Tulare County Association of Governments

State Route 63 / Mooney Blvd.
(SR-198 to SR-137) Travel Time Study
August 2018

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1. EXECUTIVE SUMMARY

As part of its on-going responsibility to monitor the quality of transportation services in Tulare County the Tulare County Association of Governments (TCAG) conducts periodic travel-time studies. These studies assess the performance of the roadway system and observe trends in automobile travel time, delay, and congestion during peak travel periods for select routes in the county. Travel time analysis can be used to improve the operation, planning, prioritization, and programming of transportation system improvement projects through the following applications: Regional Transportation Plans (RTPs), Transportation Improvement Programs (TIPs), corridor or area-wide plans, and the Congestion Management Process.

TCAG obtained the iPeMS Travel-time application and data for the fiscal year 2016-2017 from Iteris Inc. in order to analyze travel time data and perform studies for major travel corridors within Tulare County. Because this is the first study TCAG has conducted using data from HERE, this is intended to be a base study that we can build upon for future studies to see how and where congestion and related problems are occurring. The objective of the Travel Time Study is to collect travel time data that will aid TCAG and its member agencies in prioritizing and developing projects to improve congestion within Tulare County.

The TCAG Congestion Management Process (CMP) network includes all state highways within the county as well as several major arterial roads. These selected road segments are considered most significant in assessing the congestion of the region. Peak-period speeds were used to calculate the peak-period travel times for roadway links. This study focuses on key performance measures consisting of speed, travel time index, and delay. Key findings are listed below.

This particular study is an analysis of traffic congestion on State Route 63 (SR 63) from State Route 198 (SR 198) in Visalia to State Route 137 (SR 137) in the City of Tulare, and is intended to set a baseline for future studies of congestion through this corridor. SR 63 is a north-south state highway in the U.S. state of California in the Central Valley. It begins near the City of Tulare at Route 137, runs north through the city of Visalia and the towns of Cutler and Orosi, before ending 8 miles (13 km) north of Orange Cove, where it reaches its northern terminus at Route 180, roughly 2 and 1/2 miles southwest of the town of Squaw Valley. A section of SR 63 runs concurrent with Route 198 within Visalia.

For this study the corridor from SR-137 north to SR-198 was analyzed as a whole. Then, because of the differences in the characteristics between the segment from SR 198 to Visalia Parkway and the segment from Visalia Parkway to SR 137, it was divided and analyzed as two separate segments. Although not within the scope of this study, traffic volumes collected by Caltrans have been provided as supplementary information (See **Tables 11-12**).

The study limits for the travel time runs along both corridors are shown in **Table 1** below:

Figure	Route	From	To	Approximate Distance
Figure 1	SR 63	SR 198	SR 137	7.95 miles
Figure 2	North SR 63	SR 198	Visalia Parkway	2.4 miles
Figure 3	South SR 63	Visalia Parkway	SR 137	5.5 miles

The section within the city of Visalia is a high traffic **arterial** which serves as a main commercial business district with slower speeds and high traffic during mid-day and PM peak hours. This section extends from SR 198 to Visalia Parkway in South Central Visalia and is three lanes in each direction. The section from Visalia Parkway to SR 137 is a busy **Class I highway** connecting the Cities of Tulare and Visalia and is a primary route for commerce and travel between the two cities. It is 2 lanes in both directions. They will be presented as Parts 2 and 3 respectively. The corridor limits and the vicinity of the study area from SR-198 at the north and to SR-137 at the south end as shown in **Figures 1-3.**

Study Results

Average speeds are higher, with Average Travel Times and Average Delay Times lower in the a.m. peak periods over the entire section of the study corridor, during both weekdays and weekends. This is likely because most businesses do not open until after this period. Overall, the mid-day and p.m. peak periods show higher congestion times than the a.m. peak period.

- The entire corridor shows increased travel times and lower speeds during the mid-day and p.m. peak periods.
- Analysis of each study segment shows that these are due mainly to higher Average Congested Times and greater Delay Times in the Northern segment of the study. The Northern section shows Average Congested Times during these periods during weekdays to be in the 10-14% range, as well as increased Delay Times. During weekends the p.m. peak period seems to ease up, with Average Congested Times staying in the 4-8% range, however Delay Times remain relatively high. Mid-day peak periods on the weekend showed a high Congested Time Average of 13-21%, as well as high Delay Times
- The Southern section of the study shows relatively consistent low Average Congested Times in the 0-5% ranges during both week days and week-ends.
- Considering the purposes of each of the segments in this study, congestion does not seem to be an issue at this time.

Figure 1: Study Limits for SR 63 (Entire Study Limits)

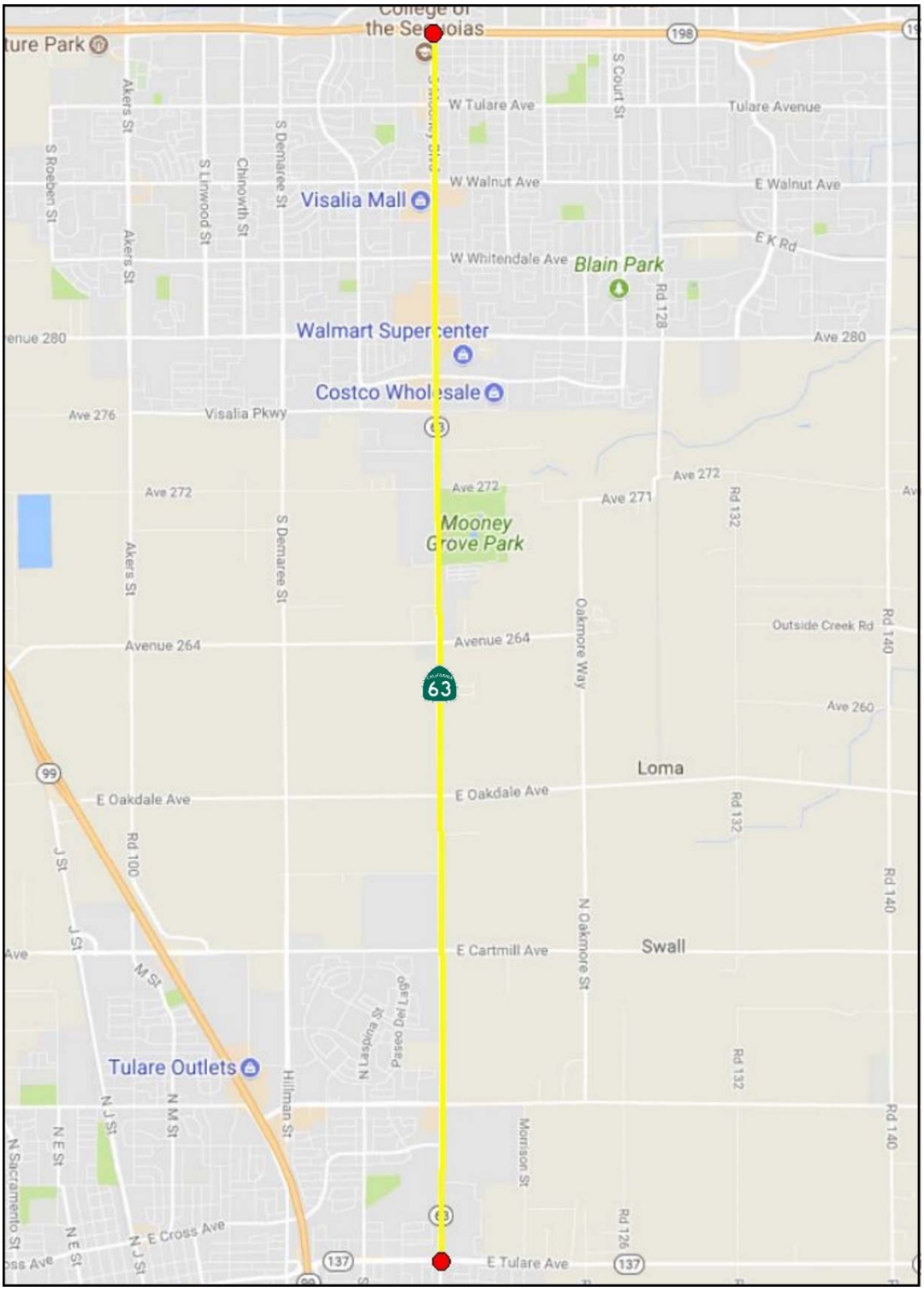


Figure 2: Study Limits for SR 63 (North Section)

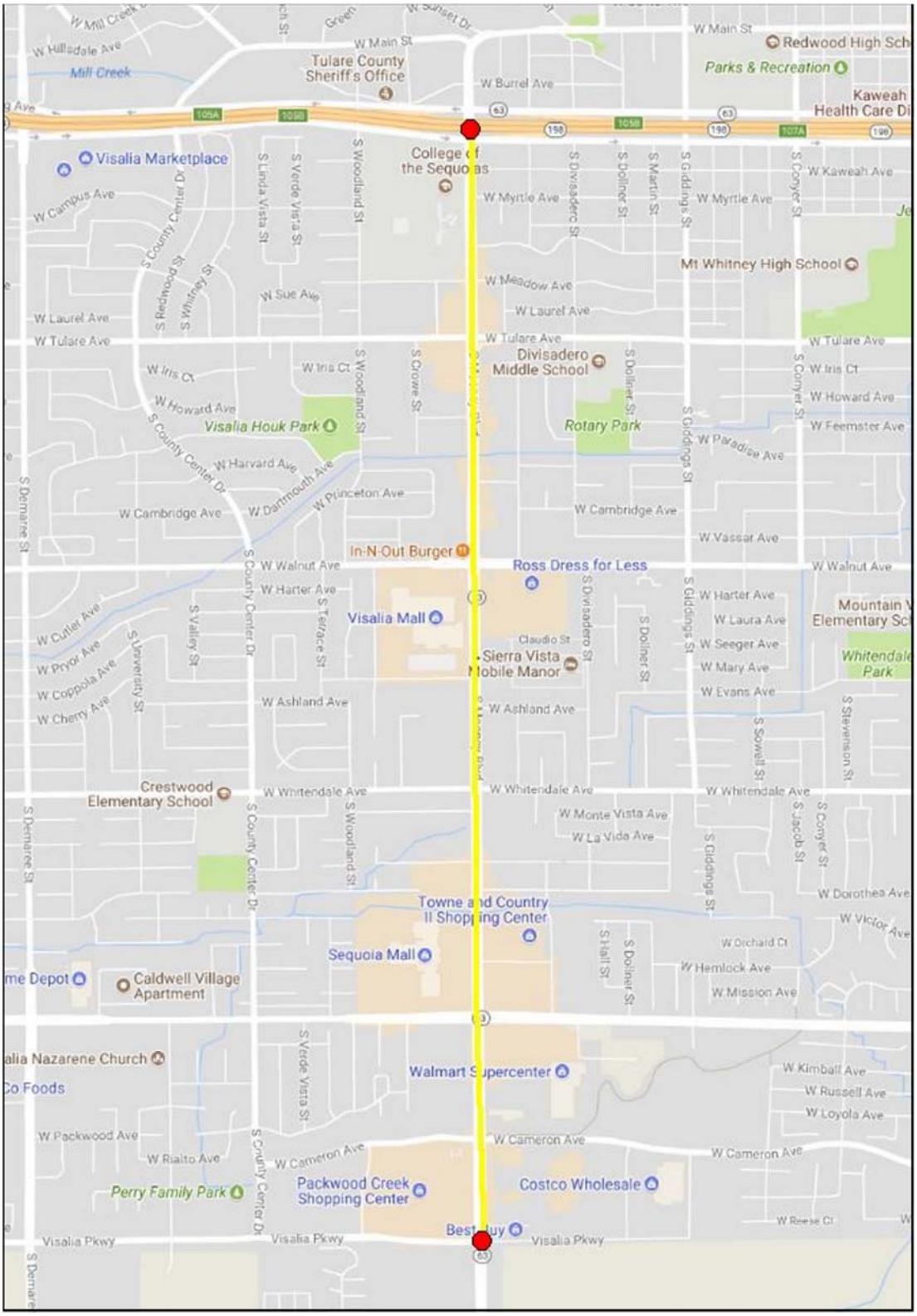


Figure 3: Study Limits for SR 63 (South Section)

