

# **Appendix I**

## **Traffic Study**

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**TRAFFIC STUDY  
FOR  
Desert Sunlight Solar Farm**

**Desert Center, California**

Prepared for:

**Tetra Tech**  
**301 East Vanderbilt Way, Suite 450**  
San Bernardino, CA 92408

Prepared by:

**Hernandez, Kroone & Associates**  
234 East Drake Drive  
San Bernardino, CA 92408

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## I. Introduction

### A. Purpose of the TIA and Study Objectives

This analysis was prepared to identify traffic impacts and, if needed, propose mitigation, of those impacts of the construction of the Desert Sunlight Solar Farm (Project) proposed by First Solar Development (First Solar). The Project includes a solar farm producing up to 550 MW of electrical power, approximately 12 miles of 230-kV transmission line and a 230 – 500 kV substation. The Project will provide renewable electrical power.

“The purpose of this Project is to create a clean, renewable source of electricity that helps meet California’s growing demand for power and helps fulfill national and State renewable energy and GHG goals. Solar energy provides a sustainable, renewable source of power that helps reduce fossil fuel dependence and GHG emissions.”<sup>i</sup> (GHG stands for “Green House Gas”)

“The Project will utilize First Solar’s proven thin film cadmium telluride (CdTe) PV technology, which is readily scalable to the Project’s size.”<sup>iii</sup>

This traffic study was completed with generally accepted procedures and reflects the opinions of Hernandez, Kroone & Associates (HKA). The methods used are based on the Highway Capacity Manual. The traffic study follows the outline in the Riverside County Transportation Department “Traffic Impact Analysis Preparation Guide”, dated April 2008.

*Measure of Impacts* - The existing condition and the future conditions without project traffic is the yardstick to determine the magnitude of the project and its traffic impacts. The operation of the traffic without the project is compared to the operation of the traffic with the project. The measure used to compare the operation of the intersections or roads is called Level of Service.

Level of Service (LOS) is a measure of the effectiveness of an intersection or road. It rates intersections by the length of delay or road segments by a volume to capacity ratio.

A LOS of A means that the intersection has little delay. A LOS of F means the intersection has delays of over a minute. The magnitude of change in the LOS when the project trips are added to the intersection indicates the magnitude of the project’s impact.

The LOS measure of effectiveness for a road is based on the ratio of the volume of traffic using the road segments to the capacity of the road segments. The traffic on a road operating at LOS A would move freely. The traffic on a road operating at LOS F would be traveling significantly less than the posted speed limit in stop / go congestions.

Appendix A has tables showing the ranges of delay for intersections and the volume to capacity (v/c) ratios for road segments for the various LOS categories.

In the County of Riverside, if the LOS decreases to below an LOS of C with the addition of the traffic generated by the proposed project (project traffic), it is

considered to have an impact and mitigation may be required. Intersections under joint jurisdiction with Caltrans may operate at an LOS of D.

Intersections or road segments are selected for analysis based on the project traffic distribution anticipated. The study intersections were analyzed for delay and level of service (LOS) using HCS on the unsignalized intersections. The HCS software uses the Highway Capacity Manual 2000 methodology (HCM) for solving for LOS and delay.

The HCM analysis procedures include mathematically applied adjustment factors as part of the process in calculating the final LOS rating of an intersection. One of these adjustment factors is called the peak hour factor (PHF). This helps factor in the differences between an hourly volume and the inherent discrepancies that may occur in forecasting. The PHF is defined by the *Highway Capacity Manual* as "...the ratio of total hourly volume to the peak rate of flow within the hour..." The traffic volume is divided by the PHF to adjust it to the maximum flow through the intersection.

HKA would like to acknowledge First Solar Inc. / AECOM who provided the majority of the attached figures.

## **B. Site location and study area (See Figure 1)**

The Project will be located near Desert Center, California, in the eastern portion of Riverside County, near the Joshua Tree National Park. The nearest communities are Eagle Mountain, Lake Tamarisk, and Desert Center. The solar panels will be constructed and operated at the "solar farm", approximately 6 miles north of Interstate 10 (I-10) along Kaiser Road.

The State Route 177 / I-10 interchange is the nearest interchange. The interchange is approximately 50 miles east of Indio, California and 50 miles west of Blythe, California. The majority of the land in the area is owned by the Bureau of Land Management (BLM).

## **C. Development project identification - Riverside County Case Number and related case**

Not Applicable

## **D. Development project description**

### **1) Project size and description (See Figures 2 and 3)**

There are several components to the Project. Each will be discussed separately. The traffic generated by the various components will be combined to approximate the total project traffic as appropriate when components are concurrent in activity.

*SOLAR FARM* - The size of the solar farm to produce 400 - 550 MWs approximately 3,000 - 4,200 acres. The SOLAR FARM will include 400 - 550 - 1MW PV Arrays, an on-site substation, 28,800 SF monitoring and maintenance facility (M&M facility), one or more meteorological stations, guard shack, and 900 SF Visitor's center.

The arrays, substation and meteorological stations will have little manpower requirements once they are constructed and connected. The M&M Facility will be manned during construction and to a lesser intensity during operation of the Project. The guard shack will be manned 24 hours a day during the construction and operation of the Solar Farm.

The Visitor's Center will be located just off Kaiser Road near the entrance to the Solar Farm. It will have exhibits and an observation deck. Since the Visitor's Center will be 6 miles from the I-10, it will not attract casual travelers looking for a break in the long drives between desert cities. It will most likely be used by school groups, researchers and people staying or visiting at Lake Tamarisk.

It is anticipated that 15 people will arrive and leave the site daily for operations, maintenance and guard duty. The majority of the staff will be at the site during daylight hours but occasionally testing or maintenance work will require night work.

At present there are three "footprints" or layouts proposed for the Solar Farm (See Figures 2 – 3. Alternative C is not shown as the location is the same as the other two). They are all located on the east side of Kaiser Road, approximately 6 miles north of I-10. Alternatives A and B are the same size, but Alternative C is smaller and produces less energy. The traffic impacts of the Solar Farm are not expected to change with the shape of the footprint. Additional changes to the shape which may be made during the environmental review or design stages are not expected to change the traffic impacts. Unless a significant change in the location, square footage or in the construction effort, there is no difference between the two in regards to traffic impacts.

Since there are no significant traffic differences between the two proposed solar farm footprints, the two concepts will be analyzed in a single traffic analysis.

*TRANSMISSION LINE* – This line is the 220 KW line running from the SOLAR FARM to the RED BLUFF SUBSTATION near the I-10. Since the location of the RED BLUFF SUBSTATION is not yet determined, there are several alternatives for the routing of this above ground transmission line. Four alternatives are proposed and shown on exhibits in Appendix A. In either case the line will primarily cross land administered by the BLM with some limited crossing of private property. The selection of the RED BLUFF SUBSTATION location will reduce the choices of the transmission line route.

The routes are approximately the same length. Approximately the same construction schedule, work crews, equipment, and methods will be used on any route. In addition the maintenance schedule, number of crews, equipment, and methods will be approximately the same.

The only difference between the TRANSMISSION LINE routing alternatives that will cause a difference between their traffic impacts is the route itself. While the TRANSMISSION LINE crews are likely to use Kaiser Road for the portion of work near the SOLAR FARM, they may use Eagle Mountain Road, SR-177 or

Chuckwalla Valley Road interchanges with I-10 to reach the RED BLUFF SUBSTATION site.

*RED BLUFF SUBSTATION* – Southern California Edison (SCE) plans to construct the Red Bluff Substation near the I-10. It will connect the TRANSMISSION LINE from the SOLAR FARM to the existing Devers-Palo Verde (DSPV) transmission line. Its components include:

- Red Bluff Substation: 500/220 kV substation on approximately 90 acres
- Transmission Lines: Approximately 2,000 feet of new transmission lines (two lines of approximately 1,000 feet each), to connect to the existing DSPV transmission line
- Generation Tie Line Connection: Connect the TRANSMISSION LINE to the Red Bluff Substation
- Modification of existing 220 kV structures
- Distribution Line for Substation Light and Power: Approximately 300 feet of 12 kV overhead distribution line and approximately 1,000 feet of underground distribution line (to provide substation light and power)
- Telecommunications Facilities: Install optical ground wire (OPGW) on the DSPV interconnection generation tie-line

There are two alternative locations currently being considered for the proposed RED BLUFF SUBSTATION. These two alternatives are described in detail in the SCE's "Red Bluff Substation Project Description April 15, 2010" and summarized below.

**Substation Alternative A: (AKA Red Bluff Site 2 in the SCE project description)** Substation Alternative A would be located in southeast corner of Section 28 and the northeast corner of Section 33, T5S, R16E, east of the SR-177 / I-10 interchange. Access would be SR-177 / I-10 interchange south to Aztec Avenue, then east on Aztec Avenue and a to-be-constructed access road to the substation. or 2) Chuckwalla Valley Road / I-10 interchange south to Corn Springs Road, then west on Corn Springs Road and a to-be-constructed access road to the substation.

**Substation Alternative B: (AKA Red Bluff Site 1 in the SCE project description)** Substation Alternative B would be located in the northeast corner of Section 31, T5S, R15E, south of the Eagle Mountain Road / I-10 interchange. Access would be south on Eagle Mountain Road and a to-be-constructed access road.

The size and layout of the components would be approximately the same for either site. The construction and maintenance schedules, equipment, and crews would be approximately the same for either location.

The only difference between the RED BLUFF SUBSTATION alternatives that will cause a difference between their traffic impacts is the route used to get to either site.

## 2) Existing land use and zoning

The Project will be located primarily on land within the BLM’s charge. The land use is open space. The SOLAR FARM is only on BLM managed land. The TRANSMISSION LINE will have small segments that cross private. The Alternative B location for RED BLUFF SUBSTATION is on private land.

The Desert Center Area Land Use map from the County of Riverside General Plan is included in Appendix B. Included in the same appendix, are maps depicting the ownership, zoning and current land use of the properties where the Project components may be constructed. Table 1 summarizes the information for the privately owned lands. For the TRANSMISSION LINE, the information is presented in the order private property would be crossed if one follows the proposed path from north to south. The specific Zoning, Current Land Use and General Plan Land Use designations are listed only once even if the component crosses two properties with the same designation.

*Table 1 General Plan Designations and Zoning<sup>iii</sup>  
Property not under the control of the Bureau of Land Management*

Component	Zoning	Current Land Use	General Plan Land Use
<b>TRANSMISSION LINE</b>			
Corridor A-1	N-A W-2-10 R-1-20	OS-RUR RR OS-R	Rural Desert Community Development Open Space- Recreation
Corridor A-2	A-1-20 W-2-10	AG OS-RUR	Rural Desert
Corridor B-1	N-A W-2-10	OS-RUR	Rural Desert
Corridor B-2	N-A W-2-10 R-1-20	OS-RUR RR OS-R	Rural Desert Community Development Open Space- Recreation
<b>RED BLUFF SUBSTATION</b>			
Alternative B	W-2-10	OS-RUR	Rural Desert

**Abbreviations**  
 N-A – Natural Assets  
 W-2-10 – Controlled Development Zone  
 R-1-20 – One-Family Dwelling per 20 Ac  
 AG - Agriculture  
 OS-RUR – Open Space Rural  
 OS-R Open Space Recreation  
 A-1-20 – Agricultural – Light  
 RR – Rural Residential

## 3) Proposed land use and zoning

No zoning changes are proposed by the Project’s Plan of Development (POD). Renewable energy generation or transmission facilities are not expressly allowed nor prohibited under the zoning ordinances but permitting may be required by County of Riverside for the use of private property in this manner.

The SOLAR FARM component will require buildings, fencing and arrays on approximately 4,200 acres of BLM land. The TRANSMISSION LINE component will have little impact, other than visual, for other approved uses of the land.

The RED BLUFF SUBSTATION site will take about 90 acres. The Alternative A location will be on BLM land but the Alternative B location is on private property.

**4) Site plan of proposed project (reduced) Figures 2 and 3**

**5) Proposed project opening year – 2014**

**6) Any proposed project phasing –**

The construction work will be phased so that limited areas of soil will be disturbed at a time. A proposed construction schedule is included in Appendix C.

**7) Indicate if project is within a City Sphere of Influence –**

The project is not within the sphere of influence of any city.

## **II. Area Conditions**

### **A. Identify Study Area and Intersections (Figure 4)**

Access to the SOLAR FARM is provided by Kaiser Road, a major road with 118 feet of right of way. It is predominately a north-south paved road that ends at State Route 177 (SR-177) at the south and at Eagle Mountain Landfill at the north end. It is one lane in each direction. It is mostly traveled by local residents. During a two hour period on a typical weekday, HKA observed three vehicles on the road north of its intersection with SR-177.

SR-177 is predominantly a north-south road that provides access for Kaiser Road from the I-10. According to the Desert Center Area Plan by the County of Riverside, it is a Mountain Arterial with 110 feet of right of way.<sup>iv</sup> It connects I-10 to SR 62, another east-west route in eastern Riverside County, approximately 30 miles north of Desert Center. SR-177 is one lane in each direction with centerline and edge of pavement markings.

The I-10 is an east-west interstate starting in Santa Monica, CA and ending in Florida. At this location it is two lanes in each direction.

There is an east-west road named Ragsdale Road between the I-10 and the SR-177 / Kaiser Road intersection that was not studied or counted. At the time the background counts were taken, the road appeared be a frontage road between the Eagle Mountain / I-10 interchange and the SR-177 / I-10 interchange. It dead ends east of the SR-177.

Intersections were selected based on project trips, proposed distribution and the anticipated use of the SR-177 interchange to reach the Project sites. The SCE "Red Bluff Substation Project Description April 15, 2010" describes the possible use of interchanges east and west of the SR-177 / I-10 interchange. The project trips using those interchanges will be significantly less than the number of project trips using the SR-1777 / I-10 interchange.

Intersections to be analyzed are:

- SR-177 / I-10 EB Ramp
- SR-177 / I-10 WB Ramp
- SR-177 / Kaiser Road

**B. Existing traffic controls and intersection geometrics**

SR-177 is the main road and is not stop controlled. The intersecting roads with SR-177 are stop controlled. The geometrics of the intersections are shown in Figure 5 and in Table 2.

*Table 2: Existing Geometrics*

Intersections	NB			SB			EB			WB		
	L	T	R	L	T	R	L	T	R	L	T	R
SR-177 / I-10 EB Ramp <sup>1</sup>	-	1	S	S	1	-	1	1	Y	-	-	-
SR-177 / I-10 WB Ramp	S	1	-	-	1	S	-	-		S	1	S
SR-177 / Kaiser Road	S	1	S	-	1	S	S	-	S	-	-	-

S – Turning Movement is shared with Adjacent Through movement.

Y – Turning movement must yield but is not stopped controlled. Has a separate lane.

**C. Existing traffic volumes - AM and PM peak hour turning movements and roadway links) (Figure 6A - AM and Figure 6B - PM)**

Turning movement counts and a 24 hour classification count were taken by Counts Unlimited (See Appendix A) on February 17, 2010. Only 108 vehicles used Kaiser Road north of Lake Tamarisk Resort during the 24 hour period counted.

Data on the volume of the I-10 in the project area was obtained from the Caltrans 2008 Annual Average Day Traffic Data (Appendix A). The peak hour volume on the I-10 near the SR-177 interchange is in the 2,800 to 3,000 vehicle range.

**D. Existing delay and Level of Service (LOS) at study intersections/roadway links**

Using the existing peak hour volumes and geometrics, the following LOS resulted at the study intersections. The detailed printouts are in Appendix D.

Table 3: LOS Summary for Existing Conditions and Traffic Volumes

Intersection	Control	AM Peak Period		PM Peak Period	
		Delay, sec	LOS	Delay, sec	LOS
SR-177 / I-10 EB	Stops EB Off Ramp	9.0	A	8.9	A
SR-177 / I-10 WB	WB Off Ramp Stops	8.6	A	8.7	A
SR-177 / Kaiser RD	SB Kaiser RD Stops	8.5	A	8.6	A

Since SR-177 is not controlled, traffic movements on SR-177 will maintain an LOS A. The movements of concern are those at the stop-controlled approach, as they must yield to the traffic on SR-177. Furthermore adequate gaps in the traffic stream or queues need to be available to left and right turning vehicles. The existing traffic volumes operate at an acceptable LOS in both the AM and PM Peak Periods.

**E. Provide copy of General Plan Circulation Element in the project vicinity (Appendix A)**

**F. Indicate if Transit service is available in the area and along which routes (Appendix A)**

There is no public transportation along SR-177. Greyhound Bus Service and perhaps other commercial bus lines travel east and west along I-10 without designated stations at SR-177.

**III. Projected Future Traffic**

**A. Project Traffic and Project Phasing (each study year)**

**1. Ambient growth rate**

The desert cities of the County of Riverside have experienced rapid growth in the recent boom period. Table 4 shows the growth of the two nearest cities based on numbers from the U.S Census Bureau website.

Table 4: Population Growth at I-10 Communities

City	Population			
	1990	2000	2009	Growth Rate, %
Blythe, CA	8,448	20,465	21,329	152
Indio, CA	36,850	49,116	82,230	123

The I-10 communities in the area have shown an approximately 135% growth rate over that 19 year span. However the unincorporated areas have not grown as rapidly. Table 5 shows rates of growth of about than 45% over the same period in the unincorporated areas.

Table 5: Population Growth in Unincorporated County of Riverside

	Population			Growth Rate, %
	1990	2000	2009	
Balance of County	385,384	420,721	558,214	45

Caltrans provides a history of annual average daily traffic counts at interchanges throughout the state. The difference between volume of traffic west of the interchange and the volume of traffic east of the interchange is the net traffic exiting and entering at the interchange. An increase in traffic indicates an increase in the population or employment activity near that location.

Comparing the net traffic at the I-10 ramps in the area between 1998 and 2008, there has been little increase in traffic at the ramps. During those 10 years, the growth in traffic at the SR-177 ramp was 14%, an average rate of about 1.5% per year in net change. This is probably a more accurate number for the anticipated growth in the area. For the purposes of this analysis, a 2% total growth in the background traffic during the construction period will be used.

Table 6: Caltrans Annual Average Daily Traffic Counts

Interchange with I-10	1998			2008			Growth Rate, %
	West	East	Net Change	West	East	Net Change	
Eagle Mountain/Cloud	15,200	15,200	0	23,000	23,000	0	
Eagle Mountain	15,200	15,100	100	23,000	23,000	0	-100
SR-177	15,100	13,700	1,400	23,000	21,400	1,600	14
Chuckwalla	13,700	13,700	0	21,400	21,400	0	
Ford Dry Lake	13,700	13,700	0	21,400	21,300	100	100

## 2. Project Trip generation

Project trips are the volume of traffic that will be added to the road system because of the development of the project. Since this land is currently undeveloped, all trips that will be generated by the project are considered to be project trips for the purposes of this study.

There are several ways to estimate the trips generated by a project. One way is to use data collected from a large number of similar projects. Such data has been compiled by the Institute of Transportation Engineers, "ITE Trip Generation Handbook." These data points have been plotted and best fit curves through these data points have been developed. However, the construction of a solar farm, substation, and transmission lines or the operation of these facilities is not identified in the ITE Trip Generation Handbook.

Therefore, an analysis of individual site activities including employment, deliveries of construction materials and equipment, the construction schedule, and future operational activities and resulting trips needs to be studied

individually to identify the trips generated at varying phases of project development.

Furthermore, these trips need to be identified as to those trips occurring during the hours of expected peak traffic on the road. Generally there are two times when the existing traffic volume is highest: between 0600-0900 and 1600-1800 on a normal week day. The impacts of the traffic are studied for the peak one hour period during each of those two periods. The discussion that follows will estimate the project trips of concern for both the AM and PM Peak Periods.

*Opening Day Project Trips* - The project trips for the operation and maintenance of the SOLAR FARM, TRANSMISSION LINE and RED BLUFF SUBSTATION will be low.

First Solar anticipates about 15 daily trips to and from the site for the various employees and an additional 7 deliveries per weekday. Table 7 shows an anticipated schedule of the trips to and from the site each day.<sup>v</sup> Trips to the Visitor's Center will primarily be by school bus or car and are not expected to occur during the peak traffic periods.

*Table 7: Operation and Maintenance Project Trips - SOLAR FARM*

Buildings	Staff per shift	Shifts	ADT Trips (one-way)	AM Peak Period		PM Peak Period	
				IN	OUT	IN	OUT
<b>M&amp;M, etc.</b>	10	0600 – 1800	20	-	-	-	-
	10	1800 – 0600	20	-	10	10	-
<b>Visitor's Center</b>	1	1000 – 1500	2	-	-	-	-
<b>Guard Shack</b>	2	0600 – 1800	4	-	-	-	-
	2	1800 – 0600	4	-	2	2	-
<b>Deliveries</b>		0800 – 1700	14	1	1	1	1
<b>Total</b>			<b>64</b>	<b>1</b>	<b>13</b>	<b>13</b>	<b>1</b>

TRANSMISSION LINE – Traffic for the operation and maintenance of TRANSMISSION LINE is sporadic. Inspections are generally yearly and maintenance will be on an “as-needed” basis. No peak hour project trips are included in the peak periods for the operation and maintenance since these trips can report at anytime. The operation and maintenance of the TRANSMISSION LINE, regardless of the route used, is not anticipated to impact the LOS of the intersections and roads in the area.

RED BLUFF SUBSTATION – The RED BLUFF SUBSTATION will be monitored remotely and may have 3-4 visits a month regardless of the location selected. No peak hour project trips are included in the peak periods for the operation and maintenance since these visits may occur at anytime. The operation and maintenance of the RED BLUFF SUBSTATION, regardless of the route used, is not anticipated to impact the LOS of the intersections and roads in the area.

*Table 8: Operation and Maintenance Project Trips  
For the Project*

Project Component	ADT Trips (round trips)	AM Peak Period		PM Peak Period	
		IN	OUT	IN	OUT
SOLAR FARM	28	1	13	13	1
TRANSMISSION LINE	-	-	-	-	-
RED BLUFF SUBSTATION	-	-	-	-	-
Total O&M Project Trips	28	1	13	13	1

This results in total Opening Day project trips of 14 trips during the AM and PM Peak period. An increase of 14 trips during the peak hour will not impact the intersections or roadway. The existing intersections and roadways have sufficient capacity to absorb these 14 trips without a decrease in LOS or operation. There is no concern for impacts to the study roads or intersection and no need for mitigation due to the operation and maintenance project trips for the Project.

A future analysis (20 year scenario) with these 14 trips was not performed. The project trips are not anticipated to change since the activity which generated the trips is not likely to change. The future intersection volumes will increase based upon growth rates established earlier. However traffic forecasting for a 20 year scenario is not an exact science. The volumes forecast will have a variance of more than these 14 project trips. Therefore, a future LOS was not performed.

Additionally the Riverside County Transportation Department Traffic Impact Analysis Preparation Guide does not require the analysis of intersections that receive less than 50 peak period project trips. The Project will not generate at least 50 peak period project trips during the operation and maintenance of its components after construction. The Project will generate at least 50 peak period project trips during the construction of its components. Construction traffic impacts will be analyzed.

*Construction Traffic Project Trips-* Frequently the impacts of the project trips during construction are ignored due to the limited duration and temporary nature of the impacts. However the construction period of this project is expected to take from December of 2010 through February of 2013 or a little over 2 years. The project trips identified for Opening Day and the 20 year future scenario were too small to be significant. Therefore, the project trips from the construction activities were selected for impact analysis.

The Supplemental POD released March 19, 2010 and the SCE “Red Bluff Substation Project Description April 15, 2010” provided a great deal of information regarding number of personnel, equipment, and process of the construction effort required. The current construction schedule for the SOLAR FARM and TRANSMISSION LINE is included in Appendix C.

### *Construction Worker Project Trips –*

SOLAR FARM – The construction and management workers required for the construction of the SOLAR FARM are expected to peak at about 562 employees during months 6 and 7 of the proposed construction schedule, not including the security guards. Months 5 and 8 – 16 will have closer to 542 employees at the site.

TRANSMISSION LINE – The construction workers required for the construction of the TRANSMISSION LINE are anticipated to average 25 employees for the 20 month effort. They will peak at 60 for the 6<sup>th</sup> – 8<sup>th</sup> months of construction.

SOLAR FARM and TRANSMISSION LINE construction work shifts will be 0700 to 1530. The hours may be adjusted for particular construction efforts (concrete pours) or to avoid the worst of the summer heat.

First Solar plans to provide 25 buses with 20 seats each to transport crews from Palm Springs, Blythe and other population centers to the site. Even with the long distances to commute, it is anticipated that approximately 10% of the staff will drive vehicles with two or less persons per car or about 60 vehicles.

### RED BLUFF SUBSTATION –

The SCE “Red Bluff Substation Project Description April 15, 2010” describes the work crews required for various components of the RED BLUFF SUBSTATION. No construction schedule was provided. The tasks and number of workers did not change between the two locations.

Since no construction schedule was provided, the peak number of crew for each component was assumed to overlap so that a conservative project trips estimate was developed.

It is not known at this time if the construction will be completed by SCE crews or the staff of a private contractor. SCE crews usually travel in crew cab trucks with a minimum of 3 to a pickup. Crews for private contractors generally arrive in separate vehicles, but given the long commute it was assumed that 80% of the employees will car pool to the site. With those assumptions, it will take more cars to provide the same number of workers if private contractors are used for the construction of the substation and its components. The number of vehicles estimated to carry the private contractor’s employees was used as the project trips during construction of the RED BLUFF SUBSTATION.

The project trips for the construction workers for all of the components of the Project were added in the following table. The calculations and assumptions leading to this table are given in more detail in Appendix C.

Table 9: Construction Workers Project Trips

Component	Daily Trips, PCEs	AM Peak Period		PM Peak Period	
		IN	OUT	IN	OUT
SOLAR FARM & TRANSMISSION LINE	204	88	2	-	10
RED BLUFF SUBSTATION	108	46	-	-	8
Visitors, etc.	10	-	-	-	-
<b>Total</b>	<b>322</b>	<b>134</b>	<b>2</b>	<b>-</b>	<b>18</b>

*Construction Equipment Project Trips* - The Supplemental POD released March 19, 2010 and the SCE "Red Bluff Substation Project Description April 15, 2010" provided a great deal of information regarding quantities and types of vehicles that will be used for the construction of the Project and the materials that will be hauled to the construction site. It is anticipated that approximately 10,400 loads will be brought to the site over the course of the construction effort. The majority of the equipment and materials will be brought to the site via oversized vehicles.

Since access to the site requires driving the oversized vehicles on state controlled roads (I-10, SR-177, etc), permits from Caltrans are required. Those permits require the oversized vehicles access the State's roads outside of the peak traffic periods.

The equipment will be brought to the site as needed and will not impact the public roads again until they depart. Most of this equipment will be brought to the site prior to the maximum level in construction employee traffic.

It is anticipated that an average of about 20 large vehicles will deliver equipment or material each day. Even though there may be several deliveries of materials a day for most of the construction period, most of these vehicles are not expected to move during the peak traffic periods. The only exception to this norm will be when concrete is being poured.

At this time, it is anticipated that concrete will be delivered to the project site from communities to the east in 10 cubic yard mixers. These vehicles have 3 axles on the road and move during all hours of the day.

Since concrete needs to be poured in cooler temperatures, the concrete trucks frequently move during the AM Peak Period. When the pouring sites are set up efficiently, up to 3 mixers can arrive, be unloaded and leave in an hour. For the purposes of this analysis, it is assumed that concrete is being poured in two sites at one time and that 6 mixers will arrive at the site and 5 mixers will leave the site in an hour's time during the AM Peak Period.

For the concrete to be unloaded effectively, the site needs to be set up and ready to go. This normally means that part of the construction crew has arrived

earlier to set up the site. To keep the analysis conservative, the construction worker traffic is not being reduced for the AM peak period.

Large trucks move through surface streets and intersections more slowly than cars and take more time to move through intersections. Since the analysis procedures are based on the number of passenger cars, the concrete mixer must be converted to an equivalent number of cars. The project truck trips were converted to passenger car equivalents (PCEs) by using a factor of 3. Using a PCE of 3 per concrete mixer, the number of project trips due to concrete mixers will be 18 PCEs arriving and 15 PCEs leaving the AM Peak Period.

