STATE ROUTE 25 RELOCATION STUDY

Calera, Alabama

Advance Planning, Programming, and Logical Engineering (APPLE) Program

Prepared for:

THE CITY OF CALERA

THE REGIONAL PLANNING COMMISSION OF GREATER BIRMINGHAM

Prepared by:

SKIPPER CONSULTING INC

INSITE ENGINEERING

September 5, 2019

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Prepared for:

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September 5, 2019

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INTRODUCTION

This report documents the results of a project to perform a feasibility study of realigning State Route 25 through the downtown area of Calera. Currently, State Route 25 interchanges with Interstate 65 approximately 0.8 miles to the east of downtown Calera. The highway enters the north end of a two block long "main street/central business district" of Calera and turns to the south, following U.S. Highway 31 for two blocks. The highway then turns back to the west and exits the downtown area. A general vicinity map is shown in Figure 1.

The two block "jog" in the alignment of State Route 25 results in traffic operational problems in downtown Calera as traffic conflicts with access to local businesses, on-street parking maneuvers, active rail-highway grade crossings, and the large turning radii of trucks disrupts the traffic flow at each end of the "jog". The daily percent trucks on the section of roadway shared by State Route 25 and U.S. Highway 31 is 12%. The counts conducted for this study show that over 1,700 heavy trucks per day traverse this section of roadway.

The City of Calera has proposed three alternative alignments for rerouting State Route 25:

- Option 1 departs the current alignment of State Route 25 to the west of downtown at around 17th Street, and then follows the southern edge of the Norfolk-Southern railroad line to the existing intersection of U.S. Highway 31 and State Route 25 to the north of downtown.

- Option 2 departs the current alignment of State Route 25 to the west of downtown at around 18th Street (same as Alternative A), but then connects to 17th Avenue and crosses U.S. Highway 31 through the center of downtown. The alternative makes use of an existing crossing of the CSXT railroad line on 17th Avenue and then rejoins with the existing alignment of State Route 25 west of Interstate 65.

- Option 3 extends State Route 25 from its southern intersection with U.S. Highway 31 across a new crossing of the CSXT railroad tracks and then rejoins with the existing alignment of State Route 25 west of Interstate 65 in a similar location as Alternative B.

The three alternative routes are depicted in Figure 2.

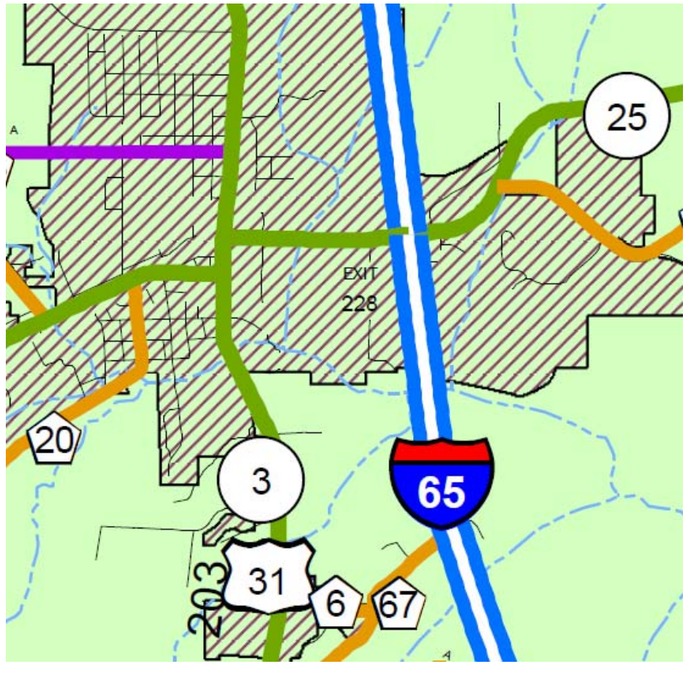
BACKGROUND INFORMATION

Study Corridor

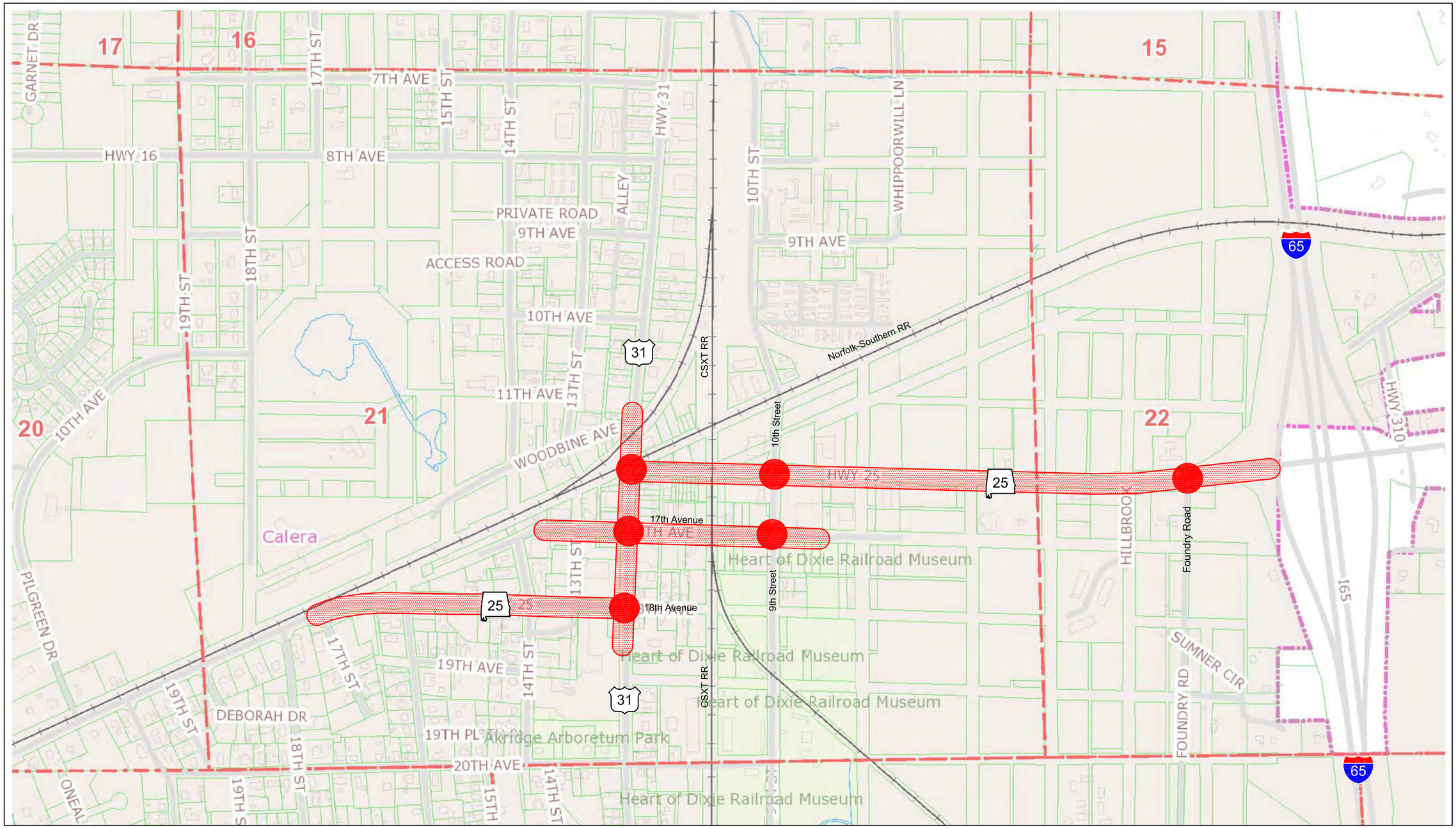
The study limits for the project are as follows:

- State Route 25 North, from I-65 to U.S. Highway 31, a distance of approximately 0.75 miles
- U.S. Highway 31, from State Route 25 North to State Route 25 South, a distance of approximately 0.16 miles
- State Route 25 South, from U.S. Highway 31 to 17th Street West, a distance of approximately 0.40 miles
- 17th Avenue, from U.S. Highway 31 to 9th Street, a distance of approximately 0.17 miles

In the vicinity of the study area, U.S. Highway 31 is a four lane undivided urban minor arterial roadway with a posted speed limit of 30 miles per hour. State Route 25 is a two lane undivided urban minor arterial roadway with a posted speed limit of 35 miles per hour east of 10th Street and 30 miles per hour elsewhere. All other roadways within the study area are local roads.



Functional Classification Map (Source: Alabama Department of Transportation)



Legend

- Study Intersection
- Study Corridor

North
Scale: n.t.s

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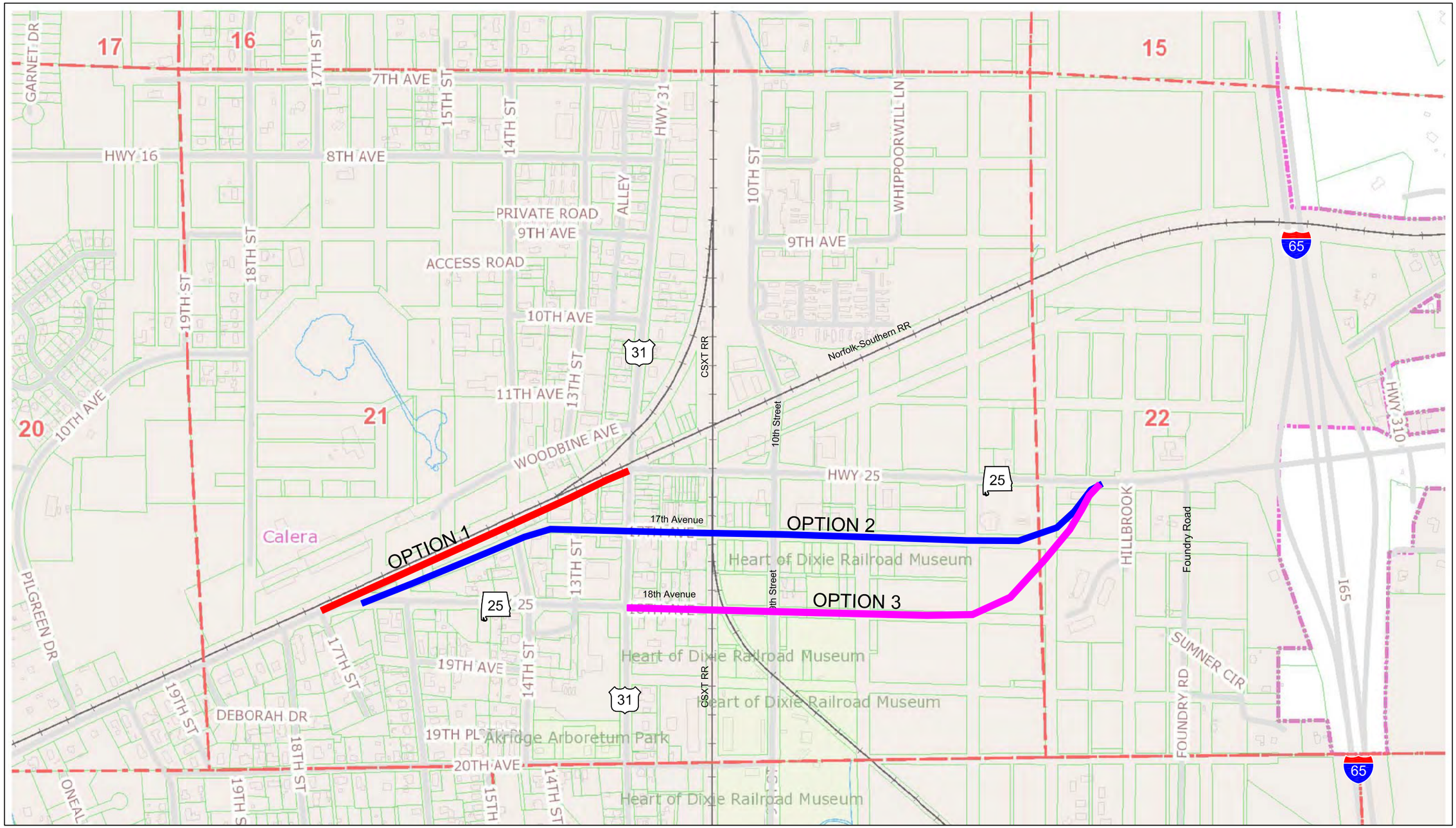
Figure 1 - Vicinity Map

State Route 25 APPLE - Calera, Alabama — March 2019



North
Scale: n.t.s

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Figure 2 - Alternative Alignments

State Route 25 APPLE - Calera, Alabama March 2019

Study Intersections

The intersections included for detailed study are as follows:

- U.S. Highway 31 at State Route 25 (south)
- U.S. Highway 31 at 17th Avenue
- U.S. Highway 31 at State Route 25 (north)
- State Route 25 at 9th Street/10th Street
- 17th Avenue at 9th Street
- State Route 25 at Foundry Road

The study corridor and study intersections are depicted in Figure 1.

The three intersections on U.S. Highway 31 are controlled by traffic signals. The traffic signals are interconnected using a 7-conductor 120 volt interconnect. The programming is set to run a 70 second cycle length plan every day of the week from 7:00 a.m. to 7:00 p.m. and Free for all other times of the day. All other study intersections are stop sign-controlled.

Intersection Turning Movement Traffic Counts

Intersection turning movement traffic counts were performed at the study intersections during the period Tuesday to Thursday, January 22 to 24, 2019 during the hours of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. by Traffic Data, LLC on behalf of Skipper Consulting, Inc. The traffic count data is included in Appendix A. Peak hour turning movement traffic counts are shown in Figure 3.

