

# Chapter 1 Proposed Project

---

## 1.1 Introduction

The California Department of Transportation (Caltrans), in cooperation with the Los Angeles County Metropolitan Transportation Authority (Metro), proposes construction of the High Desert Corridor (HDC) as a new transportation facility in the High Desert region of Los Angeles and San Bernardino counties. The proposed 63-mile-long west-east facility would provide route continuity and relieve traffic congestion between State Route (SR) 14 in Los Angeles County and SR-18 and Interstate 15 (I-15) in San Bernardino County. The HDC was identified as E-220 in SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed into law on August 10, 2005) and is officially designated as a high-priority corridor on the National Highway System. Figures 1-1 and 1-2 are project vicinity and location maps, respectively.

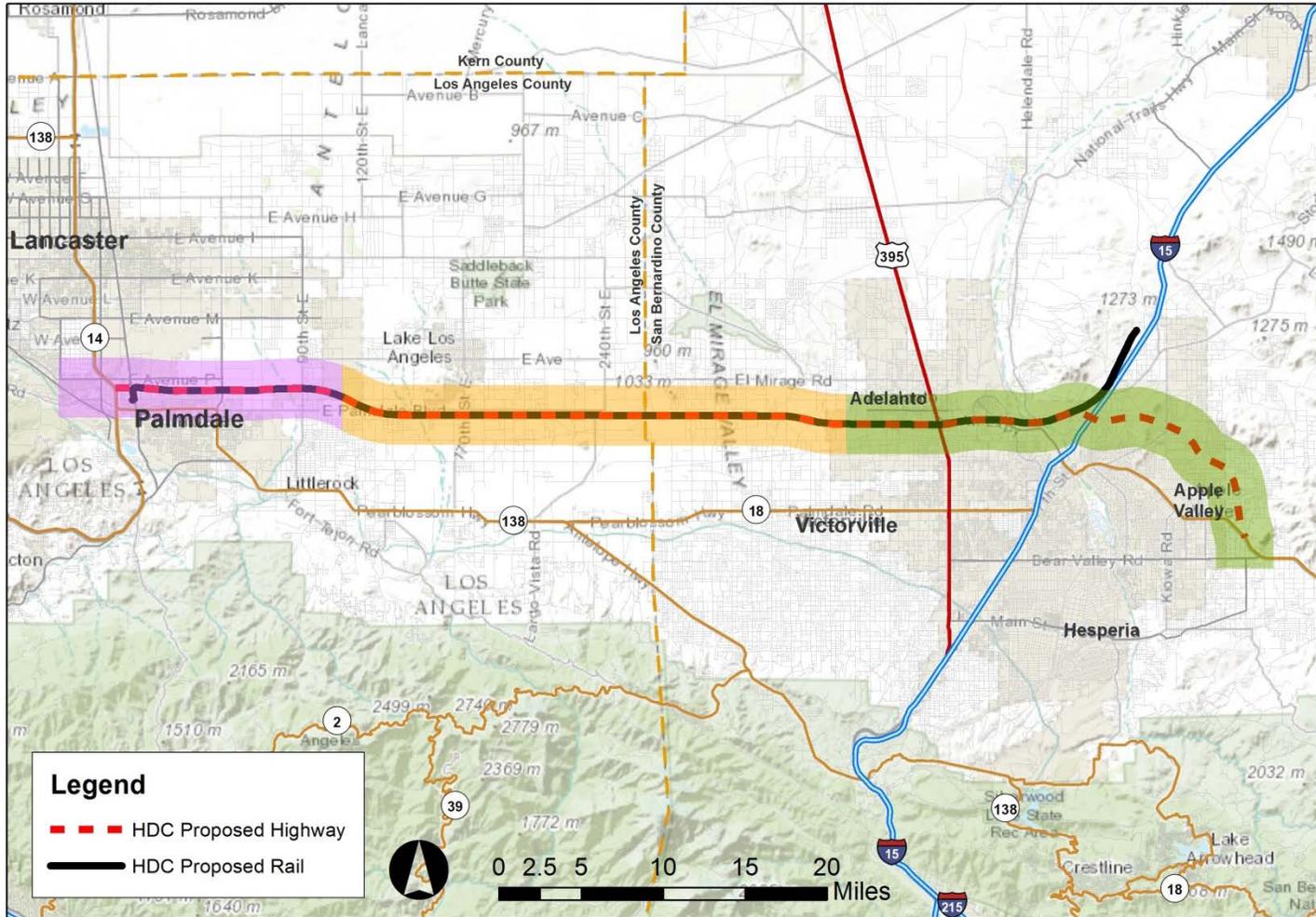
A route adoption (formal alignment selection) by the California Transportation Commission would be needed once the alignment is identified for a continuous route from SR-14 in Palmdale to SR-18 in Apple Valley. The existing portions of SR-18 and SR-138 would be relinquished (i.e., made a local road, no longer a State highway) to the local jurisdictions (i.e., cities of Palmdale, Adelanto, Victorville, and Town of Apple Valley; and Los Angeles and San Bernardino counties). Freeway cooperative agreements between Caltrans and the affected jurisdictions would also be required.

The project is subject to State and federal environmental review requirements because it involves the use of federal funds administered by the Federal Highway Administration (FHWA). Project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under CEQA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being carried out by Caltrans under its assumption of responsibility pursuant to Section 6005 of SAFETEA-LU, codified at 23 United States Code (U.S.C.) 327(a)(2)(A). Effective July 1, 2007, FHWA has assigned, and Caltrans has assumed, all U.S. Department of Transportation Secretary's responsibilities under NEPA; therefore, Caltrans is also the lead agency under NEPA.

Figure 1-1 Project Vicinity Map



Figure 1-2 Project Location Map Showing High Desert Region



|   |   |  |
|---|---|--|
| <b>ANTELOPE VALLEY</b><br>Los Angeles County<br>Lancaster, Palmdale | <b>HIGH DESERT</b><br>Los Angeles County–San Bernardino County<br>Lake Los Angeles, El Mirage | <b>VICTOR VALLEY</b><br>San Bernardino County<br>Adelanto, Victorville, Apple Valley, Hesperia |
|---|---|--|

### **1.1.1 Project Location and Setting**

The High Desert is typically defined as the arid region north of the San Gabriel and San Bernardino mountain ranges. Starting in the northwestern corner of Los Angeles County near SR-138 and Interstate 5 (I-5), the High Desert extends east into Kern and San Bernardino counties. This expansive region is home to the Mojave Desert, Antelope and Victor valleys, and many small and large communities. The communities through which the proposed HDC would cross include Palmdale, Victorville, Adelanto, and Apple Valley.

While the central portion of the project area is currently sparsely developed, the HDC would connect large urban areas on the west and east ends of the HDC. Land uses in the project vicinity include residential, commercial, industrial, recreational, resource/utility, agriculture, undeveloped/vacant, and government. Beginning on the east end at SR-18 and Bear Valley Road in San Bernardino County, the HDC alignment extends northwesterly through Apple Valley, then west across I-15 into Victorville, running parallel to and north of Air Expressway Boulevard into Adelanto. The HDC then generally follows an alignment along a westward extension of Air Expressway Boulevard, with a slight northerly jog to avoid Krey Field. In Los Angeles County, the alignment continues west just to the north of Gray Butte Field, then runs parallel with Palmdale Boulevard to the south. In the vicinity of 120<sup>th</sup> Street East, the alignment crosses northwesterly across Palmdale Boulevard and Little Rock Wash to become parallel with East Avenue P-8 and end at SR-14.

### **1.1.2 Planning Background**

The need for a high-capacity transportation corridor has been recognized by State, regional, and local planners for decades. Originally conceived as the “Metropolitan Bypass” in the 1930s/40s, a freeway alignment generally following SR-138 was intended to provide a northeast bypass of Los Angeles for vehicular trips from the San Joaquin Valley to communities to the east such as San Bernardino and Victorville; however, the concept lay dormant until rapid population growth and urbanization in the last 2 decades of the 20<sup>th</sup> century led to renewed interest in the project.

Increasing traffic and safety concerns caused officials to consider the possibility of adopting a new alignment for SR-138. In 1993, Caltrans prepared a study, *The Adoption for the Route 138 Transportation Corridor*, which explored various east-west alignment options.

Between 1992 and 2002, Caltrans, in cooperation with the HDC Steering Committee, prepared a Regionally Significant Transportation Investment Study (RSTIS), which provided documentation of the need for improved transportation infrastructure to accommodate the expected continuing growth in the rapidly developing Antelope Valley and Victor Valley areas of Los Angeles and San Bernardino counties, respectively. The RSTIS Steering Committee adopted a corridor similar to that shown in Figure 1-2.

At the same time that the RSTIS Steering Committee adopted the corridor, the North County Combined Highway Corridor Study (SR-138, I-5, and SR-14) was initiated by Metro to develop a multimodal transportation plan for the northern Los Angeles County region. In 2003, Metro completed the alternatives development and screening for this study, which recommended strategies for addressing the high volume of traffic traveling between the Antelope and Victor valleys. The HDC was one of the strategies identified in the study (Metro, 2004).

In 2005, the HDC, identified as E-220, was officially recognized in Section 1105 of the Intermodal Surface Transportation Efficiency Act (ISTEA) as a High Priority Corridor on the National Highway System between Los Angeles and Las Vegas via Palmdale and Victorville.

In 2006, the High Desert Corridor Joint Powers Authority (HDCJPA) was formed to oversee the financing and construction of a freeway corridor from SR-14 in the Palmdale/Lancaster area to the cities of Adelanto, Victorville, Hesperia, and Apple Valley. Its members include the Counties of San Bernardino and Los Angeles, the Town of Apple Valley, and the cities of Adelanto, Victorville, Lancaster, and Palmdale.

