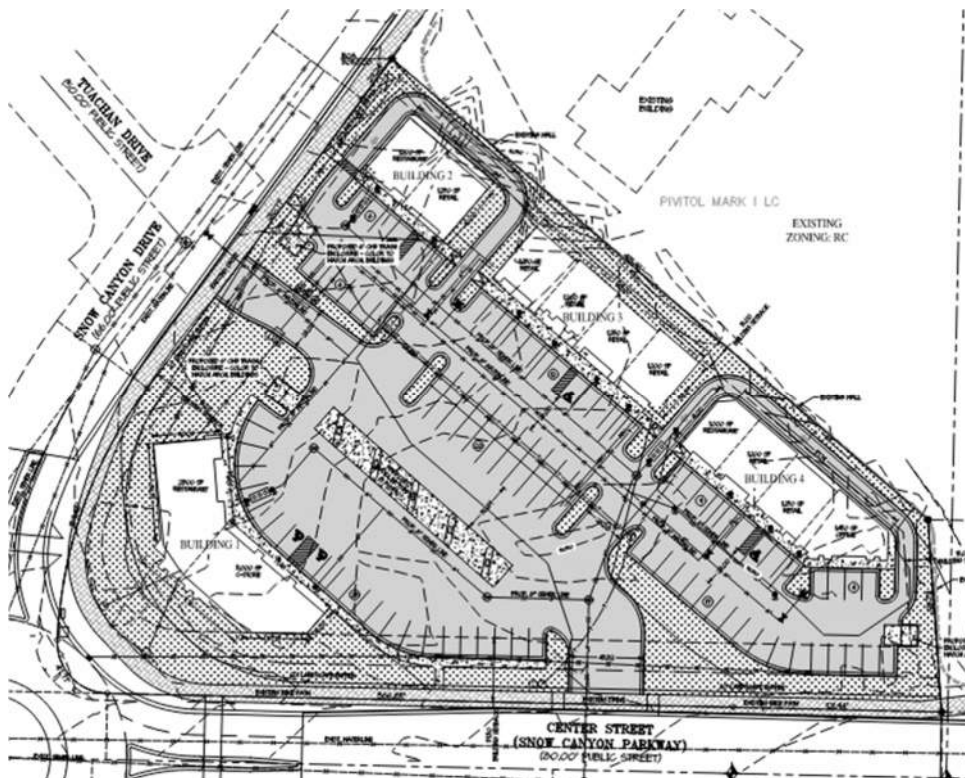


Canyon Crossings

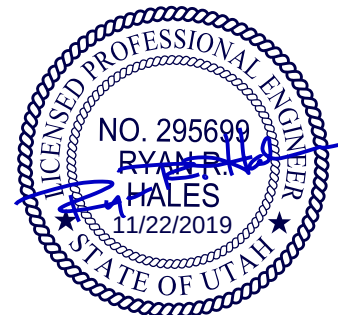
Traffic Impact Study



Ivins, Utah

November 22, 2019

UT19-1579



EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Canyon Crossings development located in Ivins, Utah. The proposed project is located on the northeast corner of the intersection of Center Street, Snow Canyon Parkway, and Snow Canyon Drive.

Included within the analyses for this study are the traffic operations and recommended mitigation measures for existing conditions and plus project conditions (conditions after development of the proposed project) at key intersections and roadways near the site.

The morning peak hour level of service (LOS) was computed for each study intersection. The results of this analysis are shown in Table ES-1.

TABLE ES-1 LOS Analysis - Morning Peak Hour Ivins - Canyon Crossings TIS		
Intersection	Level of Service (Sec/Veh) ¹	
	Existing (2019) Background	Existing (2019) Plus Project
Center Street / Snow Canyon Parkway / Snow Canyon Drive	A (6.1)	A (8.0)
Tuacahn Drive / West Access / Snow Canyon Drive	A (2.2) / NB	A (6.2) / WB
South Access / Snow Canyon Parkway ²	-	A (9.3) / SB
1. Intersection LOS and delay (seconds/vehicle) values represent the overall intersection average for roundabout, signalized, all-way stop controlled intersections and the worst approach for all other unsignalized intersections. 2. This intersection is a project access and was only analyzed in "plus project" scenarios. Source: Hales Engineering, November 2019		

SUMMARY OF KEY FINDINGS/RECOMMENDATIONS

The following is a summary of key findings and recommendations:

- All study intersections are currently operating at LOS A during the morning peak hour in existing (2019) background conditions.
- The development will consist of a gas station with 10 vehicle fueling positions, a convenience market, and other commercial uses.
 - The development is anticipated to generate 4,888 daily trips, including 333 trips during the morning peak hour and 207 trips during the evening peak hour.
- All study intersections are anticipated to operate at LOS A during the morning peak hour with project traffic added.
- It is recommended that the project accesses be constructed with separate right- and left-turn egress lanes to minimize queueing at each access.

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I. INTRODUCTION

A. Purpose

This study addresses the traffic impacts associated with the proposed Canyon Crossings development located in Ivins, Utah. The proposed project is located on the northeast corner of the intersection of Center Street, Snow Canyon Parkway, and Snow Canyon Drive. Figure 1 shows a vicinity map of the proposed development.

Included within the analyses for this study are the traffic operations and recommended mitigation measures for existing conditions and plus project conditions (conditions after development of the proposed project) at key intersections and roadways near the site.



Figure 1: Vicinity map showing the project location in Ivins, Utah

B. Scope

The study area was defined based on conversations with the development team. This study was scoped to evaluate the traffic operational performance impacts of the project on the following intersections:

- Center Street / Snow Canyon Parkway / Snow Canyon Drive
- Tuacahn Drive / Snow Canyon Drive

C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections. Figure 2 provides a visual representation of each LOS letter designation.

The *Highway Capacity Manual* (HCM), 6th Edition, 2016 methodology was used in this study to remain consistent with “state-of-the-practice” professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized and all-way stop intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). For all other unsignalized intersections, LOS is reported based on the worst approach.

Using Synchro/SimTraffic software, which follow the HCM methodology, the peak hour LOS was computed for each study intersection. Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. The detailed LOS reports are provided in Appendix B. Hales Engineering also calculated the 95th percentile queue lengths for each of the study intersections using SimTraffic. The detailed queue length reports are provided in Appendix D.

D. Level of Service Standards

For the purposes of this study, a minimum acceptable intersection performance for each of the study intersections was set at LOS D. If levels of service E or F conditions exist, an explanation and/or mitigation measures will be presented. A LOS D threshold is consistent with “state-of-the-practice” traffic engineering principles for urbanized areas.

Table 1: Level of Service Description

Level of Service	Description of Traffic Conditions	Average Delay (seconds/vehicle)
Signalized Intersections		Overall Intersection
A	Extremely favorable progression and a very low level of control delay. Individual users are virtually unaffected by others in the traffic stream.	$0 \leq 10.0$
B	Good progression and a low level of control delay. The presence of other users in the traffic stream becomes noticeable.	$> 10.0 \text{ and } \leq 20.0$
C	Fair progression and a moderate level of control delay. The operation of individual users becomes somewhat affected by interactions with others in the traffic stream.	$>20.0 \text{ and } \leq 35.0$
D	Marginal progression with relatively elevated levels of control delay. Operating conditions are noticeably more constrained.	$> 35.0 \text{ and } \leq 55.0$
E	Poor progression with unacceptably elevated levels of control delay. Operating conditions are at or near capacity.	$> 55.0 \text{ and } \leq 80.0$
F	Unacceptable progression with forced or breakdown operating conditions.	> 80.0
Unsignalized Intersections		Worst Approach
A	Free Flow / Insignificant Delay	$0 \leq 10.0$
B	Stable Operations / Minimum Delays	$>10.0 \text{ and } \leq 15.0$
C	Stable Operations / Acceptable Delays	$>15.0 \text{ and } \leq 25.0$
D	Approaching Unstable Flows / Tolerable Delays	$>25.0 \text{ and } \leq 35.0$
E	Unstable Operations / Significant Delays Can Occur	$>35.0 \text{ and } \leq 50.0$
F	Forced Flows / Unpredictable Flows / Excessive Delays Occur	> 50.0

Source: Hales Engineering Descriptions, based on the *Highway Capacity Manual* (HCM), 6th Edition, 2016 Methodology (Transportation Research Board)

