SR-198 Corridor Study

Prepared for the City of Payson and Utah Department of Transportation

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1.0 INTRODUCTION

This study analyzes near- and long-term solutions that address present and anticipated deficiencies along SR-198, between approximately 2100 West (in Utah County) and 800 South (in Payson). This segment of SR-198 is a three lane facility (two general purpose lanes and one median lane) that serves as the primary east–west (100 North) and north–south (100 West) commercial corridor in Payson. In addition, SR-198 connects Payson to surrounding communities, including Salem, Elk Ridge, and Spanish Fork.

This study was prepared concurrently with the *I-15, Payson Main Street Interchange Draft Environmental Impact Statement (EIS)*, which analyzed various alternatives to address design deficiencies and projected traffic congestion at the Main Street interchange. The Utah Department of Transportation selected Alternative C1: Braided Ramps as the preferred alternative. As such, this study accounts for Alternative C1 as the basis for traffic assumptions.

2.0 ANALYSIS METHODOLGY

This section describes the tools and methodologies used in performing the analysis. Two analysis tools were key to the development of this study: the Mountainland Association of Governments (MAG) travel demand model and VISSIM micro-simulation software. The use of these tools, along with descriptions of some of the measures of effectiveness used for the study are described in this section.

2.1.1 MAG TRAVEL DEMAND MODEL

The MAG travel demand model is a tool used to predict future travel and traffic volumes for the Wasatch Front area. It is jointly owned and maintained by the Wasatch Front Regional Council (WFRC) and the MAG, which are the Metropolitan Planning Organizations for the Wasatch Front. MAG is responsible for Utah County and WFRC covers Weber, Davis, and Salt Lake counties. Version 8.0 of the travel demand model was used for this study.

The travel demand model has two primary inputs: land use data and transportation system data. The land use data consists of residential and employment data for the entire region. This data is prepared in geographic blocks call Traffic Analysis Zones (TAZs). There are over 600 TAZs in Utah County and over 30 zones in the Payson area. The transportation system data consists of roadway and transit networks. The travel demand model inputs are prepared for a base year, which in this case is 2011, and for future years, which in this case were 2024, 2034, and 2040. In consultation with the cities, MAG prepares future land use projections for each of these years. These projections are used by MAG to develop the Regional Transportation Plan, which is the plan for the development of the future transportation system and includes a list of projects that will be built by each of the future horizon years.

Using these inputs, the travel demand model predicts how many person trips will be generated in the region, where those trips will be going, the mode by which they will be made, and the transportation facilities that will be used to get there. Minor modifications were made to the travel demand model to improve its accuracy in the Payson area. These modifications were made for the *I-15, Payson Main Street Interchange Draft EIS* and were then used for this study as well. The traffic report produced for the *Draft EIS* describing the model modifications can be found in the appendix.

2.1.2 VISSIM MICRO-SIMULATION MODEL

VISSIM is a micro-simulation model used for performing complex traffic operations analyses. VISSIM is developed by PTV and is widely used in Utah and throughout the world. Micro-simulation models individually simulate each vehicle in the model area and the interaction between them, which makes the model very powerful in its capacity to analyze a range of roadway and intersection possibilities. Traffic volumes and traffic control devices such as traffic signals and stop signs are coded into the model, which is then run. VISSIM is a stochastic model, which means that each run of the model with a different random seed value produces different results. Therefore, for this study each VISSIM model was run ten times and the results averaged together.

2.1.3 MEASURES OF EFFECTIVENESS

Level of service (LOS) was a primary measure of effectiveness used for this study. LOS is a letter grade system ranging from A to F that generally describes the operating condition of a given transportation facility as detailed in the *2010 Highway Capacity Manual*, published by the Transportation Research Board. LOS criteria vary by facility type. For signalized intersections the LOS criteria is based on average vehicle delay, while for arterial roadways the criteria is average travel speed with LOS grades based on a percentage of the free-flow speed of the roadway. The LOS criteria for signalized intersections and arterial roadways are shown in Table 2-1.

Table 2-1: Signalized Intersection and Arterial LOS Criteria

LOS	Traffic Conditions	Signalized Intersection Average Delay (seconds/vehicle)	Arterial Roadway Travel Speed as a Percentage of Free-Flow Speed
A	Free Flow Operations / Insignificant Delay	0 ≤ 10.0	> 85
B	Smooth Operations / Short Delays	> 10.0 and ≤ 20.0	> 67–85
C	Stable Operations / Acceptable Delays	> 20.0 and ≤ 35.0	> 50–67
D	Approaching Unstable Operations / Tolerable Delays	> 35.0 and ≤ 55.0	> 40–50
E	Unstable Operations / Significant Delays Begin	> 55.0 and ≤ 80.0	> 30–40
F	Very Poor Operations / Excessive Delays Occur	> 80.0	≤ 30

Source: Highway Capacity Manual 2010, Transportation Research Board

These measures of effectiveness were extracted from the VISSIM models. Intersection delay was measured for each signalized intersection along the SR-198 study corridor and the corresponding LOS determined. Likewise, the average vehicle speeds from intersection to intersection along the corridor were also extracted from the VISSIM models and used to determine arterial LOS. For the purposes of this analysis the free-flow speed was assumed to be the posted speed limit on SR-198.

2.1.4 TRAFFIC COUNTS

A key component to all of the traffic analyses performed for this study was an understanding of existing traffic volumes on the corridor. Traffic volumes were collected on Tuesday, October 28, 2014. Intersection turning movement counts were performed at seven intersections along the corridor: 800 South, 300 South, Utah Avenue, 100 North/100 West, Main Street (SR-115), 600 East, and 1000 East. The counts were collected between 7:00 and 9:00 AM and between 4:00 and 6:00 PM.

The AM peak hour was determined to be from 7:30 to 8:30 AM; the PM peak hour was determined to be from 4:45 to 5:45 PM.

To prepare the intersection traffic volumes for use, the traffic volumes were balanced between intersections through the project area so that the traffic volume exiting one intersection was the same as the traffic volume entering the adjacent intersection. Where there were long distances between intersections, "dummy" driveways were used to account for the differences in traffic volumes.

2.1.5 FUTURE TRAFFIC VOLUMES

Future year traffic volumes were developed using the MAG travel demand model and the balanced 2014 traffic volumes. As mentioned previously, modifications were made to the travel demand model to improve its accuracy in the study area. The modifications include TAZ splits and revisions to the highway network in Payson.

After these modifications were made, the travel demand model was run for the base year (2011) and for the future years of 2024, 2034, and 2040. AM and PM peak hour volumes were developed for each of the future years using principles described in the *National Cooperative Highway Research Program (NCHRP) Report 255: Highway Traffic Data for Urbanized Area Project Planning and Design.* In short, the travel demand model was used to estimate the growth between the base year and the future year for each intersection leg for traffic into and out of the intersection. That growth was then applied to the 2014 traffic count volumes and the resulting traffic volumes balanced to ensure the correct number of inbound and outbound vehicles on each leg of the intersection.

3.1 EXISTING & FUTURE NO BUILD CONDITIONS

This section describes existing traffic operations along the SR-198 corridor and the anticipated future traffic operations if no improvements are made. For these conditions, SR-198 is analyzed as a three lane corridor with one travel lane in each direction and a center two-way left turn lane. The analysis includes all signalized intersections along the corridor between 100 East and 800 South and the stop controlled intersections at SR-198 and 300 South and 100 West and 100 North. Results of the analysis are reported in terms of arterial LOS and intersection LOS. Analysis is completed only for the PM peak hour.

This SR-198 study is being produced concurrently with the *I-15, Payson Main Street Interchange Draft EIS.* The Preferred Alternative identified in the *Draft EIS* released for public review and comment in October 2017 was Alternative C1: Braided Ramps (one of the Combination interchange scenarios). A final decision is not expected until mid-2018. Depending on the interchange alternative, volumes along SR-198 will be quite different. As such, future year analysis for SR-198 was completed under both the Improve Existing and Combination interchange scenarios as described in the *Draft EIS*. Despite significant differences in volumes between the two interchange scenarios, especially on SR-198 between Main Street and 1000 East, the results showed minor operational differences between the two. SR-198 experienced failing traffic conditions within a few years of each other, with the conditions under Improve Existing interchange scenario failing first. This study reports the analysis results under the Combination interchange scenarios because the preferred alternative is Alternative C1. Results for the Improve Existing interchange scenario can be found in the Appendix.

3.1.1 EXISTING CONDITIONS

Existing traffic volumes for each analyzed intersection are shown on Figure 3-1. Counts were conducted Tuesday, October 28, 2014. For both AM and PM peak hours, the through movements along SR-198 generally have the highest traffic volumes with the PM volumes being higher than the AM traffic volumes. The exception is at the intersection of SR-198 and Main Street (SR-115) where the major AM movements for this intersection are the eastbound left and the westbound right, or those traveling toward the interstate. In the PM peak hour, even though the southbound movements are quite high with traffic traveling from the interstate, the east–west through movements on SR-198 at Main Street still have the higher traffic volumes.

Daily traffic volume counts were conducted at three locations on SR-198: just south of 800 South, between 300 South and Utah Avenue, between Main Street and 600 East, and just east of 1000 East. The highest Average Daily Traffic (ADT) on SR-198 occurs between 300 South and 600 East with between 14,600 and 15,600 vehicles per day. East of 1000 East the ADT drops by about a third to 10,300 vehicles per day. South of 800 South has the lowest ADT at 8,900 vehicles per day. The directional ADT for each of these locations is also shown on Figure 3-1.

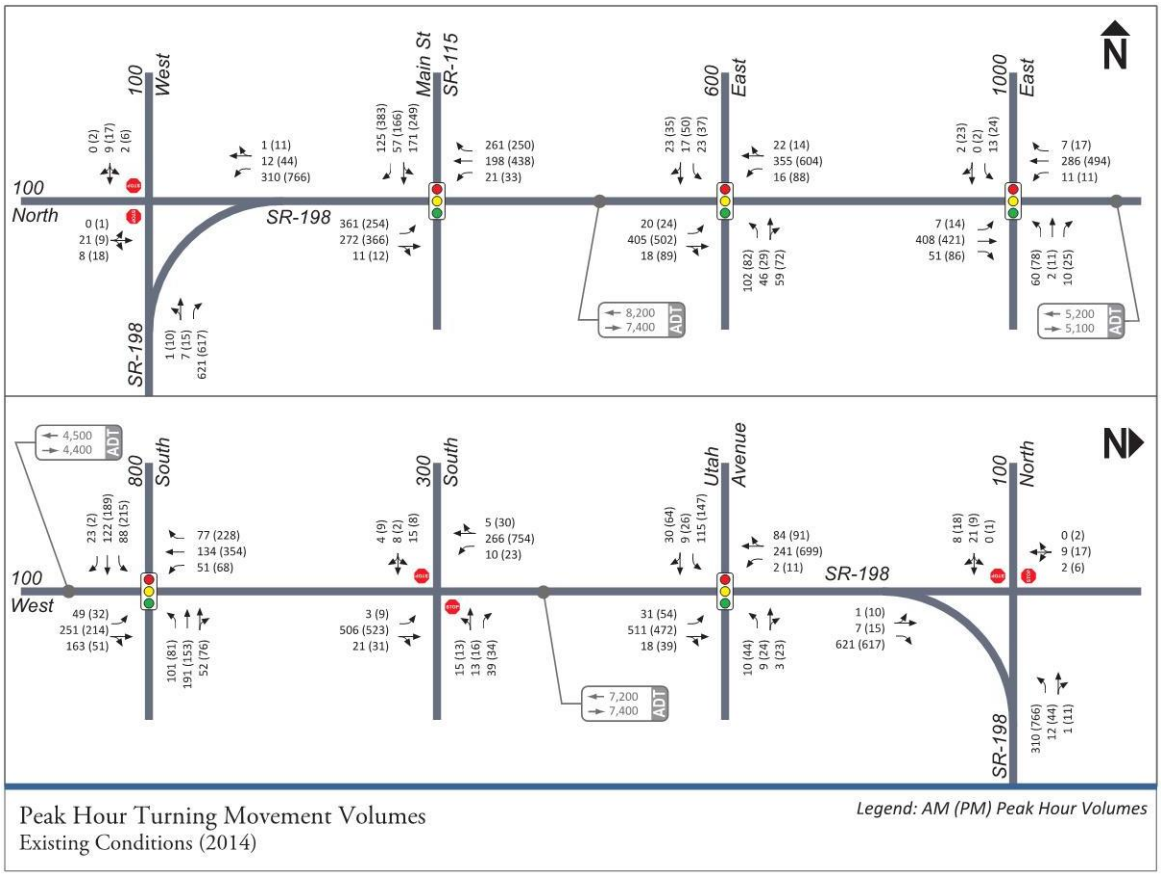


Figure 3-1: Peak Hour Turning Movement Volumes

Existing traffic signal timing data was obtained for the UDOT Traffic Operations Center and entered into the VISSIM model. The existing models were then calibrated to mimic existing traffic congestion, which currently is quite minimal. Where possible VISSIM standard settings were maintained, changes were only made when deemed appropriate to match existing traffic patterns during the calibration process.

The analysis shows that under the existing conditions the corridor is performing at acceptable levels during the PM peak hour. All signalized and unsignalized intersections currently operate at LOS C or better. The overall arterial operates at LOS B in both travel directions. The section between the intersections of Main Street and Utah Avenue performs the lowest in each direction with a LOS D and a travel speed of 15 miles per hour (mph) in the north/eastbound direction and a LOS C and a travel speed of 18 mph in the west/southbound direction. Arterial and intersection LOS are shown on Figure 3-2. The analysis of arterial LOS were separated in to directional segments between each of the analyzed intersections.

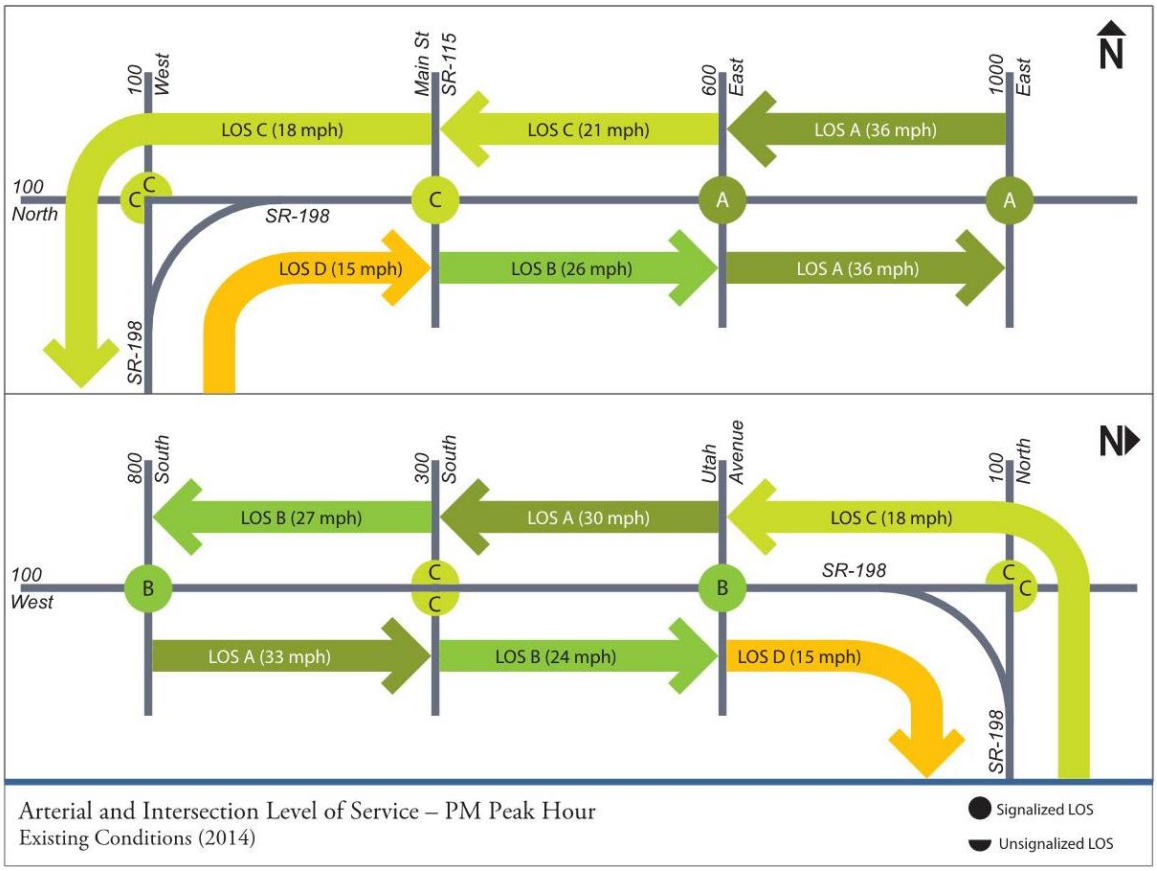


Figure 3-2: Intersection and Arterial LOS – PM Peak Hour

3.1.2 FUTURE NO BUILD CONDITIONS

Future no build conditions show how the corridor will operate into the future given no changes to the current cross-section and provide a benchmark for measuring the impact of potential improvement scenarios. The basic premise of no build is that future traffic conditions are analyzed in scenarios where there are no roadway improvements. In this study it is assumed that SR-198 stays a three lane facility for all no build scenarios. Thus, baseline traffic operations for SR-198 can be established, and all other improvement scenarios can be compared to this condition. The horizon years for analysis of 2024, 2034, and 2040 were selected corresponding to MAG's transportation plan. By seeing how the roadway operates at these various years, analysis of no build conditions helps to inform the timing and scale of roadway improvements. This section describes the land use changes between 2011 and 2040 and the resulting travel patterns and roadway operations that occur in future no build conditions.

Land Use

As described in Section 2.1.1, land use is one of the main inputs into the travel demand model to estimate future traffic volumes. Land use data in the model consists primarily of household and employment growth as spread out among the region's various TAZs. Future land use data was provided and approved by MAG as part of the *I-15, Payson Main Street Interchange Draft EIS* project. The following summary of population and employment data clarifies how and where Payson will grow.

Land use data for Payson area was aggregated into ten districts. Population and employment numbers for each district for 2011 and 2040 are shown in Table 3-1. The Payson area population is expected to nearly double by 2040, increasing from 20,520 in 2011 to 40,820 in 2040 (a 99 percent increase). Area employment is expected to more than double from 7,000 jobs in 2011 to approximately 16,880 jobs in 2040 (a 141 percent increase). The highest population growth can be found on the north side of the Payson area on both sides of I-15 in districts 1 and 10 with a combined 8,460 new residents projected for these two districts. The highest employment growth can be found on the west side of I-15 in districts 9 and 10 with a combined 5,250 new jobs projected for these two districts. The lowest population growth is in the northwest portion of city proper in district 8 with only 230 new residents projected. The lowest employment growth is in the southeast portion of the city in district 5 with only 50 new jobs projected. District boundaries can be seen on Figure 3-3.

Figure 3-3 also provides a visualization of projected changes in population between the years 2011 and 2040. Population growth per district between 2011 and 2040 is represented by the intensity of the blue colors, i.e. a darker blue represents more population growth for that district. As to be expected, population growth is higher at the edge and outside of Payson city limits where there is a high availability of agricultural land. Growth still occurs in more established parts of town, as undeveloped parcels are developed or redevelopment occurs.

Table 3-1: Socioeconomic Growth Analysis Years

District	Population				Employment			
	2011	2040	Growth	Percent Growth	2011	2040	Growth	Percent Growth
1	370	4,150	3,780	1022	220	1,070	850	386
2	2,080	2,910	830	40	1,270	2,180	910	72
3	1,350	2,630	1,280	95	370	810	440	119
4	2,640	3,740	1,100	42	950	1,770	820	86
5	4,400	7,640	3,240	74	270	320	50	19
6	3,210	4,680	1,470	46	1,190	1,490	300	25
7	2,920	3,260	340	12	690	1,490	800	116
8	1,330	1,560	230	17	190	650	460	242
9	810	4,160	3,350	414	1,150	4,820	3,670	319
10	1,410	6,090	4,680	332	700	2,280	1,580	226
Total	**20,520**	**40,820**	**20,300**	**99**	**7,000**	**16,880**	**9,880**	**141**
Source: MAG 2014								

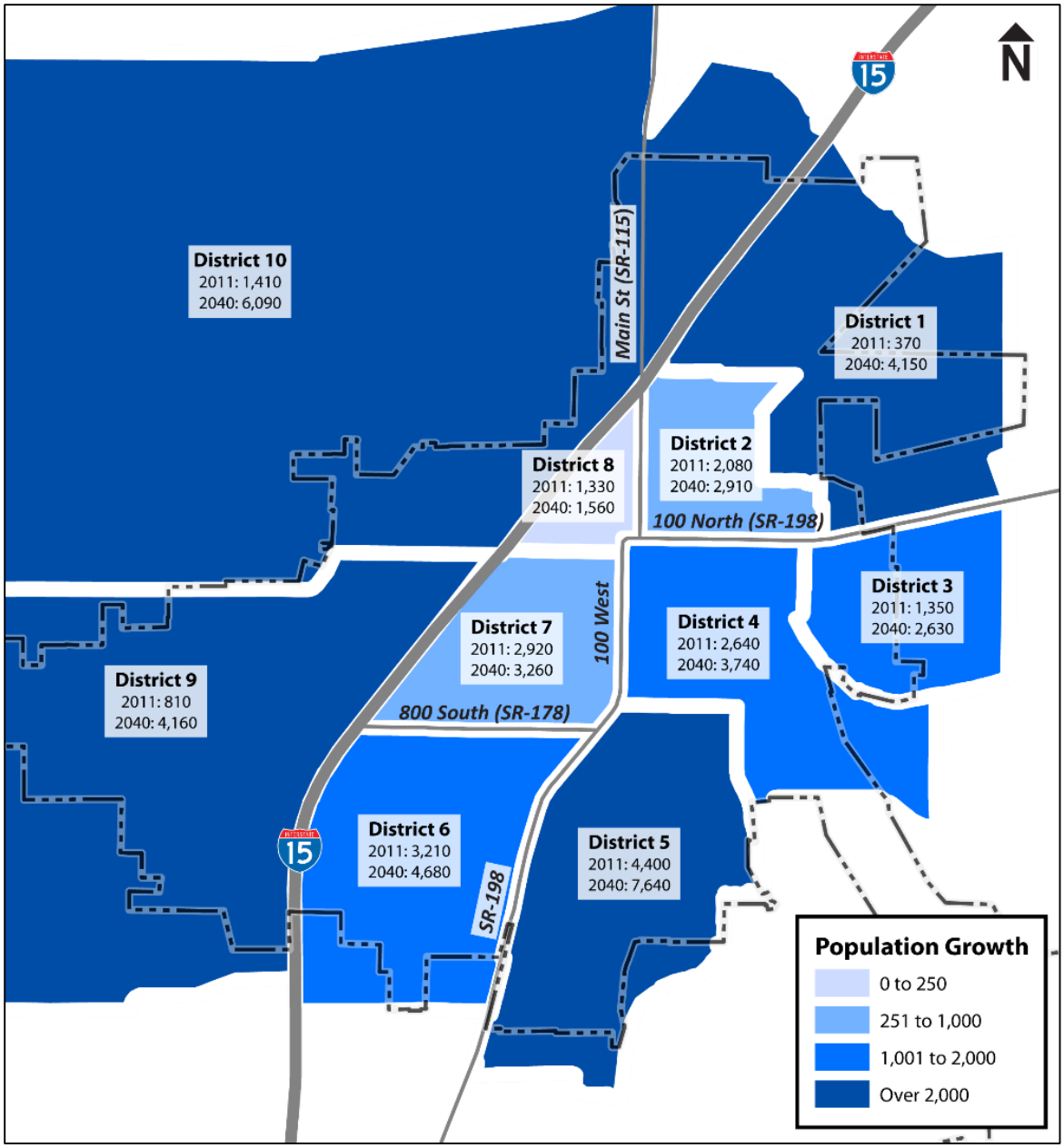


Figure 3-3: Payson Area Population Growth 2011–2040 by District

Travel Patterns

Using the MAG travel demand model, an analysis was performed to provide some understanding of travel patterns in the "core" SR-198 area. For the purposes of this analysis, the core area comprises districts 1 through 8 as described in the Land Use section above, which is approximately the Payson city limits on the southeast side of I-15.

Modeled vehicle trips for both 2011 and 2040 conditions were tracked in the "core" area and then extracted as origin-destination (O-D) tables, which show how many of the vehicles entering the network at any given location are exiting the network at every other location. Table 3-2 lists the origin location on the left and the destination locations on the top. Being super-simplified there are only two locations represented: internal to the core SR-198 area (i.e. districts 1-8) and external to

that same area. The external areas are the various roads that access the area (e.g. I-15, SR-198, Main Street, Utah Avenue). The table shows that 32 percent of the 2011 daily vehicle trips in the core area are made entirely within the core area; they are internal to internal trips. Similarly, 7 percent of the vehicle trips are external to external that are passing through the area. The remaining 61 percent of the trips are coming into the core area from outside of it or leaving the core area to go somewhere outside of it (31 percent for internal to external and 30 percent for external to internal). It is not surprising that the percentages for those two movements are very similar, as over the course of a day most of vehicles trips entering or exiting the area will make the opposite trip later in the day.

Table 3-2: 2011 Simplified Daily Vehicle O-D Table

Origin/Destination	Internal (percent)	External (percent)	Total (percent)
Internal	32	31	63
External	30	7	37
Total	62	38	100
Source: MAG Travel Demand Model v8			

Table 3-3 shows the same information, but for 2040 daily vehicle trips. In 2040 the percentage of internal to internal trips drops from 32 to 24 percent primarily because by 2040 a lot of growth will have taken place just outside of the core area. Some short trips that previously were fully contained within the core area now have an origin, destination, or both outside of the core area. This explains why the external to external trips increase from 7 to 10 percent. More people living and working around the area mean more people to pass through the area.

Table 3-3: 2040 Simplified Daily Vehicle O-D Table

Origin/Destination	Internal (percent)	External (percent)	Total (percent)
Internal	24	33	57
External	33	10	43
Total	57	43	100
Source: MAG Travel Demand Model v8			

There are other interesting results from the O-D analysis. Approximately 70 percent of the vehicles that enter the core area on SR-198 have an internal destination, which means that 30 percent of them have an external destination. Of the twelve or so possible external destinations for those vehicles, about 40 percent of them (or about 13 percent of the total SR-198 vehicles) remain on SR-198 from end to end through the core area. Of the vehicles entering the core area via I-15, only 4 percent of them have an external destination. The other 96 percent are traveling to somewhere within the core area.[1]

Traffic Conditions

This section summarizes how the roadway infrastructure as it currently exists will operate under traffic volume growth reflecting changes to land use and travel patterns as described above. This growth in traffic volume was estimated using the MAG travel demand model. Intersection and arterial operations were then analyzed using VISSIM.

[1] This analysis only includes I-15 vehicles entering the core area (i.e. the east side of the freeway). Those vehicles that travel to the west side of the freeway are not included.

Intersection turning movement volumes were estimated for 2024, 2034, and 2040 PM peak hour (see Figure 3-4). Traffic volumes along the corridor increase significantly by 2040; the magnitude of PM peak hour volume increases by intersection (see Table 3-4). For the highest volume intersection—SR-198 and Main Street—the PM peak hour volumes by 2040 increase by 85 percent over 2014 volumes from 2,151 vehicles to 3,990 vehicles. Looking more closely at this intersection, the SR-198 approach volumes almost double, while the Main Street approach volumes increase by 65 percent.

Table 3-4: PM Peak Intersection Entering Volumes along SR-198

Year	Intersection Entering Volumes – PM Peak Hour					
	800 S.	300 S.	Utah Ave.	Main St.	600 E.	1000 E.
2014	1,336	1,663	1,339	1,452	1,694	1,516
2024	1,590	2,420	1,950	2,260	2,540	2,310
2034	1,900	2,810	2,240	2,600	2,880	2,610
2040	2,170	3,160	2,430	2,800	3,010	2,730

The resulting intersection and arterial operations by year for the PM peak hour are shown in Table 3-5. Intersection and arterial operations are at acceptable LOS through the year 2024; however, by 2034 the arterial and almost all of its intersections operate at unacceptable LOS (E or F). To put LOS F into perspective, an arterial LOS F represents a travel speed of less than 30 percent of the free flow speed. For portions of SR-198 that have 30 mph speed limits, an arterial LOS F would represent traffic traveling at speeds of 9 mph or below on average.

Table 3-5: No Build Conditions LOS along SR-198

Year	Intersection LOS						Arterial LOS	
	800 S.	300 S.*	Utah Ave.	Main St.	600 E.	1000 E.	EB/NB	WB/SB
2014	B	C	B	C	A	A	B	B
2024	C	B	C	D	C	B	C	C
2034	D	**E**	**F**	**F**	**E**	D	**F**	**E**
2040	**F**	**E**	**F**	**F**	**F**	**E**	**F**	**E**

**300 South intersection is unsignalized in 2014 and signalized for all future years.*
Note: Intersection LOS was determined based on average vehicle delay. Arterial LOS was determined based on percent of base free-flow speed.

In the VISSIM model for the 2034 no build the Main Street and Utah Avenue intersections contribute significantly to the failure along SR-198 and its other intersections. Traffic backs up from these two intersections in both directions along the entire length of SR-198 causing other intersections to fail. Figure 3-5 shows a more detailed look at traffic operations under no build conditions—the red arrows for 2034 and 2040 represent major congestion for westbound and eastbound traffic approaching Main Street.

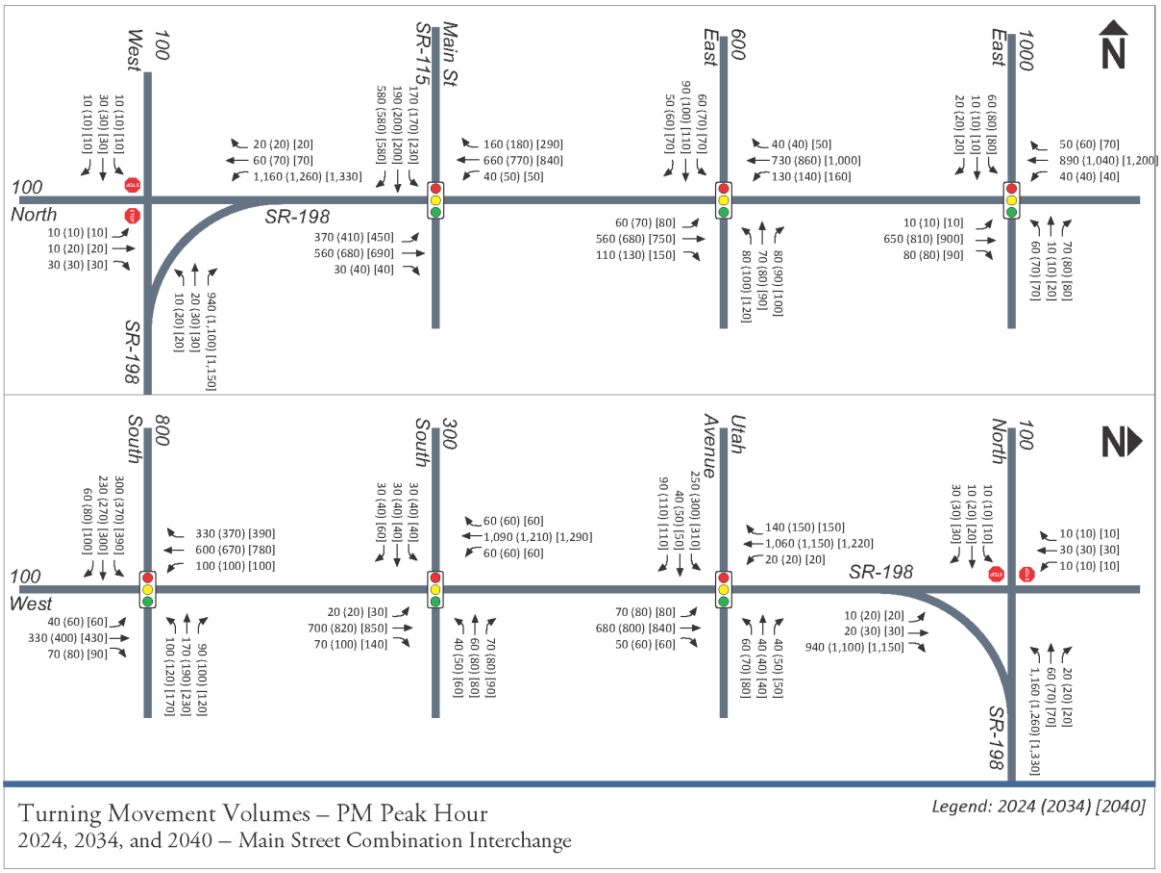


Figure 3-4: Turning Movement Volumes – PM Peak Hour

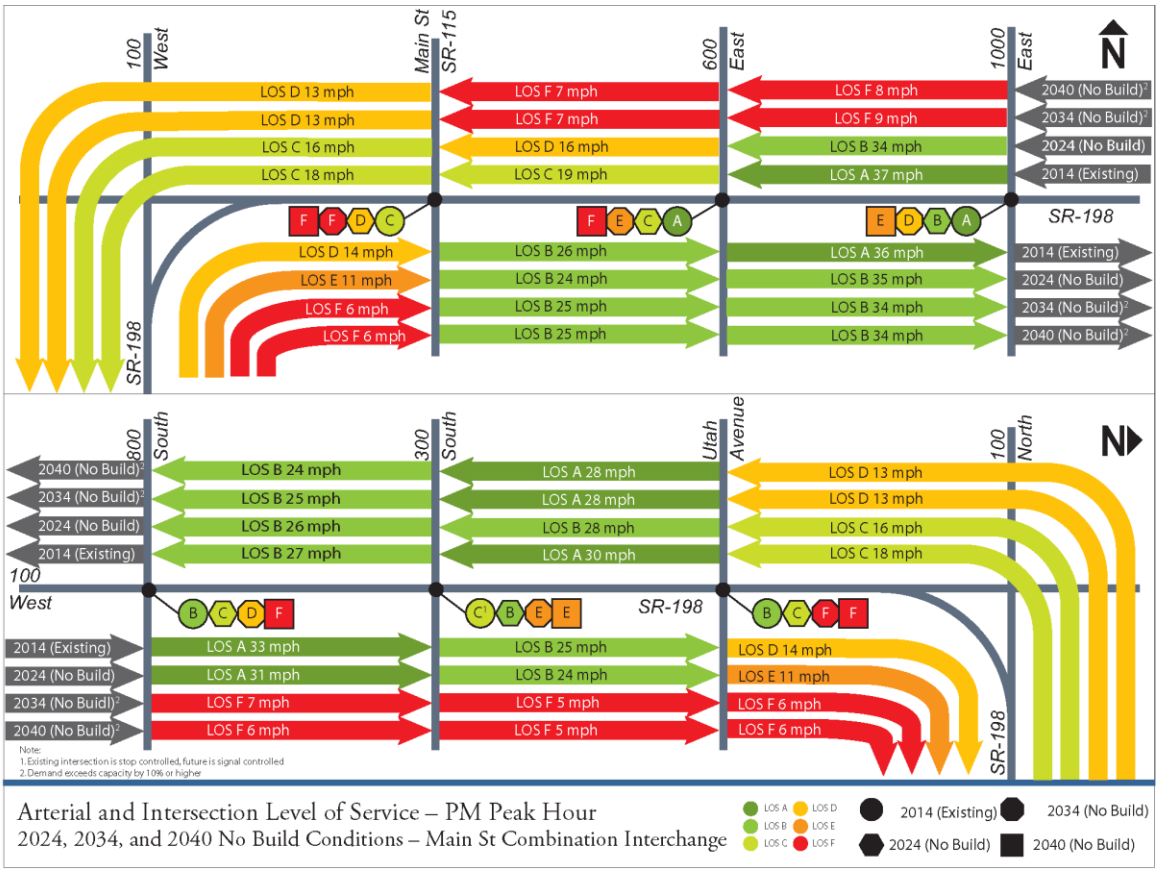


Figure 3-5: Arterial and Intersection LOS – PM Peak Hour

Figure 3-6 shows the change in arterial LOS through the progression of the analysis years. The color bands show the approximate time ranges for various LOS. For more than 10 years, SR-198 will remain at LOS C or better. Between 2025 and 2030 arterial LOS degrades to LOS D. Arterial LOS quickly goes from D to F within a relatively short time frame, occurring in the early 2030s.

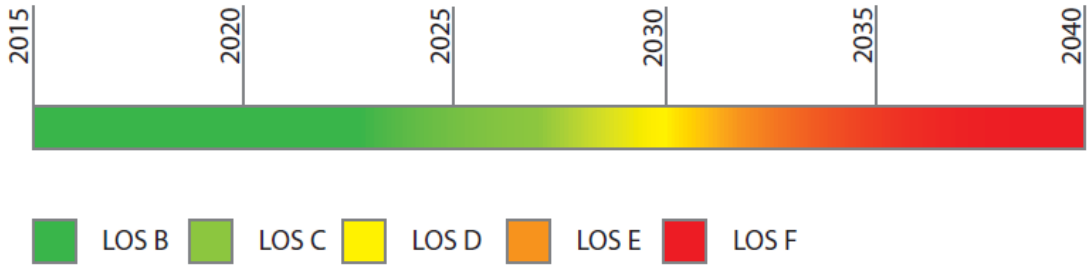


Figure 3-6: SR-198 Arterial LOS over Time

Another measure of arterial performance is the headway between vehicles. Headway is defined as the time difference between two consecutive vehicles passing the same location. For the existing conditions during the PM peak period, there is currently about 5.0 to 5.7 seconds between vehicles traveling on SR-198 approaching Main Street. By 2040 the vehicle headway decreases to 2.5 to 2.9

seconds between vehicles. This short of a headway leaves almost no time for cross-street traffic to enter SR-198 at unsignalized intersections and driveways. Year-by-year headway values are shown in Table 3-6.

Table 3-6: SR-198 Volumes and Headways at Main Street Intersection

Year	SR-198 Approach Volume at Main Street (PM Peak Hour)		Average Vehicle Headway (1 vehicle every X seconds)	
	EB	WB	EB	WB
2014	632	721	5.7	5.0
2024	960	860	3.8	4.2
2034	1,130	1,000	3.2	3.6
2040	1,180	1,180	3.1	3.1

3.2 IMPROVEMENT STRATEGIES

Several improvement strategies were considered for the SR-198 corridor, which have been generally classified as either intermediate or long-term. The intermediate solutions are those that may improve traffic conditions, but are not sufficiently robust to meet the anticipated 2040 demand. Instead, they would provide some immediate benefit and would postpone when the ultimate (i.e. long-term) solution would be required. The long-term solution is the most robust and would be sufficient to meet the anticipated 2040 demand.

3.2.1 INTERMEDIATE SOLUTIONS

The intermediate solutions fall into two categories: improve the surrounding roadway network or improve key intersections on the corridor. Improving the surrounding network entails making other roads in Payson more competitive with SR-198 (which generally comes down to increasing their speed) so that drivers would use them instead, thereby reducing traffic volumes on SR-198. Improving key intersections would be widening and improving the chokepoints along the corridor, which are at the Utah Avenue and Main Street intersections. The goal of the intermediate solutions is to determine how much more use can be had from the corridor without widening the entire corridor.

Enhanced Collector Road Network

Similar to many cities in Utah, Payson was planned on a grid system. While SR-198 is one of the main routes through the City of Payson, the grid system provides a number of alternative route. Included in these alternative routes are 800 South, 800 West, 300 South, 600 East, and 600 North which, based on UDOT functional classification, are classified as Major Collectors. However, SR-198 is a more attractive route to many drivers based on the higher posted speed limit. An increase in the speed limit on the roads mentioned could provide more appealing alternative routes to SR-198 which would remove a number of daily trips on the state route.

Intersection Improvements

Main Street and Utah Avenue are currently four leg intersections at SR-198. The Utah Avenue intersection has a through lane and left turn lane in each direction. The southbound leg of SR-198 has an additional lane for right turn movements onto Utah Avenue (westbound). The Main Street intersection shares a similar configuration, except the southbound leg through downtown is a one-

way street for southbound traffic and the eastbound leg on SR-198 has an additional lane for right turn movements onto Main Street (northbound).

Nine concepts were initially developed to improve the geometry, operation, and safety of both intersections. Based on initial feedback from UDOT and Payson City staff, only three were advanced to preliminary design and traffic analysis. Eliminated alternatives included three variations of a one way street intersection, a continuous flow intersection, a roundabout intersection, and realignment of the main flow of traffic from 100 West to Main Street. These alternatives were eliminated from further consideration because they did not effectively address the projected traffic volumes and Payson City had a desire for traditional intersections.

Intersection improvements that advanced for further analysis included improve the existing configuration, an S-bend, and a double S-bend. Each of these concepts is described as follows:

- **Improve Existing** – This concept maintains the Main Street intersection in its current location and widens the north, west, and east legs to accommodate two through lanes, one right turn lane, and one left turn lane. The radius in the sharp bend in SR-198 would be increased to allow vehicles to travel at higher speeds (35 miles per hour compared to 30 miles per hour) (see Figure 3-7).
- **S-Bend** – This concept shifts the Main Street intersection to the northwest. The existing sharp bend in SR-198 would be removed by realigning SR-198 (100 West) to create a north–south through movement that connects to Main Street near 200 North. SR-198 (100 North) would be realigned to intersect with the new north–south alignment. The three leg intersection would have two through lanes in each direction. The southbound leg and westbound leg would each have two left turn lanes (see Figure 3-8).
- **Double S-Bend** – This concept is similar to the S-Bend previously described. Under this concept, however, Utah Avenue is shifted north to create a four leg intersection with Main Street, 100 North, and 100 West. Each leg would have two through lanes, one right turn lane, and one left turn lane (see Figure 3-9).

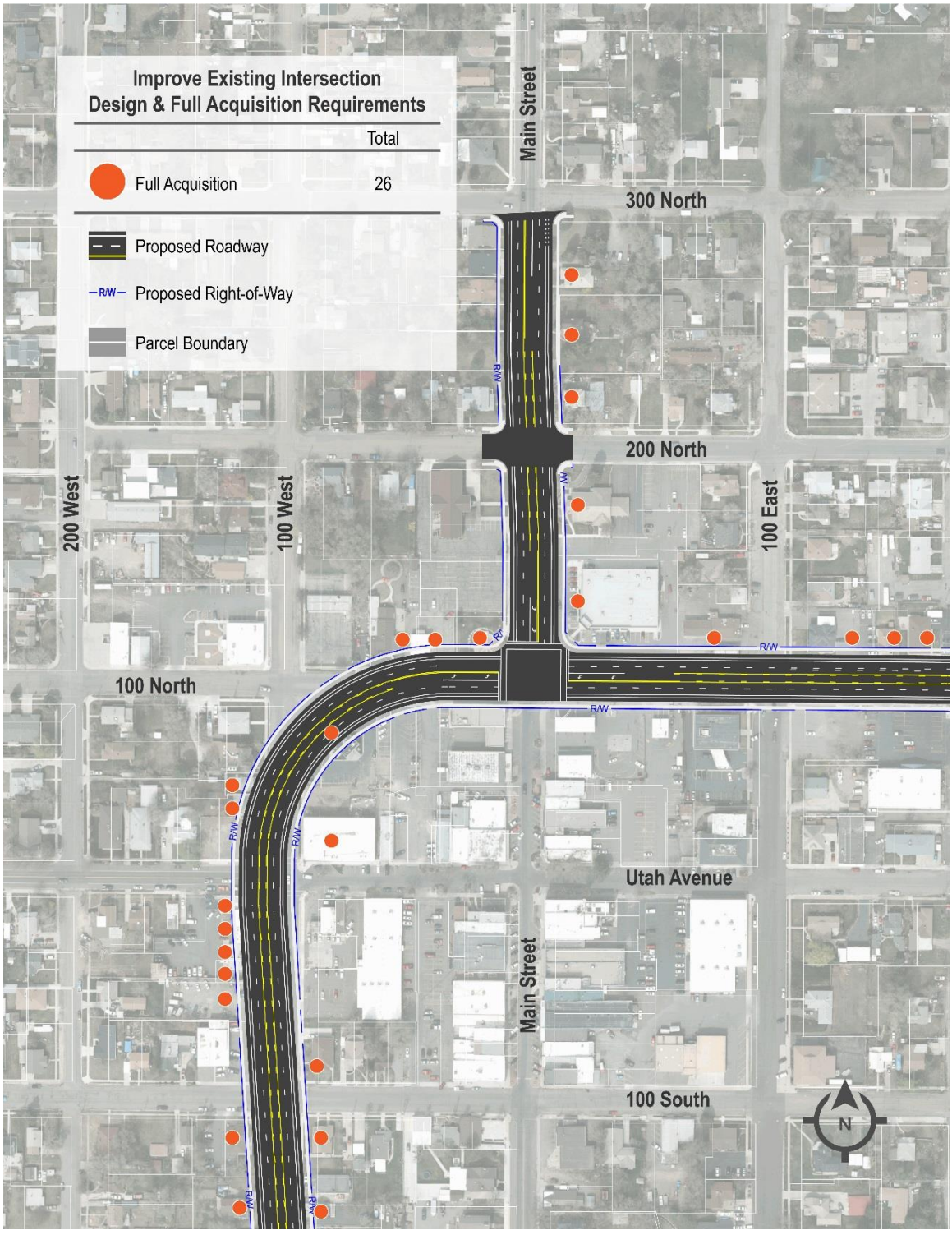


Figure 3-7: Improve Existing Main Street Intersection

Figure 3-8: S-Bend Intersection

Figure 3-9: Double S-Bend Intersection

3.2.2 LONG-TERM SOLUTION

Four concepts were identified to widen SR-198 from 2100 West to 800 South. Each concept would widen SR-198 to five lanes, with four general purpose lanes (two in each direction) and one median lane. Each of these concepts is described as follows:

- **Symmetrical** – This concept widens SR-198 on both sides of the roadway (see Figure 3-10)
- **Meander** – This concept shifts the side of the roadway that would be widened to minimize impacts to private property and takes advantage of existing right-of-way and building setbacks (see Figure 3-11)
- **Match West and North Right-of-way** – This concepts matches the existing west and north right-of-way line and widens to the east and south (see Figure 3-12)
- **Match East and South Right-of-way** – This concepts matches the existing east and south right-of-way line and widens to the west and north (see Figure 3-13)

Figure 3-10: Symmetrical

Figure 3-11: Meander

Figure 3-12: Match West and North Right-of-way

Figure 3-13: Match East and South Right-of-way

3.3 ANALYSIS RESULTS

Traffic analysis was performed for intermediate and long-term solutions to determine how well they perform for different horizon years. The details of these solutions are described in Section 3.2. The analysis for each solution is provided in more detail in this section. This analysis was also performed to determine the right-of-way required and the associated property impacts for the intersection improvements and the long-term solution of widening SR-198.

3.3.1 ENHANCED COLLECTOR ROAD NETWORK

The first intermediate solution analyzed was the enhancement of minor roads parallel to SR-198 that have the potential of drawing traffic off of SR-198 if they were more attractive routes. These roads include 800 South, 800 West, 300 South, 600 East, and 600 North. To estimate the effect of speed limit increases on alternative routes, the changes were modeled in the MAG travel demand model for no build conditions in the year 2040. While a number of alternative speed limit increase scenarios were modeled, two had substantial impacts on daily vehicle trips on SR-198.

The first scenario with substantial impact to SR-198 daily volumes focused on raising speed limits to 35 mph on four roads: 800 South, 800 West, 300 South, and 600 East. This increase in speed limits resulted in rerouting approximately 4,500 to 5,000 daily vehicle trips off of SR-198 between 300 South and 600 East. The roadway with the biggest increase in daily trips due to this rerouting is 600 East where an additional 4,500 trips are added, followed by 300 South where just over 3,000 trips are added. Traffic on 600 East would more than double to 8,800 daily trips as compared to its projected 2040 volume of 4,300 daily trips. Traffic on 300 South would increase by nearly 47 percent to 9,400 daily trips. Figure 3-14 illustrates the changes to daily volumes with this speed increase scenario.

The second scenario with substantial impact to SR-198 daily volumes focused on raising speed limits to 40 mph on 800 South and 600 East. This increase in speed limits resulted in rerouting approximately 6,000 to 6,500 vehicle trips off of SR-198 between 300 South and 600 East and rerouting nearly 10,000 trips between 800 South and 300 South. Daily trips on 800 South would increase to 13,000 trips, more than quadrupling its projected 2040 volume of 3,000 total daily trips. The trips on 600 East also increase by nearly tenfold to 11,000 daily trips as compared to 1,000 trips without the speed limit change. Figure 3-15 illustrates the changes to daily volumes with this speed increase scenario.

For both speed limit increase scenarios, additional trips rerouted to adjacent collectors may necessitate improvements to roadway geometry or intersection controls along those routes.

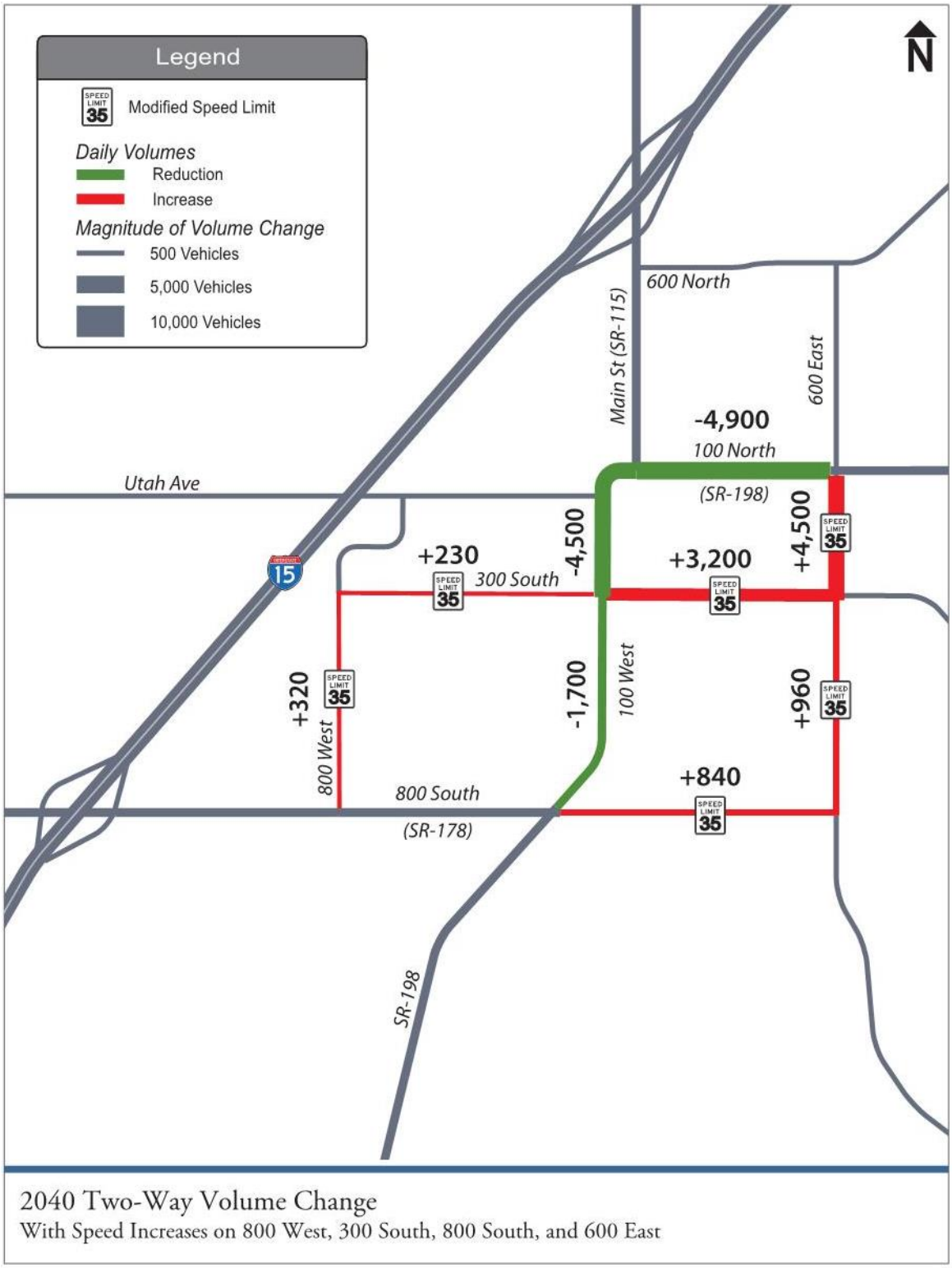


Figure 3-14: 2040 Two-Way Volume Change with Speed Limit Increases on 800 West, 300 South, 800 South, and 600 East

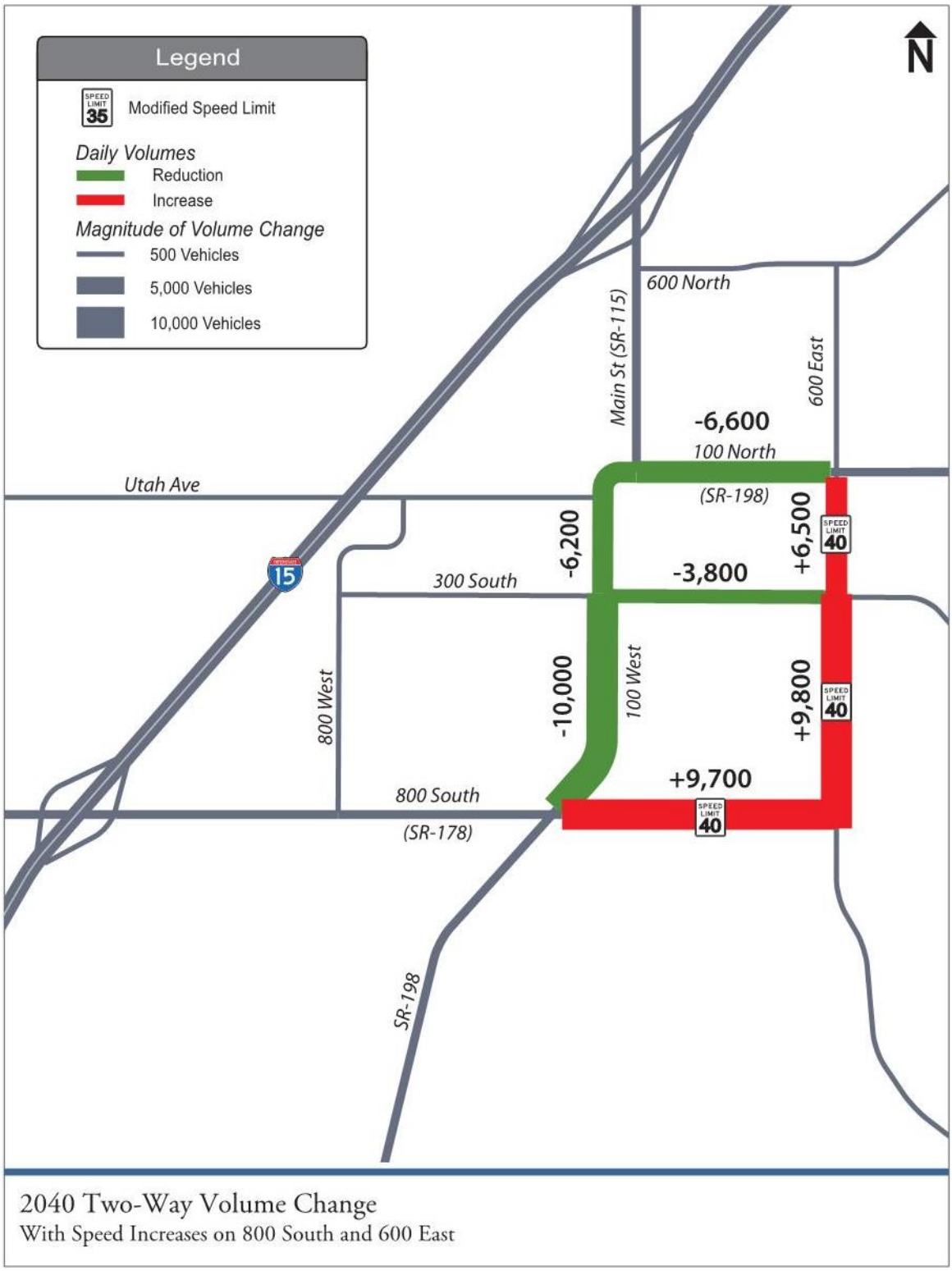


Figure 3-15: 2040 Two-Way Volume Change with Speed Limit Increases on 800 South and 600 East

3.3.2 INTERSECTION IMPROVEMENTS

The second intermediate solution analyzed was improving key intersections along the SR-198. The intersections of SR-198 with Main Street (SR-115) and Utah Avenue are the major intersections in the corridor with over 4,000 vehicles entering these intersections during the PM peak hour in 2040. In both 2034 and 2040 no build conditions, traffic backed up from these intersections along the entire length of SR-198 through Payson.

