## 6.13 TRAFFIC AND TRANSPORTATION

This section assesses the potential impacts to the transportation system due to activities associated with the construction and operation of the VV2 Project. The section addresses applicable LORS; describes the existing transportation system and current traffic conditions; evaluates potential project impacts; and identifies mitigation measures, as needed.

### 6.13.1 LORS Compliance

The VV2 Project will meet or exceed all applicable LORS pertaining to traffic and transportation. Table 6.13-1 and the following text sections summarize Federal, State, and local LORS that apply to traffic and transportation.

**Table 6.13-1**
**Traffic and Transportation LORS Summary**

| Regulatory Authority | Applicability | Where Discussed in AFC |
|---|---|---|
| **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 6.13.3 and 6.13.4 |
| 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 Federal Aviation Administration (FAA) requirements when there is any change. | Section 6.13.5 |
| **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 6.13.3 and 6.13.4 |
| California Streets and Highways Code, Sections 117-660-711 | Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery. | Sections 6.13.3 and 6.13.4 |
| California Vehicle Code Section 31300, 31303 *et* | Requires that the transportation of hazardous materials be on State or interstate highways that | Sections 6.13.3 and 6.13.4 |

**Table 6.13-1**
**Traffic and Transportation LORS Summary**

| Regulatory Authority | Applicability | Where Discussed in AFC |
|---|---|---|
| *seq.* | offer the shortest overall transit time possible. | |
| California Vehicle Code Section 32105 | Requires shippers of inhalation hazard or explosive materials must the California Highway Patrol to apply for a Hazardous Material Transportation License and obtain routes approved for material shipping. | Sections 6.13.3 and 6.13.4 |
| **Local** | | |
| City of Victorville Transportation/Streets and Highways Element of City of Victorville General Plan | Specifies long-term planning goals and procedures for transportation infrastructure system quality in City of Victorville | Section 6.13.3 |
| City of Victorville General Plan, Southern California Logistics Airport Community Plan Element | Together with SCLA Specific Plan, provides guide for development of SCLA as commercial air facility and other compatible uses; includes Infrastructure Plan that addresses Circulation | Sections 6.13.3 and 6.13.4 |
| City of Victorville, Southern California Logistics Airport Specific Plan | Together with other elements and policies of the Victorville General Plan (e.g., SCLA Community Plan Element), guides development of former George AFB per reuse plan developed pursuant to the Federal Base Closure and Realignment Act | Sections 6.13.3 and 6.13.4 |
| City of Adelanto Circulation Element of the City of Adelanto General Plan. | Specifies long-term planning goals and procedures for transportation infrastructure system quality in City of Adelanto | Section 6.13.3 |
| San Bernardino County Transportation and Circulation Element of The County General Plan | Specifies long-term planning goals and procedures for transportation infrastructure system quality in the County of San Bernardino. | Section 6.13.3 |
| San Bernardino County Rural Bikeways Plan | Provides for a proposed roadway-related bikeway system in the unincorporated portions of San Bernardino County. | Section 6.13.3 |

**Table 6.13-1**
**Traffic and Transportation LORS Summary**

| Regulatory Authority | Applicability | Where Discussed in AFC |
|---|---|---|
| San Bernardino Association of Governments (SANBAG) Regional Transportation Plan | Provides transportation system coordination for cities and unincorporated areas of San Bernardino County. | Section 6.13.3 |
| SANBAG Non-Motorized Transportation Plan | Provides bikeway connectivity between cities and unincorporated areas for access to recreational areas, regional parks, and recreational bicycling routes. | Section 6.13.3 |

### 6.13.1.1 Federal

Federal laws and regulations that could apply to this Project include the following:

Title 49 Code of Federal Regulations (CFR), Subtitle B, Chapter I, Part 172, Hazardous Materials Regulations, addresses 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 contain national safety standards for the transport of goods, materials and substances over public highways; require proper handling and storage of hazardous materials during transportation.

Title 49 CFR, Subtitle B, Chapter III, Parts 350–399 Motor Carrier Safety 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 lll, Part 397.9 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 l, Part 77 establishes standards for determining obstructions in navigable air space and sets forth notification requirements to the Federal Aviation Administration (FAA) 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.

### 6.13.1.2 State

State laws that could apply to the VV2 Project include the following:

California Vehicle Code Division 1, Section 353 defines hazardous materials.

California Vehicle Code Division 13, Chapter 5, Article 1 Hazardous Materials, Sections 31303 *et seq.* address the transportation of hazardous materials, the routes used, and restrictions thereon.

California Vehicle Code Division 14, Transportation of Explosives, Sections 31600-31309 regulate the transportation of explosive materials.

California Vehicle Code Division 14.1, Transportation of Hazardous Materials, Sections 32000-32053 regulate the licensing of carriers of hazardous materials including noticing requirements.

California Vehicle Code Division 14.3, Sections 32100-32109 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.* 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 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 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 address the licensing of drivers and the classification of licenses required for the operation of particular types of vehicles; also require the possession of certificates permitting the operation of vehicles transporting hazardous materials.

California Vehicle Code Division 15 Size, Weight, and Load, Chapter 5, Article 6 Section 35780 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 require 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.* regulate right-of-way encroachment and the granting of permits for encroachment on State and county roads.

#### 6.13.1.3 Local

Local standards applicable to theVV2 Project are discussed below.

**City of Victorville, Circulation Element of the General Plan**

Policy 2.1. The City will provide a plan for a locally and regionally coordinated street system for the safe and efficient movement of people and goods.

- Implementation Measure 9. The City will continue to require the installation of off-street parking facilities for new development in accordance with Title 18 to ensure that traffic congestion and traffic conflict points are minimized

Policy 3.1. The City will maintain its existing street classification system along with its design parameters except where modifications are necessary.

Policy 3.2. The City will link funding and construction of circulation improvements to development, intensity, type, and location to ensure the provision of LOS C operation.

**City of Victorville General Plan, Southern California Logistics Community Plan Element**

In combination with the SCLA Specific Plan, the SCLA Community Plan Element "contains the regulatory information regarding the development of SCLA" (City of Victorville 2005). The Community Plan Element:

- Establishes three Safety Review Areas within the Comprehensive Airport Land Use Plan (CALUP) which regulate types and levels of acceptable development relative to airport safety including an Object Free Area.

- Establishes that street improvements shall consist of asphalt concrete pavement, concrete sidewalk curb, and gutter, street lights and striping.

- Establishes a comprehensive circulation plan for the airport site and vicinity including a hierarchy of roadways.

**City of Victorville, Southern California Logistics Airport Specific Plan**

As noted above, in combination with the SCLA Community Plan Element of the City General Plan, the SCLA Specific Plan provides the regulatory information that applies to development of SCLA. The Specific Plan seeks to promote the goals and policies of the General Plan Circulation Element "through a rational arrangement of circulation infrastructure with qualities of convenience and safety." (City of Victorville 2005)

**City of Adelanto, Circulation Element of the General Pl**an

Rights-of-Way H-1. Establish all major rights of way according to the requirements of the buildout projections of the General Plan.

**San Bernardino County General Plan**

Policy TC-6. Approve development proposals only when they are consistent with the County's objective of maintaining a Level of Service (LOS C) on highways and intersections affected by the development.

**San Bernardino County Congestion Management Plan (CMP)**

Policy 2.3-1. Establishes LOS E or the current level (whichever is farthest from LOS A), as the LOS standard for intersections or roadway segments on the CMP system of roadways.

### 6.13.1.4 Agencies and Agency Contacts

Table 6.13-2 identifies agency contacts for Project traffic and transportation issues.

**Table 6.13-2**
**Agencies and Agency Contacts**

| Agency | Contact | Permit/Issue |
|---|---|---|
| City of Victorville Engineering Department<br>14343 Civic Drive<br>Victorville, CA 92392 | Judy Roberts/Marlene Parks<br>Administrative Assistant<br>(760) 955-5158 | Construction Excavation Permit for work in City Roadways |
| CALTRANS, District 8<br>655 West 2nd Street<br>San Bernardino, CA 92401 | Permit Writer<br>(909)383-4637 | Permits for Oversize Loads on State Highways |
| City of Victorville<br>Engineering Dept.<br>14343 Civic Drive<br>Victorville, Ca 92392 | Sheila Garland<br>Administrative Assistant<br>(760)955-5158 | Permits for Oversize Loads on City of Victorville Streets |
| California DMV<br>14855 Corta Drive<br>Victorville, CA 92392 | Clerk<br>(760) 245-9954 | Licenses for Transport of Hazardous Materials and Wastes |
| CHP, Motor Carrier Division<br>847 East Brier Street<br>San Bernardino, CA 92408 | Mr. Peter Salzburg<br>Motor Carrier Specialist<br>(909) 806-2400 | Approved Routes for Transport of Hazardous Materials and Wastes |

### 6.13.1.5 Required Permits and Permitting Schedules

Table 6.13-3 identifies the required traffic and transportation permits and permit schedule.