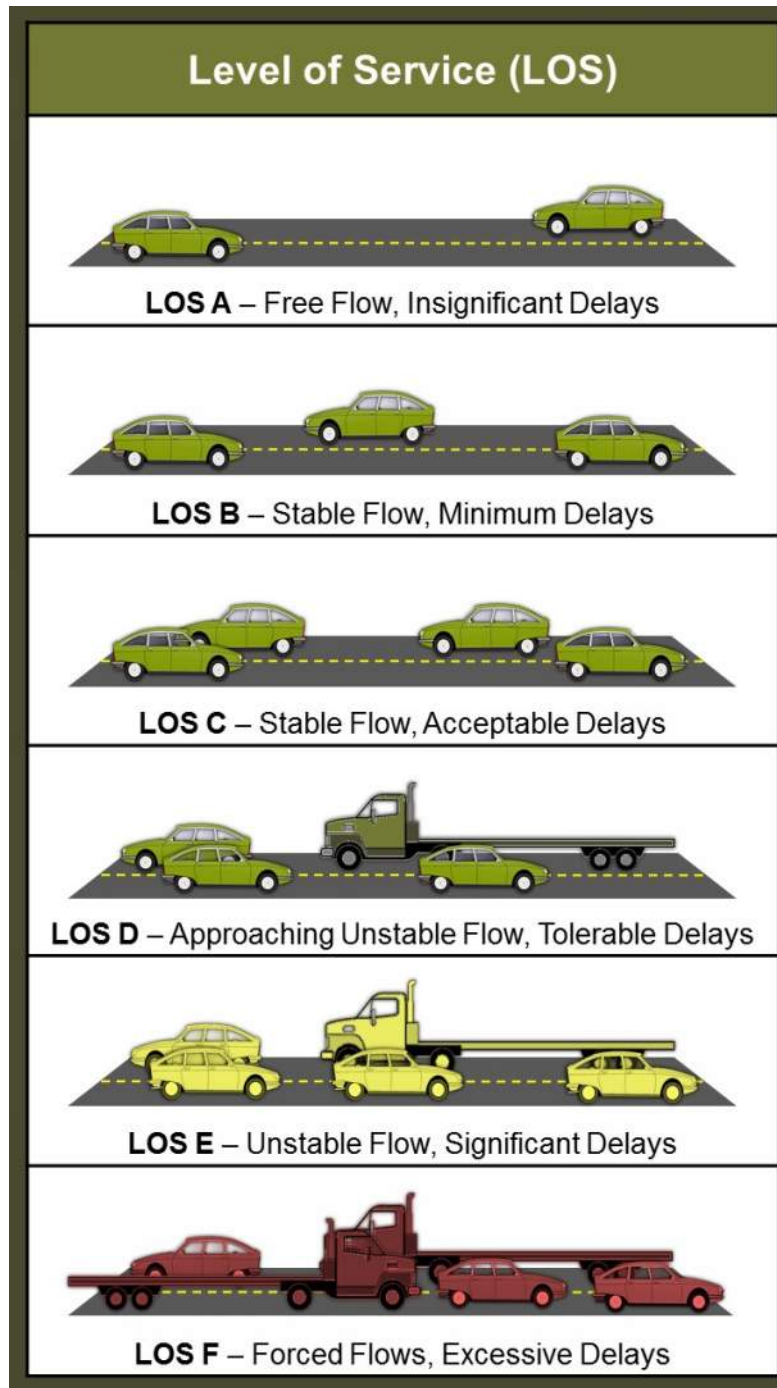


Figure 2: Visual representation of the LOS letter designations

II. EXISTING (2019) BACKGROUND CONDITIONS

A. Purpose

The purpose of the background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified, and potential mitigation measures recommended. This analysis provides a baseline condition that may be compared to the build conditions to identify the impacts of the development.

B. Roadway System

The primary roadways that will provide access to the project site are described below:

Center Street/Snow Canyon Parkway – is a city-maintained roadway which is classified by the Ivins City Transportation Master Plan Update (April 2016) as a “major arterial.” The roadway has two travel lanes in each direction separated by a center two-way left-turn lane (TWLTL). The posted speed limit is 40 mph adjacent to the project site.

Snow Canyon Drive – is a city-maintained roadway which is classified by the Ivins City Transportation Master Plan Update (April 2016) as a “minor collector.” The roadway has one travel lane in each direction and the posted speed limit is 25 mph adjacent to the project site.

C. Traffic Volumes

Weekday morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak period traffic counts were performed at the following intersections:

- Center Street / Snow Canyon Parkway / Snow Canyon Drive
- Tuacahn Drive / Snow Canyon Drive

The counts were performed on Wednesday, November 6, 2019. The morning peak hour was determined to be between 7:30 and 8:30 a.m., and the evening peak hour was determined to be between 5:00 and 6:00 p.m. The morning peak hour volumes were approximately 30% higher than the evening peak hour volumes. Therefore, the morning peak hour volumes were used in the analysis to represent the worst-case conditions. Detailed count data are included in Appendix A.

Figure 3 shows the existing evening peak hour volumes as well as intersection geometry at the study intersections.



D. Level of Service Analysis

Hales Engineering determined that all study intersections are currently operating at LOS A during the morning peak hour, as shown in Table 2. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2019) conditions.

Table 2: Existing (2019) Background Morning Peak Hour Level of Service

Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach ^{1,3}	Aver. Delay (Sec/Veh) ¹	LOS ¹	Aver. Delay (Sec/Veh) ²	LOS ²
Center Street / Snow Canyon Pkwy / Snow Canyon Drive	Round- about	-	-	-	6.1	A
Tuacahn Drive / Snow Canyon Drive	EB Stop	NB	2.2	A	-	-

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way stop unsignalized intersections.

2. This represents the overall intersection LOS and delay (seconds / vehicle) and is reported for all-way stop and signal-controlled intersections.

3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2019

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. No significant queueing was observed during the morning peak hour.

F. Mitigation Measures

No mitigation measures are recommended.

III. PROJECT CONDITIONS

A. Purpose

The project conditions discussion explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in Chapter I.

B. Project Description

The proposed Canyon Crossings development is located on the northeast corner of the Snow Canyon Parkway / Snow Canyon Drive / Center Street intersection in Ivins. The project includes a gas station with 10 vehicle fueling positions, a convenience market, and other commercial uses. It is anticipated that the project will have one access to Snow Canyon Parkway and one access to Snow Canyon Drive. A concept plan for the proposed development is provided in Appendix C.

The proposed land use for the development has been identified as follows:

- | | |
|--|----------------------|
| • Gas Station w/ Convenience Market | 10 fueling positions |
| • Shopping Center | 10,050 sq. ft. GLA |
| • High-Turnover (Sit-down) Restaurant | 2,500 sq. ft. GLA |
| • Fast-Food Restaurant with Drive-Through Window | 2,200 sq. ft. GLA |

C. Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 10th Edition, 2017. Trip Generation for the proposed project is included in Table 3.

The total trip generation for the development is as follows:

- | | |
|----------------------------|-------|
| • Daily Trips: | 4,888 |
| • Morning Peak Hour Trips: | 333 |
| • Evening Peak Hour Trips: | 207 |

Based on ITE pass-by trip data, the average pass-by percentage for a gas station with a convenience market is 63% during the morning peak hour and 66% during the evening peak hour. Additionally, ITE states that a fast-food restaurant with a drive-through window experiences 49% pass through during the morning peak hour and 50% during the evening peak hour. According to ITE, the evening retail space pass-by will be 34%. Therefore, it is anticipated that there will be 556 morning peak hour trips that use the project access points, 333 of which will be new trips on

the roadways. It is anticipated that there will be 428 evening peak hour trips that use the project access points, 207 of which will be new trips on the roadways.

Table 3 Ivins - Canyon Crossings TIS Trip Generation											
Weekday Daily											
Land Use ¹	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Pass-by Reduction	Net Trips Entering	Net Trips Exiting	Total Daily Trips
Super Convenience Market/Gas Station (960)	10	Vehicle Fueling Positions	2,306	50%	50%	1,153	1,153	0%	1,153	1,153	2,306
Shopping Center (820)	10.05	1,000 Sq. Ft. GLA	1,262	50%	50%	631	631	0%	631	631	1,262
High-Turnover (Sit-Down) Restaurant (932)	2.5	1,000 Sq. Ft. GFA	282	50%	50%	141	141	0%	141	141	282
Fast-Food Restaurant with Drive-Through Window (934)	2.2	1,000 Sq. Ft. GFA	1,038	50%	50%	519	519	0%	519	519	1,038
Project Total Daily Trips						2,444	2,444		2,444	2,444	4,888
Morning Peak Hour											
Land Use ¹	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Pass-by Reduction	Net Trips Entering	Net Trips Exiting	Total a.m. Trips
Super Convenience Market/Gas Station (960)	10	Vehicle Fueling Positions	282	50%	50%	141	141	63%	52	52	104
Shopping Center (820)	10.05	1,000 Sq. Ft. GLA	158	62%	38%	98	60	0%	98	60	158
High-Turnover (Sit-Down) Restaurant (932)	2.5	1,000 Sq. Ft. GFA	26	55%	45%	14	12	0%	14	12	26
Fast-Food Restaurant with Drive-Through Window (934)	2.2	1,000 Sq. Ft. GFA	90	51%	49%	46	44	49%	23	22	45
Project Total a.m. Peak Hour Trips						299	257		187	146	333
Evening Peak Hour											
Land Use ¹	# of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Pass-by Reduction	Net Trips Entering	Net Trips Exiting	Total p.m. Trips
Super Convenience Market/Gas Station (960)	10	Vehicle Fueling Positions	230	50%	50%	115	115	66%	39	39	78
Shopping Center (820)	10.05	1,000 Sq. Ft. GLA	100	48%	52%	48	52	34%	32	34	66
High-Turnover (Sit-Down) Restaurant (932)	2.5	1,000 Sq. Ft. GFA	26	62%	38%	16	10	0%	16	10	26
Fast-Food Restaurant with Drive-Through Window (934)	2.2	1,000 Sq. Ft. GFA	72	52%	48%	37	35	50%	19	18	37
Project Total p.m. Peak Hour Trips						216	212		106	101	207

¹ Land Use Code from the Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition, 2017.