Three details of the three intersection improvement strategies for Main Street and Utah Avenue (Improve Existing, S-Bend, and Double S-Bend) are described in Section 3.2.1. Basically, each of these strategies adds an additional through lane on SR-198 in each direction at these two intersections, which then drop back to one lane in each direction downstream. The Improve Existing strategy utilizes the current centerline of SR-198. The other strategies require some realignment of SR-198, Main Street, and Utah Avenue.

This section summarizes the results of the traffic analysis of the three intersection improvement strategies. The impact of these intersection improvements were analyzed in two ways: focusing on the overall performance of the SR-198 corridor and the performance of the actual intersections. Each is explained in more detail below.

Corridor Performance

Corridor performance in terms of travel speeds and LOS along SR-198 benefit from intersection improvements at Main Street and Utah Avenue. Figure 3-16 illustrates the resulting travel speeds and LOS for all segments of SR-198 between 800 South and 1000 East for the Improve Existing strategy. SR-198 performed similarly enough between the three intersection improvement strategies that only results for the Improve Existing strategy are shown on Figure 3-16. The figure shows no-build travel speeds and LOS for 2014 and 2024 assuming no improvements, and for 2034 and 2040 assuming intersection improvements at Main Street and Utah Avenue.

When compared with no build conditions, the intersection improvement strategies allow for much better arterial performance. Under no build conditions, SR-198 operates at LOS E and F operations in 2034. With intersection improvements, SR-198 operates at LOS D or better. In 2040, only one section, eastbound between Utah Ave and Main Street, operates at LOS E, while the other portions of SR-198 operate at LOS D or better.

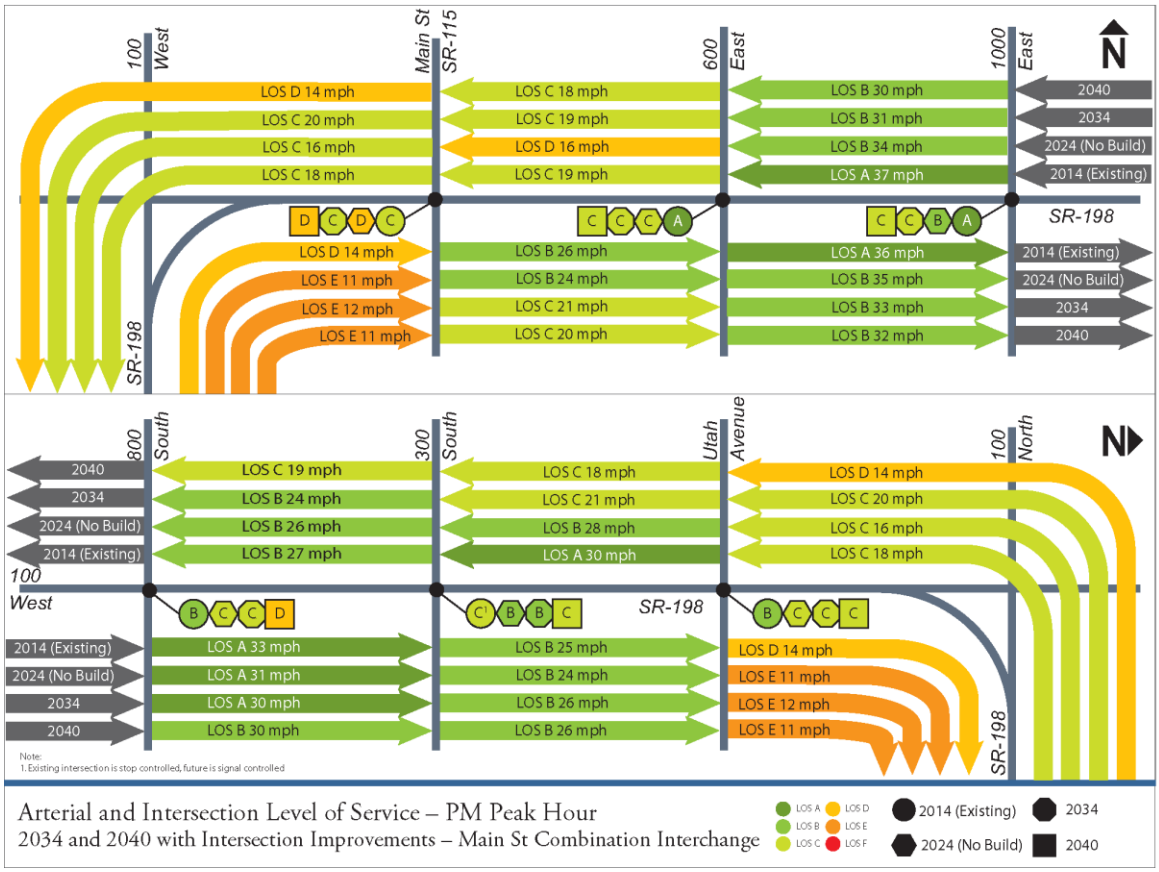


Figure 3-16: Arterial and Intersection LOS – PM Peak Hour, 2034, and 2040 with Intersection Improvements

Intersection Performance

Regardless of the intersection improvement strategy, improvements to the Main Street and Utah Avenue intersections have a significant ripple effect at other signalized intersections along the SR-198 corridor in the year 2034; however, by 2040 other intersections along the corridor begin to fail. This 2040 return to congestion is illustrated in the LOS results found in Table 3-7. Intersection and arterial LOS for each intersection are listed by intersection improvement strategy for both 2034 and 2040.

Table 3-7: 2034 and 2040 Intersection and Arterial LOS along SR-198 for Improvement Strategies

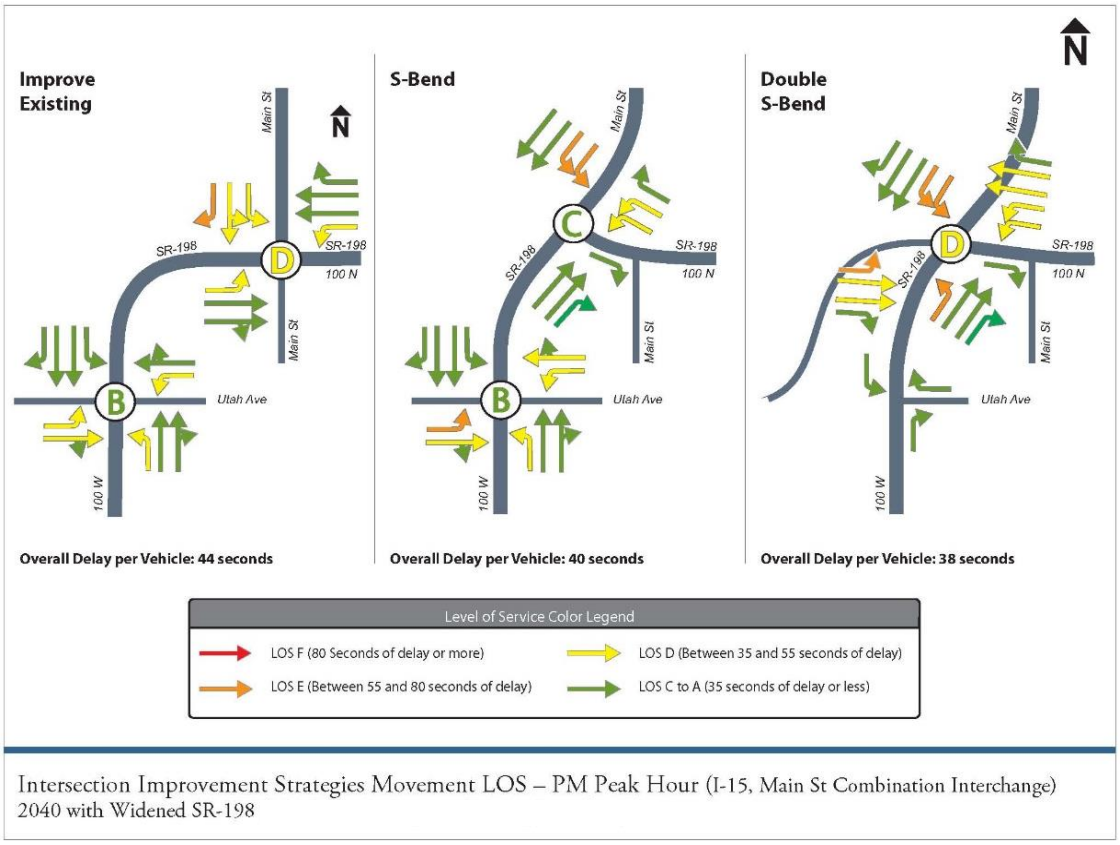
Intersection Improvement Strategy	Year	Intersection LOS						Arterial LOS	
		800 S.	300 S.	Utah Ave.*	Main St.	600 E.	1000 E.	EB/NB	WB/SB
No Build	2034	D	**E**	**F**	**F**	**E**	D	**F**	**E**
	2040	**F**	**E**	**F**	**F**	**F**	**E**	**F**	**E**
Improve Existing	2034	C	B	C	C	C	B	C	C
	2040	D	C	C	D	C	C	C	C
S-Bend	2034	C	B	B	C	C	B	B	C
	2040	D	C	C	C	C	B	B	D
Double S-Bend	2034	D	C	B	D	C	B	B	C
	2040	D	D	C	D	C	B	B	D

**Utah Avenue is signalized in all scenarios expect for Double S-Bend where it is unsignalized.*
Note: Intersection LOS was determine based on average vehicle delay. Arterial LOS was determined based on percent of base free-flow speed.

For no build conditions in 2034, six of the seven signalized intersections on SR-198 are operating at unacceptable LOS. However, with each of the intersection improvement strategies, Main Street and Utah Avenue are able to handle the traffic demands, remove the bottleneck, and relieve congestion along SR-198. In 2034, for each of the three intersection improvement strategies, all intersections along SR-198 operate at LOS D or better; however, by the year 2040, only six years later, congestion returns and other intersections along the corridor begin to degrade. The intersections of SR-198 and 800 South and SR-198 and 600 East operate at LOS E for all improvement strategies. The Improve Existing strategy fairs worse with Main Street operating at LOS E, as well.

A more detailed analysis of the three intersection improvement strategies illustrates key differences in their operations. Figure 3-17 shows movement-by-movement and intersection LOS for the three strategies under 2040 conditions. As shown in the figure, all intersections operate with LOS D or better. However, at the turning movement level there are several movements that are not as well served. In the Improve Existing scenario at Main Street, two high volume movements, the eastbound left and southbound right operate at LOS E and F, respectively. The two S-Bend strategies solve this problem; however, in these strategies the existing westbound through becomes a westbound left and the eastbound through becomes a northbound right. Although this shifting of movements disrupts the prevailing east–west traffic flows, these movements maintain their operations at LOS D and the intersection as whole operates better.

The overall delay per vehicle during the PM peak hour is shown on Figure 3-17. Overall delay is the combined amount of a delay a single vehicle will experience at both Utah Avenue and Main Street. For the Improve Existing strategy there is an overall delay per vehicle of 51 seconds. The S-Bend reduces overall delay to 45 seconds, and the Double S-Bend reduces overall delay to 38 seconds.



Intersection Improvement Strategies Movement LOS – PM Peak Hour (I-15, Main St Combination Interchange) 2040 with Widened SR-198

Figure 3-17: Intersection Improvement Strategies Movement LOS – PM Peak Hour, 2040 with Widened SR-198

3.3.3 LONG-TERM IMPROVEMENTS

Although intermediate improvements to only the Main Street and Utah Avenue intersections do significantly improve operations along SR-198, several intersections return to unacceptable LOS by 2040. These deficient intersections exist regardless of the intersection improvement strategy. In addition, for the Combination Interchange scenario, the signalized intersections and most of the corridor operate within acceptable LOS. But even in this scenario, the heavy amount of through traffic on SR-198 makes it nearly impossible for cross street traffic from unsignalized intersections or driveways to cross or turn left onto the roadway.

True improvement to the corridor only occurs with widening along SR-198 through Payson to a five-lane cross-section. Widening will improve intersection LOS for cross streets, as well as increasing the vehicle headway and improving the availability for gaps for side street traffic. Table 3-8 demonstrates the intersection level improvements for the Combination Interchange scenario. For each intersection scenario the LOS results of both not widening and widening SR-198 are shown.

Table 3-8: 2040 Intersection and Arterial LOS along SR-198

Improvements		Intersection LOS						Arterial LOS	
Intersection Improvement Strategy	Widen SR-198	800 S.	300 S.	Utah Ave.*	Main St.	600 E.	1000 E.	EB/NB	WB/SB
No Build	No	F	E	F	F	F	E	F	E
Improve Existing	No	D	C	C	D	C	C	C	C
	Yes	C	B	B	D	B	A	B	B
S-Bend	No	D	C	C	C	C	B	B	D
	Yes	C	B	B	C	B	A	B	C
Double S-Bend	No	D	D	C	D	C	B	B	D
	Yes	C	B	C	D	B	A	B	C

**Utah Avenue is signalized in all scenarios expect for Double S-Bend where it is unsignalized.*
Note: Intersection LOS was determine based on average vehicle delay. Arterial LOS was determined based on percent of base free-flow speed.

Improvements in gaps for side street traffic would be significant along SR-198. As illustrated earlier in Table 3-5, the average vehicle headway for both interchange scenarios in 2040 is between 2.5 and 3.1 seconds. Widening SR-198 would potentially double the headway to around 5 to 6 seconds, which is in the range of what currently exists on SR-198.

3.4 CONCLUSION/RECOMMENDATIONS

If nothing is done to improve SR-198, the arterial is projected to fail by the year 2034. Localized improvements made to the Main Street and Utah Avenue intersections would delay this failure beyond 2034; however, the benefit is short lived. By the year 2040, SR-198 will fail despite these improvements, and a long term solution will need to be in place. Widening SR-198 to a five lane cross-section proves to be the most lasting solution to 2040 traffic demands.

The failure of SR-198 has less to do with the amount of cross-street traffic along its length and more to do with the high volume of through traffic. As SR-198 through traffic volumes increase to 2040 levels, even minor signalized intersections cause significant congestion and backups along SR-198. Additionally, high through traffic volumes seriously impact access to driveways and unsignalized intersections along SR-198 not allowing sufficient gaps for crossing or turning vehicles.

One effective solution for reducing through traffic on SR-198 includes increasing the attractiveness of roadways along alternate routes, such as 300 South, 800 South, and 600 East. Depending on the propensity for raising speed limits by 10+ mph on these roadways, there would be a significant reduction to traffic volumes on SR-198. Such improvements could delay the onset of SR-198 failure.

Three intersection improvement strategies were analyzed for Main Street and Utah Avenue: Improve Existing, S-Bend, and Double S-Bend. In conjunction with the widening of SR-198, each of the three intersection improvement scenarios provide for acceptable operations in 2040. Improve Existing best serves the major east–west movements of traffic at Main Street, but does less to serve movements to/from I-15, the eastbound left and southbound right movements. The S-Bend and Double S-Bend improve north–south traffic flow between Main Street to the north and SR-198 to the south, better connecting the southwest side of Payson with I-15. The Double S-Bend does the most to reduce overall delays by combining the Main Street and Utah Avenue intersections.

SR-198 Corridor Study:

Appendix

November 2017

Prepared By:

LOCHNER avenue CONSULTANTS

IMPROVE EXISTING FIGURES

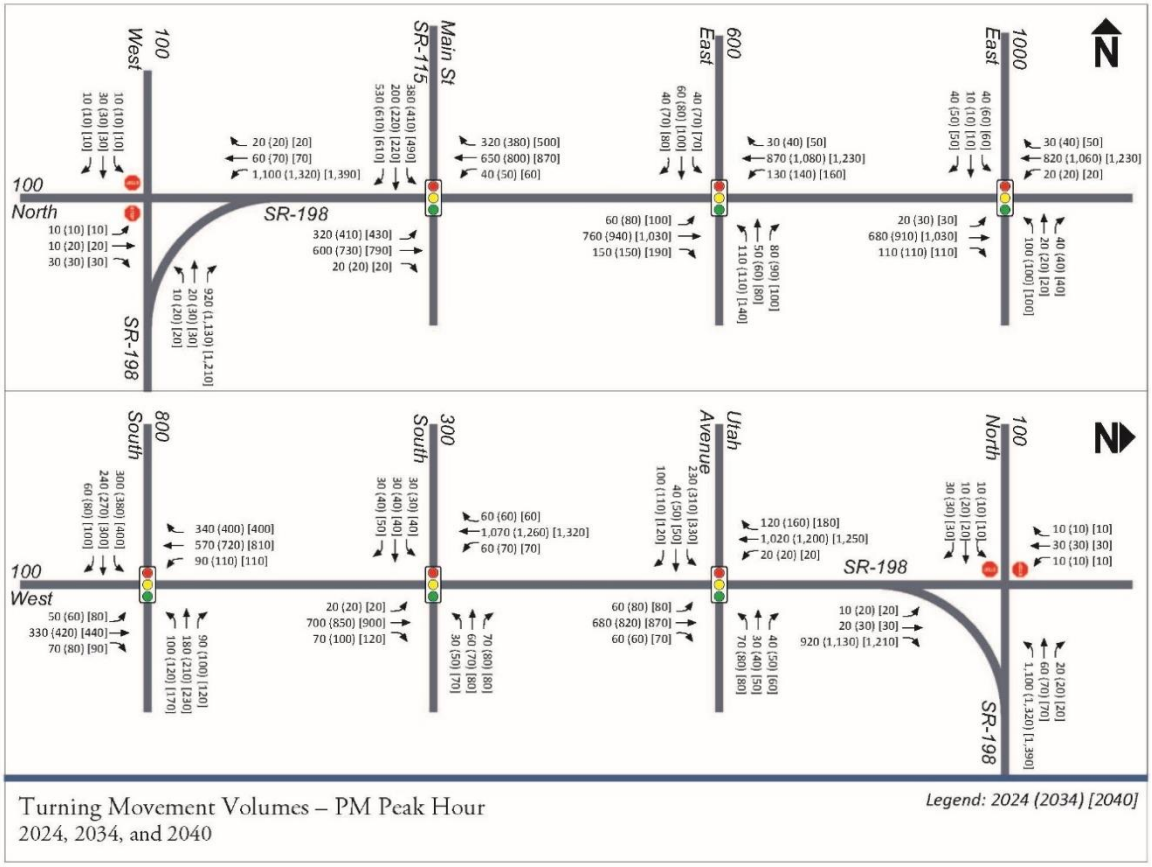


Figure 1: Turning Movement Volumes – PM Peak Hour

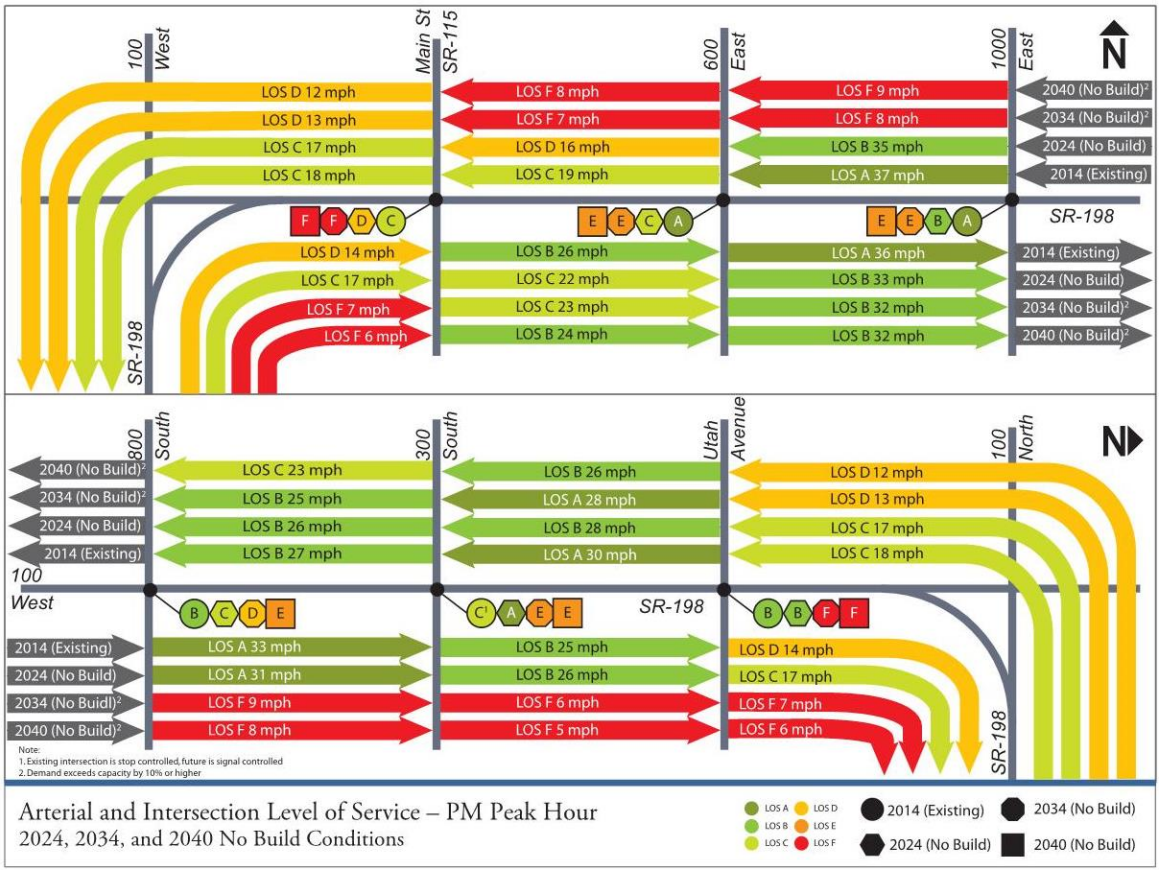


Figure 2: Arterial and Intersection LOS – PM Peak Hour

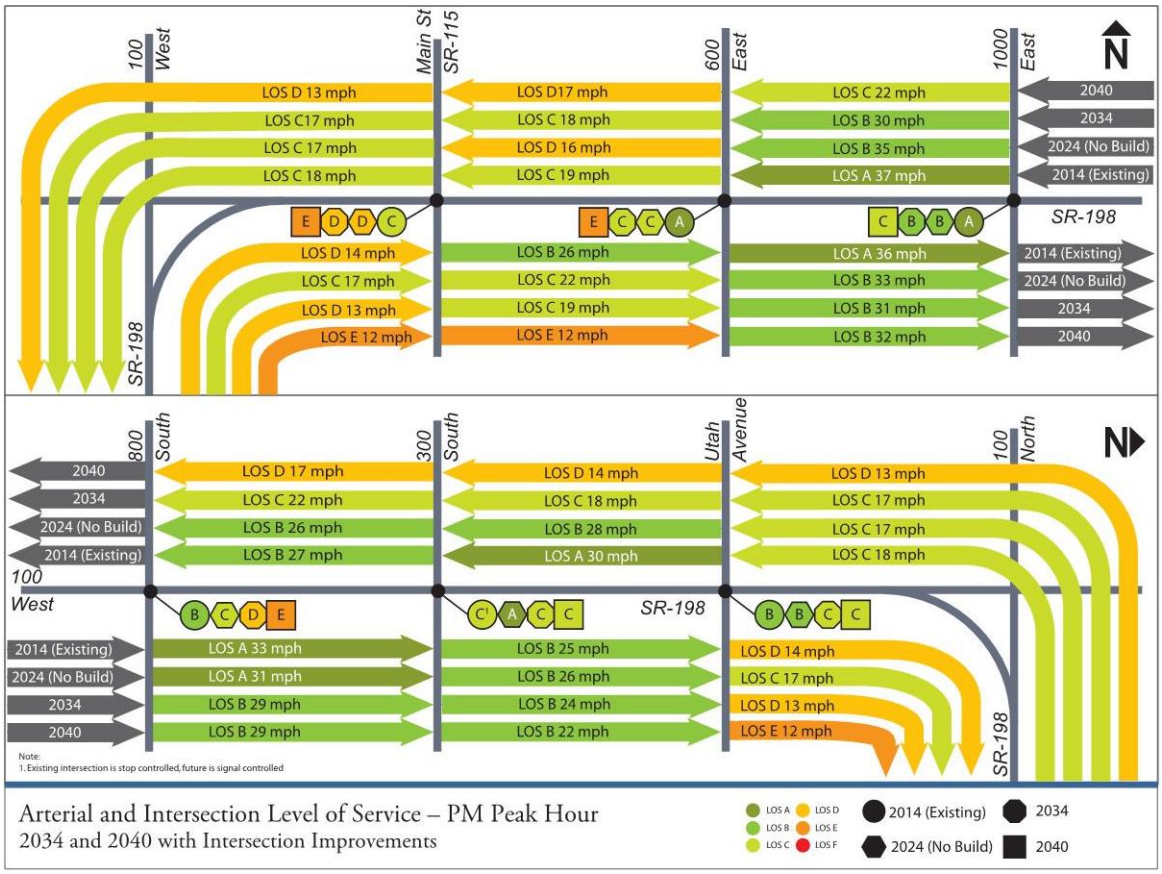


Figure 3: Arterial and Intersection LOS – PM Peak Hour, 2034, and 2040 with Intersection Improvements

IMPROVE EXISTING TABLES

Table 1: PM Peak Intersection Entering Volumes along SR-198

Year	Intersection Entering Volumes – PM Peak Hour					
	800 S.	300 S.	Utah Ave.	Main St.	600 E.	1000 E.
2014	1,336	1,452	1,694	2,151	1,626	1,206
2024	2,000	2,230	2,470	3,060	2,380	1,930
2034	2,430	2,670	2,980	3,630	2,910	2,450
2040	2,770	2,850	3,160	3,990	3,330	2,750

Table 2: No Build Conditions LOS along SR-198

Year	Intersection LOS						Arterial LOS	
	800 S.	300 S.*	Utah Ave.	Main St.	600 E.	1000 E.	EB/NB	WB/SB
2014	B	C	B	C	A	A	B	B
2024	C	A	B	D	C	B	B	C
2034	D	**E**	**F**	**F**	**E**	**E**	**F**	**E**
2040	**E**	**E**	**F**	**F**	**E**	**E**	**F**	**E**

**300 South intersection is unsignalized in 2014 and signalized for all future years.*
Note: Intersection LOS was determined based on average vehicle delay. Arterial LOS was determined based on percent of base free-flow speed.

Table 3: SR-198 Volumes and Headways at Main Street Intersection

Year	SR-198 Approach Volume at Main Street (PM Peak Hour)		Average Vehicle Headway (1 vehicle every X seconds)	
	EB	WB	EB	WB
2014	632	721	5.7	5.0
2024	940	1,010	3.8	3.6
2034	1,160	1,230	3.1	2.9
2040	1,240	1,430	2.9	2.5

Table 4: 2034 and 2040 Intersection and Arterial LOS along SR-198 for Improvement Strategies

Intersection Improvement Strategy	Year	Intersection LOS						Arterial LOS	
		800 S.	300 S.	Utah Ave.*	Main St.	600 E.	1000 E.	EB/NB	WB/SB
No Build	2034	D	**E**	**F**	**F**	**E**	**E**	**F**	**E**
	2040	**E**	**E**	**F**	**F**	**E**	**E**	**F**	**E**
Improve Existing	2034	D	C	C	D	C	B	C	C
	2040	**E**	C	C	**E**	**E**	C	C	D
S-Bend	2034	D	C	C	C	C	B	C	C
	2040	**E**	D	D	D	**E**	C	D	D
Double S-Bend	2034	D	C	B	D	C	B	B	C
	2040	**E**	D	C	D	**E**	B	C	D

**Utah Avenue is signalized in all scenarios expect for Double S-Bend where it is unsignalized.*
Note: Intersection LOS was determine based on average vehicle delay. Arterial LOS was determined based on percent of base free-flow speed.

Table 5: 2040 Intersection and Arterial LOS along SR-198

Improvements		Intersection LOS						Arterial LOS	
Intersection Improvement Strategy	**Widen SR-198**	**800 S.**	**300 S.**	**Utah Ave.***	**Main St.**	**600 E.**	**1000 E.**	**EB/NB**	**WB/SB**
No Build	No	**E**	**E**	**F**	**F**	**E**	**E**	**F**	**E**
Improve Existing	No	**E**	C	C	**E**	**E**	C	C	D
	Yes	C	A	B	D	C	A	C	C
S-Bend	No	**E**	D	D	D	**E**	C	D	D
	Yes	C	A	C	C	C	A	B	C
Double S-Bend	No	**E**	D	C	D	**E**	B	C	D
	Yes	C	B	C	D	C	A	B	C

**Utah Avenue is signalized in all scenarios expect for Double S-Bend where it is unsignalized.*
Note: Intersection LOS was determine based on average vehicle delay. Arterial LOS was determined based on percent of base free-flow speed.

TRAFFIC REPORT

Traffic Report

I-15, Payson Main Street Interchange EIS

March 2017

Prepared by Avenue Consultants

UDOT Keeping Utah Moving

Traffic Report

I-15, Payson Main Street Interchange EIS

March 2017

Prepared by Avenue Consultants

The environmental review, consultation and other actions required by applicable Federal environmental laws for this project are being or have been carried-out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Contents

List of Exhibits

1.0 Introduction

This document describes the traffic analysis and travel demand modeling performed as part of the I-15, Payson Main Street Interchange Environmental Impact Statement (EIS). The Main Street Interchange is being studied to identify long-term solutions to address future needs due to traffic growth within the Payson area. The following sections describe the existing traffic conditions in the study area, the travel demand modeling process undertaken, and the alternatives analysis performed.

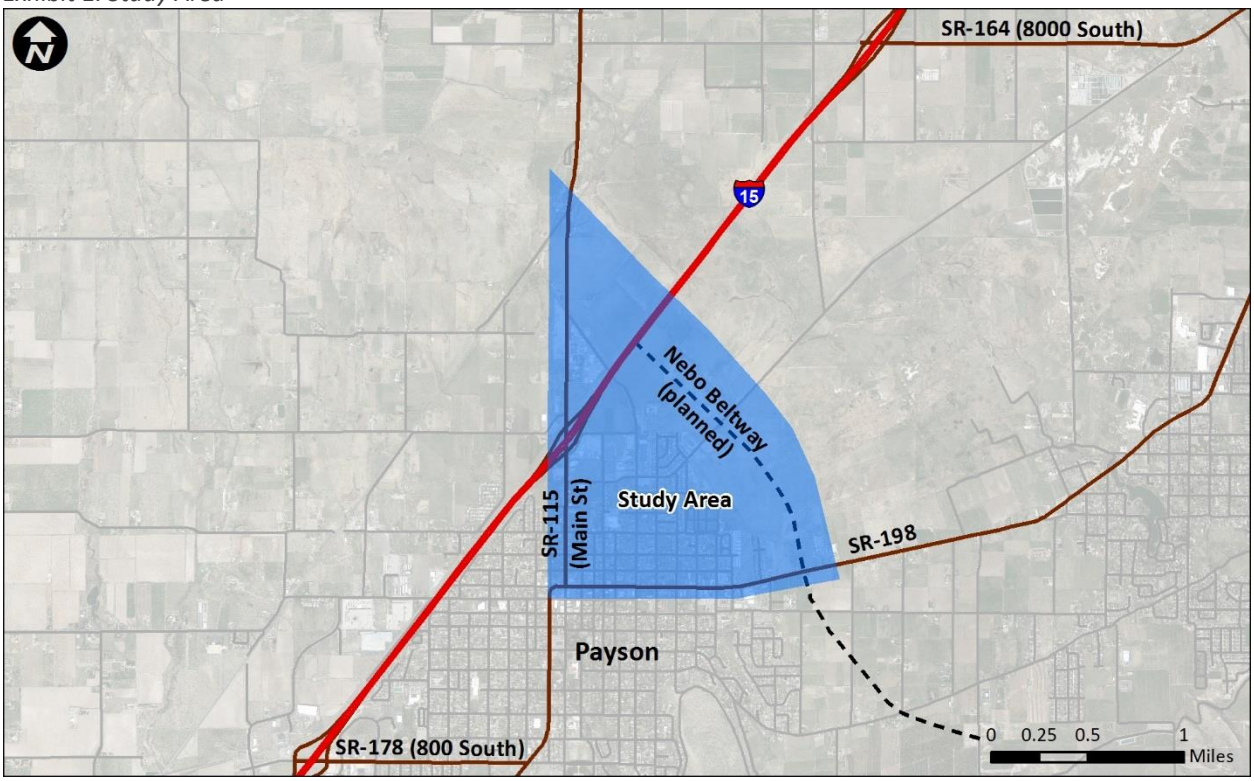
2.0 Existing Conditions

This section describes the existing roadway system in the I-15, Payson Main Street Interchange EIS study area including traffic volumes and operations at key intersections and on key roadways.

2.1 Study Area Roadway Setting

The range of alternatives being considered in the I-15, Payson Main Street Interchange EIS includes upgrades to the existing interchange, relocating the intersection farther north, or combinations of the two. The study area is roughly described as being bordered by SR-115 (Main St) on the west, SR-198 (100 North) on the south, and a future planned corridor for Nebo Beltway to the north and east, as shown in Exhibit 1. Key roadways in the study area and their characteristics are described below.

Exhibit 1. Study Area



2.1.1 I-15

I-15 is the primary north-south freeway in Utah and connects the state to the Canadian border on the north and almost to the Mexican border on the south. North of SR-178 (Payson 800 South), I-15 has three lanes in each direction and a posted speed limit of 75 mph. There are two interchanges in the Payson Area: SR-178 (800 South) and SR-115 (Main Street).

2.1.2 SR-115 / Payson Main Street

SR-115 is a north-south minor arterial street that begins at SR-198 (100 North) and continues north into Benjamin. SR-115 serves as the primary connector of downtown Payson with the I-15 corridor. Through Payson, SR-115 is mostly a two-lane facility with an additional southbound lane at the I-15 interchange. The speed limit on SR-115 is 30 mph south of 600 North in Payson and increases to 35 mph through the I-15 interchange area. Between I-15 and SR-198, SR-115 carries an average of 14,500 vehicles per day (vpd).

2.1.3 SR-198

SR-198 is two-lane minor arterial connecting Payson to its neighbors to the south and to the east. SR-198 begins in Santaquin, continues through Payson at 100 West, turns to become 100 North, and then continues through to Salem on the east. The speed limit on SR-198 varies from 55 mph on the outskirts of Payson to its slowest at 30 mph in downtown Payson. Current traffic demand on the roadway ranges between 9,000 and 16,000 vpd.

2.2 Data Collection

At the onset of the project, a data collection effort was undertaken to provide an understanding of the current transportation system and its performance. Geometric, operational, and volume data were collected for key roadways and intersections throughout the study area. Much of the geometric and operational data is contained in the previous sections describing the roadway system. The following sections describe the volume data.

2.2.1 Intersection Data

Traffic volumes were collected on Tuesday, October 28, 2014. Intersection turning movement counts were performed at six intersections along the Main Street (SR-115) corridor: 100 North (SR-198), 600 North, 800 North, I-15 northbound ramps, I-15 southbound ramps, and 900 North. Counts were also collected at the adjacent I-15 interchanges: SR-164 (8000 South) to the north and SR-178 (Payson 800 South) to the south. Counts were collected between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM. The AM peak hour was determined to be from 7:30 to 8:30 AM, and the PM peak hour was determined to be from 4:45 to 5:45 PM. Exhibit 2 shows the resulting AM/PM peak hour turning movement volumes for each of the study intersections. Appendix A shows the detailed turning movement count data.

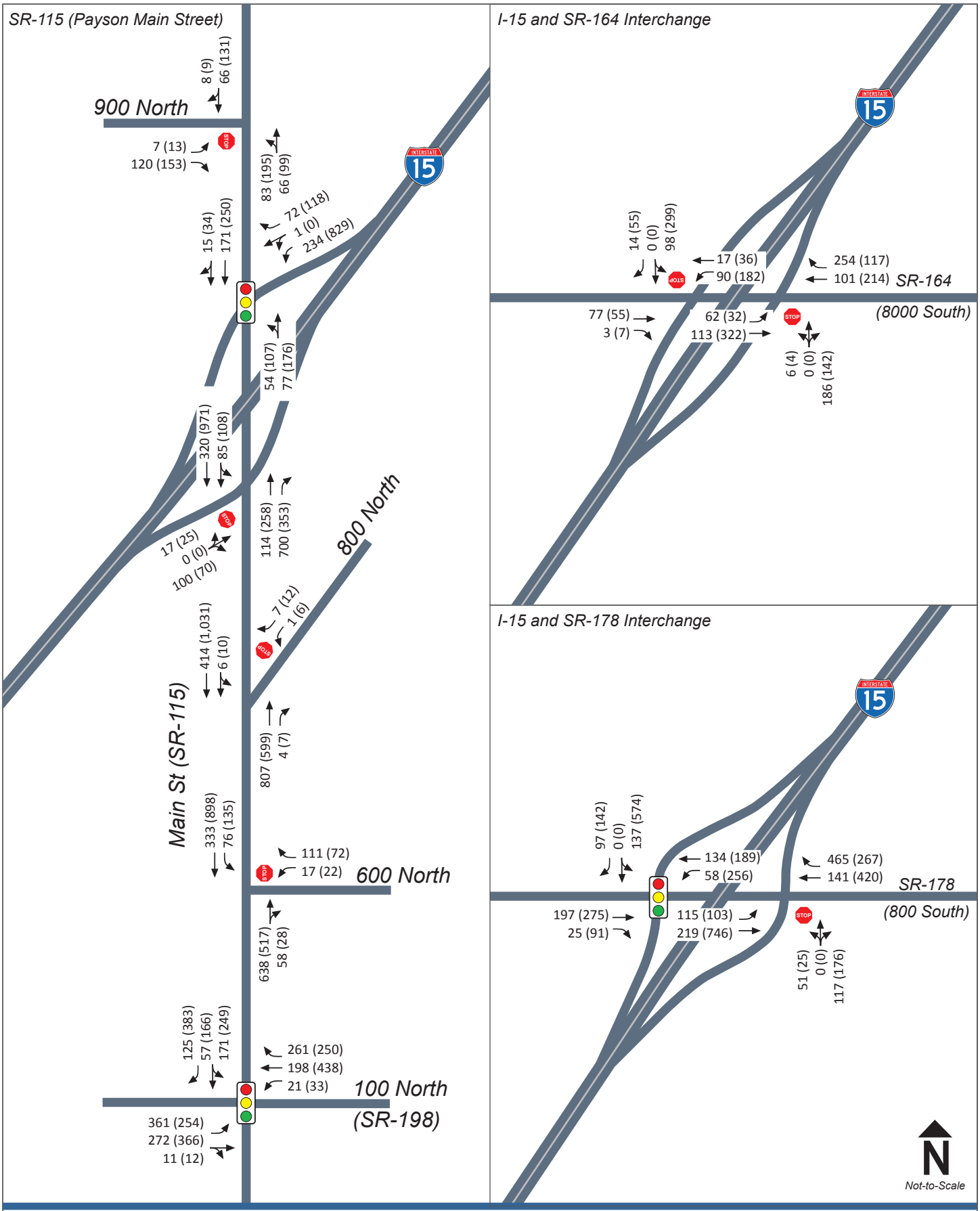


Exhibit 2. Existing Peak Hour Traffic Volumes

Payson Main Street Interchange EIS Traffic Report

2.2.2 Roadway Data

In addition to turning movement data, daily roadway volume counts were performed as well. Five traffic machine counts were performed using tube counters. The counting devices collected data for Tuesday, October 27 and Wednesday, October 28. Count data was recorded every 15 minutes. The daily volumes for the two 24-hour periods were averaged to estimate the daily volume for an average weekday. Exhibit 3 shows the location and average daily volume for the five 48-hour counts.

Exhibit 3. 48-Hour Machine Counts

Road	Location	Daily Volume
SR-115	Between 900 North and I-15 SB Ramps	5,800
SR-115	Between 500 North and 600 North	16,400
600 North	Between SR-115 and 100 East	2,400
SR-198	Between 300 East and 400 East	15,600
SR-198	Between Professional Way and 2100 West	10,300

2.2.3 Origin-Destination Study

Additionally, an origin-destination (OD) study was conducted for the businesses along Main Street just south of I-15 to quantify the percentage of business patrons that also use I-15. The origin-destination study was performed on Wednesday, October 28, 2014 by matching the final three digits of license plate numbers at eight data collection locations and comparing the timestamp associated with each to establish OD pairs. The data collection points included the four I-15 ramps, as well as entering and exiting vehicles at the following business driveways: Rite Aid, McDonalds, Subway, and Chevron. Additionally, license plate surveys were performed in the Payson Market and Comfort Inn parking lots at one-hour intervals.

This license plate data was processed to match license plates of vehicles at the businesses to the license plates of vehicles using the I-15 ramps. A matching window of 75 minutes was used as a filter to minimize the number of vehicles potentially sharing the final three digits of their license plate, while still allowing time for patrons to frequent the businesses.

The analysis of the data shows a total of 1,723 license plates were collected at the driveways of the businesses along north Main Street. Of these, 142 vehicles (8%) had an origin and a destination at I-15, meaning they were trips that came from the freeway and went back to the freeway. Another 574 vehicles (33%) had either a trip origin or destination (not both) at the freeway. A total of 716 (42%) of the vehicles frequenting the businesses also traveled on I-15. The McDonalds driveway had the highest number of patrons that used I-15 with 44%. The Payson Market grocery store had the lowest number of patrons also using I-15 at 37%. Results by business are shown in Exhibit 4.

Exhibit 4. Business Patrons Using I-15

Level of Service*	Count of Patrons using Driveway	Patrons Both To and From I-15	Patrons Either To or From I-15	Total Patrons Using I-15	Percent of Patrons Using I-15
Chevron	435	25	148	173	40%
Comfort Inn	48	1	18	19	40%
McDonalds	780	85	256	341	44%
Payson Market	219	7	73	80	37%
Rite Aid	148	13	51	64	43%
Subway	93	11	28	39	42%
Total	**1,723**	**142**	**574**	**716**	**42%**

2.3 Level of Service Concepts

Level of service (LOS) is a concept defined by the Highway Capacity Manual, which is published by the Transportation Research Board. Level of service is a measure of quality that describes the operational conditions on a transportation facility. LOS is a measure of speed and travel time, freedom to maneuver, traffic interruptions, and comfort/convenience. LOS is designated by letters A through F, with A representing the best conditions and F the worst. UDOT generally has a level of service goal of D, which goal was applied to the I-15, Payson Main Street Interchange EIS. Facilities that operate at LOS E or LOS F, worse than the LOS D goal, are deemed to operate unacceptably. LOS thresholds for Main Street and the Main Street Interchange are described below.

2.3.1 Main Street Level of Service

Due to the number of alternatives considered in this analysis, custom LOS thresholds for Main Street operations were developed to provide a quick, high-level look at operations. This way, alternatives that performed poorly could be refined or screened out relatively quickly based on the results of the travel demand model without the detailed operational analysis of a VISSIM micro-simulation.

LOS thresholds were calculated by estimating the peak capacity of Main Street and then applying factors to convert that to daily capacity and then developing LOS ranges for LOS D, E, and F. It was found through VISSIM micro-simulation tests that the existing capacity of Main Street is approximately 1,040 southbound vehicles in the PM peak hour. Converting this to a daily volume by using the existing 0.63 directional factor and 0.09 k-factor obtained from the roadway data resulted in a theoretical capacity of 18,300 vehicles per day for the two-lane roadway. This was the threshold for LOS F operations. LOS E and LOS D operational thresholds were assumed to be 0.9 and 0.8 of the theoretical capacity, respectively.

For the alternatives where the number or configuration of lanes on Main Street changes, additional factors were applied to develop LOS thresholds. A four-lane Main Street was estimated to have 1.9 times the capacity of the two-lane Main Street. One-way capacities were given an extra 20% increase due to the reduced conflicts and better signal coordination that one-way roads enjoy. Finally, capacities for a hybrid facility (Main Street four-lanes north of 600 North and a two-lanes south of 600 North) were estimated using a distance weighted average of the four and two-lane capacities. Exhibit 5 shows the associated daily volume thresholds for LOS D through F.

Exhibit 5. Main Street Level of Service Capacity Thresholds for LOS D-F (vehicles per day)

Level of Service*	Traffic Conditions	Two-Lane	Four-Lane	One-Way	Hybrid**
D	Approaching Unstable Operations / Tolerable Delays	14,700	27,900	33,500	17,600
E	Unstable Operations / Significant Delays Begin	16,500	31,400	37,700	19,700
F	Very Poor Operations / Excessive Delays Occur	18,300	34,900	41,900	21,900

**Any volume less than LOS D threshold is reported as LOS C.*
***Four-lanes north of 600 North and two-lanes south of 600 North.*

2.3.2 Level of Service

Level of service (LOS) is a primary measure of effectiveness (MOE) used for this study. For interchanges and intersections, the LOS criteria are based on average vehicle delay. Interchange LOS is a relatively new

MOE that combines the delay for the two ramp intersections at an interchange into a single composite value. For arterials, the LOS criteria are based on percent of base free-flow speed. The LOS criteria for each MOE are shown in Exhibit 6. Delay and speeds were extracted from VISSIM micro-simulation models for the Main Street interchange and Main Street between I-15 and SR-198.

Exhibit 6. Level of Service Criteria

Level of Service	Traffic Conditions	Interchange Average Delay (seconds/vehicle)	Intersection Average Delay (seconds/vehicle)	Arterial Percent of Base Free-Flow Speed (%)
A	Free Flow Operations / Insignificant Delay	0 ≤ 15	0 ≤ 10	> 85
B	Smooth Operations / Short Delays	> 15 and ≤ 30	> 10 and ≤ 20	> 67 and ≤ 85
C	Stable Operations / Acceptable Delays	> 30 and ≤ 55	> 20 and ≤ 35	> 50 and ≤ 67
D	Approaching Unstable Operations / Tolerable Delays	> 55 and ≤ 85	> 35 and ≤ 55	> 40 and ≤ 50
E	Unstable Operations / Significant Delays Begin	> 85 and ≤ 120	> 55 and ≤ 80	> 30 and ≤ 40
F	Very Poor Operations / Excessive Delays Occur	> 120	> 80	≤ 30

Source: Highway Capacity Manual 2010, Transportation Research Board

2.4 Existing Transportation System Performance

To perform analysis for potential alternatives it was necessary to determine the performance of the existing facilities. The performance of intersections and roadway segments was then used as a base with which to compare the projected performance of different alternatives. Currently at 14,500 vehicles per day, Main Street is operating well between I-15 and Main Street at LOS C. The Main Street Interchange is also operating well at 24 seconds of delay per vehicle or LOS B. Exhibit 7 summarizes results for existing conditions.

Exhibit 7. LOS for Existing Conditions

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
Existing Conditions	14,500	Two-Lane	C	24	B

3.0 Travel Demand Modeling

The MAG travel demand model is a tool used to predict future travel and traffic volumes for the Wasatch Front area. It is jointly owned and maintained by the Wasatch Front Regional Council (WFRC) and the Mountainland Association of Governments (MAG), which are the Metropolitan Planning Organizations for the Wasatch Front. MAG is responsible for Utah County and WFRC covers Weber, Davis, and Salt Lake Counties. Version 8.0 of the travel model was used for this study.

The travel model has two primary inputs: land use (socioeconomic) data and transportation system data. The land use data consists of residential and employment data for the entire region. This data is prepared in geographic blocks call Traffic Analysis Zones (TAZs). There are over 600 TAZs in Utah County and over 30 zones in the Payson area. The transportation system data consists of roadway and transit networks. The travel model inputs are prepared for the base year, which in this case is 2011, and for future years, which in this case was 2040. In consultation with the cities, MAG prepares future land use projections for each of these years. These projections are used by MAG to develop the Regional Transportation Plan (RTP), which is the long-range plan for the development of the future transportation system and includes a list of projects that will be built in each of the three phases of the plan.

Using these inputs, the travel model predicts how many person trips will be generated in the region, where those trips will be going, the mode by which they will be made, and the transportation facilities that will be used to get there. Minor modifications were made to the travel model to improve its accuracy in the Payson area, as described in Section 3.2.

3.1 Socioeconomics

Land use is one of the main inputs into the travel demand model to estimate future traffic volumes. Land use data in the model consists primarily of household and employment growth as spread out among the region's various Traffic Analysis Zones (TAZs). Future land use data was provided and approved by MAG as part of the I-15, Payson Main Street Interchange EIS project. The following summary of population and employment data, paints a picture of how and where Payson will grow.