Concrete will not be poured during all peak traffic periods during the construction. But since the deliveries of large loads that are not oversized could happen during the peak periods, the inclusion of almost a third of the daily deliveries during the AM Peak Period will result in a conservative estimate for the analysis.

Table 10: Construction Project Trips, PCEs

Component	Daily Trips, PCEs	AM Peak Period		PM Peak Period	
		IN	OUT	IN	OUT
SOLAR FARM & TRANSMISSION LINE	204	88	2	-	10
RED BLUFF SUBSTATION	108	46	-	-	8
Visitors, etc.	10	-	-	-	-
<b>Personnel Subtotal</b>	<b>322</b>	<b>134</b>	<b>2</b>	<b>-</b>	<b>18</b>
Deliveries, Concrete, Equipment	-	18	15	-	-
<b>Total</b>	<b>-</b>	<b>152</b>	<b>17</b>	<b>-</b>	<b>18</b>

### 3. Project Trip Distribution and Assignment (Figures 7 and 8)

Access to the site will be primarily from I-10 via SR-177 and Kaiser Road. The majority of the construction workers will be assigned to the SOLAR FARM off Kaiser Road.

If Alternative A is selected for the Red Bluff Substation location, access may be provided by the Chuckwalla Road / I-10 interchange. This would include the crews working on all components of the RED BLUFF SUBSTATION and the crews working on the TRANSMISSION LINE during the portion of its construction near the substation.

If Alternative B is selected for the Red Bluff Substation location, access will be the Eagle Mountain Road / I-10 interchange. This would include the crews working on all components of the RED BLUFF SUBSTATION and the crews working on the TRANSMISSION LINE during the portion of its construction near the substation.

Using either Chuckwalla Road / I-10 interchange or Eagle Mountain Road / I-10 interchange would reduce the project trips for the construction workers and

concrete trucks on SR-177. This would reduce the anticipated traffic impacts at the SR-177 / I-10 interchange. For the purposes of this analysis, it is assumed that all the project traffic will use the SR-177 / I-10 interchange.

*Construction Workers Distribution* – The construction workers will access the site via the SR-177 / I-10 interchange. Those working at the SOLAR FARM will turn north at the interchange. The crews on the TRANSMISSION LINE will turn either north or south depending on where the work is on its route. The crews working on or near the RED BLUFF SUBSTATION will turn south at the interchange.

Given the low population density in the area it was assumed that only about 3% of the workers would come from the local area. They were distributed as arriving from Eagle Mountain, a community north of the SOLAR FARM site.

Another 3% of the construction workers were distributed as arriving from the north using SR-177.

The remainder of the employees was distributed to arrive via I-10. The population centers, with available workers are primarily west of the SR-177 / I-10 interchange. Due to the difference in population densities, remaining construction worker traffic is divided approximately 70% - 30% west and east of the interchange.

*Concrete Trucks* – The project description has all concrete trucks arriving and leaving to the east from Blythe.

Figure 7 shows the inbound project trip distribution in terms of percentage. The outbound distribution of project trips would be the opposite of the inbound distribution. Figure 8 shows the project trips distribution in terms of PCEs.

#### **4. Other factors affecting trip generation (identify any factors used to adjust trip generation, such as pass-by trips, internal trips, or modal choice.**

The Project is a destination that does not lend itself to pass-by trips, internal trips, or modal choice.

#### **5. Construction Project peak hour turning movement traffic**

See Figures 7 and 8 discussed above.

#### **6. Project completion or phase completion traffic volumes**

See Section III. A. 2. The construction worker traffic exceeds any operation and maintenance traffic and is the only one that needs to be considered.

### **C. Cumulative Traffic (background)**

#### **1. Ambient Growth Rate**

See section III.A.1.

## 2. Identify location of other approved or proposed development projects

Cumulative traffic impacts are a concern when new projects have been approved, are funded for construction, but are currently not opened. In the near future, these projects would generate additional traffic trips throughout the study area. At the time of the data collection for existing traffic volumes, these cumulative project trips cannot be collected and must be estimated.

The EIS for the Project has an extensive list of projects that may be built in the future. The tables and a figure from the EIS are in Appendix C. The list was reviewed for approved but not built projects that would add project trips to the study intersections.

The following projects might add trips to the study intersections:

*Table 11: Possible Cumulative Projects*

Name	Location	Status
Eagle Mountain Pumped Water Storage	North of Desert Center	Application submitted
Chuckwalla Solar I	North of Desert Center	Plan of Development submitted to BLM
Desert Lily Soleil	North of Desert Center	-
Eagle Mountain Landfill Project	North of Desert Center	Project Alternatives under reconsideration.
Chuckwalla Racetrack	North of Desert Center, on SR-177	Approved

The first four projects are not approved and their anticipated project trips are not considered to be cumulative trips for the analysis for the First Solar's Project.

The other project in the area is the Chuckwalla Racetrack, the proposed conversion of a closed airstrip to a membership racetrack and storage venue. The access to the Chuckwalla Racetrack will be from I-10 or State Route 62 via SR-177.

The County of Riverside did not require a traffic study for the Chuckwalla so the number of vehicles added during the peak hours of a typical weekday is assumed to be insignificant. It is probable that the majority of the trips are expected to be on the weekends. The trips generated by the Chuckwalla Racetrack are not considered to be cumulative for the analysis for the First Solar's Project.

**3. Trip generation from other approved projects - Not Applicable.**

**4. Trip distribution and assignment of other approved development projects - Not Applicable.**

**5. Total background peak hour turning movement volumes (Figures 9A and 9B)**

The background traffic counted at the site was increased by 2% to project the background traffic expected during the construction period. The volumes shown on Figures 6A and 6B were multiplied by 1.02.

**IV. Traffic Analysis**

**A. Capacity, Level of Service and Improvement Analysis - Intersections**

**1) Delay and LOS for Existing Conditions**

See Section II. D. LOS printouts are in Appendix D.

*Table 12: LOS Summary for Existing Conditions and Traffic Volumes*

Intersection	Control	AM Peak Period		PM Peak Period	
		Delay, sec	LOS	Delay, sec	LOS
SR-177 / I-10 EB	EB Off Ramp Stops	9.0	A	8.9	A
SR-177 / I-10 WB	WB Off Ramp Stops	8.6	A	8.7	A
SR-177 / Kaiser RD	SB Kaiser RD Stops	8.5	A	8.6	A

**2) Delay and LOS for Project Conditions**

For this project, the only activity which generates a traffic concern is the construction work. Normally construction impacts are not of concern as they are of short duration and temporary. Typically, the project trips are added to the opening day and future year scenario background traffic and it is the combination of those two volumes which generate a traffic impact. However, in this situation the existing ADT of the streets is in the 100 ADT range and with the project trips added for the Project after Opening Day just doesn't generate an impact for evaluation.

In this situation the construction period will continue for more than 2 years and the number of vehicles used during construction will be substantially more than the anticipated volumes of traffic during the operation and maintenance of the Project. So the construction traffic impacts are analyzed. More detail LOS analysis printouts can be found in Appendix D.

*Table 13: LOS Summary for Construction Period*

Intersection	Control	Without Project		With Project	
		Delay, sec	LOS	Delay, sec	LOS
SR-177 / I-10 EB	EB Off Ramp Stops	9.0	A	9.6	A

Intersection	Control	Without Project		With Project	
SR-177 / I-10 WB	WB Off Ramp Stops	8.6	A	9.3	A
SR-177 / Kaiser RD	SB Kaiser RD Stops	8.5	A	8.6	A
PM Peak Period		Delay, sec	LOS	Delay, sec	LOS
SR-177 / I-10 EB	EB Off Ramp Stops	8.9	A	9.0	A
SR-177 / I-10 WB	WB Off Ramp Stops	8.7	A	8.8	A
SR-177 / Kaiser RD	SB Kaiser RD Stops	8.6	A	8.7	A

As summarize in Table 13, the impact of the construction traffic to the background traffic expected during the construction period is to increase the delay at all intersections by less than one second. The LOS does not deteriorate a level at any intersection. The construction traffic for this Project has no significant traffic impact at the intersections.

## V. Findings and Recommendations

### A. Traffic Impacts and Level of Service Analysis

This analysis was prepared to identify traffic impacts and, if needed, propose mitigation, of those impacts of the construction of the Desert Sunlight Solar Farm (Project) proposed by First Solar Development (First Solar). The Project includes a solar farm producing up to 550 MW of electrical power, approximately 12 miles of 230-kV transmission line and a 230 – 500 kV substation. The Project will provide renewable electrical power.

This traffic study was completed with generally accepted procedures and reflects the opinions of Hernandez, Kroone & Associates (HKA). The methods used are based on the Highway Capacity Manual. The traffic study follows the outline in the Riverside County Transportation Department “Traffic Impact Analysis Preparation Guide”, dated April 2008.

The project trips were generated and distributed. The Project will generate less than 15 trips per peak traffic period after construction is completed. As analysis is not required at intersections with less than 50 peak hour trips, an Opening Day and Future Year (20 year scenario) was not completed.

However due to the length of the construction period, the construction traffic impacts were evaluated. Based on the construction trips and the distribution of those trips the following intersections were selected for analysis:

- SR-177 / I-10 EB Ramp
- SR-177 / 1-10 WB Ramp
- SR-177 / Kaiser Road

As noted before, the future conditions without project traffic is the yardstick to determine the magnitude of the project and its traffic impacts. The operation of the traffic without the project is compared to the operation of the traffic with the project to identify the traffic impacts. The measure of the operation of the traffic is called the Level of Service (LOS).

The study intersections were analyzed for the AM and PM peak traffic periods for the **without** project condition and the **with** project condition during the construction period. Counts were taken at these intersections, those volumes were increased by 2% to account for the increase in background traffic over the next two years to model the without project condition. The project trips were added to model the **with** project condition.

The Highway Capacity Software was used to calculate the LOS. Table 12 is a summary of the current operation of the intersections. All intersections currently operate at a LOS of A. Table 13 summarizes the operation of the intersections during the construction time period. All intersections continue to operate at a LOS of A for the next few years. The anticipated construction traffic does not degrade the LOS. The Project has no traffic impacts at the study intersections and no mitigation is required.

The construction traffic will add a large number of vehicles to the local roads. Being a “good neighbor” during construction might include the following efforts:

- Sweeping the paved roads periodically to cut down on dust picked up by the construction vehicles
- Documenting the current state of the roads (video and pavement corings) to be used during construction and returning the roads to the current level after construction.

## **B. Traffic Signal Warrant Analysis**

No traffic signal warrant analysis is needed.

## **C. Circulation requirements**

No on-site or area wide circulation improvements are needed.

Figure 1 – Vicinity Map

Figure 2 – Site Plan for Solar Farm Alternative A

Figure 3 – Site Plan for Solar Farm Alternative B

Figure 4 – Photos

Figure 5 – Existing Lane Configurations

Figure 6A – Existing Traffic – AM

Figure 6B – Existing Traffic - PM

Figure 7 - Project Trip Distribution, %

Figure 8 - Project Trip Distribution, PCEs

Figure 9A – Background Traffic Adjusted for Construction Period – AM

Figure 9B – Background Traffic Adjusted for Construction Period - PM

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<sup>i</sup> First Solar Inc., “Plan of Development - Desert Sunlight Solar Farm”, December 29, 2009, page 7.

<sup>ii</sup> First Solar Inc., “Plan of Development - Desert Sunlight Solar Farm”, December 29, 2009, page 4.

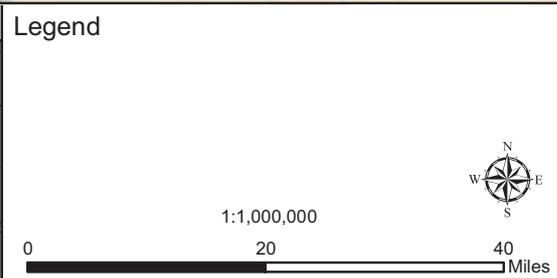
<sup>iii</sup> Tetra Tech Mapping of information in First Solar Inc., “Plan of Development - Desert Sunlight Solar Farm”, December 29, 2009, and First Solar, Inc., “Supplemental Plan of Development - Desert Sunlight Solar Farm”, March 19, 2010.

<sup>iv</sup> Riverside County Integrated Project, Desert Center Area Plan Circulation, Figure 6.

<sup>v</sup> First Solar Inc, “Supplemental Plan of Development - Desert Sunlight Solar Farm”, March 19, 2010, page 51

Appendices:

- A. Background Information
- B. Land Use
- C. Project Trip Generation
- D. LOS Analysis



**Desert Sunlight  
Solar Farm Project**

**Figure 1  
Project Vicinity Map**




Project: 60139386.004  
Date: March 2010



PROFESSIONAL ENGR.  
 DESERT SUNLIGHT HOLDINGS, LLC  
 1111 BROADWAY ST., SUITE 100  
 OAKLAND, CALIFORNIA 94612  
 PHONE: (510) 625-7400  
 WWW.FIRSTSOLAR.COM

DESERT SUNLIGHT  
 RIVERSIDE COUNTY  
 CALIFORNIA  
 550 MW-ac

REV	DATE	REVISION DESCRIPTION	BY	CHK	APP
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FS JOB No: 6015-0100-23  
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 PROJ. ENG. JP PROJ. MGR: MM  
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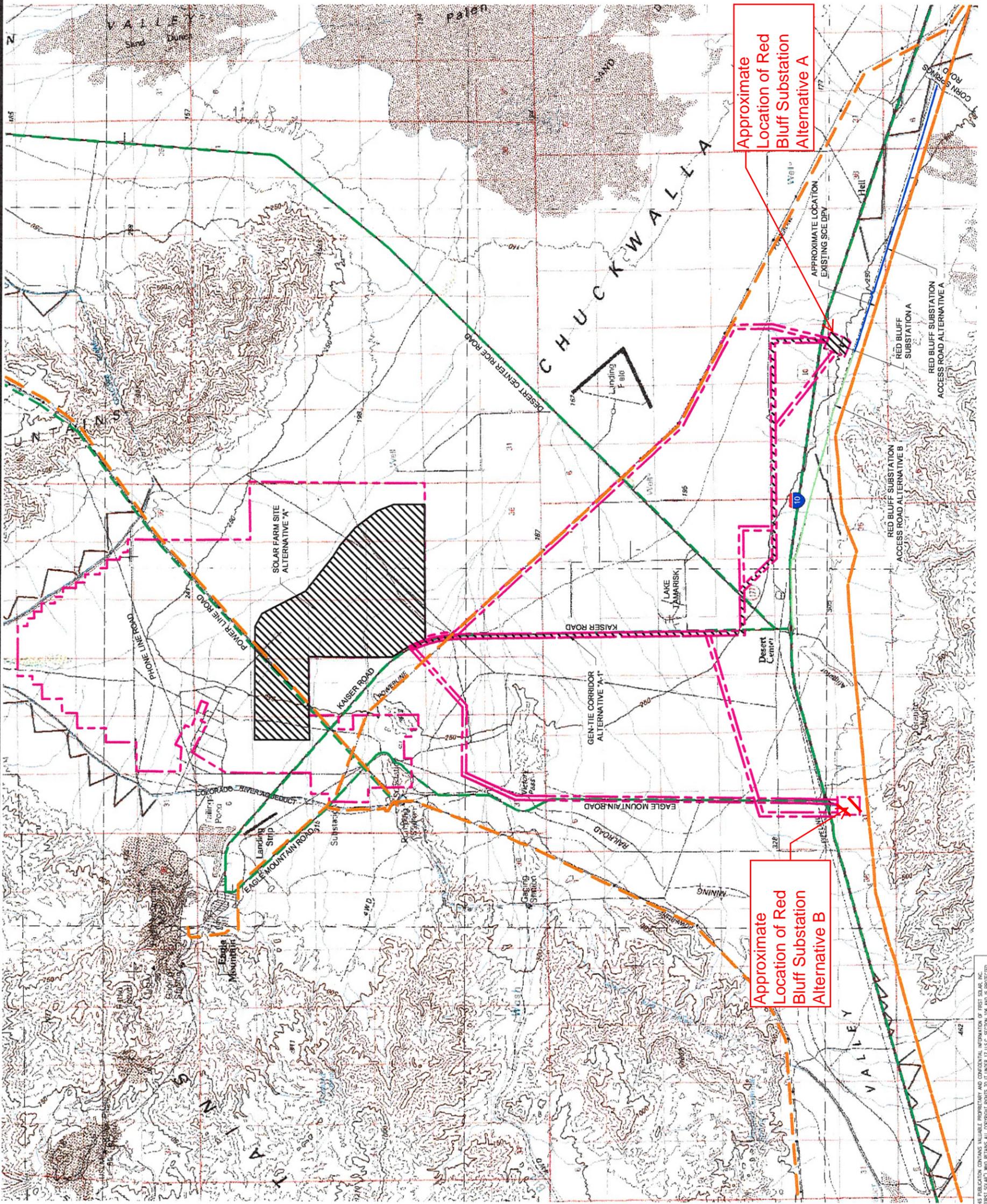
PROJECT  
 STUDY AREA  
 GEN-TIE CORRIDOR

LEGEND

- PROJECT STUDY AREA BOUNDARY \*
- EXISTING ROAD
- EXISTING TRANSMISSION LINE
- RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE A STUDY AREA \*
- RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE B STUDY AREA \*
- PROJECT SITE

\* NOTE:

1. THE PROJECT STUDY AREA IS COMPRISED OF APPROXIMATELY 19,246 ACRES. IT INCLUDES AREA RESERVED FOR SOLAR FARM AND RED BLUFF SUBSTATION, 400 FEET WIDE GEN-TIE CORRIDORS AND 100 FEET WIDE ACCESS ROADS FOR RED BLUFF SUBSTATION - ALTERNATIVE A & B.
2. THE PROJECT SITE WILL BE LOCATED WITHIN THE PROJECT STUDY AREA AND WILL INCLUDE APPROXIMATELY 4,484 ACRES. IT INCLUDES SOLAR FARM AREA, 160 FEET WIDE GEN-TIE CORRIDOR AND 75 ACRE SUBSTATION.

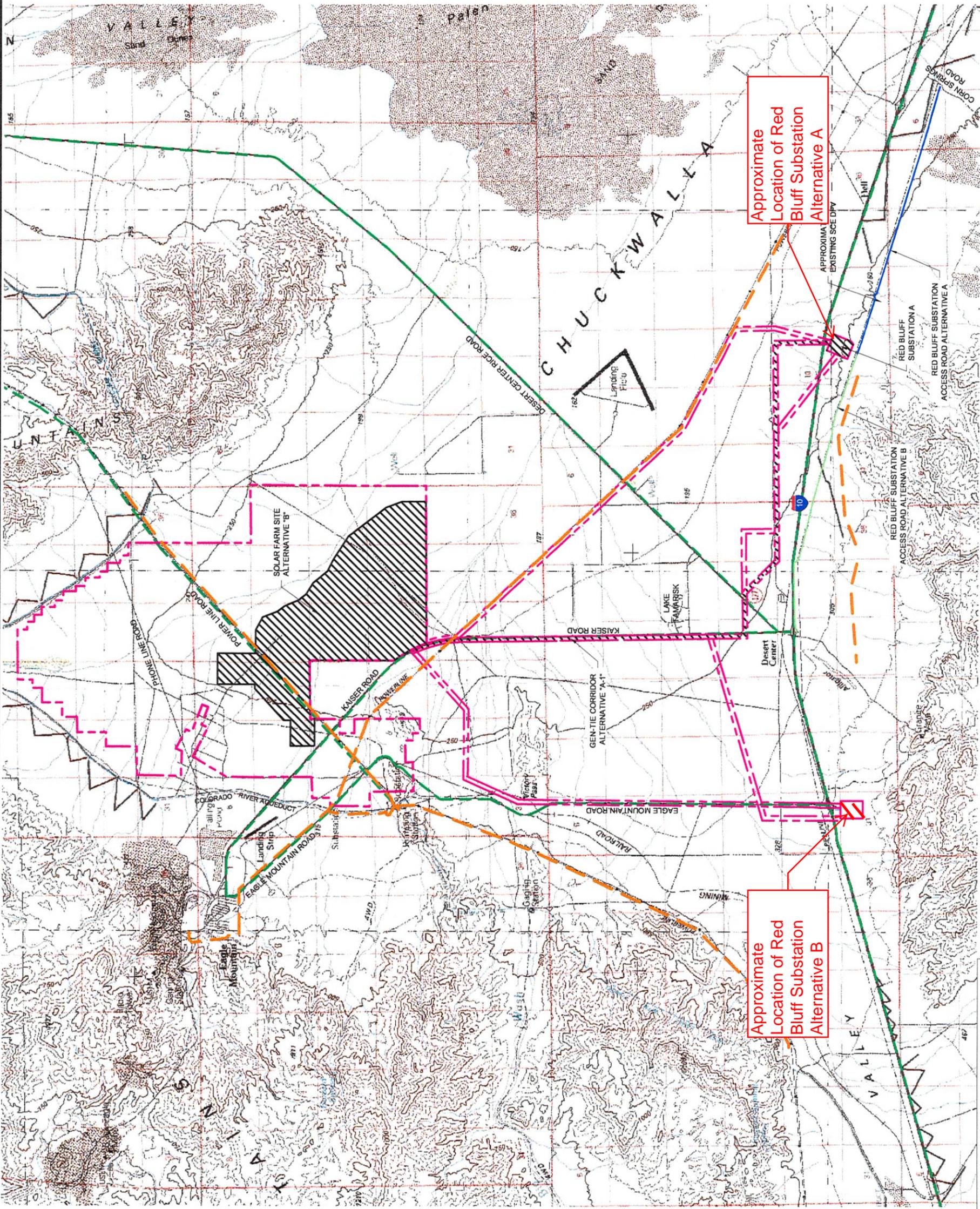


Approximate Location of Red Bluff Substation Alternative A

Approximate Location of Red Bluff Substation Alternative B

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**LEGEND**

- PROJECT STUDY AREA BOUNDARY \*
- EXISTING ROAD
- EXISTING TRANSMISSION LINE
- RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE A STUDY AREA \*
- RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE B STUDY AREA \*
- PROJECT SITE

**\* NOTE:**

1. THE PROJECT STUDY AREA IS COMPRISED OF APPROXIMATELY 19,246 ACRES. IT INCLUDES AREA RESERVED FOR SOLAR FARM AND RED BLUFF SUBSTATION, 400 FEET WIDE GEN-TIE CORRIDORS AND 100 FEET WIDE ACCESS ROADS FOR RED BLUFF SUBSTATION - ALTERNATIVE A & B.
2. THE PROJECT SITE WILL BE LOCATED WITHIN THE PROJECT STUDY AREA AND WILL INCLUDE APPROXIMATELY 4,563 ACRES. IT INCLUDES SOLAR FARM AREA, 160 FEET WIDE GEN-TIE CORRIDOR AND 75 ACRE SUBSTATION.



**DESERT SUNLIGHT**  
 SOLAR FARM (ALTERNATIVE "B")  
 RIVERSIDE COUNTY  
 CALIFORNIA  
 550 MW-ac

REV DATE	REVISION DESCRIPTION	BY	CHK	APP
03/12/10	ISSUED FOR EIS SUBMITTAL			
FS JOB No: 6015-0100-23				
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SCALE: AS SHOWN				
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SHEET TITLE				
PROJECT STUDY AREA - GEN-TIE CORRIDOR				

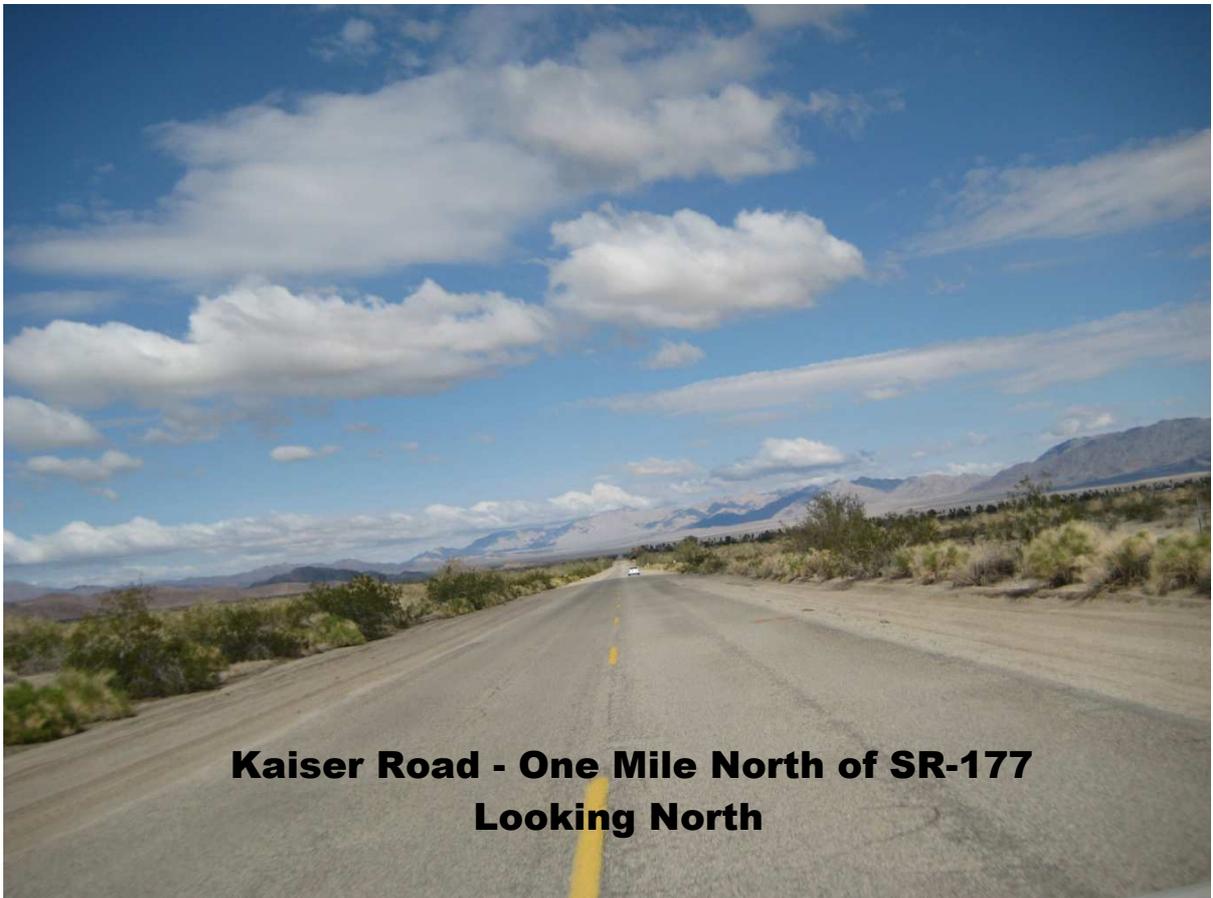


**Figure 3 Solar Farm Alternative B**  
 Base Map by First Solar / AECOM

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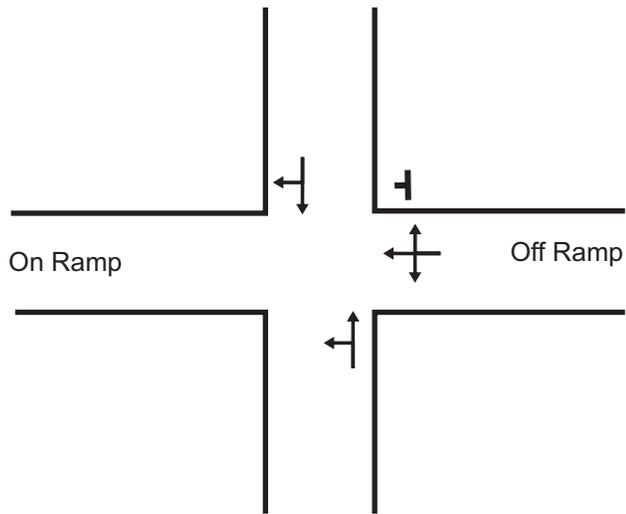


**Kaiser Road & SR-177 Looking South East**

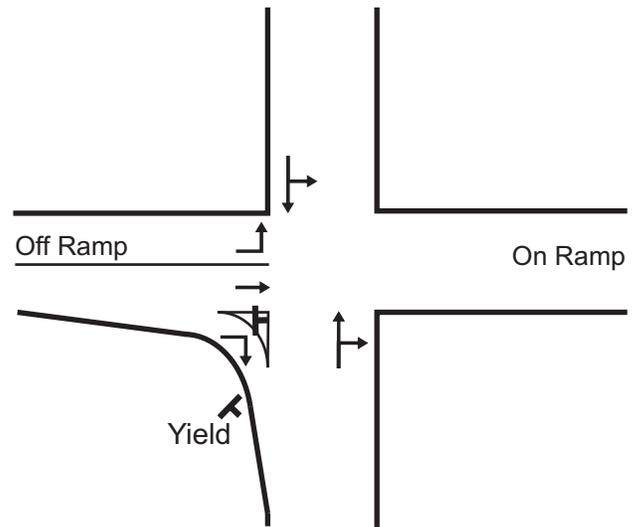


**Kaiser Road - One Mile North of SR-177  
Looking North**

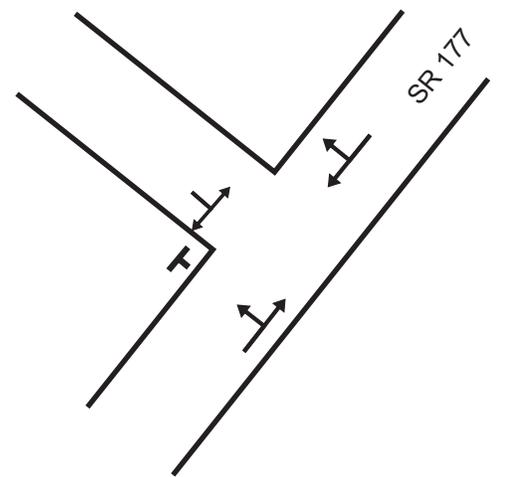




I-10 WEST BOUND (E-W)  
and  
STATE ROUTE 177 (N-S)



I-10 EASTBOUND (E-W)  
AND  
STATE ROUTE 177 (N-S)



KAISER ROAD (NW-SE)  
AND  
STATE ROUTE 177 (NE-SW)

Legend

↕ Direction of Traffic

⊥ Stop Sign

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SAN BERNARDINO, CA 92408  
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E-MAIL: richardh@hkagroup.com

DESCRIPTION

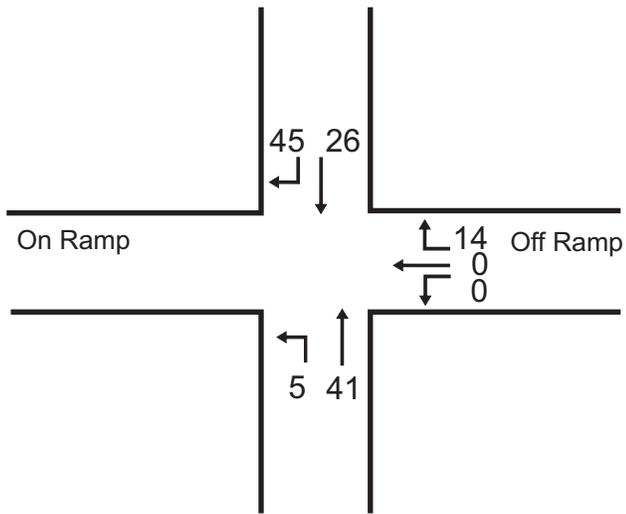
Existing Lane  
Configurations  
Figure 5

PROJECT NO.

