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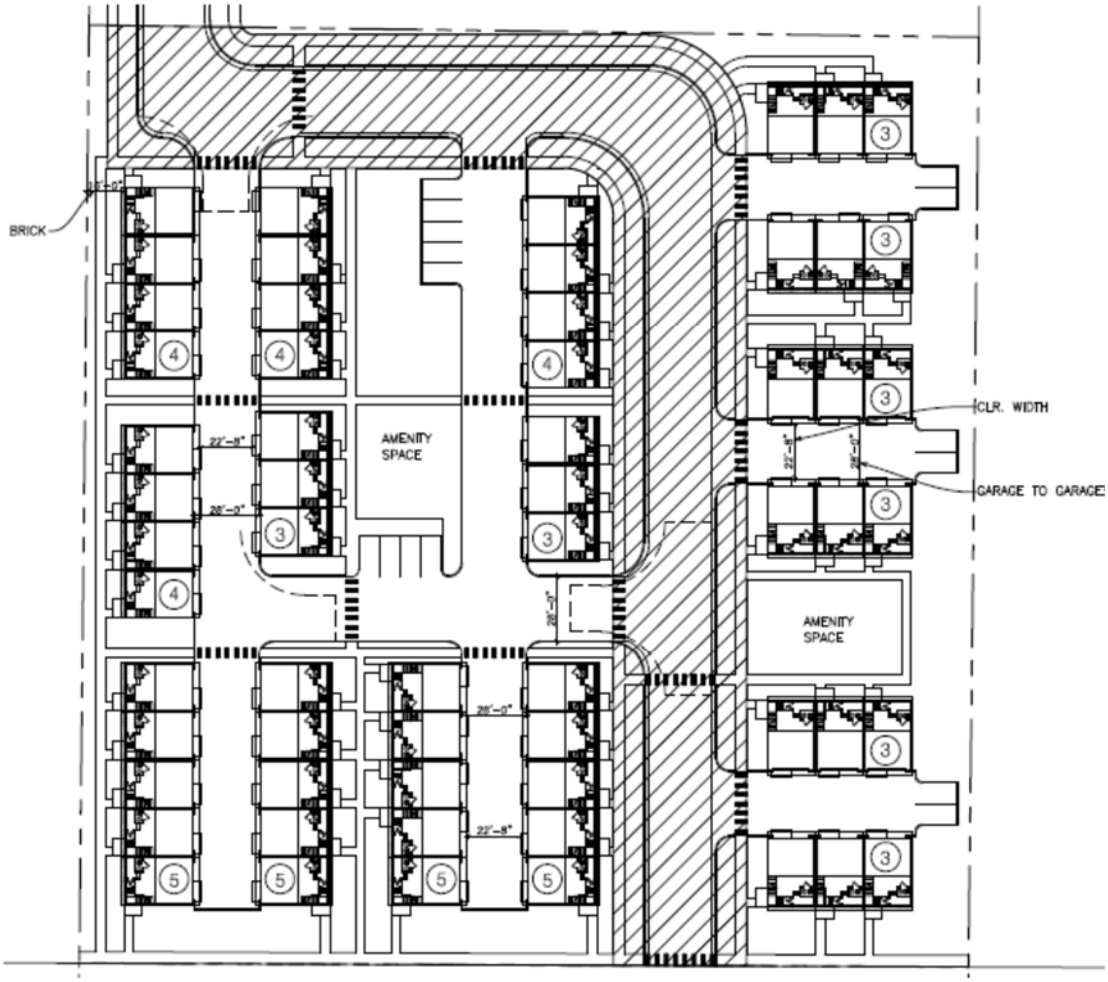
7800 South Townhomes

Traffic Impact Study



Sandy, Utah

January 2017

UT17-989

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EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed townhome development located in Sandy, Utah. The townhome project is located on the north side of 7800 South, at approximately 800 East.

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 in the vicinity of the site.

TRAFFIC ANALYSIS

The following is an outline of the traffic analysis performed by Hales Engineering for the traffic conditions of this project.

Existing (2017) Background Conditions Analysis

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:

- Spruce Tree Lane / 7800 South
- Chad Street / Lyndy Drive
- Lyndy Drive / 700 East (SR-71)

The counts were performed on Tuesday, January 10, 2017. The morning peak hour was determined to be between 7:15 and 8:15 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 23 percent lower than the evening peak hour volumes. Therefore, the evening peak hour volumes were used in the analysis to represent the worst-case conditions.

As shown in Table ES-1, all study intersections are currently operating at acceptable levels of service during the evening peak hour except the Lyndy Drive / 700 East (SR-71) intersection. No significant queueing was observed during the evening peak hour.

Project Conditions Analysis

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

- Townhomes 60 Units

The total trip generation for the development is as follows:

- Daily Trips: 414
- Morning Peak Hour Trips: 36
- Evening Peak Hour Trips: 40

Existing (2017) Plus Project Conditions Analysis

As shown in Table ES-1, all intersections are anticipated to operate at similar levels of service during the evening peak hour with project traffic added. No significant queueing is anticipated during the evening peak hour.

TABLE ES-1
Evening Peak Hour
Sandy - 7800 South Townhomes TIS

Intersection	Existing 2017 Background	Existing 2017 Plus Project
Description	LOS (Sec/Veh[1])	LOS (Sec/Veh[1])
Spruce Tree Lane & Townhome Access / 7800 South	**C (17.7) / NB**	**B (10.2) / NB**
Chad Street / Lyndy Drive	**A (2.3) / NB**	**A (2.8) / NB**
Lyndy Drive / 700 East (SR-71)	**F (>50) / WB**	**F (>50) / WB**

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.

Source: Hales Engineering, January 2017

RECOMMENDATIONS

Existing (2017) Background Conditions Analysis

No mitigation measures are recommended at this time. Although the Lyndy Drive / 700 East (SR-71) intersection is currently operating at LOS F during the evening peak hour, this type of delay is expected for vehicles attempting to make a left-turn onto a busy arterial. There isn't enough traffic at this intersection to meet signal warrants, and the location does not meet signal spacing requirements. The only other available mitigation measure would be to limit movements at the intersection, however, UDOT has recently stated that it is the intent to keep this intersection as a full movement intersection.

Existing (2017) Plus Project Conditions Analysis

As part of the project, the development team plans to widen 7800 South to match the existing cross section to the east and west of the property, as well as construct curb, gutter, and sidewalk. This widened cross section will allow 7800 South to be striped as a three lane roadway, with a center TWLTL, similar to the cross section of 7800 South west of 700 East (SR-71) and east of 1000 East. This will improve safety and operations by providing a center turn lane for left-turning vehicles. No additional mitigation measures are recommended.

SUMMARY OF KEY FINDINGS/RECOMMENDATIONS

The following is a summary of key findings and recommendations:

- All study intersections are currently operating at acceptable levels of service during the evening peak hour except the Lyndy Drive / 700 East (SR-71) intersection.
    - Although the Lyndy Drive / 700 East (SR-71) intersection is currently operating at LOS F during the evening peak hour, this type of delay is expected for vehicles attempting to make a left-turn onto a busy arterial. There isn't enough traffic at this intersection to meet signal warrants, and the location does not meet signal spacing requirements. The only other available mitigation measure would be to limit movements at the intersection, however, UDOT has recently stated that it is the intent to keep this intersection as a full movement intersection.
- The development will consist of 60 residential townhomes and have an access to 7800 South directly across from Spruce Tree Lane, and a secondary access to the stub road for Chad Street.
    - Although it is likely that some traffic will use the new connection through the proposed development as a cut-through route, it is not anticipated that this will draw very much traffic because of the circuitous route and out-of-direction travel.
- All study intersections are anticipated to operate at similar levels of service during the evening peak hour with project traffic added. No significant queueing is anticipated during the evening peak hour.
- As part of the project, the development team plans to widen 7800 South to match the existing cross section to the east and west of the property, as well as construct curb, gutter, and sidewalk. This widened cross section will allow 7800 South to be striped as a three lane roadway, with a center TWLTL, similar to the cross section of 7800 South west of 700 East (SR-71) and east of 1000 East. This will improve safety and operations by providing a center turn lane for left-turning vehicles. No additional mitigation measures are recommended.

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I. INTRODUCTION

A. Purpose

This study addresses the traffic impacts associated with the proposed townhome development located in Sandy, Utah. The townhome project is located on the north side of 7800 South, at approximately 800 East. 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 in the vicinity of the site.

Figure 1 Vicinity Map Showing the Project Location in Sandy, Utah

B. Scope

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

- Spruce Tree Lane / 7800 South
- Chad Street / Lyndy Drive
- Lyndy Drive / 700 East (SR-71)

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 2010 (HCM 2010) 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.

D. Level of Service Standards

For the purposes of this study, a minimum overall intersection performance for each of the study intersections was set at LOS D. However, if LOS E or F conditions exist, an explanation and/or mitigation measures will be presented. An 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 ≤ 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 and ≤ 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 and ≤ 35.0
D	Marginal progression with relatively high levels of control delay. Operating conditions are noticeably more constrained.	> 35.0 and ≤ 55.0
E	Poor progression with unacceptably high levels of control delay. Operating conditions are at or near capacity.	> 55.0 and ≤ 80.0
F	Unacceptable progression with forced or breakdown operating conditions.	> 80.0
	Unsignalized Intersections	**Worst Approach**
A	Free Flow / Insignificant Delay	0 ≤ 10.0
B	Stable Operations / Minimum Delays	>10.0 and ≤ 15.0
C	Stable Operations / Acceptable Delays	>15.0 and ≤ 25.0
D	Approaching Unstable Flows / Tolerable Delays	>25.0 and ≤ 35.0
E	Unstable Operations / Significant Delays Can Occur	>35.0 and ≤ 50.0
F	Forced Flows / Unpredictable Flows / Excessive Delays Occur	> 50.0

Source: Hales Engineering Descriptions, based on Highway Capacity Manual, 2010 Methodology (Transportation Research Board, 2010)