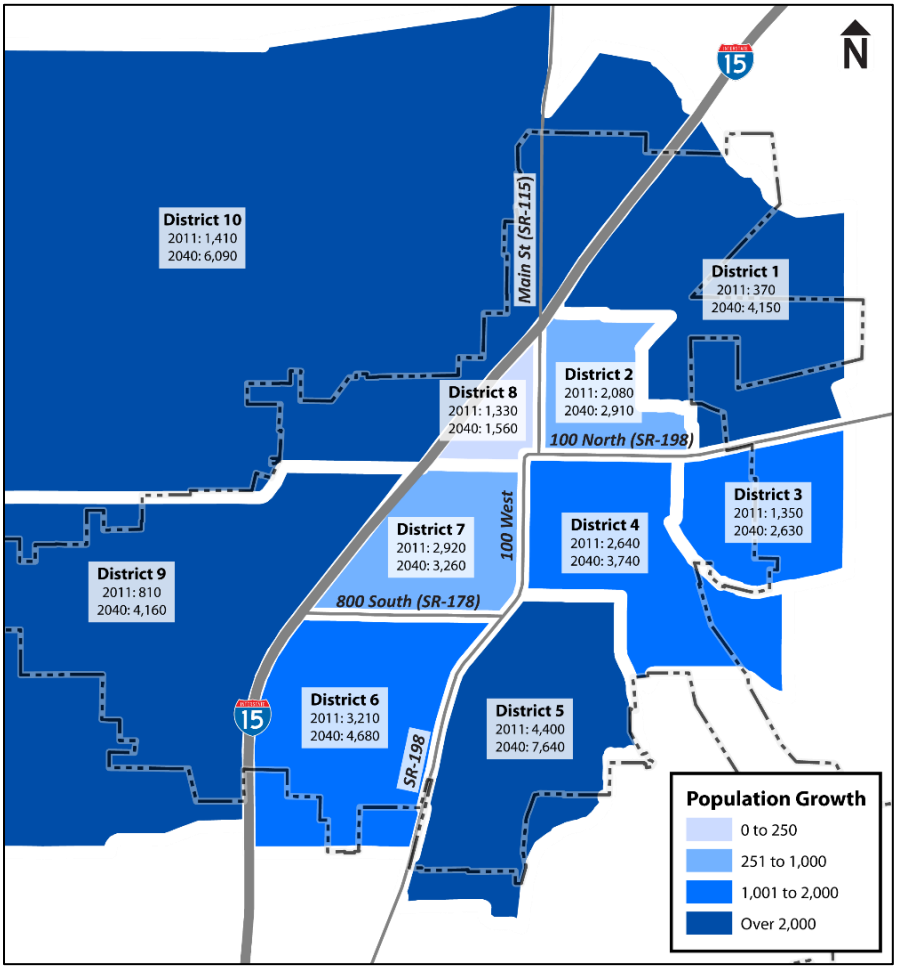
Land use data for Payson area was aggregated into ten districts. Population and employment numbers for each district for 2011 and 2040 are shown in Exhibit 8. The Payson area population is expected to nearly double by 2040, increasing from 20,520 in 2011 to 40,820 in 2040 (a 99% increase). Area employment is expected to more than double from 7,000 jobs in 2011 to approximately 16,880 jobs in 2040 (a 141% increase). The highest population growth can be found on the north side of the Payson area on both sides of I-15 in districts 1 and 10 with a combined 8,460 new residents projected for these two districts. The highest employment growth can be found on the west side of I-15 in districts 9 and 10 with a combined 5,250 new jobs projected for these two districts. The lowest population growth is in the northwest portion of city proper in district 8 with only 230 new residents projected. The lowest employment growth is in the southeast portion of the city in district 5 with only 50 new jobs projected. District boundaries can be seen on Exhibit 9.

Exhibit 9 also provides a visualization of projected changes in population between the years 2011 and 2040. Population growth per district between 2011 and 2040 is represented by the intensity of the blue colors, i.e. a darker blue represents more population growth for that district. As to be expected, population growth is higher at the edge and outside of the Payson City boundaries where there is a high availability of agricultural land. Growth still occurs in more established parts of town, as undeveloped parcels are developed or redevelopment occurs.

Exhibit 8. Socioeconomic Growth Analysis Years

District	Population				Employment			
	2011	2040	Growth	% Growth	2011	2040	Growth	% Growth
1	370	4,150	3,780	1022%	220	1,070	850	386%
2	2,080	2,910	830	40%	1,270	2,180	910	72%
3	1,350	2,630	1,280	95%	370	810	440	119%
4	2,640	3,740	1,100	42%	950	1,770	820	86%
5	4,400	7,640	3,240	74%	270	320	50	19%
6	3,210	4,680	1,470	46%	1,190	1,490	300	25%
7	2,920	3,260	340	12%	690	1,490	800	116%
8	1,330	1,560	230	17%	190	650	460	242%
9	810	4,160	3,350	414%	1,150	4,820	3,670	319%
10	1,410	6,090	4,680	332%	700	2,280	1,580	226%
Total	**20,520**	**40,820**	**20,300**	**99%**	**7,000**	**16,880**	**9,880**	**141%**
								Source: MAG 2014

Exhibit 9. Payson Area Population Growth 2011-2040 by District



3.2 Model Modifications

This section details the modifications to version 8 of the Mountainland Association of Governments (MAG) travel demand model for use in the I-15, Payson Main Street Interchange EIS. Two types of model modifications are described: (1) traffic analysis zone (TAZ) splits and the corresponding allocation of land use and (2) revisions to the highway network to improve the model's accuracy in the study area. Each of these subjects is described in more detail in the following sections.

3.2.1 TAZ Splits and Land Use Allocation

The TAZ structure was modified with thirteen Payson TAZs split into twenty-seven TAZs to refine the model and roadway network in the general study area. This allows for the effects of modifications to the key roads in Payson (Main Street, SR-198, and 800 South) to be measurable in the travel demand model. As a result, most of the Payson City TAZs were split. TAZs in the northern portion of Payson were split to allow for quantification of the impacts of interchange modifications or the possible relocation of the interchange a little farther to the north along with a potential new connection between I-15 and SR-198. TAZs in the southern part of town were split to more finely define traffic patterns along SR-198 and between the two Payson interchanges. The TAZ Splits figure in Appendix B displays the modified TAZ structure.

The MAG travel demand model contains residential and employment data for each TAZ for select years, including 2011 (the base year) and 2040 (the design year). To ensure consistency with the RTP, the study area land use totals were not changed, but simply reallocated among the resulting split TAZs. The process for distributing socioeconomic data from the original TAZs to the new split TAZs was essentially the same process that the MPO uses in generating their projections using a GIS model based on residential and employment capacities.

Capacities for households and employment were calculated for each split TAZ by determining the acreage by land use in each split TAZ and applying a capacity per acre value. The land use acreage contained in each TAZ was calculated by overlaying the Payson General Plan and the TAZ structure, using GIS software. Acreage was calculated for the following land use categories: industrial, commercial, commercial (retail), business park, mixed use, high-density residential, medium-high-density residential, medium-density residential, and low-density residential. Household capacities for each TAZ were determined by multiplying the units per acre, as stipulated in the Payson General Plan, by the corresponding acreage for each residential land use. For non-residential land uses, MAG jobs per acre capacities were used, as shown in Exhibit 10. Capacities for the employment categories for each TAZ were calculated by multiplying the jobs per acre by the acreage for each corresponding land use.

Exhibit 10. MAG Employment Capacity by Land Use (Jobs per Acre)

Land Use Category	Retail	Industrial	Office
Business Park	2.3	-	44.4
Commercial	5.6	-	29.4
Commercial (Retail)	11.1	-	11.1
Industrial	1.4	13.4	9.1
Mixed Use	0.9	0.9	4.4

The capacities for households and the three employment categories for each TAZ serve as one of the inputs into the MAG land use model, which determines the number of households and jobs in each TAZ

per calendar year based on the condition of and proximity to the transportation network and county-wide market trends and conditions. The land use capacities for the new TAZs were provided to MAG which then ran their land use model to obtain residential and employment data for each zone.

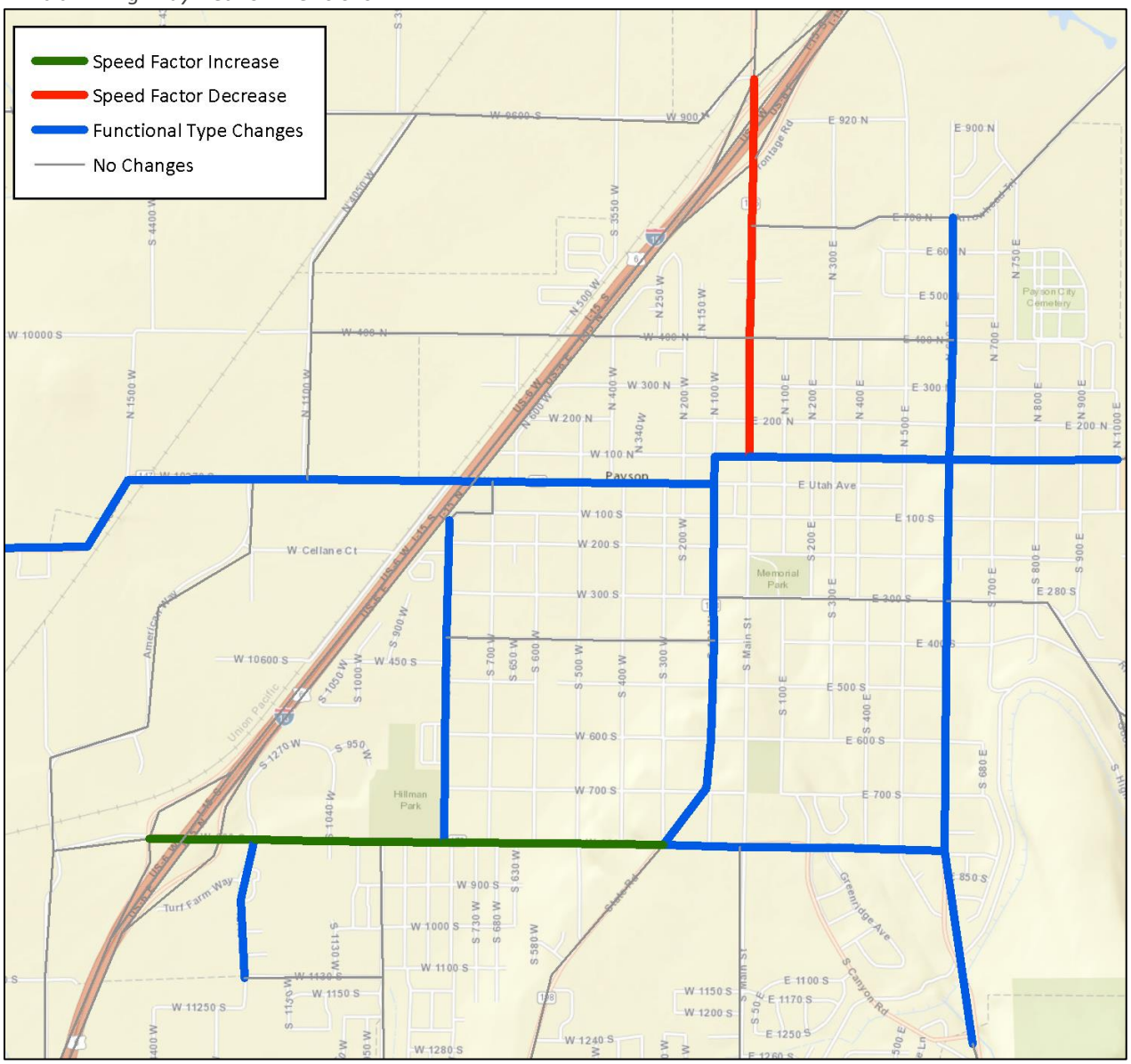
To ensure that there was no change in the study area land use totals, the resulting 2011 and 2040 household and employment numbers for the split TAZs were converted to a proportion of their parent TAZs. Multiplying these proportions by the original household and employment numbers for their parent TAZs resulted in final household and employment numbers for each split TAZ. Resulting tables for 2011 and 2040 socioeconomic data by TAZ for both the original and new data are found in the Appendix C.

3.2.2 Highway Network Revisions

Several revisions were made to the highway network in the transportation study area to increase the model's accuracy. Using the initial base year model run with the split TAZs, daily volume comparisons were made between the modeled and observed traffic volumes. The key finding of this comparison was that the model had too much traffic on Main Street and not enough on 800 South. The changes made to the highway network were done with primary goal of getting more accurate volumes on Main Street. The resulting revisions consisted of applying speed factors to increase travel speeds along 800 South and to decrease speeds on Main Street, changing the speed and capacity of several roads in Payson by changing their functional type from a principal to minor arterial or from a major to minor collector, and relocating the centroid connectors for one TAZ.

In the initial model run the fastest path from the intersection of 800 South & SR-198 to north I-15 was via SR-198 and Main Street to I-15. To move vehicles from Main Street, the speeds were adjusted such that the travel times for the path were essentially equivalent. Speed factors were applied to decrease the speed on Main Street from SR-198 to I-15 by 15% and to increase the speed on 800 South from SR-198 to I-15 by 15%. Speeds on SR-198 through Payson were reduced by changing the model's functional type from a principal to a minor arterial. Exhibit 11 shows the location of the speed factor and facility type adjustments. As shown in the figure, functional type changes were made on other roadways besides SR-198 to reduce their volumes as well. In these cases, the functional type was changed from major to minor collector.

Exhibit 11. Highway Network Revisions



The change to the TAZ centroid connector was for zone 2154, which is west of the railroad tracks between 9600 and 10400 South (Utah Avenue in Payson). Previously the zone only connected to 10400 South, but that was changed so that it connects to both 9600 and 10400 South.

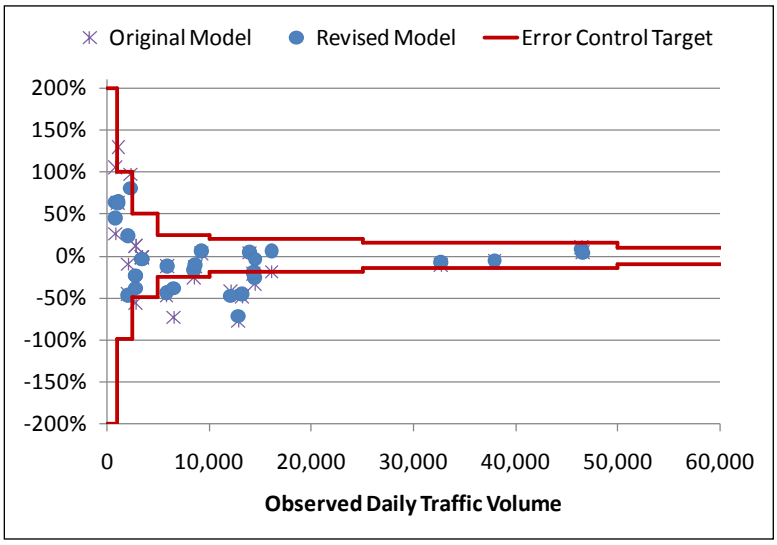
3.3 Calibration Results

A segment-by-segment comparison was made between model volumes and count volumes. Appendix D contains figures that compare the raw volume differences and percentage differences between the modeled and observed[1] volumes in the Payson area. Exhibit 12 contains plots of the percent error for each segment individually for both the original and revised models. The error control targets are those used by

[1] The observed volumes are based on the 2011 Traffic on Utah Highway published by UDOT and adjusted to reflect average weekday traffic

WFRC and MAG and decrease as count volumes increase. So for segments with daily traffic volumes less than 1,000 vehicle per day, variations of up to +/-200% are within target, while for segments with 25,000 and 50,000 vehicles per day, variations up to +/-15% are within target. For all Payson area segments, the revised model brings percent errors closer to the target.

Exhibit 12. Model Percent Error for Payson Area Segments



Improvements due to model revisions are further quantified through a comparison of volumes by segment functional type, shown in Exhibit 13. When comparing groups of segments, the percent root mean square error (% RSME) is an appropriate measure of the variation between model and traffic volumes. RMSE weights large volume differences more heavily than small differences and, as such, is always larger than the actual percent error. WFRC and MAG have typically had a % RMSE target value of 40%. The model revisions reduced the % RSME for all functional types. The most marked improvement is for collector streets with a reduction of % RSME from 65% to 41%. Overall, the reduction in % RSME from 29% to 25% shows the revised model volumes better match observed traffic volumes than the original model.

Exhibit 13. Average Daily Comparison by Functional Type

Function Type	# of Segments	Avg. Traffic Volumes	Original Model			Revised Model		
			Avg. Volume	% Error	% RMSE	Avg. Volume	% Error	% RMSE
Freeway	4	40,993	40,762	-1%	9%	41,158	0%	8%
Principal Arterial	8	10,217	8,127	-20%	27%	8,563	-16%	22%
Minor Arterial	8	9,207	6,029	-35%	56%	6,681	-27%	52%
Collector	11	2,838	2,758	-3%	65%	2,699	-5%	41%
All Functional Types	**31**	**11,309**	**9,891**	**-13%**	**29%**	**10,202**	**-10%**	**25%**

The result of this process is a model that better matches observed traffic volumes. Volumes are still low on 800 South, but they are better than they were before. Because the revised model does a pretty good job on Main Street and SR-198, the revised model was deemed acceptable for use on the EIS.

3.4 Future Traffic Volumes

Future year traffic volumes were developed using the MAG travel demand model and the balanced 2014 traffic volumes. As mentioned previously, modifications were made to the travel demand model to improve its accuracy in the study area. The modifications include TAZ splits and revisions to the highway network in Payson.

After these modifications were made, the travel model was run for the base year (2011) and for the future year of 2040. AM and PM peak hour volumes were developed using principles described in the National Highway Cooperative Research Program (NCHRP) Report 255 document. In short, the travel model was used to estimate the growth between the base year and the future year for each intersection leg for traffic into and out of the intersection. That growth was then applied to the 2014 traffic count volumes and the resulting volumes balanced to ensure the correct number of inbound and outbound vehicles on each leg of the intersection. Future no-build traffic volumes are shown in Exhibit 14.

3.5 VISSIM Micro-Simulation Model

VISSIM is a micro-simulation model used for performing complex traffic operations analyses. VISSIM is developed by PTV and widely used in Utah and throughout the world. Micro-simulation models individually simulate each vehicle in the model area and the interaction between them, which makes them very powerful in their capabilities to analyze a wide range of roadway and intersection possibilities. Traffic volumes and traffic control devices such as traffic signals and stop signs are coded into the model, which is then run. VISSIM is a stochastic model, which means that each run of the model with a different random seed value produces different results. Therefore, for this study each VISSIM model was run multiple times and the results averaged together.

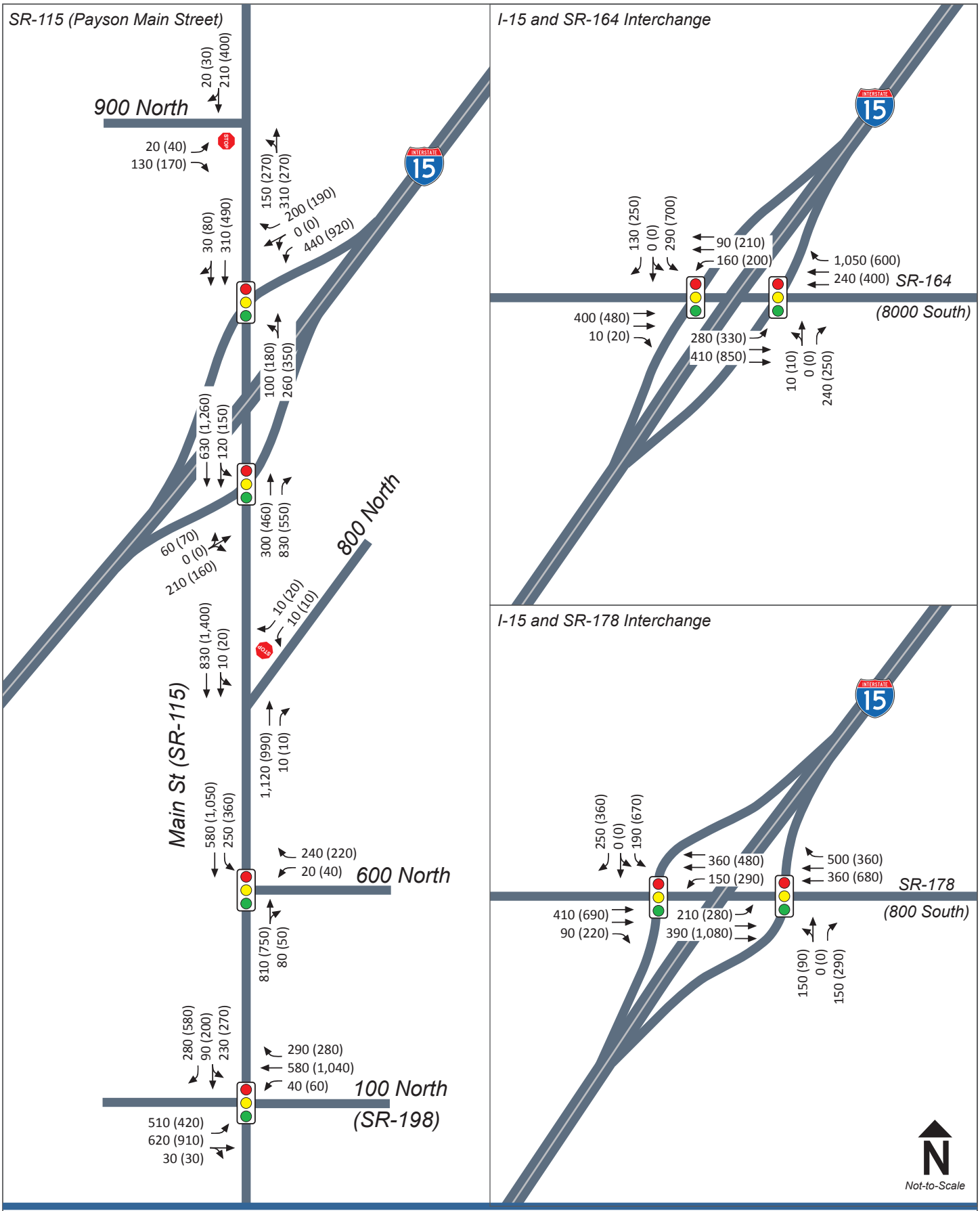


Exhibit 14. No-Build Peak Hour Traffic Volumes

Payson Main Street Interchange EIS Traffic Report

4.0 Purpose and Need Development

With the travel demand model satisfactorily calibrated to the 2011 base year, the next step in the process was to begin development of the purpose and need for the proposed project. This was accomplished by analyzing 2040 conditions without improvements to the Payson Main Street Interchange or Main Street to determine what and where the problems would be. The following sections describe the assumptions made in developing the No Build Alternative and the results of that analysis.

4.1 Background Roadway Network Assumptions

A key step in the development of the No Build Alternative was the determination of what the roadway network would look like in 2040. This information was primarily obtained from the Regional Transportation Plan (RTP), prepared and adopted by MAG in 2015. Per the RTP, there are several roadway network improvements in the Payson area, with only one project planned within the study area:

- Both the SR-164 (8000 South) and the SR-178 (Payson 800 South) interchanges, just north and south of the Main Street Interchange, were assumed to be modified to increase their capacity.
- Elk Ridge Drive, a two-lane roadway just east of the study area, is extended north from its current terminus at SR-198 through western Salem to SR-164 (8000 South) to provide greater access to the SR-164 (8000 South) interchange.
- A new two-lane roadway, Nebo Beltway, connects SR-198 on the east side of Payson south to Elk Ridge Drive.
- And finally, the project within the study area is SR-198, which is planned to be widened to a four-lane facility through Payson.

4.2 No Build Transportation Performance Analysis

With no improvements implemented for the Main Street Interchange or Main Street south of I-15, congestion is fairly significant in 2040. By 2040, daily traffic volumes along Main Street are projected to grow by over 50% from 14,500 vehicles per day today to 22,000 vehicles per day. This increase in traffic exceeds the capacity of the interchange itself, as well as Main Street south of I-15. In no build conditions, the interchange operates at LOS is F with 218 seconds of delay per vehicle. The true delay per vehicle, however, is much greater since a large portion of I-15 traffic that would like to travel south on Main Street remains stuck on the freeway well beyond the PM peak analysis period. Exhibit 15 contains the no build results of Main Street and its interchange with I-15.

Exhibit 15. LOS for Existing and Future No Build Conditions

Alternative	Main Street 100 N (SR-198) to I-15			Main Street Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
Existing Conditions	14,500	Two-Lane	C	24	B
2040 No Build Conditions	22,000	Two-Lane	**F**	218	**F**

The current interchange configuration is insufficient to handle future traffic demands. The most critical issue is the high volume of southbound exiting traffic turning left to head south on Main Street conflicting with the movement of southbound Main Street traffic turning left onto northbound I-15. Since these two

movements currently share a lane, southbound left turns impede the southbound through traffic causing traffic congestion through the interchange and onto the southbound off-ramp. Backups continue up the ramp and onto mainline I-15.

Additionally, the southbound lane drop on Main Street causes additional traffic backups into the interchange further exacerbating its failure. Our modeling shows that even with an improved interchange at I-15, this lane drop on Main Street still backs traffic up through the southbound off ramp. So, improvements to the interchange itself do not relieve congestion, but it is necessary to widen Main Street, as well, or provide another viable alternative roadway to alleviate travel demand on Main Street. If another roadway is not provided, modeling shows it is necessary to remove the lane drop on Main Street and extend the two southbound through lanes all the way to SR-198 to keep traffic congestion from backing up into the interchange.

5.0 Alternatives Analysis

The alternatives analysis component of the I-15, Payson Main Street Interchange EIS was performed in several phases. The level one screening was to determine which alternatives would satisfy the project's purpose and need. Level one screening was purely based on the traffic performance of each alternative and its ability to achieve the desired levels of service at the Main Street Interchange and on Main Street. The wide range of alternatives that were analyzed in level one screening and analysis results are described in the following sections.

5.1 Alternative Descriptions

More than 20 alternatives were analyzed to see how well they served the projected traffic demand. For ease of analysis comparison, the alternatives are grouped into four larger categories: improve existing interchange, relocate interchange, combination interchange, and additional interchange. Additionally, a Transit Systems Management (TSM) and a Transit alternative were also considered. More detailed descriptions of the alternatives and their associated conceptual alignments can be found in the Alternative Development and Screening Process Report.

5.1.1 Improve Existing Interchange Alternatives

The improve existing interchange alternatives consist of widening Main Street to a five-lane facility between I-15 and SR-198 or creating a set of one-way or two-way pairs with 100 West. With this configuration, traffic demand can be served along the Main Street Corridor without the additional roadways. Twelve alternatives were considered in this group, I1 through I12:

- I1: Long Span Structure
- I2: Round-abouts
- I3: Oval-about
- I4: Main Street over I-15
- I5: Diverging Diamond
- I6: Realign South under I-15
- I7: Add Arterials
- I8: Two One-Way Streets
- I9: Realign Main St South over I-15
- I10: Realign Main St North over I-15

I11: Realign Main St North under I-15

I12: Two-Way Pair

5.1.2 Relocate Interchange Alternatives

The relocate interchange alternatives consist of moving the I-15 interchange further to the northeast and connecting this interchange directly to the planned Nebo Beltway corridor. The interchange at Main Street is closed. Some type of tie-back to the existing Main Street exists for each alternative. Main Street remains a two-lane facility for these alternatives. Two alternatives were considered in this group:

R1: Relocate Near

R2: Relocate Far

5.1.3 Combination Interchange Alternatives

The combination interchange alternatives consist of adding a new interchange to the northeast on I-15 while maintaining the existing interchange at Main Street. The new interchange connects directly to the planned Nebo Beltway corridor. Under these scenarios, the Main Street Interchange is also improved and Main Street is widened to five-lanes between I-15 and 600 North. South of 600 North, Main Street remains a two-lane roadway. Six alternatives were considered in this group:

C1: Braided Ramps

C2: C-D Roads

C3: Frontage Roads

C4: Split Diamond

C5: Full + Half

C6: Frontage Roads with 600 East Connection

There are two main subgroups of the combination interchange alternatives. First, those alternatives that allow for separate access to Main Street and Nebo Beltway. This groups includes alternatives C1, C2, and C5 alternatives. Conversely, the C3, C4, and C6 alternatives combine travel between the Main Street and Nebo Beltway traffic, meaning that travelers traveling to the further roadway must first travel through the signalized intersection of the nearer roadway. For example, if a traveler is heading south on I-15 and wants to exit at Main Street, they exit prior to Nebo Beltway and must first travel through the signalized intersection with Nebo Beltway before continuing onto Main Street.

5.1.4 Additional Interchange

The additional interchange alternative group only contains one alternative. The A1 alternative includes a new interchange far enough north of the Main Street interchange that it has no shared ramps or movements between the two. The Main Street interchange remains open. The new interchange connects directly to the Nebo Beltway corridor.

5.1.5 Transportation Systems Management (TSM) Alternative

The Transportation Systems Management alternative involves operational strategies, such as traffic signal coordination, that would increase the capacity of Main Street without additional through lanes. For this alternative, a 10% increase in capacity is assumed for Main Street.

5.1.6 Transit Alternative

The transit alternative analyzed the impact of additional transit service in the Payson area. Per the 2040 Regional Transportation Plan, commuter rail is already planned through Payson. All alternatives include

this rail line. The Transit Alternative includes two additional transit lines in Payson. First, a bus rapid transit (BRT) line between the Spanish Fork Center Street and Payson Main Street commuter rail stations with 30-minute headways that runs along SR-198. Second, a circulator route with-15 minute headways that circulates through Payson on both the east and west sides of town.

5.2 Level 1 Screening

For the Level 1 Screening each of the alternatives was evaluated on its ability to satisfy the project's purpose and need. Specifically, from a quantitative analysis each alternative was evaluated on:

- Reducing anticipated 2040 congestion at the Main Street Interchange to an acceptable level of service (LOS D or better)
- Reducing anticipated 2040 congestion on Main Street between 100 N and I-15 to an acceptable level of service (LOS D or better)

5.2.1 Improve Existing Interchange Alternatives

For this group of alternatives, most of Main Street daily volumes are between 20,700 to 26,800 vehicles per day, or about 43% to 85% more than existing daily volumes. For all but Alternative I7, Main Street operates very well at LOS C and the interchange operated at LOS B. Alternative I7 reaches LOS E because the additional arterial, which does not connect directly to I-15, does not draw enough traffic off Main Street. Thus, Alternative I7 demonstrates that much of the traffic demand for Main Street is for those traveling to/from I-15. Analysis results for this group of alternatives are shown in Exhibit 16.

Exhibit 16. 2040 LOS for Improve Existing Interchange Alternatives

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
I1: Long Span Structure	24,500	Four-Lane	C	24	B
I2: Round-abouts	24,400	Four-Lane	C	19	B
I3: Oval-about	24,600	Four-Lane	C	27	B
I4: Main Street Over I-15	24,500	Four-Lane	C	24	B
I5: Diverging Diamond	24,500	Four-Lane	C	21	B
I6: Realign South Under I-15	24,400	Four-Lane	C	27	B
I7: Add Arterials	20,700	Hybrid	**E**	N/A[3]	N/A[3]
I8: Two One-Way Streets[1]	26,800	One-Way	C	N/A[4]	N/A[4]
I9: Realign Main St South Over I-15	24,400	Four-Lane	C	27	B
I10: Realign Main St North Over I-15	24,700	Four-Lane	C	29	B
I11: Realign Main St North Under I-15	24,700	Four-Lane	C	29	B
I12: Two-Way Pair[2]	9,800	Two-Lane	C	21	B

[1]Includes traffic volumes on both 100 West and Main Street. [2] Only includes traffic volumes for Main Street itself. [3]Interchange analysis was not performed due to LOS E on Main Street. [4]I8 alternative can be paired with any other I alternative interchange configuration.

5.2.2 Relocate Interchange Alternatives

Due to the lack of direct connection to Main Street for both Relocate Interchange alternatives, traffic exiting I-15 finds itself on the Nebo Beltway from which it then has several options to travel through

Payson: make its way to Main Street, turn onto 600 East or another connecting roadway, or stay on the Nebo Beltway. This results in Main Street having some of the lowest volumes of all the alternative groups. The reduction is quite significant with Alternative R2 resulting in Main Street daily volume in 2040 of 13,800 vehicles per day, which is less than the volume on Main Street today at 14,500 vehicles per day. Under Alternative R1, Main Street traffic volumes of 14,700 vehicles per day barely increase over existing levels. As a result, under these alternatives Main Street is able to operate in LOS C or D as only a two-lane roadway. Results of the traffic analysis for each of the two relocate interchange alternatives is shown in Exhibit 17.

Exhibit 17. 2040 LOS for Relocate Alternatives

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
R1: Relocate Near	14,700	Two-Lane	D	24	B
R2: Relocate Far	13,800	Two-Lane	C	18	B

5.2.3 Combination Interchange Alternatives

Volumes along Main Street for the C alternatives is between 17,200 and 18,500 vehicles per day or about a 19% to 28% increase in Main Street volumes over today. Under all these alternatives Main Street operates at LOS C or LOS D. These results show that the interchange at Nebo Beltway combined with the interchange at Main Street allows for acceptable operations on Main Street without widening it south of 600 North. For scenarios that maintain combined access between Main Street and Nebo Beltway traffic, the volumes on Main Street are slightly lower by 600 to 1,300 vehicles per day, showing that the increased travel time to Main Street causes more people to divert to Nebo Beltway or other roadways. Results for the combination interchange group of alternatives is shown in Exhibit 18.

Exhibit 18. 2040 LOS for Combination Interchange Alternatives

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
C1: Braided Ramps	18,000	Hybrid	D	21	B
C2: C-D Roads	18,100	Hybrid	D	23	B
C3: Frontage Roads	17,200	Hybrid	C	20	B
C4: Split Diamond	17,400	Hybrid	C	24	B
C5: Full + Half	18,500	Hybrid	D	N/A*	N/A*
C6: Frontage Roads w/600 E Connection	17,200	Hybrid	C	20	B
**N/A because interchange analysis was not performed due to this alternative not being acceptable to FHWA.*					

5.2.4 Additional Interchange Alternative

Under Alternative A1, Main Street volumes increase to 18,400 or 27% greater than today, causing Main Street to fail or operate at LOS F. The location of the additional interchange is far enough away from the existing interchange that it does not draw enough traffic off Main Street. Because of the failure of Main Street, interchange delay and LOS was not analyzed. Results for this alternative are shown in Exhibit 19.

Exhibit 19. 2040 LOS for Additional Interchange Alternative

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
A1: Additional Interchange	18,400	Two-Lane	F	N/A	N/A

Alternative A1 shows how Main Street would operate with the addition of a new interchange without any improvements to Main Street or the Main Street interchange. This is why even though the volume for Alternative A1 is within the range of volumes of the Combination Interchange group of alternatives, Alternative A1 fails. The main difference is that the Combination Interchange alternatives require the improvement of the Main Street interchange and widening Main Street between I-15 and 600 North to four lanes.

5.2.5 Transportation Systems Management (TSM) Alternative

Under the TSM Alternative, Main Street capacity is assumed to by 10% greater than the two-lane capacity. With this additional capacity, Main Street continues to operate at LOS F. Results for this alternative are shown in Exhibit 20.

Exhibit 20. LOS for TSM Alternative

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
TSM Alternative	22,500	Two-Lane +10%[1]	F	N/A[2]	N/A[2]
[1]Capacity for TSM Alternative assumed 10% additional capacity over the two-lane thresholds. [2]Interchange analysis was not performed due to LOS f on Main Street.					

5.2.6 Transit Alternative

The Transit Alternative barely reduces traffic volumes from Main Street by only 100 vehicles per day as compared to the No Build Conditions. The reduction is not enough to improve operations on Main Street, and it continues to operate at LOS F. Results for this alternative are shown in Exhibit 21.

Exhibit 21. LOS for Transit Alternative

Alternative	Main Street 100 N (SR-198) to I-15			Main Street / I-15 Interchange	
	Daily Volume	LOS Threshold Category	LOS	Delay (sec/veh)	LOS
Transit Alternative	21,900	Two-Lane	F	N/A[1]	N/A[1]
[1]Interchange analysis was not performed due to LOS F on Main Street.					

5.3 Alternatives Refinement

The following six alternatives passed Level 1 and Level 2 Screening into Alternatives Refinement:

I1: Long Span Structure

R1: Relocate Near

R2: Relocate Far

C1: Braided Ramps

C3: Frontage Roads

C4: Split Diamond

Each of the alternatives was evaluated on its ability to satisfy the project's purpose and need. Specifically, from a quantitative analysis, each alternative was evaluated on vehicle-miles traveled, delay, arterial LOS, intersection LOS, and an origin/destination analysis. Appendix E contains peak hour turning movement volumes for each of the six alternatives.

5.3.1 Vehicle-Miles Traveled and Vehicle-Hours of Delay

Vehicle-miles traveled is a measure of the total distance traveled by all vehicles over a single day in the study area. Vehicle-hours of delay represents the total delay experienced by all vehicles over a single day in the study area. Delay occurs whenever a vehicle is forced to travel below free flow traffic conditions, such as waiting at traffic signals or being stuck in roadway congestion. Results are shown in Exhibit 22.

Exhibit 22. Vehicle-Miles Traveled (VMT) and Delay for Study Area

Alternative	Daily VMT	Daily Delay (veh-hours)
Existing Conditions	128,000	150
2040 No Build Conditions	272,000	3,320
I1: Long Span Structure	274,000	520
R1: Relocate Near	291,000	510
R2: Relocate Far	290,000	460
C1: Braided Ramps	291,000	430
C3: Frontage Roads	289,000	500
C4: Split Diamond	290,000	570

In Existing Conditions, there are 128,000 vehicle-miles traveled and 150 vehicle-hours of delay in the study area. For 2040 No Build Conditions the VMT more than doubles to 272,000 while the delay increases by more than 20-fold to 3,320 vehicle hours. VMT in Alternative I1 slightly increases to 274,000. The increases for VMT with the R and C alternatives show similar VMT between these alternatives around 290,000 vehicle-miles traveled. In terms of delay, each alternative has a similar impact on reducing delay to around 500 vehicle-hours. C1 reduces delay the most with only 430 vehicle-hours and C4 reduces the least with 570 vehicle-hours. The higher VMT but lower delay demonstrates the ability of vehicles to experience less delay even with longer travel.

5.3.2 Arterial LOS

Arterial LOS was estimated from modeled travel speeds along Main Street under each alternative and are shown in Exhibit 23. All segments of Main Street handle traffic demand for each alternative with acceptable LOS.

Exhibit 23. 2040 Arterial LOS and % Base Free-Flow Speed

Alternative	Peak Hour	Main Street (SR-115) Northbound				Main Street (SR-115) Southbound			
		600 N to I-15 SB	400 N to 600 N	100 N to 400 N	Total	I-15 SB to 600 N	600 N to 400 N	400 N to 100 N	Total
I1: Long Span Structure	AM	A / 88	C / 59	B / 80	**B / 71**	B / 78	A / 88	D / 50	**C / 64**
	PM	B / 75	B / 71	B / 83	**B / 76**	B / 77	A / 86	C / 54	**C / 67**
R1: Relocate Near	AM	A / 94	A / 85	A / 89	**A / 88**	B / 85	A / 89	D / 45	**C / 63**
	PM	A / 94	A / 85	B / 85	**A / 87**	B / 77	B / 69	D / 46	**C / 58**
R2: Relocate Far	AM	B / 77	B / 78	A / 86	**B / 81**	B / 82	B / 84	C / 52	**C / 66**
	PM	B / 73	B / 79	A / 87	**B / 80**	B / 72	B / 81	D / 46	**C / 60**
C1: Braided Ramps	AM	B / 81	B / 83	A / 85	**B / 83**	A / 88	B / 83	D / 48	**C / 62**
	PM	C / 64	B / 82	B / 80	**B / 77**	D / 43	B / 68	D / 40	**D / 48**
C3: Frontage Roads	AM	B / 83	A / 93	B / 74	**B / 82**	B / 77	B / 80	D / 44	**C / 58**
	PM	B / 71	A / 95	B / 81	**B / 84**	C / 52	B / 74	C / 54	**C / 60**
C4: Split Diamond	AM	B / 79	C / 65	B / 74	**B / 71**	B / 83	B / 81	D / 43	**C / 57**
	PM	D / 47	B / 71	A / 85	**B / 70**	B / 70	B / 74	D / 46	**C / 57**

5.3.3 Intersection LOS

Intersection LOS was estimated from modeled average delay per vehicle under each alternative and are shown in Exhibit 24. All intersections handle traffic demands with acceptable LOS for each alternative.

Exhibit 24. 2040 Intersection LOS and Average Delay per Vehicle

Alternative	Peak Hour	Main Street Intersections					Nebo Beltway Intersections	
		I-15 SB Ramps	I-15 NB Ramps	600 N	400 N	100 N (SR-198)	I-15 SB Ramps	I-15 NB Ramps
I1: Long Span Structure	AM	B / 14	A / 6	B / 18	A / 9	B / 18	--	--
	PM	C / 25	A / 5	B / 11	A / 10	C / 27	--	--
R1: Relocate Near	AM	--	--	A / 6	A / 6	B / 13	B / 14	B / 12
	PM	--	--	A / 8	B / 13	C / 33	B / 16	C / 23
R2: Relocate Far	AM	--	--	A / 9	A / 8	B / 12	A / 7	B / 19
	PM	--	--	B / 10	A / 10	C / 27	A / 5	C / 20
C1: Braided Ramps	AM	B / 16	A / 5	A / 9	A / 8	B / 17	B / 12	A / 3
	PM	C / 22	A / 5	B / 13	B / 14	C / 25	B / 16	A / 4
C3: Frontage Roads	AM	A / 9	A / 8	A / 9	B / 11	B / 13	B / 20	B / 16
	PM	B / 14	A / 7	B / 12	B / 11	C / 21	B / 19	B / 12
C4: Split Diamond	AM	C / 24	B / 10	B / 11	B / 11	B / 16	B / 16	B / 15
	PM	B / 16	B / 10	A / 9	B / 11	C / 27	C / 26	B / 19

5.3.4 Origin-Destination Analysis

An origin-destination was performed to better understand how trips are distributed throughout the area of the interchange in each alternative. Exhibit 25 shows the locations of the origin/destinations

surrounding the interchange area along the dotted line. This line represents a screenline that all trips to/from I-15 pass through. Percentages of I-15 traffic passing through the respective locations along this screenline is shown in Exhibit 26. The percent of trips listed for each origin/destination represents the share of traffic accessing I-15 via each roadway. These percentages provide a general idea of how interchange traffic distributes itself on the surrounding roadway network for each alternative.

Exhibit 25. Origin/Destination Locations for Trips to/from I-15

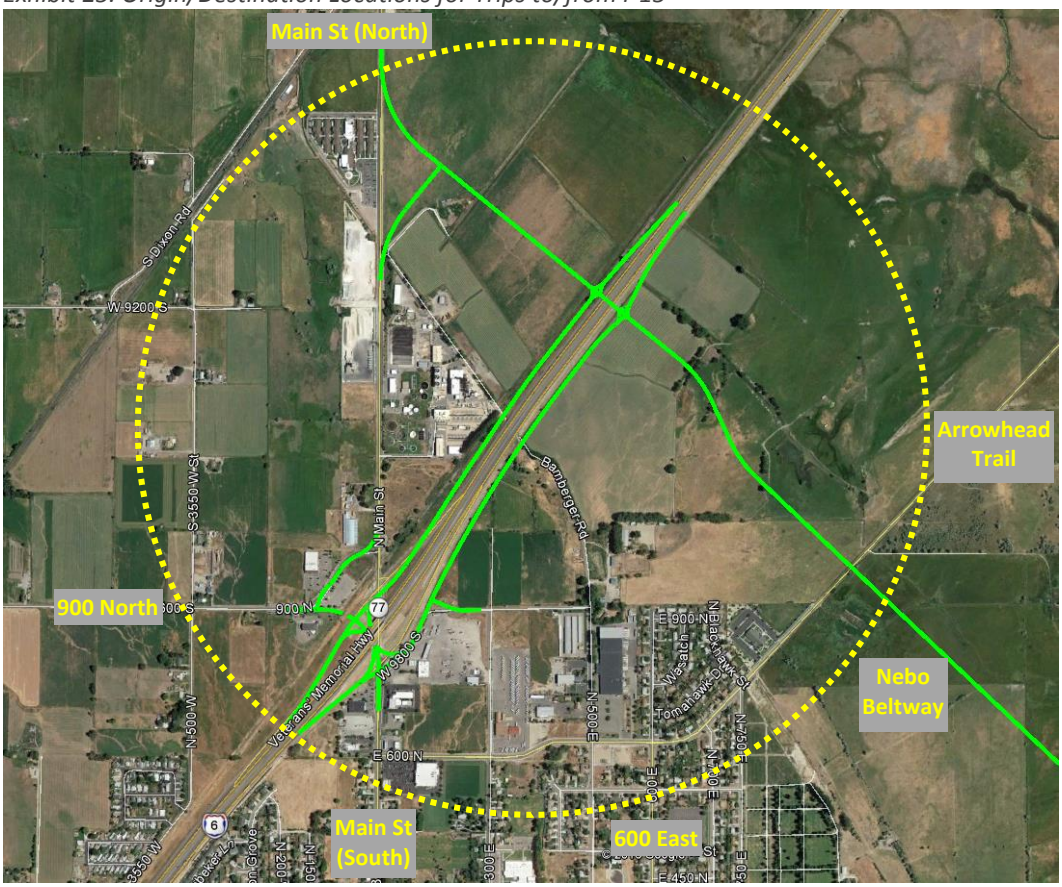


Exhibit 26. Percent Distribution of 2040 Trips by Origin/Destination Location for Trips to/from I-15

Alternative	Main St (North)	900 North	Arrowhead Trail	Nebo Beltway	600 East	Main St (South)
No Build	5%	16%	3%	--	1%	74%
I1: Long Span Structure	5%	8%	4%	--	--	82%
R1: Relocate Near	4%	16%	4%	15%	18%	43%
R2: Relocate Far	5%	8%	2%	32%	16%	36%
C1: Braided Ramps	6%	20%	2%	21%	4%	48%
C3: Frontage Roads	3%	16%	2%	24%	5%	51%
C4: Split Diamond	3%	21%	3%	9%	12%	52%

For Alternative I1, a high portion (82%) of trips to/from I-15 have an origin/destination at Main Street (South) demonstrating a very high attractiveness for traveling to/from the freeway. For the other

alternatives, this proportion drops significantly demonstrating the rerouting of traffic through the other roadways. In the C alternatives, Main Street (South) serves as the origin/destination location for only 48% to 52% for all trips to/from I-15. For the R alternatives, this drops even lower to 36% to 43%. The resulting shift in trips mostly go to 900 North, 600 East, and Nebo Beltway.

For all the alternatives that include the Nebo Beltway, except arguably C4, this new arterial serves as an important route for traffic accessing I-15 from the east side of Payson. Alternative R2 results in the most use of Nebo Beltway with 32% of interchange traffic using this roadway. C1 and C3 also have a high share of traffic on Nebo Beltway but a bit lower in the 21% to 24% range. For alternatives R1 and C4 where the Nebo Beltway crosses I-15 further south, it loses its attractiveness and only accounts for 15% and 9% of I-15 traffic, respectively. This is likely due to the case that as Nebo Beltway moves further south toward Main Street, traffic on the far east side of Payson that desires to travel north on I-15 has to travel further out of direction to reach I-15 and likely prefers to use the 8000 South (SR-164) Benjamin interchange.

Depending on the alternative, 900 North is attractive origin/destination for interchange traffic to access destinations on the west side of the freeway. In Alternative I1 the 900 North and Main Street intersection is realigned about 800 feet further north to maintain adequate distance from the I-15 southbound ramps intersection. This creates out-of-direction travel and decreases its attractiveness. Similarly, R2 has significant out-of-direction travel between I-15 and 900 North. In the I1 and R2 alternatives only 8% of traffic to/from the interchange use 900 North. However, for the C alternatives, 900 North is realigned and ties directly into Main Street to the south and the interchange, which removes out-of-direction travel and makes it an attractive route. R1 also maintains good connection between the 900 North and the interchange. The attractiveness of 900 North for the C alternatives and R1 is shown by the between 16% and 21% of I-15 traffic that it draws.

600 East is an attractive origin/destination for alternatives where there is not a direct connection between Main Street and I-15 (R1 and R2). For these alternatives between 16% and 18% of interchange traffic will use 600 East. These vehicles are likely traveling to destinations east of Main Street. For C1 and C3 the percentage using 600 East it is much lower, meaning Main Street is a more attractive route for these trips. C4 proves unique in that even though there is a direct connection to Main Street, 600 East is more attractive than the C1 and C3. In C4 the Nebo Beltway connection is close enough to the Main Street connection that 600 East becomes an attractive alternative to using Main Street.

The remaining two origin/destinations, Arrowhead Trail and Main Street (North), remain relatively consistent between all alternatives with between 2% to 4% and 3% to 6% of trips to/from I-15, respectively.

6.0 Conclusion

This traffic analysis was performed as part of the I-15, Payson Main Street Interchange Environmental Impact Statement (EIS). Socioeconomic data shows high growth in households and employment in the Payson area. Travel demand modeling for 2040 shows that due to the high growth, the existing Main Street interchange and the surrounding roadway network will be unable to serve the high traffic demand. Several long-term solutions for the Main Street interchange area are identified to address future congestion. Twenty-four (24) alternatives were analyzed with six alternatives continuing past Level 1 and Level 2 Screening into alternatives refinement. All of these six alternatives are able to handle estimated 2040 traffic demands when considering vehicle-miles traveled, delay, arterial LOS, and intersection LOS. An origin-destination analysis does provide additional insight into the differing travel patterns of traffic to/from I-15 to help distinguish between the alternatives.