SOURCE: Hales Engineering, October 2019

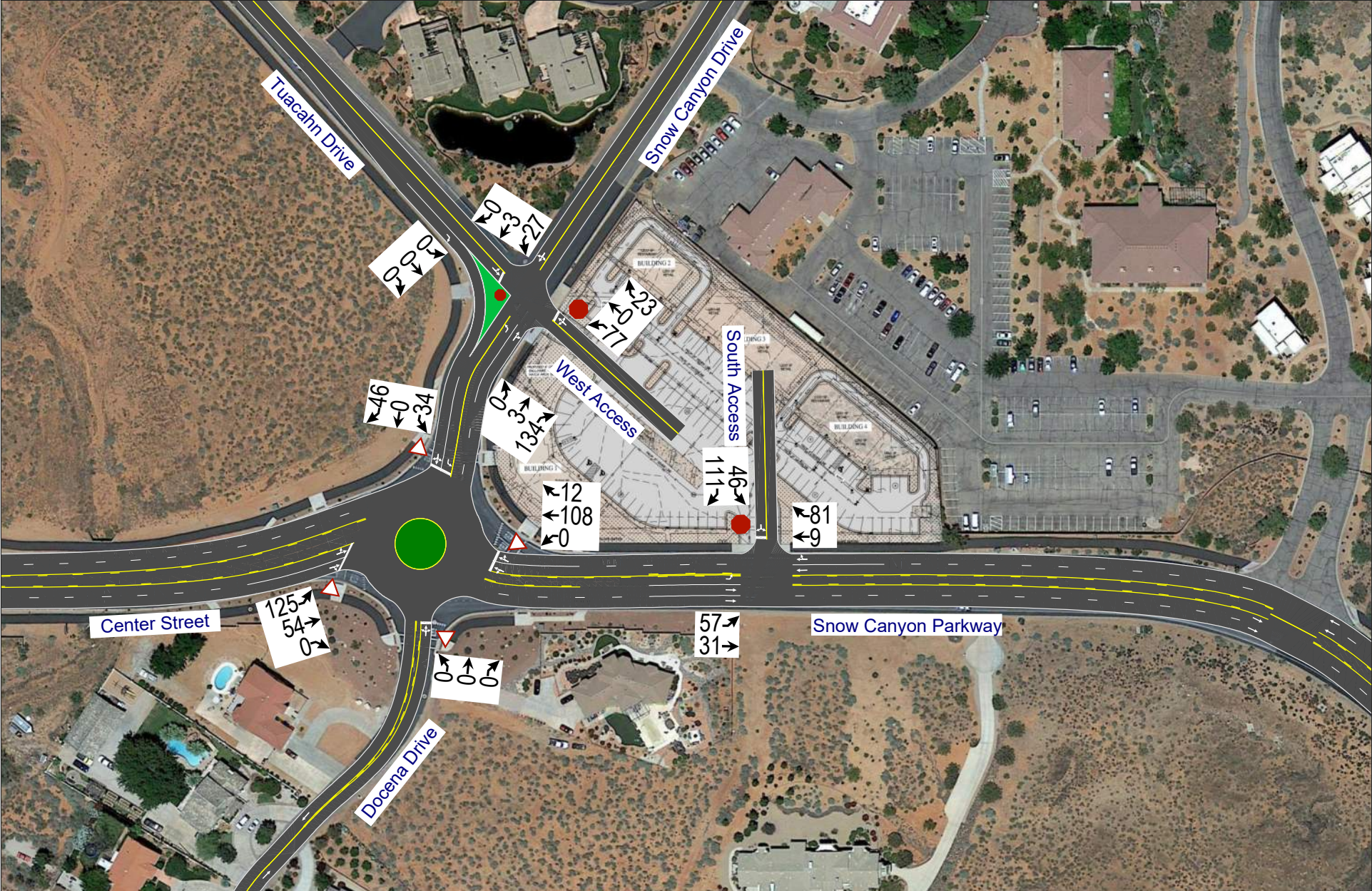
D. Trip Distribution and Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially near the site. The resulting distribution of project generated trips during the morning peak hour is as follows:

To/From Project:

- 10% North
- 30% East
- 60% West

These trip distribution assumptions were used to assign the morning peak hour generated traffic at the study intersections to create trip assignment for the proposed development. Trip assignment for the development is shown in Figure 4.



E. Access

The proposed access for the site will be gained at the following locations (see also concept plan in Appendix C):

Snow Canyon Drive:

- The West Access is planned to be located directly opposite Tuacahn Drive. It is anticipated that this will be a stop-controlled full-movement access.

Snow Canyon Parkway:

- The South Access will be located approximately 330 feet west of the centerline of Snow Canyon Drive at the Center Street / Snow Canyon Parkway / Snow Canyon Drive intersection. It is anticipated that this will be a stop-controlled full-movement access.

IV. EXISTING (2019) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the existing (2019) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for existing background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

B. Traffic Volumes

Hales Engineering added the project trips discussed in Chapter III to the existing (2019) background traffic volumes to predict turning movement volumes for existing (2019) plus project conditions. Existing (2019) plus project morning peak hour turning movement volumes are shown in Figure 5.

C. Level of Service Analysis

Hales Engineering determined that all intersections are anticipated to operate at LOS A during the morning peak hour with project traffic added, as shown in Table 4.

Table 4: Existing (2019) Plus Project Morning Peak Hour Level of Service

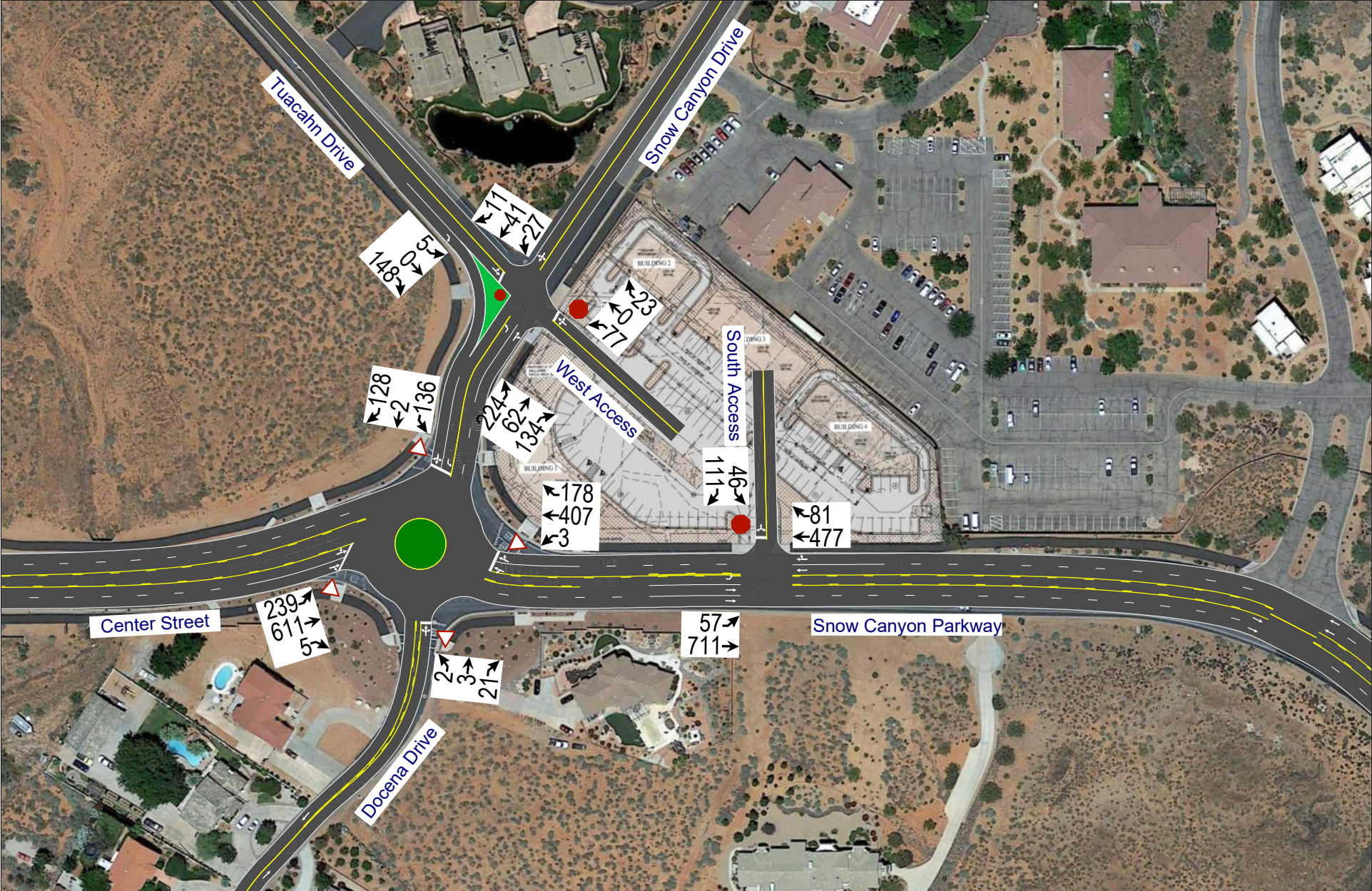
Intersection		Worst Approach			Overall Intersection	
Description	Control	Approach ^{1,3}	Aver. Delay (Sec/Veh) ¹	LOS ¹	Aver. Delay (Sec/Veh) ²	LOS ²
Center Street / Snow Canyon Pkwy / Snow Canyon Drive	Round- about	-	-	-	8.0	A
Tuacahn Drive / Snow Canyon Drive	EB/WB Stop	WB	6.2	A	-	-
South Access / Snow Canyon Pkwy	SB Stop	SB	9.3	A	-	-

1. This represents the worst approach LOS and delay (seconds / vehicle) and is only reported for non-all-way stop unsignalized intersections.

2. This represents the overall intersection LOS and delay (seconds / vehicle) and is reported for all-way stop and signal-controlled intersections.

3. SB = Southbound approach, etc.

Source: Hales Engineering, November 2019



D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. The 95th percentile queue on the South Access is anticipated to extend for approximately 100 feet into the project site, which may interfere with on-site circulation. No additional significant queuing is anticipated during the morning peak hour.

E. Mitigation Measures

It is recommended that both accesses be constructed with separate left- and right-turn egress lanes. The left-turn egress movement at the west access can share a lane with the through movement. No additional mitigation measures are recommended.

