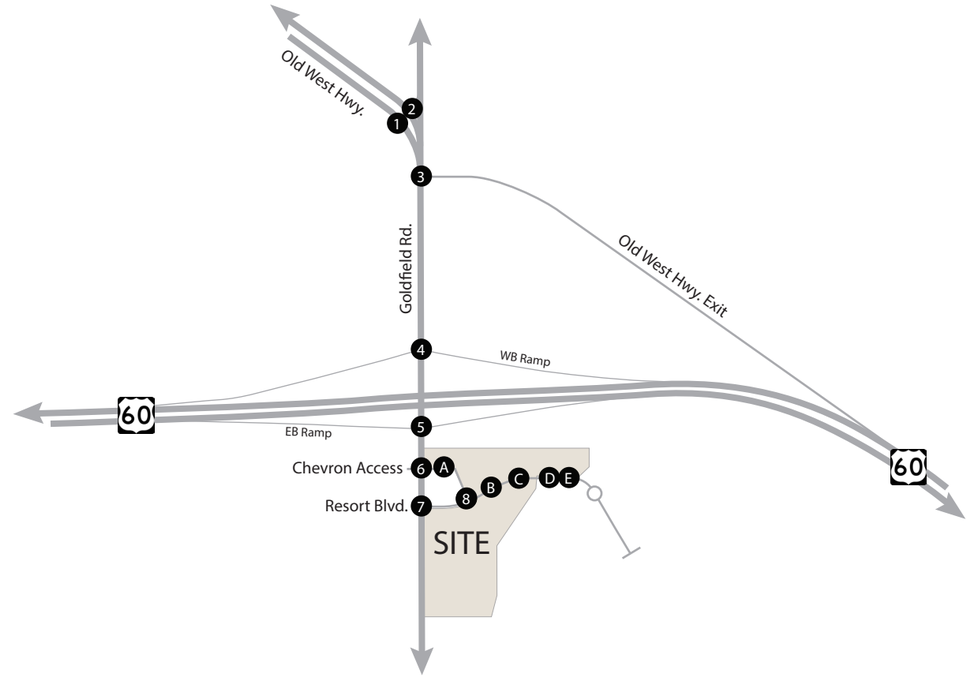


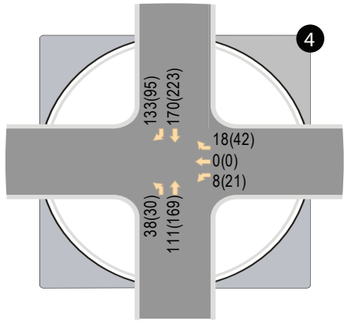
Goldfield Rd & US-60/Old West Highway Exit

Legend

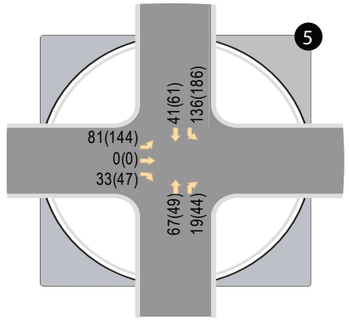
XX(XX) - AM (PM) Peak Hour Traffic Volumes

NORTH

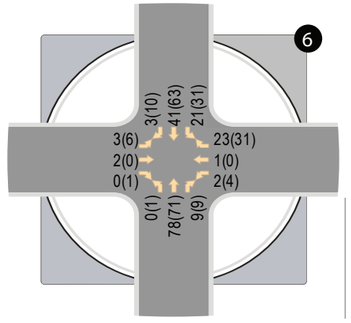




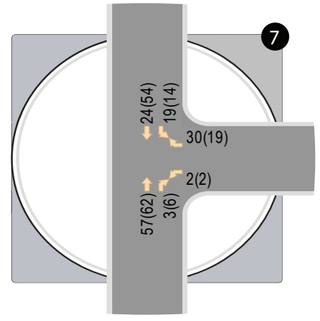
Goldfield Road and US-60 WB Ramps



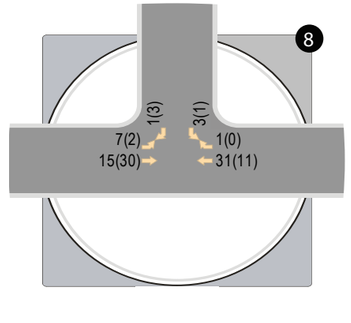
Goldfield Road and US-60 EB Ramps



Goldfield Road and Chevron Access

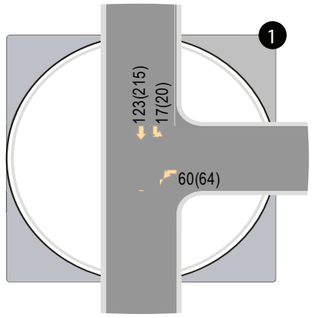


Goldfield Road and Resort Boulevard

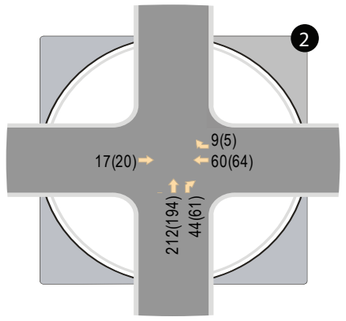


Chevron Access and Resort Boulevard

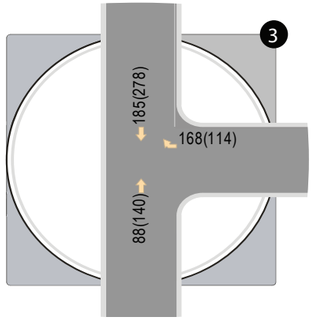
Figure 8: 2027 Background Traffic Volumes



Goldfield Rd & Old West Hwy SEB



Goldfield Rd & Old West Hwy NWB

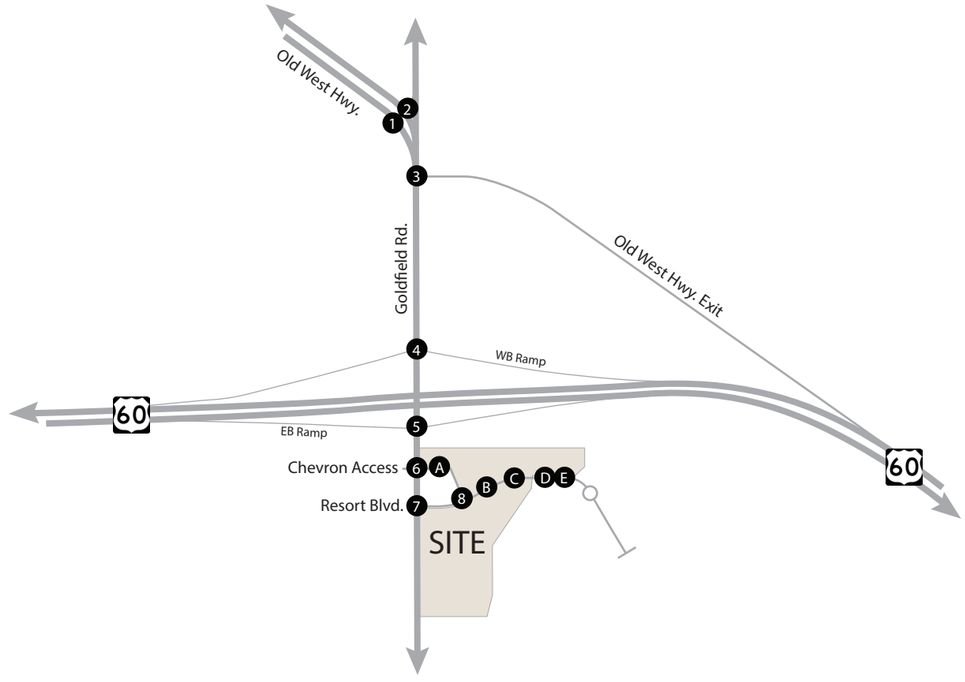


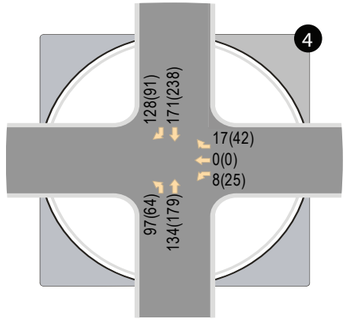
Goldfield Rd & US-60/Old West Highway Exit

Legend

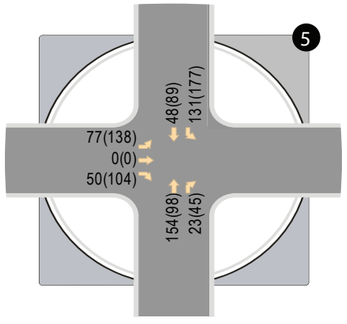
XX(XX) - AM (PM) Peak Hour Traffic Volumes

NORTH

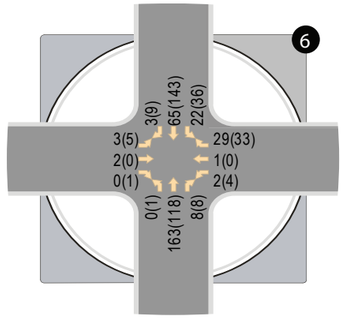




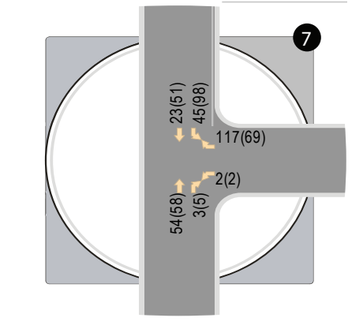
Goldfield Road and US-60 WB Ramps



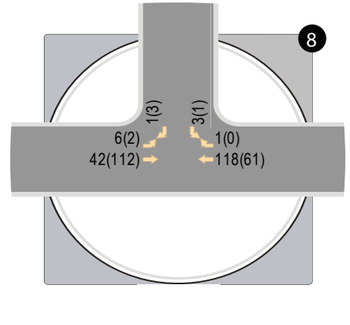
Goldfield Road and US-60 EB Ramps



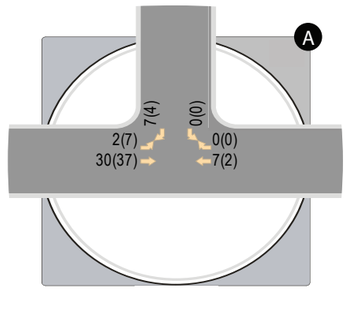
Goldfield Road and Chevron Access



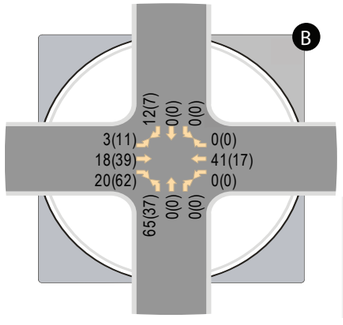
Goldfield Road and Resort Boulevard



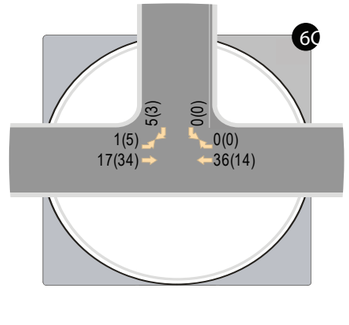
Chevron Access and Resort Boulevard



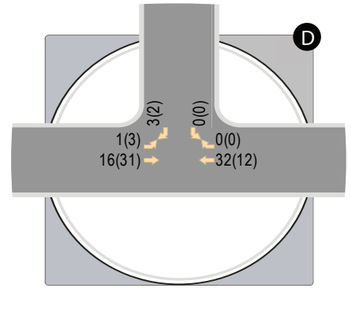
Access A and Chevron Access



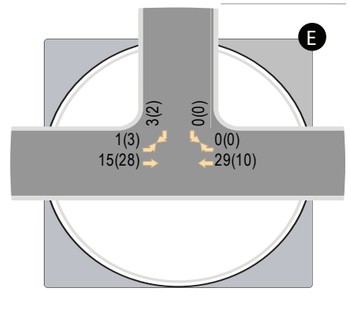
Access B and Resort Boulevard



Access C and Resort Boulevard

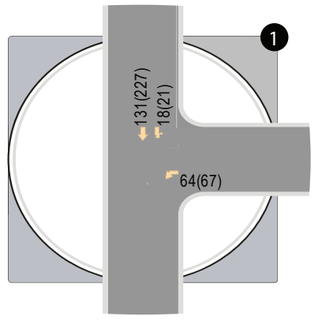


Access D and Resort Boulevard

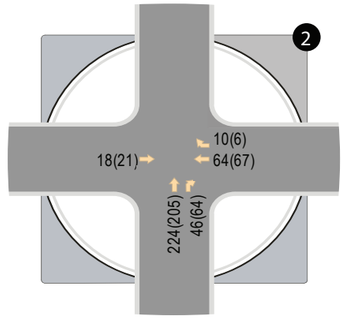


Access E and Resort Boulevard

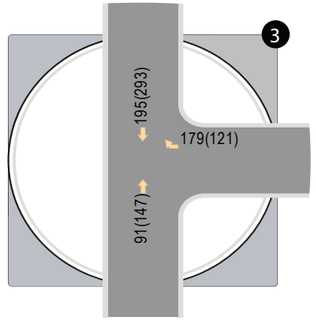
Figure 9: 2024 Total Traffic Volumes



Goldfield Rd & Old West Hwy SEB



Goldfield Rd & Old West Hwy NWB

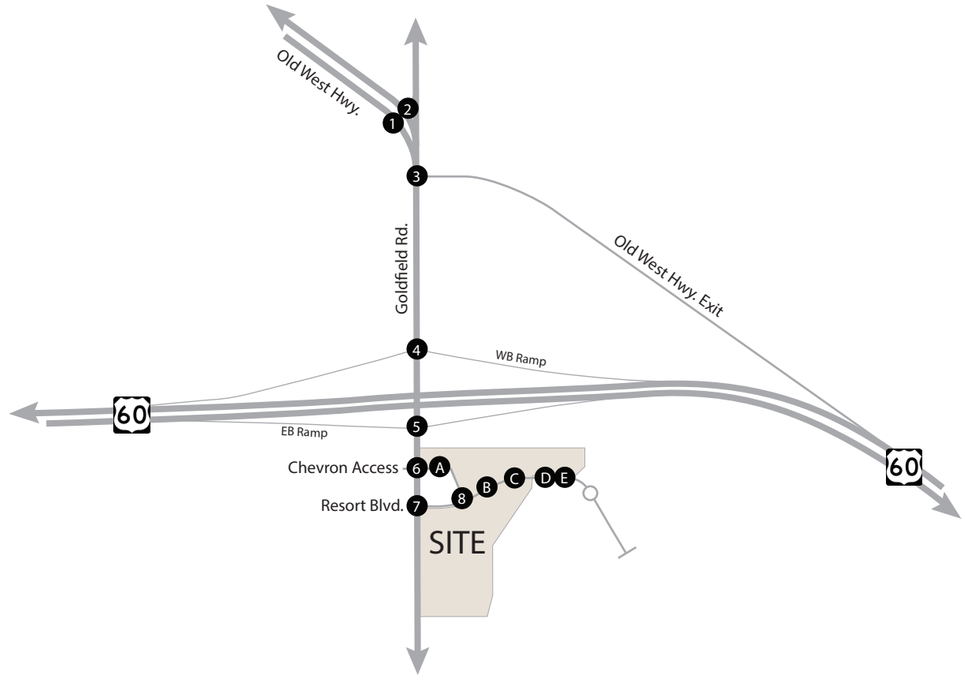


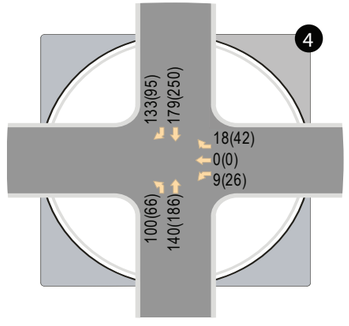
Goldfield Rd & US-60/Old West Highway Exit

Legend

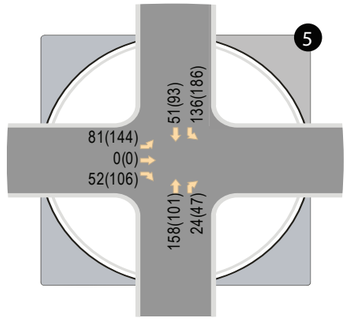
XX(XX) - AM (PM) Peak Hour Traffic Volumes

NORTH

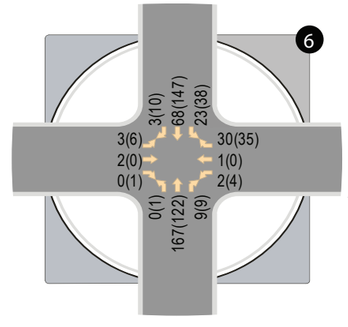




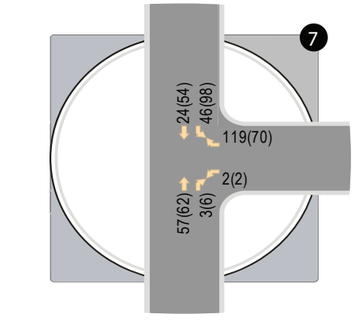
Goldfield Road and US-60 WB Ramps



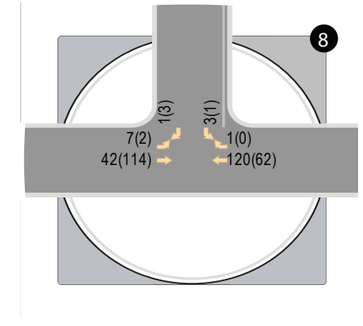
Goldfield Road and US-60 EB Ramps



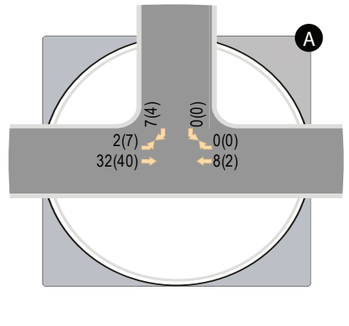
Goldfield Road and Chevron Access



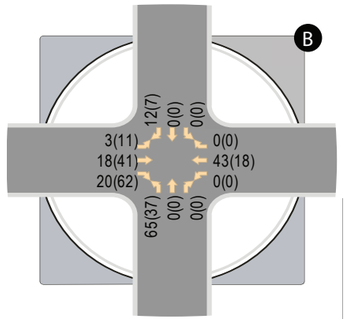
Goldfield Road and Resort Boulevard



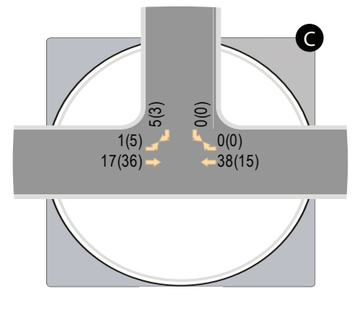
Chevron Access and Resort Boulevard



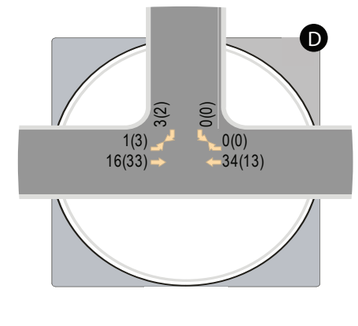
Access A and Chevron Access



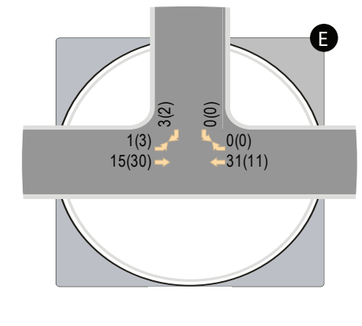
Access B and Resort Boulevard



Access C and Resort Boulevard



Access D and Resort Boulevard



Access E and Resort Boulevard

Figure 10: 2027 Total Traffic Volumes

TRAFFIC AND IMPROVEMENT ANALYSIS

The overall intersection and approach levels of service are summarized in **Table 6** for the 2024 and 2027 background and total traffic conditions. Detailed analysis worksheets for the 2024 background analysis can be found in **Appendix H**, worksheets for the 2027 background analysis can be found in **Appendix I**, worksheets for the 2024 total traffic analysis can be found in **Appendix J**, and worksheets for the 2027 total traffic analysis can be found in **Appendix K**.

Table 6 – Peak Hour Levels of Service

ID	Intersection	Control	Approach / Movement	2024		2027	
				No Build	Build	No Build	Build
				AM (PM)	AM(PM)	AM (PM)	AM(PM)
1	Goldfield Road and Old West Highway SEB	1-way Stop (WB)	WB Left	A (A)	A (A)	A (A)	A (A)
2	Goldfield Road and Old West Highway NWB	2-Way Stop (EB/WB)	EB Thru WB Thru WB Right	B (B) B (B) A (A)	B (B) B (B) A (A)	B (B) B (B) A (A)	B (B) B (B) A (A)
3	Goldfield Road and US-60/Old West Highway Exit	1-way stop (WB)	WB Right	A (A)	A (A)	A (A)	A (A)
4	Goldfield Road and US-60 WB Ramp	Signal	NB SB WB	A (A) A (A) D (D)	A (A) A (A) D (D)	A (A) A (A) D (D)	A (A) A (A) D (D)
			Overall	**A (A)**	**A (A)**	**A (A)**	**A (A)**
5	Goldfield Road and US-60 EB Ramp	Signal	NB SB EB	A (A) A (A) D (D)	A (A) A (A) D (D)	A (A) A (A) D (D)	A (A) A (A) D (D)
			Overall	**B (B)**	**B (B)**	**B (B)**	**B (B)**
6	Goldfield Rd & Chevron Access	2-way stop (EB/WB)	NB Left SB Left EB Shared WB Shared	A (A) A (A) B (A) A (A)	A (A) A (A) B (B) A (A)	A (A) A (A) A (A) A (A)	A (A) A (A) B (B) A (A)
7	Goldfield Road & Resort Boulevard	1-way stop (WB)	SB Left WB Shared	A (A) A (A)	A (A) A (A)	A (A) A (A)	A (A) A (A)
8	Chevron Access & Resort Boulevard	1-way stop (SB)	EB Left SB Shared	A (A) A (A)	A (A) A (A)	A (A) A (A)	A (A) A (A)
9/A	Access A & Resort Boulevard	1-way stop (SB)	EB Left SB Shared		A (A) A (A)		A (A) A (A)
10/B	Access B & Resort Boulevard	2-way stop (NB/SB)	EB Left WB Left NB Shared SB Shared		A (A) A (A) A (A) A (A)		A (A) A (A) A (A) A (A)
11/C	Access C & Resort Boulevard	1-way stop (SB)	EB Left SB Shared		A (A) A (A)		A (A) A (A)
12/D	Access D & Resort Boulevard	1-way stop (SB)	EB Left SB Shared		A (A) A (A)		A (A) A (A)
13/E	Access E & Resort Boulevard	1-way stop (SB)	EB Left SB Shared		A (A) A (A)		A (A) A (A)

The results of the Synchro analysis summarized in **Table 6** indicate that all study intersections operate with overall acceptable levels of service (LOS B or better).

TURN LANE WARRANTING AND QUEUE LENGTH ANALYSIS

RIGHT-TURN LANE WARRANT ANALYSIS

The City of Apache Junction Land Development Code, Chapter 10: Engineering Design Guidelines and Policies do not specify criteria warranting a right turn lane. Therefore, MCDOT guidelines are considered for this analysis. Per section 7.15 of the *MCDOT Roadway Design Manual*, a driveway right-turn deceleration lane is required when either of the following is met:

A. The outside lane has an expected volume of 250 vph or greater and the right turn volume is greater than 55 vph.

B. Any three of the below criteria are met:

   1. At least 5,000 vehicles per day are using or are expected to be using the adjacent street.
   2. The roadway's posted speed limit is greater than 35 mph.
   3. At least 1,000 vehicles per day are using or are expected to use the driveway.
   4. At least 30 vehicles are expected to make right-turns into the driveway within a one-hour period.

All access points were evaluated under these criteria. The results are shown in **Table 7.**

Table 7 is a summary of the 2027 peak hour right-turn volumes from the adjacent street onto the proposed driveways:

Table 7 – Driveway Right-Turn Lane Analysis

Access	Criterion A	Criterion B			
		1.	2.	3.	4.
Access A & Chevron Access	No	No	No	No	No
Access B & Resort Boulevard	No	No	No	No	Yes
Access C & Resort Boulevard	No	No	No	No	No
Access D & Resort Boulevard	No	No	No	No	No
Access E & Resort Boulevard	No	No	No	No	No

Due to the low expected future traffic volumes and low speed limit on Resort Boulevard & Chevron Access, neither criterion is met for the intersection. Therefore, a right-turn deceleration lane is not warranted for the site accesses.

QUEUE STORAGE

Adequate turn storage should be supplied on any approach where turn lanes are permitted and/or warranted. Per ADOT TGP 430 on Turn Lane Design, the configuration of a turn lane consists of a taper, an opening or "gap", and the storage length. A formula for calculating the length of the taper (which may not be required for right turn lanes) is provided in the TGP and the gap is specified in Table 430-1; both are based on posted or design speed, while the taper calculation also considers

the width of the lane and whether widening for it will be to one side or symmetrical. The storage is comprised of two components: braking distance (also specified in TGP 430) and the queue, which can vary depending on the projected number of turns. There are several methods of determining the appropriate queue for a turning movement. One common method is outlined in A Policy on Geometric Design of Highways and Streets (the AASHTO "Green Book"), a conservative methodology in which it is assumed that the turn lane should store the average number of turning vehicles arriving in a two-minute period, where unsignalized, or, in two signal cycles, where signalized. TGP 430 describes this method (without attributing it to the Green Book) as one way of estimating the queue, indicating that the minimum queue should be 50 feet (i.e., two passenger vehicles) where trucks are less than 10% of the total traffic volume of 85 feet (one 25-foot passenger vehicle + one 60-ft long truck) where trucks are greater than 10% of the total traffic volume.

TGP 240 allows/suggests the use of another method, one outlined in the Highway Capacity Manual. This method is used by the Synchro software to report the 95th percentile number of vehicles to the back of the queues. CivTech rounds this number up to the nearest whole number of vehicles and multiplies by 25 feet to convert the number of vehicles to a required queue. The equations used for the calculations are shown below, and the resulting turn lane storage requirements for the study intersections are summarized in **Table 8**. Detailed queue storage calculation worksheets using the AASHTO method are included in **Appendix L**. Proposed lane configurations are shown in **Figure 11**.

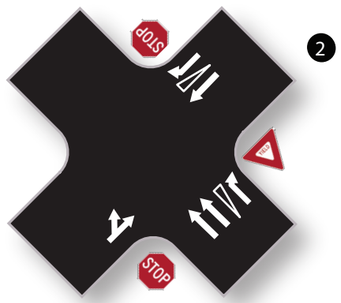
Table 8 – Queue Storage Lengths

ID	Intersection	Control	Movement	Existing[1]	ADOT			AASHTO	HCM[2]	Recommended
					Taper	Gap	Storage			
1	Goldfield Road and Old West Highway SEB	1-way Stop (WB)	SB Left WB Left	195' 25'	405' 245'	90' 60'	85' 45'	100' 150'	25' 25'	[5]195' [5]25'
2	Goldfield Road and Old West Highway NWB	2-Way Stop (EB/WB)	WB Right	55'	245'	60'	40'	100'	<25'	[5]55'
3	Goldfield Road and US-60/Old West Highway Exit	1-way Stop (WB)	WB Right	[4]-	405'	90'	85'	225'	25'	[5]-
4	Goldfield Road and US-60 WB Ramp	Signal	NB Left WB Left SB Right WB Right	445' 190' 140' 185'	245' 405' 245' 405'	60' 90' 60' 90'	40' 85' 40' 85'	200' 125' 250' 150'	25' 40' <25' <25'	[5]445' [5]190' [5]140' [5]185
5	Goldfield Road and US-60 EB Ramp	Signal	SB Left EB Left NB Right EB Right	440' 125' 120' 125'	245' 405' 245' 405'	60' 90' 60' 90'	40' 85' 40' 85'	325' 275' 150' 225'	<25' 100' <25' 35'	[5]440' [5]125' [5]120' [5]125'
6	Goldfield Rd & Chevron Access	2-way Stop (EB/WB)	NB Left SB Left NB Right	[3]TWLTL [3]TWLTL 75'	245' 245' 245'	60' 60' 60'	40' 40' 40'	100' 125' 100'	<25' 25' <25'	[3]TWLTL [3]TWLTL [5]75'
7	Goldfield Road & Resort Boulevard	1-way Stop (WB)	SB Left	[3]TWLTL	245'	60'	40'	175'	25'	[3]TWLTL

(1) Measured from beginning of stop bar
(2) HCM 95th percentile queue reported in vehicles/lane, assuming 1 vehicle ~ 25 feet.
(3) Two-way-left-turn-lane (TWLTL) provides excess storage for the left-turn lane.
(4) Queue for right turns is an exit road from the US-60.
(5) Existing conditions meet queue storage requirements.

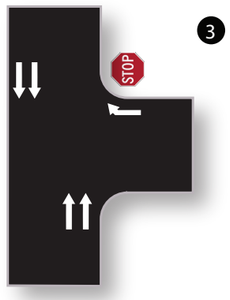
1

Goldfield Rd & Old West Hwy SEB



2

Goldfield Rd & Old West Hwy NWB



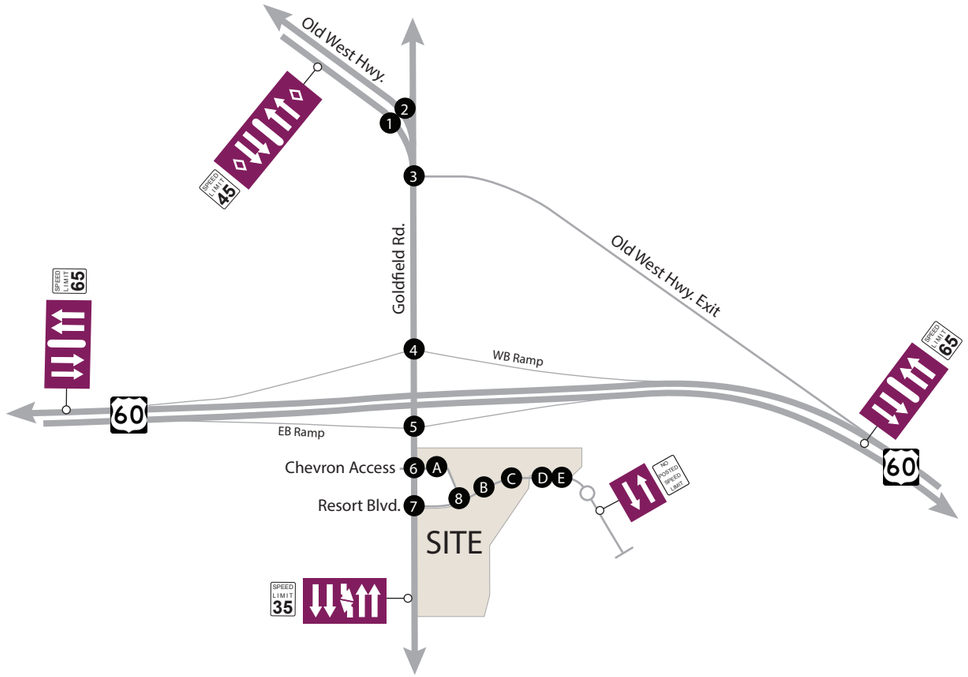
3

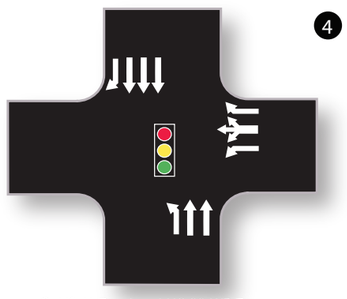
Goldfield Rd & US-60/Old West Highway Exit

LEGEND

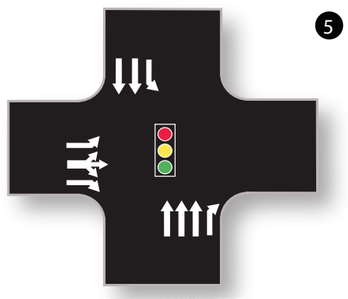
NORTH

- Thru or Turning Movement
- Two-Way Left Turn-Lane
- Raised Median
- Bike Lane
- Channelized Turn Lane
- Traffic Signal
- Stop Sign
- Speed Limit
- Yield Sign
- Development Improvements

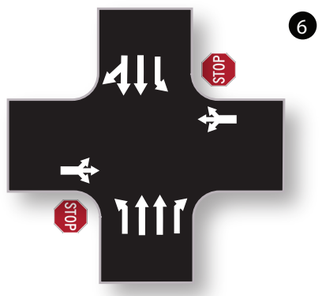




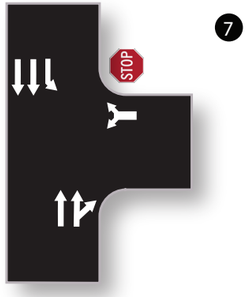
Goldfield Road and US-60 WB Ramps



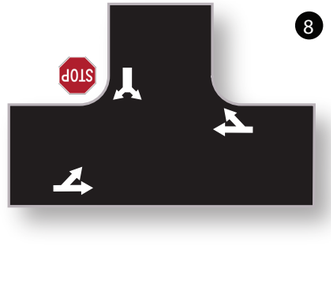
Goldfield Road and US-60 EB Ramps



Goldfield Road and Chevron Access



Goldfield Road and Resort Boulevard



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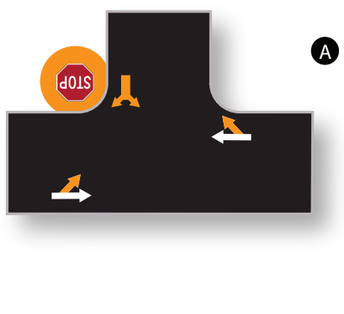
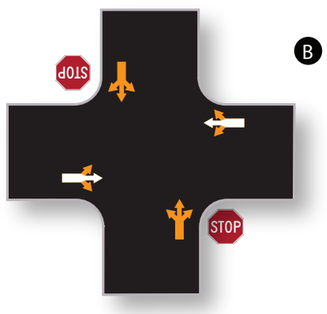


Access A and Chevron Access



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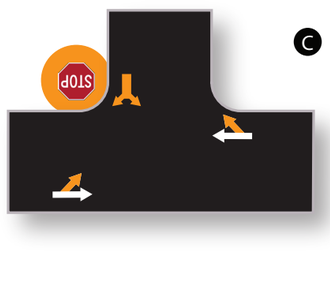
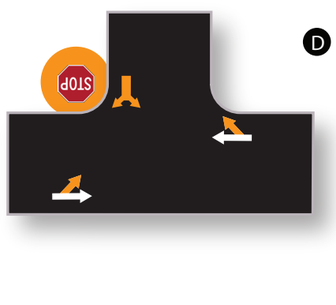
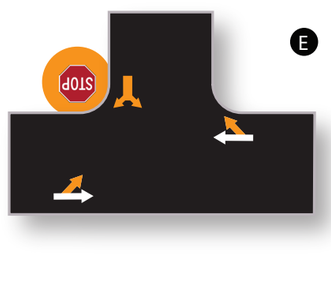


Access C and Resort Boulevard



Access D and Resort Boulevard



Access E and Resort Boulevard

Figure 11: Proposed Lane Configurations and Traffic controls

SIGHT DISTANCE ANALYSIS

Adequate sight distance must be provided at intersections and site access driveways to allow safe turning movements. There must be sufficient unobstructed sight distance along both approaches of a street/driveway intersection and across their included corners to allow operators of vehicles to see each other in time to prevent a collision.

