DR-TRAFFIC-193

Information Required:

Please provide the anticipated distribution of workers traveling from the various possible employment centers within 2-hours driving distance from the project site, especially SR-14.

Response:

Please refer to Figure DR-TRAFFIC-193, which is provided at the end of this section. This has been updated to expand the distribution of the construction workforce to surrounding areas and include possible residential areas or sources of workers within 2 hours driving distance.

DR-TRAFFIC-194

Information Required:

Please provide the base information for SR-14 as shown in Table 5.13-5 (and subsequent appropriate tables) for the other routes or provide an explanation as to why SR-14 is not included.

Response:

Below is the revised Table 5.13-5, which now includes information for SR-14 near Randsburg and SR-178. These sections of roadway currently operate at a level of service (LOS) A during peak periods and are forecast to continue to do so during periods of peak project construction.

Table 5.13-5 Baseline Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service (Without the Project)

Roadway/ Segment	Existing Conditions[1]				Year 2011 Base Conditions[2]			
	Travel Lanes	Volume	Capacity[3]	LOS	Travel Lanes	Volume	Capacity[3]	LOS
SR 14 - Randsburg	2	740	2,000	A	2	765	2,000	A
SR 14 South of SR 178 East	2	570	2,000	A	2	620	2,000	A
U.S. Highway 395 North of Brown Road	2	410[1]	2,000	A	2	508	2,000	A
U.S. Highway 395 South of Brown Road	2	660[1]	2,000	A	2	818	2,000	A
SR-178 West of U.S. Highway 395	4	750[1]	6,800	A	4	774	6,800	A
SR-178 East of U.S. Highway 395	4	820[1]	6,800	A	4	846	6,800	A
Brown Road West of U.S. Highway 395	2	14[4]	2,000	A	2	15[5]	2,000	A
China Lake Boulevard East of U.S. Highway 395	2	212[4]	2,000	A	2	219[5]	2,000	A

1. Caltrans, 2009
2. Year 2007 traffic volumes expanded to Year 2011 (estimated point of peak construction activity) at historical rates of Year 2000 to 2007 (0.8 to 6.0 percent/year dependent upon location).
3. Approximate two-way capacity in vehicles per hour

DR-TRAFFIC-195

Information Required:

Please provide discussion pertaining to known traffic problems, congestion (non-peak) and accidents for these routes.

Response:

Accident records for the above locations were requested from the California Highway Patrol in December and then again in January 2010. Our understanding from communication with the agency is that the information is forthcoming. We expect to have it shortly, and once received, we will summarize the data in response to this comment. The data will be utilized in the evaluation of the intersection of U.S. Highway 395 and Brown Road/China Lake Boulevard. We estimate a submittal date of February 10, 2010.

DR-TRAFFIC-196

Information Required:

Please provide the base information for the following intersections as shown in Table 5.13-6 (and subsequent appropriate tables) for the other intersections or provide an explanation as to why these intersections were not included:

- SR-178 and Brown Road;
- SR-14 and SR-178; and
- US-395 and SR-178

Response:

Figure DR-Traffic-196, provided at the end of this section, summarizes existing peak hour traffic counts (Year 2009) at the intersections of SR-178 with SR 14, Brown Road, and the north and southbound ramps of U.S. Highway 395. The results of a LOS analysis of the intersections assuming existing and future (with Project) traffic volumes are summarized in the tables below. The intersections currently operate at a LOS A through LOS C, depending on movement during the morning and evening peak periods (Table DR-TRAFFIC-196-1). All highway segments are forecast to continue operating at an acceptable LOS C or better during construction and future operation in 2014 (without a significant impact). Similarly, all Kern County roadway segments approaches are forecast to continue operating acceptably or at a LOS D or better during periods of peak Project construction traffic in 2011 (Table DR-TRAFFIC-196-2). All approaches of all intersections are forecast to operate at a LOS C or better when the Project becomes operational in 2014 (Table DR-TRAFFIC-196-3).

Table DR-TRAFFIC-196-1 Existing and Baseline Peak Hour Intersection Levels of Service (Without the Project)

	Existing Conditions[1]				Year 2011 Base Conditions[2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**
SR 178/ SR 14								
Southbound SR 14 Left	7.4	A	7.4	A	7.4	A	7.4	A
Westbound SR 178	9.5	A	10.5	A	9.5	A	10.6	B
SR 178/ Brown Road								
Northbound Brown	9.2	A	12.2	B	9.3	A	12.3	B
Southbound Brown	13.2	B	15.7	C	13.5	B	16.2	C
SR 178/ SB U.S. Highway 395 Ramps								
Westbound SR 178 Left	8.0	A	7.7	A	8.0	A	7.7	A
Southbound Off Ramp	13.1	B	14.4	B	13.3	B	14.3	B
SR 178/ NB U.S. Highway 395 Ramps								
Eastbound SR 178 Left	7.7	A	8.1	A	7.7	A	8.1	A
Northbound Off Ramp	12.8	B	13.5	B	12.9	B	13.8	B

1. Wilson Engineering, December 2009.
2. Year 2009 traffic volumes expanded to Year 2011 (estimated point of peak construction activity) at historical rates Year 2000 to 2007.
3. Average Vehicle Delay in seconds.

Table DR-TRAFFIC-196-2 Peak Hour Baseline without and with Construction Traffic Intersection Levels of Service

	Year 2014 Baseline[1]				Year 2014 with Plant Operations Workforce[2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**
SR 178/ SR 14								
Southbound SR 14 Left	7.4	A	7.4	A	7.4	A	7.4	A
Westbound SR 178	9.5	A	10.6	B	9.5	A	11.5	B
SR 178/ Brown Road								
Northbound Brown	9.3	A	12.3	B	9.7	A	25.2	D
Southbound Brown	13.5	B	16.2	C	27.6	D	19.7	C
SR 178/ SB U.S. Highway 395 Ramps								
Westbound SR 178 Left	8.0	A	7.7	A	8.0	A	7.8	A
Southbound Off Ramp	13.3	B	14.3	B	13.6	B	15.1	B
SR 178/ NB U.S. Highway 395 Ramps								
Eastbound SR 178 Left	7.7	A	8.1	A	7.8	A	8.1	A
Northbound Off Ramp	12.9	B	13.8	B	13.1	B	14.0	B

1. Year 2009 traffic volumes expanded to Year 2011 (estimated point of beginning plant operations).
2. Year 2011 with peak construction traffic.
3. Average Vehicle Delay in seconds.

Table DR-TRAFFIC-196-3 Year 2014 Baseline Peak Hour without and with Plant Operations Traffic Levels of Service

	Year 2014 Baseline[1]				Year 2014 with Plant Operations Workforce[2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**	**Delay[3]**	**LOS**
SR 178/ SR 14								
Southbound SR 14 Left	7.4	A	7.4	A	7.4	A	7.4	A
Westbound SR 178	9.5	A	10.6	B	9.5	A	11.5	B
SR 178/ Brown Road								
Northbound Brown	9.3	A	12.3	B	9.7	A	25.2	D
Southbound Brown	13.5	B	16.2	C	27.6	D	19.7	C
SR 178/ SB U.S. Highway 395 Ramps								
Westbound SR 178 Left	8.0	A	7.7	A	8.0	A	7.8	A
Southbound Off Ramp	13.3	B	14.3	B	13.6	B	15.1	B
SR 178/ NB U.S. Highway 395 Ramps								
Eastbound SR 178 Left	7.7	A	8.1	A	7.8	A	8.1	A
Northbound Off Ramp	12.9	B	13.8	B	13.1	B	14.0	B

1. Year 2009 traffic volumes expanded to Year 2011 (estimated point of beginning plant operations).
2. Year 2011 with peak construction traffic.
3. Average Vehicle Delay in seconds.

DR-TRAFFIC-197

Information Required:

Please provide scaled plans (40-scale) for each access point into the proposed project site, the access to the laydown/ construction area for Brown Road from US 395 so that proper analysis of site access can be performed.

Response:

Scaled plans showing access including design radii, grades lane widths, etc., will be developed during the design process as the Project moves forward and are not available at this time. However, we are currently preparing Conceptual Engineering Plans which will be provided to the CEC on February 10, 2010 and will depict the access points to the site from Brown Road and the alternate access point of connection to U.S. Highway 395. We believe that this information would be sufficient for Staff to conduct its CEQA/NEPA level of review to determine impacts. Additionally, the Staff Assessment/Draft Environmental Impact Statement should reflect that all work on Brown Road will be completed in conformance with Kern County standards, the Caltrans Traffic Manual, the American Association of State Highway and the Transportation Officials Geometric Policy on Street and Highway Design. The compliance of the design with appropriate standards will be monitored and approved by Kern County through the Encroachment Permit Process. That process requires the plans be approved by the County prior to initiating any construction in the public right of way (ROW) and then continues with the County providing inspection services during construction and a final signoff that all construction was completed in a satisfactory manner and in accordance with all requirements.

DR-TRAFFIC-198

Information Required:

Please provide anticipated internal traffic movement and parking.

Response:

The proposed site plan showing access, internal circulation, parking, and construction lay down areas is provided as Figure DR-ALT-49 in the Alternatives section of this document. The site will include at least 650 to 700 temporary spaces for construction worker parking. Conceptual Engineering Plans will be provided to the CEC on February 24, 2010 and will also show the internal roadway locations as part of the grading plans. The final design of these facilities will be subject to the requirements and approval of Kern County.

DR-TRAFFIC-199

Information Required:

Please provide traffic accident statistics for US Hwy. 395, SR-14 and SR-178, including the intersection of Brown Road and US 395, and causes for accidents on those roadways identified in the AFC.

Response:

Please see DR-TRAFFIC-195. Accident records for the above locations were requested from the California Highway Patrol in December and then again in January 2010. Our understanding from communication with the agency is that the information will be forthcoming. We expect to have it shortly, and once received, we will summarize the data in response to this comment. The data will be utilized in the evaluation of the intersection of U.S. Highway 395 and Brown Road/China Lake Boulevard. We estimate a submittal date of February 10, 2010.

DR-TRAFFIC-200

Information Required:

> Please provide any other known roadway hazards, such as poor sight distances or turning radii associated with accessing the project site and on roadways identified in the AFC.

Response:

Over the last 20 years, Caltrans has completed several highway improvements in the greater Project area to correct safety hazards. These include the grade separation of the intersection of U.S. Highway 395 with SR-178 (Inyokern Road), widening of sections of SR-178, and assorted smaller intersection-related improvements in the area. These improvements have corrected most safety needs in the area, particularly along SR-178. However, the intersection of U.S. Highway 395 with Brown Road/South China Lake Boulevard does have a higher than average accident rate (2.8 times greater than State average for similar at-grade intersections). This accident rate is believed to be the result of several issues. Both Brown Road and South China Lake Boulevard intersect the highway at an angle, there is a large curve in the highway immediately to the south, and there is a downhill grade from the north that can result in high speeds on the highway, particularly during ski season.

Accident records for the above locations were requested from the California Highway Patrol in December and then again in January 2010. Our understanding from communication with the agency is that the information is forthcoming. We expect to have it shortly, and once received, we will summarize the data in response to this comment. The data will be utilized in the evaluation of the intersection of U.S. Highway 395 and Brown Road/China Lake Boulevard. We estimate a submittal date of February 10, 2010.

DR-TRAFFIC-201

Information Required:

> Please consult Caltrans and Kern County to determine an acceptable alternative to access the proposed project site from US 395. Also, please provide plans and sets to the Energy Commission and Caltrans.

Response:

The Applicant is currently engaged in evaluating two alternatives for providing access to the site. The proposed site access route is described in the Application for Certification (AFC) and depicted in the reconfigured site plan (Figure DR-ALT-49 in the Alternatives section of this document). This alternative

proposes improvements to the existing intersection of U.S. Highway 395 and Brown Road/China Lake Boulevard relative to existing geometrics, sight distance, and accident records. For this alternative, the Applicant is gathering and reviewing accident reports and topographic mapping to identify potential causes of accidents and determine, in close coordination with Caltrans, appropriate types of modifications to correct existing hazards as well as modifications needed to accommodate project-related construction and operations traffic safely (turn pockets, acceleration and deceleration lanes, etc.). A key part of the evaluation of this alternative will be the identification of needed improvements versus grading requirements to construct them. The potential for implementation of Caltrans' proposed long-term improvement, which includes the re-alignment of China Lake Boulevard and Brown Road together with widening U.S.Highway 395, is not being pursued at this time due to the extended time needed to acquire additional ROWs. Caltrans has acknowledged they do not expect to complete this project for at least the next ten years or more and does not have the necessary ROW assembled yet.

The second alternative proposes a new driveway to U.S. Highway 395 at a minimum of one mile north of Brown Road and includes both a potential for a new driveway/access point with U.S. Highway 395 and the extension of the roadway onto the site. Conceptual Engineering Plans will be provided to the CEC on February 10, 2010 and will show this alternate access point of connection to U.S. Highway 395. Adding turn movements directly to and from a State highway is generally not an acceptable practice, and Caltrans will need to confirm that any new location of an access to and from U.S. Highway 395 north of Brown Road would be done at their direction and demand.

At this time, the Applicant expects to move forward with two alternative points of access with the ongoing review of alternatives and selection of a preferred occurring as project design and development continues. The Applicant is currently coordinating and will continue to coordinate with Caltrans and Kern County staff during the evaluation and selection process. The actual design and construction of improvements associated with either alternative will be completed under Caltrans/Kern County encroachment permit processes, during which all design and Project construction is subject to those agencies' requirements.

DR-TRAFFIC-202

Information Required:

> Please consult with Caltrans and Kern County to determine the pro rata share for improvements to the intersection and provide a letter outlining the determination of pro rata cost share attributable to the project.

Response:

As stated in the response to DR-TRAFFIC-201, the Applicant is currently consulting with CalTrans and Kern County. As part of this process, the Applicant will work out details including the determination of pro rata cost shares.

DR-TRAFFIC-203

Information Required:

> Please provide locations and designs (geometrics such as turning radii, load capacities, grades, etc.) per Kern County design standards for potential emergency access routes.

Response:

Emergency access to the site is by way of Brown Road. The primary access into the site from Brown Road will be provided with a paved width of 24 feet, capable of allowing an emergency vehicle onto the site. A secondary point of access from Brown Road to the area of the warehouse can be provided if required by Kern County. All roadways at the site have grades less than 5 percent for access to the occupied areas. The internal turning radius for all the roadways will be a minimum of 35 feet to comply with the Kern County requirements. All roads to occupied areas will be a minimum of 20 feet in width, paved, and provided with a structural section capable of H-20 loading, which will meet or exceed the Kern County requirements for their emergency fire vehicles.

Scaled plans showing emergency access including design radii, grades lane widths, etc., will be developed during the design process as the project moves forward. Conceptual engineering plans will be provided by February 10, 2010. All emergency access work will be designed and completed in conformance with the Kern County Fire Marshall's standards and requirements. The compliance of the design with appropriate standards will be reviewed and approved by Kern County through the building permit process, during which the Project will be subject to the approval of the County's Fire Marshall.

DR-TRAFFIC-204

Information Required:

> Please provide documentation identifying how the proposed project will comply with any applicable traffic or transportation LORS, programs and design standards established by the Kern County COG.

Response:

The compliance of the proposed Project with all applicable traffic or transportation LORS, programs and design standards will be monitored and documented through the construction process in several ways. The need for capacity-related improvements will be evaluated using a LOS analysis and the significance of the Project's impacts will be determined based upon County and Caltrans criteria or standards. Exceedance of a standard must then be mitigated, typically with some kind of road or intersection improvement. The implementation of this improvement becomes a condition of the Project's approval.

Once a need for an improvement is identified, the design and construction of that improvement is controlled by the owner of the facility (Kern County, Caltrans, City of Ridgecrest, etc.) through the encroachment permit process. That process requires the design and plans to be approved by the Chief Building Official (CBO) in consultation with Kern County, Caltrans, and the City of Ridgecrest prior to construction. The CBO will provide inspection services during construction and will ensure that all construction was completed in a satisfactory manner and in accordance with all requirements.

The design of on-site traffic and transportation-related improvements will be in accordance with Kern County standards as described in the above responses to DR-TRAFFIC-198 and DR-TRAFFIC-203.

DR-TRAFFIC-205

Information Required:

Please provide the traffic study prepared by Wilson Engineering so staff can evaluate source information and methodologies supporting the data presented.

Response:

The traffic study is located in Attachment DR-TRAFFIC-205, provided at the end of this section.

DR-TRAFFIC-206

Information Required:

Please provide the explanation for the references.

Response:

The references in Table 5.13-5 were incorrectly provided and should be deleted. A revised Table 5.13-5 is provided in the response to DR-TRAFFIC-194.

DR-TRAFFIC-207

Information Required:

Please provide the percentage of construction trips for vehicles and trucks for each highway route identified in the AFC.

Response:

Figure DR-TRAFFIC-207, provided at the end of this section, depicts peak daily truck volumes and peak construction work force forecasts for State highways identified in the AFC. Please note the construction work force peak and truck volume peak do not overlap and truck trips do not occur during the peak commute period. Peak truck volumes are forecasted to occur during Month 8 and peak work force volumes in Month 11. The percentages are relative to existing daily traffic volumes.

DR-TRAFFIC-208

Information Required:

Please provide a discussion of the railroad corridor rights-of-way (ROW) and abandonment thereof, including setback requirements and any safety or liability concerns of the railroad owner and BLM.