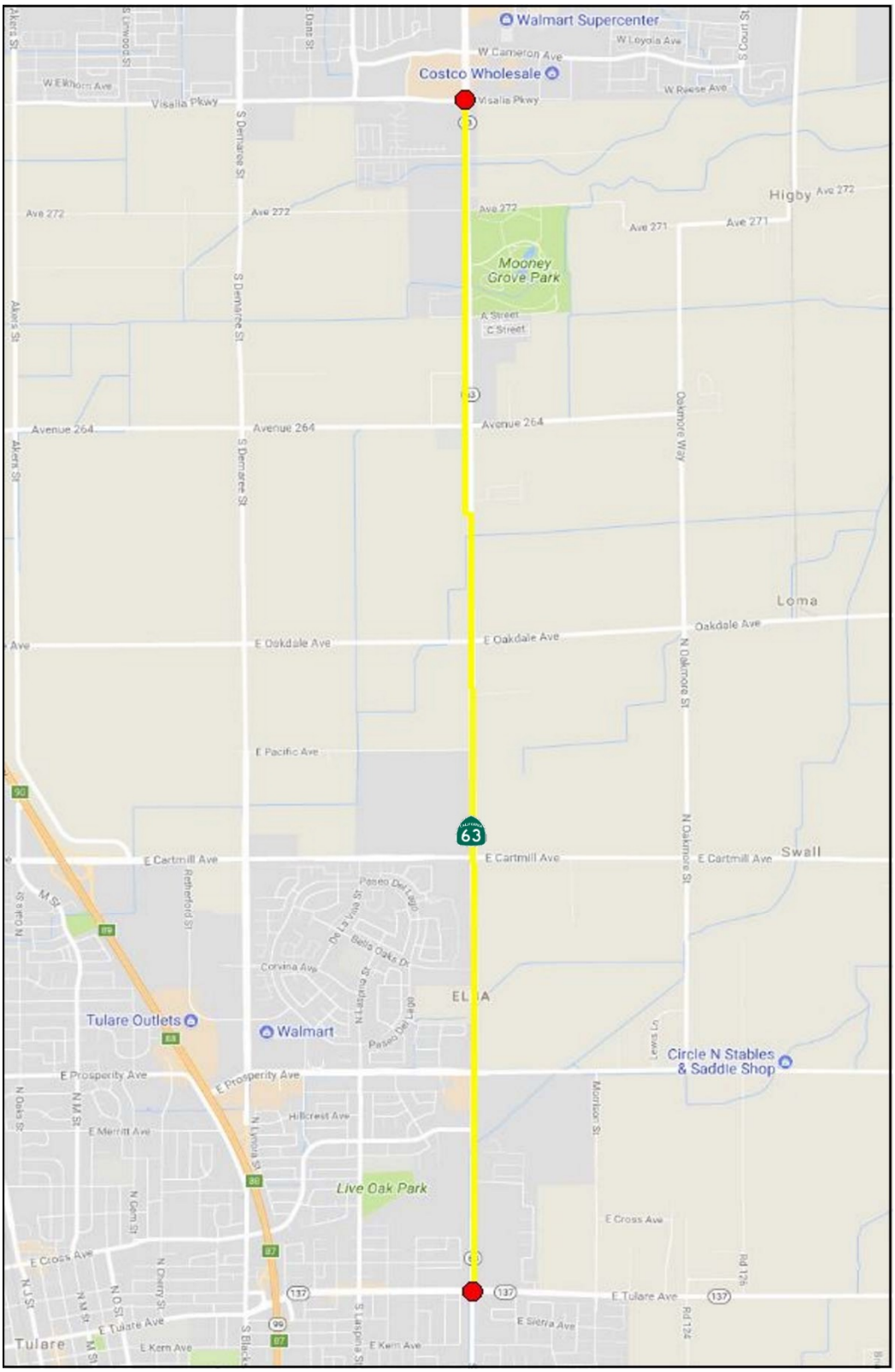


Table 2 below shows the cross streets along SR 63 within the study limits.

Table 2: SR 63 Cross Streets (Listed North to South)

#	Cross Street	Type of Crossing	Control Type
0	W Noble Ave.	at grade	Traffic Signal
1	W Kaweah Ave.	at grade	Traffic Signal
2	W Myrtle Ave.	at grade	Stop Control (Side Street)
3	W Beverly Dr.	at grade	Stop Control (Side Street)
4	W Meadow Ave.	at grade	Traffic Signal
5	Tulare Ave.	at grade	Traffic Signal
6	W Feemster Ave.	at grade	Stop Control (Side Street)
7	W Princeton Ave.	at grade	Stop Control (Side Street)
8	W Walnut Ave.	at grade	Traffic Signal
9	W Beech Ave.	at grade	Traffic Signal
10	W Ashland Ave.	at grade	Stop Control (Side Street)
11	W Whitendale Ave.	at grade	Traffic Signal
12	W Monte Vista Ave.	at grade	Stop Control (Side Street)
13	W Sunnyside Ave.	at grade	Traffic Signal
14	W Dorothea Ave.	at grade	Stop Control (Side Street)
15	W Orchard Ave.	at grade	Traffic Signal
16	W Caldwell Ave.	at grade	Traffic Signal
17	W James Ave.	at grade	Stop Control (Side Street)
18	W Cameron Ave.	at grade	Traffic Signal
19	Visalia Pkwy.	at grade	Traffic Signal
20	W Midvalley Ave./Ave. 274	at grade	Traffic Signal
21	Avenue 272	at grade	Stop Control (Side Street)
22	Avenue 268/A St.	at grade	Traffic Signal
23	Avenue 266	at grade	Stop Control (Side Street)
24	Avenue 264	at grade	Traffic Signal
25	Avenue 261	at grade	Stop Control (Side Street)
26	E Oakdale Ave.	at grade	Traffic Signal
27	E Pacific Ave.	at grade	Stop Control (Side Street)
28	E Cartmill Ave.	at grade	Traffic Signal
29	E Prosperity Ave.	at grade	Traffic Signal
30	E Cross Ave.	at grade	Stop Control (Side Street)

Table 2: SR 63 Cross Streets (Continued)

#	Cross Street	Type of Crossing	Control Type
31	Seminole Ave.	at grade	Traffic Signal
32	E Tulare Ave./State Route 137	at grade	Traffic Signal

The following abbreviations have been used in this report:

NB = Northbound

SB = Southbound

EB = Eastbound

WB = Westbound

AM Peak Period = 6 AM to 9 AM

Mid-day (MD) = 9 AM to 3 PM

PM Peak Period = 4 PM to 7 PM

mph = Miles per hour

min = minutes

SR = State Route

TTI = Travel Time Index

HCM = Highway Capacity Manual

2.0 METHODOLOGY

This study is intended to serve as a baseline for future travel time studies of this corridor. The travel time data for this study was collected from HERE data using the Iteris iPeMS internet application. Staff collected travel data from the week of September 12, thru 18, 2016. There were no public or school holidays during the week selected. The following three time periods were studied for weekdays and weekends for the study corridor in both directions:

- ⇒ Morning (AM) peak period, defined as 6:00 AM to 9:00 AM
- ⇒ Mid-day (MD) period, defined as 9:00 AM to 3:00 PM
- ⇒ Evening (PM) peak period, defined as 4:00 PM to 7:00 PM

Construction activity, special events, and other factors were monitored to avoid collecting unreliable data. The travel time surveys were not conducted at any particular location under any of the following circumstances: public holidays or major local events; weeks with any public holidays; major incidents on a nearby freeway or major arterial; and school closures or minimum days.

Because the standard travel time index was created to study an environment that could potentially have free-flow conditions, such as a freeway, we cannot use the same free-flow definition to study corridors that were designed for stop and go traffic without first creating a definition of free-flow that is relative to the environment being studied. For the purpose of this study, free-flow is defined as the lowest average amount of time vehicles can travel the segment of the corridor being studied, and the data used to represent free-flow was the lowest average travel time taken for each segment studied. The directional average travel time used as the free-flow value is highlighted in green in each segement's "Travel Time Results Summary". Because of the different characteristics in segments of this study corridor it was necessary to break it up into two different sections. For this same reason Travel Time Index (TTI) was not calculated for the entire corridor, only for the study of each of the two segments.

2.1 DEFINITIONS

Class I Highway Two-lane highways that are major intercity routes, primary arterials connecting major traffic generators, daily commuter routes, or primary links in state or national highway networks generally are assigned to Class I. Class I facilities most often serve long-distance trips or provide connecting links between facilities that serve long-distance trips.

Arterial Highway is a class of street that primarily serves through-traffic and major traffic movements.

Average Distance is the average run distance of the route in miles.

Posted Speed Limit is the posted legal speed limit along the route in miles per hour.

