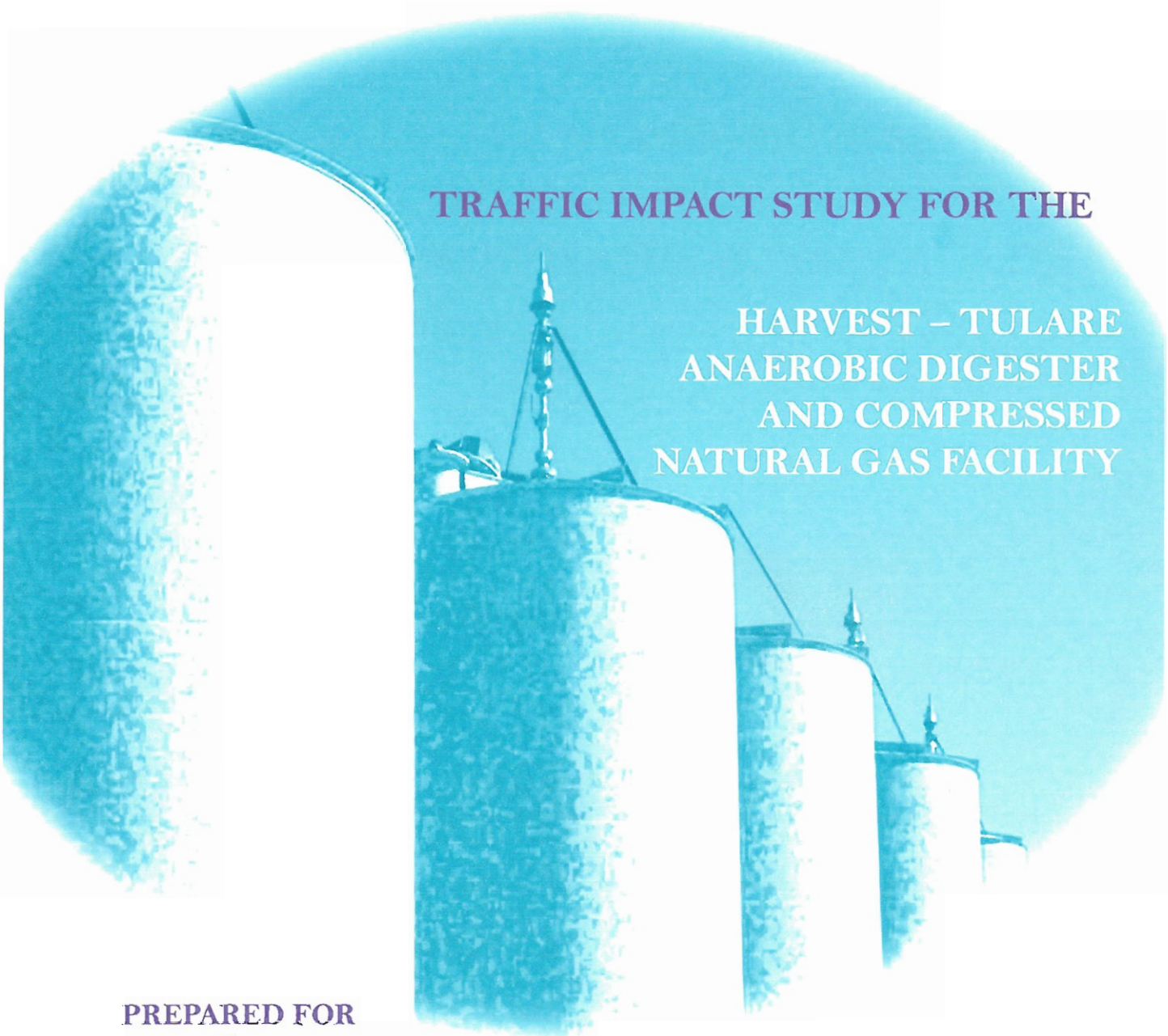
NOVEMBER 2012

TRAFFIC IMPACT STUDY FOR THE

HARVEST – TULARE ANAEROBIC DIGESTER AND COMPRESSED NATURAL GAS FACILITY



PREPARED FOR

HARVEST™ GARDEN PRO

PREPARED BY

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TRAFFIC IMPACT STUDY

FOR THE

HARVEST-TULARE ANAEROBIC DIGESTER

AND COMPRESSED NATURAL GAS FACILITY

CHAPTER 1 – INTRODUCTION

This Traffic Impact Study (TIS) was prepared to assess the traffic impacts due to the proposed Harvest-Tulare Anaerobic Digester and Compressed Natural Gas Facility Project located in Tulare County. The approximate 35 acre proposed Project site is located south of Avenue 245. Road 140 is located approximately one quarter mile to the east of the site, while Avenues 240 and 248 are approximately one half mile to the south and north of the site, respectively.

The City of Tulare is approximately four (4) miles to the southwest of the site and the City of Visalia is located approximately 5 miles to the northwest of the proposed site. This study evaluates the impacts of the proposed development on adjacent intersection operations and provides an assessment of the Project driveway. Figure 1 shows the Project location.