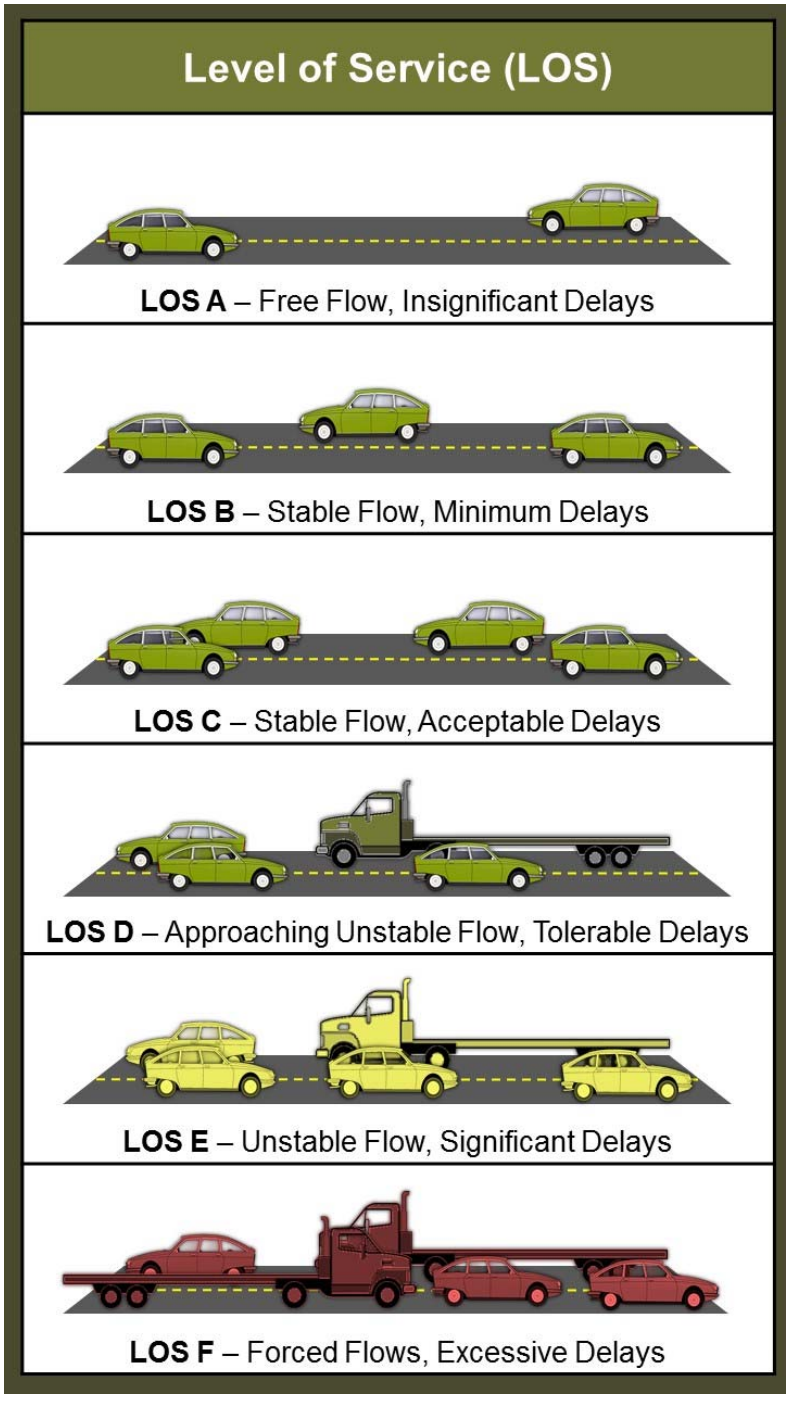

Figure 2 LOS Letter Designation

II. EXISTING (2017) 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 will provide 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:

7800 South – is classified by Sandy City as a minor collector. The roadway has one through lane in each direction adjacent to the site. The posted speed limit is 35 mph in the study area.

700 East (SR-71) – is classified by UDOT as a Regional Priority – Urban Importance, Access Category 5 roadway. An access category 5 roadway has minimum signal spacing of 2,640 feet, minimum street spacing of 660 feet, and minimum access spacing of 350 feet. Adjacent to the site, 700 East (SR-71) has two through lanes in each direction, and a center two-way left-turn lane (TWLTL). The posted speed limit on 700 East (SR-71) is 40 mph.

UDOT is currently evaluating a raised median project on 700 East (SR-71) that would include constructing raised medians along a major portion of the roadway through this area. However, the final design has not yet been determined. At this point, Lyndy Drive is planned to remain a full access intersection. Therefore, this study assumed that no changes are made to the Lyndy Drive / 700 East (SR-71) intersection.

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:

- Spruce Tree Lane / 7800 South
- Chad Street / Lyndy Drive
- Lyndy Drive / 700 East (SR-71)

The counts were performed on Tuesday, January 10, 2017. The morning peak hour was determined to be between 7:15 and 8:15 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 23 percent lower than the

evening peak hour volumes. Therefore, the evening 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 volume as well as intersection geometry at the study intersections.

D. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2010 methodology introduced in Chapter I, the evening peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 2 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2017) conditions. As shown in Table 2, all study intersections are currently operating at acceptable levels of service during the evening peak hour except the Lyndy Drive / 700 East (SR-71) intersection.

Table 2 Background (2017) Evening 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]
Spruce Tree Lane / 7800 South	NB Stop	NB	17.7	C	-	-
Chad Street / Lyndy Drive	NB Yield	NB	2.3	A	-	-
Lyndy Drive / 700 East (SR-71)	WB Stop	WB	> 50	F	-	-

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, January 2017


700 East (SR-71)
2040
18
14
8
Lyndy Drive
1458
18
20
1
Lyndy Drive
29
7
2
0
Chad Street
534
3
7800 South
591
2
Spruce Tree Lane
1
0

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. The queue reports can be found in Appendix D. No significant queueing was observed during the evening peak hour.

F. Mitigation Measures

No mitigation measures are recommended at this time. Although the Lyndy Drive / 700 East (SR-71) intersection is currently operating at LOS F during the evening peak hour, this type of delay is expected for vehicles attempting to make a left-turn onto a busy arterial. There isn't enough traffic at this intersection to meet signal warrants, and the location does not meet signal spacing requirements. The only other available mitigation measure would be to limit movements at the intersection, however, UDOT has recently stated that it is the intent to keep this intersection as a full movement intersection.

III. PROJECT CONDITIONS

A. Purpose

The project conditions analysis 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 the Introduction.

B. Project Description

This study addresses the traffic impacts associated with the proposed townhome development located in Sandy, Utah. The townhome project is located on the north side of 7800 South, at approximately 800 East. The development will consist of 60 residential townhomes. A concept plan for the proposed developments has been included in Appendix C.

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

- Townhomes 60 Units

C. Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation (9th Edition, 2012). Trip Generation for the proposed project is included in Table 3.

The total trip generation for the development is as follows:

- Daily Trips: 414
- Morning Peak Hour Trips: 36
- Evening Peak Hour Trips: 40

Table 3
Sandy - 7800 South Towhomes
Trip Generation

Weekday Daily Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Daily Trips
Residential Condominium/Townhouse (230)	60	Dwelling Units	414	50%	50%	207	207	**414**
Project Total Daily Trips						**207**	**207**	**414**
A.M. Peak Hour Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total a.m. Trips
Residential Condominium/Townhouse (230)	60	Dwelling Units	36	17%	83%	6	30	**36**
Project Total a.m. Peak Hour Trips						**6**	**30**	**36**
P.M. Peak Hour Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total p.m. Trips
Residential Condominium/Townhouse (230)	60	Dwelling Units	40	67%	33%	27	13	**40**
Project Total p.m. Peak Hour Trips						**27**	**13**	**40**
Saturday Daily Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Sat. Daily Trips
Residential Condominium/Townhouse (230)	60	Dwelling Units	646	50%	50%	323	323	**646**
Project Total Saturday Trips						**323**	**323**	**646**
Saturday Peak Hour Land Use[1]	Number of Units	Unit Type	Trip Generation	% Entering	% Exiting	Trips Entering	Trips Exiting	Total Sat Pk Hr Trips
Residential Condominium/Townhouse (230)	60	Dwelling Units	62	54%	46%	33	29	**62**
Project Total Saturday Peak Hour Trips						**33**	**29**	**62**

1. Land Use Code from the Institute of Transportation Engineers Trip Generation Manual (9th Edition - 2012)

SOURCE: Hales Engineering, 2017

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 in close proximity to the site. The resulting distribution of project generated trips during the evening peak hour is as follows:

To/From Project:

- 35% North via 700 East (SR-71)
- 30% South via 700 East (SR-71)
- 15% West via 7800 South
- 20% East via 7800 South

These trip distribution assumptions were used to assign the evening 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.


700 East (SR-71)
Lyndy Drive
Lyndy Drive
Chad Street
700 East (SRS-71)
7800 South
Townhome Access
Spruce Tree Lane
R-71)

E. Access

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

7800 South:

- Access 1 will be located directly across from Spruce Tree Lane, forming a 4-leg intersection. The access will be stop-controlled. The proposed access is located approximately 150 feet west of Ponderosa Way.

Chad Street:

- The second access to the site will be gained from the Chad Street stub road on the northwest corner of the property. This access will connect through the project to Access 1. Vehicles using this access can travel north on Chad Street to Lyndy Drive, and access 700 East (SR-71)
    - Although it is likely that some traffic will use the new connection through the proposed development as a cut-through route, it is not anticipated that this will draw very much traffic because of the circuitous route and out-of-direction travel.

IV. EXISTING (2017) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the existing (2017) 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

Project trips were assigned to the study intersections based on the trip distribution percentages discussed in Chapter III and permitted intersection turning movements. The existing (2017) plus project evening peak hour volumes were generated for the study intersections and are shown in Figure 5.

C. Level of Service Analysis

Using Synchro/SimTraffic, which follow the Highway Capacity Manual (HCM) 2010 methodology introduced in Chapter I, the evening peak hour LOS was computed for each study intersection. The results of this analysis are reported in Table 4 (see Appendix B for the detailed LOS reports). Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. As shown in Table 4, all intersections are anticipated to operate at similar levels of service during the evening peak hour with project traffic added.

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. The queue reports can be found in Appendix D. No significant queuing is anticipated during the evening peak hour.

E. Mitigation Measures

As part of the project, the development team plans to widen 7800 South to match the existing cross section to the east and west of the property, as well as construct curb, gutter, and sidewalk. This widened cross section will allow 7800 South to be striped as a three lane roadway, with a center TWLTL, similar to the cross section of 7800 South west of 700 East (SR-71) and east of 1000 East. This will improve safety and operations by providing a center turn lane for left-turning vehicles. No additional mitigation measures are recommended.


700 East (SR-71)
Lyndy Drive
Lyndy Drive
Chad Street
Townhome Acess
7800 South
Spruce Tree Lane
2041
27
18
8
1459
18
20
1
29
16
9
0
7
0
2
5
534
3
13
591
2
1
0
0

Table 4 Existing (2017) Plus Project Evening 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]
Spruce Tree Lane / 7800 South	NB Stop	NB	10.2	B	-	-
Chad Street / Lyndy Drive	NB Yield	NB	2.8	A	-	-
Lyndy Drive / 700 East (SR-71)	WB Stop	WB	> 50	F	-	-

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, January 2017

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APPENDIX A

Turning Movement Counts

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

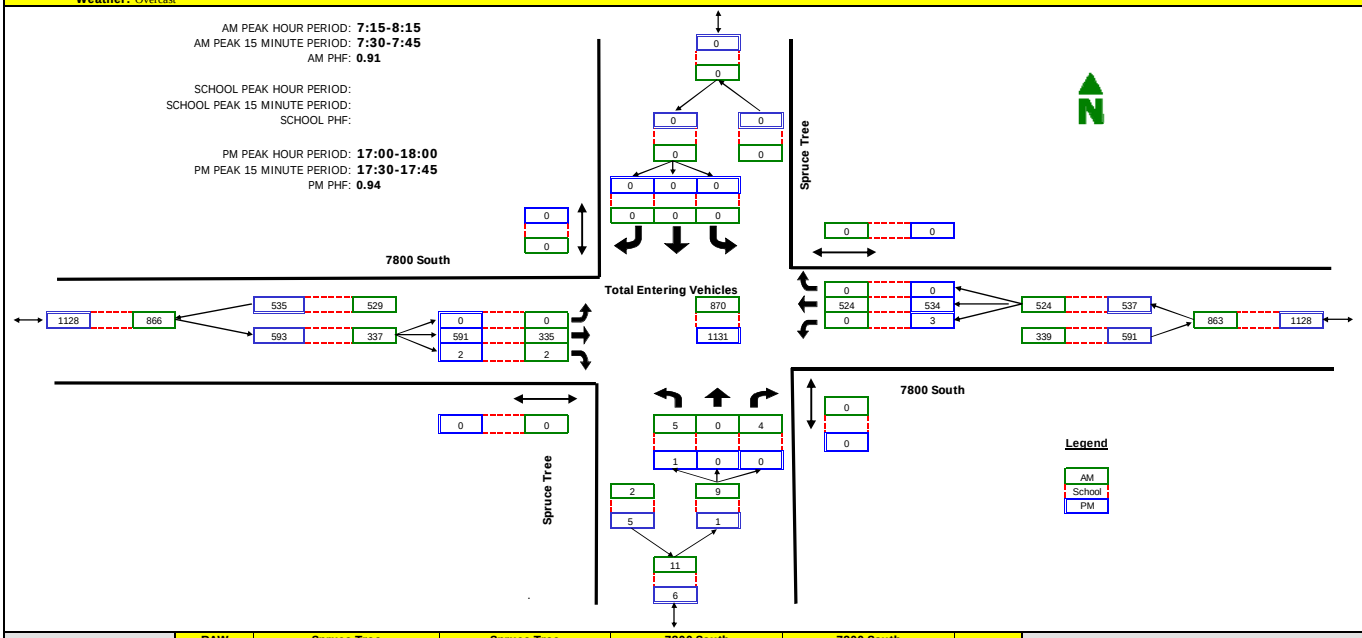
Intersection: Spruce Tree / 7800 South
North/South: Spruce Tree
East/West: 7800 South
Jurisdiction: Sandy
Project Title: Sandy 7800 South Townhomes TIS
Project No: UT17-989
Weather: Overcast