Machine Traffic Counts

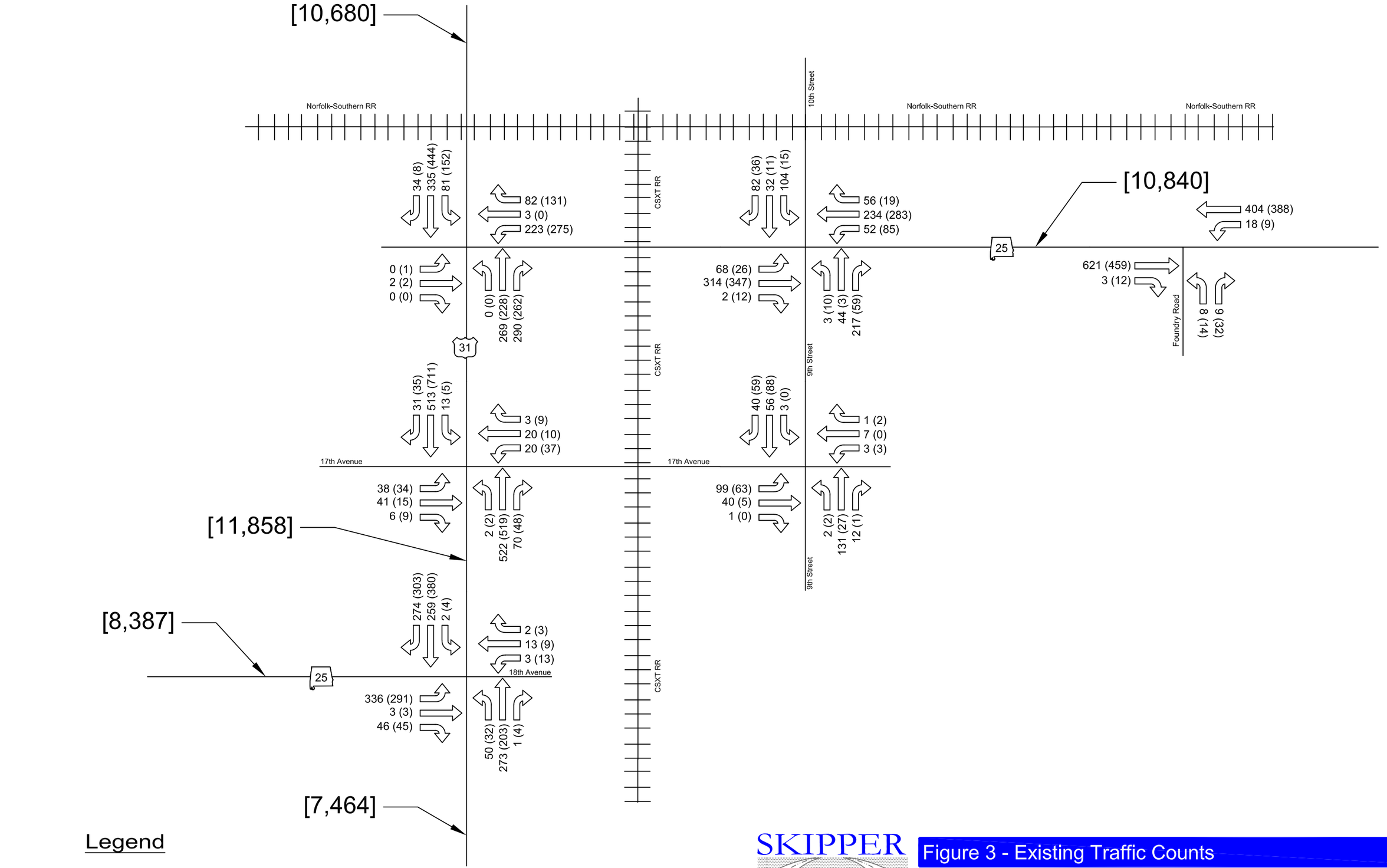
Existing machine traffic counts were performed at the following locations for twenty-four (24) continuous hours during the period Tuesday to Friday, January 22 to 25, 2019, by Traffic Data, LLC on behalf of Skipper Consulting, Inc.:

- State Route 25 east of 16th Street
- U.S. Highway 31 south of 19th Avenue
- U.S. Highway 31 south of 17th Avenue
- U.S. Highway 31 north of Woodbine Avenue
- State Route 25 west of Foundry Road

The machine traffic count data is included in Appendix B. Machine traffic counts included speed surveys and vehicle classification counts. Table 1 provides a summary of the machine traffic counts.

Table 1
Existing Machine Traffic Counts

U.S. Highway 31 north of Woodbine Avenue			
	Northbound	Southbound	Total
Daily Count	4,697	5,983	10,680
85th Percentile Speed	37 mph	31 mph	
Percent Trucks	15%	19%	
Percent Light Trucks	56%	53%	
Percent Heavy Trucks	44%	47%	
U.S. Highway 31 south of 17th Avenue			
	Northbound	Southbound	Total
Daily Count	6,340	5,518	11,858
85th Percentile Speed	27 mph	26 mph	
Percent Trucks	20%	28%	
Percent Light Trucks	41%	41%	
Percent Heavy Trucks	59%	59%	
U.S. Highway 31 south of 19th Avenue			
	Northbound	Southbound	Total
Daily Count	3,529	3,935	7,464
85th Percentile Speed	40 mph	41 mph	
Percent Trucks	11%	11%	
Percent Light Trucks	73%	69%	
Percent Heavy Trucks	27%	31%	
State Route 25 east of 16th Street			
	Eastbound	Westbound	Total
Daily Count	4,243	4.144	8,387
85th Percentile Speed			41 mph
Percent Trucks			22%
Percent Light Trucks			51%
Percent Heavy Trucks			49%
State Route 25 west of Foundry Road			
	Eastbound	Westbound	Total
Daily Count	6,244	4,596	10,840
85th Percentile Speed			47 mph
Percent Trucks			13%
Percent Light Trucks			63%
Percent Heavy Trucks			37%



Legend

AM (PM)[DAILY] - TRAFFIC VOLUMES

North
Scale: n.t.s

SKIPPER CONSULTING INC.

Figure 3 - Existing Traffic Counts

State Route 25 APPLE - Calera, Alabama — March 2019

EXISTING CONDITIONS ANALYSIS

Existing Peak Hour Intersection Capacity Analyses

Existing peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the 2000 *Highway Capacity Manual*, published by the Transportation Research Board. Capacities are expressed as levels of service, and range from a level of service "A" (highest quality of service) to a level of service "F" (jammed conditions). As a general rule, operation at a level of service "D" or better is considered acceptable. Operation at a level of service "E" is considered operating at capacity. Operation at a level of service "F" is considered failing. The results of the peak hour intersection capacity analyses are included in Appendix C and are summarized in Table 2. The capacity analyses also provide average delay in seconds per vehicle, which is reported in Table 2.

Existing Daily Roadway Segment Capacity Analysis

Roadway segment capacity analyses for daily traffic conditions on the study corridors were performed using the daily capacity and level of service chart developed from information obtained from the Alabama Department of Transportation and the Highway Capacity Manual. This chart is included in Table 3. Levels of service for the daily roadway segment capacity analyses conducted for the study area roadways are summarized in Table 4.

Table 2
Existing Intersection Capacity Analysis

Intersection	*Approach*	*Movement*	*Level of Service*	
			AM Peak	*PM Peak*
U.S. Highway 31 at State Route 25 (North)	Alley Eastbound	Left-Through-Right	B (15)	B (14)
	SR-25 Westbound	Left-Through-Right	C (31)	C (33)
	US-31 Northbound	Left-Through-Right	B (13)	B (10)
	US-31 Southbound	Left-Through-Right	B (12)	B (17)
		Overall intersection	***B (17)***	***B (19)***
U.S. Highway 31 at 17th Avenue	17th Avenue Eastbound	Left-Through-Right	C (32)	C (31)
	17th Avenue Westbound	Left-Through-Right	C (29)	C (29)
	US-31 Northbound	Left-Through-Right	A (4)	A (3)
	US-31 Southbound	Left-Through-Right	A (4)	A (3)
		Overall intersection	***A (8)***	***A (5)***
U.S. Highway 31 at State Route 25 (South)/18th Avenue	SR-25 Eastbound	Left-Through	C (30)	C (29)
		Right	B (11)	B (12)
		Overall approach	*C (28)*	*C (27)*
	18th Avenue Westbound	Left-Through-Right	B (11)	B (12)
	US-31 Northbound	Left-Through-Right	B (16)	B (13)
	US-31 Southbound	Left-Through-Right	C (33)	C (30)
		Overall intersection	***C (27)***	***C (25)***
State Route 25 at 9th Street/10th Street	SR-25 Eastbound	Left-Through-Right	A (2)	A (0)
	SR-25 Westbound	Left-Through-Right	A (2)	A (3)
	9th Street Northbound	Left-Through-Right	D (34)	C (16)
	10th Street Southbound	Left-Through-Right	F (*)	C (21)
17th Avenue at 9th Street	17th Avenue Eastbound	Left-Through-Right	B (13)	B (11)
	17th Avenue Westbound	Left-Through-Right	B (11)	A (9)
	9th Street Northbound	Left-Through-Right	A (0)	A (0)
	9th Street Southbound	Left-Through-Right	A (0)	A (0)
State Route 25 at Foundry Road	SR-25 Westbound	Left-Through	A (0)	A (0)
	Foundry Road Northbound	Left-Right	C (21)	C (17)

* - delay is greater than can be calculated using HCS methodology
Delay is expressed in average seconds per vehicle

Table 3
Daily Capacity and Level of Service Chart

Functional Classification	*Number of Lanes*	*Maximum Daily Flow Rate Related to Level of Service*					
		A	*B*	*C*	*D*	*E*	*F*
Freeway	4	23,800	34,000	42,160	51,000	68,000	>68,000
	6	35,700	51,000	63,240	76,500	102,000	>102,000
	8	47,600	68,000	84,320	102,000	136,000	>136,000
	10	59,500	85,000	105,400	127,500	170,000	>170,000
Expressway	4	17,500	25,000	31,000	37,500	50,000	>50,000
	6	26,250	37,500	46,500	56,250	75,000	>75,000
	8	35,000	50,000	62,000	75,000	100,000	>100,000
Arterial (Divided)	2	7,700	11,000	13,640	16,500	22,000	>22,000
	4	11,865	16,950	21,018	25,425	33,900	>33,900
	6	17,500	25,000	31,000	37,500	50,000	>50,000
	8	25,760	36,800	45,632	55,200	73,600	>73,600
Arterial (Undivided)	2	6,230	8,900	11,036	13,350	17,800	>17,800
	4	10,850	15,500	19,220	23,250	31,000	>31,000
	6	16,030	22,900	28,396	34,350	45,800	>45,800
	8	22,085	31,550	39,122	47,325	63,100	>63,100
Collector (Divided)	2	7,280	10,400	12,896	15,600	20,800	>20,800
	4	9,975	14,250	17,670	21,375	28,500	>28,500
	6	14,700	21,000	26,040	31,500	42,000	>42,000
Collector (Undivided)	2	5,810	8,300	10,292	12,450	16,600	>16,600
	4	9,170	13,100	16,244	19,650	26,200	>26,200
	6	13,545	19,350	23,994	29,025	38,700	>38,700

Table 4
Existing Daily Roadway Segment Levels of Service

Roadway	*Location*	*Cross Section*	*Classification*	*Daily Volume*	*Segment LOS*
US-31	North of Woodbine Avenue	4 Lane Undivided	Urban Minor Arterial	10,680	A
US-31	South of 17th Avenue	4 Lane Undivided	Urban Minor Arterial	11,858	B
US-31	South of 19th Avenue	4 Lane Undivided	Urban Minor Arterial	7,464	A
SR-25	East of 16th Street	2 Lane Undivided	Urban Minor Arterial	8,387	B
SR-25	West of Foundry Road	2 lane Undivided	Urban Minor Arterial	10,840	C

Drone Video Observations

Drone video observations of U.S. Highway 31 from State Route 25 (north) to State Route 25 (south) were performed on Wednesday, March 13, 2019 from 7:15 to 7:50 a.m. and 5:00 to 5:30 p.m. The following sections of this report document specific elements noted in these observations.

Railroad Crossing Analysis

Traffic operations within the study area are negatively impacted by two at-grade railroad-highway crossings near the intersection of U.S. Highway 31 at State Route 25 (North). The closest crossing is located crossing U.S. Highway 31 on the north side of the intersection, inside of the stop line for U.S. Highway 31 southbound traffic. This is Norfolk-Southern Railroad Crossing # 727398F.

Crossing #727398F

The second crossing is located on State Route 25, approximately 450 feet east of the intersection of U.S. Highway 31 and 350 feet west of the intersection of 9th Street/10th Street. This is CSXT Crossing #352290G.

Crossing #352290G

Information regarding the two crossings is tabulated as follows:

	Crossing #727398F	Crossing #352290G
Railroad	Norfolk-Southern	CSXT
Roadway	U.S. Highway 31	State Route 25
Nearest Cross Street	State Route 25	9th/10th Street
Distance to Nearest Cross Street	0’	350‘
Through Trains (6 AM – 6 PM)	2	6
Through Trains (6 PM – 6 AM)	2	7
Switching Trains	2	3
Passenger Trains	0	0
Maximum Train Speed	35 mph	30 mph
Control	Lights/Bells/Gates	Lights/Bells/Gates
Distance to Nearest Signal	0’ (SR-25)	450’ (US-31)
Preempt Interconnect	Yes	No

The FRA crash database has one crash, occurring at crossing #727398F in 1980 involving a truck and locomotive. The crash resulted in one injury, to the driver of the truck. The report states the driver did not stop for the train.

Data collection was undertaken at each crossing to determine the number of trains per day and the duration in time each train blocked the roadway. Data was collected for the U.S. Highway 31/Norfolk-Southern crossing #727398F using the preemption log in the traffic signal controller at the intersection of U.S. Highway 31 at State Route 25 (North) for the period March 1, 2019 to March 5, 2019. This data is tabulated in Table 5. Data was collected for the State Route 25/CSXT crossing #352290G by the Regional Planning Commission of Greater Birmingham using a video camera for 48 continuous hours on January 22 to 24, 2019. This data is tabulated in Table 6.