Response:

LA 028634 is a former Southern Pacific Railroad ROW that intersects with the southwestern boundary of the RSPP ROW. This 100-foot wide ROW was abandoned in 1982 and rails were removed in 1998. There are no tracks, railroad ties or roadway crossings; however, the Phase I Environmental Site Assessment (Appendix I of the AFC) conducted for the Project identified some infrastructure associated with the former railroad ROW (e.g., bridges, storm water conveyances). The ballast rock has been left in place and the railroad ROW currently serves as a hiking trail. The closest project component to the railroad ROW is the access road that runs along the western side of the south solar field. The access road is approximately 230 feet from the railroad ROW, and the Project disturbance boundary is located, at its closest point, approximately 130 feet from the railroad ROW, thus no disturbance within the railroad ROW or of the remaining railroad infrastructure would occur.

The I 0330 RR Sta Grounds is a ROW for a railroad station, and is identified just south of the Project ROW. The Bureau of Land Management (BLM) is currently researching the I0330 RR Sta Grounds ROW to determine whether this ROW has been abandoned. However, the railroad station no longer exists and has been completely dismantled.

DR-TRAFFIC-209

Information Required:

> Please provide information pertaining to Caltrans and California Public Utilities Commission's requirements for crossing the railroad corridor ROW.

Response:

California Public Utilities Commission (CPUC) approval is required prior to constructing new, or modifying existing, highway rail crossings under General Order 88B. However, as stated above in DR-TRAFFIC-208, the railroad ROW is an abandoned crossing with no regulated roadway crossing. Neither Caltrans nor CPUC has any regulatory authority at this location and therefore General Order 88B requirements do not apply.

DR-TRAFFIC-210

Information Required:

> Please provide a map at a scale of 1:24,000 showing airports (the precise distance from Inyokern Airport), public transportation, school bus routes and bicycle routes.

Response:

Please refer to Figure DR-TRAFFIC-210, provided at the end of this section, which depicts airports, public transportation, school bus routes and bicycle routes.

DR-TRAFFIC-211

Information Required:

Please provide a discussion and a schedule pertaining to applying and obtaining the necessary BLM right-of-way (ROW) permits for the water pipeline route.

Response:

The water pipeline will run from the power block, which is located on BLM lands, to Brown Road and along China Lake Boulevard to the Ridgecrest Heights station. The portion of the water pipeline located within BLMs lands is included in the Applicant's ROW application for the RSPP (CACA – 49016). The remaining portion of the water pipeline route will run along Kern County Road ROWs. The Applicant will request a pipeline permit (encroachment permit) from the Kern County Roads Department for this route.

DR-TRAFFIC-212

Information Required:

Please address how much area (length and width) is needed for the water pipeline ROW.

Response:

The water pipeline will be constructed within existing Kern County ROWs or on BLM lands and as such will not have a ROW of its own. The construction ROW for the water pipeline is 30 feet wide. The CPUC provides franchise agreement rights for utility placement in government ROWs with permitting rights given to the governing authority, which in this case is Kern County. The water line will be constructed approximately 15 to 20 feet from the edge of the existing pavement along the west side of China Lake Boulevard and along the north side of Brown Road, well within the existing County ROW. The waterline is approximately 4.5 miles in length and will have a trench width of approximately 3 feet. There is no easement or ROW width directly associated with a pipeline that is located within a public ROW.

DR-TRAFFIC-213

Information Required:

Please identify alternate entry routes for the nine (9) private and public driveways or roadways the water pipeline will affect during installation.

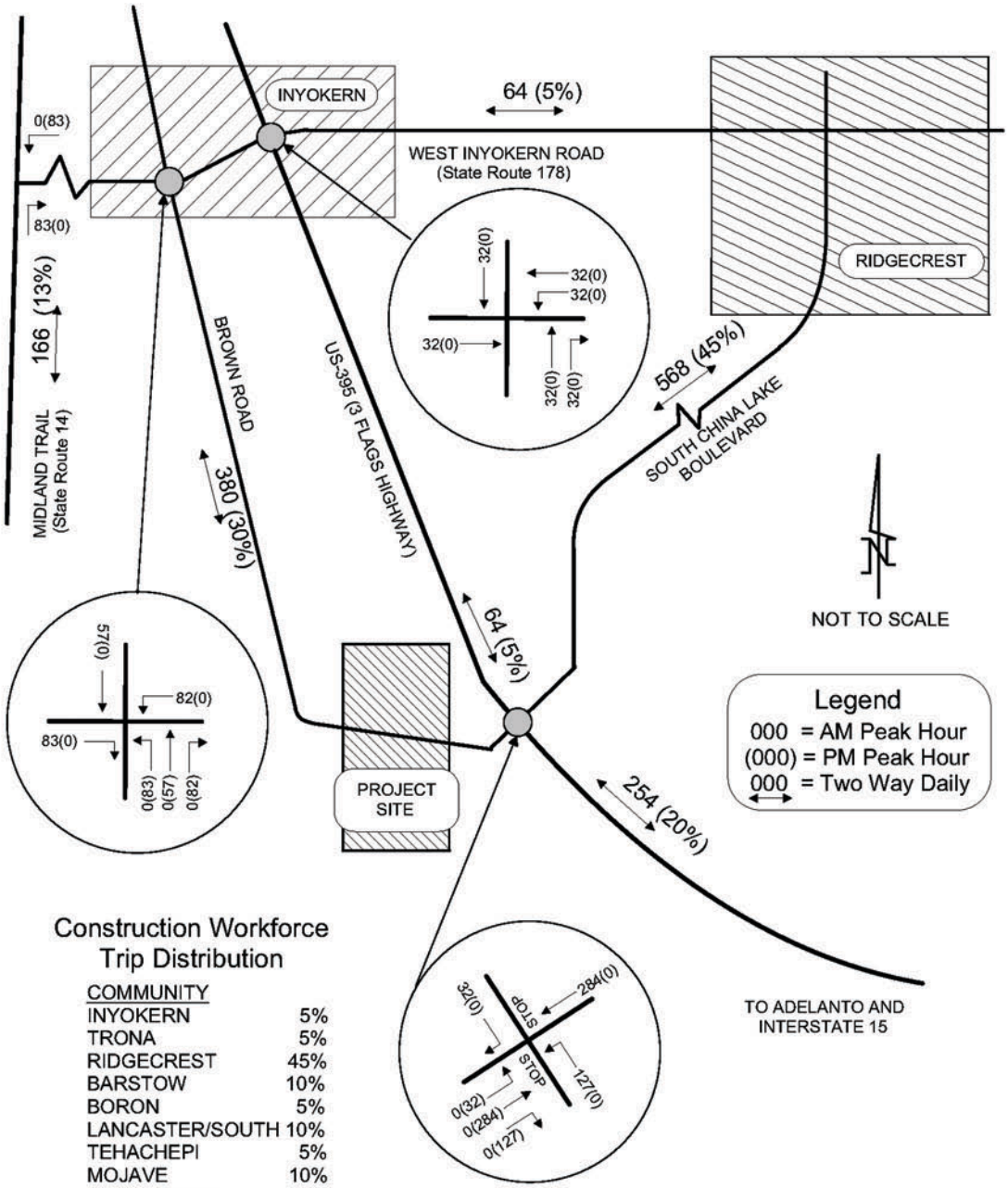
Response:

The contractor that installs the pipeline will be required to maintain access to the existing tenants that use any driveway from a public road. This will be a condition of permit from the County. The Contractor will meet this requirement by using temporary diversions of the driveways that are within the County ROW and/or by providing phased construction across the driveways with use of trench plates to provide access over any open excavation. Any temporary diversion of a driveway will be a 15 foot wide driveway located parallel and approximately 10 feet immediately adjacent to the existing driveway. These driveways, if needed, will only exist for one day, which will be sufficient time for the water line to be constructed. All work for the driveways will be within the existing Kern County ROW. The temporary relocation and

protection of the existing driveways will be defined on the engineering plans and will be subject to review and permit requirements of Kern County Engineering Department. No work will be allowed to be performed until the plans are approved and all requirements addressed. A condition could be placed on the project that "Developer shall maintain access to all driveways during construction of the water line and permits for the work in the ROW of China Lake Boulevard and Brown Road must be obtained from Kern County."

Attachment

Traffic Figures



Construction Workforce Trip Distribution

COMMUNITY	
INYOKERN	5%
TRONA	5%
RIDGECREST	45%
BARSTOW	10%
BORON	5%
LANCASTER/SOUTH	10%
TEHACHEPI	5%
MOJAVE	10%
RANDSBURG	5%

Map Location

Not to Scale

Ridgecrest Solar Power Project
DR - Traffic - 193

Solar Millennium

AECOM

Date: January 2010

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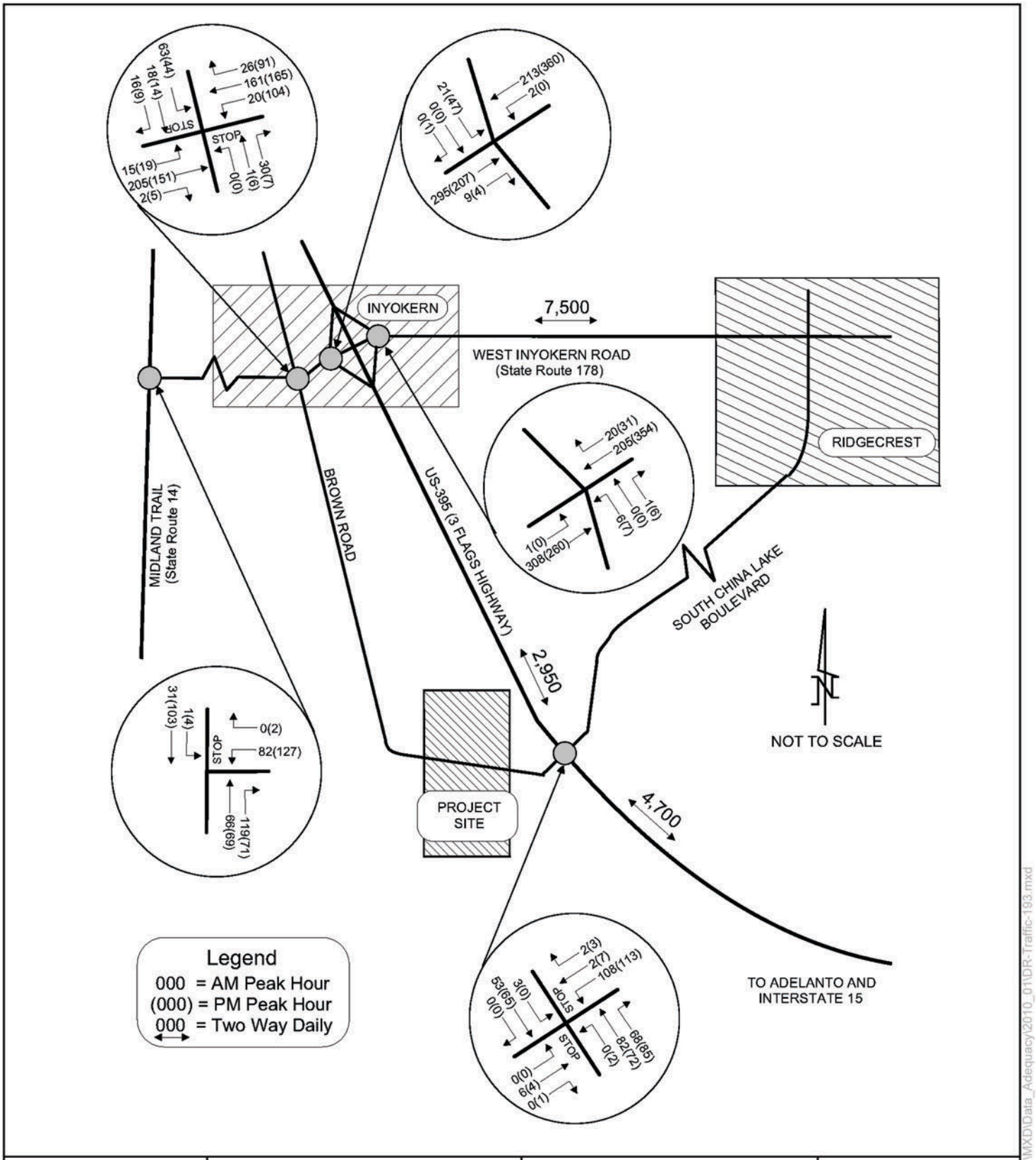

Map Location

Not to Scale

Ridgecrest Solar Power Project
DR - Traffic - 196
Existing Peak Traffic

Solar Millennium

AECOM

Date: January 2010

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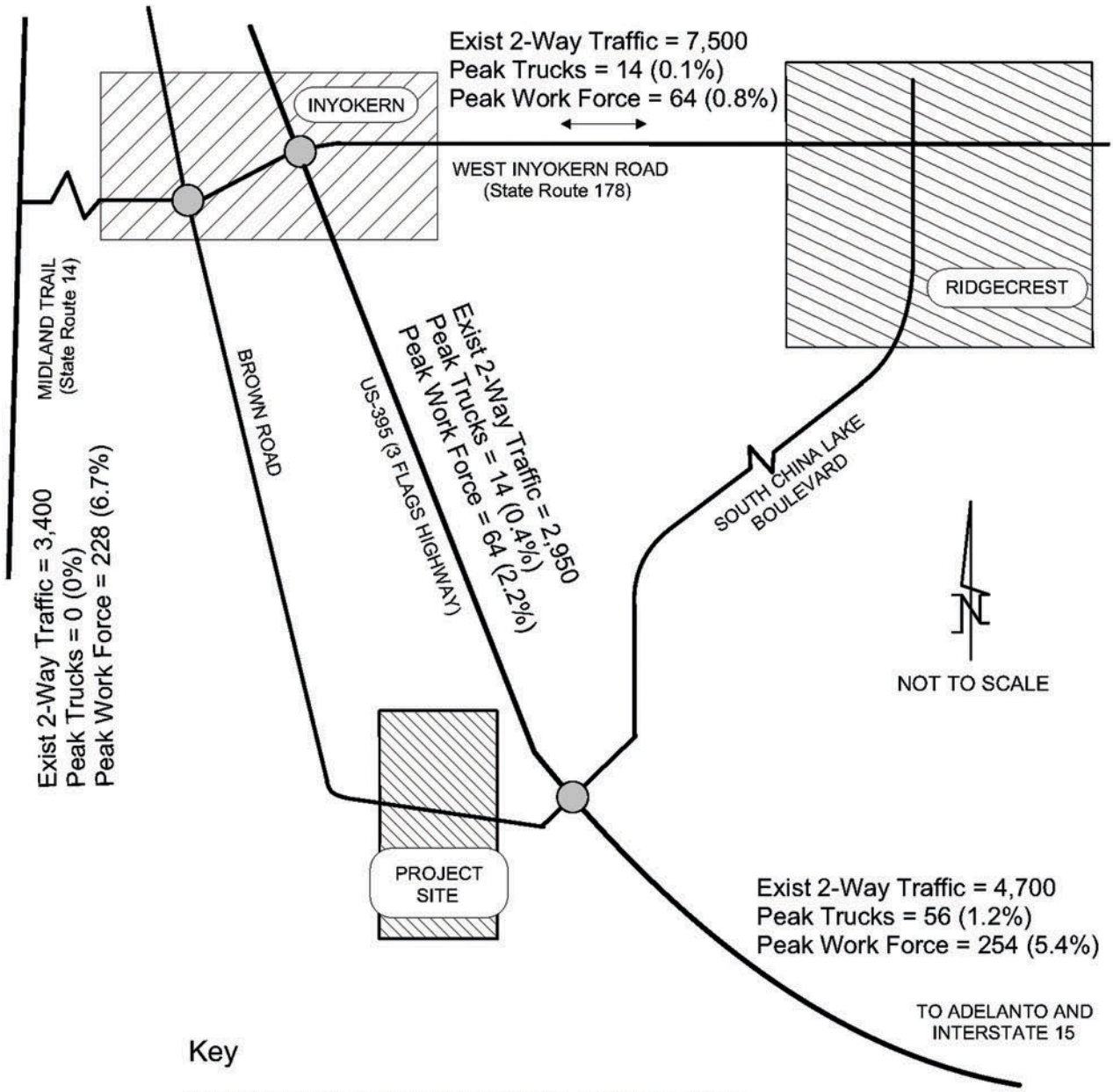


Key

Exist 2-Way Traffic = Daily Volume, Caltrans, 2009
Peak Trucks = 2-Way Daily Trucks during Peak Month
Peak Work Force = Peak Month 2-Way Daily Commute Traffic During Construction
(%) = Percent of Existing Daily Volume