Travel Time is broadly defined as "the time necessary to traverse a route between any two points of interest." The formula to calculate the Travel Time using distance and speed is:

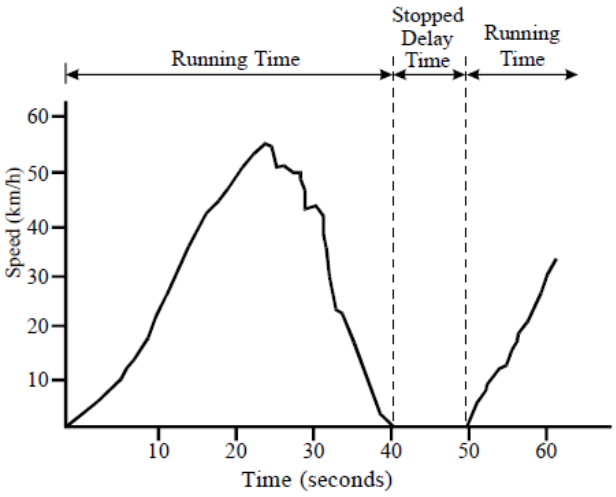
$$\underset{(seconds)}{Estimated\ Travel\ Time} = \frac{Segment\ Length\ (miles)}{Time\text{-}Mean\ Speed\ (mph)} \times (3{,}600\ sec/hour)$$

Travel time is measured by traversing the route that connects any two or more points of interest. Travel time is composed of running time, or time in which the vehicle is in motion, and stopped delay time, or

time in which the vehicle is stopped (or moving sufficiently slow as to be stopped, i.e., typically less than 5 mph). The relationship between travel time and speed is illustrated in the chart below:

Average Speed is the average of speed recorded for all the travel time runs combined in mph.
Number of Stops is the number of times the vehicle speed dropped below 5 mph. Everytime the vehicle drops below 5 mph will be recorded as a stop.
Average Number of Stops is the average of the number of stops recorded for all the travel time runs combined.

Source: Travel Time Data Collection Handbook



Stopped Time is the total amount of time the vehicle speed dropped below 5 mph or the vehicle came to a complete stop.
Congested Time

SR 198 – Visalia Pkwy: is the percentage of 15 minute periods within a peak period that the average vehicle speed dropped below 20 mph.

Visalia Pkwy – SR 137: is the percentage of 15 minute periods within a peak period that the average vehicle speed dropped below 30 mph.

Delay Time is the amount of additional time that vehicles spend on the roadway due to congestion. Congestion is defined as speeds below a certain threshold.
Travel Time Index (TTI)* Travel Time Index is defined as the ratio between travel time during peak period and the free-flow travel time. For example, a TTI value of 1.2 means travel time during peak period is 20% longer than the free-flow travel time between the same origin and destination. This report uses this definition for calculating the TTI as specified in the Travel Time Data Collection Handbook.
Annual Average Daily Traffic (AADT) are traffic volumes estimates representing the average value of daily traffic over the course of a year.
*Source: http://www.fhwa.dot.gov/ohim/start.pdf

3.0 OVERALL STUDY RESULTS

This chapter includes the aggregated run summary data for the weekly averages of September 12 thru 18, 2016 travel time data along Mooney Blvd/SR 63, such as average delay time (Free flow), average delay time (Speed Limit), average congested time, average speed, average travel time and Travel Time Index. Aggregated run summaries are helpful to compare the travel times and speed for several peak hour periods on data that has been gathered throughout the week. The aggregate summary results are discussed in this chapter:

3.1 SR 63 (ENTIRE CORRIDOR) – TRAVEL TIME RESULTS SUMMARY

Table 3, and the **Figures 4 thru 6** below summarize the results for the travel time study along the entire SR 63 corridor from SR 137 to SR 198 in both directions. The results show that the lowest average travel times are during the am peak periods, for each direction both during the weekdays and the weekends. This is likely because businesses along the corridor typically do not open until 10:00 am. Data shows that all mid-day period average speeds are within two mph of one another, both during the week and weekend. Average travel times, as well as average delay for the mid-day period is also very consistent throughout the week and weekend.

The results show that the average speed ranges approximately from 30.47 mph to 36.56 mph in the northbound direction, and approximately 31.28 mph to 37.56 mph in the southbound direction. In the northbound direction the minimum average travel time is 13.45 minutes in the am peak period during the weekend, and maximum average travel time is 15.86 minutes during the pm peak period during the week. In the southbound direction the minimum average travel time is 12.91 minutes in the am peak period during the weekend, and maximum average travel time is 15.59 minutes during mid-day peak period during the weekend.

Table 3: SR 63: SR 198 – SR 137
Travel Statistics Summary
For Week of September 12 – 18, 2016

Day	Route	Time Period	Average Distance (miles)	Average Speed (mph)	Average Travel Time (minutes)	Avg Delay Time (minutes)	Average Travel Time Index (TTI)
Weekday	SB	AM Peak	7.95	34.27	14.33	1.42	1.11
		Midday	7.95	31.95	15.19	2.28	1.18
		PM Peak	7.95	31.45	15.54	2.63	1.20
	NB	AM Peak	7.95	35.59	13.71	0.26	1.02
		Midday	7.95	31.11	15.65	2.20	1.16
		PM Peak	7.95	30.66	15.86	2.41	1.18
Weekend	SB	AM Peak	7.95	37.56	12.91	0.00	1.00
		Midday	7.95	31.28	15.59	2.68	1.21
		PM Peak	7.95	33.63	14.45	1.54	1.12
	NB	AM Peak	7.95	36.56	13.45	0.00	1.00
		Midday	7.95	30.47	16.71	3.26	1.24
		PM Peak	7.95	31.39	15.41	1.96	1.15

Figure 4: SR 63: SR 198 – SR 137
Travel Time Summary
For Week of September 12 – 18, 2016

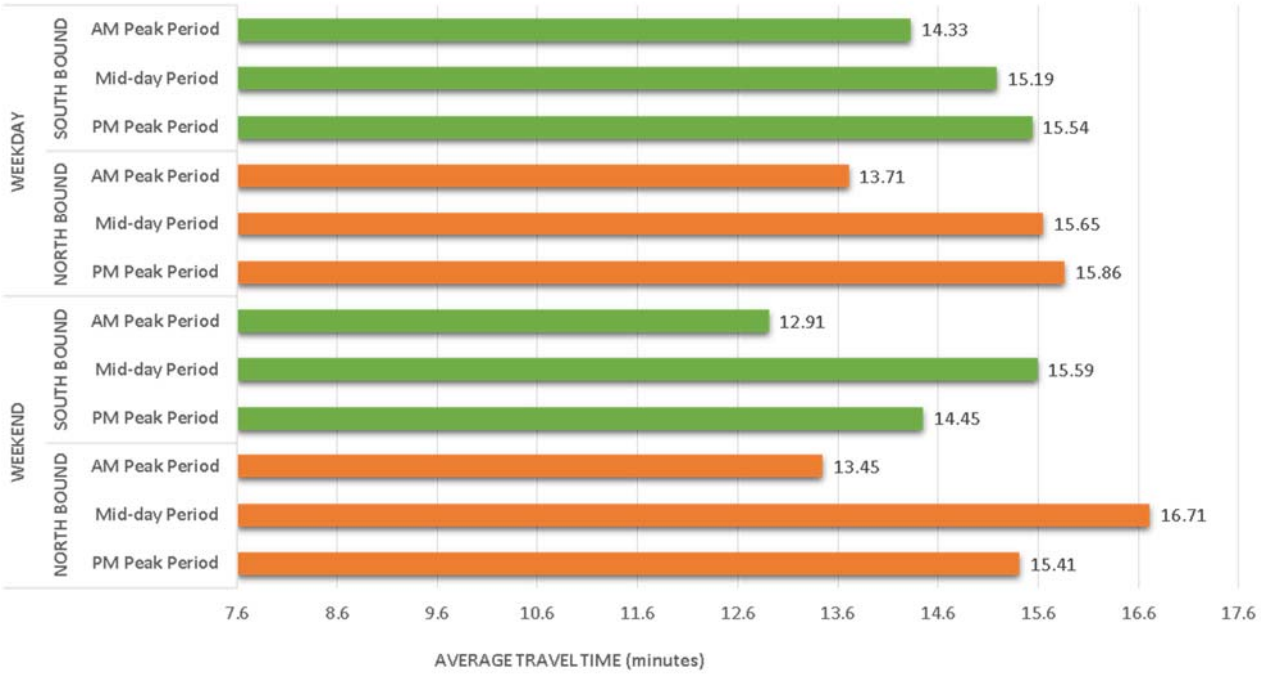


Figure 5: SR 63: SR 198 – SR 137
Northbound Travel Time & Average Speeds
For Week of September 12 – 18, 2016

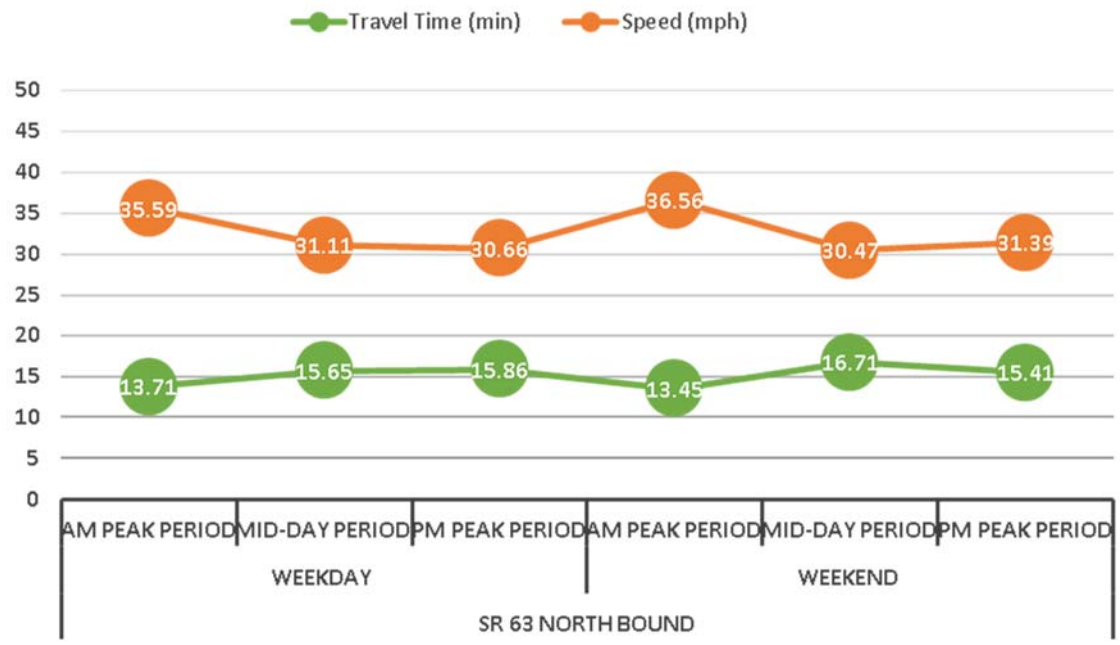
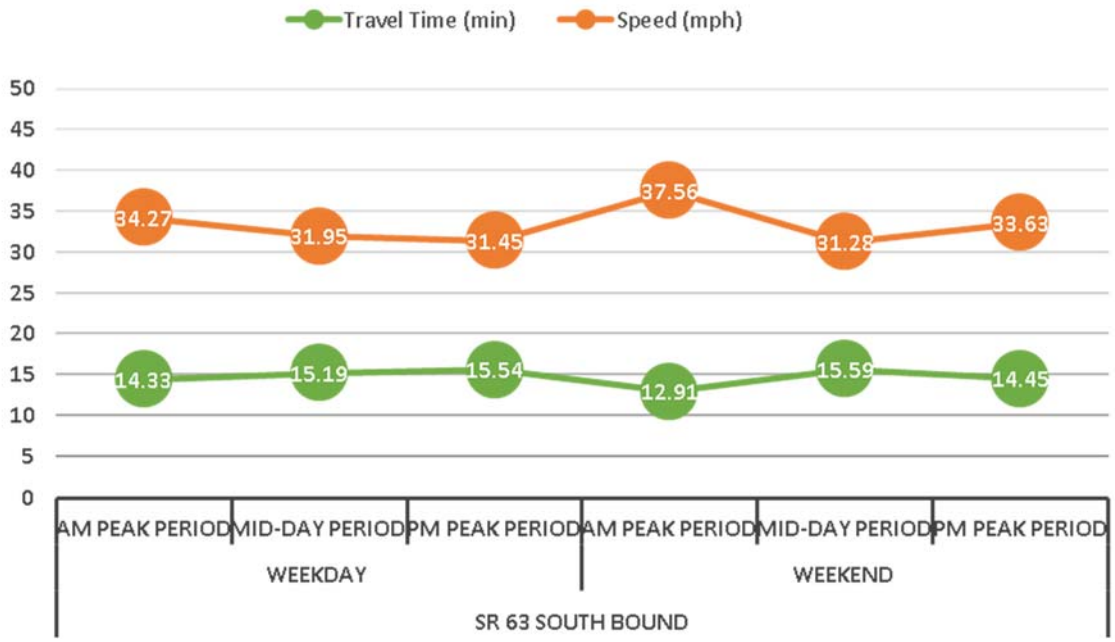