The City of Apache Junction maintains sight distance requirements within their Engineering and Design Guidelines and Policies Manual. The City of Apache Junction measures sight distance using AASHTO methodology. Sight distance calculations according to AASHTO guidelines are summarized in **Table 9**.

Table 8 – AASHTO Sight Distance Requirements

Roadway	Posted Speed Limit / Design Speed (mph)	Sight Distance Along Roadway		
		Left of Driveway (Case B2/B3)	Right of Driveway (Case B1)	On Major Road (Case F)
Chevron Access	15/25	265’	310’	225’
Resort Boulevard	20/30	225’	260’	185’

Sight visibility should be provided at all driveways according to the distances shown in **Table 9** and that sight triangles at public intersections are maintained according to Section 10-3-4 of the City Code. Sight distance worksheets and Section 10-3-4 of the City Code have been included within **Appendix M**.

CONCLUSIONS

The following conclusions and recommendations have been documented in this study.

GENERAL

- The proposed development is anticipated to generate 2,038 daily trips, 124 (30 in/ 94 out) trips during the AM peak hour, and 139 (89 in/ 51 out) trips during the PM peak hour.
- The existing zoning of the site would be anticipated to generate 7,596 weekday daily trips, 564 (388 in/ 176 out) trips during the AM peak hour, and 747 (294 in/ 453 out) trips during the PM peak hour.
    - The proposed land uses generate approximately 5,558 fewer daily trips, 439 (359 in/ 80 out) fewer AM peak hour volumes, and 602 (203 in/ 399 out) fewer PM peak hour trips than the existing zoning allows.

CRASH HISTORY

- In total, there were 13 incidents within the study area from 2018-2020. There was a total of 15 injuries and 4 fatalities.

EXISTING

- The results of the existing conditions analysis indicate that all study intersections operate with acceptable levels of service (LOS B or better) with the existing traffic control devices.

OPENING YEAR

- The results of the Synchro analysis indicate that all study intersections operate with overall acceptable levels of service (LOS B or better) with the lane configurations and stop controls as shown in **Figure 11**.

2027 CAPACITY ANALYSIS

- The results of the Synchro analysis indicate that all study intersections operate with overall acceptable levels of service (LOS B or better) with the lane configurations and stop controls as shown in **Figure 11**.

QUEUE STORAGE

- The recommended storage lengths are provided for study horizon year 2027 using the total traffic projections.

SIGHT DISTANCE

- Sight visibility should be provided at all driveways according to the distances and sight triangles at public intersections should be maintained according to Section 10-3-4 of the City Code.

LIST OF REFERENCES

Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis. Transportation Research Board, Washington, D.C., 2018.

*Manual on Uniform Traffic Control Devices. U.*S. Department of Transportation, Federal Highways Administration, Washington, D.C., 2009.

Roadway Design Manual, Maricopa County Department of Transportation, Phoenix, Arizona, Revised April 2004.

Trip Generation Manual, 11th Edition, Institute of Transportation Engineers, Washington, D.C., 2017.

Trip Generation Handbook, 3rd Edition, Institute of Transportation Engineers, Washington, D.C., 2014.

A Policy on Geometric Design of Highways and Streets ("AASHTO Green Book") 6th Edition, *The American Association of Highway Transportation Officials, page 9-127*, Washington, D.C., 2011.

TECHNICAL APPENDICES

APPENDIX A: REVIEW COMMENTS AND RESPONSES (RESERVED)

APPENDIX B: EXISTING TRAFFIC COUNTS

APPENDIX C: EXISTING PEAK HOUR ANALYSIS

APPENDIX D: CRASH ANALYSIS WORKSHEETS

APPENDIX E: TRIP GENERATION CALCULATIONS

APPENDIX F: TRIP DISTRIBUTION CALCULATIONS

APPENDIX G: BACKGROUND GROWTH CALCULATIONS

APPENDIX H: 2024 NO BUILD PEAK HOUR ANALYSIS

APPENDIX I: 2027 NO BUILD PEAK HOUR ANALYSIS

APPENDIX J: 2024 BUILD PEAK HOUR ANALYSIS

APPENDIX K: 2027 BUILD PEAK HOUR ANALYSIS

APPENDIX L: QUEUE STORAGE ANALYSIS

APPENDIX M: SIGHT DISTANCE ANALYSIS

APPENDIX A

REVIEW COMMENTS AND RESPONSES (Reserved)

APPENDIX B

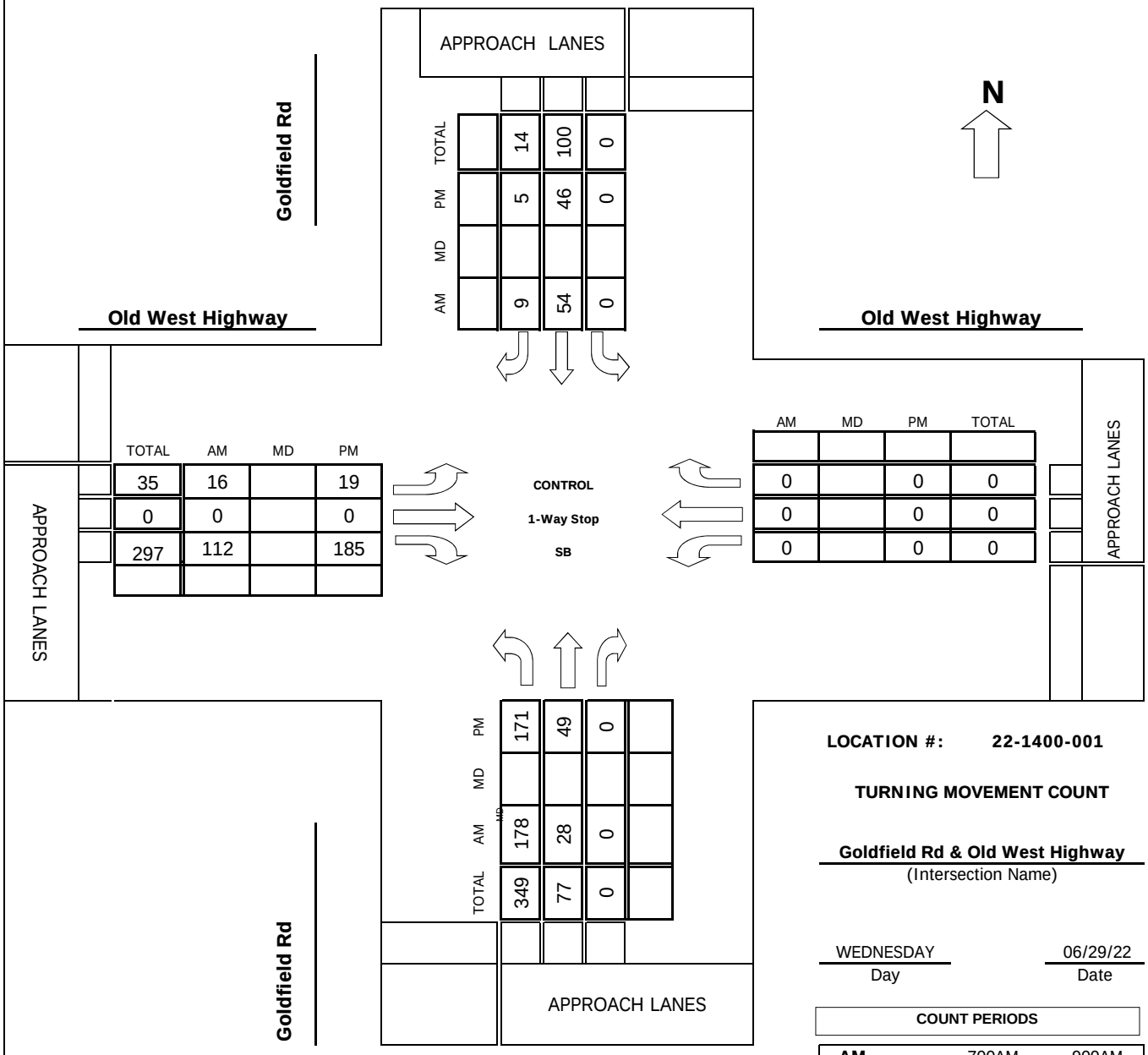
EXISTING TRAFFIC COUNTS

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-001

TMC SUMMARY OF Goldfield Rd & Old West Highway



LOCATION #: 22-1400-001

TURNING MOVEMENT COUNT

Goldfield Rd & Old West Highway
(Intersection Name)

WEDNESDAY (Day) 06/29/22 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

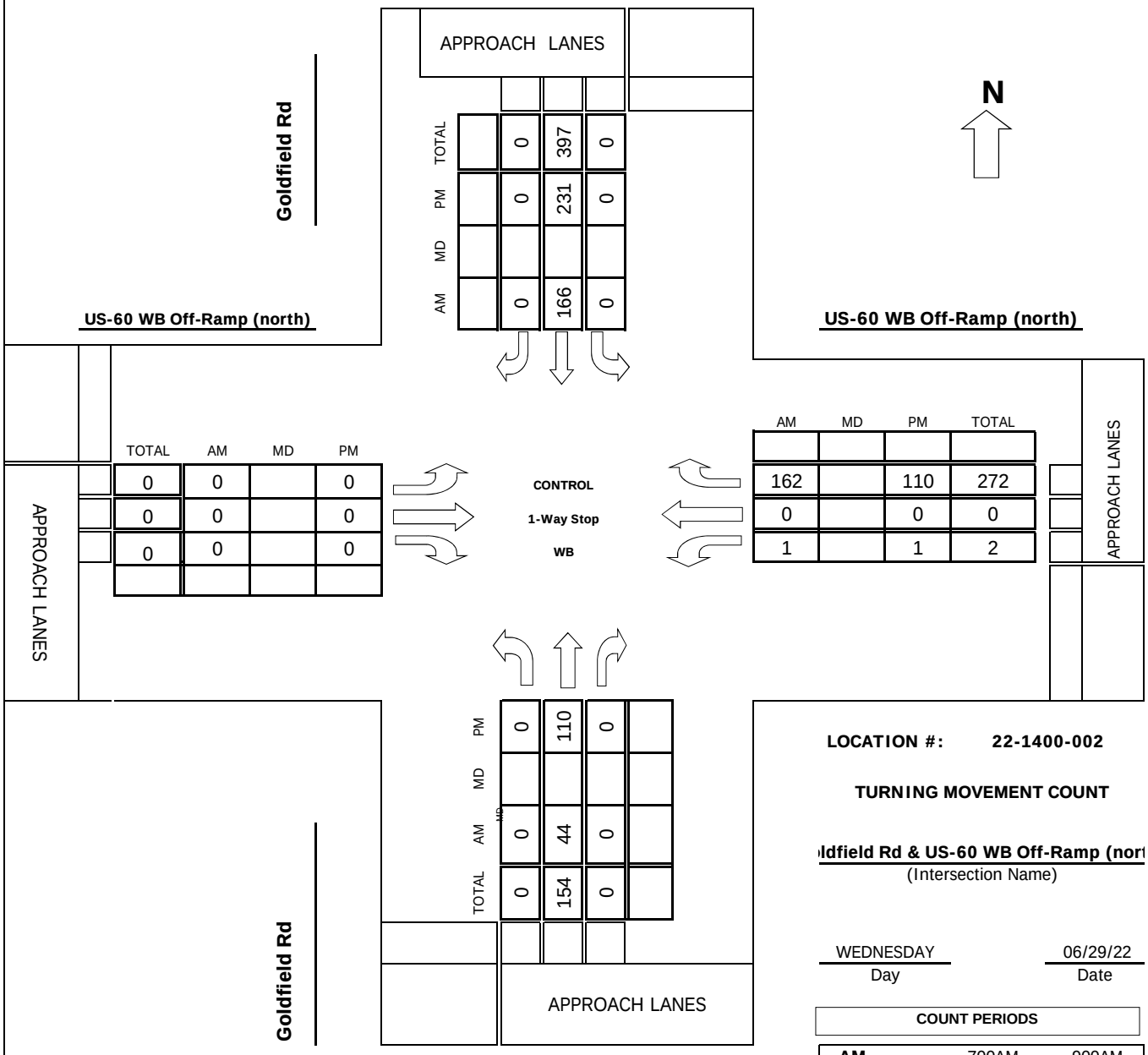
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-002

TMC SUMMARY OF Goldfield Rd & US-60 WB Off-Ramp (north)



LOCATION #: 22-1400-002

TURNING MOVEMENT COUNT

ldfield Rd & US-60 WB Off-Ramp (nort
(Intersection Name)

WEDNESDAY (Day) 06/29/22 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

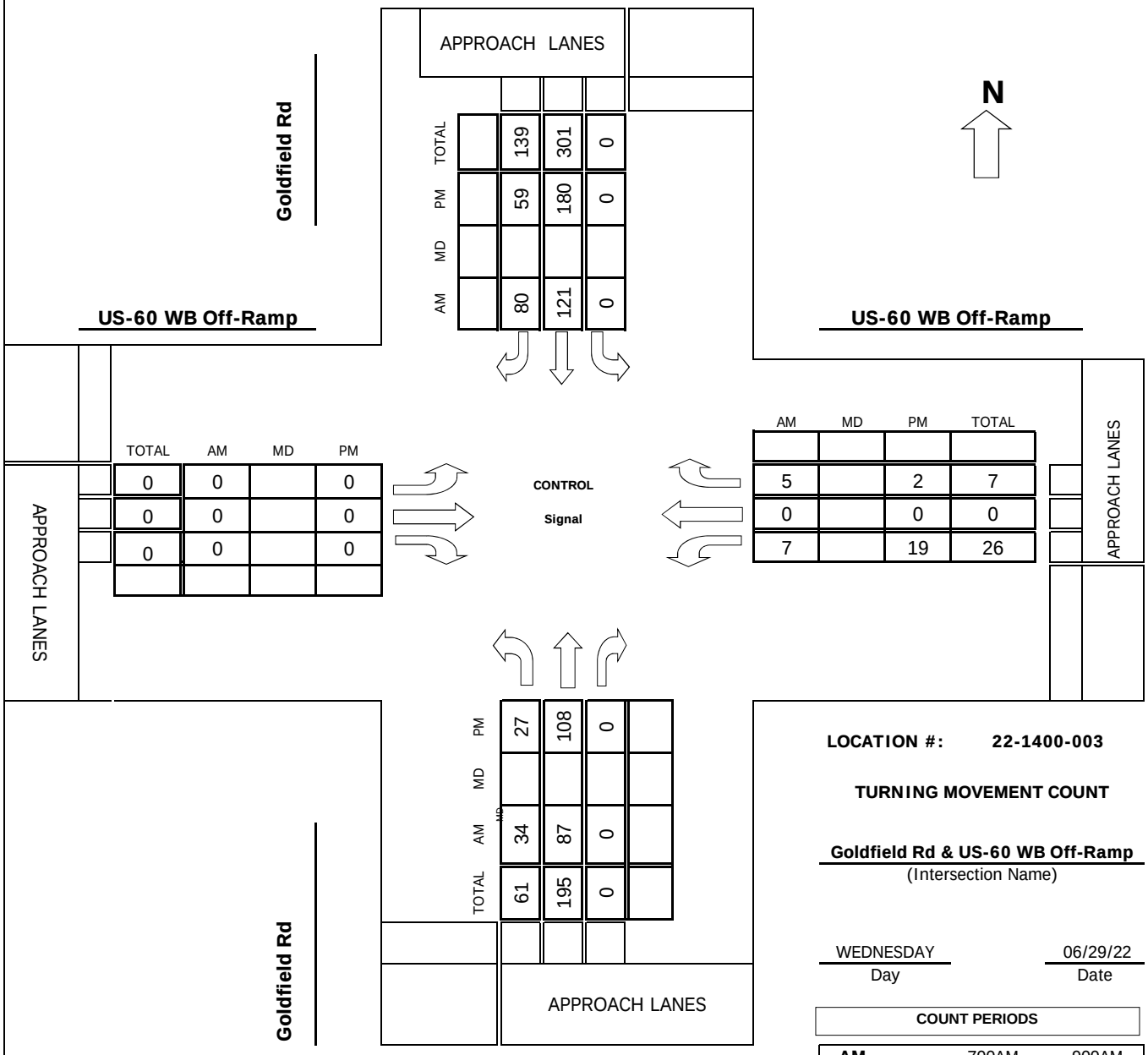
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-003

TMC SUMMARY OF Goldfield Rd & US-60 WB Off-Ramp



LOCATION #: 22-1400-003

TURNING MOVEMENT COUNT

Goldfield Rd & US-60 WB Off-Ramp
(Intersection Name)

WEDNESDAY (Day) 06/29/22 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

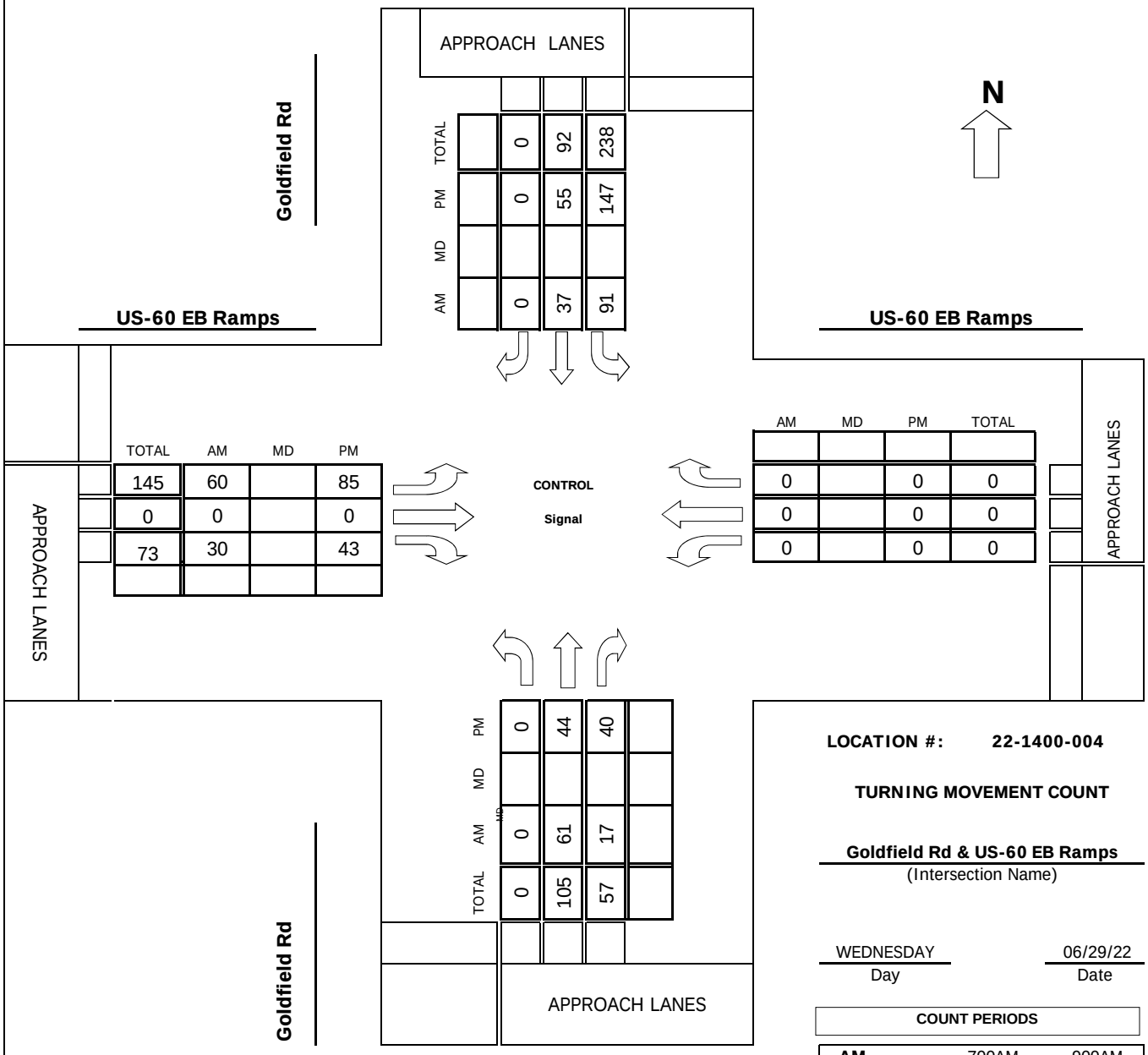
PM PEAK HOUR 500 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-004

TMC SUMMARY OF Goldfield Rd & US-60 EB Ramps



LOCATION #: 22-1400-004

TURNING MOVEMENT COUNT

Goldfield Rd & US-60 EB Ramps
(Intersection Name)

WEDNESDAY (Day) 06/29/22 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

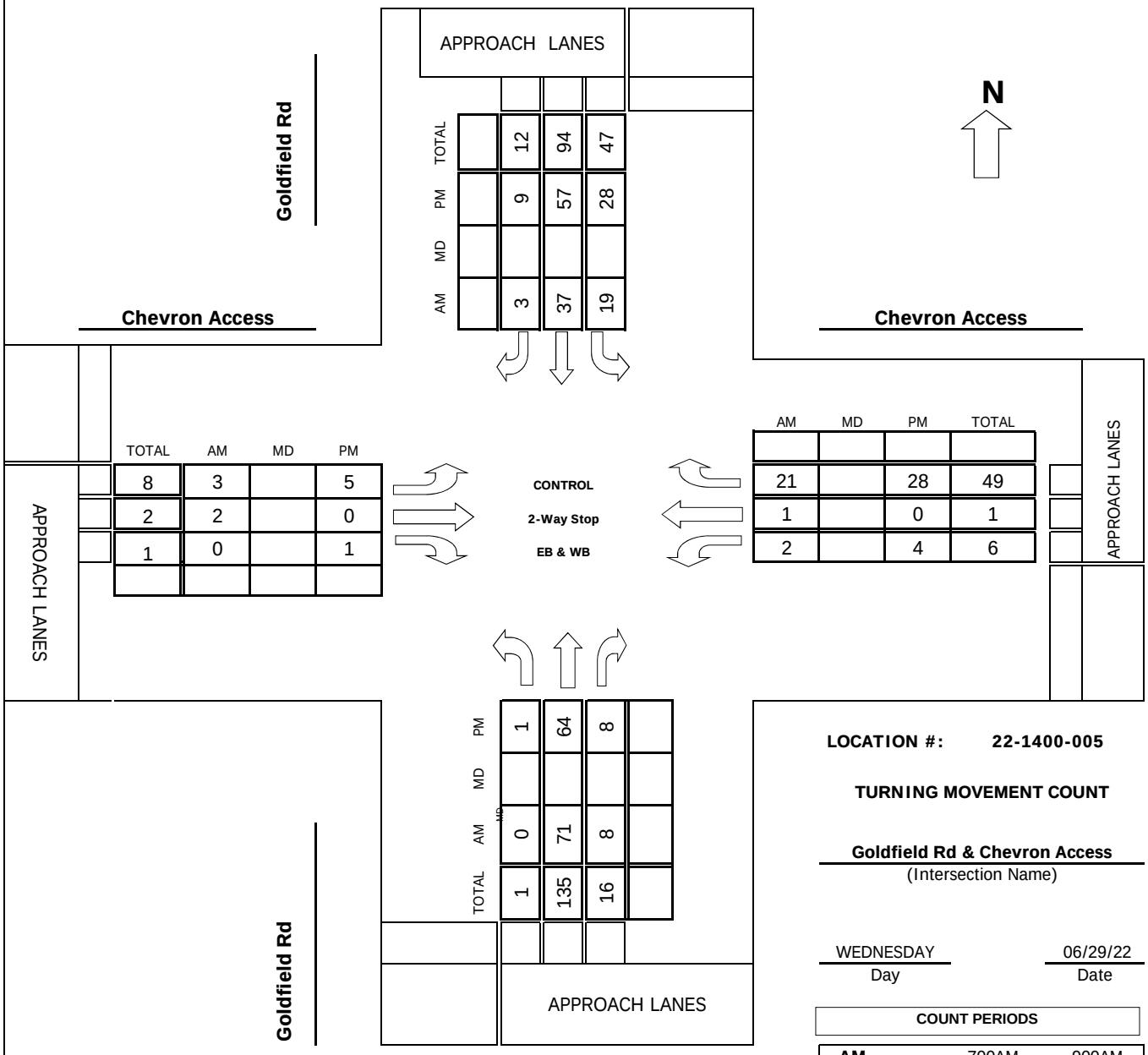
PM PEAK HOUR 415 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-005

TMC SUMMARY OF Goldfield Rd & Chevron Access



LOCATION #: 22-1400-005

TURNING MOVEMENT COUNT

Goldfield Rd & Chevron Access
(Intersection Name)

WEDNESDAY — Day
06/29/22 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR: 800 AM

NOON PEAK HOUR:

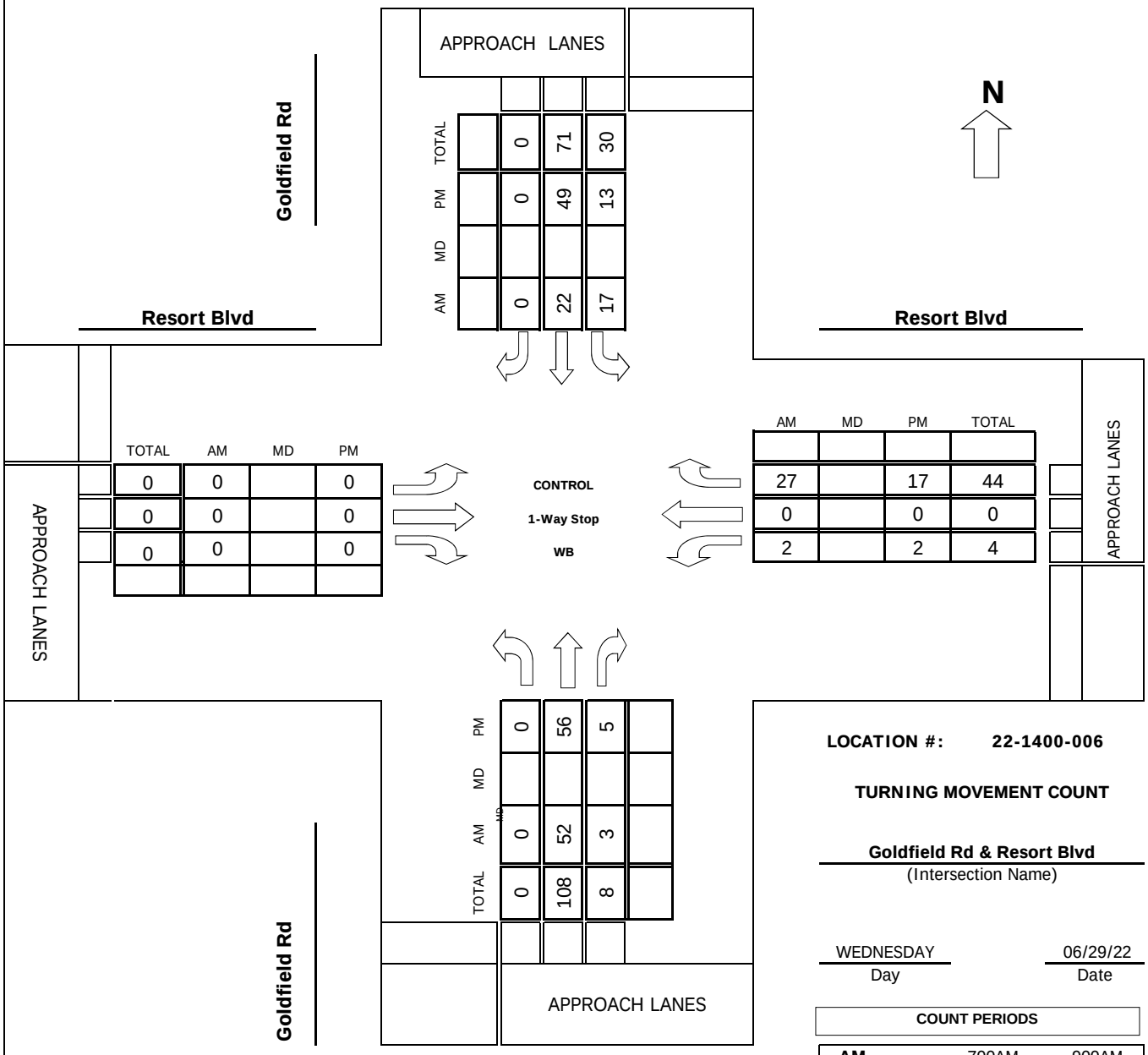
PM PEAK HOUR: 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-006

TMC SUMMARY OF Goldfield Rd & Resort Blvd



LOCATION #: 22-1400-006

TURNING MOVEMENT COUNT

Goldfield Rd & Resort Blvd
(Intersection Name)

WEDNESDAY (Day) 06/29/22 (Date)