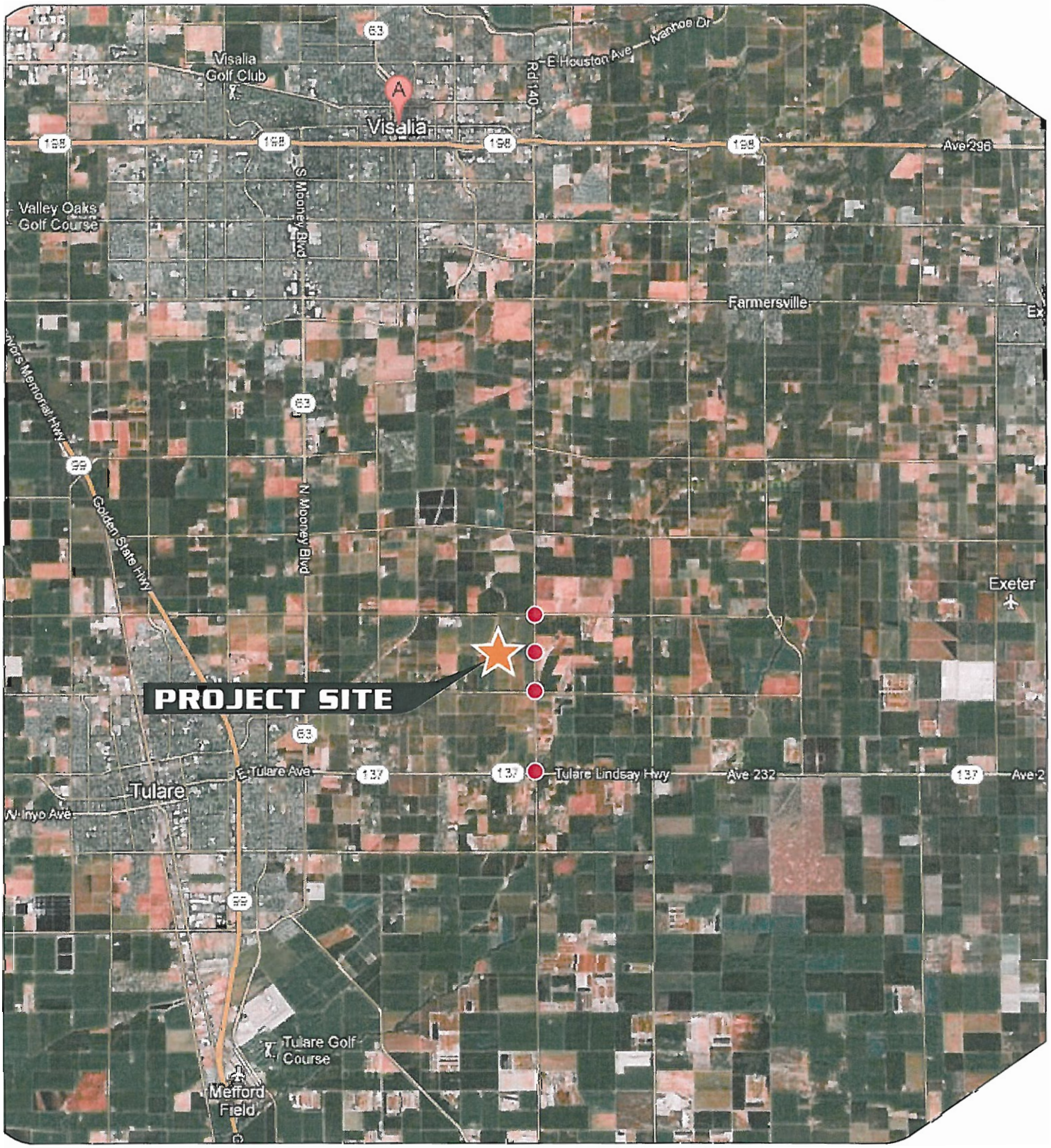
The Project study area for the analysis of traffic impacts falls along Lovers lane and includes four (4) intersections for two (2) time periods (weekday AM and PM peak hours). Intersection levels of service (LOS) were calculated using *Synchro 7.0* and *HCS* software, which are an industry standards and is recognized for use in the County of Tulare. The *Synchro 7.0* and *HCS* software are based on the *2010 Highway Capacity Manual (HCM 2000)* methodology, which is also an industry standard. The analysis methodology used in this report is included in Appendix A.

To analyze the traffic impacts resulting from the build out of the Harvest-Tulare Anaerobic Digester and Compressed Natural Gas Facility Project, the following four (4) scenarios were evaluated:

- *Existing Traffic Conditions (2012)*
- *Existing Conditions Plus the Compost Project Traffic*
- *2035 Conditions Without the Compost Project Traffic*
- *2035 Conditions Plus the Compost Project Traffic*

Figure 1

Vicinity Map



Legend

● Study Intersections

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Figure 2

Project Site Plan

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Methodology
This Traffic Impact Study was prepared following a traditional methodology. In order to prepare a traffic evaluation, a variety of data and technical assumptions had to be developed. This section of the report describes the various sources, data and technical assumptions used in this evaluation.

Sources
This report was prepared using information taken from the following sources:

- *2010 Highway Capacity Manual (HCM 2010)*, Transportation Research Board, 2010.
- *2002 Quality/Level of Service Handbook*, Florida Department of Transportation, 2002.
- *Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, December, 2002.
- *Synchro 7.0*, Trafficware, 2007.
- *Traffic Impact Analysis for Site Development*, A Recommended Practice, ITE, Transportation Planners Council Task Force on Traffic Access/Impact Studies, 2006.
- *Trip Generation*, 8th Edition, Volume 2, ITE, 2008.
- *Trip Generation* (software), Version 6, Microtrans, 2008.

Scenarios
The scenarios that were analyzed for this study included:

- Existing Traffic Conditions
- Existing Plus the Project Traffic Conditions
- 2035 WITHOUT the Project Traffic Conditions
- 2035 WITH the Project Traffic Conditions

The 2035 WITHOUT the Project and 2035 WITH the Project scenarios reflect cumulative conditions analysis as required by CEQA.

Study Locations
The following intersections were analyzed:

1. Lovers Lane at SR 137
2. Lovers Lane at Avenue 240
3. Lovers Lane at Project Driveway
4. Lovers Lane at Avenue 248

Analysis Time Periods
According to *Traffic Impact Analyses for Site Development*, the overall purpose of a traffic impact study is to determine the project impacts that are likely to occur to the surrounding street system. In order to accomplish this purpose you need to determine what occurs when the peak of the project generated traffic overlays the peak of the street traffic. *Traffic Impact Analyses for Site Development* states "the peak periods [of the adjacent street and highway system] are generally the weekday morning (7-9 a.m.) and evening (4-6 p.m.) peak hours, although local area characteristics occasionally result in other peaks (e.g., at major shopping or recreational centers)". The peak hours analyzed in this study were:

- 7:00 to 9:00 AM
- 4:00 to 6:00 PM

The traffic analysis time periods are the typical AM and PM peak hours as shown above.

Traffic Counts

According to the Caltrans *Guide for the Preparation of Traffic Impact Studies*, one of the common rules for counting vehicular traffic is:

> "Vehicle counts should be conducted on Tuesdays, Wednesdays, or Thursdays during weeks not containing a holiday and conducted in favorable weather conditions."[1]

Traffic counts were conducted during the week of June 26, 27 & 28, 2012.

Traffic Model

The Model was used in this study to develop the following pieces of information:

- 2035 No Project background traffic volumes

Copies of the Model plots are included in Appendix C.

Intersection Analysis and Volume Adjustments

Intersection heavy vehicle percentages were developed from the Existing conditions count data. Heavy vehicle percentages used in the analysis were the *HCM 2000* 10% default. These percentages were used in all scenarios.

Traffic Signal Analysis

All signalized intersections were optimized to achieve the greatest reduction in overall intersection delay in the 2035 scenarios.

Level of Service Analysis Methods

Unsignalized and signalized intersection analyses were completed using *Synchro 7.0*, which incorporates the *HCM 2010* methodologies. *Synchro 7.0* allows for optimization of signals to provide for the greatest reduction in overall intersection delay. This optimization process can result in different signal cycle lengths for both the AM and PM peak hours of a given scenario and across all scenarios. The changing of the signal cycle length somewhat reflects the agency process whereby the agency will adjust intersection signal cycle lengths for differing traffic conditions based on current count data.

