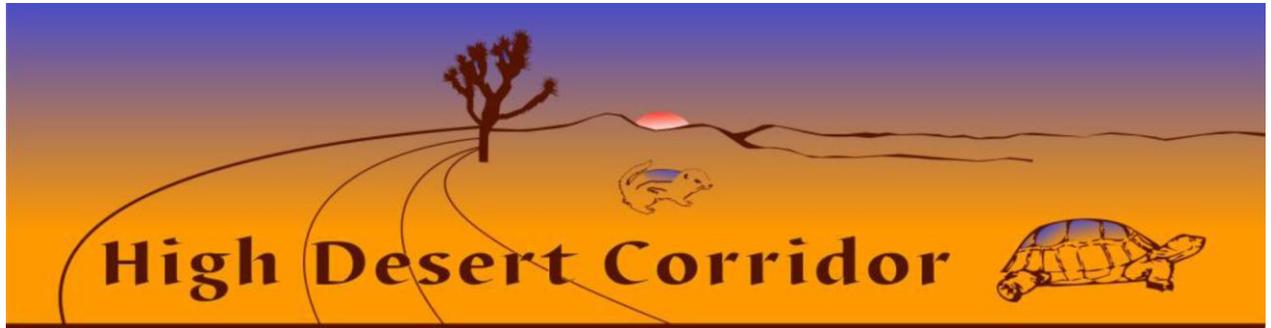


Transportation System Management (TSM) Narrative



High Desert Corridor Palmdale to Apple Valley (SR 14 to SR 18)

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INTRODUCTION

The High Desert Corridor (HDC) project is being undertaken by the California Department of Transportation (Caltrans) in coordination with the Los Angeles County Metropolitan Transportation Authority (Metro) and other partner agencies, in large part to improve east–west mobility within the High Desert region of southern California. Figure 1 is a general vicinity map of the project site, which extends from the City of Palmdale on the west to the Town of Apple Valley on the east. Figure 2 shows the current general alignment for the build alternatives, other than the Transportation System Management (TSM) Alternative. To comply with the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) is being prepared.

The purpose of this TSM Narrative is to provide a summary of the process followed for considering the TSM Alternative for the HDC Project and to evaluate the TSM Alternative in accordance with NEPA and CEQA. It concludes with a recommendation regarding whether to carry the TSM Alternative forward into the Draft EIR/EIS alternatives analysis.

The TSM approach to addressing transportation issues is typically focused on increasing the capacity of the State and local transportation systems by increasing the number of peak-hour person-trips without major construction and associated capital expenditures. The TSM Alternative attempts to identify to what degree a transportation need can be satisfied with limited financial resources; therefore, it often functions to set a baseline condition against which the performance of more substantial and costly capital improvement options are measured. TSM strategies are intended to first focus on increasing the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without a major expansion of capacity. A TSM strategy may include a variety of techniques, including ramp metering, high-occupancy vehicle (HOV) lanes, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. TSM also encourages increased automobile occupancy through ridesharing programs, increased use of public transit systems, and bicycle and pedestrian improvements as elements of a unified urban transportation system.

ALTERNATIVES DEVELOPMENT PROCESS

Guidance about considering whether an alternative should be included in a Draft Environmental Document (DED) is provided by both federal and state regulations. The U.S. Council on Environmental Quality (CEQ) regulations require that an EIS study a ‘reasonable range’ of alternatives. CEQ has defined reasonable alternatives as those that are economically and technically feasible, and that show evidence of common sense. Section 1500.2 (Policy) of the CEQ Regulations states that “Federal agencies shall to the fullest extent possible: ...Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.” Alternatives can be eliminated from consideration based on any factor that is relevant to reasonableness, including failure to satisfy the project Purpose and Need, environmental impacts, engineering and cost, among others.