Date: 1-10-17, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 0
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **7:15-8:15**
AM PEAK 15 MINUTE PERIOD: **7:30-7:45**
AM PHF: **0.91**

SCHOOL PEAK HOUR PERIOD:
SCHOOL PEAK 15 MINUTE PERIOD:
SCHOOL PHF:

PM PEAK HOUR PERIOD: **17:00-18:00**
PM PEAK 15 MINUTE PERIOD: **17:30-17:45**
PM PHF: **0.94**



RAW COUNT SUMMARIES	Spruce Tree Northbound				Spruce Tree Southbound				7800 South Eastbound				7800 South Westbound				
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15-7:30	2	0	1	0	0	0	0	0	0	59	0	0	0	123	0	0	185
7:30-7:45	1	0	2	0	0	0	0	0	0	74	2	0	0	160	0	0	239
7:45-8:00	2	0	1	0	0	0	0	0	0	97	0	0	0	131	0	0	231
8:00-8:15	0	0	0	0	0	0	0	0	0	105	0	0	0	110	0	0	215
8:15-8:30	0	0	2	0	0	0	0	0	0	90	0	0	0	79	0	0	171
8:30-8:45	0	0	1	0	0	0	0	0	0	85	0	0	0	90	0	0	176
8:45-9:00	0	0	1	0	0	0	0	0	0	82	0	0	1	84	0	0	168

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	1	0	0	0	0	0	0	0	0	76	0	0	0	72	0	0	149
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	0	0	0	0	0	0	0	0	0	125	1	0	0	121	0	0	247
16:15-16:30	1	0	1	0	0	0	0	0	0	125	1	0	0	136	0	0	264
16:30-16:45	1	0	0	0	0	0	0	0	0	124	2	0	0	122	0	0	249
16:45-17:00	0	0	1	0	0	0	0	0	0	120	2	0	0	130	0	0	253
17:00-17:15	0	0	0	0	0	0	0	0	0	139	1	0	0	140	0	0	280
17:15-17:30	0	0	0	0	0	0	0	0	0	146	1	0	1	129	0	0	277
17:30-17:45	0	0	0	0	0	0	0	0	0	165	0	0	2	135	0	0	302
17:45-18:00	1	0	0	0	0	0	0	0	0	141	0	0	0	130	0	0	272

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

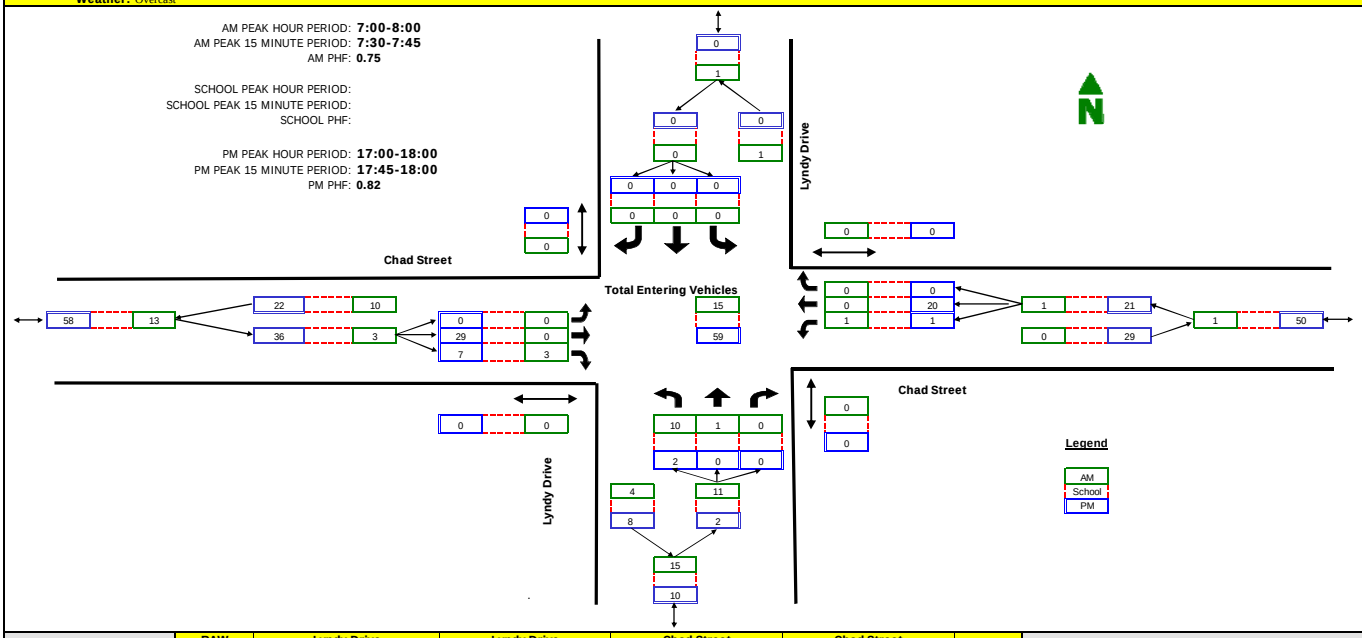
Intersection: Lyndy Drive / Chad Street
North/South: Lyndy Drive
East/West: Chad Street
Jurisdiction: Sandy
Project Title: Sandy 7800 South Townhomes TIS
Project No: UT17-989
Weather: Overcast

Date: 1-10-17, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 0
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **7:00-8:00**
AM PEAK 15 MINUTE PERIOD: **7:30-7:45**
AM PHF: **0.75**

SCHOOL PEAK HOUR PERIOD:
SCHOOL PEAK 15 MINUTE PERIOD:
SCHOOL PHF:

PM PEAK HOUR PERIOD: **17:00-18:00**
PM PEAK 15 MINUTE PERIOD: **17:45-18:00**
PM PHF: **0.82**



RAW COUNT SUMMARIES	Lyndy Drive Northbound				Lyndy Drive Southbound				Chad Street Eastbound				Chad Street Westbound				
	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	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:15-7:30	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3
7:30-7:45	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5
7:45-8:00	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4
8:00-8:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15-8:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30-8:45	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
8:45-9:00	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3

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	0	0	0	0	0	0	0	0	0	7	1	0	0	2	0	0	10
16:15-16:30	1	0	0	0	0	0	0	0	0	5	1	0	0	1	0	0	8
16:30-16:45	2	0	0	0	0	0	0	0	0	8	2	0	0	1	0	0	13
16:45-17:00	1	0	0	0	0	0	0	0	0	8	3	0	0	3	0	0	15
17:00-17:15	0	0	0	0	0	0	0	0	0	9	1	0	0	3	0	0	13
17:15-17:30	0	0	0	0	0	0	0	0	0	5	1	0	0	7	0	0	13
17:30-17:45	2	0	0	0	0	0	0	0	0	8	2	0	1	2	0	0	15
17:45-18:00	0	0	0	0	0	0	0	0	0	7	3	0	0	8	0	0	18

TrafficCounts

2364 North 1450 East
Lehi, UT 84043
801.636.0891

Intersection Turning Movement Summary

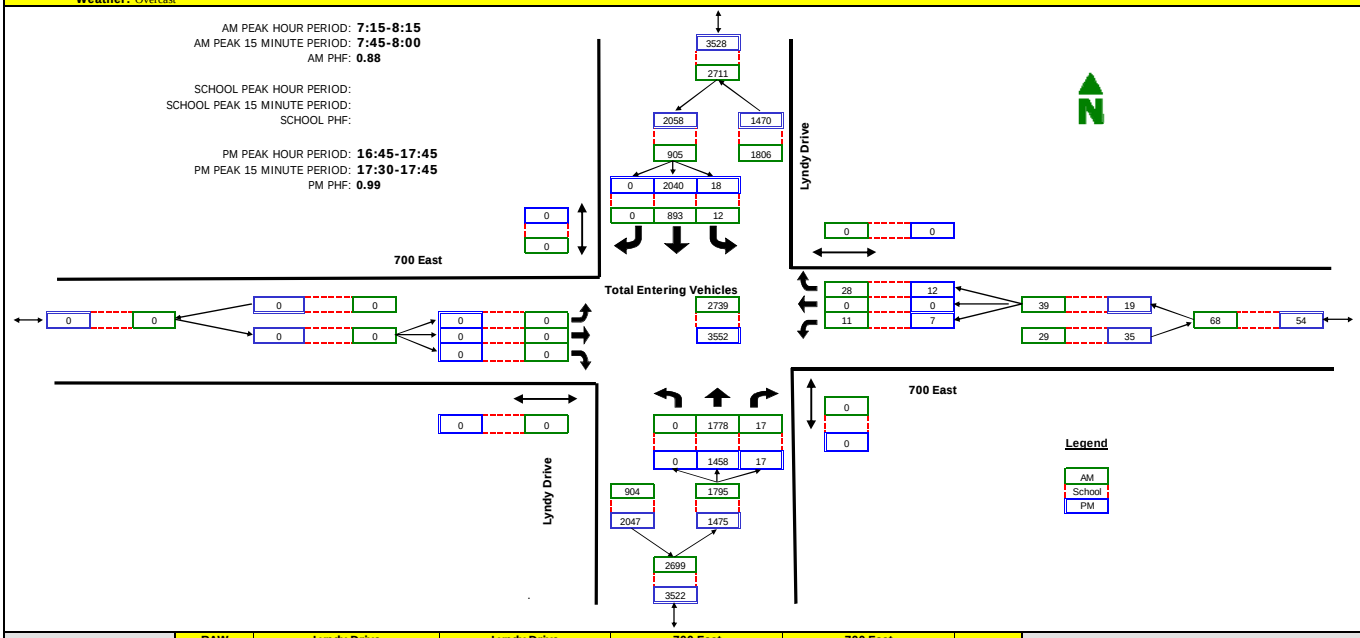
Intersection: Lyndy Drive / 700 East
North/South: Lyndy Drive
East/West: 700 East
Jurisdiction: Sandy
Project Title: Sandy 7800 South Townhomes TIS
Project No: UT17-989
Weather: Overcast