Level of Service

For analysis purposes, the *HCM 2010* defines six levels of service for various facility types. The six levels are given letter designations ranging from "A" to "F", with "A" representing the best operating conditions and "F" the worst. Quantifiable measures of effectiveness that best describe the quality of operation on the subject facility type are used to determine the facilities level of service. For segments, the quantifiable measure of effectiveness is volume to capacity measurements. For signalized and unsignalized intersections, the quantifiable measure of effectiveness is average control delay.[2]

Control delay for two-way stop-controlled (TWSC) intersections, which have stop signs on only the minor street approaches, is per vehicle and is computed for the stop-controlled or minor street movements only since theoretically the through movements on the major street are not experiencing any delay. Since there is no aggregation of delay for a TWSC intersection, there is no intersection level of service as a whole, only levels of service for the individual minor movements. The minor

[1] *Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, December 2002, page 4.

[2] Control delay, according to the *2010 Highway Capacity Manual*, page 16-1, includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay.

movements generally consist of separate lefts on the major street approaches and all movements on both minor street approaches.

The table below shows the six levels of service and their corresponding ranges of average control delay for both signalized and unsignalized intersections. It also contains a brief traffic flow description for signalized intersections for each level of service category. The level of service diagrams provided throughout the report show the levels of service for the study intersections. The levels of service shown for signalized intersections are representative of the overall level of service for that intersection. For stop-controlled intersections, the level of service shown is the level of service for the specific movements as opposed to the overall intersection level of service.

INTERSECTION LEVEL OF SERVICE DESCRIPTION			Intersections	
			Signalized	Unsignalized[1]
Level of Service	**Conditions**	**Signalized Intersection Description**	**Delay (sec/veh)**	**Delay (sec/veh)**
"A"	Free Flow	*Users experience very low delay. Progression is favorable and most vehicles do not stop at all.*	≤10.0	≤10.0
"B"	Stable Operations	*Vehicles travel with good progression. Some vehicles stop, causing slight delay.*	>10.0 – 20.0	>10.0 – 15.0
"C"	Stable Operations	*Higher delays result from fair progression. A significant number of vehicles stop, although many continue to pass through the intersection without stopping.*	>20.0 to 35.0	>15.0 – 25.0
"D"	Approaching Unstable	*Congestion is noticeable. Progression is unfavorable, with more vehicles stopping rather than passing through the intersection.*	>35.0 – 55.0	>25.0 – 35.0
"E"	Unstable Operations	*Traffic volumes are at capacity. Users experience poor progression and long delays.*	>55.0 – 80.0	>35.0 – 50.0
"F"	Forced Flow	*Intersection's capacity is oversaturated, causing poor progression and unusually long delays.*	>80.0	>50.0

Source: 2000 Highway Capacity Manual, Transportation Research Board.
[1] Unsignalized intersections include TWSC and AWSC

CHAPTER 2 – EXISTING CONDITIONS

Roadways

Table 1 describes the existing street system in the study area including the street classification, number of lanes and the posted speed limits.

TABLE 1:
DESCRIPTION OF EXISTING STREET SYSTEM

Street	Classification	No. of Lanes (2-dir)	Posted Speed Limit (mph)
Lovers Lane	Regional Arterial	2	25[1]-55
State Route 137	Regional Arterial	2	55
Road 240		2	25[1]-55
Road 248		2	55

[1] *posted 25 mph school zone for portions of the study segments*

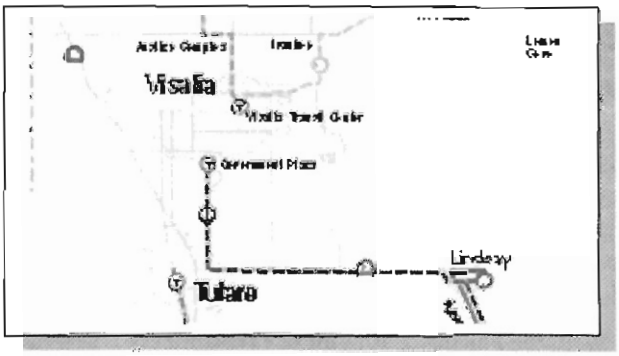
Table 2 lists the study intersections and their associated intersection control.

TABLE 2:
EXISTING INTERSECTION CONTROL

Intersection	Control Type
Lovers Lane at SR 137	Traffic Signal
Lovers Lane at Road 240	2-Way Stop
Lovers Lane at Project Driveway	2-Way Stop
Lovers Lane at Road 248	2-Way Stop

Transit

Currently, Tulare County Area Transit does not provide direct service to the Project site. Route 40 currently operates between Visalia and Porterville along State Route 137, which is 1.5 miles to the south of the project site.



Visalia Transit's Route 12 provides service between Visalia-Farmersville-Exeter via Caldwell Avenue, which is slightly over 4 miles north of the project site.

Bicycle Facilities

There are no bicycle facilities along any of the study roadways. State Highway 137 is designated by Caltrans as an unsigned and unmarked bike route.

Pedestrian Facilities

Currently, due to the rural nature of the area no sidewalks or crosswalks exist along any of the study roadways.

Level of Service Standards

The County of Tulare strives to meet LOS "D" or better on all roadways. This standard will apply to all intersections along Lovers Lane.