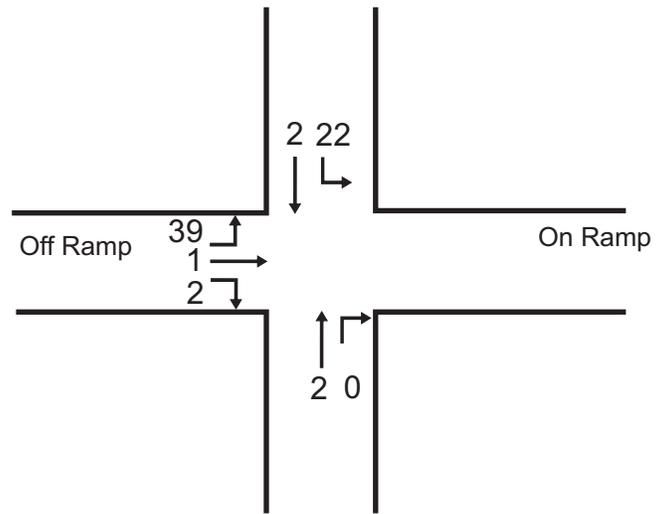
08-1002

DATE

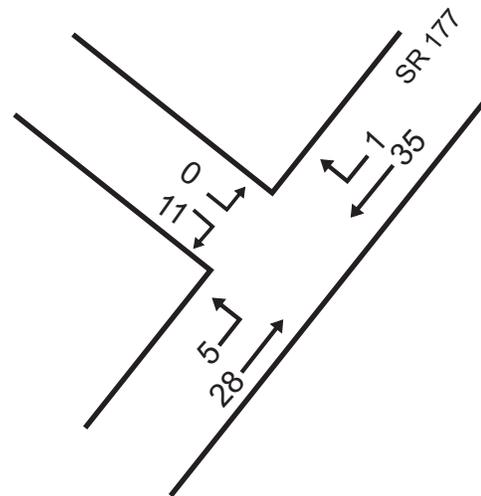
4-05-2010



I-10 WEST BOUND (E-W)  
and  
STATE ROUTE 177 (N-S)



I-10 EASTBOUND (E-W)  
AND  
STATE ROUTE 177 (N-S)



KAISER ROAD (NW-SE)  
AND  
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DESCRIPTION

AM Existing Traffic

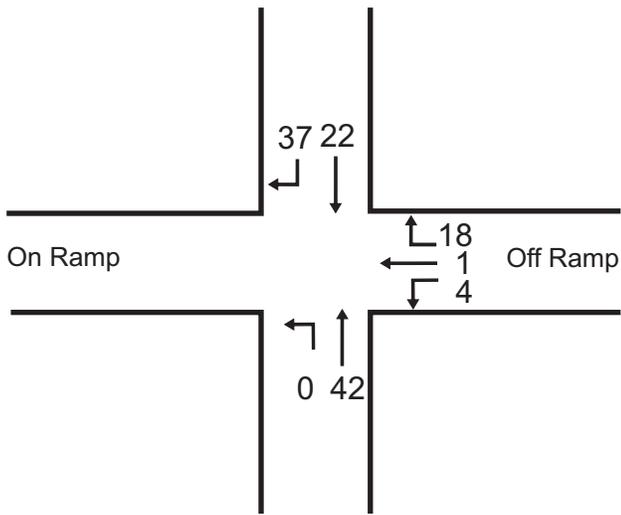
Figure 6A

PROJECT NO.

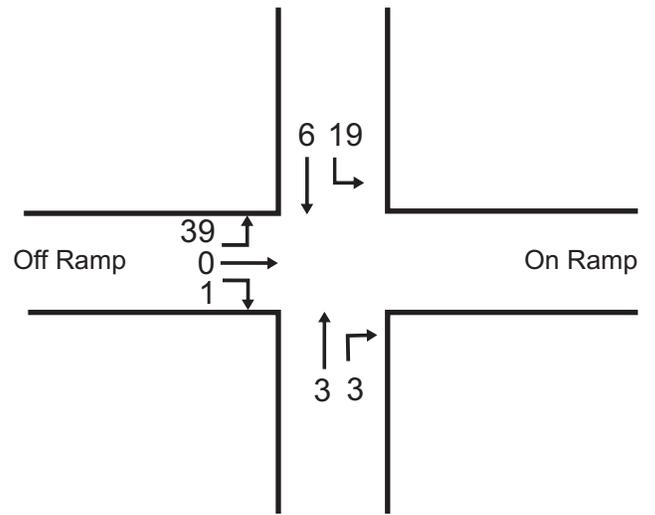
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DATE

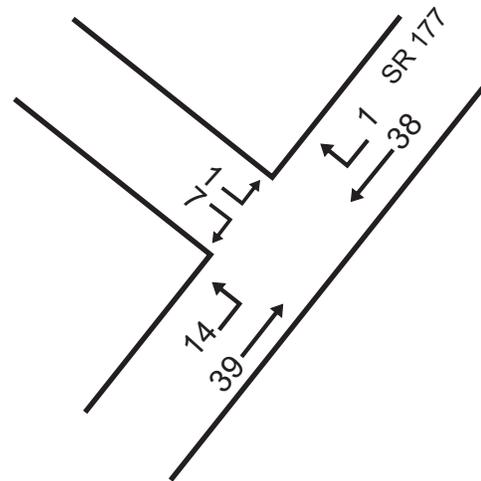
04-07-2010



I-10 WEST BOUND (E-W)  
and  
STATE ROUTE 177 (N-S)



I-10 EASTBOUND (E-W)  
AND  
STATE ROUTE 177 (N-S)



KAISER ROAD (NW-SE)  
AND  
STATE ROUTE 177 (NE-SW)

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DESCRIPTION

PM Existing Traffic

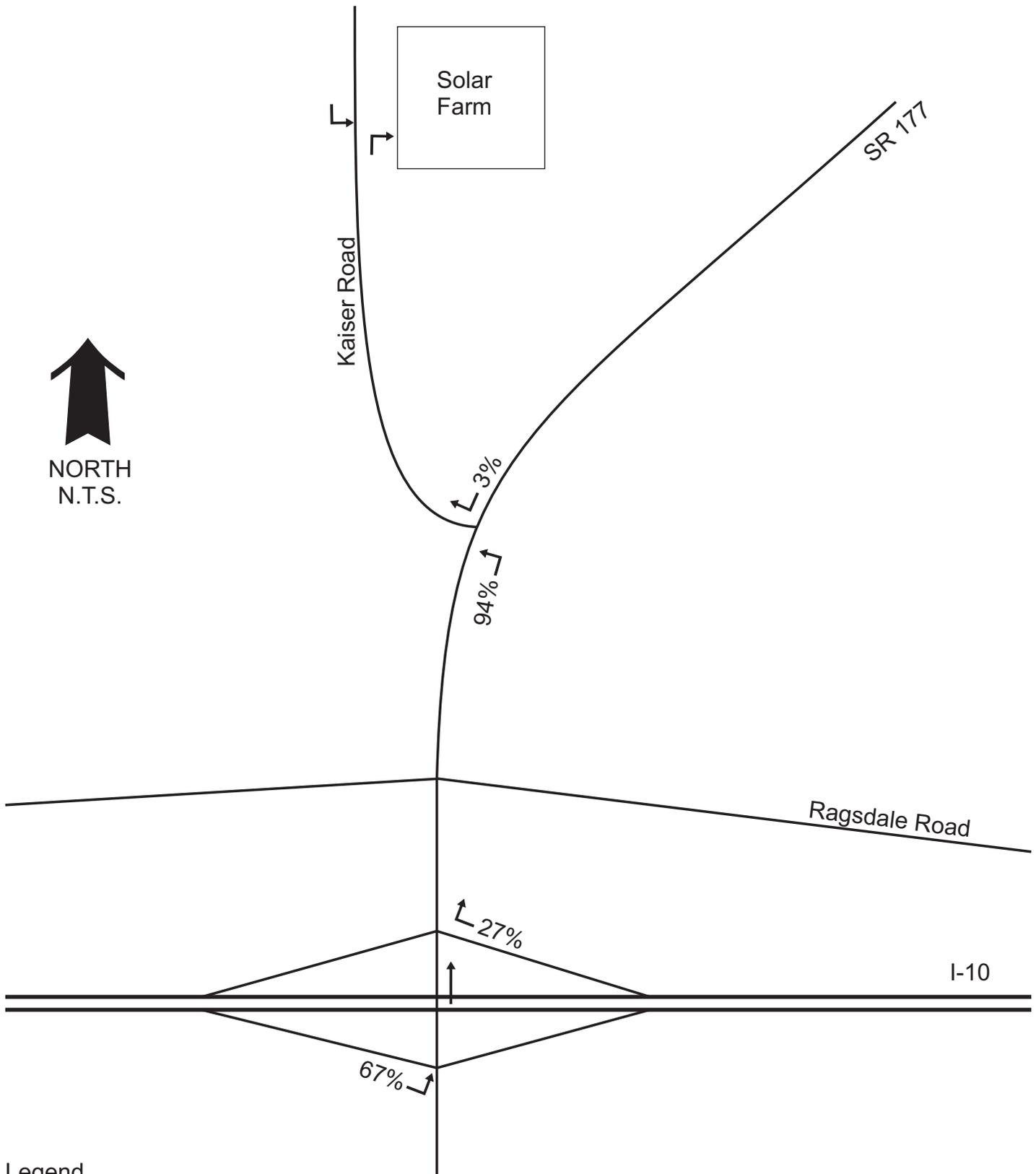
Figure 6B

PROJECT NO.

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04-07-2010



Legend

↕ Direction of Traffic

**Note: Distribution shown is for SOLAR FARM & TRANSMISSION LINE crews**

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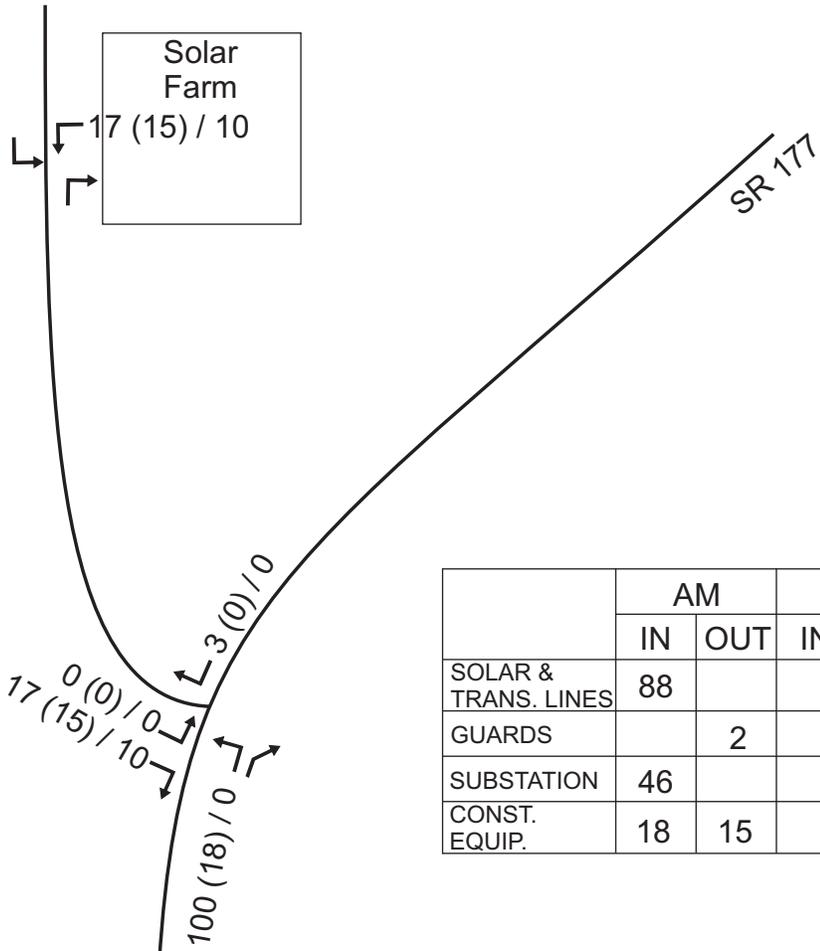
Project Trip  
 Distribution, %  
 Figure 7

PROJECT NO.

08-1002

DATE

4-07-2010



	AM		PM	
	IN	OUT	IN	OUT
SOLAR & TRANS. LINES	88			10
GUARDS		2		
SUBSTATION	46			8
CONST. EQUIP.	18	15		

Legend

↕ Direction of Traffic

x (x) / x - AM Trips (Equipment Trips) / PM Trips



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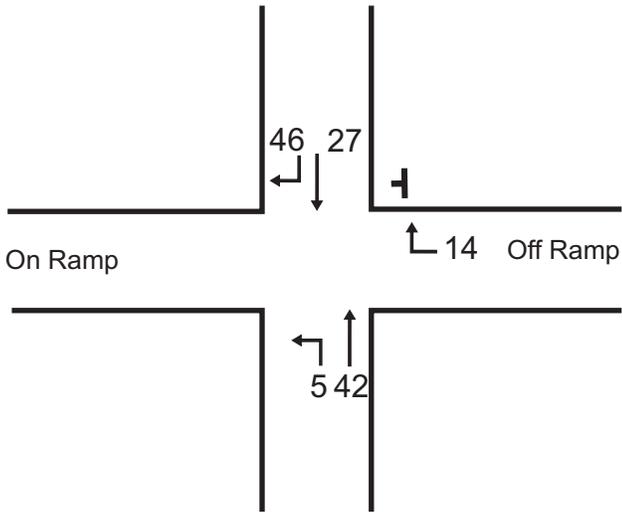
Project Trip  
 Distribution, PCE's  
 Figure 8

PROJECT NO.

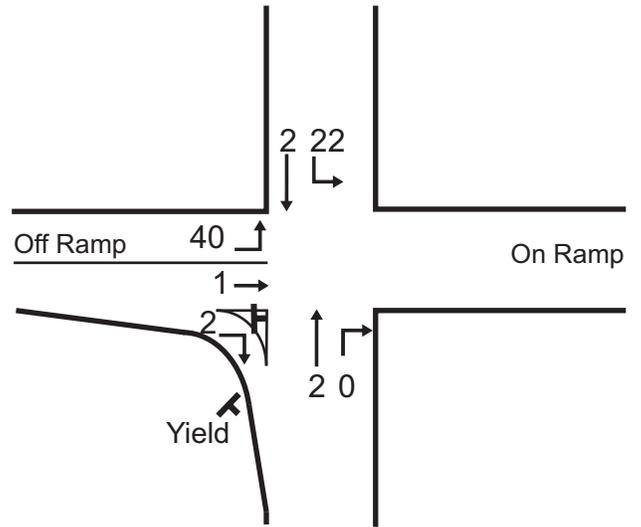
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DATE

05-05-2010



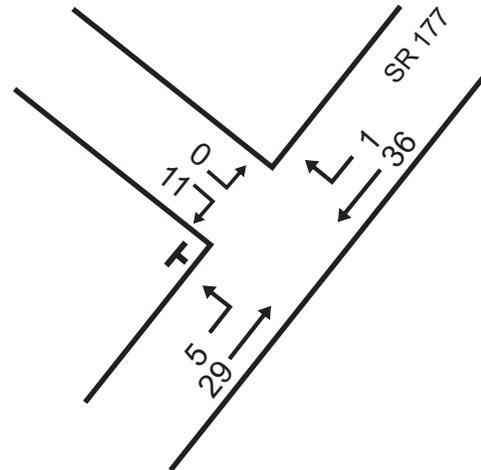
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and  
STATE ROUTE 177 (N-S)



I-10 EASTBOUND (E-W)  
AND  
STATE ROUTE 177 (N-S)



NORTH  
N.T.S.



KAISER ROAD (NW-SE)  
AND  
STATE ROUTE 177 (NE-SW)

Legend

↔ Direction of Traffic

⊣ Stop Sign

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DESCRIPTION

AM Background Traffic adjusted  
for Construction Period

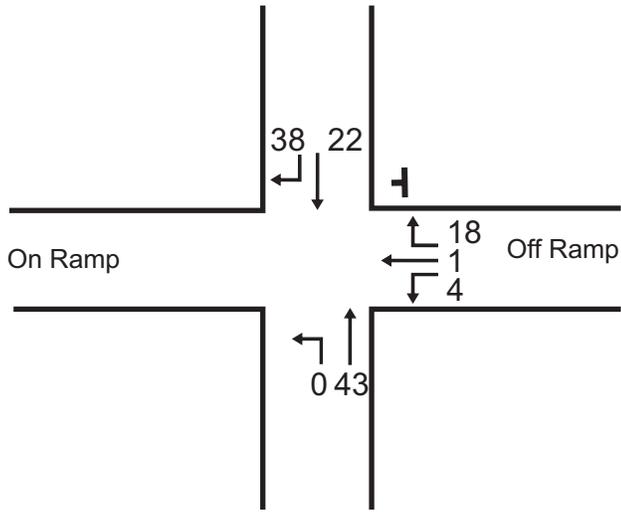
Figure 9A

PROJECT NO.

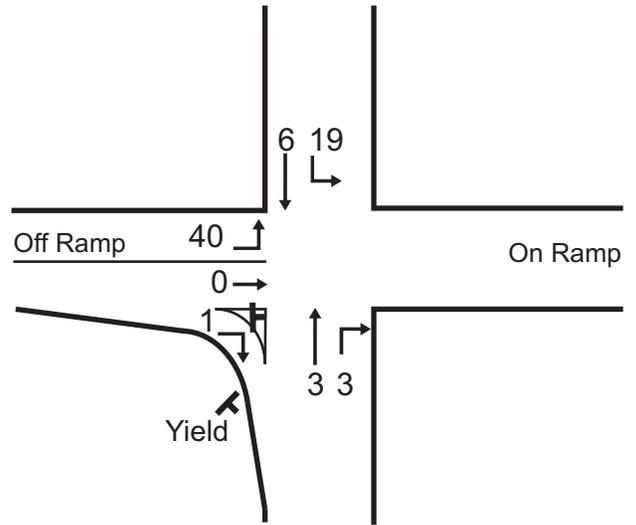
08-1002

DATE

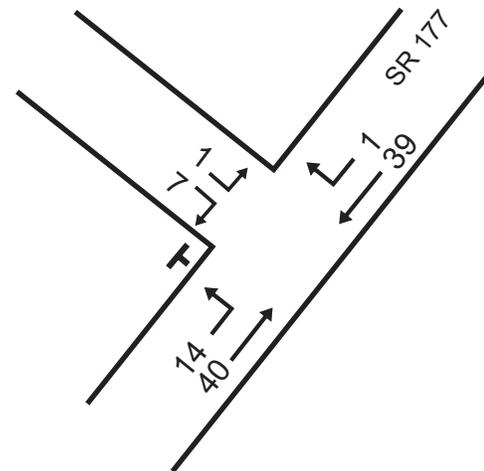
4-07-2010



I-10 WEST BOUND (E-W)  
and  
STATE ROUTE 177 (N-S)



I-10 EASTBOUND (E-W)  
AND  
STATE ROUTE 177 (N-S)



KAISER ROAD (NW-SE)  
AND  
STATE ROUTE 177 (NE-SW)

Legend

↔ Direction of Traffic

⊥ Stop Sign

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DESCRIPTION

PM Background Traffic Adjusted  
for Construction Period, PCEs

Figure 9B

PROJECT NO.

08-1002

DATE

4-07-2010

## **Appendix A Background Information**

- LOS Tables
- TRANSMISSION LINE Route Alternatives
- Existing Traffic Counts – Intersections and Freeway
- General Plan Circulation Element
- Transit Map
- Population Data

EXHIBIT 23-2. LOS CRITERIA FOR BASIC FREEWAY SEGMENTS

Criteria	LOS				
	A	B	C	D	E
FFS = 75 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	75.0	74.8	70.6	62.2	53.3
Maximum v/c	0.34	0.56	0.76	0.90	1.00
Maximum service flow rate (pc/h/ln)	820	1350	1830	2170	2400
FFS = 70 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	70.0	70.0	68.2	61.5	53.3
Maximum v/c	0.32	0.53	0.74	0.90	1.00
Maximum service flow rate (pc/h/ln)	770	1260	1770	2150	2400
FFS = 65 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	65.0	65.0	64.6	59.7	52.2
Maximum v/c	0.30	0.50	0.71	0.89	1.00
Maximum service flow rate (pc/h/ln)	710	1170	1680	2090	2350
FFS = 60 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	60.0	60.0	60.0	57.6	51.1
Maximum v/c	0.29	0.47	0.68	0.88	1.00
Maximum service flow rate (pc/h/ln)	660	1080	1560	2020	2300
FFS = 55 mi/h					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	55.0	55.0	55.0	54.7	50.0
Maximum v/c	0.27	0.44	0.64	0.85	1.00
Maximum service flow rate (pc/h/ln)	600	990	1430	1910	2250

Note:

The exact mathematical relationship between density and v/c has not always been maintained at LOS boundaries because of the use of rounded values. Density is the primary determinant of LOS. The speed criterion is the speed at maximum density for a given LOS.

**LOS**

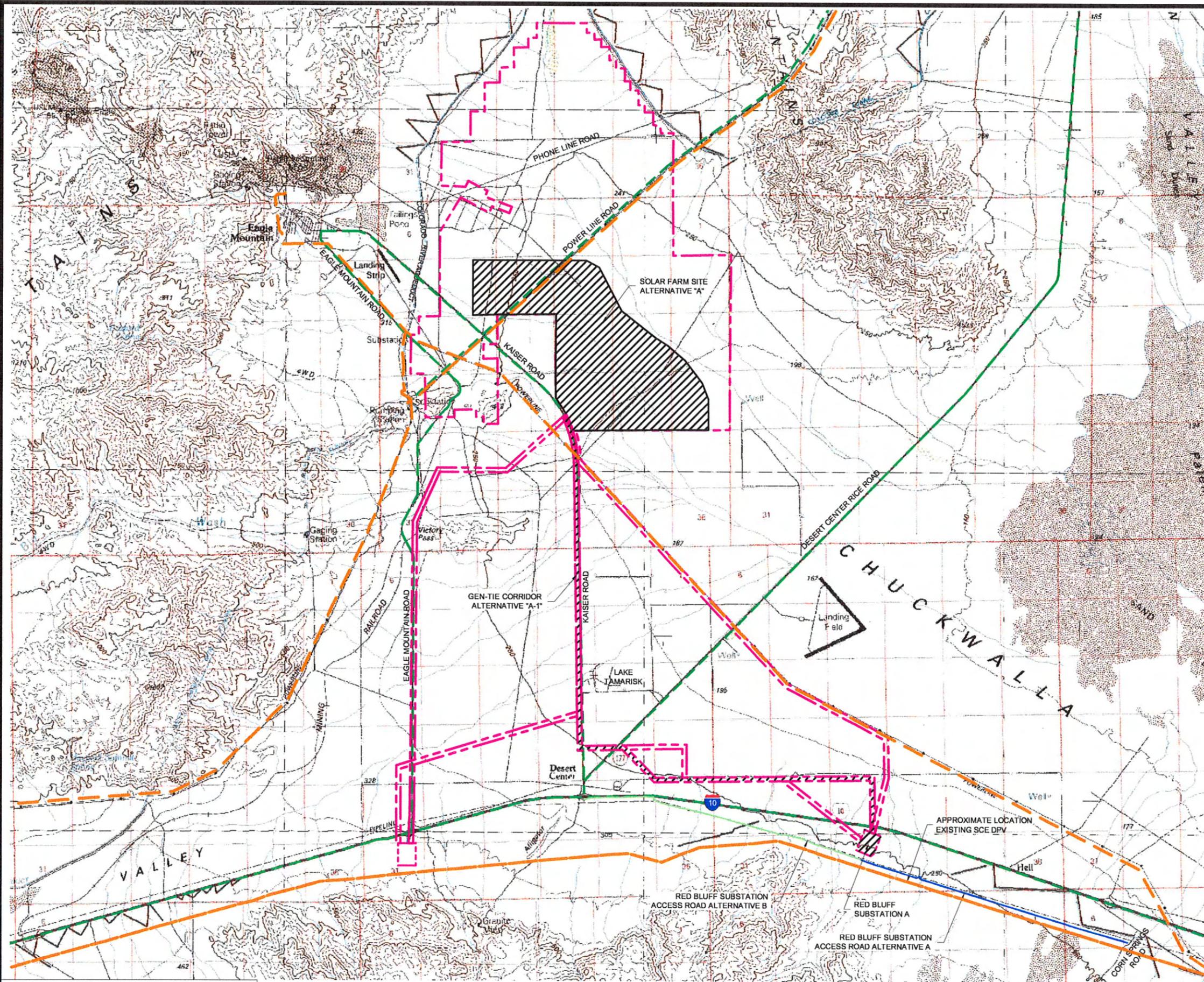
The average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersection as a whole. LOS is directly related to the control delay value. The criteria are listed in Exhibit 16-2.

