5.13 Traffic and Transportation

This section assesses the potential impacts to the transportation system due to activities associated with the construction and operation of the Amended SSU6 Project. The section addresses applicable LORS, describes the existing transportation system and current traffic conditions, evaluates potential Project impacts, and identifies useful mitigation measures.

5.13.1 Summary of Differences between Amended Project and Original SSU6

Baseline traffic and transportation conditions are essentially the same as when the original SSU6 AFC was prepared. Traffic volumes on roadways providing access to and circulation through the Project area have increased slightly, but operating conditions (Levels of Service or LOS) are unchanged on both a peak hour and a daily basis. All affected roadways and intersections operate at acceptable levels of service (LOS C or better). Access routes to the Amended Project site are the same as the original project. No significant roadway improvements that would affect Project access/traffic conditions have been completed or are expected. No significant changes have occurred to railroad operations.

The original SSU6 project would not have led to significant impacts on vehicular traffic (or other transportation modes such as rail). The Amended Project plant construction will occur over a longer period of time than the original SSU6 and there will be a period when the size of the construction workforce is expected to exceed the peak force for the original project. However, analyses of the potentially impacted roadways and intersections show that all roadways and intersections are still forecasted to operate at acceptable levels (LOS C or better). No new safety hazards have been identified. As with the original SSU6 project, traffic and transportation impacts during Amended Project operation would be less than significant. In summary, the Amended Project does not change the impact conclusions and mitigation measures developed for the original SSU6 project.

5.13.2 Laws, Ordinances, Regulations, and Standards (LORS) Compliance

The Amended Project will meet or exceed all applicable LORS pertaining to traffic and transportation. Table 5.13-1 and the following text sections summarize Federal, State, and local LORS that apply to traffic and transportation.

Table 5.13-1 Traffic and Transportation LORS Summary

Regulatory Authority	Applicability	Where Discussed in AP
Federal		
Title 49, Code of Federal Regulations (CFR), Subtitle B, Parts 171-173, 177-178, 350-359, and Appendices A-G	Addresses safety considerations for the transport of goods, materials, and substances. Governs the transportation of hazardous materials including types of materials and the marking of the transportation vehicles.	Sections 5.13.3 and 5.13.4
Title 14 CFR, Aeronautics and Space, Chapter l, FAA-DOT, Part 77	Establishes standards for determining obstructions in navigable air space and sets forth notification of FAA requirements when there is any change.	Section 5.13.5
State		
California Vehicle Code Section 35780; California Streets and Highways Code, Sections 660-711; 21 CCR 1411.1-1411.6	Requires permits for any load exceeding Caltrans weight, length, or width standards for public roadways.	Sections 5.13.3 and 5.13.4
California Streets and Highways Code, Sections 117-660-711	Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery.	Sections 5.13.3 and 5.13.4
California Vehicle Code Section 31300, 31303 *et seq.*	Requires that the transportation of hazardous materials be on state or interstate highways that offer the shortest overall transit time possible.	Sections 5.13.3 and 5.13.4
California Vehicle Code Section 32105	Requires shippers of inhalation hazard or explosive materials to contact the California Highway Patrol to apply for a Hazardous Material Transportation License and obtain routes approved for material shipping.	Sections 5.13.3 and 5.13.4
Local		
Imperial County General Plan, Circulation and Scenic Highway Element, Programs and Policies, 1.0 Circulation and Scenic Highways Plan, c. New Local Roads	Requires new development to provide local roads to serve the direct needs of the adjacent properties.	Section 5.13.3
Imperial County General Plan Circulation and Scenic Highway Element, Programs and Policies, 1.0 Circulation and Scenic Highways Plan, f. Private Streets	The County may permit construction of private streets associated with individual developments with conditions.	Sections 5.13.3 and 5.13.5

Table 5.13-1 Traffic and Transportation LORS Summary

Regulatory Authority	Applicability	Where Discussed in AP
Imperial County General Plan Circulation and Scenic Highway Element, Programs and Policies, 2.0 Ordinance Review	Zoning regulation and the setback portions. Ensures that future construction will not interfere with present and potential highway needs. Analyzes the adequacy of existing right-of-ways (ROWs) if needed. Requires the dedication of ROW and street improvement as a condition for the issuance of Building Permit for designated land uses.	Section 5.13.3

5.13.2.1 Federal LORS

The following Federal LORS are potentially applicable to the Amended Project.

Title 49 Code of Federal Regulations (CFR), Subtitle B, Chapter I, Part 172, Hazardous Materials Regulations

These regulations address the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

Title 49 CFR, Subtitle B, Chapter I; Parts 171-173; and 177-178

These regulations contain national safety standards for the transport of goods, materials, and substances over public highways, and the requirements for proper handling and storage of hazardous materials during transportation.

Title 49 CFR, Subtitle B, Chapter III, Parts 350–399 Motor Carrier Safety Regulations

These regulations address safety considerations for the transport of goods, materials, and substances over public highways.

Hazardous Materials Transportation Act of 1974; Title 49 Code of Federal Regulations (CFR) Subtitle B, Chapter III, Part 397.9

This regulation directs the Federal Department of Transportation to establish criteria and regulation for the safe interstate transportation of hazardous materials.

Title 14 CFR Regulations, Aeronautics and Space, Federal Aviation Administration, Department of Transportation, Chapter I, Part 77

This regulation establishes standards for determining obstructions in navigable air space and sets forth notification requirements to the Federal Aviation Administration when there is a change in land use that would involve the development of any structures over 200 feet above ground level. Notification is also required if the obstruction is less than the specified height and is located within restricted air space in the

approach to airports. The Project is not in the immediate vicinity of any airports, nor will the Project involve structures over 200 feet in height.

5.13.2.2 State

State laws that could apply to the Amended Project include the following:

California Vehicle Code Division 1, Section 353

This code defines hazardous materials.

California Vehicle Code Division 13, Chapter 5, Article 1 Hazardous Materials, Sections 31303 et seq.

This regulation addresses the transportation of hazardous materials, the routes used, and restrictions thereon.

California Vehicle Code Division 14, Transportation of Explosives, Sections 31600-31309

These regulations control the transportation of explosive materials.

California Vehicle Code Division 14.1, Transportation of Hazardous Materials, Sections 32000-32053

These codes regulate the licensing of carriers of hazardous materials including noticing requirements.

California Vehicle Code Division 14.3, Sections 32100-32109

These regulations establish special requirements for the transportation of inhalation hazards and poisonous gases.

California Vehicle Code Division 14.7 Flammable and Combustible Liquids, Sections 34000 et seq.

These regulations address the transportation of flammable and combustible liquids over public roads and highways.

California Vehicle Code Division 14.8 Safety Regulations, Sections 34500, 34501, 34501.3, 34502-7, and 34510-11

These regulations address the safe operation of vehicles, including those that are used for the transportation of hazardous materials.

California Vehicle Code Division 2 Administration, Chapter 2.5, Article 1, Sections 2500-2505 and 2531-2532

These regulations address the issuance of licenses by the Commissioner of the California Highway Patrol for the transportation of hazardous materials.

California Vehicle Code Division 6 Driver's Licenses, Division 6, Chapter 1, Article 3 Sections 12804-12804.5; Chapter 2, Article 3, Section 13369; and Chapter 7 Article 6, Sections 15275-15278

These regulations address the licensing of drivers and the classification of licenses required for the operation of particular types of vehicles. The regulations also address the possession of certificates that permit the operation of vehicles transporting hazardous materials.

California Vehicle Code Division 15 Size, Weight, and Load, Chapter 5, Article 6 Section 35780

This chapter states that overload approvals from the State Department of Transportation are required for transportation of oversized or excessive loads over state highways.