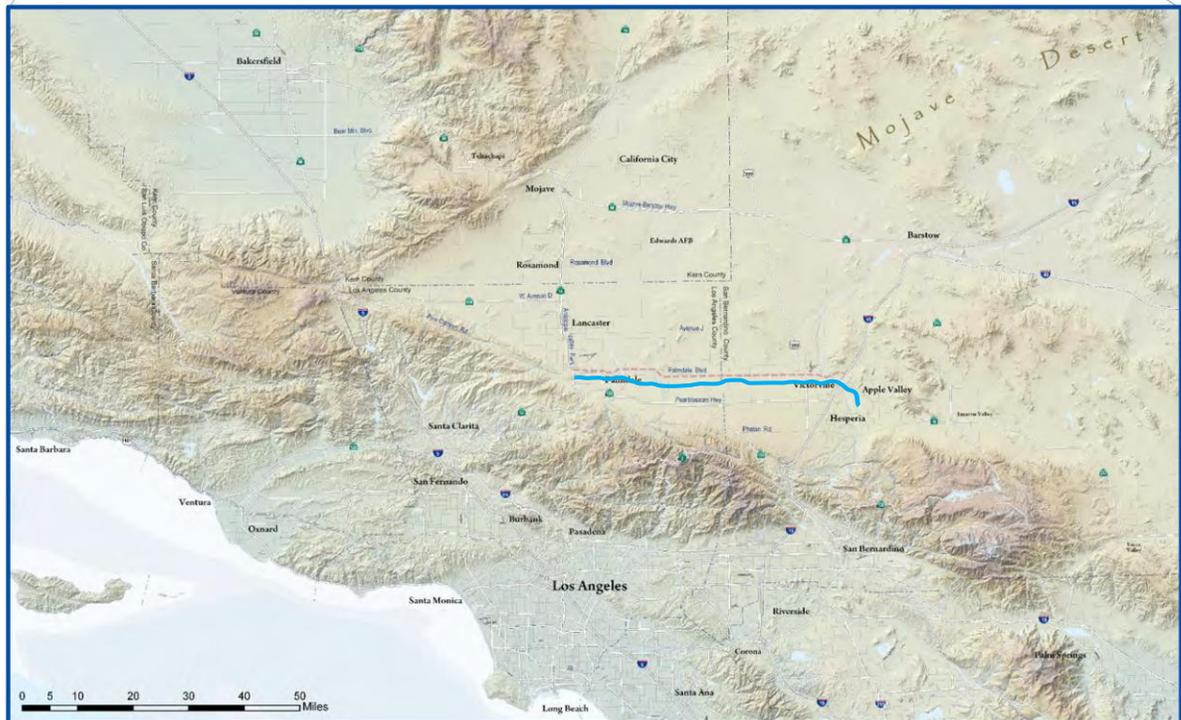
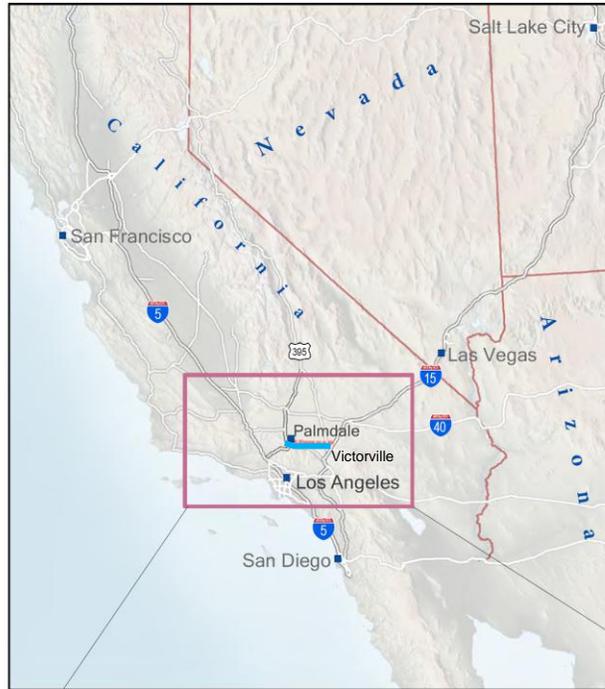