In 2007 and 2009, environmental studies began on two small components of the HDC. In 2007, the City of Victorville, with oversight from Caltrans District 8, began work on Phase 1 of the HDC. This project extended between US 395 and SR-18 at the eastern end of the corridor. In 2009, Caltrans District 7 began working on the western end of the corridor by initiating the new SR-138 project between SR-14 and 100<sup>th</sup> Street East. During the course of conducting these studies and coordinating with regulatory and resource agencies for the proposed projects, it was determined that the public interest would be better served by combining the two projects into one larger one – the HDC – which incorporates the two “end pieces” and fills in the gap between them.

In April 2010, the Metro Board of Directors authorized entry into a Memorandum of Understanding (MOU) for implementation of the HDC Project, in cooperation with the following entities: HDCJPA; Southern California Association of Governments (SCAG); San Bernardino Associated Governments (SANBAG); State of California represented by Caltrans Districts 7 and 8; County of Los Angeles; County of San Bernardino; and cities of Lancaster, Palmdale, Victorville, Adelanto, and the Town of Apple Valley. On March 22, 2012, the Metro Board formally recognized the project as a Strategic Multipurpose Corridor, with the intent of providing enhanced mobility, as well as economic and environmental benefits. The Board further identified the corridor as potentially being able to accommodate a green energy production and/or transmission facility, a High-Speed Rail (HSR) feeder service line from Victorville to Palmdale, and a bikeway.

### **1.1.3 Project Overview**

The HDC Project would entail construction of a new multimodal link between SR-18 in San Bernardino County and SR-14 in Los Angeles County. It would connect some

of the fastest growing residential, commercial, and industrial areas in southern California, including Palmdale, Lancaster, Adelanto, Victorville, Hesperia, and Apple Valley. As currently planned, the project would be implemented in three segments: the Antelope Valley segment, the High Desert segment, and the Victor Valley segment.

### **Facility Segments**

#### ***Antelope Valley Segment (SR-14 to 100<sup>th</sup> Street East)***

Starting with a new freeway-to-freeway SR-14/HDC interchange, the new facility would extend east parallel with and near Avenue P-8, in Palmdale. Right-of-way (ROW) acquisition for this 10-mile-long segment would accommodate ultimate expansion to four lanes in each direction plus a high-speed passenger rail line. New local interchanges are currently proposed at 20<sup>th</sup> Street East, 30<sup>th</sup> Street East, 50<sup>th</sup> Street East, and 90<sup>th</sup> Street East. Viaduct structures would be constructed between Division Street and 10<sup>th</sup> Street East and over Little Rock Wash. There would be several required grade separations at freeway crossings. New frontage roads would be built to maintain local accessibility where street closures are required. The existing partial interchange at SR-14/Rancho Vista Boulevard would be closed, and a full interchange would be constructed at 10<sup>th</sup> Street West to provide better weaving distance with the direct connector ramps of the SR-14/HDC interchange.

#### ***High Desert Segment (100<sup>th</sup> Street East to US 395)***

This 26-mile-long freeway segment would extend from Palmdale to Adelanto, running in a west-east direction parallel and south of Palmdale Boulevard. The freeway would be three lanes in each direction, with ROW acquired to support an ultimate facility of four lanes in each direction plus a high-speed passenger rail line. New local interchanges are currently proposed at Longview Road, 170<sup>th</sup> Street, 210<sup>th</sup> Street, and 240<sup>th</sup> Street in Los Angeles County, and Oasis Road, Sheep Creek Road, and Caughlin Road in San Bernardino County. Freeway grade separations (i.e., overcrossings or undercrossings) are also proposed. Two of the build alternatives would include constructing this segment as a toll facility.

#### ***Victor Valley Segment (US 395 to SR-18)***

This 27-mile-long freeway segment would generally follow the alignment of Air Expressway Boulevard, between Caughlin Road in Adelanto and Dale Evans Parkway east of I-15 in Apple Valley, and continuing southeasterly as an expressway to join SR-18 just east of Joshua Street. The freeway portion of this segment between Caughlin Road and I-15 would be six lanes wide, continuing to Dale Evans Parkway as a four- or six-lane freeway. ROW would be acquired to support a future freeway of four lanes in each direction plus a high-speed passenger rail line. East of Dale Evans Parkway, an access-controlled, four-lane divided expressway would be constructed to connect with the existing SR-18 at Bear Valley Road. A freeway-to-freeway interchange would be constructed at the I-15/HDC/SR-18 junction. Bridge structure(s) would be constructed over the Burlington Northern Santa Fe (BNSF) and Mojave Northern railways and the Mojave River. In addition to Caughlin Road, new local interchanges are proposed at Koala Road, US 395, Phantom Road West,

Phantom Road East, National Trails Highway, Choco Road, and Dale Evans Parkway. Several additional grade separations would be required to assist with traffic flow and road safety and would be identified during detailed design.

### **Rail**

Recognizing the HDC as a multipurpose corridor with potential to connect to the expanding regional rail system, the project may include a center-median HSR feeder service between Palmdale and Victorville. This feeder service would connect the XpressWest System (a planned HSR service from Victorville to Las Vegas) with Metrolink at the Palmdale Transportation Center (39000 Clock Tower Plaza Drive East) and a planned future California HSR stop at Palmdale.

### **Green Energy Production/Transmission Facility**

Continuing increases in the cost of energy, coupled with the trend to seek alternative means of environmentally sound and sustainable energy production, clearly indicate the need to support the advancement of renewable energy technologies. In this regard, the HDC would be designed as a sustainable and environmentally responsible project. Based on results of the *Draft Green Energy Feasibility Study Report* (June 2014), solar installations near the necessary electric utility infrastructure and alternative fuel charging stations at selected interchanges appear to be feasible options for the HDC Project. Support of green and renewable energy technologies will contribute to meeting Caltrans greenhouse gas (GHG) reduction goals, and Caltrans intends to incorporate the green energy component into every alternative of the HDC project.

### **Bike Route**

Under every alternative evaluated under this environmental document, the HDC Project would include Class I bicycle paths and/or Class III bicycle routes, extending approximately 39 miles along the corridor from US 395 in Adelanto to 20<sup>th</sup> Street East in Palmdale. Coordination with relevant cities has been initiated to identify local routes for bicycle connections to the master-planned bike routes within Adelanto and Palmdale (see Chapter 5).

#### **1.1.4 Planning Context**

The HDC Project is included in SCAG's 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (Project Identification Number 1C0404). FHWA and the Federal Transit Administration adopted the RTP/SCS on April 4, 2012. The project is also in SCAG's 2013 Federal Transportation Improvement Program, which was federally approved on December 14, 2012 (Project Identification Numbers LA962212, LA0G665, and SB20061702).

This project is currently funded for the Project Approval and Environmental Documents (PA/ED) phase only for a total of \$45.50M. Metro has programmed a total of \$30.0 million through the Measure R program for the environmental and preliminary engineering work along with \$15.50M from the State Regional Improvement Program. The actual funding agreement addressing this Measure R money was entered into between Metro and Caltrans in March 2011. The current

funding of \$45.5M is expected to be adequate for the completion of PA&ED phase. There is also an additional source of \$213.0 million that was identified in the SANBAG’s Measure I Strategic Plan, of which an estimate of \$16.0 to \$27.7 million may be used for the HDC in San Bernardino County over the life of Measure I (2010-2040) through all project development stages.

Support and capital funding necessary for the final design, right of way and construction of the project has not yet been programmed by Metro or any Partnering Agency. It is anticipated that the next project phases would be funded from other sources, including tolls/public-private partnership (PPP) investment, state programs, and various federal formula, earmarks, and grant programs.

Table 1-1 shows the identified funding sources for the Project Approval and Environmental Documents phase of the project.

**Table 1-1 High Desert Corridor Funding Sources (PA/ED only)**

| Source   | Funding (\$ Million) |
|--|----------------------|
| <b>Local</b>   |                      |
| Measure R (Los Angeles County- Metro)  | 30.0                 |
| <b>Federal</b>   |                      |
| Earmarks (TEA-21, SAFETEA-LU)  | 15.5                 |
| Total*   | 45.5                 |
| * It is anticipated that \$50.0 million will be allocated to complete preliminary design and environmental documents.  |                      |
| ** An additional \$16.0 to \$27.7 million of SANBAG’s Measure I Strategic Plan money may also be used for the HDC in San Bernardino County over the life of Measure I (2010-2040) during all project development stages. |                      |

Source: Caltrans, 2014

## 1.2 Purpose and Need

The purpose and need statement for any given project serves three primary functions. First, it establishes the problem, or problems, leading up to why the project is being proposed (i.e., need); second, it identifies the project objectives that would solve those problems (i.e., purpose). A third, and equally important function of the purpose and need statement, is that it provides a basis for comparing the alternatives against one another. The following sections describe in more detail the project’s purpose and need.