California Streets and Highways Code Sections 117, 660-711

This regulation requires an encroachment permit from the State Department of Transportation for facilities that require construction, maintenance, or repairs on or across state highways.

California Streets and Highways Code Sections 660, 670, 1450, and 1460 et seq.

These code sections regulate ROW encroachment and the granting of permits for encroachment on State and county roads.

5.13.2.3 Local

There are Imperial County LORS that address traffic and circulation issues associated with the Amended Project and the community at large. The main sources of LORS pertaining to traffic and circulation are County General Plan Circulation Element and the Land Use Ordinance.

Imperial County General Plan, Circulation, and Scenic Highway Element, Programs and Policies, 1.0 Circulation and Scenic Highways Plan, c. New Local Roads

The objective of the Circulation and Scenic Highways Plan is to provide a network of roadway system for the County. The County requires new development to provide for local roads to serve the direct access needs of adjacent properties. The administering agency for the above policy is the Imperial County Public Works Department (Imperial County Department of Public Works [DPW]). The Amended Project will require no new public offsite roads.

Imperial County General Plan, Circulation and Scenic Highway Element, Programs and Policies, 1.0 Circulation and Scenic Highways Plan, f. Private Streets

The County may permit construction of private streets within individual development projects with specific conditions outlined in the policy. The administering agency for the above policy is the Imperial County DPW. The Amended Project will require development of a private road to provide access to the plant site (see Figure 2-6 in Section 2.0 Project Description).

Imperial County General Plan, Circulation and Scenic Highway Element, Programs and Policies, 2.0 Ordinance Review

The element ensures that future construction will not interfere with present and potential highway needs. It requires a review of the County Zoning Ordinance, e.g., an analysis of the adequacy of existing ROWs, and to secure ROWs if needed. The Element also requires the dedication of ROW and street improvements as a condition for the issuance of building permits for designated land uses in industrial, multiple family, and commercial zones. The administering agency for the above policy is the Imperial County DPW. Construction of permanent structures for the Project, including the perimeter berm around the plant site, will take into consideration future roadway ROW needs.

Imperial County General Plan, Circulation, and Scenic Highway Element, Programs and Policies, 6.0 Transportation Demand Management, b. Policies

The County prohibits the use of public streets for freight loading and unloading. The administering agency for the above policy is the Imperial County DPW. The Project will include a construction laydown and staging area that is sufficient to avoid the use of public roadway facilities for Project freight (materials, equipment, and supplies) loading and unloading activities.

Imperial County Land Use Ordinance, Title 9, Division 17, Geothermal, 91701.01 General Standards

This ordinance section requires that all geothermal activities be conducted in harmony with the area and be consistent with requirements of public health, safety comfort, convenience, and general welfare. Traffic safety must be considered in transporting equipment and materials to project sites. Signs and flagmen must be used as determined by the County DPW. When planning for the transportation of oversize loads, the Imperial County DPW must be contacted prior to finalizing shipment plans to ensure that acceptable transportation methods and routes are utilized. Transportation permits must be obtained by the Applicant from the Imperial County DPW for oversized loads traveling on county roads. The administering agency for the above standard is the Imperial County DPW for local roadways. Caltrans is the administering agency for State highways. Separate permits are required from each agency.

The Project will include adequate safety measures for construction and material deliveries. Oversized loads will be transported via Caltrans- and County-approved routes in conformance with agency requirements and with applicable permits.

Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plan requires compatibility with the goals and objectives of the plan. The administering entity for the Plan is the Imperial County Airport Land Use Commission. There are no airports in the Project vicinity (the closest airport is the Cliff Hatfield Memorial Airport 6.5 miles away in Calipatria), and thus, there are no airport land use compatibility issues.

Table 5.13-2 Agencies and Agency Contacts

Agency	Phone/E-mail	Permit/Issue
William Burnet, Director Imperial County DPW 155 South 11th Street El Centro, CA 92243	(760) 482-4462 williamburnet@imperialcounty.net	Encroachment Permit for Work in the County ROW, Permits for Oversize Loads on County Roadways
Caltrans, District 11 Joe Lara, Maintenance Supervisor 200 South Palm Brawley, CA 92227	(760) 344-3177 joelara@dot.ca.gov	Encroachment Permit for work in Caltrans' ROW, Permits for Oversize Loads on State Highways
California DMV 1175 East Main Street Brawley, CA 92227	(800) 777-0133	Licenses for Transport of Hazardous Materials and Wastes
CHP, Motor Carrier Division 2331 Highway 86 Imperial, CA 92251	(760) 482-2500	Approved Routes for Transport of Hazardous Materials and Wastes

5.13.2.4 Required Permits and Permitting Schedules

Table 5.13-3 identifies the required traffic and transportation permits and permit schedule.

Table 5.13-3 Required and Permit Schedule

Permit/Approval Required	Due Date
Imperial County Encroachment Permit (for work in County ROWs)	Submit plans showing work 30 days prior to construction work in public ROW.
Imperial County Oversize Load Permit	Apply at least 10 working days prior to oversize load on County roadways.
Caltrans Oversize Load Permit	Apply at least seven working days prior to oversize load on State highways. If load exceeds 16 feet in width or 17 feet in height, allow at least one month.

5.13.3 Affected Environment

The affected environment for transportation includes all transportation related facilities in the Project area that might be utilized during Project construction or future operations. It primarily consists of State and local roadways but also includes the Union Pacific Railroad, which may be used to deliver construction materials and equipment to the Project site. It also includes bicycle or pedestrian facilities in the area that potentially could be impacted by Project traffic.

5.13.3.1 Regional Setting

Regional access is provided to the Amended Project site and the surrounding area by various State highways and Federal (Interstate) facilities. The circulation system of the Project study area is composed primarily of local roads and State-maintained highways. These roads provide access to local farming communities and the incorporated Cities of Brawley, El Centro, and Imperial, among others. The highway system plays a primary role in the movement of agricultural goods originating from the area and use would be expected to grow as new developments occur within Imperial County.

As shown in Figure 5.13-1, the Project area is primarily served by State Route (SR) 78/86 and SR 111. SR 78 is an east-west highway that links the area with San Diego County to the west. SR 86 is a north-south highway connecting Interstate 8 (I-8) and I-10 in Imperial and Riverside counties to the Imperial County area and plays a major role in the movement of farm products from the Imperial and Coachella Valleys to the Los Angeles Basin. SR 111 is a north-south highway originating at the Mexican border to the south of the site and connecting to I-10 to the north. SR 111 links the Project site with Brawley to the south and Niland to the north. In conjunction with SR 86 south of Brawley, SR 111 links the Project site with the Cities of Imperial and El Centro further to the south. These highways are under the jurisdiction of Caltrans.

As shown on Figure 5.13-2, the City of Brawley is linked to the Project site by a combination of either SR 111 and Eddins Road, or Lindsey Road, Gentry, McKendry and Boyle Roads, or a combination of SR 86, Forrester and Gentry, McKendry, and Boyle Roads

I-8 extends easterly from San Diego continuing past El Centro and further east through Yuma, Arizona. I-10 extends easterly from the Los Angeles Basin through Indio and Blythe and into Arizona roughly parallel to but approximately 100 miles north of I-8.

Weight guidelines and restrictions for vehicles traveling on freeways and highways include limits on single-axle loads of 20,000 pounds. The load on any one wheel, or wheels supporting one end of an axle, is limited to 10,500 pounds. The front steering axle load is limited to 12,500 pounds. Furthermore, the maximum overall gross weight is limited to 80,000 pounds, and the gross weight of each set of tandem axles is limited to 34,000 pounds.