EXHIBIT 16-2. LOS CRITERIA FOR SIGNALIZED INTERSECTIONS

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10–20
C	> 20–35
D	> 35–55
E	> 55–80
F	> 80

LOS criteria

PROJECT STUDY AREA - GEN-TIE CORRIDOR "A-1"



- LEGEND**
- PROJECT STUDY AREA BOUNDARY \*
  - EXISTING ROAD
  - EXISTING TRANSMISSION LINE
  - RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE A STUDY AREA \*
  - RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE B STUDY AREA \*
  - PROJECT SITE

**\* NOTE:**

1. THE PROJECT STUDY AREA IS COMPRISED OF APPROXIMATELY 19,246 ACRES. IT INCLUDES AREA RESERVED FOR SOLAR FARM AND RED BLUFF SUBSTATION, 400 FEET WIDE GEN-TIE CORRIDORS AND 100 FEET WIDE ACCESS ROADS FOR RED BLUFF SUBSTATION - ALTERNATIVE A & B.
2. THE PROJECT SITE WILL BE LOCATED WITHIN THE PROJECT STUDY AREA AND WILL INCLUDE APPROXIMATELY 4,494 ACRES. IT INCLUDES SOLAR FARM AREA, 160 FEET WIDE GEN-TIE CORRIDOR AND 75 ACRE SUBSTATION.



PROFESSIONAL ENGR.

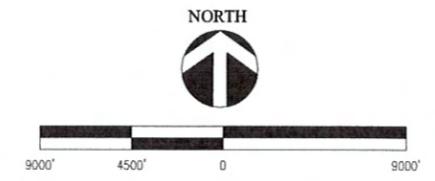
**DESERT SUNLIGHT  
SOLAR FARM (ALTERNATIVE "A")  
RIVERSIDE COUNTY  
CALIFORNIA  
550 MW-ac**

REV. DATE	REVISION DESCRIPTION	BY	CHK	APP
A	ISSUED FOR EIS SUBMITTAL			

FS JOB No: 6015-0100-23  
 DRAWN BY: LP      DESIGN BY:  
 PROJ. ENG: JP      PROJ. MGR: MM  
 CHECKED BY: RH      PROJ. DIR: JT  
 SCALE: AS SHOWN  
 COPYRIGHT BY: FIRST SOLAR

**PROJECT  
STUDY AREA  
GEN-TIE CORRIDOR  
ALTERNATIVE "A-1"**

V-105  
SHEET 3 OF 111



**30% DESIGN**

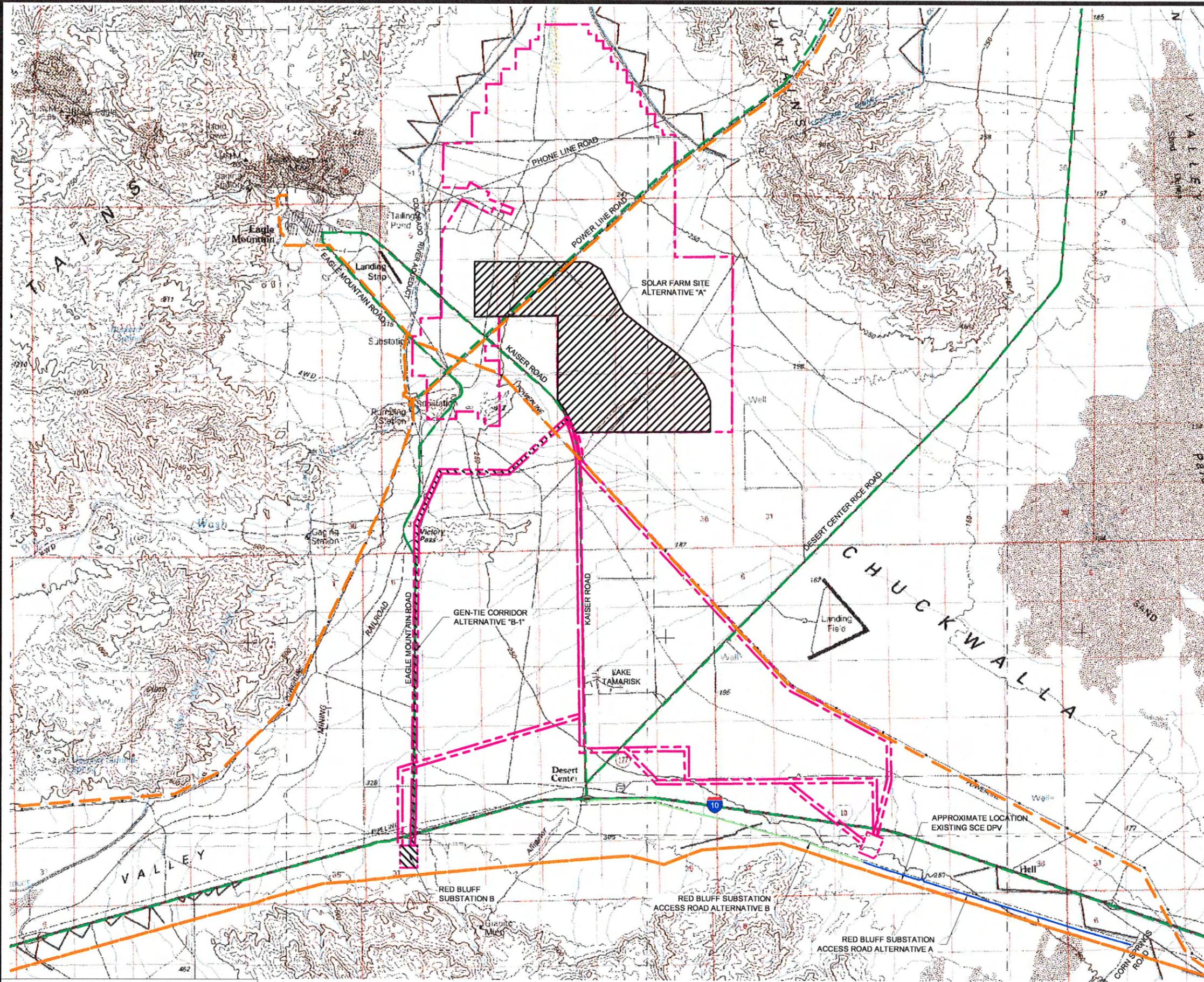
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PROJECT STUDY AREA - GEN-TIE CORRIDOR ALTERNATIVE "B-1"



- LEGEND**
- - - PROJECT STUDY AREA BOUNDARY \*
  - EXISTING ROAD
  - EXISTING TRANSMISSION LINE
  - RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE A STUDY AREA \*
  - RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE B STUDY AREA \*
  - PROJECT SITE

- \* NOTE:**
1. THE PROJECT STUDY AREA IS COMPRISED OF APPROXIMATELY 19,246 ACRES. IT INCLUDES AREA RESERVED FOR SOLAR FARM AND RED BLUFF SUBSTATION, 400 FEET WIDE GEN-TIE CORRIDORS AND 100 FEET WIDE ACCESS ROADS FOR RED BLUFF SUBSTATION - ALTERNATIVE A & B.
  2. THE PROJECT SITE WILL BE LOCATED WITHIN THE PROJECT STUDY AREA AND WILL INCLUDE APPROXIMATELY 4,438 ACRES. IT INCLUDES SOLAR FARM AREA, 160 FEET WIDE GEN-TIE CORRIDOR AND 75 ACRE SUBSTATION.



PROFESSIONAL ENGR.

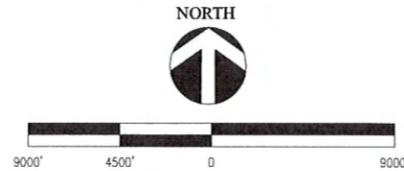
**DESERT SUNLIGHT  
 SOLAR FARM (ALTERNATIVE "A")  
 RIVERSIDE COUNTY  
 CALIFORNIA  
 550 MW-ac**

REV. DATE	REVISION DESCRIPTION	BY	CHK	APP
A	03/12/10	ISSUED FOR EIS SUBMITTAL		

FS JOB No: 6015-0100-23  
 DRAWN BY: LP      DESIGN BY:  
 PROJ. ENG: JP      PROJ. MGR: MM  
 CHECKED BY: RH      PROJ. DIR: JT  
 SCALE: AS SHOWN  
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 SHEET TITLE

**PROJECT  
 STUDY AREA  
 GEN-TIE CORRIDOR  
 ALTERNATIVE "B-1"**

V-107  
 SHEET 5 OF 111



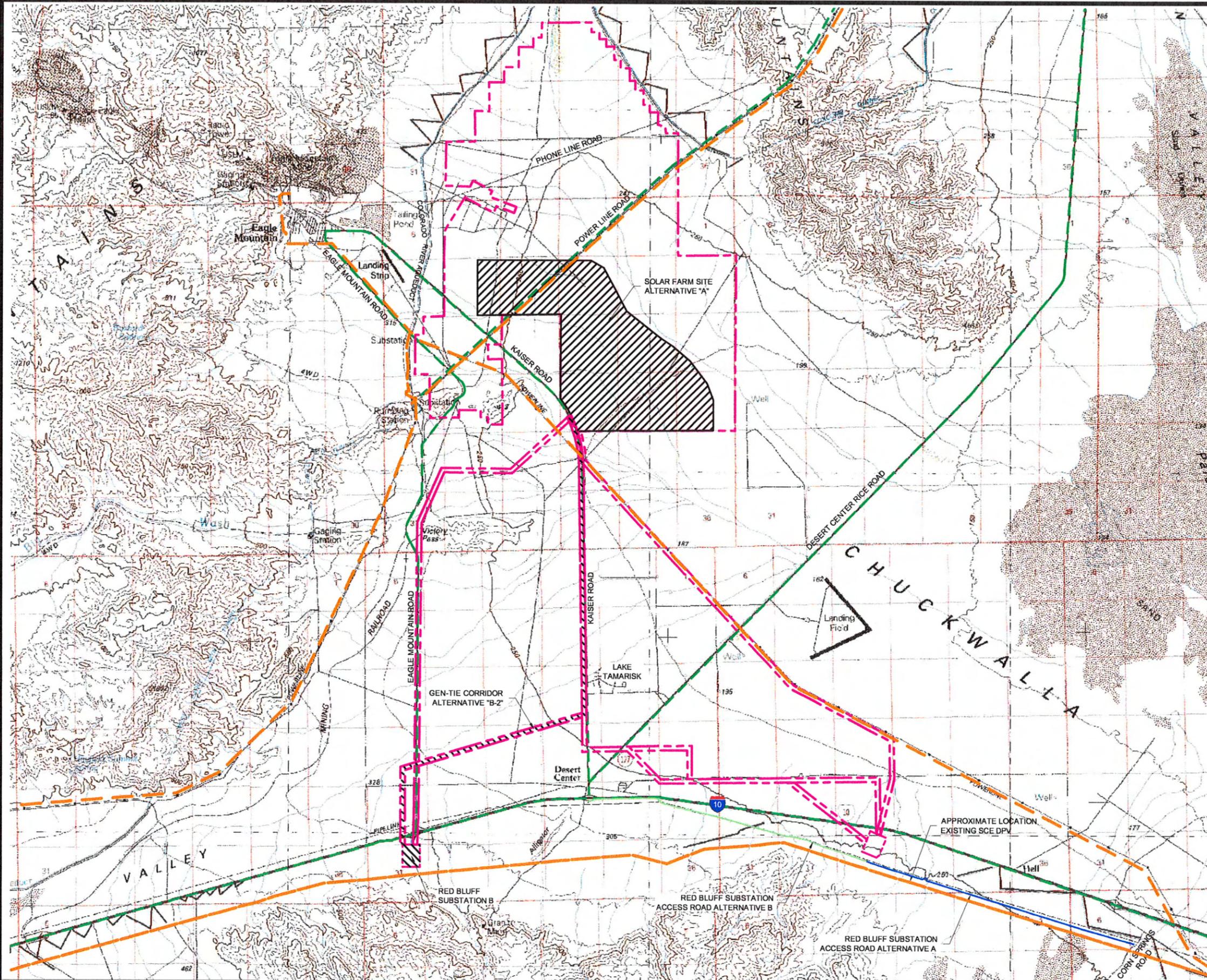
**30% DESIGN**

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PROJECT STUDY AREA - GEN-TIE CORRIDOR ALTERNATIVE "B-2"



LEGEND

- PROJECT STUDY AREA BOUNDARY \*
- EXISTING ROAD
- EXISTING TRANSMISSION LINE
- RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE A STUDY AREA \*
- RED BLUFF SUBSTATION ACCESS ROAD ALTERNATIVE B STUDY AREA \*
- PROJECT SITE

\* NOTE:

1. THE PROJECT STUDY AREA IS COMPRISED OF APPROXIMATELY 19,246 ACRES. IT INCLUDES AREA RESERVED FOR SOLAR FARM AND RED BLUFF SUBSTATION, 400 FEET WIDE GEN-TIE CORRIDORS AND 100 FEET WIDE ACCESS ROADS FOR RED BLUFF SUBSTATION - ALTERNATIVE A & B.
2. THE PROJECT SITE WILL BE LOCATED WITHIN THE PROJECT STUDY AREA AND WILL INCLUDE APPROXIMATELY 4,450 ACRES. IT INCLUDES SOLAR FARM AREA, 160 FEET WIDE GEN-TIE CORRIDOR AND 75 ACRE SUBSTATION.



PROFESSIONAL ENGR.

**DESERT SUNLIGHT**  
**SOLAR FARM (ALTERNATIVE "A")**  
 RIVERSIDE COUNTY  
 CALIFORNIA  
 550 MW-ac

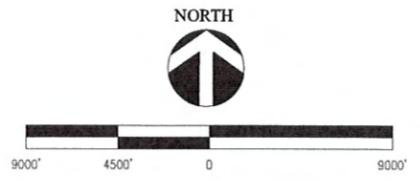
REV. DATE	REVISION DESCRIPTION	BY: (CHK/APP)
A	ISSUED FOR EIS SUBMITTAL	03/12/10

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DRAWN BY: LP	DESIGN BY:
PROJ. ENG: JP	PROJ. MGR: MM
CHECKED BY: RH	PROJ. DIR: JT
SCALE: AS SHOWN	
COPYRIGHT BY: FIRST SOLAR	
SHEET TITLE	

**PROJECT STUDY AREA**  
**GEN-TIE CORRIDOR**  
**ALTERNATIVE "B-2"**

V-108

SHEET 6 OF 111



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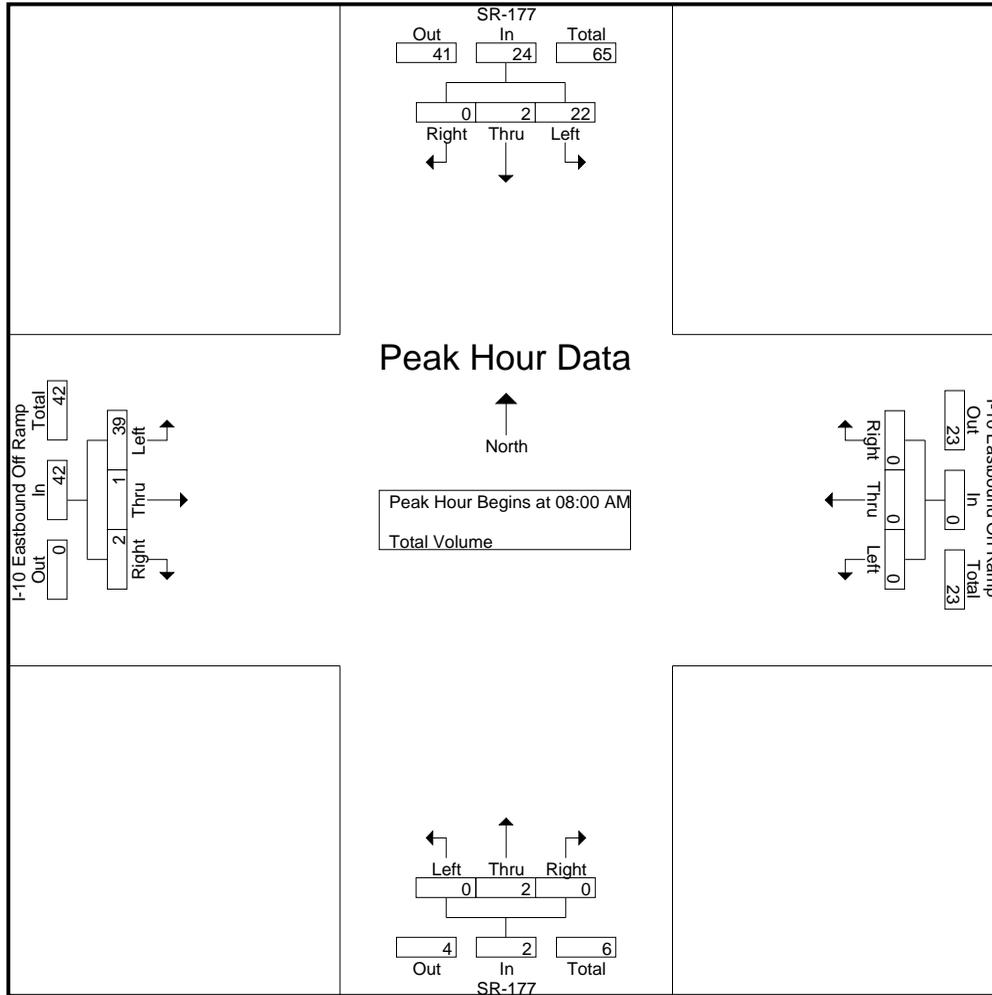
Groups Printed- Total Volume

Start Time	SR-177 Southbound				I-10 Eastbound On Ramp Westbound				SR-177 Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	4	0	0	4	0	0	0	0	0	0	0	0	10	0	3	13	17
07:15 AM	5	0	0	5	0	0	0	0	0	0	1	1	6	0	1	7	13
07:30 AM	4	0	0	4	0	0	0	0	0	0	0	0	6	0	0	6	10
07:45 AM	3	0	0	3	0	0	0	0	0	0	0	0	4	0	0	4	7
Total	16	0	0	16	0	0	0	0	0	0	1	1	26	0	4	30	47
08:00 AM	4	2	0	6	0	0	0	0	0	2	0	2	8	0	0	8	16
08:15 AM	6	0	0	6	0	0	0	0	0	0	0	0	8	1	2	11	17
08:30 AM	9	0	0	9	0	0	0	0	0	0	0	0	13	0	0	13	22
08:45 AM	3	0	0	3	0	0	0	0	0	0	0	0	10	0	0	10	13
Total	22	2	0	24	0	0	0	0	0	2	0	2	39	1	2	42	68
Grand Total	38	2	0	40	0	0	0	0	0	2	1	3	65	1	6	72	115
Apprch %	95	5	0		0	0	0		0	66.7	33.3		90.3	1.4	8.3		
Total %	33	1.7	0	34.8	0	0	0	0	0	1.7	0.9	2.6	56.5	0.9	5.2	62.6	

Start Time	SR-177 Southbound				I-10 Eastbound On Ramp Westbound				SR-177 Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
08:00 AM	4	2	0	6	0	0	0	0	0	2	0	2	8	0	0	8	16
08:15 AM	6	0	0	6	0	0	0	0	0	0	0	0	8	1	2	11	17
08:30 AM	9	0	0	9	0	0	0	0	0	0	0	0	13	0	0	13	22
08:45 AM	3	0	0	3	0	0	0	0	0	0	0	0	10	0	0	10	13
Total Volume	22	2	0	24	0	0	0	0	0	2	0	2	39	1	2	42	68
% App. Total	91.7	8.3	0		0	0	0		0	100	0		92.9	2.4	4.8		
PHF	.611	.250	.000	.667	.000	.000	.000	.000	.000	.250	.000	.250	.750	.250	.250	.808	.773

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:45 AM				07:00 AM				07:15 AM				08:00 AM			
+0 mins.	3	0	0	3	0	0	0	0	0	0	1	1	8	0	0	8
+15 mins.	4	2	0	6	0	0	0	0	0	0	0	0	8	1	2	11
+30 mins.	6	0	0	6	0	0	0	0	0	0	0	0	13	0	0	13
+45 mins.	9	0	0	9	0	0	0	0	0	2	0	2	10	0	0	10
Total Volume	22	2	0	24	0	0	0	0	0	2	1	3	39	1	2	42
% App. Total	91.7	8.3	0		0	0	0		0	66.7	33.3		92.9	2.4	4.8	
PHF	.611	.250	.000	.667	.000	.000	.000	.000	.000	.250	.250	.375	.750	.250	.250	.808

County of Riverside  
 N/S: SR-177  
 E/W: I-10 Eastbound Ramps  
 Weather: Sunny

File Name : CRV17710EPM  
 Site Code : 10004001  
 Start Date : 2/17/2010  
 Page No : 1

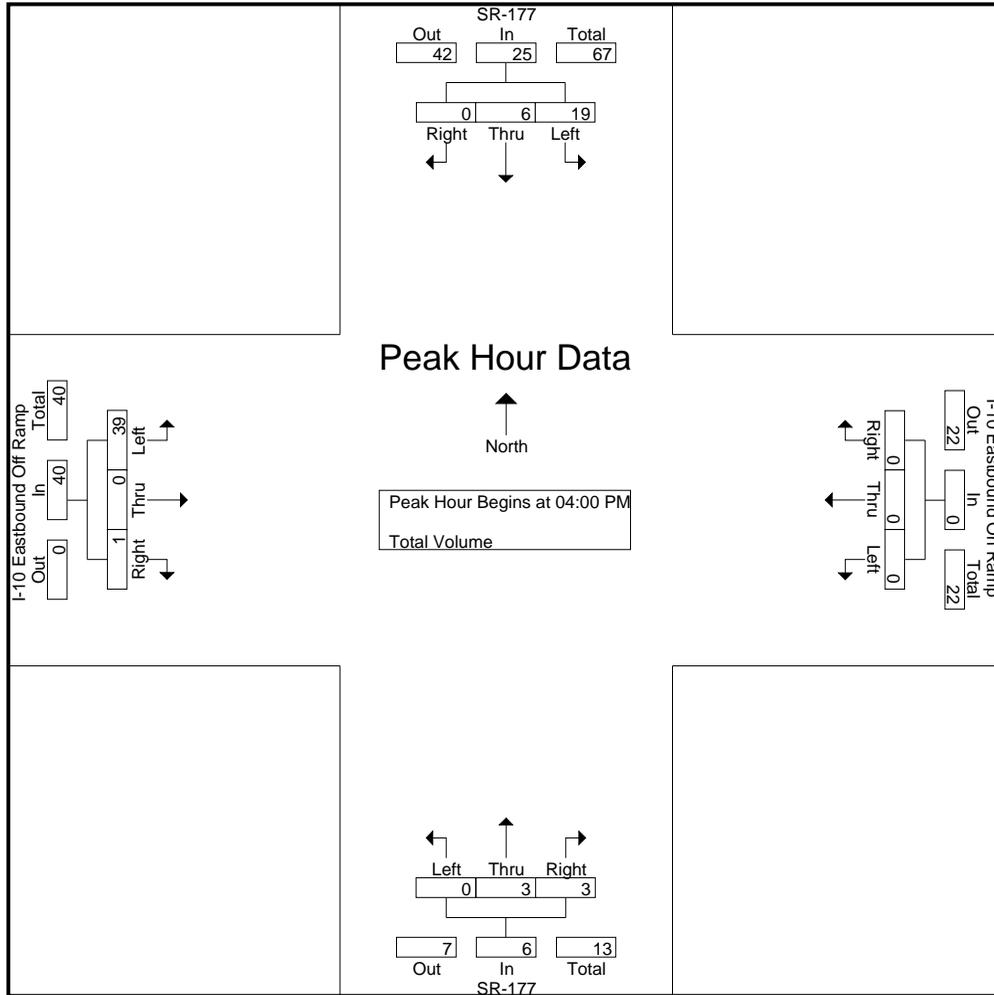
Groups Printed- Total Volume

Start Time	SR-177 Southbound				I-10 Eastbound On Ramp Westbound				SR-177 Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	7	3	0	10	0	0	0	0	0	0	0	0	7	0	0	7	17
04:15 PM	3	1	0	4	0	0	0	0	0	0	1	1	13	0	0	13	18
04:30 PM	8	0	0	8	0	0	0	0	0	0	1	1	10	0	0	10	19
04:45 PM	1	2	0	3	0	0	0	0	0	3	1	4	9	0	1	10	17
Total	19	6	0	25	0	0	0	0	0	3	3	6	39	0	1	40	71
05:00 PM	6	0	0	6	0	0	0	0	0	0	1	1	8	1	0	9	16
05:15 PM	1	0	0	1	0	0	0	0	0	0	3	3	6	0	0	6	10
05:30 PM	4	0	0	4	0	0	0	0	0	1	0	1	1	0	0	1	6
05:45 PM	3	0	0	3	0	0	0	0	0	0	0	0	3	0	0	3	6
Total	14	0	0	14	0	0	0	0	0	1	4	5	18	1	0	19	38
Grand Total	33	6	0	39	0	0	0	0	0	4	7	11	57	1	1	59	109
Apprch %	84.6	15.4	0		0	0	0		0	36.4	63.6		96.6	1.7	1.7		
Total %	30.3	5.5	0	35.8	0	0	0	0	0	3.7	6.4	10.1	52.3	0.9	0.9	54.1	

Start Time	SR-177 Southbound				I-10 Eastbound On Ramp Westbound				SR-177 Northbound				I-10 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	7	<b>3</b>	0	<b>10</b>	0	0	0	0	0	0	0	0	7	0	0	7	17
04:15 PM	3	1	0	4	0	0	0	0	0	0	<b>1</b>	<b>1</b>	<b>13</b>	0	0	<b>13</b>	18
04:30 PM	<b>8</b>	0	0	8	0	0	0	0	0	0	1	1	10	0	0	10	<b>19</b>
04:45 PM	1	2	0	3	0	0	0	0	0	<b>3</b>	1	<b>4</b>	9	0	<b>1</b>	10	17
Total Volume	19	6	0	25	0	0	0	0	0	3	3	6	39	0	1	40	71
% App. Total	76	24	0		0	0	0		0	50	50		97.5	0	2.5		
PHF	.594	.500	.000	.625	.000	.000	.000	.000	.000	.250	.750	.375	.750	.000	.250	.769	.934

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:30 PM				04:15 PM			
+0 mins.	7	3	0	10	0	0	0	0	0	0	1	1	13	0	0	13
+15 mins.	3	1	0	4	0	0	0	0	0	3	1	4	10	0	0	10
+30 mins.	8	0	0	8	0	0	0	0	0	0	1	1	9	0	1	10
+45 mins.	1	2	0	3	0	0	0	0	0	0	3	3	8	1	0	9
Total Volume	19	6	0	25	0	0	0	0	0	3	6	9	40	1	1	42
% App. Total	76	24	0		0	0	0		0	33.3	66.7		95.2	2.4	2.4	
PHF	.594	.500	.000	.625	.000	.000	.000	.000	.000	.250	.500	.563	.769	.250	.250	.808

County of Riverside  
 N/S: SR-177  
 E/W: I-10 Westbound Ramps  
 Weather: Sunny

File Name : CRV17710WAM  
 Site Code : 10040001  
 Start Date : 2/17/2010  
 Page No : 1