**Table 6.13-3**
**Required and Permit Schedule**

| Permit/Approval Required | Due Date |
|---|---|
| City of Victorville Construction Excavation Permit (for work in City Rights of way) | Submit plans showing work 90 days prior to construction work in public ROW |
| City of Victorville Oversize Load Permit | Apply at least 2 working days prior to oversize load on City roadways |
| Caltrans Oversize Load Permit | Apply at least 7 working days prior to oversize load on State highways |

## 6.13.2 Environmental Setting

This section describes baseline traffic and transportation conditions in the Project area.

### 6.13.2.1 Regional Setting

Regional access is provided to the VV2 Project site and the entire Victorville area by U.S. 395, Interstate 15 (I-15) and Palmdale Road (State Route 18), as indicated in Figure 6.13-1. U.S. 395 is a primary north/south regional arterial that extends northerly along the eastern side of the Sierra Nevada Mountain Range to Reno, Nevada. It extends southerly to I-15 and provides access to the Los Angeles and San Bernardino areas. U.S. 395 passes the Project site approximately three miles to the west and is linked to the Project site by Air Expressway. Between I-15 and Adelanto, U.S. 395 is primarily a two-way, two-lane facility with a rural character, typically consisting of two approximately 14-foot wide lanes with 2- to 3-foot-wide paved shoulders and exclusive turn lanes at major cross roads. U.S. 395 is classified in the City of Victorville's Circulation Element and the SCLA Specific Plan as a Super Arterial, ultimately having three lanes in each direction. When fully improved to freeway status, U.S. 395 will bypass the City of Adelanto on the west side.

I-15 extends southerly from the City of Victorville through San Bernardino and Riverside to San Diego and northeasterly through Barstow and Las Vegas. It is fully improved to freeway status in the Victorville area with grade-separated interchanges at Bear Valley Road, Palmdale Road, Hook Boulevard, Mojave Drive, "D" Street, and Stockton Wells Road.

SR18 (Palmdale Road) is a primary east/west connection between the Cities of Palmdale and Victorville that crosses U.S. 395 approximately five miles south of the VV2 Project area. SR 18 continues through Victorville and extends easterly through Apple Valley. It is typically a two-way, two-lane facility. The intersection of U.S. 395 and SR 18 has been improved by Caltrans and is controlled with traffic signals. An upgrade (widening) to SR 18 is proposed (the High Desert Corridor project); however, this upgrade will not occur until after the VV2 Project is operational.

As shown on Figures 6.13-1 and 6.13-2, other regionally significant roadways include Air Expressway which extends westerly from the SCLA site to U.S. 395; Village Drive which extends southerly from Air Expressway to I-15; and National Trails Highway which also extends southerly from Air Expressway to I-15.

### 6.13.2.2 Local Setting

Access to the VV2 Project site itself currently is through Colusa Road (from the west) and Helendale Road (from the north), both unpaved public roadways, and from the south, via an unpaved roadway across SCLA that connects to the existing Phantom Street East. As discussed elsewhere in the AFC, access to the Project site during construction and operation will be from the south through the City of Victorville's planned upgrade of Perimeter Road to a four-lane, paved roadway. The Perimeter Road upgrade will be implemented by the City to serve the northern areas of the SCLA Planning Area, including the VV2 Project site. This upgrade will be completed prior to the beginning of VV2 Project construction in the summer of 2008. The Perimeter Road upgrade will extend a short distance north of Colusa Road to the point where the VV2 Project site access road will take off from the upgraded roadway.

As shown on Figure 6.13-2, the primary roadways providing circulation at SCLA include Air Expressway, Phantom Street, George Boulevard (formerly Cory Boulevard), Nevada Street, Sabre Boulevard, and Mustang Street. Air Expressway, which extends easterly from U.S. 395 to National Trails Highway, provides the primary means of access to SCLA. The main gate to what was previously George AFB was at Phantom Street (now Phantom Street West) with a secondary (housing) gate at Cory Boulevard (now George Boulevard). Phantom Street West extends northerly from Air Expressway approximately one mile and then angles to the east and then to the south where it meets a new road, Phantom Street East (formerly El Evado Road) which now extends back southerly to Air Expressway. George Boulevard extends northerly from Air Expressway to Nevada Street and Phantom Street.

With the planned upgrade of Perimeter Road prior to the start of Project construction , the VV2 Project site will be linked to the central area of the City of Victorville by a combination of Phantom Street East and West, Air Expressway and Village Drive or National Trails Highway. The site will be linked to the City of Adelanto by a combination of the upgraded Perimeter Road, Phantom Street West and East and Air Expressway.

Air Expressway is a regional arterial roadway that extends easterly from U.S. 395 past SCLA to the City of Victorville, currently as a variable-width facility. The roadway is a two-lane facility between U.S. 395 and the Adelanto city limit, where it widens to four lanes to Village Drive and then narrows back to two lanes to National Trails Highway. The intersection of Air Expressway and U.S. 395 is currently controlled with stop signs on all four approaches. The City of Adelanto has indicated they expect to signalize the intersection in the future. The City of Adelanto's Circulation Element indicates long term

improvement of Air Expressway within Adelanto to four-lane arterial status in a 100-foot right-of-way (ROW) (City of Adelanto, 1994; Coapstick, 2007). Air Expressway is classified as a Super Arterial in the City of Victorville's Circulation Element and SCLA Specific Plan with long term improvement to six-lane status with painted median, eight-foot bike lanes, and a ten-foot parking lane on both sides between U.S. 395 and Phantom Street East (City of Victorville, 2005). From Phantom Street East to National Trails Highway, Air Expressway is classified as an Arterial with two lanes in each direction, eight-foot bike lanes, and ten foot parking lanes on each side. Air Expressway is designated as a truck route in the Circulation Element of the City of Victorville's General Plan. The intersections of Air Expressway with Phantom Road East, Phantom Road West, George Boulevard, Village Drive and National Trails Highway are signalized.

Please note that, as mentioned in Section 6.1, General Information in the discussion of potential cumulative projects, the High Desert Corridor project is planned to upgrade SR 18 between the City of Palmdale and the Victorville area. Between U.S. 395 and I-15, the route will be mostly freeway and for much of the route, will follow the alignment of Air Expressway. Construction of this upgrade to SR 18 is not expected to begin before approximately 2012, by which time the VV2 Project will have completed construction and be in operation. Since the operations phase traffic volumes of the VV2 Project are very small (as discussed later in this section, a permanent work force of 36 to cover 24 x 7 operations and a few truck deliveries/shipments per day), the SR 18 project will not affect or be affected significantly by the VV2 Project.

Village Drive is a four lane facility extending southerly from Air Expressway to Mojave Drive and the central area of the City of Victorville. It is designated as an arterial in the City's Circulation Element. Phantom Street West connects with Air Expressway and continues as a four lane roadway until Nevada Avenue and Desert Street. This section of Phantom is currently a 52-foot wide, four lane facility with no turn lanes, parking spaces, or bike lanes. The extension of Phantom Street to the east and south back to Air Expressway (formerly El Evado and now Phantom Road East) is a four lane facility with curbs and an approximate paved width of 64 feet. Traffic control in this area is currently limited to stop signs with the exception of a flashing red light at the intersection of Phantom and Mustang Streets.

The section of Phantom Street from Nevada Avenue to what was formerly El Evado Road was part of the El Evado Road upgrade that was completed several years ago. This segment of roadway, including El Evado Road southerly to Air Expressway is now known as Phantom Street East. Phantom Street East provides a wide ROW and direct route between Air Expressway and the proposed VV2 Project site, as compared to Phantom Street West. Therefore, the VV2 Project will direct truck traffic associated with

construction and operational activities to enter SCLA at Phantom Street East and follow Phantom Street East directly to Perimeter Road and then on to the Project site**.** Project-related commuter traffic associated with both construction and operational activities will reach the VV2 site using either Phantom Street East or West depending on what is most convenient for the driver. From Air Expressway north, Phantom Street East or West and the upgraded Perimeter Road will essentially be the only roadways within SCLA used by VV2 traffic.

Other roadways that are located within the Project vicinity but are not expected to accommodate Project related traffic are George Boulevard, Mustang Street, Sabre Street, and Starfighter Street. Except George Boulevard, these roadways are typically 25 feet wide and accommodate two lanes of traffic.

### 6.13.2.3 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 6.13-4, LOS range from A to F with LOS A representing the best conditions (free flow) and LOS representing the worst (most congested) conditions.