Figure 6: SR 63: SR 198 – SR 137
Southbound Travel Time & Average Speeds
For Week of September 12 – 18, 2016



3.2 SR 63: (SR 198 – VISALIA PARKWAY) - TRAVEL TIME RESULTS SUMMARY

Table 4, and the **Figures 7 thru 9** below summarize the results for the travel time study along the SR 63 corridor from SR 198 to Visalia Parkway in both directions. The results show that the lowest average travel times are during the am peak periods for each direction, both during the weekdays and the weekends. This is likely because most businesses along the corridor typically do not open until 10:00 am. The data shows that, mid-day and pm peak period average travel times, for both directions are within one minute or less of each other. This same consistency is shown in the average speeds and delay times. South bound lanes have the highest average travel times for the corridor during mid-day peaks, both during the week and the weekend.

The results show that the average speed ranges approximately from 22.86 mph to 29.61 mph in the northbound direction, and approximately 23.09 mph to 29.34 mph in the southbound direction. In the northbound direction the minimum average travel time is 5.10 minutes in the am peak period during the weekend, and maximum average travel time is 6.63 minutes during the mid-day peak period during the week. In the southbound direction the minimum average travel time is 5.08 minutes in the am peak period during the weekend, and maximum average travel time is 6.51 minutes during the mid-day peak period during the weekend.

Table 4: SR 63: SR 198 – Visalia Parkway
Travel Statistics Summary
For Week of September 12 – 18, 2016

Day	Route	Time Period	Average Distance (miles)	Average Speed (mph)	Average Travel Time (minutes)	Avg Delay Time (minutes)	Average Congested Time (pct)	Average Travel Time Index (TTI)
Weekday	SB	AM Peak	2.4	26.37	5.70	0.62	5%	1.12
		Midday	2.4	23.09	6.46	1.38	14%	1.27
		PM Peak	2.4	23.75	6.33	1.25	10%	1.25
	NB	AM Peak	2.4	28.00	5.32	0.22	0%	1.04
		Midday	2.4	23.61	6.36	1.26	12%	1.25
		PM Peak	2.4	22.86	6.63	1.53	12%	1.30
Weekend	SB	AM Peak	2.4	29.34	5.08	0.00	0%	1.00
		Midday	2.4	23.16	6.51	1.43	13%	1.28
		PM Peak	2.4	23.95	6.23	1.15	4%	1.23
	NB	AM Peak	2.4	29.61	5.10	0.00	0%	1.00
		Midday	2.4	23.28	6.45	1.35	21%	1.27
		PM Peak	2.4	23.53	6.27	1.17	8%	1.23

Figure 7: SR 63: SR 198 – Visalia Parkway
Travel Time Summary
For Week of September 12 – 18, 2016

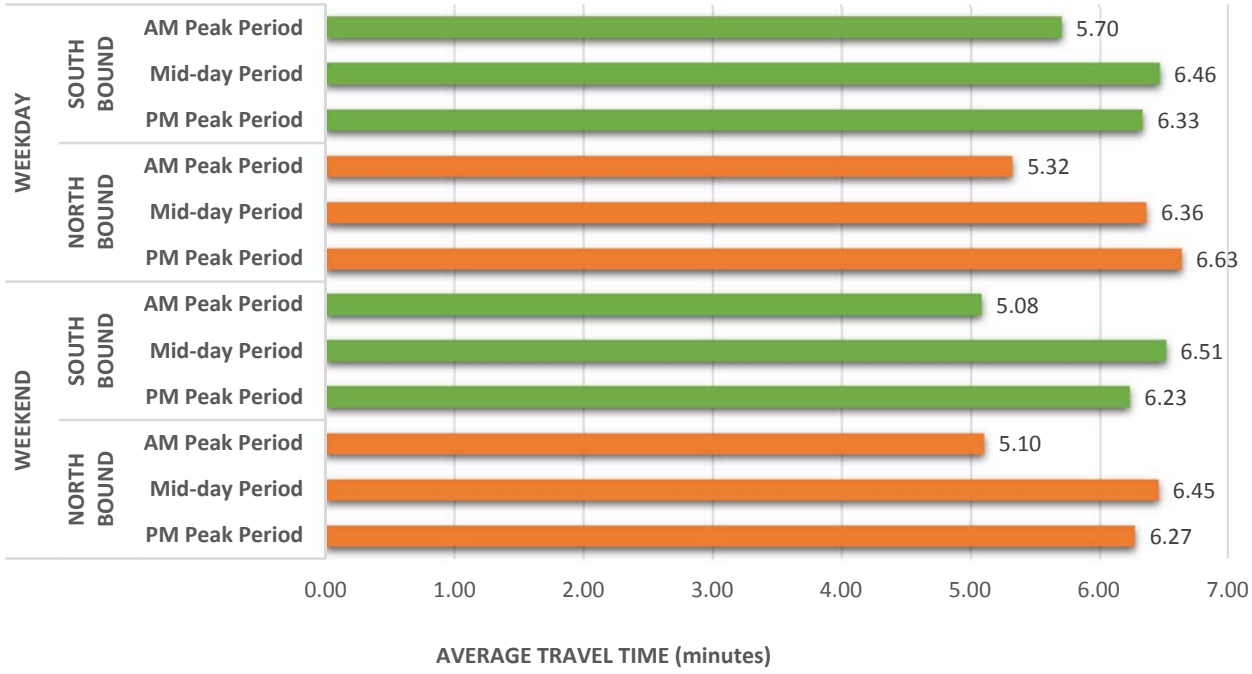


Figure 8: SR 63: SR 198 – Visalia Parkway Northbound
Travel Time & Average Speeds
For Week of September 12 - 18, 2016

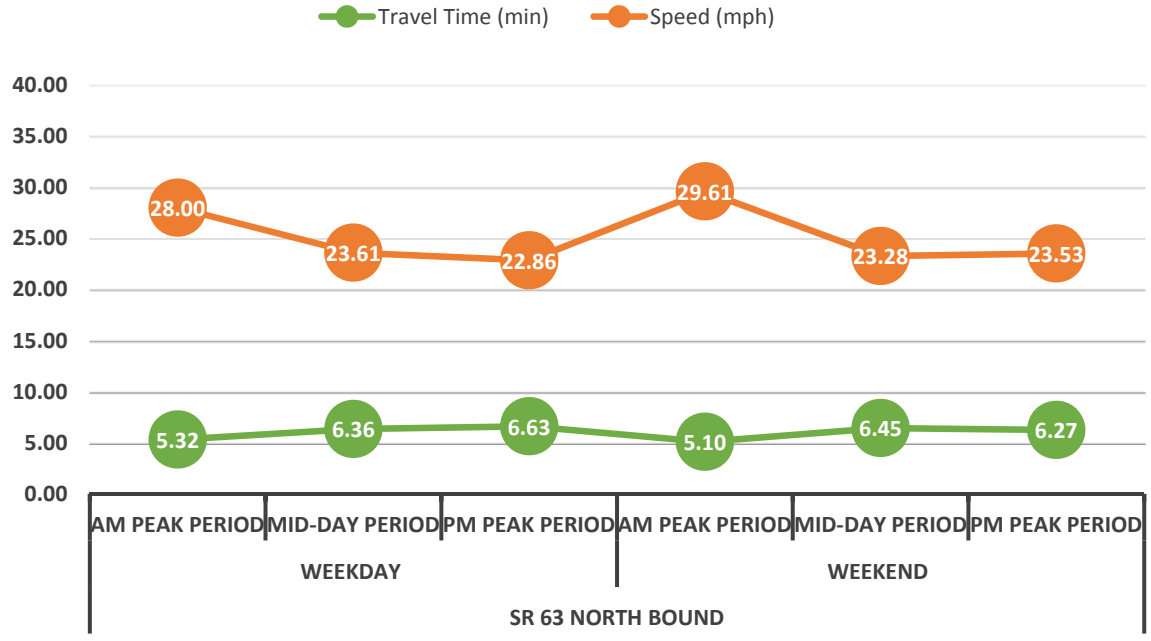
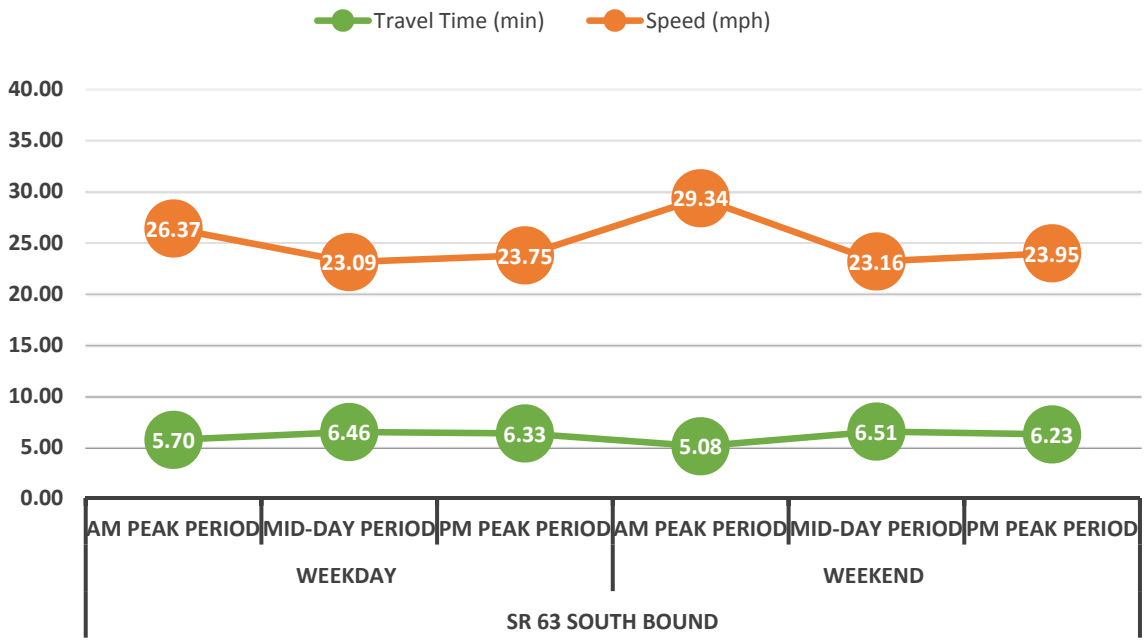