Map Location

Not to Scale

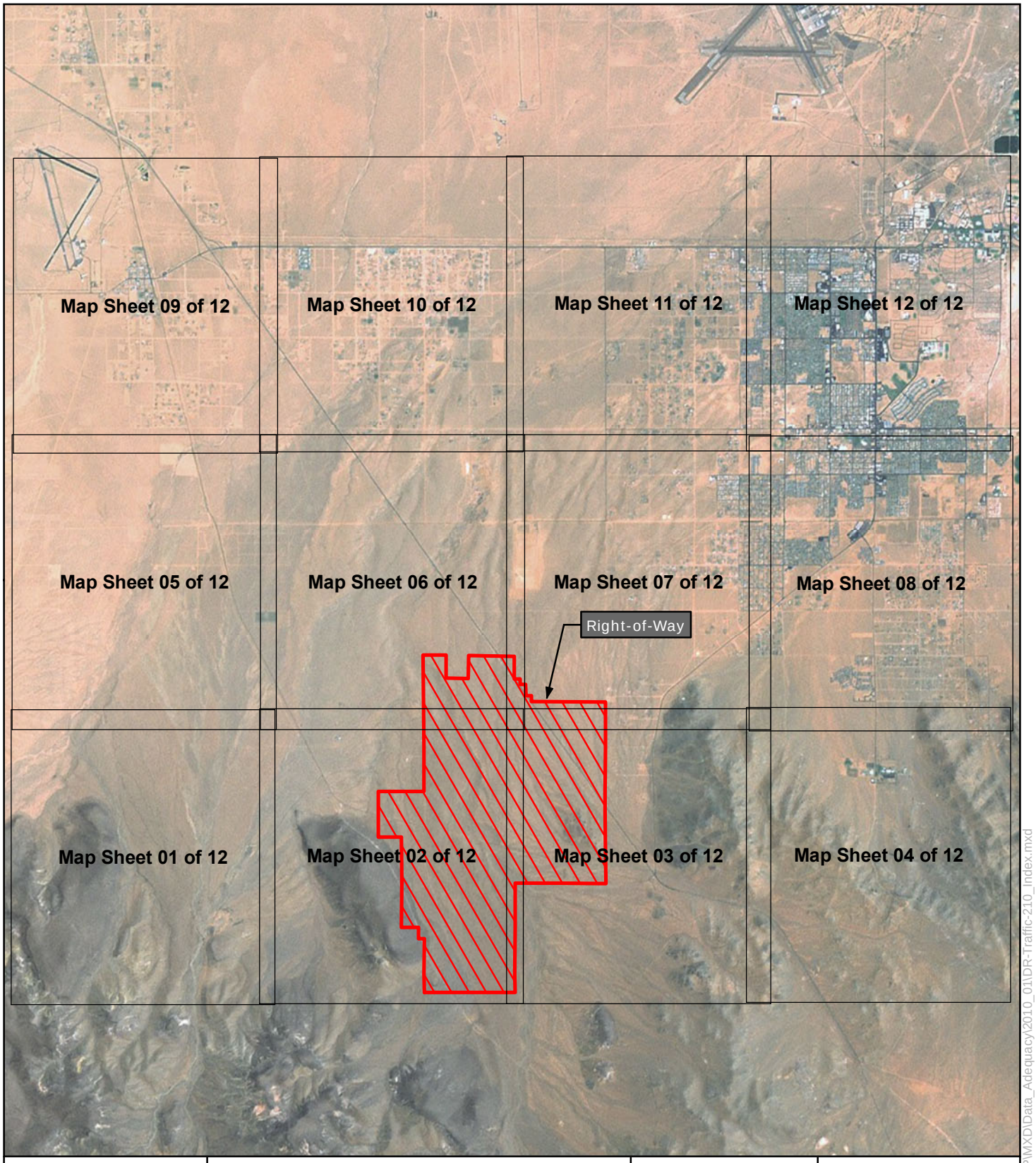
Ridgecrest Solar Power Project
DR - Traffic - 207
Construction Traffic on State Highways

Solar Millennium

AECOM

Date: January 2010

Y:\Projects\Solar_Millennium\RSPP\MXD\Data_Adequacy\2010_01\DR-Traffic-207.mxd



Map Location

Legend

Right-of-Way

1 inch = 1.5 miles

0 1.5 3 Miles

N W E S

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Index Map

Solar Millennium

AECOM

Date: January 2010

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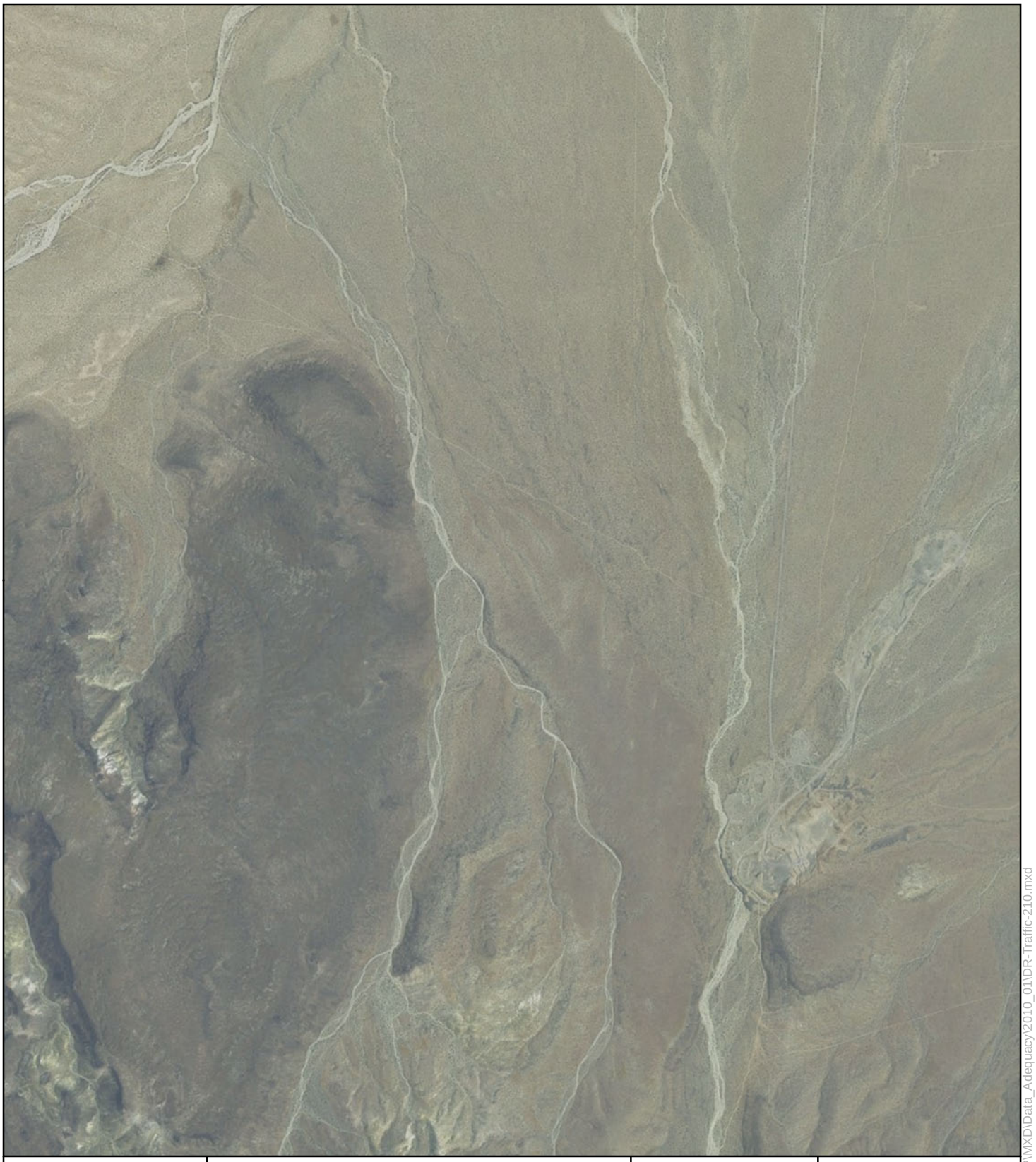

Map Location

Legend

- Right-of-Way
- School Bus Route
- Regional Transit Route
- Abandoned and Removed Railroad line

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N E S W

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 01 of 12

Solar Millennium

AECOM

Date: January 2010

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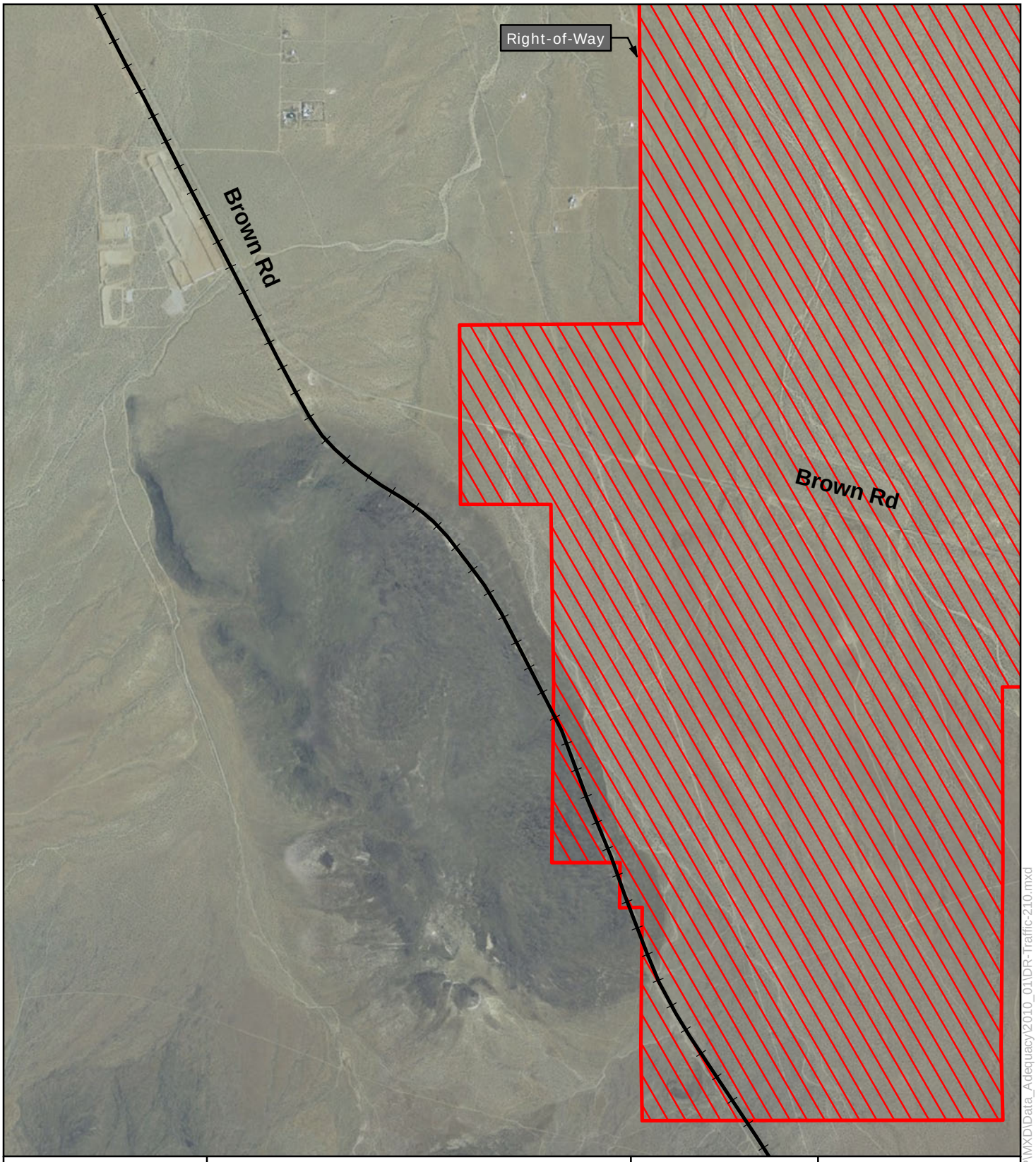

Map Location

Legend

- Right-of-Way
- School Bus Route
- Regional Transit Route
- Abandoned and Removed Railroad line

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N W E S

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 02 of 12

Solar Millennium

AECOM

Date: January 2010

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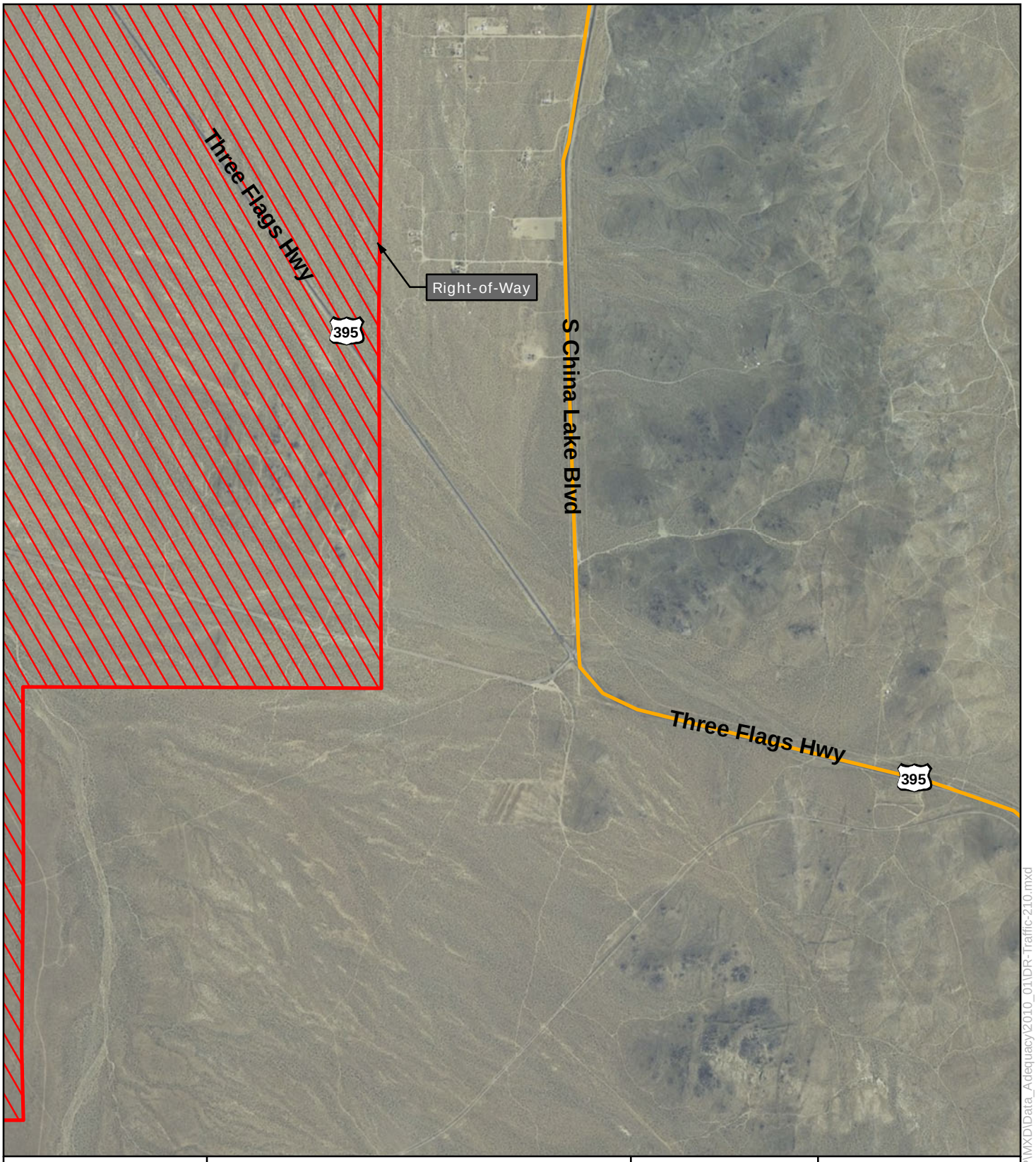

Map Location

Legend

- Right-of-Way
- School Bus Route
- Regional Transit Route
- Abandoned and Removed Railroad line

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N E S W

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 03 of 12

Solar Millennium

AECOM

Date: January 2010

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Map Location

Legend

- Right-of-Way
- School Bus Route
- Regional Transit Route
- Abandoned and Removed Railroad line

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N W E S

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 04 of 12

Solar Millennium

AECOM

Date: January 2010

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Map Location

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- Abandoned and Removed Railroad line

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N W E S

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 05 of 12

Solar Millennium

AECOM

Date: January 2010

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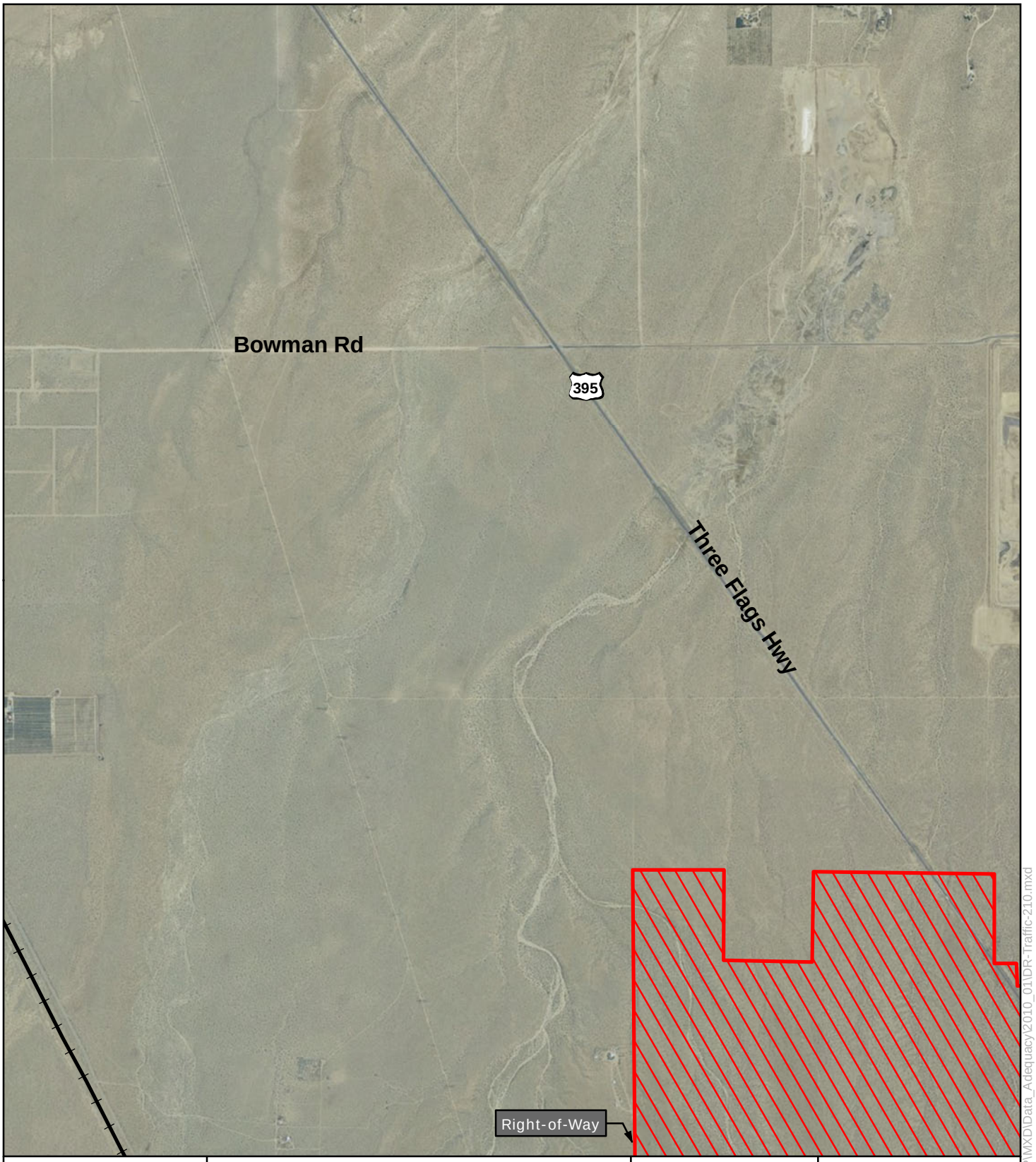