**Table 6.13-4**
**Level of Service Description for Roadway Sections**

| Level of Service | Interpretation | Nominal Range Volume to Capacity Ratio |
|---|---|---|
| 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 |
| 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 |
| 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 |
| 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 |

**Table 6.13-4**
**Level of Service Description for Roadway Sections**

| Level of Service | Interpretation | Nominal Range Volume to Capacity Ratio |
|---|---|---|
| E | Operations characterized by significant approach delays and average travel speeds of one-half to one-third free-flow speed. | 0.91-1.00 |
| F | Force 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 |
| Source: Transportation Research Board, 1985, 2000 | | |

Existing and Baseline Year 2009 peak hour traffic volumes on roadways potentially accommodating Project-related traffic are summarized in Table 6.13-5, together with approximate capacities and LOS. The LOS presented is based on existing ratios of traffic volumes to vehicle capacity. The Baseline Year 2009 traffic volumes reflect the ongoing SCLA master planning to include expected future development at SCLA, particularly the early operational phase of the major rail project (the "Intermodal" Project) planned at SCLA (described in Section 6.1 in the discussion of cumulative projects).

Table 6.13-5 shows that most roadways within the Project vicinity currently operate at an acceptable LOS (LOS D or better) during typical weekday periods. The table also shows that roadways are forecast to operate at acceptable LOS under Year 2009 Baseline conditions, which assume continuing planned development of SCLA as a major regional cargo distribution hub, e.g., the Intermodal Project. The SCLA Specific Plan includes a number of roadway improvements designed to provide LOS that meets the requirements of the San Bernardino County Association of Government's Congestion Management Program such as the future improvement of Air Expressway (City of Victorville, 2005).

**Table 6.13-5**
**Baseline Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service (Without VV2 Project)**

| Roadway/ Segment | Existing Conditions | | | | Year 2009 Conditions with Planned SCLA Development | | | |
|---|---|---|---|---|---|---|---|---|
| | Travel Lanes | Volume[1] | Capacity[1] | LOS | Travel Lanes | Volume[1] | Capacity[1] | LOS |
| Air Expressway / U.S. 395 to Phantom | 2 | 920 | 2,000 | A | 4[2,] | 3,480 | 6,800 | A |
| Air Expressway / Phantom to Village Dr. | 4 | 900 | 6,800 | A | 4 | 4,280 | 6,800 | B |
| Air Expressway Village Drive to Nat'l Trails Hwy. | 2 | 700 | 2,000 | A | 4[2] | 4,080 | 6,800 | A |
| Perimeter Road North of Phantom | N/A[5] | N/A[5] | N/A[5] | N/A[5] | 4[5] | 1,800 | 5,000 | A |
| National Trails Hwy South of Air Expressway | 2 | 1,200 | 2,000 | B | 2 | 1,550[3] | 2,000 | C |
| Phantom St. East | 4 | 115 | 6,800 | A | 4 | 1,670 | 6,800 | A |
| Phantom St. West | 4 | 150 | 6,800 | A | 4 | 1,980 | 6,800 | A |
| I-15 South of Nat'l Trails Hwy. | 6 | 6,000 | 10,400 | B | 6 | 7,110 | 10,400 | B[4] |
| SR 18 South/I-15 | 4 | 3,925 | 6,800 | B | 4 | 4,295 | 6,800 | B[4] |

Source: Caltrans, 2000, 2005; City of Adelanto, 2003, 2004, 2005; City of Victorville, 2006; and 2004 EIR for SCLA Specific Plan Amendment and Rail Service Project

1 Two-way volume in vehicles per hour

2 Assumes planned improvements of Air Expressway to 4-lane Arterial Status

3 Assumes pro-rata increase of Year 2025 traffic forecasts from 2004 SCLA Specific Plan Amendment and Rail Service Project EIR to represent Year 2009 background conditions

4 Year 2009 forecast assumes continued growth in traffic levels at Year 2000 to 2005 rate (Caltrans, 2000 and 2005)

5 Assumes Perimeter Road upgrade to 4-lane roadway by City of Victorville prior to start of VV2 Project construction

The City of Victorville is a member of the Victor Valley Transit Authority (VVTA), a joint power agency comprised of the Cities of Adelanto, Hesperia, and Victorville, the Town of Apple Valley, and the County of San Bernardino. The Authority operates a fixed bus route system over approximately 166 miles of roadway. Routes nearest the VV2 Project site follow National Trails Highway, U.S. 395 and Village Drive south of Clovis Street. Service is provided Monday through Saturday. However, no service is provided to SCLA or the Project site.

The City of Adelanto currently operates a demand responsive or dial-a-bus public transit system within the area. The service operates between the hours of 9:00 a.m. and 5:00 p.m. Service is provided to Victorville and special trips can be arranged to Apple Valley and Hesperia. Figure 6.13-3 shows the public transit and rail facilities of the area.

#### 6.13.2.4 Bicycle and Pedestrian Circulation

Currently there are no bicycle or pedestrian facilities in the immediate Project vicinity. However, the SCLA Specific Plan includes bike lanes on number of roadways in the greater Project area, including Air Expressway and Phantom Street East and West (City of Victorville, 2005).

#### 6.13.2.5 Airport Operations

What is now known as SCLA was originally established in 1943 during World War II as the Victorville Army Airbase, a flight training school. It continued in military service as George AFB, eventually supporting two tactical fighter wings until the Base was closed in 1989. At that time the City of Victorville annexed the site and proceeded to prepare the SCLA Specific Plan to guide reuse and redevelopment of the area. The Specific Plan includes the airport itself together with a variety of adjoining commercial, industrial, residential, and transportation related uses.

Existing airport facilities include two intercontinental runways (15,000 and 10,000 feet long) that can accommodate virtually all types of military and commercial aircraft (including 747s) with 24 hour/day tower and emergency response capabilities. Current airport operations are focused on international and domestic air cargo service with a quick to market response capability that includes 24/7 U.S. Customs Port of Entry services.

### 6.13.3 Environmental Consequences

This section discusses the potential impacts of the VV2 Project on traffic and transportation.

### 6.13.3.1 Evaluation Methodology/ Significance Criteria

For purposes of this evaluation, significant impacts will be identified as occurring when the proposed project will:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system;

- Reduce a roadway segment or intersection level of service (LOS) below acceptable levels, as defined below:

    - The City of Victorville's target for peak hour operations is LOS E or better. The threshold of significance is that a significant project-related impact occurs if the addition of project-generated trips causes a facility (roadway segment or intersection) operating at LOS E or better, to degrade to LOS F.

    - The City of Adelanto's General Plan Circulation Element does not formally state a minimum acceptable LOS with regard to evaluating impacts of a proposed project. However, a minimum of an LOS D was utilized as the criteria to determine future roadway requirements specified in the City's Circulation Element needed to accommodate long term growth. This is a commonly used minimum acceptable LOS in urban areas and is considered appropriate for roadway segments within the City of Adelanto.

    - The San Bernardino County CMP (Congestion Management Program) indicates a significant impact occurs when: 1) a facility currently operating at an LOS E or better degrades to LOS F; or 2) when a proposed project increases traffic demand at a CMP study facility with a 1992 LOS of F by 10 percent (change in volume/capacity ratio >0.10) causing or worsening LOS F (defined as volume/capacity ratio >1.00).

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

### 6.13.3.2 Construction Phase Impacts

Construction of the proposed VV2 Project would be completed over an approximately 27-month period. The peak construction work force would have approximately 767 people per day during Month 12, with an overall average for the entire construction period of approximately 360 people. Assuming a worst case scenario where all workers commute in separate autos, there would be a peak of 1,534 one-way worker commute

trips per day and an average of 720 one-way trips per day. Construction is also forecast to generate an average of approximately 15 one-way, truck trips per day with a peak of approximately 50 truck trips per day; the peak truck travel would be during foundation construction and would not coincide with the peak worker commute time frame in Month 12.

A temporary parking area of approximately three 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 includes two laydown areas totaling 50 acres; these laydown areas will also be used for construction vehicle parking and should easily accommodate Project needs with no impact to surrounding areas.

It is anticipated that the VV2 Project construction workforce will be drawn from the surrounding local and regional area, including the Los Angeles Basin. As shown in Figure 6.13-3, Project construction traffic is expected to follow either U.S. 395 or I-15 north to Air Expressway to Phantom Street (East or West,) and then north on Perimeter Road to the site. If commuting from the central area of Victorville, workers could follow Village Drive north to Air Expressway to Phantom Road East and then travel north to the site on Perimeter Road..