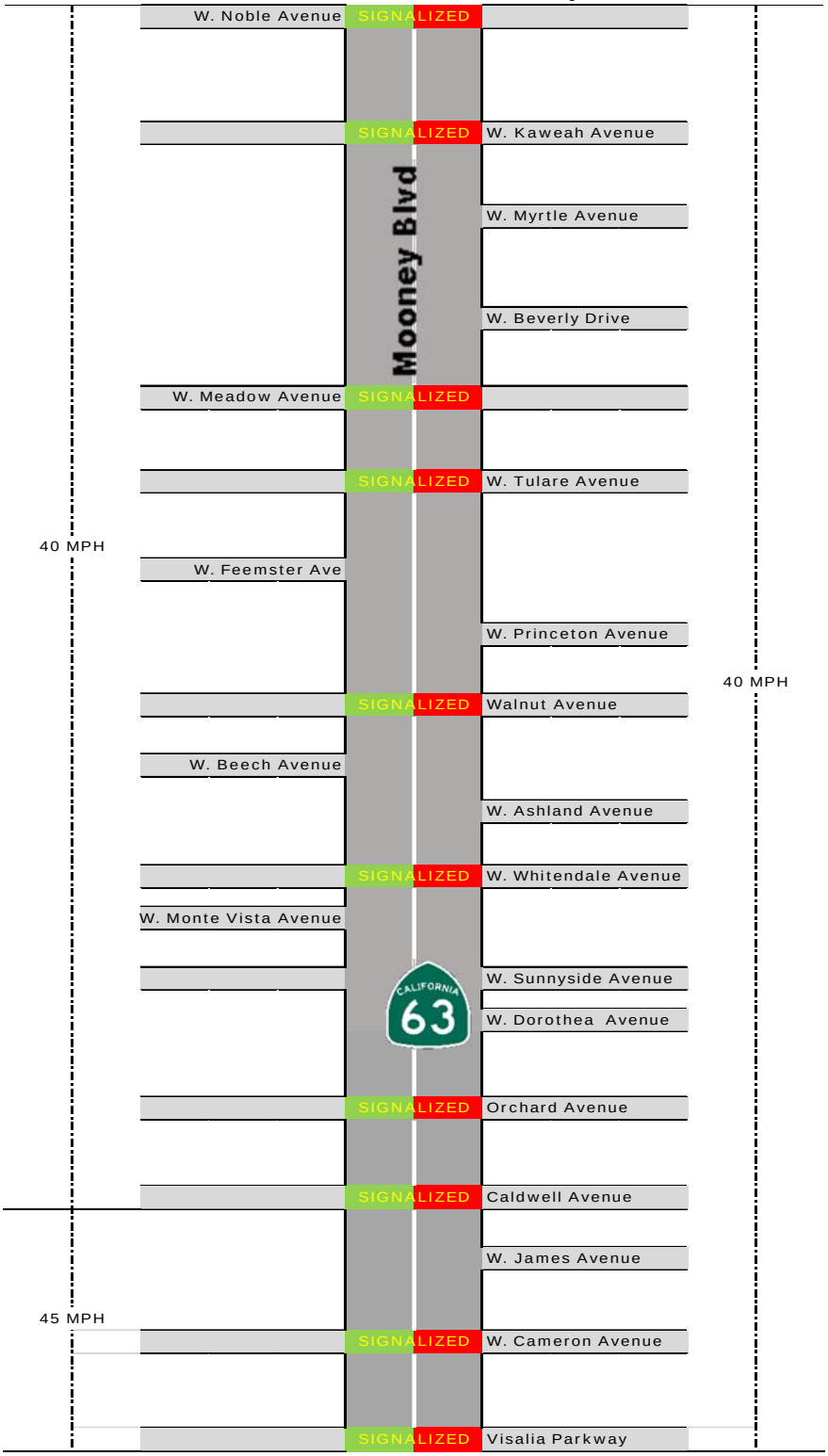
Figure 9: SR 63: SR 198 – Visalia Parkway Southbound
Travel Time & Average Speeds
For Week of September 12 - 18, 2016



The following GIS maps for the SR 63 study corridor are included in **Appendix A**:

- ⇒ Figure A-1: SR 63: SR 198 - Visalia Parkway: Average Speeds during Weekdays AM Peak Period
- ⇒ Figure A-2: SR 63: SR 198 - Visalia Parkway: Average Speeds during Weekdays Mid-day Peak Period
- ⇒ Figure A-3: SR 63: SR 198 - Visalia Parkway: Average Speeds during Weekdays PM Peak Period
- ⇒ Figure A-4: SR 63: SR 198 - Visalia Parkway: Average Speeds during Weekends AM Peak Period
- ⇒ Figure A-5: SR 63: SR 198 - Visalia Parkway: Average Speeds during Weekends Mid-day Peak Period
- ⇒ Figure A-6: SR 63: SR 198 - Visalia Parkway: Average Speeds during Weekends PM Peak Period

Figure 10: SR 63: SR 198 – Visalia Parkway
Cross Streets, Intersections and Speed Limits



Note: This graphic is not to scale and does not show accurate distances. It is intended to inform on speed limits, cross streets and signalized intersections only.

3.3 SR 63: (VISALIA PARKWAY – SR 137) - TRAVEL TIME RESULTS SUMMARY

Table 5, and the **Figures 11 thru 13** below summarize the results for the travel time study along the SR 63 corridor from Visalia Parkway to SR 137 in both directions. The results show once again, that the lowest average travel times are during the am peak periods for each direction both during the weekdays and the weekends, and again likely because businesses along the corridor typically do not open until 10:00 am. In all lanes both north and south, the data shows average travel times for mid-day and pm peak periods are within one minute of each other.

The results show that the average speed ranges approximately from 33.55 mph to 41.03 mph in the northbound direction, and approximately 37.39 mph to 43.05 mph in the southbound direction. In the northbound direction the minimum average travel time is 8.27 minutes in the am peak period during the weekend, and maximum average travel time is 9.20 minutes during the pm peak period during the week. In the southbound direction the minimum average travel time is 7.72 minutes in the am peak period during the weekend, and maximum average travel time is 9.06 minutes during the pm peak period during the week.

Table 5: SR 63: Visalia Parkway – SR 137
Travel Statistics Summary
For Week of September 12 - 18, 2016

Day	Route	Time Period	Average Distance (miles)	Average Speed (mph)	Average Travel Time (minutes)	Avg Delay Time (minutes)	Average Congested Time (pct)	Travel Time Index (TTI)
Weekday	SB	AM Peak	5.5	40.16	8.49	0.77	5%	1.10
		Midday	5.5	38.96	8.57	0.85	0%	1.11
		PM Peak	5.5	37.38	9.06	1.34	5%	1.17
	NB	AM Peak	5.5	40.62	8.31	0.04	2%	1.08
		Midday	5.5	36.55	9.20	0.93	5%	1.11
		PM Peak	5.5	36.72	9.14	0.87	3%	1.11
Weekend	SB	AM Peak	5.5	43.05	7.72	0.00	0%	1.00
		Midday	5.5	37.39	8.96	1.24	4%	1.16
		PM Peak	5.5	41.38	8.08	0.36	0%	1.05
	NB	AM Peak	5.5	41.03	8.27	0.00	0%	1.00
		Midday	5.5	37.04	9.15	0.88	4%	1.11
		PM Peak	5.5	36.99	9.05	0.78	4%	1.09

Figure 11: SR 63: Visalia Parkway – SR 137
Travel Time Summary
For Week of September 12 - 18, 2016

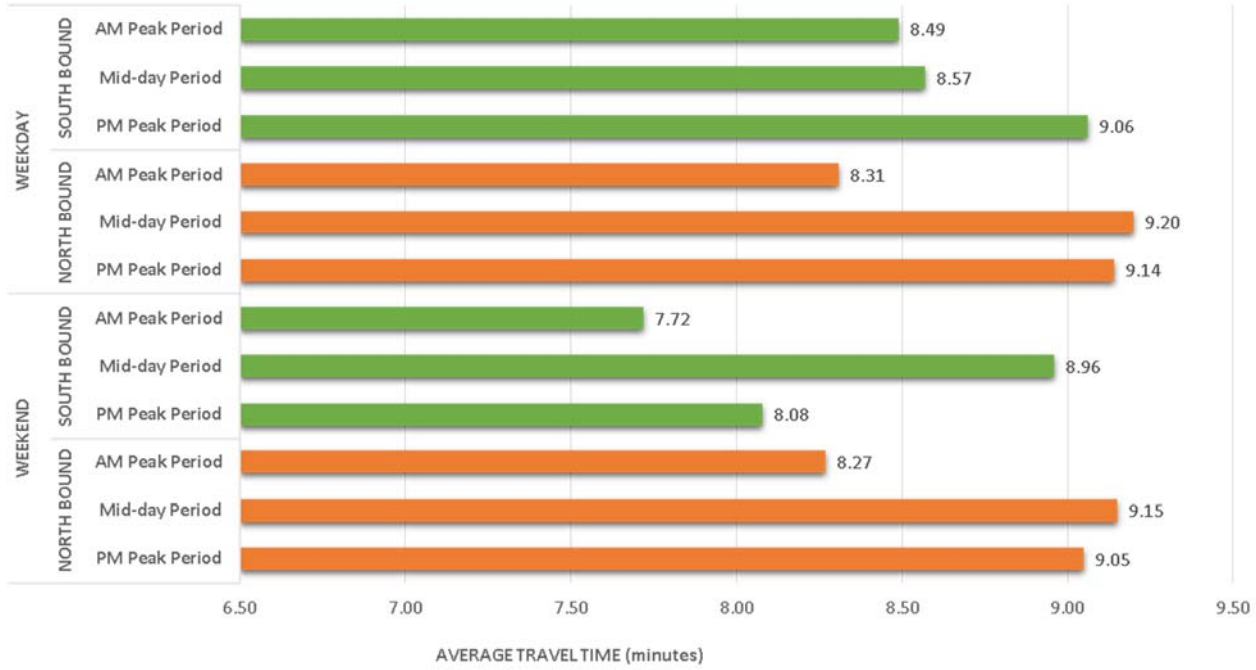


Figure 12: SR 63: Visalia Parkway – SR 137 Northbound
Travel Time & Average Speeds
For Week of September 12 - 18, 2016