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 800 AM

NOON PEAK HOUR

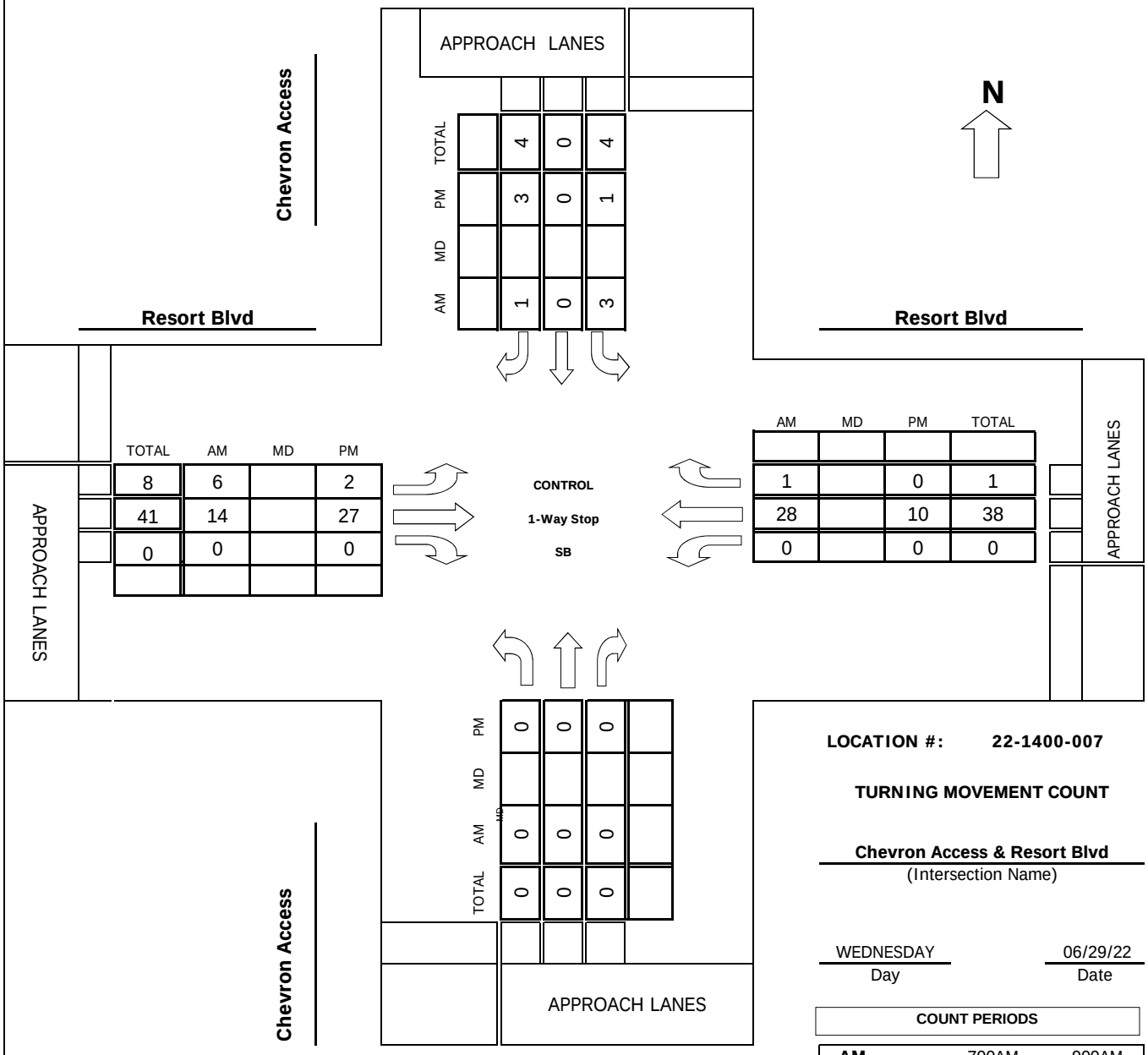
PM PEAK HOUR 445 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 22-1400-007

TMC SUMMARY OF Chevron Access & Resort Blvd



LOCATION #: 22-1400-007

TURNING MOVEMENT COUNT

Chevron Access & Resort Blvd
(Intersection Name)

WEDNESDAY — Day
06/29/22 — Date

COUNT PERIODS

AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR: 800 AM

NOON PEAK HOUR:

PM PEAK HOUR: 415 PM

APPENDIX C

EXISTING PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	0	0	0	0	112
Future Vol, veh/h	54	0	0	0	0	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	25	25	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	0	0	0	0	123

Major/Minor	Minor1			Major2	
Conflicting Flow All	62	-		0	0
Stage 1	0	-		-	-
Stage 2	62	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	937	0		-	-
Stage 1	-	0		-	-
Stage 2	953	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	937	-		-	-
Mov Cap-2 Maneuver	937	-		-	-
Stage 1	-	-		-	-
Stage 2	953	-		-	-

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

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	937	-	-
HCM Lane V/C Ratio	0.091	-	-
HCM Control Delay (s)	9.2	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	0	0	0	0	185
Future Vol, veh/h	46	0	0	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	46	46	25	25	79	79
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	0	0	0	0	234

Major/Minor	Minor1			Major2	
Conflicting Flow All	117	-		0	0
Stage 1	0	-		-	-
Stage 2	117	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	867	0		-	-
Stage 1	-	0		-	-
Stage 2	895	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	867	-		-	-
Mov Cap-2 Maneuver	867	-		-	-
Stage 1	-	-		-	-
Stage 2	895	-		-	-

Approach	WB	SB
HCM Control Delay, s	9.7	0
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	867	-	-
HCM Lane V/C Ratio	0.115	-	-
HCM Control Delay (s)	9.7	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	16	0	0	54	9	0	178	28	0	0	0
Future Vol, veh/h	0	16	0	0	54	9	0	178	28	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	63	63	63	84	84	84	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	18	0	0	86	14	0	212	33	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	212	-	-	212	106	-	0	0
Stage 1	-	0	-	-	212	-	-	-	-
Stage 2	-	212	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	684	0	0	684	928	0	-	-
Stage 1	0	-	0	0	726	-	0	-	-
Stage 2	0	726	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	684	-	-	684	928	-	-	-
Mov Cap-2 Maneuver	-	684	-	-	684	-	-	-	-
Stage 1	-	-	-	-	726	-	-	-	-
Stage 2	-	726	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.4	10.7	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	684	684	928
HCM Lane V/C Ratio	-	-	0.026	0.125	0.015
HCM Control Delay (s)	-	-	10.4	11	8.9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	19	0	0	46	5	0	171	49	0	0	0
Future Vol, veh/h	0	19	0	0	46	5	0	171	49	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	46	46	46	89	89	89	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	24	0	0	100	11	0	192	55	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	192	-	-	192	96	-	0	0
Stage 1	-	0	-	-	192	-	-	-	-
Stage 2	-	192	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	702	0	0	702	942	0	-	-
Stage 1	0	-	0	0	740	-	0	-	-
Stage 2	0	740	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	702	-	-	702	942	-	-	-
Mov Cap-2 Maneuver	-	702	-	-	702	-	-	-	-
Stage 1	-	-	-	-	740	-	-	-	-
Stage 2	-	740	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.3	10.8	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	702	702	942
HCM Lane V/C Ratio	-	-	0.034	0.142	0.012
HCM Control Delay (s)	-	-	10.3	11	8.9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.5	0

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	162	44	0	0	166
Future Vol, veh/h	0	162	44	0	0	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	58	58	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	198	76	0	0	191

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	38	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1026	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	1026	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	1026	-
HCM Lane V/C Ratio	-	0.193	-
HCM Control Delay (s)	-	9.3	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.7	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	110	110	0	0	231
Future Vol, veh/h	0	110	110	0	0	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	86	86	68	68
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	131	128	0	0	340

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	64	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	987	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	987	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

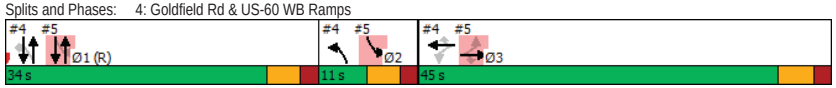
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	987	-
HCM Lane V/C Ratio	-	0.133	-
HCM Control Delay (s)	-	9.2	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.5	-

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	7	0	5	34	87	121	80
Future Volume (vph)	7	0	5	34	87	121	80
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps

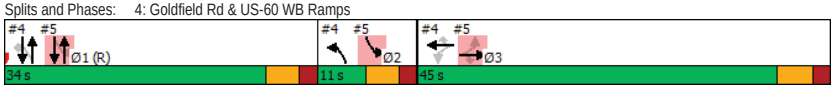


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	19	0	2	27	108	180	59
Future Volume (vph)	19	0	2	27	108	180	59
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	7	0	5	34	87	0	0	121	80
Future Volume (vph)	0	0	0	7	0	5	34	87	0	0	121	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.94	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1547	1504	1770	3539			5085	1583
Flt Permitted				0.95	0.97	1.00	0.66	1.00			1.00	1.00
Satd. Flow (perm)				1681	1547	1504	1235	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	9	0	7	38	98	0	0	134	89
RTOR Reduction (vph)	0	0	0	0	5	5	0	0	0	0	0	29
Lane Group Flow (vph)	0	0	0	6	0	0	38	98	0	0	134	60
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				6.8	6.8	6.8	66.1	60.7			60.7	60.7
Effective Green, g (s)				6.8	6.8	6.8	66.1	60.7			60.7	60.7
Actuated g/C Ratio				0.08	0.08	0.08	0.73	0.67			0.67	0.67
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)				127	116	113	939	2386			3429	1067
v/s Ratio Prot							c0.00	0.03			0.03	
v/s Ratio Perm				c0.00	0.00	0.00	0.03					c0.04
v/c Ratio				0.05	0.00	0.00	0.04	0.04			0.04	0.06
Uniform Delay, d1				38.6	38.5	38.5	3.3	4.9			4.9	5.0
Progression Factor				1.00	1.00	1.00	0.46	0.61			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.1	0.0			0.0	0.1
Delay (s)				38.7	38.5	38.5	1.6	3.0			4.9	5.1
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			38.5			2.6			5.0	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.05			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	42.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	19	0	2	27	108	0	0	180	59
Future Volume (vph)	0	0	0	19	0	2	27	108	0	0	180	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1610	1504	1770	3539			5085	1583
Flt Permitted				0.95	0.95	1.00	0.61	1.00			1.00	1.00
Satd. Flow (perm)				1681	1610	1504	1140	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.58	0.58	0.58	0.79	0.79	0.79	0.84	0.84	0.84
Adj. Flow (vph)	0	0	0	33	0	3	34	137	0	0	214	70
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	0	0	23
Lane Group Flow (vph)	0	0	0	16	17	0	34	137	0	0	214	47
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				6.7	6.7	6.7	66.2	60.8			60.8	60.8
Effective Green, g (s)				6.7	6.7	6.7	66.2	60.8			60.8	60.8
Actuated g/C Ratio				0.07	0.07	0.07	0.74	0.68			0.68	0.68
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				125	119	111	876	2390			3435	1069
v/s Ratio Prot							c0.00	0.04			c0.04	
v/s Ratio Perm				0.01	0.01	0.00	0.03					0.03
v/c Ratio				0.13	0.14	0.00	0.04	0.06			0.06	0.04
Uniform Delay, d1				38.9	39.0	38.6	3.2	4.9			4.9	4.9
Progression Factor				1.00	1.00	1.00	0.56	0.65			1.00	1.00
Incremental Delay, d2				0.2	0.2	0.0	0.1	0.0			0.0	0.1
Delay (s)				39.1	39.2	38.6	1.9	3.3			5.0	5.0
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			39.1			3.0			5.0	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.07			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	45.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	6	5	5	38	98	134	89
v/c Ratio	0.04	0.02	0.02	0.04	0.04	0.04	0.08
Control Delay	37.2	0.2	0.2	1.3	3.4	5.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	0.2	0.2	1.3	3.4	5.4	1.2
Queue Length 50th (ft)	3	0	0	1	4	8	0
Queue Length 95th (ft)	12	0	0	3	8	16	12
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	728	709	955	2432	3495	1120
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.01	0.04	0.04	0.04	0.08

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	16	17	3	34	137	214	70
v/c Ratio	0.10	0.11	0.01	0.04	0.06	0.06	0.06
Control Delay	38.8	39.0	0.0	1.5	3.6	5.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	39.0	0.0	1.5	3.6	5.3	0.7
Queue Length 50th (ft)	9	9	0	1	6	13	0
Queue Length 95th (ft)	18	19	0	3	10	21	5
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	699	709	890	2436	3500	1122
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.00	0.04	0.06	0.06	0.06

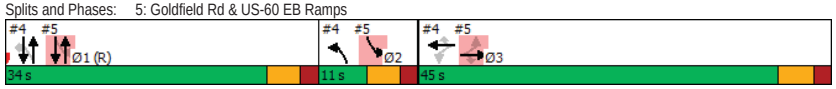
Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	60	0	30	61	17	91	37
Future Volume (vph)	60	0	30	61	17	91	37
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps

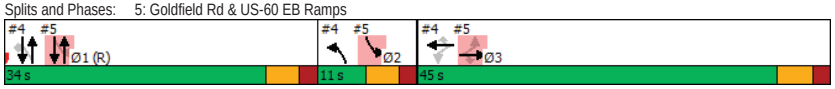


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	85	0	43	44	40	147	55
Future Volume (vph)	85	0	43	44	40	147	55
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	0	30	0	0	0	0	61	17	91	37	0
Future Volume (vph)	60	0	30	0	0	0	0	61	17	91	37	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1600	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.70	1.00	
Satd. Flow (perm)	1681	1600	1504					5085	1583	1306	3539	
Peak-hour factor, PHF	0.68	0.68	0.68	0.25	0.25	0.25	0.78	0.78	0.78	0.84	0.84	0.92
Adj. Flow (vph)	88	0	44	0	0	0	0	78	22	108	44	0
RTOR Reduction (vph)	0	42	37	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	47	3	3	0	0	0	0	78	15	108	44	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	6.8	6.8	6.8					60.7	60.7	66.1	60.7	
Effective Green, g (s)	6.8	6.8	6.8					60.7	60.7	66.1	60.7	
Actuated g/C Ratio	0.08	0.08	0.08					0.67	0.67	0.73	0.67	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	2.0	2.0	2.0					2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	127	120	113					3429	1067	987	2386	
v/s Ratio Prot								0.02		c0.01	0.01	
v/s Ratio Perm	c0.03	0.00	0.00						0.01	c0.07		
v/c Ratio	0.37	0.03	0.03					0.02	0.01	0.11	0.02	
Uniform Delay, d1	39.6	38.5	38.5					4.8	4.8	3.5	4.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.42	0.67	
Incremental Delay, d2	0.7	0.0	0.0					0.0	0.0	0.2	0.0	
Delay (s)	40.2	38.6	38.6					4.9	4.8	1.7	3.2	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		39.2			0.0			4.9			2.1	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.13			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	42.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	0	43	0	0	0	0	44	40	147	55	0
Future Volume (vph)	85	0	43	0	0	0	0	44	40	147	55	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1598	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.72	1.00	
Satd. Flow (perm)	1681	1598	1504					5085	1583	1341	3539	
Peak-hour factor, PHF	0.87	0.87	0.87	0.25	0.25	0.25	0.84	0.84	0.84	0.80	0.80	0.80
Adj. Flow (vph)	98	0	49	0	0	0	0	52	48	184	69	0
RTOR Reduction (vph)	0	47	41	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	52	4	3	0	0	0	0	52	32	184	69	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	6.7	6.7	6.7					60.8	60.8	66.2	60.8	
Effective Green, g (s)	6.7	6.7	6.7					60.8	60.8	66.2	60.8	
Actuated g/C Ratio	0.07	0.07	0.07					0.68	0.68	0.74	0.68	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	125	118	111					3435	1069	1012	2390	
v/s Ratio Prot								0.01		c0.01	0.02	
v/s Ratio Perm	c0.03	0.00	0.00						0.02	c0.12		
v/c Ratio	0.42	0.03	0.03					0.02	0.03	0.18	0.03	
Uniform Delay, d1	39.8	38.6	38.6					4.8	4.8	3.6	4.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.53	0.55	
Incremental Delay, d2	0.8	0.0	0.0					0.0	0.1	0.4	0.0	
Delay (s)	40.6	38.7	38.7					4.8	4.9	2.3	2.7	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		39.4			0.0			4.8			2.4	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.20			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	45.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	45	40	78	22	108	44
v/c Ratio	0.30	0.19	0.17	0.02	0.02	0.11	0.02
Control Delay	43.1	1.7	1.6	5.5	0.1	1.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	1.7	1.6	5.5	0.1	1.3	3.8
Queue Length 50th (ft)	27	0	0	4	0	2	2
Queue Length 95th (ft)	45	0	0	9	0	4	4
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	750	709	3495	1120	1003	2432
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.06	0.02	0.02	0.11	0.02

Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	51	44	52	48	184	69
v/c Ratio	0.34	0.22	0.19	0.01	0.04	0.18	0.03
Control Delay	44.3	3.5	1.9	5.5	0.1	1.8	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	3.5	1.9	5.5	0.1	1.8	3.0
Queue Length 50th (ft)	29	0	0	3	0	0	2
Queue Length 95th (ft)	64	5	0	7	0	21	6
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	750	709	3500	1122	1029	2436
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.07	0.06	0.01	0.04	0.18	0.03

Intersection Summary

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	0	2	1	21	0	71	8	19	37	3
Future Vol, veh/h	3	2	0	2	1	21	0	71	8	19	37	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	75	75	75	90	90	90	74	74	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	0	3	1	28	0	79	9	26	50	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	144	192	27	158	184	40	53	0	0	88	0	0
Stage 1	104	104	-	79	79	-	-	-	-	-	-	-
Stage 2	40	88	-	79	105	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	811	702	1042	793	709	1022	1551	-	-	1506	-	-
Stage 1	890	808	-	921	829	-	-	-	-	-	-	-
Stage 2	970	821	-	921	807	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	777	690	1042	780	697	1022	1551	-	-	1506	-	-
Mov Cap-2 Maneuver	777	690	-	780	697	-	-	-	-	-	-	-
Stage 1	890	794	-	921	829	-	-	-	-	-	-	-
Stage 2	942	821	-	901	793	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	8.8	0	2.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	740	978	1506	-	-
HCM Lane V/C Ratio	-	-	-	0.011	0.033	0.017	-	-
HCM Control Delay (s)	0	-	-	9.9	8.8	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	1	4	0	28	1	64	8	28	57	9
Future Vol, veh/h	5	0	1	4	0	28	1	64	8	28	57	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	50	50	80	80	80	55	55	55	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	2	5	0	35	2	116	15	32	66	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	197	270	38	217	260	58	76	0	0	131	0	0
Stage 1	135	135	-	120	120	-	-	-	-	-	-	-
Stage 2	62	135	-	97	140	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	770	650	1058	745	659	996	1542	-	-	1452	-	-
Stage 1	877	798	-	872	796	-	-	-	-	-	-	-
Stage 2	942	784	-	923	794	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	730	635	1058	730	644	996	1542	-	-	1452	-	-
Mov Cap-2 Maneuver	730	635	-	730	644	-	-	-	-	-	-	-
Stage 1	876	780	-	871	795	-	-	-	-	-	-	-
Stage 2	908	783	-	901	776	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.9	0.1	2.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1542	-	-	770	953	1452	-	-
HCM Lane V/C Ratio	0.001	-	-	0.016	0.042	0.022	-	-
HCM Control Delay (s)	7.3	-	-	9.7	8.9	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	27	52	3	17	22
Future Vol, veh/h	2	27	52	3	17	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	60	60	86	86	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	45	60	3	24	31

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	126	32	0	0	63	0
Stage 1	62	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	856	1035	-	-	1538	-
Stage 1	953	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	842	1035	-	-	1538	-
Mov Cap-2 Maneuver	815	-	-	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	936	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 1016	1538	-
HCM Lane V/C Ratio	-	- 0.048	0.016	-
HCM Control Delay (s)	-	- 8.7	7.4	-
HCM Lane LOS	-	- A	A	-
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	17	56	5	13	49
Future Vol, veh/h	2	17	56	5	13	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	53	53	61	61	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	32	92	8	18	66

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	165	50	0	0	100	0
Stage 1	96	-	-	-	-	-
Stage 2	69	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	833	1008	-	-	1490	-
Stage 1	917	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Platoon blocked, %	1		-	-		-
Mov Cap-1 Maneuver	823	1008	-	-	1490	-
Mov Cap-2 Maneuver	801	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 981	1490	-
HCM Lane V/C Ratio	-	- 0.037	0.012	-
HCM Control Delay (s)	-	- 8.8	7.4	-
HCM Lane LOS	-	- A	A	-
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	14	28	1	3	1
Future Vol, veh/h	6	14	28	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	60	60	33	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	17	47	2	9	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	49	0	-	0	79	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	31	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1558	-	-	-	924	1021
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	992	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1558	-	-	-	919	1021
Mov Cap-2 Maneuver	-	-	-	-	919	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	992	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1558	-	-	-	929
HCM Lane V/C Ratio	0.005	-	-	-	0.011
HCM Control Delay (s)	7.3	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	27	10	0	1	3
Future Vol, veh/h	2	27	10	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	42	42	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	33	24	0	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	24	0	-	0	61	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1591	-	-	-	945	1052
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1591	-	-	-	944	1052
Mov Cap-2 Maneuver	-	-	-	-	944	-
Stage 1	-	-	-	-	998	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1591	-	-	-	1023
HCM Lane V/C Ratio	0.002	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX D

CRASH ANALYSIS WORKSHEETS

CRASH STATISTICS — *Involvement* — **Goldfield Rd & Old West Hwy NWB**

2019-2020

	# Incidents	Totals		# Motorists	# Non-Motorists
Incidents	3	5	Veh	7	0
Fatal	0	0	Ppl	0	0
Injury	1	1	Ppl	0	0
PDO	2	4	Veh		

Peds/Bikes Summary

	Incidents	Persons	Injuries Fatal	Injuries Non-Fatal
Pedestrian:	0	0	0	0
Bicycle:	0	0	0	0

LightCondition	Code	No.
DAYLIGHT	1	2
DAWN	2	1
DUSK	3	0
DARK_LIGHTED	4	0
DARK_NOT_LIGHTED	5	0
DARK_UNKNOWN_LIGHTING	6	0
UNKNOWN	99	0
Check Total		3

Weather		
CLEAR	1	1
CLOUDY	2	2
SLEET_HAIL_FREEZING_RAIN_OR_DRIZZLE	3	0
RAIN	4	0
SNOW	5	0
SEVERE_CROSSWINDS	6	0
BLOWING_SAND_SOIL_DIRT	7	0
FOG_SMOG_SMOKE	8	0
BLOWING_SNOW	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		3

TrafficWayType		
ONE_WAY_TRAFFICWAY	1	2
TWO_WAY_NOT_DIVIDED	2	0
ED_WITH_CONTINUOUS_LEFT_TURN_LANE	3	0
UNPROTECTED_PAINTED_4_FEET_MEDIAN	4	1
)ED_POSITIVE_MEDIAN_BARRIER	5	0
UNKNOWN	99	0
Check Total		3

Weekday		
Sunday	1	0
Monday	2	0
Tuesday	3	1
Wednesday	4	0
Thursday	5	0
Friday	6	0
Saturday	7	2
Check Total		3

Circumstances

Hit & Run?	0
Intersection Related?	0

JunctionRelation	Code	No.
NOT_JUNCTION_RELATED	0	0
INTERSECTION_NON_INTERCHANGE	1	0
INTERSECTION_RELATED_NON_INTERCHANGE	2	0
ENTRANCE_EXIT_RAMP_NON_INTERCHANGE	3	2
RAILWAY_GRADE_CROSSING	4	0
CROSSOVER_RELATED	5	0
FRONTAGE_ROAD_NON_INTERCHANGE	6	1
DRIVEWAY	7	0
ALLEY_ACCESS_RELATED	8	0
UNKNOWN_NON_INTERCHANGE	9	0
THRU_ROADWAY	10	0
INTERSECTION_INTERCHANGE	11	0
INTERSECTION_RELATED_INTERCHANGE	12	0
ENTRANCE_EXIT_RAMP_INTERCHANGE	13	0
FRONTAGE_ROAD_INTERCHANGE	14	0
OTHER_PART_OF_INTERCHANGE	15	0
<not defined>	16	0
UNKNOWN_INTERCHANGE	17	0
UNKNOWN_JUNCTION	18	0
UNKNOWN	99	0
OTHER_NON_INTERCHANGE	109	0
Check Total		3

CollisionManner		
SINGLE_VEHICLE	1	1
ANGLE (front to side)(other than left turn)	2	2
LEFT_TURN	3	0
REAR_END	4	0
HEAD_ON	5	0
SIDESWIPE_SAME_DIRECTION	6	0
SIDESWIPE_OPPOSITE_DIRECTION	7	0
REAR_TO_SIDE	8	0
REAR_TO_REAR	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		3

TravelDirection		
1 NORTH	N	
2 SOUTH	S	
3 EAST	E	
4 WEST	W	
5 NORTHWEST	NW	
6 NORTHEAST	NE	
7 SOUTHWEST	SW	
8 SOUTHEAST	SE	
99 UNKNOWN	99	

First Harmful Event	Code	No.
OVERTURN_ROLLOVER	1	0
FIRE_EXPLOSION	2	0
IMMERSION	3	0
JACKKNIFE	4	0
CARGO_EQUIPMENT_LOSS_SHIFT	5	0
FELL_JUMPED_FROM_VEHICLE	6	0
THROWN_OR_FALLING_OBJECT	7	0
OTHER_NON_COLLISION	8	0
EQUIPMENT_FAILURE ~~TIRES_BRAKES~~	9	0
SEPARATION_OF_UNITS	10	0
RAN_OFF_ROAD_RIGHT	11	0
RAN_OFF_ROAD_LEFT	12	0
CROSS_MEDIAN	13	0
CROSS_CENTERLINE	14	0
DOWNHILL_RUNAWAY	15	0
MOTOR_VEHICLE_IN_TRANSPORT	16	2
PEDESTRIAN	17	0
PEDALCYCLE	18	0
RAILWAY_VEHICLE_TRAIN_ENGINE	19	0
LIGHT_RAILWAY_RAILCAR_VEHICLE	20	0
ANIMAL_WILD_NON_GAME	21	0
ANIMAL_WILD_GAME	22	0
ANIMAL_PET	23	0
ANIMAL_LIVESTOCK	24	0
PARKED_MOTOR_VEHICLE	25	0
WORK_ZONE_MAINTENANCE_EQUIPMENT	26	0
STRUCK_BY_FALLING_SHIFTING_CARGO_OR_OBJECT	27	0
OTHER_NON_FIXED_OBJECT	28	0
IMPACT_ATTENUATOR_CRASH_CUSHION	29	0
BRIDGE_OVERHEAD_STRUCTURE	30	0
BRIDGE_RAIL	31	0
CULVERT	32	0
CURB	33	1
DITCH	34	0
EMBANKMENT	35	0
GUARDRAIL_FACE	36	0
GUARDRAIL_END	37	0
CONCRETE_TRAFFIC_BARRIER	38	0
CABLE_TRAFFIC_BARRIER	39	0
OTHER_TRAFFIC_BARRIER	40	0
TREE_BUSH_STUMP_STANDING	41	0
TRAFFIC_SIGN_SUPPORT	42	0
TRAFFIC_SIGNAL_SUPPORT	43	0
UTILITY_POLE_LIGHT_SUPPORT	44	0
OTHER_POST_POLE_OR_SUPPORT	45	0
FENCE	46	0
MAILBOX	47	0
BUILDING	48	0
OTHER_FIXED_OBJECT	49	0
UNKNOWN	99	0
Not Reported	255	0
Check Total		3

Month	Code	No.
January	1	0
February	2	1
March	3	0
April	4	0
May	5	0
June	6	0
July	7	0
August	8	0
September	9	1
October	10	1
November	11	0
December	12	0
Total		3

(Unit) SurfaceCondition		
DRY	1	4
WET	2	1
SNOW	3	0
SLUSH	4	0
ICE_FROST	5	0
WATER_STANDING_MOVING	6	0
SAND	7	0
MUD_DIRT_GRAVEL	8	0
OIL	9	0
OTHER	97	0
UNKNOWN	99	0
Total		5

Additional Useful Information

Vehicle Action Codes

1	GOING_STRAIGHT_AHEAD
2	SLOWING_IN_TRAFFICWAY
3	STOPPED_IN_TRAFFICWAY
4	MAKING_LEFT_TURN
5	MAKING_RIGHT_TURN
6	MAKING_U_TURN
7	OVERTAKING_PASSING
8	CHANGING_LANES
9	NEGOTIATING_A_CURVE
10	BACKING
11	Avoiding_Vehicle_Object_Pedestrian
12	ENTERING_PARKING_POSITION
13	LEAVING_PARKING_POSITION
14	PROPERLY_PARKED
15	IMPROPERLY_PARKED
16	DRIVERLESS_MOVING_VEHICLE
17	CROSSING_ROAD
18	WALKING_WITH_TRAFFIC
19	WALKING_AGAINST_TRAFFIC
20	STANDING
21	LYING
22	GETTING_ON_OR_OFF_VEHICLE
23	WORKING_ON_OR_PUSHING_VEHICLE
24	WORKING_ON_ROAD
97	OTHER
99	UNKNOWN

Body Styles

-1	NOT_REPORTED
1	\Passenger Vehicles, including RVs
53	/
54	\TRUCKS
88	/
89	\MOBILEHOME (NOT RVS)
92	/
93	\TRAILERS
120	/
121	\MOTORCYCLES
128	/
254	UNKNOWN
255	NOT REPORTED

CRASH LISTING — **Goldfield Rd & Old West Hwy NWB**

INCIDNT_NO	ON_STREET	MP	OFF-SET	D R	DIS-TANCE	INTERSECT STREET	NCIC	OFCR NCIC	YYMMDD	HH:MM	W	TOTAL	SRFCND U1	SRFCND U2	ALGMT 1	ALGMT 2	GRADE 1	GRADE 2	DFCTS U1	DFCTS U2	BSTYLE U1	BSTYLE U2	TRDR 1	TRDR 2	UACT U1	UACT U2	TTL MOT	TTL NON	TYP 1	TYP 2	INJR 1	INJR 2	VLTN D1	VLTN D2	PHSCND D1	PHSCND D2	NON LOC	INCIDENTS PDO	INJURIES INJ	FATALITIES FAT	TTL MOT	TTL NON	H R	LT CN	WE CN	JCT REL	TRF CWY	HE CD	M C
3489075	11 OLD WEST			P	0	Goldfield (0) Rd	1113	1113	190223	08:09	7	1	2		2		1		99		44		W		1		1	0	1		3		5		0			1	1	0	0	0	0	0	N	2	1	203		1	33	1
3566569	11 OLD WEST			P	0	Goldfield (0) Rd	1113	1113	190924	15:06	3	2	1	1	1	2	1	0	0	0	44	32	S	NW	97	1	2	0	1	1	1	1	20	1	0	0	255	1		0		0		N	1	2	206		4	16	2
3705064	11 OLD WEST			P	0	Goldfield (0) Rd	1113	1113	201024	14:39	7	2	1	1	1	2	1	0	0	0	30	47	S	W	1	1	4	0	1	4	1	1	20	0	0	0	255	1		0		0		N	1	2	203		1	16	2
																												4	1	1	1	0	1	0	0	255												

Goldfield Rd & Old West Hwy NWB

SUMMARY BY YEAR

SEVERITY / INCIDENTS		**2019**	**2020**	**Totals**	**Checks**
Fatal Injury Incidents					
Non-fatal Injury Incidents		1		1	
PDO Incidents		1	1	2	
TOTALS		2	1	3	
Pedestrian Incidents					
Pedestrians Involved					
Bicycle Incidents					
Bicyclists Involved					
SEVERITY / INVOLVMENT					
Fatal Injuries					
Non-Fatal Injuries		1		1	
PDO Vehicles		2	2	4	
Pedestrians Fatally Injured					
Pedestrians Non-Fatally Injured					
Bicyclists Fatally Injured					
Bicyclists Non-Fatally Injured					
COLLISION MANNER					
SINGLE_VEHICLE	1	1		1	
ANGLE	2	1	1	2	
LEFT_TURN	3				
REAR_END	4				
HEAD_ON	5				
SIDESWIPE_SAME_DIRECTION	6				
IDESWIPE_OPPOSITE_DIRECTION	7				
REAR_TO_SIDE	8				
REAR_TO_REAR	9				
OTHER	97				
UNKNOWN	99				
TOTALS		2	1	3	

CRASH STATISTICS

2018-2019

Goldfield Rd & OldWest Hwy Exit

Involvement

	# Incidents	Totals		# Motorists	# Non-Motorists
Incidents	6	7	Veh	8	0
Fatal	0	0	Ppl	0	0
Injury	2	2	Ppl	0	0
PDO	4	5	Veh		

Peds/Bikes Summary

	Incidents	Persons	Injuries Fatal	Injuries Non-Fatal
Pedestrian:	0	0	0	0
Bicycle:	0	0	0	0

Circumstances

	Code	No.
Hit & Run?	2	
Intersection Related?	1	

LightCondition	Code	No.
DAYLIGHT	1	3
DAWN	2	2
DUSK	3	0
DARK_LIGHTED	4	1
DARK_NOT_LIGHTED	5	0
DARK_UNKNOWN_LIGHTING	6	0
UNKNOWN	99	0
Check Total		6

Weather		
CLEAR	1	5
CLOUDY	2	1
SLEET_HAIL_FREEZING_RAIN_OR_DRIZZLE	3	0
RAIN	4	0
SNOW	5	0
SEVERE_CROSSWINDS	6	0
BLOWING_SAND_SOIL_DIRT	7	0
FOG_SMOG_SMOKE	8	0
BLOWING_SNOW	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		6

TrafficWayType		
ONE_WAY_TRAFFICWAY	1	3
TWO_WAY_NOT_DIVIDED	2	0
ED_WITH_CONTINUOUS_LEFT_TURN_LANE	3	0
UNPROTECTED_PAINTED_4_FEET_MEDIAN	4	1
)ED_POSITIVE_MEDIAN_BARRIER	5	1
UNKNOWN	99	1
Check Total		6

Weekday		
Sunday	1	2
Monday	2	1
Tuesday	3	0
Wednesday	4	0
Thursday	5	1
Friday	6	0
Saturday	7	2
Check Total		6