Figure 7

2035 Lane Configurations

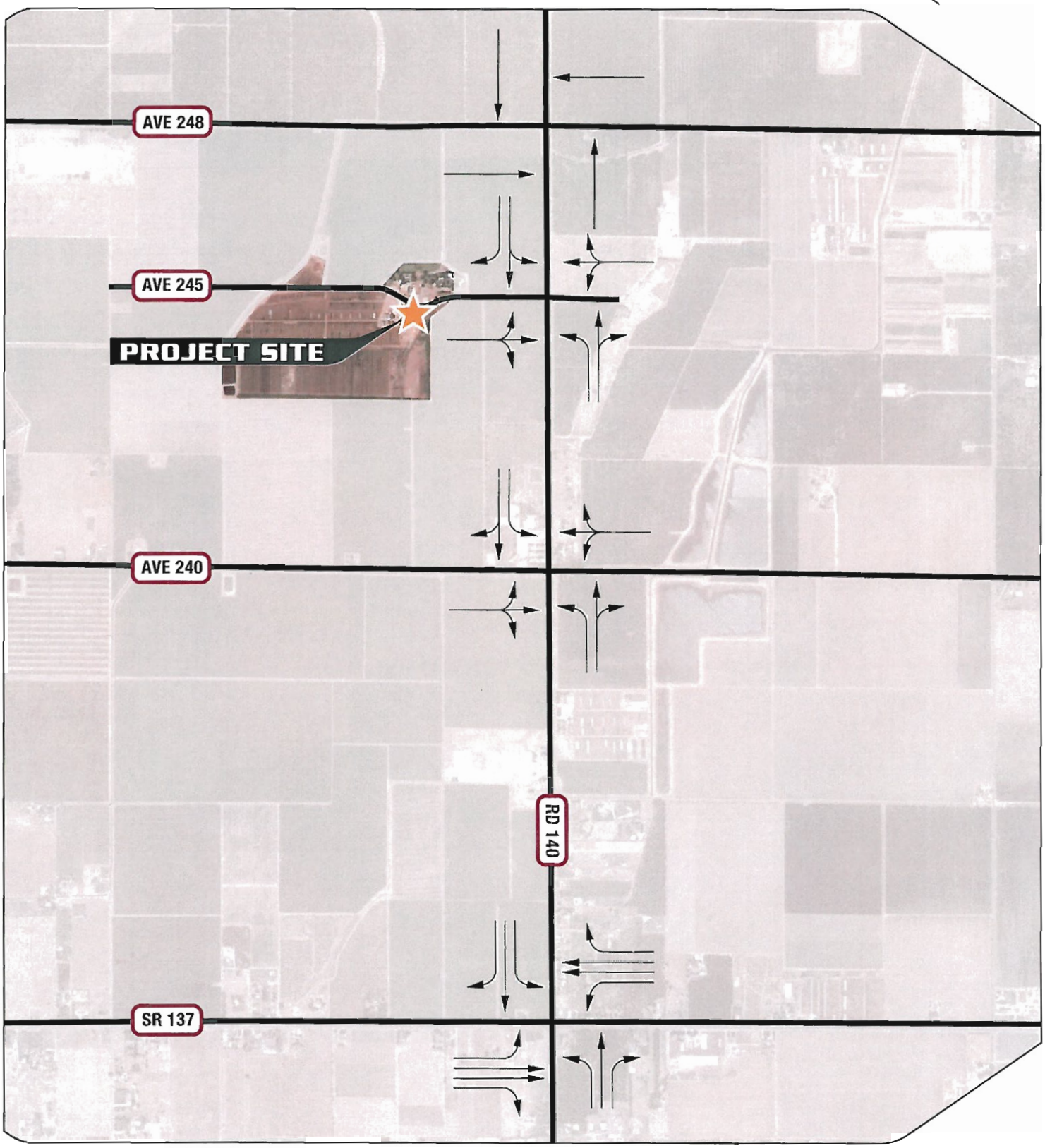


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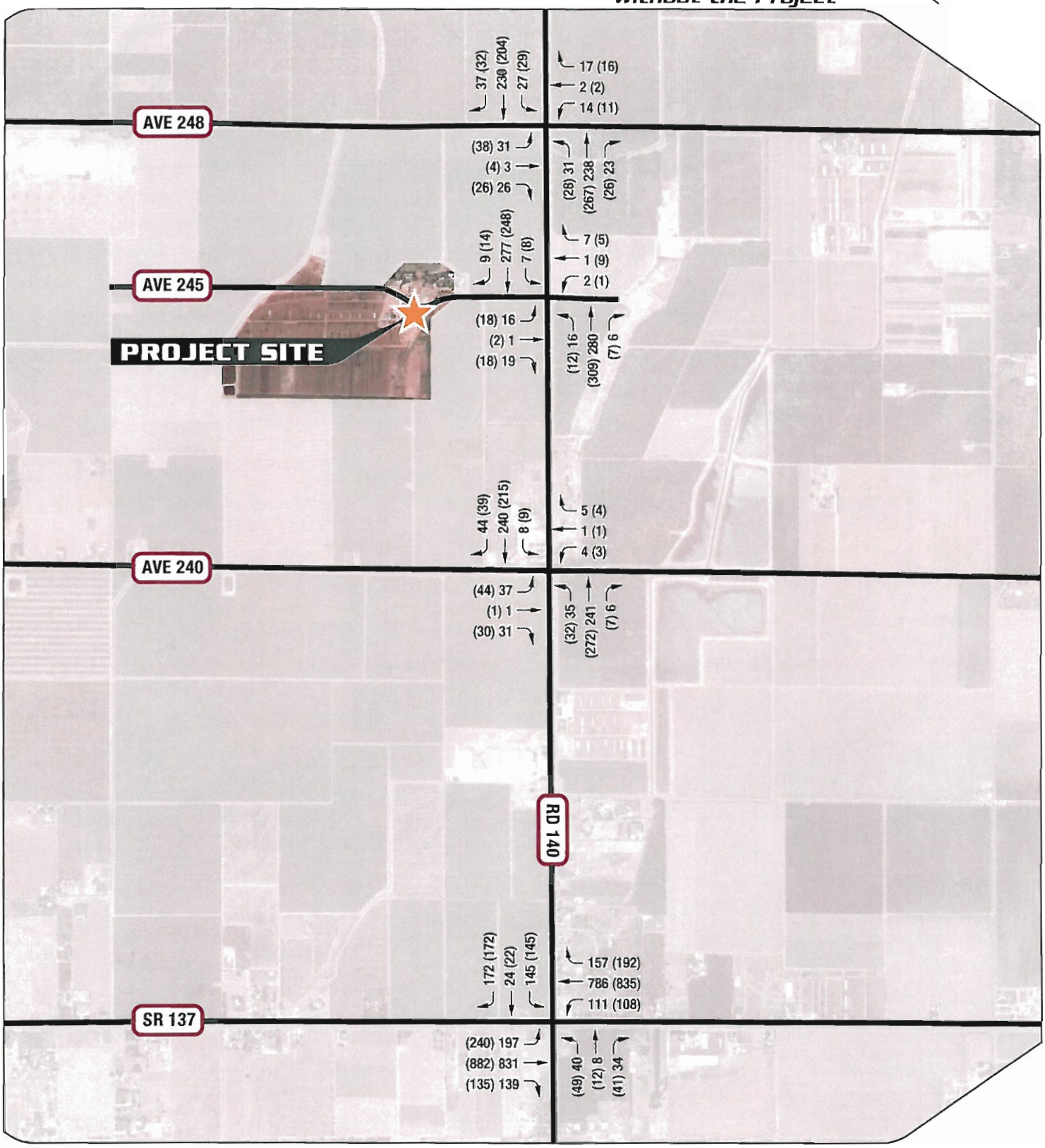
Figure 8

2035 Traffic Volumes without the Project



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CHAPTER 6 – 2035 CONDITIONS PLUS THE HARVEST-TULARE FACILITY PROJECT

The evaluation of the 2035 Conditions **WITH** the Harvest-Tulare Project scenario was prepared to address future conditions with the construction of the proposed Project. The 2035 WITH Project traffic volumes were developed using the existing traffic counts and the Tulare County Association of Governments traffic model volumes. Using peak hour traffic volumes developed for the 2035 baseline and adding Project trips to the study area intersections yielded 2035 peak hour traffic volumes with the Project completed. This scenario represents a "cumulative" plus project assessment.