Appendix A

Turning Movement Counts

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	SR-115 From North				SR-115 From South				900 North (9600 S) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
07:00 AM	1	10	0	11	16	6	0	22	32	0	0	32	65
07:15 AM	0	12	0	12	9	16	0	25	30	0	0	30	67
07:30 AM	1	14	0	15	12	15	0	27	37	1	0	38	80
07:45 AM	2	20	0	22	20	32	0	52	27	2	0	29	103
Total	4	56	0	60	57	69	0	126	126	3	0	129	315
08:00 AM	2	17	0	19	16	16	0	32	29	2	0	31	82
08:15 AM	3	14	0	17	18	20	0	38	25	2	0	27	82
08:30 AM	1	15	0	16	16	16	0	32	23	3	0	26	74
08:45 AM	5	12	0	17	11	9	0	20	23	4	0	27	64
Total	11	58	0	69	61	61	0	122	100	11	0	111	302

04:00 PM	5	34	0	39	27	43	0	70	35	3	1	39	148
04:15 PM	2	30	0	32	25	56	0	81	39	3	0	42	155
04:30 PM	4	24	0	28	17	44	0	61	52	4	0	56	145
04:45 PM	2	30	0	32	31	55	0	86	45	4	0	49	167
Total	13	118	0	131	100	198	0	298	171	14	1	186	615
05:00 PM	1	40	0	41	21	52	0	73	45	4	0	49	163
05:15 PM	4	28	0	32	27	49	0	76	36	2	0	38	146
05:30 PM	2	33	0	35	18	37	0	55	26	3	5	34	124
05:45 PM	4	38	0	42	24	37	0	61	25	1	0	26	129
Total	11	139	0	150	90	175	0	265	132	10	5	147	562
Grand Total	39	371	0	410	308	503	0	811	529	38	6	573	1794
Apprch %	9.5	90.5	0		38	62	0		92.3	6.6	1		
Total %	2.2	20.7	0	22.9	17.2	28	0	45.2	29.5	2.1	0.3	31.9	
General Traffic	38	351	0	389	293	487	0	780	516	35	6	557	1726
% General Traffic	97.4	94.6	0	94.9	95.1	96.8	0	96.2	97.5	92.1	100	97.2	96.2
3+ Axle Heavy Trucks	1	20	0	21	15	16	0	31	13	3	0	16	68
% 3+ Axle Heavy Trucks	2.6	5.4	0	5.1	4.9	3.2	0	3.8	2.5	7.9	0	2.8	3.8

L2 Data Collection

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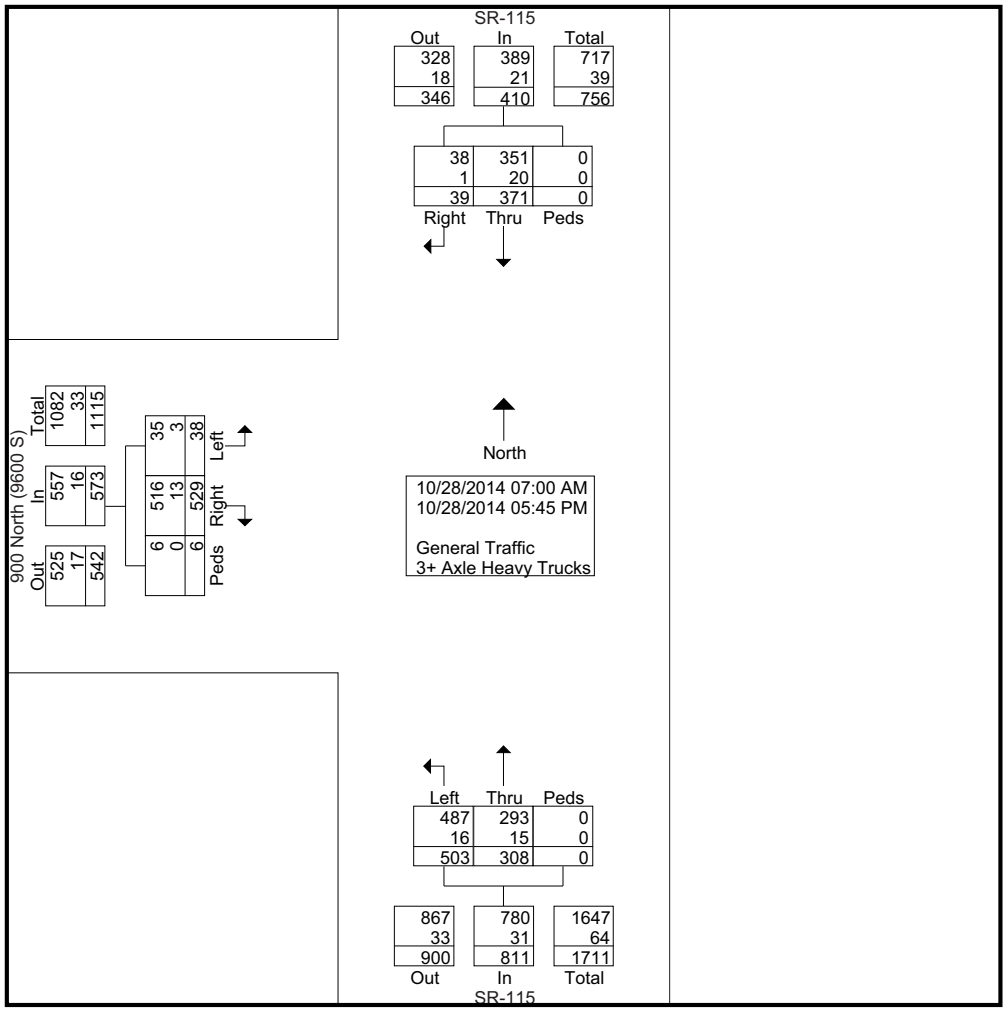
Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014
Page No : 2



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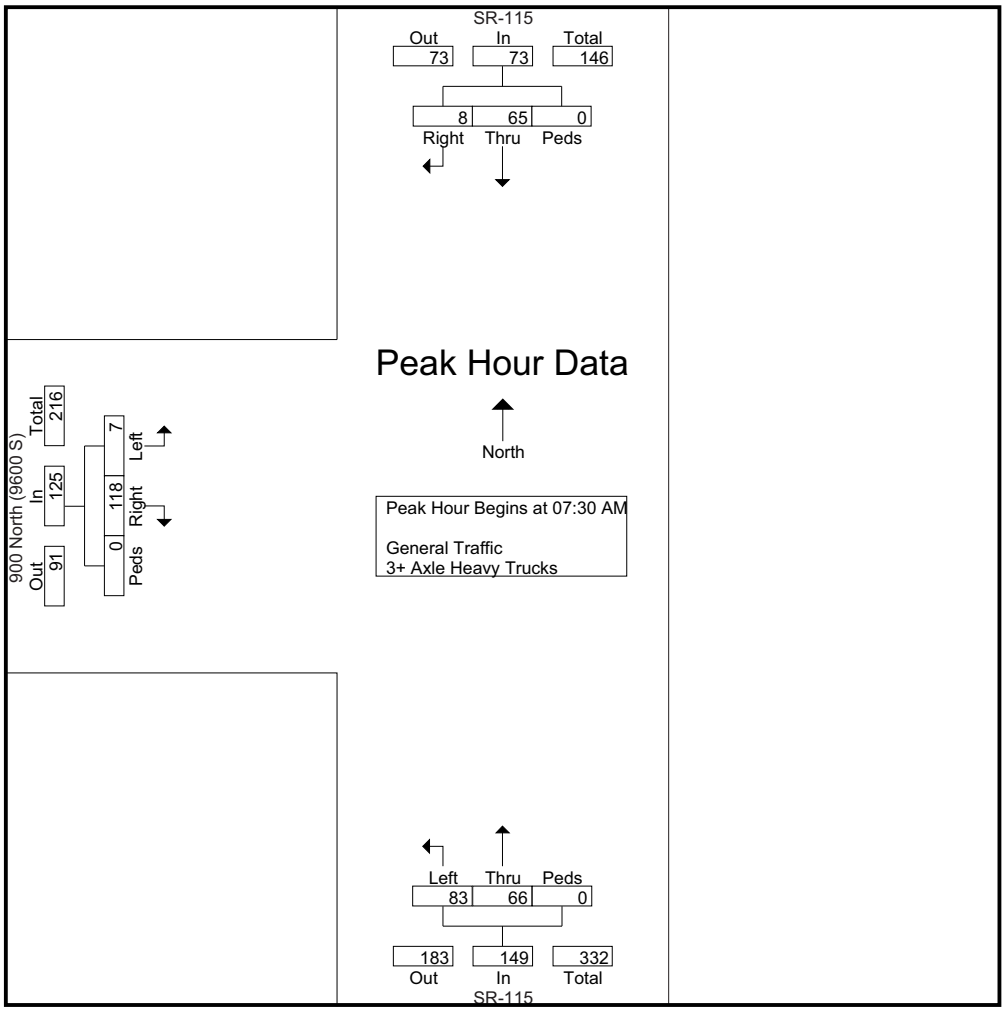
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014
Page No : 3

	SR-115 From North				SR-115 From South				900 North (9600 S) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	1	14	0	15	12	15	0	27	**37**	1	0	**38**	80
07:45 AM	2	**20**	0	**22**	**20**	**32**	0	**52**	27	**2**	0	29	**103**
08:00 AM	2	17	0	19	16	16	0	32	29	2	0	31	82
08:15 AM	**3**	14	0	17	18	20	0	38	25	2	0	27	82
Total Volume	8	65	0	73	66	83	0	149	118	7	0	125	347
% App. Total	11	89	0		44.3	55.7	0		94.4	5.6	0		
PHF	.667	.813	.000	.830	.825	.648	.000	.716	.797	.875	.000	.822	.842



L2 Data Collection

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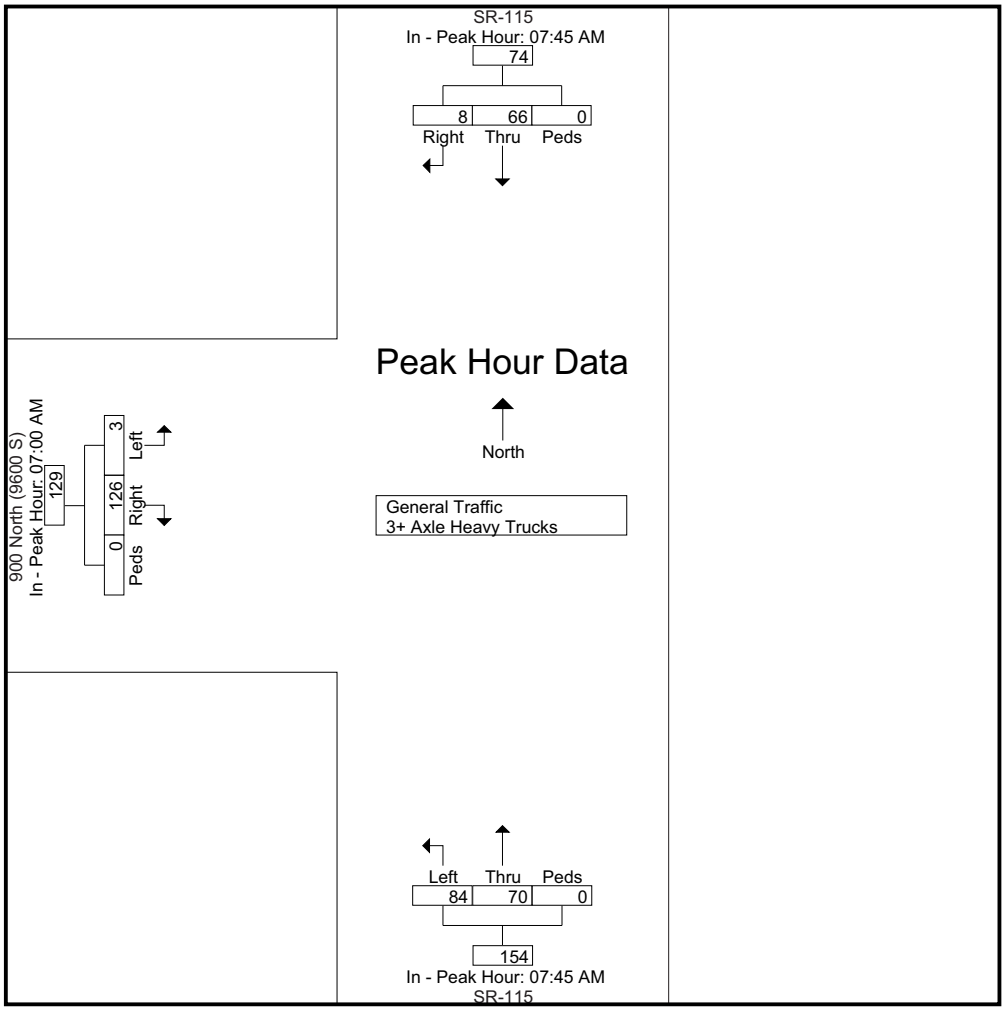
Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014
Page No : 4

	SR-115 From North				SR-115 From South				900 North (9600 S) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	07:45 AM				07:45 AM				07:00 AM				
+0 mins.	2	**20**	0	**22**	**20**	**32**	0	**52**	32	0	0	32	
+15 mins.	2	17	0	19	16	16	0	32	30	0	0	30	
+30 mins.	**3**	14	0	17	18	20	0	38	**37**	1	0	**38**	
+45 mins.	1	15	0	16	16	16	0	32	27	**2**	0	29	
Total Volume	8	66	0	74	70	84	0	154	126	3	0	129	
% App. Total	10.8	89.2	0		45.5	54.5	0		97.7	2.3	0		
PHF	.667	.825	.000	.841	.875	.656	.000	.740	.851	.375	.000	.849	



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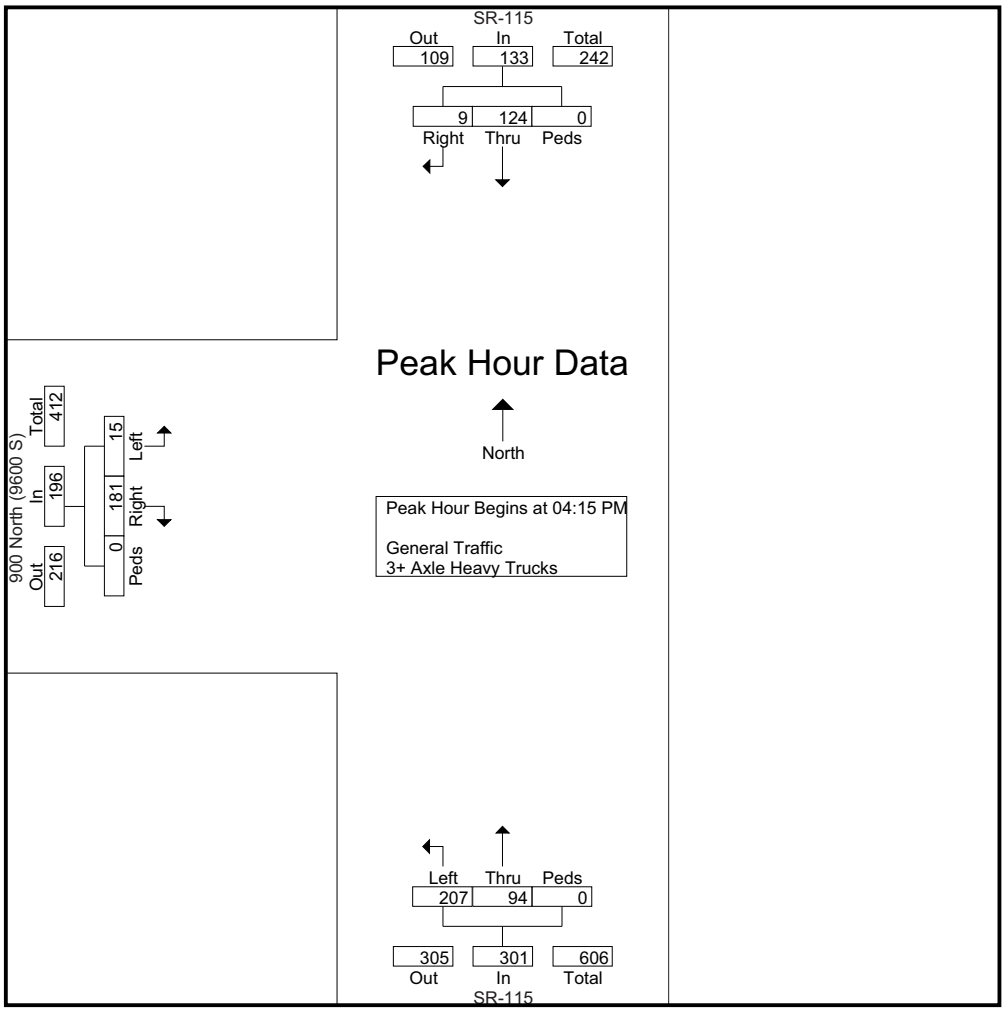
Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014
Page No : 5

	SR-115 From North				SR-115 From South				900 North (9600 S) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	2	30	0	32	25	**56**	0	81	39	3	0	42	155
04:30 PM	**4**	24	0	28	17	44	0	61	**52**	**4**	0	**56**	145
04:45 PM	2	30	0	32	**31**	55	0	**86**	45	4	0	49	**167**
05:00 PM	1	**40**	0	**41**	21	52	0	73	45	4	0	49	163
Total Volume	9	124	0	133	94	207	0	301	181	15	0	196	630
% App. Total	6.8	93.2	0		31.2	68.8	0		92.3	7.7	0		
PHF	.563	.775	.000	.811	.758	.924	.000	.875	.870	.938	.000	.875	.943



L2 Data Collection

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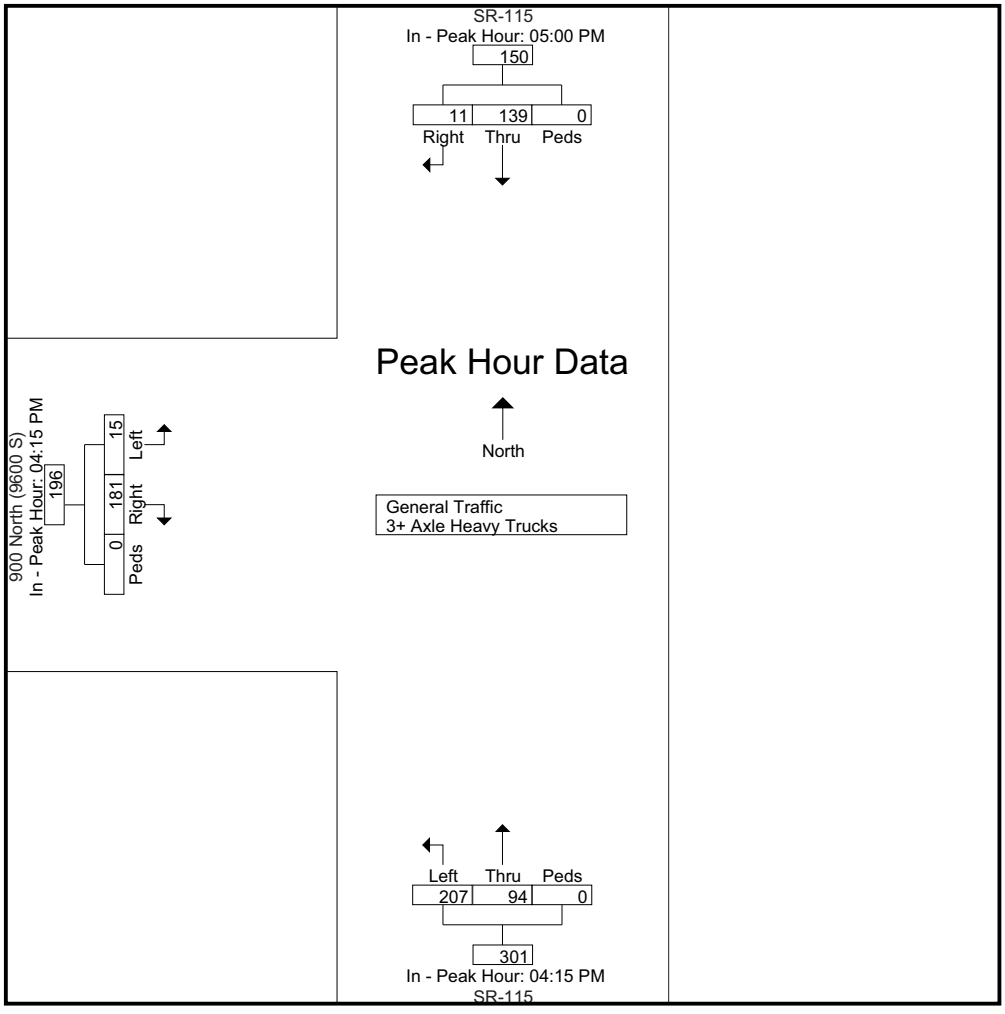
Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014
Page No : 6

	SR-115 From North				SR-115 From South				900 North (9600 S) From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	05:00 PM				04:15 PM				04:15 PM				
+0 mins.	1	**40**	0	41	25	**56**	0	81	39	3	0	42	
+15 mins.	**4**	28	0	32	17	44	0	61	**52**	**4**	0	**56**	
+30 mins.	2	33	0	35	**31**	55	0	**86**	45	4	0	49	
+45 mins.	4	38	0	**42**	21	52	0	73	45	4	0	49	
Total Volume	11	139	0	150	94	207	0	301	181	15	0	196	
% App. Total	7.3	92.7	0		31.2	68.8	0		92.3	7.7	0		
PHF	.688	.869	.000	.893	.758	.924	.000	.875	.870	.938	.000	.875	



L2 Data Collection

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Study: AVEN0044
Intersection: SR-115 / 900 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 900 N
Site Code :
Start Date : 10/28/2014

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	SR-115 From North					I-15 SB On Ramp From Southwest		I-15 SB Off Ramp From Northeast					SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
07:00 AM	6	37	0	0	43	0	0	5	0	40	0	45	0	15	7	0	22	110
07:15 AM	6	36	0	0	42	0	0	8	0	45	0	53	0	17	13	0	30	125
07:30 AM	2	49	0	0	51	0	0	11	1	50	0	62	0	17	7	0	24	137
07:45 AM	8	39	0	0	47	0	0	28	0	66	0	94	0	21	17	0	38	179
Total	22	161	0	0	183	0	0	52	1	201	0	254	0	70	44	0	114	551
08:00 AM	4	41	0	0	45	0	0	19	0	54	0	73	0	13	12	0	25	143
08:15 AM	1	40	0	0	41	0	0	14	0	62	0	76	0	24	16	0	40	157
08:30 AM	3	33	0	0	36	0	0	15	0	60	0	75	0	18	9	0	27	138
08:45 AM	5	31	0	0	36	0	0	6	0	56	0	62	0	15	22	0	37	135
Total	13	145	0	0	158	0	0	54	0	232	0	286	0	70	59	0	129	573

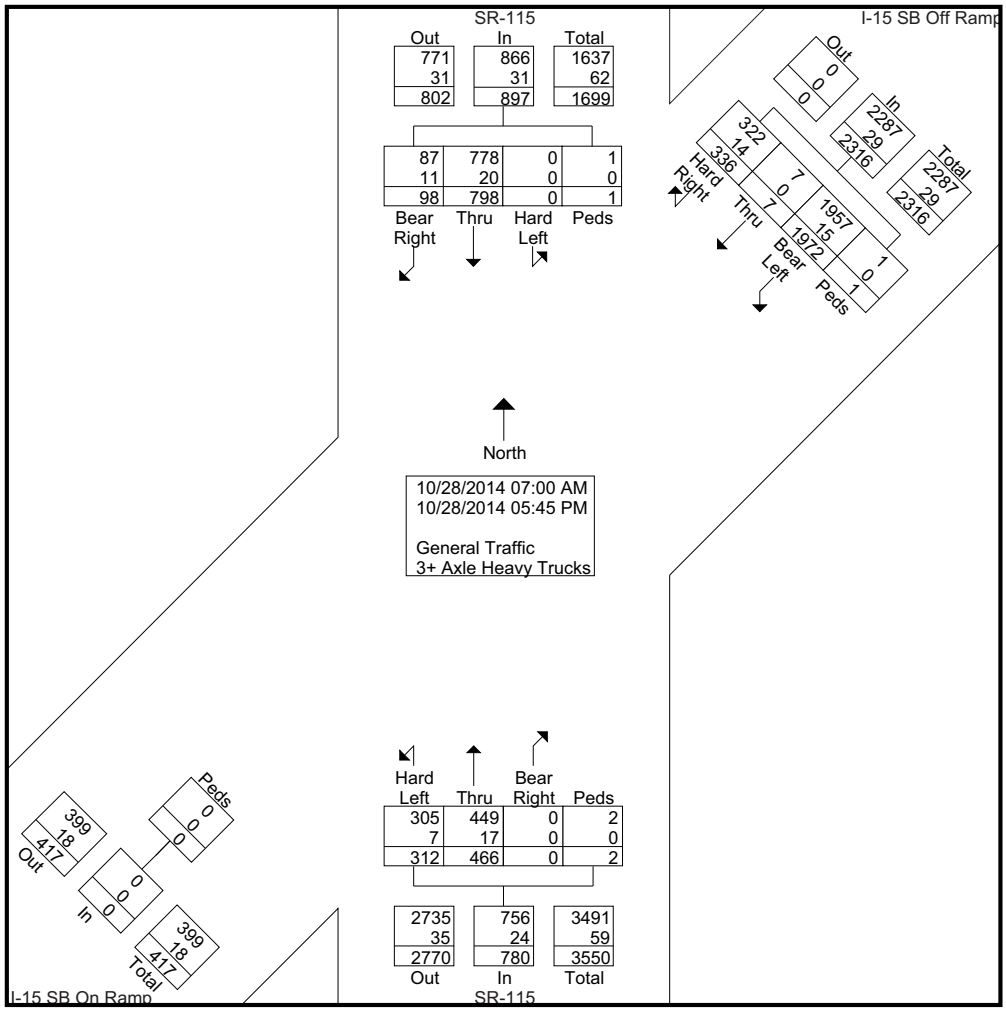
04:00 PM	13	53	0	1	67	0	0	31	1	167	1	200	0	33	25	0	58	325
04:15 PM	6	58	0	0	64	0	0	30	1	166	0	197	0	50	21	1	72	333
04:30 PM	6	68	0	0	74	0	0	28	1	179	0	208	0	33	27	1	61	343
04:45 PM	8	67	0	0	75	0	0	35	1	172	0	208	0	50	18	0	68	351
Total	33	246	0	1	280	0	0	124	4	684	1	813	0	166	91	2	259	1352
05:00 PM	9	73	0	0	82	0	0	21	0	220	0	241	0	53	32	0	85	408
05:15 PM	7	60	0	0	67	0	0	35	1	218	0	254	0	41	30	0	71	392
05:30 PM	10	49	0	0	59	0	0	27	1	217	0	245	0	28	24	0	52	356
05:45 PM	4	64	0	0	68	0	0	23	0	200	0	223	0	38	32	0	70	361
Total	30	246	0	0	276	0	0	106	2	855	0	963	0	160	118	0	278	1517
Grand Total	98	798	0	1	897	0	0	336	7	1972	1	2316	0	466	312	2	780	3993
Apprch %	10.9	89	0	0.1		0		14.5	0.3	85.1	0		0	59.7	40	0.3		
Total %	2.5	20	0	0	22.5	0	0	8.4	0.2	49.4	0	58	0	11.7	7.8	0.1	19.5	
General Traffic	87	778	0	1	866	0	0	322	7	1957	1	2287	0	449	305	2	756	3909
% General Traffic	88.8	97.5	0	100	96.5	0	0	95.8	100	99.2	100	98.7	0	96.4	97.8	100	96.9	97.9
3+ Axle Heavy Trucks	11	20	0	0	31	0	0	14	0	15	0	29	0	17	7	0	24	84
% 3+ Axle Heavy Trucks	11.2	2.5	0	0	3.5	0	0	4.2	0	0.8	0	1.3	0	3.6	2.2	0	3.1	2.1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 2



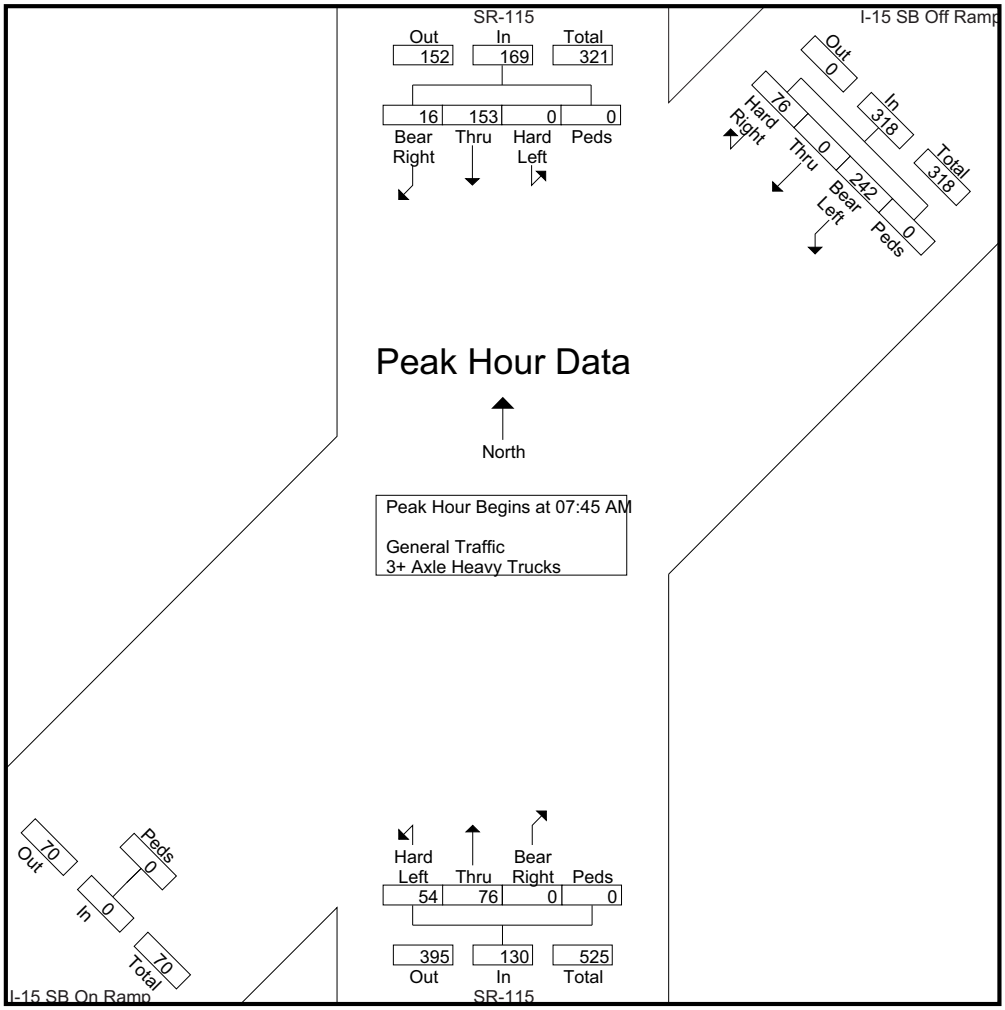
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 3

	SR-115 From North					I-15 SB On Ramp From Southwest		I-15 SB Off Ramp From Northeast					SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:45 AM																		
07:45 AM	**8**	39	0	0	**47**	0	0	**28**	0	**66**	0	**94**	0	21	**17**	0	38	**179**
08:00 AM	4	**41**	0	0	45	0	0	19	0	54	0	73	0	13	12	0	25	143
08:15 AM	1	40	0	0	41	0	0	14	0	62	0	76	0	**24**	16	0	**40**	157
08:30 AM	3	33	0	0	36	0	0	15	0	60	0	75	0	18	9	0	27	138
Total Volume	16	153	0	0	169	0	0	76	0	242	0	318	0	76	54	0	130	617
% App. Total	9.5	90.5	0	0		0		23.9	0	76.1	0		0	58.5	41.5	0		
PHF	.500	.933	.000	.000	.899	.000	.000	.679	.000	.917	.000	.846	.000	.792	.794	.000	.813	.862



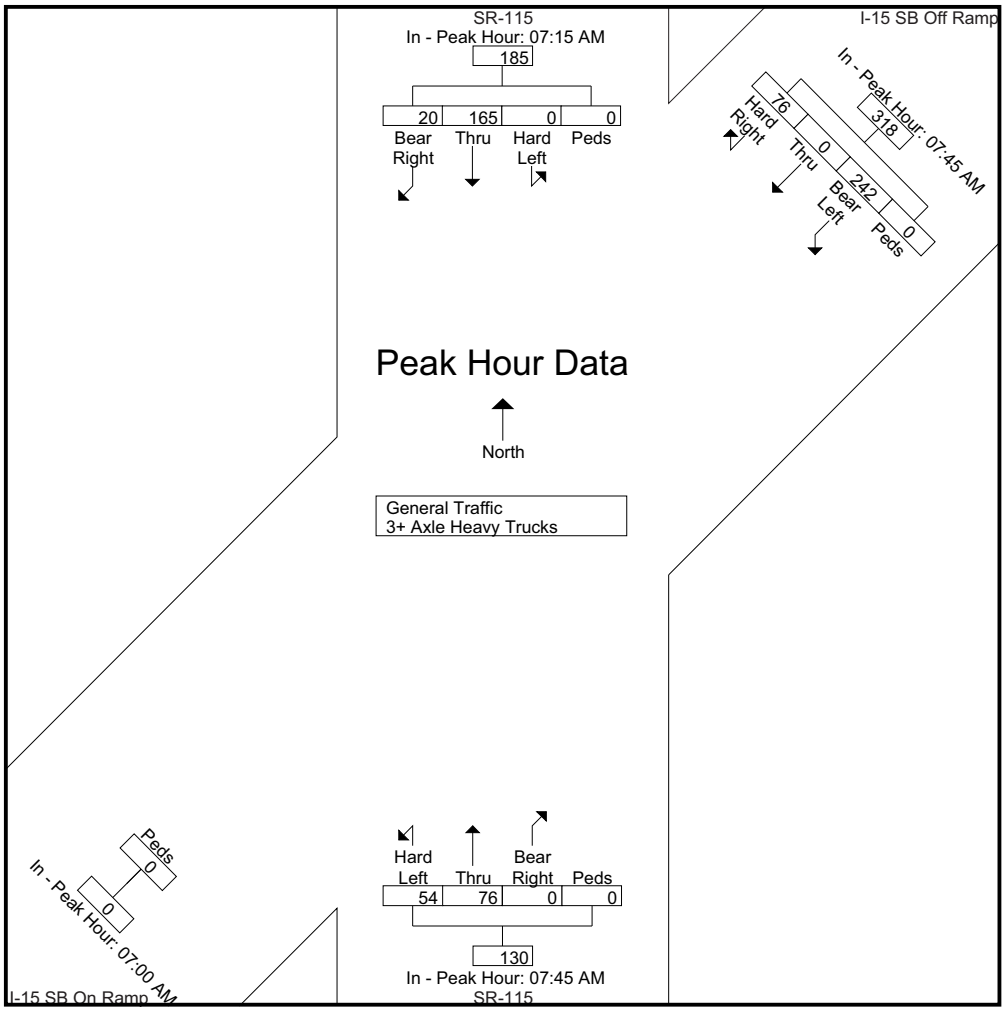
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 4

	SR-115 From North					I-15 SB On Ramp From Southwest		I-15 SB Off Ramp From Northeast					SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Each Approach Begins at:																		
	07:15 AM					07:00 AM		07:45 AM					07:45 AM					
+0 mins.	6	36	0	0	42	0	0	**28**	0	**66**	0	**94**	0	21	**17**	0	38	
+15 mins.	2	**49**	0	0	**51**	0	0	19	0	54	0	73	0	13	12	0	25	
+30 mins.	**8**	39	0	0	47	0	0	14	0	62	0	76	0	**24**	16	0	**40**	
+45 mins.	4	41	0	0	45	0	0	15	0	60	0	75	0	18	9	0	27	
Total Volume	20	165	0	0	185	0	0	76	0	242	0	318	0	76	54	0	130	
% App. Total	10.8	89.2	0	0		0		23.9	0	76.1	0		0	58.5	41.5	0		
PHF	.625	.842	.000	.000	.907	.000	.000	.679	.000	.917	.000	.846	.000	.792	.794	.000	.813	



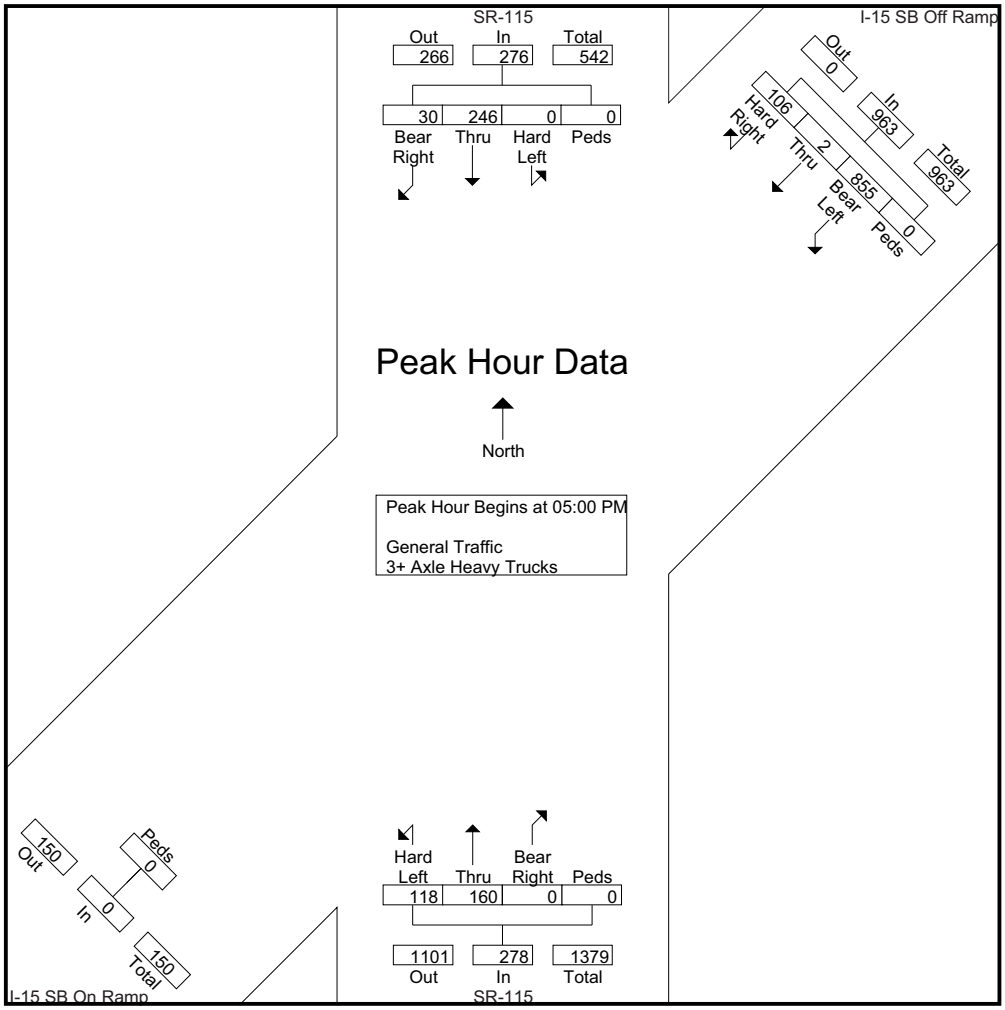
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 5

	SR-115 From North					I-15 SB On Ramp From Southwest		I-15 SB Off Ramp From Northeast					SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 05:00 PM																		
05:00 PM	9	**73**	0	0	**82**	0	0	21	0	**220**	0	241	0	**53**	**32**	0	**85**	**408**
05:15 PM	7	60	0	0	67	0	0	**35**	**1**	218	0	**254**	0	41	30	0	71	392
05:30 PM	**10**	49	0	0	59	0	0	27	1	217	0	245	0	28	24	0	52	356
05:45 PM	4	64	0	0	68	0	0	23	0	200	0	223	0	38	32	0	70	361
Total Volume	30	246	0	0	276	0	0	106	2	855	0	963	0	160	118	0	278	1517
% App. Total	10.9	89.1	0	0		0		11	0.2	88.8	0		0	57.6	42.4	0		
PHF	.750	.842	.000	.000	.841	.000	.000	.757	.500	.972	.000	.948	.000	.755	.922	.000	.818	.930



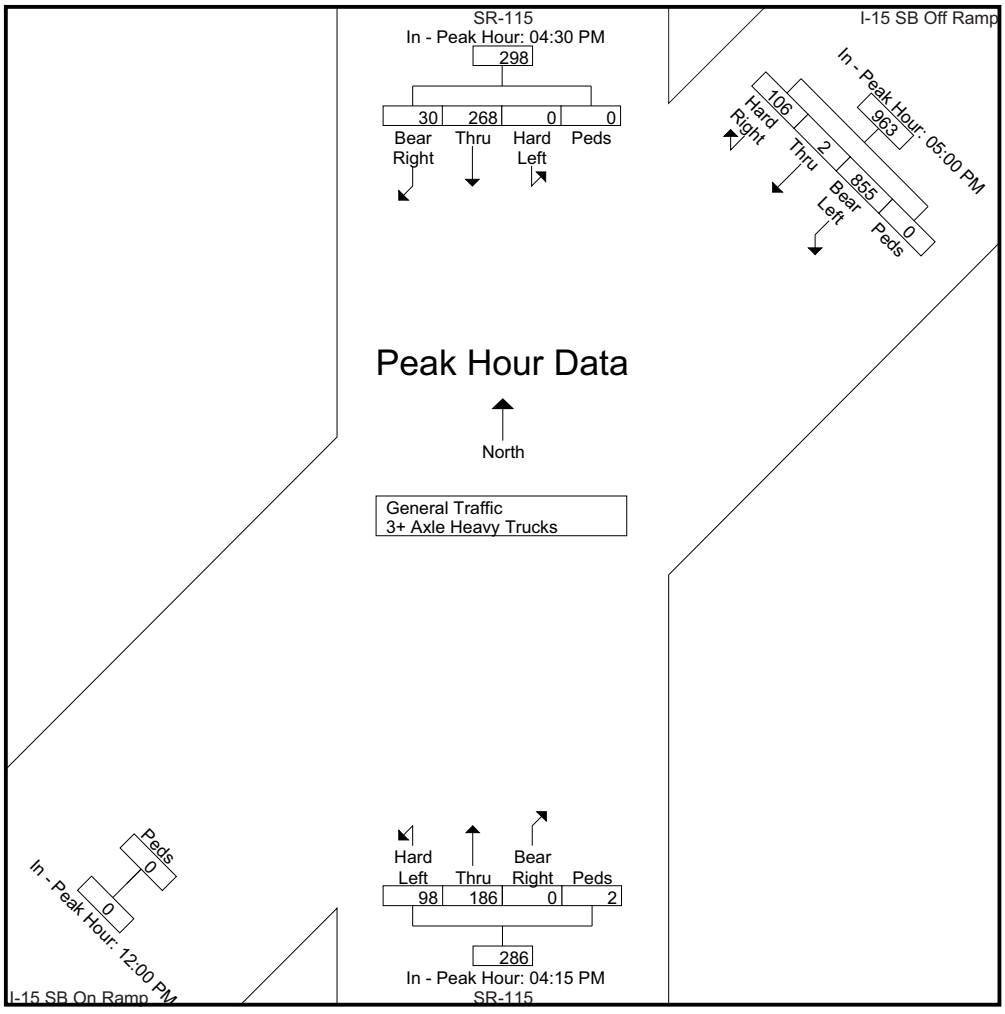
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 6

	SR-115 From North					I-15 SB On Ramp From Southwest		I-15 SB Off Ramp From Northeast					SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Each Approach Begins at:																		
	04:30 PM					12:00 PM		05:00 PM					04:15 PM					
+0 mins.	6	68	0	0	74	0	0	21	0	**220**	0	241	0	50	21	**1**	72	
+15 mins.	8	67	0	0	75	0	0	**35**	**1**	218	0	**254**	0	33	27	1	61	
+30 mins.	**9**	**73**	0	0	**82**	0	0	27	1	217	0	245	0	50	18	0	68	
+45 mins.	7	60	0	0	67	0	0	23	0	200	0	223	0	**53**	**32**	0	**85**	
Total Volume	30	268	0	0	298	0	0	106	2	855	0	963	0	186	98	2	286	
% App. Total	10.1	89.9	0	0		0		11	0.2	88.8	0		0	65	34.3	0.7		
PHF	.833	.918	.000	.000	.909	.000	.000	.757	.500	.972	.000	.948	.000	.877	.766	.500	.841	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 SB Ramp
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & I-15 SB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	SR-115 From North					I-15 SB Off Ramp From Southwest					I-15 NB On Ramp From Northeast		SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
07:00 AM	0	57	19	0	76	15	0	3	0	18	0	0	151	17	0	0	168	262
07:15 AM	0	60	22	0	82	27	0	5	0	32	0	0	155	26	0	0	181	295
07:30 AM	0	75	20	0	95	24	0	2	0	26	0	0	228	22	0	0	250	371
07:45 AM	0	89	21	0	110	33	0	6	0	39	0	0	182	32	0	0	214	363
Total	0	281	82	0	363	99	0	16	0	115	0	0	716	97	0	0	813	1291
08:00 AM	0	71	24	0	95	20	0	3	0	23	0	0	139	24	0	0	163	281
08:15 AM	0	84	20	0	104	23	0	6	0	29	0	0	151	36	0	0	187	320
08:30 AM	0	76	18	0	94	31	0	4	0	35	0	0	142	25	0	0	167	296
08:45 AM	0	72	16	0	88	45	0	4	0	49	0	0	120	31	0	0	151	288
Total	0	303	78	0	381	119	0	17	0	136	0	0	552	116	0	0	668	1185

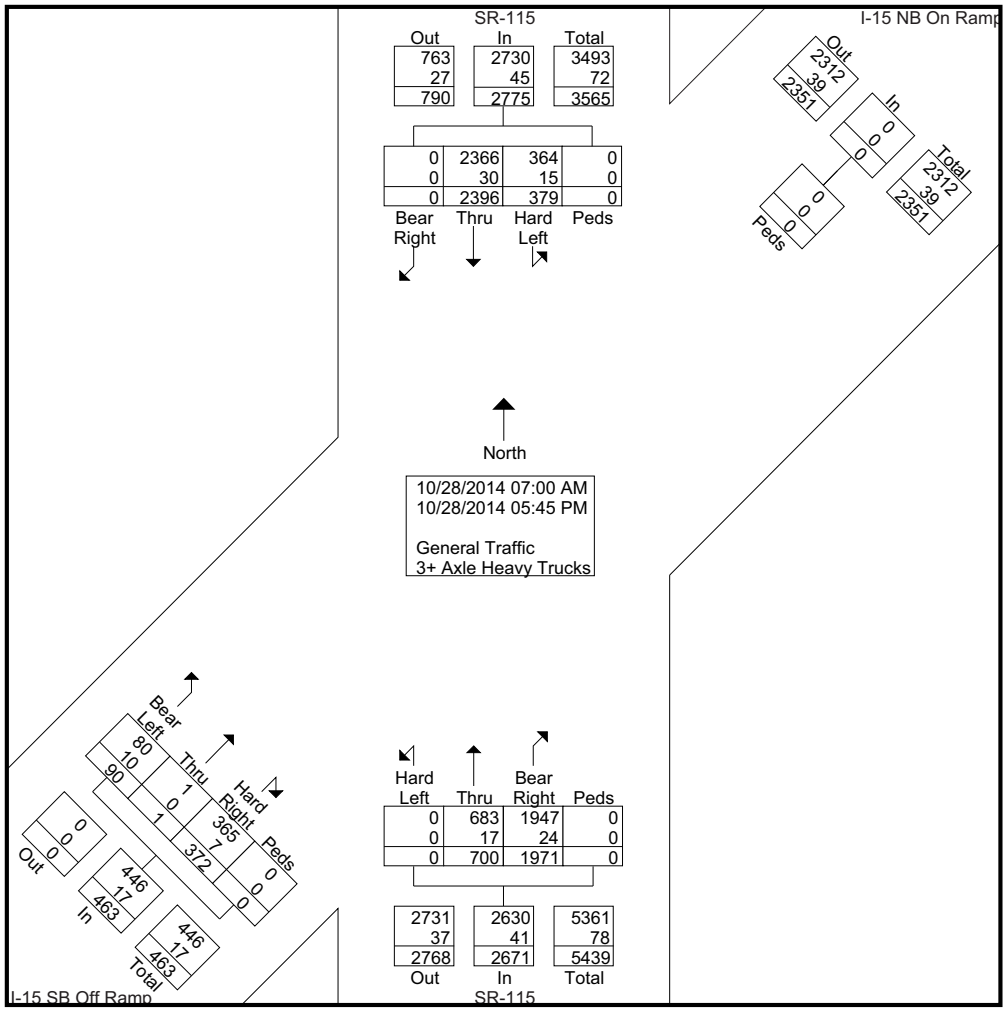
04:00 PM	0	197	20	0	217	28	1	7	0	36	0	0	86	55	0	0	141	394
04:15 PM	0	199	33	0	232	20	0	11	0	31	0	0	90	58	0	0	148	411
04:30 PM	0	212	35	0	247	18	0	3	0	21	0	0	107	58	0	0	165	433
04:45 PM	0	206	29	0	235	16	0	5	0	21	0	0	90	60	0	0	150	406
Total	0	814	117	0	931	82	1	26	0	109	0	0	373	231	0	0	604	1644
05:00 PM	0	271	24	0	295	21	0	6	0	27	0	0	79	84	0	0	163	485
05:15 PM	0	246	32	0	278	16	0	5	0	21	0	0	89	67	0	0	156	455
05:30 PM	0	246	23	0	269	17	0	9	0	26	0	0	95	47	0	0	142	437
05:45 PM	0	235	23	0	258	18	0	11	0	29	0	0	67	58	0	0	125	412
Total	0	998	102	0	1100	72	0	31	0	103	0	0	330	256	0	0	586	1789
Grand Total	0	2396	379	0	2775	372	1	90	0	463	0	0	1971	700	0	0	2671	5909
Apprch %	0	86.3	13.7	0		80.3	0.2	19.4	0		0		73.8	26.2	0	0		
Total %	0	40.5	6.4	0	47	6.3	0	1.5	0	7.8	0	0	33.4	11.8	0	0	45.2	
General Traffic	0	2366	364	0	2730	365	1	80	0	446	0	0	1947	683	0	0	2630	5806
% General Traffic	0	98.7	96	0	98.4	98.1	100	88.9	0	96.3	0	0	98.8	97.6	0	0	98.5	98.3
3+ Axle Heavy Trucks	0	30	15	0	45	7	0	10	0	17	0	0	24	17	0	0	41	103
% 3+ Axle Heavy Trucks	0	1.3	4	0	1.6	1.9	0	11.1	0	3.7	0	0	1.2	2.4	0	0	1.5	1.7

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 2



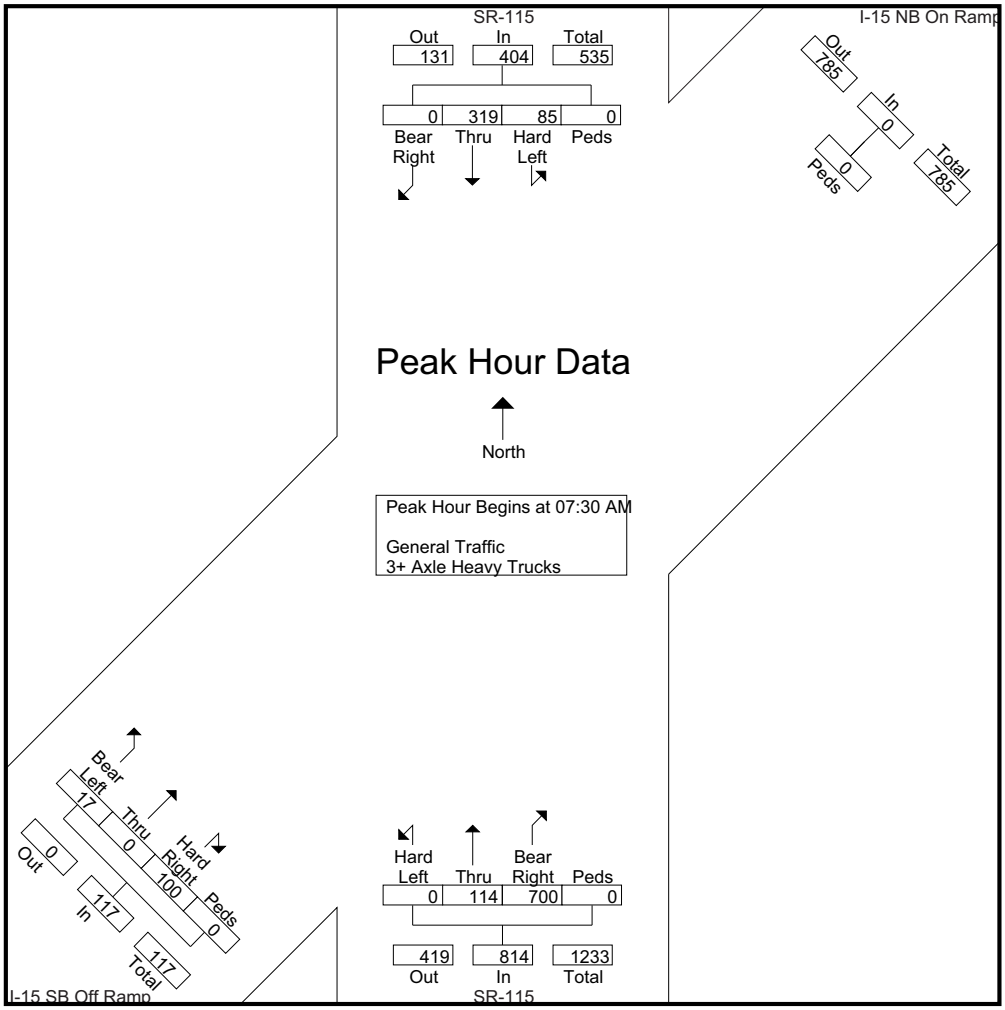
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 3

	SR-115 From North					I-15 SB Off Ramp From Southwest					I-15 NB On Ramp From Northeast		SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30 AM																		
07:30 AM	0	75	20	0	95	24	0	2	0	26	0	0	**228**	22	0	0	**250**	**371**
07:45 AM	0	**89**	21	0	**110**	**33**	0	**6**	0	**39**	0	0	182	32	0	0	214	363
08:00 AM	0	71	**24**	0	95	20	0	3	0	23	0	0	139	24	0	0	163	281
08:15 AM	0	84	20	0	104	23	0	6	0	29	0	0	151	**36**	0	0	187	320
Total Volume	0	319	85	0	404	100	0	17	0	117	0	0	700	114	0	0	814	1335
% App. Total	0	79	21	0		85.5	0	14.5	0		0		86	14	0	0		
PHF	.000	.896	.885	.000	.918	.758	.000	.708	.000	.750	.000	.000	.768	.792	.000	.000	.814	.900



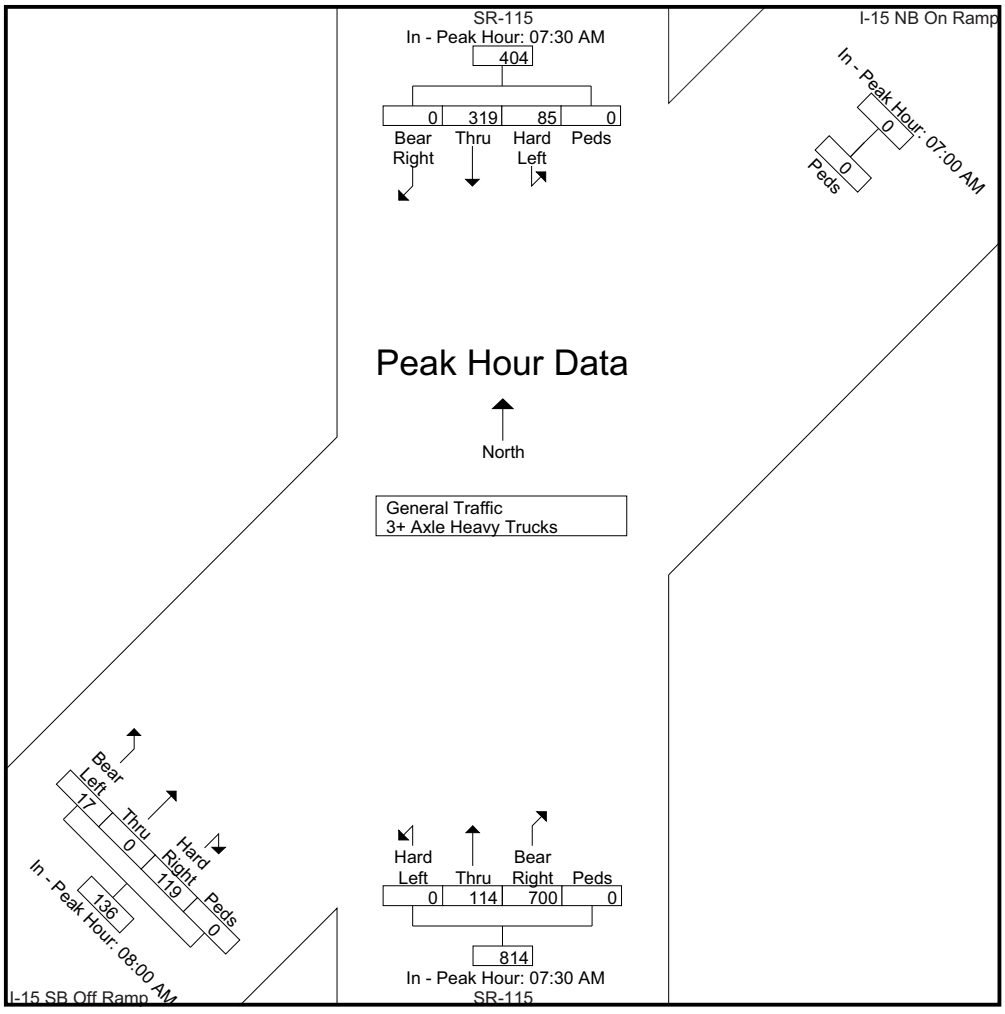
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 4