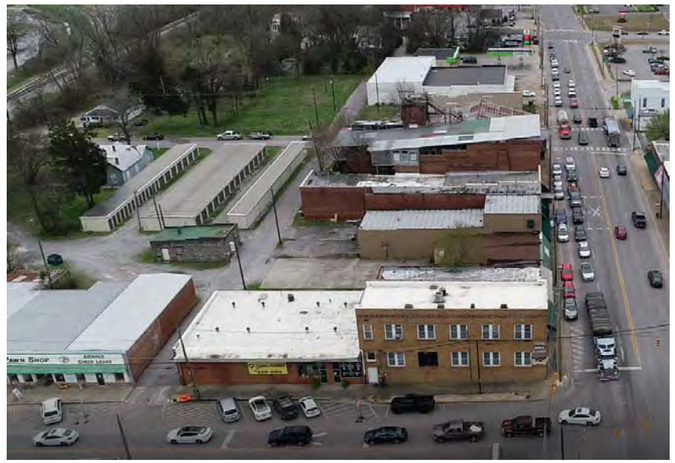
Table 5
At-Grade Rail-Highway Crossing Blockage Data
Norfolk-Southern Crossing #727398F

Day/Date	*Gates Down*	*Gates Up*	*Blockage Duration*
Friday, March 1, 2019	9:00 AM	9:02 AM	2 minutes
	12:41 PM	12:44 PM	3 minutes
	12:45 PM	12:46 p.m.	1 minute
	1:06 PM	1:09 p.m.	3 minutes
	4:07 PM	4:09 p.m.	2 minutes
Saturday, March 2, 2019	No Trains		
Sunday, March 3, 2019	No Trains		
Monday, March 4, 2019	8:57 AM	9:00 a.m.	3 minutes
	5:08 PM	5:13 p.m.	5 minutes
Tuesday, March 5, 2019	8:17 AM.	8:20 a.m.	3 minutes
	3:37 PM	3:39 p.m.	2 minutes

Table 6
At-Grade Rail-Highway Crossing Blockage Data
CSXT Crossing #352290G

Day/Date	*Gates Down*	*Gates Up*	*Blockage Duration*
Tuesday, January 22, 2019	11:00:25 AM	11:03:14 AM	02:49
	12:00:31 PM	12:03:27 PM	02:56
	1:02:08 PM	1:05:15 PM	03:07
	1:39:39 PM	1:43:42 PM	04:03
	1:47:59 PM	1:53:54 PM	05:55
	4:09:44 PM	4:12:33 PM	02:49
	5:56:30 PM	5:59:34 PM	03:04
	8:08:09 PM	8:11:24 PM	03:15
	8:45:46 PM	8:48:58 PM	03:12
	11:32:05 PM	11:34:51 PM	02:46
Wednesday, January 23, 2019	12:30:48 AM	12:40:06 AM	09:18
	3:08:07 AM	3:09:48 AM	01:41
	3:11:37 AM	3:19:03 AM	07:26
	4:15:38 AM	4:17:54 AM	02:16
	5:03:45 AM	5:07:08 AM	03:23
	6:40:30 AM	6:43:31 AM	03:01
	9:01:46 AM	9:07:29 AM	05:43
	1:45:35 PM	1:46:49 PM	01:14
	3:14:04 PM	3:16:19 PM	02:15
	4:02:07 PM	4:05:18 PM	03:11
	4:36:18 PM	4:39:33 PM	03:15
Thursday, January 23, 2019	12:49:42 AM	12:59:35 AM	09:53
	2:35:17 AM	2:37:59 AM	02:42
	3:58:38 AM	4:01:00 AM	02:22
	4:20:23 AM	4:34:05 AM	13:42
	5:20:05 AM	5:23:58 AM	03:53
	5:25:27 AM	5:35:42 AM	10:15
	5:42:10 AM	5:42:24 AM	00:14
	5:47:08 AM	5:50:46 AM	03:38
	6:16:05 AM	6:19:49 AM	03:44
	7:57:49 AM	8:00:51 AM	03:02
	8:16:55 AM	8:19:24 AM	02:29
	8:21:30 AM	8:28:23 AM	06:53
	8:32:23 AM	8:34:03 AM	01:40
	8:35:10 AM	8:36:23 AM	01:13
	8:41:53 AM	8:42:46 AM	00:53
	8:44:38 AM	8:45:21 AM	00:43
	8:47:40 AM	8:48:15 AM	00:35
	8:52:02 AM	8:52:23 AM	00:21
	9:24:35 AM	9:30:57 AM	06:22

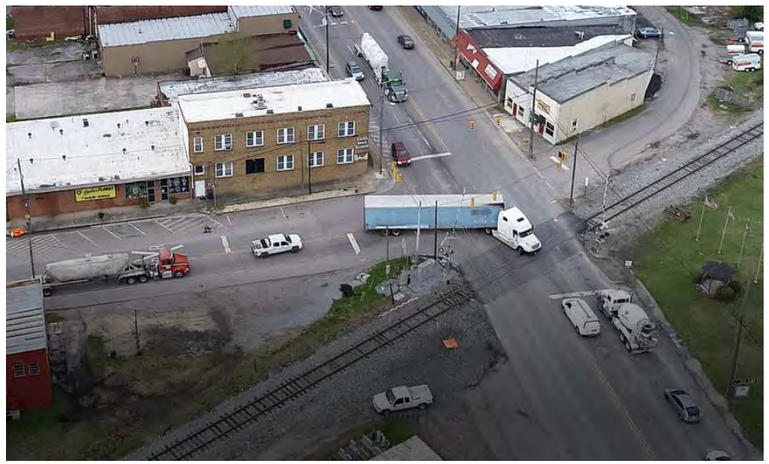
The impact of a train crossing the CSXT crossing #352290G on State Route 25 east of U.S. Highway 31 results in a queue of vehicles on State Route 25 west of the crossing and on U.S. Highway 31 northbound extending to the south of 17th Avenue.



Truck Turning Radii

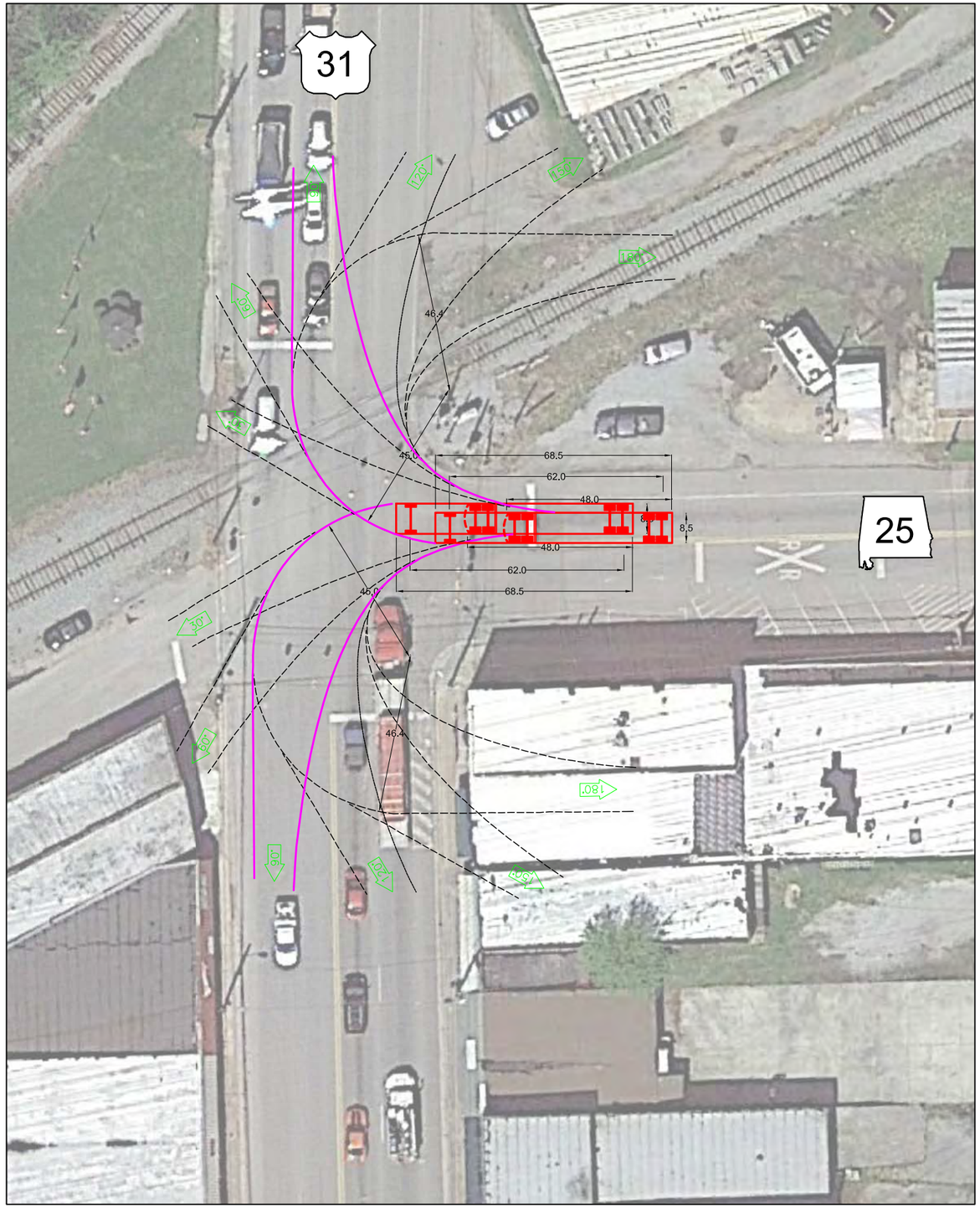
Traffic operations in the study area are also negatively impacts by large trucks negotiating the turns onto and off of U.S. Highway 31 at either end of the Calera downtown area at the intersections with State Route 25. In order to ascertain the magnitude of the impact, drawings were prepared which overlay truck turning templates on the intersections of U.S. Highway 31 at State Route 25 North and South. These drawings are included as Figures 4 and 5. Figure 4 depicts truck turning templates overlaid on the intersection of U.S. Highway 31 at State Route 25 North and Figure 5 depicts truck turning templates overlaid on the intersection of U.S. Highway 31 at State Route 25 South.

As shown in Figures 4 and 5, the left turning movements from State Route 25 onto U.S. Highway 31 at both ends of the downtown area can be negotiated without encroachment into opposing traffic lanes. However, at both ends, trucks turning right off of State Route 25 onto U.S. Highway 31 significantly encroach in the opposing through lane. An example of the encroachment at the north intersection is shown in the photograph below.



Furthermore, at the North intersection, a truck turning right from U.S. Highway 31 northbound onto State Route 25 encroaches significantly into the westbound through lane on State Route 25. An example of this encroachment at the north intersection is shown in the following photograph.

At the South intersection, a truck turning right from U.S. Highway 31 southbound onto State Route 25 encroaches slightly into the eastbound through lane on State Route 25.



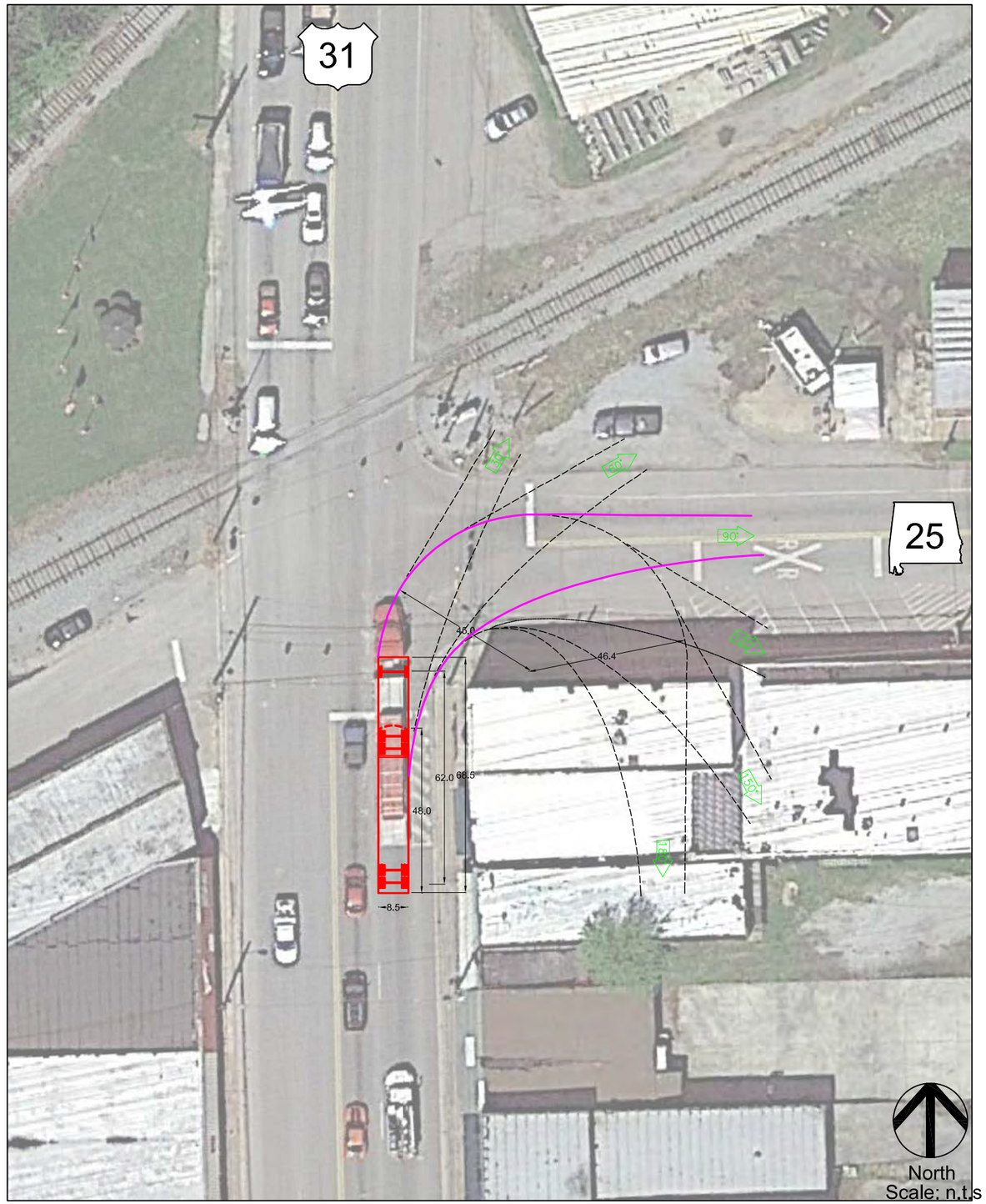


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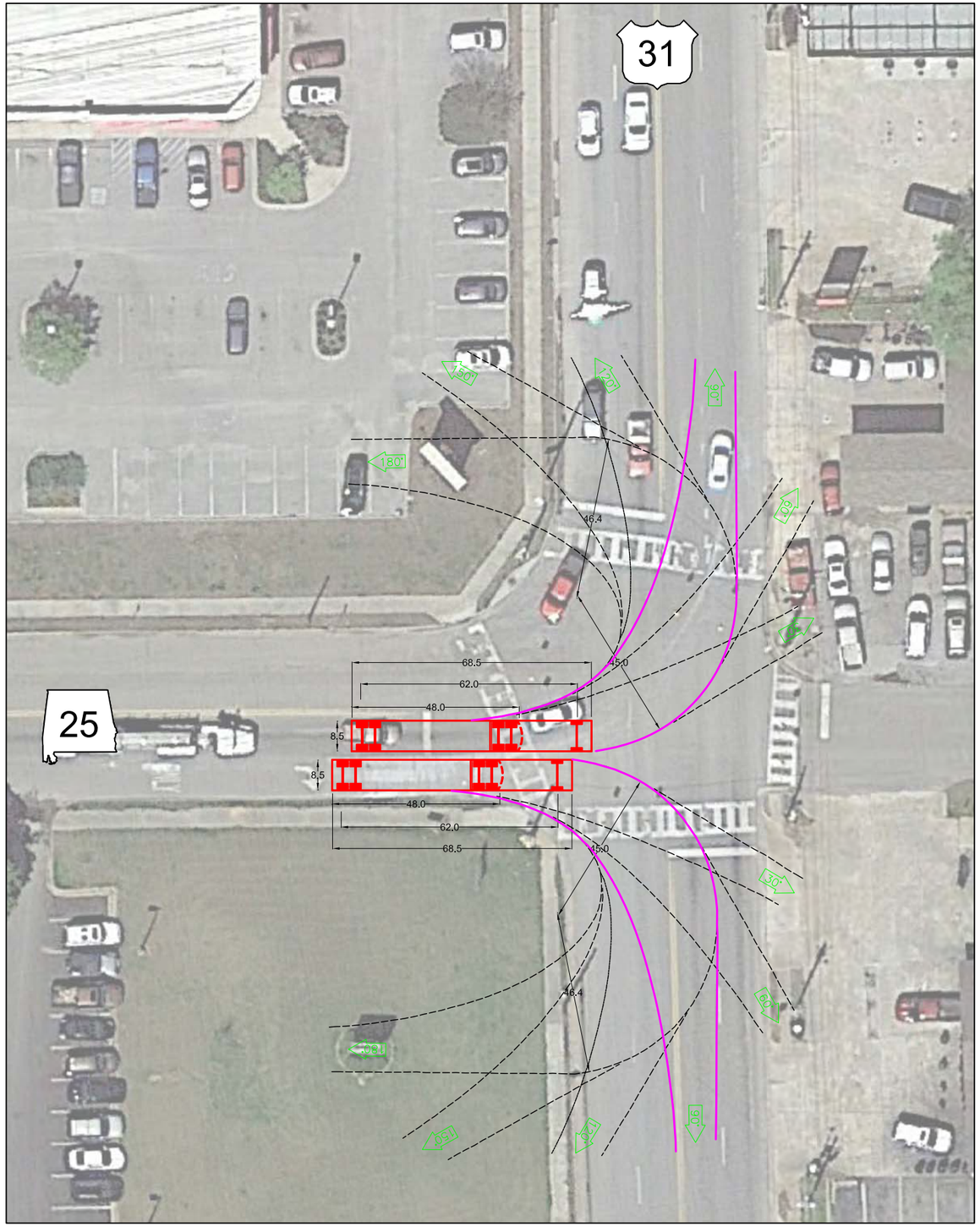
Figure 4 - Truck Turning Radii - US-31/SR-25 North