5.13.3.2 Local Area Setting

The Amended Project site abuts the southerly side of McKendry Road between Boyle and Severe Roads on a 160-acre parcel approximately 1,000 feet southeast of the Salton Sea. The plant site is bounded by Severe Road to the west, McKendry Road to the north, Boyle Road to the east, and Peterson Road to the south. The injection well pads lie south and east of the plant site. The transportation setting of the Project site within the surrounding region is depicted in Figures 5.13-1 and 5.13-2.

Inbound traffic to the site will follow Gentry Road to McKendry Road to Boyle Road and into the site using a new roadway, which would run east-west through the Project site and connect Boyle Road and Severe Road (see Figure 2-6 in the Project Description). Outbound traffic will follow the new roadway westerly to Severe Road north to McKendry Road and McKendry Road east to Gentry Road. The site is linked to SR 111 to the east by a combination of Sinclair Road to Gentry Road to McKendry Road and into the site. Project-related traffic to or from SR 111 to the north would be expected to follow Sinclair Road west to

Gentry Road, Gentry Road south to McKendry Road, and McKendry Road and Boyle Road into the site. Similarly, traffic approaching the site on either east or westbound SR 78/86 would approach the site following Forrester Road north to Walker Road, Walker Road east to Gentry Road, and Gentry Road north to McKendry Road and into the site.

Because of the low elevation of the site (currently average of 225 feet below mean sea level), the sections of Boyle Road, McKendry Road, Severe Roads, and new facility adjacent to the plant site will all be raised an average of seven feet in elevation to be 220 feet below mean seal level. McKendry Road will be paved as two-lane roadways with graded shoulders. The northern portion of Boyle Road and Severe Road (located north of the new facility), will also be paved as two-lane roadways (see Figure 2-6 in the Project Description). Thus, traffic to and from the plant site will run along two-lane paved roads. The plant's administration and control building parking lot and all onsite roads also will be asphalt paved.

It is expected that the primary east-west link between the site and SR 111 will be Sinclair Road. However, Eddins Road is another east-west roadway extending west from the City of Calipatria parallel to Sinclair Road, which would also be expected to accommodate Project traffic from the south (Calipatria and SR 111). The primary north-south access road is Gentry Road, which becomes Forrester Road south of Walker Road toward the City of Westmorland; these roadways provide the most direct north-south links to the Project site.

Sinclair Road, Gentry Road, Forrester Road, Eddins Road, and Lindsey Road are all low-volume County roadways that are typically improved with a 24- to 26-foot wide paved surface and 5- to 6-foot wide graded shoulders. Intersections are typically controlled with stop signs on one or more approaches. Pavement surfaces are in generally good condition. A summary of roadway characteristics including classification and existing traffic volumes is provided in Table 5.13-4. Figure 5.13-3 also shows traffic volume data on local roadways.

McKendry, Boyle, and Severe Roads adjacent to the Project's plant site are unimproved roadways with graded graveled surfaces. Sections adjacent to the site that will be used by Project traffic will be fully improved with two lanes, graded shoulders and a paved asphalt surface. This will include McKendry Road west of Gentry Road to Severe Road, and both Severe and Boyle Roads southerly to new plant site roadway. No significant existing roadway hazards with the potential to affect Project traffic were identified in the vicinity.

Table 5.13-4 Existing Roadway Geometry and Traffic Characteristics of Local Roadways in the Project Area

Roadway	Location	Classification	Average Daily Traffic	Level of Service C[3]	LOS [4]
Sinclair Road[1]	Between SR 111 and Gentry Road	Collector, 2-lane	1,355	7,100	A
McKendry Road[2]	Between Severe Road and Gentry Road	Local, 2-lane	60	4,500	A
Lindsey Road[2]	Between Gentry Road and Severe Road	Local, 2-lane	960	4,500	A
Eddins Road[1]	Between SR 111 and Gentry Road	Collector, 2-lane	1,580	7,100	A
Severe Road[2]	Between McKendry Road and Lindsey Road	Local, 2-lane	60	4,500	A [5]
Boyle Road[5]	Between McKendry Road and Peterson Road	Local, 2-lane	120 (est.)	4,500	A [5]
Gentry Road[1]	Between Sinclair Road and Lindsey Road	Collector, 2-lane	1,575	7,100	A

1. From Imperial County Traffic Count Database updated at 3.32% increase/ year to reflect current conditions.
2. Counts taken January 2002 and updated at 3.32% increase/year to reflect current conditions.
3. The maximum traffic volumes that would maintain level of Service (LOS) C. See Section 5.13.3.3.
4. LOS from Imperial County Standard Street Classification (Table 4 Circulation / Open Space Element). See Section 5.13.3.3.
5. According to the County Circulation/Open Space Element (Table 4), LOS is not applied to residential streets because their primary purpose is to serve abutting lots, not to carry through traffic. LOS normally applies to roads carrying through traffic between major trip generators and attractors.

5.13.3.3 Roadway Operating Characteristics

Existing and future roadway operations have been characterized using a peak hour Level of Service (LOS) analysis; LOS provides a standardized means of describing a roadway or intersection's operation by relating traffic volumes to facility capacity. As shown in Table 5.13-5, LOS designations range from A to F with LOS A representing the best conditions (free flow) and LOS F representing the worst (most congested) conditions.

Table 5.13-5 Levels of Service[1]

LOS	Description	Average Vehicle Capacity Ratio
A	Free Flow; insignificant delays	0.0 - 0.59
B	Stable operation; minimal delays	0.6 - 0.69
C	Stable operation; acceptable delays	0.7 - 0.79
D	Approaching unstable; queues develop rapidly but no excessive delays	0.8 - 0.89
E	Unstable operation; significant delays	0.9 - 0.99
F	Forced flow; jammed conditions	> 1.0
[1.] Transportation Research Board, Highway Capacity Manual.		

Table 5.13-6 presents data pertaining to the existing traffic characteristics on highways potentially affected by the Amended Project, including:

- SR 78/86 from B Street to Center Street (Forrester Road),
- SR 78/86 from Center Street (Forrester Road) to H Street, and
- SR 111 from Sinclair Road to SR 115 East.

The information provided in Table 5.13-6 includes the annual average daily traffic (AADT), annual average peak hour traffic, annual average daily truck traffic, highway capacity, and LOS.

LOS criteria for highways are generally established by Caltrans but can also be further qualified by local agencies. An LOS for a highway facility takes into account numerous variables such as traffic volumes, roadway geometrics, grade, environment (urban and rural), and other considerations as appropriate. Caltrans policies for rural areas generally consider LOS D as acceptable but prefer LOS C for planning purposes, while LOS E and F are considered unacceptable. LOS criteria for the local roadway system are defined by the Imperial County General Plan Circulation and Scenic Highway Element, which has set a minimum standard of LOS C. Consequently, LOS A, B, and C are considered acceptable, while LOS D, E, and F are unacceptable. However, the Circulation Element policy acknowledges that an LOS C may not be obtainable on some existing facilities where abutting development precludes the acquisition of additional ROW that would be needed in order to upgrade existing facilities.

As shown on Table 5.13-6, the State highway segments potentially affected by the Amended Project are currently operating at LOS A or LOS B, meaning that conditions are better than the minimum acceptable LOS C. Traffic volumes on the highway segments also are shown on Figure 5.13-3.

Table 5.13-6 Existing Traffic Characteristics of Highways in the Project Area

Highway	Location	Annual Average Daily Traffic[1]	Peak Hour Traffic[1]	Annual Average Daily Truck Traffic[2]	Percentage of Truck Traffic[3]	LOS[4]
SR 78/86	B Street to Center Street (Forrester Road)	12,400	1,050	3,297	27%	A
	Center Street (Forrester Road) to H Street	17,700	1,050	3,297	19%	B
SR 111	Sinclair Road to SR 115 (East)	6,500	850	1,047	16%	A

1. Source: 2007 Traffic Volumes on the California State Highway System (Caltrans, 2008).
2. Source: 2007 Truck Volumes on the California State Highway System (Caltrans, 2008).
3. Percentage calculated using 2007 average daily truck traffic as a percentage of 2007 AADT.
4. LOS as determined using Imperial County Circulation and Scenic Highway Element (Table 4).