Table 6.13-6 summarizes existing plus Project construction-related peak hour traffic volumes on roadways in the surrounding area. As shown in Table 6.13-6, particularly in comparison to existing and Year 2009 conditions without the VV2 Project (Table 6.13-5), Project construction-related increases in traffic will be limited. Project impacts would be dispersed over a number of routes such that they will not cause a degradation of existing peak hour LOS and would not have significant impacts on existing roadway operations. All roadways except National Trails Highway are forecast to continue operating at their existing without-Project LOS and at Year 2009 Baseline LOS during peak VV2 Project construction (767 workers commuting to/from the site daily). National Trails Highway is forecast to experience a limited degradation in LOS assuming Year 2009 conditions (from LOS C to LOS D), but will still continue to operate acceptably.

VV2 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. Oversized equipment includes combustion turbines, generators, heat recovery steam generator modules, and main transformers. These items will likely be shipped by rail to the new intermodal rail yard that will be operating at SCLA by the time VV2 Project equipment deliveries occur. The equipment then will be transported by multi-axle truck the short distance to the VV2 Project without ever leaving SCLA.

**Table 6.13-6**
**Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service**
**(With VV2 Project Traffic)**

| Roadway/ Segment | Existing Conditions with Project Construction Traffic[1] | | | | Year 2009 Conditions with Project Construction Traffic[1] | | | |
|---|---|---|---|---|---|---|---|---|
| | Travel Lanes | Volume | Capacity[2] | LOS | Travel Lanes | Volume | Capacity[2] | LOS |
| Air Expressway /U.S. 395 to Phantom | 2 | 1,175 | 2,000 | A | 4[3] | 3,735 | 6,800 | A |
| Air Expressway / Phantom to Village Drive | 4 | 1,412 | 6,800 | A | 4 | 4,792 | 6,800 | B/C |
| Air Expressway Village Drive to Nat'l Trails Hwy. | 2 | 777 | 2,000 | A | 4[3] | 4,157 | 6,800 | A |
| Perimeter Road North of Phantom | 4[4] | 767 | 5,000 | A | 4[4] | 2,567 | 5,000 | A |
| Nat'l Trails Hwy South of Air Expressway | 2 | 1,277 | 2,000 | B | 4 | 1,627 | 2,000 | D |
| Phantom St. East | 4 | 712 | 6,800 | A | 4 | 2,267 | 6,800 | A |
| Phantom St. West | 4 | 320 | 6,800 | A | 4 | 2,150 | 6,800 | A |
| I-15 South of Nat'l Trails Hwy. | 6 | 6,032 | 10,400 | B | 8 | 7,142 | 10,400 | B |
| SR 18 west of I-15 | 4 | 6,200 | 6,800 | B | 4 | 4,305 | 6,800 | B |

1 Assumes Month 12 Peak Construction Traffic Levels with 767 workers

2 Two-way volume in vehicles per hour

3 Assumes planned improvement of Air Expressway to 4 lane Arterial status

4 Assumes extension of Perimeter Road north from Phantom Road as a 4-lane facility by City of Victorville prior to the beginning of VV2 Project construction.

If the rail siding on D Street in Victorville were to be used rather than then Intermodal facility at SCLA, the oversized Project equipment would be transported via multi-axle trucks along National Trails Highway to Air Expressway to SCLA, and then through SCLA on Phantom Road East to Perimeter Road and then to the Project site. The

maximum allowable load without a special permit is 80,000 pounds. Transport of oversized equipment from the D Street siding likely would require use of a truck and trailer with multiple axles, advance and trailing warning vehicles, and possibly police control in Victorville. The moving contractor would 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.

Transportation impacts associated with construction of the proposed VV2 Project would not be significant for the following reasons:

- Construction workers commuting to/from the site have available to them a number of routes toward central Victorville and Adelanto; the use of multiple routes would minimize impacts to any particularly segment of roadway. All roadways are forecast to continue operating at their existing LOS even during the peak period of VV2 construction activity when the workforce exceeds 760 construction workers or otherwise would not be impacted by the limited Project-related traffic volume increases.
- 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.

#### 6.13.5.3 Operations Phase Impacts

VV2 Project operations will generate very small amounts of vehicular traffic. The Project operations phase workforce is estimated at a total of 36 workers, who will cover operations on a 24 x 7 basis (i.e., peak hour weekday traffic will be less than 36 vehicles even if every employee commutes alone in their own vehicle). Project traffic volumes on surrounding roadways are summarized in Figure 6.13-4. VV2 Project operations also will involve truck traffic for delivery of materials and supplies as well as for other purposes such as the offsite shipment of wastes. An estimated total of approximately 68 truck trips per month are expected, an average of between two and three truck trips per day. Approximately 45 of these truck trips are expected to be shipments of solid waste from the site (primarily residual solids from the water treatment system), with the remainder deliveries of materials and supplies. Given the minimal Project traffic volumes, no changes in LOS and no significant impacts are expected.

Project truck travel will include approximately 15 deliveries per month of hazardous materials, 14 of which will be aqueous ammonia. It is expected that hazardous materials

shipments would utilize U.S. 395, Air Expressway, Phantom Street East, and the newly upgraded Perimeter Road to access the VV2 site from the south. Hazardous materials shipments will comply with applicable regulations in terms of route selection, operator training and qualifications, any transport permits to be obtained by the shipping company, etc. (also see Section 6.7, Hazardous Materials Handling).

Transportation impacts associated with operations of the VV2 Project are not expected to be significant for the following reasons:

- The VV2 Project will generate a maximum of 72 one-way employee commute trips per day spread over a 24-hour period. Truck trips and other non-employee site visits will be very small (2 to 3 truck trips per day on average) and typically, truck trips would occur during non-peak traffic periods. The addition of these very small traffic volumes to the roadway network would not alter roadway operating characteristics (LOS).
- Hazardous materials shipments will be relatively infrequent (one every two days on average) and will comply with the applicable regulations whose purpose is to ensure safe transport of hazardous materials.
- Project design will not impact the ability to provide bike lanes in the future and VV2 Project traffic levels would not have significant adverse impacts on bike lanes that might be developed.
- The Project will not have significant impacts on aircraft operations at SCLA, as discussed below.

#### 6.13.3.3 Potential Impacts on Aircraft Operations

The following subsections address potential impacts of the VV2 Project on aircraft operations at SCLA. The VV2 Project site is located approximately one mile north of SCLA, a civilian airport. Three elements of the Project were identified that could potentially impact SCLA flight operations:

- Operation of the Project's combustion turbines and HRSGs,
- Operation of power plant cooling towers, and
- Glare from the solar mirror collector array.

VV2 Project operations could lead to a number of potential issues of concern with respect to SCLA flight operations:

- VV2 facility stacks might produce a hazard to low flying aircraft due to structures extending into the airspace near the airport,

- Saturated plumes from the HRSG stacks and cooling tower might cause visibility obstructions and thus produce a hazard to aircraft operations,
- Plumes from the HRSG stacks will cause turbulence that might adversely affect flight operations, and
- The solar collector mirrors might produce a visual distraction to pilots.

The following sections assess potential impacts of VV2 Project operations on operations at the SCLA in terms of the four issues of concern mentioned above. The conclusions of these analyses are supported by real world experience under similar conditions in the immediate vicinity. The HDPP operates three combustion turbine/HRSG units and a cooling tower immediately adjacent to SCLA and approximately three miles south of the VV2 Project site. A letter from the SCLA airport operator indicating that HDPP HRSG and cooling tower plumes have not posed any hazards to flight operations at SCLA is provided as AFC Appendix L (Heldreth, 2005). The HDPP HRSG and cooling tower plumes are sufficiently similar to the expected plumes from the VV2 Project to support reliance on the SCLA letter as indicating a lack of potential hazards to aviation from the VV2 Project plumes. Additional analysis of the VV2 Project HRSG and cooling tower plumes is provided below.

**Compliance with FAA Height Restrictions.** Aviation hazards posed by surface-based structures are regulated by the FAA under Title 14 of CFR Section 77. For civilian airports such as the SCLA, FAA height restrictions are defined in 14 CFR 77.25. Section 77.25 establishes imaginary surfaces through which structures cannot penetrate. The most restrictive height limitation is called the horizontal surface (77.25(a)). Other imaginary surfaces consist of the conical surface (77.25(b), the primary surface (77.25(c)), approach surface (77.25(d)), and the transitional surface (77.25(e)). The heights restrictions defined by these surfaces are with respect to the established elevation of the airport and are not terrain conformal. Structures cannot penetrate above these imaginary surfaces.

The horizontal surface is defined as a horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is 5,000 feet for all runways designated as utility or visual, and 10,000 feet for all other runways. As SCLA runways are not designated as utility or visual, the imaginary horizontal surface applicable for the SCLA extends 10,000 feet outward.