Level of Service

The 2035 WITH the Project intersection lane configurations are the same as those shown in Figure 7. Future peak hour traffic volumes with the Harvest-Tulare Project are shown on Figure 9. The intersections were analyzed for the 2035 WITH the Project levels of service. Table 6 shows the 2035 WITHOUT the Project levels of service for the study intersections. The signalized intersection levels of service shown are representative of the whole intersection, individual intersection movements are shown for the 2-way stop controlled locations. The 2035 WITHOUT the Project calculations of levels of service are included in Appendix E.

TABLE 6:
2035 CONDITIONS WITH THE HARVEST-TULARE PROJECT - LEVELS OF SERVICE

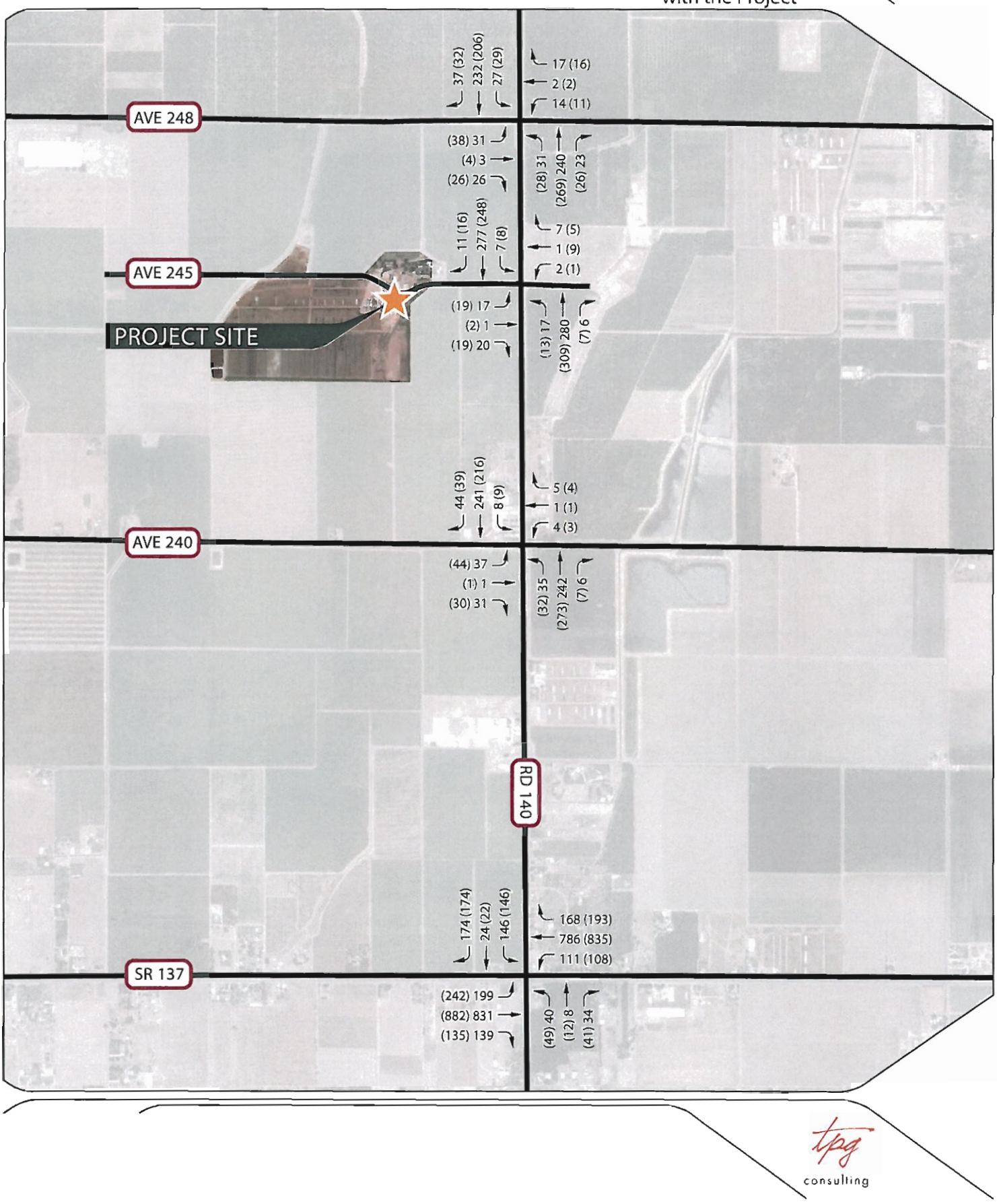
	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1]**	**LOS**	**Delay[1]**
Lovers Lane at SR 137	B	10.8	B	11.6
Lovers Lane at Road 240				
Northbound Approach	A	8.0	A	7.9
Southbound Approach	A	7.8	A	7.9
Westbound Approach	B	12.2	B	12.0
Eastbound Approach	B	13.3	B	13.6
Lovers Lane at Project Driveway				
Northbound Approach	A	8.0	A	7.9
Southbound Approach	A	7.9	A	8.0
Westbound Approach	B	11.3	B	12.9
Eastbound Approach	B	12.4	B	12.7
Lovers Lane at Road 248				
Northbound Approach	A	8.0	A	7.9
Southbound Approach	A	7.9	A	8.0
Westbound Approach	B	12.8	B	12.6
Eastbound Approach	B	13.7	B	14.2

[1] *delay in seconds per vehicle*

All study area intersections are projected to operate above the adopted County or Caltrans level of service standards in 2035 with the additional traffic expected from the Harvest-Tulare Facility Project.

Figure 9

2035 Traffic Volumes
with the Project



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CHAPTER 7 – CONCLUSIONS

As previously discussed and as shown below, all study area intersections are or are projected to operate well above the appropriate level of service standard. This condition will be true with and without the Harvest-Tulare Project traffic in both the short term and cumulative scenarios. The following table summarizes the levels of service for each of the four scenarios evaluated as part of this study.