Figure 1. Project Vicinity in High Desert

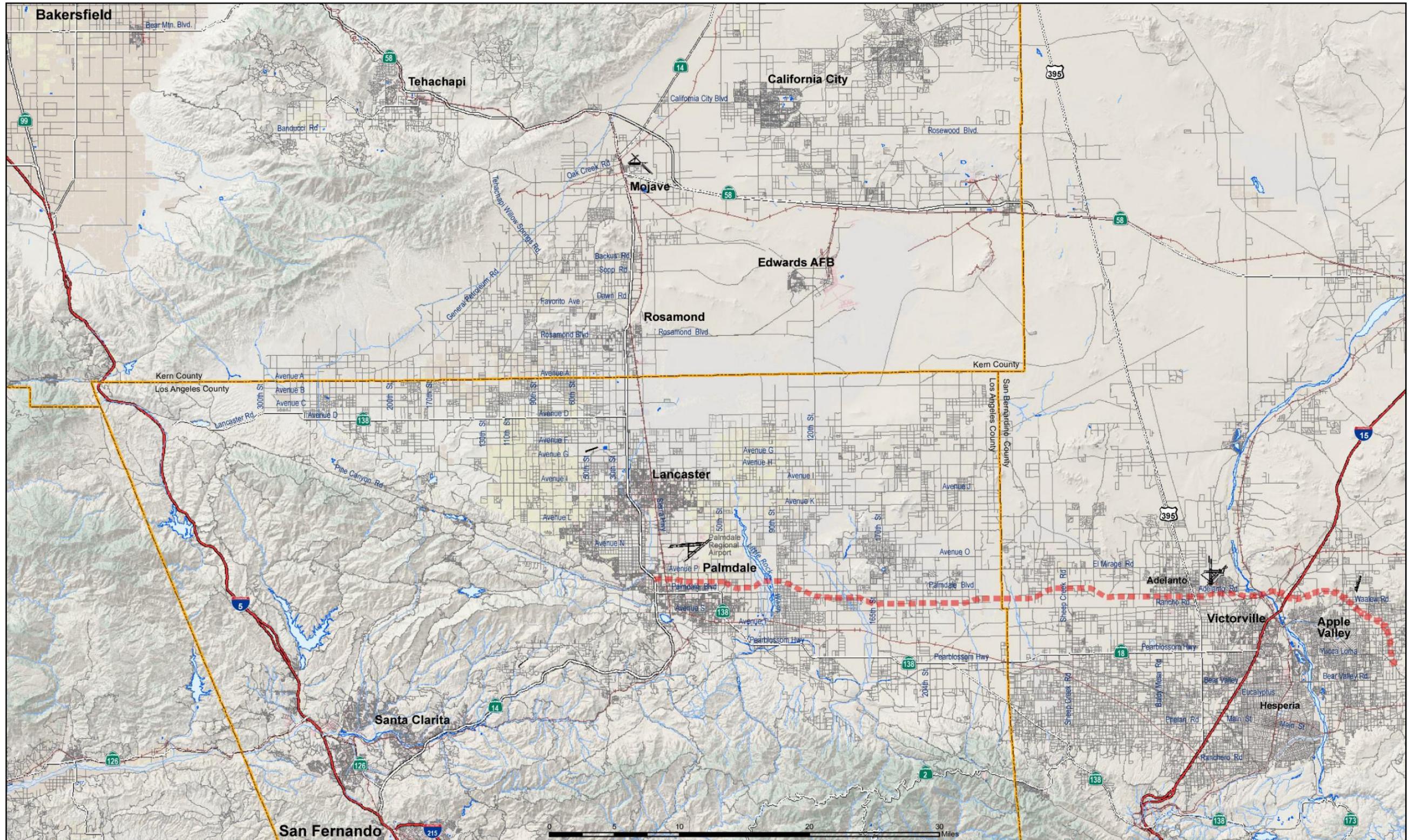


Figure 2. High Desert Corridor General Alignment

Under the CEQA Guidelines (15126.6), an EIR must consider “a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” The range of alternatives selected should foster informed decision-making and public participation.

The alternatives screening process conducted for the HDC is summarized in a report prepared by Caltrans, “*Alternatives Analysis, New State Route 138/E-220, Palmdale to Apple Valley (SR-14 to SR-18)*” (Caltrans, 2011). When the Notice of Intent/Notice of Preparation was circulated for public review, there were seven alternatives and three variations under consideration. Based on subsequent agency and community input during the scoping process, one more alternative and two more variations were included on the list for consideration. The range of alternatives included the following: No Build Alternative, TSM/Transportation Demand Management (TDM) Alternative, and six build alternatives. As a result of the screening process, one alternative, referred to as a Corridor Improvements Alternative (Ave. P-8, SR-138, and SR-18), and two variations were eliminated from further review.

The TSM/TDM Alternative included “operational investments, policies, and easily implemented, low-cost improvements aimed at improving goods movement, passenger auto and transit travel and reducing environmental impacts associated with transportation as they may affect cities and operations in the HDC study area.” As development of the HDC progressed, the TSM/TDM Alternative was modified to become the ‘Enhanced’ TSM Alternative that has since been developed for this project. See the next section for a description of Enhanced TSM.

A Hybrid Corridor Alternative was also retained pending further definition and review. When compared with the TSM/TDM Alternative, this alternative more closely matches the current ‘Enhanced’ TSM Alternative. The Hybrid Corridor Alternative would include some or all of the previously identified alternatives, whose elements (e.g., TSM/TDM, freeway, expressway) would be pieced together to best fit the needs of each segment of the corridor.