	SR-115 From North					I-15 SB Off Ramp From Southwest					I-15 NB On Ramp From Northeast		SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Each Approach Begins at:																		
	07:30 AM					08:00 AM					07:00 AM		07:30 AM					
+0 mins.	0	75	20	0	95	20	0	3	0	23	0	0	**228**	22	0	0	**250**	
+15 mins.	0	**89**	21	0	**110**	23	0	**6**	0	29	0	0	182	32	0	0	214	
+30 mins.	0	71	**24**	0	95	31	0	4	0	35	0	0	139	24	0	0	163	
+45 mins.	0	84	20	0	104	**45**	0	4	0	**49**	0	0	151	**36**	0	0	187	
Total Volume	0	319	85	0	404	119	0	17	0	136	0	0	700	114	0	0	814	
% App. Total	0	79	21	0		87.5	0	12.5	0		0		86	14	0	0		
PHF	.000	.896	.885	.000	.918	.661	.000	.708	.000	.694	.000	.000	.768	.792	.000	.000	.814	



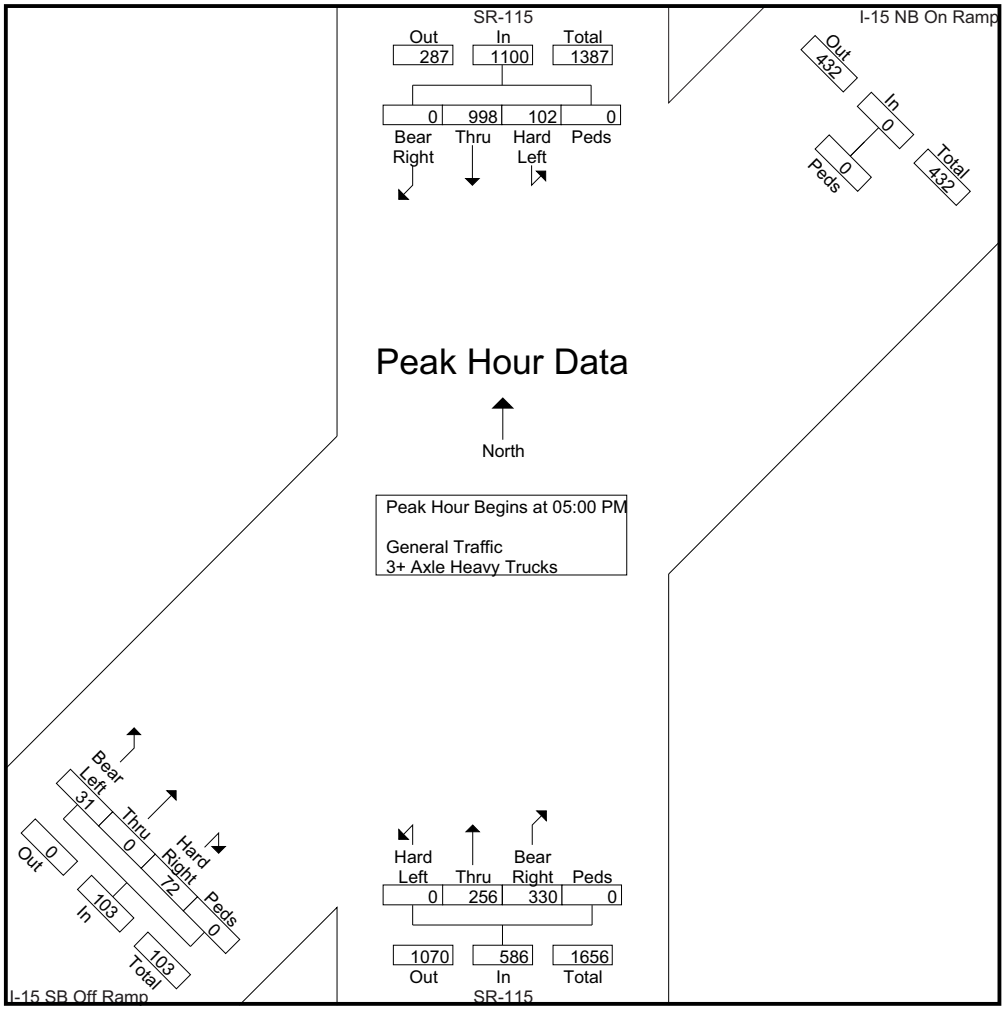
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 5

	SR-115 From North					I-15 SB Off Ramp From Southwest					I-15 NB On Ramp From Northeast		SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 05:00 PM																		
05:00 PM	0	**271**	24	0	**295**	**21**	0	6	0	27	0	0	79	**84**	0	0	**163**	**485**
05:15 PM	0	246	**32**	0	278	16	0	5	0	21	0	0	89	67	0	0	156	455
05:30 PM	0	246	23	0	269	17	0	9	0	26	0	0	**95**	47	0	0	142	437
05:45 PM	0	235	23	0	258	18	0	**11**	0	**29**	0	0	67	58	0	0	125	412
Total Volume	0	998	102	0	1100	72	0	31	0	103	0	0	330	256	0	0	586	1789
% App. Total	0	90.7	9.3	0		69.9	0	30.1	0		0		56.3	43.7	0	0		
PHF	.000	.921	.797	.000	.932	.857	.000	.705	.000	.888	.000	.000	.868	.762	.000	.000	.899	.922



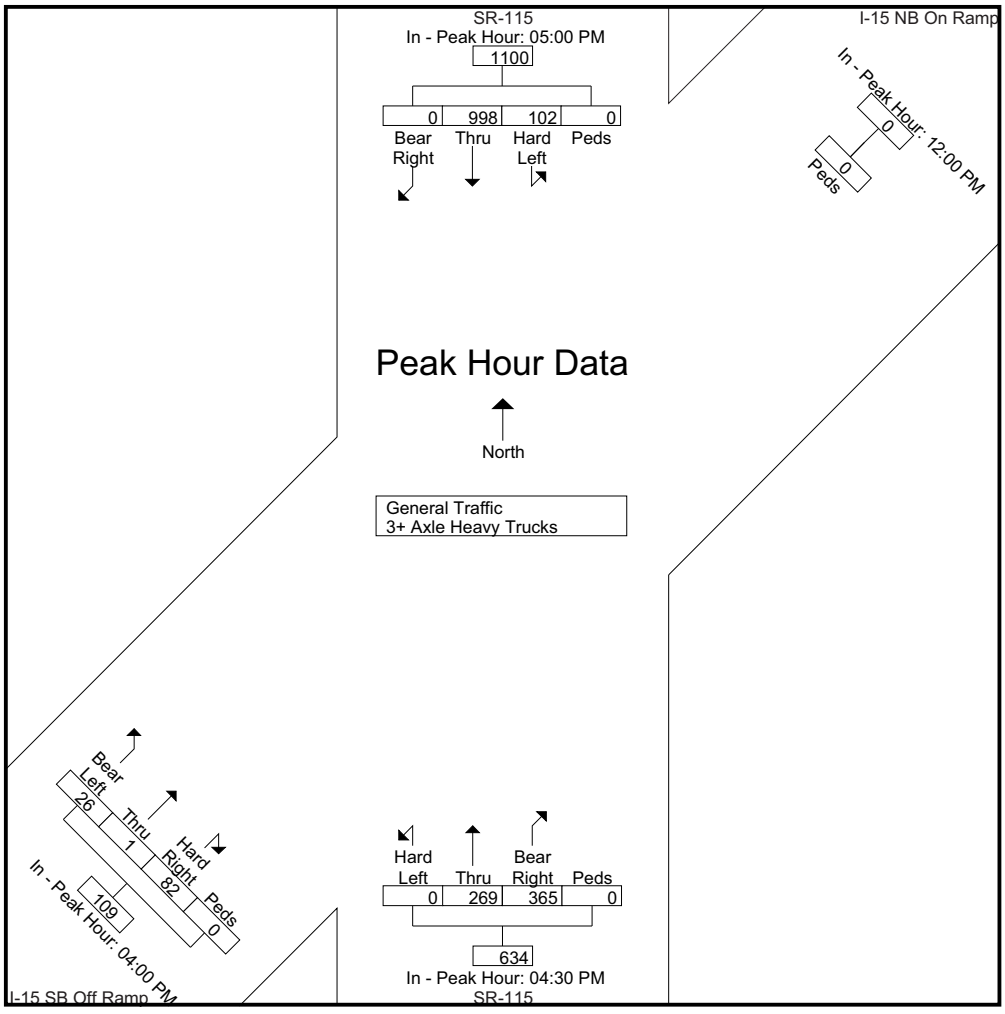
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014
Page No : 6

	SR-115 From North					I-15 SB Off Ramp From Southwest					I-15 NB On Ramp From Northeast		SR-115 From South					
Start Time	Bear Right	Thru	Hard Left	Peds	App. Total	Hard Right	Thru	Bear Left	Peds	App. Total	Peds	App. Total	Bear Right	Thru	Hard Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Each Approach Begins at:																		
	05:00 PM					04:00 PM					12:00 PM		04:30 PM					
+0 mins.	0	**271**	24	0	**295**	**28**	**1**	7	0	**36**	0	0	**107**	58	0	0	**165**	
+15 mins.	0	246	**32**	0	278	20	0	**11**	0	31	0	0	90	60	0	0	150	
+30 mins.	0	246	23	0	269	18	0	3	0	21	0	0	79	**84**	0	0	163	
+45 mins.	0	235	23	0	258	16	0	5	0	21	0	0	89	67	0	0	156	
Total Volume	0	998	102	0	1100	82	1	26	0	109	0	0	365	269	0	0	634	
% App. Total	0	90.7	9.3	0		75.2	0.9	23.9	0		0		57.6	42.4	0	0		
PHF	.000	.921	.797	.000	.932	.732	.250	.591	.000	.757	.000	.000	.853	.801	.000	.000	.961	



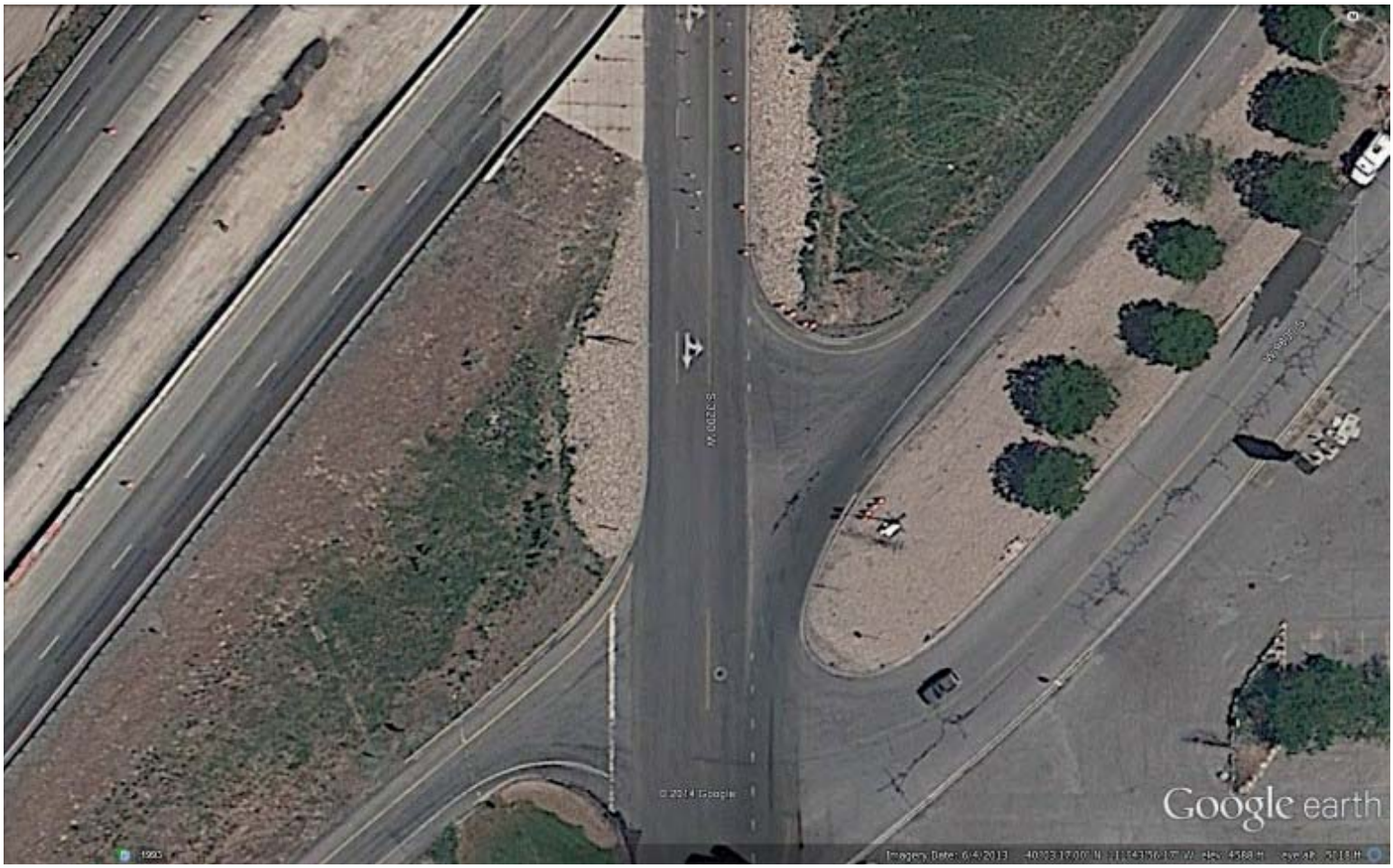
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / I-15 NB Ramp
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & I-15 NB Ramps
Site Code :
Start Date : 10/28/2014

Image 1



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	SR-115 From North				700 North From Northeast				SR-115 From South				
Start Time	Thru	Hard Left	Peds	App. Total	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Int. Total
07:00 AM	67	6	0	73	0	0	0	0	2	168	0	170	243
07:15 AM	87	0	0	87	2	1	0	3	1	179	0	180	270
07:30 AM	98	1	0	99	1	1	0	2	0	249	0	249	350
07:45 AM	121	2	0	123	2	0	0	2	2	212	0	214	339
Total	373	9	0	382	5	2	0	7	5	808	0	813	1202
08:00 AM	89	2	0	91	3	0	0	3	0	160	0	160	254
08:15 AM	106	1	0	107	1	0	0	1	2	186	0	188	296
08:30 AM	105	2	0	107	5	2	0	7	0	162	0	162	276
08:45 AM	116	4	0	120	3	0	0	3	0	148	0	148	271
Total	416	9	0	425	12	2	0	14	2	656	0	658	1097

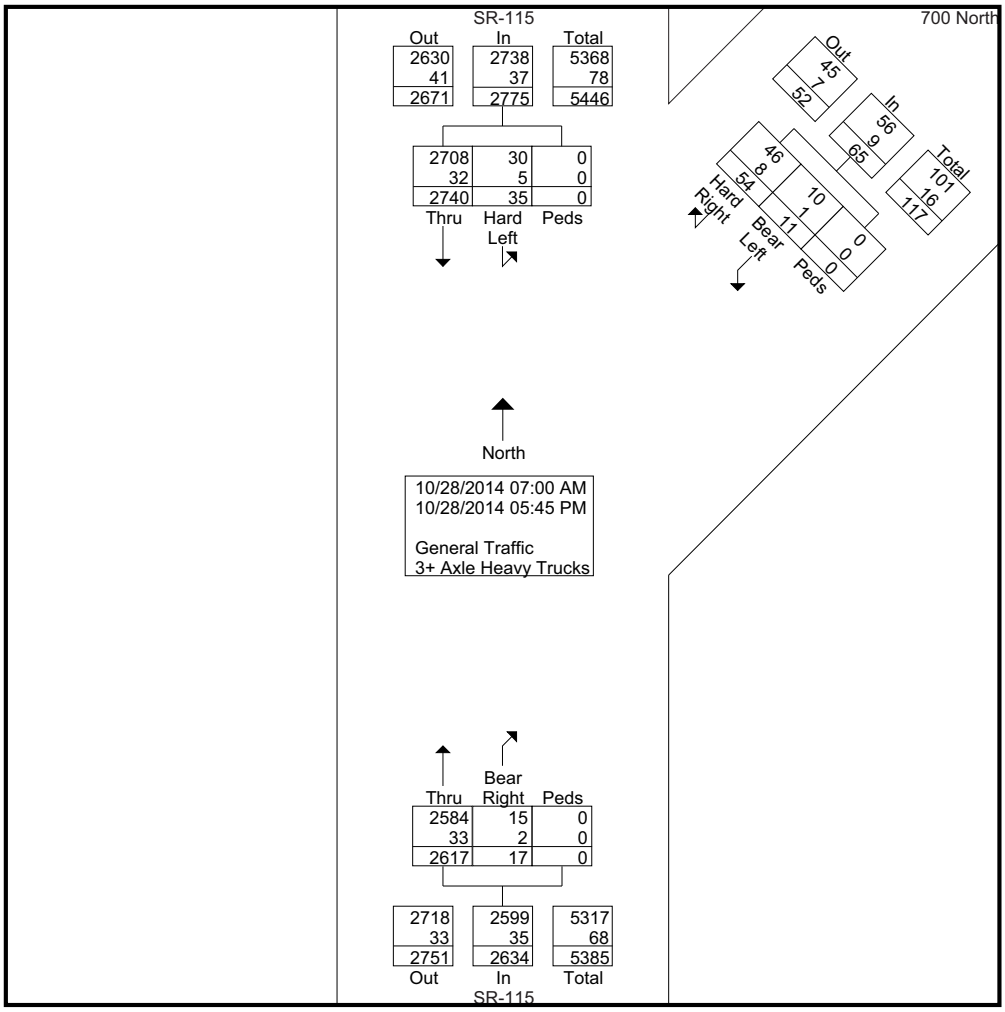
04:00 PM	222	3	0	225	3	0	0	3	0	138	0	138	366
04:15 PM	219	0	0	219	6	0	0	6	2	142	0	144	369
04:30 PM	227	3	0	230	13	0	0	13	0	152	0	152	395
04:45 PM	219	5	0	224	3	0	0	3	2	147	0	149	376
Total	887	11	0	898	25	0	0	25	4	579	0	583	1506
05:00 PM	287	5	0	292	3	1	0	4	1	160	0	161	457
05:15 PM	262	0	0	262	3	3	0	6	3	153	0	156	424
05:30 PM	263	0	0	263	3	2	0	5	1	139	0	140	408
05:45 PM	252	1	0	253	3	1	0	4	1	122	0	123	380
Total	1064	6	0	1070	12	7	0	19	6	574	0	580	1669
Grand Total	2740	35	0	2775	54	11	0	65	17	2617	0	2634	5474
Apprch %	98.7	1.3	0		83.1	16.9	0		0.6	99.4	0		
Total %	50.1	0.6	0	50.7	1	0.2	0	1.2	0.3	47.8	0	48.1	
General Traffic	2708	30	0	2738	46	10	0	56	15	2584	0	2599	5393
% General Traffic	98.8	85.7	0	98.7	85.2	90.9	0	86.2	88.2	98.7	0	98.7	98.5
3+ Axle Heavy Trucks	32	5	0	37	8	1	0	9	2	33	0	35	81
% 3+ Axle Heavy Trucks													

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014
Page No : 2



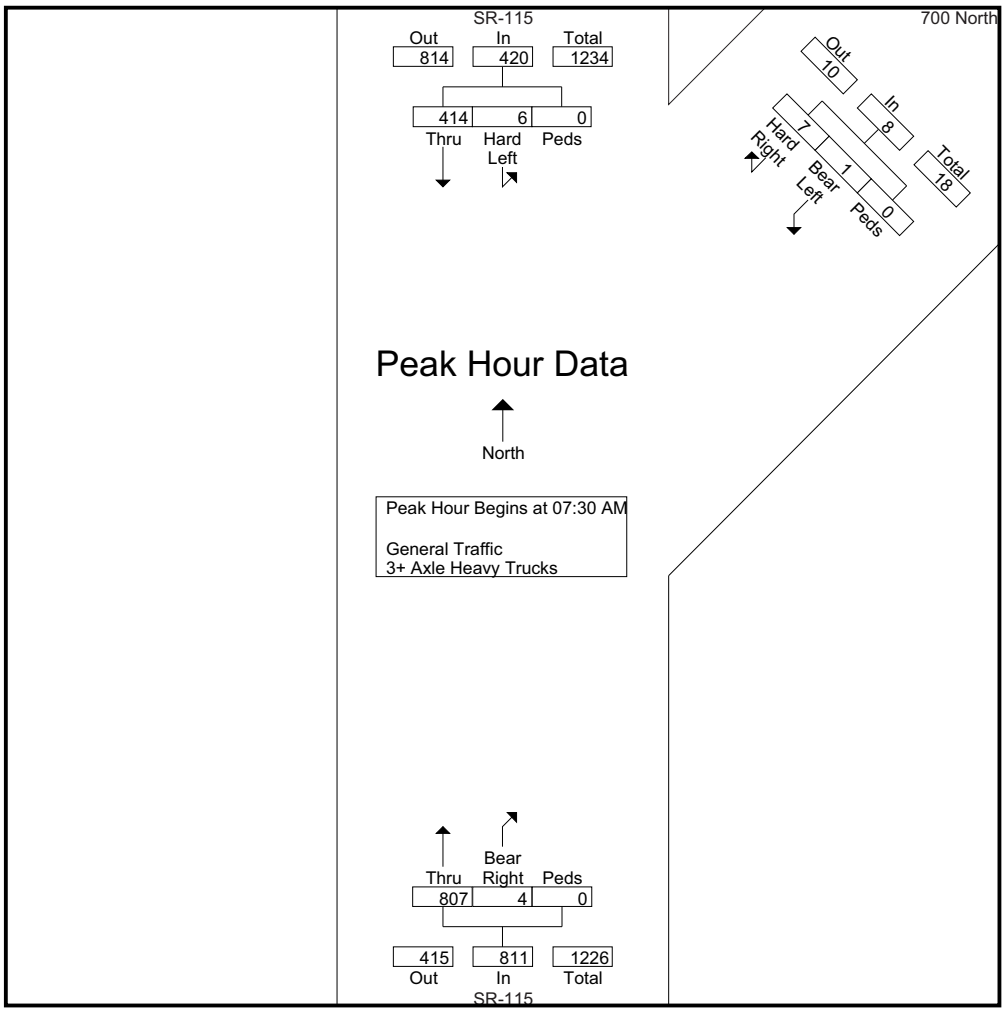
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014
Page No : 3

	SR-115 From North				700 North From Northeast				SR-115 From South				
Start Time	Thru	Hard Left	Peds	App. Total	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	**98**	**1**	**0**	**99**	**1**	1	0	2	0	249	0	249	350
07:45 AM	**121**	**2**	0	**123**	2	0	0	2	**2**	212	0	214	339
08:00 AM	89	2	0	91	**3**	0	0	**3**	0	160	0	160	254
08:15 AM	106	1	0	107	1	0	0	1	2	186	0	188	296
Total Volume	414	6	0	420	7	1	0	8	4	807	0	811	1239
% App. Total	98.6	1.4	0		87.5	12.5	0		0.5	99.5	0		
PHF	.855	.750	.000	.854	.583	.250	.000	.667	.500	.810	.000	.814	.885



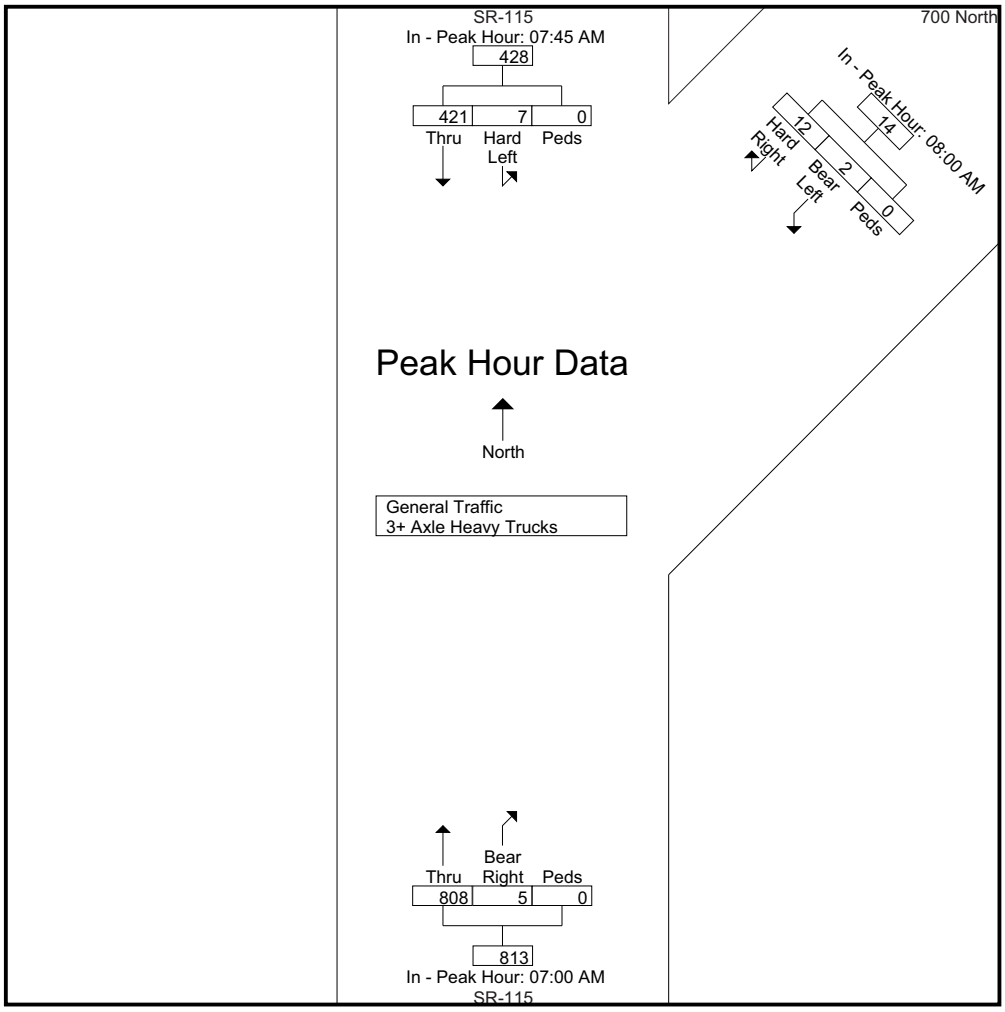
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014
Page No : 4

	SR-115 From North				700 North From Northeast				SR-115 From South				
Start Time	Thru	Hard Left	Peds	App. Total	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	07:45 AM				**08:00 AM**				**07:00 AM**				
+0 mins.	121	**2**	0	**123**	3	0	0	3	**2**	168	0	170	
+15 mins.	89	2	0	91	1	0	0	1	1	179	0	180	
+30 mins.	106	1	0	107	**5**	**2**	0	**7**	0	**249**	0	**249**	
+45 mins.	105	2	0	107	3	0	0	3	2	212	0	214	
Total Volume	421	7	0	428	12	2	0	14	5	808	0	813	
% App. Total	98.4	1.6	0		85.7	14.3	0		0.6	99.4	0		
PHF	.870	.875	.000	.870	.600	.250	.000	.500	.625	.811	.000	.816	



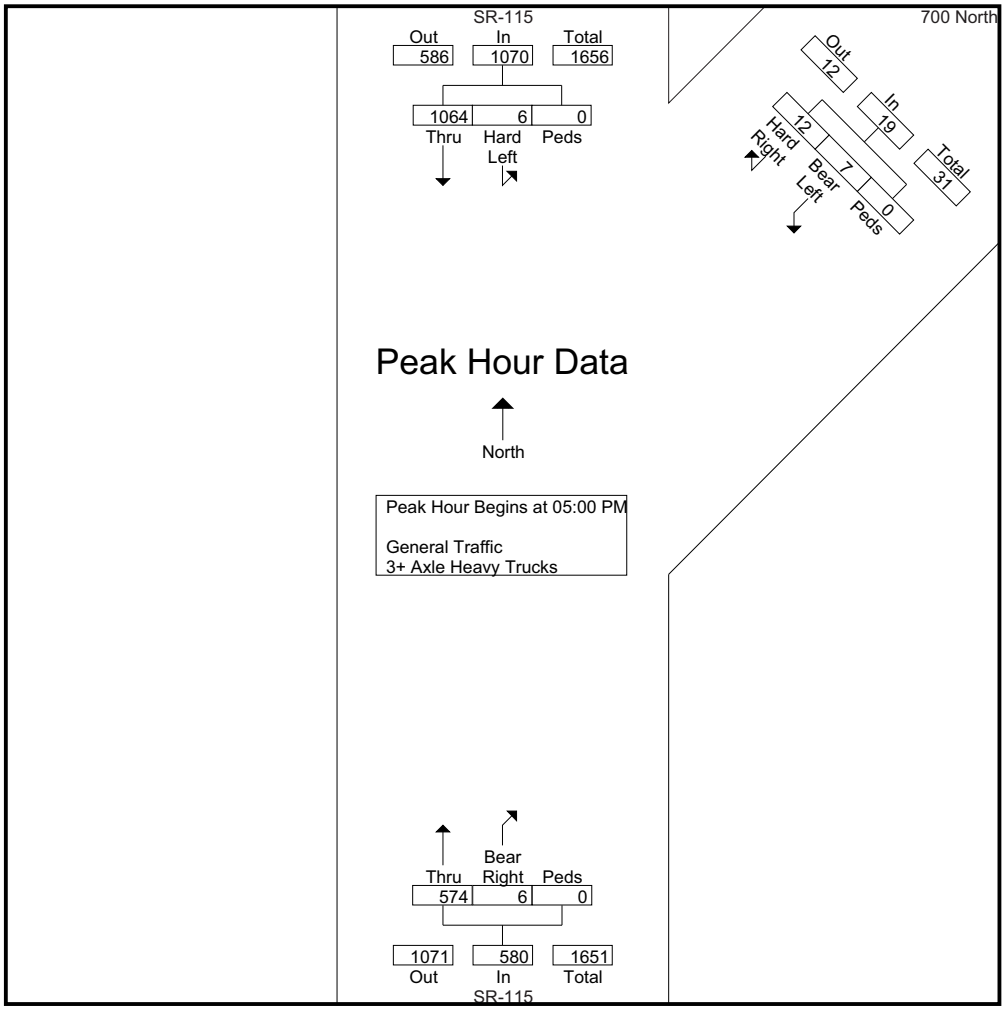
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014
Page No : 5

	SR-115 From North				700 North From Northeast				SR-115 From South				
Start Time	Thru	Hard Left	Peds	App. Total	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	287	5	0	292	3	1	0	4	1	**160**	0	**161**	**457**
05:15 PM	262	0	0	262	3	**3**	0	**6**	**3**	153	0	156	424
05:30 PM	263	0	0	263	3	2	0	5	1	139	0	140	408
05:45 PM	252	1	0	253	3	1	0	4	1	122	0	123	380
Total Volume	1064	6	0	1070	12	7	0	19	6	574	0	580	1669
% App. Total	99.4	0.6	0		63.2	36.8	0		1	99	0		
PHF	.927	.300	.000	.916	1.00	.583	.000	.792	.500	.897	.000	.901	.913



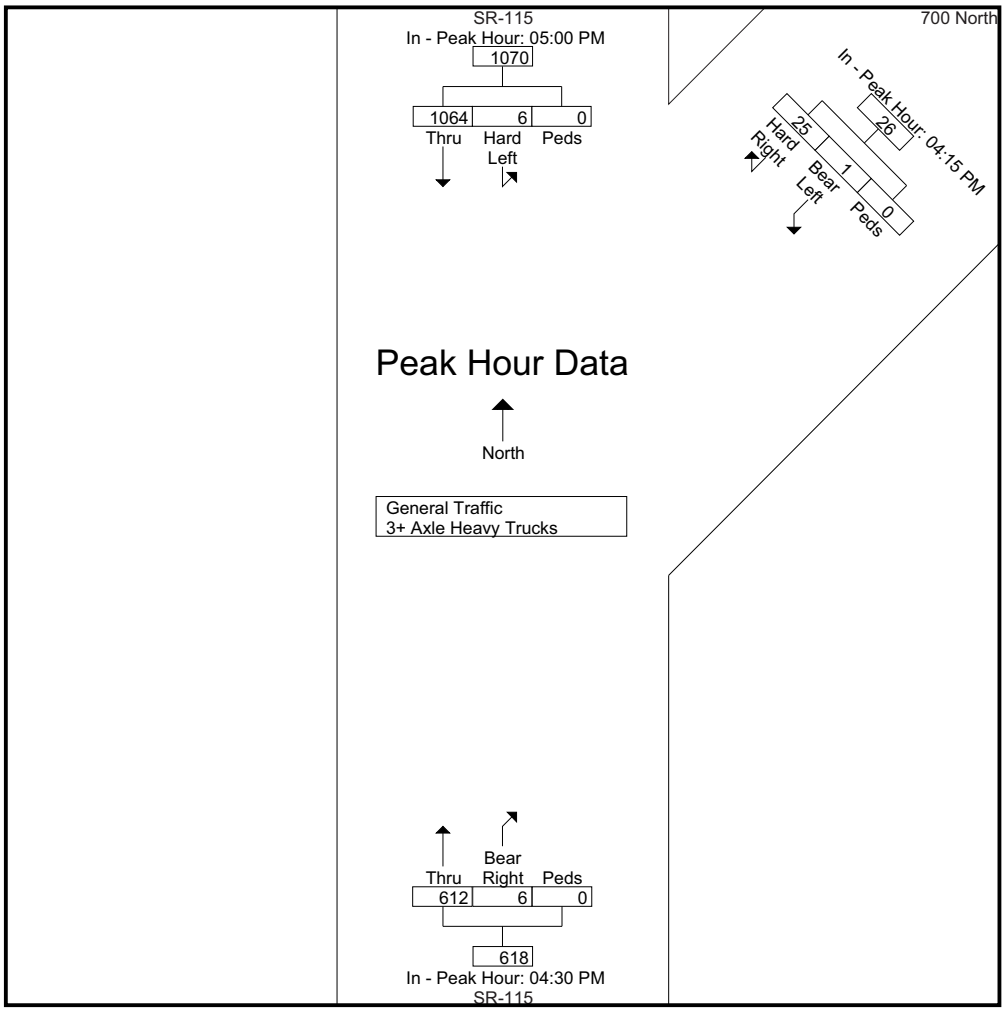
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014
Page No : 6

	SR-115 From North				700 North From Northeast				SR-115 From South				
Start Time	Thru	Hard Left	Peds	App. Total	Hard Right	Bear Left	Peds	App. Total	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	05:00 PM				**04:15 PM**				**04:30 PM**				
+0 mins.	287 **5**	0	**292**	6	0	0	6	0	152	0	152		
+15 mins.	262	0	0	262	**13**	0	0	**13**	2	147	0	149	
+30 mins.	263	0	0	263	3	0	0	3	1	**160**	0	**161**	
+45 mins.	252	1	0	253	3	**1**	0	4	**3**	153	0	156	
Total Volume	1064	6	0	1070	25	1	0	26	6	612	0	618	
% App. Total	99.4	0.6	0		96.2	3.8	0		1	99	0		
PHF	.927	.300	.000	.916	.481	.250	.000	.500	.500	.956	.000	.960	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 700 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 700 N
Site Code :
Start Date : 10/28/2014

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	SR-115 From North				600 North From East				SR-115 From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	42	18	0	60	24	2	0	26	11	121	0	132	218
07:15 AM	73	7	0	80	32	5	0	37	12	129	0	141	258
07:30 AM	70	13	0	83	25	4	0	29	15	200	0	215	327
07:45 AM	88	24	0	112	39	2	0	41	14	154	0	168	321
Total	273	62	0	335	120	13	0	133	52	604	0	656	1124
08:00 AM	61	18	0	79	19	6	0	25	14	123	0	137	241
08:15 AM	89	15	0	104	25	5	0	30	15	145	0	160	294
08:30 AM	79	17	0	96	19	8	0	27	8	140	0	148	271
08:45 AM	89	15	0	104	21	9	0	30	14	110	0	124	258
Total	318	65	0	383	84	28	0	112	51	518	0	569	1064

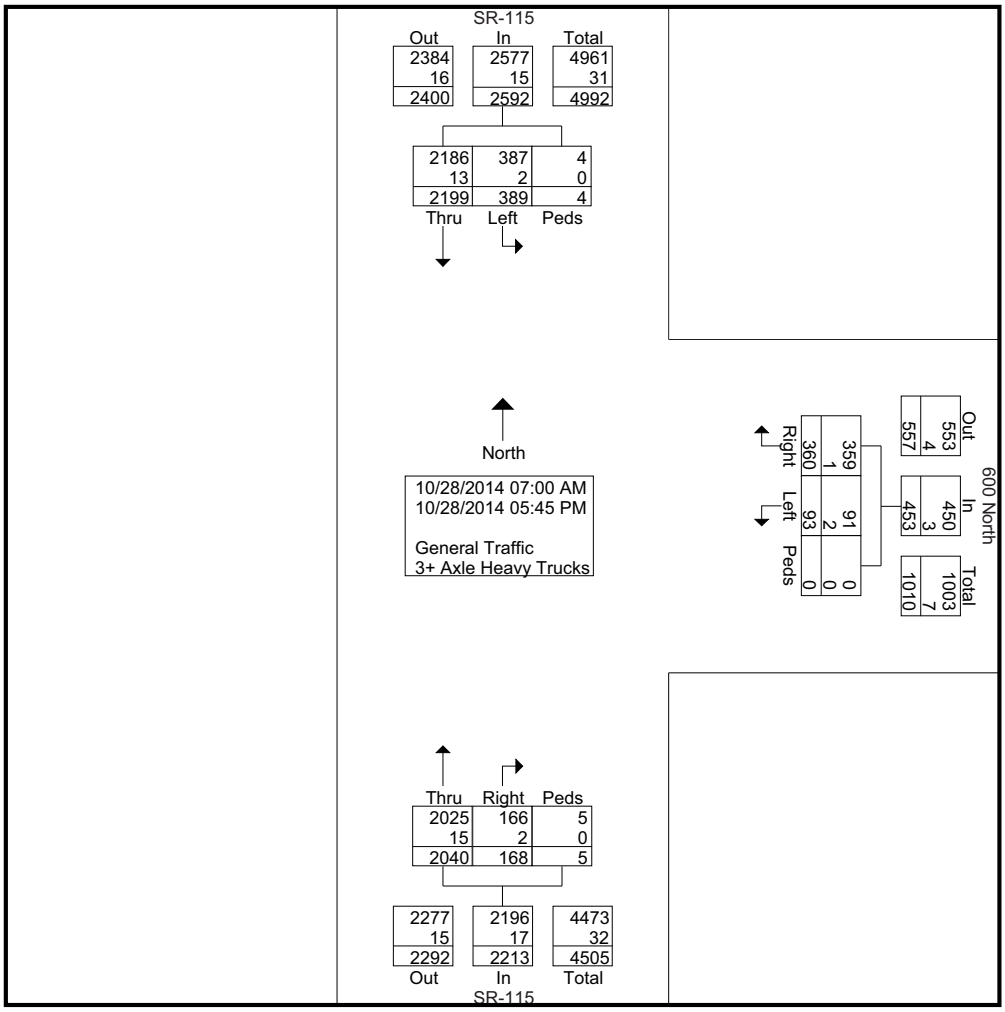
04:00 PM	180	37	0	217	21	8	0	29	11	112	0	123	369
04:15 PM	187	30	0	217	28	12	0	40	10	112	4	126	383
04:30 PM	181	34	0	215	26	6	0	32	11	108	0	119	366
04:45 PM	175	27	2	204	15	8	0	23	9	116	1	126	353
Total	723	128	2	853	90	34	0	124	41	448	5	494	1471
05:00 PM	241	26	0	267	12	4	0	16	7	128	0	135	418
05:15 PM	222	33	2	257	23	3	0	26	5	124	0	129	412
05:30 PM	209	41	0	250	17	7	0	24	7	114	0	121	395
05:45 PM	213	34	0	247	14	4	0	18	5	104	0	109	374
Total	885	134	2	1021	66	18	0	84	24	470	0	494	1599
Grand Total	2199	389	4	2592	360	93	0	453	168	2040	5	2213	5258
Apprch %	84.8	15	0.2		79.5	20.5	0		7.6	92.2	0.2		
Total %	41.8	7.4	0.1	49.3	6.8	1.8	0	8.6	3.2	38.8	0.1	42.1	
General Traffic	2186	387	4	2577	359	91	0	450	166	2025	5	2196	5223
% General Traffic	99.4	99.5	100	99.4	99.7	97.8	0	99.3	98.8	99.3	100	99.2	99.3
3+ Axle Heavy Trucks	13	2	0	15	1	2	0	3	2	15	0	17	35
% 3+ Axle Heavy Trucks	0.6	0.5	0	0.6	0.3	2.2	0	0.7	1.2	0.7	0	0.8	0.7

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014
Page No : 2



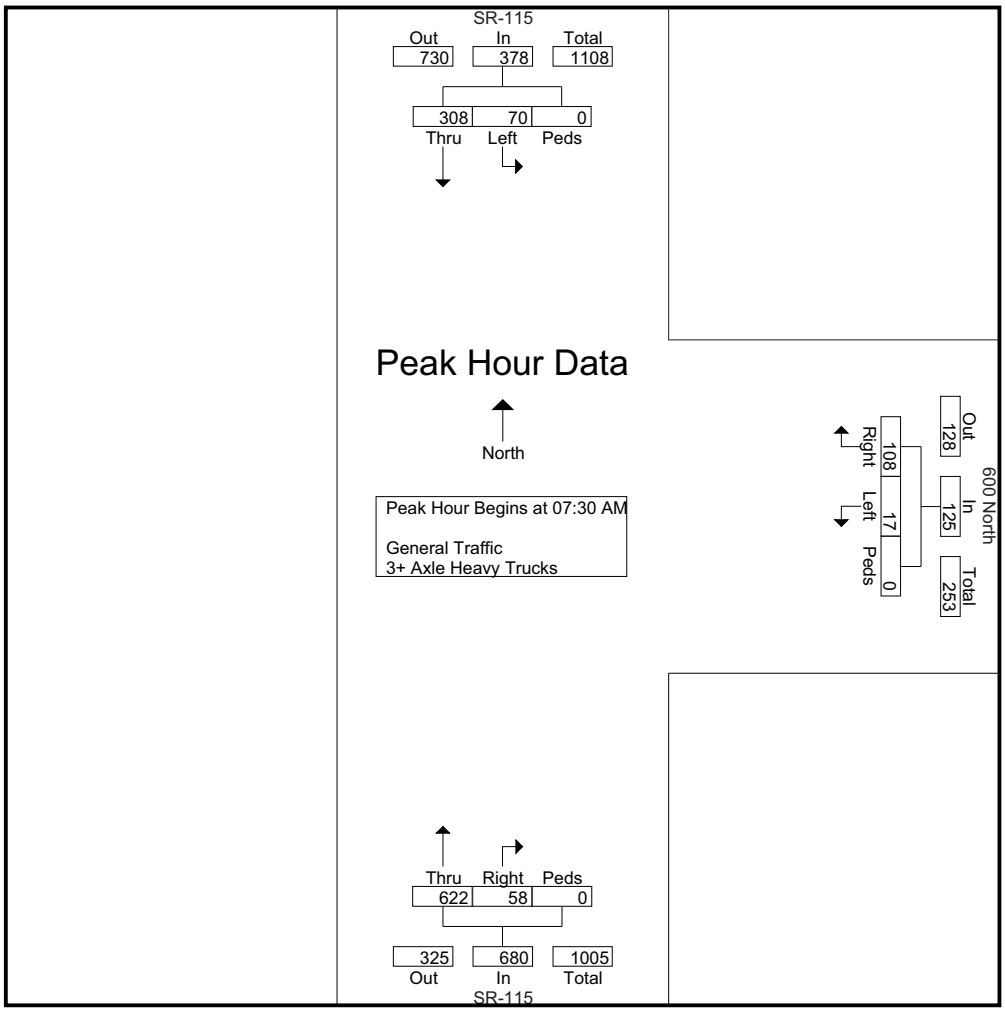
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014
Page No : 3

	SR-115 From North				600 North From East				SR-115 From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	70	13	0	83	25	4	0	29	**15**	**200**	0	**215**	**327**
07:45 AM	88	**24**	0	**112**	**39**	2	0	**41**	14	154	0	168	321
08:00 AM	61	18	0	79	19	**6**	0	25	14	123	0	137	241
08:15 AM	**89**	15	0	104	25	5	0	30	15	145	0	160	294
Total Volume	308	70	0	378	108	17	0	125	58	622	0	680	1183
% App. Total	81.5	18.5	0		86.4	13.6	0		8.5	91.5	0		
PHF	.865	.729	.000	.844	.692	.708	.000	.762	.967	.778	.000	.791	.904



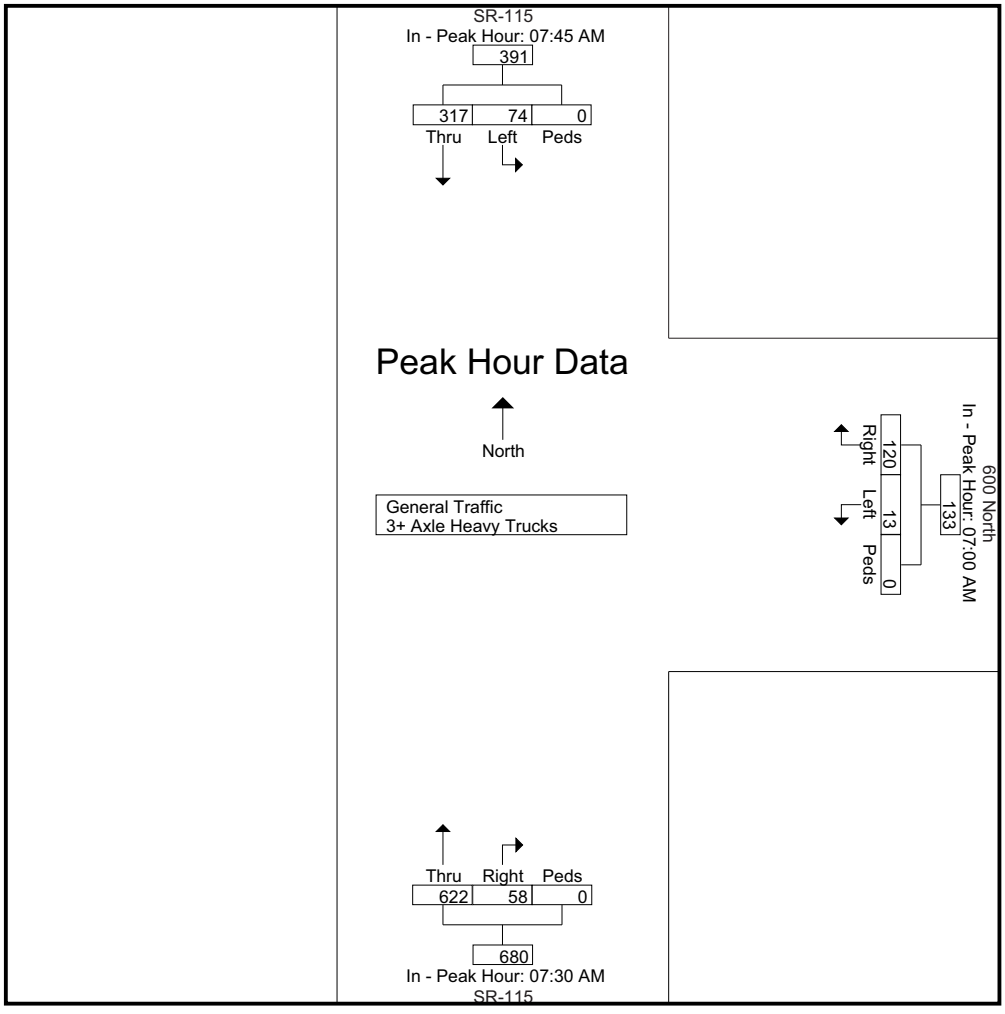
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014
Page No : 4

	SR-115 From North				600 North From East				SR-115 From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	07:45 AM				07:00 AM				07:30 AM				
+0 mins.	88	**24**	0	**112**	24	2	0	26	**15**	**200**	0	**215**	
+15 mins.	61	18	0	79	32	**5**	0	37	14	154	0	168	
+30 mins.	**89**	15	0	104	25	4	0	29	14	123	0	137	
+45 mins.	79	17	0	96	**39**	2	0	**41**	15	145	0	160	
Total Volume	317	74	0	391	120	13	0	133	58	622	0	680	
% App. Total	81.1	18.9	0		90.2	9.8	0		8.5	91.5	0		
PHF	.890	.771	.000	.873	.769	.650	.000	.811	.967	.778	.000	.791	



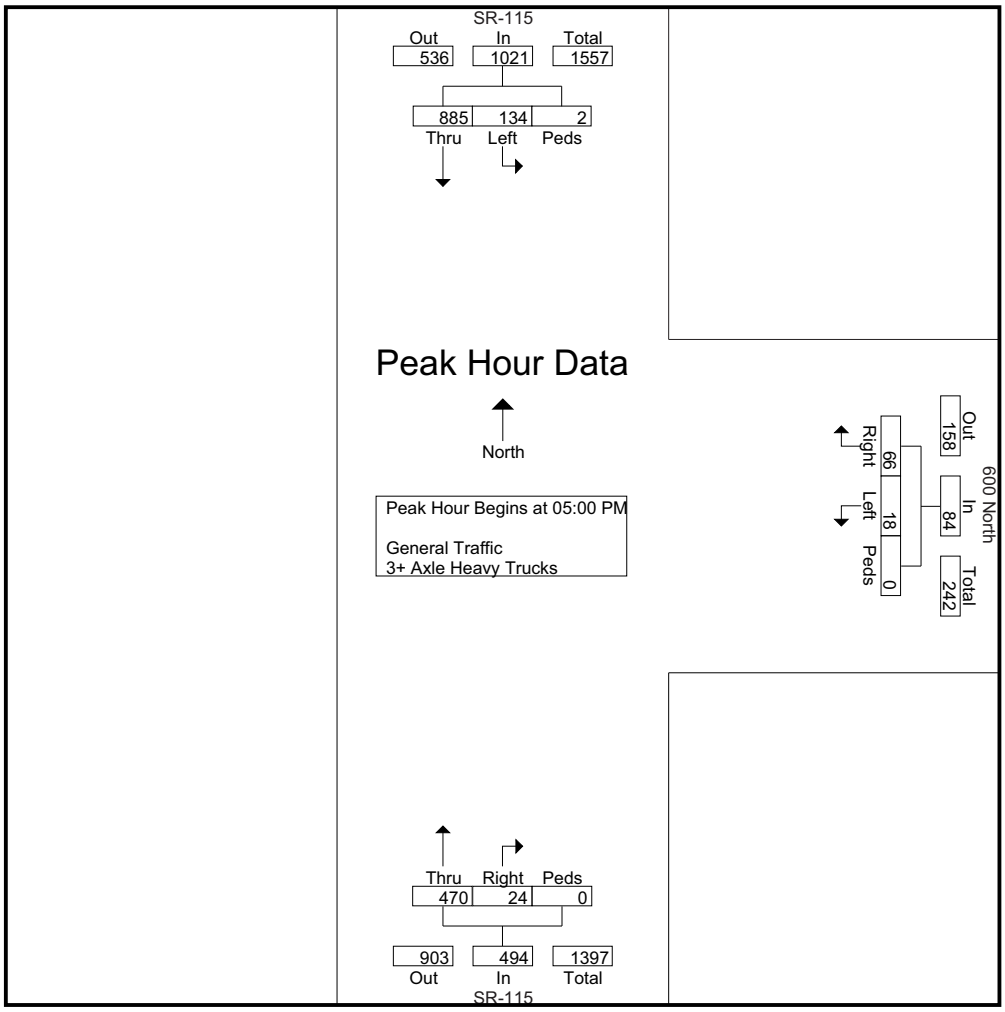
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014
Page No : 5