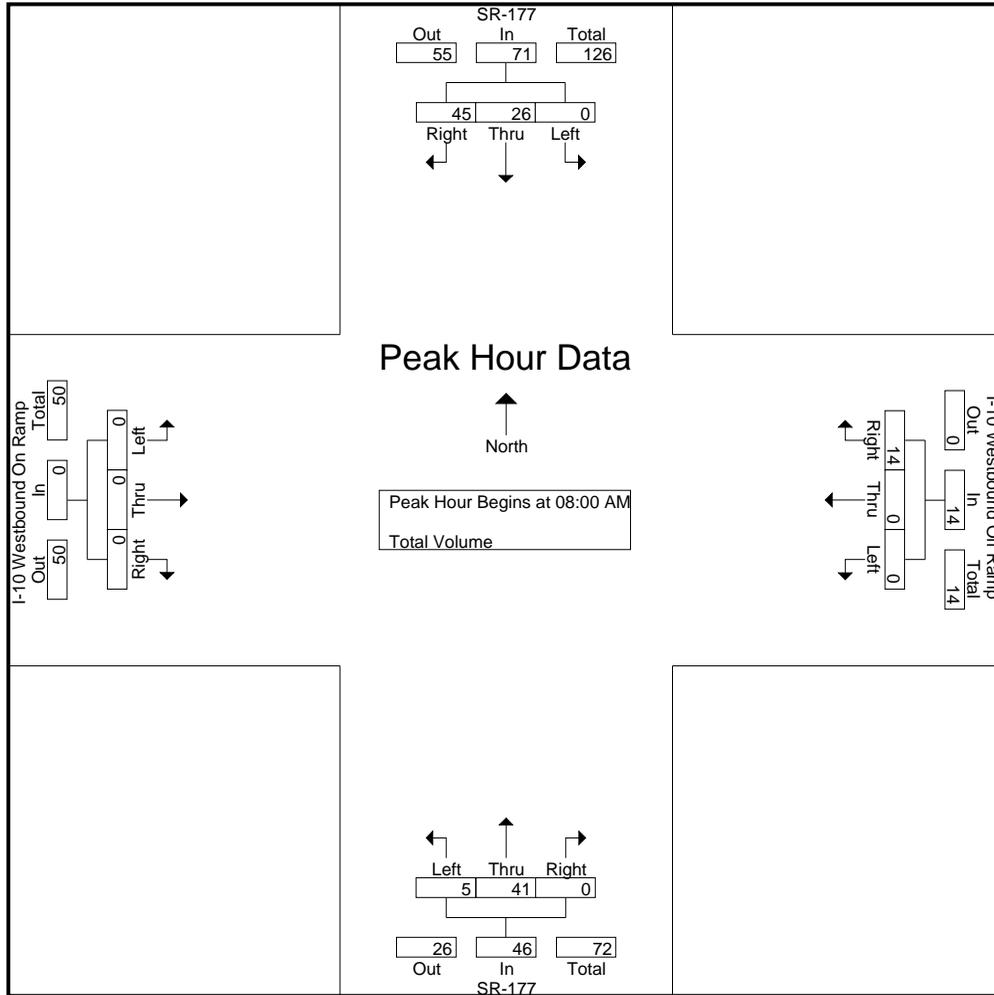
Groups Printed- Total Volume

Start Time	SR-177 Southbound				I-10 Westbound Off Ramp Westbound				SR-177 Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	5	8	13	0	2	1	3	0	10	0	10	0	0	0	0	26
07:15 AM	0	7	10	17	0	0	6	6	5	6	0	11	0	0	0	0	34
07:30 AM	0	3	6	9	0	0	3	3	1	5	0	6	0	0	0	0	18
07:45 AM	0	3	8	11	0	0	4	4	2	4	0	6	0	0	0	0	21
Total	0	18	32	50	0	2	14	16	8	25	0	33	0	0	0	0	99
08:00 AM	0	7	11	18	0	0	4	4	4	9	0	13	0	0	0	0	35
08:15 AM	0	6	13	19	0	0	2	2	1	8	0	9	0	0	0	0	30
08:30 AM	0	9	11	20	0	0	3	3	0	14	0	14	0	0	0	0	37
08:45 AM	0	4	10	14	0	0	5	5	0	10	0	10	0	0	0	0	29
Total	0	26	45	71	0	0	14	14	5	41	0	46	0	0	0	0	131
Grand Total	0	44	77	121	0	2	28	30	13	66	0	79	0	0	0	0	230
Apprch %	0	36.4	63.6		0	6.7	93.3		16.5	83.5	0		0	0	0		
Total %	0	19.1	33.5	52.6	0	0.9	12.2	13	5.7	28.7	0	34.3	0	0	0	0	

Start Time	SR-177 Southbound				I-10 Westbound Off Ramp Westbound				SR-177 Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
08:00 AM	0	7	11	18	0	0	4	4	<b>4</b>	9	0	13	0	0	0	0	35
08:15 AM	0	6	<b>13</b>	19	0	0	2	2	1	8	0	9	0	0	0	0	30
08:30 AM	0	<b>9</b>	11	<b>20</b>	0	0	3	3	0	<b>14</b>	0	<b>14</b>	0	0	0	0	<b>37</b>
08:45 AM	0	4	10	14	0	0	<b>5</b>	<b>5</b>	0	10	0	10	0	0	0	0	29
Total Volume	0	26	45	71	0	0	14	14	5	41	0	46	0	0	0	0	131
% App. Total	0	36.6	63.4		0	0	100		10.9	89.1	0		0	0	0		
PHF	.000	.722	.865	.888	.000	.000	.700	.700	.313	.732	.000	.821	.000	.000	.000	.000	.885

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				07:15 AM				08:00 AM				07:00 AM			
+0 mins.	0	7	11	18	0	0	6	6	4	9	0	13	0	0	0	0
+15 mins.	0	6	13	19	0	0	3	3	1	8	0	9	0	0	0	0
+30 mins.	0	9	11	20	0	0	4	4	0	14	0	14	0	0	0	0
+45 mins.	0	4	10	14	0	0	4	4	0	10	0	10	0	0	0	0
Total Volume	0	26	45	71	0	0	17	17	5	41	0	46	0	0	0	0
% App. Total	0	36.6	63.4		0	0	100		10.9	89.1	0		0	0	0	
PHF	.000	.722	.865	.888	.000	.000	.708	.708	.313	.732	.000	.821	.000	.000	.000	.000

County of Riverside  
 N/S: SR-177  
 E/W: I-10 Westbound Ramps  
 Weather: Sunny

File Name : CRV17710WPM  
 Site Code : 10040001  
 Start Date : 2/17/2010  
 Page No : 1

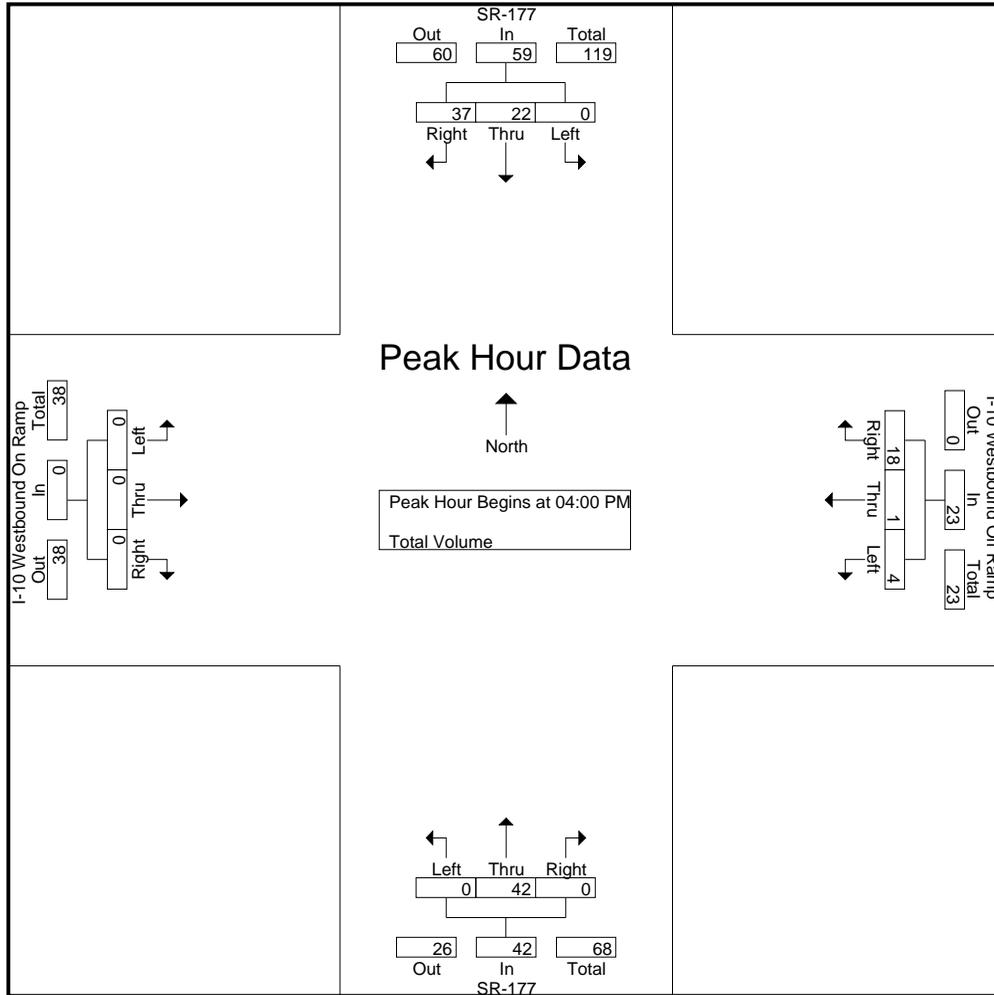
Groups Printed- Total Volume

Start Time	SR-177 Southbound				I-10 Westbound Off Ramp Westbound				SR-177 Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	8	12	20	4	0	6	10	0	7	0	7	0	0	0	0	37
04:15 PM	0	4	12	16	0	0	6	6	0	13	0	13	0	0	0	0	35
04:30 PM	0	8	11	19	0	0	2	2	0	10	0	10	0	0	0	0	31
04:45 PM	0	2	2	4	0	1	4	5	0	12	0	12	0	0	0	0	21
Total	0	22	37	59	4	1	18	23	0	42	0	42	0	0	0	0	124
05:00 PM	0	5	4	9	1	2	5	8	0	8	0	8	0	0	0	0	25
05:15 PM	0	1	11	12	0	0	3	3	0	6	0	6	0	0	0	0	21
05:30 PM	0	4	3	7	0	0	6	6	0	1	0	1	0	0	0	0	14
05:45 PM	0	4	0	4	0	0	5	5	0	3	0	3	0	0	0	0	12
Total	0	14	18	32	1	2	19	22	0	18	0	18	0	0	0	0	72
Grand Total	0	36	55	91	5	3	37	45	0	60	0	60	0	0	0	0	196
Apprch %	0	39.6	60.4		11.1	6.7	82.2		0	100	0		0	0	0		
Total %	0	18.4	28.1	46.4	2.6	1.5	18.9	23	0	30.6	0	30.6	0	0	0	0	

Start Time	SR-177 Southbound				I-10 Westbound Off Ramp Westbound				SR-177 Northbound				I-10 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	<b>8</b>	<b>12</b>	<b>20</b>	<b>4</b>	0	<b>6</b>	<b>10</b>	0	7	0	7	0	0	0	0	<b>37</b>
04:15 PM	0	4	12	16	0	0	6	6	0	<b>13</b>	0	<b>13</b>	0	0	0	0	35
04:30 PM	0	8	11	19	0	0	2	2	0	10	0	10	0	0	0	0	31
04:45 PM	0	2	2	4	0	<b>1</b>	4	5	0	12	0	12	0	0	0	0	21
Total Volume	0	22	37	59	4	1	18	23	0	42	0	42	0	0	0	0	124
% App. Total	0	37.3	62.7		17.4	4.3	78.3		0	100	0		0	0	0		
PHF	.000	.688	.771	.738	.250	.250	.750	.575	.000	.808	.000	.808	.000	.000	.000	.000	.838

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:15 PM				04:00 PM			
+0 mins.	0	8	12	20	4	0	6	10	0	13	0	13	0	0	0	0
+15 mins.	0	4	12	16	0	0	6	6	0	10	0	10	0	0	0	0
+30 mins.	0	8	11	19	0	0	2	2	0	12	0	12	0	0	0	0
+45 mins.	0	2	2	4	0	1	4	5	0	8	0	8	0	0	0	0
Total Volume	0	22	37	59	4	1	18	23	0	43	0	43	0	0	0	0
% App. Total	0	37.3	62.7		17.4	4.3	78.3		0	100	0		0	0	0	
PHF	.000	.688	.771	.738	.250	.250	.750	.575	.000	.827	.000	.827	.000	.000	.000	.000

County of Riverside  
 N/S: SR-177  
 E/W: Kaiser Road  
 Weather: Sunny

File Name : CRV177KAAM  
 Site Code : 10040001  
 Start Date : 2/17/2010  
 Page No : 1

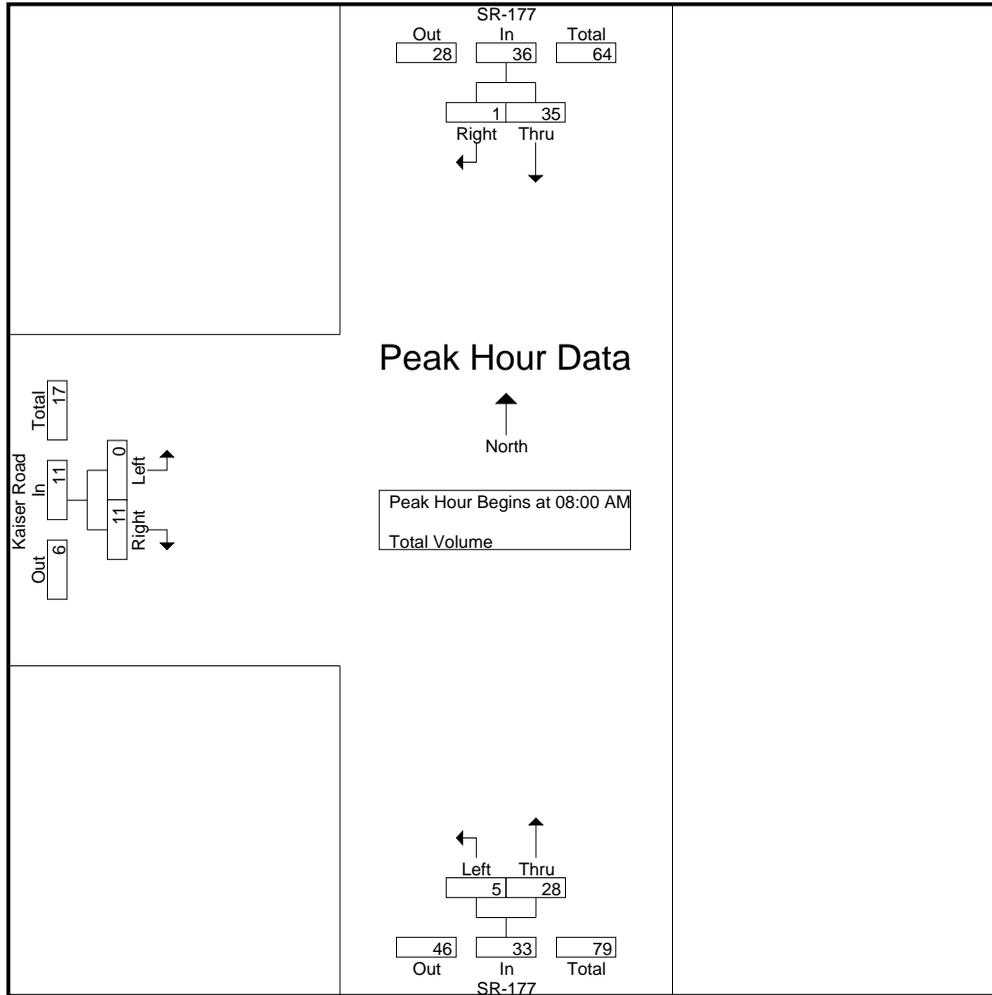
Groups Printed- Total Volume

Start Time	SR-177 Southbound			SR-177 Northbound			Kaiser Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
07:00 AM	5	2	7	5	5	10	0	1	1	18
07:15 AM	10	0	10	1	4	5	0	3	3	18
07:30 AM	5	0	5	3	4	7	0	2	2	14
07:45 AM	4	1	5	0	1	1	0	5	5	11
Total	24	3	27	9	14	23	0	11	11	61
08:00 AM	6	0	6	0	5	5	0	2	2	13
08:15 AM	11	0	11	1	8	9	0	2	2	22
08:30 AM	11	1	12	1	7	8	0	3	3	23
08:45 AM	7	0	7	3	8	11	0	4	4	22
Total	35	1	36	5	28	33	0	11	11	80
Grand Total	59	4	63	14	42	56	0	22	22	141
Apprch %	93.7	6.3		25	75		0	100		
Total %	41.8	2.8	44.7	9.9	29.8	39.7	0	15.6	15.6	

Start Time	SR-177 Southbound			SR-177 Northbound			Kaiser Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
08:00 AM	6	0	6	0	5	5	0	2	2	13
08:15 AM	<b>11</b>	0	11	1	<b>8</b>	9	0	2	2	22
08:30 AM	11	<b>1</b>	<b>12</b>	1	7	8	0	3	3	<b>23</b>
08:45 AM	7	0	7	<b>3</b>	8	<b>11</b>	0	<b>4</b>	<b>4</b>	22
Total Volume	35	1	36	5	28	33	0	11	11	80
% App. Total	97.2	2.8		15.2	84.8		0	100		
PHF	.795	.250	.750	.417	.875	.750	.000	.688	.688	.870

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			07:15 AM		
+0 mins.	6	0	6	0	5	5	0	3	3
+15 mins.	<b>11</b>	0	11	1	<b>8</b>	9	0	2	2
+30 mins.	11	<b>1</b>	<b>12</b>	1	7	8	0	<b>5</b>	<b>5</b>
+45 mins.	7	0	7	<b>3</b>	8	<b>11</b>	0	2	2
Total Volume	35	1	36	5	28	33	0	12	12
% App. Total	97.2	2.8		15.2	84.8		0	100	
PHF	.795	.250	.750	.417	.875	.750	.000	.600	.600

County of Riverside  
 N/S: SR-177  
 E/W: Kaiser Road  
 Weather: Sunny

File Name : CRV177KAPM  
 Site Code : 10040001  
 Start Date : 2/17/2010  
 Page No : 1

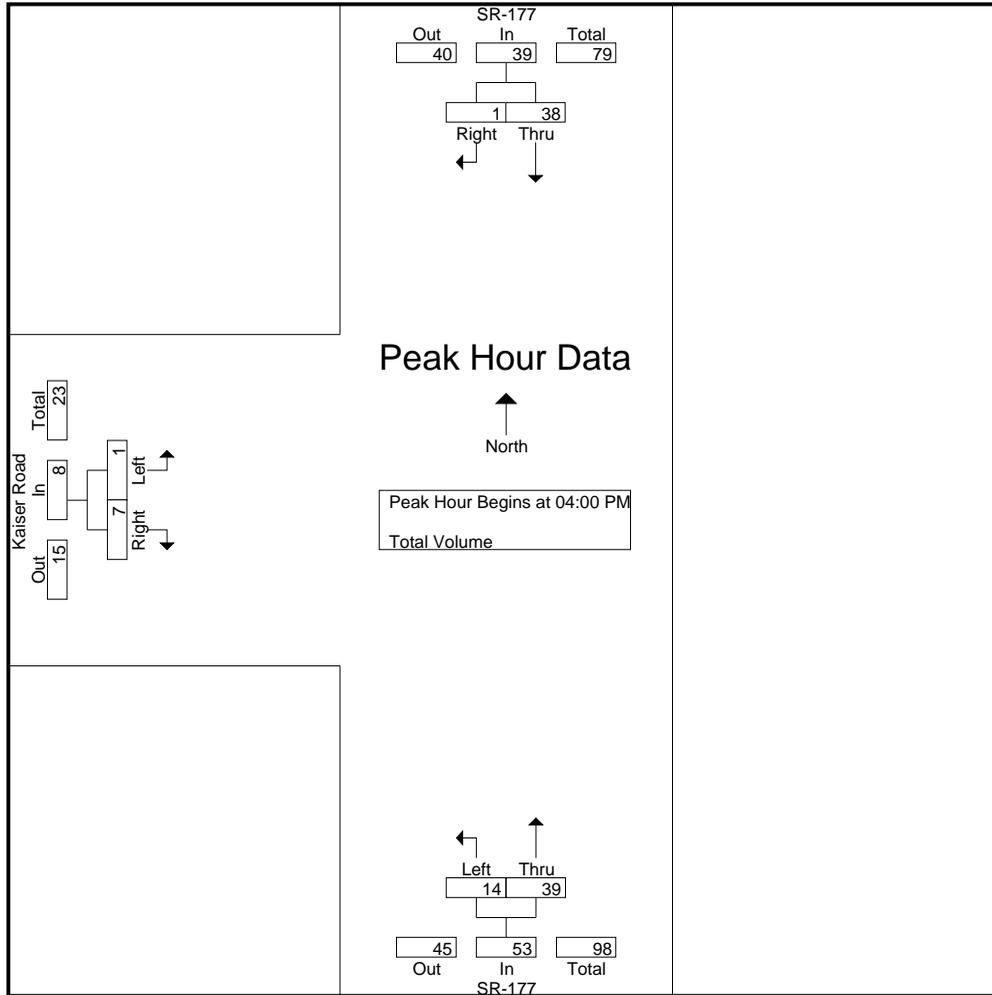
Groups Printed- Total Volume

Start Time	SR-177 Southbound			SR-177 Northbound			Kaiser Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
04:00 PM	13	1	14	3	11	14	0	1	1	29
04:15 PM	15	0	15	5	12	17	0	3	3	35
04:30 PM	6	0	6	4	9	13	0	2	2	21
04:45 PM	4	0	4	2	7	9	1	1	2	15
Total	38	1	39	14	39	53	1	7	8	100
05:00 PM	4	0	4	4	4	8	0	1	1	13
05:15 PM	7	0	7	1	6	7	0	3	3	17
05:30 PM	4	0	4	0	8	8	0	0	0	12
05:45 PM	4	0	4	2	6	8	0	1	1	13
Total	19	0	19	7	24	31	0	5	5	55
Grand Total	57	1	58	21	63	84	1	12	13	155
Apprch %	98.3	1.7		25	75		7.7	92.3		
Total %	36.8	0.6	37.4	13.5	40.6	54.2	0.6	7.7	8.4	

Start Time	SR-177 Southbound			SR-177 Northbound			Kaiser Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
04:00 PM	13	<b>1</b>	14	3	11	14	0	1	1	29
04:15 PM	<b>15</b>	0	<b>15</b>	<b>5</b>	<b>12</b>	<b>17</b>	0	<b>3</b>	<b>3</b>	<b>35</b>
04:30 PM	6	0	6	4	9	13	0	2	2	21
04:45 PM	4	0	4	2	7	9	<b>1</b>	1	2	15
Total Volume	38	1	39	14	39	53	1	7	8	100
% App. Total	97.4	2.6		26.4	73.6		12.5	87.5		
PHF	.633	.250	.650	.700	.813	.779	.250	.583	.667	.714

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	13	1	14	3	11	14	0	1	1
+15 mins.	15	0	15	5	12	17	0	3	3
+30 mins.	6	0	6	4	9	13	0	2	2
+45 mins.	4	0	4	2	7	9	1	1	2
Total Volume	38	1	39	14	39	53	1	7	8
% App. Total	97.4	2.6		26.4	73.6		12.5	87.5	
PHF	.633	.250	.650	.700	.813	.779	.250	.583	.667

Counts Unlimited, Inc.  
 25286 Jaclyn Avenue  
 Moreno Valley, CA 92557  
 (951) 485-7934

County of Riverside  
 Kaiser Road  
 N/ LakeTamarisk Resort  
 24 Hour Directional Classification Count  
 Northbound

CRVKANLT  
 Site Code: 045-10040  
 Date Start: 17-Feb-10  
 Date End: 17-Feb-10

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/17/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	1	2	0	1	0	0	0	0	0	0	0	0	4
07:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
08:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
09:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
10:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
11:00	0	2	0	0	3	0	0	0	0	0	0	0	0	5
12 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	3
13:00	0	2	2	0	2	1	0	0	0	0	0	0	0	7
14:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
15:00	0	2	3	0	1	0	0	0	0	0	0	0	0	6
16:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
17:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
18:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
19:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	24	16	0	12	1	0	0	1	0	0	0	0	54
Percent	0.0%	44.4%	29.6%	0.0%	22.2%	1.9%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	06:00		11:00									11:00
Vol.		2	2		3									5
PM Peak		14:00	15:00		13:00	13:00			12:00					13:00
Vol.		4	3		2	1			1					7
Grand Total	0	24	16	0	12	1	0	0	1	0	0	0	0	54
Percent	0.0%	44.4%	29.6%	0.0%	22.2%	1.9%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimited, Inc.  
 25286 Jaclyn Avenue  
 Moreno Valley, CA 92557  
 (951) 485-7934

County of Riverside  
 Kaiser Road  
 N/ LakeTamarisk Resort  
 24 Hour Directional Classification Count  
 Southbound

CRVKANLT  
 Site Code: 045-10040  
 Date Start: 17-Feb-10  
 Date End: 17-Feb-10

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/17/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
06:00	0	2	2	0	1	0	0	0	0	0	0	0	0	5
07:00	0	2	3	0	1	0	0	0	0	0	0	0	0	6
08:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
09:00	0	1	2	0	1	0	0	0	0	0	0	0	0	4
10:00	0	1	1	0	2	0	0	0	0	1	0	0	0	5
11:00	0	2	0	0	1	0	0	1	0	0	0	0	0	4
12 PM	0	1	1	0	1	0	0	0	0	0	0	0	0	3
13:00	0	0	4	0	1	0	0	0	0	0	0	0	0	5
14:00	0	3	0	0	0	0	0	0	1	0	0	0	0	4
15:00	0	2	2	0	1	0	0	0	0	0	0	0	0	5
16:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
17:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
18:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
19:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Total	0	19	20	0	10	0	0	1	3	1	0	0	0	54
Percent	0.0%	35.2%	37.0%	0.0%	18.5%	0.0%	0.0%	1.9%	5.6%	1.9%	0.0%	0.0%	0.0%	
AM Peak		06:00	07:00		10:00			11:00		10:00				07:00
Vol.		2	3		2			1		1				6
PM Peak		14:00	13:00		12:00				23:00					13:00
Vol.		3	4		1				2					5
Grand Total	0	19	20	0	10	0	0	1	3	1	0	0	0	54
Percent	0.0%	35.2%	37.0%	0.0%	18.5%	0.0%	0.0%	1.9%	5.6%	1.9%	0.0%	0.0%	0.0%	

Counts Unlimited, Inc.  
 25286 Jaclyn Avenue  
 Moreno Valley, CA 92557  
 (951) 485-7934

County of Riverside  
 Kaiser Road  
 N/ LakeTamarisk Resort  
 24 Hour Directional Classification Count  
 Northbound, Southbound

CRVKANLT  
 Site Code: 045-10040  
 Date Start: 17-Feb-10  
 Date End: 17-Feb-10

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/17/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	1	1	0	1	0	0	0	0	0	0	0	0	3
06:00	0	3	4	0	2	0	0	0	0	0	0	0	0	9
07:00	0	4	4	0	2	0	0	0	0	0	0	0	0	10
08:00	0	1	2	0	0	0	0	0	0	0	0	0	0	3
09:00	0	1	4	0	1	0	0	0	0	0	0	0	0	6
10:00	0	3	2	0	3	0	0	0	0	1	0	0	0	9
11:00	0	4	0	0	4	0	0	1	0	0	0	0	0	9
12 PM	0	2	1	0	2	0	0	0	1	0	0	0	0	6
13:00	0	2	6	0	3	1	0	0	0	0	0	0	0	12
14:00	0	7	0	0	1	0	0	0	1	0	0	0	0	9
15:00	0	4	5	0	2	0	0	0	0	0	0	0	0	11
16:00	0	4	3	0	0	0	0	0	0	0	0	0	0	7
17:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
18:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
19:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Total	0	43	36	0	22	1	0	1	4	1	0	0	0	108
Percent	0.0%	39.8%	33.3%	0.0%	20.4%	0.9%	0.0%	0.9%	3.7%	0.9%	0.0%	0.0%	0.0%	
AM Peak		07:00	06:00		11:00			11:00		10:00				07:00
Vol.		4	4		4			1		1				10
PM Peak		14:00	13:00		13:00	13:00			23:00					13:00
Vol.		7	6		3	1			2					12
Grand Total	0	43	36	0	22	1	0	1	4	1	0	0	0	108
Percent	0.0%	39.8%	33.3%	0.0%	20.4%	0.9%	0.0%	0.9%	3.7%	0.9%	0.0%	0.0%	0.0%	