JunctionRelation	Code	No.
NOT_JUNCTION_RELATED	0	3
INTERSECTION_NON_INTERCHANGE	1	1
INTERSECTION_RELATED_NON_INTERCHANGE	2	0
ENTRANCE_EXIT_RAMP_NON_INTERCHANGE	3	1
RAILWAY_GRADE_CROSSING	4	0
CROSSOVER_RELATED	5	1
FRONTAGE_ROAD_NON_INTERCHANGE	6	0
DRIVEWAY	7	0
ALLEY_ACCESS_RELATED	8	0
UNKNOWN_NON_INTERCHANGE	9	0
THRU_ROADWAY	10	0
INTERSECTION_INTERCHANGE	11	0
INTERSECTION_RELATED_INTERCHANGE	12	0
ENTRANCE_EXIT_RAMP_INTERCHANGE	13	0
FRONTAGE_ROAD_INTERCHANGE	14	0
OTHER_PART_OF_INTERCHANGE	15	0
<not defined>	16	0
UNKNOWN_INTERCHANGE	17	0
UNKNOWN_JUNCTION	18	0
UNKNOWN	99	0
OTHER_NON_INTERCHANGE	109	0
Check Total		6

CollisionManner		
SINGLE_VEHICLE	1	5
ANGLE (front to side)(other than left turn)	2	0
LEFT_TURN	3	0
REAR_END	4	0
HEAD_ON	5	0
SIDESWIPE_SAME_DIRECTION	6	1
SIDESWIPE_OPPOSITE_DIRECTION	7	0
REAR_TO_SIDE	8	0
REAR_TO_REAR	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		6

TravelDirection		
1 NORTH	N	
2 SOUTH	S	
3 EAST	E	
4 WEST	W	
5 NORTHWEST	NW	
6 NORTHEAST	NE	
7 SOUTHWEST	SW	
8 SOUTHEAST	SE	
99 UNKNOWN	99	

First Harmful Event	Code	No.
OVERTURN_ROLLOVER	1	0
FIRE_EXPLOSION	2	0
IMMERSION	3	0
JACKKNIFE	4	0
CARGO_EQUIPMENT_LOSS_SHIFT	5	0
FELL_JUMPED_FROM_VEHICLE	6	0
THROWN_OR_FALLING_OBJECT	7	0
OTHER_NON_COLLISION	8	0
EQUIPMENT_FAILURE ~~TIRES_BRAKES~~	9	0
SEPARATION_OF_UNITS	10	0
RAN_OFF_ROAD_RIGHT	11	0
RAN_OFF_ROAD_LEFT	12	0
CROSS_MEDIAN	13	0
CROSS_CENTERLINE	14	0
DOWNHILL_RUNAWAY	15	0
MOTOR_VEHICLE_IN_TRANSPORT	16	1
PEDESTRIAN	17	0
PEDALCYCLE	18	0
RAILWAY_VEHICLE_TRAIN_ENGINE	19	0
LIGHT_RAILWAY_RAILCAR_VEHICLE	20	0
ANIMAL_WILD_NON_GAME	21	0
ANIMAL_WILD_GAME	22	0
ANIMAL_PET	23	0
ANIMAL_LIVESTOCK	24	0
PARKED_MOTOR_VEHICLE	25	0
WORK_ZONE_MAINTENANCE_EQUIPMENT	26	0
STRUCK_BY_FALLING_SHIFTING_CARGO_OR_OBJECT	27	0
OTHER_NON_FIXED_OBJECT	28	0
IMPACT_ATTENUATOR_CRASH_CUSHION	29	0
BRIDGE_OVERHEAD_STRUCTURE	30	0
BRIDGE_RAIL	31	0
CULVERT	32	0
CURB	33	4
DITCH	34	0
EMBANKMENT	35	0
GUARDRAIL_FACE	36	0
GUARDRAIL_END	37	0
CONCRETE_TRAFFIC_BARRIER	38	0
CABLE_TRAFFIC_BARRIER	39	0
OTHER_TRAFFIC_BARRIER	40	0
TREE_BUSH_STUMP_STANDING	41	0
TRAFFIC_SIGN_SUPPORT	42	1
TRAFFIC_SIGNAL_SUPPORT	43	0
UTILITY_POLE_LIGHT_SUPPORT	44	0
OTHER_POST_POLE_OR_SUPPORT	45	0
FENCE	46	0
MAILBOX	47	0
BUILDING	48	0
OTHER_FIXED_OBJECT	49	0
UNKNOWN	99	0
Not Reported	255	0
Check Total		6

Month	Code	No.
January	1	1
February	2	0
March	3	0
April	4	0
May	5	1
June	6	0
July	7	0
August	8	1
September	9	1
October	10	0
November	11	0
December	12	2
Total		6

(Unit) SurfaceCondition		
DRY	1	7
WET	2	0
SNOW	3	0
SLUSH	4	0
ICE_FROST	5	0
WATER_STANDING_MOVING	6	0
SAND	7	0
MUD_DIRT_GRAVEL	8	0
OIL	9	0
OTHER	97	0
UNKNOWN	99	0
Total		7

Additional Useful Information

Vehicle Action Codes

1	GOING_STRAIGHT_AHEAD
2	SLOWING_IN_TRAFFICWAY
3	STOPPED_IN_TRAFFICWAY
4	MAKING_LEFT_TURN
5	MAKING_RIGHT_TURN
6	MAKING_U_TURN
7	OVERTAKING_PASSING
8	CHANGING_LANES
9	NEGOTIATING_A_CURVE
10	BACKING
11	Avoiding_Vehicle_Object_Pedestrian
12	ENTERING_PARKING_POSITION
13	LEAVING_PARKING_POSITION
14	PROPERLY_PARKED
15	IMPROPERLY_PARKED
16	DRIVERLESS_MOVING_VEHICLE
17	CROSSING_ROAD
18	WALKING_WITH_TRAFFIC
19	WALKING_AGAINST_TRAFFIC
20	STANDING
21	LYING
22	GETTING_ON_OR_OFF_VEHICLE
23	WORKING_ON_OR_PUSHING_VEHICLE
24	WORKING_ON_ROAD
97	OTHER
99	UNKNOWN

Body Styles

-1	NOT_REPORTED
1	\Passenger Vehicles, including RVs
53	/
54	\TRUCKS
88	/
89	\MOBILEHOME (NOT RVS)
92	/
93	\TRAILERS
120	/
121	\MOTORCYCLES
128	/
254	UNKNOWN
255	NOT REPORTED

CRASH LISTING

Goldfield Rd & OldWest Hwy Exit

<-- LOCATION -->							<-DATE & TIME->		<-- UNITS -->																				<-- PERSON -->														<-- SEVERITY -->										<-- GENERAL -->							
INCIDNT	ON	STREET	MP	OFF-SET	D R	DIS-TANCE	INTERSECT STREET	NCIC	OFCR NCIC	YYMMDD	HH:MM	D W	TO-TAL	SRFCND U1	SRFCND U2	ALGMT 1	ALGMT 2	GRADE 1	GRADE 2	DFCTS U1	DFCTS U2	BSTYLE U1	BSTYLE U2	TRDR 1	TRDR 2	UACT U1	UACT U2	TTL MOT	TTL NON	TYP 1	TYP 2	INJR 1	INJR 2	VLTN D1	VLTN D2	PHSCND D1	PHSCND D2	NON LOC	INCIDENTS PDO	INCIDENTS INJ	INCIDENTS FAT	INJURIES TTL	INJURIES MOT	INJURIES NON	FATALITIES TTL	FATALITIES MOT	FATALITIES NON	H R	LT CN	WE CN	JCT REL	TRF CWY	HE CD	M C
3335071	11	GOLDFIELD			P	0	Old West Hwy Non-Car	1113	1113	180128	01:49	1	1	1		3		1		99		50		N		1		1	0	1		2		3		0			1		1	0	0	0	0	0	N	4	1	0	1	33	1
3407618	11	OLD WEST			P	0	Goldfield Rd	1113	1113	180819	05:54	1	1	1		1		1		99		44		W		1		1	0	1		3		3		0			1		1	0	0	0	0	0	Y	2	1	5	1	33	1
3462439	11	OLD WEST			P	0	Goldfield Rd	1113	1113	181222	08:12	7	1	1		3		1		0		50		S		1		1	0	1		1		2		0		1			0		0			N	2	1	1	5	42	1
3474659	11	OLD WEST			P	0	Goldfield Rd	1113	1113	181229	16:33	7	1	1		1		1		0		44		SE		1		1	0	1		1		2		0			1		0		0			N	1	1	0	1	33	1
3528119	11	GOLDFIELD			P	0	Old West Hwy	1113	1113	190520	06:37	2	1	1		3		1		0		44		S		1		2	0	1	4	1	1	##	0	0	0	255	1		0		0			N	1	2	3	99	33	1
3558273	11	GOLDFIELD			M	200	Old West Hwy	1113	1113	190905	15:01	5	2	1	1	2	2	3	0	0	0	31	50	NW	NW	1	1	2	0	1	1	99	99	12	1	0	0	255	1		0		0			Y	1	1	0	4	16	6

Goldfield Rd & OldWest Hwy Exit

SUMMARY BY YEAR

SEVERITY / INCIDENTS		**2018**	**2019**		**Totals**	**Checks**
Fatal Injury Incidents						
Non-fatal Injury Incidents		2			2	
PDO Incidents		2	2		4	
TOTALS		4	2		6	
Pedestrian Incidents						
Pedestrians Involved						
Bicycle Incidents						
Bicyclists Involved						
SEVERITY / INVOLVMENT						
Fatal Injuries						
Non-Fatal Injuries		2			2	
PDO Vehicles		2	3		5	
Pedestrians Fatally Injured						
Pedestrians Non-Fatally Injured						
Bicyclists Fatally Injured						
Bicyclists Non-Fatally Injured						
COLLISION MANNER						
SINGLE_VEHICLE	1	4	1		5	
ANGLE	2					
LEFT_TURN	3					
REAR_END	4					
HEAD_ON	5					
SIDESWIPE_SAME_DIRECTION	6		1		1	
IDESWIPE_OPPOSITE_DIRECTION	7					
REAR_TO_SIDE	8					
REAR_TO_REAR	9					
OTHER	97					
UNKNOWN	99					
TOTALS		4	2		6	

CRASH STATISTICS *Involvement* **Goldfield Rd & US60 WB Off-ramp**

2018-2020

	# Incidents	Totals		# Motorists	# Non-Motorists
Incidents	4	8	Veh	11	0
Fatal	0	0	Ppl	0	0
Injury	1	1	Ppl	0	0
PDO	3	6	Veh		

Peds/Bikes Summary

	Incidents	Persons	Injuries Fatal	Injuries Non-Fatal
Pedestrian:	0	0	0	0
Bicycle:	0	0	0	0

Circumstances

Hit & Run?	0
Intersection Related?	1

LightCondition	Code	No.
DAYLIGHT	1	4
DAWN	2	0
DUSK	3	0
DARK_LIGHTED	4	0
DARK_NOT_LIGHTED	5	0
DARK_UNKNOWN_LIGHTING	6	0
UNKNOWN	99	0
Check Total		4

Weather		
CLEAR	1	4
CLOUDY	2	0
SLEET_HAIL_FREEZING_RAIN_OR_DRIZZLE	3	0
RAIN	4	0
SNOW	5	0
SEVERE_CROSSWINDS	6	0
BLOWING_SAND_SOIL_DIRT	7	0
FOG_SMOG_SMOKE	8	0
BLOWING_SNOW	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		4

TrafficWayType		
ONE_WAY_TRAFFICWAY	1	0
TWO_WAY_NOT_DIVIDED	2	2
DED_WITH_CONTINUOUS_LEFT_TURN_LANE	3	2
_UNPROTECTED_PAINTED_4_FEET_MEDIAN	4	0
DED_POSITIVE_MEDIAN_BARRIER	5	0
UNKNOWN	99	0
Check Total		4

Weekday		
Sunday	1	2
Monday	2	0
Tuesday	3	0
Wednesday	4	0
Thursday	5	2
Friday	6	0
Saturday	7	0
Check Total		4

JunctionRelation	Code	No.
NOT_JUNCTION_RELATED	0	1
INTERSECTION_NON_INTERCHANGE	1	0
INTERSECTION_RELATED_NON_INTERCHANGE	2	1
ENTRANCE_EXIT_RAMP_NON_INTERCHANGE	3	1
RAILWAY_GRADE_CROSSING	4	0
CROSSOVER_RELATED	5	0
FRONTAGE_ROAD_NON_INTERCHANGE	6	1
DRIVEWAY	7	0
ALLEY_ACCESS_RELATED	8	0
UNKNOWN_NON_INTERCHANGE	9	0
THRU_ROADWAY	10	0
INTERSECTION_INTERCHANGE	11	0
INTERSECTION_RELATED_INTERCHANGE	12	0
ENTRANCE_EXIT_RAMP_INTERCHANGE	13	0
FRONTAGE_ROAD_INTERCHANGE	14	0
OTHER_PART_OF_INTERCHANGE	15	0
<not defined>	16	0
UNKNOWN_INTERCHANGE	17	0
UNKNOWN_JUNCTION	18	0
UNKNOWN	99	0
OTHER_NON_INTERCHANGE	109	0
Check Total		4

CollisionManner		
SINGLE_VEHICLE	1	0
ANGLE (front to side)(other than left turn)	2	0
LEFT_TURN	3	1
REAR_END	4	0
HEAD_ON	5	0
SIDESWIPE_SAME_DIRECTION	6	3
SIDESWIPE_OPPOSITE_DIRECTION	7	0
REAR_TO_SIDE	8	0
REAR_TO_REAR	9	0
OTHER	97	0
UNKNOWN	99	0
Check Total		4

TravelDirection		
1 NORTH		N
2 SOUTH		S
3 EAST		E
4 WEST		W
5 NORTHWEST		NW
6 NORTHEAST		NE
7 SOUTHWEST		SW
8 SOUTHEAST		SE
99 UNKNOWN		99

First Harmful Event	Code	No.
OVERTURN_ROLLOVER	1	0
FIRE_EXPLOSION	2	0
IMMERSION	3	0
JACKKNIFE	4	0
CARGO_EQUIPMENT_LOSS_SHIFT	5	0
FELL_JUMPED_FROM_VEHICLE	6	0
THROWN_OR_FALLING_OBJECT	7	0
OTHER_NON_COLLISION	8	0
EQUIPMENT_FAILURE ~~TIRES_BRAKES~~	9	0
SEPARATION_OF_UNITS	10	0
RAN_OFF_ROAD_RIGHT	11	0
RAN_OFF_ROAD_LEFT	12	0
CROSS_MEDIAN	13	0
CROSS_CENTERLINE	14	0
DOWNHILL_RUNAWAY	15	0
MOTOR_VEHICLE_IN_TRANSPORT	16	4
PEDESTRIAN	17	0
PEDALCYCLE	18	0
RAILWAY_VEHICLE_TRAIN_ENGINE	19	0
LIGHT_RAILWAY_RAILCAR_VEHICLE	20	0
ANIMAL_WILD_NON_GAME	21	0
ANIMAL_WILD_GAME	22	0
ANIMAL_PET	23	0
ANIMAL_LIVESTOCK	24	0
PARKED_MOTOR_VEHICLE	25	0
WORK_ZONE_MAINTENANCE_EQUIPMENT	26	0
STRUCK_BY_FALLING_SHIFTING_CARGO_OR_OBJECT	27	0
OTHER_NON_FIXED_OBJECT	28	0
IMPACT_ATTENUATOR_CRASH_CUSHION	29	0
BRIDGE_OVERHEAD_STRUCTURE	30	0
BRIDGE_RAIL	31	0
CULVERT	32	0
CURB	33	0
DITCH	34	0
EMBANKMENT	35	0
GUARDRAIL_FACE	36	0
GUARDRAIL_END	37	0
CONCRETE_TRAFFIC_BARRIER	38	0
CABLE_TRAFFIC_BARRIER	39	0
OTHER_TRAFFIC_BARRIER	40	0
TREE_BUSH_STUMP_STANDING	41	0
TRAFFIC_SIGN_SUPPORT	42	0
TRAFFIC_SIGNAL_SUPPORT	43	0
UTILITY_POLE_LIGHT_SUPPORT	44	0
OTHER_POST_POLE_OR_SUPPORT	45	0
FENCE	46	0
MAILBOX	47	0
BUILDING	48	0
OTHER_FIXED_OBJECT	49	0
UNKNOWN	99	0
Not Reported	255	0
Check Total		4

Month	Code	No.
January	1	3
February	2	1
March	3	0
April	4	0
May	5	0
June	6	0
July	7	0
August	8	0
September	9	0
October	10	0
November	11	0
December	12	0
Total		4

(Unit) SurfaceCondition		
DRY	1	8
WET	2	0
SNOW	3	0
SLUSH	4	0
ICE_FROST	5	0
WATER_STANDING_MOVING	6	0
SAND	7	0
MUD_DIRT_GRAVEL	8	0
OIL	9	0
OTHER	97	0
UNKNOWN	99	0
Total		8

Additional Useful Information

Vehicle Action Codes

1 GOING_STRAIGHT_AHEAD
2 SLOWING_IN_TRAFFICWAY
3 STOPPED_IN_TRAFFICWAY
4 MAKING_LEFT_TURN
5 MAKING_RIGHT_TURN
6 MAKING_U_TURN
7 OVERTAKING_PASSING
8 CHANGING_LANES
9 NEGOTIATING_A_CURVE
10 BACKING
11 Avoiding_Vehicle_Object_Pedestrian
12 ENTERING_PARKING_POSITION
13 LEAVING_PARKING_POSITION
14 PROPERLY_PARKED
15 IMPROPERLY_PARKED
16 DRIVERLESS_MOVING_VEHICLE
17 CROSSING_ROAD
18 WALKING_WITH_TRAFFIC
19 WALKING_AGAINST_TRAFFIC
20 STANDING
21 LYING
22 GETTING_ON_OR_OFF_VEHICLE
23 WORKING_ON_OR_PUSHING_VEHICLE
24 WORKING_ON_ROAD
97 OTHER
99 UNKNOWN

Body Styles

-1 NOT_REPORTED
1 \Passenger Vehicles, including RVs
53 /
54 \TRUCKS
88 /
89 \MOBILEHOME (NOT RVS)
92 /
93 \TRAILERS
120 /
121 \MOTORCYCLES
128 /
254 UNKNOWN
255 NOT REPORTED

CRASH LISTING **Goldfield Rd & US60 WB Off-ramp**

	LOCATION									<-DATE & TIME->		<-------- UNITS -------->																<---------- PERSON ---------->										<------- SEVERITY ------->				<----- GENERAL ----->							
INCIDNT	ON	STREET	MP	OFF-SET	D R	DIS-TANCE	INTERSECT STREET	OFCR NCIC	NCIC	YYMMDD	HH:MM	D W	TO-TAL	SRFCND U1	SRFCND U2	ALGMT 1	ALGMT 2	GRADE 1	GRADE 2	DFCTS U1	DFCTS U2	BSTYLE U1	BSTYLE U2	TRDR 1	TRDR 2	UACT U1	UACT U2	TTL MOT	TTL NON	TYP 1	TYP 2	INJR 1	INJR 2	VLTN D1	VLTN D2	PHSCND D1	PHSCND D2	NON LOC	INCIDENTS PDO	INJ	FAT	TTL	INJURIES MOT	NON	FATALITIES TTL	MOT	NON	H R	LT CN	WE CN	JCT REL	TRF CWY	HE CD	M C
3327884	11	GOLDFIELD			P	500	US-60 Exit 198 J-Ramp	1113	1113	180128	13:03	1	2	1	1	1	1	1	0	0	0	44	30	S	S	8	1	3	0	1	1	1	1	12	1	0	0	255	1		0		0		N	1	1	0	2	16	6
																													4	1	0	0																			
3580689	11	GOLDFIELD			P	500	US-60 Exit 198 J-Ramp	1113	1113	180128	13:03	1	2	1	1	1	1	1	0	99	99	44	15	E	N	4	1	3	0	1	1	1	1	99	99	0	0	255	1		0		0		N	1	1	6	2	16	6
3631089	11	GOLDFIELD			P	100	US-60 Exit 198 C-Ramp	1113	1113	200123	12:52	5	2	1	1	1	1	2	0	0	0	50	44	S	S	8	2	3	0	1	4	1	1	12	0	0	0	255	1		0		0		N	1	1	206	3	16	6
																													1	1	1	0																2			
3637779	11	GOLDFIELD			P	0	US-60 Exit 198 J-Ramp	1113	1113	200227	14:41	5	2	1	1	1	1	1	0	0	0	44	15	NW	S	4	1	2	0	1	1	3	1	20	1	0	0	255		1	1	0	0	0	0	0	N	1	1	3	3	16	3

Goldfield Rd & US60 WB Off-ramp

SUMMARY BY YEAR

SEVERITY / INCIDENTS		**2018**	**2019**	**2020**	**Totals**	**Checks**
Fatal Injury Incidents						
Non-fatal Injury Incidents				1	1	
PDO Incidents		2		1	3	
TOTALS		2		2	4	
Pedestrian Incidents						
Pedestrians Involved						
Bicycle Incidents						
Bicyclists Involved						
SEVERITY / INVOLVMENT						
Fatal Injuries						
Non-Fatal Injuries				1	1	
PDO Vehicles		4		2	6	
Pedestrians Fatally Injured						
Pedestrians Non-Fatally Injured						
Bicyclists Fatally Injured						
Bicyclists Non-Fatally Injured						
COLLISION MANNER						
SINGLE_VEHICLE	1					
ANGLE	2					
LEFT_TURN	3			1	1	
REAR_END	4					
HEAD_ON	5					
SIDESWIPE_SAME_DIRECTION	6	2		1	3	
IDESWIPE_OPPOSITE_DIRECTION	7					
REAR_TO_SIDE	8					
REAR_TO_REAR	9					
OTHER	97					
UNKNOWN	99					
TOTALS		2		2	4	

APPENDIX E

TRIP GENERATION CALCULATIONS

Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition and methodology described within ITE's Trip Generation Handbook, 3rd Edition. These references will be referred to as Manual and Handbook, respectively. The Manual contains data collected by various transportation professionals for a wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The Handbook indicates an established methodology for how to use data contained within the Manual when to use the fitted curve instead of the average rate and when to adjustments to the volume of trips are appropriate and how to do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type&Site Characteristics, | **Box 2 - Define Site Context** | **Box 3 - Define Analysis Objectives** Trip Types&Time Period

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to an independent variable(s) specific to (each) the land use (example: 1,000 square feet of building area is relatively common). Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, or riding transit." This assessment is used in Box 4. The Manual separates data into 4 setting categories - Rural, General Urban/Suburban, Dense Multi-Urban Use and Center City Core. This worksheet uses the following abbreviations, respectively: R, G, D, and C. The Manual does not have data for all settings of all land use codes. The "General Urban/Suburban" setting is used by default.

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of interest.

Land Use Types and Size

Proposed Use	Amount	Units	ITE LUC	ITE Land Use Name
LR-Apartments No Rail	275	Dwelling Units	220	Multifamily Housing (Low-Rise Not Close to Rail)

Box 4 - Is Study Site Multimodal?

Per the Handbook, "if the objective is to establish a local trip generation rate for a particular land use or study site, the simplified approach (Box 9) may be acceptable but the Box 5 through 8 approach is required if the study site is located in an infill setting, contains a mix of uses on-site, or is near significant transit service."

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the Handbook has a process (Figure 4.2) to determine when to use it versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engineering judgement to override or make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as restaurant that is closed in the morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small shop/LUC 820, AM peak hour is skewed by the high y-intercept).

Equation Type: Equation Used [Equated Rate] (Type Abbreviations: Weighted Average Rate ("WA"), Fitted Curve **Type: Equation Used [Equated Rate]**

Proposed Use	ADT	AM Peak Hour	PM Peak Hour
LR-Apartments No Rail	C: T=X*7.41 [7.41]	C: T=X*0.45 [0.45]	FC: T=0.43*X+20.55 [0.50]

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

Proposed Use	ADT				AM Peak Hour				PM Peak Hour			
	% In	In	Out	Total	% In	In	Out	Total	% In	In	Out	Total
LR-Apartments No Rail	50%	1,019	1,019	2,038	24%	30	94	124	63%	88	51	139

Methodology Overview

This form facilitates trip generation estimation using data within the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition and methodology described within ITE's Trip Generation Handbook, 3rd Edition. These references will be referred to as Manual and Handbook, respectively. The Manual contains data collected by various transportation professionals for a wide range of different land uses, with each land use category represented by a land use code (LUC). Average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized LUC in various settings and time periods. The Handbook indicates an established methodology for how to use data contained within the Manual when to use the fitted curve instead of the average rate and when to adjustments to the volume of trips are appropriate and how to do so. The methodology steps are represented visually in boxes in Figure 3.1. This worksheet applies calculations for each box if applicable.

Box 1 - Define Study Site Land Use Type & Site Characteristics

The analyst is to pick an appropriate LUC(s) based on the subject's zoning/land use(s)/future land use(s). The size of the land use(s) is described in reference to an independent variable(s) specific to (each) the land use (example: 1,000 square feet of building area is relatively common).

Land Use Types and Size **0.2 FAR** **2.4 RAR** **43560 SF**

Proposed Use	Amount	Units	ITE LUC	ITE Land Use Name
Lot 1: High Turnover (Sit Down) Restaurant	10.803	1,000 square feet	931	High Turnover(Sit Down) Restaurant
Lot 3: Hotel or Motel	178	Rooms	310	Hotel
Lot 4: Medical, Dental or Health Office Buildings and Clinics	8.276	1,000 square feet	720	Medical-Dental Office Building
Lot 5: Medical, Dental or Health Office Buildings and Clinics	8.102	1,000 square feet	720	Medical-Dental Office Building
Lot 6: Medical, Dental or Health Office Buildings and Clinics	7.928	1,000 square feet	720	Medical-Dental Office Building
Lot 7: High Turnover (Sit Down) Restaurant	6.447	1,000 square feet	931	High Turnover(Sit Down) Restaurant
Lot 8: Medical, Dental or Health Office Buildings and Clinics	100.014	1,000 square feet	720	Medical-Dental Office Building

Box 2 - Define Site Context

Context assessment is to "simply determine whether the study sites is in a multimodal setting" and "could have persons accessing the site by walking, bicycling, or riding transit." This assessment is used in Box 4. The Manual separates data into 4 setting categories - Rural, General Urban/Suburban, Dense Multi-Urban Use and Center City Core. This worksheet uses the following abbreviations, respectively: R, G, D, and C. The Manual does not have data for all settings of all land use codes. See the table on the next page titled "Site Context and Time Periods" - if this table is not provided, the "General Urban/Suburban" setting is used by default.

Box 3 - Define Analysis Objectives Types of Trips & Time Period

This tool will focus on vehicular trips for a 24-hour period on a typical weekday as well as its AM peak hour and PM peak hour. Other time period(s) may be of interest.

Site Context and Time Periods - Actual Setting, Setting Data Available for LUC, Setting Used in Analyses

Proposed Use	Setting		ADT Available	ADT Used	AM Peak Hour Available	AM Peak Hour Used	PM Peak Hour Available	PM Peak Hour Used
Lot 1: High Turnover (Sit Down) Restaurant	General Urban/Suburban	G	G	G	G	G	G	G
Lot 3: Hotel or Motel	General Urban/Suburban	G	G C	G	G D C	G	G C	G
Lot 4: Medical, Dental or Health Office Buildings and Clinics	General Urban/Suburban	G	G	G	G	G	G	G
Lot 5: Medical, Dental or Health Office Buildings and Clinics	General Urban/Suburban	G	G	G	G	G	G	G
Lot 6: Medical, Dental or Health Office Buildings and Clinics	General Urban/Suburban	G	G	G	G	G	G	G
Lot 7: High Turnover (Sit Down) Restaurant	General Urban/Suburban	G	G	G	G	G	G	G
Lot 8: Medical, Dental or Health Office Buildings and Clinics	General Urban/Suburban	G	G	G	G	G	G	G

If the desired setting is not available within the *Manual,* adjustments may be made in Boxes 6 through 8.

Per the Handbook, "if the objective is to establish a local trip generation rate for a particular land use or study site, the simplified approach (Box 9) may be acceptable but the Box 5 through 8 approach is

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Determine Equation)

Vehicle trips are estimated using rates/equations applicable to each LUC. When the appropriate graph has a fitted curve, the Handbook has a process (Figure 4.2) to determine when to use it versus using the weighted average rate or collecting local data. The methodology requires for engineering judgement in some circumstances and permits engineering judgement to override or make adjustments when appropriate to best project (example 1: study site is expected to operate differently than data in the applicable land use code - such as restaurant that is closed in the morning or in the evening; example 2: LUC data in a localized area fails to be represented by the typically selected fitted curve/weighted average rate - a small shop/LUC 820, AM peak hour is skewed by the high y-intercept).