Map Location

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- School Bus Route
- Regional Transit Route
- Abandoned and Removed Railroad line

1 inch = 2,000 feet

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Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 06 of 12

Solar Millennium

AECOM

Date: January 2010

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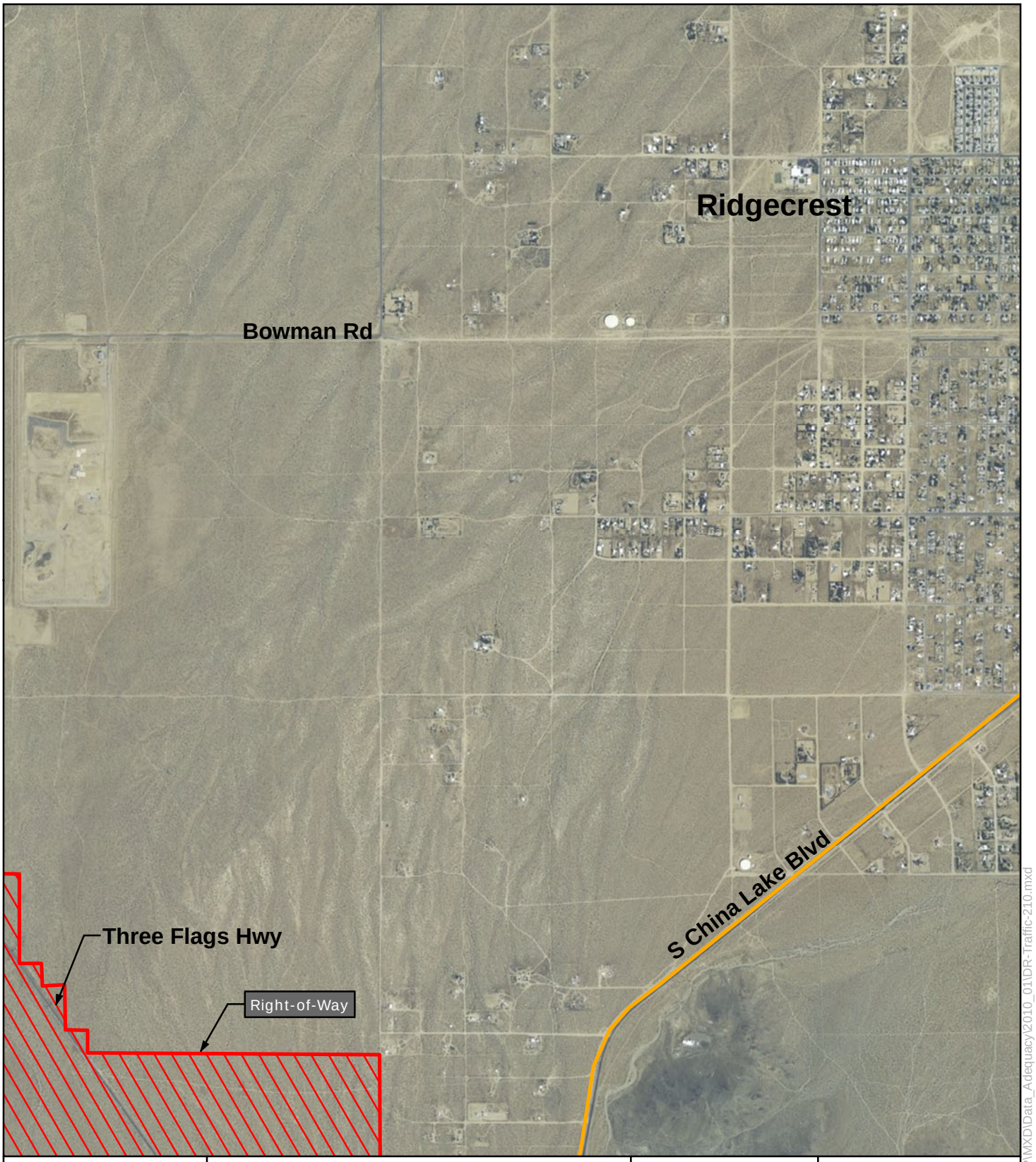

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Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 07 of 12

Solar Millennium

AECOM

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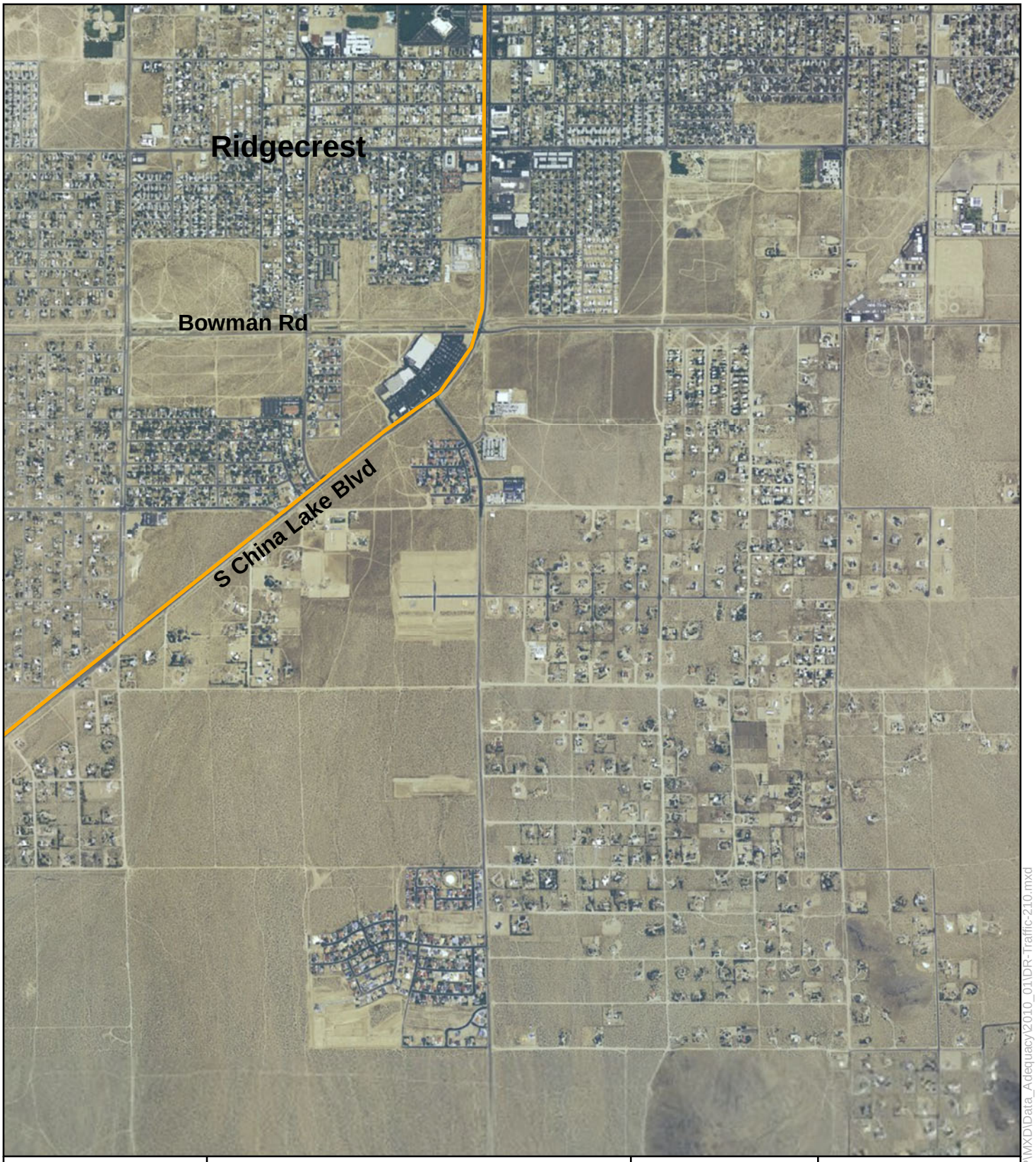

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Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 08 of 12

Solar Millennium

AECOM

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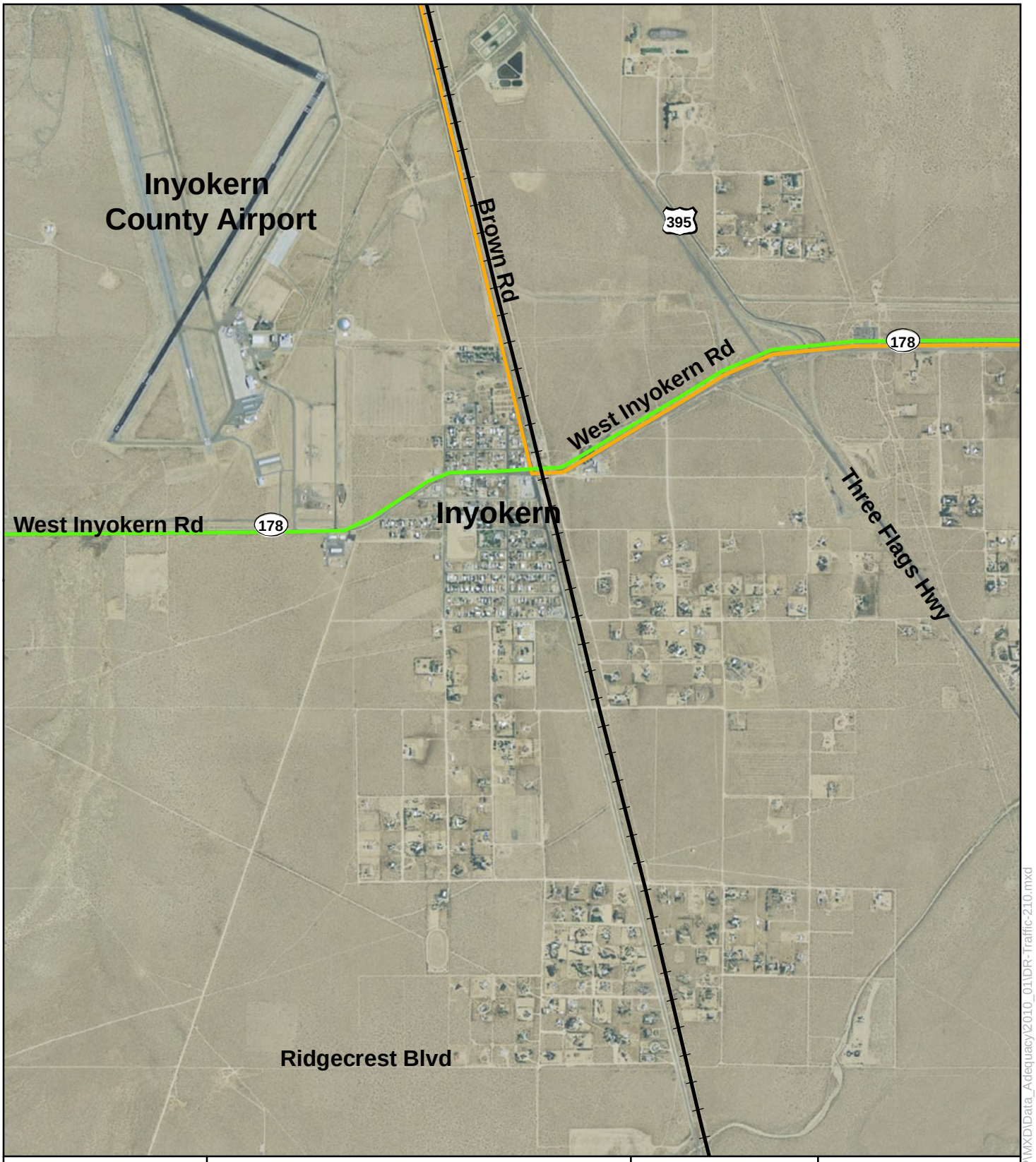

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Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 09 of 12

Solar Millennium

AECOM

Date: January 2010

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Map Location

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1 inch = 2,000 feet

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Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 10 of 12

Solar Millennium

AECOM

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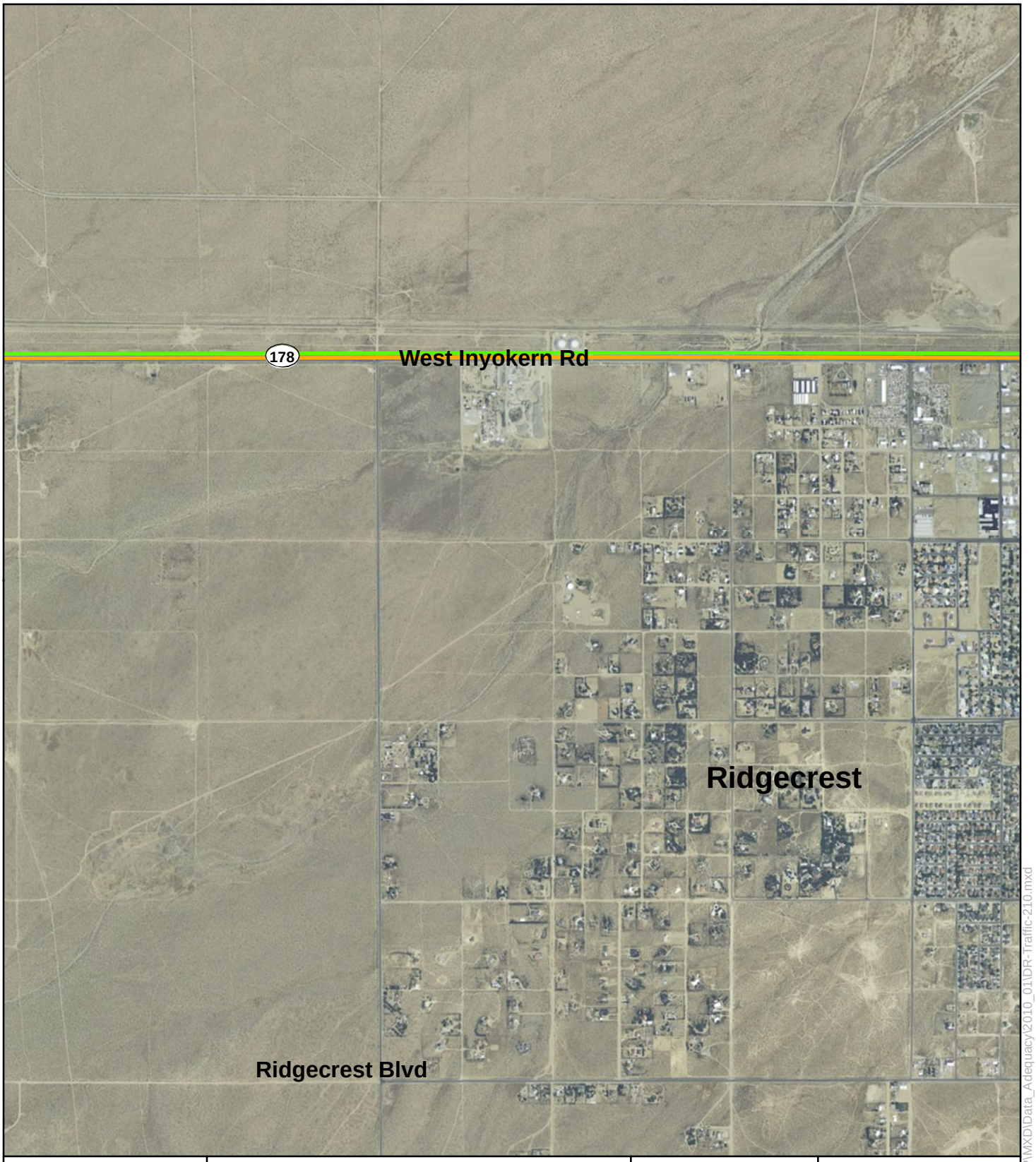

Map Location

Legend

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- School Bus Route
- Regional Transit Route
- Abandoned and Removed Railroad line