The VV2 Project power block is approximately 1.5 miles (7,900 feet) from the nearest runway at SCLA. Therefore, the Project power block is within the extent of the

horizontal surface. The established elevation of the SCLA is 2,875 feet above sea level. The horizontal surface elevation is defined as 150 feet above the airport elevation, or 3,025 feet above sea level. The VV2 Project site is relatively flat with a very gentle slope to the north-northwest. Surface elevations range from approximately 2,770 feet mean sea level (msl) in the northwest corner of the site to approximately 2,800 feet msl in the site's southeastern quarter, 75 feet below the airport elevation. The tallest structures of the VV2 Project will be two 145-foot HRSG exhaust stacks in the power block. The HRSGs themselves will be shorter than their adjoining stacks. Other structures associated with the Project include transmission lines from the VV2 site; Segment 1 of the Project transmission line, which will extend 4.3 miles south of the Project site (and thus is the only portion of the transmission system that is of potential concern because of proximity to SCLA) will consist of steel poles (140 feet or less in height). Project structures will therefore not extend above the level of the horizontal surface and the Project will comply with 77.25(a).

The imaginary conical surface is defined as a surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet. As the VV2 Project will comply with the more restrictive horizontal surface, it will comply with the conical surface under 77.25(b).

The primary surface is defined as extending 200 feet beyond the end of each runway with a width of 1,000 feet for precision instrument runways. The height of the primary surface is equal to the height of the nearest portion of the adjacent runway. At 7,900 feet, the VV2 Project power block is well outside the primary surface and therefore the Project complies with 77.25(c).

The approach surface is centered on the extended runway centerline and extends outward and upward from each end of the primary surface. The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width out to 16,000 feet for precision instrument runways. The approach surface extends for a horizontal distance of 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways. At the distance to the power block of 7,900 feet, the approach surface has a height of 158 feet, not counting the additional 75 feet difference in elevation of the airport and the VV2 Project site. Thus, the VV2 Project will comply with the approach surface under 77.25(d).

The transitional surface is defined as extending outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond

the limits of the conical surface extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline. As the Project will comply with the more restrictive horizontal surface, it will comply with the transitional surface under 77.25(e).

**HRSG Plume Visible Plume Analysis.** A stack plume visibility analysis was conducted for the water vapor emissions of the VV2 Project HRSG stacks to determine the frequency and dimensions of visible plumes. The potential for water vapor emissions to form visible plumes depends on the amount of water vapor in the exhaust gas, the temperature and volume of the exhaust gas, and the temperature and moisture content of the ambient air.

The unsaturated exhaust plume exiting a stack mixes with ambient air and is diluted. For a given volume of stack exhaust mixed with ambient air, the following sequence of activities is used to determine whether or not the resultant vapor plume will be visible:

- First, the resultant temperature and water vapor density of the diluted plume are determined by use of temperature and mass balance equations.
- The saturation vapor pressure of water then is calculated for the resultant temperature of the diluted plume.
- The saturation vapor density of the diluted plume then is calculated from the saturation vapor pressure.
- If the vapor density of the diluted plume is greater than the saturation vapor density, then condensation is assumed to occur and the plume is considered to be visible.

The steps described above were performed on an hourly basis for an array of receptor locations of sufficient resolution to estimate frequency, direction and length of visible plumes. Dispersion modeling results from AERMOD, in the form of hourly normalized concentrations (i.e. based on 1 g/sec), and concurrent hourly values of ambient dry bulb and dew point temperature were input to a Fortran program, VIZDET (developed by ENSR) which performs the calculations described above.

This analysis was conducted with the 3-year meteorological data base used in the AERMOD air quality analysis. In addition to the AERMOD model output and meteorological data, source data including the water vapor emission rate, stack exhaust flow rate and exhaust temperature are also input to VIZDET. These input data are summarized in Table 6.13-7.

**Table 6.13-7**
**Turbine Data Required for Vapor Plume Analysis**

| **Parameter** [1] | **Value** |
|---|---|
| Water vapor emission rate | 203,205 lbs/hr |
| Exhaust flow rate | 948,891 ACFM |
| Exhaust temperature | 179.2 $^{o}$F |
| [1] Representative of full load operation. | |

The stack visible plume results were sorted by plume length to identify the maximum as well as the 50th percentile (representative average visible plume) and 90th percentile (representative worst-case) visible plumes. The results are summarized in Table 6.13-8. The maximum predicted plume length for the combustion turbine stacks is 460 meters (1,510 feet) and was modeled for just one hour out of the 3-year meteorological data base analyzed. A more representative worst-case is the 90th percentile plume length of 60 meters which is estimated to occur approximately 20 hours/year on average based on the 3-years modeled. The analysis demonstrates that visible stack plume formation is limited in terms of frequency and dimensions and visible stack plumes should not be a concern for potential impact to aircraft operations at the SCLA.

**Table 6.13-8**
**Turbine Stack Vapor Plume Modeling Results**

| **Plume Length Case** | **Length (m/ft)** | **Frequency (hrs/yr)** [1] |
|---|---|---|
| Maximum | 460/1,510 | <1 |
| 90 Percentile | 60/200 | 20 |
| 50 Percentile | 20/65 | 157 |
| [1] Average based on 3 years modeled. | | |

**Cooling Tower Visible Plume Analysis.** The Seasonal and Annual Cooling Tower Impacts (SACTI, Version 9/30/90) model was applied to assess the potential for ground-level fogging and icing impacts associated with the operation of with Project cooling tower. In addition, SACTI estimated the potential frequency and dimensions of elevated plumes. SACTI was developed by the Electric Power Research Institute (EPRI); it is a validated model designed for assessing cooling tower plume impacts and is widely accepted by State agencies for regulatory applications.

Cooling tower "fogging" occurs when the condensed water vapor plume comes in contact with the ground for short periods of time near the tower. Although this potential impact is referred to as fogging, it is not the type of area-wide atmospheric fogging that is generally thought of when the term "fog" is used. Cooling tower plume touchdown or fogging is transient and localized. The SACTI model estimates the number of hours per year that ground-level fogging will occur at specified receptor locations. Ground-level icing is predicted to occur when a visible plume touches the ground under subfreezing weather conditions. The atmospheric conditions associated with predictions of ground-level fogging are high winds (≥10 m/sec) and high relative humidity or low atmospheric saturation deficits. The high winds, which cause aerodynamic downwash of the condensed vapor plume, are the primary factor in transporting the plume to the ground.

SACTI requires hourly meteorological data including measurements of temperature, relative humidity, wind speed, and wind direction. The SACTI model was applied with the 3-years (2002-2004) of wind speed, wind direction and temperature data from the nearby Victorville Park Avenue MDAQMD meteorological station consistent with the air quality modeling. Relative humidity data from General Williams J. Fox Field in Lancaster, CA were also used. The outputs of the SACTI model are in terms of frequency of occurrence of various visible plume impacts on an annual basis and by season. The model does not provide a frequency of occurrence by daylight or nighttime periods.

The modeling was performed with a polar receptor grid centered with respect to the proposed cooling tower. Consistent with SACTI model default requirements, receptors were spaced at 100-meter increments along 16 equally spaced radials (22.5 degree increments) out to two kilometers. Typically, cooling tower fogging/icing impacts are limited to within two kilometers of wet mechanical draft cooling towers.

The cooling tower performance data required by SACTI representative of base load operations for the proposed tower wet mechanical draft cooling tower are listed in Table 6.13-9. The SACTI model was applied with all three-years of meteorological data. SACTI estimated no potential hours of ground-level plume fogging or icing. This is not surprising given the dry climate of the VV2 Project area.

**Table 6.13-9**
**Tower Performance Data Input to SACTI**

| Parameter | Value |
|---|---|
| Number of Cells | 10 |
| Height of Fan Stack | 62.3 ft |

**Table 6.13-9**
**Tower Performance Data Input to SACTI**

| Parameter | Value |
|---|---|
| Length of Tower | 300.7 ft |
| Width of Tower | 108.7 ft |
| Exit Diameter of a Single Fan Stack | 28 ft |
| Tower Heat Rejection Rate [1] | 455 MW |
| Tower Input Air Flow Rate [1] | 7900 kg/sec |
| [1] Representative of full load operation. | |

The SACTI model was also applied for both the proposed cooling tower to assess elevated visible plumes in terms of plume length frequency. The SACTI model estimated plumes were sorted by visible plume length to identify the maximum as well as the 50th percentile (representative average visible plume) and 90th percentile (representative worst-case) visible plumes. The results are summarized in Table 6.13-10. The results shown in Table 6.13-10 are for all hours (day and night) since a visible plume potentially could pose a hazard to aviation regardless of whether it is daytime or nighttime.