TABLE 7:
SUMMARY FOR LEVELS OF SERVICE

Intersection	Existing		Existing Plus the Project		2035 Without the Project		2035 WITH the Project	
	LOS AM/PM	Delay[1] AM/PM	LOS AM/PM	Delay[1] PM	LOS AM/PM	Delay[1] AM/PM	LOS AM/PM	Delay[1] AM/PM
Lovers Lane at SR 137	A/A	8.5/8.6	A/A	8.5/8.6	A/A	9.3/10.1	A/A	9.3/10.2
Lovers Lane at Road 240								
NB Approach	A/A	7.8/7.8	A/A	7.8/7.8	A/A	8.0/7.9	A/A	8.0/7.9
SB Approach	A/A	7.6/7.7	A/A	7.6/7.7	A/A	7.8/7.9	A/A	7.9/7.9
WB Approach	B/B	11.7/12.1	B/B	11.8/12.2	B/B	12.2/12.0	B/B	12.2/12.0
EB Approach	B/B	11.3/12.5	B/B	11.3/12.6	B/B	13.3/13.6	B/B	13.3/13.7
Lovers Lane at Project Drive								
NB Approach	A/A	7.8/7.7	A/A	7.7/7.7	A/A	8.0/7.9	A/A	8.0/7.9
SB Approach	A/A	7.6/7.8	A/A	7.6/7.8	A/A	7.9/8.0	A/A	7.9/8.0
WB Approach	A/B	9.5/11.2	A/B	9.5/11.4	B/B	11.2/12.8	B/B	11.3/13.0
EB Approach	A/B	9.8/10.7	A/B	10.1/10.8	B/B	12.4/12.6	B/B	12.7/12.9
Lovers Lane at Road 248								
NB Approach	A/A	7.7/7.8	A/A	7.6/7.8	A/A	7.9/7.9	A/A	8.0/7.9
SB Approach	A/A	7.6/7.8	A/A	7.6/7.8	A/A	7.9/8.0	A/A	7.9/8.0
WB Approach	B/B	11.1/12.7	B/B	11.0/12.8	B/B	12.7/12.5	B/B	12.8/12.6
EB Approach	A/B	9.9/13.4	A/B	9.9/13.5	B/B	13.7/14.1	B/B	13.8/14.3

Project Mitigations

The Project will have no significant impact on the existing or future levels of service. Therefore, no mitigation will be required.

APPENDIX A

EXISTING CONDITIONS

INTERSECTION LEVELS OF SERVICE CALCULATIONS

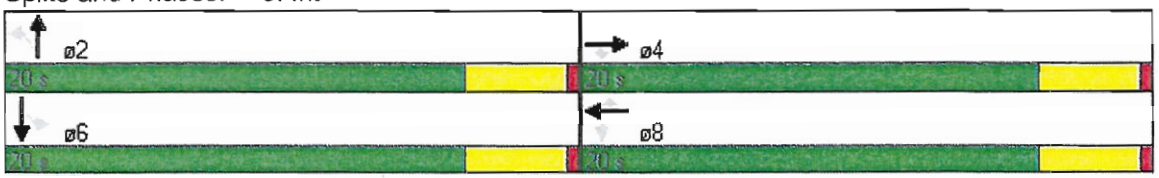
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.985			0.924	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1835	0	1770	1721	0
Flt Permitted	0.593			0.584			0.663			0.676		
Satd. Flow (perm)	1105	1863	1583	1088	1863	1583	1235	1835	0	1259	1721	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			12			77		13			75	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2903			3161			2528			1984	
Travel Time (s)		66.0			71.8			57.5			45.1	
Volume (vph)	48	248	11	11	242	71	30	104	12	67	67	69
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	270	12	12	263	77	33	113	13	73	73	75
Lane Group Flow (vph)	52	270	12	12	263	77	33	126	0	73	148	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phases	4	4	4	8	8	8	2	2		6	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0		16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	10.5	10.5	10.5	10.5	10.5	10.5	19.6	19.6		19.6	19.6	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.56	0.56		0.56	0.56	
v/c Ratio	0.17	0.51	0.03	0.04	0.50	0.15	0.05	0.12		0.10	0.15	
Uniform Delay, d1	10.5	11.7	0.0	10.1	11.7	0.0	4.1	3.8		4.2	2.0	
Control Delay	9.2	11.4	4.8	8.1	11.3	3.3	6.6	6.2		6.9	4.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	9.2	11.4	4.8	8.1	11.3	3.3	6.6	6.2		6.9	4.3	
LOS	A	B	A	A	B	A	A	A		A	A	
Approach Delay		10.8			9.4			6.3			5.2	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			A			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 40
Actuated Cycle Length: 34.7
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 8.5 Intersection LOS: A
Intersection Capacity Utilization 40.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Int



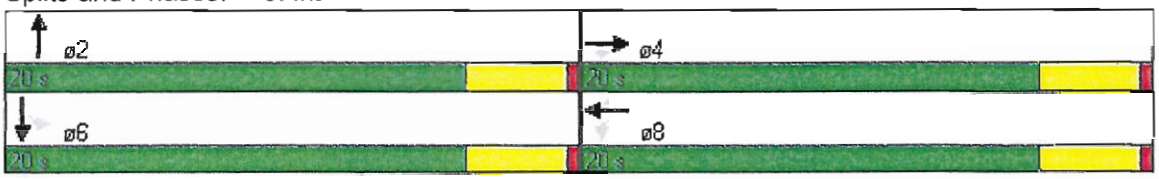
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.980			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1825	0	1770	1730	0
Flt Permitted	0.597			0.558			0.666			0.693		
Satd. Flow (perm)	1112	1863	1583	1039	1863	1583	1241	1825	0	1291	1730	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			20			93		13			68	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2903			3161			2528			1984	
Travel Time (s)		66.0			71.8			57.5			45.1	
Volume (vph)	63	269	18	11	239	86	12	79	12	79	69	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	292	20	12	260	93	13	86	13	86	75	68
Lane Group Flow (vph)	68	292	20	12	260	93	13	99	0	86	143	0
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Detector Phases	4	4	4	8	8	8	2	2		6	6	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	20.0	0.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	0.0%	50.0%	50.0%	0.0%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0		16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)	10.8	10.8	10.8	10.8	10.8	10.8	19.5	19.5		19.5	19.5	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.56	0.56		0.56	0.56	
v/c Ratio	0.21	0.53	0.04	0.04	0.48	0.18	0.02	0.10		0.12	0.14	
Uniform Delay, d1	10.5	11.7	0.0	10.0	11.4	0.0	4.2	3.7		4.4	2.3	
Control Delay	9.5	11.6	4.3	8.0	11.1	3.1	6.7	6.2		7.2	4.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	9.5	11.6	4.3	8.0	11.1	3.1	6.7	6.2		7.2	4.6	
LOS	A	B	A	A	B	A	A	A		A	A	
Approach Delay		10.9			8.9			6.3			5.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			A			A			A	