1 inch = 2,000 feet

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N W E S

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 11 of 12

Solar Millennium

AECOM

Date: January 2010

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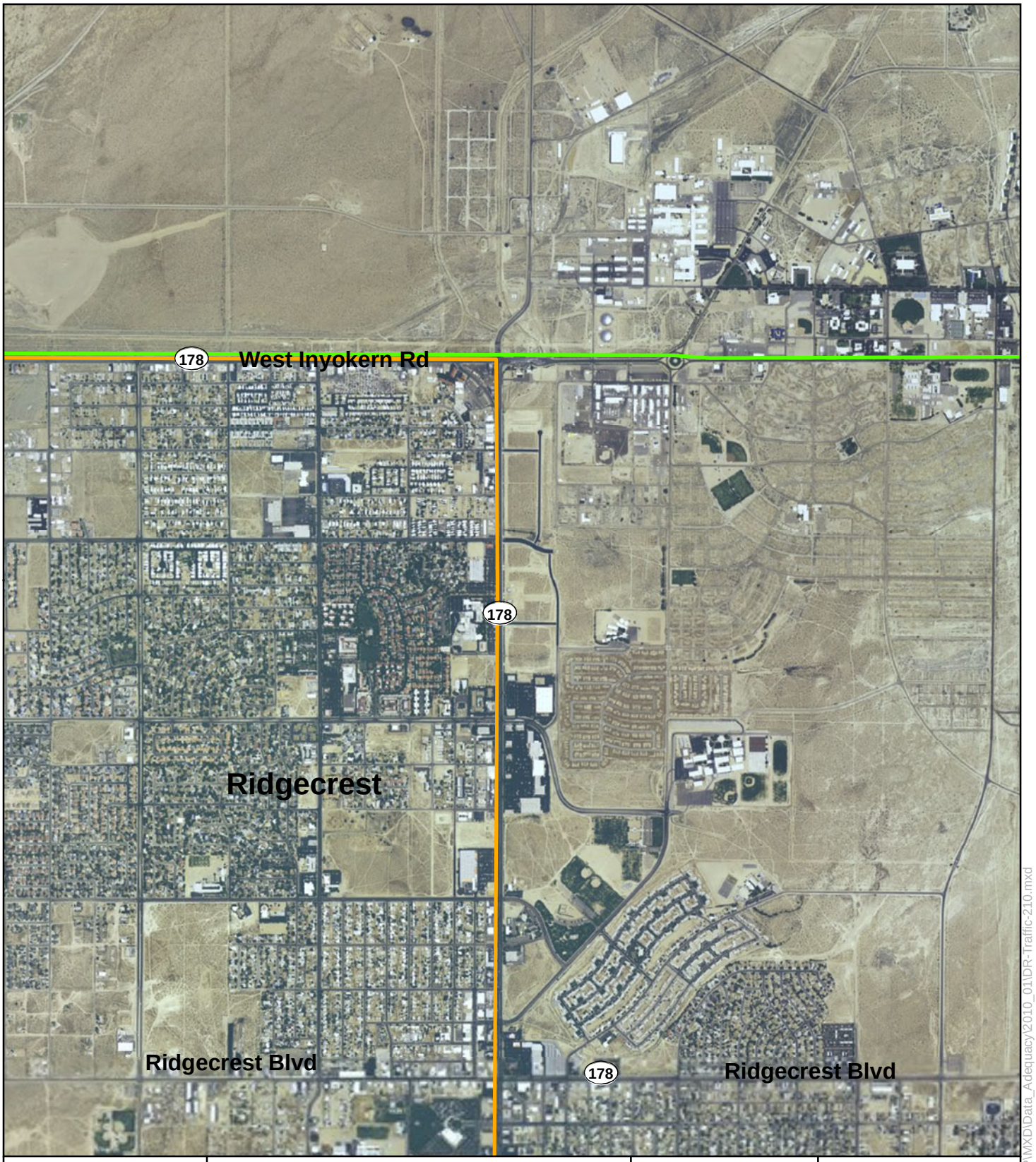

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- School Bus Route
- Regional Transit Route
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1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N W E S

Ridgecrest Solar Power Project

Figure DR - Traffic - 210

Map Sheet 12 of 12

Solar Millennium

AECOM

Date: January 2010

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Attachment DR-TRAFFIC-205

Traffic Study

TRAFFIC AND TRANSPORTATION STUDY

For:

Ridgecrest Solar Power

Prepared for:

AECOM

Prepared by:

Wilson engineering

September, 2009

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1.0 Introduction/ Summary

This report has been prepared to assess the potential impacts to the transportation system due to activities associated with construction and operation of the Ridgecrest Solar Power Project (RSPP or Project). The report addresses applicable laws, ordinances, regulations and standards (LORS); describes the existing transportation system (vehicular, rail, and air) and current traffic conditions; evaluates potential Project impacts; and identifies mitigation measures that would avoid, minimize, or compensate for adverse impacts.

The traffic and transportation resources discussion presented in the following pages is intended to support compliance by the California Energy Commission (CEC) with the requirements of the California Environmental Quality Act (CEQA), and by the Bureau of Land Management (BLM) with the requirements of the National Environmental Policy Act (NEPA). The two agencies are conducting a joint review of the Project and a combined CEQA/NEPA document will be prepared.

1.0 Summary

Construction will involve a work force of approximately 405 workers average monthly (633 workers peak) whose commuting vehicles will increase traffic volumes on U.S. Highway 395, Brown Road, and China Lake Boulevard, the primary access routes to the site vicinity. All roadways are forecast to continue operating at their existing traffic flow conditions with no Project impacts on Level of Service (LOS) during peak Project construction activity. However, the intersection of U.S. Highway 395 with South China Lake Boulevard and Brown Road potentially could be impacted during peak construction periods. To mitigate this, the Applicant will implement measures to reduce the volume of workers arriving at the work site at the same time, such as temporarily staggered work shifts or approaches such as contractor-required van pools, car pools, shuttle buses, park and ride, etc. This will allow the westbound approach to operate at an LOS C or better during periods of peak construction activity. Because of the moderate size work force of 84 people associated with plant operation around the clock, traffic impacts will be minimal during Project operations.

The proposed construction schedule for the Project is not expected to overlap with other large construction projects in the area. Traffic volume forecasts assumed other cumulative traffic influences, such as increases in traffic that may result from the proposed Wal-Mart, growth from BRAC realignment, and continued development both locally and regionally. Even when considering these factors, the Project is forecast to not contribute significantly to potential cumulative impacts on U.S. Highway 395 traffic in the Project vicinity. Subject to Kern County and Caltrans encroachment permits, acceptable access-related improvements and traffic management measures will be designed and implemented.

2.0 Existing Setting

The following section describes traffic related access and circulation in the project area including a description of facilities and current operating conditions.

2.0 Regional Setting

The Project site is located southwest of U.S. Highway 395 on the north and south sides of Brown Road, approximately 4.5 miles southwest of Ridgecrest, California. Regional access is provided to the Project site and the surrounding Ridgecrest area by U.S. Highway 395 (Figure 5.13-1). U.S. Highway 395 is a primary north/south regional arterial that extends northerly along the eastern side of the Sierra Nevada Mountain Range to Bishop. It extends southerly to I-15 approximately 10 miles south of Victorville. In the Project vicinity, U.S. Highway 395 is a two-lane facility with two, 12-foot travel lanes with approximately

6-foot paved shoulders and 6- to 8-foot graded shoulders on each side. The site is linked to U.S. Highway 395 via Brown Road, an existing two-lane paved road, approximately 24-feet wide, with variable graded shoulders from 4 to 10 feet on each side.

Additionally, the Project can be accessed from West Inyokern Road (SR-178), which extends westerly from the City of Ridgecrest as a four lane road to Inyokern and crosses Brown Road approximately nine miles north of the Project site. Between Ridgecrest and Brown Road, SR-178 is about 72 feet wide, including an approximately 24-foot wide unpaved median strip. It typically includes 4-foot paved shoulders with an additional 4-foot graded shoulder on each side. SR-178 is the northern-most boundary of the city of Ridgecrest.

2.1 Local Setting

As described above, regional access to the Ridgecrest area is limited to U.S. Highway 395 and SR-178. Circulation in the surrounding area other than these two facilities typically has a more rural characteristic, consisting of what are sometimes unpaved local roadways extending east and west from U.S. Highway 395.

The Project site is split by Brown Road, which extends westerly and northerly from U.S. Highway 395 through the Project site and finally intersects SR-178 approximately nine miles to the north. The intersections of Brown Road with U.S. Highway 395 and SR-178 are both at-grade with the Brown Road approaches controlled with stop signs. At U.S. Highway 395, the intersection is configured with four legs. The fourth leg is South China Lake Boulevard which extends northeasterly into the City of Ridgecrest. This intersection is currently controlled with stop signs on the South China Lake Boulevard and Brown Road approaches. There is a free-running right turn lane from northbound U.S. Highway 395 to eastbound South China Lake Boulevard. South China Lake Boulevard is a two-way facility with a 12-foot lane in each direction, and with 4-foot paved shoulders and 4- to 6-foot graded shoulders on each side.

The Project Site is approximately equally split north and south of Brown Road. The construction lay-down area will be north of Brown Road, on the edge of the site. The power block and parking lot will be on the south side of Brown Road on the westerly edge of the site.

2.2 Roadway Operating Characteristics

Existing daily traffic volumes on roadways providing access to the site are summarized below. The volumes on U.S. Highway 395 and SR-178 are from Caltrans and represent Year 2007 Average Annual Daily Traffic (AADT) volumes or the annual average of 24-hour volumes. U.S. Highway 395 currently accommodates an AADT of approximately 2,950 vehicles north of Brown Road and 4,700 to the immediate south. SR-178 currently accommodates an AADT of approximately 7,100 vehicles west of U.S. Highway 395 and 7,500 to the immediate east.

Use of the roadways is subject to the California Vehicle Code and vehicles without special permits are required to be no more than 60 feet long with a gross vehicle weight limitation of 80,000 pounds. A semi truck (tractor and semi-trailer) can have a maximum length of 65 feet. A set of doubles (tractor and two trailers) can have a maximum length of 75 feet.

Existing and future roadway operations have been characterized using a peak hour LOS analysis. LOS provides a standardized means of describing a roadway or an intersection's operation by relating traffic volumes to facility capacity. LOS is identified through a letter designation. As shown in Table 4, LOS range from A, representing the best conditions (free flow) to F, representing the worst (most congested) conditions.

Table 1 Level of Service Description for Roadway Sections

LOS	Interpretation	Nominal Range Volume to Capacity Ratio	Average Vehicle Delay at a Stop Controlled Approach
A	Low volumes; primarily free-flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers can maintain their desired speeds with little or no delay.	0.00 - 0.60	0 - 10
B	Stable flow with potential for some restriction of operating speeds due to traffic conditions. Maneuvering is only slightly restricted. The stopped delays are not bothersome, and drivers are not subject to appreciable tension.	0.61 - 0.70	> 10 - 15
C	Stable operations; however, the ability to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signed coordination or longer queues cause delays.	0.71 - 0.80	> 15 - 25
D	Approaching unstable traffic flow, where small increases in volumes could cause substantial delays. Most drivers are restricted in their ability to maneuver and in their selection of travel speeds. Comfort and convenience are low but tolerable.	0.81 - 0.90	> 25 - 35
E	Operations characterized by significant approach delays and average travel speeds of one-half to one-third free-flow speed.	0.91 - 1.00	> 35 - 50
F	Forced flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.	Not Meaningful	> 50
Source: Transportation Research Board, 1985, 2000.			

Existing and Baseline Year 2011 peak hour traffic volumes on roadways potentially accommodating Project-related traffic are summarized in Table 5, together with approximate capacities and LOS. The LOS presented is based on existing ratios of traffic volumes to vehicle capacity. Year 2011 is when the Project is expected to generate peak amounts of construction related traffic and associated worst-case traffic related impacts (month 11 after starting in November 2010). The Baseline Year 2011 traffic volume forecasts assume continued growth in the surrounding area commensurate with 2000 to 2007 growth levels.

Table 2 Baseline Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service (Without the Project)

Roadway/ Segment	Existing Conditions[1]				Year 2011 Base Conditions[2]			
	Travel Lanes	Volume	Capacity[3]	LOS	Travel Lanes	Volume	Capacity[3]	LOS
U.S. Highway 395 North of Brown Road	2	410[1]	2,000	A	2	508	2,000	A
U.S. Highway 395 South of Brown Road	2	660[1]	2,000	A	2	818	2,000	A
SR-178 West of U.S. Highway 395	4	750[1]	6,800	A	4	774	6,800	A
SR-178 East of U.S. Highway 395	4	820[1]	6,800	A	4	846	6,800	A
Brown Road West of U.S. Highway 395	2	14[4]	2,000	A	2	15[5]	2,000	A
China Lake Boulevard East of U.S. Highway 395	2	212[4]	2,000	A	2	219[5]	2,000	A

1 Caltrans, 2009
2 Year 2007 traffic volumes expanded to Year 2011 (estimated point of peak construction activity) at historical rates of Year 2000 to 2007 (0.8 to 6.0 percent/year dependent upon location).
3 Approximate two-way capacity in vehicles per hour

Table 6 shows that majority of roadways in the Project vicinity currently operate at LOS A (free flow). The table also shows that roadways are forecast to operate at similar, primarily free flowing conditions under Baseline Year 2011 conditions. All approaches of the intersection of Brown Road/U.S. Highway 395/ China Lake Boulevard currently operate at a LOS A/B during both the morning and evening peak commute periods and are forecast to continue to do so under Base Year 2011 conditions as indicated in Table 6.

Table 3 Existing and Baseline Peak Hour Intersection Levels of Service (Without the Project)

Intersection	Existing Conditions[1]				Year 2011 Base Conditions[2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay[3]	LOS	Delay[3]	LOS	Delay[3]	LOS	Delay[3]	LOS
U.S. Highway 395/Brown Road/China Lake Boulevard								
Westbound China Lake	10.0	A	10.0	A	10.2	B	10.3	B
Eastbound Brown	10.2	B	9.5	A	10.2	B	9.6	A

1 Wilson Engineering, May 2009
2 Year 2009 traffic volumes expanded to Year 2011 (estimated point of peak construction activity) at historical rates Year 2000 to 2007
3 Average Vehicle Delay in seconds.

As described earlier, the regional roadway network serving the Project site is effectively limited to the State highway network. In the Project vicinity, Caltrans traffic counts on U.S. Highway 395 show approximately 13 percent of the traffic stream consists of trucks. Similarly, approximately 35 percent of the traffic stream on SR-178 near U.S. Highway 395 is trucks.

2.3 Safety

No roadway features have been identified as potential safety hazards in the Project vicinity. U.S. Highway 395 is fully improved with one lane in each direction, with paved and graded shoulders on each side. Brown Road is a paved road with one lane in each direction and graded shoulders on either side. Caltrans actively monitors traffic operations and accident histories on U.S. Highway 395. However, the Applicant will work with Caltrans to install traffic signals at the intersection of U.S. Highway 395 and Brown Road/China Lake Boulevard in order to improve traffic safety through this intersection. Additional measures, such as advance signs with flashing lights warning of signals ahead on U.S. Highway 395, might be appropriate.

2.4 Rail and Bus Transportation

Regionally, the area has an extensive railroad network operated by Union Pacific and Burlington Northern and Santa Fe (BNSF), with major yards at Barstow and Colton. The Union Pacific mainline section extends northerly from Los Angeles County adjacent to SR-14 to Mojave where it intersects the BNSF mainline tracks extending westerly from Barstow. The mainline continues northerly and westerly over the Tehachapi Pass to Bakersfield and then turns north up the Central Valley. Union Pacific's Lone Pine Branch extends north from the mainline in Mojave toward Trona and Lone Pine (Figure 1). The Lone Pine Branch is single tracked and accommodates approximately four trains per day.

The nearest siding for offloading materials or equipment is located in the community of Mojave. It will be utilized during Project construction for the delivery of several pieces of major power generation equipment, which will then be transported by truck to the Project site.

There is no regional passenger railroad transportation in the immediate Project area. The nearest national rail passenger transportation is an Amtrak Station in Tehachapi to the southwest, which connects with Bakersfield to the west and Barstow to the east.

Regional transit service in the area is provided by Kern Regional Transit with the Mojave-Ridgecrest Route. Service is provided between the communities of Ridgecrest, Inyokern, California City and Mojave with two trips per day on Monday, Wednesday and Friday. Passengers may transfer to the CREST route, operated by the Eastern Sierra Transit Authority in Inyokern, or they can transfer to other regional carriers in Mojave.

The City of Ridgecrest together with Kern Regional Transit is operating an intercity public transit service from Ridgecrest through California City to Mojave. The Inyo-Mono County bus service now connects with the Kern regional transit system in Ridgecrest.

The City of Ridgecrest operates a dial-a-ride system in the Greater Ridgecrest Area as well as contracts for dial-a-ride, on a reservation basis only, to Randsburg and the Inyokern area. Currently, there is no fixed route system in Ridgecrest.

There is no national bus service (Greyhound or other) in Ridgecrest. The nearest Greyhound stations are in Mojave to the south, Bakersfield to the southwest, and Barstow to the southeast.

2.5 Bicycle and Pedestrian Circulation

No bicycle or pedestrian facilities are located in the Project vicinity. Bicycle and pedestrian circulation is currently limited to shoulder areas of rural U.S. Highway 395, SR-178, Brown Road and China Lake Boulevard.

2.6 Airport Operations

Six airport facilities are located in the general vicinity of the Project site: the California City Municipal Airport, the Inyokern Airport, the Trona Airport, the Mojave Air and Space Port, Edwards Air Force Base (AFB); and China Lake Naval Air Weapons Station (NAWS). The location and general characteristics of these aircraft facilities are described briefly below.