Equation Type: Equation Used [Equated Rate] (Type Abbreviations: Weighted Average Rate ("WA"), Fitted Curve ("FC"), or Custom ("C"))

Proposed Use	ADT	AM Peak Hour	PM Peak Hour
Lot 1: High Turnover (Sit Down) Restaurant	WA: T=X*107.2 [107.20]	WA: T=X*9.57 [9.57]	WA: T=X*9.05 [9.05]
Lot 3: Hotel or Motel	WA: T=X*7.99 [7.99]	FC: T=0.5*X-7.45 [0.46]	FC: T=0.74*X-27.89 [0.58]
Lot 4: Medical, Dental or Health Office Buildings and Clinics	FC: T=42.97*X-108.01 [29.92]	FC: LN(T)=0.9*LN(X)+1.34 [3.09]	FC: T=4.07*X-3.17 [3.69]
Lot 5: Medical, Dental or Health Office Buildings and Clinics	FC: T=42.97*X-108.01 [29.64]	WA: T=X*3.1 [3.10]	WA: T=X*3.93 [3.93]
Lot 6: Medical, Dental or Health Office Buildings and Clinics	FC: T=42.97*X-108.01 [29.35]	FC: LN(T)=0.9*LN(X)+1.34 [3.10]	WA: T=X*3.93 [3.93]
Lot 7: High Turnover (Sit Down) Restaurant	WA: T=X*107.2 [107.20]	WA: T=X*9.57 [9.57]	WA: T=X*9.05 [9.05]
Lot 8: Medical, Dental or Health Office Buildings and Clinics	WA: T=X*36 [36.00]	FC: LN(T)=0.9*LN(X)+1.34 [2.41]	WA: T=X*3.93 [3.93]

Box 5/Box 9 - Estimate Baseline Trips/Estimate Vehicular Trips (Apply Equations and in/out Distributions)

Baseline Vehicular Trips

Proposed Use	ADT % In	ADT In	ADT Out	ADT Total	AM Peak Hour % In	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour % In	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Lot 1: High Turnover (Sit Down) Restaurant	50%	579	579	1,158	55%	57	46	103	61%	60	38	98
Lot 3: Hotel or Motel	50%	713	713	1,426	56%	46	36	82	51%	53	51	104
Lot 4: Medical, Dental or Health Office Buildings and Clinics	50%	124	124	248	79%	21	5	26	30%	9	22	31
Lot 5: Medical, Dental or Health Office Buildings and Clinics	50%	120	120	240	79%	20	5	25	30%	10	22	32
Lot 6: Medical, Dental or Health Office Buildings and Clinics	50%	116	116	232	79%	20	5	25	30%	9	22	31
Lot 7: High Turnover (Sit Down) Restaurant	50%	346	346	692	55%	34	28	62	61%	35	23	58
Lot 8: Medical, Dental or Health Office Buildings and Clinics	50%	1,800	1,800	3,600	79%	190	51	241	30%	118	275	393
Totals		**3,798**	**3,798**	**7,596**		**388**	**176**	**564**		**294**	**453**	**747**

APPENDIX F

TRIP DISTRIBUTION CALCULATIONS

	2020				2030			
Quadrant	**Population**	**Percent**	**Employment**	**Percent**	**Population**	**Percent**	**Employment**	**Percent**
North Northwest	4,283	5.3%	737	6.7%	5,550	5.4%	967	6.2%
North Northeast	3,691	4.6%	491	4.4%	5,420	5.3%	601	3.9%
North	7,975	9.9%	1,228	11.1%	10,970	**10.7%**	1,567	**10.1%**
East Northeast	9,170	11.4%	970	8.8%	13,369	13.1%	1,233	7.9%
East Southeast	9,170	11.4%	970	8.8%	13,369	13.1%	1,233	7.9%
East	18,340	22.8%	1,940	17.6%	26,738	**26.2%**	2,466	**15.8%**
South Southeast	11,069	13.8%	878	7.9%	13,883	13.6%	1,378	8.9%
South Southwest	9,520	11.9%	1,222	11.1%	11,095	10.9%	2,018	13.0%
South	20,590	25.7%	2,099	19.0%	24,978	**24.5%**	3,396	**21.9%**
West Southwest	16,675	20.8%	3,117	28.2%	20,847	20.4%	4,520	29.1%
West Northwest	16,636	20.7%	2,672	24.2%	18,523	18.1%	3,563	23.0%
West	33,311	41.5%	5,789	52.4%	39,370	**38.5%**	8,082	**52.1%**
Totals	80,216	99.9%	11,056	100.1%	102,056	99.9%	15,512	99.9%

Radii

Population radius: 10 miles
Employment radius: 10 miles

Select Analysis Year (2020, 2030, 2040,2050)

2020

APPENDIX G

BACKGROUND GROWTH CALCULATIONS

Location of counts: US-60 Exit 198 A-Ramp just West of Goldfield Rd (Location ID: 6980)

Source(s): ADOT Traffic Counts available at https://adot.public.ms2soft.com/tcds/tsearch.asp?loc=Adot&mod=TCDS

	Year	Volume
Start	2018	1,141
End	2019	1,163
AAGR		1.90%
Exp Factor		1.019

Growth Rate Used	2.0%
Per-Year Multiplier	1.020

2024
2027

Year	Expansion Factor(s)	
2022	**1.000**	**Existing**
2023	1.020	
2024	**1.040**	**Opening**
2025	1.061	
2026	1.082	
2027	**1.104**	**Horizon**
2028	1.126	
2029	1.149	
2030	1.172	
2031	1.195	
2032	1.219	
2033	1.243	
2034	1.268	
2035	1.294	
2036	1.319	
2037	1.346	
2038	1.373	
2039	1.400	
2040	1.428	
2041	1.457	
2042	1.486	
2043	1.516	
2044	1.546	
2045	1.577	
2046	1.608	
2047	1.641	
2048	1.673	
2049	1.707	
2050	1.741	
2051	1.776	
2052	1.811	
2053	1.848	
2054	1.885	

APPENDIX H

2024 NO BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	0	0	0	0	116
Future Vol, veh/h	59	0	0	0	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	0	0	0	0	136

Major/Minor	Minor1			Major2	
Conflicting Flow All	68	-		0	0
Stage 1	0	-		-	-
Stage 2	68	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	929	0		-	-
Stage 1	-	0		-	-
Stage 2	947	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	929	-		-	-
Mov Cap-2 Maneuver	929	-		-	-
Stage 1	-	-		-	-
Stage 2	947	-		-	-

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

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	929	-	-
HCM Lane V/C Ratio	0.079	-	-
HCM Control Delay (s)	9.2	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	0	0	0	0	192
Future Vol, veh/h	59	0	0	0	0	192
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	0	0	0	0	226

Major/Minor	Minor1			Major2	
Conflicting Flow All	113	-		0	0
Stage 1	0	-		-	-
Stage 2	113	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	872	0		-	-
Stage 1	-	0		-	-
Stage 2	899	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	872	-		-	-
Mov Cap-2 Maneuver	872	-		-	-
Stage 1	-	-		-	-
Stage 2	899	-		-	-

Approach	WB	SB
HCM Control Delay, s	9.5	0
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	872	-	-
HCM Lane V/C Ratio	0.085	-	-
HCM Control Delay (s)	9.5	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

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	0	17	0	0	59	9	0	188	39	0	0	0
Future Vol, veh/h	0	17	0	0	59	9	0	188	39	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	21	0	0	74	11	0	221	49	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	221	-	-	221	111	-	0	0
Stage 1	-	0	-	-	221	-	-	-	-
Stage 2	-	221	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	676	0	0	676	921	0	-	-
Stage 1	0	-	0	0	719	-	0	-	-
Stage 2	0	719	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	676	-	-	676	921	-	-	-
Mov Cap-2 Maneuver	-	676	-	-	676	-	-	-	-
Stage 1	-	-	-	-	719	-	-	-	-
Stage 2	-	719	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.5	10.7	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	676	676	921
HCM Lane V/C Ratio	-	-	0.031	0.109	0.012
HCM Control Delay (s)	-	-	10.5	11	9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	20	0	0	59	5	0	180	58	0	0	0
Future Vol, veh/h	0	20	0	0	59	5	0	180	58	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	25	0	0	74	6	0	212	73	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	212	-	-	212	106	-	0	0
Stage 1	-	0	-	-	212	-	-	-	-
Stage 2	-	212	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	684	0	0	684	928	0	-	-
Stage 1	0	-	0	0	726	-	0	-	-
Stage 2	0	726	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	684	-	-	684	928	-	-	-
Mov Cap-2 Maneuver	-	684	-	-	684	-	-	-	-
Stage 1	-	-	-	-	726	-	-	-	-
Stage 2	-	726	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.5	10.7	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	684	684	928
HCM Lane V/C Ratio	-	-	0.037	0.108	0.007
HCM Control Delay (s)	-	-	10.5	10.9	8.9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	168	59	0	0	176
Future Vol, veh/h	0	168	59	0	0	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	80	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	198	74	0	0	207

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	37	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1027	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	1027	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	1027	-
HCM Lane V/C Ratio	-	0.192	-
HCM Control Delay (s)	-	9.3	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.7	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	114	123	0	0	251
Future Vol, veh/h	0	114	123	0	0	251
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	85	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	134	145	0	0	295

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	73	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	974	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	974	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

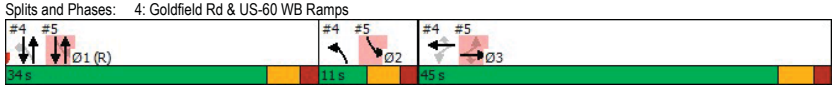
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	974	-
HCM Lane V/C Ratio	-	0.138	-
HCM Control Delay (s)	-	9.3	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.5	-

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	7	0	17	35	105	162	128
Future Volume (vph)	7	0	17	35	105	162	128
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps

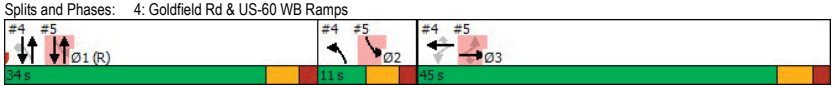


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	20	0	42	28	162	211	91
Future Volume (vph)	20	0	42	28	162	211	91
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	7	0	17	35	105	0	0	162	128
Future Volume (vph)	0	0	0	7	0	17	35	105	0	0	162	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1457	1504	1770	3539			5085	1583
Flt Permitted				0.95	1.00	1.00	0.63	1.00			1.00	1.00
Satd. Flow (perm)				1681	1457	1504	1167	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	9	0	21	44	124	0	0	191	151
RTOR Reduction (vph)	0	0	0	0	10	10	0	0	0	0	0	49
Lane Group Flow (vph)	0	0	0	8	1	1	44	124	0	0	191	102
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				6.6	6.6	6.6	66.3	60.9			60.9	60.9
Effective Green, g (s)				6.6	6.6	6.6	66.3	60.9			60.9	60.9
Actuated g/C Ratio				0.07	0.07	0.07	0.74	0.68			0.68	0.68
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				123	106	110	895	2394			3440	1071
v/s Ratio Prot							c0.00	0.04			0.04	
v/s Ratio Perm				c0.00	0.00	0.00	0.03					c0.06
v/c Ratio				0.07	0.01	0.01	0.05	0.05			0.06	0.10
Uniform Delay, d1				38.8	38.7	38.7	3.2	4.9			4.9	5.0
Progression Factor				1.00	1.00	1.00	0.46	0.62			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.1	0.0			0.0	0.2
Delay (s)				38.9	38.7	38.7	1.6	3.0			4.9	5.2
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			38.7			2.7			5.0	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.09			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	20	0	42	28	162	0	0	211	91
Future Volume (vph)	0	0	0	20	0	42	28	162	0	0	211	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1460	1504	1770	3539			5085	1583
Flt Permitted				0.95	0.99	1.00	0.59	1.00			1.00	1.00
Satd. Flow (perm)				1681	1460	1504	1102	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.85	0.80
Adj. Flow (vph)	0	0	0	25	0	52	35	191	0	0	248	114
RTOR Reduction (vph)	0	0	0	0	26	26	0	0	0	0	0	38
Lane Group Flow (vph)	0	0	0	22	2	2	35	191	0	0	248	76
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				7.6	7.6	7.6	65.3	59.9			59.9	59.9
Effective Green, g (s)				7.6	7.6	7.6	65.3	59.9			59.9	59.9
Actuated g/C Ratio				0.08	0.08	0.08	0.73	0.67			0.67	0.67
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				141	123	127	839	2355			3384	1053
v/s Ratio Prot							c0.00	c0.05			0.05	
v/s Ratio Perm				c0.01	0.00	0.00	0.03					0.05
v/c Ratio				0.16	0.02	0.02	0.04	0.08			0.07	0.07
Uniform Delay, d1				38.2	37.8	37.8	3.5	5.3			5.3	5.3
Progression Factor				1.00	1.00	1.00	0.70	0.65			1.00	1.00
Incremental Delay, d2				0.2	0.0	0.0	0.1	0.1			0.0	0.1
Delay (s)				38.4	37.8	37.8	2.5	3.5			5.3	5.4
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			38.0			3.4			5.4	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.09			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	8	11	11	44	124	191	151
v/c Ratio	0.05	0.05	0.05	0.05	0.05	0.05	0.13
Control Delay	37.8	0.4	0.4	1.3	3.3	5.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	0.4	0.4	1.3	3.3	5.3	1.3
Queue Length 50th (ft)	4	0	0	1	5	12	0
Queue Length 95th (ft)	16	0	0	3	9	19	16
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	688	709	911	2439	3505	1137
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.02	0.05	0.05	0.05	0.13

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	22	28	28	35	191	248	114
v/c Ratio	0.13	0.12	0.12	0.04	0.08	0.07	0.10
Control Delay	37.4	1.0	1.0	2.2	3.9	5.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	1.0	1.0	2.2	3.9	5.8	1.6
Queue Length 50th (ft)	12	0	0	1	8	16	0
Queue Length 95th (ft)	30	0	0	3	16	27	14
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	690	709	854	2400	3448	1110
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.04	0.04	0.08	0.07	0.10

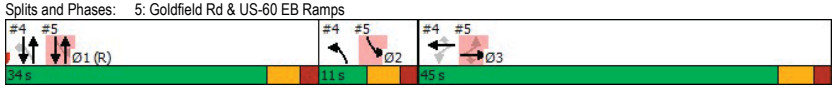
Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	77	0	31	63	18	131	38
Future Volume (vph)	77	0	31	63	18	131	38
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps

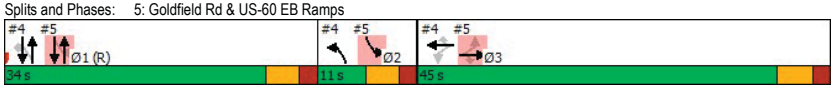


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	138	0	45	46	42	177	57
Future Volume (vph)	138	0	45	46	42	177	57
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	0	31	0	0	0	0	63	18	131	38	0
Future Volume (vph)	77	0	31	0	0	0	0	63	18	131	38	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1601	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.70	1.00	
Satd. Flow (perm)	1681	1601	1504					5085	1583	1305	3539	
Peak-hour factor, PHF	0.85	0.80	0.80	0.25	0.25	0.25	0.80	0.80	0.80	0.85	0.80	0.80
Adj. Flow (vph)	91	0	39	0	0	0	0	79	22	154	48	0
RTOR Reduction (vph)	0	44	32	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	47	4	3	0	0	0	0	79	16	154	48	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	6.6	6.6	6.6					60.9	60.9	66.3	60.9	
Effective Green, g (s)	6.6	6.6	6.6					60.9	60.9	66.3	60.9	
Actuated g/C Ratio	0.07	0.07	0.07					0.68	0.68	0.74	0.68	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	123	117	110					3440	1071	989	2394	
v/s Ratio Prot								0.02		c0.01	0.01	
v/s Ratio Perm	c0.03	0.00	0.00						0.01	c0.11		
v/c Ratio	0.38	0.03	0.02					0.02	0.01	0.16	0.02	
Uniform Delay, d1	39.8	38.7	38.7					4.8	4.8	3.5	4.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.36	0.51	
Incremental Delay, d2	0.7	0.0	0.0					0.0	0.0	0.3	0.0	
Delay (s)	40.5	38.8	38.7					4.8	4.8	1.6	2.4	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		39.4			0.0			4.8			1.8	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.18			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	0	45	0	0	0	0	46	42	177	57	0
Future Volume (vph)	138	0	45	0	0	0	0	46	42	177	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1603	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.72	1.00	
Satd. Flow (perm)	1681	1603	1504					5085	1583	1333	3539	
Peak-hour factor, PHF	0.85	0.80	0.80	0.25	0.25	0.25	0.80	0.80	0.80	0.85	0.80	0.80
Adj. Flow (vph)	162	0	56	0	0	0	0	58	52	208	71	0
RTOR Reduction (vph)	0	77	46	0	0	0	0	0	18	0	0	0
Lane Group Flow (vph)	84	7	4	0	0	0	0	58	35	208	71	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	7.6	7.6	7.6					59.9	59.9	65.3	59.9	
Effective Green, g (s)	7.6	7.6	7.6					59.9	59.9	65.3	59.9	
Actuated g/C Ratio	0.08	0.08	0.08					0.67	0.67	0.73	0.67	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	141	135	127					3384	1053	993	2355	
v/s Ratio Prot								0.01		c0.01	0.02	
v/s Ratio Perm	c0.05	0.00	0.00						0.02	c0.14		
v/c Ratio	0.60	0.05	0.03					0.02	0.03	0.21	0.03	
Uniform Delay, d1	39.7	37.9	37.8					5.1	5.1	4.0	5.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.47	0.52	
Incremental Delay, d2	4.4	0.1	0.0					0.0	0.1	0.5	0.0	
Delay (s)	44.2	37.9	37.9					5.1	5.2	2.4	2.7	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		40.3			0.0			5.2			2.4	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.25			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	48	35	79	23	154	48
v/c Ratio	0.31	0.20	0.15	0.02	0.02	0.15	0.02
Control Delay	43.7	2.7	1.4	5.4	0.1	1.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	2.7	1.4	5.4	0.1	1.3	2.8
Queue Length 50th (ft)	27	0	0	5	0	0	1
Queue Length 95th (ft)	57	0	0	9	0	4	3
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	750	709	3505	1123	1006	2439
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.05	0.02	0.02	0.15	0.02

Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	84	84	50	58	53	208	71
v/c Ratio	0.49	0.33	0.21	0.02	0.05	0.21	0.03
Control Delay	47.6	9.7	3.0	6.1	0.3	1.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	9.7	3.0	6.1	0.3	1.9	3.2
Queue Length 50th (ft)	49	0	0	3	0	1	2
Queue Length 95th (ft)	87	25	0	8	0	15	6
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	752	709	3448	1106	1009	2400
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.11	0.07	0.02	0.05	0.21	0.03

Intersection Summary

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	0	2	1	22	0	74	8	20	38	3
Future Vol, veh/h	3	2	0	2	1	22	0	74	8	20	38	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	0	3	1	28	0	93	10	25	48	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	147	203	26	169	195	47	52	0	0	103	0	0
Stage 1	100	100	-	93	93	-	-	-	-	-	-	-
Stage 2	47	103	-	76	102	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	807	692	1044	779	699	1012	1552	-	-	1487	-	-
Stage 1	895	811	-	904	817	-	-	-	-	-	-	-
Stage 2	961	809	-	924	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	774	680	1044	767	687	1012	1552	-	-	1487	-	-
Mov Cap-2 Maneuver	774	680	-	767	687	-	-	-	-	-	-	-
Stage 1	895	797	-	904	817	-	-	-	-	-	-	-
Stage 2	933	809	-	906	796	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	8.8	0	2.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1552	-	-	733	969	1487	-	-
HCM Lane V/C Ratio	-	-	-	0.009	0.032	0.017	-	-
HCM Control Delay (s)	0	-	-	10	8.8	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	1	4	0	29	1	67	8	29	59	9
Future Vol, veh/h	5	0	1	4	0	29	1	67	8	29	59	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	1	5	0	36	1	84	10	36	74	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	196	248	43	195	243	42	85	0	0	94	0	0
Stage 1	152	152	-	86	86	-	-	-	-	-	-	-
Stage 2	44	96	-	109	157	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	771	669	1050	772	674	1019	1531	-	-	1498	-	-
Stage 1	857	784	-	912	823	-	-	-	-	-	-	-
Stage 2	965	815	-	909	780	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	729	652	1050	756	657	1019	1531	-	-	1498	-	-
Mov Cap-2 Maneuver	729	652	-	756	657	-	-	-	-	-	-	-
Stage 1	856	765	-	911	822	-	-	-	-	-	-	-
Stage 2	930	814	-	886	761	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.8	0.1	2.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	768	978	1498	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01	0.042	0.024	-	-
HCM Control Delay (s)	7.4	-	-	9.7	8.8	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	28	54	3	18	23
Future Vol, veh/h	2	28	54	3	18	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	35	68	4	23	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	131	36	0	0	72	0
Stage 1	70	-	-	-	-	-
Stage 2	61	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	850	1029	-	-	1526	-
Stage 1	945	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	837	1029	-	-	1526	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	940	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1011	1526	-
HCM Lane V/C Ratio	-	-	0.037	0.015	-
HCM Control Delay (s)	-	-	8.7	7.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	18	58	5	14	51
Future Vol, veh/h	2	18	58	5	14	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	23	73	6	18	64

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	144	40	0	0	79	0
Stage 1	76	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	858	1022	-	-	1517	-
Stage 1	938	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %	1		-	-		-
Mov Cap-1 Maneuver	848	1022	-	-	1517	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	997	1517	-
HCM Lane V/C Ratio	-	-	0.025	0.012	-
HCM Control Delay (s)	-	-	8.7	7.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	15	29	1	3	1
Future Vol, veh/h	6	15	29	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	19	36	1	4	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	37	0	-	0	72	37
Stage 1	-	-	-	-	37	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1574	-	-	-	932	1035
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	987	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1574	-	-	-	927	1035
Mov Cap-2 Maneuver	-	-	-	-	927	-
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	987	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1574	-	-	-	952
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	28	10	0	1	3
Future Vol, veh/h	2	28	10	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	35	13	0	1	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	13	0	-	0	54	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	41	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1606	-	-	-	954	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	981	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1606	-	-	-	952	1067
Mov Cap-2 Maneuver	-	-	-	-	952	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	981	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1606	-	-	-	1036
HCM Lane V/C Ratio	0.002	-	-	-	0.005
HCM Control Delay (s)	7.2	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX I

2027 NO BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	0	0	0	0	124
Future Vol, veh/h	63	0	0	0	0	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	79	0	0	0	0	146

Major/Minor	Minor1			Major2	
Conflicting Flow All	73	-		0	0
Stage 1	0	-		-	-
Stage 2	73	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	922	0		-	-
Stage 1	-	0		-	-
Stage 2	941	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	922	-		-	-
Mov Cap-2 Maneuver	922	-		-	-
Stage 1	-	-		-	-
Stage 2	941	-		-	-

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

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	922	-	-
HCM Lane V/C Ratio	0.085	-	-
HCM Control Delay (s)	9.3	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	0	0	0	0	204
Future Vol, veh/h	62	0	0	0	0	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	0	0	0	0	240

Major/Minor	Minor1			Major2	
Conflicting Flow All	120	-		0	0
Stage 1	0	-		-	-
Stage 2	120	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	863	0		-	-
Stage 1	-	0		-	-
Stage 2	892	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	863	-		-	-
Mov Cap-2 Maneuver	863	-		-	-
Stage 1	-	-		-	-
Stage 2	892	-		-	-

Approach	WB	SB
HCM Control Delay, s	9.6	0
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	863	-	-
HCM Lane V/C Ratio	0.09	-	-
HCM Control Delay (s)	9.6	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	18	0	0	63	10	0	200	41	0	0	0
Future Vol, veh/h	0	18	0	0	63	10	0	200	41	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	0	0	79	13	0	235	51	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	235	-	-	235	118	-	0	0
Stage 1	-	0	-	-	235	-	-	-	-
Stage 2	-	235	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	664	0	0	664	912	0	-	-
Stage 1	0	-	0	0	709	-	0	-	-
Stage 2	0	709	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	664	-	-	664	912	-	-	-
Mov Cap-2 Maneuver	-	664	-	-	664	-	-	-	-
Stage 1	-	-	-	-	709	-	-	-	-
Stage 2	-	709	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.6	10.9	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	664	664	912
HCM Lane V/C Ratio	-	-	0.034	0.119	0.014
HCM Control Delay (s)	-	-	10.6	11.2	9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	21	0	0	62	6	0	191	61	0	0	0
Future Vol, veh/h	0	21	0	0	62	6	0	191	61	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	26	0	0	78	8	0	225	76	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	225	-	-	225	113	-	0	0
Stage 1	-	0	-	-	225	-	-	-	-
Stage 2	-	225	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	673	0	0	673	918	0	-	-
Stage 1	0	-	0	0	716	-	0	-	-
Stage 2	0	716	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	673	-	-	673	918	-	-	-
Mov Cap-2 Maneuver	-	673	-	-	673	-	-	-	-
Stage 1	-	-	-	-	716	-	-	-	-
Stage 2	-	716	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.6	10.8	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	673	673	918
HCM Lane V/C Ratio	-	-	0.039	0.115	0.008
HCM Control Delay (s)	-	-	10.6	11	9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	179	62	0	0	186
Future Vol, veh/h	0	179	62	0	0	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	80	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	211	78	0	0	219

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	39	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1024	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	1024	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	1024	-
HCM Lane V/C Ratio	-	0.206	-
HCM Control Delay (s)	-	9.4	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.8	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	121	130	0	0	266
Future Vol, veh/h	0	121	130	0	0	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	85	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	153	0	0	313

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	77	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	968	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	968	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

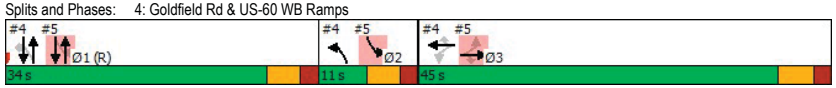
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	968	-
HCM Lane V/C Ratio	-	0.147	-
HCM Control Delay (s)	-	9.4	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.5	-

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	8	0	18	38	111	170	133
Future Volume (vph)	8	0	18	38	111	170	133
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps

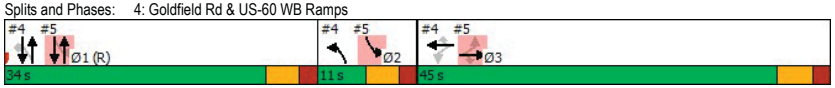


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	21	0	42	30	169	223	95
Future Volume (vph)	21	0	42	30	169	223	95
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	8	0	18	38	111	0	0	170	133
Future Volume (vph)	0	0	0	8	0	18	38	111	0	0	170	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1456	1504	1770	3539			5085	1583
Flt Permitted				0.95	1.00	1.00	0.62	1.00			1.00	1.00
Satd. Flow (perm)				1681	1456	1504	1157	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	10	0	22	48	131	0	0	200	156
RTOR Reduction (vph)	0	0	0	0	11	11	0	0	0	0	0	51
Lane Group Flow (vph)	0	0	0	9	1	1	48	131	0	0	200	105
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				6.7	6.7	6.7	66.2	60.8			60.8	60.8
Effective Green, g (s)				6.7	6.7	6.7	66.2	60.8			60.8	60.8
Actuated g/C Ratio				0.07	0.07	0.07	0.74	0.68			0.68	0.68
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				125	108	111	887	2390			3435	1069
v/s Ratio Prot							c0.00	0.04			0.04	
v/s Ratio Perm				c0.01	0.00	0.00	0.04					c0.07
v/c Ratio				0.07	0.01	0.01	0.05	0.05			0.06	0.10
Uniform Delay, d1				38.8	38.6	38.6	3.3	4.9			4.9	5.1
Progression Factor				1.00	1.00	1.00	0.46	0.61			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.1	0.0			0.0	0.2
Delay (s)				38.8	38.6	38.6	1.6	3.0			5.0	5.3
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			38.7			2.7			5.1	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.09			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	21	0	42	30	169	0	0	223	95
Future Volume (vph)	0	0	0	21	0	42	30	169	0	0	223	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1460	1504	1770	3539			5085	1583
Flt Permitted				0.95	0.99	1.00	0.58	1.00			1.00	1.00
Satd. Flow (perm)				1681	1460	1504	1087	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	26	0	52	38	199	0	0	262	112
RTOR Reduction (vph)	0	0	0	0	26	26	0	0	0	0	0	38
Lane Group Flow (vph)	0	0	0	23	2	2	38	199	0	0	262	74
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				7.8	7.8	7.8	65.1	59.7			59.7	59.7
Effective Green, g (s)				7.8	7.8	7.8	65.1	59.7			59.7	59.7
Actuated g/C Ratio				0.09	0.09	0.09	0.72	0.66			0.66	0.66
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				145	126	130	827	2347			3373	1050
v/s Ratio Prot							c0.00	c0.06			0.05	
v/s Ratio Perm				c0.01	0.00	0.00	0.03					0.05
v/c Ratio				0.16	0.02	0.02	0.05	0.08			0.08	0.07
Uniform Delay, d1				38.1	37.6	37.6	3.6	5.4			5.4	5.4
Progression Factor				1.00	1.00	1.00	0.72	0.65			1.00	1.00
Incremental Delay, d2				0.2	0.0	0.0	0.1	0.1			0.0	0.1
Delay (s)				38.2	37.6	37.6	2.7	3.6			5.4	5.5
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			37.8			3.4			5.4	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.09			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	9	12	12	48	131	200	156
v/c Ratio	0.06	0.05	0.05	0.05	0.05	0.06	0.14
Control Delay	38.0	0.5	0.4	1.3	3.3	5.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	0.5	0.4	1.3	3.3	5.3	1.3
Queue Length 50th (ft)	5	0	0	1	5	12	0
Queue Length 95th (ft)	17	0	0	3	9	20	17
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	688	709	903	2438	3504	1139
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.02	0.05	0.05	0.06	0.14

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	23	28	28	38	199	262	112
v/c Ratio	0.13	0.12	0.11	0.05	0.08	0.08	0.10
Control Delay	37.3	1.0	1.0	2.3	4.0	5.9	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	1.0	1.0	2.3	4.0	5.9	1.7
Queue Length 50th (ft)	12	0	0	2	9	17	0
Queue Length 95th (ft)	31	0	0	3	22	29	16
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	690	709	840	2393	3439	1107
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.04	0.05	0.08	0.08	0.10

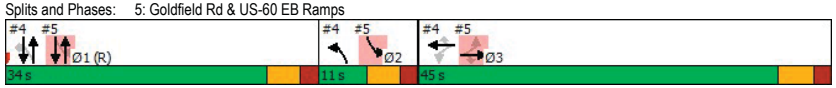
Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	81	0	33	67	19	136	41
Future Volume (vph)	81	0	33	67	19	136	41
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps

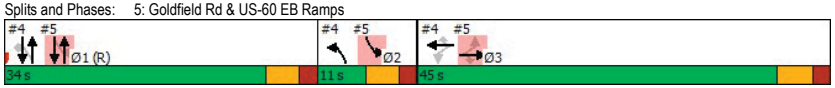


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	144	0	47	49	44	186	61
Future Volume (vph)	144	0	47	49	44	186	61
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	0	33	0	0	0	0	67	19	136	41	0
Future Volume (vph)	81	0	33	0	0	0	0	67	19	136	41	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1601	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.70	1.00	
Satd. Flow (perm)	1681	1601	1504					5085	1583	1299	3539	
Peak-hour factor, PHF	0.85	0.80	0.80	0.25	0.25	0.25	0.80	0.80	0.80	0.85	0.80	0.80
Adj. Flow (vph)	95	0	41	0	0	0	0	84	24	160	51	0
RTOR Reduction (vph)	0	46	34	0	0	0	0	0	8	0	0	0
Lane Group Flow (vph)	49	4	3	0	0	0	0	84	16	160	51	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	6.7	6.7	6.7					60.8	60.8	66.2	60.8	
Effective Green, g (s)	6.7	6.7	6.7					60.8	60.8	66.2	60.8	
Actuated g/C Ratio	0.07	0.07	0.07					0.68	0.68	0.74	0.68	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	125	119	111					3435	1069	983	2390	
v/s Ratio Prot								0.02		c0.01	0.01	
v/s Ratio Perm	c0.03	0.00	0.00						0.01	c0.11		
v/c Ratio	0.39	0.03	0.02					0.02	0.02	0.16	0.02	
Uniform Delay, d1	39.7	38.6	38.6					4.8	4.8	3.6	4.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.37	0.50	
Incremental Delay, d2	0.7	0.0	0.0					0.0	0.0	0.4	0.0	
Delay (s)	40.4	38.7	38.7					4.8	4.8	1.7	2.4	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		39.3			0.0			4.8			1.9	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.18			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	0	47	0	0	0	0	49	44	186	61	0
Future Volume (vph)	144	0	47	0	0	0	0	49	44	186	61	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.99	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1603	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.71	1.00	
Satd. Flow (perm)	1681	1603	1504					5085	1583	1329	3539	
Peak-hour factor, PHF	0.85	0.80	0.80	0.25	0.25	0.25	0.80	0.80	0.80	0.85	0.80	0.80
Adj. Flow (vph)	169	0	59	0	0	0	0	61	55	219	76	0
RTOR Reduction (vph)	0	79	48	0	0	0	0	0	19	0	0	0
Lane Group Flow (vph)	88	8	5	0	0	0	0	61	36	219	76	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	7.8	7.8	7.8					59.7	59.7	65.1	59.7	
Effective Green, g (s)	7.8	7.8	7.8					59.7	59.7	65.1	59.7	
Actuated g/C Ratio	0.09	0.09	0.09					0.66	0.66	0.72	0.66	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	145	138	130					3373	1050	987	2347	
v/s Ratio Prot								0.01		c0.01	0.02	
v/s Ratio Perm	c0.05	0.00	0.00						0.02	c0.15		
v/c Ratio	0.61	0.05	0.04					0.02	0.03	0.22	0.03	
Uniform Delay, d1	39.6	37.7	37.7					5.2	5.2	4.1	5.2	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.47	0.51	
Incremental Delay, d2	4.8	0.1	0.0					0.0	0.1	0.5	0.0	
Delay (s)	44.5	37.8	37.7					5.2	5.3	2.5	2.7	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		40.3			0.0			5.2			2.5	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.26			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	49	50	37	84	24	160	51
v/c Ratio	0.32	0.21	0.16	0.02	0.02	0.16	0.02
Control Delay	44.0	3.2	1.5	5.4	0.1	1.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	3.2	1.5	5.4	0.1	1.3	2.7
Queue Length 50th (ft)	28	0	0	5	0	0	1
Queue Length 95th (ft)	61	0	0	9	0	4	3
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	751	709	3504	1123	1000	2438
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.07	0.05	0.02	0.02	0.16	0.02

Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	87	53	61	55	219	76
v/c Ratio	0.50	0.34	0.22	0.02	0.05	0.22	0.03
Control Delay	47.8	10.3	3.6	6.2	0.4	2.0	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	10.3	3.6	6.2	0.4	2.0	3.2
Queue Length 50th (ft)	51	0	0	4	0	1	2
Queue Length 95th (ft)	91	27	2	8	1	16	7
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	752	709	3439	1104	1004	2393
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.12	0.07	0.02	0.05	0.22	0.03

Intersection Summary

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑↑	↱	↰	↑↑↱	
Traffic Vol, veh/h	3	2	0	2	1	23	0	78	9	21	41	3
Future Vol, veh/h	3	2	0	2	1	23	0	78	9	21	41	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	0	3	1	29	0	92	11	26	51	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	152	208	28	171	199	46	55	0	0	103	0	0
Stage 1	105	105	-	92	92	-	-	-	-	-	-	-
Stage 2	47	103	-	79	107	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	828	704	1074	802	712	1014	1570	-	-	1487	-	-
Stage 1	913	821	-	905	818	-	-	-	-	-	-	-
Stage 2	961	809	-	946	820	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	793	692	1074	790	700	1014	1570	-	-	1487	-	-
Mov Cap-2 Maneuver	793	692	-	790	700	-	-	-	-	-	-	-
Stage 1	913	807	-	905	818	-	-	-	-	-	-	-
Stage 2	932	809	-	927	806	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	8.8	0	2.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1570	-	-	749	976	1487	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.033	0.018	-	-
HCM Control Delay (s)	0	-	-	9.8	8.8	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑↑	↱	↰	↑↑↱	
Traffic Vol, veh/h	6	0	1	4	0	31	1	71	9	31	63	10
Future Vol, veh/h	6	0	1	4	0	31	1	71	9	31	63	10
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	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	1	5	0	39	1	89	11	39	79	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	211	266	46	209	261	45	92	0	0	100	0	0
Stage 1	164	164	-	91	91	-	-	-	-	-	-	-
Stage 2	47	102	-	118	170	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	752	654	1045	754	658	1015	1521	-	-	1490	-	-
Stage 1	843	775	-	906	819	-	-	-	-	-	-	-
Stage 2	961	810	-	898	770	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	708	636	1045	737	640	1015	1521	-	-	1490	-	-
Mov Cap-2 Maneuver	708	636	-	737	640	-	-	-	-	-	-	-
Stage 1	842	755	-	905	818	-	-	-	-	-	-	-
Stage 2	924	809	-	873	750	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	8.9	0.1	2.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1521	-	-	742	973	1490	-	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.045	0.026	-	-
HCM Control Delay (s)	7.4	-	-	9.9	8.9	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	30	57	3	19	24
Future Vol, veh/h	2	30	57	3	19	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	38	71	4	24	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	136	38	0	0	75	0
Stage 1	73	-	-	-	-	-
Stage 2	63	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	844	1026	-	-	1522	-
Stage 1	941	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	830	1026	-	-	1522	-
Mov Cap-2 Maneuver	807	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	937	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1009	1522	-
HCM Lane V/C Ratio	-	-	0.04	0.016	-
HCM Control Delay (s)	-	-	8.7	7.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	19	62	6	14	54
Future Vol, veh/h	2	19	62	6	14	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	24	78	8	18	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	152	43	0	0	86	0
Stage 1	82	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	848	1018	-	-	1508	-
Stage 1	932	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %	1		-	-		-
Mov Cap-1 Maneuver	838	1018	-	-	1508	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	994	1508	-
HCM Lane V/C Ratio	-	-	0.026	0.012	-
HCM Control Delay (s)	-	-	8.7	7.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	15	31	1	3	1
Future Vol, veh/h	7	15	31	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	19	39	1	4	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	77	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1570	-	-	-	926	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	985	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1570	-	-	-	920	1031
Mov Cap-2 Maneuver	-	-	-	-	920	-
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	985	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1570	-	-	-	945
HCM Lane V/C Ratio	0.006	-	-	-	0.005
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	30	11	0	1	3
Future Vol, veh/h	2	30	11	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	38	14	0	1	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	14	0	-	0	58	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	44	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1604	-	-	-	949	1066
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1604	-	-	-	947	1066
Mov Cap-2 Maneuver	-	-	-	-	947	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1604	-	-	-	1034
HCM Lane V/C Ratio	0.002	-	-	-	0.005
HCM Control Delay (s)	7.2	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX J