	SR-115 From North				600 North From East				SR-115 From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	**241**	26	0	**267**	12	4	0	16	**7**	**128**	0	**135**	**418**
05:15 PM	222	33	**2**	257	**23**	3	0	**26**	5	124	0	129	412
05:30 PM	209	**41**	0	250	17	**7**	0	24	7	114	0	121	395
05:45 PM	213	34	0	247	14	4	0	18	5	104	0	109	374
Total Volume	885	134	2	1021	66	18	0	84	24	470	0	494	1599
% App. Total	86.7	13.1	0.2		78.6	21.4	0		4.9	95.1	0		
PHF	.918	.817	.250	.956	.717	.643	.000	.808	.857	.918	.000	.915	.956



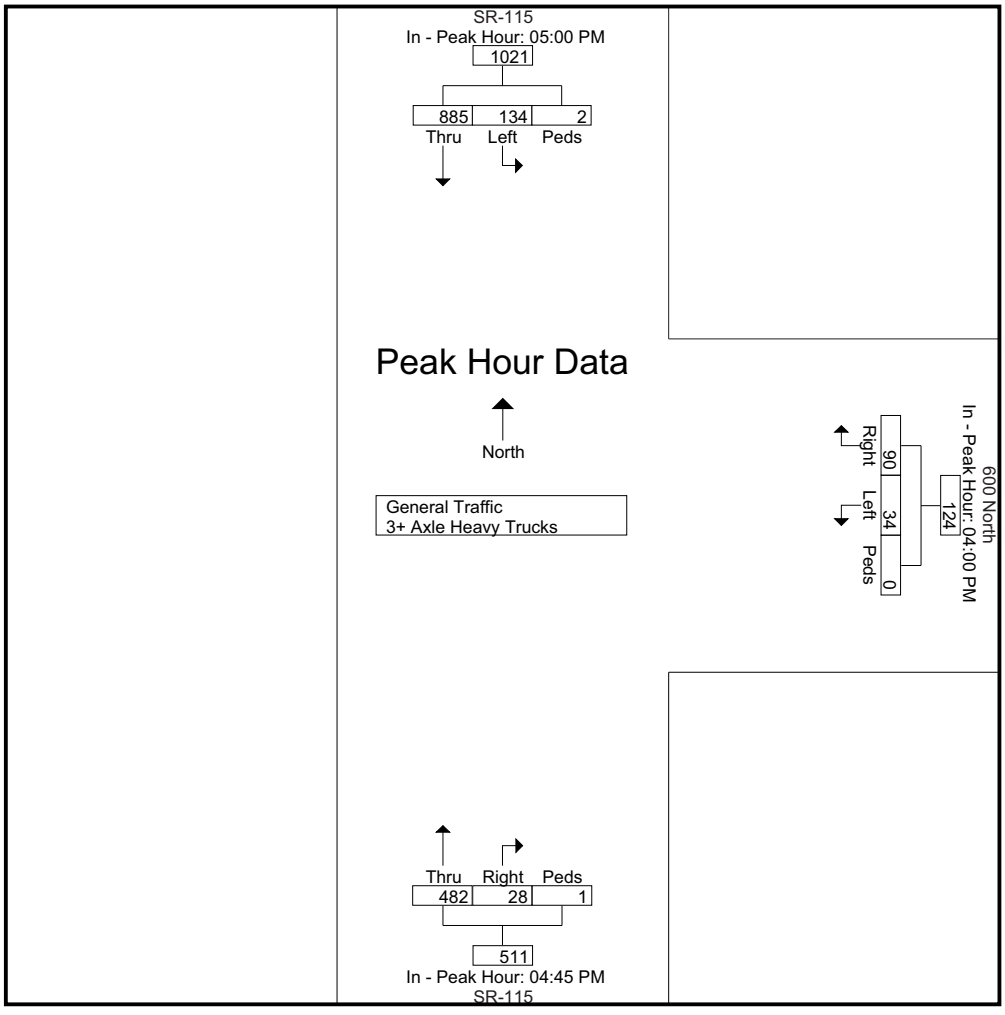
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014
Page No : 6

	SR-115 From North				600 North From East				SR-115 From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Each Approach Begins at:													
	05:00 PM				04:00 PM				04:45 PM				
+0 mins.	**241**	26	0	**267**	21	8	0	29	**9**	116	**1**	126	
+15 mins.	222	33	**2**	257	**28**	**12**	0	**40**	7	**128**	0	**135**	
+30 mins.	209	**41**	0	250	26	6	0	32	5	124	0	129	
+45 mins.	213	34	0	247	15	8	0	23	7	114	0	121	
Total Volume	885	134	2	1021	90	34	0	124	28	482	1	511	
% App. Total	86.7	13.1	0.2		72.6	27.4	0		5.5	94.3	0.2		
PHF	.918	.817	.250	.956	.804	.708	.000	.775	.778	.941	.250	.946	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / 600 North
City, State: Payson, Utah
Control: Stop Sign

File Name : SR-115 & 600 N
Site Code :
Start Date : 10/28/2014

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	SR-115 From North					SR-198 From East					Main Street From South		SR-198 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	23	9	27	0	59	50	29	1	0	80	0	0	0	37	75	0	112	251
07:15 AM	29	15	36	0	80	56	39	2	1	98	0	0	3	41	75	0	119	297
07:30 AM	26	15	52	0	93	78	33	7	0	118	0	0	2	85	108	2	197	408
07:45 AM	38	13	43	2	96	65	69	4	0	138	0	0	1	85	93	0	179	413
Total	116	52	158	2	328	249	170	14	1	434	0	0	6	248	351	2	607	1369
08:00 AM	24	15	28	0	67	52	40	6	0	98	0	0	5	38	70	0	113	278
08:15 AM	28	14	48	0	90	66	42	4	1	113	0	0	3	59	83	0	145	348
08:30 AM	27	18	41	0	86	63	40	7	0	110	1	1	4	55	68	0	127	324
08:45 AM	27	11	45	0	83	52	47	6	1	106	0	0	3	84	70	0	157	346
Total	106	58	162	0	326	233	169	23	2	427	1	1	15	236	291	0	542	1296

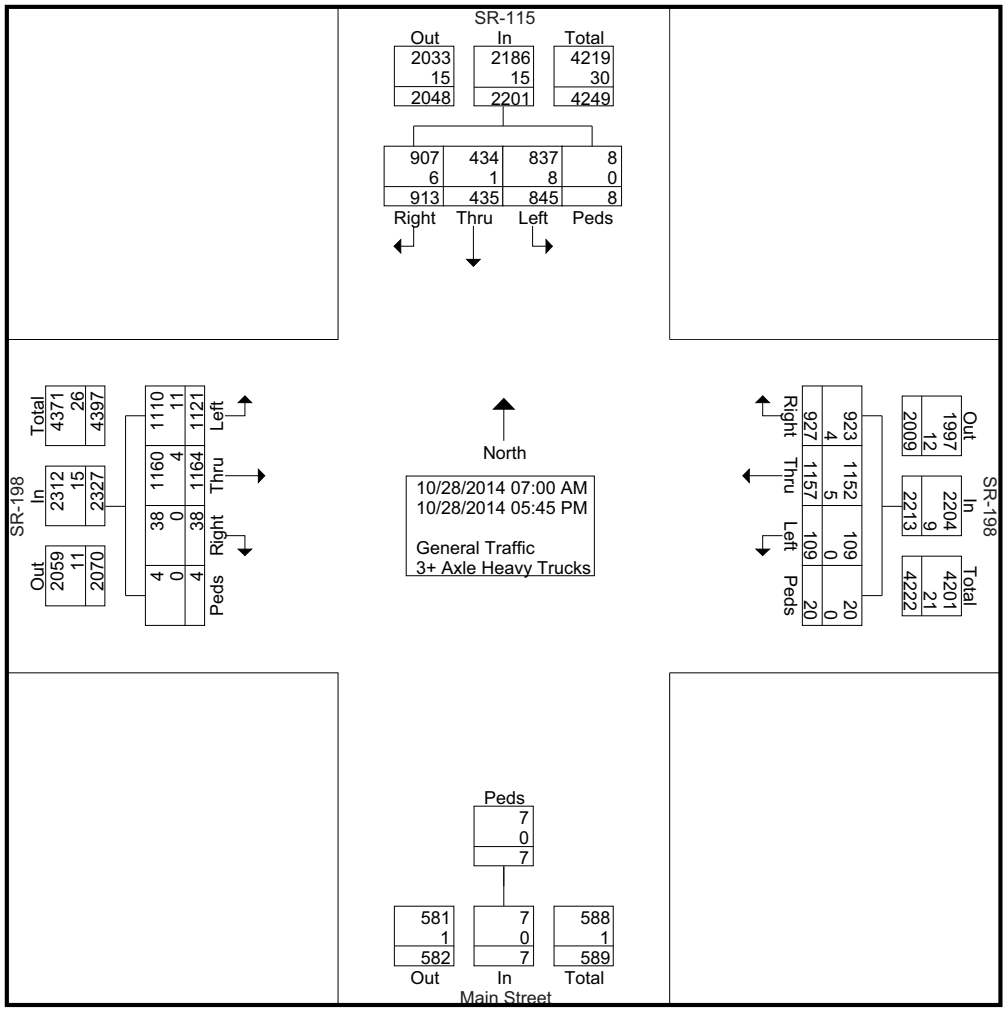
04:00 PM	72	40	67	0	179	42	85	11	3	141	0	0	1	82	70	0	153	473
04:15 PM	83	42	64	0	189	43	101	11	2	157	0	0	3	87	55	0	145	491
04:30 PM	79	40	66	0	185	52	107	8	4	171	0	0	0	88	63	0	151	507
04:45 PM	88	37	55	3	183	48	107	7	3	165	2	2	2	84	74	2	162	512
Total	322	159	252	3	736	185	400	37	12	634	2	2	6	341	262	2	611	1983
05:00 PM	97	42	63	1	203	78	130	7	4	219	1	1	5	111	65	0	181	604
05:15 PM	108	41	63	0	212	61	93	9	0	163	2	2	2	92	58	0	152	529
05:30 PM	78	46	66	1	191	63	94	10	0	167	0	0	2	64	47	0	113	471
05:45 PM	86	37	81	1	205	58	101	9	1	169	1	1	2	72	47	0	121	496
Total	369	166	273	3	811	260	418	35	5	718	4	4	11	339	217	0	567	2100
Grand Total	913	435	845	8	2201	927	1157	109	20	2213	7	7	38	1164	1121	4	2327	6748
Apprch %	41.5	19.8	38.4	0.4		41.9	52.3	4.9	0.9		100		1.6	50	48.2	0.2		
Total %	13.5	6.4	12.5	0.1	32.6	13.7	17.1	1.6	0.3	32.8	0.1	0.1	0.6	17.2	16.6	0.1	34.5	
General Traffic	907	434	837	8	2186	923	1152	109	20	2204	7	7	38	1160	1110	4	2312	6709
% General Traffic	99.3	99.8	99.1	100	99.3	99.6	99.6	100	100	99.6	100	100	100	99.7	99	100	99.4	99.4
3+ Axle Heavy Trucks	6	1	8	0	15	4	5	0	0	9	0	0	0	4	11	0	15	39
% 3+ Axle Heavy Trucks	0.7	0.2	0.9	0	0.7	0.4	0.4	0	0	0.4	0	0	0	0.3	1	0	0.6	0.6

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 2



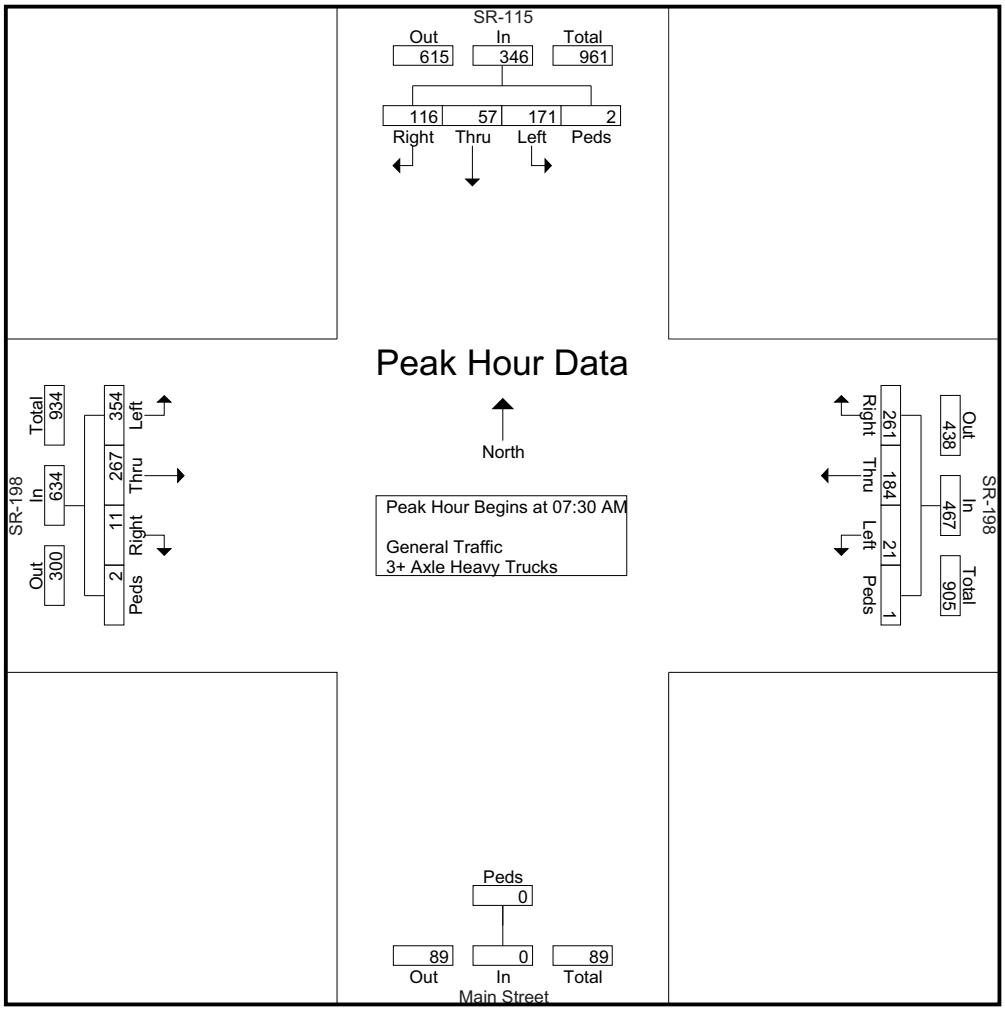
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 3

	SR-115 From North					SR-198 From East					Main Street From South		SR-198 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30 AM																		
07:30 AM	26	**15**	**52**	0	93	**78**	33	**7**	0	118	0	0	2	**85**	**108**	**2**	**197**	408
07:45 AM	**38**	13	43	**2**	**96**	65	**69**	4	0	**138**	0	0	1	85	93	0	179	**413**
08:00 AM	24	15	28	0	67	52	40	6	0	98	0	0	**5**	38	70	0	113	278
08:15 AM	28	14	48	0	90	66	42	4	**1**	113	0	0	3	59	83	0	145	348
Total Volume	116	57	171	2	346	261	184	21	1	467	0	0	11	267	354	2	634	1447
% App. Total	33.5	16.5	49.4	0.6		55.9	39.4	4.5	0.2		0		1.7	42.1	55.8	0.3		
PHF	.763	.950	.822	.250	.901	.837	.667	.750	.250	.846	.000	.000	.550	.785	.819	.250	.805	.876



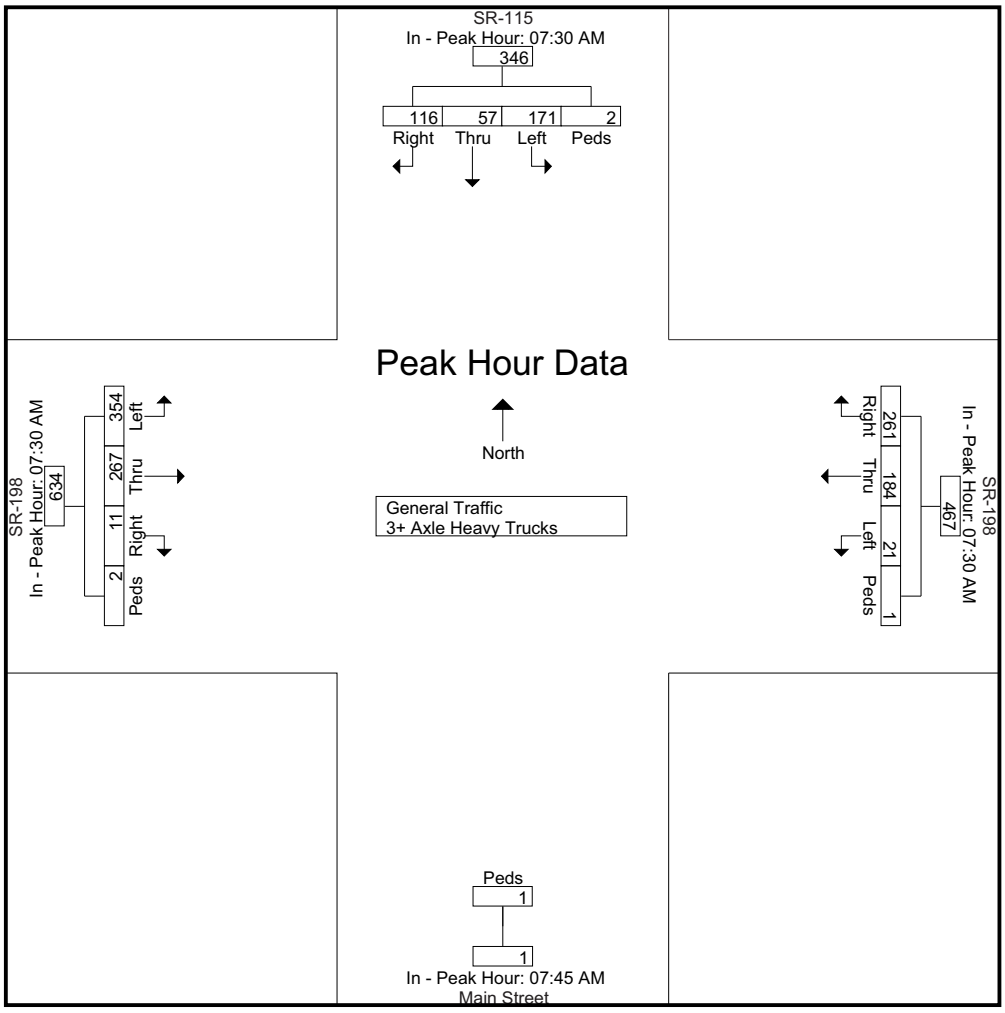
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 4

	SR-115 From North					SR-198 From East					Main Street From South		SR-198 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																		
Peak Hour for Each Approach Begins at:																		
	07:30 AM					07:30 AM					07:45 AM		07:30 AM					
+0 mins.	26	**15**	**52**	0	93	**78**	33	**7**	0	118	0	0	2	**85**	**108**	**2**	**197**	
+15 mins.	**38**	13	43	**2**	**96**	65	**69**	4	0	**138**	0	0	1	85	93	0	179	
+30 mins.	24	15	28	0	67	52	40	6	0	98	0	0	**5**	38	70	0	113	
+45 mins.	28	14	48	0	90	66	42	4	**1**	113	**1**	**1**	3	59	83	0	145	
Total Volume	116	57	171	2	346	261	184	21	1	467	1	1	11	267	354	2	634	
% App. Total	33.5	16.5	49.4	0.6		55.9	39.4	4.5	0.2		100		1.7	42.1	55.8	0.3		
PHF	.763	.950	.822	.250	.901	.837	.667	.750	.250	.846	.250	.250	.550	.785	.819	.250	.805	



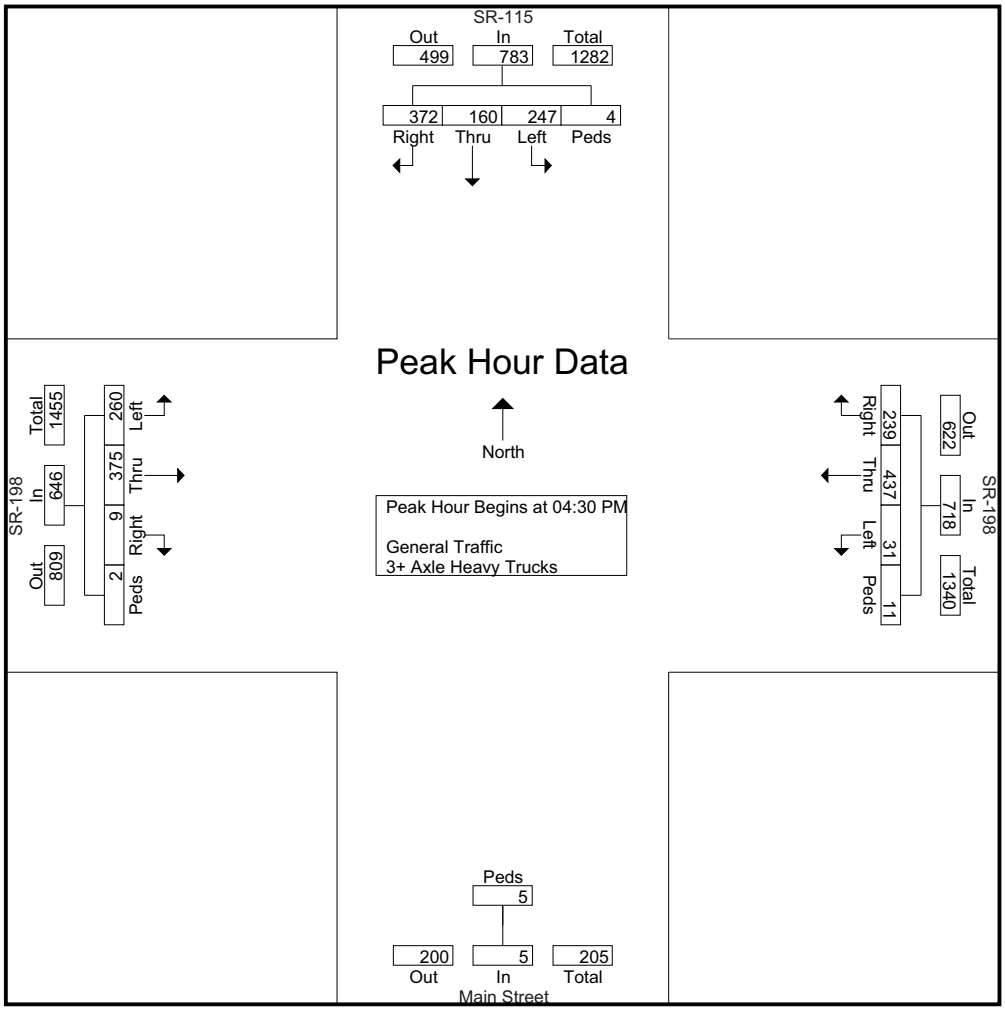
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 5

	SR-115 From North					SR-198 From East					Main Street From South		SR-198 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 04:30 PM																		
04:30 PM	79	40	**66**	0	185	52	107	8	**4**	171	0	0	0	88	63	0	151	507
04:45 PM	88	37	55	**3**	183	48	107	7	3	165	**2**	**2**	2	84	**74**	**2**	162	512
05:00 PM	97	**42**	63	1	203	**78**	**130**	7	4	**219**	1	1	**5**	**111**	65	0	**181**	**604**
05:15 PM	**108**	41	63	0	**212**	61	93	**9**	0	163	2	2	2	92	58	0	152	529
Total Volume	372	160	247	4	783	239	437	31	11	718	5	5	9	375	260	2	646	2152
% App. Total	47.5	20.4	31.5	0.5		33.3	60.9	4.3	1.5		100		1.4	58	40.2	0.3		
PHF	.861	.952	.936	.333	.923	.766	.840	.861	.688	.820	.625	.625	.450	.845	.878	.250	.892	.891



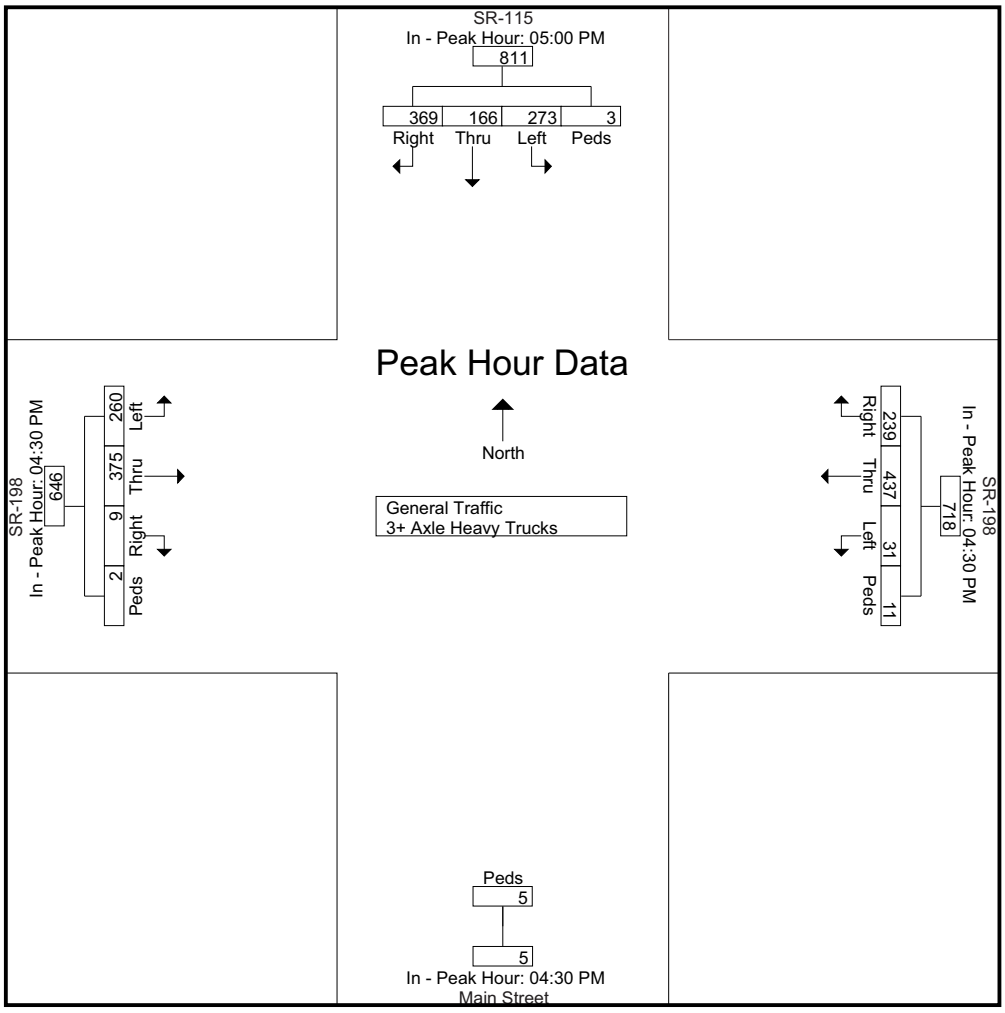
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 6

	SR-115 From North					SR-198 From East					Main Street From South		SR-198 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Each Approach Begins at:																		
	05:00 PM					04:30 PM					04:30 PM		04:30 PM					
+0 mins.	97	42	63	**1**	203	52	107	8	**4**	171	0	0	0	88	63	0	151	
+15 mins.	**108**	41	63	0	**212**	48	107	7	3	165	**2**	**2**	2	84	**74**	**2**	162	
+30 mins.	78	**46**	66	1	191	**78**	**130**	7	4	**219**	1	1	**5**	**111**	65	0	**181**	
+45 mins.	86	37	**81**	1	205	61	93	**9**	0	163	2	2	2	92	58	0	152	
Total Volume	369	166	273	3	811	239	437	31	11	718	5	5	9	375	260	2	646	
% App. Total	45.5	20.5	33.7	0.4		33.3	60.9	4.3	1.5		100		1.4	58	40.2	0.3		
PHF	.854	.902	.843	.750	.956	.766	.840	.861	.688	.820	.625	.625	.450	.845	.878	.250	.892	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044
Intersection: SR-115 / SR-198
City, State: Payson, Utah
Control: Signalized

File Name : SR-115 & SR-198
Site Code :
Start Date : 10/28/2014
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	I-15 SB Off Ramp From North					SR-164 From East				I-15 SB On Ramp From South		SR-164 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	4	2	23	0	29	10	15	0	25	0	0	5	38	0	43	97
07:15 AM	8	0	23	1	32	26	16	0	42	0	0	3	42	0	45	119
07:30 AM	15	0	36	0	51	20	11	0	31	0	0	4	58	0	62	144
07:45 AM	26	0	37	0	63	41	15	0	56	0	0	4	53	0	57	176
Total	53	2	119	1	175	97	57	0	154	0	0	16	191	0	207	536
08:00 AM	24	0	32	0	56	39	16	0	55	0	0	8	40	0	48	159
08:15 AM	32	2	32	0	66	34	16	0	50	0	0	9	46	0	55	171
08:30 AM	19	0	29	0	48	30	19	0	49	0	0	8	31	0	39	136
08:45 AM	20	0	34	0	54	33	16	0	49	0	0	5	33	0	38	141
Total	95	2	127	0	224	136	67	0	203	0	0	30	150	0	180	607

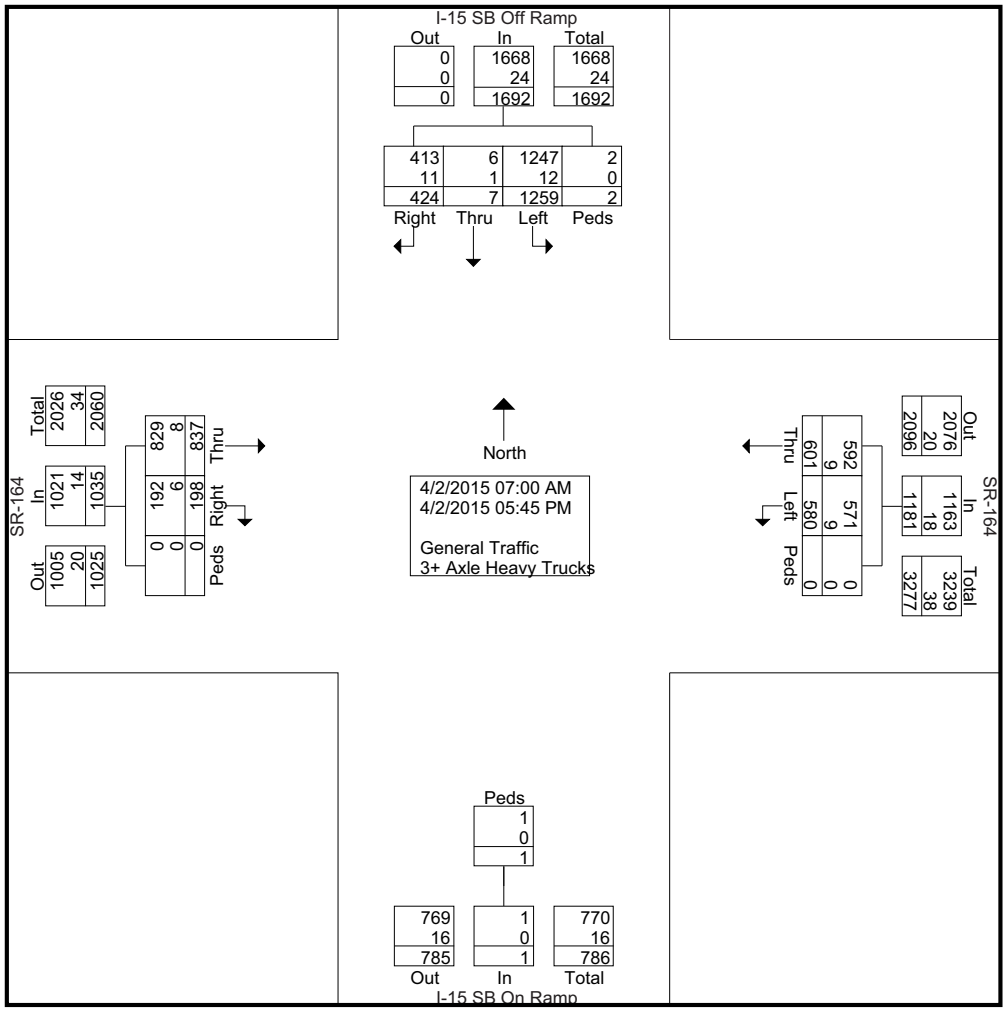
04:00 PM	26	0	108	0	134	36	44	0	80	0	0	15	57	0	72	286
04:15 PM	34	0	96	0	130	56	55	0	111	0	0	16	49	0	65	306
04:30 PM	34	1	99	0	134	40	56	0	96	0	0	16	55	0	71	301
04:45 PM	28	1	126	0	155	37	46	0	83	0	0	20	68	0	88	326
Total	122	2	429	0	553	169	201	0	370	0	0	67	229	0	296	1219
05:00 PM	37	1	129	0	167	56	76	0	132	1	1	19	81	0	100	400
05:15 PM	38	0	163	0	201	51	72	0	123	0	0	26	58	0	84	408
05:30 PM	39	0	156	1	196	45	62	0	107	0	0	26	68	0	94	397
05:45 PM	40	0	136	0	176	47	45	0	92	0	0	14	60	0	74	342
Total	154	1	584	1	740	199	255	0	454	1	1	85	267	0	352	1547
Grand Total	424	7	1259	2	1692	601	580	0	1181	1	1	198	837	0	1035	3909
Apprch %	25.1	0.4	74.4	0.1		50.9	49.1	0		100		19.1	80.9	0		
Total %	10.8	0.2	32.2	0.1	43.3	15.4	14.8	0	30.2	0	0	5.1	21.4	0	26.5	
General Traffic	413	6	1247	2	1668	592	571	0	1163	1	1	192	829	0	1021	3853
% General Traffic	97.4	85.7	99	100	98.6	98.5	98.4	0	98.5	100	100	97	99	0	98.6	98.6
3+ Axle Heavy Trucks	11	1	12	0	24	9	9	0	18	0	0	6	8	0	14	56
% 3+ Axle Heavy Trucks	2.6	14.3	1	0	1.4	1.5	1.6	0	1.5	0	0	3	1	0	1.4	1.4

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 2



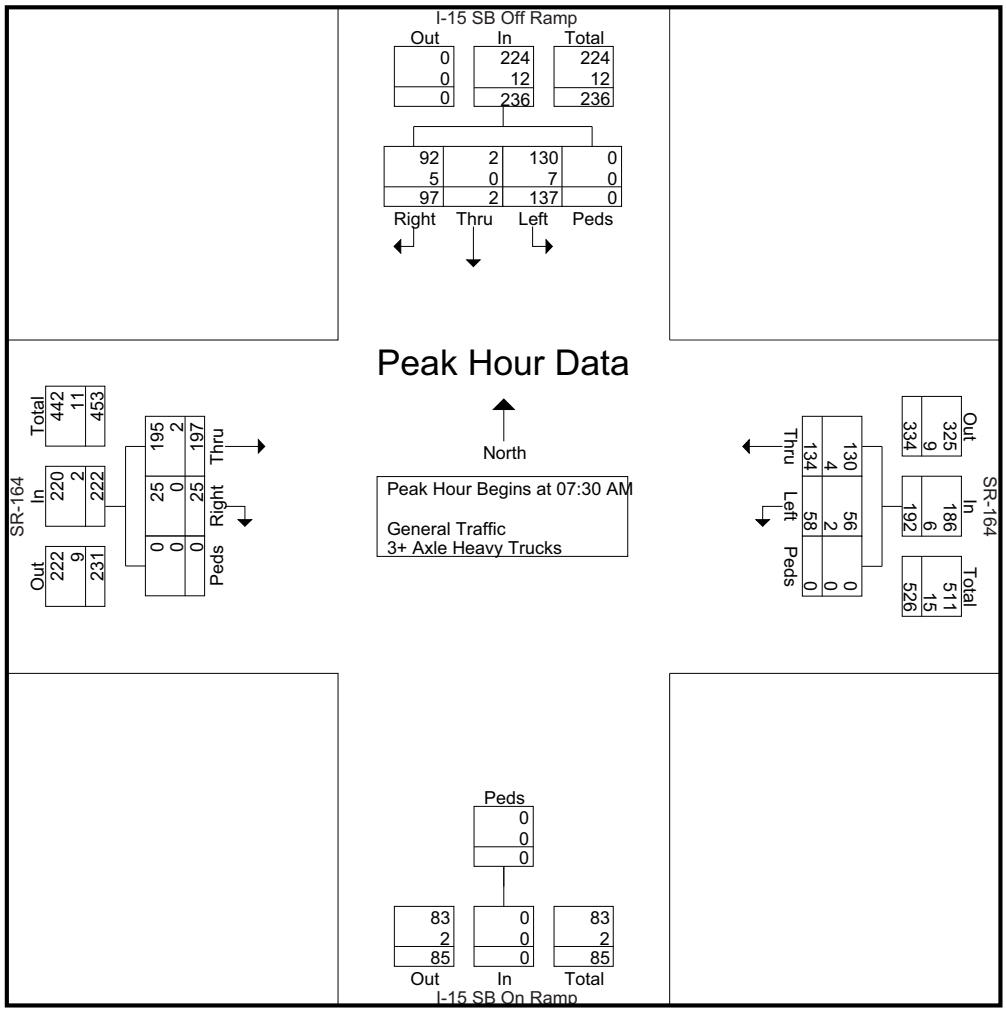
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 3

	I-15 SB Off Ramp From North					SR-164 From East				I-15 SB On Ramp From South		SR-164 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	15	0	36	0	51	20	11	0	31	0	0	4	**58**	0	**62**	144
07:45 AM	26	0	**37**	0	63	**41**	15	0	**56**	0	0	4	53	0	57	**176**
08:00 AM	24	0	32	0	56	39	**16**	0	55	0	0	8	40	0	48	159
08:15 AM	**32**	**2**	32	0	**66**	34	16	0	50	0	0	**9**	46	0	55	171
Total Volume	97	2	137	0	236	134	58	0	192	0	0	25	197	0	222	650
% App. Total	41.1	0.8	58.1	0		69.8	30.2	0		0		11.3	88.7	0		
PHF	.758	.250	.926	.000	.894	.817	.906	.000	.857	.000	.000	.694	.849	.000	.895	.923
General Traffic	92	2	130	0	224	130	56	0	186	0	0	25	195	0	220	630
% General Traffic	94.8	100	94.9	0	94.9	97.0	96.6	0	96.9	0	0	100	99.0	0	99.1	96.9
3+ Axle Heavy Trucks	5	0	7	0	12	4	2	0	6	0	0	0	2	0	2	20
% 3+ Axle Heavy Trucks	5.2	0	5.1	0	5.1	3.0	3.4	0	3.1	0	0	0	1.0	0	0.9	3.1



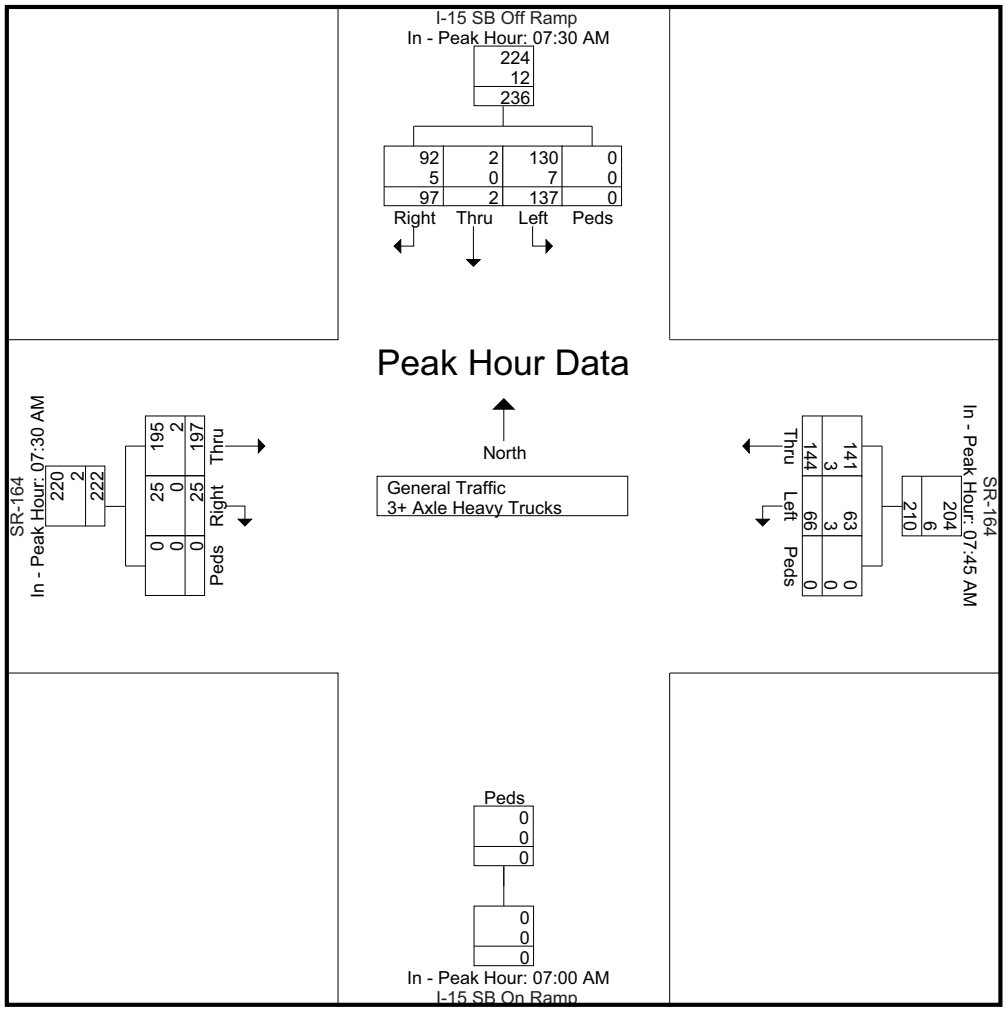
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 4

	I-15 SB Off Ramp From North					SR-164 From East				I-15 SB On Ramp From South		SR-164 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	07:30 AM					07:45 AM				07:00 AM		07:30 AM				
+0 mins.	15	0	36	0	51	**41**	15	0	**56**	0	0	4	**58**	0	**62**	
+15 mins.	26	0	**37**	0	63	39	16	0	55	0	0	4	53	0	57	
+30 mins.	24	0	32	0	56	34	16	0	50	0	0	8	40	0	48	
+45 mins.	**32**	**2**	32	0	**66**	30	**19**	0	49	0	0	**9**	46	0	55	
Total Volume	97	2	137	0	236	144	66	0	210	0	0	25	197	0	222	
% App. Total	41.1	0.8	58.1	0		68.6	31.4	0		0		11.3	88.7	0		
PHF	.758	.250	.926	.000	.894	.878	.868	.000	.938	.000	.000	.694	.849	.000	.895	
General Traffic	92	2	130	0	224	141	63	0	204	0	0	25	195	0	220	
% General Traffic	94.8	100	94.9	0	94.9	97.9	95.5	0	97.1	0	0	100	99	0	99.1	
3+ Axle Heavy Trucks	5	0	7	0	12	3	3	0	6	0	0	0	2	0	2	
% 3+ Axle Heavy Trucks	5.2	0	5.1	0	5.1	2.1	4.5	0	2.9	0	0	0	1	0	0.9	



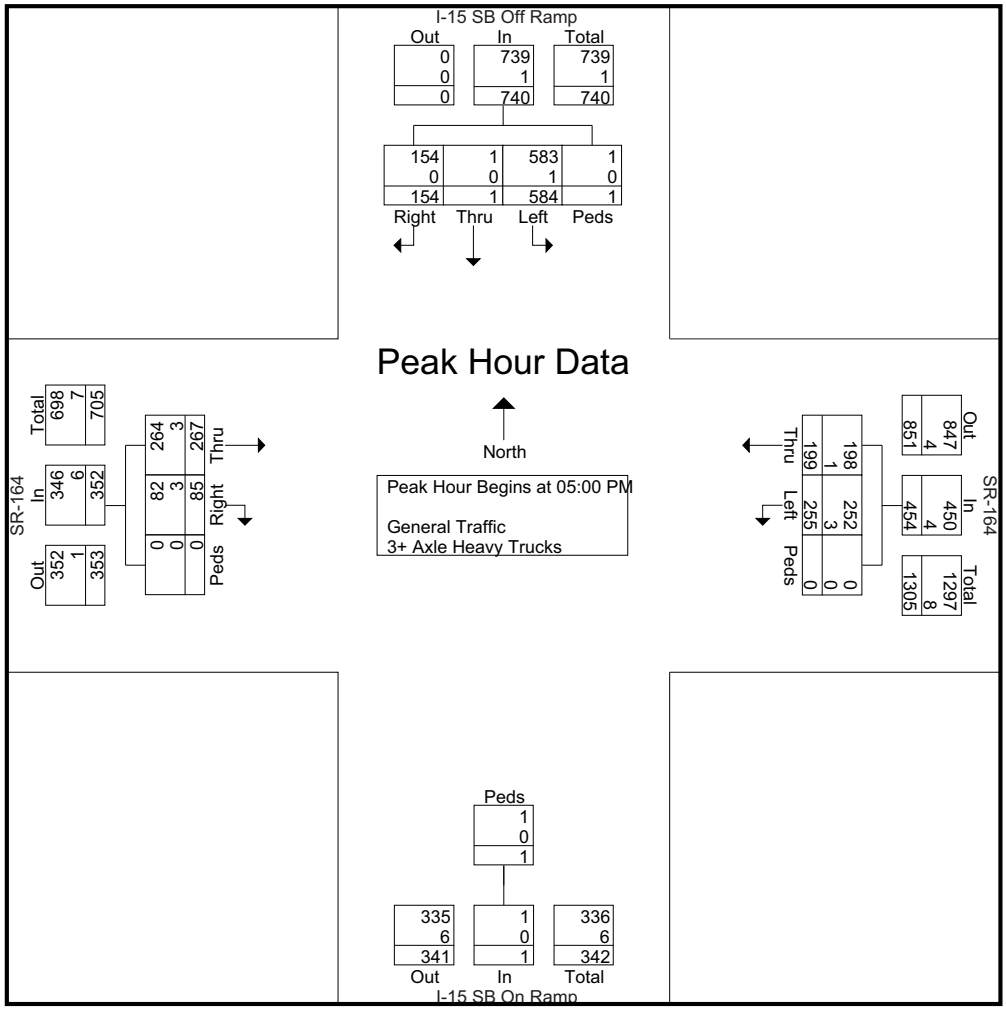
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 5

	I-15 SB Off Ramp From North					SR-164 From East				I-15 SB On Ramp From South		SR-164 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	37	**1**	129	0	167	**56**	**76**	0	**132**	**1**	**1**	19	**81**	0	**100**	400
05:15 PM	38	0	**163**	0	**201**	51	72	0	123	0	0	**26**	58	0	84	**408**
05:30 PM	39	0	156	**1**	196	45	62	0	107	0	0	26	68	0	94	397
05:45 PM	**40**	0	136	0	176	47	45	0	92	0	0	14	60	0	74	342
Total Volume	154	1	584	1	740	199	255	0	454	1	1	85	267	0	352	1547
% App. Total	20.8	0.1	78.9	0.1		43.8	56.2	0		100		24.1	75.9	0		
PHF	.963	.250	.896	.250	.920	.888	.839	.000	.860	.250	.250	.817	.824	.000	.880	.948
General Traffic	154	1	583	1	739	198	252	0	450	1	1	82	264	0	346	1536
% General Traffic	100	100	99.8	100	99.9	99.5	98.8	0	99.1	100	100	96.5	98.9	0	98.3	99.3
3+ Axle Heavy Trucks	0	0	1	0	1	1	3	0	4	0	0	3	3	0	6	11
% 3+ Axle Heavy Trucks	0	0	0.2	0	0.1	0.5	1.2	0	0.9	0	0	3.5	1.1	0	1.7	0.7



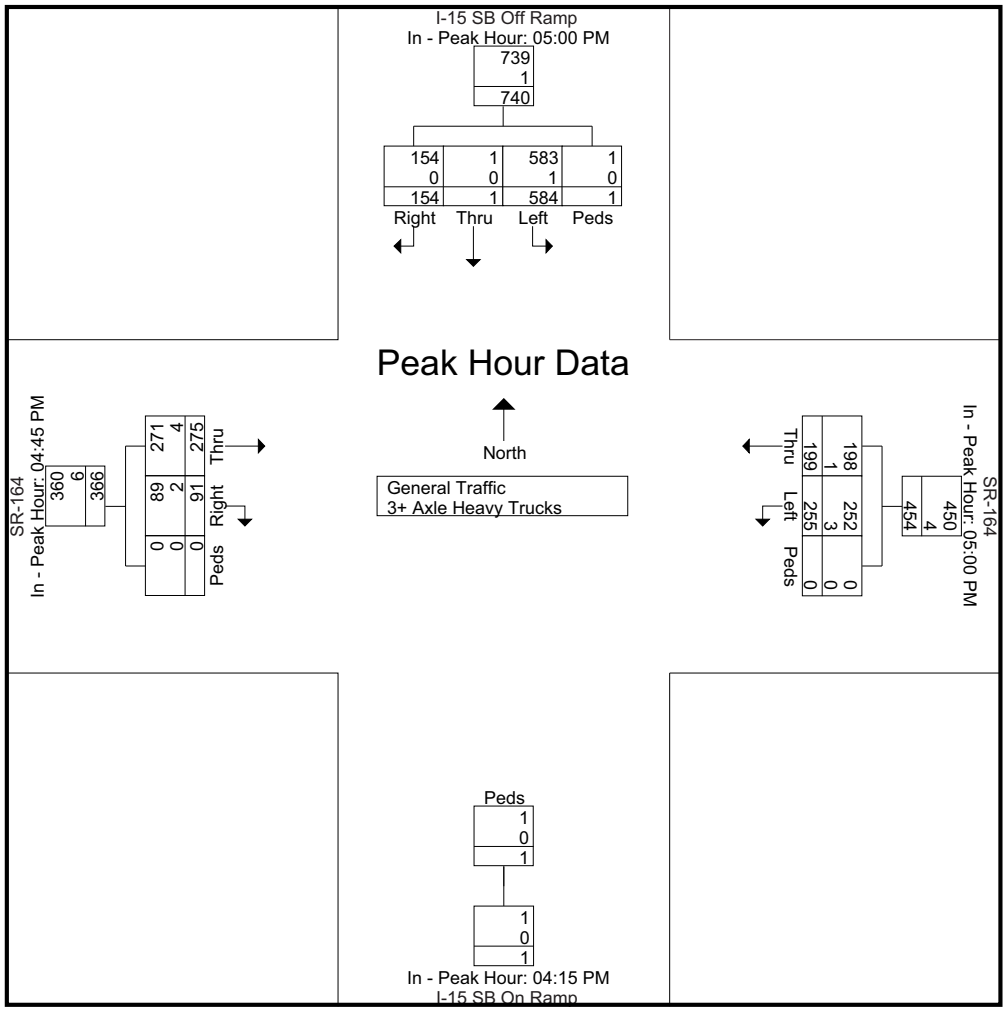
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 6

	I-15 SB Off Ramp From North					SR-164 From East				I-15 SB On Ramp From South		SR-164 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	05:00 PM					05:00 PM				04:15 PM		04:45 PM				
+0 mins.	37	**1**	129	0	167	**56**	**76**	0	**132**	0	0	20	68	0	88	
+15 mins.	38	0	**163**	0	**201**	51	72	0	123	0	0	19	**81**	0	**100**	
+30 mins.	39	0	156	**1**	196	45	62	0	107	0	0	**26**	58	0	84	
+45 mins.	**40**	0	136	0	176	47	45	0	92	**1**	**1**	26	68	0	94	
Total Volume	154	1	584	1	740	199	255	0	454	1	1	91	275	0	366	
% App. Total	20.8	0.1	78.9	0.1		43.8	56.2	0		100		24.9	75.1	0		
PHF	.963	.250	.896	.250	.920	.888	.839	.000	.860	.250	.250	.875	.849	.000	.915	
General Traffic	154	1	583	1	739	198	252	0	450	1	1	89	271	0	360	
% General Traffic	100	100	99.8	100	99.9	99.5	98.8	0	99.1	100	100	97.8	98.5	0	98.4	
3+ Axle Heavy Trucks	0	0	1	0	1	1	3	0	4	0	0	2	4	0	6	
% 3+ Axle Heavy Trucks	0	0	0.2	0	0.1	0.5	1.2	0	0.9	0	0	2.2	1.5	0	1.6	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 SB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	I-15 NB On Ramp From North		SR-164 From East				I-15 NB Off Ramp From South					SR-164 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	73	23	0	96	15	0	3	0	18	45	18	0	63	177
07:15 AM	1	1	101	31	0	132	19	0	11	0	30	40	25	0	65	228
07:30 AM	1	1	144	25	0	169	23	0	4	0	27	56	35	0	91	288
07:45 AM	0	0	125	43	2	170	39	0	11	0	50	60	35	0	95	315
Total	2	2	443	122	2	567	96	0	29	0	125	201	113	0	314	1008
08:00 AM	0	0	104	42	0	146	23	2	17	0	42	50	17	0	67	255
08:15 AM	0	0	91	31	0	122	32	1	19	0	52	52	28	0	80	254
08:30 AM	0	0	83	42	0	125	27	0	9	0	36	41	17	0	58	219
08:45 AM	0	0	70	38	0	108	31	0	8	0	39	54	15	0	69	216
Total	0	0	348	153	0	501	113	3	53	0	169	197	77	0	274	944