California City Municipal Airport

The California City Municipal Airport is located at 22636 Airport Way in California City, approximately 31 miles south of the Project site. The airport is open to the public and operations average 102 flights per day, of which 67 percent are transient general aviation and 33 percent are local general aviation. The airport has two runways which are 6,029 feet and 1,837 feet in length, respectively (California City 2008).

Inyokern Airport

The Inyokern Airport is located at 1669 Airport Road in Inyokern about 10 miles northwest from the Project. Inyokern Airport is open to the public and covers an area of 1,640 acres containing three paved runways ranging in length from 4,150 feet to 7,100 feet. For the 12-month period ending April 30, 2007, the airport reported 39,632 aircraft operations with an average of 108 per day. Of these, 86 percent were general aviation, 6 percent air taxi, 5 percent commercial and 3 percent military. At that time, there were 120 aircraft based at this airport, including several jets.

Trona Airport

The Trona airport is located in Trona, about 20 miles northeast from the Project. The Trona Airport is open to the public and has a single asphalt-paved runway (5,930 feet) and a helipad.

Mojave Air and Space Port

The Mojave Air and Space Port (formerly Mojave Airport) is located at 1434 Flight Line in Mojave approximately 42 miles southwest of the Project site. The Mojave Air and Space Port serves as an aircraft storage facility as well as providing facilities for aerospace testing and commercial and civilian flight. Numerous large aircraft owned by major airlines are stored onsite. Some aircraft reach the end of their useful lifetime and are scrapped at Mojave while others are refurbished and returned to active service. The Mojave Air and Space Port is served by three runways of length 3,943 feet, 7,050 feet, and 12,500 feet, respectively, and is the home of the National Test Pilot School.

Edwards Air Force Base

Edwards AFB is located on 301,000 acres in the Mojave Desert approximately 45 miles south of the Project site. Edwards AFB has 19 runways--three are paved and the other 16 are located on a dry lakebed within the base. The base is home to the Air Force Flight Test Center, the 412th Test Wing, and the 95th Air Base Wing. A vast array of test and test support aircraft are currently assigned to Edwards AFB flying test missions that evaluate everything from airframe structures and propulsion to avionics and electronic warfare. The 412th Test Wing at Edwards AFB maintains and flies an average of 90 aircraft, with upwards of 30 different aircraft designs, and performs over 7,400 missions (over 1,900 test missions) on an annual basis.

China Lake NAWS

China Lake NAWS, located near the city of Ridgecrest in the northeast Mojave Desert, approximately six miles northeast of the Project site, is an airborne weapons testing and training range operated by the United States Navy and its contractors. China Lake NAWS, situated on 1.1 million acres, has been in use since 1943. The main airfield, Armitage Field, has three runways of length 9,993 feet, 9,013 feet, and 7,702 feet, respectively.

R-2508 Special Use Airspace Complex

The R-2508 Complex encompasses 20,000 square miles within Inyo, Kern, San Bernardino, and Tulare Counties. It includes all the airspace and associated land presently used and managed by the three principal military activities in the Upper Mojave Desert region:

- Air Force Flight Test Center, Edwards AFB;
- National Training Center, Fort Irwin; and
- China Lake NAWS.

The R-2508 Complex is composed of internal restricted areas, Military Operations Areas, Air Traffic Control Assigned Airspace areas, and other special airspace. Use of these areas includes bombing ranges, supersonic corridors, low-altitude high-speed maneuvers, radar intercept areas, and refueling areas.

The State Planning and Zoning Law, includes the provisions of Senate Bill (SB) 1462, adopted in 2005, that require the military to be notified of any land use proposal located within 1,000 feet of a military installation, within special use airspace, or beneath a low level flight path. To aid in the implementation of SB 1462, the California Office of Planning and Research has drafted the R-2508 Joint Land Use Study (JLUS) to address land use issues for the R-2508 Complex.

According to the R-2508 JLUS, the Project site is located within a restricted area R-2506, a designation within the R-2508 area. Thus, the Project is within a “special use airspace” designation and beneath a “low level flight path” area. These designations require that an evaluation of land use compatibility be conducted pursuant to sections 65352, 65940, and 65944 of the California Government Code, which include the provision for consultation among the project applicant, public agency(ies), and the affected military branch(es).

3.0 Potential Impacts

This section discusses the potential impacts of the Project on traffic and transportation. The impact of the Project is measured by the potential change in traffic and transportation conditions of surrounding intersections and U.S. Highway 395.

3.0 Evaluation Methodology and Significance Criteria

For purposes of this evaluation, impacts are considered significant if the Project would:

- Cause an increase in vehicular traffic that is substantial in relation to the existing traffic load and capacity of the street system;
- Reduce a roadway segment or intersection LOS below acceptable levels, as defined below:
  - Kern County’s target for peak hour operations on County roads is LOS D or better and LOS C or better on State highways. A significant Project-related impact occurs if the addition of project-generated trips causes a County facility (roadway segment or intersection) operating at LOS D or better, to degrade to LOS E or worse or for a State facility operating at an LOS C or better, to degrade to LOS D or worse.
  - The Kern County CMP (Congestion Management Program) indicates a significant impact occurs when a County facility currently operating at an LOS D or better degrades to LOS E or F.
- The Project adversely affects traffic circulation and parking conditions in neighboring areas because of inadequate onsite parking and/or inadequate onsite circulation.

3.1 Construction Phase Impacts

Project site access will be provided via new driveway/access roads extending northerly and southerly from Brown Road. Construction of the Project would be completed over an approximately 28-month period. The Project construction work force will peak during Month 11 at approximately 633 workers per day and average approximately 405 workers over the course of construction. Construction of the transmission line is expected to require a limited crew with less than 30 workers during peak periods. The construction of the transmission line is scheduled to extend from Month 7 to Month 12 and will potentially overlap the peak of plant site construction employment. However, during Month 11, when the overall project workforce will peak, there will be a negligible amount of traffic associated with the transmission line construction (fewer than five vehicles).

A worst-case scenario, where all workers commute in automobiles with only one occupant per vehicle, yields a peak trip generation of approximately 633 inbound trips during the morning peak period and another 633 outbound trips during the evening peak hour. Under this worst-case scenario, there would be a peak of 1,266 one-way worker commute trips per day and an average of 1,204 one-way trips per day. Construction is also forecast to generate an average of approximately 100 one-way truck trips per day with a peak of approximately 140 one-way truck trips per day worst case; the peak truck travel would be during plant site foundation construction (Month 8) and would not coincide with the peak onsite worker commute time frame (Month 11).

A temporary parking area of approximately 5.5 acres would be required for construction personnel parking (assuming 350 square feet per vehicle) with additional area required for the staging/laydown of equipment, materials, and supplies. The Project will include onsite laydown and parking areas during construction, which will be relocated around the site as construction progresses. An additional pull-off lane would be constructed on Boron Road.

It is anticipated that the Project construction workforce will be drawn from the surrounding local and regional area, including from Barstow, Boron, Mojave and Tehachapi. However, the single largest source of workers is forecast to be the greater Ridgecrest area, even if only on a temporary basis. The majority of skilled workers travelling considerable distances (e.g., from the Palmdale, Lancaster or Victorville areas) are expected to stay in the Ridgecrest/Inyokern area in either motels or RVs during the week. Traffic approaching from Ridgecrest itself will generally follow China Lake Boulevard westerly across U.S. Highway 395 to Brown Road and continue westerly on Brown Road to the site. However, some traffic is forecast to follow U.S. Highway 395 southerly to Brown/China Lake Boulevard and then follow Brown Road westerly into the site. Traffic from the Boron/Barstow area is expected to follow U.S. Highway 395 north to Brown Road and into the site. Traffic from the Mojave/Lancaster/Palmdale and Tehachapi areas and points south will generally follow SR-14 north to SR-178 (West Inyokern Road) and then Brown Road southerly to the site.

Table 7 and Table 8 summarize existing and Baseline Year 2011 plus Project construction-related peak hour traffic volumes on U.S. Highway 395 and Brown Road. Peak construction traffic is forecasted to have a limited impact on surrounding roadways. U.S. Highway 395 is forecasted to continue operating acceptably. During the same construction periods, eastbound Brown Road is forecasted to continue operating at an LOS B during both the morning and evening commute periods. Similarly, Baseline Year 2011 LOS on SR-178, U.S. Highway 395, Brown Road, and China Lake Boulevard is forecasted to remain unchanged with the addition of peak construction traffic. However, the westbound approach of China Lake Boulevard would be at LOS E during the morning peak commute period at peak construction. Measures to reduce the peak arrival volumes should be considered, such as temporarily splitting the work shift to have two start times one hour apart. Other approaches could be considered such as requiring contractors to arrange employee busing, park and ride, carpooling, etc. that achieve similar substantial reductions in peak Project traffic. The Applicant will work with Caltrans to signalize the intersection, which will also help mitigate any potential impacts and improve traffic safety.

Table 4 Existing Plus Project Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service

Roadway/ Segment	Year 2011 Base Conditions[1]				Year 2011 Base plus Peak Construction Traffic Conditions[2]			
	Travel Lanes	Volume	Capacity[3]	LOS	Travel Lanes	Volume	Capacity[3]	LOS
U.S. Highway 395 North of Brown Road	2	508	2,000	A	2	540	2,000	A
U.S. Highway 395 South of Brown Road	2	818	2,000	A	2	945	2,000	A
SR-178 West of U.S. Highway 395	4	774	6,800	A	4	940	6,800	A
SR-178 East of U.S. Highway 395	4	846	6,800	A	4	910	6,800	A
Brown Road West of U.S. Highway 395	2	15	2,000	A	2	458	2,000	A
China Lake Boulevard East of U.S. Highway 395	2	219	2,000	A	2	503	2,000	A

1 Year 2007 traffic volumes expanded to Year 2011 (estimated point of peak construction activity) at historical rates of Year 2000 to 2007 (0.8 to 6.0% per year dependent upon location).

2 Year 2011 Month 11 Peak Workforce of 633 People

3 Approximate two-way capacity in vehicles per hour

Table 5 Existing Plus Project Peak Construction Peak Hour Intersection Levels of Service

Intersection	Base Year 2011 with 633-Person Workforce Arriving at Same time[1]				Base Year 2011 with Peak Hour Volume Reduced by ~50%			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay[2]	LOS	Delay[2]	LOS	Delay[2]	LOS	Delay[2]	LOS
U.S. Highway 395/Brown Road/China Lake Blvd.								
Westbound China Lake	40.4	E	18.9	C	21.4	C	18.5	C
Eastbound Brown	12.5	B	12.2	B	12.5	B	12.0	B

1 Year 2009 traffic volumes expanded to Year 2011 (estimated point of peak construction activity) at historical rates Year 2000 to 2007.

2 Average Vehicle Delay in seconds.

Project construction will involve transport to the site of several pieces of equipment that exceed roadway load or size limits and will require special permits for on-road transport. The maximum allowable load without a special permit is 80,000 pounds. Oversized equipment includes the steam turbine generator and main transformers. These items will likely be shipped by rail to Mojave or Barstow and then transported by truck to the Project plant site as described earlier. The equipment would be transported via multi-axle trucks along U.S. Highway 395 to Brown Road and into the site. Transport of this equipment will likely require the use of a truck and trailer with multiple axles, and advance and trailing warning vehicles. The moving contractor will be required to file for and obtain a permit from Caltrans following the determination of the size of the truck and configuration of the axles.

Overall, transportation impacts associated with construction of the Project should not be significant for the following reasons:

- U.S. Highway 395 has sufficient capacity to accommodate peak construction crews while continuing to operate at an LOS A during the morning and evening commute periods.
- The Applicant will take measures to reduce the number of workers arriving at the work site at the same time by measures such as staggered work shifts, or other methods such as contractor-required van pools, car pools, park and ride, etc. This will allow the westbound approach to operate at an LOS C or better during periods of peak construction activity.
- The requirements to obtain special permits to move oversize or overweight materials and equipment to and from the site would ensure use of proper vehicles, scheduling, routes, and escorts to minimize impacts.
- No bike lanes are currently present in the Project area that could be impacted by construction traffic.

3.2 Project Operation Impacts

Project operations will generate small amounts of vehicular traffic. The Project operation phase workforce is estimated at a total of 84 workers, who will cover operations on a 24 hour/seven days per week basis (e.g., peak hour weekday traffic will be less than 60 vehicles even if every employee commutes alone in their own vehicle). Existing-plus-Project operations traffic volumes will not alter existing roadway LOS and will not have significant impacts on roadway operations.

Project operations will also involve truck traffic for the delivery of materials and supplies as well as for other purposes such as the offsite shipment of wastes. Approximately three truck trips per day are expected including offsite shipments (e.g., solid waste) and deliveries of materials and supplies. An additional two deliveries of propane will also occur weekly. These volumes would not affect the LOS on roadways in the Project vicinity.

Project truck travel will include approximately a delivery every two months of hazardous materials (tanker trucks delivering Solar Field Heat Transfer Fluid). A separate Hazardous Materials report, describes the types and estimated quantities of hazardous materials to be transported to or from the Project. It is expected that hazardous materials shipments will utilize U.S. Highway 395 to access the Project site. Hazardous materials shipments will comply with applicable regulations in terms of route selection, operator training and qualifications, etc.

Transportation impacts associated with operation of the Project would not be significant for the following reasons:

- The Project will generate a maximum of 84 employee commute trips per day spread over a 24-hour period. As indicated in Tables 5 and 6, surrounding roadways are currently operating and are forecast to continue to operate well below capacity. The addition of operations traffic to the existing roadway network will not alter existing or future roadway operating characteristics (LOS).
- Truck travel and other non-employee site visits will be very limited and will typically occur during non-peak periods.
- Project design will not impact the ability to provide bike lanes anywhere in the future and Project traffic levels would not have significant adverse impacts on bike lanes that might be developed.

3.3 Potential Impacts on Aircraft Operations

This section addresses the potential impacts of Project operations on aircraft operations in the Project vicinity.

There are six airports located in the general vicinity of the Project site: the California City Municipal Airport, the Inyokern Airport, the Trona Airport, the Mojave Air and Space Port, Edwards AFB; and NAWS China Lake. Project operations potentially could cause concern with respect to aircraft flight operations in a number of ways, as listed immediately below and discussed individually further below:

- Project facility structures (e.g., transmission towers or cooling tower) conceivably could produce a hazard to low flying aircraft if the structures extending into restricted airspace;
- Project transmission lines or facility control systems' use of specific electronic frequencies potentially could cause concerns with respect to interference with aircraft communications or avionics; and
- The solar collector mirrors might be considered a potential source of glare, resulting in visual distraction to pilots.

Structure Height and Potential Air Space Obstruction

The maximum structure height for proposed Project facilities is approximately 120 feet and, as discussed in a separate Land Use repport, the Applicant has consulted with the Department of Defense (DoD) and has confirmed that Project structures comply with military air space requirements as described in FAA Advisory Circular No. 70/460-2K and the CFR.

Transmission Line Interference Potential

Transmission line interference affecting aircraft communications or avionics would be considered a hazard to aircraft operations. Transmission line-related radio-frequency interference (RFI) is one of the indirect effects of transmission line operation and is produced by the physical interactions of line electric fields. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge and can occur within gaps between the conductor and insulators or metal fittings. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines.

The level of RFI that occurs usually depends on the magnitude of the electric fields involved and the distance from the line. The potential for such impacts is, therefore, minimized by reducing the line electric fields and locating the line away from inhabited areas. The Project transmission line would be built and maintained in keeping with standard practices that minimize surface irregularities and discontinuities. Moreover, the potential for such corona-related interference is usually of concern for lines of 345 kV and above, and the Project line will be a 230-kV line. There is currently no available information to suggest that such issues have arisen from the operation of existing transmission lines in the general Project vicinity. Because only approximately 0.5 mile of new transmission line is needed for the Project and only 300 feet of the line would be outside the plant site boundary, it is reasonable to assume that no adverse effects would be generated by the Project.

Impacts on aviation safety would be less than significant. The Proponent will ensure that use of the electronic spectrum by the Project will not interfere with DoD activities. As discussed in Section 2.0, Project Description, the Proponent will provide information on planned use of the electronic spectrum at project facilities to the DoD, and as needed, the Proponent will modify the facility's planned frequency use based on the feedback provided by DoD.

Solar Collector Visual Distraction Potential

The Project will use solar thermal equipment comprised of arrays of parabolic trough mirrors. Each solar collector mirror is parabolic in shape and focuses the sun's energy on the glass-encased metal receiver tube containing the heat transfer fluid, thus limiting the potential for stray reflections. The receiver tube

may glow as the reflected sun rays enter the collector. The reflections from the curved surface of the receiver tube are greatly diminished in intensity from those that would be associated with a reflection of the sun in a mirror. These reflections are similar to the reflections one would observe from a body of water with waves on it if the viewer is in the right spot. The glow could be observed by a pilot if the aircraft were positioned at the right angle above the array, but it would not be a bright source of glare.

The Solar Electric Generating Station (SEGS) power plants in the Mojave Desert at Harper Lake and Kramer Junction have been operating since the 1980's and thus provide a reference for the issue of potential glare impacts to pilots. In the nearly 20 years that the SEGS facilities have been in operation, glare has not been reported as a distraction to pilots. As an additional data point, on October 4, 2007, Caltrans Aeronautics and CEC staff flew over the Kramer Junction and Harper Lake solar thermal facilities during a sunny mid-morning at about 1,500 feet above ground level and no glare was observed, although from a distance of 4 miles the solar facility appeared to be a lake or pond and reflected some sunlight.