Intersection Summary

Area Type: Other
Cycle Length: 40
Actuated Cycle Length: 34.8
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 8.6 Intersection LOS: A
Intersection Capacity Utilization 38.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Int



TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	C. Clouse
Agency/Co.	Tul. Co. Compost
Date Performed	7/12/2012
Analysis Time Period	AM Peak

Site Information

Intersection	Lovers (Rd 140)at Ave 240
Jurisdiction	Tulare County
Analysis Year	2012

Project Description 12-1273

East/West Street: Ave. 240 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	19	126	1	4	176	42
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	19	126	1	4	176	42
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	11	11	3	12	1
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	16	11	11	3	12	1
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	19	4		16			38	
C (m) (veh/h)	1305	1411		553			613	
v/c	0.01	0.00		0.03			0.06	
95% queue length	0.04	0.01		0.09			0.20	
Control Delay (s/veh)	7.8	7.6		11.7			11.3	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	11.7			11.3		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140)at Ave 240
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2012
Analysis Time Period	PM Peak		

Project Description 12-1273

East/West Street: Ave. 240 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	30	186	2	2	149	42
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	30	186	2	2	149	42
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	48	22	31	0	11	1
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	48	22	31	0	11	1
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	30	2		12			101	
C (m) (veh/h)	1336	1339		519			583	
v/c	0.02	0.00		0.02			0.17	
95% queue length	0.07	0.00		0.07			0.63	
Control Delay (s/veh)	7.8	7.7		12.1			12.5	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.1			12.5		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	C. Clouse
Agency/Co.	Tul. Co. Compost
Date Performed	7/12/2012
Analysis Time Period	AM Peak

Site Information

Intersection	Lovers (Rd 140)at Ave 248
Jurisdiction	Tulare County
Analysis Year	2012

Project Description 12-1273

East/West Street: Ave. 248 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	3	125	4	2	151	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	125	4	2	151	43
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	8	4	22	12	6	1
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	8	4	22	12	6	1
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	3	2		19			34	
C (m) (veh/h)	1333	1409		605			762	
v/c	0.00	0.00		0.03			0.04	
95% queue length	0.01	0.00		0.10			0.14	
Control Delay (s/veh)	7.7	7.6		11.1			9.9	
LOS	A	A		B			A	
Approach Delay (s/veh)	--	--	11.1			9.9		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	C. Clouse
Agency/Co.	Tul. Co. Compost
Date Performed	7/12/2012
Analysis Time Period	PM Peak

Site Information

Intersection	Lovers (Rd 140)at Ave 248
Jurisdiction	Tulare County
Analysis Year	2012

Project Description 12-1273

East/West Street: Ave. 248 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	12	206	4	7	192	43
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	12	206	4	7	192	43
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	41	20	11	16	22	9
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	41	20	11	16	22	9
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	12	7		47			72	
C (m) (veh/h)	1287	1314		514			502	
v/c	0.01	0.01		0.09			0.14	
95% queue length	0.03	0.02		0.30			0.50	
Control Delay (s/veh)	7.8	7.8		12.7			13.4	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.7			13.4		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140) at Proj Drive
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2012
Analysis Time Period	AM Peak		

Project Description 12-1273

East/West Street: Project Driveway | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	4	149	3	2	167	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	4	149	3	2	167	57
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	1
Configuration	L		TR	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	4	0	7	1	0	4
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	4	0	7	1	0	4
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LT		LTR			LTR	
v (veh/h)	4	2		5			11	
C (m) (veh/h)	1299	1381		809			754	
v/c	0.00	0.00		0.01			0.01	
95% queue length	0.01	0.00		0.02			0.04	
Control Delay (s/veh)	7.8	7.6		9.5			9.8	
LOS	A	A		A			A	
Approach Delay (s/veh)	--	--	9.5			9.8		
Approach LOS	--	--	A			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	C. Clouse
Agency/Co.	Tul. Co. Compost
Date Performed	7/12/2012
Analysis Time Period	PM Peak

Site Information

Intersection	Lovers (Rd 140) at Proj Drive
Jurisdiction	Tulare County
Analysis Year	2012

Project Description 12-1273

East/West Street: Project Driveway | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	3	214	1	2	186	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	214	1	2	186	3
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	1
Configuration	L		TR	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	5	1	5	3	5	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	5	1	5	3	5	3
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LT		LTR			LTR	
v (veh/h)	3	2		11			11	
C (m) (veh/h)	1338	1309		588			641	
v/c	0.00	0.00		0.02			0.02	
95% queue length	0.01	0.00		0.06			0.05	
Control Delay (s/veh)	7.7	7.8		11.2			10.7	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	11.2			10.7		
Approach LOS	--	--	B			B		

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APPENDIX B

EXISTING PLUS THE PROJECT CONDITIONS

INTERSECTION LEVELS OF SERVICE CALCULATIONS

APPENDIX D

2035 WITHOUT THE PROJECT CONDITIONS

INTERSECTION LEVELS OF SERVICE CALCULATIONS

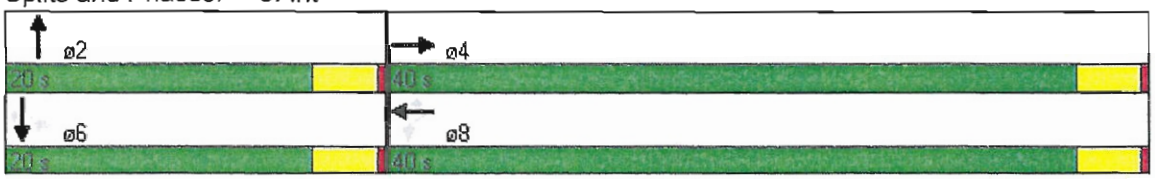
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.295			0.275			0.740			0.752		
Satd. Flow (perm)	550	3539	1583	512	3539	1583	1378	1863	1583	1401	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151			171			37			168
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2903			3161			2528			1984	
Travel Time (s)		66.0			71.8			57.5			45.1	
Volume (vph)	197	831	139	111	786	157	40	8	34	145	24	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	903	151	121	854	171	43	9	37	158	26	187
Lane Group Flow (vph)	214	903	151	121	854	171	43	9	37	158	26	187
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	24.3	24.3	24.3	24.3	24.3	24.3	16.8	16.8	16.8	16.8	16.8	16.8
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.49	0.34	0.34	0.34	0.34	0.34	0.34
v/c Ratio	0.79	0.52	0.18	0.48	0.49	0.20	0.09	0.01	0.07	0.33	0.04	0.29
Uniform Delay, d1	10.2	8.4	0.0	8.2	8.2	0.0	11.0	10.7	0.0	12.0	10.8	1.1
Control Delay	21.1	8.4	1.5	11.6	8.2	1.5	16.4	15.9	7.2	18.8	16.0	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	8.4	1.5	11.6	8.2	1.5	16.4	15.9	7.2	18.8	16.0	6.0
LOS	C	A	A	B	A	A	B	B	A	B	B	A
Approach Delay		9.7			7.6			12.5			12.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 49.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 57.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Int