Date: 1-10-17, Tue
Day of Week Adjustment: 100.0%
Month of Year Adjustment: 100.0%
Adjustment Station #: 0
Growth Rate: 0.0%
Number of Years: 0

AM PEAK HOUR PERIOD: **7:15-8:15**
AM PEAK 15 MINUTE PERIOD: **7:45-8:00**
AM PHF: **0.88**

SCHOOL PEAK HOUR PERIOD:
SCHOOL PEAK 15 MINUTE PERIOD:
SCHOOL PHF:

PM PEAK HOUR PERIOD: **16:45-17:45**
PM PEAK 15 MINUTE PERIOD: **17:30-17:45**
PM PHF: **0.99**



RAW COUNT SUMMARIES	Lyndy Drive Northbound				Lyndy Drive Southbound				700 East Eastbound				700 East Westbound				
	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	296	0	0	1	142	0	0	0	0	0	0	0	0	7	0	446
7:15-7:30	0	404	1	0	0	187	0	0	0	0	0	0	2	0	6	0	600
7:30-7:45	0	474	8	0	6	238	0	0	0	0	0	0	6	0	10	0	742
7:45-8:00	0	499	6	0	4	263	0	0	0	0	0	0	2	0	7	0	781
8:00-8:15	0	401	2	0	2	205	0	0	0	0	0	0	1	0	5	0	616
8:15-8:30	0	353	2	0	5	174	0	0	0	0	0	0	4	0	10	0	548
8:30-8:45	0	342	3	0	2	182	0	0	0	0	0	0	1	0	3	0	533
8:45-9:00	0	288	1	0	1	178	0	0	0	0	0	0	2	0	8	0	478

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	0	323	6	0	4	414	0	0	0	0	0	0	0	0	2	0	749
16:15-16:30	0	299	3	0	3	424	0	0	0	0	0	0	0	0	1	0	730
16:30-16:45	0	311	1	0	12	465	0	0	0	0	0	0	0	0	3	0	792
16:45-17:00	0	330	5	0	4	544	0	0	0	0	0	0	1	0	2	0	886
17:00-17:15	0	360	6	0	6	507	0	0	0	0	0	0	0	0	3	0	882
17:15-17:30	0	391	2	0	3	488	0	0	0	0	0	0	1	0	6	0	891
17:30-17:45	0	377	4	0	5	501	0	0	0	0	0	0	5	0	1	0	893
17:45-18:00	0	345	11	0	3	505	0	0	0	0	0	0	1	0	7	0	872

HALES ENGINEERING
innovative transportation solutions

APPENDIX B

LOS Results

HALES ENGINEERING
innovative transportation solutions

SimTraffic LOS Report

Project: Sandy - 7800 South Towhomes TIS
Analysis Period: *Existing (2017) Background*
Time Period: *p.m. Peak Hour* **Project #:** *UT17-989*

Intersection: Spruce Tree Lane & 7800 South
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	1	1	100	17.7	*C*
	Subtotal	***1***	***1***	***100***	***17.7***	***C***
EB	T	591	572	97	2.0	*A*
	R	2	2	100	1.6	*A*
	Subtotal	593	574	97	2.0	*A*
WB	L	3	2	67	5.1	*A*
	T	534	535	100	1.4	*A*
	Subtotal	537	537	100	1.4	*A*
Total		1,131	1,112	98	1.7	*A*

Intersection: Chad Street & Lyndy Drive
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	2	2	100	2.3	*A*
	Subtotal	***2***	***2***	***100***	***2.3***	***A***
WB	L	1	1	100	0.2	*A*
	R	20	20	99	0.1	*A*
	Subtotal	21	21	100	0.1	*A*
SE	L	29	29	101	0.4	*A*
	T	1	1	133	0.4	*A*
	R	7	9	129	0.4	*A*
	Subtotal	37	39	105	0.4	*A*
Total		60	62	104	0.4	*A*

HALES ENGINEERING
innovative transportation solutions

SimTraffic LOS Report

Project: **Sandy - 7800 South Towhomes TIS**
Analysis Period: ***Existing (2017) Background***
Time Period: ***p.m. Peak Hour*** **Project #:** ***UT17-989***

Intersection: **700 East (SRS-71)/700 East (SR-71) & Lyndy Drive**
Type: **Unsignalized**

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NW	L	8	7	85	226.4	*F*
	R	14	15	105	12.3	*B*
	Subtotal	***22***	***22***	***100***	***80.4***	***F***
NE	T	1,484	1,464	99	4.9	*A*
	R	18	21	115	4.8	*A*
	Subtotal	1,502	1,485	99	4.9	*A*
SW	L	18	18	99	16.3	*C*
	T	2,040	2,040	100	1.7	*A*
	Subtotal	2,058	2,058	100	1.8	*A*
Total		3,583	3,565	100	3.7	*A*

Intersection:
Type:

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

1: Spruce Tree Lane & 7800 South Performance by movement Interval #1 4:30

Movement	EBT	EBR	WBL	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0			0.4		0.2
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	1.9			1.1		1.6
Vehicles Entered	141	0	0	128	0	269
Vehicles Exited	143	0	0	129	0	272
Hourly Exit Rate	572	0	0	516	0	1088
Input Volume	578	2	3	523	1	1107
% of Volume	99	0	0	99	0	98

1: Spruce Tree Lane & 7800 South Performance by movement Interval #2 4:45

Movement	EBT	EBR	WBL	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0			0.4		0.2
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	2.0			1.2		1.6
Vehicles Entered	139	0	0	138	0	277
Vehicles Exited	136	0	0	138	0	274
Hourly Exit Rate	544	0	0	552	0	1096
Input Volume	578	2	3	523	1	1107
% of Volume	94	0	0	106	0	99

1: Spruce Tree Lane & 7800 South Performance by movement Interval #3 5:00

Movement	EBT	EBR	WBL	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.4	0.4		0.2
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	1.9	1.2	4.2	1.3		1.7
Vehicles Entered	149	1	1	139	0	290
Vehicles Exited	152	1	1	137	0	291
Hourly Exit Rate	608	4	4	548	0	1164
Input Volume	629	2	3	568	1	1203
% of Volume	97	200	133	96	0	97

1: Spruce Tree Lane & 7800 South Performance by movement Interval #4 5:15

Movement	EBT	EBR	WBL	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0			0.4		0.2
Total Delay (hr)	0.1	0.0	0.0	0.1	0.0	0.1
Total Del/Veh (s)	2.0			1.7		1.9
Vehicles Entered	142	0	0	129	0	271
Vehicles Exited	141	0	0	131	0	272
Hourly Exit Rate	564	0	0	524	0	1088
Input Volume	578	2	3	523	1	1107
% of Volume	98	0	0	100	0	98

1: Spruce Tree Lane & 7800 South Performance by movement Entire Run

Movement	EBT	EBR	WBL	WBT	NBL	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.6	0.4	0.1	0.2
Total Delay (hr)	0.3	0.0	0.0	0.2	0.0	0.5
Total Del/Veh (s)	2.0	1.6	5.1	1.4	17.7	1.7
Vehicles Entered	571	2	2	534	1	1110
Vehicles Exited	572	2	2	535	1	1112
Hourly Exit Rate	572	2	2	535	1	1112
Input Volume	591	2	3	534	1	1131
% of Volume	97	100	67	100	100	98

2: Chad Street & Lyndy Drive Performance by movement Interval #1 4:30

Movement	WBL	WBR	NBL	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1	0.0	0.0		0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.0	0.8	0.5		0.6	0.4
Vehicles Entered	0	5	1	8	0	3	17
Vehicles Exited	0	5	1	8	0	3	17
Hourly Exit Rate	0	20	4	32	0	12	68
Input Volume	1	20	2	28	1	7	59
% of Volume	0	100	200	114	0	171	115

2: Chad Street & Lyndy Drive Performance by movement Interval #2 4:45

Movement	WBL	WBR	NBL	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1		0.0		0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.0		0.3		0.3	0.2
Vehicles Entered	0	5	0	7	0	2	14
Vehicles Exited	0	5	0	8	0	2	15
Hourly Exit Rate	0	20	0	32	0	8	60
Input Volume	1	20	2	28	1	7	59
% of Volume	0	100	0	114	0	114	102

2: Chad Street & Lyndy Drive Performance by movement Interval #3 5:00

Movement	WBL	WBR	NBL	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1		0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.1		0.3	0.3	0.4
Vehicles Entered	0	5	0	8	2	15
Vehicles Exited	0	5	0	8	2	15
Hourly Exit Rate	0	20	0	32	8	60
Input Volume	1	21	2	31	7	62
% of Volume	0	95	0	103	114	97

2: Chad Street & Lyndy Drive Performance by movement Interval #4 5:15

Movement	WBL	WBR	NBL	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.2	0.0	0.0		0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.1	1.6	0.5		0.2	0.4
Vehicles Entered	0	4	1	6	0	2	13
Vehicles Exited	0	5	1	6	0	2	14
Hourly Exit Rate	0	20	4	24	0	8	56
Input Volume	1	20	2	28	1	7	59
% of Volume	0	100	200	86	0	114	95

2: Chad Street & Lyndy Drive Performance by movement Entire Run

Movement	WBL	WBR	NBL	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	2.3	0.4	0.4	0.4	0.4
Vehicles Entered	1	20	2	29	1	9	62
Vehicles Exited	1	20	2	29	1	9	62
Hourly Exit Rate	1	20	2	29	1	9	62
Input Volume	1	20	2	29	1	7	60
% of Volume	100	99	100	101	133	129	104

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #1 4:30

Movement	NWL	NWR	NET	NER	SWL	SWT	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	0.0	0.0	2.1	0.6	0.4
Total Delay (hr)	0.1	0.0	0.5	0.0	0.0	0.1	0.8
Total Del/Veh (s)	153.2	9.9	4.8	5.1	18.4	0.8	3.1
Vehicles Entered	2	4	364	5	6	504	885
Vehicles Exited	2	4	362	6	6	504	884
Hourly Exit Rate	8	16	1448	24	24	2016	3536
Input Volume	8	14	1452	18	18	1997	3507
% of Volume	100	114	100	133	133	101	101

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #2 4:45

Movement	NWL	NWR	NET	NER	SWL	SWT	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	0.0	0.0	2.2	0.6	0.3
Total Delay (hr)	0.1	0.0	0.4	0.0	0.0	0.1	0.7
Total Del/Veh (s)	196.2	10.6	4.4	3.4	15.7	0.7	2.8
Vehicles Entered	1	4	352	5	4	501	867
Vehicles Exited	1	4	354	5	4	501	869
Hourly Exit Rate	4	16	1416	20	16	2004	3476
Input Volume	8	14	1452	18	18	1997	3507
% of Volume	50	114	98	111	89	100	99

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #3 5:00

Movement	NWL	NWR	NET	NER	SWL	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.2	0.0	0.0	1.9	0.8	0.5
Total Delay (hr)	0.1	0.0	0.6	0.0	0.0	0.3	1.0
Total Del/Veh (s)	139.9	15.3	5.4	5.4	11.5	1.7	3.6
Vehicles Entered	2	4	396	6	4	542	954
Vehicles Exited	2	4	390	6	4	538	944
Hourly Exit Rate	8	16	1560	24	16	2152	3776
Input Volume	9	15	1578	19	19	2170	3810
% of Volume	89	107	99	126	84	99	99