Given this history of aircraft operations in the vicinity of nearby existing solar thermal power plants and no recorded aviation safety issues, it is not expected that the Project solar collectors will cause adverse effects on aviation operations in the Project vicinity.

3.4 Cumulative Impacts

Table 9 and Table 10 include Cumulative Year 2014 peak hour traffic forecasts for major roadways and intersection LOS in the Project vicinity; these forecasts assume continued development and growth in traffic volumes consistent with growth rates experienced on U.S. Highway 395 in the Project vicinity between 2000 and 2007. This continued development includes growth within the communities of Ridgecrest and Inyokern as well as increases in background through- or regional traffic. Increases in traffic may result from the proposed Wal-Mart Superstore, growth from BRAC realignment, and continued development both locally and regionally. In 2014, construction of the Project will be complete and the facility will have been operational for approximately one year.

Table 9 shows Baseline Year 2014 peak hour traffic forecasts for U.S. Highway 395 and projected traffic generated by operation of the Project. A comparison of the two scenarios demonstrates that the Project would not contribute significantly to potential cumulative impacts on U.S. Highway 395 traffic in the Project vicinity. Because of low current traffic volumes, significant cumulative traffic effects would not occur when also considering traffic volumes associated with continued local and regional growth. Review of Table 10 shows the same at the intersection of U.S. Highway 395 with Brown Road and China Lake Boulevard. The intersection is forecast to continue operating well (LOS B) in 2014 regardless of Project operation. The Project's impacts would not be cumulatively considerable.

Table 6 Cumulative Year 2014 Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service

Roadway/ Segment	Cumulative Year 2014 Conditions[1]				Cumulative Year 2014 plus Project Operations Traffic[2]			
	Travel Lanes	Volume	Capacity[3]	LOS	Travel Lanes	Volume	Capacity[3]	LOS
U.S. Highway 395 North of Brown Road	2	564[1]	2,000	A	2	568	2,000	A
U.S. Highway 395 South of Brown Road	2	908[1]	2,000	A	2	912	2,000	A
SR-178 West of U.S. Highway 395	4	792[1]	6,800	A	4	794	6,800	A
SR-178 East of U.S. Highway 395	4	866[1]	6,800	A	4	866	6,800	A
Brown Road west of U.S. Highway 395	2	15[1]	2,000	A	2	71	2,000	A
China Lake Boulevard East of U.S. Highway 395	2	224[1]	2000	A	2	270	2,000	A

1 Year 2007 traffic volumes expanded to Year 2014 (estimated point of peak construction activity) at historical rates of Year 2000 to 2007 (0.8 to 6.0% per year dependent upon location). This scenario reflects cumulative effects of completion of the cumulative projects identified in Section 5.1.

2 Year 2014 Project operational for a year.

3 Approximate two-way capacity in vehicles per hour.

Table 7 Baseline 2014 and Baseline Plus Project Operations Peak Hour Intersection Levels of Service

Intersection	Base Year 2014 [1]				Base Year 2014 with Project Operational[2]			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay[3]	LOS	Delay[3]	LOS	Delay[3]	LOS	Delay[3]	LOS
U.S. Highway 395/Brown Road/China Lake Boulevard								
Westbound China Lake	10.4	B	10.4	B	11.1	B	10.9	B
Eastbound Brown	10.1	B	9.7	A	10.1	B	10.0	B

1 Year 2009 traffic volumes expanded to Year 2014 (estimated point of peak construction activity) at historical rates Year 2000 to 2007. This scenario reflects cumulative effects of completion of Wal-Mart, BRAC etc

2 Assumes project fully operational in Year 2014.

3 Average Vehicle Delay in seconds.

4.0 Mitigation Measures

Although no significant adverse traffic or transportation impacts are expected during Project construction or operation, the following measures are proposed to minimize potential adverse but non-significant impacts during Project construction. No mitigation measures are required or proposed during Project operations.

TR-1 The Project owner will develop and implement a construction phase Traffic Management Plan (TMP) in consultation with Caltrans and Kern County for the roadway network potentially affected by construction activities at the plant site and offsite linear facilities.

TR-2 The Project owner will conduct construction activities in accordance with Caltrans and other applicable limitations on vehicle sizes and weights, Construction Excavation Permits obtained from the Kern County, Encroachment Permits from Caltrans, as well as permits and licenses from the California Highway Patrol and Caltrans for the transport of hazardous substances.

TR-3 The Project owner will split the arrival of the workforce in the morning into two parts arriving one hour or more apart when the total number of workers on site will exceed 300.

5.0 References

California Department of Transportation (Caltrans). 1996. Traffic Manual.

Caltrans. 2007. Traffic Volumes on California State Highways.

Kern County General Plan, Circulation Element.

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Taylor, Damon, Permits Office, Kern County Roads Department. Personal communication, Milan Gill, Wilson Engineering, May 26, 2009.

Transportation Research Board, 1994, 1997, 2000. Highway Capacity Manual, Special Report 209, Washington D.C.

Winzenread, Stephen, Permits, California Department of Transportation (Caltrans) Personal communication, Milan Gill, Wilson Engineering. April 17, 2009.

6.0 Appendices

6.1 Traffic Counts

WILTEC

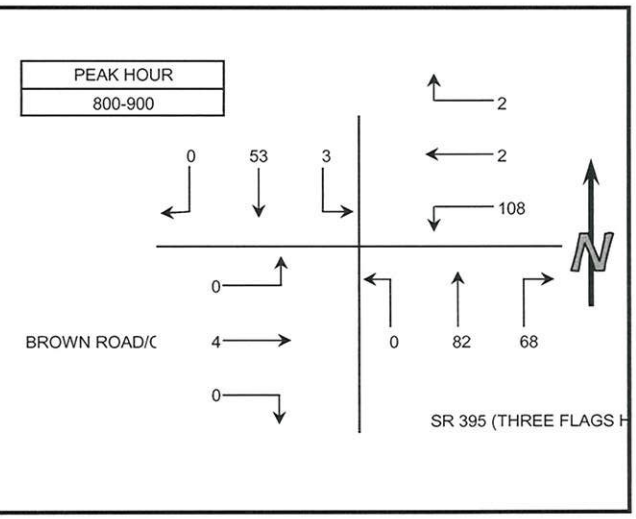
Phone: (626) 564-1944 Fax: (626) 564-1944 E-mail: info@wiltecusa.com

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: WILSON ENGINEERING
PROJECT: RIDGECREST TRAFFIC COUNTS
DATE: THURSDAY MAY 7, 2009
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S SR 395 (THREE FLAGS HIGHWAY)
E/W BROWN ROAD/CHINA LAKE BOULEVARD
CITY: RIDGECREST

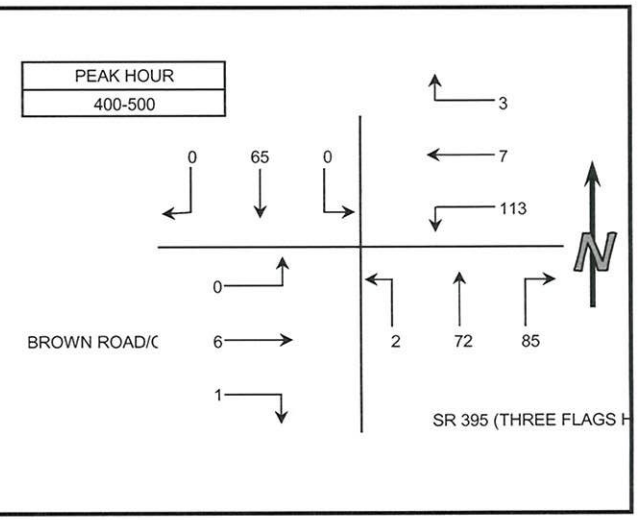
15 MIN COUNTS — 7:00 AM TO 9:00 AM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	5	0	1	3	19	8	8	0	0	0	0	44
715-730	0	6	0	0	6	13	13	21	1	0	0	0	60
730-745	0	4	3	1	1	20	12	16	0	0	1	0	58
745-800	0	12	0	0	0	20	26	22	0	0	2	0	82
800-815	0	13	0	1	0	28	11	11	0	0	2	0	66
815-830	0	11	3	1	0	26	16	21	0	0	1	0	79
830-845	0	14	0	0	2	27	15	28	0	0	0	0	86
845-900	0	15	0	0	0	27	26	22	0	0	1	0	91
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	0	27	3	2	10	72	59	67	1	0	3	0	244
715-815	0	35	3	2	7	81	62	70	1	0	5	0	266
730-830	0	40	6	3	1	94	65	70	0	0	6	0	285
745-845	0	50	3	2	2	101	68	82	0	0	5	0	313
800-900	0	53	3	2	2	108	68	82	0	0	4	0	322



15 MIN COUNTS — 4:00 PM TO 6:00 PM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	23	0	1	4	30	18	18	0	0	1	0	95
415-430	0	15	0	0	2	19	30	27	1	1	2	0	97
430-445	0	18	0	1	0	39	20	11	1	0	0	0	90
445-500	0	9	0	1	1	25	17	16	0	0	3	0	72
500-515	0	17	0	1	1	22	21	18	0	0	3	0	83
515-530	0	18	4	1	0	29	28	18	0	0	0	0	98
530-545	0	13	0	3	4	19	22	21	0	0	3	0	85
545-600	0	16	0	4	5	11	20	14	0	1	2	0	73
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	65	0	3	7	113	85	72	2	1	6	0	354
415-515	0	59	0	3	4	105	88	72	2	1	8	0	342
430-530	0	62	4	4	2	115	86	63	1	0	6	0	343
445-545	0	57	4	6	6	95	88	73	0	0	9	0	338
500-600	0	64	4	9	10	81	91	71	0	1	8	0	339



6.2 Level of Service Calculations

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2009
Analysis Time Period	am		

Project Description AM Existing	
East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	82		0	53	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	6	0	108	2	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	6	0	108	2	2
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	53	0	0	82	68
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	0	0	110		2	6		0
C (m) (veh/h)	1566	1444	831		983	697		1020
v/c	0.00	0.00	0.13		0.00	0.01		0.00
95% queue length	0.00	0.00	0.46		0.01	0.03		0.00
Control Delay (s/veh)	7.3	7.5	10.0		8.7	10.2		8.5
LOS	A	A	A		A	B		A
Approach Delay (s/veh)	--	--	10.0			10.2		
Approach LOS	--	--	A			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2011
Analysis Time Period	AM		

Project Description AM 2011 Base	
East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	92	0	3	59	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	6	0	110	2	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	6	0	110	2	2
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	59	0	0	92	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	0	3	112		2	6		0
C (m) (veh/h)	1558	1515	803		971	737		1012
v/c	0.00	0.00	0.14		0.00	0.01		0.00
95% queue length	0.00	0.01	0.48		0.01	0.02		0.00
Control Delay (s/veh)	7.3	7.4	10.2		8.7	9.9		8.6
LOS	A	A	B		A	A		A
Approach Delay (s/veh)	--	--	10.2			9.9		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2009
Analysis Time Period	AM		

Project Description AM 2014 PROJ

East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	104	0	3	70	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	6	0	114	2	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	6	0	114	2	2
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	70	0	0	104	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	0	3	116		2	6		0
C (m) (veh/h)	1544	1500	776		956	716		998
v/c	0.00	0.00	0.15		0.00	0.01		0.00
95% queue length	0.00	0.01	0.52		0.01	0.03		0.00
Control Delay (s/veh)	7.3	7.4	10.5		8.8	10.1		8.6
LOS	A	A	B		A	B		A
Approach Delay (s/veh)	--	--	10.4			10.1		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	jw
Agency/Co.	CEC
Date Performed	6/05/2009
Analysis Time Period	PM

Site Information

Intersection	Brown/ US 395
Jurisdiction	Kern CO
Analysis Year	2009

Project Description *PM Existing*

East/West Street: *Brown/China Lake* | North/South Street: *US 395*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	72	0	0	53	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	4	1	113	7	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	4	1	113	7	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	53	0	2	72	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	2	0	120		3	4		1
C (m) (veh/h)	1566	1541	835		996	764		1020
v/c	0.00	0.00	0.14		0.00	0.01		0.00
95% queue length	0.00	0.00	0.50		0.01	0.02		0.00
Control Delay (s/veh)	7.3	7.3	10.0		8.6	9.7		8.5
LOS	A	A	B		A	A		A
Approach Delay (s/veh)	--	--	10.0			9.5		
Approach LOS	--	--	A			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	jw
Agency/Co.	CEC
Date Performed	6/05/2009
Analysis Time Period	PM

Site Information

Intersection	Brown/ US 395
Jurisdiction	Kern CO
Analysis Year	2011

Project Description *PM 2011 Base*

East/West Street: *Brown/China Lake* | North/South Street: *US 395*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	81	0	0	72	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	4	1	115	7	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	4	1	115	7	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	72	0	2	81	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	2	0	122		3	4		1
C (m) (veh/h)	1541	1529	802		985	738		996
v/c	0.00	0.00	0.15		0.00	0.01		0.00
95% queue length	0.00	0.00	0.53		0.01	0.02		0.00
Control Delay (s/veh)	7.3	7.4	10.3		8.7	9.9		8.6
LOS	A	A	B		A	A		A
Approach Delay (s/veh)	--	--	10.3			9.6		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2009
Analysis Time Period	PM		

Project Description PM Base 2014	
East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	91	0	0	70	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	4	1	119	7	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	4	1	119	7	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	70	0	2	91	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	2	0	126		3	4		1
C (m) (veh/h)	1544	1517	793		972	730		998
v/c	0.00	0.00	0.16		0.00	0.01		0.00
95% queue length	0.00	0.00	0.56		0.01	0.02		0.00
Control Delay (s/veh)	7.3	7.4	10.4		8.7	10.0		8.6
LOS	A	A	B		A	A		A
Approach Delay (s/veh)	--	--	10.4			9.7		
Approach LOS	--	--	B			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	jw
Agency/Co.	CEC
Date Performed	6/05/2009
Analysis Time Period	AM

Site Information

Intersection	Brown/ US 395
Jurisdiction	Kern CO
Analysis Year	2011

Project Description: AM 2011 Base + Const

East/West Street: Brown/China Lake | North/South Street: US 395

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	127	92	0	3	59	32
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	6	0	110	286	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	6	0	110	286	2
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	59	32	127	92	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	127	3	396		2	6		0
C (m) (veh/h)	1517	1515	474		971	486		1012
v/c	0.08	0.00	0.84		0.00	0.01		0.00
95% queue length	0.27	0.01	8.25		0.01	0.04		0.00
Control Delay (s/veh)	7.6	7.4	40.6		8.7	12.5		8.6
LOS	A	A	E		A	B		A
Approach Delay (s/veh)	--	--	40.4			12.5		
Approach LOS	--	--	E			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	jw
Agency/Co.	CEC
Date Performed	6/05/2009
Analysis Time Period	AM

Site Information

Intersection	Brown/ US 395
Jurisdiction	Kern CO
Analysis Year	2011

Project Description: AM 2011 Base + Const + WB Separate thru

East/West Street: Brown/China Lake | North/South Street: US 395

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	127	92	0	3	59	32
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	6	0	110	286	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	6	0	110	286	2
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	59	32	127	92	0
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	1	1	1	1	1
Configuration	LT		R	L	T	R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	L	T	R	LT		R
v (veh/h)	127	3	110	286	2	6		0
C (m) (veh/h)	1517	1515	497	466	971	486		1012
v/c	0.08	0.00	0.22	0.61	0.00	0.01		0.00
95% queue length	0.27	0.01	0.84	4.04	0.01	0.04		0.00
Control Delay (s/veh)	7.6	7.4	14.3	24.2	8.7	12.5		8.6
LOS	A	A	B	C	A	B		A
Approach Delay (s/veh)	--	--	21.4			12.5		
Approach LOS	--	--	C			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2011
Analysis Time Period	PM		

Project Description PM 2011 Base + Const	
East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	81	0	0	72	0
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	32	284	127	115	7	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	32	284	127	115	7	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	72	0	2	81	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	2	0	122		3	316		127
C (m) (veh/h)	1541	1529	375		985	744		996
v/c	0.00	0.00	0.33		0.00	0.42		0.13
95% queue length	0.00	0.00	1.39		0.01	2.13		0.44
Control Delay (s/veh)	7.3	7.4	19.2		8.7	13.4		9.1
LOS	A	A	C		A	B		A
Approach Delay (s/veh)	--	--	18.9			12.2		
Approach LOS	--	--	C			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2011
Analysis Time Period	PM		

Project Description PM 2011 Base + Const + WB Thru

East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	81	0	0	72	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	35	315	141	127	7	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	32	284	127	115	7	3
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	80	0	2	90	0
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	1	1	1	1	1
Configuration	LT		R	L	T	R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	L	T	R	LT		R
v (veh/h)	2	0	127	7	3	350		141
C (m) (veh/h)	1531	1518	317	722	973	727		986
v/c	0.00	0.00	0.40	0.01	0.00	0.48		0.14
95% queue length	0.00	0.00	1.86	0.03	0.01	2.64		0.50
Control Delay (s/veh)	7.4	7.4	23.7	10.0	8.7	14.5		9.3
LOS	A	A	C	B	A	B		A
Approach Delay (s/veh)	--	--	22.7			13.0		
Approach LOS	--	--	C			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2014
Analysis Time Period	AM		