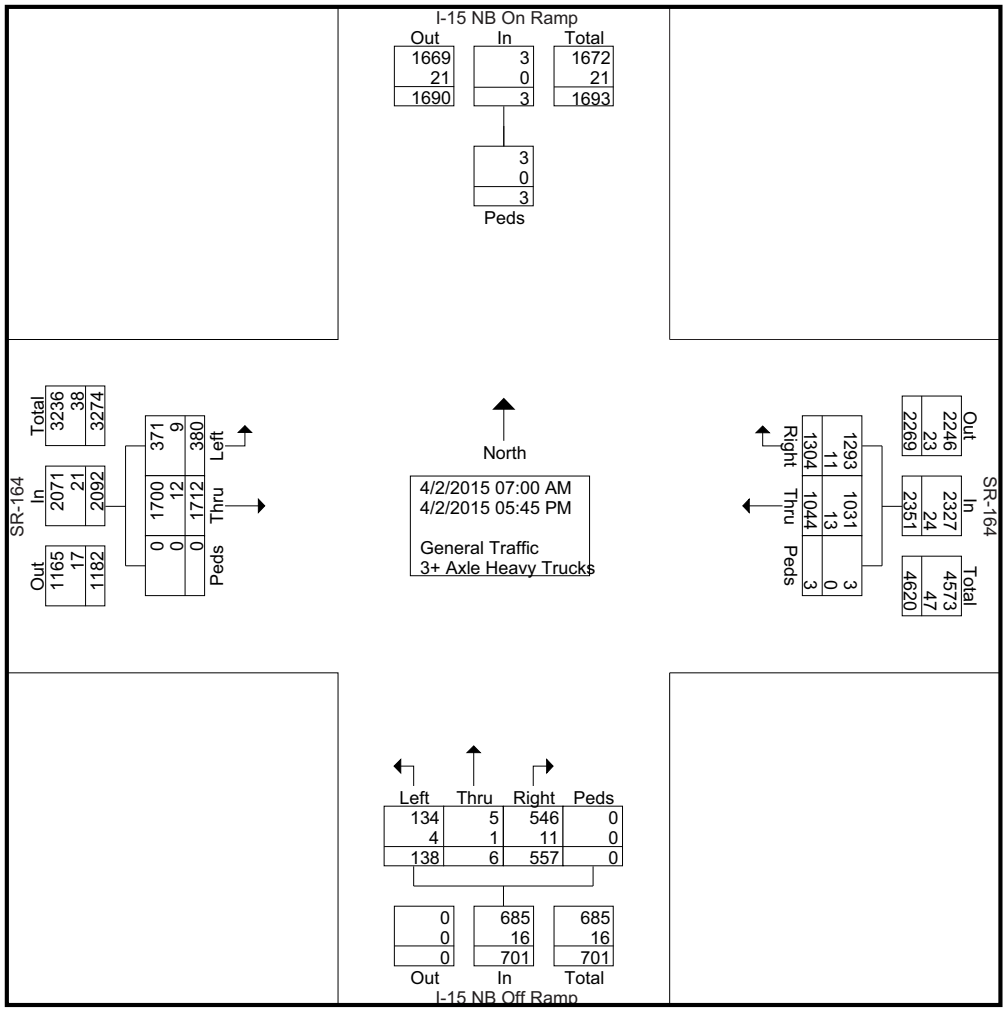
04:00 PM	0	0	65	78	1	144	44	1	6	0	51	143	24	0	167	362
04:15 PM	0	0	58	99	0	157	41	0	8	0	49	125	18	0	143	349
04:30 PM	0	0	60	83	0	143	41	1	12	0	54	139	21	0	160	357
04:45 PM	0	0	73	72	0	145	42	0	10	0	52	170	27	0	197	394
Total	0	0	256	332	1	589	168	2	36	0	206	577	90	0	667	1462
05:00 PM	0	0	54	128	0	182	39	0	6	0	45	181	28	0	209	436
05:15 PM	0	0	60	118	0	178	46	0	5	0	51	195	22	0	217	446
05:30 PM	1	1	80	102	0	182	49	1	4	0	54	198	26	0	224	461
05:45 PM	0	0	63	89	0	152	46	0	5	0	51	163	24	0	187	390
Total	1	1	257	437	0	694	180	1	20	0	201	737	100	0	837	1733
Grand Total	3	3	1304	1044	3	2351	557	6	138	0	701	1712	380	0	2092	5147
Apprch %	100		55.5	44.4	0.1		79.5	0.9	19.7	0		81.8	18.2	0		
Total %	0.1	0.1	25.3	20.3	0.1	45.7	10.8	0.1	2.7	0	13.6	33.3	7.4	0	40.6	
General Traffic	3	3	1293	1031	3	2327	546	5	134	0	685	1700	371	0	2071	5086
% General Traffic	100	100	99.2	98.8	100	99	98	83.3	97.1	0	97.7	99.3	97.6	0	99	98.8
3+ Axle Heavy Trucks	0	0	11	13	0	24	11	1	4	0	16	12	9	0	21	61
% 3+ Axle Heavy Trucks	0	0	0.8	1.2	0	1	2	16.7	2.9	0	2.3	0.7	2.4	0	1	1.2

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 2



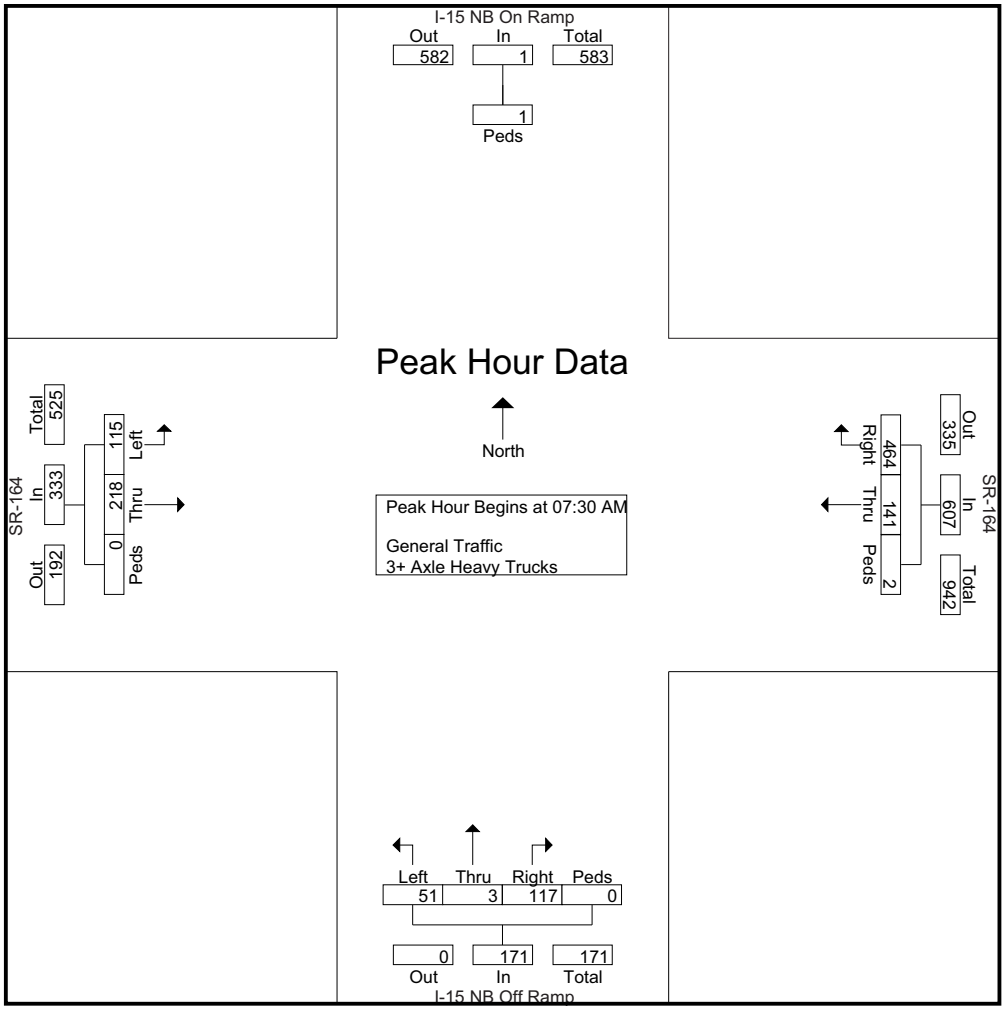
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 3

	I-15 NB On Ramp From North		SR-164 From East				I-15 NB Off Ramp From South					SR-164 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	**1**	**1**	**144**	25	0	169	23	0	4	0	27	56	**35**	0	91	288
07:45 AM	0	0	125	**43**	**2**	**170**	**39**	0	11	0	50	**60**	35	0	**95**	**315**
08:00 AM	0	0	104	42	0	146	23	**2**	17	0	42	50	17	0	67	255
08:15 AM	0	0	91	31	0	122	32	1	**19**	0	**52**	52	28	0	80	254
Total Volume	1	1	464	141	2	607	117	3	51	0	171	218	115	0	333	1112
% App. Total	100		76.4	23.2	0.3		68.4	1.8	29.8	0		65.5	34.5	0		
PHF	.250	.250	.806	.820	.250	.893	.750	.375	.671	.000	.822	.908	.821	.000	.876	.883



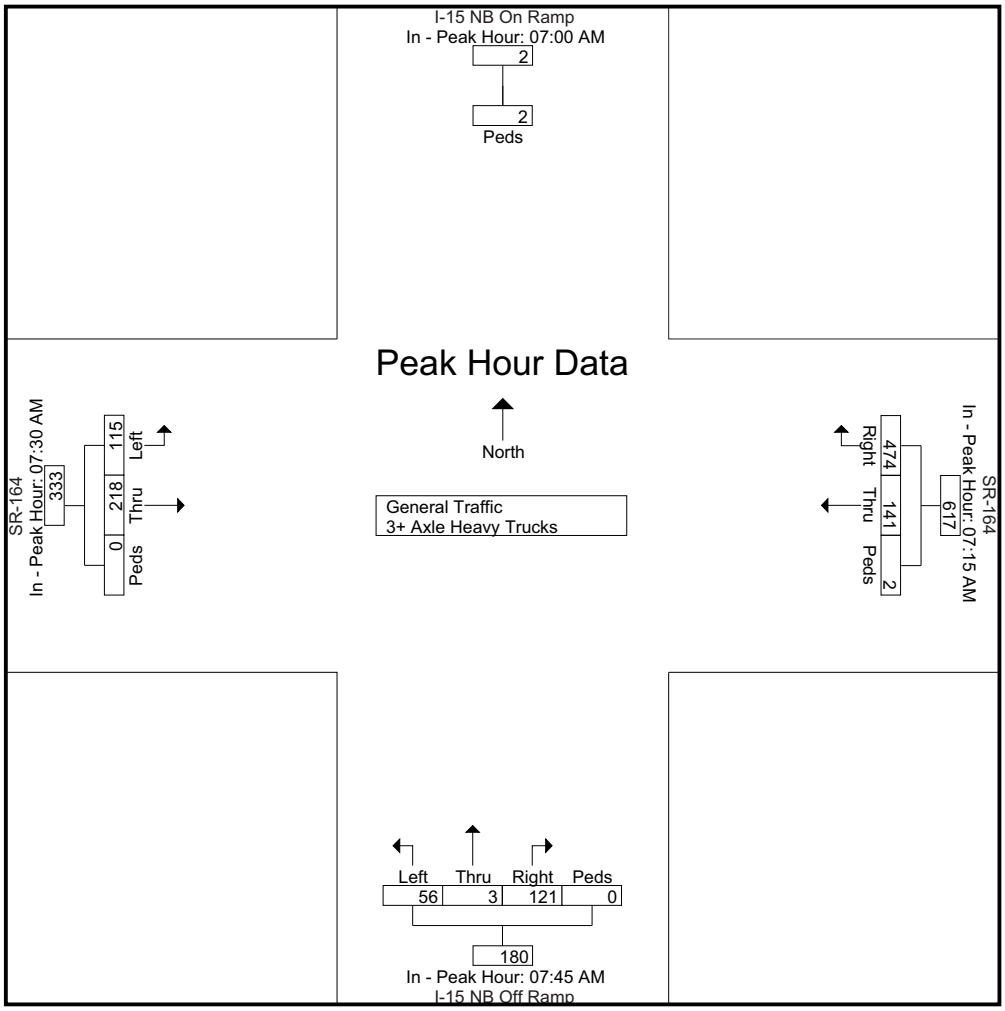
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 4

	I-15 NB On Ramp From North		SR-164 From East				I-15 NB Off Ramp From South					SR-164 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	07:00 AM		07:15 AM				07:45 AM					07:30 AM				
+0 mins.	0	0	101	31	0	132	**39**	0	11	0	50	56	**35**	0	91	
+15 mins.	**1**	**1**	**144**	25	0	169	23	**2**	17	0	42	**60**	35	0	**95**	
+30 mins.	1	1	125	**43**	**2**	**170**	32	1	**19**	0	**52**	50	17	0	67	
+45 mins.	0	0	104	42	0	146	27	0	9	0	36	52	28	0	80	
Total Volume	2	2	474	141	2	617	121	3	56	0	180	218	115	0	333	
% App. Total	100		76.8	22.9	0.3		67.2	1.7	31.1	0		65.5	34.5	0		
PHF	.500	.500	.823	.820	.250	.907	.776	.375	.737	.000	.865	.908	.821	.000	.876	



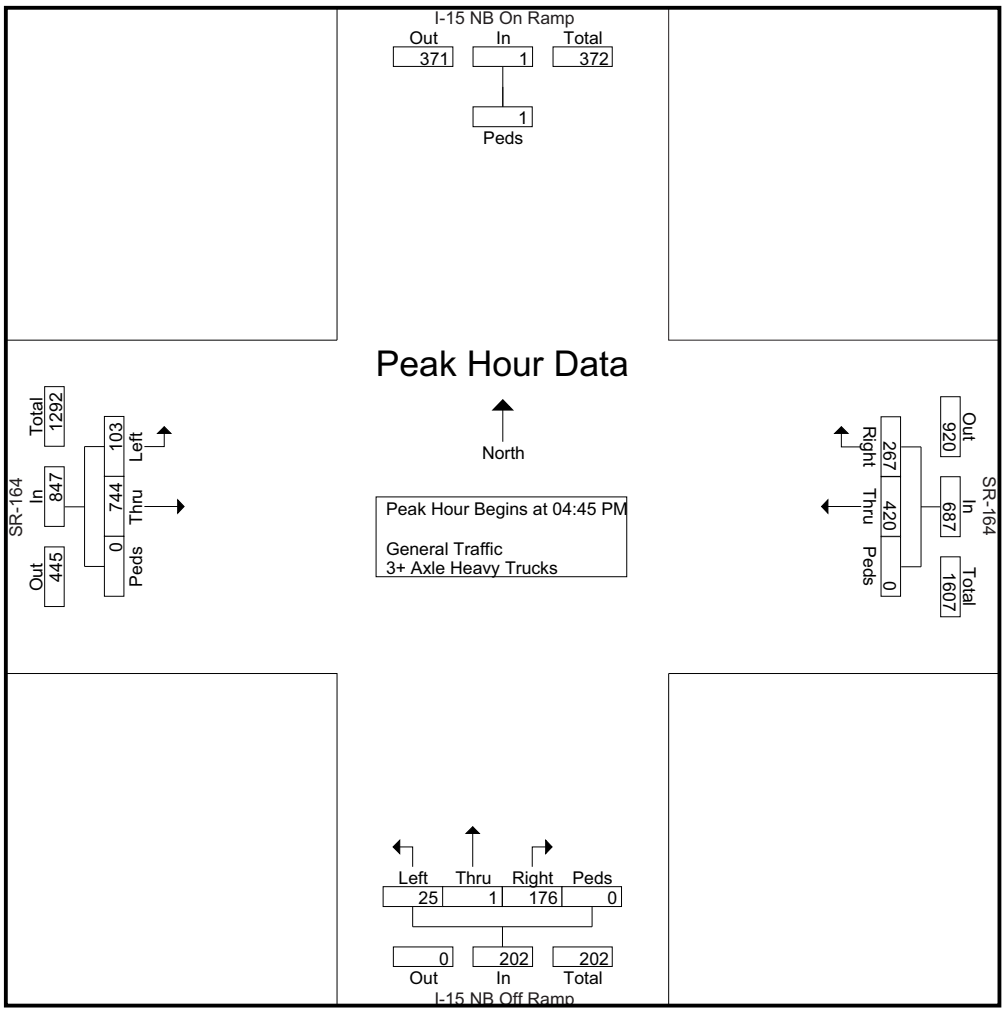
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 5

	I-15 NB On Ramp From North		SR-164 From East				I-15 NB Off Ramp From South					SR-164 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	0	0	73	72	0	145	42	0	**10**	0	52	170	27	0	197	394
05:00 PM	0	0	54	**128**	0	**182**	39	0	6	0	45	181	**28**	0	209	436
05:15 PM	0	0	60	118	0	178	46	0	5	0	51	195	22	0	217	446
05:30 PM	**1**	**1**	**80**	102	0	182	**49**	**1**	4	0	**54**	**198**	26	0	**224**	**461**
Total Volume	1	1	267	420	0	687	176	1	25	0	202	744	103	0	847	1737
% App. Total	100		38.9	61.1	0		87.1	0.5	12.4	0		87.8	12.2	0		
PHF	.250	.250	.834	.820	.000	.944	.898	.250	.625	.000	.935	.939	.920	.000	.945	.942



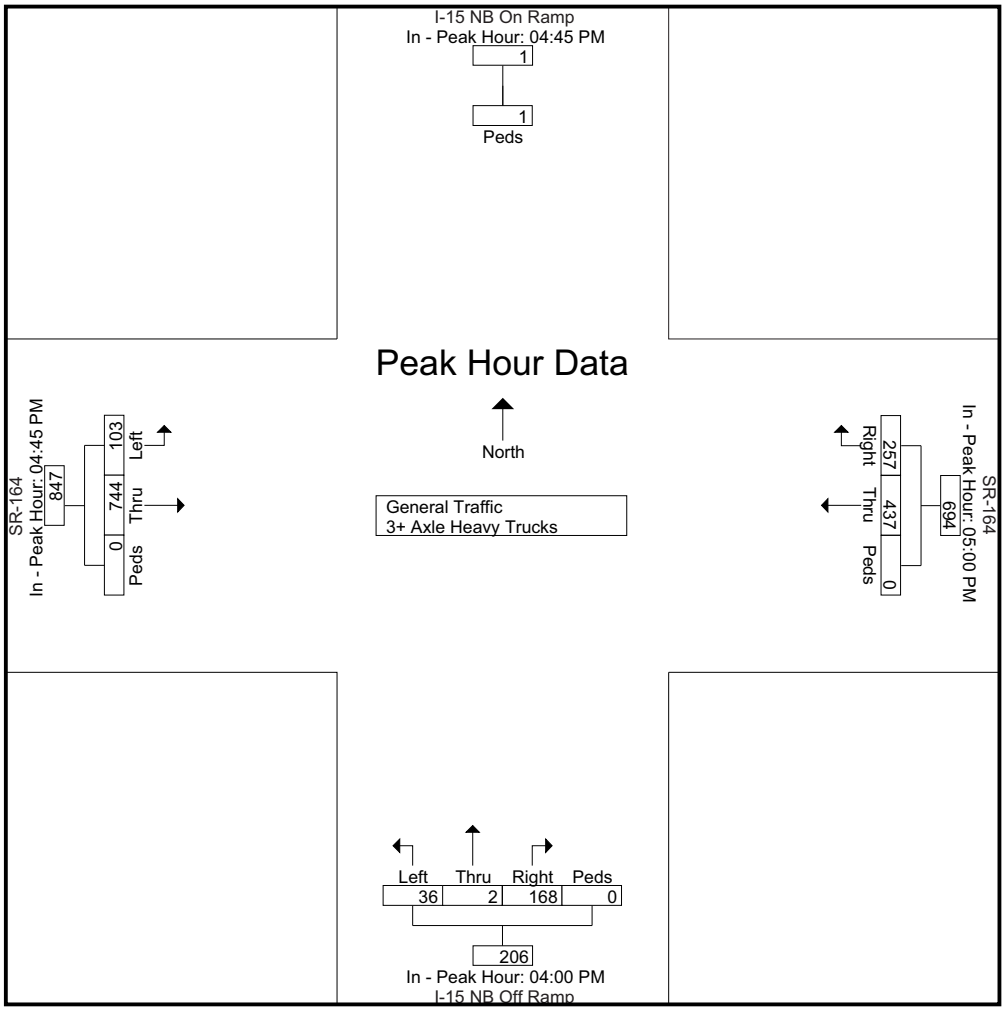
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 6

	I-15 NB On Ramp From North		SR-164 From East				I-15 NB Off Ramp From South					SR-164 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:45 PM		05:00 PM				04:00 PM					04:45 PM				
+0 mins.	0	0	54	**128**	0	**182**	**44**	**1**	6	0	51	170	27	0	197	
+15 mins.	0	0	60	118	0	178	41	0	8	0	49	181	**28**	0	209	
+30 mins.	0	0	**80**	102	0	182	41	1	**12**	0	**54**	195	22	0	217	
+45 mins.	**1**	**1**	63	89	0	152	42	0	10	0	52	**198**	26	0	**224**	
Total Volume	1	1	257	437	0	694	168	2	36	0	206	744	103	0	847	
% App. Total	100		37	63	0		81.6	1	17.5	0		87.8	12.2	0		
PHF	.250	.250	.803	.854	.000	.953	.955	.500	.750	.000	.954	.939	.920	.000	.945	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-164 NB Ramps
City: Benjamin, Utah
Control: Stop Sign

File Name : I-15 SR-164 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	I-15 SB Off Ramp From North					SR-178 From East				I-15 SB On Ramp From South		SR-178 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	2	1	11	0	14	2	18	0	20	0	0	0	14	0	14	48
07:15 AM	1	2	25	0	28	2	20	0	22	0	0	1	12	0	13	63
07:30 AM	3	0	28	0	31	2	20	0	22	0	0	0	27	0	27	80
07:45 AM	2	1	23	0	26	7	29	0	36	0	0	1	19	0	20	82
Total	8	4	87	0	99	13	87	0	100	0	0	2	72	0	74	273
08:00 AM	4	0	24	0	28	4	23	0	27	0	0	0	16	0	16	71
08:15 AM	5	2	21	0	28	4	18	0	22	0	0	2	13	0	15	65
08:30 AM	1	1	25	0	27	1	34	0	35	0	0	0	13	0	13	75
08:45 AM	3	1	28	0	32	8	39	0	47	0	0	0	16	0	16	95
Total	13	4	98	0	115	17	114	0	131	0	0	2	58	0	60	306

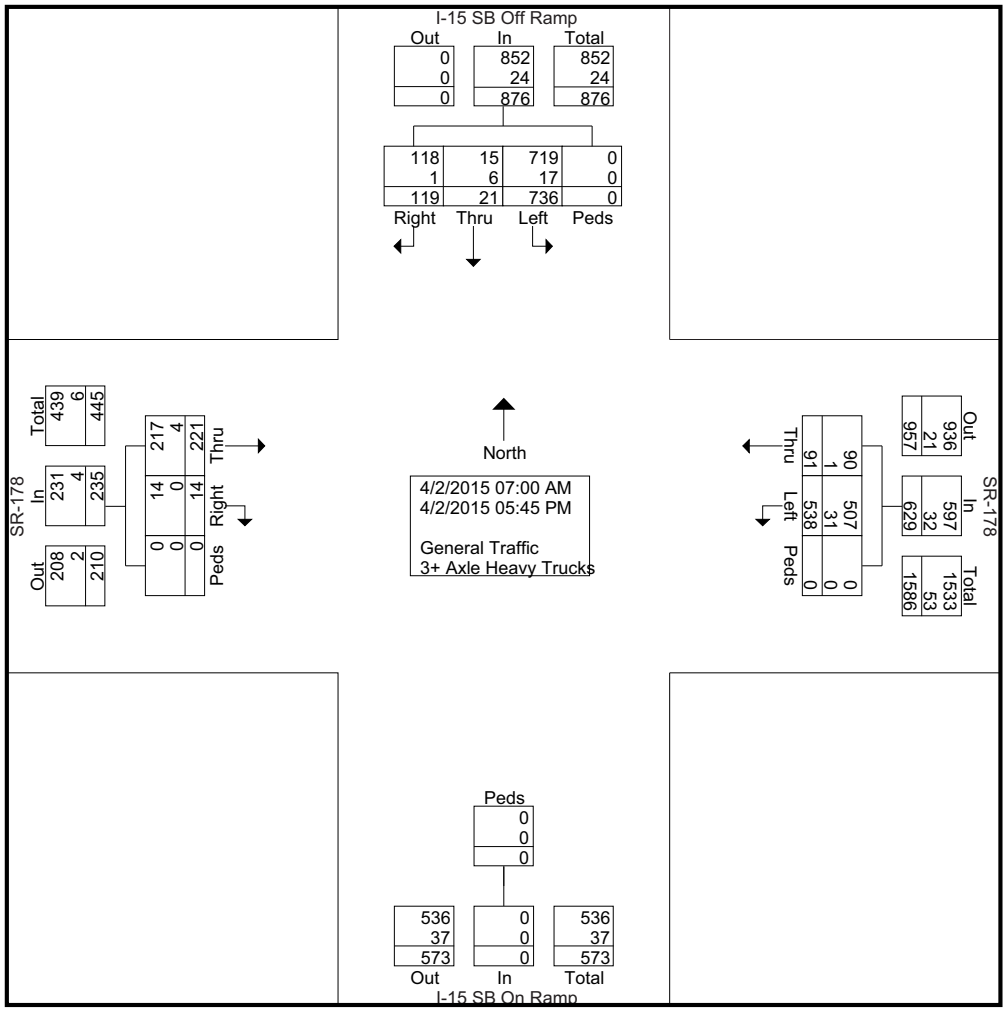
04:00 PM	12	1	58	0	71	7	40	0	47	0	0	0	6	0	6	124
04:15 PM	8	3	62	0	73	10	37	0	47	0	0	3	6	0	9	129
04:30 PM	14	2	69	0	85	3	43	0	46	0	0	0	12	0	12	143
04:45 PM	7	3	74	0	84	9	36	0	45	0	0	2	16	0	18	147
Total	41	9	263	0	313	29	156	0	185	0	0	5	40	0	45	543
05:00 PM	13	1	73	0	87	16	46	0	62	0	0	2	17	0	19	168
05:15 PM	17	1	88	0	106	4	53	0	57	0	0	2	13	0	15	178
05:30 PM	18	1	64	0	83	6	44	0	50	0	0	1	9	0	10	143
05:45 PM	9	1	63	0	73	6	38	0	44	0	0	0	12	0	12	129
Total	57	4	288	0	349	32	181	0	213	0	0	5	51	0	56	618
Grand Total	119	21	736	0	876	91	538	0	629	0	0	14	221	0	235	1740
Apprch %	13.6	2.4	84	0		14.5	85.5	0		0		6	94	0		
Total %	6.8	1.2	42.3	0	50.3	5.2	30.9	0	36.1	0	0	0.8	12.7	0	13.5	
General Traffic	118	15	719	0	852	90	507	0	597	0	0	14	217	0	231	1680
% General Traffic	99.2	71.4	97.7	0	97.3	98.9	94.2	0	94.9	0	0	100	98.2	0	98.3	96.6
3+ Axle Heavy Trucks	1	6	17	0	24	1	31	0	32	0	0	0	4	0	4	60
% 3+ Axle Heavy Trucks	0.8	28.6	2.3	0	2.7	1.1	5.8	0	5.1	0	0	0	1.8	0	1.7	3.4

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 2



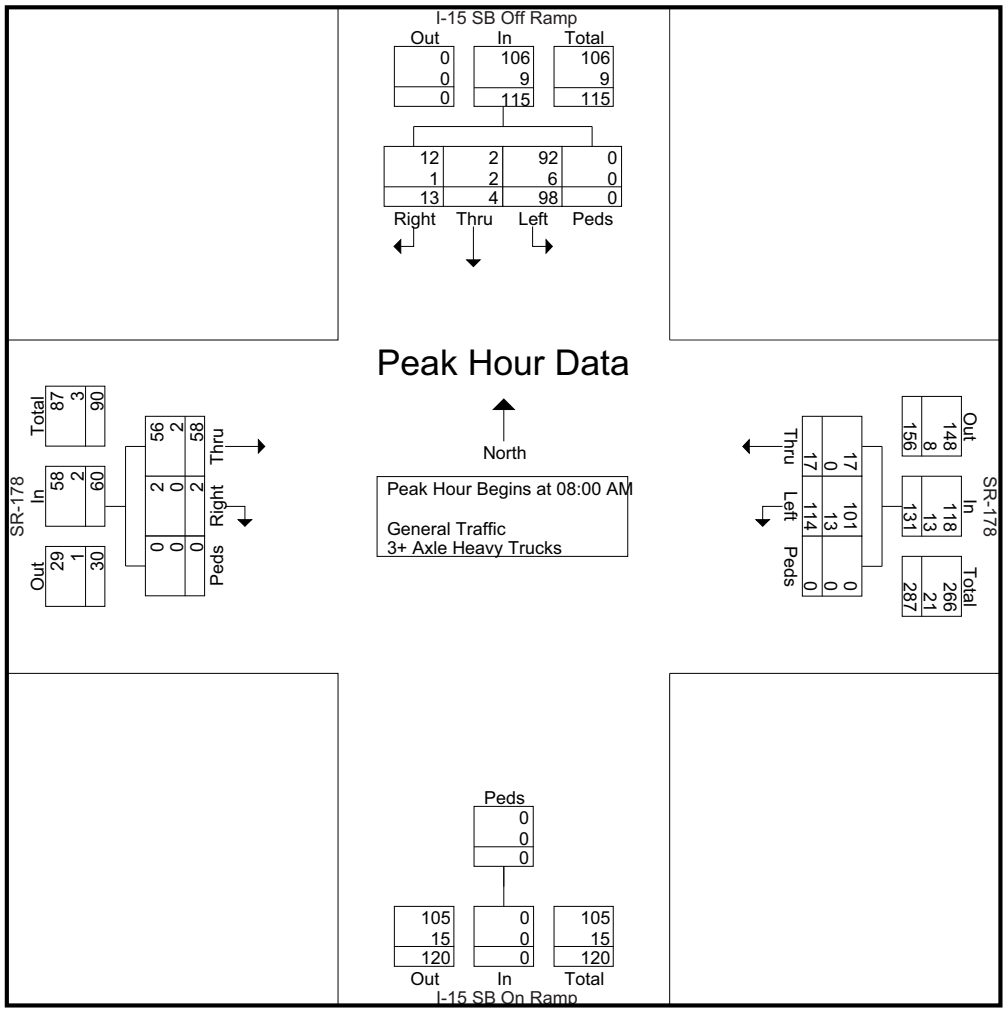
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 3

	I-15 SB Off Ramp From North					SR-178 From East				I-15 SB On Ramp From South		SR-178 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	4	0	24	0	28	4	23	0	27	0	0	0	**16**	0	**16**	71
08:15 AM	**5**	**2**	21	0	28	4	18	0	22	0	0	**2**	13	0	15	65
08:30 AM	1	1	25	0	27	1	34	0	35	0	0	0	13	0	13	75
08:45 AM	3	1	**28**	0	**32**	**8**	**39**	0	**47**	0	0	0	16	0	16	**95**
Total Volume	13	4	98	0	115	17	114	0	131	0	0	2	58	0	60	306
% App. Total	11.3	3.5	85.2	0		13	87	0		0		3.3	96.7	0		
PHF	.650	.500	.875	.000	.898	.531	.731	.000	.697	.000	.000	.250	.906	.000	.938	.805
General Traffic	12	2	92	0	106	17	101	0	118	0	0	2	56	0	58	282
% General Traffic	92.3	50.0	93.9	0	92.2	100	88.6	0	90.1	0	0	100	96.6	0	96.7	92.2
3+ Axle Heavy Trucks	1	2	6	0	9	0	13	0	13	0	0	0	2	0	2	24
% 3+ Axle Heavy Trucks	7.7	50.0	6.1	0	7.8	0	11.4	0	9.9	0	0	0	3.4	0	3.3	7.8



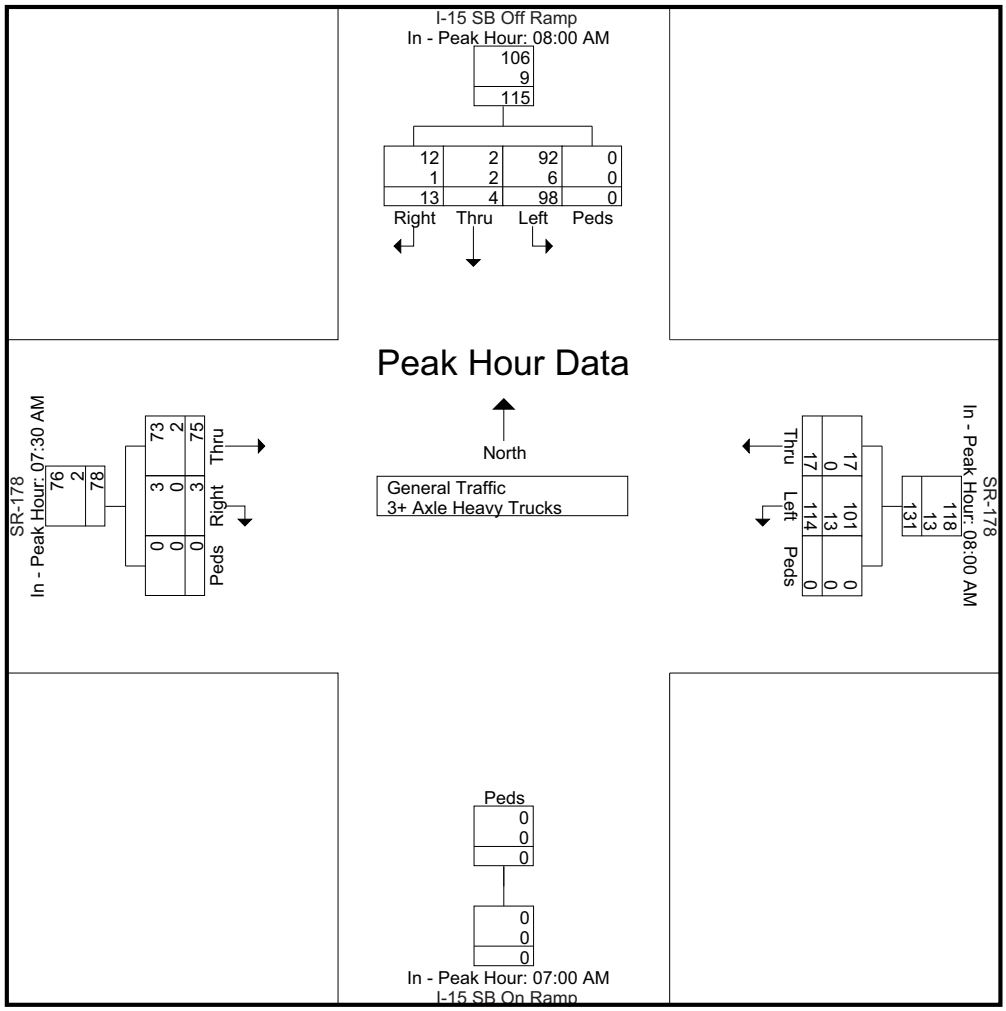
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 4

	I-15 SB Off Ramp From North					SR-178 From East				I-15 SB On Ramp From South		SR-178 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	08:00 AM					08:00 AM				07:00 AM		07:30 AM				
+0 mins.	4	0	24	0	28	4	23	0	27	0	0	0	**27**	0	**27**	
+15 mins.	**5**	**2**	21	0	28	4	18	0	22	0	0	1	19	0	20	
+30 mins.	1	1	25	0	27	1	34	0	35	0	0	0	16	0	16	
+45 mins.	3	1	**28**	0	**32**	**8**	**39**	0	**47**	0	0	**2**	13	0	15	
Total Volume	13	4	98	0	115	17	114	0	131	0	0	3	75	0	78	
% App. Total	11.3	3.5	85.2	0		13	87	0		0		3.8	96.2	0		
PHF	.650	.500	.875	.000	.898	.531	.731	.000	.697	.000	.000	.375	.694	.000	.722	
General Traffic	12	2	92	0	106	17	101	0	118	0	0	3	73	0	76	
% General Traffic	92.3	50	93.9	0	92.2	100	88.6	0	90.1	0	0	100	97.3	0	97.4	
3+ Axle Heavy Trucks	1	2	6	0	9	0	13	0	13	0	0	0	2	0	2	
% 3+ Axle Heavy Trucks	7.7	50	6.1	0	7.8	0	11.4	0	9.9	0	0	0	2.7	0	2.6	



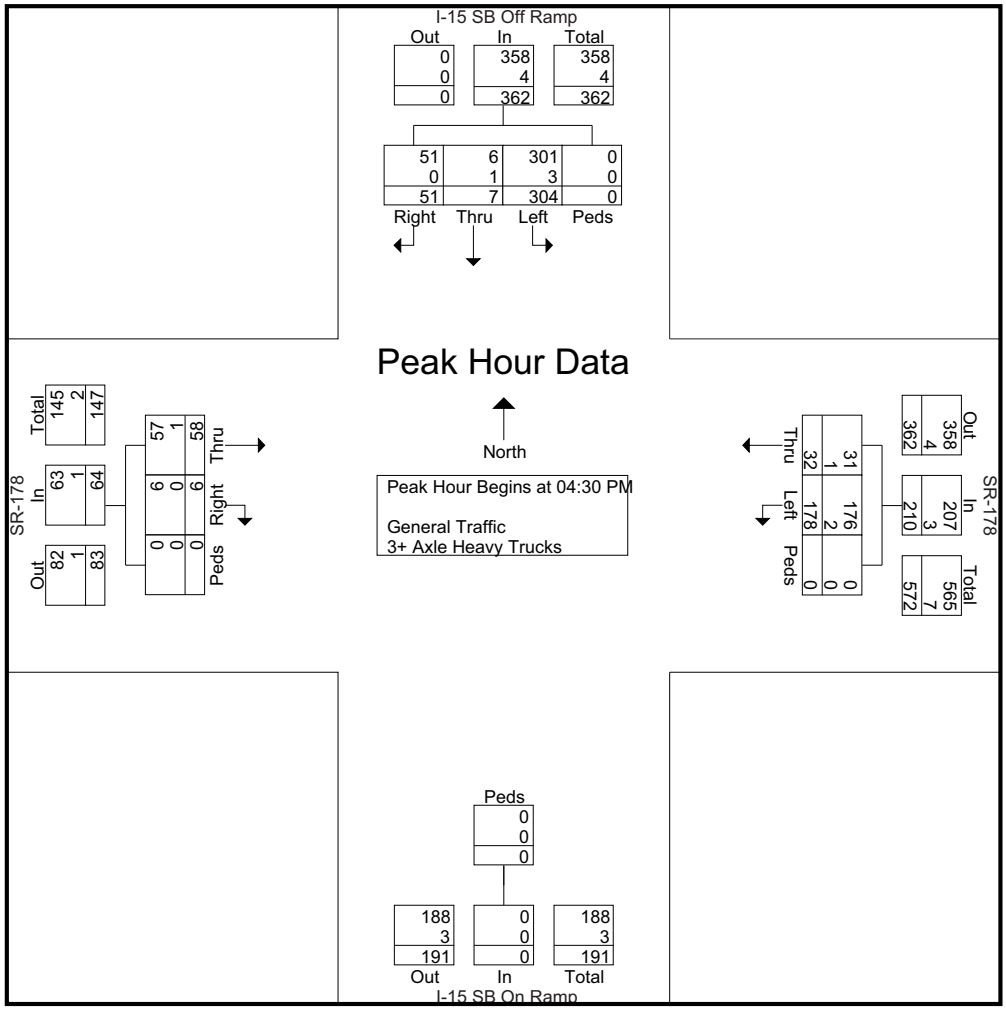
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 5

	I-15 SB Off Ramp From North					SR-178 From East				I-15 SB On Ramp From South		SR-178 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	14	2	69	0	85	3	43	0	46	0	0	0	12	0	12	143
04:45 PM	7	**3**	74	0	84	9	36	0	45	0	0	**2**	16	0	18	147
05:00 PM	13	1	73	0	87	**16**	46	0	**62**	0	0	2	**17**	0	**19**	168
05:15 PM	**17**	1	**88**	0	**106**	4	**53**	0	57	0	0	2	13	0	15	**178**
Total Volume	51	7	304	0	362	32	178	0	210	0	0	6	58	0	64	636
% App. Total	14.1	1.9	84	0		15.2	84.8	0		0		9.4	90.6	0		
PHF	.750	.583	.864	.000	.854	.500	.840	.000	.847	.000	.000	.750	.853	.000	.842	.893
General Traffic	51	6	301	0	358	31	176	0	207	0	0	6	57	0	63	628
% General Traffic	100	85.7	99.0	0	98.9	96.9	98.9	0	98.6	0	0	100	98.3	0	98.4	98.7
3+ Axle Heavy Trucks	0	1	3	0	4	1	2	0	3	0	0	0	1	0	1	8
% 3+ Axle Heavy Trucks	0	14.3	1.0	0	1.1	3.1	1.1	0	1.4	0	0	0	1.7	0	1.6	1.3



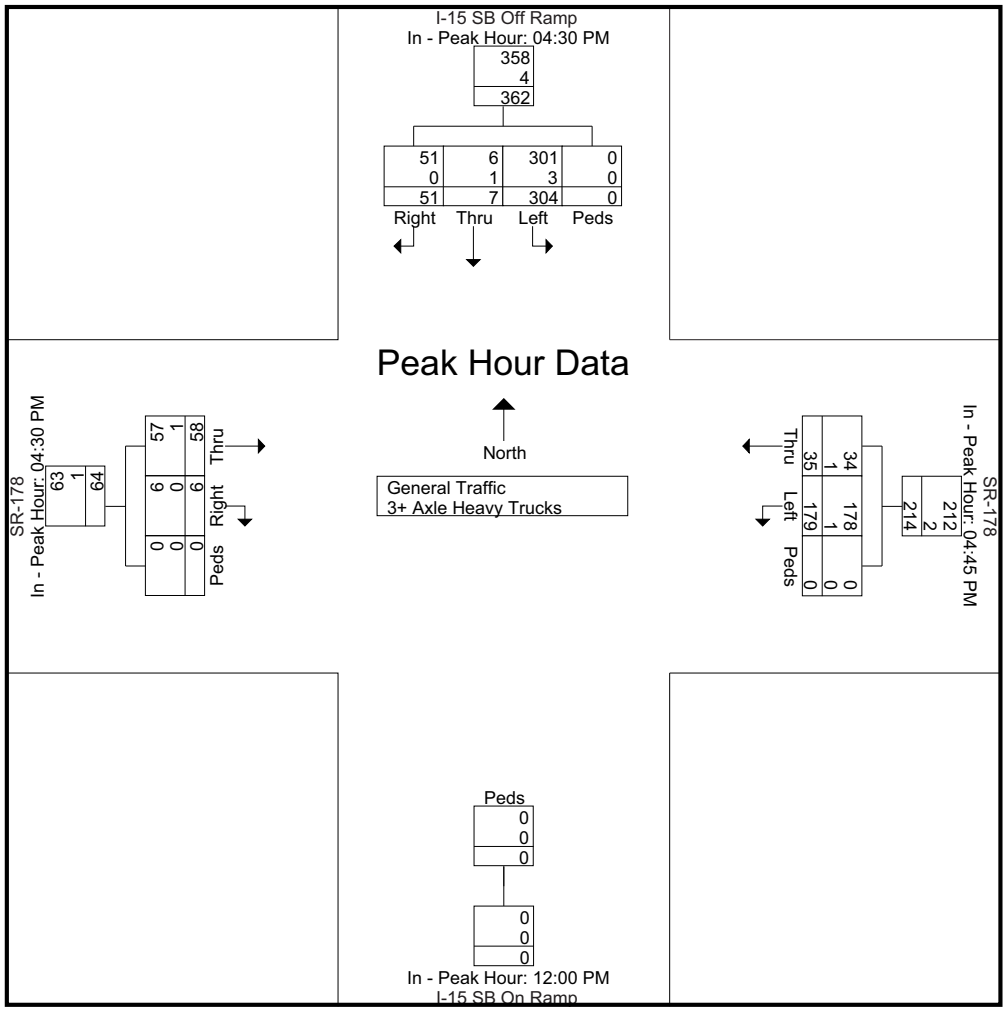
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 6

	I-15 SB Off Ramp From North					SR-178 From East				I-15 SB On Ramp From South		SR-178 From West				
Start Time	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:30 PM					04:45 PM				12:00 PM		04:30 PM				
+0 mins.	14	2	69	0	85	9	36	0	45	0	0	0	12	0	12	
+15 mins.	7	**3**	74	0	84	**16**	46	0	**62**	0	0	**2**	16	0	18	
+30 mins.	13	1	73	0	87	4	**53**	0	57	0	0	2	**17**	0	**19**	
+45 mins.	**17**	1	**88**	0	**106**	6	44	0	50	0	0	2	13	0	15	
Total Volume	51	7	304	0	362	35	179	0	214	0	0	6	58	0	64	
% App. Total	14.1	1.9	84	0		16.4	83.6	0		0		9.4	90.6	0		
PHF	.750	.583	.864	.000	.854	.547	.844	.000	.863	.000	.000	.750	.853	.000	.842	
General Traffic	51	6	301	0	358	34	178	0	212	0	0	6	57	0	63	
% General Traffic	100	85.7	99	0	98.9	97.1	99.4	0	99.1	0	0	100	98.3	0	98.4	
3+ Axle Heavy Trucks	0	1	3	0	4	1	1	0	2	0	0	0	1	0	1	
% 3+ Axle Heavy Trucks	0	14.3	1	0	1.1	2.9	0.6	0	0.9	0	0	0	1.7	0	1.6	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 SB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 SB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 7

Image 1

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 1

Groups Printed- General Traffic - 3+ Axle Heavy Trucks

	I-15 NB On Ramp From North		SR-178 From East				I-15 NB Off Ramp From South					SR-178 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	44	20	0	64	21	3	0	0	24	12	11	0	23	111
07:15 AM	0	0	53	20	0	73	51	2	1	0	54	30	7	0	37	164
07:30 AM	0	0	63	22	0	85	48	0	0	0	48	33	18	0	51	184
07:45 AM	0	0	69	31	0	100	46	0	3	0	49	26	19	0	45	194
Total	0	0	229	93	0	322	166	5	4	0	175	101	55	0	156	653
08:00 AM	0	0	58	24	0	82	39	2	2	0	43	26	15	0	41	166
08:15 AM	0	0	63	21	0	84	53	0	1	0	54	28	10	0	38	176
08:30 AM	0	0	63	35	0	98	60	2	1	0	63	30	9	0	39	200
08:45 AM	0	0	57	52	0	109	36	2	0	0	38	32	13	0	45	192
Total	0	0	241	132	0	373	188	6	4	0	198	116	47	0	163	734

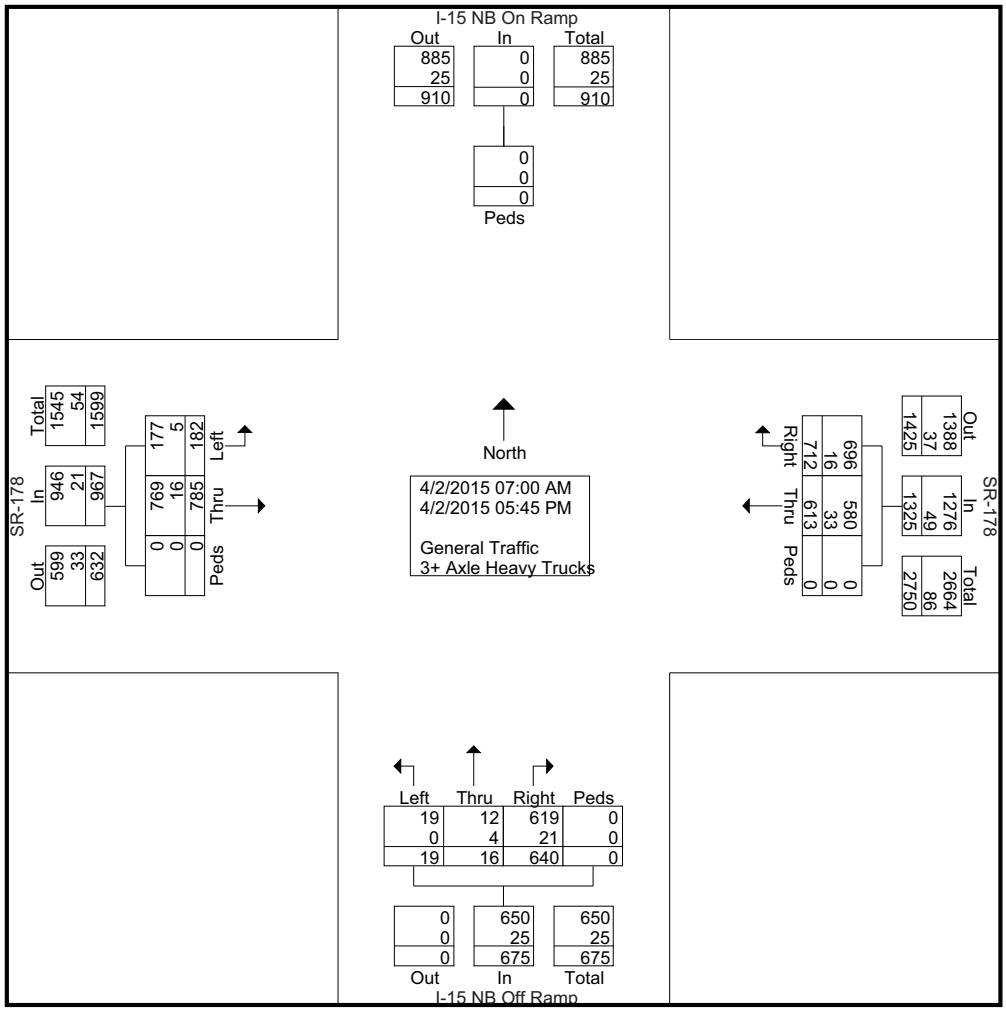
04:00 PM	0	0	31	44	0	75	43	0	1	0	44	47	16	0	63	182
04:15 PM	0	0	32	50	0	82	26	0	2	0	28	60	9	0	69	179
04:30 PM	0	0	31	42	0	73	32	1	1	0	34	72	12	0	84	191
04:45 PM	0	0	32	45	0	77	41	0	0	0	41	78	10	0	88	206
Total	0	0	126	181	0	307	142	1	4	0	147	257	47	0	304	758
05:00 PM	0	0	28	61	0	89	37	2	2	0	41	82	5	0	87	217
05:15 PM	0	0	28	58	0	86	35	0	0	0	35	93	12	0	105	226
05:30 PM	0	0	29	50	0	79	29	1	2	0	32	69	5	0	74	185
05:45 PM	0	0	31	38	0	69	43	1	3	0	47	67	11	0	78	194
Total	0	0	116	207	0	323	144	4	7	0	155	311	33	0	344	822
Grand Total	0	0	712	613	0	1325	640	16	19	0	675	785	182	0	967	2967
Apprch %	0		53.7	46.3	0		94.8	2.4	2.8	0		81.2	18.8	0		
Total %	0	0	24	20.7	0	44.7	21.6	0.5	0.6	0	22.8	26.5	6.1	0	32.6	
General Traffic	0	0	696	580	0	1276	619	12	19	0	650	769	177	0	946	2872
% General Traffic	0	0	97.8	94.6	0	96.3	96.7	75	100	0	96.3	98	97.3	0	97.8	96.8
3+ Axle Heavy Trucks	0	0	16	33	0	49	21	4	0	0	25	16	5	0	21	95
% 3+ Axle Heavy Trucks	0	0	2.2	5.4	0	3.7	3.3	25	0	0	3.7	2	2.7	0	2.2	3.2