State Route 25 APPLE - Calera, Alabama — March 2019



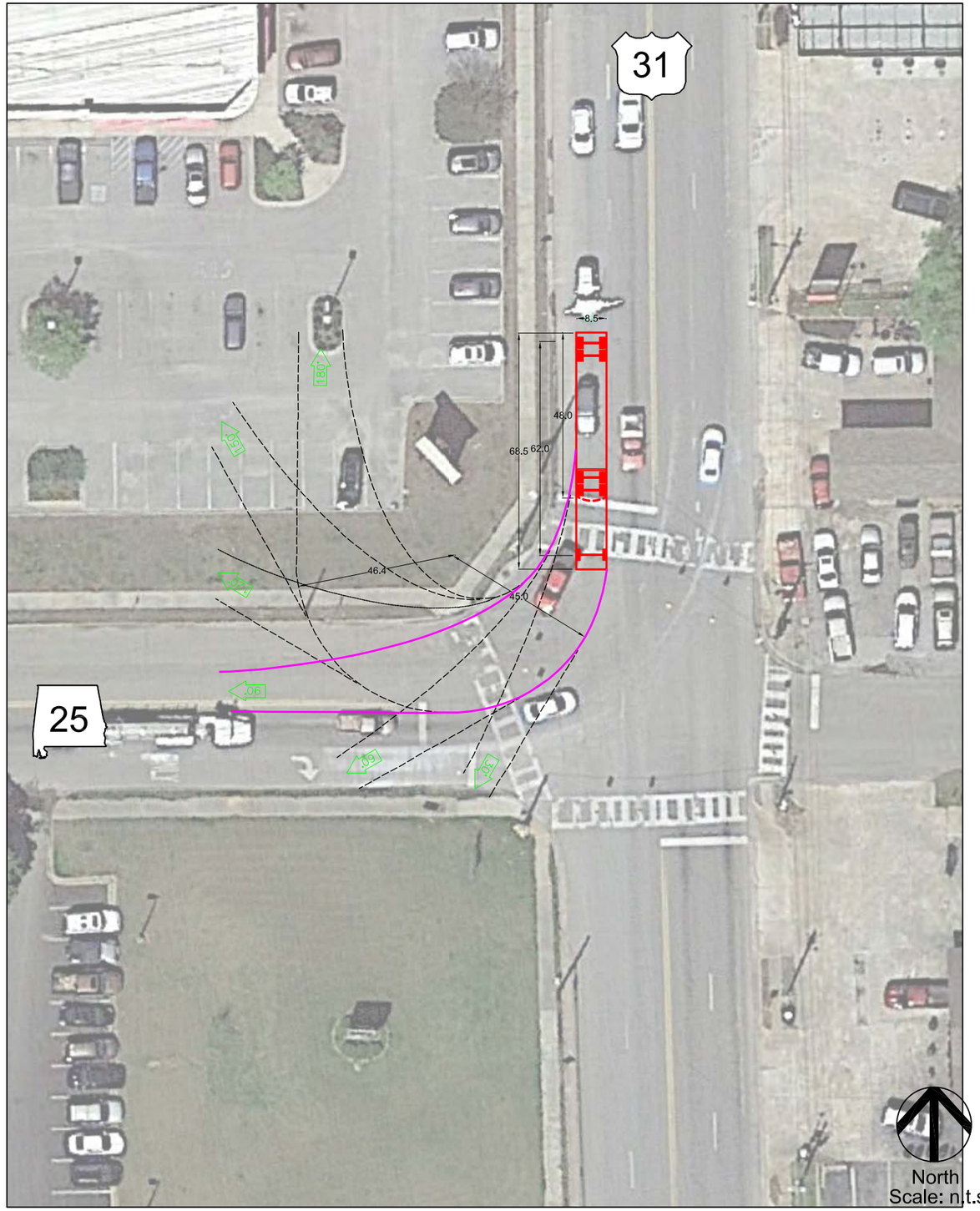


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Figure 5 - Truck Turning Radii - US-31/SR-25 South

State Route 25 APPLE - Calera, Alabama March 2019

Impact of Calera Elementary School

The drone video observations showed that traffic generated by Calera Elementary School (located on 10th Street north of State Route 25) has significant traffic impacts in the study area. The City of Calera utilizes a police officer to control traffic at the intersection of State Route 25 at 9th Street/10th Street to allow traffic to exit 10th Street. This causes traffic to back on State Route 25 eastbound and U.S. Highway 31 northbound all the way to the intersection of U.S. Highway 31 at State Route 25 (south). This queue is shown in the first photograph below. The police officer control of the intersection also causes traffic to queue on State Route 25 to the east of the intersection of 9th Street/10th Street past the intersection of Foundry Road. This queue is shown in the second photograph.

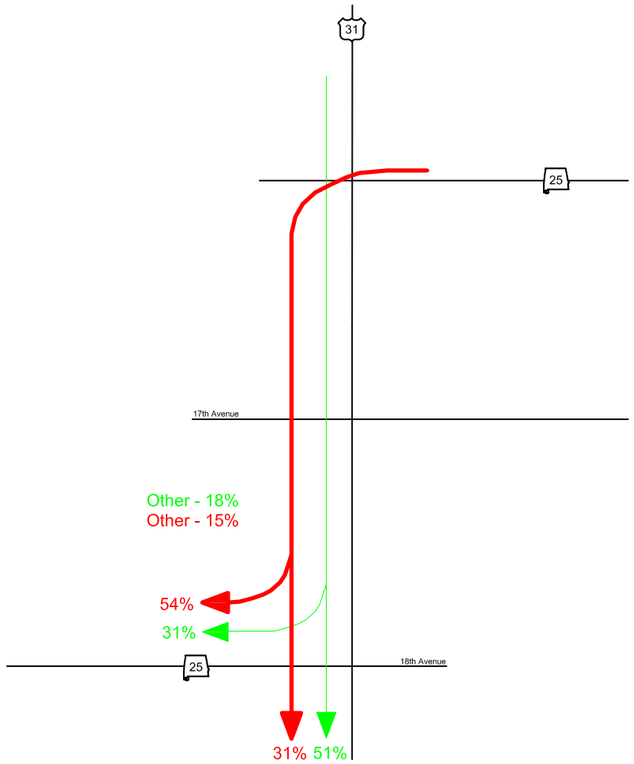
Origin-Destination Study

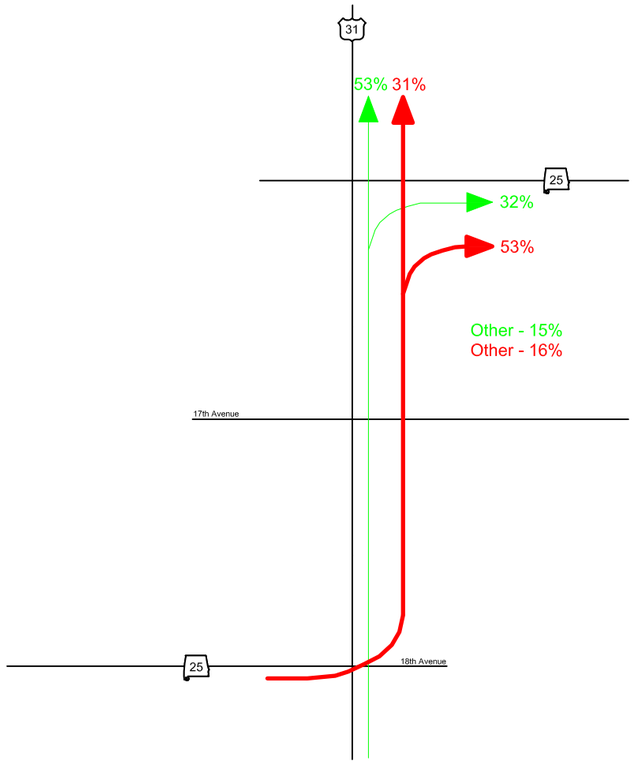
Drone video observations were used to track vehicles in the two block area of downtown Calera. Specifically, vehicles were tracked entering the two block downtown area from the north on U.S. Highway 31 and State Route 25, to see where they exited the network, and likewise, from the south end of downtown on U.S. Highway 31 and State Route 25 to see where they exited the study area. Analysis of the videos was performed for both the a.m. and p.m. peak period. The results of the origin/destination analysis are depicted in Figure 6 and are summarized in Table 7.

Table 7
Origin-Destination Survey Results

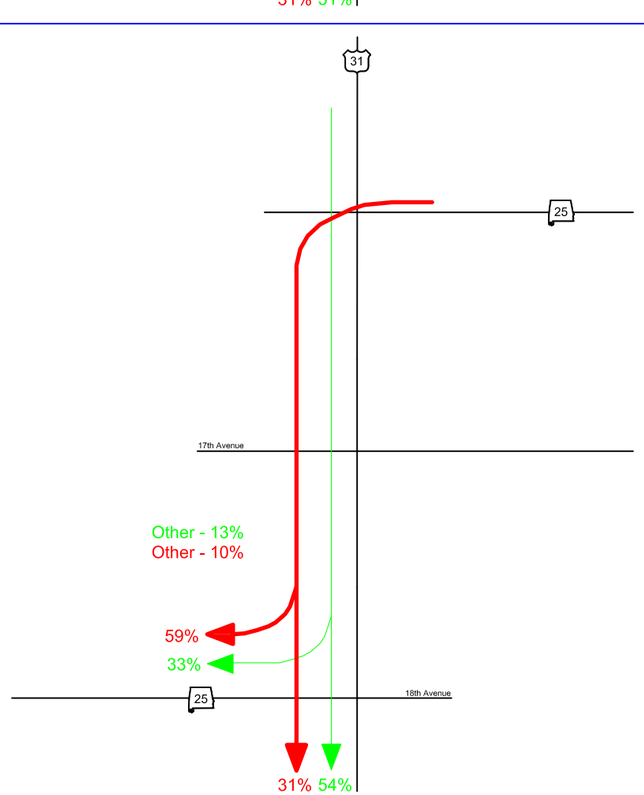
AM Peak				
	Origin			
Destination	US-31 North	SR-25 North	US-31 South	SR-25 South
US-31 North	--	--	53%	31%
SR-25 North	--	--	32%	53%
US-31 South	51%	31%	--	--
SR-25 South	31%	54%	--	--
Other	18%	15%	15%	16%

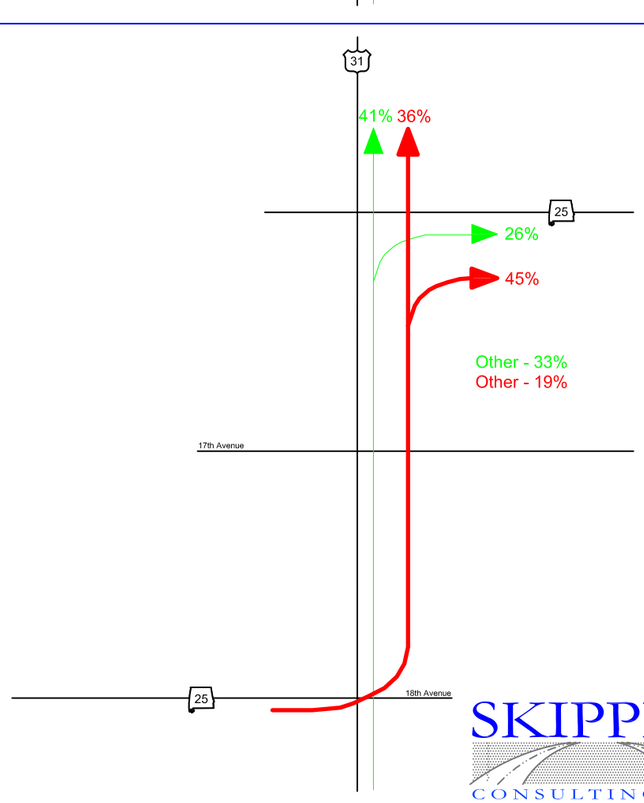
PM Peak				
	Origin			
Destination	US-31 North	SR-25 North	US-31 South	SR-25 South
US-31 North	--	--	41%	36%
SR-25 North	--	--	26%	45%
US-31 South	54%	31%	--	--
SR-25 South	33%	59%	--	--
Other	13%	10%	33%	19%





AM Peak





PM Peak

North
Scale: n.t.s

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Figure 6 - Origin-Destination Study Results

State Route 25 APPLE - Calera, Alabama March 2019

FUTURE 2040 CONDITIONS ANALYSIS

Historic Traffic Growth

An analysis was performed to determine the historical rate of traffic growth on roadways with the study area. Traffic count information from the Alabama Department of Transportation was obtained for the years 2008 through 2017 for U.S. Highway 31 and State Route 25 near the study area. This information was analyzed to determine the rate of traffic growth in the area. The traffic count information and analysis is shown in Table 8.