### 1.2.1 Purpose

The purpose of the proposed project is to improve east-west mobility through the High Desert region of southern California. This can be achieved by addressing present and future travel demand and mobility needs within the Antelope and Victor valleys. The proposed project is intended to achieve the following objectives:

- Increase capacity of east-west transportation facilities to accommodate existing and future transportation demand
- Improve travel safety and reliability within the High Desert region

- Improve the regional goods movement network
- Provide improved access and connectivity to regional transportation facilities, including airports and existing and future passenger rail systems (which include the proposed California HSR system and the proposed XpressWest HSR system)
- Contribute to state GHG reduction goals by supporting future plans for green energy features along the corridor

## 1.2.2 Need

### ***Capacity and Transportation Demand***

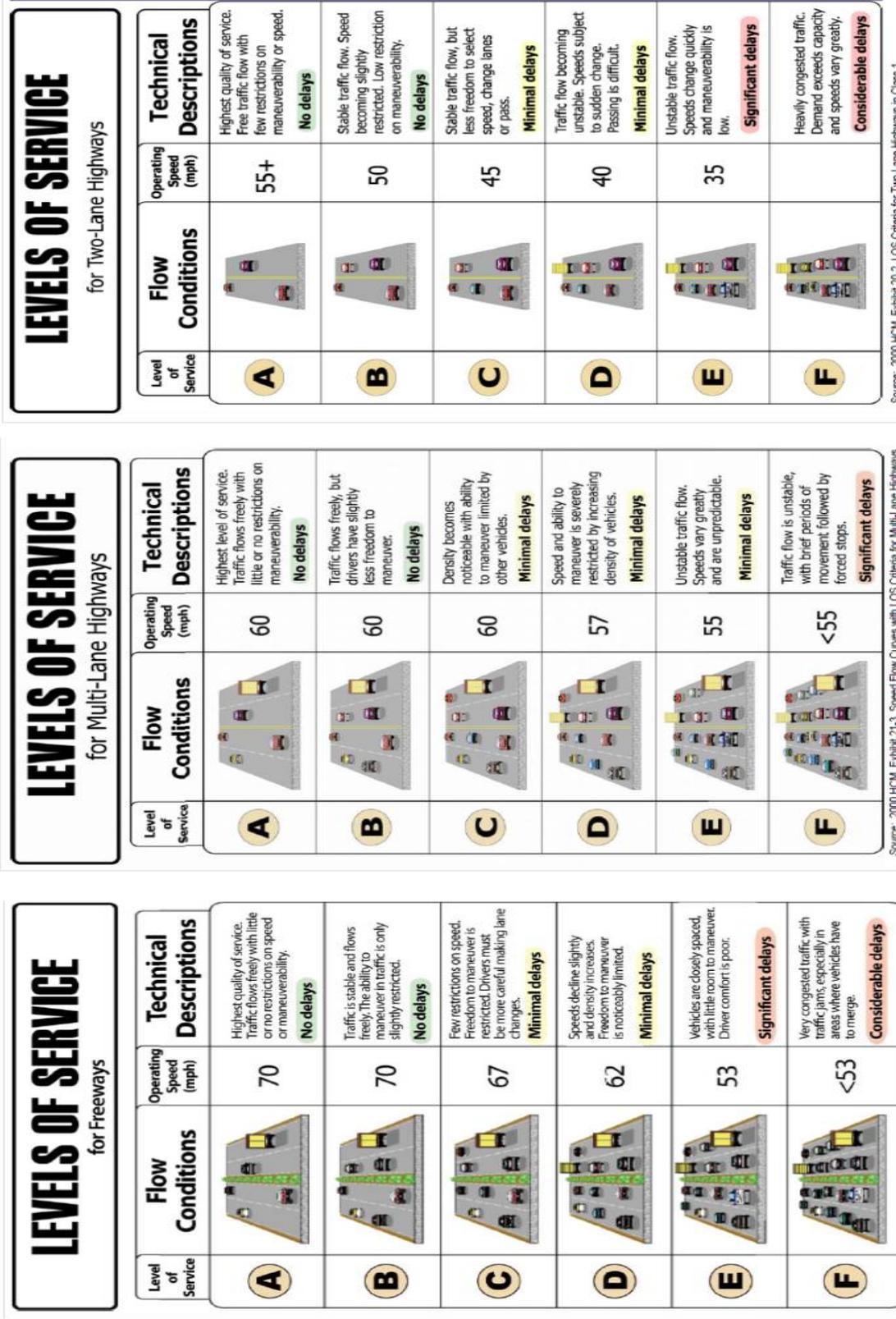
#### *Level of Service and Congestion*

The effectiveness of traffic operations on a transportation facility is measured in terms of level of service (LOS). LOS ranges from A to F, with LOS A representing the best traffic conditions (i.e., free-flowing traffic) and LOS F representing the worst (i.e., congestion and stop-and-go traffic). LOS descriptions are shown in Figure 1-3 for freeways, multi-lane highways, and two-lane highways. These LOS measurements would apply where appropriate according to the varying segments of the roadways described in Section 1.1.3.

The lack of route continuity along SR-138 and SR-18 contributes to traffic congestion and reduced LOS on adjoining highways and local streets. In addition, the corridor is increasingly unable to accommodate the existing and projected traffic demand attributed to residential and commercial growth in the Antelope and Victor valley areas. This growth is resulting in inadequate capacity along the existing west-east roadways.

Originally designed as a two-lane conventional highway, the existing SR-138/SR-18 corridor was not intended to handle current traffic flows, let alone the projected future traffic (refer to Table 1-3). With the exception of the I-15 and SR-14 components, there are currently no access controls along the corridor. A series of improvement projects have been implemented over the years; these have added lanes in various locations such that the corridor currently varies from a two- to six-lane highway, as shown in Table 1-2. Widening the highway from two to four lanes between Avenue T in Palmdale to SR-18 in Llano has been an ongoing project. Caltrans plans call for further widening in segments over the course of several years. As of late 2012, eight segments have either been completed or are in construction, and three more segments are scheduled to begin final design work in the near future; however, widening is problematic in certain areas. In Palmdale, ROW constraints can be attributed to the existing dense urban development. In Llano, further widening would result in impacts to sensitive cultural resources (see SR-138 Safety Improvement Project Mitigated Negative Declaration, approved February 15, 2014, on the Caltrans Web site, for more details [<http://www.dot.ca.gov/dist07/resources/envdocs/>]).

Figure 1-3 Level of Service for Freeways, Multi-Lane Highways, and Two-Lane Highways



Source: 2000 HCM, Exhibit 20-2, LOS Criteria for Two-Lane Highways in Class 1

Source: 2000 HCM, Exhibit 21-3, Speed Flow Curves with LOS Criteria for Multi-Lane Highways

**Table 1-2 Posted Speed Limits on SR-138/SR-18**

| Highway Segment  | Jurisdiction                                   | Speed Limit (mph) | Lanes |
|--|--|-------------------|-------|
| Happy Trails Highway   | Town of Apple Valley                           | 50                | 4     |
| D Street   | City of Victorville                            | 40                | 2     |
| I-15/SR-18   | Caltrans                                       | 70                | 6     |
| Palmdale Road  | City of Victorville                            | 35-55             | 4     |
| Palmdale Road at Cobalt Road   | City of Victorville                            | 25 (school zone)  | 4     |
| Palmdale Road  | County of San Bernardino                       | 55                | 2-4   |
| Pearblossom Highway  | County of Los Angeles                          | 50-55             | 2-4   |
| Pearblossom Highway  | County of Los Angeles, Community of Littlerock | 40-45             | 2     |
| Pearblossom Highway, 82 <sup>nd</sup> Street East                              | Community of Littlerock                        | 25 (school zone)  | 2     |
| Pearblossom Highway, East of Little Rock Creek                                 | County of Los Angeles                          | 55                | 3-4   |
| Fort Tejon Road  | City of Palmdale                               | 55                | 4     |
| 47 <sup>th</sup> Street East   | City of Palmdale                               | 55                | 4     |
| 47 <sup>th</sup> Street East, approaching Palmdale Highway                     | City of Palmdale                               | 25                | 4     |
| Palmdale Highway, 47 <sup>th</sup> Street East to 12 <sup>th</sup> Street East | City of Palmdale                               | 45-55             | 4     |
| Palmdale Highway, 12 <sup>th</sup> Street East                                 | City of Palmdale                               | 25 (school zone)  | 4     |
| Palmdale Highway, 12 <sup>th</sup> Street East to 6 <sup>th</sup> Street East  | City of Palmdale                               | 40                | 4     |
| Palmdale Highway, West of 6 <sup>th</sup> Street East                          | City of Palmdale                               | 40-45             | 6     |

Source: *High Desert Corridor Traffic Study Report, 2014.*

Constraints to widening the current SR-18/SR-138 facility also exist farther east. In Adelanto, Victorville, and Apple Valley, ROW issues exist due to existing and planned urban development. Collectively, these constraints make development of an improved continuous facility problematic.

The *Traffic Study Report, High Desert Corridor* (June 2014) was prepared to evaluate the operation of existing roadways, project those conditions 20 years into the future, and analyze operations of the proposed action. The traffic projections for future years were generated from SCAG's 2008 Regional Transportation Model, which is based in part on regional growth forecasts indicating a population increase within the combined region of more than 500,000 between 2010 and 2040. SCAG periodically updates model components for specific applications and refines inputs such as land use or transportation network components. The model version used for the HDC traffic volume forecasts was provided by SCAG in February 2010.

The LOS analysis for SR-18/SR-138 indicates, with three exceptions, that the current road network operates adequately in support of existing conditions. All signalized study area intersections operate at LOS D or better during peak hours. Three stop sign controlled intersections operate at LOS E or F as follows (see more detail information in Section 3.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities):

- Rancho Vista Boulevard/East Avenue P and 10<sup>th</sup> Street East LOS E (AM) and LOS F (PM)
- Palmdale Boulevard and 15<sup>th</sup> Street East LOS E (PM)
- Palmdale Boulevard and 70<sup>th</sup> Street East LOS F (AM)

In addition, field observation of traffic conditions indicates that the intersection of 10<sup>th</sup> Street West and West Avenue P, adjacent to the Antelope Valley Mall in Palmdale, is also congested during afternoon peak hours.

However, as population and employment increase, traffic is projected to also increase, resulting in continued degradation of travel conditions, thus reducing mobility.

Several mainline segments on SR-14 in the project vicinity are projected to operate at LOS E or F during both (AM and PM) peak hours by the design year 2040. Two southbound mainline segments of I-15 would operate at LOS E during the AM peak hour by 2040.

It is projected that 22 intersections, or 19 percent of those studied in the Traffic Study Report, would operate at LOS E or F during one or both peak hours by year 2020. In the year 2040, intersection LOS projections would worsen, with 43 of 113 intersections (38 percent) projected to operate at LOS E or F during the PM peak hour and 21 of 113 intersections (19 percent) projected to operate at LOS E or F during the AM peak hour.

Another way to evaluate the problem of insufficient capacity is by conducting a screenline analysis, which aggregates movements across a broader area. For the HDC, this analysis was performed for the network roadways crossing an imaginary north-south 'screenline' drawn along the Los Angeles/San Bernardino county line. It is estimated that approximately 66,000 vehicles crossed this imaginary screenline during an average weekday in 2010. As shown in Table 1-3, approximately 133,500 vehicles (combined eastbound and westbound daily totals) are forecast to cross the county line along five roadways in the year 2040, a doubling of traffic compared to 2010. Each of the five roadways would carry between roughly 16,000 and 45,000 vehicles per day.