The maximum predicted cooling tower plume length of 1,130 ft (344 meters) extends just off the VV2 Project site and would fall well short of the nearest SCLA runway, located approximately 7,900 ft (2,400 meters) from the VV2 power block. In addition, given the prevailing wind from the south, visible plumes from the cooling tower will likely be advected away from the airport.

**Table 6.13-10**
**Tower Elevated Plume Modeling Results**

| Plume Length Case | Length (m/ft) | Frequency (hrs/yr) [1] |
|---|---|---|
| Maximum | 344/1,130 | 94 |
| 90 Percentile | 115/380 | 866 |
| 50 Percentile | 23/75 | 4,245 |
| [1] Average based on 3 years modeled. | | |

**HRSG Thermal Plume Analysis**. As shown below, potential turbulence from VV2 Project HRSG stack plumes is not expected to pose a turbulence hazard for aircraft operations at SCLA.

At the point of closest approach along a line extending north from SCLA Runway 17-35, the HRSG stacks will be approximately 1.1 miles (5,800 feet) from the departure end of the runway and 0.9 miles (4,800 feet) cross-wind. For Runway 03-21, the HRSG stacks will be approximately 2.0 miles (10,500 feet) from the departure end of the runway and approximately 1.6 miles (8,400 feet) cross wind at the point of closest approach along a line extending northeast from Runway 03-21.

The wind rose for SCLA is highly directional (see Figure 6.3-5), with prevailing winds from the south to west at the airport and very limited occurrences of winds from other directions. This wind flow reflects the very predominant flow of air through the Cajon Pass from the Los Angeles Basin into the inland desert area. The average daytime wind speed at SCLA is approximately 6 mph. At this average daytime wind speed, it would take 11 minutes for a plume to drift from the VV2 Project power block to the northbound departure end of Runway 17-35, if the wind direction allowed such transport to occur. During this time, plume turbulence will have become indistinguishable from ambient atmospheric turbulence. However, for a plume from the Project to drift over a SCLA runway, the wind would have to be from the north or northeast. For a north wind, the average frequency of occurrence is less than four percent of the time and for a northeast wind, the frequency is less than two percent of the time.

The most critical time for turbulence from a power plant plume to potentially impact aircraft operations will be when aircraft are on their final approach for landing. For the majority of the time when winds are from the south, aircraft will be landing towards the south on Runway 17. During final approach, the aircraft will pass approximately 0.9 miles west of the VV2 Project site at the nearest approach and 1.1 miles at touchdown. Likewise, if Runway 21 is active, approaching aircraft will be landing to the southwest and their final approach will be from the northeast, passing approximately 1.6 miles northwest of the VV2 Project site at closest approach and 2.0 miles at touchdown. For each case, winds would be from the south or southwest and any plumes from the Project would be advecting to the north or northeast, away from the SCLA. Consequently, it is highly unlikely that plumes from the power plant would drift over the active approach to runways at SCLA and potentially impact slow moving aircraft on final approach.

For plumes from the VV2 Project to drift over SCLA, winds will have to be from the north. The most common occurrences of winds from the northerly direction at SCLA will be during occurrences of Santa Ana wind conditions. Under Santa Ana wind flow conditions, surface winds speed are high and there is significant mechanical turbulence near the ground produced by the high wind speeds. This mechanical turbulence is expected to be significantly greater than any local turbulence produced by HRSG plumes. In addition, as stated above, the frequency of occurrence of winds from the north at

SCLA is less than four percent of the time. Thus, it is highly unlikely that a coherent plume from the VV2 Project would drift over active runways at the SCLA during Santa Ana conditions.

Even though the potential interaction of a slow moving aircraft with a power plant plume will be rare, a modeling analysis was performed to examine expected turbulence in the exhaust plumes. In this analysis, the potential vertical and horizontal plume turbulence in a power plant plume was compared to natural convective turbulence. The natural background turbulence levels in the summertime in the Victorville area can be quite significant, due to intense convective thermals from the strong solar heating. The analysis demonstrated that only in the immediate vicinity of the stack (within approximately 100 feet horizontally and 300 feet vertically), would plume turbulence approach values observed in natural convection-induced events such as strong dust devils.

Based on the modeling, it is estimated that on a typical day with an average daytime wind speed of six mph, the diameter of the exhaust plumes would be 60 meters at 200 meters elevation. Given that the final approach landing speed of the larger aircraft that use the SCLA are on the order of 120-140 knots, an aircraft at an altitude of 200 meter would pass through the plume in less than a second. At a distance of 0.9 miles (the cross wind distance from the plant site to a line along a northern extension of Runway 17-35), the turbulence in the plume is likely to be indistinguishable from natural background turbulence levels in a desert environment. Also, the speed and momentum of the aircraft will easily carry the aircraft though any plume that is encountered. Thus, if interactions occur between slow moving landing aircraft and plumes from the VV2 Project, the interactions will be very brief and the turbulence should not be significantly different from natural turbulence levels.

Aircraft taking off are unlikely to be impacted because aircraft are under full power and are accelerating during takeoff. The time a plane would be influenced by any potential turbulence from a plume is a fraction of a second and the speed and momentum of the plane would quickly carry it through any plume that was in its path.

**Solar Array Visual Distraction Potential.** The impact of the solar collector array is considered not significant for SCLA aircraft operations. Each solar collector mirror is parabolic in shape and focuses all light falling on it into its central pipe containing the heat transfer fluid, thus limiting the potential for stray reflections. The Solar Energy Generating Station (SEGS) power plant in the Mojave Desert at Harper Lake has been operating since the 1980's. In the late 1980s when new SEGS facilities were proposed, the Air Force conducted overflights of the then-existing SEGS III and IV generating units

to determine if the power plant produced visual distractions for pilots. The Air Force overflights are mentioned very briefly in Section 5.10 in the AFC submitted to the CEC for SEGS Units XI and XII (Luz, 1989). These overflights were conducted as part of the CEC licensing process for SEGS Units III through VII, for which an AFC was prepared in 1987 (Luz, 1987).

Both the 1987 and 1989 AFC documents for the SEGS facilities were reviewed during preparation of this VV2 Project analysis. The 1989 AFC states that no visual distractions were observed during the overflights and references the 1987 AFC as a basis for this conclusion. The 1987 AFC does not discuss the overflights in the main body of the AFC, and so information concerning these flights is apparently supplemental information added during the licensing process. The original Air Force documentation of the overflights was not found in either AFC document. However, both AFC documents clearly indicate that the Air Force had no objections to the construction of the SEGS facilities as proposed.

Given this history of aircraft operations in the vicinity of a nearby existing solar thermal power plant and no recorded aviation safety issues, it is not expected that the VV2 solar array will cause adverse effects on aviation operations at SCLA.

#### 6.13.5.5 Cumulative Impacts

Table 6.13-5 includes year 2009 peak hour traffic forecasts for major roadways in the VV2 Project vicinity; these forecasts assume continued development on the SCLA site, including the construction of the proposed Intermodal rail facility.

The SCLA Specific Plan includes a roadway network designed to accommodate future traffic as the SCLA area continues to develop and traffic volumes continue to grow. The Specific Plan indicates upgrading many roadways including Air Expressway to four/six lane Super Arterial status, Phantom Street East to Super Arterial status, and Phantom Street West to arterial status (City of Victorville, 2005). Completion of these roadway improvements is designed to allow the roadway network to accommodate anticipated growth acceptably. In addition, as provided in the SCLA Specific Plan, improvements to I-15 and SR 18 will occur as needed to provide acceptable levels of service per San Bernardino County CMP standards. One specific improvement project for SR18 (the High Desert Corridor project), will commence construction after VV2 Project operations begin. As shown in Table 6.13-6, year 2009 traffic forecasts for SCLA combined with traffic volumes generated by VV2 Project construction will not have a significant adverse impact on traffic conditions, and the minimal traffic volumes associated with VV2

Project operations will have negligible effect on vehicular traffic. Thus, the VV2 Project is not expected to have cumulatively considerable effects on vehicular traffic conditions.

With the minor exception of one-time deliveries of heavy equipment to the site, the VV2 Project is not expected to utilize rail services, the Project also will not utilize air transport, and, as discussed above, will have less than significant effects on local air traffic. Cumulative projects in the area (SCLA expansion and the Intermodal rail project) represent improvements in local air and rail transportation service. In summary, the VV2 Project will not have cumulatively considerable impacts on other transportation modes (rail, air, etc.).

### 6.13.4 Mitigation Measures

Although no significant adverse traffic or transportation impacts are expected during VV2 Project construction or operation, the following measures are proposed to minimize potentially adverse, but insignificant, impacts during Project construction. No mitigation measures are required or proposed during operation.