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #4 5:15

Movement	NWL	NWR	NET	NER	SWL	SWT	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	0.0	0.0	2.7	1.5	0.9
Total Delay (hr)	0.2	0.0	0.5	0.0	0.0	0.5	1.2
Total Del/Veh (s)	226.3	10.3	4.5	4.3	18.5	3.5	4.8
Vehicles Entered	2	3	354	5	4	493	861
Vehicles Exited	2	4	358	4	4	497	869
Hourly Exit Rate	8	16	1432	16	16	1988	3476
Input Volume	8	14	1452	18	18	1997	3507
% of Volume	100	114	99	89	89	100	99

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Entire Run

Movement	NWL	NWR	NET	NER	SWL	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.5	0.5
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	2.2	0.9	0.5
Total Delay (hr)	0.5	0.1	2.0	0.0	0.1	1.0	3.6
Total Del/Veh (s)	226.4	12.3	4.9	4.8	16.3	1.7	3.7
Vehicles Entered	7	15	1466	21	18	2040	3567
Vehicles Exited	7	15	1464	21	18	2040	3565
Hourly Exit Rate	7	15	1464	21	18	2040	3565
Input Volume	8	14	1484	18	18	2040	3583
% of Volume	85	105	99	115	99	100	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #1 4:30

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)	3.5	1.0	3.5	0.0	0.0	0.0	2.4	0.5	2.4	0.0	0.0	0.0
Total Delay (hr)	0.8	0.7	0.3	0.7	0.8	0.2	0.8	1.4	0.1	0.7	3.2	0.2
Total Del/Veh (s)	70.3	55.4	28.8	67.9	56.8	14.0	72.1	17.7	8.6	51.4	26.2	17.1
Vehicles Entered	37	43	35	33	46	50	35	278	54	47	414	46
Vehicles Exited	35	39	34	30	42	48	33	287	55	47	422	46
Hourly Exit Rate	140	156	136	120	168	192	132	1148	220	188	1688	184
Input Volume	147	166	147	137	186	201	147	1122	218	196	1634	176
% of Volume	95	94	93	88	90	96	90	102	101	96	103	105

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #1 4:30

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.6
Total Delay (hr)	9.9
Total Del/Veh (s)	30.1
Vehicles Entered	1118
Vehicles Exited	1118
Hourly Exit Rate	4472
Input Volume	4477
% of Volume	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #2 4:45

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)	3.3	0.9	3.5	0.0	0.0	0.0	2.3	0.5	2.5	0.0	0.0	0.0
Total Delay (hr)	1.1	0.7	0.3	0.8	0.9	0.2	0.9	1.5	0.1	0.9	4.9	0.4
Total Del/Veh (s)	88.5	52.8	28.8	70.5	62.2	15.6	77.2	19.8	8.5	62.0	41.1	29.0
Vehicles Entered	38	41	40	37	48	53	37	273	49	47	414	41
Vehicles Exited	40	44	42	40	52	54	39	263	49	46	392	40
Hourly Exit Rate	160	176	168	160	208	216	156	1052	196	184	1568	160
Input Volume	147	166	147	137	186	201	147	1122	218	196	1634	176
% of Volume	109	106	114	117	112	107	106	94	90	94	96	91

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #2 4:45

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.6
Total Delay (hr)	12.8
Total Del/Veh (s)	39.0
Vehicles Entered	1118
Vehicles Exited	1101
Hourly Exit Rate	4404
Input Volume	4477
% of Volume	98

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #3 5:00

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	0.1	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	1.1	3.4	0.0	0.0	0.0	2.4	0.6	2.4	0.0	0.0	0.0
Total Delay (hr)	1.0	0.7	0.4	0.9	0.7	0.3	1.1	1.9	0.2	1.2	6.6	0.5
Total Del/Veh (s)	86.3	55.9	32.1	80.8	56.8	18.1	98.5	22.1	10.8	75.8	49.4	38.4
Vehicles Entered	37	46	42	37	44	56	40	302	59	52	440	48
Vehicles Exited	34	42	39	34	42	55	37	313	59	50	445	47
Hourly Exit Rate	136	168	156	136	168	220	148	1252	236	200	1780	188
Input Volume	160	181	160	149	202	218	160	1219	237	213	1775	191
% of Volume	85	93	98	91	83	101	92	103	100	94	100	98

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #3 5:00

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.6
Total Delay (hr)	15.7
Total Del/Veh (s)	43.8
Vehicles Entered	1203
Vehicles Exited	1197
Hourly Exit Rate	4788
Input Volume	4865
% of Volume	98

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #4 5:15

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)	3.5	0.9	3.6	0.0	0.0	0.0	2.4	0.5	2.4	0.0	0.0	0.0
Total Delay (hr)	0.8	0.6	0.3	1.1	1.0	0.2	0.9	1.6	0.1	1.0	6.9	0.6
Total Del/Veh (s)	67.0	48.2	27.5	95.5	66.7	17.3	76.6	20.5	8.9	69.7	55.8	45.0
Vehicles Entered	39	40	39	35	46	50	35	276	55	44	410	45
Vehicles Exited	41	44	42	38	47	49	37	269	54	45	407	45
Hourly Exit Rate	164	176	168	152	188	196	148	1076	216	180	1628	180
Input Volume	147	166	147	137	186	201	147	1122	218	196	1634	176
% of Volume	112	106	114	111	101	98	101	96	99	92	100	102

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #4 5:15

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.6
Total Delay (hr)	15.2
Total Del/Veh (s)	45.5
Vehicles Entered	1114
Vehicles Exited	1118
Hourly Exit Rate	4472
Input Volume	4477
% of Volume	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Entire Run

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	1.0	3.5	0.0	0.0	0.0	2.4	0.5	2.4	0.0	0.0	0.0
Total Delay (hr)	3.7	2.7	1.4	3.5	3.4	1.0	3.7	6.5	0.6	3.7	21.7	1.7
Total Del/Veh (s)	86.6	57.4	31.0	87.7	66.0	16.9	88.4	20.5	9.4	69.5	45.8	34.1
Vehicles Entered	151	169	156	143	185	208	147	1129	216	191	1678	179
Vehicles Exited	150	168	156	141	182	206	146	1131	216	188	1666	179
Hourly Exit Rate	150	168	156	141	182	206	146	1131	216	188	1666	179
Input Volume	150	170	150	140	190	205	150	1146	223	200	1669	180
% of Volume	100	99	104	101	96	100	97	99	97	94	100	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Entire Run

Movement	All
Denied Delay (hr)	0.8
Denied Del/Veh (s)	0.6
Total Delay (hr)	53.6
Total Del/Veh (s)	41.8
Vehicles Entered	4552
Vehicles Exited	4529
Hourly Exit Rate	4529
Input Volume	4574
% of Volume	99

Total Network Performance By Interval

Interval Start	4:30	4:45	5:00	5:15	All
Denied Delay (hr)	0.3	0.3	0.3	0.4	1.3
Denied Del/Veh (s)	0.9	0.9	1.0	1.3	1.0
Total Delay (hr)	11.5	14.3	17.5	17.2	60.5
Total Del/Veh (s)	33.3	41.7	46.8	49.3	46.4
Vehicles Entered	1126	1126	1218	1115	4586
Vehicles Exited	1132	1105	1202	1125	4565
Hourly Exit Rate	4528	4420	4808	4500	4565
Input Volume	13656	13656	14835	13656	13951
% of Volume	33	32	32	33	33

Intersection: 1: Spruce Tree Lane & 7800 South, Interval #1

Movement	NB
Directions Served	LR
Maximum Queue (ft)	9
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	176
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 1: Spruce Tree Lane & 7800 South, Interval #2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	13	3
Average Queue (ft)	2	0
95th Queue (ft)	22	7
Link Distance (ft)	1465	176
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1: Spruce Tree Lane & 7800 South, Interval #3

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	14	9
Average Queue (ft)	2	2
95th Queue (ft)	19	14
Link Distance (ft)	1465	176
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1: Spruce Tree Lane & 7800 South, Interval #4

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	30	9
Average Queue (ft)	5	1
95th Queue (ft)	49	9
Link Distance (ft)	1465	176
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1: Spruce Tree Lane & 7800 South, All Intervals

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	21
Average Queue (ft)	2	1
95th Queue (ft)	28	11
Link Distance (ft)	1465	176
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Chad Street & Lyndy Drive, Interval #1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 2: Chad Street & Lyndy Drive, Interval #2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 2: Chad Street & Lyndy Drive, Interval #3

Movement	NB
Directions Served	LR
Maximum Queue (ft)	2
Average Queue (ft)	1
95th Queue (ft)	7
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Chad Street & Lyndy Drive, Interval #4

Movement	NB
Directions Served	LR
Maximum Queue (ft)	2
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Chad Street & Lyndy Drive, All Intervals

Movement	NB
Directions Served	LR
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	4
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #1

Movement	NW	NW	SW
Directions Served	L	R	L
Maximum Queue (ft)	43	39	38
Average Queue (ft)	15	14	16
95th Queue (ft)	47	43	44
Link Distance (ft)	182		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	100
Storage Blk Time (%)	8	0	
Queuing Penalty (veh)	1	0	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #2

Movement	NW	NW	SW
Directions Served	L	R	L
Maximum Queue (ft)	34	40	34
Average Queue (ft)	13	15	12
95th Queue (ft)	42	44	36
Link Distance (ft)	182		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		50	100
Storage Blk Time (%)	12	1	
Queuing Penalty (veh)	2	0	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #3

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	42	52	3	2	32	73	56
Average Queue (ft)	13	18	0	0	10	4	2
95th Queue (ft)	44	54	5	4	32	58	28
Link Distance (ft)	182		1383	1383		374	374
Upstream Blk Time (%)						0	0
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)		50			100		
Storage Blk Time (%)	8	1				1	
Queuing Penalty (veh)	1	0				0	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #4

Movement	NW	NW	NE	SW	SW	SW
Directions Served	L	R	TR	L	T	T
Maximum Queue (ft)	47	36	2	50	70	60
Average Queue (ft)	21	15	0	17	39	36
95th Queue (ft)	56	46	5	75	232	220
Link Distance (ft)	182		1383		374	374
Upstream Blk Time (%)					3	3
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)		50		100		
Storage Blk Time (%)	17	0			4	
Queuing Penalty (veh)	2	0			1	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, All Intervals

Movement	NW	NW	NE	NE	SW	SW	SW
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	61	66	3	4	62	73	60
Average Queue (ft)	16	15	0	0	14	11	10
95th Queue (ft)	48	47	3	3	50	114	106
Link Distance (ft)	182		1383	1383		374	374
Upstream Blk Time (%)						1	1
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)		50			100		
Storage Blk Time (%)	11	1				1	
Queuing Penalty (veh)	2	0				0	

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	181	233	176	164	284	115	245	356	365	150	249	540
Average Queue (ft)	119	143	82	106	149	60	125	247	219	88	167	396
95th Queue (ft)	209	271	180	182	279	118	243	386	399	180	292	598
Link Distance (ft)		932			828			487	487			1383
Upstream Blk Time (%)								0	1			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	20	23	5	20	25		23	25	14	0	7	25
Queuing Penalty (veh)	63	67	16	79	85		127	36	30	1	60	49

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #1

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	531	200
Average Queue (ft)	389	116
95th Queue (ft)	587	257
Link Distance (ft)	1383	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)	28	0
Queuing Penalty (veh)	50	4

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	209	289	184	178	350	150	242	378	325	158	250	643
Average Queue (ft)	159	202	113	143	211	79	158	249	197	74	169	491
95th Queue (ft)	254	360	209	212	391	185	272	401	356	176	294	911
Link Distance (ft)		932			828			487	487			1383
Upstream Blk Time (%)								0				
Queuing Penalty (veh)								0				
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	35	23	7	32	34		33	27	16	0	6	33
Queuing Penalty (veh)	111	66	22	123	114		183	40	34	2	50	64