Table 8
Historical Traffic Growth

Year	*US-31 North of SR-25 (North)*		*US-31 North of SR-25 (South)*		*SR-25 West of Foundry Road*		*SR-25 West of 14th Street*	
2008					8,010			
2009					8,270	+3.2%		
2010					8,070	-2.4%		
2011					7,990	-1.0%		
2012					8,600	+7.6%		
2013					8,490	-1.3%	9,030	
2014	14,540		17,310		9,770	+15.1%	9,100	+0.8%
2015	14,830	+2.0%	17,660	+2.0%	9,970	+2.0%	9,210	+1.2%
2016	15,190	+2.4%	18,090	+2.4%	10,210	+2.4%	9,440	+2.5%
2017	15,000	-1.3%	17,860	-1.3%	10,180	-0.3%	9,420	-0.2%
Average Growth per Year		+1.1%		+1.1%		+2.8%		+1.1%
Overall Growth per year 2008-2017		+0.8%		+0.8%		+3.0%		+0.9%

Regional Transportation Demand Model

The regional transportation demand model for the Birmingham area (maintained by the Regional Planning Commission of Greater Birmingham) was used to estimate future growth in traffic in the study area. Base year 2010 calibrated traffic volumes were compared to future year 2040 traffic forecasts for U.S. Highway 31 and State Route 25. The output traffic volumes from the transportation demand model are shown in Figure 7. An analysis of the projected traffic growth in the study area based on the transportation demand model is included in Table 9.

Table 9
Transportation Demand Model Growth

Roadway	*Segment*	*2010 Calibrated Volume*	*2040 Forecasted Volume*	*Percent Growth Per Year*
U.S. Highway 31	North of SR-25 (North)	12,800	18,900	+1.6%
	Near 17th Avenue	14,100	18,300	+1.0%
	South of SR-25 (South)	7,300	10,100	+1.3%
State Route 25 (North)	East of US-31	13,300	20,300	+1.8%
State Route 25 (South)	West of US-31	8,200	10.900	+1.1%

Traffic Growth Forecast

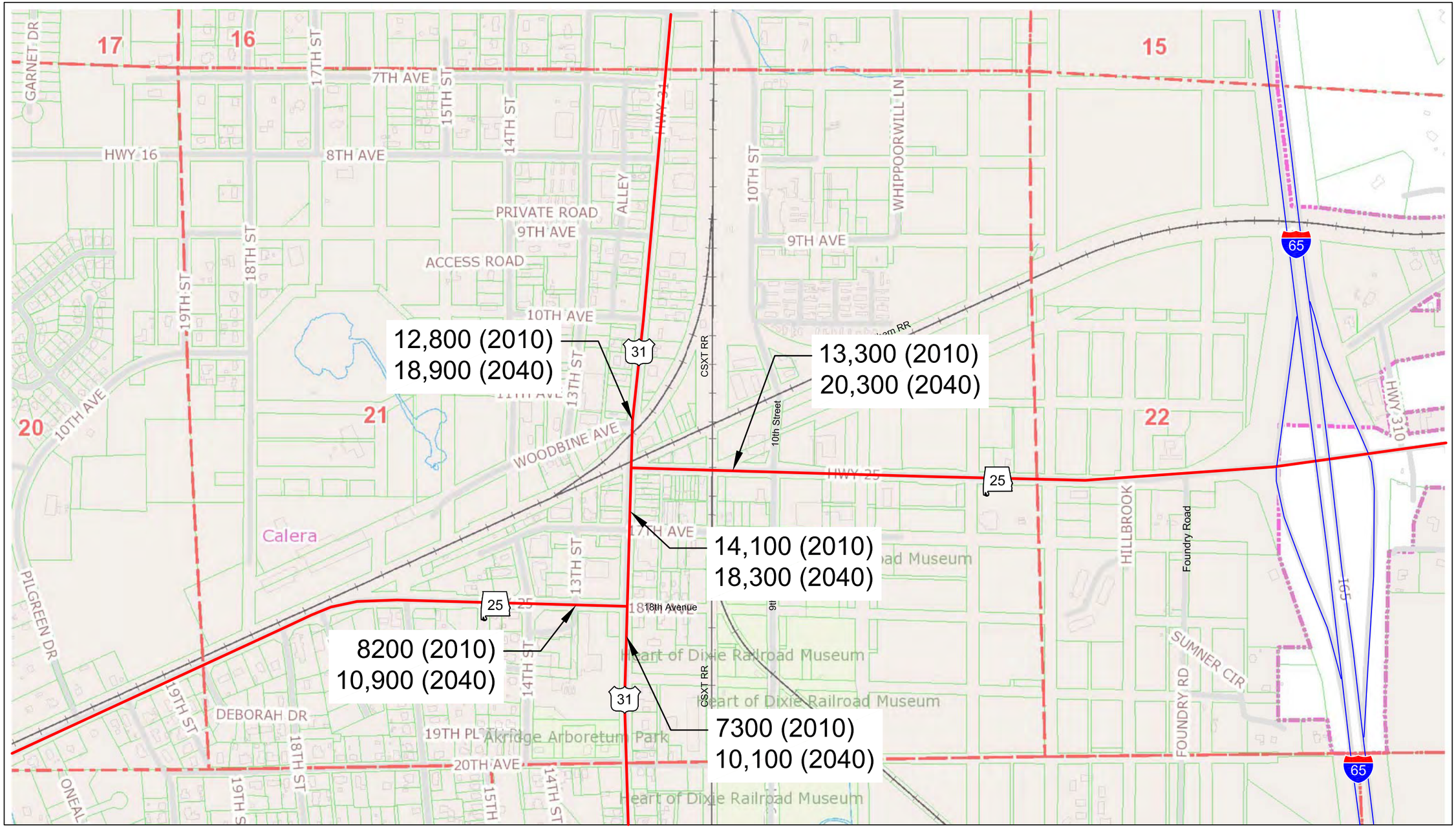
Combining the results of the historical traffic growth and the traffic growth projected by the regional transportation demand model, a per year growth rate in traffic of +1.5% per year was calculated. The +1.5% per year historical traffic growth rate was applied to existing traffic counts. The anticipated increase in traffic from 2019 to 2040 is shown in Figure 8.

Future 2040 Intersection Capacity Analysis

Peak hour intersection capacity analyses were performed for future year 2040 traffic conditions. The results are included in Appendix D and are summarized in Table 10. It should be noted that the 2040 analyses include the current TIP project to provide turn lanes and signalization of the intersection of State Route 25 at 9th Street/10th Street.

Future 2040 Daily Roadway Segment Capacity Analysis

Roadway segment capacity analyses for future 2040 projected daily traffic conditions on the study corridors were performed using the daily capacity and level of service chart developed from information obtained from the Alabama Department of Transportation and the Highway Capacity Manual. Levels of service for the daily roadway segment capacity analyses conducted for the study area roadways are summarized in Table 11.



North
Scale: n.t.s

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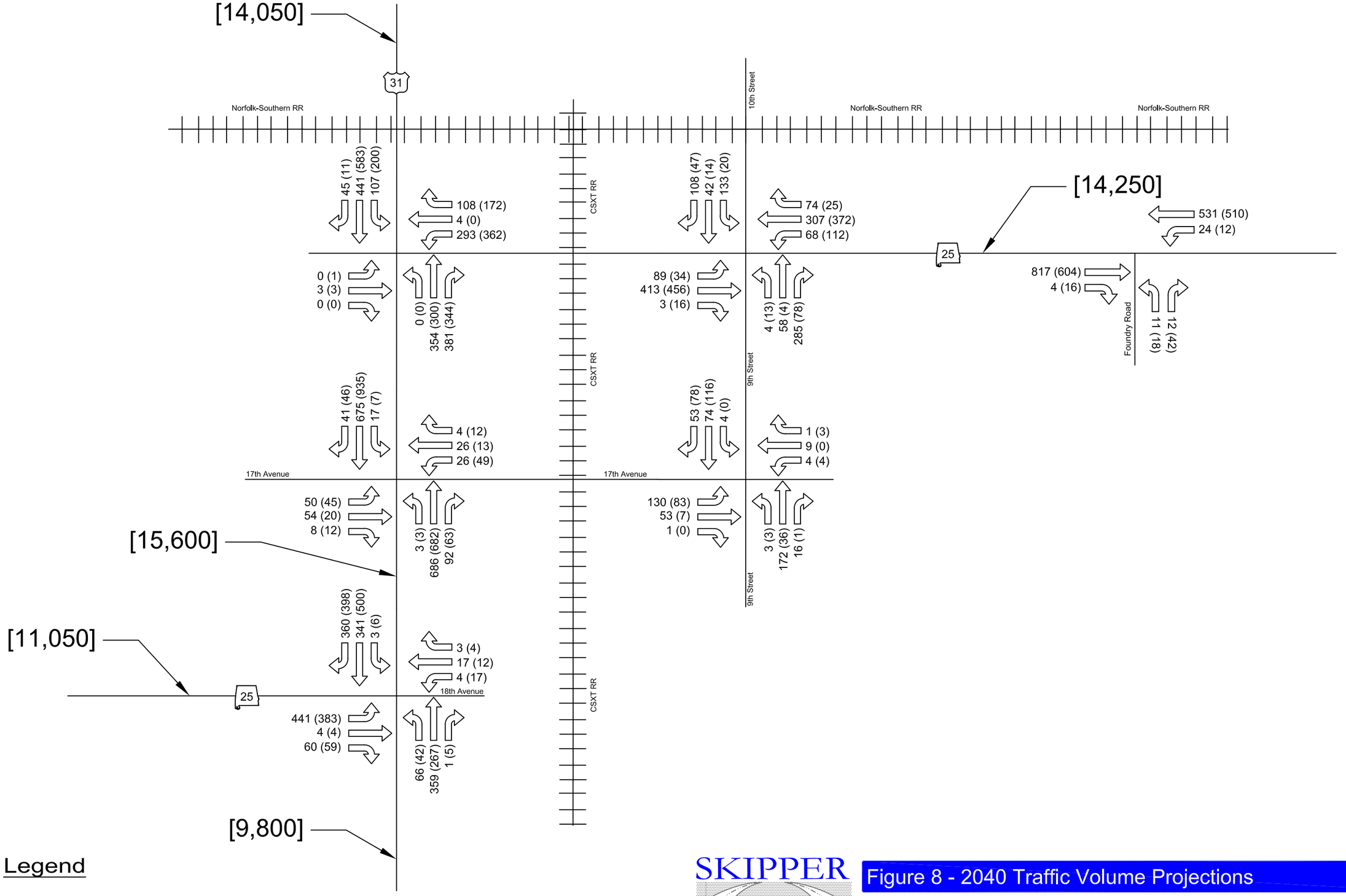
Figure 7 - Transportation Demand Model Assignment

State Route 25 APPLE - Calera, Alabama March 2019



Legend

AM (PM)[DAILY] - TRAFFIC VOLUMES

North
Scale: n.t.s

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Figure 8 - 2040 Traffic Volume Projections

State Route 25 APPLE - Calera, Alabama March 2019

Table 10
Future 2040 Intersection Capacity Analysis

Intersection	*Approach*	*Movement*	*Level of Service*	
			AM Peak	*PM Peak*
U.S. Highway 31 at State Route 25 (North)	Alley Eastbound	Left-Through-Right	B (12)	B (11)
	SR-25 Westbound	Left-Through-Right	D (39)	D (48)
	US-31 Northbound	Left-Through-Right	C (25)	B (19)
	US-31 Southbound	Left-Through-Right	C (24)	F (114)
		Overall intersection	***C (28)***	***E (67)***
U.S. Highway 31 at 17th Avenue	17th Avenue Eastbound	Left-Through-Right	C (30)	C (31)
	17th Avenue Westbound	Left-Through-Right	C (26)	C (29)
	US-31 Northbound	Left-Through-Right	A (5)	A (3)
	US-31 Southbound	Left-Through-Right	A (5)	A (4)
		Overall intersection	***A (8)***	***A (6)***
U.S. Highway 31 at State Route 25 (South)/18th Avenue	SR-25 Eastbound	Left-Through	D (47)	D (38)
		Right	A (8)	A (9)
		Overall approach	*D (43)*	*C (34)*
	18th Avenue Westbound	Left-Through-Right	A (8)	A (9)
	US-31 Northbound	Left-Through-Right	C (26)	C (21)
	US-31 Southbound	Left-Through-Right	D (44)	D (48)
		Overall intersection	***D (39)***	***D (38)***
State Route 25 at 9th Street/10th Street	SR-25 Eastbound	Left	C (20)	A (2)
		Through-Right	C (25)	A (4)
		Overall approach	*C (24)*	*A (4)*
	SR-25 Westbound	Left	B (18)	A (3)
		Through-Right	C (22)	A (3)
		Overall approach	*C (21)*	*A (3)*
	9th Street Northbound	Left-Through-Right	B (10)	B (14)
	10th Street Southbound	Left-Through-Right	C (25)	B (15.8)
		Overall intersection	***C (21)***	***A (5)***
17th Avenue at 9th Street	17th Avenue Eastbound	Left-Through-Right	C (19)	B (12)
	17th Avenue Westbound	Left-Through-Right	B (13)	A (10)
	9th Street Northbound	Left-Through-Right	A (0)	A (1)
	9th Street Southbound	Left-Through-Right	A (0)	A (0)
State Route 25 at Foundry Road	SR-25 Westbound	Left-Through	A (1)	A (0)
	Foundry Road Northbound	Left-Right	E (35)	D (28)

* - delay is greater than can be calculated using HCS methodology
Delay is expressed in average seconds per vehicle

Table 11
Future 2040 Daily Roadway Segment Levels of Service

Roadway	*Location*	*Cross Section*	*Classification*	*Daily Volume*	*Segment LOS*
US-31	North of Woodbine Avenue	4 Lane Undivided	Urban Minor Arterial	14,050	B
US-31	South of 17th Avenue	4 Lane Undivided	Urban Minor Arterial	15,600	C
US-31	South of 19th Avenue	4 Lane Undivided	Urban Minor Arterial	9,800	A
SR-25	East of 16th Street	2 Lane Undivided	Urban Minor Arterial	11,050	D
SR-25	West of Foundry Road	2 lane Undivided	Urban Minor Arterial	14,250	E