**TR-1** Develop and implement a construction phase Traffic Management Plan (TMP) in consultation with the City of Victorville for the roadway network potentially affected by construction activities at the plant site and offsite linear facilities. As needed, the TMP will address issues such as the timing of deliveries of heavy equipment and materials, possible street or lane closures, detours of construction traffic with a flagman, use of signage and traffic control devices, ensuring access for emergency vehicles to the Project site, etc.

**TR-2** Conduct construction activities in accordance with Caltrans and other applicable limitations on vehicle sizes and weights, Construction Excavation Permits obtained from the City of Victorville, Encroachment Permits from Caltrans, as well as permits and licenses from the California Highway Patrol and Caltrans for the transport of hazardous substances.

### 6.13.5 References

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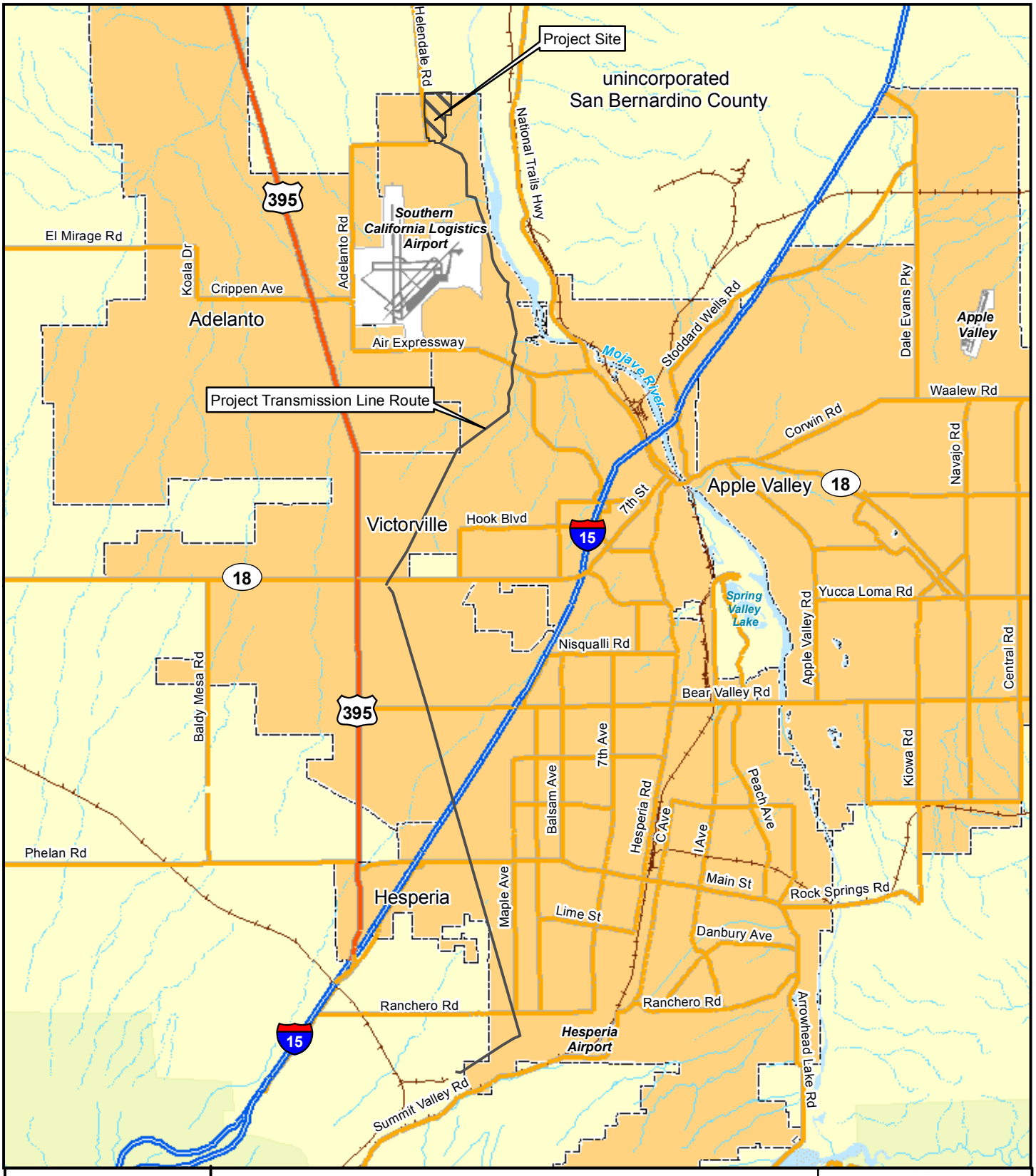


Locus Map


**Regional Transportation Access**
Victorville 2 Hybrid Power Project

**Legend**

- Limited Access Highway
- Major Road
- Highway
- Railroads

Scale: 1:170,000

0 7,000 14,000 28,000 Feet

Inland Energy, Inc.

ENSR | AECOM

Figure: 6.13-1

Date: January 2007

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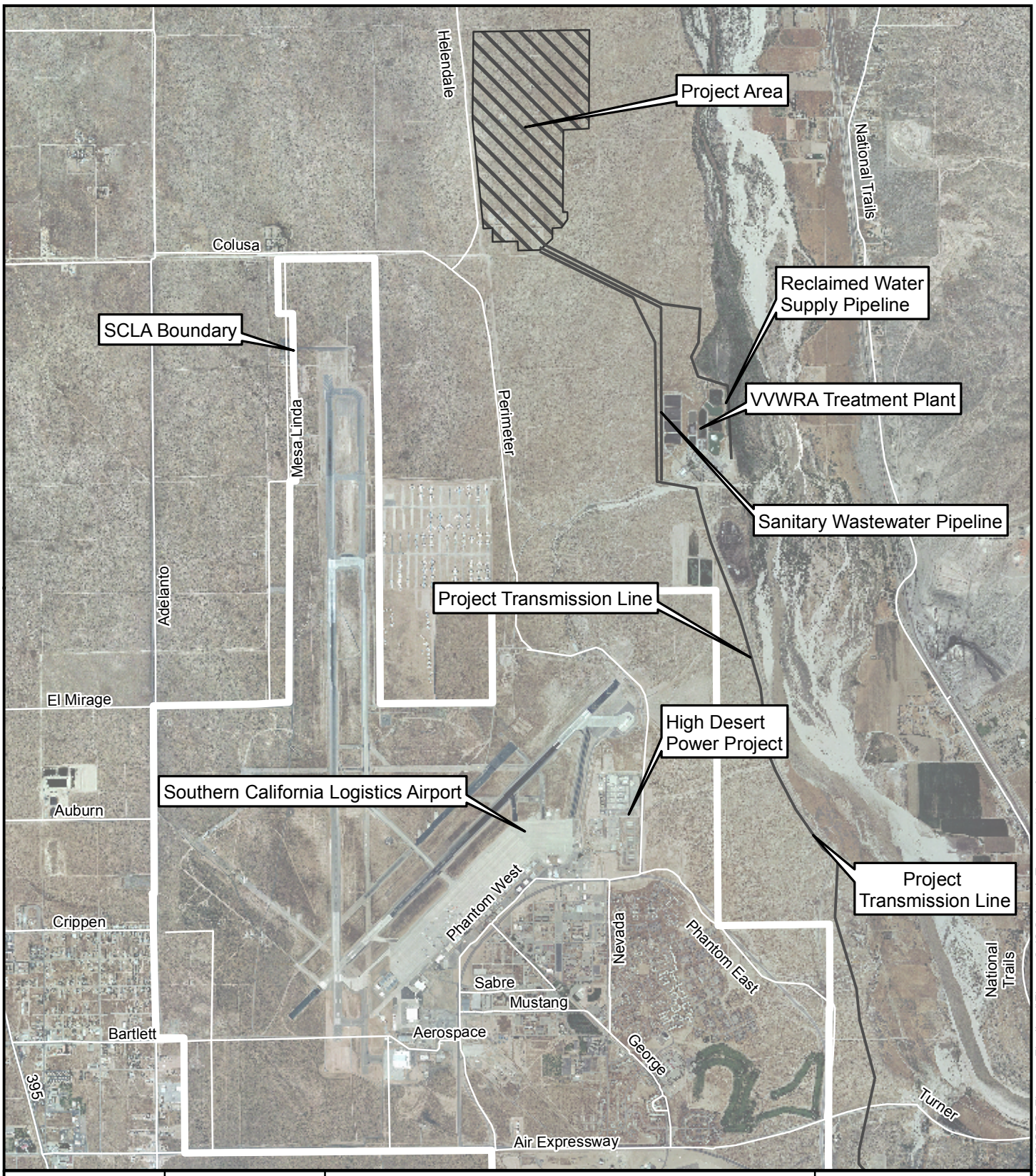