2024 BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	0	0	0	0	123
Future Vol, veh/h	60	0	0	0	0	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	0	0	0	0	145

Major/Minor	Minor1			Major2	
Conflicting Flow All	73	-		0	0
Stage 1	0	-		-	-
Stage 2	73	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	922	0		-	-
Stage 1	-	0		-	-
Stage 2	941	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	922	-		-	-
Mov Cap-2 Maneuver	922	-		-	-
Stage 1	-	-		-	-
Stage 2	941	-		-	-

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

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	922	-	-
HCM Lane V/C Ratio	0.081	-	-
HCM Control Delay (s)	9.3	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	0	0	0	0	215
Future Vol, veh/h	64	0	0	0	0	215
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	0	0	0	0	253

Major/Minor	Minor1			Major2	
Conflicting Flow All	127	-		0	0
Stage 1	0	-		-	-
Stage 2	127	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	854	0		-	-
Stage 1	-	0		-	-
Stage 2	885	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	854	-		-	-
Mov Cap-2 Maneuver	854	-		-	-
Stage 1	-	-		-	-
Stage 2	885	-		-	-

Approach	WB	SB
HCM Control Delay, s	9.7	0
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	854	-	-
HCM Lane V/C Ratio	0.094	-	-
HCM Control Delay (s)	9.7	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	17	0	0	60	9	0	212	44	0	0	0
Future Vol, veh/h	0	17	0	0	60	9	0	212	44	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	21	0	0	75	11	0	249	55	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	249	-	-	249	125	-	0	0
Stage 1	-	0	-	-	249	-	-	-	-
Stage 2	-	249	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	653	0	0	653	902	0	-	-
Stage 1	0	-	0	0	699	-	0	-	-
Stage 2	0	699	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	653	-	-	653	902	-	-	-
Mov Cap-2 Maneuver	-	653	-	-	653	-	-	-	-
Stage 1	-	-	-	-	699	-	-	-	-
Stage 2	-	699	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.7	10.9	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	653	653	902
HCM Lane V/C Ratio	-	-	0.033	0.115	0.012
HCM Control Delay (s)	-	-	10.7	11.2	9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	20	0	0	64	5	0	194	61	0	0	0
Future Vol, veh/h	0	20	0	0	64	5	0	194	61	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	25	0	0	80	6	0	228	76	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	228	-	-	228	114	-	0	0
Stage 1	-	0	-	-	228	-	-	-	-
Stage 2	-	228	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	670	0	0	670	917	0	-	-
Stage 1	0	-	0	0	714	-	0	-	-
Stage 2	0	714	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	670	-	-	670	917	-	-	-
Mov Cap-2 Maneuver	-	670	-	-	670	-	-	-	-
Stage 1	-	-	-	-	714	-	-	-	-
Stage 2	-	714	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.6	10.9	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	670	670	917
HCM Lane V/C Ratio	-	-	0.037	0.119	0.007
HCM Control Delay (s)	-	-	10.6	11.1	9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	168	88	0	0	185
Future Vol, veh/h	0	168	88	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	85	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	198	104	0	0	218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	52	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1005	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	1005	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	1005	-
HCM Lane V/C Ratio	-	0.197	-
HCM Control Delay (s)	-	9.5	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.7	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	114	140	0	0	278
Future Vol, veh/h	0	114	140	0	0	278
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	85	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	134	165	0	0	327

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	83	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	960	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	960	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

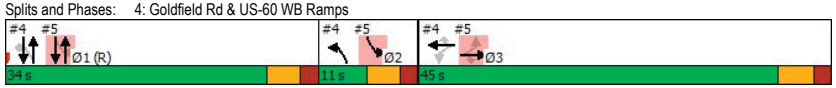
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	960	-
HCM Lane V/C Ratio	-	0.14	-
HCM Control Delay (s)	-	9.4	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.5	-

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	8	0	17	97	134	171	128
Future Volume (vph)	8	0	17	97	134	171	128
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps

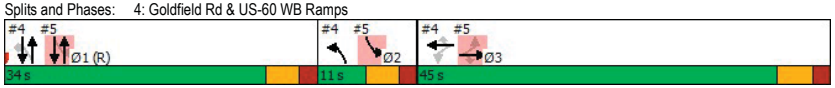


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	25	0	42	64	179	238	91
Future Volume (vph)	25	0	42	64	179	238	91
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	8	0	17	97	134	0	0	171	128
Future Volume (vph)	0	0	0	8	0	17	97	134	0	0	171	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1457	1504	1770	3539			5085	1583
Flt Permitted				0.95	1.00	1.00	0.62	1.00			1.00	1.00
Satd. Flow (perm)				1681	1457	1504	1155	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.85	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	10	0	21	114	158	0	0	201	151
RTOR Reduction (vph)	0	0	0	0	10	10	0	0	0	0	0	49
Lane Group Flow (vph)	0	0	0	9	1	1	114	158	0	0	201	102
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				6.8	6.8	6.8	66.1	60.7			60.7	60.7
Effective Green, g (s)				6.8	6.8	6.8	66.1	60.7			60.7	60.7
Actuated g/C Ratio				0.08	0.08	0.08	0.73	0.67			0.67	0.67
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				127	110	113	885	2386			3429	1067
v/s Ratio Prot							c0.01	0.04			0.04	
v/s Ratio Perm				c0.01	0.00	0.00	c0.09					0.06
v/c Ratio				0.07	0.01	0.01	0.13	0.07			0.06	0.10
Uniform Delay, d1				38.7	38.5	38.5	3.5	5.0			5.0	5.1
Progression Factor				1.00	1.00	1.00	0.44	0.60			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.3	0.1			0.0	0.2
Delay (s)				38.8	38.5	38.5	1.8	3.0			5.0	5.3
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			38.6			2.5			5.1	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.12			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	25	0	42	64	179	0	0	238	91
Future Volume (vph)	0	0	0	25	0	42	64	179	0	0	238	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1460	1504	1770	3539			5085	1583
Flt Permitted				0.95	0.99	1.00	0.57	1.00			1.00	1.00
Satd. Flow (perm)				1681	1460	1504	1067	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	31	0	52	80	211	0	0	280	107
RTOR Reduction (vph)	0	0	0	0	25	25	0	0	0	0	0	39
Lane Group Flow (vph)	0	0	0	28	3	3	80	211	0	0	280	68
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				10.0	10.0	10.0	62.9	57.5			57.5	57.5
Effective Green, g (s)				10.0	10.0	10.0	62.9	57.5			57.5	57.5
Actuated g/C Ratio				0.11	0.11	0.11	0.70	0.64			0.64	0.64
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				186	162	167	787	2261			3248	1011
v/s Ratio Prot							c0.01	0.06			0.06	
v/s Ratio Perm				c0.02	0.00	0.00	c0.06					0.04
v/c Ratio				0.15	0.02	0.02	0.10	0.09			0.09	0.07
Uniform Delay, d1				36.2	35.6	35.6	4.4	6.2			6.2	6.1
Progression Factor				1.00	1.00	1.00	0.71	0.63			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.3	0.1			0.1	0.1
Delay (s)				36.3	35.6	35.6	3.4	4.0			6.3	6.3
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			35.9			3.8			6.3	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.11			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	9	11	11	114	158	201	151
v/c Ratio	0.06	0.05	0.05	0.13	0.06	0.06	0.13
Control Delay	37.6	0.4	0.4	1.5	3.3	5.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	0.4	0.4	1.5	3.3	5.4	1.4
Queue Length 50th (ft)	5	0	0	2	6	13	0
Queue Length 95th (ft)	17	0	0	4	11	21	17
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	688	709	900	2433	3496	1135
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.02	0.13	0.06	0.06	0.13

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	28	28	28	80	211	280	107
v/c Ratio	0.15	0.11	0.11	0.10	0.09	0.09	0.10
Control Delay	36.6	0.9	0.9	2.7	4.3	6.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	0.9	0.9	2.7	4.3	6.6	1.9
Queue Length 50th (ft)	15	0	0	3	9	19	0
Queue Length 95th (ft)	34	0	0	20	36	32	17
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	690	709	787	2260	3247	1049
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.04	0.10	0.09	0.09	0.10

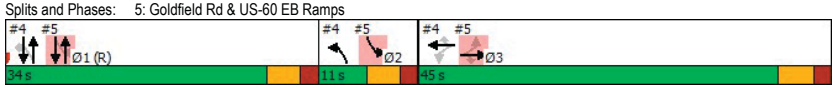
Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	77	0	50	154	23	131	48
Future Volume (vph)	77	0	50	154	23	131	48
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps

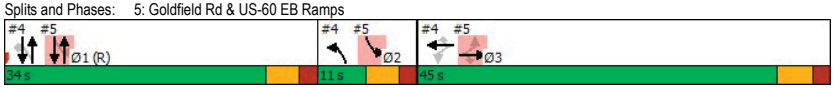


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	138	0	104	98	45	177	89
Future Volume (vph)	138	0	104	98	45	177	89
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	0	50	0	0	0	0	154	23	131	48	0
Future Volume (vph)	77	0	50	0	0	0	0	154	23	131	48	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.96	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1571	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.96	1.00					1.00	1.00	0.63	1.00	
Satd. Flow (perm)	1681	1571	1504					5085	1583	1179	3539	
Peak-hour factor, PHF	0.80	0.80	0.80	0.25	0.25	0.25	0.80	0.85	0.80	0.85	0.80	0.80
Adj. Flow (vph)	96	0	62	0	0	0	0	181	29	154	60	0
RTOR Reduction (vph)	0	50	45	0	0	0	0	0	9	0	0	0
Lane Group Flow (vph)	56	4	4	0	0	0	0	181	20	154	60	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	6.8	6.8	6.8					60.7	60.7	66.1	60.7	
Effective Green, g (s)	6.8	6.8	6.8					60.7	60.7	66.1	60.7	
Actuated g/C Ratio	0.08	0.08	0.08					0.67	0.67	0.73	0.67	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	127	118	113					3429	1067	901	2386	
v/s Ratio Prot								0.04		c0.01	0.02	
v/s Ratio Perm	c0.03	0.00	0.00						0.01	c0.12		
v/c Ratio	0.44	0.03	0.03					0.05	0.02	0.17	0.03	
Uniform Delay, d1	39.8	38.6	38.6					4.9	4.8	3.7	4.9	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.39	0.50	
Incremental Delay, d2	0.9	0.0	0.0					0.0	0.0	0.4	0.0	
Delay (s)	40.7	38.6	38.6					5.0	4.9	1.8	2.4	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		39.3			0.0			5.0			2.0	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.20			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	0	104	0	0	0	0	98	45	177	89	0
Future Volume (vph)	138	0	104	0	0	0	0	98	45	177	89	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.95	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1557	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.68	1.00	
Satd. Flow (perm)	1681	1557	1504					5085	1583	1259	3539	
Peak-hour factor, PHF	0.85	0.80	0.85	0.25	0.25	0.25	0.80	0.85	0.80	0.85	0.85	0.80
Adj. Flow (vph)	162	0	122	0	0	0	0	115	56	208	105	0
RTOR Reduction (vph)	0	85	79	0	0	0	0	0	20	0	0	0
Lane Group Flow (vph)	99	11	10	0	0	0	0	115	36	208	105	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	10.0	10.0	10.0					57.5	57.5	62.9	57.5	
Effective Green, g (s)	10.0	10.0	10.0					57.5	57.5	62.9	57.5	
Actuated g/C Ratio	0.11	0.11	0.11					0.64	0.64	0.70	0.64	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	186	173	167					3248	1011	910	2261	
v/s Ratio Prot								0.02		c0.01	0.03	
v/s Ratio Perm	c0.06	0.01	0.01						0.02	c0.15		
v/c Ratio	0.53	0.06	0.06					0.04	0.04	0.23	0.05	
Uniform Delay, d1	37.8	35.8	35.8					6.0	6.0	4.9	6.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.46	0.50	
Incremental Delay, d2	1.5	0.1	0.1					0.0	0.1	0.6	0.0	
Delay (s)	39.3	35.9	35.8					6.0	6.1	2.8	3.1	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		37.0			0.0			6.0			2.9	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.27			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

5: Goldfield Rd & US-60 EB Ramps
Queues

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	56	54	49	181	29	154	60
v/c Ratio	0.36	0.23	0.21	0.05	0.03	0.17	0.02
Control Delay	44.8	4.2	3.1	5.4	0.0	1.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	4.2	3.1	5.4	0.0	1.5	2.8
Queue Length 50th (ft)	32	0	0	11	0	0	2
Queue Length 95th (ft)	62	3	0	19	0	7	4
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	738	709	3496	1120	916	2433
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.07	0.07	0.05	0.03	0.17	0.02

Intersection Summary

5: Goldfield Rd & US-60 EB Ramps
Queues

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	99	96	89	115	56	208	105
v/c Ratio	0.53	0.37	0.35	0.04	0.05	0.23	0.05
Control Delay	47.7	11.5	10.4	6.5	0.5	2.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	11.5	10.4	6.5	0.5	2.3	3.3
Queue Length 50th (ft)	57	0	0	7	0	9	4
Queue Length 95th (ft)	97	32	31	15	1	17	10
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	731	709	3247	1048	910	2260
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.13	0.13	0.04	0.05	0.23	0.05

Intersection Summary

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	0	2	1	29	0	163	8	22	65	3
Future Vol, veh/h	3	2	0	2	1	29	0	163	8	22	65	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	0	3	1	36	0	192	10	28	81	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	236	341	43	290	333	96	85	0	0	202	0	0
Stage 1	139	139	-	192	192	-	-	-	-	-	-	-
Stage 2	97	202	-	98	141	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	722	592	1050	661	599	942	1531	-	-	1367	-	-
Stage 1	873	795	-	791	740	-	-	-	-	-	-	-
Stage 2	899	733	-	922	793	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	683	581	1050	648	587	942	1531	-	-	1367	-	-
Mov Cap-2 Maneuver	683	581	-	648	587	-	-	-	-	-	-	-
Stage 1	873	779	-	791	740	-	-	-	-	-	-	-
Stage 2	863	733	-	901	777	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	9.2	0	1.9
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	638	899	1367	-	-
HCM Lane V/C Ratio	-	-	-	0.01	0.044	0.02	-	-
HCM Control Delay (s)	0	-	-	10.7	9.2	7.7	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	1	4	0	33	1	118	8	36	143	9
Future Vol, veh/h	5	0	1	4	0	33	1	118	8	36	143	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	80	85	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	1	5	0	41	1	139	10	45	168	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	336	415	90	315	410	70	179	0	0	149	0	0
Stage 1	264	264	-	141	141	-	-	-	-	-	-	-
Stage 2	72	151	-	174	269	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	686	583	*1038	711	587	978	1481	-	-	1430	-	-
Stage 1	807	743	-	847	779	-	-	-	-	-	-	-
Stage 2	929	771	-	915	739	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	641	564	*1038	693	568	978	1481	-	-	1430	-	-
Mov Cap-2 Maneuver	641	564	-	693	568	-	-	-	-	-	-	-
Stage 1	806	720	-	846	778	-	-	-	-	-	-	-
Stage 2	889	770	-	885	716	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9	0.1	1.5
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1481	-	-	685	936	1430	-	-
HCM Lane V/C Ratio	0.001	-	-	0.011	0.049	0.031	-	-
HCM Control Delay (s)	7.4	-	-	10.3	9	7.6	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	117	54	3	45	23
Future Vol, veh/h	2	117	54	3	45	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	138	68	4	56	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	197	36	0	0	72	0
Stage 1	70	-	-	-	-	-
Stage 2	127	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	773	1029	-	-	1526	-
Stage 1	945	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	744	1029	-	-	1526	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	4.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 1022	1526	-
HCM Lane V/C Ratio	-	- 0.137	0.037	-
HCM Control Delay (s)	-	- 9.1	7.4	-
HCM Lane LOS	-	- A	A	-
HCM 95th %tile Q(veh)	-	- 0.5	0.1	-

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	69	58	5	98	51
Future Vol, veh/h	2	69	58	5	98	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	86	73	6	115	64

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	338	40	0	0	79	0
Stage 1	76	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	649	1022	-	-	1517	-
Stage 1	938	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %	1		-	-		-
Mov Cap-1 Maneuver	600	1022	-	-	1517	-
Mov Cap-2 Maneuver	626	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	715	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	4.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 1004	1517	-
HCM Lane V/C Ratio	-	- 0.088	0.076	-
HCM Control Delay (s)	-	- 8.9	7.6	-
HCM Lane LOS	-	- A	A	-
HCM 95th %tile Q(veh)	-	- 0.3	0.2	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	42	118	1	3	1
Future Vol, veh/h	6	42	118	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	53	139	1	4	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	140	0	-	0	209	140
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	69	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1443	-	-	-	779	908
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1443	-	-	-	774	908
Mov Cap-2 Maneuver	-	-	-	-	774	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	954	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	804
HCM Lane V/C Ratio	0.005	-	-	-	0.006
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	112	61	0	1	3
Future Vol, veh/h	2	112	61	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	132	76	0	1	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	76	0	-	0	214	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	138	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1523	-	-	-	774	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1523	-	-	-	772	985
Mov Cap-2 Maneuver	-	-	-	-	772	-
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	889	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1523	-	-	-	921
HCM Lane V/C Ratio	0.002	-	-	-	0.005
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	30	7	0	0	7
Future Vol, veh/h	2	30	7	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	38	9	0	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	9	0	-	0	53	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	44	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1611	-	-	-	955	1073
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	978	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1611	-	-	-	953	1073
Mov Cap-2 Maneuver	-	-	-	-	953	-
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1611	-	-	-	1073
HCM Lane V/C Ratio	0.002	-	-	-	0.008
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	37	2	0	0	4
Future Vol, veh/h	7	37	2	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	46	3	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	3	0	-	0	67	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	64	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1619	-	-	-	938	1081
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1619	-	-	-	932	1081
Mov Cap-2 Maneuver	-	-	-	-	932	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	959	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	8.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1619	-	-	-	1081
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	7.2	0	-	-	8.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	18	20	0	41	0	65	0	0	0	0	12
Future Vol, veh/h	3	18	20	0	41	0	65	0	0	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	23	25	0	51	0	81	0	0	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	51	0	0	48	0	0	103	95	36	95	107	51
Stage 1	-	-	-	-	-	-	44	44	-	51	51	-
Stage 2	-	-	-	-	-	-	59	51	-	44	56	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1555	-	-	1559	-	-	877	795	1037	888	783	1017
Stage 1	-	-	-	-	-	-	970	858	-	962	852	-
Stage 2	-	-	-	-	-	-	953	852	-	970	848	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1555	-	-	1559	-	-	862	793	1037	886	781	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	862	793	-	886	781	-
Stage 1	-	-	-	-	-	-	967	855	-	959	852	-
Stage 2	-	-	-	-	-	-	939	852	-	967	845	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	9.6	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	862	1555	-	-	1559	-	-	1017
HCM Lane V/C Ratio	0.094	0.002	-	-	-	-	-	0.015
HCM Control Delay (s)	9.6	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	39	62	0	17	0	37	0	0	0	0	7
Future Vol, veh/h	11	39	62	0	17	0	37	0	0	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	49	78	0	21	0	46	0	0	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	21	0	0	127	0	0	142	137	88	137	176	21
Stage 1	-	-	-	-	-	-	116	116	-	21	21	-
Stage 2	-	-	-	-	-	-	26	21	-	116	155	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1595	-	-	1459	-	-	828	754	970	834	717	1056
Stage 1	-	-	-	-	-	-	889	800	-	998	878	-
Stage 2	-	-	-	-	-	-	992	878	-	889	769	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1595	-	-	1459	-	-	815	746	970	827	710	1056
Mov Cap-2 Maneuver	-	-	-	-	-	-	815	746	-	827	710	-
Stage 1	-	-	-	-	-	-	880	792	-	988	878	-
Stage 2	-	-	-	-	-	-	984	878	-	880	761	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	9.7	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	815	1595	-	-	1459	-	-	1056
HCM Lane V/C Ratio	0.057	0.009	-	-	-	-	-	0.008
HCM Control Delay (s)	9.7	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	17	36	0	0	5
Future Vol, veh/h	1	17	36	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	21	45	0	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	45	0	-	0	68	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1563	-	-	-	937	1025
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	1000	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1563	-	-	-	936	1025
Mov Cap-2 Maneuver	-	-	-	-	936	-
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	1000	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1563	-	-	-	1025
HCM Lane V/C Ratio	0.001	-	-	-	0.006
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	34	14	0	0	3
Future Vol, veh/h	5	34	14	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	43	18	0	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	18	0	-	0	73	18
Stage 1	-	-	-	-	18	-
Stage 2	-	-	-	-	55	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1599	-	-	-	931	1061
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	968	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1599	-	-	-	927	1061
Mov Cap-2 Maneuver	-	-	-	-	927	-
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1599	-	-	-	1061
HCM Lane V/C Ratio	0.004	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	16	32	0	0	3
Future Vol, veh/h	1	16	32	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	20	40	0	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	62	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1570	-	-	-	944	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1570	-	-	-	943	1031
Mov Cap-2 Maneuver	-	-	-	-	943	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1570	-	-	-	1031
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	31	12	0	0	2
Future Vol, veh/h	3	31	12	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	39	15	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	62	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	47	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1603	-	-	-	944	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	975	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1603	-	-	-	941	1065
Mov Cap-2 Maneuver	-	-	-	-	941	-
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	975	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1603	-	-	-	1065
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	15	29	0	0	3
Future Vol, veh/h	1	15	29	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	19	36	0	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	36	0	-	0	57	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1575	-	-	-	950	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1575	-	-	-	949	1037
Mov Cap-2 Maneuver	-	-	-	-	949	-
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1575	-	-	-	1037
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	28	10	0	0	2
Future Vol, veh/h	3	28	10	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	35	13	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	13	0	-	0	56	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	43	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1606	-	-	-	952	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	979	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1606	-	-	-	949	1067
Mov Cap-2 Maneuver	-	-	-	-	949	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	979	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1606	-	-	-	1067
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX K

2027 BUILD PEAK HOUR ANALYSIS

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	0	0	0	0	131
Future Vol, veh/h	64	0	0	0	0	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	0	0	0	0	154

Major/Minor	Minor1			Major2	
Conflicting Flow All	77	-		0	0
Stage 1	0	-		-	-
Stage 2	77	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	917	0		-	-
Stage 1	-	0		-	-
Stage 2	937	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	917	-		-	-
Mov Cap-2 Maneuver	917	-		-	-
Stage 1	-	-		-	-
Stage 2	937	-		-	-

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

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	917	-	-
HCM Lane V/C Ratio	0.087	-	-
HCM Control Delay (s)	9.3	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	0	0	0	0	227
Future Vol, veh/h	67	0	0	0	0	227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	195	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	25	25	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	0	0	0	0	267

Major/Minor	Minor1			Major2	
Conflicting Flow All	134	-		0	0
Stage 1	0	-		-	-
Stage 2	134	-		-	-
Critical Hdwy	6.84	-		4.14	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	5.84	-		-	-
Follow-up Hdwy	3.52	-		2.22	-
Pot Cap-1 Maneuver	846	0		-	-
Stage 1	-	0		-	-
Stage 2	878	0		-	-
Platoon blocked, %					-
Mov Cap-1 Maneuver	846	-		-	-
Mov Cap-2 Maneuver	846	-		-	-
Stage 1	-	-		-	-
Stage 2	878	-		-	-

Approach	WB	SB
HCM Control Delay, s	9.7	0
HCM LOS	A	

Minor Lane/Major Mvmt	WBLn1	SBL	SBT
Capacity (veh/h)	846	-	-
HCM Lane V/C Ratio	0.099	-	-
HCM Control Delay (s)	9.7	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	18	0	0	64	10	0	224	46	0	0	0
Future Vol, veh/h	0	18	0	0	64	10	0	224	46	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	0	0	80	13	0	264	58	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	264	-	-	264	132	-	0	0
Stage 1	-	0	-	-	264	-	-	-	-
Stage 2	-	264	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	640	0	0	640	893	0	-	-
Stage 1	0	-	0	0	689	-	0	-	-
Stage 2	0	689	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	640	-	-	640	893	-	-	-
Mov Cap-2 Maneuver	-	640	-	-	640	-	-	-	-
Stage 1	-	-	-	-	689	-	-	-	-
Stage 2	-	689	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.8	11.1	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	640	640	893
HCM Lane V/C Ratio	-	-	0.035	0.125	0.014
HCM Control Delay (s)	-	-	10.8	11.4	9.1
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑	↱		↑↑	↱			
Traffic Vol, veh/h	0	21	0	0	67	6	0	205	64	0	0	0
Future Vol, veh/h	0	21	0	0	67	6	0	205	64	0	0	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	-	-	None	-	-	Stop	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	25	25	25
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	26	0	0	84	8	0	241	80	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	-	241	-	-	241	121	-	0	0
Stage 1	-	0	-	-	241	-	-	-	-
Stage 2	-	241	-	-	0	-	-	-	-
Critical Hdwy	-	6.54	-	-	6.54	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	-	-	4.02	3.32	-	-	-
Pot Cap-1 Maneuver	0	659	0	0	659	908	0	-	-
Stage 1	0	-	0	0	705	-	0	-	-
Stage 2	0	705	0	0	-	-	0	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	-	659	-	-	659	908	-	-	-
Mov Cap-2 Maneuver	-	659	-	-	659	-	-	-	-
Stage 1	-	-	-	-	705	-	-	-	-
Stage 2	-	705	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	10.7	11.1	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	WBLn2
Capacity (veh/h)	-	-	659	659	908
HCM Lane V/C Ratio	-	-	0.04	0.127	0.008
HCM Control Delay (s)	-	-	10.7	11.3	9
HCM Lane LOS	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.4	0

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	179	91	0	0	195
Future Vol, veh/h	0	179	91	0	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	85	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	211	107	0	0	229

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	54	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	1002	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	1002	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	1002	-
HCM Lane V/C Ratio	-	0.21	-
HCM Control Delay (s)	-	9.5	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.8	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	121	147	0	0	293
Future Vol, veh/h	0	121	147	0	0	293
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	85	80	80	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	142	173	0	0	345

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	87	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	954	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	954	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

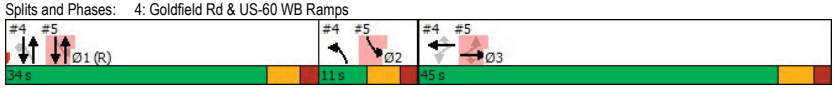
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	954	-
HCM Lane V/C Ratio	-	0.149	-
HCM Control Delay (s)	-	9.4	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.5	-

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	9	0	18	100	140	179	133
Future Volume (vph)	9	0	18	100	140	179	133
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps

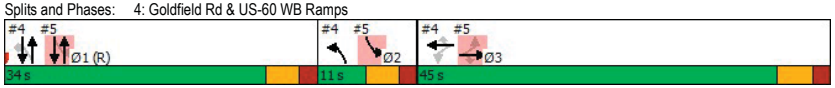


Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	26	0	42	66	186	250	95
Future Volume (vph)	26	0	42	66	186	250	95
Turn Type	Perm	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases		3		2	1	1	
Permitted Phases	3		3	1			1
Detector Phase	3	3	3	2	1	1	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	5.0	20.0	20.0	20.0
Minimum Split (s)	44.9	44.9	44.9	10.6	31.6	31.6	31.6
Total Split (s)	45.0	45.0	45.0	11.0	34.0	34.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	12.2%	37.8%	37.8%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lag	Lead	Lead	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Goldfield Rd & US-60 WB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	9	0	18	100	140	0	0	179	133
Future Volume (vph)	0	0	0	9	0	18	100	140	0	0	179	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.86	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1456	1504	1770	3539			5085	1583
Flt Permitted				0.95	1.00	1.00	0.61	1.00			1.00	1.00
Satd. Flow (perm)				1681	1456	1504	1144	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.85	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	11	0	22	118	165	0	0	211	156
RTOR Reduction (vph)	0	0	0	0	11	11	0	0	0	0	0	50
Lane Group Flow (vph)	0	0	0	10	1	1	118	165	0	0	211	106
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				6.6	6.6	6.6	66.3	60.9			60.9	60.9
Effective Green, g (s)				6.6	6.6	6.6	66.3	60.9			60.9	60.9
Actuated g/C Ratio				0.07	0.07	0.07	0.74	0.68			0.68	0.68
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				123	106	110	880	2394			3440	1071
v/s Ratio Prot							c0.01	0.05			0.04	
v/s Ratio Perm				c0.01	0.00	0.00	c0.09					0.07
v/c Ratio				0.08	0.01	0.01	0.13	0.07			0.06	0.10
Uniform Delay, d1				38.9	38.7	38.7	3.5	4.9			4.9	5.0
Progression Factor				1.00	1.00	1.00	0.45	0.63			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.3	0.1			0.0	0.2
Delay (s)				39.0	38.7	38.7	1.9	3.1			4.9	5.2
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			38.8			2.6			5.1	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.13			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	26	0	42	66	186	0	0	250	95
Future Volume (vph)	0	0	0	26	0	42	66	186	0	0	250	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Lane Util. Factor				0.95	0.91	0.95	1.00	0.95			0.91	1.00
Frt				1.00	0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1681	1460	1504	1770	3539			5085	1583
Flt Permitted				0.95	0.99	1.00	0.56	1.00			1.00	1.00
Satd. Flow (perm)				1681	1460	1504	1052	3539			5085	1583
Peak-hour factor, PHF	0.25	0.25	0.25	0.80	0.80	0.80	0.80	0.85	0.80	0.80	0.85	0.85
Adj. Flow (vph)	0	0	0	32	0	52	82	219	0	0	294	112
RTOR Reduction (vph)	0	0	0	0	25	25	0	0	0	0	0	41
Lane Group Flow (vph)	0	0	0	30	3	3	83	219	0	0	294	71
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases					3		2	1			1	
Permitted Phases				3		3	1					1
Actuated Green, G (s)				10.1	10.1	10.1	62.8	57.4			57.4	57.4
Effective Green, g (s)				10.1	10.1	10.1	62.8	57.4			57.4	57.4
Actuated g/C Ratio				0.11	0.11	0.11	0.70	0.64			0.64	0.64
Clearance Time (s)				5.9	5.9	5.9	5.6	5.6			5.6	5.6
Vehicle Extension (s)				1.2	1.2	1.2	1.2	1.2			1.2	1.2
Lane Grp Cap (vph)				188	163	168	777	2257			3243	1009
v/s Ratio Prot							c0.01	0.06			0.06	
v/s Ratio Perm				c0.02	0.00	0.00	c0.07					0.05
v/c Ratio				0.16	0.02	0.02	0.11	0.10			0.09	0.07
Uniform Delay, d1				36.1	35.5	35.5	4.5	6.3			6.3	6.2
Progression Factor				1.00	1.00	1.00	0.72	0.63			1.00	1.00
Incremental Delay, d2				0.1	0.0	0.0	0.3	0.1			0.1	0.1
Delay (s)				36.3	35.6	35.6	3.5	4.1			6.3	6.3
Level of Service				D	D	D	A	A			A	A
Approach Delay (s)		0.0			35.8			3.9			6.3	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.11			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	10	12	12	118	165	211	156
v/c Ratio	0.07	0.05	0.05	0.13	0.07	0.06	0.14
Control Delay	38.1	0.5	0.4	1.5	3.4	5.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	0.5	0.4	1.5	3.4	5.3	1.3
Queue Length 50th (ft)	5	0	0	3	7	13	0
Queue Length 95th (ft)	18	0	0	5	12	21	16
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	688	709	894	2439	3505	1139
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.02	0.02	0.13	0.07	0.06	0.14