APPENDIX A

Turning Movement Counts

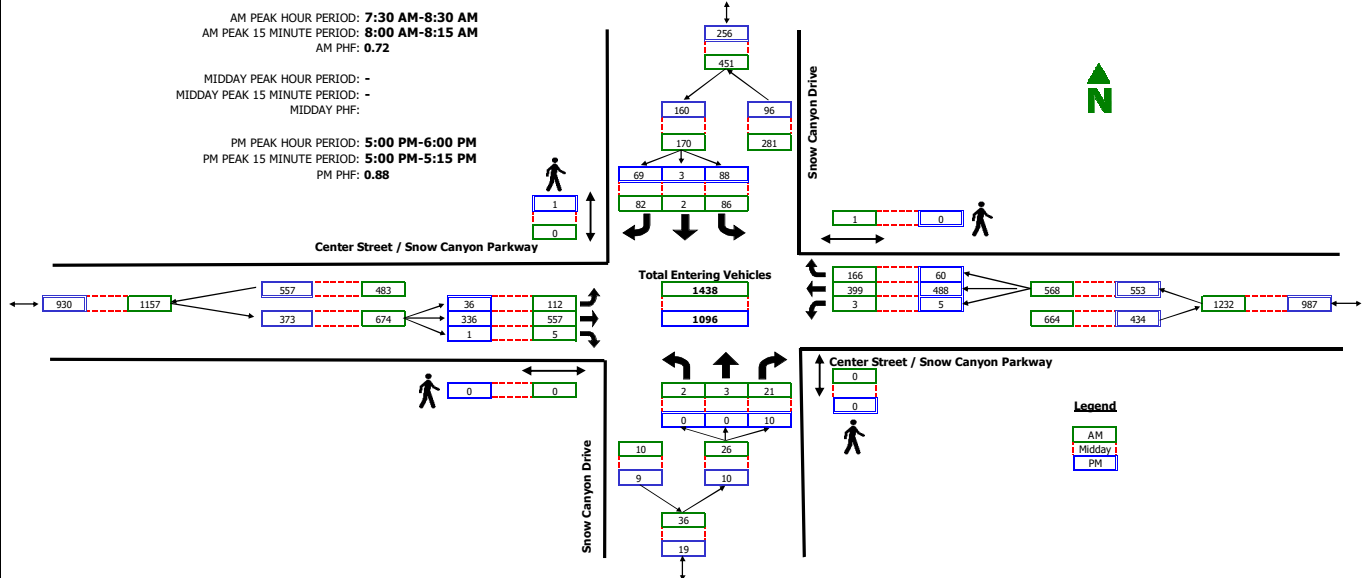
TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

Intersection: Snow Canyon Drive / Center Street / Snow Canyon Parkway
North/South: Snow Canyon Drive
East/West: Center Street / Snow Canyon Parkway
Jurisdiction: Ivins
Project Title: Ivins - Canyon Crossings TIS
Project No: UT19-1579
Weather: Clear

Date: 11-6-19, Wed
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 0
Growth Rate: 0.0%
Number of Years: 0

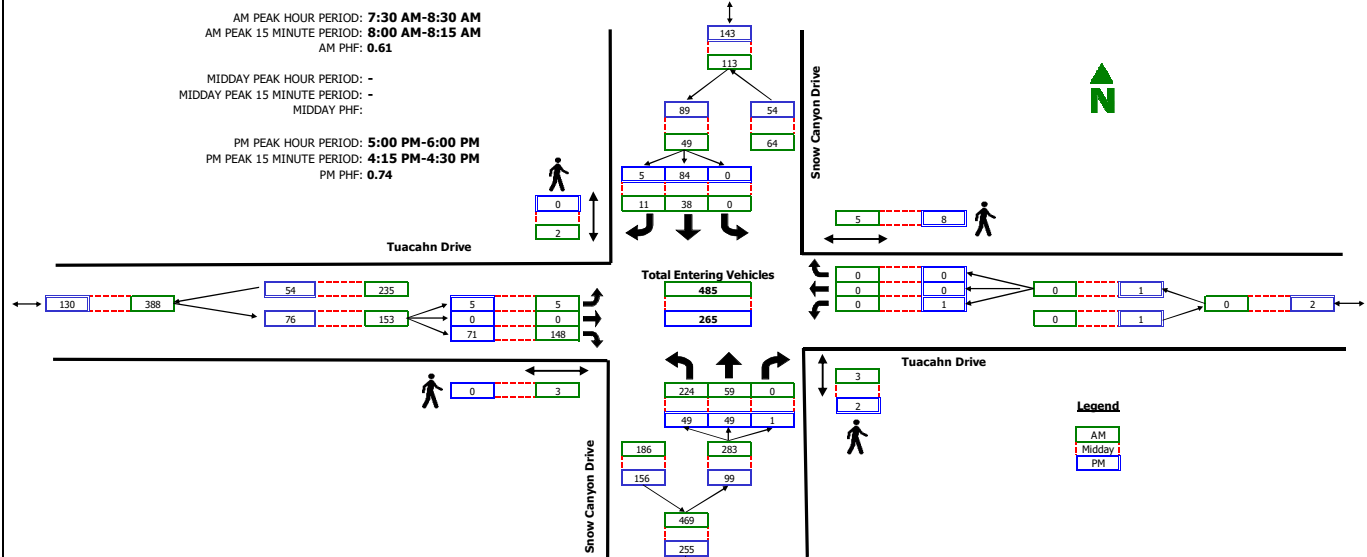


RAW COUNT SUMMARIES	Snow Canyon Drive Northbound				Snow Canyon Drive Southbound				Center Street / Snow Canyon Parkway Eastbound				Center Street / Snow Canyon Parkway Westbound				TOTAL
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	0	0	1	0	10	0	4	0	5	54	0	0	1	22	18	0	115
7:15 - 7:30	0	0	4	0	8	1	4	3	11	72	0	2	2	48	16	0	166
7:30 - 7:45	0	1	5	0	8	1	4	0	15	118	1	0	1	44	28	0	226
7:45 - 8:00	0	1	4	0	21	0	9	0	36	115	1	0	0	80	62	1	329
8:00 - 8:15	1	1	6	0	31	0	38	0	42	136	1	0	1	183	60	0	500
8:15 - 8:30	1	0	6	0	26	1	31	0	19	188	2	0	1	92	16	0	383
8:30 - 8:45	0	0	3	0	17	0	11	0	7	119	0	0	1	52	11	0	221
8:45 - 9:00	0	2	1	0	19	0	3	0	7	118	1	0	0	53	18	0	222
MIDDAY PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	54	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	0	0	2	0	25	2	23	7	11	79	1	0	1	84	18	0	246
16:15 - 16:30	0	1	3	0	26	1	8	0	16	84	1	0	1	99	29	0	269
16:30 - 16:45	0	1	1	0	15	0	12	4	16	81	3	0	0	88	21	0	238
16:45 - 17:00	0	1	3	0	20	0	10	2	16	82	1	0	3	100	21	0	257
17:00 - 17:15	0	0	2	0	21	0	20	1	11	126	0	0	0	118	15	0	313
17:15 - 17:30	0	0	4	0	23	3	13	0	10	72	1	0	2	124	11	0	263
17:30 - 17:45	0	0	1	0	21	0	21	0	5	73	0	0	2	124	9	0	256
17:45 - 18:00	0	0	3	0	23	0	15	0	10	65	0	0	1	122	25	0	264

Intersection Turning Movement Summary

Intersection: Snow Canyon Drive / Tuacahn Drive
North/South: Snow Canyon Drive
East/West: Tuacahn Drive
Jurisdiction: Ivins
Project Title: Ivins - Canyon Crossings TIS
Project No: UT19-1579
Weather: Clear

Date: 11-6-19, Wed
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 0
Growth Rate: 0.0%
Number of Years: 0



RAW COUNT SUMMARIES	Snow Canyon Drive Northbound				Snow Canyon Drive Southbound				Tuacahn Drive Eastbound				Tuacahn Drive Westbound				TOTAL
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	8	16	0	2	0	6	1	0	0	0	10	1	0	0	0	0	41
7:15 - 7:30	23	4	0	0	0	7	1	0	1	0	10	1	0	0	0	1	46
7:30 - 7:45	32	12	0	2	0	5	0	0	0	0	12	0	0	0	0	0	61
7:45 - 8:00	83	17	0	1	0	8	5	0	0	0	29	0	0	0	0	2	142
8:00 - 8:15	87	17	0	0	0	10	6	2	5	0	74	1	0	0	0	2	199
8:15 - 8:30	22	13	0	0	0	15	0	0	0	0	33	2	0	0	0	1	83
8:30 - 8:45	11	9	0	3	0	18	1	0	1	0	10	0	0	0	0	3	50
8:45 - 9:00	14	14	0	1	0	9	0	0	0	0	15	0	0	0	0	2	52
MIDDAY PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	11	17	0	0	0	25	2	0	2	0	25	1	0	0	0	7	86
16:15 - 16:30	23	25	0	0	0	15	3	0	0	0	23	1	0	0	0	0	89
16:30 - 16:45	15	22	0	0	0	14	0	0	1	0	14	0	0	0	0	4	66
16:45 - 17:00	21	16	0	0	0	16	2	1	0	0	16	0	0	0	0	3	71
17:00 - 17:15	9	16	0	0	0	24	1	0	2	0	18	0	0	0	0	2	70
17:15 - 17:30	13	11	0	0	0	25	1	0	0	0	14	0	0	0	0	0	64
17:30 - 17:45	7	7	1	0	0	19	1	0	2	0	20	0	1	0	0	2	58
17:45 - 18:00	20	15	0	2	0	16	2	0	1	0	19	0	0	0	0	4	73

APPENDIX B

LOS Results

SimTraffic LOS Report

Project: Ivins - Canyon Crossings TIS
Analysis Period: Existing (2019) Background
Time Period: Morning Peak Hour **Project #:** UT19-1579

Intersection: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	2	2	89	3.7	A
	T	3	4	123	3.9	A
	R	21	21	99	2.8	A
	Subtotal	26	27	104	3.0	A
SB	L	102	101	99	4.5	A
	T	2	2	80	3.1	A
	R	82	75	91	4.1	A
	Subtotal	186	178	96	4.3	A
EB	L	114	112	98	8.1	A
	T	557	560	101	6.8	A
	R	5	4	84	6.0	A
	Subtotal	676	676	100	7.0	A
WB	L	3	2	62	5.9	A
	T	399	401	100	5.7	A
	R	166	162	97	5.2	A
	Subtotal	568	565	99	5.6	A
Total		1,458	1,446	99	6.1	A

Intersection: Snow Canyon Drive & Tuacahn Drive
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	224	213	95	2.6	A
	T	60	65	107	0.8	A
	Subtotal	284	278	98	2.2	A
SB	T	38	35	92	0.1	A
	R	11	9	80	0.1	A
	Subtotal	49	44	90	0.1	A
SE	L	5	5	105	6.5	A
	R	148	144	97	1.8	A
	Subtotal	153	149	97	2.0	A
Total		487	471	97	1.9	A