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #2

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	641	184
Average Queue (ft)	487	102
95th Queue (ft)	907	242
Link Distance (ft)	1383	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)	37	0
Queuing Penalty (veh)	64	2

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #3

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	209	298	158	176	285	184	284	433	392	160	250	935
Average Queue (ft)	139	178	94	127	159	84	174	333	278	95	179	658
95th Queue (ft)	248	318	190	199	318	198	303	491	428	195	306	1096
Link Distance (ft)		932			828			487	487			1383
Upstream Blk Time (%)								1	0			0
Queuing Penalty (veh)								0	0			3
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	33	27	9	32	23		48	29	20	0	10	32
Queuing Penalty (veh)	111	86	32	136	84		293	46	46	2	91	69

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #3

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	940	200
Average Queue (ft)	656	119
95th Queue (ft)	1075	261
Link Distance (ft)	1383	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	3	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	35	0
Queuing Penalty (veh)	66	1

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #4

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	217	279	181	179	413	274	235	360	304	158	250	942
Average Queue (ft)	146	168	103	138	248	98	149	249	190	85	164	686
95th Queue (ft)	239	303	194	210	525	291	261	402	340	179	288	1242
Link Distance (ft)		932			828			487	487			1383
Upstream Blk Time (%)					1			1	0			1
Queuing Penalty (veh)					6			0	0			5
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	25	19	6	40	28		32	28	16	0	5	36
Queuing Penalty (veh)	78	57	20	157	95		177	41	34	1	43	71

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #4

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	937	200
Average Queue (ft)	675	138
95th Queue (ft)	1228	271
Link Distance (ft)	1383	
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	7	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	39	0
Queuing Penalty (veh)	69	3

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	235	368	199	180	478	304	289	480	463	160	250	1018
Average Queue (ft)	141	172	98	129	192	80	151	270	221	85	170	558
95th Queue (ft)	240	317	195	205	397	210	273	431	391	183	296	1025
Link Distance (ft)		932			828			487	487			1383
Upstream Blk Time (%)					0			1	0			0
Queuing Penalty (veh)					1			0	0			2
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	28	23	7	31	27		34	27	16	0	7	32
Queuing Penalty (veh)	91	69	23	124	94		195	41	36	1	61	63

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, All Intervals

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	998	200
Average Queue (ft)	552	119
95th Queue (ft)	1013	259
Link Distance (ft)	1383	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	35	0
Queuing Penalty (veh)	62	2

Network Summary

Network wide Queuing Penalty, Interval #1: 668
Network wide Queuing Penalty, Interval #2: 878
Network wide Queuing Penalty, Interval #3: 1070
Network wide Queuing Penalty, Interval #4: 868
Network wide Queuing Penalty, All Intervals: 871

HALES ENGINEERING
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SimTraffic LOS Report

Project: Sandy - 7800 South Towhomes TIS
Analysis Period: *Existing (2017) Plus Project*
Time Period: *p.m. Peak Hour* **Project #:** *UT17-989*

Intersection: Spruce Tree Lane/Townhome Acess & 7800 South
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	1	2	200	10.2	*B*
	Subtotal	***1***	***2***	***200***	***10.2***	***B***
SB	L	2	2	100	11.8	*B*
	R	7	7	100	4.8	*A*
	Subtotal	9	9	100	6.4	*A*
EB	L	13	13	98	5.1	*A*
	T	591	577	98	2.2	*A*
	R	2	3	150	1.5	*A*
	Subtotal	606	593	98	2.3	*A*
WB	L	3	2	67	5.6	*A*
	T	534	544	102	1.4	*A*
	R	5	6	120	1.3	*A*
	Subtotal	542	552	102	1.4	*A*
Total		1,158	1,156	100	1.9	*A*

Intersection: Chad Street & Lyndy Drive
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	6	6	100	1.5	*A*
	Subtotal	6	6	100	1.5	*A*
WB	L	1	0	0		
	R	20	18	89	2.8	*A*
	Subtotal	***21***	***18***	***86***	***2.8***	***A***
SE	L	29	26	90	0.6	*A*
	R	16	17	105	0.5	*A*
	Subtotal	45	43	96	0.6	*A*
Total		72	67	93	1.2	*A*

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SimTraffic LOS Report

Project: Sandy - 7800 South Towhomes TIS
Analysis Period: *Existing (2017) Plus Project*
Time Period: *p.m. Peak Hour* **Project #:** *UT17-989*

Intersection: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NW	L	8	7	85	450.0	*F*
	R	18	17	93	43.4	*E*
	Subtotal	***26***	***24***	***92***	***162.0***	***F***
NE	T	1,484	1,488	100	5.1	*A*
	R	18	16	88	5.2	*A*
	Subtotal	1,502	1,504	100	5.1	*A*
SW	L	27	27	101	17.6	*C*
	T	2,041	2,032	100	1.6	*A*
	Subtotal	2,068	2,059	100	1.8	*A*
Total		3,597	3,587	100	4.3	*A*

Intersection:
Type:

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

1: Spruce Tree Lane/Townhome Acess & 7800 South Performance by movement Interval #1 4:30

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBR	All
Denied Delay (hr)	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		0.4	0.5		0.1	0.1	0.2
Total Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	4.5	2.2	1.0		1.4	0.4		15.2	4.7	2.0
Vehicles Entered	4	145	1	0	128	2	0	1	2	283
Vehicles Exited	4	147	1	0	127	2	0	1	2	284
Hourly Exit Rate	16	588	4	0	508	8	0	4	8	1136
Input Volume	13	578	2	3	523	5	1	2	7	1134
% of Volume	123	102	200	0	97	160	0	200	114	100

1: Spruce Tree Lane/Townhome Acess & 7800 South Performance by movement Interval #2 4:45

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBR	All
Denied Delay (hr)	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	0.6	0.4	0.2		0.1	0.1	0.2
Total Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	4.6	2.4	1.2	2.9	1.2	0.6		5.6	4.6	1.9
Vehicles Entered	3	144	1	1	129	2	0	1	2	283
Vehicles Exited	3	141	1	1	131	2	0	1	2	282
Hourly Exit Rate	12	564	4	4	524	8	0	4	8	1128
Input Volume	13	578	2	3	523	5	1	2	7	1134
% of Volume	92	98	200	133	100	160	0	200	114	99

1: Spruce Tree Lane/Townhome Acess & 7800 South Performance by movement Interval #3 5:00

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBR	All
Denied Delay (hr)	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		0.5	1.0	0.1		0.1	0.2
Total Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	3.8	2.1	1.4		1.6	2.4	5.2		4.0	1.9
Vehicles Entered	2	151	1	0	153	1	1	0	2	311
Vehicles Exited	3	153	1	0	150	1	1	0	2	311
Hourly Exit Rate	12	612	4	0	600	4	4	0	8	1244
Input Volume	14	629	2	3	568	5	1	2	7	1231
% of Volume	86	97	200	0	106	80	400	0	114	101

1: Spruce Tree Lane/Townhome Acess & 7800 South Performance by movement Interval #4 5:15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBR	All
Denied Delay (hr)	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	0.2	0.4	0.3			0.1	0.2
Total Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	4.5	2.1	0.9	3.8	1.4	1.6			3.7	1.8
Vehicles Entered	4	137	1	1	133	2	0	0	2	280
Vehicles Exited	4	136	1	0	135	2	0	0	2	280
Hourly Exit Rate	16	544	4	0	540	8	0	0	8	1120
Input Volume	13	578	2	3	523	5	1	2	7	1134
% of Volume	123	94	200	0	103	160	0	0	114	99

1: Spruce Tree Lane/Townhome Acess & 7800 South Performance by movement Entire Run

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.7	0.4	0.5	0.1	0.1	0.1	0.2
Total Delay (hr)	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.6
Total Del/Veh (s)	5.1	2.2	1.5	5.6	1.4	1.3	10.2	11.8	4.8	1.9
Vehicles Entered	13	577	3	2	544	6	2	2	7	1156
Vehicles Exited	13	577	3	2	544	6	2	2	7	1156
Hourly Exit Rate	13	577	3	2	544	6	2	2	7	1156
Input Volume	13	591	2	3	534	5	1	2	7	1158
% of Volume	98	98	150	67	102	120	200	100	100	100

2: Chad Street & Lyndy Drive Performance by movement Interval #1 4:30

Movement	WBL	WBR	NBL	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.1	1.7	0.6	0.6	0.6
Vehicles Entered	0	5	2	7	3	17
Vehicles Exited	0	5	2	7	3	17
Hourly Exit Rate	0	20	8	28	12	68
Input Volume	1	20	6	28	16	71
% of Volume	0	100	133	100	75	96

2: Chad Street & Lyndy Drive Performance by movement Interval #2 4:45

Movement	WBL	WBR	NBL	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.0	1.5	0.5	0.6	0.5
Vehicles Entered	0	4	2	7	4	17
Vehicles Exited	0	4	2	7	4	17
Hourly Exit Rate	0	16	8	28	16	68
Input Volume	1	20	6	28	16	71
% of Volume	0	80	133	100	100	96

2: Chad Street & Lyndy Drive Performance by movement Interval #3 5:00

Movement	WBR	NBL	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.0	1.3	0.6	0.6	0.5
Vehicles Entered	5	1	6	5	17
Vehicles Exited	4	1	7	5	17
Hourly Exit Rate	16	4	28	20	68
Input Volume	21	6	31	17	76
% of Volume	76	67	90	118	89

2: Chad Street & Lyndy Drive Performance by movement Interval #4 5:15

Movement	WBL	WBR	NBL	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		9.9	1.4	0.5	0.4	3.5
Vehicles Entered	0	5	1	6	4	16
Vehicles Exited	0	5	1	6	4	16
Hourly Exit Rate	0	20	4	24	16	64
Input Volume	1	20	6	28	16	71
% of Volume	0	100	67	86	100	90

2: Chad Street & Lyndy Drive Performance by movement Entire Run

Movement	WBL	WBR	NBL	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		2.8	1.5	0.6	0.5	1.2
Vehicles Entered	0	18	6	26	17	67
Vehicles Exited	0	18	6	26	17	67
Hourly Exit Rate	0	18	6	26	17	67
Input Volume	1	20	6	29	16	72
% of Volume	0	89	100	90	105	93

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #1 4:30

Movement	NWL	NWR	NET	NER	SWL	SWT	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	0.0	0.0	1.8	0.5	0.3
Total Delay (hr)	0.1	0.0	0.5	0.0	0.0	0.1	0.8
Total Del/Veh (s)	226.8	13.5	4.7	4.5	16.7	0.7	3.1
Vehicles Entered	2	5	365	4	7	488	871
Vehicles Exited	2	5	362	4	7	490	870
Hourly Exit Rate	8	20	1448	16	28	1960	3480
Input Volume	8	18	1453	18	26	1998	3521
% of Volume	100	111	100	89	108	98	99

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #2 4:45

Movement	NWL	NWR	NET	NER	SWL	SWT	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	0.0	0.0	2.0	0.6	0.3
Total Delay (hr)	0.2	0.0	0.5	0.0	0.0	0.1	0.9
Total Del/Veh (s)	368.9	43.9	5.1	5.0	15.0	0.7	3.7
Vehicles Entered	2	4	362	5	7	506	886
Vehicles Exited	1	4	366	5	7	505	888
Hourly Exit Rate	4	16	1464	20	28	2020	3552
Input Volume	8	18	1453	18	26	1998	3521
% of Volume	50	89	101	111	108	101	101