ANALYSIS OF ALTERNATIVES

Future 2040 Alternative Traffic Assignment

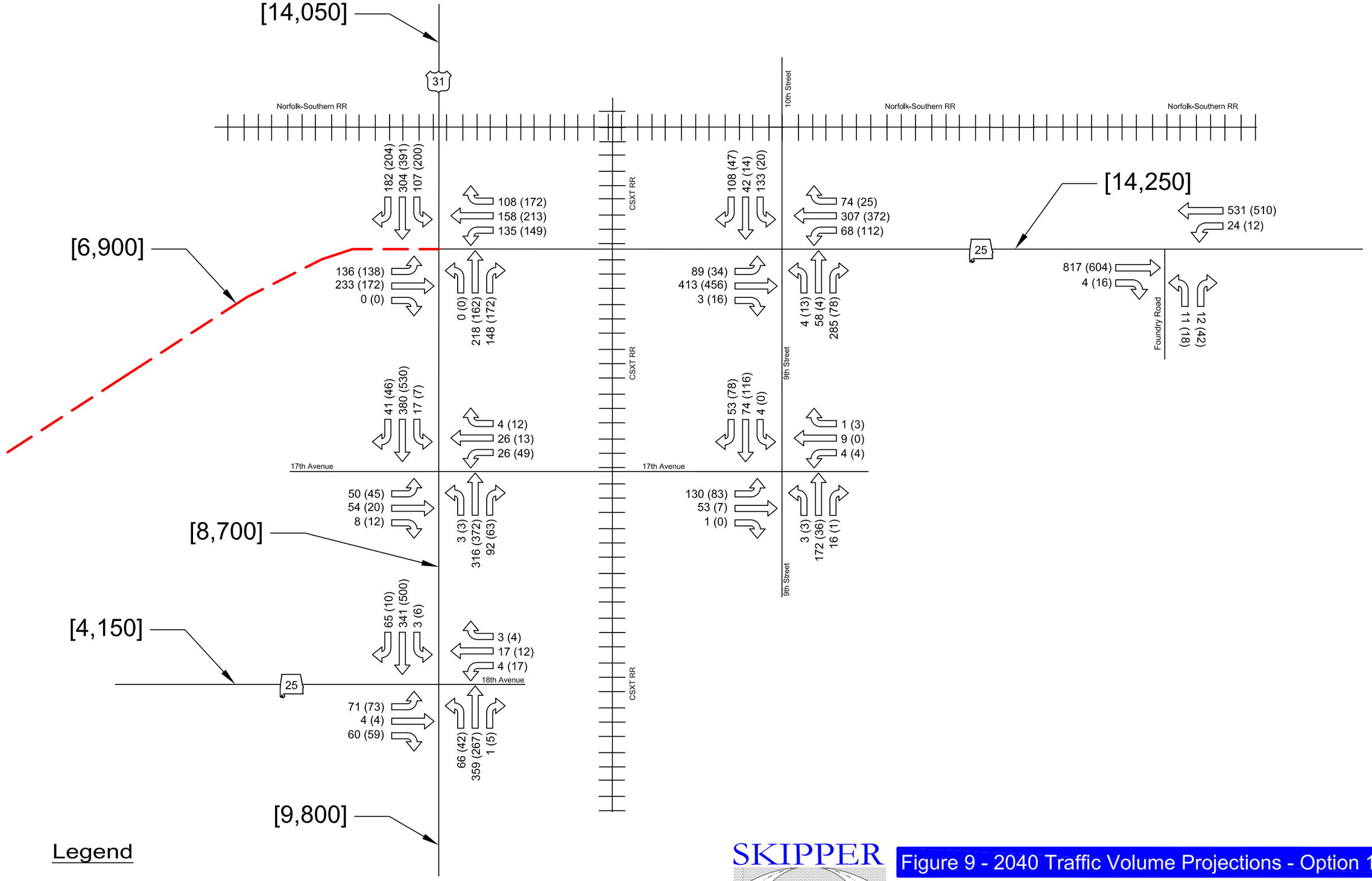
Future 2040 Traffic volumes were reassigned to the area roadway network based on the configuration of the three alternatives presented earlier in this report. The future 2040 traffic volumes for Options 1, 2 and 3 are shown in Figures 9 through 11.

Future 2040 Alternative Intersection Capacity Analysis

Peak hour intersection capacity analyses were performed for future year 2040 traffic conditions for the three alternatives. The results are included in Appendices E, F, and G and are summarized in Tables 12, 13, and 14.

Future 2040 Alternative Daily Roadway Segment Capacity Analysis

Roadway segment capacity analyses for future 2040 projected daily traffic conditions on the study corridors for the three alternatives were performed using the daily capacity and level of service chart developed from information obtained from the Alabama Department of Transportation and the Highway Capacity Manual. Levels of service for the daily roadway segment capacity analyses conducted for the study area roadways are summarized in Tables 15, 16, and 17.



Legend

AM (PM)[DAILY] - TRAFFIC VOLUMES

North
Scale: n.t.s

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Figure 9 - 2040 Traffic Volume Projections - Option 1

State Route 25 APPLE - Calera, Alabama March 2019

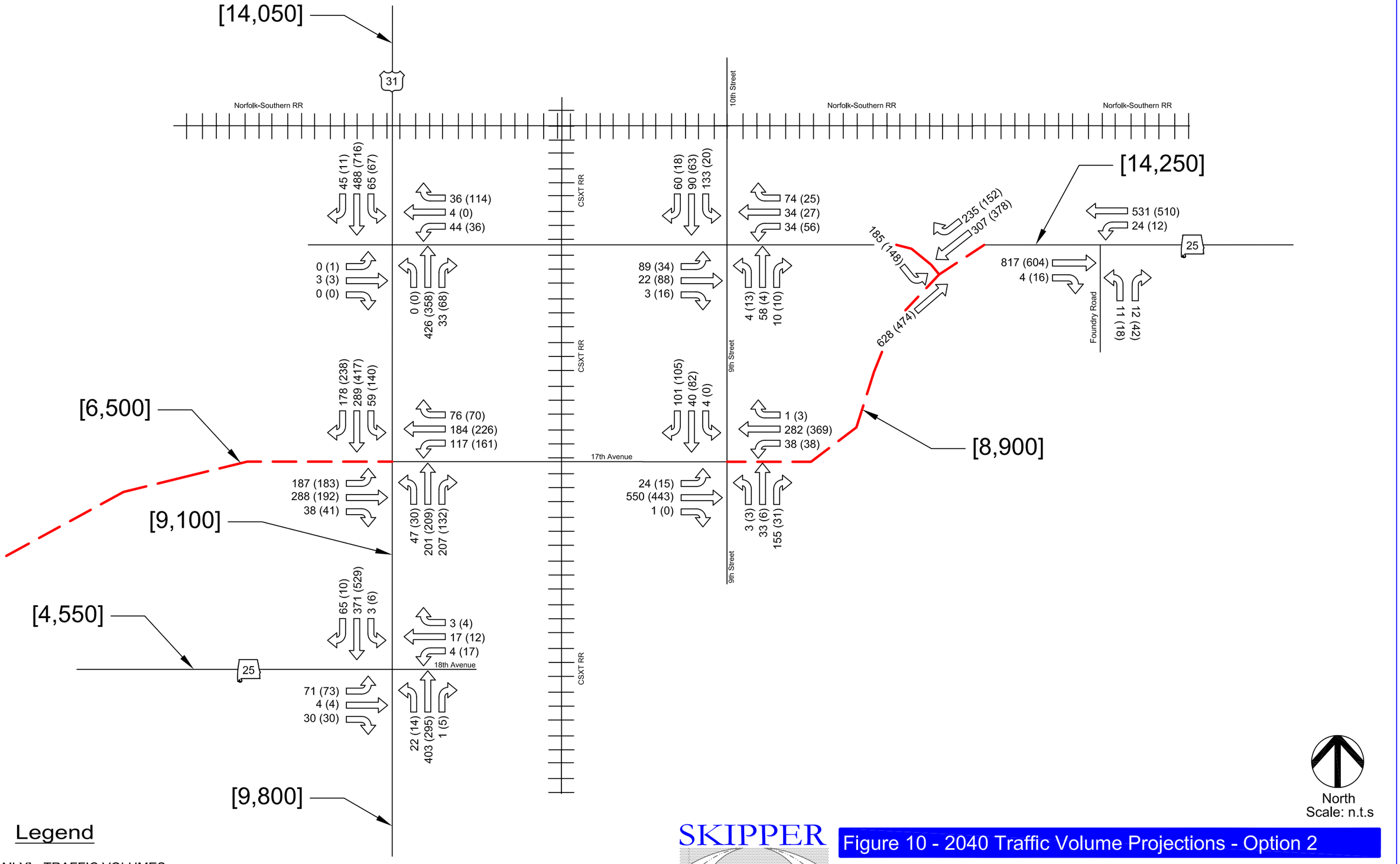

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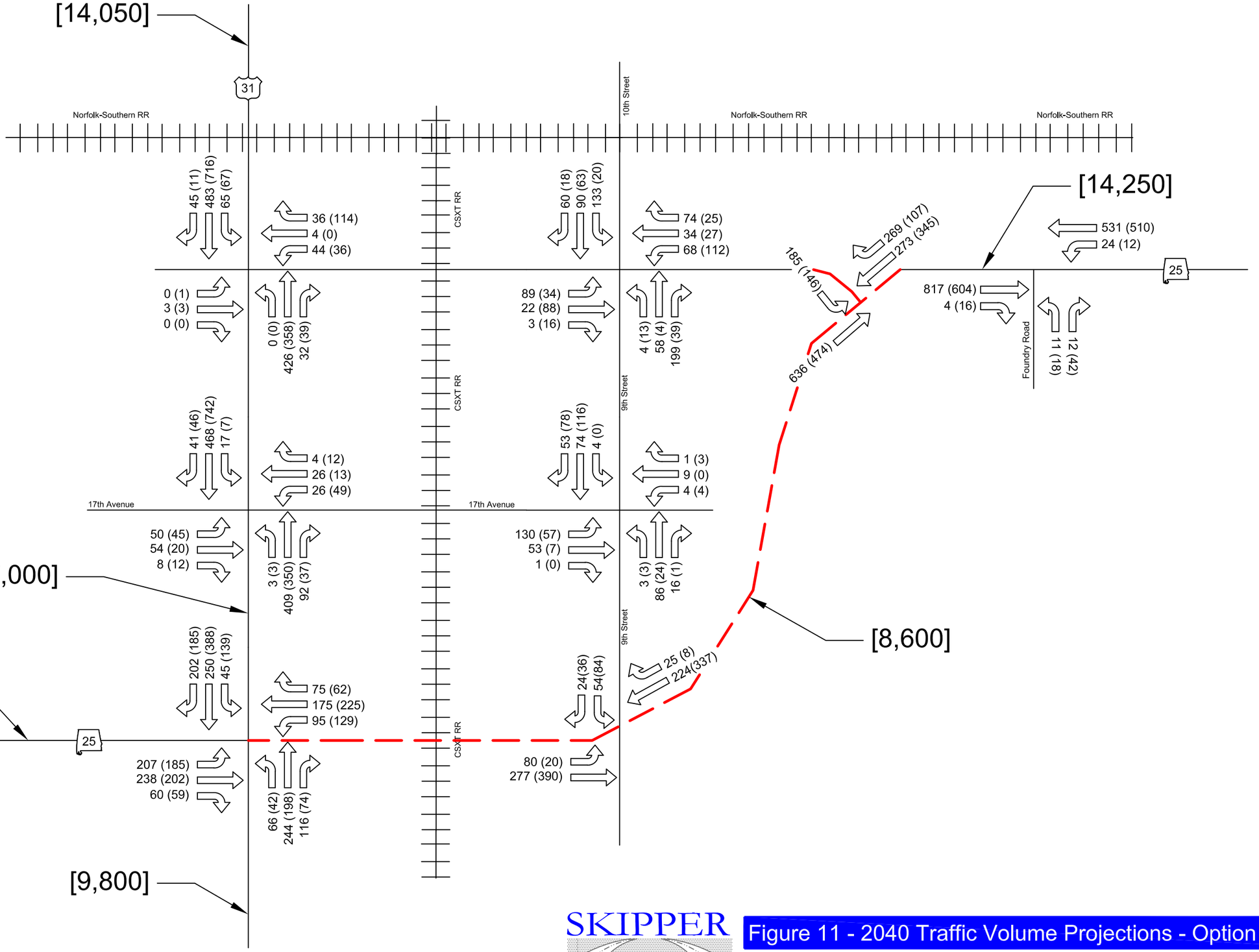
Figure 10 - 2040 Traffic Volume Projections - Option 2

State Route 25 APPLE - Calera, Alabama — March 2019



Legend

AM (PM)[DAILY] - TRAFFIC VOLUMES

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Figure 11 - 2040 Traffic Volume Projections - Option 3

State Route 25 APPLE - Calera, Alabama — March 2019

Table 12
Future 2040 Intersection Capacity Analysis: Option 1

Intersection	Approach	Movement	Level of Service	
			AM Peak	PM Peak
U.S. Highway 31 at State Route 25 (North)	Relocated SR-25 Eastbound	Left	D (53)	D (53)
		Through-Right	D (38)	C (23)
		Overall approach	*D (43)*	*D (36)*
	SR-25 Westbound	Left	C (34)	C (20)
		Through-Right	D (37)	D (38)
		Overall approach	*D (36)*	*C (33)*
	US-31 Northbound	Left	A (9)	A (0)
		Through-Right	B (15)	B (20)
		Overall approach	*B (14)*	*B (20)*
	US-31 Southbound	Left	B (14)	D (37)
		Through-Right	C (21)	E (68)
		Overall approach	*B (20)*	*E (60)*
		Overall intersection	***C (28)***	***D (42)***
U.S. Highway 31 at 17th Avenue	17th Avenue Eastbound	Left-Through-Right	C (30)	C (27)
	17th Avenue Westbound	Left-Through-Right	C (26)	C (30)
	US-31 Northbound	Left	A (6)	A (4)
		Through-Right	A (7)	A (6)
		Overall approach	*A (7)*	*A (6)*
	US-31 Southbound	Left	A (4)	A (3)
		Through-Right	A (7)	A (9)
		Overall approach	*A 97)*	*A (9)*
		Overall intersection	***B (11)***	***B (11)***
U.S. Highway 31 at State Route 25 (South)/18th Avenue	SR-25 Eastbound	Left-Through	C (35)	C (35)
		Right	C (26)	C (26)
		Overall approach	*C (31)*	*C (31)*
	18th Avenue Westbound	Left-Through-Right	C (26)	C (27)
	US-31 Northbound	Left	A (4)	A (4)
		Through-Right	A (5)	A (4)
		Overall approach	*A (4)*	*A (4)*
	US-31 Southbound	Left	A (3)	A (3)
		Through-Right	A (8)	A (9)
		Overall approach	*A (8)*	*A (9)*
		Overall intersection	***B (11)***	***B (11)***

Table 12 (continued)
Future 2040 Intersection Capacity Analysis: Option 1

Intersection	Approach	Movement	Level of Service	
			AM Peak	PM Peak
State Route 25 at 9th Street/10th Street	SR-25 Eastbound	Left	C (21)	A (4)
		Through-Right	C (26)	A (6)
		Overall approach	*C (25)*	*A (6)*
	SR-25 Westbound	Left	B (19)	A (5)
		Through-Right	C (22)	A (5)
		Overall approach	*C (22)*	*A (5)*
	9th Street Northbound	Left-Through-Right	B (10)	B (11)
	10th Street Southbound	Left-Through-Right	C (24)	B (12)
		Overall intersection	***C (21)***	***A (7)***
17th Avenue at 9th Street	17th Avenue Eastbound	Left-Through-Right	C (19)	B (12)
	17th Avenue Westbound	Left-Through-Right	B (13)	A (10)
	9th Street Northbound	Left-Through-Right	A (0)	A (1)
	9th Street Southbound	Left-Through-Right	A (0)	A (0)
State Route 25 at Foundry Road	SR-25 Westbound	Left-Through	A (1)	A (1)
	Foundry Road Northbound	Left-Right	E (35)	C (23)