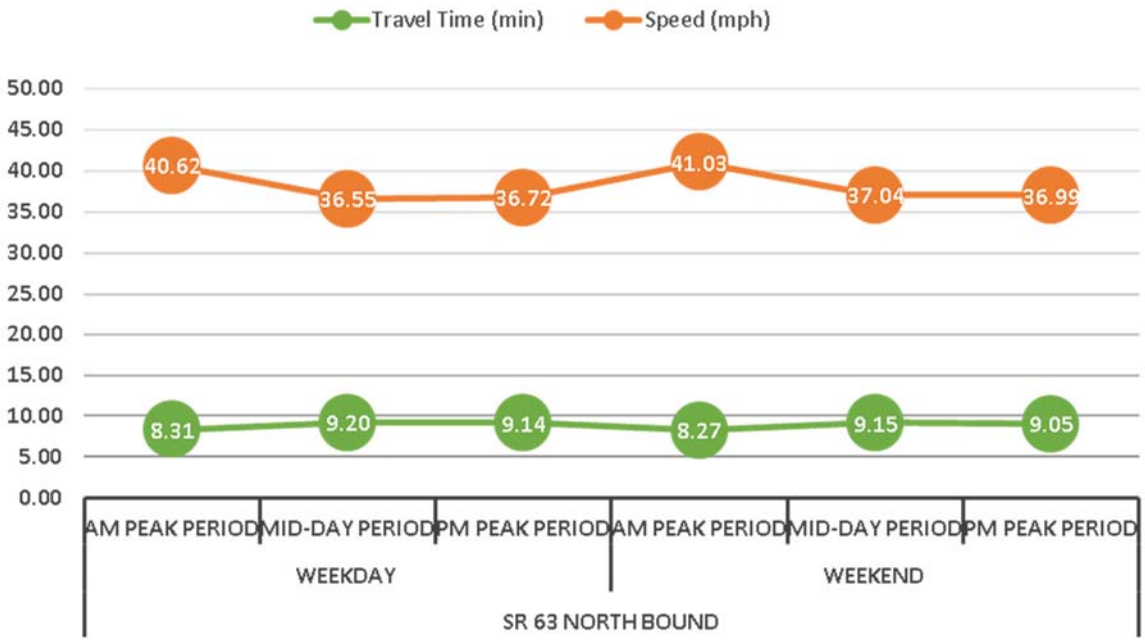
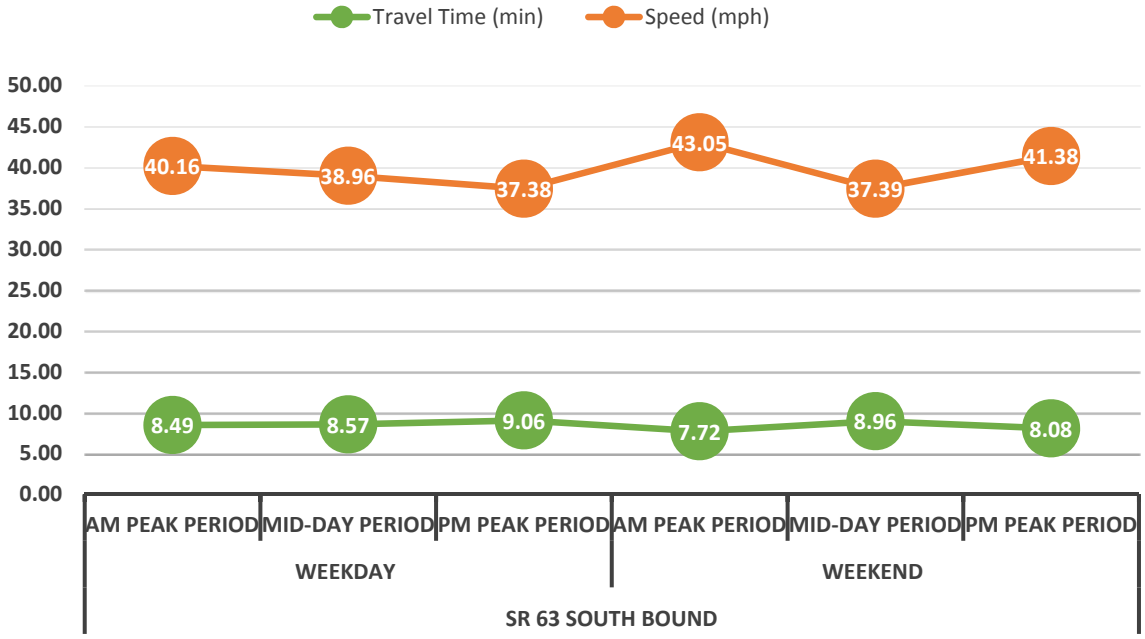


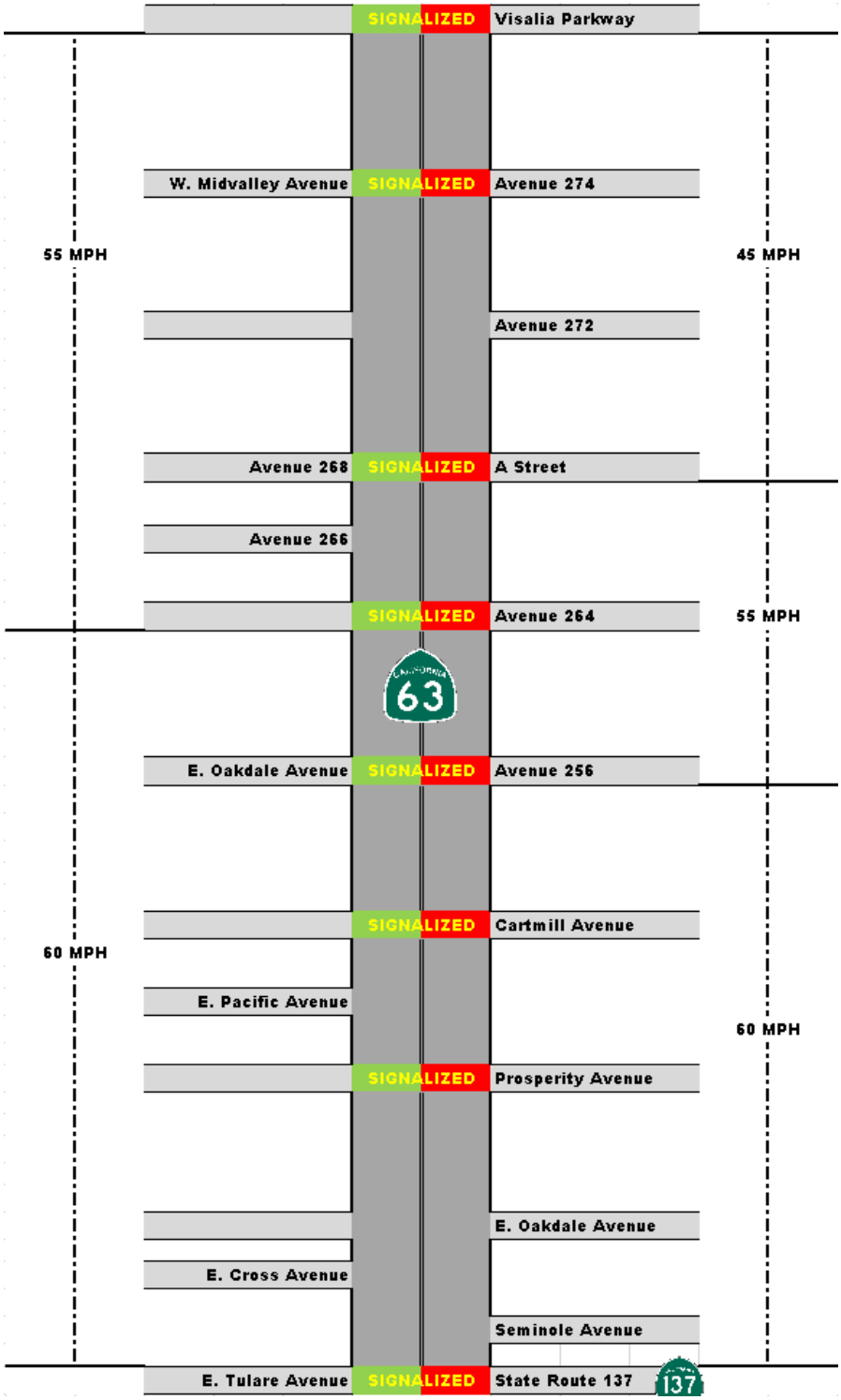
Figure 13: SR 63: Visalia Parkway – SR 137 Southbound
Travel Time & Average Speeds
For Week of September 12 - 18, 2016



The following GIS maps for the SR 63 study corridor are included in **Appendix B**:

- ⇒ Figure B-1: SR 63: Visalia Parkway – SR 137: Average Speeds during Weekdays AM Peak Period
- ⇒ Figure B-2: SR 63: Visalia Parkway – SR 137: Average Speeds during Weekdays Mid-day Peak Period
- ⇒ Figure B-3: SR 63: Visalia Parkway – SR 137: Average Speeds during Weekdays PM Peak Period
- ⇒ Figure B-4: SR 63: Visalia Parkway – SR 137: Average Speeds during Weekends AM Peak Period
- ⇒ Figure B-5: SR 63: Visalia Parkway – SR 137: Average Speeds during Weekends Mid-day Peak Period
- ⇒ Figure B-6: SR 63: Visalia Parkway – SR 137: Average Speeds during Weekends PM Peak Period

Figure 14: SR 63: Visalia Parkway – SR 137
Cross Streets, Intersections and Speed Limits



Note: This graphic is not to scale and does not show accurate distances. It is intended to inform on speed limits, cross streets and signalized intersections only.

4. DATA VALIDATION TRAVEL TIME RUNS SUMMARY

In order to validate the HERE travel time data received from the Iteris iPeMS application, several floating car-hybrid runs were performed at the appropriate times on the corridor. The travel time data from these runs was collected using a hybrid of both the floating car and average speed methods. With this approach, the driver maintained the average speed of traffic for the segment of roadway being sampled, but if there were many passing cars then the driver also passed some cars. This approach provides more realistic results than using either the floating car or average speed methods exclusively.