**Table 1-3 High Desert Corridor Screenline Volumes for Year 2040**

| Location                            | AM Peak |       | Mid Peak |        | PM Peak |        | Night  |        | Daily  |        |
|-------------------------------------|---------|-------|----------|--------|---------|--------|--------|--------|--------|--------|
|                                     | EB      | WB    | EB       | WB     | EB      | WB     | EB     | WB     | EB     | WB     |
| East Avenue G                       | 2,962   | 548   | 2,571    | 1,633  | 3,403   | 5,751  | 1,112  | 864    | 10,048 | 8,796  |
| El Mirage Road                      | 5,050   | 1,067 | 5,573    | 4,602  | 4,478   | 8,684  | 1,803  | 1,794  | 16,903 | 16,148 |
| 233 <sup>rd</sup> Street East/SR-18 | 1,929   | 1,388 | 3,369    | 2,772  | 3,290   | 2,858  | 2,117  | 2,302  | 10,706 | 9,320  |
| SR-138                              | 5,235   | 2,072 | 7,489    | 6,518  | 4,723   | 7,507  | 5,082  | 6,473  | 22,529 | 22,571 |
| Angeles Crest Highway               | 2,763   | 305   | 3,051    | 1,748  | 3,202   | 4,718  | 316    | 393    | 9,331  | 7,164  |
| Total                               | 17,939  | 5,380 | 22,053   | 17,273 | 19,096  | 29,518 | 10,430 | 11,826 | 69,517 | 63,999 |

Note that numbers may not add up due to rounding effect.

Source: High Desert Corridor Traffic Study Report, 2014.

### Travel Time

Commuter travel time to job centers is a key factor for household location. People generally prefer to have shorter commutes to work. Current accessibility to state highway is poor, and conditions within the corridor are expected to become more congested given the aforementioned SCAG projections of population growth; therefore, projected travel speeds are forecast to be increasingly slower over time. It is projected during the design year (2040) that motorists would average approximately 33 to 34 miles per hour (mph) using existing highways. Conditions contributing to this include circuitous routing; two-lane highways without enough passing lanes in rural segments of the corridor; lower speed limits and signalized controls at intersections in urban areas; delays at railroad grade crossings; and cross/merging traffic along the entire corridor.

A travel time analysis for the year 2040 was conducted using the SCAG travel forecast model to estimate the amount of time required to travel between the government center in Apple Valley and the SR-14 interchange with SR-138 in Lancaster, as a representative and recognizable origin-destination pair. The results indicate that the freeway/expressway alternatives would result in substantial travel time savings in comparison with travel times for the future condition without the project. Without a new facility, travel times across a 70.6-mile-long route during the AM and PM peak periods are projected to be 123 minutes and 127 minutes, respectively. With a new freeway/expressway facility, travel times for the same periods across a more direct 67.0-mile-long route are projected to be approximately 77 minutes and 75 minutes, respectively. Travel times using the Palmdale to Victorville HSR facility would be generally less, under 30 minutes, based on HSR operating speeds being higher than freeway/expressway operating speeds.

**Population Growth and Transportation Demand**

As shown in Table 1-4 and Figure 1-4, the Antelope and Victor valleys have experienced explosive population growth in recent years, and this growth is expected to continue for at least the next 2 decades. This trend is fueled by the region’s proximity to the major metropolitan areas of Los Angeles and the Inland Empire, and by the availability of undeveloped land and affordable housing.

As shown in Table 1-4, the population of the largest Antelope Valley communities is projected to grow at a steady rate over the next 30 years, from approximately 344,000 in 2010 to nearly 700,000 in 2040; an increase of 103 percent, or an average of 2.5 percent per year.

The Victor Valley has experienced a similar rate of steady growth. Combined, the four largest cities within the project area are projected to grow from a population of almost 307,000 to approximately 603,000 between 2010 and 2040 (a 97 percent increase and an average of 2.25 percent per year). These population projections are much higher than the projected growth rate for California as a whole, with an approximate 1 percent per year increase expected over the same 30-year period.

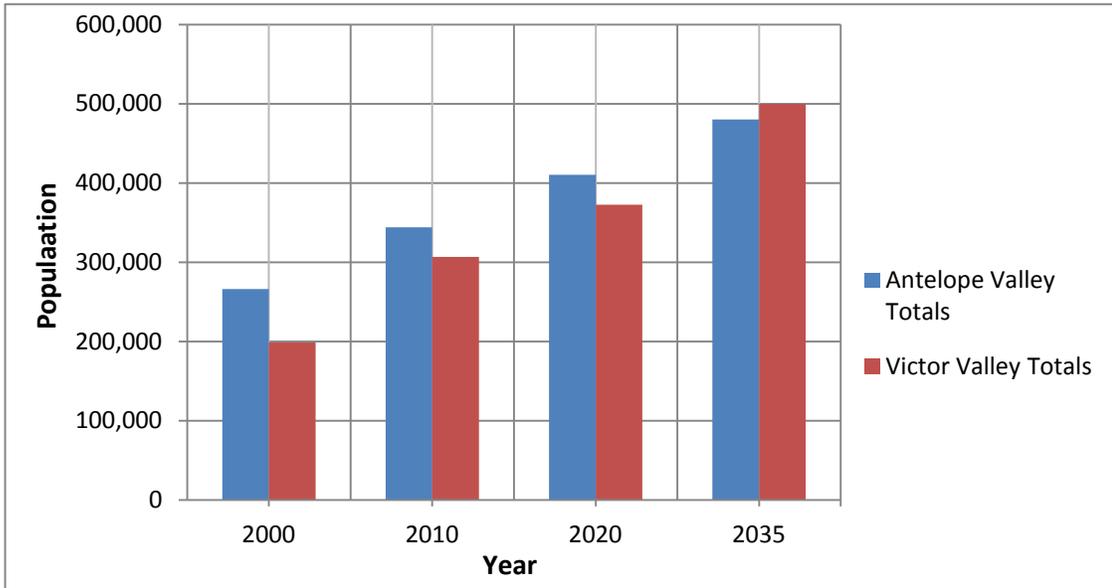
**Table 1-4 High Desert Corridor Population Growth by Community**

| City / Community              | Past           |                | Projected      |                | Projected Percent Growth (2010 to 2040) |
|-------------------------------|----------------|----------------|----------------|----------------|---|
|                               | 2000           | 2010           | 2020           | 2040           |   |
| Palmdale                      | 118,718        | 156,633        | 202,406        | 261,501        | 67                                      |
| Sun Village                   | 9,375          | 11,565         | 14,267*        | 18,547**       | 60                                      |
| Lancaster                     | 116,670        | 152,750        | 257,545        | 363,252        | 137                                     |
| Lake Los Angeles              | 11,523         | 12,328         | 18,100         | 23,530**       | 91                                      |
| Quartz Hill                   | 9,890          | 10,912         | 23,812         | 30,956**       | 184                                     |
| <i>Antelope Valley Totals</i> | <i>266,176</i> | <i>344,188</i> | <i>516,130</i> | <i>697,786</i> | <i>103</i>                              |
| Adelanto                      | 18,130         | 31,765         | 71,788         | 114,398        | 260                                     |
| Victorville                   | 64,029         | 115,903        | 138,023        | 182,275        | 57                                      |
| Apple Valley                  | 54,239         | 69,135         | 82,005         | 95,681         | 38                                      |
| Hesperia                      | 62,582         | 90,173         | 148,751        | 211,108        | 134                                     |
| <i>Victor Valley Totals</i>   | <i>198,980</i> | <i>306,976</i> | <i>440,567</i> | <i>603,462</i> | <i>97</i>                               |
| California                    | 33,871,648     | 37,253,956     | 40,643,643     | 47,690,186     | 28                                      |

\* Growth rate extrapolated based on 2000 to 2010 rate for Sun Village.  
 \*\* Unincorporated community population estimates based on a Greater Antelope Valley Economic Alliance (GAVEA) forecasted growth rate of 30 percent between 2020 and 2035.

Sources: US Census, 2010; SCAG, 2008 & 2012; California Department of Finance, 2013.

**Figure 1-4 Population Statistics and Future Trends for Antelope and Victor Valleys**



Sources: U.S. Census (existing); SCAG (future projections).

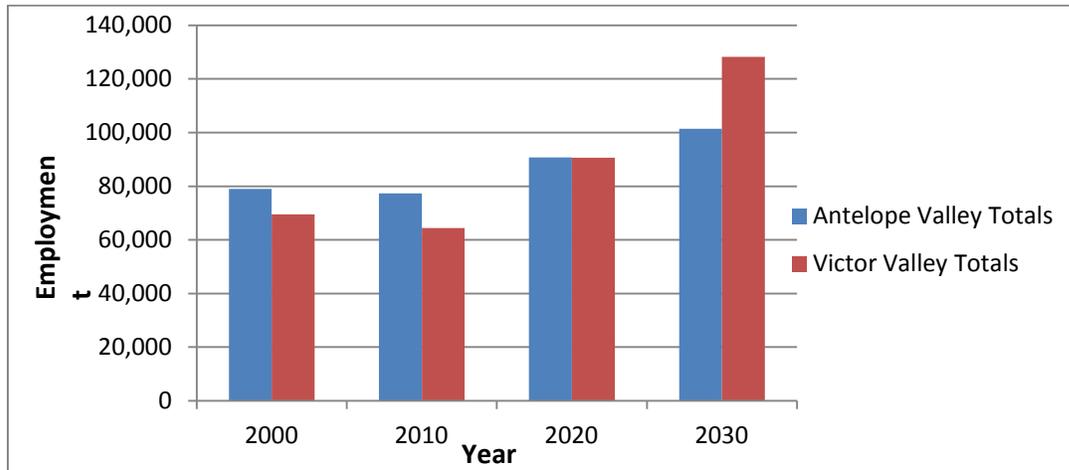
As shown in Table 1-5, the growth in population has been accompanied by a generally upward growth trend in employment. Although employment experienced a steep decline during the economic downturn since 2007, according to SCAG, the growth trend is expected to resume with the combined total jobs in the two valleys projected to reach almost 300,000 by 2040, an increase of 110 percent from the 2010 total employment figure. Figure 1-5 illustrates that employment growth in Victor Valley is projected to occur at a faster rate than in Antelope Valley. By 2020, total Victor Valley employment is expected to surpass that of Antelope Valley. By 2040, approximately 46 percent more people are expected to be employed in Victor Valley than Antelope Valley.