Truck traffic is a high percentage of the total volumes on highways serving the Project area. As shown in Table 5.13-6, truck traffic (as a percent of total traffic) in the Project area is heaviest along SR 78/86 in Westmorland with 27 percent on the segment east and 19 percent on the segment west of Forrester Road. Trucks currently compose approximately 16 percent of the traffic stream on SR 111 between Sinclair Road and downtown Calipatria.

Average Daily Traffic (ADT) counts from the Imperial County Traffic Count Program database were utilized to evaluate existing operations on local roadway segments in the Project area. Additional ADT counts were collected during the second week of January 2002. Table 5.13-4 summarizes existing local roadway level of service analysis. The results of the level of service analysis indicate that all roadway analysis segments are currently operating at an acceptable Level of Service A.

In addition to the local roadway segments, five study area intersections were reviewed. These intersections were previously identified during the original SSU6 AFC process as warranting an intersection level analysis in consultation with the Imperial County DPW. These intersections are considered the intersections with the most potential to be impacted by the Project. The results of the evaluation of existing peak hour conditions, based on traffic counts completed in 2008 as part of this analysis, are summarized in Table 5.13-7. Review of the table shows that all study intersections currently operate at an LOS B or better.

Table 5.13-7 Existing Traffic Operations Characteristics of Intersections in the Project Area [1]

Intersection	Type of Control	AM Peak Hour		PM Peak Hour	
		LOS	Delay	LOS	Delay
Gentry Road / McKendry Road	Unsignalized	A	8.4	A	N/A
Gentry Road/ Lindsey Road	Unsignalized	A	9.3	A	9.4
Gentry Road/ Eddins Road	Unsignalized	A	8.8	A	9.3
Forrester Road/ SR 78	4-Way Stop	A	9.5	B	10.3
SR 111/ Sinclair Road	Unsignalized	B	11.5	B	10.4

1. Unsignalized intersection LOS calculated using 2000 Highway Capacity Manual (HCM) Unsignalized methodology; 4-way Stop intersection LOS calculated using 2000 HCM 4-Way Stop Intersection methodology. LOS was calculated using traffic counts completed in Fall 2008 as part of the Amended Project traffic analysis.

5.13.3.4 Railroads

The Union Pacific Railroad mainline traverses Imperial County in a northwesterly direction from the Arizona border near Winterhaven toward Riverside County. The closest railroad alignment to the Project site is the southerly branch of the Union Pacific line, which originates from the mainline in Niland and provides rail service to Calipatria, Brawley, Imperial, El Centro, Calexico, and to Mexico. A switchyard east of SR 111 at Sinclair Road would provide a nearby unloading point for rail shipments to the Project site of heavy components that would minimize travel times and roadway exposure of oversized loads.

5.13.3.5 Bicycle Routes

The Imperial County Bicycle Master Plan proposes a network of countywide bicycle routes classified as follows:

- Class I Bicycle Routes – completely separated from vehicular traffic and within an independent ROW or the ROW of anther facility.
- Class II Bicycle Routes – part of the roadway or shoulder is marked by pavement markings or barriers. Vehicle parking, crossing, or tuning movements are permitted within the bikeway.
- Class III Bicycle Routes – shares ROW with motor vehicles and are designated by signs only. There is minimal protection from shared vehicle traffic but signage helps to make the motorist aware of the presence of the bicyclists.

Within the Amended Project study area, County Bicycle Route 7 (Sinclair/Gentry/Rutherford/SR 111) is a Class II route that begins at Sinclair Road north of Calipatria, then continues westbound to Gentry Road, turns southbound toward Westmorland. It then turns east via Boarts Road, then north via Kalin Road, then eastbound to Rutherford Road to SR 111, and then north to Calipatria. From downtown Calipatria, Route 7 extends west via Eddins Road, north via English Road and then back to Sinclair Road (See Figure 5.10-2). The total route is about 29.8-miles long of which approximately seven miles are within the incorporated cites of Westmorland and Calipatria.

5.13.3.6 Airport Operations

The nearest airport to the Project site is the Cliff Hatfield Memorial Airport, approximately 6.5 miles away in Calipatria. Because of the distance and because the maximum height of Project structures is only 55 feet (cooling towers), no aviation-related issues would affect the Amended Project.

5.13.4 Environmental Consequences

This section discusses the potential impacts of the Amended Project on traffic and transportation.

5.13.4.1 Evaluation Methodology/ Significance Criteria

For purposes of this evaluation, significant impacts will be identified as occurring when/if the Amended Project would:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system;
- Create a safety hazard; or
- Reduce a roadway segment or intersection LOS below acceptable levels, as defined below:

  Imperial County's target for peak hour operations on County roads and Scenic Highways is LOS C or better. The threshold of significance is that a significant Project-related impact occurs if the addition of Project-generated trips causes a County facility (roadway segment or intersection) operating at LOS C or better, to degrade to LOS D or worse.

  The Project adversely affects traffic circulation and parking conditions in neighboring areas because of inadequate onsite parking and/or inadequate onsite circulation.

5.13.4.2 Construction Phase Impacts

Construction of the Amended Project will result in a temporary increase in traffic associated with movement of construction vehicles, equipment, and personnel on the transportation network serving the Project area. Project construction will be completed over a period lasting approximately 46 months from the time of construction mobilization, currently scheduled for April 2010. The peak construction work force for the Amended Project facilities would involve approximately 572 people per day during Month 23, with an overall daily average for the 46-month period of approximately 325 people. Assuming a worst case scenario where all workers commute in separate autos, there would be a peak of 1,144 one-way worker commute trips per day and an average of 650 one-way trips per day. Construction is also expected to generate an average of approximately 34 one-way truck trips per day over the construction period, with a peak of approximately 64 truck trips per day. However, the peak period for truck travel would be during foundation construction activities and would not coincide with the peak worker commute time frame in Month 23.

For purposes of analysis, it is assumed that many workers commuting on a daily basis will come from within Imperial County. Workers currently residing locally within the County would be expected to commute from their residences while many temporary workers from outside the County are expected to

be temporarily housed in hotels/rentals/trailer parks/campgrounds during the work week. It is expected that overall, construction workforce traffic will be originating from the following geographical areas:

- 25 Percent from Niland and areas to the north (e.g., Indio and nearby communities),
- 25 Percent from the Calipatria and Westmorland areas, and
- 50 Percent from the south including Brawley, El Centro and Imperial.

As described earlier, the Project site is linked with Brawley to the south and Niland to the north by SR 111 in combination with Sinclair Road or Eddins Road to Gentry Road. SR 86 in conjunction with SR 111 or SR 76 links the Project site with the cities of Imperial and El Centro. The City of Calipatria is linked to the site by a combination of either Eddins Road, or Lindsey Road to Gentry Road, as indicated in Figure 5.13-2. It is expected that construction-related traffic approaching from the directions of the cities of Imperial and El Centro will be split between SR 11 and SR 86 while traffic from the direction of Niland will follow SR 111 south to Sinclair Road and turn west to the site. Traffic from the southern direction of Calipatria on SR 111 is expected to be split between Eddins Road and Lindsey Road when travelling west to Gentry Road and into the site. The assignment of daily and peak hour construction related traffic to these roadways is summarized in both Table 5.13-8 and Figure 5.13-4.