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.1	0.3		0.0	0.0		0.0	0.0	0.0		0.0
Total Delay (hr)	0.0	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.6	5.9	4.7		5.4	5.0		3.1	3.0	4.1		3.8
Vehicles Entered	24	118	1	0	87	37	0	1	4	20	0	16
Vehicles Exited	25	118	1	0	87	38	0	1	4	20	0	15
Hourly Exit Rate	100	472	4	0	348	152	0	4	16	80	0	60
Input Volume	101	495	4	3	355	148	2	3	19	91	2	73
% of Volume	99	95	100	0	98	103	0	133	84	88	0	82

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.5
Total Del/Veh (s)	5.4
Vehicles Entered	308
Vehicles Exited	309
Hourly Exit Rate	1236
Input Volume	1296
% of Volume	95

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.2	0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay (hr)	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.8	6.1	4.4	7.2	5.6	5.1		4.1	2.6	4.2		4.0
Vehicles Entered	27	131	1	1	92	35	0	1	4	24	0	18
Vehicles Exited	27	131	1	1	92	34	0	1	4	23	0	18
Hourly Exit Rate	108	524	4	4	368	136	0	4	16	92	0	72
Input Volume	101	495	4	3	355	148	2	3	19	91	2	73
% of Volume	107	106	100	133	104	92	0	133	84	101	0	99

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.5
Total Del/Veh (s)	5.6
Vehicles Entered	334
Vehicles Exited	332
Hourly Exit Rate	1328
Input Volume	1296
% of Volume	102

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.2	0.2		0.0	0.0		0.0	0.0	0.0		0.0
Total Delay (hr)	0.1	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.1	8.0	4.9		6.0	5.4		5.4	3.0	5.0		4.4
Vehicles Entered	36	193	2	0	131	52	0	1	7	34	0	26
Vehicles Exited	37	189	2	0	130	52	0	1	7	34	0	26
Hourly Exit Rate	148	756	8	0	520	208	0	4	28	136	0	104
Input Volume	152	743	7	4	532	221	3	4	28	136	4	109
% of Volume	97	102	114	0	98	94	0	100	100	100	0	95

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.9
Total Del/Veh (s)	6.9
Vehicles Entered	482
Vehicles Exited	478
Hourly Exit Rate	1912
Input Volume	1943
% of Volume	98

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.1	0.3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.9	6.1	4.9		5.5	5.1	2.6	2.9	2.5	4.2	2.5	4.0
Vehicles Entered	23	119	1	0	90	38	1	1	6	24	1	16
Vehicles Exited	23	122	1	0	92	38	1	1	5	24	1	17
Hourly Exit Rate	92	488	4	0	368	152	4	4	20	96	4	68
Input Volume	101	495	4	3	355	148	2	3	19	91	2	73
% of Volume	91	99	100	0	104	103	200	133	105	105	200	93

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.5
Total Del/Veh (s)	5.5
Vehicles Entered	320
Vehicles Exited	325
Hourly Exit Rate	1300
Input Volume	1296
% of Volume	100

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.3	1.1	0.0	0.0	0.6	0.2	0.0	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	8.1	6.8	6.0	5.9	5.7	5.2	3.7	3.9	2.8	4.5	3.1	4.1
Vehicles Entered	111	561	4	2	400	162	2	4	21	102	2	75
Vehicles Exited	112	560	4	2	401	162	2	4	21	101	2	75
Hourly Exit Rate	112	560	4	2	401	162	2	4	21	101	2	75
Input Volume	114	557	5	3	399	166	2	3	21	102	2	82
% of Volume	98	101	84	62	100	97	89	123	99	99	80	91

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	2.4
Total Del/Veh (s)	6.1
Vehicles Entered	1446
Vehicles Exited	1446
Hourly Exit Rate	1446
Input Volume	1458
% of Volume	99

2: Snow Canyon Drive & Tuacahn Drive Performance by movement Interval #1 7:30

Movement	NBL	NBT	SBT	SBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.3	3.9	1.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	2.3	0.7	0.2	0.2	6.9	1.8	1.8
Vehicles Entered	49	14	6	2	1	30	102
Vehicles Exited	49	15	6	2	1	30	103
Hourly Exit Rate	196	60	24	8	4	120	412
Input Volume	199	54	34	10	4	132	433
% of Volume	98	111	71	80	100	91	95

2: Snow Canyon Drive & Tuacahn Drive Performance by movement Interval #2 7:45

Movement	NBL	NBT	SBT	SBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.4	4.0	1.3
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	2.4	0.8	0.1	0.1	8.4	1.7	1.8
Vehicles Entered	48	15	8	3	1	34	109
Vehicles Exited	47	15	8	3	1	34	108
Hourly Exit Rate	188	60	32	12	4	136	432
Input Volume	199	54	34	10	4	132	433
% of Volume	94	111	94	120	100	103	100

2: Snow Canyon Drive & Tuacahn Drive Performance by movement Interval #3 8:00

Movement	NBL	NBT	SBT	SBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.4	3.8	1.2
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	3.0	1.1	0.1	0.0	6.2	1.9	2.1
Vehicles Entered	69	21	13	3	2	47	155
Vehicles Exited	69	21	13	3	2	48	156
Hourly Exit Rate	276	84	52	12	8	192	624
Input Volume	299	80	51	15	7	197	649
% of Volume	92	105	102	80	114	97	96

2: Snow Canyon Drive & Tuacahn Drive Performance by movement Interval #4 8:15

Movement	NBL	NBT	SBT	SBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1	3.9	1.2
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	2.5	0.6	0.1	0.0	5.0	1.8	1.8
Vehicles Entered	47	15	8	2	1	32	105
Vehicles Exited	47	15	8	2	1	33	106
Hourly Exit Rate	188	60	32	8	4	132	424
Input Volume	199	54	34	10	4	132	433
% of Volume	94	111	94	80	100	100	98

2: Snow Canyon Drive & Tuacahn Drive Performance by movement Entire Run

Movement	NBL	NBT	SBT	SBR	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.2	0.2
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.3	3.9	1.2
Total Delay (hr)	0.2	0.0	0.0	0.0	0.0	0.1	0.3
Total Del/Veh (s)	2.6	0.8	0.1	0.1	6.5	1.8	1.9
Vehicles Entered	213	65	35	9	5	144	471
Vehicles Exited	213	65	35	9	5	144	471
Hourly Exit Rate	213	65	35	9	5	144	471
Input Volume	224	60	38	11	5	148	487
% of Volume	95	107	92	80	105	97	97

Total Zone Performance By Interval

Interval Start	7:30	7:45	8:00	8:15	All
Denied Delay (hr)	0.0	0.0	0.1	0.0	0.2
Denied Del/Veh (s)	0.5	0.5	0.5	0.5	0.5
Total Delay (hr)	0.7	0.8	1.4	0.7	3.6
Total Del/Veh (s)	7.5	7.9	9.8	7.6	8.7
Vehicles Entered	313	340	488	320	1462
Vehicles Exited	316	336	478	335	1464
Hourly Exit Rate	1264	1344	1912	1340	1464
Input Volume	5293	5293	7934	5293	5953
% of Volume	24	25	24	25	25

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #1

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	51	22	46	18	22	20	20
Average Queue (ft)	22	6	21	3	3	3	5
95th Queue (ft)	54	24	52	18	21	16	22
Link Distance (ft)	741	741	269	269	265	193	193
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	59	34	46	36	20	21	36
Average Queue (ft)	26	8	27	6	4	6	8
95th Queue (ft)	62	35	52	32	21	23	32
Link Distance (ft)	741	741	269	269	265	193	193
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #3

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	116	84	58	48	31	30	52
Average Queue (ft)	56	22	38	15	6	11	18
95th Queue (ft)	120	79	69	49	27	34	55
Link Distance (ft)	741	741	269	269	265	193	193
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #4

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	63	29	48	32	25	31	35
Average Queue (ft)	26	7	25	5	4	5	9
95th Queue (ft)	63	29	56	26	23	29	32
Link Distance (ft)	741	741	269	269	265	193	193
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, All Intervals

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	121	85	65	51	42	41	56
Average Queue (ft)	33	11	28	7	4	6	10
95th Queue (ft)	82	47	59	33	23	26	38
Link Distance (ft)	741	741	269	269	265	193	193
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Snow Canyon Drive & Tuacahn Drive, Interval #1

Movement	NB	SB	SE
Directions Served	L	TR	L
Maximum Queue (ft)	29	4	16
Average Queue (ft)	8	0	4
95th Queue (ft)	33	5	18
Link Distance (ft)	193	701	751
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Snow Canyon Drive & Tuacahn Drive, Interval #2

Movement	NB	SE
Directions Served	L	L
Maximum Queue (ft)	30	14
Average Queue (ft)	9	3
95th Queue (ft)	33	17
Link Distance (ft)	193	751
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Snow Canyon Drive & Tuacahn Drive, Interval #3

Movement	NB	SE
Directions Served	L	L
Maximum Queue (ft)	51	21
Average Queue (ft)	19	6
95th Queue (ft)	51	22
Link Distance (ft)	193	751
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Snow Canyon Drive & Tuacahn Drive, Interval #4

Movement	NB	NB	SE
Directions Served	L	T	L
Maximum Queue (ft)	29	3	12
Average Queue (ft)	10	0	3
95th Queue (ft)	35	7	15
Link Distance (ft)	193	193	751
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Snow Canyon Drive & Tuacahn Drive, All Intervals

Movement	NB	NB	SB	SE
Directions Served	L	T	TR	L
Maximum Queue (ft)	53	3	4	24
Average Queue (ft)	12	0	0	4
95th Queue (ft)	39	3	2	18
Link Distance (ft)	193	193	701	751
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty, Interval #1: 0
Zone wide Queuing Penalty, Interval #2: 0
Zone wide Queuing Penalty, Interval #3: 0
Zone wide Queuing Penalty, Interval #4: 0
Zone wide Queuing Penalty, All Intervals: 0