Concurrent with the migration of large numbers of people to the High Desert, even though there has been a lag due to the contracting economy in recent years, the area has experienced market expansion as evidenced by increases in jobs and payroll numbers. Thus, as incomes expand in this high-growth area, firms offering retail goods, consumer services, banking, and other population-serving products find it in their economic interest to open additional facilities. Meanwhile, the High Desert region's vast tracts of available undeveloped industrial land, combined with a new and growing pool of workers, suggests that southern California's production and distribution firms will ultimately be attracted to the area. This can be seen in the Victor Valley where in recent years the Southern California Logistics Airport (SCLA) has become the newest U.S. center for aircraft testing, servicing, painting, reconfiguring, and reconditioning. Firms either establishing themselves or expanding at SCLA include Boeing Aerospace, Leading Edge, Victorville Aerospace, and Southern California Aviation/Pratt & Whitney (County of San Bernardino EDA, 2008).

**Table 1-5 High Desert Corridor Employment Growth by Community**

| City / Community              | Past          |               | Projected      |                | Projected Percent Growth (2010 to 2040) |
|-------------------------------|---------------|---------------|----------------|----------------|---|
|                               | 2000          | 2010          | 2020           | 2040           |   |
| Lancaster                     | 45,870        | 46,721        | 59,291         | 73,463         | 57                                      |
| Palmdale                      | 33,150        | 30,589        | 40,047         | 47,108         | 54                                      |
| <i>Antelope Valley Totals</i> | <i>79,020</i> | <i>77,310</i> | <i>99,338</i>  | <i>120,571</i> | <i>56</i>                               |
| Adelanto                      | 4,866         | 4,871         | 12,682         | 20,884         | 328                                     |
| Victorville                   | 22,385        | 31,147        | 55,044         | 84,335         | 171                                     |
| Apple Valley                  | 19,758        | 14,479        | 17,283         | 23,662         | 63                                      |
| Hesperia                      | 22,533        | 13,889        | 28,959         | 47,998         | 246                                     |
| <i>Victor Valley Totals</i>   | <i>69,542</i> | <i>64,386</i> | <i>113,968</i> | <i>176,879</i> | <i>175</i>                              |

**Figure 1-5 Projected Antelope and Victor Valley Employment Statistics**



Sources: California Employment Development Department, 2007 to 2010; InfoUSA; SCAG; 2010 U.S. Census; California Department of Finance.

The increasing population and employment outlook will put additional pressure on an already strained road network. This is demonstrated by the results of the Traffic Study Report, as previously described.

**Safety and Reliability**

As noted previously, it is expected that the growth in east-west traffic demand across the High Desert between the cities of Victorville and Palmdale would not be matched by corresponding increases in roadway capacity. The causes of increased highway congestion within the study area are many, but they can include accidents, road work, stranded cars, and poor weather. These non-recurring incidents can create safety hazards and delays for miles, affecting commuters, trucks, and other motorists.

According to the FHWA, about one-half of congestion is caused by temporary disruptions that take away part of the roadway from use. The three main causes of nonrecurring congestion are: incidents ranging from a flat tire to an overturned vehicle, work zones, and weather.

Summaries of existing accident data for SR-18 and SR-138, along with I-15 and SR-14, are shown in Table 1-6. The crash rate for mainline SR-14 between PM 58.17 and PM 63.67 is lower than the statewide average accident rate for similar facilities. Most of the ramps accessing this segment of SR-14 have accident rates lower or comparable to the statewide average accident rate for similar facilities. However, four of the ramps that provide access to and from SR-138 have accident rates at least 1.6 times higher than the statewide average. The majority of the accidents on the off-ramps to SR-138 are rear-end collisions and broadside collisions.

The crash rate for SR-138 between PM 43.42 and PM 57.18 is 15 percent higher than the statewide average accident rate for similar facilities. The report indicates that 27 percent of the accidents are broadside accidents, mainly associated with movements through intersections and with left-turn movements in and out of driveways. Further, 39 percent of the accidents are rear-end collisions, and 13 percent are sideswipe collision, both are associated with traffic congestion. The crash rate for I-15 between PM 43.0 and PM 49.0 is approximately one-half of the statewide average rate for similar facilities, insofar as total accidents.

As noted above, Caltrans is currently making safety improvements to SR-138. This work includes adding turn pockets and full-standard shoulders, and widening to two lanes in each direction where feasible. While these improvements are resulting in a substantial safety benefit, there are still areas along the corridor needing corrective action. These areas include at-grade railroad crossings, multiple access points via private driveways and intersections, and areas of rural highway where vehicles drive and pass at high speeds. Insofar as SR-138, the improvements noted will address many of the safety and reliability issues. Notwithstanding this improvement, freeway and tollway facilities, such as proposed for the HDC, have much lower crash rates than multi-lane conventional highways due to the absence of driveways and intersections, both of which generate slower moving vehicles turning onto and off of the facility.

Flooding is another concern along the SR-18/SR-138 corridor and on local roads such as Palmdale Boulevard. There are numerous dips and “Arizona crossings” (i.e., a type of road crossing where water is allowed to flow over the road) that can flood during major rain events. In addition, in the High Desert, it is common for flash flooding to occur following intense rain events. Because most of the roads in this area were built “at-grade,” or level with the surrounding ground, there are no barriers to stop or channel stormwater flow, or prevent mud and debris from washing over them. In addition to being a safety concern, these conditions impede the ability of motorists to travel in and around the community. The ability of emergency service personnel (i.e., police, fire, paramedics) to respond to emergencies could also be affected by flooding.

**Table 1-6 Accident Rates and Collision Types for State Highways within Study Area**

| Accident Rates <sup>1,2</sup>  |                |            |          |                       |                         |           |                        |                         |       |
|--|----------------|------------|----------|-----------------------|-------------------------|-----------|------------------------|-------------------------|-------|
| Route Segment  | Total          | Fatal      | Injury   | Actual Accident Rates |                         |           | Average Accident Rates |                         |       |
|  |                |            |          | Fatalities            | Injuries and Fatalities | Total     | Fatalities             | Injuries and Fatalities | Total |
| SR-18: PM LA 0.00-4.50   | 12             | 0          | 5        | 0.000                 | 0.19                    | 0.46      | 0.018                  | 0.31                    | 0.72  |
| SR-18: PM 84.46-115.91   | 622            | 21         | 160      | 0.039                 | 0.33                    | 1.15      | 0.014                  | 0.49                    | 1.16  |
| I-15 PM 43.0-49.0  | 151            | 1          | 49       | 0.003                 | 0.13                    | 0.39      | 0.003                  | 0.17                    | 0.52  |
| SR-138 PM 43.42-69.36  | 647            | 7          | 288      | 0.015                 | 0.64                    | 1.39      | 0.017                  | 0.41                    | 0.96  |
| SR-14 PM 58.17-63.67   | 269            | 3          | 98       | 0.006                 | 0.20                    | 0.53      | 0.003                  | 0.20                    | 0.63  |
| PM   | Collision Type |            |          |                       |                         |           |                        |                         |       |
|  | Head-On        | Side-swipe | Rear-End | Broadside             | Hit Object              | Over-Turn | Auto-Pedestrian        | Other                   | Total |
| SR-18: PM LA 0.00-4.50   | 1              | 3          | 0        | 1                     | 6                       | 1         | 0                      | 1                       | 6     |
| SR-18: PM 84.46-115.91   | 34             | 64         | 296      | 153                   | 56                      | 44        | 16                     | 11                      | 674   |
| I-15 PM 43.0-49.0  | 3              | 42         | 48       | 5                     | 59                      | 19        | 0                      | 4                       | 180   |
| SR-138 PM 43.42-69.36  | 35             | 107        | 294      | 213                   | 66                      | 6         | 20                     | 9                       | 750   |
| SR-14 58.17-63.67  | 4              | 46         | 110      | 34                    | 123                     | 15        | 2                      | 3                       | 337   |
| 1. Period: 4/1/2009 to 3/31/2012.  |                |            |          |                       |                         |           |                        |                         |       |
| 2. Accident rate expressed as number of accidents per million vehicle miles. |                |            |          |                       |                         |           |                        |                         |       |

Source: TASAS-TSN Table B, Caltrans District 7.

Whenever a major highway facility is closed due to flooding, natural disaster, or other emergency, traffic jams result when motorists seek alternate travel corridors. Commuters, trucks, and other commercial vehicles traveling between the High Desert and the Los Angeles Basin on a regular basis would be significantly delayed by a closed facility.

Recent emergencies and events have closed parts of the existing highway network for extended periods of time. Interstates 5 and 15 and State Routes 2, 14, 18, and 138

have all been closed at some point in the recent past due to inclement weather, accidents, wildfires, or earthquakes. A list of recent closures includes:

- 2011 – The Hill Fire and numerous other wildfires caused the closure of I-15 through the Cajon Pass.
- 2008 – The Sayre Fire closed I-5 at the Newhall Pass and SR-14 from south Santa Clarita to the Newhall Pass.
- 2007 – The I-5 Truck Tunnel Fire caused the tunnel, located on southbound I-5 just south of SR-14, to be closed for more than 1 month.