Project construction will require truck deliveries of large Project equipment (e.g., steam turbine components), the use of heavy equipment (e.g., trenching and earthmoving equipment, cranes, well drilling equipment), and deliveries of construction materials such as cement, aggregate, structural steel, pipe, cable, etc. An average of 17 truck deliveries per day will be made to the site over the course of the 46-month construction period. Some truck deliveries will include hazardous materials to be used during Project construction (see Section 5.6, Hazardous Materials). Deliveries will typically occur between 7:00 A.M. and 5:00 P.M. on weekdays.

Vehicles used to transport heavy machinery and construction materials and equipment to the site will require transportation permits when the loads are in excess of size thresholds set forth in the California Vehicle Code Section 35780. Vehicles used during Project construction that are over-size, over-weight, over-width, or over-length will require a transportation permit from Caltrans and/or Imperial County depending on the route followed. Where possible and cost-effective, rail lines will be used to transport heavy equipment and machinery to the Project vicinity. As noted earlier, there is a switchyard east of SR 111 at Sinclair Road that will provide a nearby unloading point, minimizing travel times and roadway exposure of over-size, over-weight, or over-length cargoes.

As mentioned above, truck deliveries will average approximately 17 per day over the entire construction period. During Month 27, the peak construction truck delivery will reach approximately 32 truck deliveries per day. This would be attributable primarily to peak deliveries of cement and rebar. Truck haul operations exceeding 30 daily truck deliveries could occur during the Months 27 through 30 of the construction schedule. It is assumed that most Project truck deliveries would be routed via SR 111, then west to Sinclair Road, south to Gentry Road, west to McKendry Road, south to Boyle Road, and on into the construction laydown area.

Project construction mobilization is currently scheduled to begin in April 2010. The estimated worst-case scenario for traffic generation would occur during Month 23 of the construction schedule, which would occur in February of 2012. This is the month used for the traffic impact analysis. During this peak month,

there would be a total of 572 employees involved in the construction of the plant site and nearby well field, plus an estimated 25 truck trips per day. In order to evaluate Project related construction impacts relative to conditions at that time, baseline forecasts of future Year 2012 traffic volumes have been developed using past population growth rates. The population of Imperial County grew at a rate of approximately 16.6 percent between 2002 and 2007 or at an average rate of 3.32 percent per year. Baseline Year 2012 traffic volumes, summarized in Tables 5.13-8 and 5.13-9, assume an average growth rate of 3.32 percent per year from 2008 to 2012.

Review of the tables and comparison to traffic volumes summarized in Tables 5.13-4 and 5.13-6, show that, although increases in traffic are forecasted, all roadways are all expected to operate at an LOS B or better under without-Project conditions under Baseline 2012 conditions. The assignment of daily and peak hour Project construction-related traffic to the roadway network based upon the above assumptions is summarized in Tables 5.13-8 and 5.13-9 and Figure 5.13-4.

As shown in Table 5.13-8, the segment of SR 111 between Sinclair Road and SR 115 (East) would experience the highest increase in combined truck and workforce traffic with approximately four percent increase, while SR 78/86 between B Street and Center Street (Forrester Road) would experience less than a one percent increase. The other study highway segment of SR78/86 between Center Street (Forrester Road) and H Street would experience a 1.5 percent increase in combined truck and workforce traffic. Based on the results of the highway segment analysis during the peak construction month, the Amended Project would not significantly affect the study area highway segments. All highway segments studied are forecast to operate at LOS B or better.

Table 5.13-8 Year 2012 Baseline and Project Construction- Related Traffic on Highways[1]

Highway between Roadway	Baseline Year 2012 Daily Traffic	Baseline LOS	Project Related Vehicle Trips/Day	Added Vehicle Increase (%)	Baseline + Project Vehicle Trips/Day	Baseline + Project LOS
SR 78/86 between B Street to Center Street (Forrester Road)	14,460	B	50	<1	14,510	B
SR 78/86 between Center Street (Forrester Road) to H Street	20,650	B	300	1.5	20,950	B
SR 111 between Sinclair Road to SR 115 (East)	7,580	A	300	4	7,880	A
1. Combined Construction truck deliveries and workforce. LOS = Level of Service						

Table 5.13-9 Year 2012 Baseline and Project Construction-Related Traffic on Local Roads[1,2]

Highway/ Roadway	Baseline Year 2012 ADT	Baseline LOS	Project Vehicle Trips/Day	Added Vehicle Increase (%)	Baseline +Project Vehicle Trips/Day	Baseline + Project LOS
Sinclair Road	1,580	A	300	19%	1,880	A
McKendry Road	70	A[3]	1,200	1,600%	1,270	A[3]
Lindsey Road	1,120	A[3]	300	27%	1,420	A[3]
Eddins Road	1,840	A	300	16%	2,140	B
Severe Road	70	A[3]	600	800%	670	A[3]
Boyle Road[4]	140 (est.)	A[3]	600	430%	740	A[3]
Gentry Road	1,835	A	300	16%	2,135	B

1. Estimated as 3.32 % increase per year from existing.
2. Combined construction truck deliveries and workforce.
3. According to the Circulation/Open Space Element (Table 4, LOS are not applied to residential streets because their primary purpose is to serve abutting lots, not to carry through traffic. LOS normally applies to roads carrying through traffic between major trip generators and attractors.
4. Estimated counts.

The local roadways that are most likely to be impacted by construction worker and truck deliveries will be Sinclair, McKendry, Lindsey, Eddins, Boyle, and Gentry Roads. The expected Project-related trips along these roadways and projected LOS along these roadways are presented in Table 5.13-9. During the peak construction period, traffic on Sinclair Road west of SR 111 is forecast to increase by 300 vehicle trips per day, resulting in a traffic increase of approximately 19 percent.

As shown in Table 5.13-4, Sinclair Road has a capacity of 7,100 vehicles per day. Because forecasts of Baseline 2012 average daily traffic on this road is relatively low (1,580 ADT), the roadway will be able to accommodate large increases in traffic without reducing its LOS to a significantly adverse level (i.e., LOS D, E or F). Thus, the peak construction period traffic increases estimated above will still be far below the capacity of Sinclair Road, and will not result in a significant adverse traffic impact (see Table 5.13-9). Similarly, the remaining study roadway segments would continue to experience acceptable LOS A or B conditions.

Impacts of Combined Traffic on Local Intersections

The results of the intersection LOS analysis shown on Table 5.13-10 indicate that all study intersections would continue to operate at acceptable LOS C or better during both A.M. and P.M. peak hour analysis period. These continued good operating conditions are attributed to the very low existing background traffic and surplus intersection capacity. This shows that adding Project construction-related traffic in terms of workforce and delivery trips would still result in acceptable levels of service. In summary, the Amended Project will not change the impact conclusions and mitigation requirements developed for the original SSU6 project.

Table 5.13-10 Baseline and Baseline Plus Project Traffic Operating Characteristics[1,2]

Intersection	Type of Control	Base Year 2012				Base Year 2012			
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Gentry Road / McKendry Road	Unsignalized	A	8.5	A	N/A	A	9.5	C	16.8
Gentry Road/ Lindsey Road	Unsignalized	A	9.4	A	9.4	C	16.7	C	18.0
Gentry Road/ Eddins Road	Unsignalized	A	8.9	A	9.5	B	11.6	B	13.6
Forrester Road/ SR 78	4-Way Stop	A	9.9	B	10.9	B	10.4	B	14.4
SR 111/ Sinclair Road	Unsignalized	B	11.9	B	10.7	B	13.3	B	14.0

1. Worst case approach of intersection; generally a stop sign-controlled approach.
2. Under signalized intersection LOS calculated using 2000 Highway Capacity Manual (HCM). Unsignalized methodology; 4-way Stop intersection LOS calculated using 2000 HCM 4-Way Stop Intersection methodology.