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #3 5:00

Movement	NWL	NWR	NET	NER	SWL	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	2.3	0.8	0.5
Total Delay (hr)	0.3	0.0	0.6	0.0	0.0	0.3	1.3
Total Del/Veh (s)	372.5	38.8	5.3	6.0	19.3	1.8	4.7
Vehicles Entered	2	4	396	4	7	541	954
Vehicles Exited	2	4	393	4	7	539	949
Hourly Exit Rate	8	16	1572	16	28	2156	3796
Input Volume	9	19	1579	19	29	2171	3826
% of Volume	89	84	100	84	97	99	99

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Interval #4 5:15

Movement	NWL	NWR	NET	NER	SWL	SWT	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	0.0	0.0	2.4	0.8	0.5
Total Delay (hr)	0.4	0.1	0.5	0.0	0.0	0.4	1.4
Total Del/Veh (s)	430.4	84.9	4.7	4.0	19.5	3.0	5.6
Vehicles Entered	2	4	362	4	6	498	876
Vehicles Exited	2	4	366	4	6	498	880
Hourly Exit Rate	8	16	1464	16	24	1992	3520
Input Volume	8	18	1453	18	26	1998	3521
% of Volume	100	89	101	89	92	100	100

3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive Performance by movement Entire Run

Movement	NWL	NWR	NET	NER	SWL	SWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.4	0.4
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	2.1	0.7	0.4
Total Delay (hr)	1.0	0.2	2.1	0.0	0.1	0.9	4.3
Total Del/Veh (s)	450.0	43.4	5.1	5.2	17.6	1.6	4.3
Vehicles Entered	8	17	1485	16	27	2033	3586
Vehicles Exited	7	17	1488	16	27	2032	3587
Hourly Exit Rate	7	17	1488	16	27	2032	3587
Input Volume	8	18	1484	18	27	2041	3597
% of Volume	85	93	100	88	101	100	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #1 4:30

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)	3.6	0.9	3.5	0.0	0.0	0.0	2.5	0.5	2.4	0.0	0.0	0.0
Total Delay (hr)	0.9	0.7	0.3	0.9	0.9	0.3	0.9	1.5	0.2	0.7	3.1	0.2
Total Del/Veh (s)	80.4	50.2	27.6	81.4	65.2	19.4	81.2	18.5	9.6	46.9	25.7	16.2
Vehicles Entered	37	45	35	34	46	49	38	276	59	48	403	41
Vehicles Exited	34	42	34	32	43	49	39	285	60	47	414	42
Hourly Exit Rate	136	168	136	128	172	196	156	1140	240	188	1656	168
Input Volume	147	170	147	141	188	202	147	1122	226	197	1634	176
% of Volume	93	99	93	91	91	97	106	102	106	95	101	95

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #1 4:30

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.6
Total Delay (hr)	10.4
Total Del/Veh (s)	31.7
Vehicles Entered	1111
Vehicles Exited	1121
Hourly Exit Rate	4484
Input Volume	4497
% of Volume	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #2 4:45

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)	3.5	0.9	3.6	0.0	0.0	0.0	2.3	0.5	2.3	0.0	0.0	0.0
Total Delay (hr)	0.8	0.6	0.3	0.7	0.7	0.3	0.8	1.7	0.2	0.8	4.2	0.3
Total Del/Veh (s)	72.1	47.6	29.6	60.5	51.8	16.7	71.6	21.9	9.8	54.6	34.7	23.2
Vehicles Entered	36	40	38	33	45	55	35	281	56	49	415	43
Vehicles Exited	37	43	38	37	48	56	35	274	55	51	396	42
Hourly Exit Rate	148	172	152	148	192	224	140	1096	220	204	1584	168
Input Volume	147	170	147	141	188	202	147	1122	226	197	1634	176
% of Volume	101	101	103	105	102	111	95	98	97	104	97	95

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #2 4:45

Movement	All
Denied Delay (hr)	0.2
Denied Del/Veh (s)	0.6
Total Delay (hr)	11.4
Total Del/Veh (s)	34.5
Vehicles Entered	1126
Vehicles Exited	1112
Hourly Exit Rate	4448
Input Volume	4497
% of Volume	99

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #3 5:00

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	0.1	0.3	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	1.0	3.3	0.0	0.0	0.0	6.3	3.9	5.5	0.0	0.0	0.0
Total Delay (hr)	1.4	0.7	0.5	1.2	1.0	0.4	1.3	2.2	0.2	1.3	6.2	0.5
Total Del/Veh (s)	111.5	57.0	41.3	94.2	65.9	22.0	119.2	25.0	12.8	79.8	47.2	39.4
Vehicles Entered	40	44	40	41	50	62	36	301	61	56	440	45
Vehicles Exited	36	40	39	34	45	59	33	305	62	52	440	44
Hourly Exit Rate	144	160	156	136	180	236	132	1220	248	208	1760	176
Input Volume	160	185	160	153	204	219	160	1219	246	214	1775	191
% of Volume	90	86	98	89	88	108	82	100	101	97	99	92

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #3 5:00

Movement	All
Denied Delay (hr)	0.6
Denied Del/Veh (s)	1.7
Total Delay (hr)	16.9
Total Del/Veh (s)	47.1
Vehicles Entered	1216
Vehicles Exited	1189
Hourly Exit Rate	4756
Input Volume	4886
% of Volume	97

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #4 5:15

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	0.1	0.7	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	4.2	2.2	4.6	0.0	0.0	0.0	12.1	8.3	11.3	0.0	0.0	0.0
Total Delay (hr)	1.8	1.0	0.6	1.2	1.2	0.3	1.3	2.0	0.2	1.0	6.4	0.5
Total Del/Veh (s)	131.9	74.6	50.8	97.3	75.1	20.5	109.3	25.0	11.7	69.9	52.1	38.1
Vehicles Entered	41	39	39	36	50	51	36	279	51	48	410	42
Vehicles Exited	42	43	39	42	54	54	37	269	50	48	399	42
Hourly Exit Rate	168	172	156	168	216	216	148	1076	200	192	1596	168
Input Volume	147	170	147	141	188	202	147	1122	226	197	1634	176
% of Volume	114	101	106	119	115	107	101	96	88	97	98	95

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Interval #4 5:15

Movement	All
Denied Delay (hr)	1.1
Denied Del/Veh (s)	3.4
Total Delay (hr)	17.6
Total Del/Veh (s)	51.9
Vehicles Entered	1122
Vehicles Exited	1119
Hourly Exit Rate	4476
Input Volume	4497
% of Volume	100

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Entire Run

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.1	0.2	0.0	0.0	0.0	0.2	1.1	0.3	0.0	0.0	0.0
Denied Del/Veh (s)	3.7	1.2	3.8	0.0	0.0	0.0	5.8	3.4	5.2	0.0	0.0	0.0
Total Delay (hr)	4.9	3.0	1.7	3.9	3.8	1.3	4.4	7.4	0.7	3.8	19.9	1.5
Total Del/Veh (s)	113.0	63.1	40.2	94.9	70.9	20.6	104.5	23.1	11.2	67.6	42.2	31.1
Vehicles Entered	154	168	152	145	190	218	146	1138	228	201	1668	171
Vehicles Exited	150	167	151	145	190	218	144	1133	227	199	1650	169
Hourly Exit Rate	150	167	151	145	190	218	144	1133	227	199	1650	169
Input Volume	150	174	150	144	192	206	150	1146	231	201	1669	180
% of Volume	100	96	100	101	99	106	96	99	98	99	99	94

4: 700 East (SR-71)/700 East (SRS-71) & 7800 South Performance by movement Entire Run

Movement	All
Denied Delay (hr)	2.0
Denied Del/Veh (s)	1.6
Total Delay (hr)	56.3
Total Del/Veh (s)	43.6
Vehicles Entered	4579
Vehicles Exited	4543
Hourly Exit Rate	4543
Input Volume	4594
% of Volume	99

Total Network Performance By Interval

Interval Start	4:30	4:45	5:00	5:15	All
Denied Delay (hr)	0.3	0.3	0.7	1.2	2.5
Denied Del/Veh (s)	0.9	0.9	2.1	3.7	1.9
Total Delay (hr)	12.0	13.1	19.0	19.8	63.9
Total Del/Veh (s)	34.6	38.0	50.6	55.6	48.5
Vehicles Entered	1125	1140	1233	1133	4634
Vehicles Exited	1140	1120	1203	1137	4600
Hourly Exit Rate	4560	4480	4812	4548	4600
Input Volume	13795	13795	14984	13795	14092
% of Volume	33	32	32	33	33

Intersection: 1: Spruce Tree Lane/Townhome Acess & 7800 South, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	44	18	6	31
Average Queue (ft)	10	3	1	11
95th Queue (ft)	48	34	11	36
Link Distance (ft)	833	1459	176	360
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Spruce Tree Lane/Townhome Acess & 7800 South, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	43	15	12	28
Average Queue (ft)	9	2	2	8
95th Queue (ft)	48	21	16	30
Link Distance (ft)	833	1459	176	360
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Spruce Tree Lane/Townhome Acess & 7800 South, Interval #3

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	15	12	28
Average Queue (ft)	6	3	3	7
95th Queue (ft)	32	32	17	28
Link Distance (ft)	833	1459	176	360
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Spruce Tree Lane/Townhome Acess & 7800 South, Interval #4

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	42	24	6	22
Average Queue (ft)	8	4	1	7
95th Queue (ft)	40	38	9	27
Link Distance (ft)	833	1459	176	360
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Spruce Tree Lane/Townhome Acess & 7800 South, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	76	46	21	31
Average Queue (ft)	8	3	2	8
95th Queue (ft)	43	32	14	30
Link Distance (ft)	833	1459	176	360
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Chad Street & Lyndy Drive, Interval #1

Movement	NB
Directions Served	LR
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	462
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Chad Street & Lyndy Drive, Interval #2

Movement	NB
Directions Served	LR
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	462
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Chad Street & Lyndy Drive, Interval #3

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 2: Chad Street & Lyndy Drive, Interval #4

Movement	WB
Directions Served	LR
Maximum Queue (ft)	7
Average Queue (ft)	3
95th Queue (ft)	17
Link Distance (ft)	540
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Chad Street & Lyndy Drive, All Intervals

Movement	WB	NB
Directions Served	LR	LR
Maximum Queue (ft)	7	5
Average Queue (ft)	1	0
95th Queue (ft)	8	4
Link Distance (ft)	540	462
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #1

Movement	NW	NW	SW	SW
Directions Served	L	R	L	T
Maximum Queue (ft)	40	40	51	12
Average Queue (ft)	16	16	19	2
95th Queue (ft)	51	46	51	25
Link Distance (ft)	191			374
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		50	100	
Storage Blk Time (%)	11	0		0
Queuing Penalty (veh)	2	0		0

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #2

Movement	NW	NW	NE	SW
Directions Served	L	R	TR	L
Maximum Queue (ft)	46	45	2	43
Average Queue (ft)	25	14	0	19
95th Queue (ft)	91	46	5	50
Link Distance (ft)	191		1384	
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		50		100
Storage Blk Time (%)	18	1		
Queuing Penalty (veh)	3	0		