SimTraffic LOS Report

Project: Ivins - Canyon Crossings TIS
Analysis Period: Existing (2019) Plus Project
Time Period: Morning Peak Hour **Project #:** UT19-1579

Intersection: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	2	2	89	6.1	A
	T	3	4	123	4.2	A
	R	21	24	113	2.9	A
	Subtotal	26	30	115	3.3	A
SB	L	136	137	101	4.7	A
	T	2	2	80	3.6	A
	R	128	134	104	3.9	A
	Subtotal	266	273	103	4.3	A
EB	L	239	233	98	14.0	B
	T	611	620	101	10.0	A
	R	5	5	105	5.9	A
	Subtotal	855	858	100	11.1	B
WB	L	3	2	62	4.9	A
	T	407	398	98	5.7	A
	R	178	177	100	5.2	A
	Subtotal	588	577	98	5.5	A
Total		1,736	1,738	100	8.0	A

Intersection: Snow Canyon Drive & West Access/Tuacahn Drive
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	224	222	99	3.2	A
	T	63	60	95	2.0	A
	R	134	134	100	1.6	A
	Subtotal	421	416	99	2.5	A
SB	L	27	27	100	3.3	A
	T	41	39	96	0.6	A
	R	11	11	98	0.2	A
	Subtotal	79	77	97	1.5	A
NW	L	77	76	99	7.1	A
	R	23	26	114	3.4	A
	Subtotal	100	102	102	6.2	A
SE	L	5	4	84	7.0	A
	R	148	157	106	1.8	A
	Subtotal	153	161	105	1.9	A
Total		752	756	100	2.8	A

SimTraffic LOS Report

Project: Ivins - Canyon Crossings TIS
Analysis Period: Existing (2019) Plus Project
Time Period: Morning Peak Hour **Project #:** UT19-1579

Intersection: Snow Canyon Parkway & South Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	46	45	98	14.9	B
	R	111	107	96	6.9	A
	Subtotal	157	152	97	9.3	A
EB	L	57	62	108	8.0	A
	T	711	719	101	3.4	A
	Subtotal	768	781	102	3.8	A
WB	T	477	470	99	1.0	A
	R	81	87	107	0.4	A
	Subtotal	558	557	100	0.9	A
Total		1,484	1,490	100	3.3	A

Intersection:
Type:

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
Total						

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.2	0.1	0.0	0.0	0.0			0.0	0.0		0.0
Total Delay (hr)	0.1	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.1	7.0	7.0	3.9	5.4	5.1		2.2	3.3	4.3		3.5
Vehicles Entered	48	142	1	1	89	41	0	0	4	31	0	30
Vehicles Exited	48	141	1	1	88	41	0	1	4	31	0	30
Hourly Exit Rate	192	564	4	4	352	164	0	4	16	124	0	120
Input Volume	212	543	4	3	362	158	2	3	19	121	2	114
% of Volume	91	104	100	133	97	104	0	133	84	102	0	105

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.7
Total Del/Veh (s)	6.1
Vehicles Entered	387
Vehicles Exited	386
Hourly Exit Rate	1544
Input Volume	1543
% of Volume	100

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.2	0.1	0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay (hr)	0.1	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.4	6.9	3.9	3.8	5.3	4.9		2.3	2.9	4.3		3.4
Vehicles Entered	52	136	1	1	88	37	0	1	6	28	0	28
Vehicles Exited	52	136	1	1	89	37	0	1	6	28	0	28
Hourly Exit Rate	208	544	4	4	356	148	0	4	24	112	0	112
Input Volume	212	543	4	3	362	158	2	3	19	121	2	114
% of Volume	98	100	100	133	98	94	0	133	126	93	0	98

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.6
Total Del/Veh (s)	6.0
Vehicles Entered	378
Vehicles Exited	379
Hourly Exit Rate	1516
Input Volume	1543
% of Volume	98

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.5	0.8	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	22.7	14.2	7.5	3.5	6.1	5.5	7.6	3.4	3.2	5.6	2.1	4.4
Vehicles Entered	78	207	2	1	130	60	1	1	9	44	1	46
Vehicles Exited	75	202	2	1	130	60	1	1	9	44	1	46
Hourly Exit Rate	300	808	8	4	520	240	4	4	36	176	4	184
Input Volume	319	815	7	4	543	237	3	4	28	181	4	171
% of Volume	94	99	114	100	96	101	133	100	129	97	100	108

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.8
Total Del/Veh (s)	10.9
Vehicles Entered	580
Vehicles Exited	572
Hourly Exit Rate	2288
Input Volume	2316
% of Volume	99

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.2	0.1	0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay (hr)	0.2	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.2	8.7	3.7	3.6	5.5	5.3		4.4	2.7	4.2		3.6
Vehicles Entered	53	136	1	1	91	39	0	2	4	34	0	29
Vehicles Exited	56	142	1	1	92	39	0	2	4	34	0	30
Hourly Exit Rate	224	568	4	4	368	156	0	8	16	136	0	120
Input Volume	212	543	4	3	362	158	2	3	19	121	2	114
% of Volume	106	105	100	133	102	99	0	267	84	112	0	105

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.8
Total Del/Veh (s)	7.1
Vehicles Entered	390
Vehicles Exited	401
Hourly Exit Rate	1604
Input Volume	1543
% of Volume	104

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.9	1.7	0.0	0.0	0.6	0.3	0.0	0.0	0.0	0.2	0.0	0.1
Total Del/Veh (s)	14.0	10.0	5.9	4.9	5.7	5.2	6.1	4.2	2.9	4.7	3.6	3.9
Vehicles Entered	232	620	5	3	398	177	2	4	24	137	2	133
Vehicles Exited	233	620	5	2	398	177	2	4	24	137	2	134
Hourly Exit Rate	233	620	5	2	398	177	2	4	24	137	2	134
Input Volume	239	611	5	3	407	178	2	3	21	136	2	128
% of Volume	98	101	105	62	98	100	89	123	113	101	80	104

1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway Performance by movement

Movement	All
Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	3.9
Total Del/Veh (s)	8.0
Vehicles Entered	1737
Vehicles Exited	1738
Hourly Exit Rate	1738
Input Volume	1736
% of Volume	100

2: Snow Canyon Drive & West Access/Tuacahn Drive Performance by movement Interval #1 7:30

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	NWL	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.4	3.9	0.1	0.1	0.9
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	2.8	1.2	1.2	3.1	0.4	0.2	7.9	1.7	5.4	2.8	2.4
Vehicles Entered	49	11	30	6	8	2	1	36	17	6	166
Vehicles Exited	49	11	30	6	8	2	1	36	17	6	166
Hourly Exit Rate	196	44	120	24	32	8	4	144	68	24	664
Input Volume	199	56	119	24	36	10	4	132	68	20	668
% of Volume	98	79	101	100	89	80	100	109	100	120	99

2: Snow Canyon Drive & West Access/Tuacahn Drive Performance by movement Interval #2 7:45

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	NWL	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1		3.9	0.2	0.1	0.8
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	2.9	1.6	1.2	2.3	0.2	0.2		1.7	5.7	3.2	2.4
Vehicles Entered	48	14	28	5	8	3	0	32	16	6	160
Vehicles Exited	49	14	28	5	8	3	0	32	17	6	162
Hourly Exit Rate	196	56	112	20	32	12	0	128	68	24	648
Input Volume	199	56	119	24	36	10	4	132	68	20	668
% of Volume	98	100	94	83	89	120	0	97	100	120	97

2: Snow Canyon Drive & West Access/Tuacahn Drive Performance by movement Interval #3 8:00

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	NWL	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.1	0.2	3.8	0.2	0.2	0.8
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2
Total Del/Veh (s)	3.8	2.7	2.2	4.3	1.0	0.2	6.1	1.9	9.3	3.9	3.4
Vehicles Entered	73	20	44	10	14	3	2	53	24	8	251
Vehicles Exited	71	20	44	10	14	3	2	53	24	8	249
Hourly Exit Rate	284	80	176	40	56	12	8	212	96	32	996
Input Volume	299	84	179	36	55	15	7	197	103	31	1006
% of Volume	95	95	98	111	102	80	114	108	93	103	99

2: Snow Canyon Drive & West Access/Tuacahn Drive Performance by movement Interval #4 8:15

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	NWL	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.2	0.1	3.9	0.1	0.1	0.8
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	3.1	2.0	1.5	2.7	0.3	0.5	4.6	1.8	6.7	2.9	2.6
Vehicles Entered	52	14	31	6	9	2	1	36	18	6	175
Vehicles Exited	53	14	31	6	9	2	1	36	18	6	176
Hourly Exit Rate	212	56	124	24	36	8	4	144	72	24	704
Input Volume	199	56	119	24	36	10	4	132	68	20	668
% of Volume	107	100	104	100	100	80	100	109	106	120	105

2: Snow Canyon Drive & West Access/Tuacahn Drive Performance by movement Entire Run

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SER	NWL	NWR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.3	3.9	0.1	0.1	0.8
Total Delay (hr)	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.6
Total Del/Veh (s)	3.2	2.0	1.6	3.3	0.6	0.2	7.0	1.8	7.1	3.4	2.8
Vehicles Entered	222	59	134	27	39	11	4	157	76	26	755
Vehicles Exited	222	60	134	27	39	11	4	157	76	26	756
Hourly Exit Rate	222	60	134	27	39	11	4	157	76	26	756
Input Volume	224	63	134	27	41	11	5	148	77	23	752
% of Volume	99	95	100	100	96	98	84	106	99	114	100

3: Snow Canyon Parkway & South Access Performance by movement Interval #1 7:30

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	6.9	3.1	0.8	0.3	9.5	4.7	2.7
Vehicles Entered	12	164	105	22	9	24	336
Vehicles Exited	13	163	106	21	9	24	336
Hourly Exit Rate	52	652	424	84	36	96	1344
Input Volume	51	632	424	72	41	99	1319
% of Volume	102	103	100	117	88	97	102