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.278			0.260			0.742			0.749		
Satd. Flow (perm)	518	3539	1583	484	3539	1583	1382	1863	1583	1395	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147			209			45			165
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2903			3161			2528			1984	
Travel Time (s)		66.0			71.8			57.5			45.1	
Volume (vph)	240	882	135	108	835	192	49	12	41	145	22	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	959	147	117	908	209	53	13	45	158	24	187
Lane Group Flow (vph)	261	959	147	117	908	209	53	13	45	158	24	187
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	4	4	4	8	8	8	2	2	2	6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	32.4	32.4	32.4	32.4	32.4	32.4	16.7	16.7	16.7	16.7	16.7	16.7
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.89	0.48	0.15	0.43	0.46	0.21	0.13	0.02	0.09	0.39	0.04	0.32
Uniform Delay, d1	10.8	7.3	0.0	7.0	7.2	0.0	14.8	14.4	0.0	16.1	14.5	1.7
Control Delay	32.1	7.5	1.4	10.6	7.3	1.3	20.0	18.9	7.5	23.7	19.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	7.5	1.4	10.6	7.3	1.3	20.0	18.9	7.5	23.7	19.0	7.1
LOS	C	A	A	B	A	A	B	B	A	C	B	A
Approach Delay		11.5			6.6			14.8			15.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			A			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 57.4
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 61.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Int

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140)at Ave 240
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2035 WITHOUT Project
Analysis Time Period	AM Peak		

Project Description 12-1273

East/West Street: Ave. 240 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	35	241	6	8	240	44
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	35	241	6	8	240	44
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	37	1	31	4	1	5
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	37	1	31	4	1	5
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	35	8		10			69	
C (m) (veh/h)	1234	1273		511			504	
v/c	0.03	0.01		0.02			0.14	
95% queue length	0.09	0.02		0.06			0.47	
Control Delay (s/veh)	8.0	7.8		12.2			13.3	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.2			13.3		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140)at Ave 240
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2035 WITHOUT Project
Analysis Time Period	PM Peak		

Project Description 12-1273

East/West Street: Ave. 240	North/South Street: Lovers Lane
Intersection Orientation: North-South	Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	32	272	7	9	215	39
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	32	272	7	9	215	39
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	1	1	0
Configuration	L		TR	L		TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	44	1	30	3	1	5
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	44	1	30	3	1	5
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	32	9		9			75	
C (m) (veh/h)	1266	1239		526			494	
v/c	0.03	0.01		0.02			0.15	
95% queue length	0.08	0.02		0.05			0.54	
Control Delay (s/veh)	7.9	7.9		12.0			13.6	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.0			13.6		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140) at Proj Drive
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2035 WITHOUT Project
Analysis Time Period	AM Peak		

Project Description 12-1273

East/West Street: Project Driveway	North/South Street: Lovers Lane
Intersection Orientation: North-South	Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	16	280	6	7	277	9
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	16	280	6	7	277	9
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	1
Configuration	L		TR	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	16	1	19	2	1	7
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	16	1	19	2	1	7
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LT		LTR			LTR	
v (veh/h)	16	7		10			36	
C (m) (veh/h)	1232	1232		586			523	
v/c	0.01	0.01		0.02			0.07	
95% queue length	0.04	0.02		0.05			0.22	
Control Delay (s/veh)	8.0	7.9		11.2			12.4	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	11.2			12.4		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140) at Proj Drive
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2035 WITHOUT Project
Analysis Time Period	PM Peak		

Project Description 12-1273

East/West Street: Project Driveway | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	12	309	7	8	248	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	12	309	7	8	248	3
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	1
Configuration	L		TR	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	18	2	18	1	9	5
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	18	2	18	1	9	5
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LT		LTR			LTR	
v (veh/h)	12	8		15			38	
C (m) (veh/h)	1269	1200		477			509	
v/c	0.01	0.01		0.03			0.07	
95% queue length	0.03	0.02		0.10			0.24	
Control Delay (s/veh)	7.9	8.0		12.8			12.6	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.8			12.6		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140)at Ave 248
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2035 WITHOUT Project
Analysis Time Period	AM Peak		

Project Description 12-1273

East/West Street: Ave. 248 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	31	238	23	27	230	37
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	31	238	23	27	230	37
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	31	3	26	14	2	17
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	31	3	26	14	2	17
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	31	27		33			60	
C (m) (veh/h)	1252	1258		498			476	
v/c	0.02	0.02		0.07			0.13	
95% queue length	0.08	0.07		0.21			0.43	
Control Delay (s/veh)	7.9	7.9		12.7			13.7	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.7			13.7		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C. Clouse	Intersection	Lovers (Rd 140)at Ave 248
Agency/Co.	Tul. Co. Compost	Jurisdiction	Tulare County
Date Performed	7/12/2012	Analysis Year	2035 WITHOUT Project
Analysis Time Period	PM Peak		

Project Description 12-1273

East/West Street: Ave. 248 | North/South Street: Lovers Lane

Intersection Orientation: North-South | Study Period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	28	267	26	29	204	32
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	28	267	26	29	204	32
Percent Heavy Vehicles	10	--	--	10	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	38	3	26	11	2	16
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	38	3	26	11	2	16
Percent Heavy Vehicles	10	0	0	10	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	28	29		29			67	
C (m) (veh/h)	1286	1224		507			464	
v/c	0.02	0.02		0.06			0.14	
95% queue length	0.07	0.07		0.18			0.51	
Control Delay (s/veh)	7.9	8.0		12.5			14.1	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	12.5			14.1		
Approach LOS	--	--	B			B		

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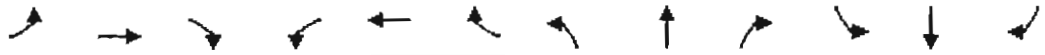
APPENDIX E

2035 WITH THE PROJECT CONDITIONS

INTERSECTION LEVELS OF SERVICE CALCULATIONS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	831	139	111	786	168	40	8	34	146	24	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.277			0.256			0.740			0.752		
Satd. Flow (perm)	516	3539	1583	477	3539	1583	1378	1863	1583	1401	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151			183			37			168
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2903			3161			2528			1984	
Travel Time (s)		66.0			71.8			57.5			45.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	216	903	151	121	854	183	43	9	37	159	26	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	903	151	121	854	183	43	9	37	159	26	189
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	50	50	50	50	50	50	50	50	50	50	50	50
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5