The number of runs conducted for SR 63 corridor within the study limits are shown in **Table 6** below:

Table 6: Number of Travel Time Runs Conducted in the Study

Day	Time Period	Number of Travel Time Runs	
		SR 63	
		Northbound	Southbound
Weekday	AM Peak Period	1	1
	Mid-day Period	2	2
	PM Peak Period	2	2
Weekend	AM Peak Period	1	1
	Mid-day Period	1	1
	PM Peak Period	1	1

Table 7:

SOUTHBOUND SR 63: SR 198 - Visalia Parkway

Day	Run #	Start Date/Time	# Stops	Distance (miles)	Average Speed (mph)	Travel Time (minutes)	Iteris Data (minutes)
WEEKDAY				**AM Peak Period**			
	1	5/14/2018 8:34	4	2.4	21.43	6.72	5.70
				Mid-day Peak Period			
	2	5/14/2018 13:29	4	2.4	17.84	8.07	6.46
	3	5/14/2018 14:06	4	2.4	19.80	7.27	6.46
				PM Peak Period			
	4	5/14/2018 16:09	5	2.4	18.42	7.82	6.33
	5	5/14/2018 16:45	5	2.4	18.78	7.67	6.33
WEEKEND				**AM Peak Period**			
	6	5/20/2018 7:40	4	2.4	27.00	5.33	5.08
				Mid-day Peak Period			
	7	5/19/2018 12:42	6	2.4	16.81	8.57	6.51
				PM Peak Period			
	8	5/19/2018 17:47	4	2.4	24.54	5.87	6.23

SOUTHBOUND SR 63: SR 198 - Visalia Parkway RUN

Run #1 Stop Locations
Tulare Avenue
Walnut Avenue
Beech Avenue
Whitendale Avenue

Run #2 Stop Locations
Kaweah Avenue
Tulare Avenue
Walnut Avenue
Beech Ave

Run #3 Stop Locations
Tulare Avenue
Walnut Avenue
Sunnyside Avenue
Caldwell Avenue

Run #4 Stop Locations
Kaweah Avenue
Meadow Avenue
Walnut Avenue
Beech Avenue
Whitendale Avenue

Run #5 Stop Locations
Meadow Avenue
Tulare Avenue
Walnut Avenue
Orchard Avenue
Caldwell Avenue

Run #6 Stop Locations
Tulare Avenue
Whitendale Avenue
Sunnyside Avenue
Caldwell Avenue

Run #7 Stop Locations
Kaweah Avenue
Tulare Avenue
Beech Avenue
Orchard Avenue
Caldwell Avenue

Run #8 Stop Locations
Kaweah Avenue
Beech Avenue
Orchard Avenue
Caldwell Avenue
Visalia Parkway

Table 8:

NORTHBOUND SR 63: Visalia Parkway - SR 198

Day	Run #	Start Date/Time	# Stops	Distance (miles)	Average Speed (mph)	Travel Time (minutes)	Iteris Data (minutes)
WEEKDAY				**AM Peak Period**			
	9	5/14/2018 8:57	5	2.4	23.30	6.18	5.32
				Mid-day Peak Period			
	10	5/14/2018 13:54	6	2.4	14.93	9.65	6.36
	11	5/14/2018 14:23	3	2.4	21.39	6.73	6.36
				PM Peak Period			
	12	5/14/2018 16:35	5	2.4	20.37	7.07	6.63
	13	5/14/2018 17:12	5	2.4	20.57	7.00	6.63
WEEKEND				**AM Peak Period**			
	14	5/20/2018 7:40	4	2.4	21.43	6.72	5.10
				Mid-day Peak Period			
	15	5/19/2018 13:09	6	2.4	15.85	9.08	6.45
				PM Peak Period			
	16	5/19/2018 18:09	4	2.4	20.57	7.00	6.27

NORTHBOUND SR 63: Visalia Parkway - SR 198 RUN

Run #9 Stop Locations

Caldwell Avenue
Sunnyside Avenue
Whitendale Avenue
Kaweah Avenue
Noble Avenue

Run #10 Stop Locations

Visalia Parkway
Caldwell Avenue
Sunnyside Avenue
Beech Avenue
Kaweah Avenue
Noble Avenue

Run #11 Stop Locations
Cameron Avenue
Orchard Avenue
Beech Avenue

Run #12 Stop Locations
Visalia Parkway
Cameron Avenue
Orchard Avenue
Sunnyside Avenue
Tulare Avenue

Run #13 Stop Locations
Meadow Avenue
Tulare Avenue
Walnut Avenue
Orchard Avenue
Caldwell Avenue

Run #14 Stop Locations
Tulare Avenue
Whitendale Avenue
Sunnyside Avenue
Caldwell Avenue

Run #15 Stop Locations
Kaweah Avenue
Tulare Avenue
Beech Avenue
Orchard Avenue
Caldwell Avenue

Run #16 Stop Locations
Kaweah Avenue
Beech Avenue
Orchard Avenue
Caldwell Avenue
Visalia Parkway

Table 9:

SOUTHBOUND SR 63: Visalia Parkway - SR 137

Day	Run #	Start Date/Time	# Stops	Distance (miles)	Average Speed (mph)	Travel Time (minutes	Iteris Data (minutes)
WEEKDAY				**AM Peak Period**			
	17	5/14/2018 8:41	1	5.5	43.82	7.53	8.49
				Mid-day Peak Period			
	18	5/14/2018 13:37	3	5.5	41.76	7.87	8.57
	19	5/14/2018 14:13	2	5.5	40.89	8.07	8.57
				PM Peak Period			
	20	5/14/2018 16:17	3	5.5	38.52	8.57	9.06
	21	5/14/2018 16:53	2	5.5	43.14	7.65	9.06
WEEKEND				**AM Peak Period**			
	22	5/20/2018 7:40	0	5.5	48.37	6.82	7.72
				Mid-day Peak Period			
	23	5/19/2018 12:51	4	5.5	37.49	8.80	8.96
				PM Peak Period			
	24	5/19/2018 17:52	2	5.5	46.30	7.13	8.08

SOUTHBOUND SR 63: Visalia Parkway - SR 137 RUN

Run #17 Stop Locations (AM peak)
Tulare Avenue (SR 137)

Run #18 Stop Locations (Mid-day peak)
Avenue 268
Prosperity Avenue
Tulare Avenue (SR 137)

Run #19 Stop Locations (Mid-day peak)
Cartmill Avenue
Tulare Avenue (SR 137)

Run #20 Stop Locations (PM peak)
Avenue 264
Prosperity Avenue
Tulare Avenue (SR 137)

Run #21 Stop Locations (PM peak)
Prosperity Avenue
Tulare Avenue (SR 137)

Run #22 Stop Locations (Weekend AM peak)
No stops

Run #23 Stop Locations (Weekend Mid-day peak)
Visalia Parkway
Mid Valley Avenue
Avenue 256
Prosperity Avenue
Tulare Avenue (SR 137)

Run #24 Stop Locations (Weekend PM peak)
Avenue 268
Tulare Avenue (SR 137)

Table 10:

NORTHBOUND SR 63: SR 137 - Visalia Parkway

Day	Run #	Start Date/Time	# Stops	Distance (miles)	Average Speed (mph)	Travel Time (minutes)	Iteris Data (minutes)
WEEKDAY				**AM Peak Period**			
	25	5/14/2018 8:50	3	5.5	46.97	7.03	8.31
				Mid-day Peak Period			
	26	5/14/2018 13:46	3	5.5	38.95	8.47	9.20
	27	5/14/2018 14:23	1	5.5	52.38	6.30	9.20
				PM Peak Period			
	28	5/14/2018 16:27	4	5.5	41.60	7.93	9.14
	29	5/14/2018 17:03	3	5.5	38.81	8.50	9.14
WEEKEND				**AM Peak Period**			
	30	5/20/2018 7:40	0	5.5	56.58	5.83	8.27
	31	5/19/2018 13:02	2	5.5	46.61	7.08	9.15
				PM Peak Period			
	32	5/19/2018 18:01	3	5.5	40.00	8.25	9.05

NORTHBOUND SR 63: SR 137 - Visalia Parkway RUN

Run #25 Stop Locations (AM peak)
Prosperity Avenue
Mid Valley Avenue
Visalia Parkway

Run #26 Stop Locations (Mid-day peak)
Prosperity Avenue
Mid Valley Avenue
Visalia Parkway

Run #27 Stop Locations (Mid-day peak)
Prosperity Avenue

Run #28 Stop Locations (PM peak)
Prosperity Avenue
Cartmill Avenue
Avenue 268
Visalia Parkway

Run #29 Stop Locations (PM peak)
Cartmill Avenue
Avenue 264
Visalia Parkway

Run #30 Stop Locations (Weekend AM peak)
No stops

Run #31 Stop Locations (Weekend Mid-day peak)
Avenue 264
Visalia Parkway

Run #32 Stop Locations (Weekend PM peak)
Avenue 256
Avenue 264
Visalia Parkway

5.0 TRAFFIC VOLUMES

Caltrans collects annual traffic counts for the State Highway System through its 'Traffic Census Program.' The latest available traffic volumes for the study corridors were collected in 2016. In general, the traffic volumes are inversely proportional to speed, i.e., the higher the traffic volumes the lower the speeds. There are not enough data collection points within the study limits to draw conclusions between traffic volumes and travel time data collected as a part of this study. There is no available historical travel time data making it difficult to draw any conclusions between change in traffic volumes, travel times and speed for the study corridor.

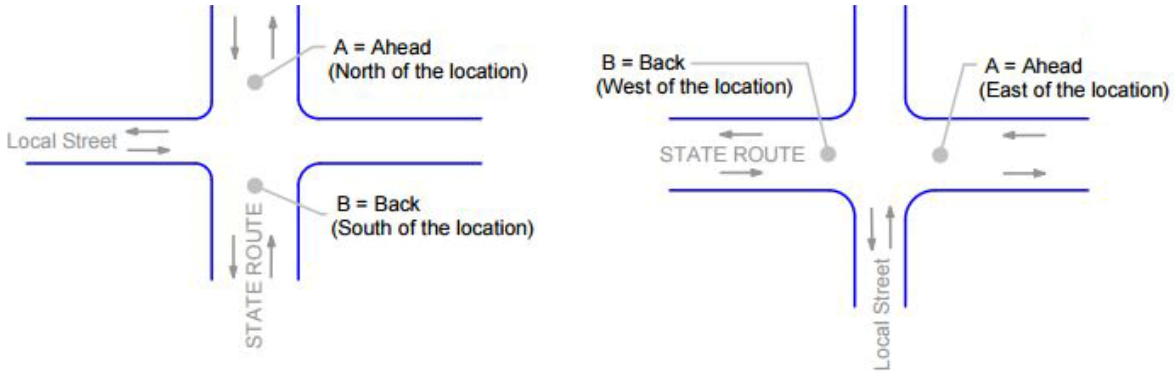
The 2016 AADT volumes and historical ahead traffic volumes for the SR 63 corridor are provided in this Chapter for informational purposes only and no conclusions are drawn between these volumes and the travel time data collected in this study.

Explanation of Traffic Counts*

Generally, in California West to East state routes are even numbered, while South to North routes are odd numbered. In addition, the post-mile values increase from South to North or West to East with some minor exceptions.