3: Snow Canyon Parkway & South Access Performance by movement Interval #2 7:45

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	6.1	3.0	0.8	0.2	11.4	4.9	2.7
Vehicles Entered	13	157	104	19	11	22	326
Vehicles Exited	13	157	104	20	11	22	327
Hourly Exit Rate	52	628	416	80	44	88	1308
Input Volume	51	632	424	72	41	99	1319
% of Volume	102	99	98	111	107	89	99

3: Snow Canyon Parkway & South Access Performance by movement Interval #3 8:00

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.1	0.3	0.1	0.0	0.1	0.1	0.6
Total Del/Veh (s)	10.0	3.9	1.3	0.6	20.8	10.0	4.1
Vehicles Entered	21	235	155	28	15	37	491
Vehicles Exited	20	234	154	28	14	36	486
Hourly Exit Rate	80	936	616	112	56	144	1944
Input Volume	76	948	636	108	61	148	1977
% of Volume	105	99	97	104	92	97	98

3: Snow Canyon Parkway & South Access Performance by movement Interval #4 8:15

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.0	0.2	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	6.8	3.3	0.8	0.2	14.0	5.9	3.0
Vehicles Entered	15	164	106	18	10	23	336
Vehicles Exited	15	165	106	18	10	24	338
Hourly Exit Rate	60	660	424	72	40	96	1352
Input Volume	51	632	424	72	41	99	1319
% of Volume	118	104	100	100	98	97	103

3: Snow Canyon Parkway & South Access Performance by movement Entire Run

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.1	0.7	0.1	0.0	0.2	0.2	1.4
Total Del/Veh (s)	8.0	3.4	1.0	0.4	14.9	6.9	3.3
Vehicles Entered	62	719	470	87	45	107	1490
Vehicles Exited	62	719	470	87	45	107	1490
Hourly Exit Rate	62	719	470	87	45	107	1490
Input Volume	57	711	477	81	46	111	1484
% of Volume	108	101	99	107	98	96	100

Total Zone Performance By Interval

Interval Start	7:30	7:45	8:00	8:15	All
Denied Delay (hr)	0.1	0.1	0.1	0.1	0.3
Denied Del/Veh (s)	0.5	0.5	0.5	0.5	0.5
Total Delay (hr)	1.1	1.1	2.7	1.3	6.2
Total Del/Veh (s)	8.8	8.6	14.7	10.0	11.4
Vehicles Entered	432	422	648	431	1940
Vehicles Exited	432	427	629	448	1940
Hourly Exit Rate	1728	1708	2516	1792	1940
Input Volume	6446	6446	9675	6446	7253
% of Volume	27	26	26	28	27

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #1

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	96	59	45	39	25	33	35
Average Queue (ft)	41	16	27	11	5	14	13
95th Queue (ft)	91	61	55	39	23	40	41
Link Distance (ft)	741	741	274	274	265	178	178
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	86	39	52	25	24	33	39
Average Queue (ft)	41	8	28	7	5	12	11
95th Queue (ft)	88	35	58	29	24	34	41
Link Distance (ft)	741	741	274	274	265	178	178
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #3

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	280	219	63	50	36	47	81
Average Queue (ft)	150	83	37	18	12	21	40
95th Queue (ft)	272	216	65	52	38	53	97
Link Distance (ft)	741	741	274	274	265	178	178
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, Interval #4

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	168	109	55	43	26	34	36
Average Queue (ft)	70	22	27	11	7	11	9
95th Queue (ft)	169	105	58	38	29	36	35
Link Distance (ft)	741	741	274	274	265	178	178
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 1: Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway, All Intervals

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LTR	L	LTR
Maximum Queue (ft)	282	227	67	54	41	58	83
Average Queue (ft)	76	32	29	12	7	15	18
95th Queue (ft)	189	128	60	41	29	42	61
Link Distance (ft)	741	741	274	274	265	178	178
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 2: Snow Canyon Drive & West Access/Tuacahn Drive, Interval #1

Movement	NB	NB	SB	SE	NW
Directions Served	L	TR	LTR	LT	LTR
Maximum Queue (ft)	38	20	28	18	56
Average Queue (ft)	9	2	7	3	34
95th Queue (ft)	34	20	28	16	59
Link Distance (ft)	178	178	706	752	182
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Snow Canyon Drive & West Access/Tuacahn Drive, Interval #2

Movement	NB	NB	SB	SE	NW
Directions Served	L	TR	LTR	LT	LTR
Maximum Queue (ft)	41	8	11	12	59
Average Queue (ft)	13	2	3	1	37
95th Queue (ft)	42	15	18	10	63
Link Distance (ft)	178	178	706	752	182
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Snow Canyon Drive & West Access/Tuacahn Drive, Interval #3

Movement	NB	NB	SB	SE	NW
Directions Served	L	TR	LTR	LT	LTR
Maximum Queue (ft)	43	21	44	21	79
Average Queue (ft)	19	4	17	5	45
95th Queue (ft)	47	26	52	20	79
Link Distance (ft)	178	178	706	752	182
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Snow Canyon Drive & West Access/Tuacahn Drive, Interval #4

Movement	NB	NB	SB	SE	NW
Directions Served	L	TR	LTR	LT	LTR
Maximum Queue (ft)	36	6	32	14	57
Average Queue (ft)	10	1	7	2	33
95th Queue (ft)	36	8	30	13	59
Link Distance (ft)	178	178	706	752	182
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Snow Canyon Drive & West Access/Tuacahn Drive, All Intervals

Movement	NB	NB	SB	SE	NW
Directions Served	L	TR	LTR	LT	LTR
Maximum Queue (ft)	55	34	48	24	83
Average Queue (ft)	13	2	8	3	38
95th Queue (ft)	41	18	35	15	66
Link Distance (ft)	178	178	706	752	182
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Snow Canyon Parkway & South Access, Interval #1

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	41	76
Average Queue (ft)	18	46
95th Queue (ft)	43	81
Link Distance (ft)		184
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Snow Canyon Parkway & South Access, Interval #2

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	43	4	78
Average Queue (ft)	19	1	47
95th Queue (ft)	49	7	83
Link Distance (ft)		524	184
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Snow Canyon Parkway & South Access, Interval #3

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	56	2	135
Average Queue (ft)	31	0	72
95th Queue (ft)	59	0	132
Link Distance (ft)		524	184
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Snow Canyon Parkway & South Access, Interval #4

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	40	83
Average Queue (ft)	19	49
95th Queue (ft)	46	94
Link Distance (ft)		184
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Snow Canyon Parkway & South Access, All Intervals