Project Description *Base AM 2014 + Proj Ops*

East/West Street: *Brown/China Lake* | North/South Street: *US 395*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	4	104	0	3	70	4
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	1	18	1	114	36	2
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	18	1	114	36	2
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	3	70	4	4	104	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	4	3	150		2	19		1
C (m) (veh/h)	1538	1500	735		956	708		998
v/c	0.00	0.00	0.20		0.00	0.03		0.00
95% queue length	0.01	0.01	0.76		0.01	0.08		0.00
Control Delay (s/veh)	7.3	7.4	11.1		8.8	10.2		8.6
LOS	A	A	B		A	B		A
Approach Delay (s/veh)	--	--	11.1			10.1		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	jw	Intersection	Brown/ US 395
Agency/Co.	CEC	Jurisdiction	Kern CO
Date Performed	6/05/2009	Analysis Year	2014
Analysis Time Period	PM		

Project Description PM Base 2014 + Proj Ops	
East/West Street: Brown/China Lake	North/South Street: US 395
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	3	91	0	0	70	1
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	4	38	5	119	19	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	4	38	5	119	19	3
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	70	1	3	91	0
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	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LT		R	LT		R
v (veh/h)	3	0	138		3	42		5
C (m) (veh/h)	1542	1517	738		972	732		998
v/c	0.00	0.00	0.19		0.00	0.06		0.01
95% queue length	0.01	0.00	0.68		0.01	0.18		0.02
Control Delay (s/veh)	7.3	7.4	11.0		8.7	10.2		8.6
LOS	A	A	B		A	B		A
Approach Delay (s/veh)	--	--	10.9			10.0		
Approach LOS	--	--	B			B		

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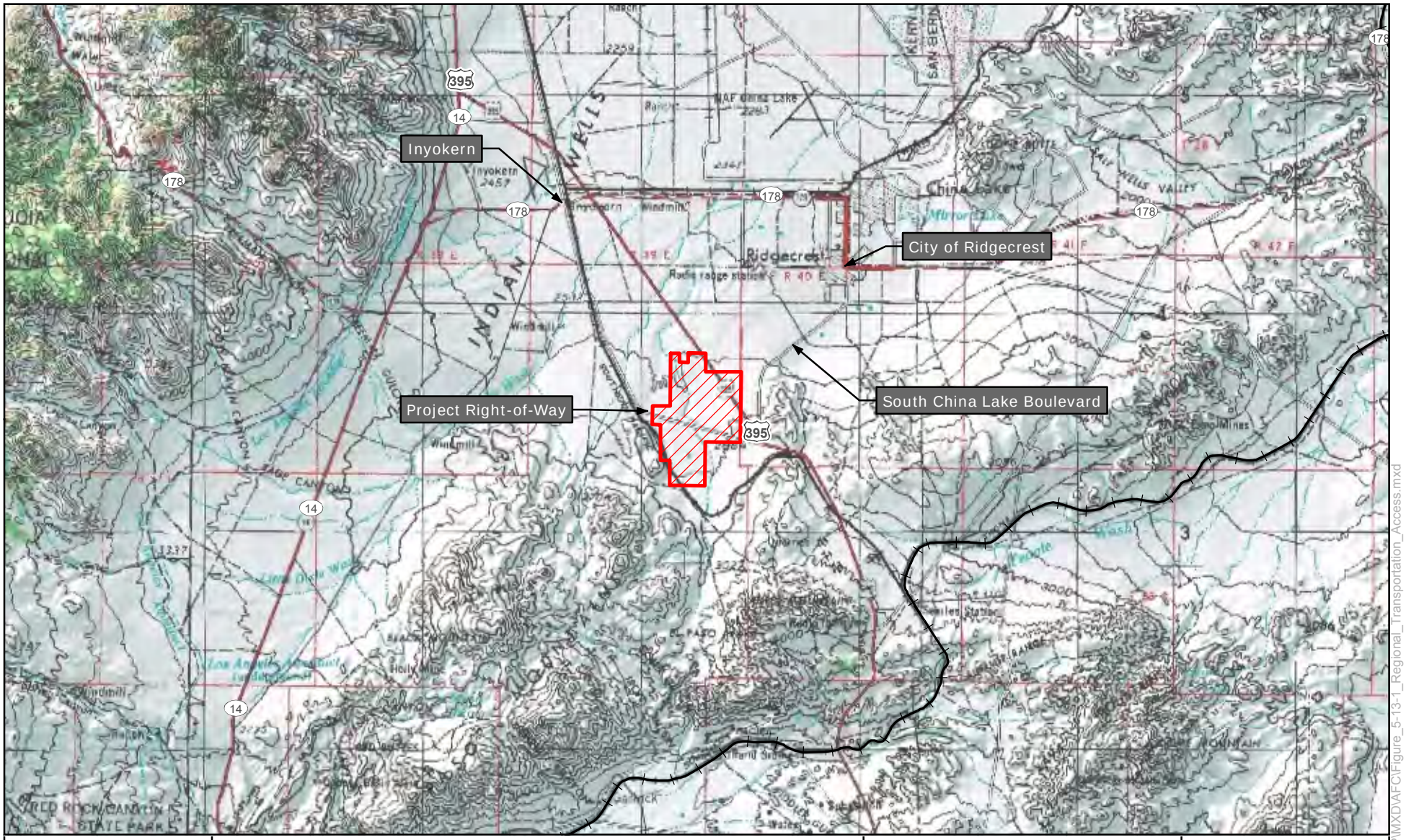
Traffic Study Figures



Map Location

Legend

Project Right-of-Way

Railroad

1:250,000

0 4 8 12 Miles

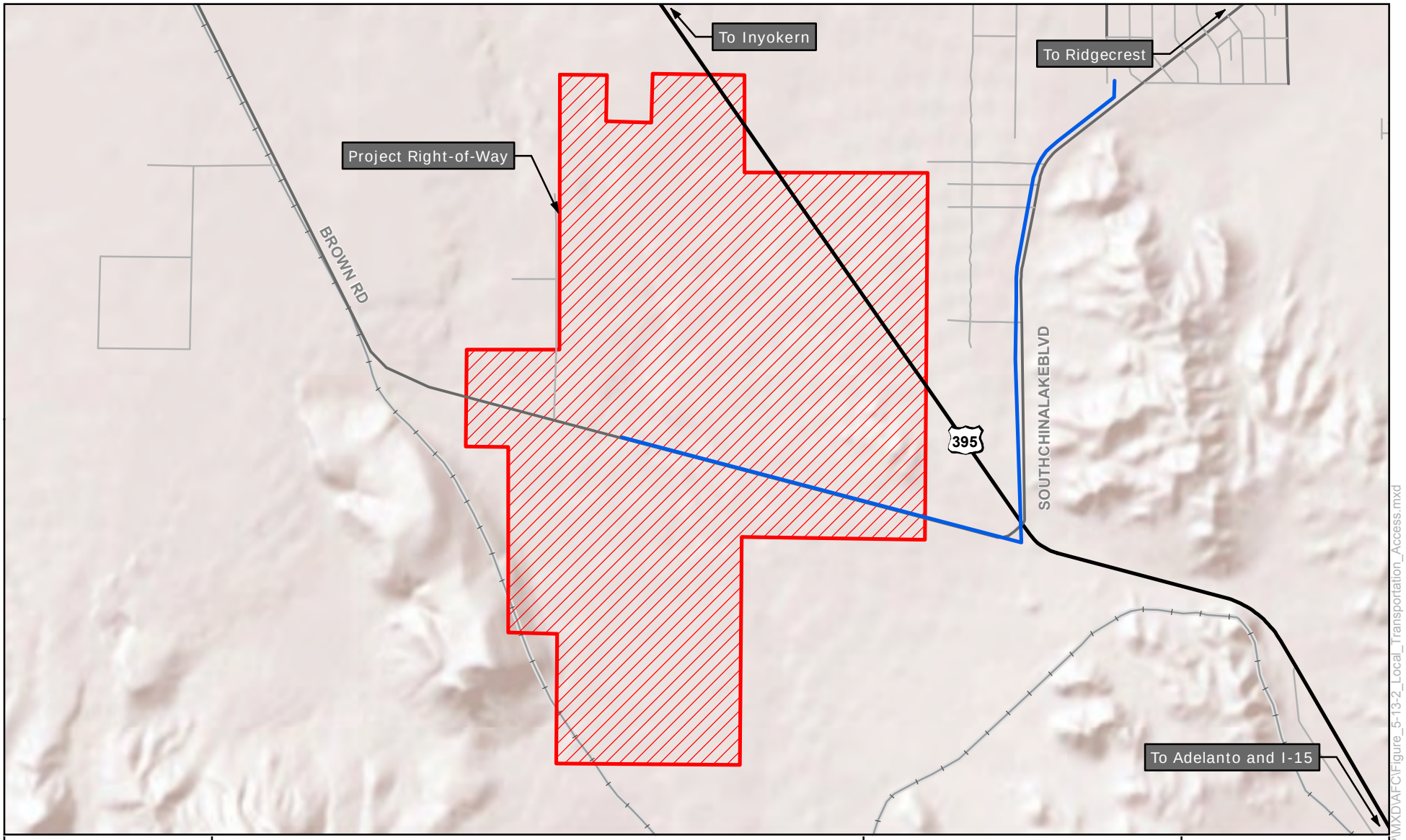
Ridgecrest Solar Power Project
Figure 5.13-1
Regional Transportation Access

Solar Millennium

AECOM

Date: September 2009

Y:\Projects\Solar_Millennium\RSPP\MXD\AFC\Figure_5-13-1_Regional_Transportation_Access.mxd



Map Location

Legend

- Project Right-of-Way
- Highway
- Major Road
- Local or Rural Road
- Railroad
- Water Line

1 inch equals 4,000 feet

0 4,000 8,000 12,000 Feet

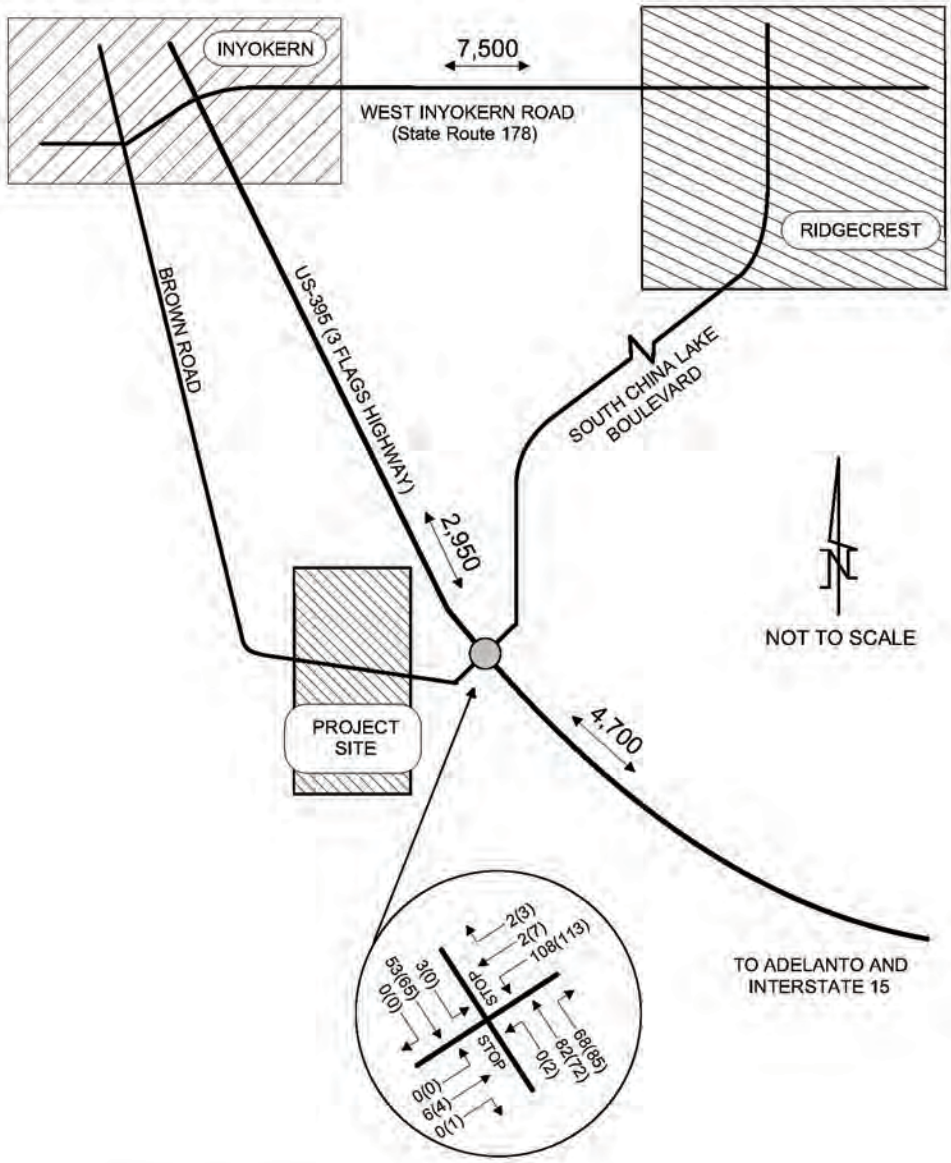
Ridgecrest Solar Power Project
Figure 5.13-2
Local Transportation Access

Solar Millennium

AECOM

Date:Sept. 2009

Y:\Projects\Solar_Millennium\RSPP\MXD\AFC\Figure_5-13-2_Local_Transportation_Access.mxd



Legend
000 = AM Peak Hour
(000) = PM Peak Hour
000 = Two Way Daily

Map Location

Not to Scale

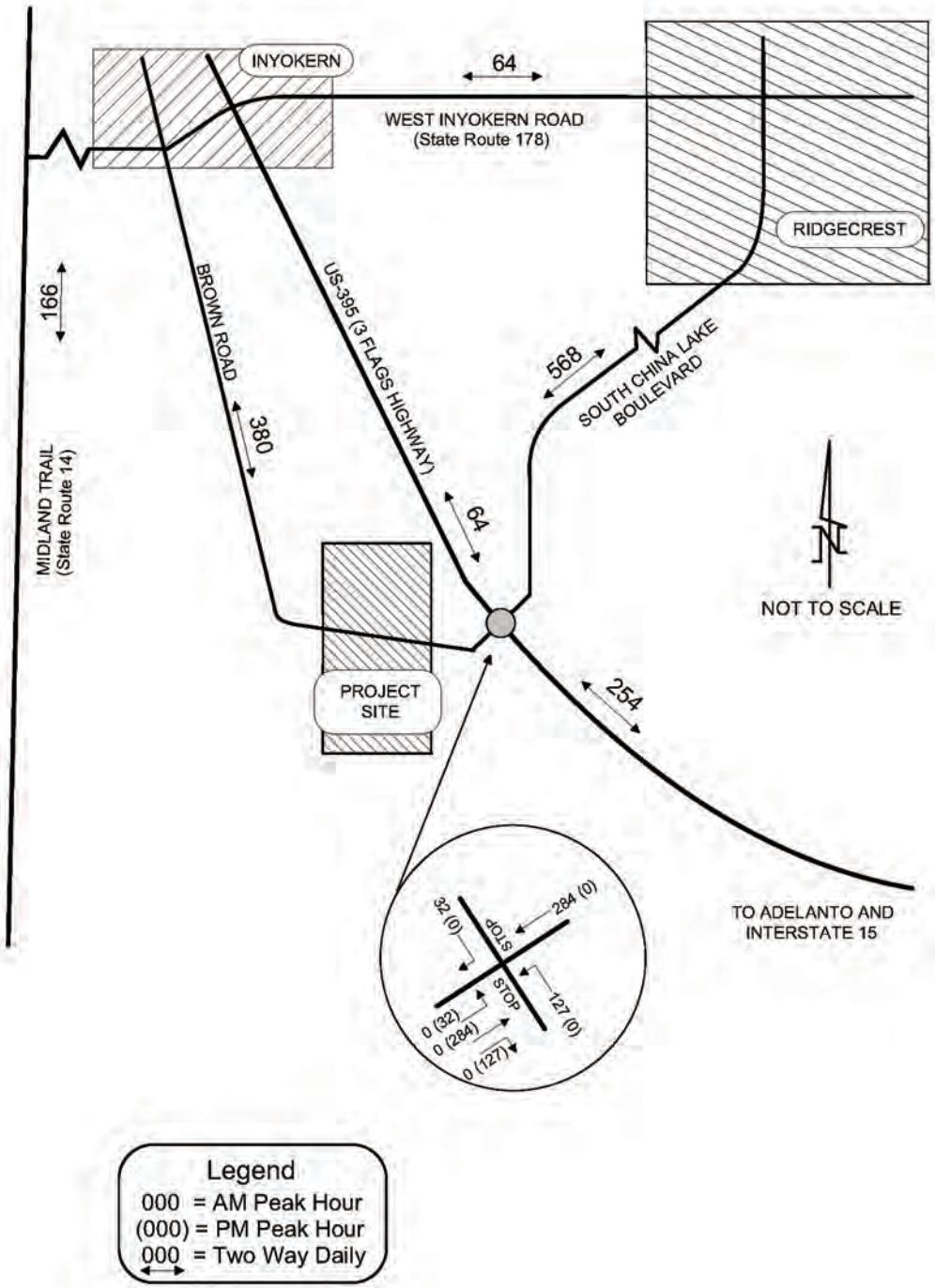
Ridgecrest Solar Power Project

Figure 5.13-3
Existing Traffic Volumes

Solar Millennium

AECOM

Date: September 2009



Legend
000 = AM Peak Hour
(000) = PM Peak Hour
000 = Two Way Daily

Map Location

Not to Scale

Ridgecrest Solar Power Project

Figure 5.13-4
Peak Month Construction Traffic

Solar Millennium

AECOM

Date: September 2009