Delay is expressed in average seconds per vehicle

Table 13
Future 2040 Intersection Capacity Analysis: Option 2

Intersection	Approach	Movement	Level of Service	
			AM Peak	PM Peak
U.S. Highway 31 at Old State Route 25 (North)	Alley Eastbound	Left-Through-Right	C (26)	C (26)
	Old SR-25 Westbound	Left-Through-Right	C (28)	C (28)
	US-31 Northbound	Left	A (0)	A (0)
		Through-Right	A (4)	A (4)
		Overall approach	*A (4)*	*A (4)*
	US-31 Southbound	Left	A (4)	A (4)
		Through-Right	A (6)	B (12)
		Overall approach	*A (6)*	*B (12)*
		Overall intersection	***A (7)***	***B (11)***
U.S. Highway 31 at New SR-25	New SR-25 Eastbound	Left	D (50)	D (51)
		Through-Right	C (23)	B (18)
		Overall approach	*C (33)*	*C (33)*
	New SR-25 Westbound	Left	C (25)	C (21)
		Through-Right	B (17)	B (18)
		Overall approach	*B (20)*	*B (19)*
	US-31 Northbound	Left	B (16)	B (17)
		Through-Right	B (19)	B (16)
		Overall approach	*B (19)*	*B (16)*
	US-31 Southbound	Left	B (18)	B (19)
		Through-Right	C (30)	D (51)
		Overall approach	*C (29)*	*D (45)*
		Overall intersection	***C (26)***	***C (32)***
U.S. Highway 31 at Old State Route 25 (South)/18th Avenue	Old SR-25 Eastbound	Left-Through	C (35)	D (35)
		Right	C (26)	C (26)
		Overall approach	*C (32)*	*C (33)*
	18th Avenue Westbound	Left-Through-Right	C (26)	C (27)
	US-31 Northbound	Left	A (3)	A (3)
		Through-Right	A (5)	A (5)
		Overall approach	*A (5)*	*A (5)*
	US-31 Southbound	Left	A (2)	A (2)
		Through-Right	A (5)	A (5)
		Overall approach	*A (5)*	*A (5)*
		Overall intersection	***A (9)***	***A (9)***

Table 13 (Continued)
Future 2040 Intersection Capacity Analysis: Option 2

Intersection	Approach	Movement	Level of Service	
			AM Peak	PM Peak
Old State Route 25 at 9th Street/10th Street	Old SR-25 Eastbound	Left	B (14)	A (9)
		Through-Right	B (12)	A (10)
		Overall approach	*B (13)*	*A (9)*
	Old SR-25 Westbound	Left	B (12)	A (9)
		Through-Right	B (12)	A (9)
		Overall approach	*B (12)*	*A (9)*
	9th Street Northbound	Left-Through-Right	A (4)	A (3)
	10th Street Southbound	Left-Through-Right	A (6)	A (4)
		Overall intersection	***A (8)***	***A (7)***
New SR-25 at 9th Street	New SR-25 Eastbound	Left	A (5)	A (4)
		Through-Right	C (24)	B (10)
		Overall approach	*C (23)*	*A (10)*
	New SR-25 Westbound	Left	A (5)	A (5)
		Through-Right	A (6)	A (6)
		Overall approach	*A (6)*	*A (6)*
	9th Street Northbound	Left-Through-Right	B (11)	A (9)
	9th Street Southbound	Left-Through-Right	A (10)	B (10)
		Overall intersection	***B (15)***	***A (9)***
New SR-25 at Old SR-25	Old SR-25 Southbound	Left-Right	C (24)	B (20)
	New SR-25 Eastbound	Left-Through	B (15)	A (6)
	New SR-25 Westbound	Through	A (6)	A (6)
		Right	A (5)	A (4)
		Overall approach	*A (5)*	*A (5)*
		Overall intersection	***B (12)***	***A (7)***
State Route 25 at Foundry Road	SR-25 Westbound	Left-Through	A (1)	A (0)
	Foundry Road Northbound	Left-Right	E (35)	D (28)

Delay is expressed in average seconds per vehicle

Table 14
Future 2040 Intersection Capacity Analysis: Option 3

Intersection	*Approach*	*Movement*	*Level of Service*	
			AM Peak	*PM Peak*
U.S. Highway 31 at Old State Route 25 (North)	Alley Eastbound	Left-Through-Right	C (26)	C (26)
	Old SR-25 Westbound	Left-Through-Right	C (28)	C (28)
	US-31 Northbound	Left	A (0)	A (0)
		Through-Right	A (7)	A (5)
		Overall approach	*A (7)*	*A (5)*
	US-31 Southbound	Left	A (4)	A (3)
		Through-Right	A (6)	B (12)
		Overall approach	*A (6)*	*B (12)*
		Overall intersection	***A (9)***	***B (11)***
U.S. Highway 31 at 17th Avenue	17th Avenue Eastbound	Left-Through-Right	C (30)	C (31)
	17th Avenue Westbound	Left-Through-Right	C (26)	C (31)
	US-31 Northbound	Left	A (3)	A (2)
		Through-Right	A (6)	A (4)
		Overall approach	*A (6)*	*A (4)*
	US-31 Southbound	Left	A (7)	A (4)
		Through-Right	B (13)	B (16)
		Overall approach	*B (13)*	*B (15)*
		Overall intersection	***B (13)***	***B (14)***
U.S. Highway 31 at State Route 25 (South)/New State Route 25	SR-25 Eastbound	Left	C (30)	D (36)
		Through	B (17)	B (17)
		Right	B (14)	B (14)
		Overall approach	*C (22)*	*C (25)*
	New SR-25 Westbound	Left	B (16)	B (17)
		Through-Right	B (16)	B (18)
		Overall approach	*B (16)*	*B (18)*
	US-31 Northbound	Left	B (13)	B (14)
		Through-Right	B (14)	B (14)
		Overall approach	*B (14)*	*B (14)*
	US-31 Southbound	Left	B (12)	B (18)
		Through-Right	C (29)	D (36)
		Overall approach	*C (29)*	*C (33)*
		Overall intersection	***C (21)***	***C (24)***

Table 14 (continued)
Future 2040 Intersection Capacity Analysis: Option 3

Intersection	*Approach*	*Movement*	*Level of Service*	
			AM Peak	*PM Peak*
Old State Route 25 at 9th Street/10th Street	Old SR-25 Eastbound	Left	B (15)	A (4)
		Through-Right	B (13)	A (4)
		Overall approach	*B (15)*	*A (4)*
	Old SR-25 Westbound	Left	B (14)	A (4)
		Through-Right	B (13)	A (4)
		Overall approach	*B (14)*	*A (4)*
	9th Street Northbound	Left-Through-Right	A (5)	A (9)
	10th Street Southbound	Left-Through-Right	A (8)	A (10)
		Overall intersection	***A (9)***	***A (6)***
New SR-25 at Old SR-25	Old SR-25 Southbound	Left-Right	C (24)	B (20)
	New SR-25 Eastbound	Left-Through	B (12)	A (7)
	New SR-25 Westbound	Through	A (5)	A (5)
		Right	A (5)	A (4)
		Overall approach	*A (5)*	*A (5)*
		Overall intersection	***B (11)***	***A (8)***
17th Avenue at 9th Street	17th Avenue Eastbound	Left-Through-Right	C (15)	B (11)
	17th Avenue Westbound	Left-Through-Right	B (11)	A (10)
	9th Street Northbound	Left-Through-Right	A (0)	A (1)
	9th Street Southbound	Left-Through-Right	A (0)	A (0)
New State Route 25 at 9th Street	New SR-25 Eastbound	Left	A (2)	A (0)
	9th Street Southbound	Left-Right	C (18)	C (22)
State Route 25 at Foundry Road	SR-25 Westbound	Left-Through	A (1)	A (0)
	Foundry Road Northbound	Left-Right	E (35)	D (28)

Delay is expressed in average seconds per vehicle

Table 15
Future 2040 Daily Roadway Segment Levels of Service: Option 1

Roadway	*Location*	*Cross Section*	*Classification*	*Daily Volume*	*Segment LOS*
US-31	North of Woodbine Avenue	4 Lane Undivided	Urban Minor Arterial	14,050	B
US-31	South of 17th Avenue	3 Lane Divided	Urban Minor Arterial	8,700	B
US-31	South of 19th Avenue	4 Lane Undivided	Urban Minor Arterial	9,800	A
Old SR-25	East of 16th Street	2 Lane Undivided	Urban Minor Arterial	4,150	A
New SR-25	West of US-31	3 Lane Divided	Urban Minor Arterial	6,900	A
SR-25	West of Foundry Road	2 lane Undivided	Urban Minor Arterial	14,250	E

Table 16
Future 2040 Daily Roadway Segment Levels of Service: Option 2

Roadway	*Location*	*Cross Section*	*Classification*	*Daily Volume*	*Segment LOS*
US-31	North of Woodbine Avenue	4 Lane Undivided	Urban Minor Arterial	14,050	B
US-31	South of 17th Avenue	3 Lane Divided	Urban Minor Arterial	9,100	B
US-31	South of 19th Avenue	4 Lane Undivided	Urban Minor Arterial	9,800	A
Old SR-25	East of 16th Street	2 Lane Undivided	Urban Minor Arterial	4,550	A
New SR-25	West of US-31	3 Lane Divided	Urban Minor Arterial	6,500	A
New SR-25	East of 9th Street	3 Lane Divided	Urban Minor Arterial	8,900	B
SR-25	West of Foundry Road	2 lane Undivided	Urban Minor Arterial	14,250	E

Table 17
Future 2040 Daily Roadway Segment Levels of Service: Option 3

Roadway	*Location*	*Cross Section*	*Classification*	*Daily Volume*	*Segment LOS*
US-31	North of Woodbine Avenue	4 Lane Undivided	Urban Minor Arterial	14,050	B
US-31	South of 17th Avenue	3 Lane Divided	Urban Minor Arterial	7,000	A
US-31	South of 19th Avenue	4 Lane Undivided	Urban Minor Arterial	9,800	A
SR-25	East of 16th Street	2 Lane Undivided	Urban Minor Arterial	11,050	D
New SR-25	East of 9th Street	3 Lane Divided	Urban Minor Arterial	8,600	B
SR-25	West of Foundry Road	2 lane Undivided	Urban Minor Arterial	14,250	E

RECOMMENDED IMPROVEMENTS

Improvement Drawings

Detailed conceptual drawings were prepared for the three alternative options for the relocation of State Route 25. These drawings are included at the end of this report.

Improvements to U.S. Highway 31

For Options 2 and 3, improvements are proposed for U.S. Highway 31 in addition to the relocation of State Route 25. Specifically, the reduction in traffic on U.S. Highway 31 through downtown Calera removes the need for multiple through lanes on U.S. Highway 31. Therefore, a "road diet" project is proposed for U.S. Highway 31 from State Route 25 (South) to State Route 25 (North). This road diet would reduce the existing four lane undivided cross section to a three lane cross section, with one through lane in each direction and a center turn lane. The additional pavement is proposed to be used to provide additional on-street parking, additional sidewalk width, and curb extensions at pedestrian crosswalks. The proposed "road diet" is depicted in the drawings included at the end of this report.

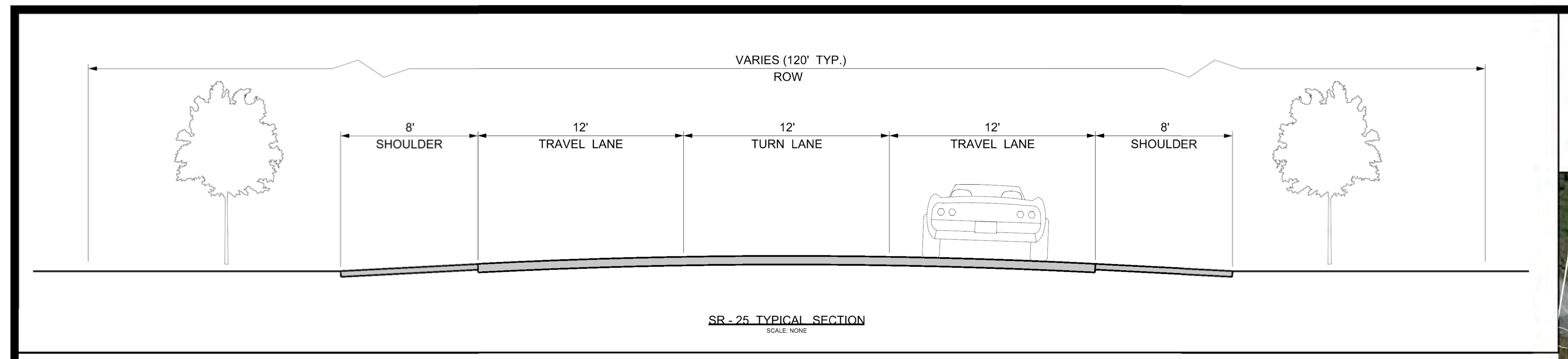
Cost Estimates

Detailed conceptual level cost estimates were prepared for the three alternative options for the relocation of State Route 25. The detailed estimates are included at the end of this report. The following is a summary of the cost estimates.