5.13.4.3 Operation–Related Impacts

There are no anticipated potential long-term traffic impacts associated with the Amended Project's operational workforce, delivery of hazardous and non-hazardous materials to the site, and/or hauling of waste generated during operation.

Operation of the Project will require a labor force of approximately 69 full-time employees of which 28 personnel will be involved in plant operations, which are further divided in 4 rotating shifts. The remaining labor force is composed of 27 maintenance staff, 10 general/ administration staff, and 4 management staff. Assuming the worst possible case scenario where: 1) all staff are on site at the same time, 2) each employee will drive a separate vehicle to work, and 3) employees make one roundtrip from home to work per day, operation of the facility will generate approximately 138 vehicle tips per day. This worst case operation condition will not significantly impact the transportation and circulation system within the study area.

Adequate parking will be available for employees on a paved lot within the boundaries of the plant site. It is assumed that most of the permanent workforce will reside in the Calipatria, Niland, Brawley, El Centro, and other nearby communities, and that their expected route to work would be Eddins Road, Lindsey Road or Sinclair Road together with Gentry, McKendry and Boyle Roads. Alternate routes from the south would be via Forrester Road through Westmorland northbound to Gentry Road. These avenues of travel will easily accommodate the operations-related traffic. Additionally, potential employee carpools and/or ridesharing would further reduce employee-related trips.

During Project operation, the facility will generate wastes resulting from production processes, facility maintenance, and office activities. The operating waste streams and management methods are discussed in Section 5.16, Waste Management. All non-hazardous wastes will be recycled to the extent practical and the remainder removed regularly by a certified waste-handling contractor to an appropriately permitted disposal facility. There also will be periodic deliveries of materials and supplies needed for Project activities. The volume of truck traffic associated with Project operation would not affect roadway conditions.

In summary, operation of the Amended Project will generate traffic that can easily be accommodated by the existing roadway system. Facility operation will not generate substantial vehicular movement; alter present patterns of circulation; alter waterborne, rail, or air traffic; substantially increase traffic hazards to motor vehicles, bicyclists, or pedestrians; violate adopted LOS standards; generate traffic for which affected routes are not suitable; or create demand for new parking that cannot be accommodated by the Project design. Therefore, the Project is not expected to result in significant impacts on the local transportation system and the Amended Project will not change the impact conclusions and mitigation requirements developed for the original SSU6 project.

5.13.4.4 Cumulative Impacts

None of the cumulative projects evaluated would have significant traffic and transportation impacts when considered together with the Amended Project. The CHAR geothermal project site is approximately 3.4 miles from the Amended Project site and conceivably CHAR project traffic might use some of the same roadways. However, traffic conditions on these roadways are good because, among other reasons, volumes are well below capacity. Further, construction of the CHAR project is expected to be completed by the time Amended Project construction begins and the operational work force of the CHAR project is expected to be small. No other projects were identified with the potential for significant cumulative traffic impacts when evaluated together with the Amended Project. Accordingly, no significant cumulative traffic or transportation impacts are expected as a result of the Amended Project.

5.13.5 Mitigation Measures

Traffic and transportation mitigation measures are embodied in the CEC's Conditions of Certification (COC) for the original project. The Applicant proposes no changes to these COCs, as shown in the following section.

5.13.6 Conditions of Certification

The following traffic and transportation Conditions of Certification (COCs) are from the California Energy Commission's Final Decision on the original SSU6 AFC. The Applicant proposes no changes to the existing COCs for the Amended Project.

TRANS-1 The project owner shall comply with the Caltrans and other relevant jurisdiction(s) limitations on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for roadway use.

Verification: In the Monthly Compliance Reports (MCRs), the project owner shall submit copies of any permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-2 The project owner or its contractor shall comply with Caltrans and other relevant jurisdictions limitations for encroachment into public ROWs and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In the MCRs, the project owner shall submit copies of permits received during the reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-3 The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.

Verification: The project owner shall include in its MCR, copies of all permits/licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

TRANS-4 During construction of the power plant and all related facilities, the project shall develop a parking and staging plan for all phases of project construction to enforce a policy that all project-related parking occurs on site or in designated offsite parking areas.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit the plan to Imperial County for review and comment, and to the CPM for review and approval.

TRANS-5 The project owner shall consult with Imperial County, and prepare and submit to the CPM for approval a Construction Traffic Control Plan and Implementation Program, which addresses the following issues:

- Timing of heavy equipment and building materials deliveries;
- Redirecting construction traffic with a flag person;
- Signing, lighting, and traffic control device placement, if required;
- Need for construction work hours and arrival/departure times outside of peak traffic periods;
- Insure access for emergency vehicles to the project site;
- Temporary travel lane closure; and
- Access to adjacent residential and commercial property during the construction of all linear facilities.

Verification: At least 30 days prior to site mobilization, the project owner shall provide to the CPM a copy of the referenced documents.

TRANS-6 The project owner shall repair affected public ROWs (e.g., highway, road, bicycle path, pedestrian path, etc.) to original or near original condition that have been damaged due to construction activities conducted for the project and its associated facilities. Prior to start of site mobilization, the

project owner shall notify the affected local jurisdiction(s) and Caltrans (if applicable) about their schedule for project construction. The purpose of this notification is to request the local jurisdiction(s) and Caltrans to consider postponement of public ROW repair or improvement activities until after project construction has taken place and to coordinate construction related activities associated with the applicable identified local jurisdiction or Caltrans project(s) with the project owner.

Verification: Prior to the start of site mobilization, the project owner shall photograph or videotape the public ROW segment(s) to be used during construction. The project owner shall provide the CPM, the affected local jurisdiction(s), and Caltrans (if applicable) with a copy of these images.

Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the affected local jurisdiction(s) and Caltrans (if applicable) to identify sections of public ROW to be repaired, to establish a schedule to complete the repairs, and to receive approval for the action(s). Following completion of any public ROW repairs, the project owner shall provide to the CPM a letter signed by the affected local jurisdiction(s) and Caltrans stating their satisfaction with the repairs.

TRANS-7 The project owner shall provide appropriate evidence of compliance with the Airport Land Use Commission's (ALUC) regulations and conditions (e.g., Airport Land Use Compatibility Plan, etc.) for the project and any associated facilities located within an airport planning boundary of a public use airport or military air facility.

Verification: The project owner shall submit to the ALUC information as required demonstrating compliance with the ALUC's recommended condition. At least 30 calendar days prior to start of commercial operation, the project owner shall provide a copy of the ALUC's signed written determination prepared for the project to the CPM for review and approval.

5.13.7 References

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

California Department of Transportation (Caltrans), 2007. Traffic Volumes on California State Highways.

County of Imperial, 2003. General Plan, Circulation and Scenic Highways Element..