In addition, the Northridge and Sylmar earthquakes, in 1994 and 1971, respectively, caused portions of the I-5/SR-14 interchange to collapse, resulting in closure for several months. Following the Northridge earthquake, the interchange was closed for less than 6 months, causing an immediate 59 percent drop in traffic on the affected section of I-5 due to lack of alternative routes. The network disruptions caused by the earthquake substantially affected the cost of trucking materials across the southern California region. It is estimated that this disaster resulted in a loss of approximately \$9.2 billion in economic output (2012 dollars), of which \$2.1 billion can be attributed to transportation service disruption. Of the \$2.1 billion, more than \$1 billion in losses was accrued due to commuter time delays, with the remainder assigned to business logistics issues (e.g., rerouting, rescheduling, increases in driver overtime) (NCHRP, 2012).

The HDC facility would provide a safe and reliable alternate travel corridor, diverting a substantial amount of traffic away from existing facilities. Exposure to unsafe and unreliable conditions, such as single and/or narrow travel lanes, at-grade crossings prone to flooding, at-grade railroad crossings, driveways that abut highways, and high travel speeds on rural sections of the highways, would therefore be reduced by the addition of a modern, state-of-the-art multimodal transportation facility. In addition, the HDC would be designed to avoid flooding.

### ***Existing Route Continuity and Mobility***

Currently, SR-138 and SR-18 provide the only major linkages within this area between the main north-south facilities of SR-14 and I-15. Due to the routing and limited capacity of these facilities, east-west connectivity is limited and inconvenient. The next closest major east-west connection across the High Desert is SR-58, which is located more than 25 miles to the north and well outside what can be considered a convenient distance for travel between the two valleys.

The SR-138/SR-18 route is largely discontinuous and lacks route continuity (see Figure 1-2). There is no direct east-west connection between the developed areas of the southern Antelope and Victor valleys. From the vicinity of the proposed eastern terminus, SR-18 (Happy Trails Highway) circuitously bends through Apple Valley into Victorville where it becomes D Street. The eastern and western portions of SR-18 are offset by approximately 3 miles where SR-18 and I-15 merge and share a common north-south alignment. Along this shared portion, SR-18/I-15 is a six-lane, access-controlled (i.e., access is limited to interchanges) freeway. Regional and inter-

regional traffic, including heavy trucks, merge with local traffic using this segment to access Victor Valley cities, thereby creating conflicts in vehicular movement.

Traffic continuing west from the shared portion of SR-18/I-15 must exit at the Palmdale Road off-ramp to continue on SR-18, where the route resumes as an east-west local road known as Palmdale Road. Proceeding west, SR-18 terminates at SR-138 west of the San Bernardino county line, and the highway name changes to Pearblossom Highway. In the western portion of the corridor, the route again follows a circuitous path west and north through Palmdale, changing names to Fort Tejon Road and again to 47<sup>th</sup> Avenue East. After transitioning through a traffic circle at the 47<sup>th</sup> Avenue East/Palmdale Boulevard intersection, motorists proceed due west approximately 5 miles to the eastern terminus at SR-14.

There are additional arterial roads that provide alternative east-west routes, including Palmdale Boulevard, East Avenue J, East Avenue P/El Mirage Road, and East Avenue G/Shadow Mountain Road; however, these are all local roads with only one lane in each direction that do not have sufficient capacity to carry large volumes of traffic. They also do not provide direct connections between the major north-south facilities. In general, they are not well suited for the regional movement of people and goods.

In addition to transportation continuity, regional mobility is a key requirement of business and industry. Mobility along the existing SR-138/SR-18 corridor is hindered by speed limit changes (see Table 1-2), numerous traffic signals, at-grade railroad crossings, and other direct-access points (e.g., driveways and local roadways) that impede traffic flow and provide opportunities for conflicts (High Desert Corridor Traffic Study Report, 2014).

Trucks and other commercial traffic using the SR-138/SR-18 corridor are required to transition between two-lane rural highways, local arterials, and a freeway. As shown in Table 1-2, motorists must currently navigate a highway that constricts from six to two lanes. Regional traffic along this route is also delayed by slower traffic and intersection controls in Palmdale, Victorville, and Apple Valley. SR-18 is a two- to four-lane conventional highway with a continuous center turn lane in Apple Valley and Victorville. After negotiating traffic on the six-lane interstate facility, motorists must then transition to a four-lane arterial street along Palmdale Road. This street narrows to two lanes just west of the city limits. SR-138 proceeds as a two-lane conventional highway until widening to four lanes in the vicinity of the community of Littlerock. Pearblossom Highway/Fort Tejon Road/47<sup>th</sup> Street East remains a four-lane facility into Palmdale. Palmdale Boulevard is a four-lane arterial west to approximately 6<sup>th</sup> Street, where it widens to a six-lane arterial (High Desert Corridor Traffic Study Report, 2014).

### ***Regional Accessibility to Transportation Facilities***

Southern California is a major gateway and hub for global international trade. Freight movement within the Los Angeles/Inland Empire region and beyond is highly impacted by international trade moving through its seaports, airports, rail yards, and

distribution centers, and by significant volumes of domestic trade on its highly developed transportation network. The movement of goods in the southland region and through southern California is a vital aspect of continued economic development. Fifty to 60 percent of all shipments arriving at ports in southern California must be transported by truck over an already overloaded transportation network to reach their ultimate destination (High Desert Corridor Traffic Study Report, 2014).

**Airports**

From east to west, the proposed project alignment would traverse in the vicinity of five airports/airfields: Apple Valley County Airport, SCLA, Krey Field, Gray Butte Field, and Palmdale Regional Airport. The characteristics of each facility are shown in Table 1-7. Of these, SCLA and Los Angeles/Palmdale Regional Airport are two public airports located near each end of the subject corridor that have generated considerable interest as potential centers for future economic growth.

**Table 1-7 Airports Located in the Vicinity of the High Desert Corridor Project**

| Airport Name   | Location  | Type                          | Characteristics   |
|--|---|-------------------------------|---|
| Apple Valley County Airport                                  | Town of Apple Valley                                    | Public                        | Runway 18/36 (6,498 x 150 feet) & Runway 8/26 (4,099 x 60 feet)               |
| Southern California Logistics Airport                        | City of Victorville                                     | Public/<br>Federal Government | Runway 17/35 (15,050 x 150 feet) & Runway 3/21 (9,138 x 150 feet)             |
| Krey Field   | County of San Bernardino, 9 miles southwest of Adelanto | Private                       | Runway 7/25 (3,360 x 100 feet) & Runway 16/34 (2,040 x 100 feet)              |
| Gray Butte Field   | County of San Bernardino, 25 miles east of Palmdale     | Private                       | Runway 8/26 (8,000 x 150 feet); airport used for unmanned aircraft operations |
| Palmdale USAF Plant 42 Airport/<br>Palmdale Regional Airport | City of Palmdale  | Federal Government/<br>Public | Runway 7/25 (12,002 x 200 feet) & Runway 4/22 (12,001 x 150 feet)             |

Source: Data collected by Parsons, 2013.

Local jurisdictions have developed plans in support of improved access and visibility to SCLA and Los Angeles/Palmdale Regional Airport. For example, the City of Victorville’s Desert Gateway Specific Plan states, “Support the development of the HDC as a more efficient means of connectivity with I-15, SCLA, and the Ports of Los Angeles and Long Beach.” The City of Adelanto’s Traffic Circulation Improvement Plan emphasizes “improved access/visibility to Adelanto’s primary commercial, business, and industrial sectors, *including a new major airport*” (emphasis added). The City of Palmdale’s General Plan Circulation Element states, “Promote and support regional transportation planning for routes serving the airport facility, including State Routes 14 and 138.” In the 2012-2035 RTP/SCS, SCAG emphasizes

the need for improvements to the ground access system at outlying airports to encourage airlines to offer new or more service to these facilities.

### SCLA

The southern California region is served by the first and fourth largest (by volume) air cargo airports in the state, Los Angeles International Airport and Los Angeles/Ontario International Airport. Due to rising passenger volumes and restricted ground access in the vicinity of Los Angeles International Airport, efforts are underway to expand air cargo operations at Los Angeles/Ontario International Airport and possibly to develop air cargo operations at one or more of the deactivated U.S. Air Force bases in the Inland Empire, potentially including SCLA (High Desert Corridor Traffic Study Report, 2014).

SCLA is an international logistics hub with multimodal capabilities, including ground transportation services. Global Access, a public/private partnership charged with redevelopment of this area, is comprised of the following three development divisions:

- SCLA, a 2,500-acre aviation and air cargo facility serving domestic and international needs
- Southern California Logistics Centre, a 2,500-acre commercial and industrial complex totaling 60 million square feet of diverse development
- Southern California Rail Complex, a planned 3,500-acre intermodal rail and multimodal complex including rail-served facilities

The SCLA complex in Victorville currently represents the largest single employment concentration in Victor Valley. SCLA services many companies for air cargo and has the ability to accept any type of commercial and military aircraft. In fiscal year 2009, SCLA enplaned 227 metric tons of cargo, compared with 1.95 million metric tons for the Los Angeles region. With the buildout of SCLA as envisioned in Figure 1-6, it is projected that some 28,646 jobs could be supported by year 2080.

Victor Valley is strategically situated along I-15, US 395, and the main lines for BNSF Railway Company and Union Pacific Railroad (UPRR). BNSF and the City of Victorville signed an exclusive MOU in January 2007 to explore development of a major intermodal logistics center at the Southern California Rail Complex. Existing east-west transportation facilities through the Victor Valley are still deficient, resulting in major issues associated with connectivity, mobility, and congestion, as described above.

**Figure 1-6 Southern California Logistics Airport**



Source: Global Access/Logistics Airport

### Palmdale Regional Airport

The Antelope Valley is a center for advanced aerospace research and development, with a current focus on unmanned aerial vehicles. As elsewhere, the regional economy has suffered from recession; however, recent positive economic indicators show increases in employment, retail sales, and home values, as well as a reduction in crime rate (GAVEA, Economic Roundtable Report, 2013).

Palmdale Regional Airport is considered a future site for an aerospace economic development cluster, and research and development and/or logistics distribution center (High Desert Corridor Traffic Study Report, 2014). While no specific plan for the airport currently exists, such a development concept has been proposed for lands surrounding the Los Angeles/Palmdale Regional Airport to the west and southeast of the airport.