Intersection Summary

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	30	28	28	83	219	294	112
v/c Ratio	0.16	0.11	0.11	0.11	0.10	0.09	0.11
Control Delay	36.8	0.9	0.9	2.8	4.4	6.7	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	0.9	0.9	2.8	4.4	6.7	1.8
Queue Length 50th (ft)	16	0	0	3	10	20	0
Queue Length 95th (ft)	36	0	0	21	38	34	17
Internal Link Dist (ft)		639			484	300	
Turn Bay Length (ft)	190		190				145
Base Capacity (vph)	730	690	709	776	2257	3242	1050
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.04	0.11	0.10	0.09	0.11

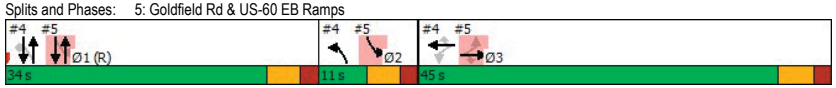
Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	81	0	52	158	24	136	51
Future Volume (vph)	81	0	52	158	24	136	51
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps

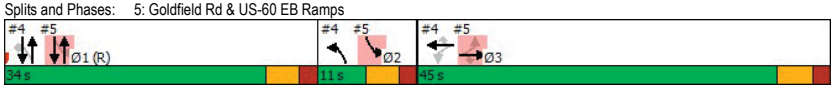


Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	144	0	106	101	47	186	93
Future Volume (vph)	144	0	106	101	47	186	93
Turn Type	Perm	NA	Perm	NA	Perm	pm+pt	NA
Protected Phases		3		1		2	1
Permitted Phases	3		3		1	1	
Detector Phase	3	3	3	1	1	2	1
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	20.0	20.0	5.0	20.0
Minimum Split (s)	44.9	44.9	44.9	31.6	31.6	10.6	31.6
Total Split (s)	45.0	45.0	45.0	34.0	34.0	11.0	34.0
Total Split (%)	50.0%	50.0%	50.0%	37.8%	37.8%	12.2%	37.8%
Yellow Time (s)	3.9	3.9	3.9	3.6	3.6	3.6	3.6
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	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.6	5.6	5.6	5.6
Lead/Lag				Lead	Lead	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	Max	C-Max

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 5: Goldfield Rd & US-60 EB Ramps



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	0	52	0	0	0	0	158	24	136	51	0
Future Volume (vph)	81	0	52	0	0	0	0	158	24	136	51	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.94	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1551	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.63	1.00	
Satd. Flow (perm)	1681	1551	1504					5085	1583	1173	3539	
Peak-hour factor, PHF	0.85	0.80	0.87	0.25	0.25	0.25	0.80	0.85	0.80	0.85	0.80	0.80
Growth Factor (vph)	80%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	76	0	60	0	0	0	0	186	30	160	64	0
RTOR Reduction (vph)	0	42	40	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	48	3	3	0	0	0	0	186	20	160	64	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	6.6	6.6	6.6					60.9	60.9	66.3	60.9	
Effective Green, g (s)	6.6	6.6	6.6					60.9	60.9	66.3	60.9	
Actuated g/C Ratio	0.07	0.07	0.07					0.68	0.68	0.74	0.68	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	123	113	110					3440	1071	899	2394	
v/s Ratio Prot								0.04		c0.01	0.02	
v/s Ratio Perm	c0.03	0.00	0.00						0.01	c0.12		
v/c Ratio	0.39	0.03	0.03					0.05	0.02	0.18	0.03	
Uniform Delay, d1	39.8	38.7	38.7					4.9	4.8	3.6	4.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.40	0.50	
Incremental Delay, d2	0.7	0.0	0.0					0.0	0.0	0.4	0.0	
Delay (s)	40.5	38.8	38.8					4.9	4.8	1.9	2.4	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		39.4			0.0			4.9			2.0	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.20			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	0	106	0	0	0	0	101	47	186	93	0
Future Volume (vph)	144	0	106	0	0	0	0	101	47	186	93	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Lane Util. Factor	0.95	0.91	0.95					0.91	1.00	1.00	0.95	
Frt	1.00	0.95	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1681	1560	1504					5085	1583	1770	3539	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.67	1.00	
Satd. Flow (perm)	1681	1560	1504					5085	1583	1254	3539	
Peak-hour factor, PHF	0.85	0.80	0.85	0.25	0.25	0.25	0.80	0.85	0.80	0.85	0.85	0.80
Adj. Flow (vph)	169	0	125	0	0	0	0	119	59	219	109	0
RTOR Reduction (vph)	0	88	82	0	0	0	0	0	21	0	0	0
Lane Group Flow (vph)	101	13	10	0	0	0	0	119	38	219	109	0
Turn Type	Perm	NA	Perm					NA	Perm	pm+pt	NA	
Protected Phases		3						1		2	1	
Permitted Phases	3		3						1	1		
Actuated Green, G (s)	10.1	10.1	10.1					57.4	57.4	62.8	57.4	
Effective Green, g (s)	10.1	10.1	10.1					57.4	57.4	62.8	57.4	
Actuated g/C Ratio	0.11	0.11	0.11					0.64	0.64	0.70	0.64	
Clearance Time (s)	5.9	5.9	5.9					5.6	5.6	5.6	5.6	
Vehicle Extension (s)	1.2	1.2	1.2					1.2	1.2	1.2	1.2	
Lane Grp Cap (vph)	188	175	168					3243	1009	905	2257	
v/s Ratio Prot								0.02		c0.01	0.03	
v/s Ratio Perm	c0.06	0.01	0.01						0.02	c0.15		
v/c Ratio	0.54	0.07	0.06					0.04	0.04	0.24	0.05	
Uniform Delay, d1	37.7	35.8	35.7					6.0	6.0	5.0	6.1	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.47	0.50	
Incremental Delay, d2	1.5	0.1	0.1					0.0	0.1	0.6	0.0	
Delay (s)	39.2	35.8	35.8					6.1	6.1	3.0	3.1	
Level of Service	D	D	D					A	A	A	A	
Approach Delay (s)		37.0			0.0			6.1			3.0	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	45	43	186	30	160	64
v/c Ratio	0.31	0.19	0.19	0.05	0.03	0.17	0.03
Control Delay	43.9	1.9	1.8	5.3	0.0	1.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	1.9	1.8	5.3	0.0	1.5	2.8
Queue Length 50th (ft)	27	0	0	12	0	0	2
Queue Length 95th (ft)	58	0	0	19	0	4	4
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	729	709	3505	1123	915	2439
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.06	0.06	0.05	0.03	0.17	0.03

Intersection Summary

Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	101	101	92	119	59	219	109
v/c Ratio	0.54	0.39	0.36	0.04	0.06	0.24	0.05
Control Delay	47.8	12.4	10.9	6.6	0.6	2.4	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	12.4	10.9	6.6	0.6	2.4	3.4
Queue Length 50th (ft)	58	1	0	8	0	12	5
Queue Length 95th (ft)	98	36	33	16	2	18	10
Internal Link Dist (ft)		535		222			484
Turn Bay Length (ft)	130		130		115		
Base Capacity (vph)	730	733	709	3242	1046	905	2257
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.13	0.04	0.06	0.24	0.05

Intersection Summary

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	0	2	1	30	0	167	9	23	68	3
Future Vol, veh/h	3	2	0	2	1	30	0	167	9	23	68	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	3	0	3	1	38	0	196	11	29	85	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	244	352	45	298	343	98	89	0	0	207	0	0
Stage 1	145	145	-	196	196	-	-	-	-	-	-	-
Stage 2	99	207	-	102	147	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	712	585	1047	652	591	939	1525	-	-	1361	-	-
Stage 1	866	790	-	787	737	-	-	-	-	-	-	-
Stage 2	896	729	-	917	788	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	672	572	1047	639	579	939	1525	-	-	1361	-	-
Mov Cap-2 Maneuver	672	572	-	639	579	-	-	-	-	-	-	-
Stage 1	866	773	-	787	737	-	-	-	-	-	-	-
Stage 2	859	729	-	895	771	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	9.2	0	1.9
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1525	-	-	628	897	1361	-	-
HCM Lane V/C Ratio	-	-	-	0.01	0.046	0.021	-	-
HCM Control Delay (s)	0	-	-	10.8	9.2	7.7	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	1	4	0	35	1	122	9	38	147	10
Future Vol, veh/h	6	0	1	4	0	35	1	122	9	38	147	10
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	-	-	-	-	-	-	50	-	50	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	85	80	80	85	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	1	5	0	44	1	144	11	48	173	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	350	433	93	329	428	72	186	0	0	155	0	0
Stage 1	276	276	-	146	146	-	-	-	-	-	-	-
Stage 2	74	157	-	183	282	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	670	569	*1038	694	573	975	1473	-	-	1423	-	-
Stage 1	794	734	-	842	775	-	-	-	-	-	-	-
Stage 2	927	767	-	903	730	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	623	550	*1038	675	553	975	1473	-	-	1423	-	-
Mov Cap-2 Maneuver	623	550	-	675	553	-	-	-	-	-	-	-
Stage 1	793	709	-	841	774	-	-	-	-	-	-	-
Stage 2	885	766	-	872	705	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	9.1	0.1	1.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	661	932	1423	-	-
HCM Lane V/C Ratio	0.001	-	-	0.013	0.052	0.033	-	-
HCM Control Delay (s)	7.4	-	-	10.5	9.1	7.6	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	119	57	3	46	24
Future Vol, veh/h	2	119	57	3	46	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	140	71	4	58	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	204	38	0	0	75	0
Stage 1	73	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	766	1026	-	-	1522	-
Stage 1	941	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	737	1026	-	-	1522	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	4.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1019	1522	-
HCM Lane V/C Ratio	-	-	0.14	0.038	-
HCM Control Delay (s)	-	-	9.1	7.5	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	70	62	6	98	54
Future Vol, veh/h	2	70	62	6	98	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	85	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	88	78	8	115	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	346	43	0	0	86	0
Stage 1	82	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	641	1018	-	-	1508	-
Stage 1	932	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Platoon blocked, %	1		-	-		-
Mov Cap-1 Maneuver	592	1018	-	-	1508	-
Mov Cap-2 Maneuver	622	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	4.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1000	1508	-
HCM Lane V/C Ratio	-	-	0.09	0.076	-
HCM Control Delay (s)	-	-	9	7.6	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	42	120	1	3	1
Future Vol, veh/h	7	42	120	1	3	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	85	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	53	141	1	4	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	142	0	-	0	213	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1441	-	-	-	775	906
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1441	-	-	-	770	906
Mov Cap-2 Maneuver	-	-	-	-	770	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1441	-	-	-	800
HCM Lane V/C Ratio	0.006	-	-	-	0.006
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	114	62	0	1	3
Future Vol, veh/h	2	114	62	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	85	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	134	78	0	1	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	78	0	-	0	218	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1520	-	-	-	770	983
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1520	-	-	-	768	983
Mov Cap-2 Maneuver	-	-	-	-	768	-
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	887	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1520	-	-	-	919
HCM Lane V/C Ratio	0.002	-	-	-	0.005
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	32	8	0	0	7
Future Vol, veh/h	2	32	8	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	40	10	0	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	10	0	-	0	56	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1610	-	-	-	952	1071
Stage 1	-	-	-	-	1013	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1610	-	-	-	950	1071
Mov Cap-2 Maneuver	-	-	-	-	950	-
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1610	-	-	-	1071
HCM Lane V/C Ratio	0.002	-	-	-	0.008
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	40	2	0	0	4
Future Vol, veh/h	7	40	2	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	50	3	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	3	0	-	0	71	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	68	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1619	-	-	-	933	1081
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	955	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1619	-	-	-	927	1081
Mov Cap-2 Maneuver	-	-	-	-	927	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	955	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	8.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1619	-	-	-	1081
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	7.2	0	-	-	8.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	18	20	0	43	0	65	0	0	0	0	12
Future Vol, veh/h	3	18	20	0	43	0	65	0	0	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	23	25	0	54	0	81	0	0	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	48	0	0	106	98	36	98	110	54
Stage 1	-	-	-	-	-	-	44	44	-	54	54	-
Stage 2	-	-	-	-	-	-	62	54	-	44	56	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1551	-	-	1559	-	-	873	792	1037	884	780	1013
Stage 1	-	-	-	-	-	-	970	858	-	958	850	-
Stage 2	-	-	-	-	-	-	949	850	-	970	848	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1551	-	-	1559	-	-	858	790	1037	882	778	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	858	790	-	882	778	-
Stage 1	-	-	-	-	-	-	967	855	-	955	850	-
Stage 2	-	-	-	-	-	-	935	850	-	967	845	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	9.6	8.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	858	1551	-	-	1559	-	-	1013
HCM Lane V/C Ratio	0.095	0.002	-	-	-	-	-	0.015
HCM Control Delay (s)	9.6	7.3	0	-	0	-	-	8.6
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	41	62	0	18	0	37	0	0	0	0	7
Future Vol, veh/h	11	41	62	0	18	0	37	0	0	0	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	51	78	0	23	0	46	0	0	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	129	0	0	146	141	90	141	180	23
Stage 1	-	-	-	-	-	-	118	118	-	23	23	-
Stage 2	-	-	-	-	-	-	28	23	-	118	157	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1592	-	-	1457	-	-	823	750	968	829	714	1054
Stage 1	-	-	-	-	-	-	887	798	-	995	876	-
Stage 2	-	-	-	-	-	-	989	876	-	887	768	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1592	-	-	1457	-	-	810	743	968	822	707	1054
Mov Cap-2 Maneuver	-	-	-	-	-	-	810	743	-	822	707	-
Stage 1	-	-	-	-	-	-	878	790	-	985	876	-
Stage 2	-	-	-	-	-	-	981	876	-	878	760	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0	9.7	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	810	1592	-	-	1457	-	-	1054
HCM Lane V/C Ratio	0.057	0.009	-	-	-	-	-	0.008
HCM Control Delay (s)	9.7	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	17	38	0	0	5
Future Vol, veh/h	1	17	38	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	21	48	0	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	48	0	-	0	71	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1559	-	-	-	933	1021
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	1000	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1559	-	-	-	932	1021
Mov Cap-2 Maneuver	-	-	-	-	932	-
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	1000	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	1021
HCM Lane V/C Ratio	0.001	-	-	-	0.006
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	36	15	0	0	3
Future Vol, veh/h	5	36	15	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	45	19	0	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	19	0	-	0	76	19
Stage 1	-	-	-	-	19	-
Stage 2	-	-	-	-	57	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1597	-	-	-	927	1059
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	966	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1597	-	-	-	923	1059
Mov Cap-2 Maneuver	-	-	-	-	923	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	966	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1597	-	-	-	1059
HCM Lane V/C Ratio	0.004	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	16	34	0	0	3
Future Vol, veh/h	1	16	34	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	20	43	0	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	43	0	-	0	65	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1566	-	-	-	941	1027
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	1001	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1566	-	-	-	940	1027
Mov Cap-2 Maneuver	-	-	-	-	940	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	1001	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1566	-	-	-	1027
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	33	13	0	0	2
Future Vol, veh/h	3	33	13	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	41	16	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	16	0	-	0	65	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	49	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1602	-	-	-	941	1063
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	973	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1602	-	-	-	938	1063
Mov Cap-2 Maneuver	-	-	-	-	938	-
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1602	-	-	-	1063
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.3	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	15	31	0	0	3
Future Vol, veh/h	1	15	31	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	19	39	0	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	39	0	-	0	60	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1571	-	-	-	947	1033
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1571	-	-	-	946	1033
Mov Cap-2 Maneuver	-	-	-	-	946	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1571	-	-	-	1033
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	30	11	0	0	2
Future Vol, veh/h	3	30	11	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	38	14	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	14	0	-	0	60	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1604	-	-	-	947	1066
Stage 1	-	-	-	-	1009	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1604	-	-	-	944	1066
Mov Cap-2 Maneuver	-	-	-	-	944	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1604	-	-	-	1066
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

APPENDIX L

QUEUE STORAGE ANALYSIS

Cycles:	2
Average Vehicle Length (ft):	26
Trucks > 10%?	N

	Veh. Type	% Vehicles
25	Passenger	98%
75	Truck	2%

ID	Intersection	Control	AM Cycle Length (sec)	PM Cycle Length (sec)	Cycle Length AM(PM)	Approach	Free-Flow Right	Design Speed (mph)	Peak Hour Volume		Trips Per 2 Minutes				Trips Per 2 Cycles				HCM				AASHTO			ADOT Total Queue Storage Lenghts					
											Car		Trucks		Car		Trucks										Taper	Gap	Minimum Q_{CALC}			
									AM	(PM)	AM	(PM)	AM	(PM)	AM	(PM)	AM	(PM)	AM	(PM)	Max	AM(PM)	AM	(PM)	AM(PM)			AM	PM	Max	AM(PM)
1	Goldfield Rd & Old West Hwy SEB	1-Way Stop (WB)	-	-	-(-)	SB Left		45	18	21	1	1	1	1	-	-	-	-	25'	25'	25'	25'(25')	100'	100'	100'(100')	405'	90'	175'	175'	175'	175(175)
						WB Left		35	64	67	3	3	1	1	-	-	-	-	25'	25'	25'	25'(25')	150'	150'	150'(150')	245'	60'	180'	180'	180'	180(180)
2	Goldfield Rd & Old West Hwy NWB	2-Way Stop Control (EB/WB)	-	-	-(-)	WB Right	No	35	10	6	1	1	1	1	-	-	-	-	<25'	<25'	<25'	<25'(<25')	100'	100'	100'(100')	245'	60'	110'	110'	110'	110(110)
3	Goldfield Rd & US-60/Old West Highway Exit	1-Way Stop (WB)	-	-	-(-)	WB Right	No	45	179	121	6	4	1	1	-	-	-	-	25'	25'	25'	25'(25')	225'	175'	225'(175')	405'	90'	400'	310'	400'	400(310)
4	Goldfield Road and US-60 WB Ramps	Signalized	90	90	90(90)	NB Left		35	100	66	4	3	1	1	5	4	1	1	5'	25'	25'	5'(25')	200'	175'	200'(175')	245'	60'	215'	180'	215'	215(180)
						WB Left		45	9	26	1	1	1	1	1	2	1	1	20'	40'	40'	20'(40')	100'	125'	100'(125')	405'	90'	175'	175'	175'	175(175)
						SB Right	No	35	133	95	5	4	1	1	7	5	1	1	<25'	20'	20'	<25'(20')	250'	200'	250'(200')	245'	60'	250'	215'	250'	250(215)
						WB Right	No	45	18	42	1	2	1	1	1	3	1	1	<25'	<25'	<25'	<25'(<25')	100'	150'	100'(150')	405'	90'	175'	220'	220'	175(220)
5	Goldfield Road and US-60 EB Ramps	Signalized	90	90	90(90)	SB Left		35	136	186	5	7	1	1	7	10	1	1	5'	20'	20'	5'(20')	250'	325'	250'(325')	245'	60'	250'	320'	320'	250(320)
						EB Left		45	81	144	3	5	1	1	4	8	1	1	<25'	100'	100'	<25'(100')	175'	275'	175'(275')	405'	90'	265'	355'	355'	265(355)
						NB Right	No	35	24	47	1	2	1	1	2	3	1	1	<25'	5'	5'	<25'(5')	125'	150'	125'(150')	245'	60'	110'	145'	145'	110(145)
						EB Right	No	45	52	106	2	4	1	1	3	6	1	1	<25'	35'	35'	<25'(35')	150'	225'	150'(225')	405'	90'	220'	310'	310'	220(310)
6	Goldfield Road and Chevron Access	2-Way Stop Control (EB/WB)	-	-	-(-)	NB Left		35	0	1	0	1	0	1	-	-	-	-	<25'	<25'	<25'	<25'(<25')	0'	100'	0'(100')	245'	60'	90'	110'	110'	90(110)
						SB Left		35	23	38	1	2	1	1	-	-	-	-	25'	25'	25'	25'(25')	100'	125'	100'(125')	245'	60'	110'	145'	145'	110(145)
						NB Right	No	35	9	9	1	1	1	1	-	-	-	-	<25'	<25'	<25'	<25'(<25')	100'	100'	100'(100')	245'	60'	110'	110'	110'	110(110)
7	Goldfield Road and Resort Boulevard	1-Way Stop (WB)	-	-	-(-)	SB Left		35	46	98	2	4	1	1	-	-	-	-	25'	25'	25'	25'(25')	125'	175'	125'(175')	245'	60'	145'	215'	215'	145(215)

APPENDIX M

SIGHT DISTANCE ANALYSIS

Location: Access A & Chevron Access

Assumptions and/or Givens

Elements of Design from AASHTO 6th Edition			*AASHTO Ref*
Driver Eye Height			
Passenger Vehicle	3.50	ft	§3.2.6.1, p 3-15
Truck	7.60	ft	§3.2.6.1, p 3-15
Object Height			
Stopping Sight Distance	2.00	ft	§3.2.6.2, p 3-15
Passing Sight Distance	3.50	ft	§3.2.6.2, p 3-15
Vehicle Height	4.25	ft	§3.2.6.1, p 3-15
Driver Eye Location			
From Edge of Major Rd Traveled Way	14.50	ft	§9.5.3.2.1, p 9-43
Deceleration Rate (a)			
Passenger Vehicle	11.20	ft/sec^2	§3.2.2.2, p 3-4
Truck	N/A	ft	
Brake reaction time (t)	2.50	sec	§3.2.2.1, p 3-3

Site Specific Data (Bike & turn lanes are outside traveled way and are not considered)

Major Street Design Speed (V_{major})	30	MPH	
Grades - Approaching Minor Street from: (– = approaching downhill)			
Left (G_L)		%	
Right (G_R)		%	
Approach Grade Adjustment Factor	Left 1.0		Tbl 9-5, p 9-42
	Right 1.0		
Major Road Through Lanes on Each Approach			(Use 1 for RI/RO[/LI] only)
Median Width (in "Lane Equivalents")			(Use 0 for RI/RO[/LI] only)
Minor Road Approach Upgrade, if >3%		%	

Minor Road Access (check restricted)	LI	LO/Th	RO

Stopping Sight Distance = Brake Reaction Distance + Braking Distance

Neglecting Effect of Grade

$$d = 1.47Vt + 1.075\frac{V^2}{a}$$ Eq 3-2, p 3-5

Calculated d= 196.7 ft

Design d= 200 ft

With Effect of Grade

$$d = 1.47Vt + \frac{V^2}{30\left(\left(\frac{a}{32.2}\right) \pm G\right)}$$ Eq 3-3, p 3-5

Calculated d= 196.3 ft - left

200 ft - right

Design d= 196.3 ft - left

200 ft - right

SSD's do not consider design for truck operations, since better visibility is considered to offset longer braking distance. §3.2.2.5, p 3-6

22-1180 Alliance Broadstone Silveray **Sight Distance Analysis**

Location: Access A & Chevron Access

Intersection Sight Distances

Case B—Intersections with Stop Control on the Minor Road §9.5.3.2, p 9-42

Case B1—Left Turn from the Minor Road §9.5.3.2.1, p 9-43

Design Vehicle	Time Gap (t_g)	
Passenger Car	7.5 sec	Tbl 9-6, p 9-44
Single-Unit Tuck	9.5 sec	Tbl 9-6, p 9-44
Combination Truck	11.5 sec	Tbl 9-6, p 9-44

Time gap adjustments		
Add'l lanes to cross (1st is assumed)		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)	0.2 sec	Tbl 9-5, p 9-37

Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.1, p 9-44
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.1, p 9-44

Time Gap based on site data

Design Vehicle Gap+Adj for Approach Grade>3%+Adjs for Add'l Lanes & Median

Passenger Car	7.0 sec
Single-Unit Tuck	8.8 sec
Combination Truck	10.8 sec

ISD to left & right along Major Road $ISD = 1.47V_{major}t_g$ (ft) Eq 9-1, p 9-45

			ISD to Left and Right
Passenger Car	calculated	ISD=	308.7 ft
	design	ISD=	310 ft
Single-Unit Tuck	calculated	ISD=	388.1 ft
	design	ISD=	390 ft
Combination Truck	calculated	ISD=	476.3 ft
	design	ISD=	480 ft

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case B2—Right Turn from the Minor Road		§9.5.3.2.2, p 9-47
&		
Case B3—Crossing Maneuver from the Minor Road		§9.5.3.2.3, p 9-48
Design Vehicle	Time Gap (t_g)	
Passenger Car	6.5 sec	Tbl 9-8, p 9-47
Single-Unit Tuck	8.5 sec	&
Combination Truck	10.5 sec	Tbl 9-10, p 9-49
Time gap adjustments		
Add'l lanes to cross (1st is assumed) - Case B-3 Only*		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)		
Case B-2 Only	0.1 sec	Tbl 9-8, p 9-47
Case B-3 Only	0.2 sec	Tbl 9-10, p 9-49
Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.2, p 9-47
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.2, p 9-47

Time Gap based on site data (sec)	B2 & B3	B3 Only
Design Vehicle Gap+Adj for Approach Grade>3%(+Adjs for Add'l Lanes & Median for B3)		
Passenger Car	6.0	5.5
Single-Unit Tuck	7.8	7.1
Combination Truck	9.8	9.1

ISD to left (B2/B3) & right (B3) along Major Rd $ISD=1.47V_{major}t_g$ (ft) — Eq 9-1, p 9-45

			ISD to Left (B2 & B3)	ISD to right (B3 Only)
Passenger Car	calculated	ISD=	264.6	242.6
	design	ISD=	265	245
Single-Unit Tuck	calculated	ISD=	344.0	313.1
	design	ISD=	345	315
Combination Truck	calculated	ISD=	432.2	401.3
	design	ISD=	435	405

*Number of major road lanes is irrelevant in Case B2.

The differences between Case B1 and Cases B2 & B3 are reduced time gaps and time gap adjustment for the minor approach upgrade. §9.5.3.2.3, p 9-48

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case F—Left Turns from the Major Road		§9.5.3.6, p 9-56
Design Vehicle	Time Gap (t_g)	
Passenger Car	5.5 sec	Tbl 9-16, p 9-57
Single-Unit Tuck	6.5 sec	Tbl 9-16, p 9-57
Combination Truck	7.5 sec	Tbl 9-16, p 9-57
Time gap adjustments		
Add'l lanes to cross (1 assumed)		
Passenger Car	0.5 sec	See Notes to
Trucks	0.7 sec	Tbl 9-16, p 9-57
Site data		
Opposing Lanes (adj'd for x-wide median)	-1.0	
Time Gap based on site data		
Design Vehicle Gap+Adj for Add'l Opposing Lanes		
Passenger Car	5.0 sec	
Single-Unit Tuck	5.8 sec	
Combination Truck	6.8 sec	

ISD to front along Major Road $ISD=1.47V_{major}t_g$ (ft)				Eq 9-1, p 9-45
Passenger Car	calculated	ISD=	220.5 ft	
	design	ISD=	225 ft	
Single-Unit Tuck	calculated	ISD=	255.8 ft	
	design	ISD=	260 ft	
Combination Truck	calculated	ISD=	299.9 ft	
	design	ISD=	300 ft	

The differences between Case F and Cases B1, B2 & B3 are reduced time gaps and no time gap adjustment for any minor approach upgrade. §9.5.3.6, p 9-58

SIGHT DISTANCE SUMMARY

Sight Distance Type	Governing Case	Car	SU Truck	Combo Truck
Stopping				
Without effect of grade		200	N/A	N/A
With effect of grade on left		200	N/A	N/A
With effect of grade on right		200	N/A	N/A
Intersection				
To Right	B1	310	390	480
To Left	B2/B3	265	345	435
On Major Road	F	225	260	300

Location: Access B & Resort Blvd

Assumptions and/or Givens

Elements of Design from AASHTO 6th Edition			*AASHTO Ref*
Driver Eye Height			
Passenger Vehicle	3.50	ft	§3.2.6.1, p 3-15
Truck	7.60	ft	§3.2.6.1, p 3-15
Object Height			
Stopping Sight Distance	2.00	ft	§3.2.6.2, p 3-15
Passing Sight Distance	3.50	ft	§3.2.6.2, p 3-15
Vehicle Height	4.25	ft	§3.2.6.1, p 3-15
Driver Eye Location			
From Edge of Major Rd Traveled Way	14.50	ft	§9.5.3.2.1, p 9-43
Deceleration Rate (a)			
Passenger Vehicle	11.20	ft/sec^2	§3.2.2.2, p 3-4
Truck	N/A	ft	
Brake reaction time (t)	2.50	sec	§3.2.2.1, p 3-3

Site Specific Data (Bike & turn lanes are outside traveled way and are not considered)

Major Street Design Speed (V_{major})	30	MPH	
Grades - Approaching Minor Street from: (– = approaching downhill)			
Left (G_L)		%	
Right (G_R)		%	
Approach Grade Adjustment Factor	Left 1.0		Tbl 9-5, p 9-42
	Right 1.0		
Major Road Through Lanes on Each Approach			(Use 1 for RI/RO[/LI] only)
Median Width (in "Lane Equivalents")			(Use 0 for RI/RO[/LI] only)
Minor Road Approach Upgrade, if >3%		%	

Minor Road Access (check restricted)	LI	LO/Th	RO

Stopping Sight Distance = Brake Reaction Distance + Braking Distance

Neglecting Effect of Grade

$$d = 1.47Vt + 1.075\frac{V^2}{a}$$ Eq 3-2, p 3-5

Calculated d= 196.7 ft
Design d= 200 ft

With Effect of Grade

$$d = 1.47Vt + \frac{V^2}{30\left(\left(\frac{a}{32.2}\right) \pm G\right)}$$ Eq 3-3, p 3-5

Calculated d= 196.3 ft - left
200 ft - right
Design d= 196.3 ft - left
200 ft - right

SSD's do not consider design for truck operations, since better visibility is considered to offset longer braking distance. §3.2.2.5, p 3-6

Location: Access B & Resort Blvd

Intersection Sight Distances

Case B—Intersections with Stop Control on the Minor Road §9.5.3.2, p 9-42

Case B1—Left Turn from the Minor Road §9.5.3.2.1, p 9-43

Design Vehicle	Time Gap (t_g)	
Passenger Car	7.5 sec	Tbl 9-6, p 9-44
Single-Unit Tuck	9.5 sec	Tbl 9-6, p 9-44
Combination Truck	11.5 sec	Tbl 9-6, p 9-44

Time gap adjustments		
Add'l lanes to cross (1st is assumed)		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)	0.2 sec	Tbl 9-5, p 9-37

Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.1, p 9-44
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.1, p 9-44

Time Gap based on site data

Design Vehicle Gap+Adj for Approach Grade>3%+Adjs for Add'l Lanes & Median

Passenger Car	7.0 sec
Single-Unit Tuck	8.8 sec
Combination Truck	10.8 sec

ISD to left & right along Major Road $ISD = 1.47V_{major}t_g$ (ft) Eq 9-1, p 9-45

			ISD to Left and Right
Passenger Car	calculated	ISD=	308.7 ft
	design	ISD=	310 ft
Single-Unit Tuck	calculated	ISD=	388.1 ft
	design	ISD=	390 ft
Combination Truck	calculated	ISD=	476.3 ft
	design	ISD=	480 ft

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case B2—Right Turn from the Minor Road		§9.5.3.2.2, p 9-47
&		
Case B3—Crossing Maneuver from the Minor Road		§9.5.3.2.3, p 9-48
Design Vehicle	Time Gap (t_g)	
Passenger Car	6.5 sec	Tbl 9-8, p 9-47
Single-Unit Tuck	8.5 sec	&
Combination Truck	10.5 sec	Tbl 9-10, p 9-49
Time gap adjustments		
Add'l lanes to cross (1st is assumed) - Case B-3 Only*		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)		
Case B-2 Only	0.1 sec	Tbl 9-8, p 9-47
Case B-3 Only	0.2 sec	Tbl 9-10, p 9-49
Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.2, p 9-47
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.2, p 9-47

Time Gap based on site data (sec)	B2 & B3	B3 Only
Design Vehicle Gap+Adj for Approach Grade>3%(+Adjs for Add'l Lanes & Median for B3)		
Passenger Car	6.0	5.5
Single-Unit Tuck	7.8	7.1
Combination Truck	9.8	9.1

ISD to left (B2/B3) & right (B3) along Major Rd $ISD=1.47V_{major}t_g$ (ft) — Eq 9-1, p 9-45

			ISD to Left (B2 & B3)	ISD to right (B3 Only)
Passenger Car	calculated	ISD=	264.6	242.6
	design	ISD=	265	245
Single-Unit Tuck	calculated	ISD=	344.0	313.1
	design	ISD=	345	315
Combination Truck	calculated	ISD=	432.2	401.3
	design	ISD=	435	405

*Number of major road lanes is irrelevant in Case B2.