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

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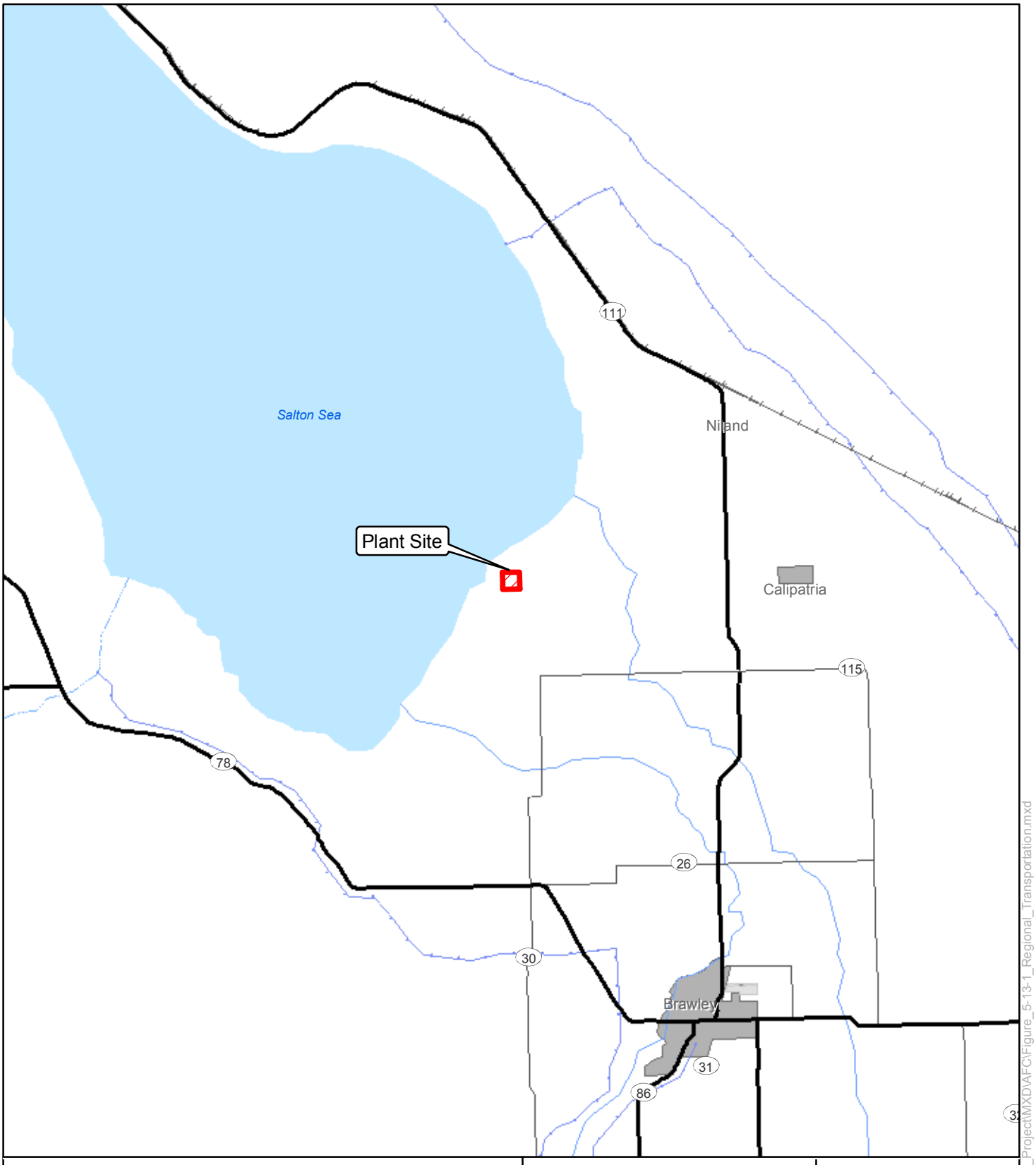

Amended SSU6 Project

Figure 5.13-1
Regional Transportation Access

CE GENERATION LLC
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE

AECOM

Project: 12676-001
Date: January 2009

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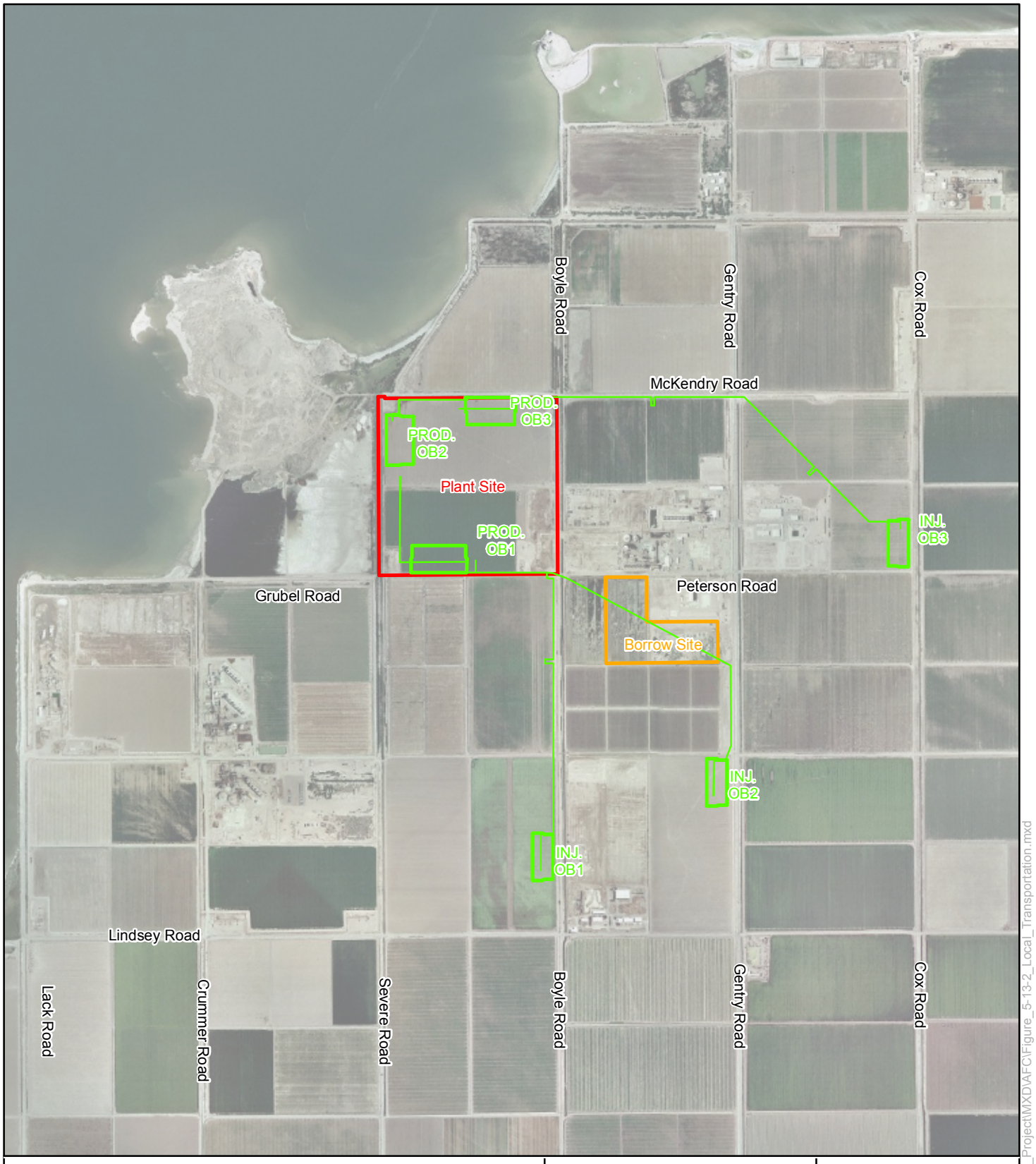

Legend

- Proposed Pipeline
- Proposed Well Pad
- Borrow Site
- Plant Site

N
W E
S

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Amended SSU6 Project
Figure 5.13-2
Local Transportation Access