District	Rte	County	Pm Pre	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
8	10	RIV		44.64	MONTEREY AVENUE	4150	62000	54000	3600	54000	47000
8	10	RIV		50.45	WASHINGTON STREET	3600	54000	47000	3050	46500	40000
8	10	RIV	R	52.34	INDIO, JEFFERSON STREET/ INDIO BOULEVARD	3050	46500	40000	2400	36500	31500
8	10	RIV	R	54.74	INDIO, MONROE STREET	2400	36500	31500	2250	33500	29000
8	10	RIV	R	55.74	INDIO, JACKSON STREET	2250	33500	29000	2150	32500	28000
8	10	RIV	R	56.95	INDIO, NORTH JCT. RTE. 111, AUTO CENTER DRIVE	2150	32500	28000	1950	29500	25500
8	10	RIV	R	57.83	INDIO, JCT. RTE. 86S	1950	29500	25500	1300	19200	16600
8	10	RIV	R	58.89	COACHELLA, DILLON ROAD	1300	19200	16600	1800	20000	17200
8	10	RIV	R	61.31	MILEPOST EQUATION =R62.03						
8	10	RIV	R	72	CACTUS CITY SAFETY ROADSIDE REST AREAS						
8	10	RIV	R	81.55	COTTONWOOD SPRINGS ROAD	1600	17000	15200	1600	17000	15200
8	10	RIV	R	86.07	CHIRIACO SUMMIT	1600	17000	15200	1600	17000	15200
8	10	RIV	R	90.12	HAYFIELD ROAD	1600	17000	15200	1600	17000	15200
8	10	RIV	R	95.05	EAGLE MOUNTAIN RAILROAD OVERHEAD/RED CLOUD ROAD	1600	17000	15200	1600	17000	15200
8	10	RIV	R	102.01	EAGLE MOUNTAIN ROAD	1600	17000	15200	1600	16900	15100
8	10	RIV	R	105.1	JCT. RTE. 177 NORTH	1600	16900	15100	1450	15300	13700
8	10	RIV	R	114.4	CORN SPRINGS ROAD	1450	15300	13700	1450	15300	13700
8	10	RIV	R	129.94	FORD DRY LAKE ROAD	1450	15300	13700	1450	15300	13700
8	10	RIV	R	135.05	WILEYS WELL SAFETY ROADSIDE REST AREA, WILEY WELLS ROAD	1450	15300	13700	1550	16400	14700
8	10	RIV	R	145.12	MESA DRIVE	1550	16400	14700	1600	17000	15200

District	Route	Rte Suf	County	PM Prefix	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
8	10		RIV		46.890	COOK STREET	8700	108000	97000	8500	105000	94000
8	10		RIV		50.447	WASHINGTON STREET INTERCHANGE	8500	105000	94000	7500	93000	83000
8	10		RIV	R	52.342	JEFFERSON STREE/INDIO BOULEVARD	7500	93000	83000	6300	73000	68000
8	10		RIV	R	54.738	INDIO, MONROE STREET INTERCHANGE	6300	73000	68000	5800	66000	62000
8	10		RIV	R	55.744	INDIO, JACKSON STREET INTERCHANGE	5800	66000	62000	5300	61000	57000
8	10		RIV	R	56.946	INDIO, NORTH JCT. RTE. 111, AUTO CENTER DRIVE	5300	61000	57000	4850	56000	52000
8	10		RIV	R	57.831	INDIO, JCT. RTE. 86 SOUTH	4850	56000	52000	2350	27000	25000
8	10		RIV	R	58.890	DILLON ROAD	2350	27000	25000	2100	24100	22500
8	10		RIV	R	81.548	COTTONWOOD SPRINGS ROAD INTERCHANGE	2100	24100	22500	2950	26000	22500
8	10		RIV	R	86.073	CHIRIACO SUMMIT INTERCHANGE	2950	26000	22500	3000	26500	23000
8	10		RIV	R	90.119	HAYFIELD ROAD INTERCHANGE	3000	26500	23000	3000	26500	23000
8	10		RIV	R	95.049	EAGLE MOUNTAIN RAILROAD OVERHEAD/RED CLOUD ROAD	3000	26500	23000	3000	26500	23000
8	10		RIV	R	102.014	EAGLE MOUNTAIN ROAD INTERCHANGE	3000	26500	23000	3000	26500	23000
8	10		RIV	R	105.087	JCT. RTE. 177 NORTH	3000	26500	23000	2800	24700	21400
8	10		RIV	R	114.402	CORN SPRINGS ROAD INTERCHANGE	2800	24700	21400	2800	24700	21400
8	10		RIV	R	129.935	FORD DRY LAKE INTERCHANGE/ CHUCKAWALLA ROAD	2800	24700	21400	2800	24600	21300
8	10		RIV	R	135.049	WILEY'S WELL SAFETY ROAD SIDE REST AREA, WILEY'S WELL ROAD INTERCHANGE	2800	24600	21300	3050	27000	23500
8	10		RIV	R	145.118	MESA DRIVE INTERCHANGE	3050	27000	23500	2950	26000	22500
8	10		RIV	R	149.150	JCT. RTE. 78 SOUTH	2950	26000	22500	3100	27500	23800

official, scenic highway in accordance with the California State Scenic Highway Program.

Figure 6: Circulation

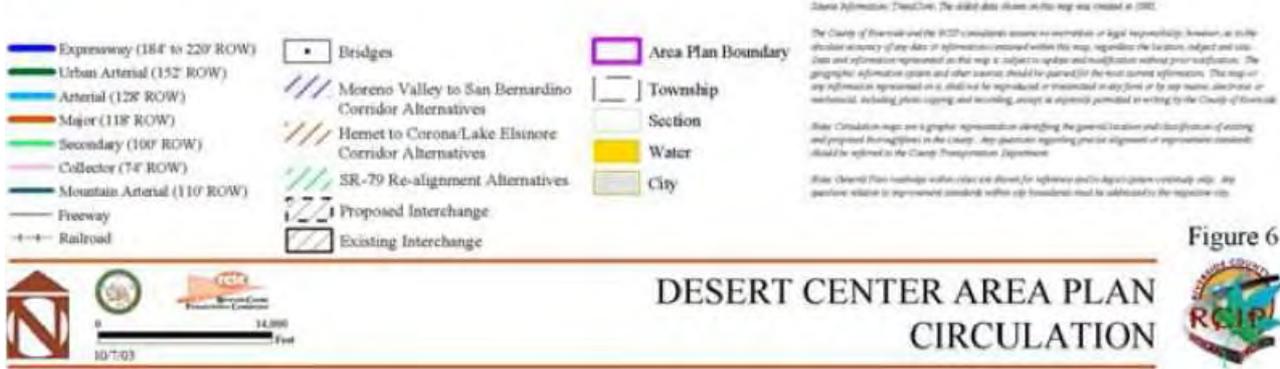
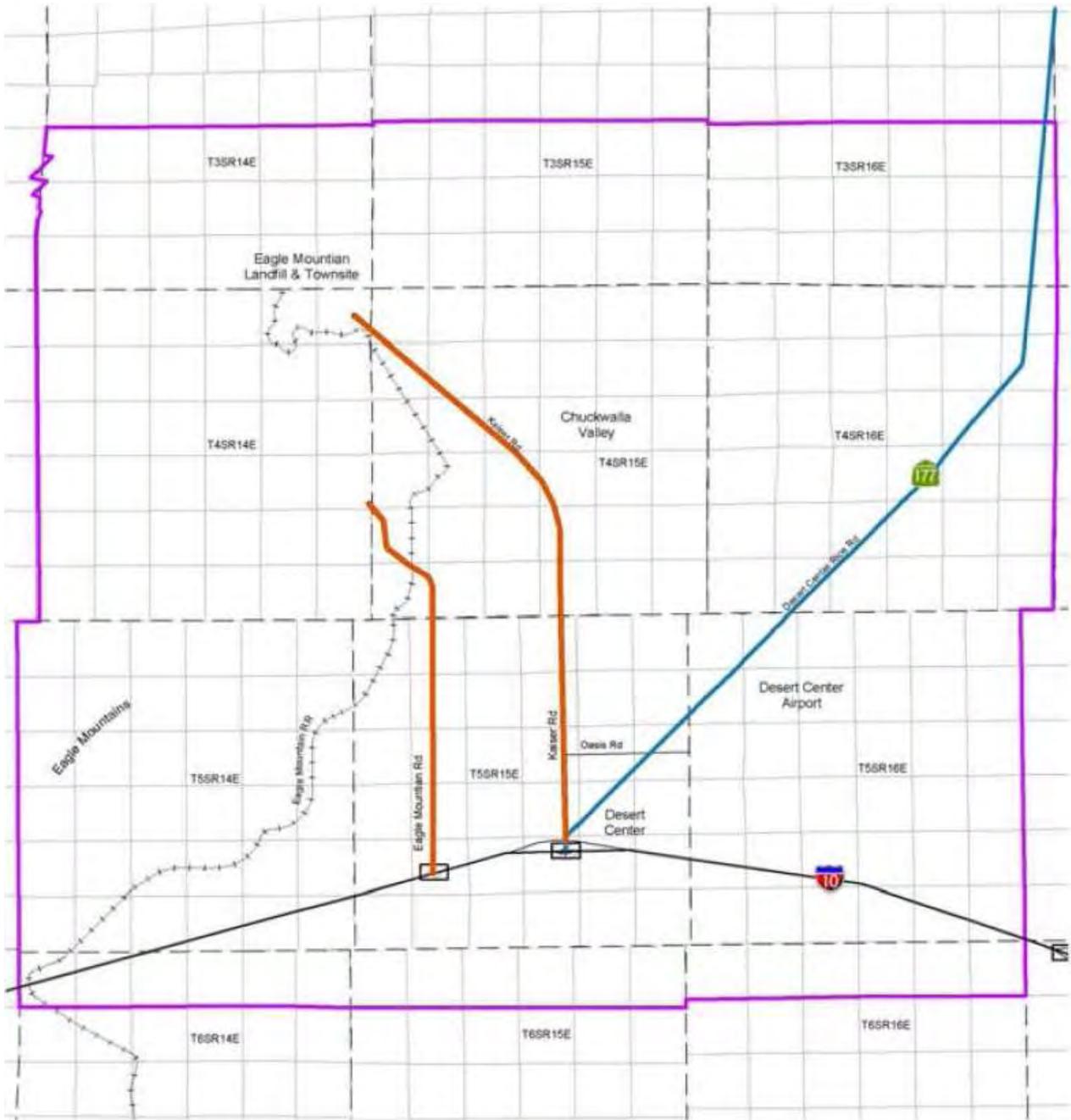


Figure 7: Trails and Bikeway System

Figure 7 Circulation  
County of Riverside



**CALIFORNIA**

**ARIZONA**

Project Area

Greyhound Route

Greyhound Bus  
Route - April 2010

Santa Rosa  
Sacramento  
Berkeley  
Oakland  
San Francisco  
Stockton  
Modesto  
San Jose  
Salinas  
Gilroy  
Fresno

San Luis Obispo  
Bakersfield  
Mojave  
Santa Barbara  
Barstow  
Las Vegas  
Kingman

Glendale  
Pasadena  
Los Angeles  
Long Beach  
Riverside  
San Bernardino  
Irvine  
Indio

Oceanside  
Escondido  
San Diego  
Tijuana  
El Centro  
Mexicali  
Yuma

Phoenix  
Mesa  
Tempe  
Casa Grande  
Tucson

Nogales  
Agua Prieta

**Historical City, County, and State Population Estimates, 1991-2000, with 1990 and 2000 Census Counts  
Official State Estimates**

<u>City</u>	<u>4/1/1990</u>	<u>1/1/1991</u>	<u>1/1/1992</u>	<u>1/1/1993</u>	<u>1/1/1994</u>	<u>1/1/1995</u>	<u>1/1/1996</u>	<u>1/1/1997</u>	<u>1/1/1998</u>	<u>1/1/1999</u>	<u>1/1/2000</u>	<u>4/1/2000</u>
<b>Riverside</b>												
Banning	20,572	21,855	22,204	22,367	22,495	22,456	22,461	22,741	22,955	23,200	23,549	23,562
Beaumont	9,685	9,996	10,272	10,360	10,640	10,596	10,673	10,815	10,953	11,215	11,371	11,384
Blythe	8,448	8,439	11,722	12,482	12,427	15,893	17,646	20,062	20,067	19,918	20,235	20,465
Calimesa	*	6,764	6,924	6,987	7,008	6,930	6,926	6,988	7,036	7,077	7,084	7,139
Canyon Lake	*	10,292	10,434	10,357	10,246	10,094	9,989	9,927	9,890	9,929	9,978	9,952
Cathedral City	30,085	32,195	34,245	34,981	35,754	36,744	37,675	38,267	38,907	40,166	42,240	42,647
Coachella	16,896	17,393	18,007	19,017	19,291	19,819	20,551	20,899	21,164	21,503	22,180	22,724
Corona	75,943	80,913	86,850	90,985	93,232	96,099	100,146	105,743	112,148	118,493	123,757	124,966
Desert Hot Springs	11,668	12,405	13,360	14,206	14,554	15,093	15,478	15,904	16,163	16,405	16,544	16,582
Hemet	36,094	37,613	49,027	50,044	50,319	50,165	50,251	50,682	54,269	57,871	58,666	58,812
Indian Wells	2,647	2,722	2,892	2,985	3,086	3,092	3,146	3,290	3,349	3,515	3,667	3,816
Indio	36,850	38,217	40,355	41,420	42,525	42,952	43,888	45,200	46,099	47,301	48,616	49,116
Lake Elsinore	18,316	19,075	21,605	21,986	23,106	23,848	24,714	25,769	26,490	27,978	28,756	28,930
La Quinta	11,215	12,788	14,403	15,084	15,913	16,588	17,402	18,573	19,534	20,827	23,088	23,694
Moreno Valley	118,779	125,788	129,968	131,548	132,821	132,669	134,215	136,323	137,962	140,457	142,161	142,379
Murrieta	*	*	24,334	27,901	30,286	32,595	34,589	36,842	38,959	41,646	43,902	44,282
Norco	23,302	23,218	23,275	23,454	23,718	23,480	23,511	23,619	24,098	23,988	24,156	24,157
Palm Desert	23,252	23,880	25,035	26,978	28,108	34,487	35,504	36,767	37,815	39,424	40,957	41,155
Palm Springs	40,144	40,402	41,123	41,543	41,465	41,058	41,341	41,715	42,055	42,392	42,748	42,805
Perris	21,500	24,241	27,556	29,456	31,113	32,131	32,723	33,149	34,019	35,015	36,063	36,189
Rancho Mirage	9,778	10,040	10,527	10,773	10,995	11,078	11,298	11,643	12,015	12,559	13,160	13,249
Riverside	226,546	227,496	233,555	236,452	238,112	239,066	240,629	243,352	246,469	250,385	254,212	255,166
San Jacinto	16,210	17,492	20,093	21,106	22,555	22,296	22,392	22,582	22,737	22,970	23,466	23,779
Temecula	27,099	27,416	31,622	34,137	36,953	40,775	43,601	46,091	48,817	51,568	56,607	57,716
Balance Of County	385,384	390,617	366,096	375,732	383,492	385,452	391,095	393,630	397,401	404,672	417,962	420,721

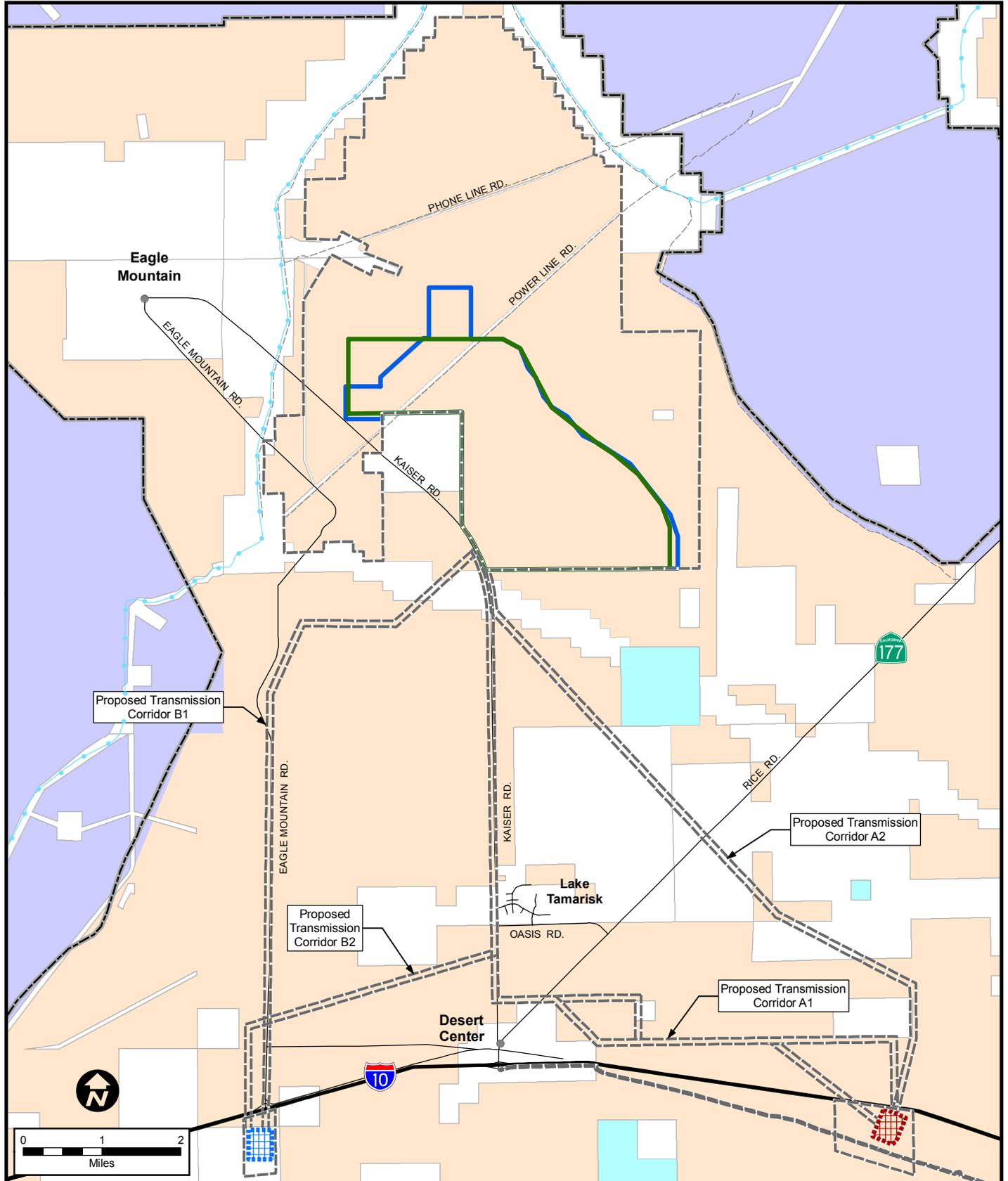
with 2000 Benchmark

COUNTY/CITY	4/1/2000	1/1/2001	1/1/2002	1/1/2003	1/1/2004	1/1/2005	1/1/2006	1/1/2007	1/1/2008	1/1/2009
<b>Riverside County</b>										
Banning	23,562	23,958	24,586	25,606	27,549	27,996	28,185	28,174	28,148	28,457
Beaumont	11,384	11,555	12,269	13,941	16,593	19,051	23,238	28,209	31,317	32,403
Blythe	20,465	20,831	21,292	21,362	22,168	22,052	22,234	22,608	21,627	21,329
Calimesa	7,139	7,238	7,339	7,447	7,490	7,491	7,475	7,435	7,423	7,498
Canyon Lake	9,952	10,158	10,401	10,634	10,822	10,950	10,983	10,955	10,994	11,128
Cathedral City	42,647	44,085	45,659	47,841	49,338	50,819	51,294	52,045	51,972	52,447
Coachella	22,724	23,356	24,412	27,086	28,082	30,879	35,354	38,437	40,317	41,000
Corona	124,966	129,720	134,683	138,604	143,939	144,600	145,265	145,847	146,698	148,597
Desert Hot Springs	16,582	16,771	16,976	17,380	19,329	20,820	23,459	24,856	25,939	26,552
Hemet	58,812	60,570	62,388	63,566	65,552	67,565	70,728	72,537	73,205	74,361
Indian Wells	3,816	4,147	4,371	4,446	4,501	4,796	4,885	4,934	5,000	5,093
Indio	49,116	50,435	52,463	55,078	60,035	66,358	71,949	77,046	80,962	82,230
Lake Elsinore	28,930	30,027	31,223	33,421	35,904	38,185	41,156	47,568	49,556	50,267
La Quinta	23,694	26,081	28,869	30,808	33,026	36,278	38,500	41,039	42,743	43,778
Menifee	0	0	0	0	0	0	0	0	0	67,705
Moreno Valley	142,379	144,316	147,216	151,674	157,496	165,935	175,294	180,228	182,945	186,301
Murrieta	44,282	46,437	51,905	68,391	78,783	85,328	93,221	97,031	99,576	100,714
Norco	24,157	24,485	25,007	25,485	25,810	26,783	27,355	27,329	27,143	27,160
Palm Desert	41,155	42,074	43,092	44,427	45,503	49,490	49,774	49,717	50,686	51,509
Palm Springs	42,805	43,396	43,944	44,502	44,935	45,877	46,629	46,796	47,019	47,601
Perris	36,189	36,905	37,710	38,645	41,951	44,758	47,335	50,597	53,340	54,323
Rancho Mirage	13,249	13,841	14,420	15,135	15,752	16,476	16,740	16,923	16,975	17,180
Riverside	255,166	262,159	270,781	277,150	281,173	286,563	288,984	291,812	296,191	300,430
San Jacinto	23,779	24,612	25,424	26,343	27,134	28,540	31,194	34,297	35,491	36,477
Temecula	57,716	61,766	73,086	75,873	78,640	81,681	93,673	97,141	99,873	102,604
Wildomar	0	0	0	0	0	0	0	0	0	31,321
Balance Of County	420,721	431,199	443,292	459,484	482,612	504,464	517,110	536,754	553,461	459,188
Incorporated	1,124,666	1,158,923	1,209,516	1,264,845	1,321,505	1,379,271	1,444,904	1,493,561	1,525,140	1,648,465
County Total	1,545,387	1,590,122	1,652,808	1,724,329	1,804,117	1,883,735	1,962,014	2,030,315	2,078,601	2,107,653

Table 2: E-4 Population Estimates for Cities, Counties and State, 2001-2009

## **Appendix B Land Use**

- Ownership Map (Tetra Tech)
- Zoning Map (Tetra Tech)
- Existing Land Use Map (Tetra Tech)
- County of Riverside General Plan



**LEGEND**

**Land Ownership / Management**

- Bureau of Land Management
- National Park Service
- State
- Private/Unclassified

Desert Sunlight Study Area Boundary

Solar Farm Boundary (Alternative A)

Solar Farm Boundary (Alternative B)

Red Bluff Substation (Alternative A)

Red Bluff Substation (Alternative B)

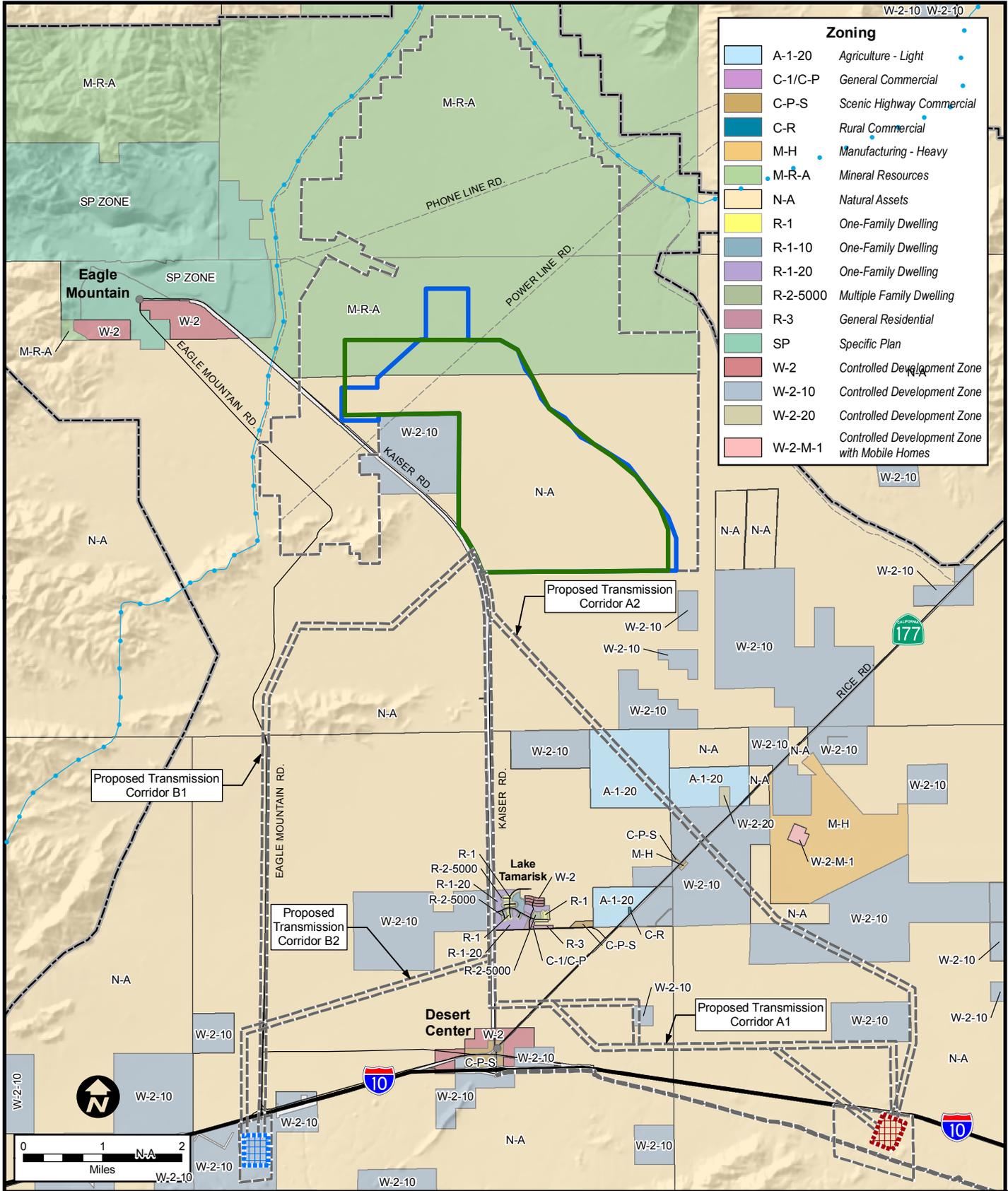
Aqueduct

Source: BLM, May 2009.