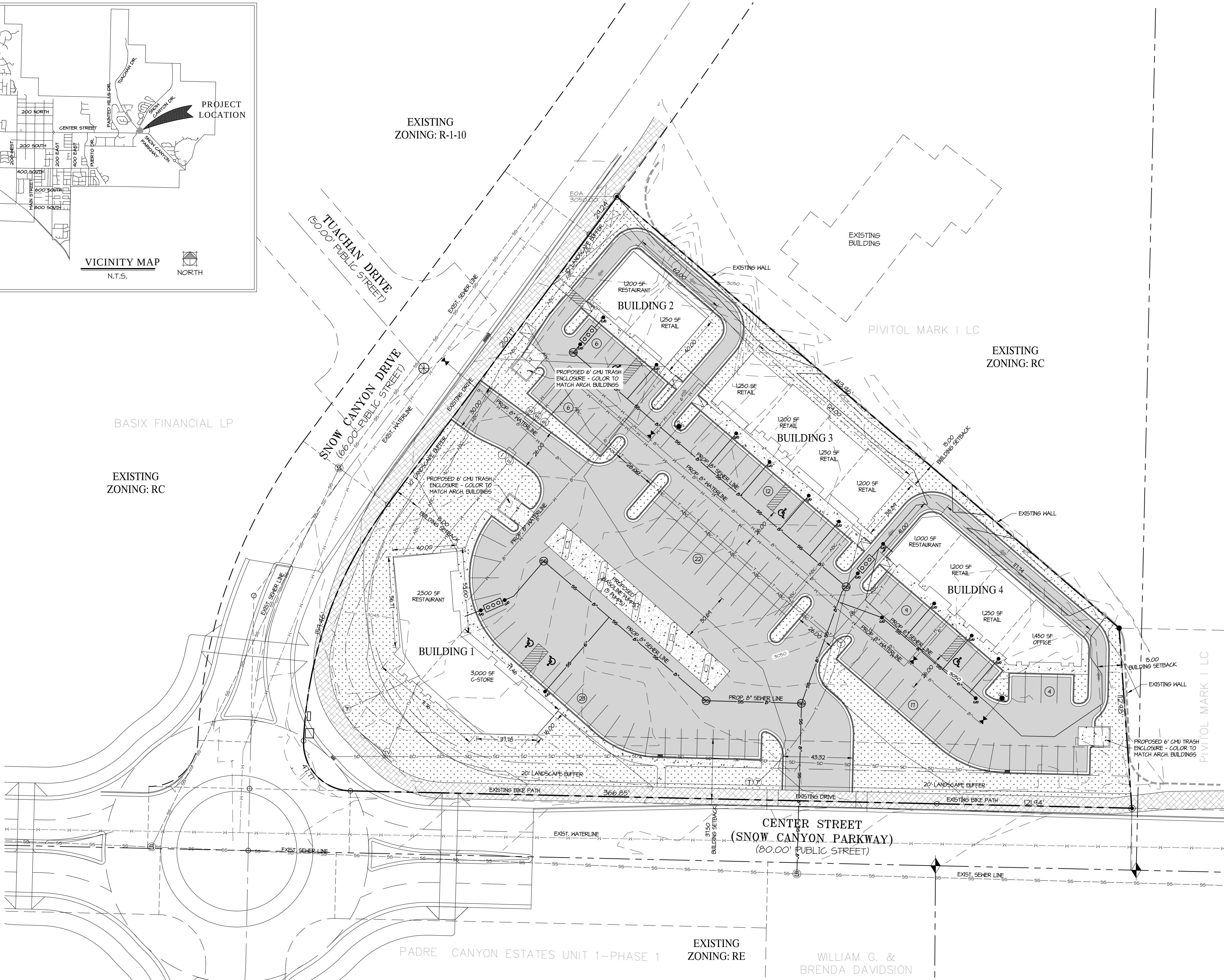
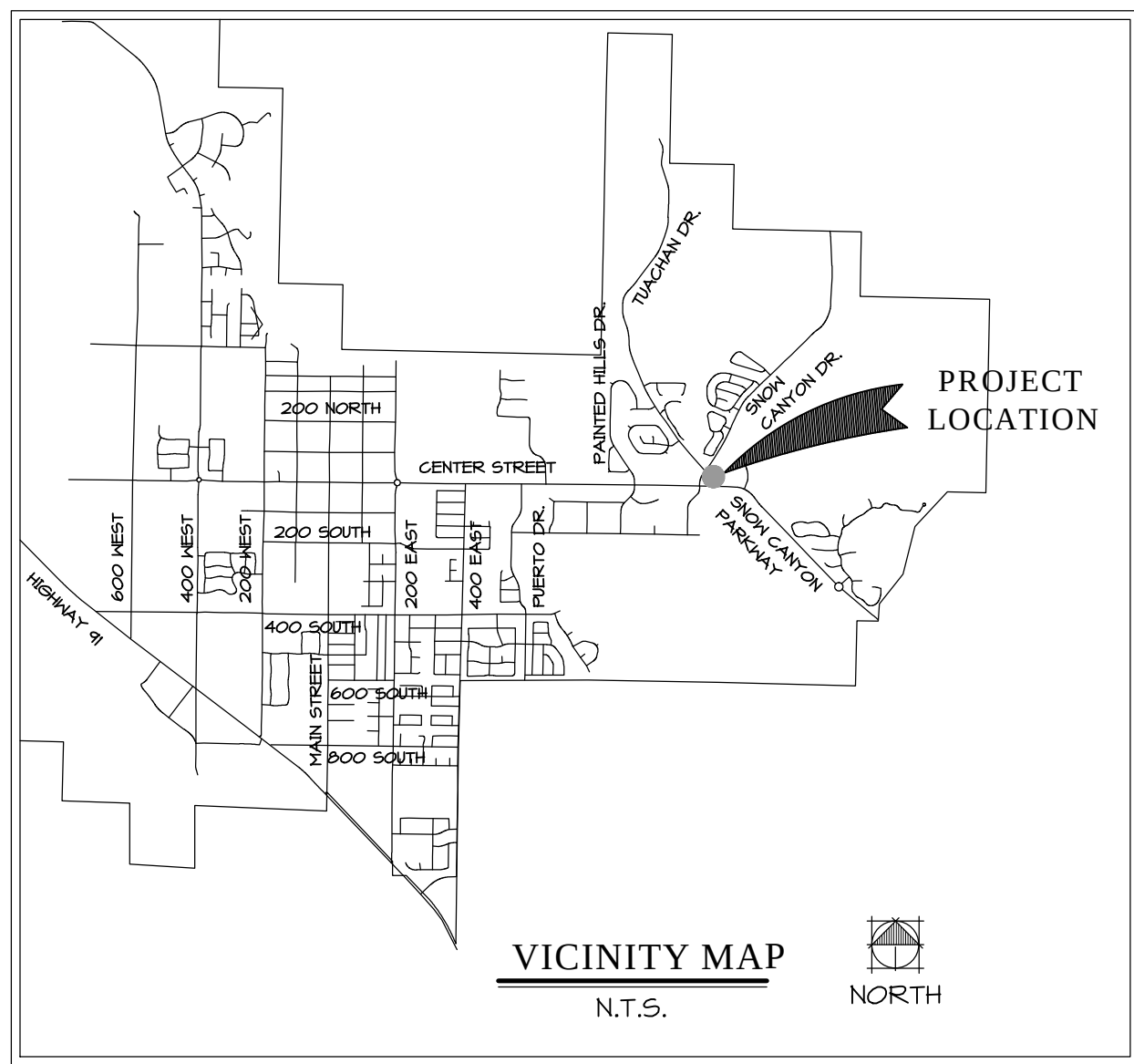
Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	64	7	142
Average Queue (ft)	22	0	53
95th Queue (ft)	51	3	102
Link Distance (ft)		524	184
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty, Interval #1: 0
Zone wide Queuing Penalty, Interval #2: 0
Zone wide Queuing Penalty, Interval #3: 0
Zone wide Queuing Penalty, Interval #4: 0
Zone wide Queuing Penalty, All Intervals: 0

APPENDIX C

Site Plan



GENERAL SITE INFORMATION

PARCEL AREA: 123,431 SF / 2.83 AC
PARCEL NUMBER: 1-6-1-33-331
ZONING: RC (RECREATION COMMERCIAL)
IMPERVIOUS AREA:
BUILDINGS: 11,750 SF
ASPHALT: 53,741 SF
HARDSCAPE: 19,642 SF (INCLUDES CONC. PADS, SIDEWALK, CURB & GUTTER AND PORTION OF EXISTING TRAIL)

LANDSCAPE INFORMATION

STREET FRONTAGE LANDSCAPE AREA: 11,864 SF
ON-SITE LANDSCAPE AREA: 20,424 SF

PARKING CALCULATIONS

PROFESSIONAL OFFICE (NON-MEDICAL): 1 PER 400 SF (GROSS FLOOR AREA)
OFFICE BUILDING: 1,450 SF (TOTAL)
REQUIRED PARKING: 4 PARKING STALLS
NEIGHBORHOOD RETAIL: 1 PER 300 SF (GROSS FLOOR AREA)
RETAIL BUILDINGS: 8,600 SF (TOTAL)
REQUIRED PARKING: 29 PARKING STALLS
RESTAURANT: 1 PER EACH 4 SEATS OR 1 PER 100 SF (GROSS FLOOR AREA, WHICHEVER IS LESS)
RESTAURANT BUILDINGS: 4,700 SF (TOTAL)
REQUIRED PARKING: 47 PARKING STALLS
CONVENIENCE STORE: 1 PER 350 SF (GROSS FLOOR AREA) PLUS 2 PER EACH GASOLINE PUMP PROVIDED
C-STORE BUILDING: 3,000 SF (TOTAL)
GASOLINE PUMPS: 5 (TOTAL)
REQUIRED PARKING: 19 PARKING STALLS
TOTAL REQUIRED PARKING FOR SITE: 94 PARKING STALLS
TOTAL PROVIDED PARKING FOR SITE: 94 PARKING STALLS

BUILDING INFORMATION

BUILDING #1
(1) RESTAURANT: 2,500 SF
(1) CONVENIENCE STORE: 3,000 SF
BUILDING #1 (F.A.R.): 5,500 SF (4.46%)
BUILDING #2
(1) RESTAURANT: 1,200 SF
(1) RETAIL: 1,250 SF
BUILDING #2 (F.A.R.): 2,450 SF (1.98%)
BUILDING #3
(4) RETAIL: 4,900 SF
BUILDING #3 (F.A.R.): 4,900 SF (3.97%)
BUILDING #4
(1) RESTAURANT: 1,000 SF
(2) RETAIL: 2,450 SF
(1) OFFICE: 1,450 SF
BUILDING #4 (F.A.R.): 4,900 SF (3.97%)

DEVELOPER

THE DEVELOPER FOR THIS PROJECT IS
DIXIE PROPERTY MANAGEMENT LLC
581 EAST SAINT GEORGE BLVD.
ST. GEORGE, UTAH
(435) 215-3130
CONTACT: SAM PATEL

OWNER

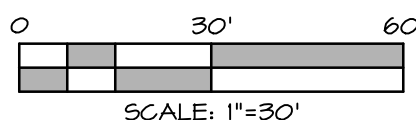
THE OWNER FOR THIS PROJECT IS
RAD PROPERTIES LLC
103 S. DOGENA DRIVE
IVINS, UTAH

PROJECT LOCATION

THE PROJECT IS LOCATED AT:
CENTER STREET & SNOW CANYON DR.
IVINS, UTAH

PROJECT ENGINEER

THE ENGINEER FOR THIS PROJECT IS:
ROSENBERG ASSOCIATES
MICHAEL ROBINSON
352 EAST RIVERSIDE DRIVE, SUITE A2
ST. GEORGE, UTAH 84790 (435) 673-8586



DATE:	07/23/2019
JOB NO.:	11512-19
DESIGNED BY:	FMD
CHECKED BY:	FMD
DWG:	CONCEPT
DATE:	
REVISIONS:	

ROSENBERG
ASSOCIATES
CIVIL ENGINEERS • LAND SURVEYORS

352 East Riverside Drive, Suite A-2
St. George, Utah 84790
Ph (435) 673-8586; Fx (435) 673-8397
www.racivil.com

CONCEPTUAL SITE PLAN FOR CANYON CROSSINGS IVINS, UTAH

APPENDIX D

95th Percentile Queue Length Reports

SimTraffic Queueing Report

Project: Ivins - Canyon Crossings TIS

Analysis: Existing (2019) Background

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet)



Project #: UT19-1579

Intersection	NB			SB			SE	EB			WB	
	L	LTR	T	L	LTR	TR	L	LT	TR	LT	TR	
Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway	--	23	--	26	38	--	--	82	47	59	33	
Snow Canyon Drive & Tuacahn Drive	39	--	3	--	--	2	18	--	--	--	--	

SimTraffic Queueing Report

Project: Ivins - Canyon Crossings TIS

Analysis: Existing (2019) Plus Project

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet)

HALES  **ENGINEERING**
innovative transportation solutions

Project #: UT19-1579

Intersection	NB			N W	SB			SE	EB			WB	
	L	LTR	TR	LTR	L	LR	LTR	LT	L	LT	TR	LT	TR
Docena Drive/Snow Canyon Drive & Center Street/Snow Canyon Parkway	--	29	--	--	42	--	61	--	--	189	128	60	41
Snow Canyon Drive & West Access/Tuacahn Drive	41	--	18	66	--	--	35	15	--	--	--	--	--
Snow Canyon Parkway & South Access	--	--	--	--	--	102	--	--	51	--	--	--	3