In summary, with growth of commerce and activity at regional airports in Victorville and Palmdale, each is anticipated to serve as an important transportation hub for their respective population centers. The HDC is considered an integral component for the future development of these hub airports, because it would greatly enhance east-west accessibility between major transportation corridors within these cities, and beyond.

### High-Speed Rail

Currently, the High Desert region is underserved by transportation facilities connecting communities in both valleys (Antelope and Victor) with California's major commercial and cultural hubs. As mentioned, the highway connectivity and mobility between the major cities is poor, and there is no commercial airline service. Passengers can board Metrolink trains at Lancaster and Palmdale for travel into the Los Angeles metropolitan area in less than 2 hours. Amtrak is available at Victorville,

but one-way travel to Union Station in Los Angeles takes approximately 4 hours. The limited options for direct, fast, and safe connections to the major metropolitan areas isolate the High Desert economically; limit the area from which these communities draw businesses, customers, and employees; and reduce the accessibility of job markets for residents.

Future HSR service is being planned for Victorville and Palmdale, located near the east and west ends of the corridor, respectively. These proposed services are described by the California High-Speed Rail Authority and XpressWest, respectively, as follows:

- **California High-Speed Train (HST).** Initially running from San Francisco to Los Angeles/Anaheim via the Central Valley, and later to Sacramento and San Diego, this project involves approximately 800 miles of track and 24 stations, including one near the Palmdale Transportation Center, where interconnections with other transportation modes could be made. As currently proposed, HST would travel between Los Angeles and San Francisco in less than 2 hours and 40 minutes, at speeds up to 220 mph.
- **XpressWest (formerly Desert Xpress).** In July 2011, a Record of Decision was issued by the Federal Railroad Administration for a privately funded passenger rail project proposed for the I-15 corridor between the cities of Las Vegas and Victorville. This HSR service would travel at a top speed of 150 mph, with a one-way trip duration of approximately 1 hour and 20 minutes. The Victorville station site would be located adjacent to the I-15/Dale Evans Parkway interchange.

HSR service along the corridor would address several needs, as follows:

- An approximately 54-mile future gap in HSR service between Victorville and Palmdale
- Reduced mobility as a result of increasing demand on limited modal connections between major airports, transit systems, and passenger rail
- Increased congestion and unreliability of travel stemming from congestion and associated delays, as discussed above
- The current dearth of shared-ride modes through the corridor from I-15 to SR-14
- Poor and deteriorating air quality within the High Desert basins

Because HSR service is proposed near both ends of the HDC, it is reasonably foreseeable that constructing an extension between the two proposed stations is logical. This would open up future high-speed, limited-stop service between major California cities and Las Vegas. NEPA and CEQA require that reasonably foreseeable alternatives be analyzed for the proposed action.

In addition to providing an option to traveling by automobile or airplane, alternative transit modes, such as HSR, bring several benefits. This mode would provide an efficient transportation option for travelers who either cannot drive or do not wish to drive, such as disabled persons or the elderly. Travel by train is also generally a mode of travel that would provide consistent and predictable travel times between major

urban centers and airports, especially considering there would be limited or no at-grade crossings. Transit reduces the number of passenger vehicles operating on the highway network, thus reducing congestion for all vehicles, including trucks, while resulting in measurable noise, air quality, and energy conservation benefits.

Public policy also exists in support of HSR within the corridor. Metro's *North County Combined Highway Corridor Study* (Metro, 2004) was initiated to develop a multimodal transportation plan for the northern Los Angeles County region. The City of Victorville's General Plan Circulation Element refers to recent and projected growth estimates, suggesting the need for the HDC to meet "existing and future travel demands through the movement of people and goods with convenient multimodal alternatives."

### **Green Energy**

According to the U.S. Environmental Protection Agency's (EPA) Green Power Basics ([www.epa.gov/oaintrnt/greenpower/basics.htm](http://www.epa.gov/oaintrnt/greenpower/basics.htm)), Green Power (or Energy) can be defined as energy from indefinitely available resources and whose generation has zero to negligible environmental impacts, whether through reduced emissions or minimal environmental disruption. Green energy is also referred to as clean, sustainable, or renewable energy. Solar, wind, and geothermal are the predominant sources of green energy.

The use of green energy in California has gradually increased over the past several years. According to the California Almanac (ref. <http://energyalmanac.ca.gov/renewables/index.html>), not counting large hydroelectric facilities, in 2009, 11.6 percent of all electricity produced in California came from renewable resources such as solar, wind, geothermal, biomass, and small hydroelectric sources. There are several reasons for increased use of green energy. Improvements in energy generation technologies have increased the efficiency and lowered the cost of production, improving the return on investment. Additional supporting information can be found in the Green Energy Report. (With the significant drop in natural gas prices, this is no longer the case in the current environment.) Government and utility company subsidies, tax incentives, and rebates can make its use more attractive for the end consumer. The project may be eligible for an incentive from the California Solar Initiative; however, those incentives are allocated on a first-come, first-served basis, and funding for the program may not be available by 2016. Other tax incentives and government programs are available to private entities that may elect to develop installations adjacent to the ROW to support energy needs for businesses that emerge along the ROW. (Sources: California Energy Commission [[www.energy.ca.gov/renewables/tracking\\_progress/#renewable](http://www.energy.ca.gov/renewables/tracking_progress/#renewable)]; [www.greentechmedia.com/articles/read/California-Utility-PGE-Exceeds-20-Percent-Renewable-Energy-Standard](http://www.greentechmedia.com/articles/read/California-Utility-PGE-Exceeds-20-Percent-Renewable-Energy-Standard))

Caltrans Director's Policy 30 (DP-30) Climate Change, approved June 22, 2012, established a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans' decisions and activities. This policy contributes to Caltrans' stewardship goal to preserve and enhance California's resources and assets.

In addition, expanded legal and regulatory requirements have been enacted that encourage efforts to achieve energy efficiency goals. While the development and use of renewable energy resources has been growing for several years, growth in overall energy demand is expected to continue as the economy recovers and expands. Transportation-related activities account for approximately 46 percent of all petroleum products consumed in California (Department of Energy, Petroleum Profile, 2009). California imports more than 50 percent of its crude oil and more than 15 percent of its refined products. The consumption of increasingly expensive nonrenewable energy resources remains high even though federal and State policies, such as the California Low-Emission Vehicle Program (Assembly Bill [AB] 1493, Pavley) and the Federal Energy Policy Act of 1992, are increasing the use of alternative-fuel and low-emission vehicles.

Renewable energy projects provide an option for Caltrans to offset its carbon footprint in support of AB 32 (California Global Warming Solutions Act) and other legislative goals for the reduction of emissions. Lower energy emissions bring sustainable elements, such as reduced public health issues and less contribution to global warming. Consideration of green energy, such as solar energy production, as a component of proposed highway improvements would also be in support of the reduction in demand for nonrenewable fossil fuels from out of state, including foreign countries. (U.S. Energy Information Administration. 2014. California State Profile and Energy Estimates, Profile Analysis. Accessed online at: <http://www.eia.gov/state/analysis.cfm?sid=CA>. June 19.) Solar energy production as a green energy option for the HDC is a viable option because San Bernardino County has the highest solar index (the rate at which solar energy is produced and converted into useful grid energy) in the state. The plan to install green energy features into the project will create a positive impact. Additionally, the use of any green energy alternatives will help offset the energy necessary to operate the HDC.

### ***Social Demands or Economic Development***

Various planning documents regulating development within the area traversed by the HDC alignment emphasize the importance of economic development within the affected communities of Los Angeles and San Bernardino counties. Excerpts from these plans are provided below by jurisdiction; see Section 3.1.1 for a complete discussion of land use policies.

#### ***San Bernardino County***

The San Bernardino County General Plan, updated in 2007, emphasizes enhanced accessibility and facilitation of the safe and efficient movement of people and goods for current and future economic development needs. The Plan encourages the growth and development of new roads without compromising impacts to open space, aesthetics, natural resources, and air quality. The General Plan, Transportation/Circulation Element, contains policies and goals that support the identification of long-range transportation corridors, in conjunction with plans of regional transportation agencies to protect sufficient ROW for the development of long-range corridors.

### *Los Angeles County*

Both the Los Angeles County General Plan 2035 and the “Town and Country” 2011 Plan for Antelope Valley place heavy emphasis on fostering projects that help facilitate efficient movement of people and goods. The Mobility Element (Chapter 4) of the Los Angeles County General Plan has specially designated land use areas within Palmdale and Los Angeles County unincorporated areas for the HDC Project. Additionally, the Town and Country Plan contains mobility policies in support of the HDC and the California HST system.

### *Town of Apple Valley*

The proposed action is consistent with the Apple Valley General Plan policy to preserve land for a future transportation corridor that would enhance the movement of motorists and goods. Working closely with land developers and Caltrans, Policy 2.E states, “The Town shall protect ROW for the HDC as determined by Caltrans.”

### *City of Victorville*

The policies and objectives of the City’s General Plan Circulation Element demonstrate support for the proposed action. Recent and projected growth estimates suggest the need for the HDC to meet “existing and future travel demands through the movement of people and goods with convenient multimodal alternatives.” The City of Victorville has keen interest in enhancing regional freight access to and from the Ports of Los Angeles and Long Beach. Victorville’s Desert Gateway Specific Plan calls for a freeway and expressway component that would link the Victor and Antelope valleys with I-15, as shown in Figure 1-7.