Ahead AADT usually represents traffic North or East of the count location and is the total volume for the year divided by 365 days. Back Annual Average Daily Traffic (AADT) usually represents traffic South or West of the count location and is the total volume for the year divided by 365 days. **Figure 15** below shows the typical locations where the data is collected. AADTs represent both directions of travel, and summing them together will result in erroneous data.

Figure 15: Explanatory Diagram of Traffic Counts



Peak hour usually represents an estimate of the heaviest traffic flow, which usually occurs between 7 AM to 9 AM and 5 PM to 7 PM. Peak hour values indicate the volume in both directions. In urban and suburban areas, the peak hour normally occurs every weekday. On roads with large seasonal fluctuations in traffic, the peak hour is the hour near the maximum for the year but excluding a few (30 to 50 hours) that are exceedingly high and are not typical of the frequency of the high hours occurring during the season. Peak Month ADT is the average daily traffic for the month of heaviest traffic flow, usually July or August. This data are obtained because on many routes, high traffic volumes, which occur during a certain season of the year, are more representative of traffic conditions than the annual ADT.

*Source: http://traffic-counts.dot.ca.gov/

5.1 SR 63 – 2016 Average Annual Daily Traffic (AADT) Volumes

Table 11 below summarizes the 2016 AADT volumes for SR 63 in Tulare County. Please note that this data is for informational purposes only and no conclusions are drawn between these traffic volumes and the travel time data collected in this study.

Table 11: SR 63 – Year 2016 AADT Volumes

Source: http://traffic-counts.dot.ca.gov/

* The postmile may have a prefix like R (First realignment), T (Temporary connection), L (Overlap post mile), M (Second realignment), etc. When a length of highway is changed due to construction or realignment, new postmile values are assigned. To distinguish the new values from the old, an alpha code is prefixed to the new postmile.

Caltrans District	County	Postmile		Location Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
6	Tulare	0		TULARE, JCT. RTE. 137				1,800	19,000	18,600
6	Tulare	4.01		LIBERTY AVENUE (AVENUE 264)	2,100	21,500	20,300	2,050	22,700	21,500
6	Tulare	5.011		PARK AVENUE (AVENUE 272)	1,900	20,300	19,200	2,100	22,400	21,200
6	Tulare	6.01		CALDWELL AVENUE (AVENUE 280)	2,100	22,400	21,200	2,550	27,500	26,000
6	Tulare	6.99		VISALIA, WALNUT AVENUE (AVENUE 288)	2,900	31,500	30,000	2,450	27,500	25,500
6	Tulare	7.49		VISALIA, TULARE AVENUE (AVENUE 292)	2,450	27,500	25,500	2,850	31,500	30,000
6	Tulare L	8.881	R	VISALIA, NOBLE/MINERAL KING, W JCT. RTE. 198 RIGHT ALIGN				1,300	14,200	13,500
6	Tulare	7.948	R	COURT STREET AT NOBLE	1,600	15,800	13,500	1,600	15,800	13,500
6	Tulare	7.98	R	VISALIA, EAST JCT. RTE. 198	1,600	15,800	13,500	1,600	15,800	13,500
6	Tulare	8.2	R	VISALIA, ON COURT STREET AT MAIN STREET	1,600	15,000	13,500	1,750	16,200	14,500
6	Tulare	8.392	R	VISALIA, ON COURT STREET AT SCHOOL STREET	1,150	11,200	10,000	970	11,000	9,900
6	Tulare R	8.775	R	VISALIA, ON COURT/W 3RD AVE NEAR LINCOLN OVAL	930	10,600	9,500	940	8,400	8,000
6	Tulare R	9.095	R	VISALIA, ON NW 3RD AVE/HOUSTON, END RIGHT ALIGN	890	7,900	7,500			
6	Tulare	7.98	L	VISALIA, E JCT. 198 VIA LOCUST STREET, BEGIN LEFT ALIGN				1,700	17,000	14,500
6	Tulare	8.201	L	LOCUST STREET/ MAIN STREET	1,350	13,400	11,400	1,400	13,900	11,800
6	Tulare	8.392	L	VISALIA, ON LOCUST STREET AT SCHOOL STREET	1,250	12,700	10,800	1,150	11,400	9,700
6	Tulare	8.681	L	VISALIA, LOCUST/PINE STREETS	1,100	11,200	9,500	880	8,800	7,500
6	Tulare L	8.916	L	MINERAL KING AT WILLIS	1,600	15,800	13,500	1,600	15,800	13,500
6	Tulare L	9.226	L	MINERAL KING AT COURT	1,600	15,800	13,500	870	8,800	7,500
6	Tulare R	9.095	L	VISALIA, ON NW 3RD AVE/ HOUSTON AVE, END LEFT ALIGN	870	8,800	7,500			
6	Tulare R	9.1		VISALIA, HOUSTON AVE (AVENUE 304)				1,800	20,200	19,500
6	Tulare	12.13		AVENUE 328	880	9,800	9,500	690	7,700	7,500
6	Tulare	15.11		AVENUE 352; OIL WELL ROAD	660	7,300	7,100	650	7,100	6,900
6	Tulare R	19.187		JCT. RTE. 201 EAST	490	5,500	5,200	660	7,400	6,900
6	Tulare	21.568		JCT. RTE. 201 WEST	660	7,400	6,900	820	9,000	8,400
6	Tulare	22.37		EMERALD DRIVE	820	9,000	8,400	1,100	11,900	11,000
6	Tulare R	23.572		AVENUE 416; EL MONTE WAY	1,100	11,900	11,000	680	7,200	6,700
6	Tulare R	24.322		AVENUE 422	440	4,650	4,300	300	3,100	2,850
6	Tulare R	25.55		AVENUE 432	190	2,000	1,850	220	2,100	1,900
6	Tulare R	29.09		AVENUE 460	150	1,450	1,250	170	1,700	1,450
6	Tulare R	30.084		TULARE/FRESNO COUNTY LINE	180	1,950	1,600			
6	Fresno	0		TULARE/FRESNO COUNTY LINE				260	3,250	2,500
6	Fresno	2.5		AMERICAN AVENUE	260	2,250	1,950	130	1,200	910
6	Fresno	8.362		JCT. RTE. 180	120	1,000	770			

5.2 SR 63 – HISTORICAL AADT VOLUMES

Table 12 below summarizes the historical traffic volumes for SR 63 in Tulare County. Please note that this data is for informational purposes only and no conclusions are drawn between these traffic volumes and the travel time data collected in this study.

Table 12: SR 63 - Historical (Ahead) AADT Volumes

Caltrans District	County	Postmile		Location Description	2016	2015	2014	2013	2012
6	Tulare	0		TULARE, JCT. RTE. 137	18,600	17,700	17,700	16,500	16,500
6	Tulare	4.01		LIBERTY AVENUE (AVENUE 264)	21,500	20,500	20,500	22,800	22,800
6	Tulare	5.011		PARK AVENUE (AVENUE 272)	21,200	20,200	20,200	21,700	21,700
6	Tulare	6.01		CALDWELL AVENUE (AVENUE 280)	26,000	24,700	24,700	26,500	26,500
6	Tulare	6.99		VISALIA, WALNUT AVENUE (AVENUE 288)	25,500	24,500	24,500	26,500	26,500
6	Tulare	7.49		VISALIA, TULARE AVENUE (AVENUE 292)	30,000	28,500	28,500	24,500	24,500
6	Tulare	L 8.881	R	VISALIA, NOBLE/MINERAL KING, W JCT. RTE. 198 RIGHT ALIGN	13,500	14,500	28,500	25,000	25,000
6	Tulare	7.948	R	COURT STREET AT NOBLE	13,500	14,500	14,500	14,500	14,500
6	Tulare	7.98	R	VISALIA, EAST JCT. RTE. 198	13,500	25,500	25,500	14,500	
6	Tulare	8.2	R	VISALIA, ON COURT STREET AT MAIN STREET	14,500	12,500	12,500	13,500	13,500
6	Tulare	8.392	R	VISALIA, ON COURT STREET AT SCHOOL STREET	9,900	9,400	9,400	11,700	11,700
6	Tulare	R 8.775	R	VISALIA, ON COURT/W 3RD AVE NEAR LINCOLN OVAL	8,000	8,300	8,300	8,300	8,300
6	Tulare	R 9.095	R	VISALIA, ON NW 3RD AVE/HOUSTON, END RIGHT ALIGN				14,000	14,000
6	Tulare	7.98	L	VISALIA, E JCT. 198 VIA LOCUST STREET, BEGIN LEFT ALIGN	14,500	14,000	14,000	14,000	14,000
6	Tulare	8.201	L	LOCUST STREET/ MAIN STREET	11,800	11,500	11,500	15,000	15,000
6	Tulare	8.392	L	VISALIA, ON LOCUST STREET AT SCHOOL STREET	9,700	11,000	11,000	11,000	11,000
6	Tulare	8.681	L	VISALIA, LOCUST/PINE STREETS	7,500	9,000	9,000	9,000	9,000
6	Tulare	L 8.916	L	MINERAL KING AT WILLIS	13,500	14,500	14,500		
6	Tulare	L 9.226	L	MINERAL KING AT COURT	7,500	14,500	14,500		14,500
6	Tulare	R 9.095	L	VISALIA, ON NW 3RD AVE/ HOUSTON AVE, END LEFT ALIGN				13,400	13,400
6	Tulare	R 9.1		VISALIA, HOUSTON AVE (AVENUE 304)	19,500	19,500	19,500	19,000	19,000
6	Tulare	12.13		AVENUE 328	7,500	7,400	7,400	9,000	9,000
6	Tulare	15.11		AVENUE 352; OIL WELL ROAD	6,900	6,800	6,800	7,000	7,000
6	Tulare	R 19.187		JCT. RTE. 201 EAST	6,900	6,700	6,700	8,000	8,000
6	Tulare	21.568		JCT. RTE. 201 WEST	8,400	8,000	8,000	9,100	9,100
6	Tulare	22.37		EMERALD DRIVE	11,000	10,600	10,600	11,200	11,200
6	Tulare	R 23.572		AVENUE 416; EL MONTE WAY	6,700	6,600	6,600	6,800	6,800
6	Tulare	R 24.322		AVENUE 422	2,850	2,800	2,800	3,000	3,000
6	Tulare	R 25.55		AVENUE 432	1,900	1,850	1,850	1,800	1,800
6	Tulare	R 29.09		AVENUE 460	1,450	1,400	1,400	1,350	1,350
6	Tulare	R 30.084		TULARE/FRESNO COUNTY LINE					
6	Fresno	0		TULARE/FRESNO COUNTY LINE	2,500	2,450	2,450	2,100	2,100
6	Fresno	2.5		AMERICAN AVENUE	910	890	890	1,100	1,100
6	Fresno	8.362		JCT. RTE. 180					

* The postmile may have a prefix like R (First realignment), T (Temporary connection), L (Overlap post mile), M (Second realignment), etc. When a length of highway is changed due to construction or realignment, new postmile values are assigned. To distinguish the new values from the old, an alpha code is prefixed to the new postmile.