L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 2



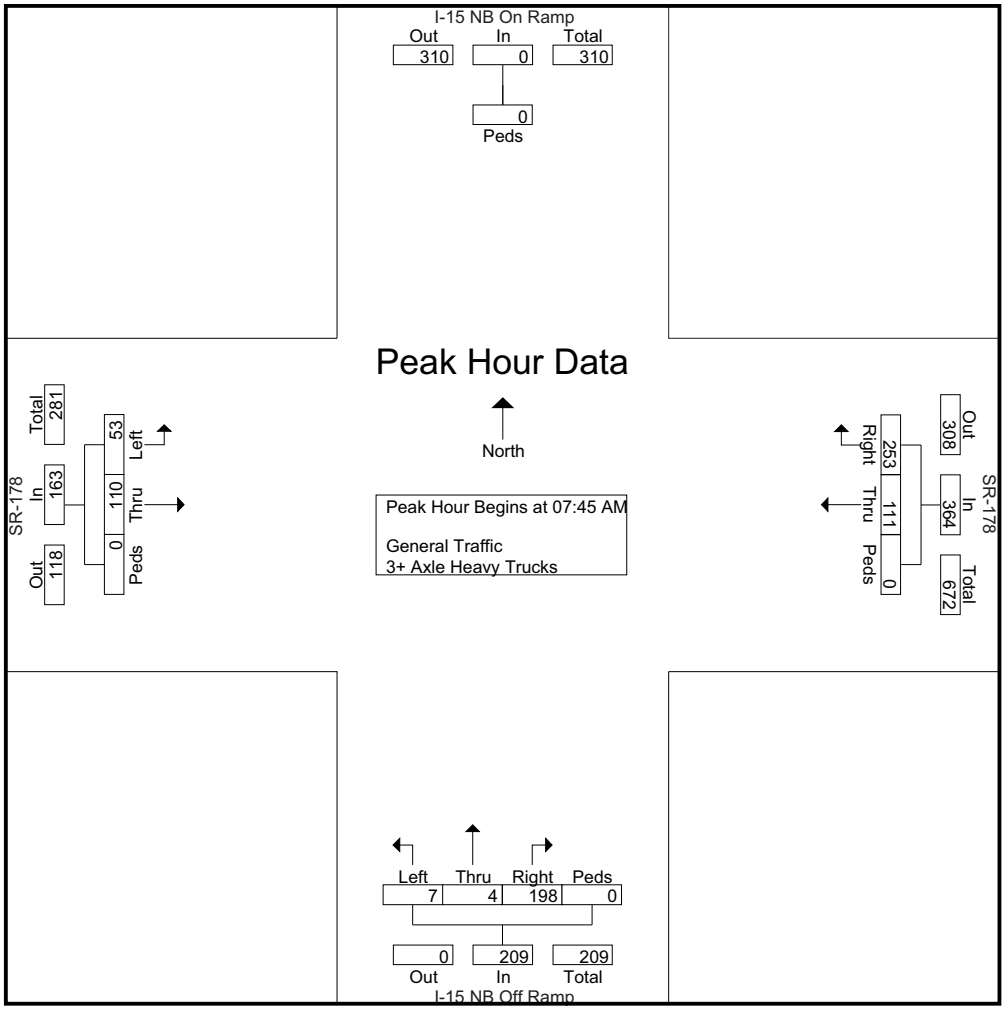
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 3

	I-15 NB On Ramp From North		SR-178 From East				I-15 NB Off Ramp From South					SR-178 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:45 AM																
07:45 AM	0	0	**69**	31	0	**100**	46	0	**3**	0	49	26	**19**	0	**45**	194
08:00 AM	0	0	58	24	0	82	39	**2**	2	0	43	26	15	0	41	166
08:15 AM	0	0	63	21	0	84	53	0	1	0	54	28	10	0	38	176
08:30 AM	0	0	63	**35**	0	98	**60**	2	1	0	**63**	**30**	9	0	39	**200**
Total Volume	0	0	253	111	0	364	198	4	7	0	209	110	53	0	163	736
% App. Total	0		69.5	30.5	0		94.7	1.9	3.3	0		67.5	32.5	0		
PHF	.000	.000	.917	.793	.000	.910	.825	.500	.583	.000	.829	.917	.697	.000	.906	.920



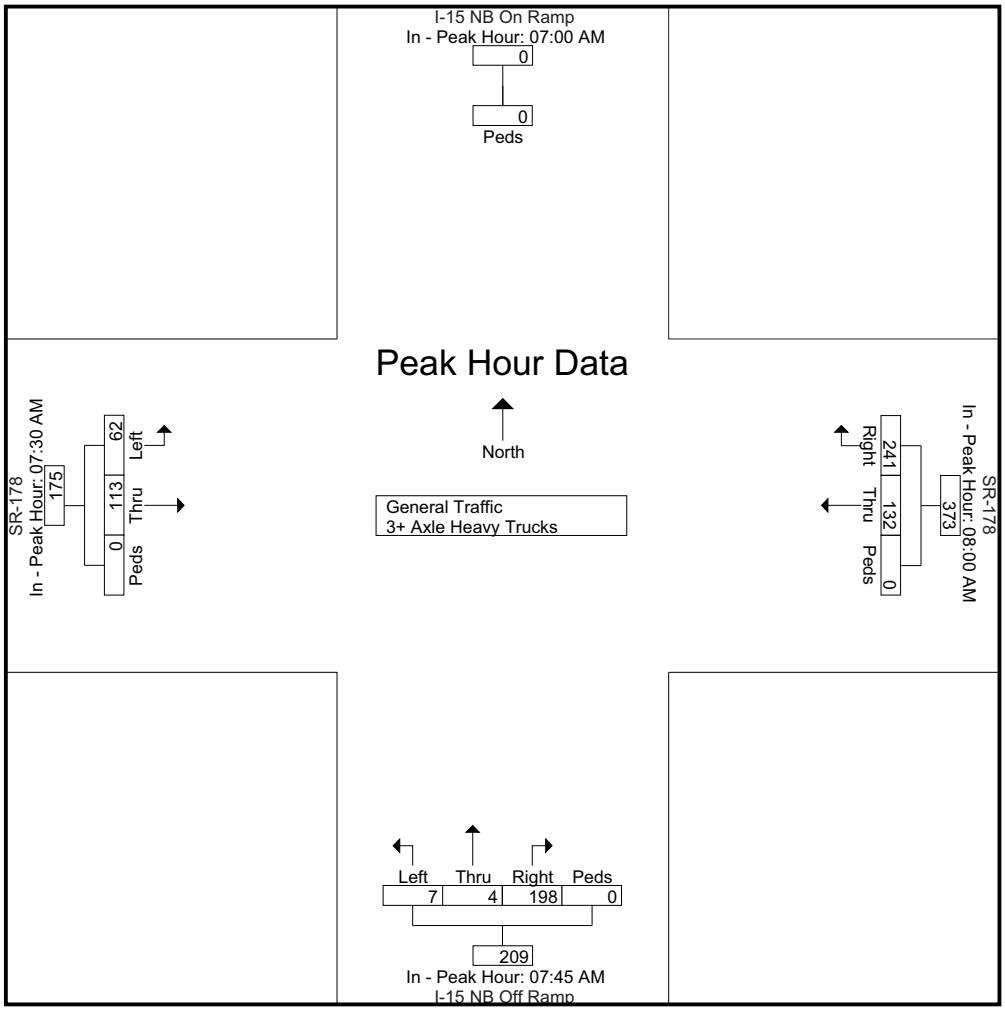
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 4

	I-15 NB On Ramp From North		SR-178 From East				I-15 NB Off Ramp From South					SR-178 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	07:00 AM		08:00 AM				07:45 AM					07:30 AM				
+0 mins.	0	0	58	24	0	82	46	0	**3**	0	49	**33**	18	0	**51**	
+15 mins.	0	0	**63**	21	0	84	39	**2**	2	0	43	26	**19**	0	45	
+30 mins.	0	0	63	35	0	98	53	0	1	0	54	26	15	0	41	
+45 mins.	0	0	57	**52**	0	**109**	**60**	2	1	0	**63**	28	10	0	38	
Total Volume	0	0	241	132	0	373	198	4	7	0	209	113	62	0	175	
% App. Total	0		64.6	35.4	0		94.7	1.9	3.3	0		64.6	35.4	0		
PHF	.000	.000	.956	.635	.000	.856	.825	.500	.583	.000	.829	.856	.816	.000	.858	



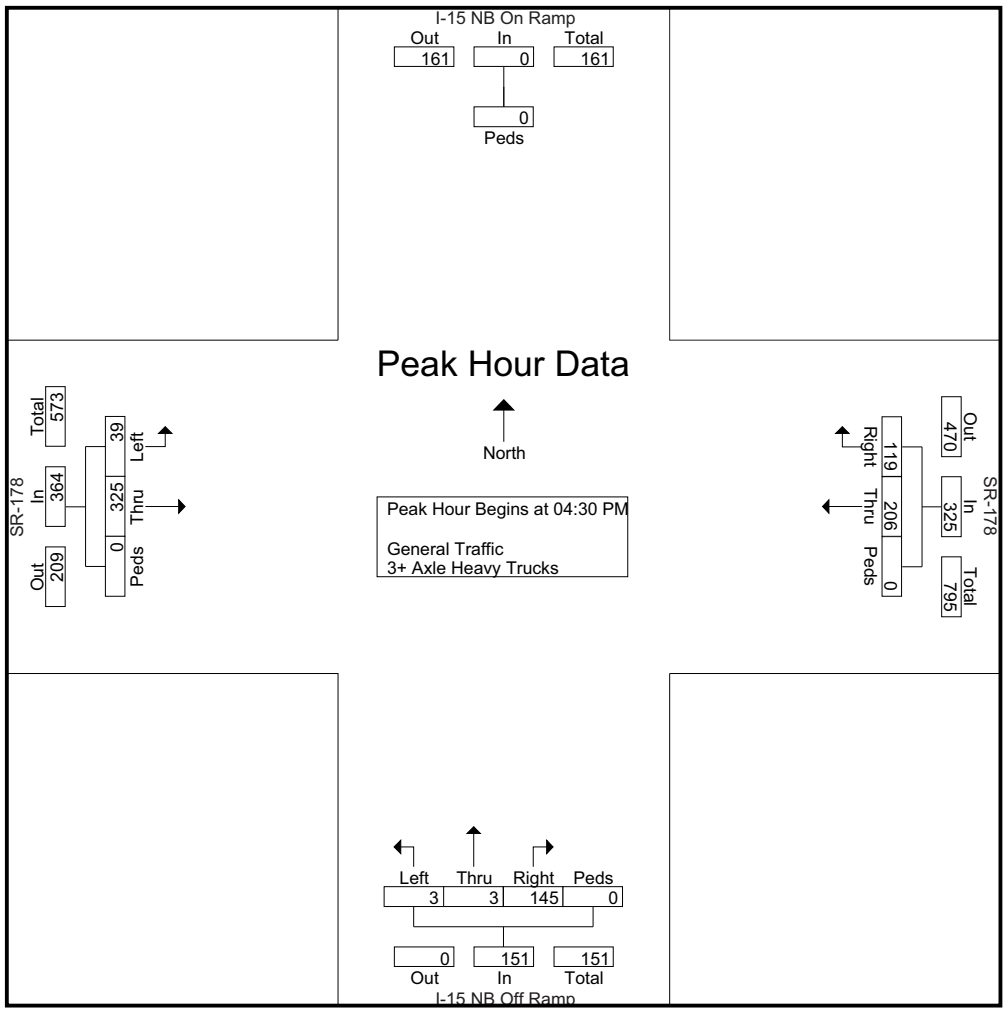
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 5

	I-15 NB On Ramp From North		SR-178 From East				I-15 NB Off Ramp From South					SR-178 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	0	0	31	42	0	73	32	1	1	0	34	72	**12**	0	84	191
04:45 PM	0	0	**32**	45	0	77	**41**	0	0	0	**41**	78	10	0	88	206
05:00 PM	0	0	28	**61**	0	**89**	37	**2**	**2**	0	41	82	5	0	87	217
05:15 PM	0	0	28	58	0	86	35	0	0	0	35	**93**	12	0	**105**	**226**
Total Volume	0	0	119	206	0	325	145	3	3	0	151	325	39	0	364	840
% App. Total	0		36.6	63.4	0		96	2	2	0		89.3	10.7	0		
PHF	.000	.000	.930	.844	.000	.913	.884	.375	.375	.000	.921	.874	.813	.000	.867	.929



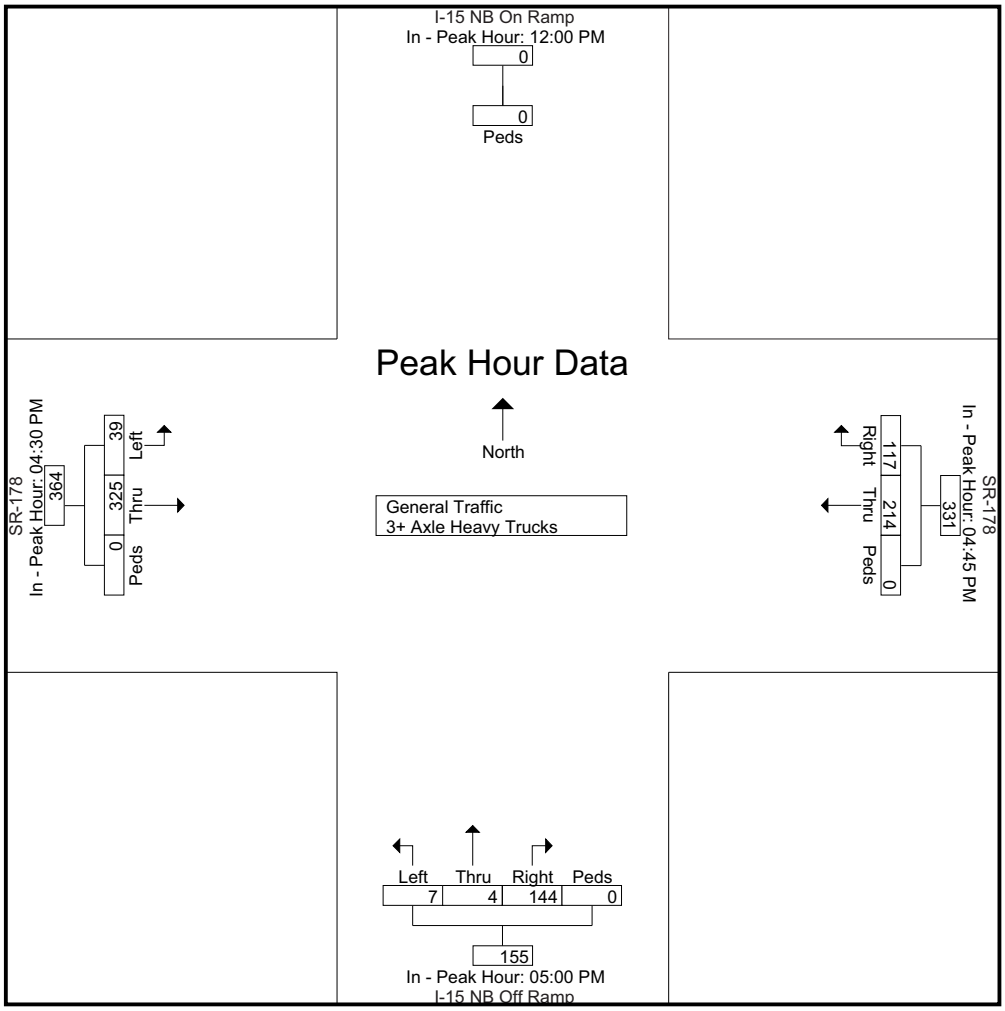
L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015
Page No : 6

	I-15 NB On Ramp From North		SR-178 From East				I-15 NB Off Ramp From South					SR-178 From West				
Start Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	12:00 PM		04:45 PM				05:00 PM					04:30 PM				
+0 mins.	0	0	**32**	45	0	77	37	**2**	2	0	41	72	**12**	0	84	
+15 mins.	0	0	28	**61**	0	**89**	35	0	0	0	35	78	10	0	88	
+30 mins.	0	0	28	58	0	86	29	1	2	0	32	82	5	0	87	
+45 mins.	0	0	29	50	0	79	**43**	1	**3**	0	**47**	**93**	12	0	**105**	
Total Volume	0	0	117	214	0	331	144	4	7	0	155	325	39	0	364	
% App. Total	0		35.3	64.7	0		92.9	2.6	4.5	0		89.3	10.7	0		
PHF	.000	.000	.914	.877	.000	.930	.837	.500	.583	.000	.824	.874	.813	.000	.867	



L2 Data Collection

L2DataCollection.com
Idaho (208) 860-7554 Utah (801) 413-2993

Study: AVEN0044a
Intersections: I-15 / SR-178 NB Ramps
City: Payson, Utah
Control: Stop Sign

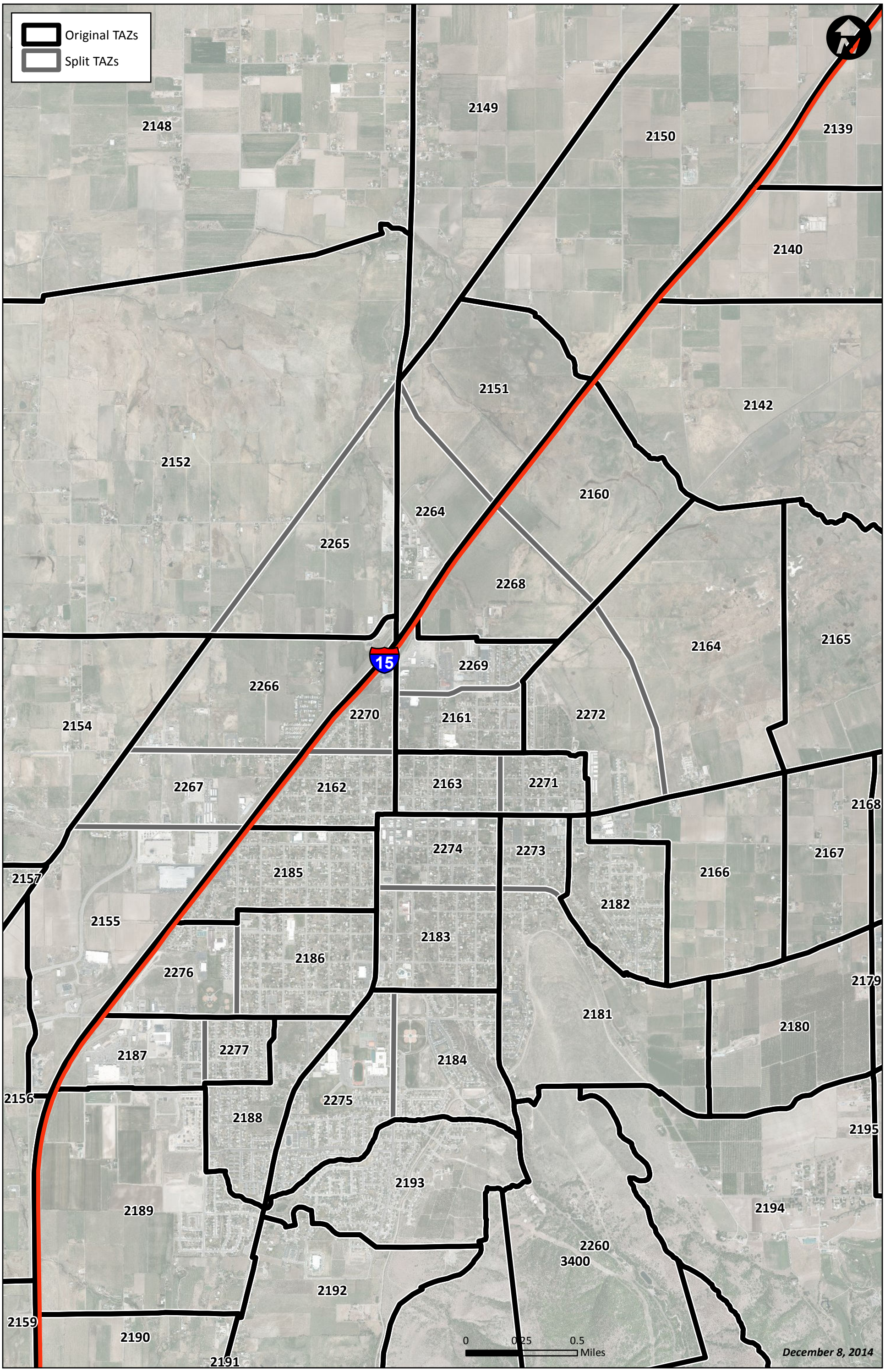
File Name : I-15 SR-178 NB Ramps
Site Code : 00000000
Start Date : 4/2/2015

Image 1

Appendix B

TAZ Splits Map

TAZ Splits


Original TAZs
Split TAZs
2148
2149
2150
2139
2140
2151
2142
2152
2160
2264
2265
2268
2164
2165
15
2269
2266
2270
2161
2272
2154
2267
2162
2163
2271
2168
2274
2273
2167
2185
2166
2157
2182
2155
2183
2186
2276
2179
2181
2180
2187
2277
2184
2156
2275
2188
2195
2193
2189
2194
2260
3400
2192
2159
2190
2191
0
0.25
0.5
Miles
December 8, 2014

Appendix C

TAZ Splits Socioeconomic Data Tables (2011 & 2040)

2011 Original TAZ Data

	TAZ	ACRES	TOTHH	TOTPOP	HHSIZE	AVG INCOME	ALL EMP	RETAIL	FOOD	MANU	WSLE	OFFI	GVED	HLTH	OTHR	AGRI	MINING	CONSTR	ENROL K-6	ENROL 7-12
	2151	442	1	6	6.00	65,048	452	424	3	0	24	-	-	-	-	-	-	-	-	-
	2152	2,054	75	280	3.73	65,048	113	-	-	10	0	1	1	1	91	-	-	9	-	-
	2155	819	206	575	2.79	59,793	1,196	346	35	697	52	27	1	0	13	-	-	24	-	-
	2160	469	15	70	4.67	45,860	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2161	198	213	816	3.83	45,860	546	152	23	60	212	4	32	9	53	-	-	-	704	-
	2162	182	403	1,327	3.29	45,860	187	23	53	13	5	38	5	11	9	-	-	30	-	-
	2163	154	381	1,266	3.32	45,860	728	69	70	0	27	30	46	394	76	-	-	16	-	-
	2164	748	120	302	2.52	45,860	221	-	-	-	-	5	3	34	178	-	-	-	-	1,062
	2181	471	334	1,117	3.34	54,555	133	4	0	13	0	40	1	20	16	-	22	17	-	-
	2183	279	473	1,525	3.22	54,555	813	144	27	23	15	15	136	60	359	-	-	34	637	-
	2184	370	600	2,279	3.80	66,083	159	0	25	3	0	2	88	3	29	-	-	9	-	1,030
	2186	310	425	1,466	3.45	50,651	386	146	22	1	78	50	50	1	19	-	11	7	533	876
	2187	178	303	1,122	3.70	50,651	983	526	29	-	-	4	2	51	65	306	-	-	-	-
TOTAL		**6,674**	**3,549**	**12,151**	**3.42**	**53,458**	**5,916**	**1,836**	**287**	**821**	**414**	**217**	**364**	**584**	**907**	**306**	**33**	**145**	**1,874**	**2,968**

2011 Split TAZs

ORIGINAL TAZ	TAZ	ACRES	TOTHH	TOTPOP	HHSIZE	AVG INCOME	ALL EMP	RETAIL	FOOD	MANU	WSLE	OFFI	GVED	HLTH	OTHR	AGRI	MINING	CONSTR	ENROL K-6	ENROL 7-12
2151	2151	288	-	-		65,048	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2264	154	1	6	6.00	65,048	452	424	3	0	24	-	-	-	-	-	-	-	-	-
2152	2152	1,753	64	238	3.73	65,048	86	-	-	-	-	1	1	1	77	-	-	6	-	-
	2265	301	11	42	3.73	65,048	27	-	-	10	0	0	0	0	14	-	-	2	-	-
2155	2155	373	67	187	2.79	59,793	1,111	317	32	677	51	8	0	0	4	-	-	22	-	-
	2266	273	98	275	2.79	59,793	53	30	3	-	-	13	0	0	6	-	-	1	-	-
	2267	172	41	113	2.79	59,793	31	-	-	21	2	6	0	0	3	-	-	1	-	-
2160	2160	282	-	-		45,860	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2268	187	15	70	4.67	45,860	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2161	2161	102	150	575	3.83	45,860	153	75	11	-	-	3	22	6	36	-	-	-	496	-
	2269	96	63	241	3.83	45,860	393	77	12	60	212	1	11	3	17	-	-	-	208	-
2162	2162	117	308	1,014	3.29	45,860	92	3	7	3	1	38	5	11	9	-	-	14	-	-
	2270	66	95	313	3.29	45,860	95	20	46	10	4	-	-	-	-	-	-	15	-	-
2163	2163	84	175	582	3.32	45,860	163	44	44	0	4	4	6	49	10	-	-	4	-	-
	2271	69	206	684	3.32	45,860	565	26	26	0	23	26	40	345	67	-	-	12	-	-
2164	2164	516	3	8	2.52	45,860	-	-	-	-	-	-	-	-	-	-	-	-	-	27
	2272	232	117	294	2.52	45,860	221	-	-	-	-	5	3	34	178	-	-	-	-	1,035
2181	2181	405	179	599	3.34	54,555	115	-	-	13	0	36	1	18	14	-	19	15	-	-
	2273	67	155	518	3.34	54,555	18	4	0	-	-	4	0	2	2	-	3	2	-	-
2183	2183	163	269	869	3.22	54,555	99	3	1	3	2	2	21	9	54	-	-	4	363	-
	2274	116	204	656	3.22	54,555	714	140	26	21	13	13	116	51	304	-	-	30	274	-
2184	2184	185	346	1,313	3.80	66,083	123	-	-	3	0	2	81	3	27	-	-	7	-	593
	2275	185	254	966	3.80	66,083	36	0	25	-	-	0	6	0	2	-	-	2	-	437
2186	2186	186	326	1,124	3.45	50,651	233	136	20	0	2	26	26	1	10	-	7	4	409	672
	2276	124	99	342	3.45	50,651	153	11	2	0	76	23	23	1	9	-	4	3	124	204
2187	2187	122	109	405	3.70	50,651	983	526	29	-	-	4	2	51	65	306	-	-	-	-
	2277	56	194	717	3.70	50,651	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		**6,674**	**3,549**	**12,151**	**3.42**	**53,458**	**5,916**	**1,836**	**287**	**821**	**414**	**217**	**364**	**584**	**907**	**306**	**33**	**145**	**1,874**	**2,968**

2040 Original TAZ Data

	TAZ	ACRES	TOTHH	TOTPOP	HHSIZE	AVG INCOME	ALL EMP	RETAIL	FOOD	MANU	WSLE	OFFI	GVED	HLTH	OTHR	AGRI	MINING	CONSTR	ENROL K-6	ENROL 7-12
	2151	442	1	5	5.00	65,048	982	554	61	155	211	-	-	-	-	-	-	-	-	-
	2152	2,054	628	2,193	3.49	65,048	653	-	-	50	56	140	84	67	233	-	-	23	-	1,433
	2155	819	400	1,088	2.72	59,793	5,141	581	141	1,052	498	910	536	427	932	-	-	64	-	-
	2160	469	428	1,639	3.83	45,860	674	85	39	9	17	174	97	78	174	-	-	-	-	-
	2161	198	371	1,333	3.59	45,860	1,174	190	40	83	239	168	136	91	227	-	-	-	942	-
	2162	182	505	1,556	3.08	45,860	653	56	68	13	5	157	75	68	131	-	-	79	-	-
	2163	154	506	1,573	3.11	45,860	1,007	105	86	0	27	96	83	426	143	-	-	41	-	-
	2164	748	1,024	2,512	2.45	45,860	399	-	-	-	-	61	38	63	237	-	-	-	593	1,364
	2181	471	638	1,992	3.12	54,555	310	28	11	13	0	76	24	38	54	-	22	45	-	-
	2183	279	579	1,750	3.02	54,555	1,459	206	55	23	15	176	231	138	524	-	-	90	852	-
	2184	370	728	2,601	3.57	66,083	211	1	26	3	0	14	94	9	41	-	-	23	-	1,323
	2186	310	517	1,666	3.22	50,651	1,048	283	83	1	79	193	137	71	169	-	11	19	713	1,126
	2187	178	320	1,114	3.48	50,651	1,158	583	54	-	-	105	67	104	174	71	-	-	-	-
TOTAL		**6,674**	**6,645**	**21,022**	**3.16**	**52,926**	**14,869**	**2,672**	**665**	**1,403**	**1,148**	**2,272**	**1,604**	**1,581**	**3,038**	**71**	**33**	**384**	**3,101**	**5,246**

2040 Split TAZs

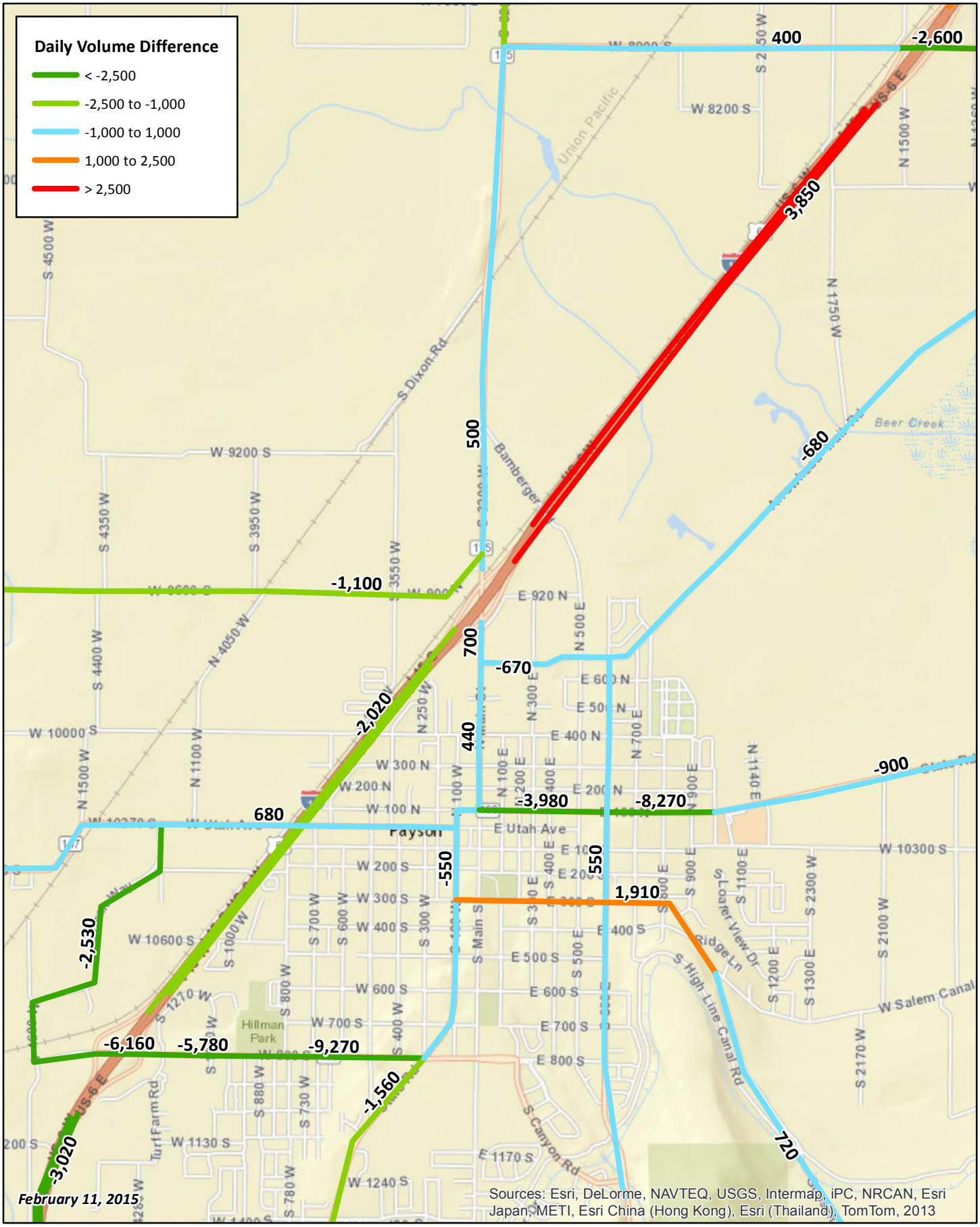
ORIGINAL TAZ	TAZ	ACRES	TOTHH	TOTPOP	HHSIZE	AVG INCOME	ALL EMP	RETAIL	FOOD	MANU	WSLE	OFFI	GVED	HLTH	OTHR	AGRI	MINING	CONSTR	ENROL K-6	ENROL 7-12
2151	2151	288	-	-		65,048	226	120	13	39	53	-	-	-	-	-	-	-	-	-
	2264	154	1	5	5.00	65,048	756	434	48	116	158	-	-	-	-	-	-	-	-	-
2152	2152	1,753	616	2,152	3.49	65,048	358	-	-	-	-	92	55	44	153	-	-	14	-	1,406
	2265	301	12	41	3.49	65,048	295	-	-	50	56	48	29	23	80	-	-	9	-	27
2155	2155	373	228	620	2.72	59,793	4,605	512	124	1,003	475	790	465	370	808	-	-	57	-	-
	2266	273	138	376	2.72	59,793	329	69	17	-	-	78	46	36	79	-	-	5	-	-
	2267	172	34	92	2.72	59,793	207	-	-	49	23	43	25	20	44	-	-	2	-	-
2160	2160	282	253	967	3.83	45,860	350	43	20	9	17	87	48	39	87	-	-	-	-	-
	2268	187	175	672	3.83	45,860	324	42	19	-	-	87	49	39	87	-	-	-	-	-
2161	2161	102	298	1,072	3.59	45,860	335	85	18	-	-	62	51	34	84	-	-	-	758	-
	2269	96	73	261	3.59	45,860	839	105	22	83	239	105	86	57	143	-	-	-	185	-
2162	2162	117	355	1,093	3.08	45,860	552	25	30	3	1	157	75	68	131	-	-	61	-	-
	2270	66	150	463	3.08	45,860	101	31	38	10	4	-	-	-	-	-	-	18	-	-
2163	2163	84	302	939	3.11	45,860	391	55	45	0	4	35	30	154	52	-	-	16	-	-
	2271	69	204	634	3.11	45,860	616	50	41	0	23	61	53	271	91	-	-	25	-	-
2164	2164	516	549	1,347	2.45	45,860	5	-	-	-	-	1	0	1	3	-	-	-	318	732
	2272	232	475	1,165	2.45	45,860	394	-	-	-	-	61	38	62	234	-	-	-	275	633
2181	2181	405	476	1,487	3.12	54,555	196	-	-	13	0	54	17	27	39	-	15	31	-	-
	2273	67	162	505	3.12	54,555	114	28	11	-	-	21	7	11	15	-	7	14	-	-
2183	2183	163	349	1,056	3.02	54,555	387	52	14	3	2	48	63	38	144	-	-	24	514	-
	2274	116	230	694	3.02	54,555	1,072	154	41	21	14	128	168	100	380	-	-	66	338	-
2184	2184	185	450	1,607	3.57	66,083	123	-	-	3	0	10	63	6	28	-	-	14	-	817
	2275	185	278	995	3.57	66,083	88	1	26	-	-	5	31	3	14	-	-	9	-	506
2186	2186	186	398	1,283	3.22	50,651	582	170	50	0	2	116	82	43	101	-	6	11	549	867
	2276	124	119	383	3.22	50,651	466	113	33	1	77	77	55	29	68	-	5	8	164	259
2187	2187	122	125	435	3.48	50,651	1,158	583	54	-	-	105	67	104	174	71	-	-	-	-
	2277	56	195	679	3.48	50,651	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL		**6,674**	**6,645**	**21,022**	**3.16**	**52,926**	**14,869**	**2,672**	**665**	**1,403**	**1,148**	**2,272**	**1,604**	**1,581**	**3,038**	**71**	**33**	**384**	**3,101**	**5,246**

Appendix D

Volume Comparison Figures

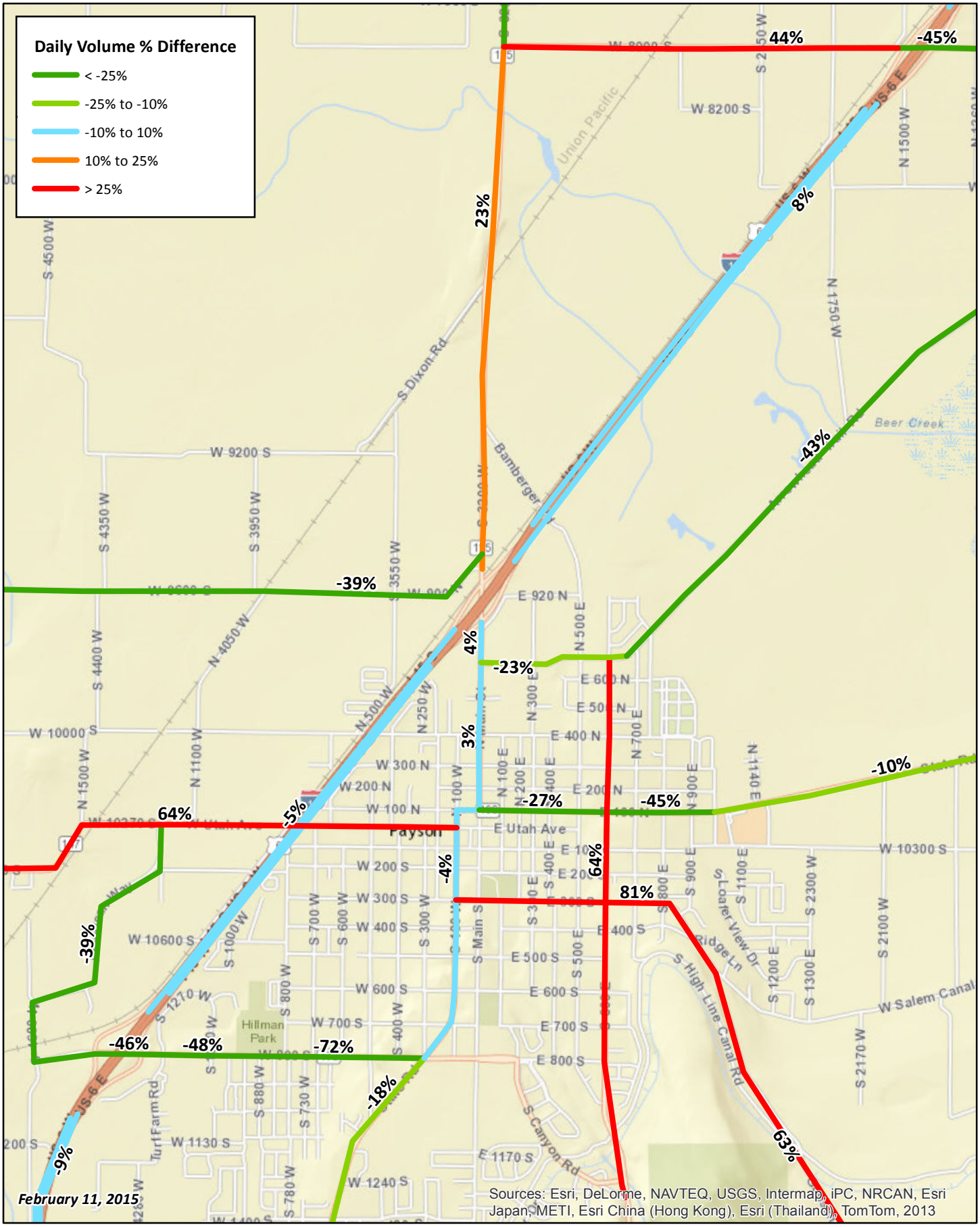
Daily Volume Difference (Observed 2011 vs. Model 2011)

Payson Main Street Interchange EIS and SR-198 Corridor Study



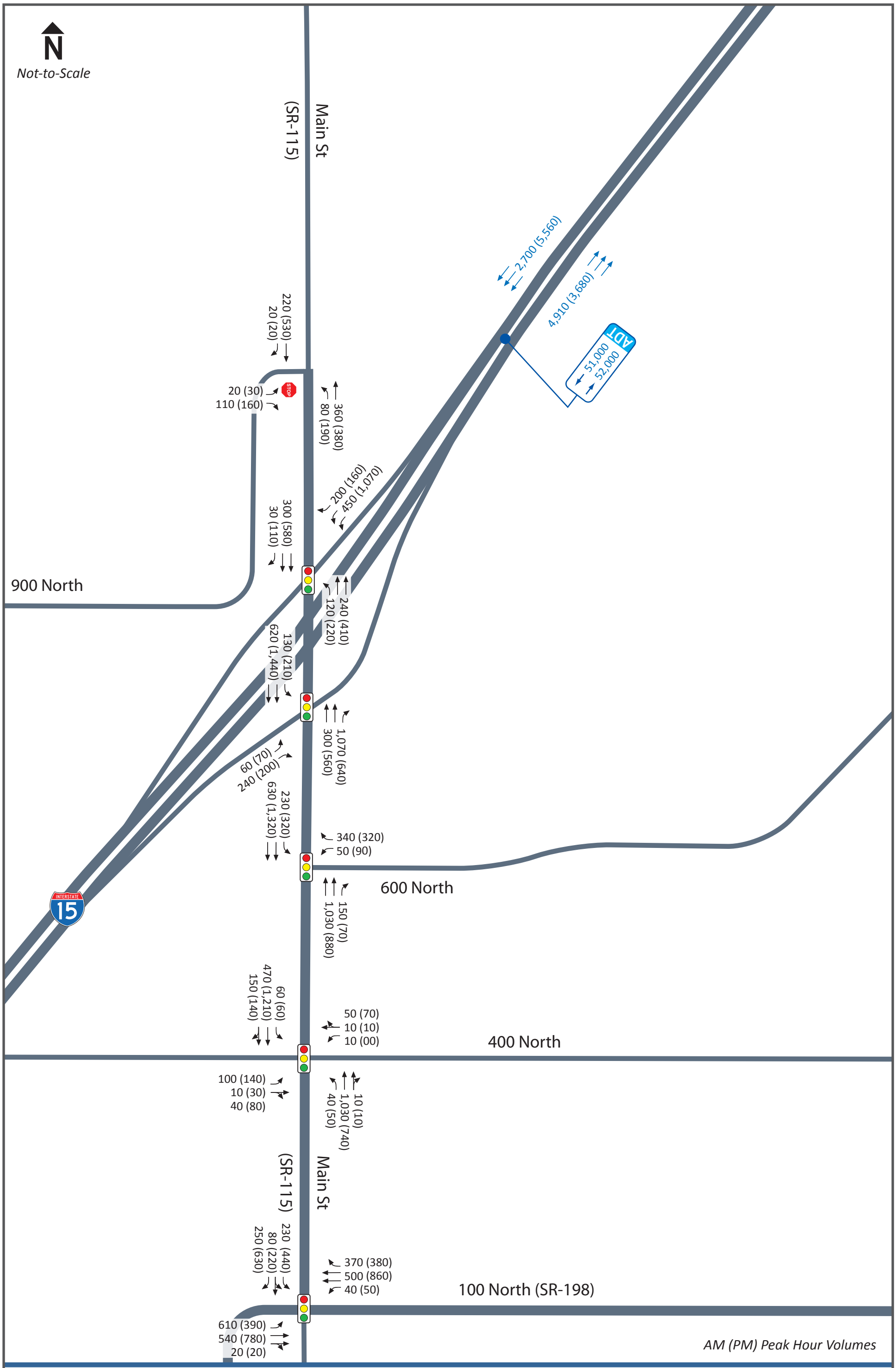
Daily Volume % Difference (Observed 2011 vs. Model 2011)

Payson Main Street Interchange EIS and SR-198 Corridor Study



Appendix E

2040 Build Volumes by Alternative



2040 Weekday Peak Hour Turning Movement Volumes

I1 Improve Existing – I-15, Payson Main Street Interchange EIS

June 8, 2016

N

Not-to-Scale

Main St (SR-115)

2,690 (5,580)

4,960 (3,720)

ADT
54,000
54,000

140 (240)
120 (340)

260 (160)
520 (820)

510 (680)
150 (510)

660 (710)
70 (150)

270 (300)
130 (180)

560 (410)
280 (380)

610 (520)
100 (220)

480 (760)
180 (300)

550 (430)
260 (790)

490 (430)
30 (30)

120 (100)
150 (170)

Nebo Beltway
(planned)

900 North

220 (310)
20 (20)

80 (30)
420 (750)

130 (30)
60 (140)

600 North

130 (80)
390 (430)

50 (40)
350 (770)
80 (80)

20 (30)
10 (10)
10 (10)

400 North

30 (50)
20 (20)
40 (60)

20 (20)
470 (430)
50 (60)

Main St (SR-115)

120 (160)
50 (130)
270 (530)

110 (150)
420 (800)
20 (30)

100 North (SR-198)

400 (340)
500 (680)
20 (30)

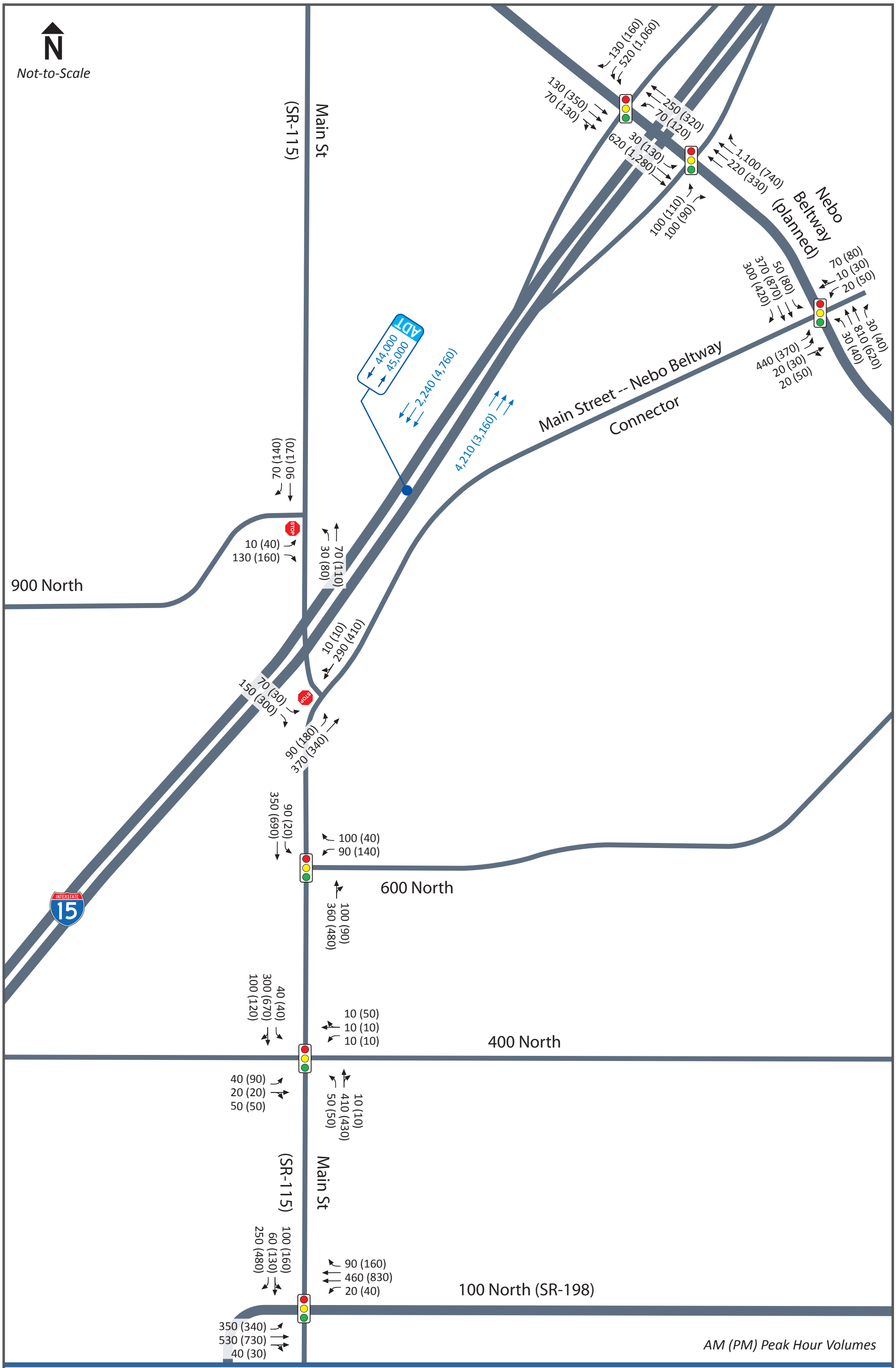
INTERSTATE 15

AM (PM) Peak Hour Volumes

2040 Weekday Peak Hour Turning Movement Volumes

R1 Relocate Near – I-15, Payson Main Street Interchange EIS

December 13, 2016



2040 Weekday Peak Hour Turning Movement Volumes

R2 Relocate Far – I-15, Payson Main Street Interchange EIS

December 13, 2016

N

Not-to-Scale

Main St (SR-115)

Nebo Beltway (planned)

150 (90)
180 (500)
150 (390)
30 (80)
150 (90)
60 (230)
30 (140)
300 (750)
510 (310)
190 (300)
20 (20)
60 (90)

4,480 (3,370)
80 (110)
600 (1,010)
1,960 (4,280)
ADT
41,000
51,000

70 (140)
20 (20)
90 (110)
300 (410)
200 (190)
400 (820)
900 North
250 (420)
80 (80)
10 (30)
260 (360)
190 (330)
70 (220)
150 (200)
500 (1,040)
700 (440)
180 (460)
80 (90)
200 (150)
200 (200)
500 (990)
150 (220)
80 (40)
600 North
80 (30)
730 (680)
50 (50)
420 (880)
110 (100)
40 (70)
10 (10)
10 (20)
400 North
60 (80)
10 (20)
30 (60)
10 (20)
710 (560)
40 (50)
(SR-115) Main St
120 (200)
70 (180)
280 (560)
140 (210)
430 (830)
30 (50)
100 North (SR-198)
530 (390)
540 (720)
40 (30)

AM (PM) Peak Hour Volumes

2040 Weekday Peak Hour Turning Movement Volumes

C1 Braided Ramps – I-15, Payson Main Street Interchange EIS

June 8, 2016

N

Not-to-Scale

Main St (SR-115)

Nebo Beltway (planned)

120 (110)
490 (890)
180 (490)
150 (370)
10 (60)
180 (210)
70 (120)
30 (130)
300 (730)
490 (310)
230 (310)
20 (20)
900 (630)
90 (110)
570 (1,070)
2,050 (4,310)
3,750 (2,820)
1,010 (760)
ADT
41,000
41,000
90 (170)
20 (20)
900 North
60 (100)
190 (330)
120 (130)
70 (130)
380 (810)
20 (30)
230 (300)
280 (380)
40 (90)
130 (300)
70 (150)
140 (170)
250 (1,020)
800 (510)
150 (370)
50 (80)
70 (80)
190 (130)
200 (190)
510 (960)
200 (210)
30 (30)
INTERSTATE 15
600 North
60 (20)
750 (670)
50 (50)
380 (850)
110 (90)
40 (60)
10 (10)
10 (10)
400 North
70 (80)
10 (20)
40 (60)
10 (20)
700 (550)
50 (50)
(SR-115)
Main St
120 (190)
70 (150)
270 (550)
140 (200)
440 (850)
30 (40)
100 North (SR-198)
500 (390)
540 (720)
40 (30)

AM (PM) Peak Hour Volumes

2040 Weekday Peak Hour Turning Movement Volumes

C3 Frontage Roads – I-15, Payson Main Street Interchange EIS

June 8, 2016

N

Not-to-Scale

Main St (SR-115)

20 (190)
240 (520)

20 (180)
200 (120)

180 (40)
390 (330)

250 (70)
470 (1,130)
50 (250)

390 (600)
50 (40)

140 (200)
300 (650)

320 (300)
120 (200)

310 (190)
310 (400)

Nebo Beltway
(planned)

140 (190)
60 (40)

130 (220)
230 (400)

900 North

640 (1,370)
1,940 (4,200)

140 (220)
150 (230)
350 (920)

130 (100)
830 (590)
80 (150)

3,690 (2,820)

1,040 (840)

ADT
40,000
40,000

90 (80)
240 (310)

330 (400)
50 (100)

220 (400)
50 (110)

140 (200)
540 (1,120)

770 (500)
200 (400)

70 (110)
130 (140)
160 (80)

520 (1,040)
180 (160)

200 (210)
20 (20)

600 North

INTERSTATE 15

770 (690)
60 (10)

380 (910)
100 (90)
60 (60)

40 (70)
10 (10)
10 (10)

400 North

60 (70)
10 (20)
30 (40)

10 (10)
730 (560)
30 (40)

Main St (SR-115)

170 (200)
50 (190)
280 (550)

160 (200)
370 (770)
10 (50)

100 North (SR-198)

520 (390)
510 (680)
20 (30)

AM (PM) Peak Hour Volumes

2040 Weekday Peak Hour Turning Movement Volumes

C4 Split Diamond – I-15, Payson Main Street Interchange EIS

June 8, 2016