The differences between Case B1 and Cases B2 & B3 are reduced time gaps and time gap adjustment for the minor approach upgrade. §9.5.3.2.3, p 9-48

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case F—Left Turns from the Major Road		§9.5.3.6, p 9-56
Design Vehicle	Time Gap (t_g)	
Passenger Car	5.5 sec	Tbl 9-16, p 9-57
Single-Unit Tuck	6.5 sec	Tbl 9-16, p 9-57
Combination Truck	7.5 sec	Tbl 9-16, p 9-57
Time gap adjustments		
Add'l lanes to cross (1 assumed)		
Passenger Car	0.5 sec	See Notes to
Trucks	0.7 sec	Tbl 9-16, p 9-57
Site data		
Opposing Lanes (adj'd for x-wide median)	-1.0	
Time Gap based on site data		
Design Vehicle Gap+Adj for Add'l Opposing Lanes		
Passenger Car	5.0 sec	
Single-Unit Tuck	5.8 sec	
Combination Truck	6.8 sec	

ISD to front along Major Road $ISD=1.47V_{major}t_g$ (ft)				Eq 9-1, p 9-45
Passenger Car	calculated	ISD=	220.5 ft	
	design	ISD=	225 ft	
Single-Unit Tuck	calculated	ISD=	255.8 ft	
	design	ISD=	260 ft	
Combination Truck	calculated	ISD=	299.9 ft	
	design	ISD=	300 ft	

The differences between Case F and Cases B1, B2 & B3 are reduced time gaps and no time gap adjustment for any minor approach upgrade. §9.5.3.6, p 9-58

SIGHT DISTANCE SUMMARY

Sight Distance Type	Governing Case	Car	SU Truck	Combo Truck
Stopping				
Without effect of grade		200	N/A	N/A
With effect of grade on left		200	N/A	N/A
With effect of grade on right		200	N/A	N/A
Intersection				
To Right	B1	310	390	480
To Left	B2/B3	265	345	435
On Major Road	F	225	260	300

Location: Access C & Resort Blvd

Assumptions and/or Givens

Elements of Design from AASHTO 6th Edition			*AASHTO Ref*
Driver Eye Height			
Passenger Vehicle	3.50	ft	§3.2.6.1, p 3-15
Truck	7.60	ft	§3.2.6.1, p 3-15
Object Height			
Stopping Sight Distance	2.00	ft	§3.2.6.2, p 3-15
Passing Sight Distance	3.50	ft	§3.2.6.2, p 3-15
Vehicle Height	4.25	ft	§3.2.6.1, p 3-15
Driver Eye Location			
From Edge of Major Rd Traveled Way	14.50	ft	§9.5.3.2.1, p 9-43
Deceleration Rate (a)			
Passenger Vehicle	11.20	ft/sec^2	§3.2.2.2, p 3-4
Truck	N/A	ft	
Brake reaction time (t)	2.50	sec	§3.2.2.1, p 3-3

Site Specific Data (Bike & turn lanes are outside traveled way and are not considered)

Major Street Design Speed (V_{major})	30	MPH	
Grades - Approaching Minor Street from: (– = approaching downhill)			
Left (G_L)		%	
Right (G_R)		%	
Approach Grade Adjustment Factor	Left 1.0		Tbl 9-5, p 9-42
	Right 1.0		
Major Road Through Lanes on Each Approach			(Use 1 for RI/RO[/LI] only)
Median Width (in "Lane Equivalents")			(Use 0 for RI/RO[/LI] only)
Minor Road Approach Upgrade, if >3%		%	

Minor Road Access (check restricted)	LI	LO/Th	RO

Stopping Sight Distance = Brake Reaction Distance + Braking Distance

Neglecting Effect of Grade

$$d = 1.47Vt + 1.075\frac{V^2}{a}$$ Eq 3-2, p 3-5

Calculated d= 196.7 ft

Design d= 200 ft

With Effect of Grade

$$d = 1.47Vt + \frac{V^2}{30\left(\left(\frac{a}{32.2}\right) \pm G\right)}$$ Eq 3-3, p 3-5

Calculated d= 196.3 ft - left

200 ft - right

Design d= 196.3 ft - left

200 ft - right

SSD's do not consider design for truck operations, since better visibility is considered to offset longer braking distance. §3.2.2.5, p 3-6

Location: Access C & Resort Blvd

Intersection Sight Distances

Case B—Intersections with Stop Control on the Minor Road *AASHTO Ref* §9.5.3.2, p 9-42

Case B1—Left Turn from the Minor Road §9.5.3.2.1, p 9-43

Design Vehicle	Time Gap (t_g)	
Passenger Car	7.5 sec	Tbl 9-6, p 9-44
Single-Unit Tuck	9.5 sec	Tbl 9-6, p 9-44
Combination Truck	11.5 sec	Tbl 9-6, p 9-44

Time gap adjustments		
Add'l lanes to cross (1st is assumed)		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)	0.2 sec	Tbl 9-5, p 9-37

Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.1, p 9-44
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.1, p 9-44

Time Gap based on site data

Design Vehicle Gap+Adj for Approach Grade>3%+Adjs for Add'l Lanes & Median

Passenger Car	7.0 sec
Single-Unit Tuck	8.8 sec
Combination Truck	10.8 sec

ISD to left & right along Major Road $ISD = 1.47V_{major}t_g$ (ft) Eq 9-1, p 9-45

			ISD to Left and Right
Passenger Car	calculated	ISD=	308.7 ft
	design	ISD=	310 ft
Single-Unit Tuck	calculated	ISD=	388.1 ft
	design	ISD=	390 ft
Combination Truck	calculated	ISD=	476.3 ft
	design	ISD=	480 ft

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case B2—Right Turn from the Minor Road		§9.5.3.2.2, p 9-47
&		
Case B3—Crossing Maneuver from the Minor Road		§9.5.3.2.3, p 9-48
Design Vehicle	Time Gap (t_g)	
Passenger Car	6.5 sec	Tbl 9-8, p 9-47
Single-Unit Tuck	8.5 sec	&
Combination Truck	10.5 sec	Tbl 9-10, p 9-49
Time gap adjustments		
Add'l lanes to cross (1st is assumed) - Case B-3 Only*		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)		
Case B-2 Only	0.1 sec	Tbl 9-8, p 9-47
Case B-3 Only	0.2 sec	Tbl 9-10, p 9-49
Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.2, p 9-47
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.2, p 9-47

Time Gap based on site data (sec)	B2 & B3	B3 Only
Design Vehicle Gap+Adj for Approach Grade>3%(+Adjs for Add'l Lanes & Median for B3)		
Passenger Car	6.0	5.5
Single-Unit Tuck	7.8	7.1
Combination Truck	9.8	9.1

ISD to left (B2/B3) & right (B3) along Major Rd $ISD=1.47V_{major}t_g$ (ft) — Eq 9-1, p 9-45

			ISD to Left (B2 & B3)	ISD to right (B3 Only)
Passenger Car	calculated	ISD=	264.6	242.6
	design	ISD=	265	245
Single-Unit Tuck	calculated	ISD=	344.0	313.1
	design	ISD=	345	315
Combination Truck	calculated	ISD=	432.2	401.3
	design	ISD=	435	405

*Number of major road lanes is irrelevant in Case B2.

The differences between Case B1 and Cases B2 & B3 are reduced time gaps and time gap adjustment for the minor approach upgrade. §9.5.3.2.3, p 9-48

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case F—Left Turns from the Major Road		§9.5.3.6, p 9-56
Design Vehicle	Time Gap (t_g)	
Passenger Car	5.5 sec	Tbl 9-16, p 9-57
Single-Unit Tuck	6.5 sec	Tbl 9-16, p 9-57
Combination Truck	7.5 sec	Tbl 9-16, p 9-57
Time gap adjustments		
Add'l lanes to cross (1 assumed)		
Passenger Car	0.5 sec	See Notes to
Trucks	0.7 sec	Tbl 9-16, p 9-57
Site data		
Opposing Lanes (adj'd for x-wide median)	-1.0	
Time Gap based on site data		
Design Vehicle Gap+Adj for Add'l Opposing Lanes		
Passenger Car	5.0 sec	
Single-Unit Tuck	5.8 sec	
Combination Truck	6.8 sec	

ISD to front along Major Road	$ISD=1.47V_{major}t_g$ (ft)			Eq 9-1, p 9-45
Passenger Car	calculated	ISD=	220.5 ft	
	design	ISD=	225 ft	
Single-Unit Tuck	calculated	ISD=	255.8 ft	
	design	ISD=	260 ft	
Combination Truck	calculated	ISD=	299.9 ft	
	design	ISD=	300 ft	

The differences between Case F and Cases B1, B2 & B3 are reduced time gaps and no time gap adjustment for any minor approach upgrade. §9.5.3.6, p 9-58

SIGHT DISTANCE SUMMARY

Sight Distance Type	Governing Case	Car	SU Truck	Combo Truck
Stopping				
Without effect of grade		200	N/A	N/A
With effect of grade on left		200	N/A	N/A
With effect of grade on right		200	N/A	N/A
Intersection				
To Right	B1	310	390	480
To Left	B2/B3	265	345	435
On Major Road	F	225	260	300

Location: Access D & Resort Blvd

Assumptions and/or Givens

Elements of Design from AASHTO 6th Edition			*AASHTO Ref*
Driver Eye Height			
Passenger Vehicle	3.50	ft	§3.2.6.1, p 3-15
Truck	7.60	ft	§3.2.6.1, p 3-15
Object Height			
Stopping Sight Distance	2.00	ft	§3.2.6.2, p 3-15
Passing Sight Distance	3.50	ft	§3.2.6.2, p 3-15
Vehicle Height	4.25	ft	§3.2.6.1, p 3-15
Driver Eye Location			
From Edge of Major Rd Traveled Way	14.50	ft	§9.5.3.2.1, p 9-43
Deceleration Rate (a)			
Passenger Vehicle	11.20	ft/sec^2	§3.2.2.2, p 3-4
Truck	N/A	ft	
Brake reaction time (t)	2.50	sec	§3.2.2.1, p 3-3

Site Specific Data (Bike & turn lanes are outside traveled way and are not considered)

Major Street Design Speed (V_{major})	30	MPH	
Grades - Approaching Minor Street from: (– = approaching downhill)			
Left (G_L)		%	
Right (G_R)		%	
Approach Grade Adjustment Factor	Left 1.0		Tbl 9-5, p 9-42
	Right 1.0		
Major Road Through Lanes on Each Approach			(Use 1 for RI/RO[/LI] only)
Median Width (in "Lane Equivalents")			(Use 0 for RI/RO[/LI] only)
Minor Road Approach Upgrade, if >3%		%	

Minor Road Access (check restricted)	LI	LO/Th	RO

Stopping Sight Distance = Brake Reaction Distance + Braking Distance

Neglecting Effect of Grade

$$d = 1.47Vt + 1.075\frac{V^2}{a}$$ Eq 3-2, p 3-5

Calculated d= 196.7 ft

Design d= 200 ft

With Effect of Grade

$$d = 1.47Vt + \frac{V^2}{30\left(\left(\frac{a}{32.2}\right) \pm G\right)}$$ Eq 3-3, p 3-5

Calculated d= 196.3 ft - left

200 ft - right

Design d= 196.3 ft - left

200 ft - right

SSD's do not consider design for truck operations, since better visibility is considered to offset longer braking distance. §3.2.2.5, p 3-6

Location: Access D & Resort Blvd

Intersection Sight Distances

Case B—Intersections with Stop Control on the Minor Road *AASHTO Ref* §9.5.3.2, p 9-42

Case B1—Left Turn from the Minor Road §9.5.3.2.1, p 9-43

Design Vehicle	Time Gap (t_g)	
Passenger Car	7.5 sec	Tbl 9-6, p 9-44
Single-Unit Tuck	9.5 sec	Tbl 9-6, p 9-44
Combination Truck	11.5 sec	Tbl 9-6, p 9-44

Time gap adjustments		
Add'l lanes to cross (1st is assumed)		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)	0.2 sec	Tbl 9-5, p 9-37

Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.1, p 9-44
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.1, p 9-44

Time Gap based on site data

Design Vehicle Gap+Adj for Approach Grade>3%+Adjs for Add'l Lanes & Median

Passenger Car	7.0 sec
Single-Unit Tuck	8.8 sec
Combination Truck	10.8 sec

ISD to left & right along Major Road $ISD = 1.47V_{major}t_g$ (ft) Eq 9-1, p 9-45

			ISD to Left and Right
Passenger Car	calculated	ISD=	308.7 ft
	design	ISD=	310 ft
Single-Unit Tuck	calculated	ISD=	388.1 ft
	design	ISD=	390 ft
Combination Truck	calculated	ISD=	476.3 ft
	design	ISD=	480 ft

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case B2—Right Turn from the Minor Road		§9.5.3.2.2, p 9-47
&		
Case B3—Crossing Maneuver from the Minor Road		§9.5.3.2.3, p 9-48
Design Vehicle	Time Gap (t_g)	
Passenger Car	6.5 sec	Tbl 9-8, p 9-47
Single-Unit Tuck	8.5 sec	&
Combination Truck	10.5 sec	Tbl 9-10, p 9-49
Time gap adjustments		
Add'l lanes to cross (1st is assumed) - Case B-3 Only*		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)		
Case B-2 Only	0.1 sec	Tbl 9-8, p 9-47
Case B-3 Only	0.2 sec	Tbl 9-10, p 9-49
Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.2, p 9-47
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.2, p 9-47

Time Gap based on site data (sec)	B2 & B3	B3 Only
Design Vehicle Gap+Adj for Approach Grade>3%(+Adjs for Add'l Lanes & Median for B3)		
Passenger Car	6.0	5.5
Single-Unit Tuck	7.8	7.1
Combination Truck	9.8	9.1

ISD to left (B2/B3) & right (B3) along Major Rd $ISD=1.47V_{major}t_g$ (ft) — Eq 9-1, p 9-45

			ISD to Left (B2 & B3)	ISD to right (B3 Only)
Passenger Car	calculated	ISD=	264.6	242.6
	design	ISD=	265	245
Single-Unit Tuck	calculated	ISD=	344.0	313.1
	design	ISD=	345	315
Combination Truck	calculated	ISD=	432.2	401.3
	design	ISD=	435	405

*Number of major road lanes is irrelevant in Case B2.

The differences between Case B1 and Cases B2 & B3 are reduced time gaps and time gap adjustment for the minor approach upgrade. §9.5.3.2.3, p 9-48

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case F—Left Turns from the Major Road		§9.5.3.6, p 9-56
Design Vehicle	Time Gap (t_g)	
Passenger Car	5.5 sec	Tbl 9-16, p 9-57
Single-Unit Tuck	6.5 sec	Tbl 9-16, p 9-57
Combination Truck	7.5 sec	Tbl 9-16, p 9-57
Time gap adjustments		
Add'l lanes to cross (1 assumed)		
Passenger Car	0.5 sec	See Notes to
Trucks	0.7 sec	Tbl 9-16, p 9-57
Site data		
Opposing Lanes (adj'd for x-wide median)	-1.0	
Time Gap based on site data		
Design Vehicle Gap+Adj for Add'l Opposing Lanes		
Passenger Car	5.0 sec	
Single-Unit Tuck	5.8 sec	
Combination Truck	6.8 sec	

ISD to front along Major Road	$ISD=1.47V_{major}t_g$ (ft)			Eq 9-1, p 9-45
Passenger Car	calculated	ISD=	220.5 ft	
	design	ISD=	225 ft	
Single-Unit Tuck	calculated	ISD=	255.8 ft	
	design	ISD=	260 ft	
Combination Truck	calculated	ISD=	299.9 ft	
	design	ISD=	300 ft	

The differences between Case F and Cases B1, B2 & B3 are reduced time gaps and no time gap adjustment for any minor approach upgrade. §9.5.3.6, p 9-58

SIGHT DISTANCE SUMMARY

Sight Distance Type	Governing Case	Car	SU Truck	Combo Truck
Stopping				
Without effect of grade		200	N/A	N/A
With effect of grade on left		200	N/A	N/A
With effect of grade on right		200	N/A	N/A
Intersection				
To Right	B1	310	390	480
To Left	B2/B3	265	345	435
On Major Road	F	225	260	300

Location: Access E & Resort Blvd

Assumptions and/or Givens

Elements of Design from AASHTO 6th Edition			***AASHTO Ref***
Driver Eye Height			
Passenger Vehicle	3.50	ft	§3.2.6.1, p 3-15
Truck	7.60	ft	§3.2.6.1, p 3-15
Object Height			
Stopping Sight Distance	2.00	ft	§3.2.6.2, p 3-15
Passing Sight Distance	3.50	ft	§3.2.6.2, p 3-15
Vehicle Height	4.25	ft	§3.2.6.1, p 3-15
Driver Eye Location			
From Edge of Major Rd Traveled Way	14.50	ft	§9.5.3.2.1, p 9-43
Deceleration Rate (a)			
Passenger Vehicle	11.20	ft/sec^2	§3.2.2.2, p 3-4
Truck	N/A	ft	
Brake reaction time (t)	2.50	sec	§3.2.2.1, p 3-3

Site Specific Data (Bike & turn lanes are outside traveled way and are not considered)

Major Street Design Speed (V_{major})	30	MPH	
Grades - Approaching Minor Street from: (– = approaching downhill)			
Left (G_L)		%	
Right (G_R)		%	
Approach Grade Adjustment Factor	Left 1.0		Tbl 9-5, p 9-42
	Right 1.0		
Major Road Through Lanes on Each Approach			(Use 1 for RI/RO[/LI] only)
Median Width (in "Lane Equivalents")			(Use 0 for RI/RO[/LI] only)
Minor Road Approach Upgrade, if >3%		%	

Minor Road Access (check restricted)	LI	LO/Th	RO

Stopping Sight Distance = Brake Reaction Distance + Braking Distance

Neglecting Effect of Grade

$$d = 1.47Vt + 1.075\frac{V^2}{a}$$ Eq 3-2, p 3-5

Calculated d= 196.7 ft

Design d= 200 ft

With Effect of Grade

$$d = 1.47Vt + \frac{V^2}{30\left(\left(\frac{a}{32.2}\right) \pm G\right)}$$ Eq 3-3, p 3-5

Calculated d= 196.3 ft - left

200 ft - right

Design d= 196.3 ft - left

200 ft - right

SSD's do not consider design for truck operations, since better visibility is considered to offset longer braking distance. §3.2.2.5, p 3-6

Location: Access E & Resort Blvd

Intersection Sight Distances

Case B—Intersections with Stop Control on the Minor Road ***AASHTO Ref*** §9.5.3.2, p 9-42

Case B1—Left Turn from the Minor Road §9.5.3.2.1, p 9-43

Design Vehicle	Time Gap (t_g)	
Passenger Car	7.5 sec	Tbl 9-6, p 9-44
Single-Unit Tuck	9.5 sec	Tbl 9-6, p 9-44
Combination Truck	11.5 sec	Tbl 9-6, p 9-44

Time gap adjustments		
Add'l lanes to cross (1st is assumed)		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)	0.2 sec	Tbl 9-5, p 9-37

Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.1, p 9-44
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.1, p 9-44

Time Gap based on site data

Design Vehicle Gap+Adj for Approach Grade>3%+Adjs for Add'l Lanes & Median

Passenger Car	7.0 sec
Single-Unit Tuck	8.8 sec
Combination Truck	10.8 sec

ISD to left & right along Major Road $ISD = 1.47V_{major}t_g$ (ft) Eq 9-1, p 9-45

			ISD to Left and Right
Passenger Car	calculated	ISD=	308.7 ft
	design	ISD=	310 ft
Single-Unit Tuck	calculated	ISD=	388.1 ft
	design	ISD=	390 ft
Combination Truck	calculated	ISD=	476.3 ft
	design	ISD=	480 ft

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case B2—Right Turn from the Minor Road		§9.5.3.2.2, p 9-47
&		
Case B3—Crossing Maneuver from the Minor Road		§9.5.3.2.3, p 9-48
Design Vehicle	Time Gap (t_g)	
Passenger Car	6.5 sec	Tbl 9-8, p 9-47
Single-Unit Tuck	8.5 sec	&
Combination Truck	10.5 sec	Tbl 9-10, p 9-49
Time gap adjustments		
Add'l lanes to cross (1st is assumed) - Case B-3 Only*		
Passenger Car	0.5 sec	See Notes
Trucks	0.7 sec	below
Minor Approach Upgrade (Per each 1%>3%)		
Case B-2 Only	0.1 sec	Tbl 9-8, p 9-47
Case B-3 Only	0.2 sec	Tbl 9-10, p 9-49
Site data		
Major Road Lanes on Left Approach	0.0	§9.5.3.2.2, p 9-47
Minor Road Approach Upgrade, if >3%	0 %	§9.5.3.2.2, p 9-47

Time Gap based on site data (sec)	B2 & B3	B3 Only
Design Vehicle Gap+Adj for Approach Grade>3%(+Adjs for Add'l Lanes & Median for B3)		
Passenger Car	6.0	5.5
Single-Unit Tuck	7.8	7.1
Combination Truck	9.8	9.1

ISD to left (B2/B3) & right (B3) along Major Rd $ISD=1.47V_{major}t_g$ (ft) — Eq 9-1, p 9-45

			ISD to Left (B2 & B3)	ISD to right (B3 Only)
Passenger Car	calculated	ISD=	264.6	242.6
	design	ISD=	265	245
Single-Unit Tuck	calculated	ISD=	344.0	313.1
	design	ISD=	345	315
Combination Truck	calculated	ISD=	432.2	401.3
	design	ISD=	435	405

*Number of major road lanes is irrelevant in Case B2.

The differences between Case B1 and Cases B2 & B3 are reduced time gaps and time gap adjustment for the minor approach upgrade. §9.5.3.2.3, p 9-48

Intersection Sight Distances (cont'd)

		AASHTO Ref
Case F—Left Turns from the Major Road		§9.5.3.6, p 9-56
Design Vehicle	Time Gap (t_g)	
Passenger Car	5.5 sec	Tbl 9-16, p 9-57
Single-Unit Tuck	6.5 sec	Tbl 9-16, p 9-57
Combination Truck	7.5 sec	Tbl 9-16, p 9-57
Time gap adjustments		
Add'l lanes to cross (1 assumed)		
Passenger Car	0.5 sec	See Notes to
Trucks	0.7 sec	Tbl 9-16, p 9-57
Site data		
Opposing Lanes (adj'd for x-wide median)	-1.0	
Time Gap based on site data		
Design Vehicle Gap+Adj for Add'l Opposing Lanes		
Passenger Car	5.0 sec	
Single-Unit Tuck	5.8 sec	
Combination Truck	6.8 sec	

ISD to front along Major Road	$ISD=1.47V_{major}t_g$ (ft)			Eq 9-1, p 9-45
Passenger Car	calculated	ISD=	220.5 ft	
	design	ISD=	225 ft	
Single-Unit Tuck	calculated	ISD=	255.8 ft	
	design	ISD=	260 ft	
Combination Truck	calculated	ISD=	299.9 ft	
	design	ISD=	300 ft	

The differences between Case F and Cases B1, B2 & B3 are reduced time gaps and no time gap adjustment for any minor approach upgrade. §9.5.3.6, p 9-58

SIGHT DISTANCE SUMMARY

Sight Distance Type	Governing Case	Car	SU Truck	Combo Truck
Stopping				
Without effect of grade		200	N/A	N/A
With effect of grade on left		200	N/A	N/A
With effect of grade on right		200	N/A	N/A
Intersection				
To Right	B1	310	390	480
To Left	B2/B3	265	345	435
On Major Road	F	225	260	300

feet) between delineators is the same as the speed limit (in miles per hour) for the roadway.

(D) *Conduits, sleeves or carrier pipes.* Projects that have parkway landscaping with irrigation lines under public streets shall install conduit sleeves for the irrigation line(s) prior to the paving improvements. All parkway landscaping shall be as directed and approved by the Apache Junction Parks and Recreation Department.

(E) *Signage and striping.* All signage and striping shall be per the latest MUTCD and approved by the Development Services Engineer.

(Ord. 1282, § 3.3, passed 11-7-2006)

§ 10-3-4 DESIGN GUIDELINES.

Street design will be in accordance with the following criteria, subject to the approval of the City Engineer. Geometric design standards not specifically included in this Standard will conform to the latest *A Policy on Geometric Design of Highways and Streets,* published by the American Association of State Highway and Transportation Officials (AASHTO).

(A) *Street right-of-way requirements.*

(1) The right-of-way requirements shall be as shown in Apache Junction Standard Details AJ-20.1 through AJ-20.8.

(2) Right-of-way widths in excess of the standard widths may be required in special circumstances such as when:

(a) Cut or fill slopes cannot be confined within the standard width;

(b) Minimum sight distance lines on horizontal curves are not within standards;

(c) Minimum sight distances at intersections are not within the standards; and

(d) Auxiliary lanes are to be provided.

(B) *Intersections.* Although all intersections share certain common elements, they are not subject to generalized treatment.

(1) *Minimize conflict.* To minimize conflicts and provide for anticipated traffic movements, each intersection must be evaluated with regard to its individual characteristics, and designed based on the following factors:

(a) Traffic factors such as capacities, turning movements, vehicle size and operating characteristics, vehicle speed, pedestrian movements, transit operations and accident history;

(b) Physical factors such as topography, existing conditions, channelization requirements; and

(c) Human factors such as driving habits, reaction to surprises, decision and reaction time, and natural paths of movement.

(2) *Angle of intersection.* A right-angle intersection provides the shortest crossing distance for intersecting traffic streams. It also provides the most favorable condition for drivers to judge the relative position and speed of intersecting vehicles. Where special conditions exist, intersection angles may diverge from a right angle with approval of the City Engineer.

(3) *Alignment and profile.* Intersections occurring on horizontal or crest vertical curves are undesirable. When there is latitude in the selection of intersection locations, vertical or horizontal curvature should be avoided. A line or grade change is frequently warranted when major intersections are involved. If a curve is unavoidable, it should be as flat as site conditions permit. Where the grade of the through roadway is steep, flattening through the intersections is desirable as a safety measure.

(4) *Intersection sight visibility.*

(a) *Sight visibility triangles.* Clear lines of sight will be maintained along all streets, alleys and driveways to assure the safety of motorists and pedestrians.

(b) *Lines of sight.* Lines of sight will not be obscured between 24 inches and 6 feet through a triangular area adjacent to a driveway, an alley or a street, where such access ways intersect with another street in a T-configuration. The sight visibility triangle, or sight triangle, consists of 3 sides that are formed by 2 intersecting access ways and a line connecting the 2 (see Apache Junction Standard Detail AJ-27.1).

(C) *Sight distance.*

(1) Adequate sight distance shall be provided at all intersections, alleys and driveways (see Apache Junction Standard Detail AJ-26.1).

(2) The determination of whether an object constitutes a sight obstruction shall consider both the horizontal and vertical alignment of both intersecting roadways, as well as the height and position of the object.

(3) The sight distance required varies according to traffic speeds on the through road. A designer shall provide the sight distance based on the latest AASHTO *Policy on Geometric Design of Highways and Streets* and submit it with the plans.

(D) *Street slopes.*

(1) *Typical street cross-slope.* Undivided streets should have a normal crown that is a 2-way cross-slope with the cross-section high point on the street centerline. Divided streets should have cross-slope on each pavement section. The high point of each slope on each pavement section shall occur on the edge of the pavement nearest to the median. Unusual conditions may cause cross-slope requirements to vary, but normally, the desirable cross-slope is 2%, with a maximum cross-slope of 3% and a minimum cross-slope of 1%. Any deviation from the desirable cross-slope shall be approved by the City Engineer.

(2) *Cross-slopes in street dip sections.* While dip sections are discouraged, where storm drainage runoff flows must cross the street, dip sections are needed and must be approved by the City Engineer. The pavements through the dip section should have a 1-way slope (no crown), curbing and medians must not be raised, and cut-off walls shall be installed in accordance with MAG Standard Detail 552. Transitions back to normal street cross-slopes will be needed at both ends of the dip section.

(3) *Existing cross-slope.* See Vol. II, § 10-3-6(D) for street widening guidelines.

(4) *Longitudinal slope*.

(a) The minimum street and gutter slope for public streets is 0.0032 feet/feet (0.32%). Special approval by the City Engineer is required for slopes less than the minimum.

(b) Projects that have any area with less than the approved minimum gutter slope shall provide construction staking on the actual gutter alignment (not offset) at a spacing not to exceed 25 feet and have the grades checked by a city Engineering Inspector immediately preceding the concrete pour.

(c) Grade breaks and grade changes shall be clearly noted and stationed on the grading and drainage plan and the profile views.

(d) Projects with longitudinal slopes less than 0.32% shall have the gutter lines water-tested in the presence of and to the satisfaction of the city's Inspector.

(5) *Vertical curves*. Roadways with a longitudinal grade break or grade change of greater than 1.5% shall be required to design and construct a vertical curve along that section of roadway. Vertical curves shall be designed, at a minimum, per the most current AASHTO guidelines.

(6) *Superelevation*. Although the superelevation of roadways is discouraged, unusual circumstances may require the use of superelevation. The City Engineer must approve the use and design of superelevated roadways. Roadway drainage must be considered in superelevated conditions.

(7) *Undulating roadways.* Roadways shall be designed to eliminate undulations. In the case where an existing paved roadway undulates, it shall be removed full width and reconstructed to a new grade acceptable to the City Engineer and the entire cost paid for by the developer.

(8) *Side slopes.* Side slopes should be designed for functional effectiveness, ease of maintenance and pleasing appearance.

(a) For areas more than 10 feet from back of curb, slopes of 4:1 or flatter shall be provided.

(b) Steeper slopes may be approved in areas more than 30 feet from back of curb when soils are not highly susceptible to erosion, or when a cut is not more than 4 feet vertical. Cuts or fills greater than 4 feet vertically shall be approved by the City Engineer.

(E) *Pavement tapers.*

(1) Projects are required to provide sufficient pavement tapers at all necessary locations (such as the beginning or end of a project) to properly guide traffic.

(2) The pavement section for tapers shall be per these Guidelines. See Table 10-3.1 under Vol. II, § 10-3-5 below.

(3) Pavement tapers shall be constructed with a thickened edge per MAG Standard Detail 201, Type "B."

(4) Taper length formulas: Taper length for merging traffic situations are calculated by the following formulas:

(a) When the design speed is 40 mph or less:

$$TL = \frac{WxS2}{60}$$

(b) When the design speed is 45 mph or greater: TL = WxS

where:

TL = Taper length in feet

S = Design speed in miles per hour. The design speed is 5 mph over the posted speed limit.

W = Width of the offset between the edge of the travel lane and the edge of the lane after the taper

(5) Taper length for non-merging traffic situation (such as where pavement widens with traffic) is normally 50 feet minimum. However, there may be some instances when more than 50 feet of taper may be required. The requirement for a longer taper will be determined on a case-by-case basis by the city.

(6) The Engineer shall investigate the existing conditions and if determined to be substandard, the project shall sawcut and remove any existing pavement tapers when extending or installing new pavement improvements.

(Ord. 1282, § 3.4, passed 11-7-2006)

§ 10-3-5 STREET STRUCTURAL SECTION (AGGREGATE BASE, ASPHALT BASE COURSE AND ASPHALT SURFACE COURSE).

(A) *Flexible pavement.* The flexible pavement street structural section for public streets shall be the minimum depths shown below.

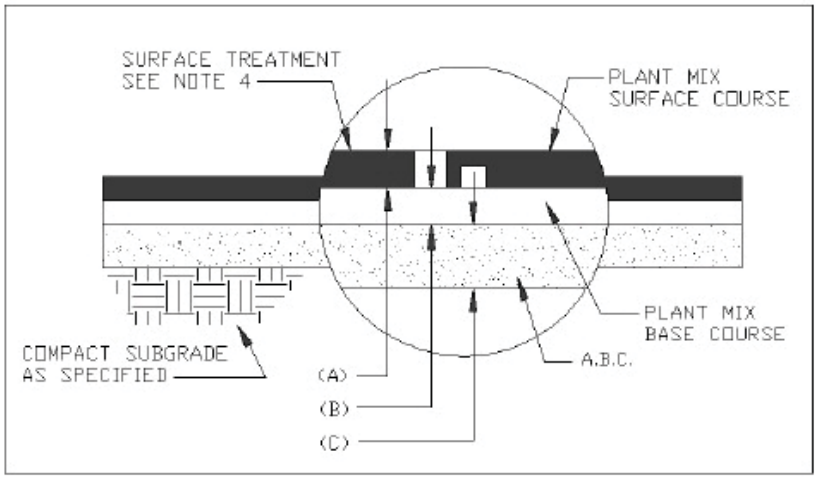


Table 10-3.1 - Street Structural Section (Minimum Depths)

Street Classifications	*Asphalt Surface Course (A)*	*Asphalt Base Course (B)*	*ABC Fill (C)*
Parkway	2.5 in. - A-19**	3 in. - A-19	12 in.*
Arterial	2.5 in. - A-19**	3 in. - A-19	12 in.*
Collector	1.5 in. - A-12.5**	2.5 in. - A-19	8 in.
Local Street-Residential	2.5 in. - A-12.5**	0 in.	6 in.
Local Street-Commercial and Industrial	1.5 in. - A-12.5**	2.5 in. - A-19	8 in.