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #3

Movement	NW	NW	NE	SW	SW	SW
Directions Served	L	R	TR	L	T	T
Maximum Queue (ft)	70	56	4	48	49	46
Average Queue (ft)	34	21	1	18	14	8
95th Queue (ft)	124	70	7	51	100	80
Link Distance (ft)	191		1384		374	374
Upstream Blk Time (%)	4					
Queuing Penalty (veh)	1					
Storage Bay Dist (ft)		50		100		
Storage Blk Time (%)	27	1			1	
Queuing Penalty (veh)	5	0			0	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, Interval #4

Movement	NW	NW	SW	SW	SW
Directions Served	L	R	L	T	T
Maximum Queue (ft)	70	56	44	56	39
Average Queue (ft)	46	16	18	41	28
95th Queue (ft)	164	58	52	232	175
Link Distance (ft)	191			374	374
Upstream Blk Time (%)	10			2	1
Queuing Penalty (veh)	3			0	0
Storage Bay Dist (ft)		50	100		
Storage Blk Time (%)	32	1		4	
Queuing Penalty (veh)	6	0		1	

Intersection: 3: 700 East (SRS-71)/700 East (SR-71) & Lyndy Drive, All Intervals

Movement	NW	NW	NE	SW	SW	SW
Directions Served	L	R	TR	L	T	T
Maximum Queue (ft)	86	67	7	60	84	51
Average Queue (ft)	31	17	0	19	14	9
95th Queue (ft)	115	56	4	51	123	93
Link Distance (ft)	191		1384		374	374
Upstream Blk Time (%)	4				0	0
Queuing Penalty (veh)	1				0	0
Storage Bay Dist (ft)		50		100		
Storage Blk Time (%)	22	1			1	
Queuing Penalty (veh)	4	0			0	

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	186	249	182	171	277	180	256	398	368	149	250	539
Average Queue (ft)	127	160	88	119	185	103	155	275	223	88	153	378
95th Queue (ft)	224	290	185	196	432	300	272	421	395	178	282	561
Link Distance (ft)		932			833			487	487			1384
Upstream Blk Time (%)					0			0				
Queuing Penalty (veh)					0			0				
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	25	25	3	26	26		38	25	13	1	6	25
Queuing Penalty (veh)	78	73	10	102	88		214	37	30	3	46	49

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #1

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	536	200
Average Queue (ft)	377	105
95th Queue (ft)	561	248
Link Distance (ft)	1384	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)	28	
Queuing Penalty (veh)	50	

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	195	315	169	173	283	184	268	413	385	159	249	638
Average Queue (ft)	133	178	90	124	180	91	151	262	218	78	176	439
95th Queue (ft)	224	415	173	196	355	205	278	415	393	174	299	797
Link Distance (ft)		932			833			487	487			1384
Upstream Blk Time (%)								0	0			
Queuing Penalty (veh)								0	0			
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	19	16	7	19	24		27	30	17	1	6	31
Queuing Penalty (veh)	60	46	23	73	83		149	44	38	3	50	61

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #2

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	611	199
Average Queue (ft)	431	89
95th Queue (ft)	773	230
Link Distance (ft)	1384	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)	34	0
Queuing Penalty (veh)	60	1

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #3

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	227	406	191	179	443	229	272	463	415	160	249	905
Average Queue (ft)	169	226	104	142	212	108	173	347	299	100	186	638
95th Queue (ft)	270	467	206	211	452	264	306	525	476	200	309	1160
Link Distance (ft)		932			833			487	487			1384
Upstream Blk Time (%)					0			10	3			0
Queuing Penalty (veh)					3			0	0			2
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	48	23	10	48	31		47	29	22	1	15	30
Queuing Penalty (veh)	167	74	33	204	115		283	47	54	5	131	65

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #3

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	887	200
Average Queue (ft)	630	110
95th Queue (ft)	1141	255
Link Distance (ft)	1384	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	34	0
Queuing Penalty (veh)	64	1

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #4

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	233	583	176	178	492	289	263	427	379	158	249	866
Average Queue (ft)	196	348	94	151	298	134	171	295	241	68	168	622
95th Queue (ft)	286	729	187	214	602	364	302	484	447	162	294	1173
Link Distance (ft)		932			833			487	487			1384
Upstream Blk Time (%)		3			0			10	3			1
Queuing Penalty (veh)		0			1			0	0			8
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	63	22	8	45	39		43	29	21	0	8	36
Queuing Penalty (veh)	199	64	25	177	132		244	42	47	2	64	71

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, Interval #4

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	864	200
Average Queue (ft)	615	103
95th Queue (ft)	1168	247
Link Distance (ft)	1384	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	5	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	40	1
Queuing Penalty (veh)	70	4

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	244	630	200	180	532	346	290	494	459	160	250	954
Average Queue (ft)	156	228	94	134	219	109	163	294	245	83	171	519
95th Queue (ft)	262	517	189	208	477	291	291	470	436	181	298	987
Link Distance (ft)		932			833			487	487			1384
Upstream Blk Time (%)		1			0			5	2			0
Queuing Penalty (veh)		0			1			0	0			3
Storage Bay Dist (ft)	125		100	100		350	110			110	150	
Storage Blk Time (%)	39	21	7	35	30		39	28	18	1	9	31
Queuing Penalty (veh)	126	64	23	139	105		222	42	42	3	73	62

Intersection: 4: 700 East (SR-71)/700 East (SRS-71) & 7800 South, All Intervals

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	947	200
Average Queue (ft)	513	102
95th Queue (ft)	975	245
Link Distance (ft)	1384	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	34	0
Queuing Penalty (veh)	61	2

Network Summary

Network wide Queuing Penalty, Interval #1: 782
Network wide Queuing Penalty, Interval #2: 694
Network wide Queuing Penalty, Interval #3: 1259
Network wide Queuing Penalty, Interval #4: 1166
Network wide Queuing Penalty, All Intervals: 975

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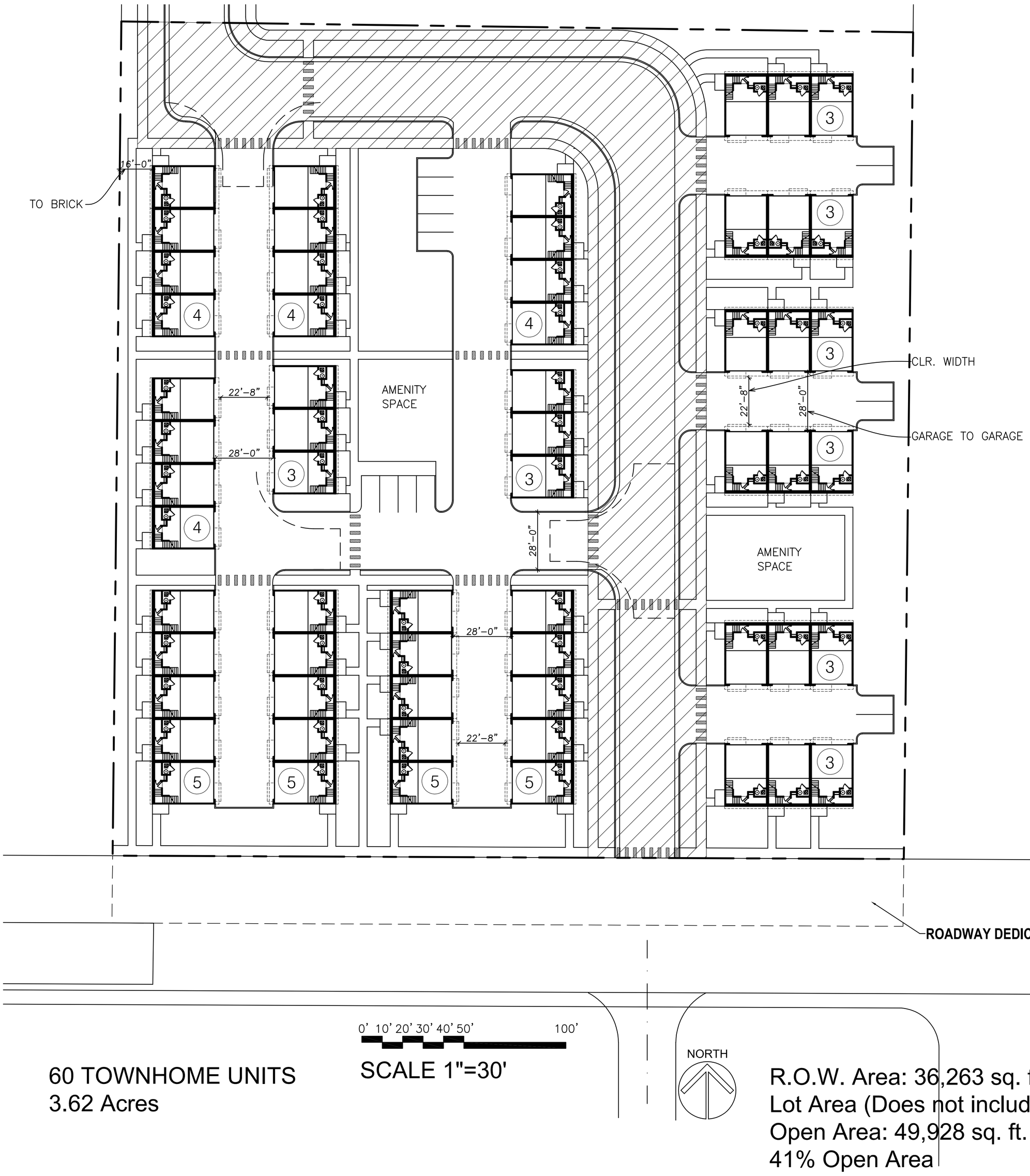
APPENDIX C

Site Plan



60 TOWNHOME UNITS
3.62 Acres

SCALE 1"=30'

R.O.W. Area: 36,263 sq. ft.
Lot Area (Does not include R.O.W.) = 121,573 sq. ft.
Open Area: 49,928 sq. ft.
41% Open Area

SITE PLAN CONCEPT 5.4 - TOWNHOME UNITS (EXCLUDES R.O.W. THROUGH PROPERTY)

SANDY, UTAH

Nov. 10, 2016

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APPENDIX D

95th Percentile Queue Length Reports

SimTraffic Queueing Report

Project: Sandy - 7800 South Towhomes TIS

Time Period: p.m. Peak Hour

95th Percentile Queue Length (feet)

HALES ENGINEERING
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Project #: UT17-989

Intersection	Time Period	NB	NE		NW		SW		WB
		LR	T	TR	L	R	L	T	LT
700 East (SRS-71)/700 East (SR-71) & Lyndy Drive	Existing (2017) Background	--	3	3	48	47	50	110	--
Chad Street & Lyndy Drive	Existing (2017) Background	4	--	--	--	--	--	--	--
Spruce Tree Lane & 7800 South	Existing (2017) Background	11	--	--	--	--	--	--	28

SimTraffic Queueing Report

Project: Sandy - 7800 South Towhomes TIS

Time Period: p.m. Peak Hour

95th Percentile Queue Length (feet)

HALES ENGINEERING
Innovative transportation solutions

Project #: UT17-989

Intersection	Time Period	EB	NB		NE	NW		SB	SW		WB	
		LTR	LR	LTR	TR	L	R	LTR	L	T	LR	LTR
700 East (SRS-71)/700 East (SR-71) & Lyndy Drive	Existing (2017) Plus Project	--	--	--	4	115	56	--	51	108	--	--
Chad Street & Lyndy Drive	Existing (2017) Plus Project	--	4	--	--	--	--	--	--	--	8	--
Spruce Tree Lane/Townhome Acess & 7800 South	Existing (2017) Plus Project	43	--	14	--	--	--	30	--	--	--	32