CE GENERATION LLC
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE

AECOM

Project: 12676-001
Date: February 2009

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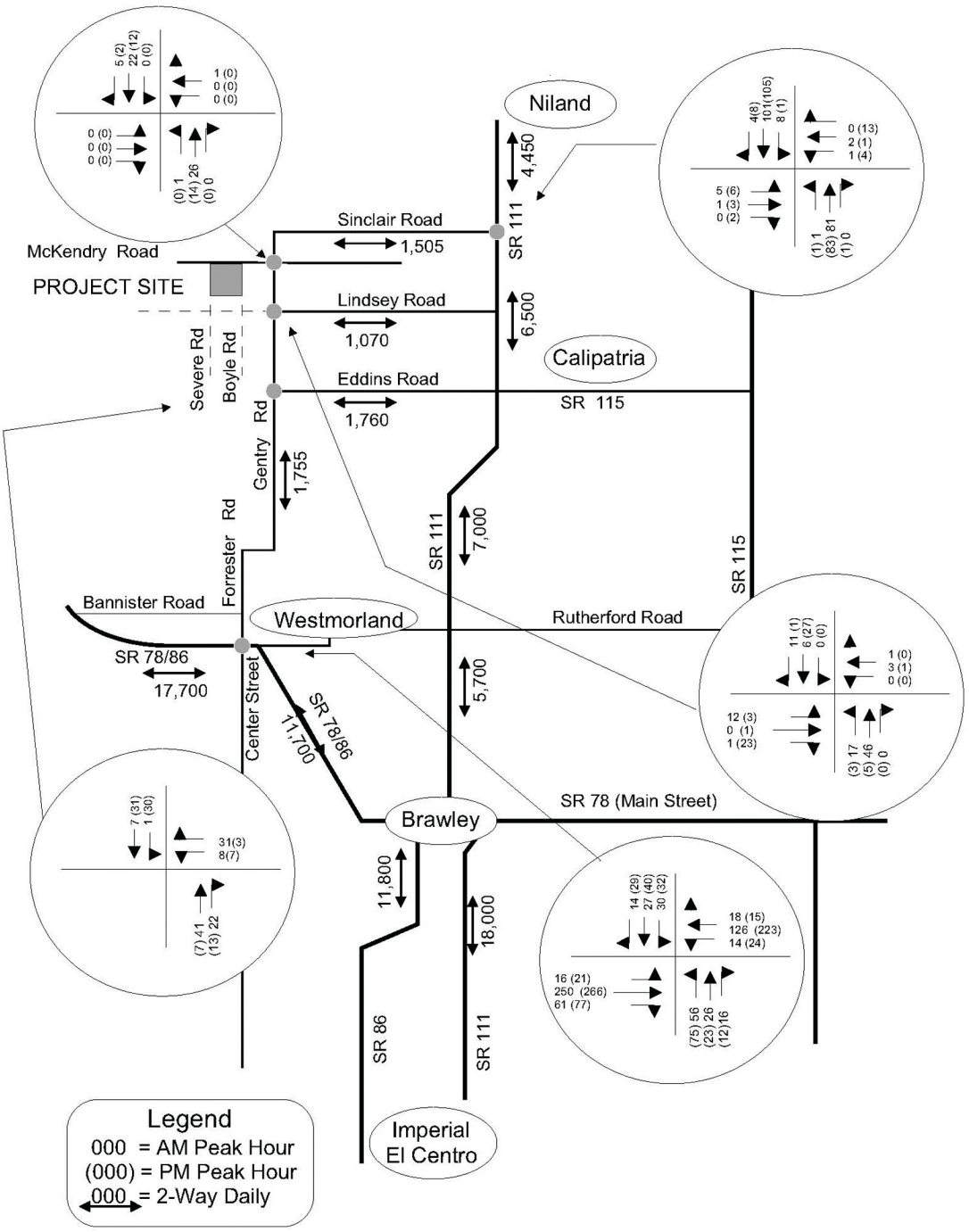

Not to Scale

Amended SSU6 Project

Figure 5.13-3
Existing Daily and Peak Hour Traffic Volumes

CE GENERATION LLC
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE

AECOM

Project: 12676-001
Date: February 2009

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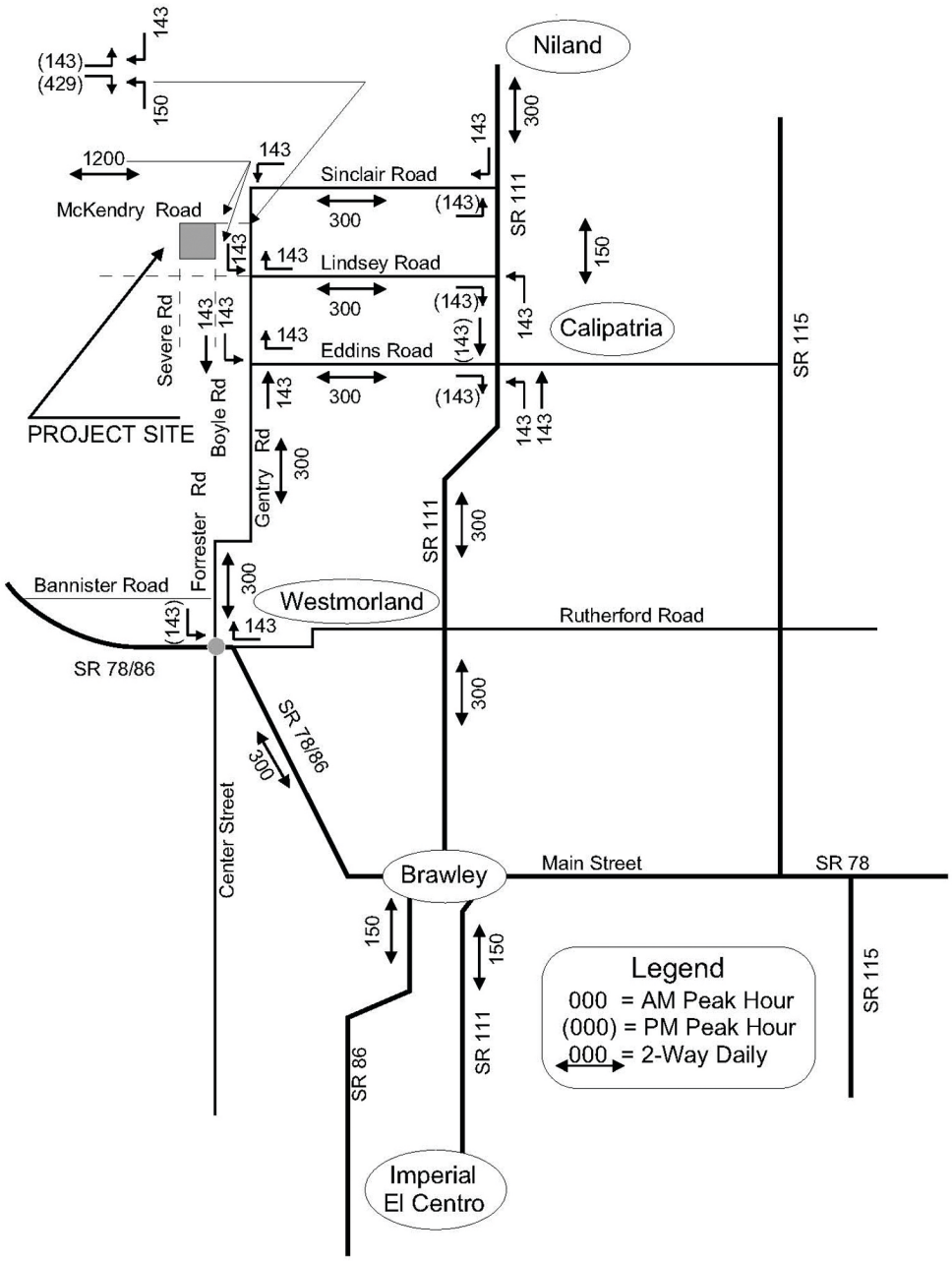

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Not to Scale

Amended SSU6 Project

Figure 5.13-4
Peak Daily and Peak Hour Project Construction Traffic

CE GENERATION, LLC
A MIDAMERICAN ENERGY HOLDINGS COMPANY AFFILIATE

AECOM

Project: 12676-001
Date: February 2009

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