DESERT SUNLIGHT SOLAR FARM

**Figure 3.10-2  
Ownership**



**LEGEND**

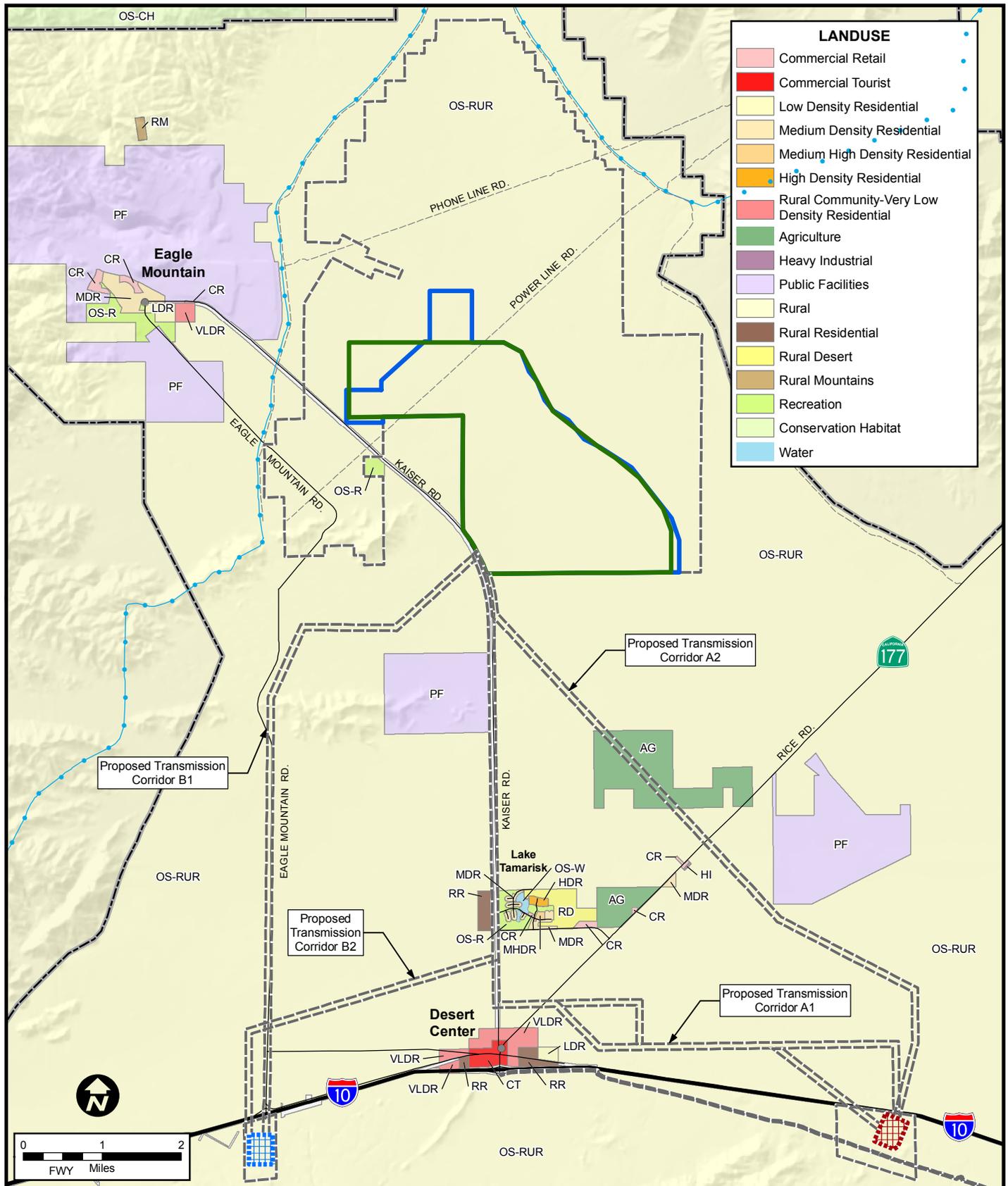
- Aqueduct
- Desert Sunlight Study Area Boundary
- Solar Farm Boundary (Alternative A)
- Solar Farm Boundary (Alternative B)
- Red Bluff Substation (Alternative A)
- Red Bluff Substation (Alternative B)
- Joshua Tree National Park Boundary

Source: Riverside County Integrated Plan, 2003.

**DESERT SUNLIGHT SOLAR FARM**

**Figure 3.10-1**  
**Zoning**





LANDUSE	
[Pink]	Commercial Retail
[Red]	Commercial Tourist
[Light Yellow]	Low Density Residential
[Orange]	Medium Density Residential
[Dark Orange]	Medium High Density Residential
[Dark Red]	High Density Residential
[Light Pink]	Rural Community-Very Low Density Residential
[Green]	Agriculture
[Purple]	Heavy Industrial
[Light Purple]	Public Facilities
[Yellow]	Rural
[Brown]	Rural Residential
[Light Yellow]	Rural Desert
[Light Green]	Rural Mountains
[Light Green]	Recreation
[Light Green]	Conservation Habitat
[Blue]	Water

**LEGEND**

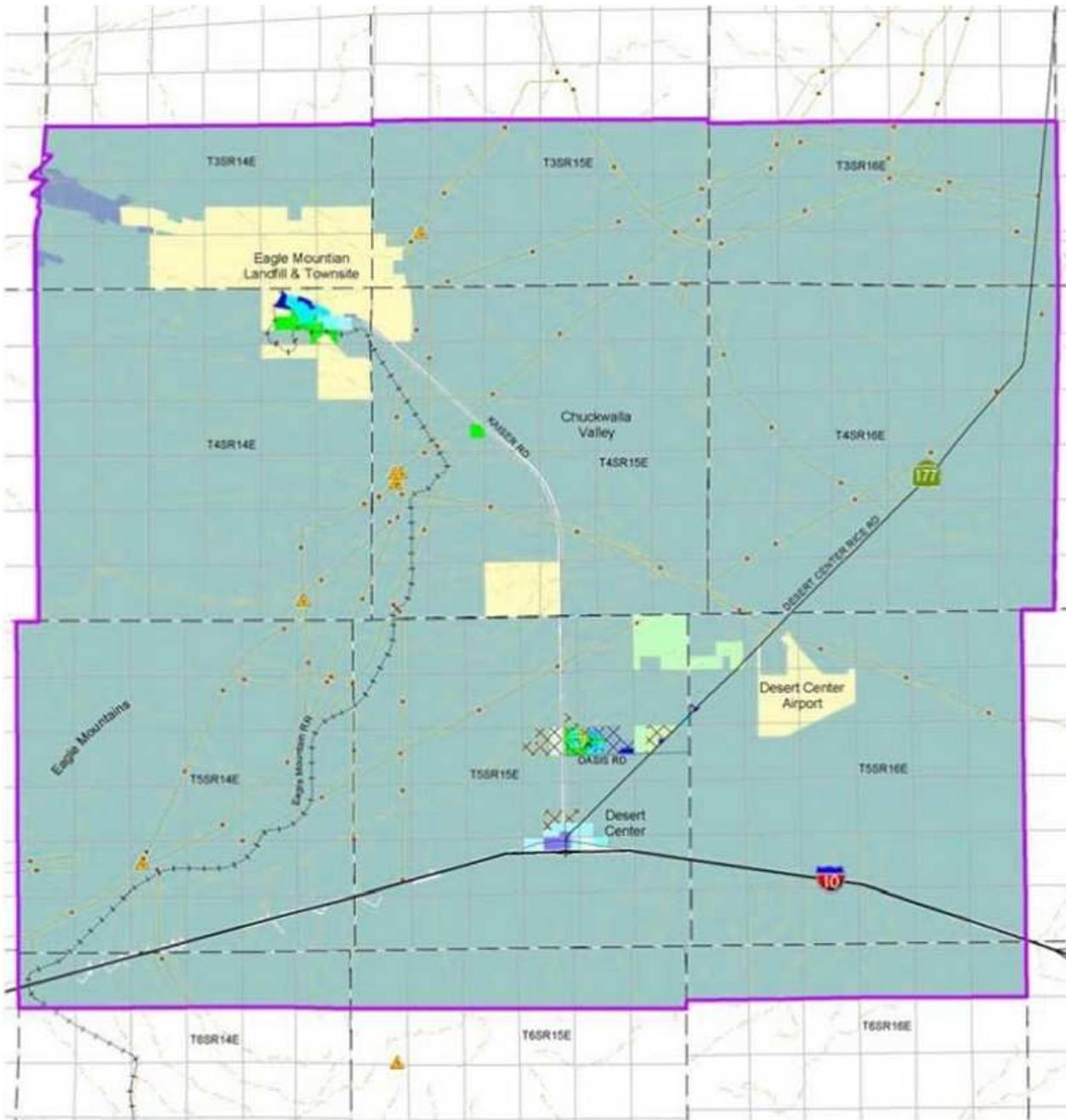
- Aqueduct
- Desert Sunlight Study Area Boundary
- Solar Farm Boundary (Alternative A)
- Solar Farm Boundary (Alternative B)
- Red Bluff Substation (Alternative A)
- Red Bluff Substation (Alternative B)
- Joshua Tree National Park Boundary

Source: Riverside County Integrated Plan, 2003.



**DESERT SUNLIGHT SOLAR FARM**

**Figure 3.10-1**  
**Existing Land Use**



GENERAL PLAN FOUNDATION COMPONENTS AND LAND USE DESIGNATIONS



Source Information: General Plan land use depicted on this map was developed by the County of Riverside Planning Department. The latest data dates on this map is 2008 & 2009.  
 Note: This Map may show designations on lands that have been previously shown after 2008.  
 The County of Riverside and the RCTIP consultants have no notice or indication to believe that this map contains any inaccuracies, defects or misstatements. The County of Riverside and the RCTIP consultants assume no warranties of legal responsibility, liability, or for the absolute accuracy of any data or information contained within this map, except for the location, subject and date. Data and information represented on this map is subject to update and modification without prior notification. The geographic information system and other sources should be queried for the most current information. This map or any information represented on it, shall not be reproduced or transmitted in any form or by any means, electronic or mechanical, including photo copying and recording, except as expressly permitted in writing by the County of Riverside.



DESERT CENTER AREA PLAN  
LAND USE PLAN

Figure 3



Table 1  
Land Use Designations Summary

Foundation Component	Area Plan Land Use Designation	Building Intensity Range (du/ac)	Notes

## **Appendix C Project Trips**

- Construction Schedule
- Construction Workers Schedule
- Cumulative Project Table
- Cumulative Project Figure

SOLAR FARM <sup>1</sup>				TRANSMISSION LINE <sup>1</sup>			On Solar Farm Sub-station <sup>1</sup>			RED BLUFF SUBSTATION <sup>2</sup>			
		Persons	Months		Persons	Months		Persons	Months	Components	Persons	Number of Vehicles	
												SCE	Private
Craft Workers	AVG	365	1-26	Craft &	25	1-20	Craft &	10	5-20	Substation	25	9	15
	PEAK	492	5-16	Non-Craft	60	6-8	Non-Craft	30	6-7	Transmission Line	16	6	10
Mgmt, Non-Craft Workers		40	1-26							Gen-Tie	16	6	10
Guards		2 per 12 - hour shift								Modifications	16	6	10
										Distribution line	8	3	5
										Telecommunications	6	2	4
										<b>SUBSTATION TOTAL</b>	<b>87</b>	<b>32</b>	<b>54</b>

Classification of Employees	Hours			0500-0600		0600-0700		0700-0800 <sup>3</sup>		0800-1100		1100-1300		1300-1500		1500-1600		1600-1700 <sup>3</sup>		1700-1800		1800-1900	
	Vehicles	PCEs	Trips	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
<b>SOLAR FARM, TRANSMISSION LINE, On-Farm Sub-station</b>																							
Guards	4	4	8	2			2													2			2
Private Vehicles	60	60	120			50		10								50		10					
Buses	25	38	76			38									38								
Subtotal	89	102	204																				
<b>RED BLUFF SUBSTATION</b>																							
via Private Contractors	54	54	108			46		8								46		8					
Visitors and Inspectors <sup>4</sup>	5	5	10						1		2	1	2	4									
<b>Total</b>	<b>148</b>	<b>161</b>	<b>322</b>	<b>2</b>	<b>0</b>	<b>134</b>	<b>2</b>	<b>18</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>134</b>	<b>0</b>	<b>18</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>

PCEs - Passenger Car Equivalents. Analysis software assumes that vehicles are passenger cars.

3 axle bus - 1.5 PCE per bus

3 axle concrete truck - 3 PCE per truck

<sup>1</sup>First Solar Supplement to the Plan of Development, Desert Sunlight Solar Farm, March 19, 2010. Pg 31.

The POD provided the construction crew numbers for the on farm site sub-station separately from the solar panel crews.

Typical work hours for the SOLAR FARM and TRANSMISSION LINE - 7 am - 3:30 pm.

Crews can 25 buses to the site. Use 60 private vehicles and the rest in buses. Guards drive themselves.

<sup>2</sup>SCE Red Bluff Substation Project Description April 15, 2010. Pages 9, 22, 25, 28 and 31. Transmission line construction workers number are not provided and assumed to be 16.

It is assumed that SCE employees will travel 3 to a vehicle and that 80% of private contractors employees will car pool.

<sup>3</sup>Assume that some portion (approximately 15%) of the traffic will arrive after the regular starting time.

<sup>4</sup>Assumed schedule and volume. The number and timing of these types of trips are not scheduled or known.

**Table 1A. Renewable Energy Projects in the California Desert District**

<b>BLM Field Office</b>	<b>Number of Projects &amp; Acres</b>	<b>Total MW</b>
<b>Solar Energy</b>		
Barstow Field Office	<ul style="list-style-type: none"> <li>• 18 projects</li> <li>• 132,560 acres</li> </ul>	<ul style="list-style-type: none"> <li>• 12,875 MW</li> </ul>
El Centro Field Office	<ul style="list-style-type: none"> <li>• 7 projects</li> <li>• 50,707 acres</li> </ul>	<ul style="list-style-type: none"> <li>• 3,950 MW</li> </ul>
Needles Field Office	<ul style="list-style-type: none"> <li>• 17 projects</li> <li>• 230,480 acres</li> </ul>	<ul style="list-style-type: none"> <li>• 15,700 MW</li> </ul>
Palm Springs Field Office	<ul style="list-style-type: none"> <li>• 17 projects</li> <li>• 123,592 acres</li> </ul>	<ul style="list-style-type: none"> <li>• 11,873 MW</li> </ul>
Ridgecrest Field Office	<ul style="list-style-type: none"> <li>• 4 projects</li> <li>• 30,543 acres</li> </ul>	<ul style="list-style-type: none"> <li>• 2,835 MW</li> </ul>
<b>TOTAL – CA Desert District</b>	<ul style="list-style-type: none"> <li>• <b>63 projects</b></li> <li>• <b>567,882 acres</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>47,233 MW</b></li> </ul>
<b>Wind Energy</b>		
Barstow Field Office	<ul style="list-style-type: none"> <li>• 25 projects</li> <li>• 171,560 acres</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>
El Centro Field Office	<ul style="list-style-type: none"> <li>• 9 projects (acreage not given for 3 of the projects)</li> <li>• 48,001 acres</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>
Needles Field Office	<ul style="list-style-type: none"> <li>• 8 projects</li> <li>• 115,233 acres</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>
Palm Springs Field Office	<ul style="list-style-type: none"> <li>• 4 projects</li> <li>• 5,851 acres</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>
Ridgecrest Field Office	<ul style="list-style-type: none"> <li>• 16 projects</li> <li>• 123,379 acres</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>
<b>TOTAL – CA Desert District</b>	<ul style="list-style-type: none"> <li>• <b>62 projects</b></li> <li>• <b>433,721 acres</b></li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>

Source: Renewable Energy Projects in the California Desert Conservation Area identifies solar and wind renewable projects as listed on the BLM California Desert District Alternative Energy Website (BLM 2009)

**Table 1B. Renewable Energy Projects on State and Private Lands\***

Project Name	Location	Status
<b>Solar Projects</b>		
Solargen Panoche Valley Solar Farm (400 MW Solar PV)	San Benito County	EIR in progress
Maricopa Sun Solar Complex (350 MW Solar PV)	Kern County	Information not available
Panoche Ranch Solar Farm (250 MW Solar PV)	Kern County	Information not available
Gray Butte Solar PV (150 MW Solar PV)	Los Angeles County	Information not available
Monte Vista (126 MW Solar PV)	Kern County	Information not available
San Joaquin Solar 1 and 2 (107 MW Solar hybrid)	Fresno	Under environmental review
NRG Alpine Suntower (40 MW solar PV and 46 MW solar thermal)	Los Angeles	Information not available
Palmdale Hybrid Power Project Unit 1 (50 MW solar thermal, part of a hybrid project)	City of Palmdale	Under environmental review
Lucerne Valley Solar (50 MW solar PV)	San Bernardino	Under environmental review
Lost Hills (32.5 solar PV)	Kern County	Information not available
Tehachapi Photovoltaic Project (20 MW solar PV)	Kern County	Information not available
Sun City Project Phase 1 (20 MW solar PV)	Kings County	Information not available
Boulevard Associates (20 MW solar PV)	San Bernardino County	Information not available
Stanislaus Solar Project I (20 MW solar PV)	Stanislaus County	Information not available
Stanislaus Solar Project II (20 MW solar PV)	Stanislaus County	Information not available
Synapse Solar 2 (20 MW solar PV/solar thermal)	Kings	Information not available
T, squared, Inc. (19 MW solar PV)	Kern County	Information not available
Rancho Seco Solar Thermal (15-17 MW solar trough)	Sacramento County	Information not available
Global Real Estate Investment Partners, LLC (solar PV)	Kern County	Information not available
Recurrent Energy (solar PV)	Kern County	Information not available
Man-Wei Solar (solar PV)	Kern County	Information not available
Regenesis Power for Kern County Airports Dept.	Kern County	Information not available
Abengoa Mojave Solar Project (250 MW solar thermal)	San Bernardino County, Harper Lake	Under environmental review
Rice Solar Energy Project (150 MW solar thermal)	Riverside County, north of Blythe	Under environmental review
3 MW solar PV energy generating facility	San Bernardino County, Newberry Springs	MND published for public review
Blythe Airport Solar 1 Project (100 MW solar PV)	Blythe, California	MND published for public review
First Solar's Blythe (21 MW solar PV)	Blythe, California	Under construction

<b>Project Name</b>	<b>Location</b>	<b>Status</b>
California Valley Solar Ranch (SunPower) (250 MW solar PV)	Carrizo Valley, San Luis Obispo County	Under environmental review
LADWP and OptiSolar Power Plant (68 MW solar PV)	Imperial County, SR 111	Under environmental review
Topaz Solar Farm (First Solar) (550 MW solar PV)	Carrizo Valley, San Luis Obispo County	Under environmental review
AV Solar Ranch One (230 MW solar PV)	Antelope Valley, Los Angeles County	Under environmental review
Bethel Solar Hybrid Power Plant (49.4 MW hybrid solar thermal and biomass)	Seeley, Imperial County	Under environmental review
Mt. Signal Solar Power Station (49.4 MW hybrid solar thermal and biomass)	8 miles southwest of El Centro, Imperial County	Under environmental review
<b>Wind Projects</b>		
Alta-Oak Creek Mojave Project (up to 800 MW)	Kern County, west of Mojave	Under environmental review
PdV Wind Energy Project (up to 300 MW)	Kern County, Tehachapi Mountains	Approved
City of Vernon Wind Energy Project (300 MW)	City of Vernon	Information not available
Manzana Wind Project (246 MW)	Kern County	Information not available
Iberdrola Tule Wind (200 MW)	San Diego County, McCain Valley	EIR/EIS in progress
Padoma Wind Energy (175 MW)	Shasta County	Information not available
Pine Canyon (150 MW)	Kern County	Information not available
Shiloh III (200 MW)	Montezuma Hills, Solano County	Information not available
AES Daggett Ridge (84 MW)	San Bernardino	EIS in progress
Granite Wind, LLC (81 MW)	San Bernardino	EIR/EIS in progress
Bear River Ridge (70 MW)	Humboldt County	Information not available
Aero Tehachapi (65 MW)	Kern County	Information not available
Montezuma Wind II (52-60)	Montezuma Hills, Solano County	Information not available
Tres Vaqueros (42 MW wind repower)	Contra Costa County	Information not available
Montezuma Hills Wind Project (34-37 MW)	Solano County	Information not available
Solano Wind Project Phase 3 (up to 128 MW)	Montezuma Hills, Solano County	Under environmental review
Hatchet Ridge Wind Project	Shasta County, Burney	Under construction
Lompoc Wind Energy Project	Lompoc, Santa Barbara County	Approved
Pacific Wind (Iberdrola)	McCain Valley, San Diego County	Under environmental review
TelStar Energies, LLC (300 MW)	Ocotillo Wells, Imperial County	Under environmental review

Project Name	Location	Status
<b>Geothermal Projects</b>		
Buckeye Development Project	Geyserville, Sonoma	Under environmental review
Orni 18, LLC Geothermal Power Plant (49.9 MW)	Brawley, Imperial County	Information not available
Black Rock Geothermal 1,2,and 3	Imperial County	Information not available

\* This list is compiled from the projects on CEQAnet as of November 2009 and the projects located on private or State lands that are listed on the Energy Commission Renewable Action Team website as requesting ARRA funding. Additional renewable projects proposed on private and State lands but not requesting ARRA funds are listed on the website.

Source: CEQAnet [<http://www.ceqanet.ca.gov/ProjectList.asp>], November 2009 and CEC Renewable Action Team – Generation Tracking for ARRA Projects 12/29/2009 [[http://www.energy.ca.gov/33by2020/documents/2009-12-29/2009-12-29\\_Proposed\\_ARRA\\_Renewable\\_Projects.pdf](http://www.energy.ca.gov/33by2020/documents/2009-12-29/2009-12-29_Proposed_ARRA_Renewable_Projects.pdf)]

Table 2. Existing Projects along the I-10 Corridor (Eastern Riverside County)

Project ID #	Project Name; Agency ID	Location	Ownership	Status	Acres	Project Description
1	Interstate 10	Linear project running from Santa Monica to Blythe (in California)	Caltrans	Existing	N/A	Interstate 10 (I-10) is a major east-west route for trucks delivering goods to and from California. It is a four lane divided highway in the Blythe region.
2	Chuckwalla Valley State Prison	19025 Wiley's Well Rd. Blythe, CA	CA Dept. of Corrections & Rehabilitation	Existing	1,080	State prison providing long-term housing and services for male felons classified as medium and low-medium custody inmates jointly located on 1,720 acres of State-owned property. APN 879040006,008, 012, 027, 028, 029, 030,
3	Ironwood State Prison	19005 Wiley's Well Rd. Blythe, CA	CA Dept. of Corrections & Rehabilitation	Existing	640	ISP jointly occupies with Chuckwalla Valley State Prison 1,720 acres of State-owned property, of which ISP encompasses 640 acres. The prison complex occupies approximately 350 acres with the remaining acreage used for erosion control, drainage ditches, and catch basins. 879040001, 004, 009, 010, 011, 015, 016, 017, 018, 019, 020
4	Devers-Palo Verde Transmission Line	From the Midpoint Substation to Devers Substation	SCE	Existing	N/A	Existing 500 kV transmission line parallel to I-10 from Midpoint Substation, approximately 10 miles southwest of Blythe, to the SCE Devers Substation, near Palm Springs.
5	Blythe Energy Project	City of Blythe, north of I-10, 7 miles west of the CA/AZ border	Blythe Energy, LLC	Existing	76	520 MW combined-cycle natural gas-fired electric-generating facility. Project is connected to the Buck Substation owned by WAPA.
6	West-wide Section 368 Energy Corridors	Riverside County, parallel to DPV corridor	BLM, DOE, U.S. Forest Service	Approved by BLM and U.S. Forest Service	N/A	Designation of corridors on federal land in the 11 western states, including California, for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities (energy corridors). One of the corridors runs along the southern portion of Riverside County.
7	Eagle Mountain Pumping Plant	Eagle Mountain Road, west of Desert Center	Metropolitan Water District of Southern California	Existing		144 ft. pumping plant that is part of the Metropolitan Water District of Southern California's facilities. APNs 807150007, 807150009, 807150010
8	Recreational Opportunities	Eastern Riverside County	BLM	Existing	N/A	BLM has numerous recreational opportunities on lands in eastern Riverside County along the I-10 corridor including the Wiley's Well Campground, Coon Hollow Campground, and Midland Long-Term Visitor Area.
9	Kaiser Mine	Eagle Mountain, north of Desert Center	Kaiser Ventures, Inc.	Mining activities stopped in 1983.		Kaiser Steel mined iron ore at Kaiser Mine in Eagle Mountain and provided much of the Pacific Coast steel in the 1950s. Mining project also included the Eagle Mountain Railroad, 51 miles long. Imported steel captured market share in the 1960s and 1970s and primary steelmaking closed in the 1980s. 701380031

**Table 3. Future Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)**

Project Name; ID # Agency ID	Location	Ownership	Status	Acres	Project Description
A Four Commercial Projects	Blythe, CA	Various	Approved	N/A	Four commercial projects have been approved by the Blythe Planning Department including the Agate Road Boat & RV Storage, Riverway Ranch Specific Plan, Subway Restaurant and Motel, and Agate Senior Housing Development.
B Intake Shell	Blythe, CA		Under Construction	N/A	Reconstruction of a Shell facility located at Intake & Hobsonway. Demolition occurred in 2008, reconstruction planned for 2009-2010.
C Fifteen Residential Developments	Blythe, CA	Various	Approved/Under Construction	N/A	Twelve residential development projects have been approved by the Blythe Planning Department including: Vista Palo Verde (83 Single Family Residential [SFR]), Van Weelden (184 SFR), Sonora South (43 SFR), Ranchette Estates (20 SFR), Irvine Assets (107 SFR), Chanslor Village (79 SFR), St. Joseph's Investments (69 SFR), Edgewater Lane (SFR), The Chanslor Place Phase IV (57 SFR), Cottonwood Meadows (103 Attached SFR), Palo Verde Oasis Phase IV (29 SFR). Three residential development projects have been approved and are under construction including: The Chanslor Phase II & III (78 SFR), River Estate at Hidden Beaches, Mesa Bluffs Villas (26 Attached SFR).
D Devers-Palo Verde 2 Transmission Line Project	From the Midpoint Substation to Devers Substation	SCE	Project was approved by CPUC 11/2009.	N/A	New 500 kV transmission line parallel to the existing Devers-Palo Verde Transmission Line from Midpoint Substation, approximately 10 miles southwest of Blythe, to the SCE Devers Substation, near Palm Springs. The ROW for the 500 kV transmission line would be adjacent to the existing DPV ROW and would require an additional 130 feet of ROW on federal and State land and at least 130 feet of ROW on private land and Indian Reservation land.
E Colorado Substation	10 miles southwest of Barstow	SCE	Project was approved by CPUC 11/2009.	44	The new 500/230 kV substation would be constructed within a rectangular area approximately 1,000 feet by 1,900 feet, resulting in approximately 44 acres permanently disturbed. The 500 kV switching station would include buses, circuit breakers, and disconnect switches. The switchyard would be equipped with 108-foot-high dead-end structures. Outdoor night lighting would be designed to illuminate the switchrack when manually switched on.
F Blythe Energy Project Transmission Line	From the Blythe Energy Project (Blythe, CA) to Devers Substation	Blythe Energy, LLC	Under construction	N/A	Transmission Line Modifications including upgrades to Buck Substation, approximately 67.4 miles of new 230 kV transmission line between Buck Substation and Julian Hinds Substation, upgrades to the Julian Hinds Substation, installation of 6.7 miles of new 230 kV transmission line between Buck Substation and SCE's DPV 500 kV transmission line.