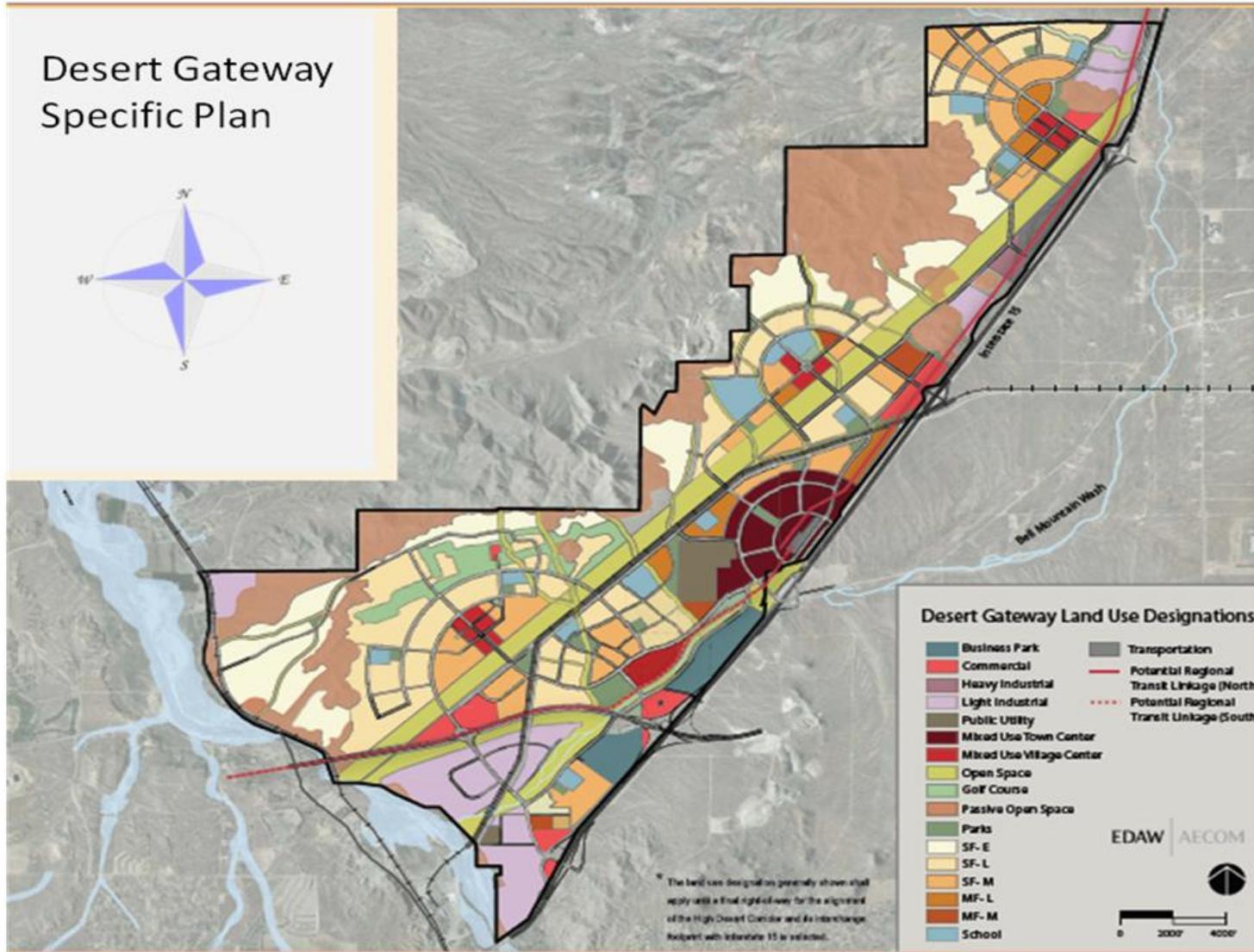
### *City of Adelanto*

The proposed action is described in the City of Adelanto’s Traffic Circulation Improvement Plan. The Plan specifies the need for an improved east/west and north/south circulation system to accommodate the City’s economic growth and development, as well as improved access to SCLA via a “Super Arterial.” The Plan also contains a goal to “Investigate all options for the implementation of a HSR system from the Orange, Riverside, and San Bernardino county areas to a new major airport.”

### *City of Palmdale*

The City’s General Plan contains goals and policies in support of the HDC Project. Excerpts from the Circulation Element identify the opportunity to preserve ROW for a future east-west highway, and the need to coordinate with Caltrans to reroute the existing SR-138 to a suitable location that would better serve Palmdale Airport. The Circulation Element specifically supports, “A new east-west freeway along the alignment of Avenue P-8, having three lanes in each direction from SR-14 to just east of 90<sup>th</sup> Street.” The HDC would also be in line with long-term goals outlined in the Palmdale Trade and Commerce Center Specific Plan.

Figure 1-7 Victorville Desert Gateway Specific Plan



### *City of Lancaster*

The City of Lancaster’s General Plan of 2030 identifies the HDC as a vital east-west thoroughfare for goods and traffic circulation. The proposed action is consistent with future transportation improvement plans as stated in the Physical Mobility Element of the General Plan. The Physical Mobility Element states, “Promote the creation of a high desert transportation corridor, which will provide a direct connection between I-5 and I-15 to the city of Lancaster.” Legislation

### *Federal*

The proposed HDC was identified in the previous federal transportation law, SAFETEA-LU, which was signed into law by former President George W. Bush on August 10, 2005. This law added several new high-priority corridors, so designated by Congress because they were deemed to be of national importance to the National Highway System. Section 1304 of SAFETEA-LU identified Corridor 71 as “The High Desert Corridor/E220 from Los Angeles, California, to Las Vegas, Nevada, via Palmdale and Victorville, California.”

### *County*

#### Measure R

Measure R was approved by Los Angeles County voters in November 2008. It allowed for an increase in the county sales tax by one-half cent for 30 years to pay for transportation projects and improvements. The HDC Project has received \$33 million in Measure R funding for work on the environmental clearance and preliminary design.

#### Measure I

Measure I authorized a half-cent sales tax increase and was first approved by voters in San Bernardino County in November 1989. The goal was to ensure that needed transportation projects were implemented countywide through 2010. In 2004, voters extended the sales tax increase through 2040. SANBAG administers Measure I revenue and is responsible for determining which projects receive funding. The City of Victorville received \$899,268 between 2002 and 2008 for the purpose of conducting the environmental study and preliminary engineering for the eastern section (US 395 to SR-18) of the HDC.

### **1.2.3 Independent Utility and Logical Termini**

FHWA regulations (*23 Code of Federal Regulations* [CFR] 771.111[f]) require that (1) projects have logical limits and be long enough that the environmental analysis has a sufficiently broad scope; (2) projects are usable and a reasonable use of funds even if no additional transportation improvements in the area are made (this is known as “independent utility”); and (3) approval of a project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. As discussed below, the HDC Project would comply with these requirements.

### **Logical Termini**

To meet the criteria for “Logical termini,” according to FHWA, a project must have (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts associated with a proposed improvement.

The highway elements of the proposed project begin in Apple Valley and end in Palmdale, crossing several established and growing communities in between. The project component will begin with a realignment of SR-18 into an expressway in Apple Valley and will transition into a freeway as it crosses Dale Evans Parkway and I-15, ending at SR-14. The highway elements of the project will connect two established freeways, I-15 and SR-14, through construction of freeway-to-freeway interchanges at these junctions.

HSR feeder service is included in two of the four build alternatives. The HSR elements of the proposed project begin in Victorville and end in Palmdale. Future HSR service is being planned for Palmdale and Victorville, located near the west and east ends of the corridor, respectively. As described previously, California HST service is planned to initially run from San Francisco to Los Angeles/Anaheim via the Central Valley of California. A station is planned for Palmdale at or adjacent to the Palmdale Transportation Center. The initial phase of this service is currently under design and construction in the Fresno area. The HDC rail feeder service would connect to the California HST at the west end of the HDC corridor via a platform-to-platform transfer (a two-seat ride) or a physical connection of HDC to HST tracks allowing for a one-seat ride between Los Angeles/Anaheim and San Francisco to the HDC. At the east end of the HDC, a privately funded passenger rail project is proposed for the I-15 corridor between Victorville and Las Vegas. A Record of Decision has been issued by the Federal Railroad Administration for this service, which is known as XpressWest (formerly Desert Xpress). This project is currently assembling funding for design and construction. The proposed HDC rail feeder service is assumed to be an extension of the XpressWest service to Las Vegas.

The project will address the growing congestion affecting the movement of traffic, goods, and freight between these cities and transportation deficiencies between the two endpoints. The project is a regional-scale transportation corridor that would facilitate multimodal movement across the High Desert, as well as improve traffic continuity and flows between the concentrated urban centers of Victorville, Palmdale, and Lancaster.

Because HSR service is proposed to serve stations in Palmdale and Victorville near both ends of the HDC, it is reasonably foreseeable that constructing a connection between the two systems would be logical and beneficial to both systems insofar as increasing mobility for their patrons.

Based on the above discussion, the project meets the criteria for “logical termini.”

### ***Independent Utility***

Because the freeway and expressway components of the project provide an alternate east-west transportation facility in the High Desert that is more efficient and safe than the existing SR-18/SR-138 route, it is expected that the proposed project, upon completion, would be used by motorists and freight haulers currently using SR-18/SR-138. In addition, because the highway elements of the project would connect several major north-south roadways (e.g., I-15, US 395, and SR-14), the project provides an additional more efficient and safe alternate route to connecting to these highways, besides SR-58 to the north and SR-138 to the south. Thus, the project meets the criteria for “independent utility” because the project is usable and is a reasonable expenditure of public funds without the need for other transportation improvements.

Two of the four build alternatives include rail feeder service between Palmdale and Victorville. Palmdale is currently served by Metrolink commuter rail service, which runs between Lancaster, to the north of Palmdale, and downtown Los Angeles (Union Station). On weekdays, Metrolink runs 90 trains per day on this line passing Palmdale. On weekends, 24 trains provide service. A rail feeder service between Victorville and Palmdale would effectively extend Metrolink service to more than 300,000 residents living in Victor Valley cities today and double this number by 2040. Thus, the project meets the criteria for independent utility because the rail service is usable and is a reasonable expenditure of public funds without the need for other transportation improvements.

### ***Restriction of Consideration of Alternatives***

Approval of the proposed action would not restrict consideration of alternatives for either this or other reasonably foreseeable transportation improvements. The HDC is being developed in coordination with all of the local and regional transportation authorities in the area. Continuing coordination will avoid potential conflicts with alternatives for this project and for other planned area transportation improvements.

This page intentionally left blank.