Option 1	
Construction	$2,501,000
Engineering	$ 325,000
CE&I	$ 105,000
Other Costs	$ 50,000
Total Cost	$2,981,000

Option 2	
Construction	$6,775,000
Engineering	$ 407,000
CE&I	$ 285,000
Other Costs	$ 75,000
Total Cost	$7,542,000

Option 3	
Construction	$7,429,000
Engineering	$ 446,000
CE&I	$ 312,000
Other Costs	$ 75,000
Total Cost	$8,262,000



SR 25 RELOCATION

OPTION 1

Prepared by InSite Engineering, LLC
June. 2019

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RESIDENTIAL

CONSTRUCTION PLANS FOR:
STATE ROUTE 25 RELOCATION APPLE GRANT
CALERA, ALABAMA

CALERA ALABAMA

PROJECT INFO:

INSITE JOB No. 19019.00
PLOTTED: 6/10/19

THIS SHEET CONTAINS:
SR 25 RELOCATION - OPTION 1

SCALE: 1"= 60'
SHEET 1 OF 3

OP-1

The City of Calera, Alabama
State Route 25 Relocation - APPLE Grant
Contract No. 19019.00

Cost Estimate
Friday, June 14, 2019

SR 25 RELOCATION OPTION "1"

Item No.	Description	Quantity	Units	Unit Price	Total Price
1	Clearing And Grubbing (Maximum Allowable Bid $5,000)	1	LS	$ 5,000.00	$ 5,000.00
2	Unclassified Excavation	6,250	CY	$ 15.00	$ 93,750.00
3	Tack Coat	1250	GAL	$ 18.50	$ 23,125.00
4	Superpave Bituminous Concrete Wearing Surface, 3/4" Maximum Aggregate Size Mix, ESAL Range C/D, 165 lbs/sy	791	TON	$ 115.00	$ 90,965.00
5	Superpave Bituminous Concrete Upper Binder Layer, Widening, 1" Maximum Aggregate Size Mix, ESAL Range C/D, 330 lbs/sy	1602	TON	$ 105.00	$ 168,210.00
6	Superpave Bituminous Concrete Lower Binder Layer, Widening, 1" Maximum Aggregate Size Mix, ESAL Range C/D, 330 lbs/sy	1625	TON	$ 105.00	$ 170,625.00
7	Superpave Bituminous Concrete Base Layer, Widening, 1-1/2" Maximum Aggregate Size Mix, ESAL Range C/D, 660 lbs/sy (To Be Placed In Two 3" Layers)	3343	TON	$ 95.00	$ 317,585.00
8	18" Storm Sewer Pipe (Class 3 R.C.)	1200	LF	$ 60.00	$ 72,000.00
9	24" Storm Sewer Pipe (Class 3 R.C.)	800	LF	$ 70.00	$ 56,000.00
10	Inlets, Type "S"	14	EA	$ 4,500.00	$ 63,000.00
11	Junction Boxes, Type 1	8	EA	$ 3,500.00	$ 28,000.00
12	Headwalls	6	EA	$ 3,000.00	$ 18,000.00
13	Mobilization	1	LS	$ 15,500.00	$ 15,500.00
14	Loose Riprap, Class 2, 24" Thick	75	SY	$ 60.00	$ 4,500.00
15	Filter Blanket, Geotextile	75	SY	$ 8.00	$ 600.00
16	Topsoil	850	CY	$ 35.00	$ 29,750.00
17	Seeding	3	ACRE	$ 2,500.00	$ 7,500.00
18	Temporary Riprap, Class 2	20	TON	$ 80.00	$ 1,600.00
19	Silt Fence	4,750	LF	$ 5.00	$ 23,750.00
20	Drainage Sump Excavation	30	CY	$ 35.00	$ 1,050.00
21	Wattle	750	LF	$ 15.00	$ 11,250.00
22	Geometric Controls	1	LS	$ 25,000.00	$ 25,000.00
23	Dotted, Class 2, Type A, Traffic Stripe (White)	146	LF	$ 2.50	$ 365.00
24	Broken, Class 2, Type A, Traffic Stripe (Yellow)	3127	LF	$ 2.50	$ 7,817.50
25	Solid White, Class 2, Type A Traffic Stripe	4775	LF	$ 2.50	$ 11,937.50
26	Solid Yellow, Class 2, Type A Traffic Stripe	5,533	LF	$ 2.50	$ 13,832.50
27	Traffic Control Markings, Class 2, Type A (White)	511	SF	$ 8.50	$ 4,343.50
28	Traffic Control Markings, Class 2, Type A (Yellow)	923	SF	$ 8.50	$ 7,845.50
29	Traffic Control Legends, Class 2, Type A	68	SF	$ 8.50	$ 578.00
30	Signal Improvements	1	LS	$ 165,000.00	$ 165,000.00
31	Traffic Control	1	LS	$ 35,000.00	$ 35,000.00
32	Property Acquisitions	1	LS	$ 800,000.00	$ 800,000.00
				Estimated Cost	**$ 2,273,479.50**
				10% Contingency	**$ 227,347.95**
				Total Estimated Project Cost	**$ 2,500,827.45**

Engineering

Basic Services (8.0%)	**$ 200,066.20**
Traffic Signal Design Services (5.0%)	**$ 125,041.37**

Additional Costs

Permitting (Railroad, Review Fees, etc.)	**$ 50,000.00**
Resident Project Inspector (4.2%)	**$ 105,034.75**

Total Cost Option "1" $ 2,980,969.77

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SR 25 RELOCATION

OPTION 2

Prepared by InSite Engineering, LLC
June. 2019

SR 25 RELOCATION

OPTION 2

Prepared by InSite Engineering, LLC
June. 2019

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CONSTRUCTION PLANS FOR:
STATE ROUTE 25 RELOCATION APPLE GRANT
CALERA, ALABAMA

CALERA ALABAMA

PROJECT INFO:

INSITE JOB No. 19019.00

PLOTTED: 6/10/19

THIS SHEET CONTAINS:

SR 25 RELOCATION - OPTION 2

SCALE: 1"= 60'

SHEET 2 OF 3

OP-2

The City of Calera, Alabama
State Route 25 Relocation - APPLE Grant
Contract No. 19019.00

Cost Estimate
Friday, June 14, 2019

SR 25 RELOCATION OPTION "2"

Item No.	Description	Quantity	Units	Unit Price	Total Price
1	Clearing And Grubbing (Maximum Allowable Bid $15,000)	1	LS	$ 15,000.00	$ 15,000.00
2	Unclassified Excavation	33,621	CY	$ 15.00	$ 504,311.25
3	Tack Coat	1800	GAL	$ 18.50	$ 33,300.00
4	Superpave Bituminous Concrete Wearing Surface, 3/4" Maximum Aggregate Size Mix, ESAL Range C/D, 165 lbs/sy	1206	TON	$ 115.00	$ 138,690.00
5	Superpave Bituminous Concrete Upper Binder Layer, Widening, 1" Maximum Aggregate Size Mix, ESAL Range C/D, 330 lbs/sy	2447	TON	$ 105.00	$ 256,935.00
6	Superpave Bituminous Concrete Lower Binder Layer, Widening, 1" Maximum Aggregate Size Mix, ESAL Range C/D, 330 lbs/sy	2505	TON	$ 105.00	$ 263,025.00
7	Superpave Bituminous Concrete Base Layer, Widening, 1-1/2" Maximum Aggregate Size Mix, ESAL Range C/D, 660 lbs/sy (To Be Placed In Two 3" Layers)	5108	TON	$ 95.00	$ 485,260.00
8	4x6 Concrete Box Culvert	200	LF	$ 1,050.00	$ 210,000.00
9	18" Storm Sewre Pipe (Class 3 R.C.)	3750	LF	$ 60.00	$ 225,000.00
10	24" Storm Sewer Pipe (Class 3 R.C.)	5000	LF	$ 70.00	$ 350,000.00
11	30" Storm Sewer Pipe (Class 3 R.C.)	2750	LF	$ 90.00	$ 247,500.00
12	36" Storm Sewer Pipe (Class 3 R.C.)	1250	LF	$ 110.00	$ 137,500.00
13	Inlets, Type "S"	30	EA	$ 4,500.00	$ 135,000.00
14	Junction Boxes, Type 1	12	EA	$ 3,500.00	$ 42,000.00
15	Headwalls	16	EA	$ 3,000.00	$ 48,000.00
16	Mobilization	1	LS	$ 25,500.00	$ 25,500.00
17	Loose Riprap, Class 2, 24" Thick	50	SY	$ 60.00	$ 3,000.00
18	Filter Blanket, Geotextile	50	SY	$ 8.00	$ 400.00
19	Combination Curb And Gutter, Type C (Special)	8,000	LF	$ 17.00	$ 136,000.00
20	Topsoil	5000	CY	$ 35.00	$ 175,000.00
21	Seeding	16	ACRE	$ 2,500.00	$ 40,000.00
22	Temporary Riprap, Class 2	30	TON	$ 80.00	$ 2,400.00
23	Silt Fence	35,000	LF	$ 5.00	$ 175,000.00
24	Drainage Sump Excavation	75	CY	$ 35.00	$ 2,625.00
25	Wattle	2250	LF	$ 15.00	$ 33,750.00
26	Geometric Controls	1	LS	$ 37,500.00	$ 37,500.00
27	Dotted, Class 2, Type A, Traffic Stripe (White)	1488	LF	$ 2.50	$ 3,720.00
28	Broken, Class 2, Type A, Traffic Stripe (Yellow)	6991	LF	$ 2.50	$ 17,477.50
29	Solid White, Class 2, Type A Traffic Stripe	12011	LF	$ 2.50	$ 30,027.50
30	Solid Yellow, Class 2, Type A Traffic Stripe	17,721	LF	$ 2.50	$ 44,302.50
31	Traffic Control Markings, Class 2, Type A (White)	3852	SF	$ 8.50	$ 32,742.00
32	Traffic Control Markings, Class 2, Type A (Yellow)	2393	SF	$ 8.50	$ 20,340.50
33	Traffic Control Legends, Class 2, Type A	366	SF	$ 8.50	$ 3,111.00
34	Signal Improvements	1	LS	$ 250,000.00	$ 250,000.00
35	Relocation of Railroad Crossing Gates	1	LS	$ 250,000.00	$ 250,000.00
36	Traffic Control	1	LS	$ 85,000.00	$ 85,000.00
37	Property Acquisitions	1	LS	$ 1,700,000.00	$ 1,700,000.00
				Estimated Cost	**$ 6,159,417.25**
				10% Contingency	**$ 615,941.73**
				Total Estimated Project Cost	**$ 6,775,358.98**

Engineering

Basic Services (4.0%)	**$ 271,014.36**
Traffic Signal Design Services (2.0%)	**$ 135,507.18**

Additional Costs

Permitting (Railroad, Review Fees, etc.)	**$ 75,000.00**
Resident Project Inspector (4.2%)	**$ 284,565.08**

Total Cost Option "2" $ 7,541,445.59

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STATE ROUTE 25 RELOCATION APPLE GRANT

CALERA, ALABAMA

CALERA ALABAMA

PROJECT INFO:

INSITE JOB No. 19019.00
PLOTTED: 6/10/19

THIS SHEET CONTAINS:
SR 25 RELOCATION - OPTION 3

SCALE: 1"= 60'
SHEET 3 OF 3

OP-3

The City of Calera, Alabama
State Route 25 Relocation - APPLE Grant
Contract No. 19019.00

Cost Estimate
Friday, May 22, 2019

SR 25 RELOCATION OPTION "3"

Item No.	Description	Quantity	Units	Unit Price	Total Price
1	Clearing And Grubbing (Maximum Allowable Bid $20,000)	1	LS	$ 20,000.00	$ 20,000.00
2	Unclassified Excavation	35,653	CY	$ 15.00	$ 534,795.00
3	Tack Coat	4900	GAL	$ 18.50	$ 90,650.00
4	Superpave Bituminous Concrete Wearing Surface, 3/4" Maximum Aggregate Size Mix, ESAL Range C/D, 165 lbs/sy	3365	TON	$ 115.00	$ 386,975.00
5	Superpave Bituminous Concrete Upper Binder Layer, Widening, 1" Maximum Aggregate Size Mix, ESAL Range C/D, 330 lbs/sy	2867	TON	$ 105.00	$ 301,035.00
6	Superpave Bituminous Concrete Lower Binder Layer, Widening, 1" Maximum Aggregate Size Mix, ESAL Range C/D, 330 lbs/sy	2904	TON	$ 105.00	$ 304,920.00
7	Superpave Bituminous Concrete Base Layer, Widening, 1-1/2" Maximum Aggregate Size Mix, ESAL Range C/D, 660 lbs/sy (To Be Placed In Two 3" Layers)	5969	TON	$ 95.00	$ 567,055.00
8	4x6 Concrete Box Culvert	200	LF	$ 1,050.00	$ 210,000.00
9	18" Storm Sewre Pipe (Class 3 R.C.)	3750	LF	$ 60.00	$ 225,000.00
10	24" Storm Sewer Pipe (Class 3 R.C.)	5500	LF	$ 70.00	$ 385,000.00
11	30" Storm Sewer Pipe (Class 3 R.C.)	2950	LF	$ 95.00	$ 280,250.00
12	36" Storm Sewer Pipe (Class 3 R.C.)	1550	LF	$ 110.00	$ 170,500.00
13	Inlets, Type "S"	30	EA	$ 4,500.00	$ 135,000.00
14	Junction Boxes, Type 1	18	EA	$ 3,500.00	$ 63,000.00
15	Headwalls	24	EA	$ 3,000.00	$ 72,000.00
16	Mobilization	1	LS	$ 27,500.00	$ 27,500.00
17	Loose Riprap, Class 2, 24" Thick	75	SY	$ 60.00	$ 4,500.00
18	Filter Blanket, Geotextile	75	SY	$ 8.00	$ 600.00
19	Combination Curb And Gutter, Type C (Special)	8,000	LF	$ 17.00	$ 136,000.00
20	Topsoil	7500	CY	$ 35.00	$ 262,500.00
21	Seeding	21	ACRE	$ 2,500.00	$ 52,500.00
22	Temporary Riprap, Class 2	50	TON	$ 80.00	$ 4,000.00
23	Silt Fence	42,250	LF	$ 5.00	$ 211,250.00
24	Drainage Sump Excavation	115	CY	$ 35.00	$ 4,025.00
25	Wattle	3250	LF	$ 15.00	$ 48,750.00
26	Geometric Controls	1	LS	$ 45,000.00	$ 45,000.00
27	Dotted, Class 2, Type A, Traffic Stripe (White)	1757	LF	$ 2.50	$ 4,392.50
28	Solid White, Class 2, Type A Traffic Stripe	16,553	LF	$ 2.50	$ 41,382.50
29	Solid Yellow, Class 2, Type A Traffic Stripe	19,784	LF	$ 2.50	$ 49,460.00
30	Broken Yellow, Class 2, Type A Traffic Stripe	8,670	LF	$ 2.50	$ 21,675.00
31	Traffic Control Markings, Class 2, Type A (White)	4836	SF	$ 8.50	$ 41,106.00
32	Traffic Control Markings, Class 2, Type A (Yellow)	2256	SF	$ 8.50	$ 19,176.00
33	Traffic Control Legends, Class 2, Type A	455	SF	$ 8.50	$ 3,867.50
34	Signal Improvements	1	LS	$ 250,000.00	$ 250,000.00
35	Proposed Two Track Crossing and Associated Appurtenances	1	LS	$ 475,000.00	$ 475,000.00
36	Traffic Control	1	LS	$ 105,000.00	$ 105,000.00
37	Property Acquisitions	1	LS	$ 1,200,000.00	$ 1,200,000.00
				Estimated Cost	**$ 6,753,864.50**
				10% Contingency	**$ 675,386.45**
				Total Estimated Project Cost	**$ 7,429,250.95**

Engineering

Basic Services (4.0%)	**$ 297,170.04**
Traffic Signal Design Services (2.0%)	**$ 148,585.02**

Additional Costs

Permitting (Railroad, Review Fees, etc.)	**$ 75,000.00**
Resident Project Inspector (4.2%)	**$ 312,028.54**

Total Cost Option "3" $ 8,262,034.55

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