**Table 3. Future Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)**

Project Name; ID # Agency ID	Location	Ownership	Status	Acres	Project Description
G Desert Southwest Transmission Line	118 miles primarily parallel to DPV	Imperial Irrigation District	Final EIR prepared 2005. Approved by the BLM in 2006.	N/A	New, approximately 118-mile 500 kV transmission line from a new substation/switching station near the Blythe Energy Project to the existing Devers Substation located approximately 10 miles north of Palm Springs, California.
H Green Energy Express Transmission Line Project	70-mile transmission line from the Eagle Mountain Substation to southern California	Green Energy Express LLC	September 9, 2009, Green Energy Express LLC filed a Petition for Declaratory Order requesting that FERC approve certain rate incentives for the project	N/A	70-mile double-circuit 500 kV transmission line and new 500/230 kV substation from near the Eagle Mountain Substation (eastern Riverside County) to Southern California
I Blythe Energy Project II	Blythe, CA. Near the Blythe Airport and I-10	Blythe Energy, LLC	Approved December 2005	30 acres (located on Blythe Energy Project land)	520 MW combined-cycle power plant located entirely within the Blythe Energy Project site boundary. Blythe Energy Project II will interconnect with the Buck Substation constructed by WAPA as part of the Blythe Energy Project. Project is designed on 30 acres of a 76-acre site.
J Eagle Mountain Pumped Storage Project	Eagle Mountain iron ore mine, north of Desert Center	Eagle Crest Energy Company	License application filed with FERC in June 2009	1,524	1,300 MW pumped storage project designed to store off-peak energy to utilize during on-peak hours. The captured off-peak energy will be used to pump water to an upper reservoir where the energy will be stored. The water will then be released to a lower reservoir through an underground electrical generating facility where the stored energy will be released back into the Southwestern grid during “high demand peak” times, primarily weekdays. Estimated water use is 8,100 AFY for the first four-year start-up period and replacement water is 1,763 AFY thereafter. 1
K Genesis Solar Energy Project	North of I-10, 10 miles east of Desert Center	Solar Millennium LLC/Chevron Energy	Undergoing environmental review, construction to begin end of 2010 with one unit online in 2012 and one unit online in 2013.	5,200	500 MW solar trough project on 5,200 acres. Facility would consist of two 250 MW plants. Approximately 3,870 acres would be disturbed. Project would include interconnection to the SCE Red Bluff Substation. Project would use 300 AFY.
L Blythe Solar Power Project	North of I-10, immediately north of the Blythe Airport	Solar Millennium LLC/Chevron Energy	Undergoing environmental review	9,400	1,000 MW solar trough facility on 9,400 acres

**Table 3. Future Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)**

Project Name; ID # Agency ID	Location	Ownership	Status	Acres	Project Description
M NextEra (FPL) McCoy	Northwest of Blythe, CA, immediately north of Blythe Solar Power Project	NextEra (FPL)	Plan of Development in to Palm Springs BLM	20,608	250 MW solar trough project. ROW in process for monitoring water well drilling.
N McCoy Soleil Project	10 miles northwest of Blythe	enXco	Plan of Development in to Palm Springs BLM	1,959	300 MW solar power tower project located on 1,959 acres. Project would require a 14 mile transmission line to proposed SCE Colorado Substation south of I-10. Would use 575-600 AFY.
O Genesis Solar Energy Project	North of I-10, 25 miles west of Blythe and 27 miles east of Desert Center	NextEra (FPL)	Undergoing environmental review. Construction to begin at the end of 2010.		250 MW solar trough project located on 4,640 acres north of the Ford Dry Lake. Project includes six mile natural gas pipeline and a 5.5 mile gen-tie line to the Blythe Energy Center to Julian Hinds Transmission Line, then travel east on shared transmission poles to the Colorado River Substation.
P Big Maria Vista Solar Project	North of I-10, approximately 12 miles northwest of Blythe	Bullfrog Green Energy	Plan of Development submitted to BLM	2,684	500 MW solar photovoltaic project on 2,684 acres of land. Project would be built in three phases and would require 6,000 gallons of water monthly.
Q Chuckwalla Solar I	1 mile north of Desert Center	Chuckwalla Solar I, LLC	Plan of Development submitted to BLM	4,083	200 MW solar photovoltaic project on 4,083 acres of land. Project would be developed in several phases and would tap into an existing SCE 161-kV transmission line crossing the site.
R Rice Solar Energy Project	Rice Valley, Eastern Riverside County	Rice Solar Energy, LLC (SolarReserve, LLC)	Undergoing environmental review. Construction to begin in 2011	1,410	150 MW solar power tower project with liquid salt storage. Project is located on approximately 1,410 acres and includes a power tower approximately 650 feet tall and a 10-mile long interconnection with the WAPA Parker-Blythe transmission line.
S Blythe Airport Solar I Project	Blythe Airport	U.S. Solar	Application has been submitted to City of Blythe, City of Blythe approved the project in November, 2009	640	100 MW solar photovoltaic project located on 640 acres of Blythe airport land.
T Blythe PV Project	Blythe	First Solar	CPUC approved project terms of a 20 year power purchase agreement for sale of 7.5 MW, Under construction in forth quarter, 2009	200	7.5 MW solar photovoltaic project located on 200 acres. Project was constructed by First Solar and sold to NRG Energy.

**Table 3. Future Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)**

Project Name; ID # Agency ID	Location	Ownership	Status	Acres	Project Description
U Desert Quartzite	South of I-10, 8 miles southwest of Blythe	First Solar (previously OptiSolar)	POD in to BLM	7,724	600 MW solar photovoltaic project located on 7,724 acres. Adjacent to DPV transmission line and SCE Colorado Substation. Approximately 27 AF would be used during construction and 3.8 AFY during operation.
V Desert Sunlight	North of Desert Center	First Solar (previously OptiSolar)	POD in to BLM	5,000-6,000	250 MW solar photovoltaic project located on 5,000-6,000 acres. Project would tie into the SCE Red Bluff Substation. Approximately 27 AF would be used during construction and 3.8 AFY during operation.
W EnXco	North of Wileys Well Road, east of Genesis Solar Energy Project	enXco	POD in to BLM		300 MW solar photovoltaic project location on X acres.
X Desert Lily Soleil Project	6 miles north of Desert Center	enXco		1,216	100 MW photovoltaic plant on 1,216 acres of BLM land. Would require a 5-8 mile transmission line to planned SCE Red Bluff Substation.
Y Red Bluff Substation	Unknown at this time – near Desert Center	SCE		N/A	Proposed 230/500 kV Substation near Desert Center. Planned to interconnect renewable projects near Desert Center with the DPV transmission line.
Z Chuckwalla Valley Raceway	Desert Center Airport (no longer a functioning airport)	Developer Matt Johnson	Under construction, track expected to be open in mid 2010	400	Proposed 500-mile race track located on 400 acres of land that used to belong to Riverside County and was used as the Desert Center airport. APN 811142016, 811142006
A Eagle Mountain Landfill Project	Eagle Mountain, North of Desert Center	Mine Reclamation Corporation and Kaiser Eagle Mountain, Inc.	U.S. Court of Appeals for the Ninth Circuit issued its ruling regarding the EIS for the project in 11/09 and ruled that the land exchange for the project was not properly approved by the administrative agency. Kaiser's Mine and Reclamation is considering all available options.	~ 3,500	The project proposed to develop the project on a portion of the Kaiser Eagle Mountain Mine in Riverside County, California. The proposed project comprises a Class III nonhazardous municipal solid waste landfill and the renovation and repopulation of Eagle Mountain Townsite. The proposal by the proponent includes a land exchange and application for rights-of-way with the Bureau of Land Management and a Specific Plan, General Plan Amendment, Change of Zone, Development Agreement, Revised Permit to Reclamation Plan, and Tentative Tract Map with the County. The Eagle Mountain landfill project is proposed to accept up to 20,000 tons of non-hazardous solid waste per day for 50 years.

**Table 3. Future Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)**

Project Name; ID # Agency ID	Location	Ownership	Status	Acres	Project Description
A B Wileys Well Communication Tower (part of the Public Safety Enterprise Communication System)	East of Wileys Well Road, just south of I-10	Riverside County	Final EIR for the Public Safety Enterprise Communication System published in August 2008.	N/A	The Public Safety Enterprise Communication project is the expansion of the County of Riverside's fire and law enforcement agencies approximately 20 communication sites to provide voice and data transmission capabilities to assigned personnel in the field.
A C Mule Mountain Solar Project	South of I-10, approximately 4 miles west of Blythe	Bullfrog Green Energy	Plan of Development in to Palm Springs BLM	2,684	500 MW solar concentrating photovoltaic project located on 2,684 acres. Considering interconnection with proposed SCE Colorado Substation. Approximately 6,000 gallons of water would be required monthly.
<b>Additional Projects Outside Cumulative Figure Boundaries</b>					
Paradise Valley "New Town" Development	Approximately 30 miles west of Desert Center (7 miles east of the city of Coachella)	Glorious Land Company	Notice of Preparation of an EIR published in December of 2005. Still under environmental review.	6,397	Company proposed to develop a planned community as an international resort destination with residential, recreational, commercial, and institutional uses and facilities. The project is planned as a self-contained community with all public and quasi-public services provided. The project is located outside the Coachella Valley Water District (CVWD) boundaries and the applicant has entered into an agreement with the CVWD to manage artificial recharge of the Shaver's Valley groundwater. The proponent has purchased a firm water supply from Rosedale-Rio Bravo Water District in Kern County. In-kind water will be transferred to the MWD which will release water from the Colorado River Aqueduct to a 38 acre percolation pond on the project site. The MWD will deliver approximately 10,000 AFY to the percolation pond and over the long term, no net loss of groundwater in storage is anticipated.
Proposed National Monument (former Catellus Lands)	Between Joshua Tree National Park and Mojave National Preserve		In December 2009, Senator Feinstein introduced bill S.2921 that would designate two new national monuments including the Mojave Trails National Monument.	941,000 acres	The proposed Mojave Trails National Monument would protect approximately 941,000 acres of federal land, including approximately 266,000 acres of the former railroad lands along historic Route 66. The BLM would be given the authority to conserve the monument lands and also to maintain existing recreational uses, including hunting, vehicular travel on open roads and trails, camping, horseback riding and rockhounding.
BLM Renewable Energy Study Areas	Along the I-10 corridor between Desert Center and Blythe	BLM	Proposed		The DOE and BLM identified 24 tracts of land as Solar Energy Study Areas in the BLM and DOE Solar PEIS. These areas have been identified for in-depth study of solar development and may be found appropriate for designation as solar energy zones in the future.

**Table 3. Future Foreseeable Projects along the I-10 Corridor (Eastern Riverside County)**

Project Name; ID # Agency ID	Location	Ownership	Status	Acres	Project Description
Solar Energy projects along Arizona Border	Approximately 15 miles east of the CA/ AZ border along I-10 corridor	Various	Applications filed in to Arizona BLM field offices, application status listed as pending.		Five solar trough and solar power tower projects have been proposed along the I-10 corridor approximately 15 miles east of the CA/AZ border. The projects have been proposed on BLM administered-land in the Yuma and Kingman Field Offices and have requested use of approximately 75,000 acres.

1. Water usage for the Eagle Mountain Pumped Storage Project was based on the information provided to FERC by the Eagle Crest Energy Company in the Responses to Deficiency of License Application and Additional Information Request dated October 26, 2009.

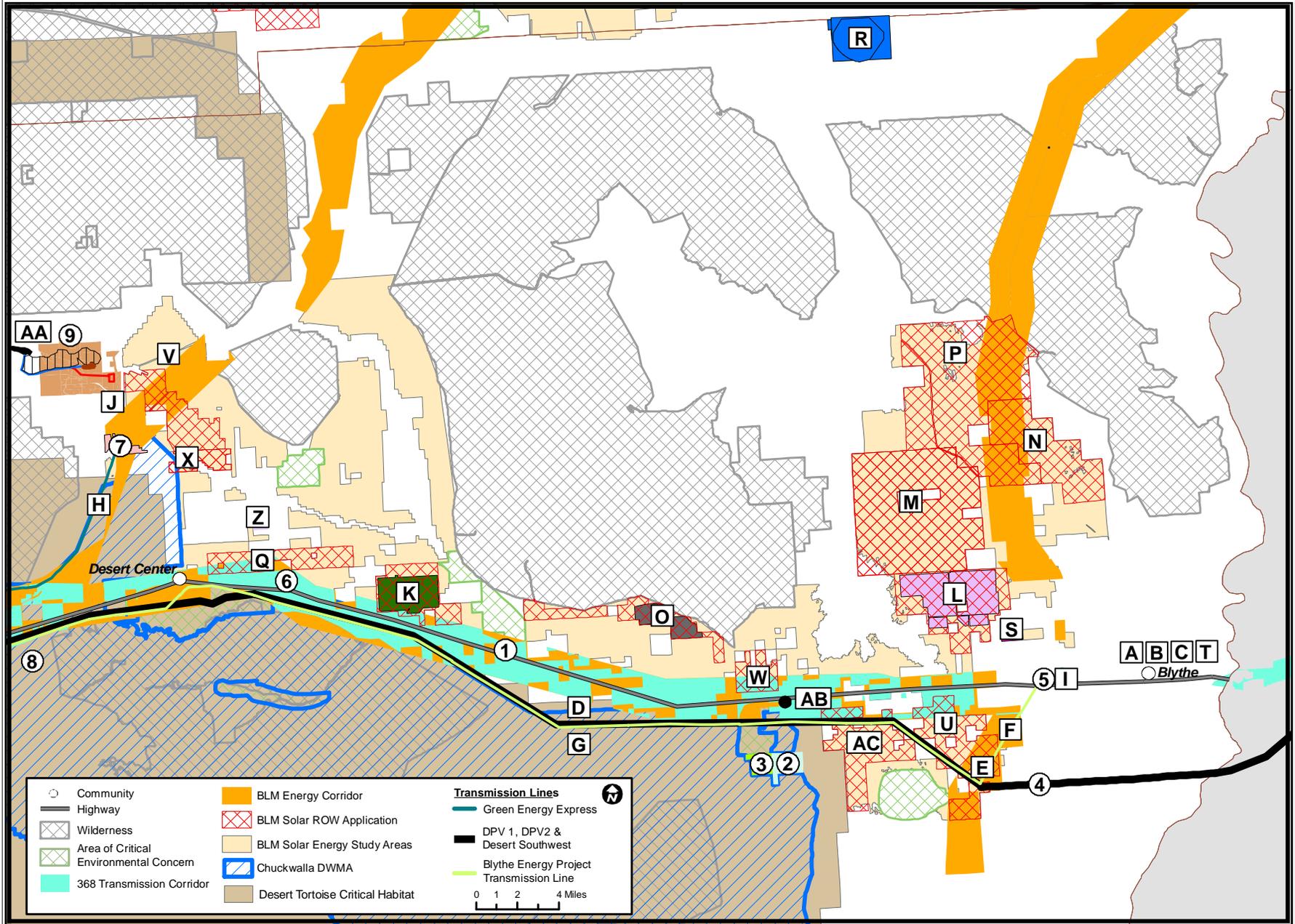
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**CUMULATIVE IMPACTS - FIGURE 2**  
I-10 Corridor Existing and Future/Foreseeable Projects

JANUARY 2010

CUMULATIVE IMPACTS



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, JANUARY 2010

SOURCE: California Energy Commission, Bureau of Land Management

## **Appendix D LOS Analysis**

- Existing Conditions
- Construction Period without Project Condition
- Construction Period with Project Condition

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC Hernandez, Kroone & Associates			Intersection	SR-177 / I-10 EB Off Ramp			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	Existing			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: I-10 EB Off Ramp				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	2	0	22	2	0		
Peak-Hour Factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77		
Hourly Flow Rate, HFR	0	2	0	28	2	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	39	1	2		
Peak-Hour Factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77		
Hourly Flow Rate, HFR	0	0	0	50	1	2		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				1	
Lanes	0	0	0	1	1	1		
Configuration				L	T	R		
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				L	T	R
v (vph)		28				50	1	2
C (m) (vph)		1634				936	821	1088
v/c		0.02				0.05	0.00	0.00
95% queue length		0.05				0.17	0.00	0.01
Control Delay		7.2				9.1	9.4	8.3
LOS		A				A	A	A
Approach Delay	--	--				9.0		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC Hernandez, Kroone & Associates			Intersection	SR-177 / I-10 EB Off Ramp			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	Existing			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: I-10 EB Off Ramp				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	3	3	19	6	0		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR	0	3	3	20	6	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	39	0	1		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR	0	0	0	41	0	1		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			1		
Lanes	0	0	0	1	1	1		
Configuration				L	T	R		
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				L	T	R
v (vph)		20				41	0	1
C (m) (vph)		1628				952	833	1083
v/c		0.01				0.04	0.00	0.00
95% queue length		0.04				0.13	0.00	0.00
Control Delay		7.2				9.0	9.3	8.3
LOS		A				A	A	A
Approach Delay	--	--				8.9		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ KROONE & ASSOCIATES			Intersection	SR-177 / I-10 WB OFF RAMP			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	EXISTING			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: I-10 WB OFF RAMP				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	5	41	0	0	26	45		
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88		
Hourly Flow Rate, HFR	5	46	0	0	29	51		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	14	0	0	0		
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88		
Hourly Flow Rate, HFR	0	0	15	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	1	0	0	0	0		
Configuration		LTR						
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT		LTR					
v (vph)	5		15					
C (m) (vph)	1531		1029					
v/c	0.00		0.01					
95% queue length	0.01		0.04					
Control Delay	7.4		8.6					
LOS	A		A					
Approach Delay	--	--	8.6					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ KROONE & ASSOCIATES			Intersection	SR-177 / I-10 WB OFF RAMP			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	EXISTING			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: I-10 WB OFF RAMP				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	42	0	0	22	37		
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84		
Hourly Flow Rate, HFR	0	50	0	0	26	44		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	4	1	18	0	0	0		
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84		
Hourly Flow Rate, HFR	4	1	21	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	1	0	0	0	0		
Configuration		LTR						
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT		LTR					
v (vph)	0		26					
C (m) (vph)	1544		992					
v/c	0.00		0.03					
95% queue length	0.00		0.08					
Control Delay	7.3		8.7					
LOS	A		A					
Approach Delay	--	--	8.7					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ, KROONE & ASSOCIATES			Intersection	SR-177 / KAISER ROAD			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	EXISTING			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: KAISER ROAD				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	5	28	0	0	35	1		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87		
Hourly Flow Rate, HFR	5	32	0	0	40	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	0	0	11		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87		
Hourly Flow Rate, HFR	0	0	0	0	0	12		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	5						12	
C (m) (vph)	1581						1037	
v/c	0.00						0.01	
95% queue length	0.01						0.04	
Control Delay	7.3						8.5	
LOS	A						A	
Approach Delay	--	--					8.5	
Approach LOS	--	--					A	

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ, KROONE & ASSOCIATES			Intersection	SR-177 / KAISER ROAD			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	EXISTING			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: KAISER ROAD				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	14	39	0	0	38	1		
Peak-Hour Factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71		
Hourly Flow Rate, HFR	19	54	0	0	53	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	1	0	7		
Peak-Hour Factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71		
Hourly Flow Rate, HFR	0	0	0	1	0	9		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	19						10	
C (m) (vph)	1564						998	
v/c	0.01						0.01	
95% queue length	0.04						0.03	
Control Delay	7.3						8.6	
LOS	A						A	
Approach Delay	--	--					8.6	
Approach LOS	--	--					A	

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC Hernandez, Kroone & Associates			Intersection	SR-177 / I-10 EB Off Ramp			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	Construction w/o Project			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: I-10 EB Off Ramp				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	2	0	22	2	0		
Peak-Hour Factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77		
Hourly Flow Rate, HFR	0	2	0	28	2	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	40	1	2		
Peak-Hour Factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77		
Hourly Flow Rate, HFR	0	0	0	51	1	2		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			1		
Lanes	0	0	0	1	1	1		
Configuration				L	T	R		
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				L	T	R
v (vph)		28				51	1	2
C (m) (vph)		1634				936	821	1088
v/c		0.02				0.05	0.00	0.00
95% queue length		0.05				0.17	0.00	0.01
Control Delay		7.2				9.1	9.4	8.3
LOS		A				A	A	A
Approach Delay	--	--				9.0		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC Hernandez, Kroone & Associates			Intersection	SR-177 / I-10 EB Off Ramp			
Agency/Co.				Jurisdiction				
Date Performed	4/7/2010			Analysis Year	Construction w/o Project			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: I-10 EB Off Ramp				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	3	3	19	6	0		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR	0	3	3	20	6	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	40	0	1		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR	0	0	0	43	0	1		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			1		
Lanes	0	0	0	1	1	1		
Configuration				L	T	R		
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				L	T	R
v (vph)		20				43	0	1
C (m) (vph)		1628				952	833	1083
v/c		0.01				0.05	0.00	0.00
95% queue length		0.04				0.14	0.00	0.00
Control Delay		7.2				9.0	9.3	8.3
LOS		A				A	A	A
Approach Delay	--	--				8.9		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ KROONE & ASSOCIATES			Intersection	SR-177 / I-10 WB OFF RAMP			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	Construction w/o Project			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: I-10 WB OFF RAMP				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	5	42	0	0	27	46		
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88		
Hourly Flow Rate, HFR	5	47	0	0	30	52		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	14	0	0	0		
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88		
Hourly Flow Rate, HFR	0	0	15	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	1	0	0	0	0		
Configuration		LTR						
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT		LTR					
v (vph)	5		15					
C (m) (vph)	1528		1028					
v/c	0.00		0.01					
95% queue length	0.01		0.04					
Control Delay	7.4		8.6					
LOS	A		A					
Approach Delay	--	--	8.6					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	NJC			Intersection	SR-177 / I-10 WB OFF RAMP		
Agency/Co.	HERNANDEZ KROONE & ASSOCIATES			Jurisdiction			
Date Performed	4/7/10			Analysis Year	Construction w/o Project		
Analysis Time Period	PM						
Project Description 08-1002							
East/West Street: I-10 WB OFF RAMP				North/South Street: SR-177			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	0	43	0	0	22	38	
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly Flow Rate, HFR	0	51	0	0	26	45	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1		0
Configuration	LT						TR
Upstream Signal		0			0		
<b>Minor Street</b>	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	4	1	18	0	0	0	
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly Flow Rate, HFR	4	1	21	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0		0
Configuration		LTR					
<b>Delay, Queue Length, and Level of Service</b>							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT			LTR			
v (vph)	0			26			
C (m) (vph)	1542			991			
v/c	0.00			0.03			
95% queue length	0.00			0.08			
Control Delay	7.3			8.7			
LOS	A			A			
Approach Delay	--	--	8.7				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ, KROONE & ASSOCIATES			Intersection	SR-177 / KAISER ROAD			
Agency/Co.				Jurisdiction				
Date Performed	2/19/2010			Analysis Year	Construction w/o Project			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: KAISER ROAD				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	5	29	0	0	36	1		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87		
Hourly Flow Rate, HFR	5	33	0	0	41	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	0	0	11		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87		
Hourly Flow Rate, HFR	0	0	0	0	0	12		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	5						12	
C (m) (vph)	1580						1034	
v/c	0.00						0.01	
95% queue length	0.01						0.04	
Control Delay	7.3						8.5	
LOS	A						A	
Approach Delay	--	--					8.5	
Approach LOS	--	--					A	

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ, KROONE & ASSOCIATES			Intersection	SR-177 / KAISER ROAD			
Agency/Co.				Jurisdiction				
Date Performed	4/7/2010			Analysis Year	Construction w/o Project			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: KAISER ROAD				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	14	40	0	0	39	1		
Peak-Hour Factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71		
Hourly Flow Rate, HFR	19	56	0	0	54	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	1	0	7		
Peak-Hour Factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71		
Hourly Flow Rate, HFR	0	0	0	1	0	9		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	19						10	
C (m) (vph)	1563						998	
v/c	0.01						0.01	
95% queue length	0.04						0.03	
Control Delay	7.3						8.6	
LOS	A						A	
Approach Delay	--	--					8.6	
Approach LOS	--	--					A	

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC Hernandez, Kroone & Associates			Intersection	SR-177 / I-10 EB Off Ramp			
Agency/Co.				Jurisdiction				
Date Performed	5/5/2010			Analysis Year	Construction with Project			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: I-10 EB Off Ramp				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	2	0	38	16	0		
Peak-Hour Factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77		
Hourly Flow Rate, HFR	0	2	0	49	20	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	1	1	0	0	1	0		
Configuration	L		TR	LT				
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	98	1	34		
Peak-Hour Factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77		
Hourly Flow Rate, HFR	0	0	0	127	1	44		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			1		
Lanes	0	0	0	1	1	1		
Configuration				L	T	R		
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LT				L	T	R
v (vph)	0	49				127	1	44
C (m) (vph)	1609	1634				854	751	1064
v/c	0.00	0.03				0.15	0.00	0.04
95% queue length	0.00	0.09				0.52	0.00	0.13
Control Delay	7.2	7.3				10.0	9.8	8.5
LOS	A	A				A	A	A
Approach Delay	--	--				9.6		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC Hernandez, Kroone & Associates			Intersection	SR-177 / I-10 EB Off Ramp			
Agency/Co.				Jurisdiction				
Date Performed	4/7/2010			Analysis Year	Construction With Project			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: I-10 EB Off Ramp				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	9	5	22	6	0		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR	0	9	5	23	6	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	40	0	1		
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly Flow Rate, HFR	0	0	0	43	0	1		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			1		
Lanes	0	0	0	1	1	1		
Configuration				L	T	R		
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				L	T	R
v (vph)		23				43	0	1
C (m) (vph)		1617				934	817	1083
v/c		0.01				0.05	0.00	0.00
95% queue length		0.04				0.14	0.00	0.00
Control Delay		7.3				9.0	9.4	8.3
LOS		A				A	A	A
Approach Delay	--	--				9.0		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ KROONE & ASSOCIATES			Intersection	SR-177 / I-10 WB OFF RAMP			
Agency/Co.				Jurisdiction				
Date Performed	5/5/2010			Analysis Year	Construction With Project			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: I-10 WB OFF RAMP				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	5	100	0	0	43	47		
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88		
Hourly Flow Rate, HFR	5	113	0	0	48	53		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	14	0	56	0	0	0		
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88		
Hourly Flow Rate, HFR	15	0	63	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	1	0	0	0	0		
Configuration		LTR						
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT		LTR					
v (vph)	5		78					
C (m) (vph)	1504		911					
v/c	0.00		0.09					
95% queue length	0.01		0.28					
Control Delay	7.4		9.3					
LOS	A		A					
Approach Delay	--	--	9.3					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	NJC			Intersection	SR-177 / I-10 WB OFF RAMP		
Agency/Co.	HERNANDEZ KROONE & ASSOCIATES			Jurisdiction			
Date Performed	4/7/10			Analysis Year	Construction With Project		
Analysis Time Period	PM						
Project Description 08-1002							
East/West Street: I-10 WB OFF RAMP				North/South Street: SR-177			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	6	43	0	0	25	45	
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly Flow Rate, HFR	7	51	0	0	29	53	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1		0
Configuration	LT						TR
Upstream Signal		0			0		
<b>Minor Street</b>	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	4	1	18	0	0	0	
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly Flow Rate, HFR	4	1	21	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	1	0	0	0		0
Configuration		LTR					
<b>Delay, Queue Length, and Level of Service</b>							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT			LTR			
v (vph)	7			26			
C (m) (vph)	1528			983			
v/c	0.00			0.03			
95% queue length	0.01			0.08			
Control Delay	7.4			8.8			
LOS	A			A			
Approach Delay	--	--	8.8				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ, KROONE & ASSOCIATES			Intersection	SR-177 / KAISER ROAD			
Agency/Co.				Jurisdiction				
Date Performed	4/7/2010			Analysis Year	Construction With Project			
Analysis Time Period	AM							
Project Description 08-1002								
East/West Street: KAISER ROAD				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	105	29	0	0	36	4		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87		
Hourly Flow Rate, HFR	120	33	0	0	41	4		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	0	0	28		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87		
Hourly Flow Rate, HFR	0	0	0	0	0	32		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	120						32	
C (m) (vph)	1576						1033	
v/c	0.08						0.03	
95% queue length	0.25						0.10	
Control Delay	7.5						8.6	
LOS	A						A	
Approach Delay	--	--					8.6	
Approach LOS	--	--					A	

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TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>				<b>Site Information</b>				
Analyst	NJC HERNANDEZ, KROONE & ASSOCIATES			Intersection	SR-177 / KAISER ROAD			
Agency/Co.				Jurisdiction				
Date Performed	4/7/2010			Analysis Year	Construction With Project			
Analysis Time Period	PM							
Project Description 08-1002								
East/West Street: KAISER ROAD				North/South Street: SR-177				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	14	40	0	0	39	1		
Peak-Hour Factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71		
Hourly Flow Rate, HFR	19	56	0	0	54	1		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
<b>Minor Street</b>	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	0	0	1	0	17		
Peak-Hour Factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71		
Hourly Flow Rate, HFR	0	0	0	1	0	23		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	0	0	0		
Configuration					LR			
<b>Delay, Queue Length, and Level of Service</b>								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	19						24	
C (m) (vph)	1563						1010	
v/c	0.01						0.02	
95% queue length	0.04						0.07	
Control Delay	7.3						8.7	
LOS	A						A	
Approach Delay	--	--				8.7		
Approach LOS	--	--				A		

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