**Locus Map**


**Index Map**


**Local Transportation Access**
Victorville 2 Hybrid Power Project

Source: MapMart Aerial Imagery .61 Meter Resolution Circa 2004
1:39,000

0 2,000 4,000 6,000 8,000 Feet

*Inland Energy, Inc.*

ENSR | AECOM

Figure: 6.13-2
Date: January 2007

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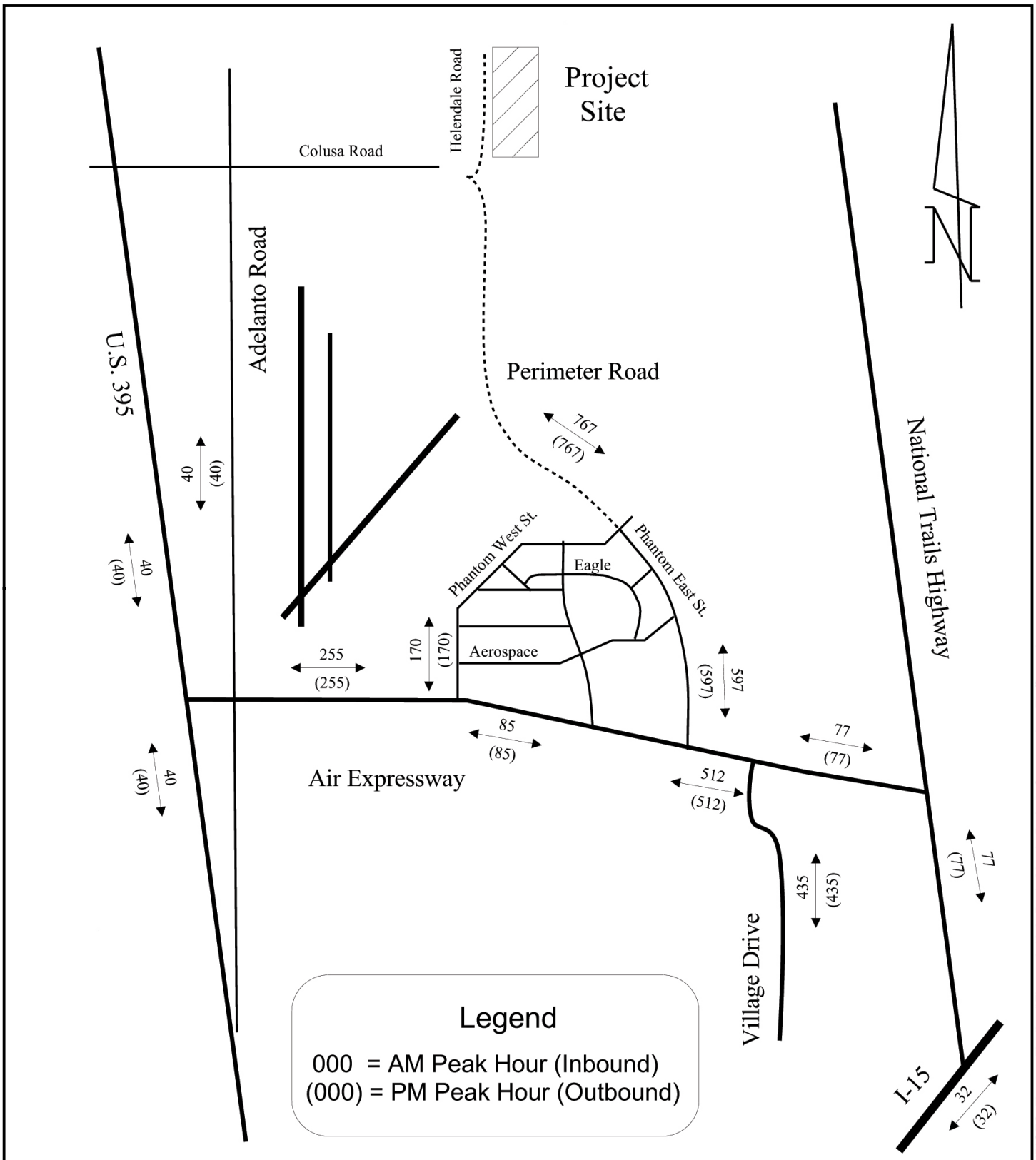


**Locus Map**


**Index Map**


**Peak Month Project Construction Traffic**
Victorville 2 Hybrid Power Project

Not to Scale

*Inland Energy, Inc.*
ENSR | AECOM

Figure: 6.13-3
Date: January 2007

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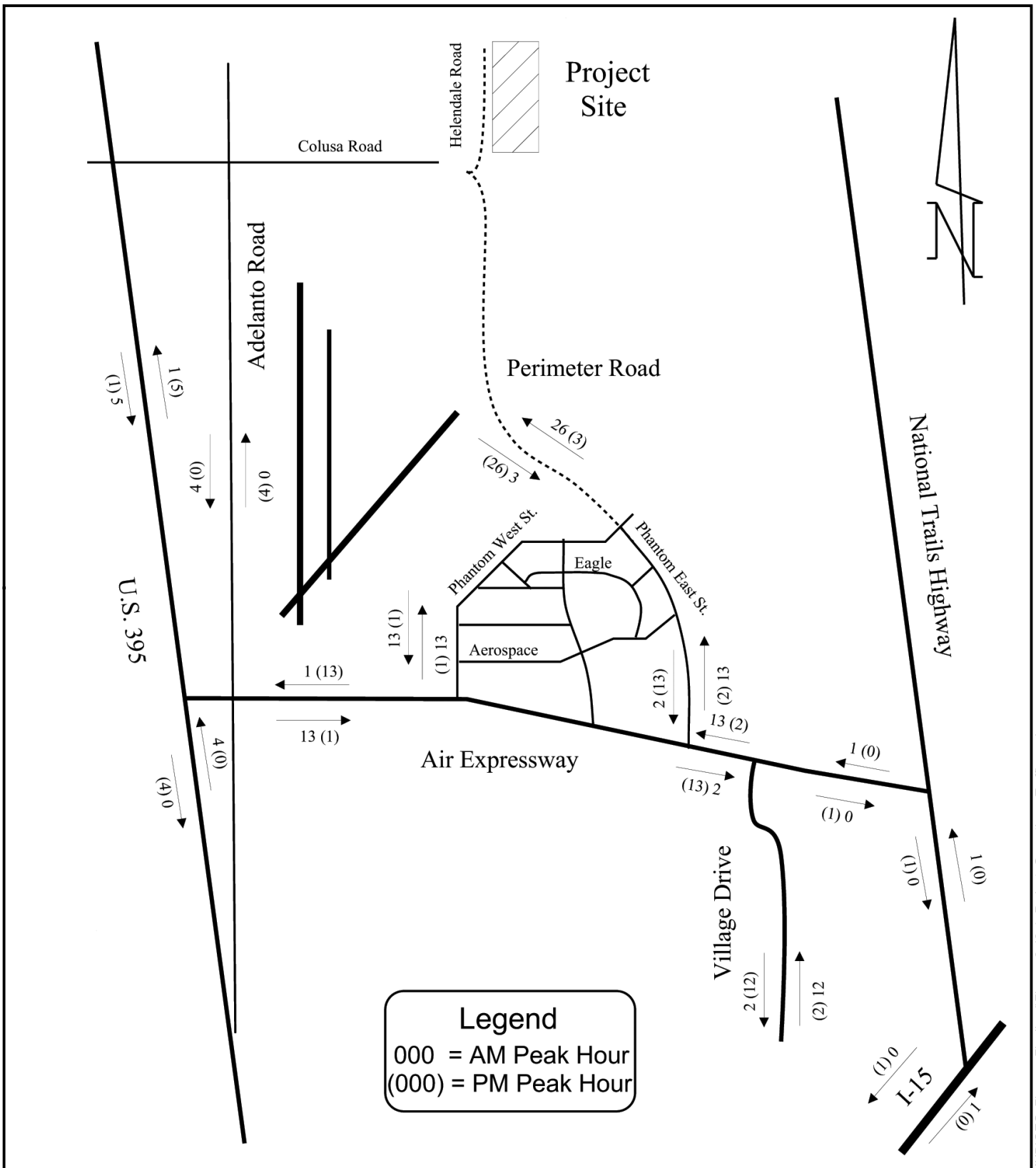


**Locus Map**


**Index Map**


**Project Operations Related Traffic**
Victorville 2 Hybrid Power Project

Not to Scale

*Inland Energy, Inc.*
ENSR | AECOM

Figure: 6.13-4
Date: January 2007

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