The following screening factors were used for this assessment:

- Ability to satisfy the project Purpose and Need (i.e., support of mobility needs; support goods movement; improved airport access; and improved emergency access);
- Minimize environmental impacts, as discussed during community meetings, for five issue areas (i.e., traffic; residential and business relocations; biological resources; hydrology and water quality; and construction disturbance)
- Cost factors (cost effectiveness and feasibility to obtain funding)

In terms of assessing the TSM/TDM Alternative, the aforementioned 2011 Alternatives Analysis concluded that it would only minimally support the project’s Purpose and Need. While it would result in fewer environmental issues, which is a stated purpose of this alternative, it would not substantially reduce traffic congestion and associated air quality degradation and greenhouse gas emissions. In terms of cost effectiveness, this alternative performs reasonably well, as would be expected with an alternative involving minimal construction, in comparison to the build alternatives.

The Hybrid Corridor Alternative was intended to respond to the Purpose and Need in a way that best minimizes project impacts; however, this alternative was not well developed. Even though it could not be thoroughly evaluated, it was nonetheless retained with direction to give special attention to finding ways to avoid, minimize, or mitigate environmental concerns.

As one of the three primary factors used in the 2011 Alternatives Analysis, cost rankings for the TSM/TDM Alternative were from fair (0) to good (+) for cost effectiveness and funding availability, respectively. Rankings for the Hybrid Corridor Alternative were good (+) to fair (0) for the same criteria. Other project alternatives, particularly those with a revenue-generating component (e.g., tollway, high-speed rail [HSR]), achieved higher rankings for cost effectiveness; however, there is substantial uncertainty associated with the alternative rankings for cost effectiveness, because the sources of funds necessary for design, construction, and operation of the HDC have yet to be identified. There are also uncertainties about how the project will be financed, whether using public funds, Public Private Partnership (P3) funding, federal loans, or some combination of methods. It is also possible that revenues from potential HSR service within the corridor could offset some of the highway costs

TSM ALTERNATIVE COMPONENTS DEFINED FOR EVALUATION

Based on the 2011 Alternatives Analysis results, Metro and Caltrans combined two alternatives to create an ‘Enhanced’ TSM Alternative to incrementally address traffic congestion and improve safety within sections of the corridor where improvements are most needed. This resulted in a definition of TSM components that included some capacity enhancements in addition to pure TSM techniques. The concept-level ‘Enhanced’ TSM Alternative components are shown in Figure 3. To be consistent with current agency nomenclature for this project, the Enhanced TSM Alternative became the primary TSM Alternative and from here on is simply referred to as the ‘TSM Alternative.’

The TSM Alternative considered for evaluation is a mix of lower-cost roadway improvements within and outside the proposed project corridor that can be evaluated against the proposed project alternatives (i.e., build alternatives). Starting off like the build alternatives, the TSM Alternative extends east across mostly open terrain from State Route (SR) 14 parallel with and near East Avenue P-8. At approximately 110th Street East, the TSM alignment bends to the southeast across East Palmdale Boulevard before proceeding due south in the vicinity of Longview Road to East Avenue T. Extending approximately 0.5 mile farther south (Longview Road currently terminates at East Avenue T), the alignment again curves southeast across open terrain to connect with the existing SR 138 east of the community of Pearblossom. From this point east, the TSM improvements would occur along the existing SR 138/SR 18 corridor to an east terminus at Interstate 15 (I-15). Except for a freeway between SR 14 and 30th Street East, the TSM roadway improvements would maintain at-grade intersections with local roads and driveway access. The following five key elements are under consideration for the TSM Alternative.

New Palmdale Freeway

To alleviate east-west traffic congestion in Palmdale, the TSM Alternative includes right-of way (ROW) acquisition for an eight-lane, 3.4-mile-long, grade-separated freeway parallel with and near Technology Drive/East Avenue P-8 from SR 14 to 30th Street East. Facility improvements along SR 14 required to accommodate the freeway-to-freeway interchange are assumed to be identical to those defined for the build alternatives. New local interchanges would be built at 20th Street East and 30th Street East. The existing partial interchange at SR 14/Rancho Vista Boulevard would be closed, and a full interchange would be constructed at 10th Street West to provide better weaving distance with the direct connector ramps of the SR 14/HDC interchange. A viaduct would be constructed between Division Street and 10th Street East.

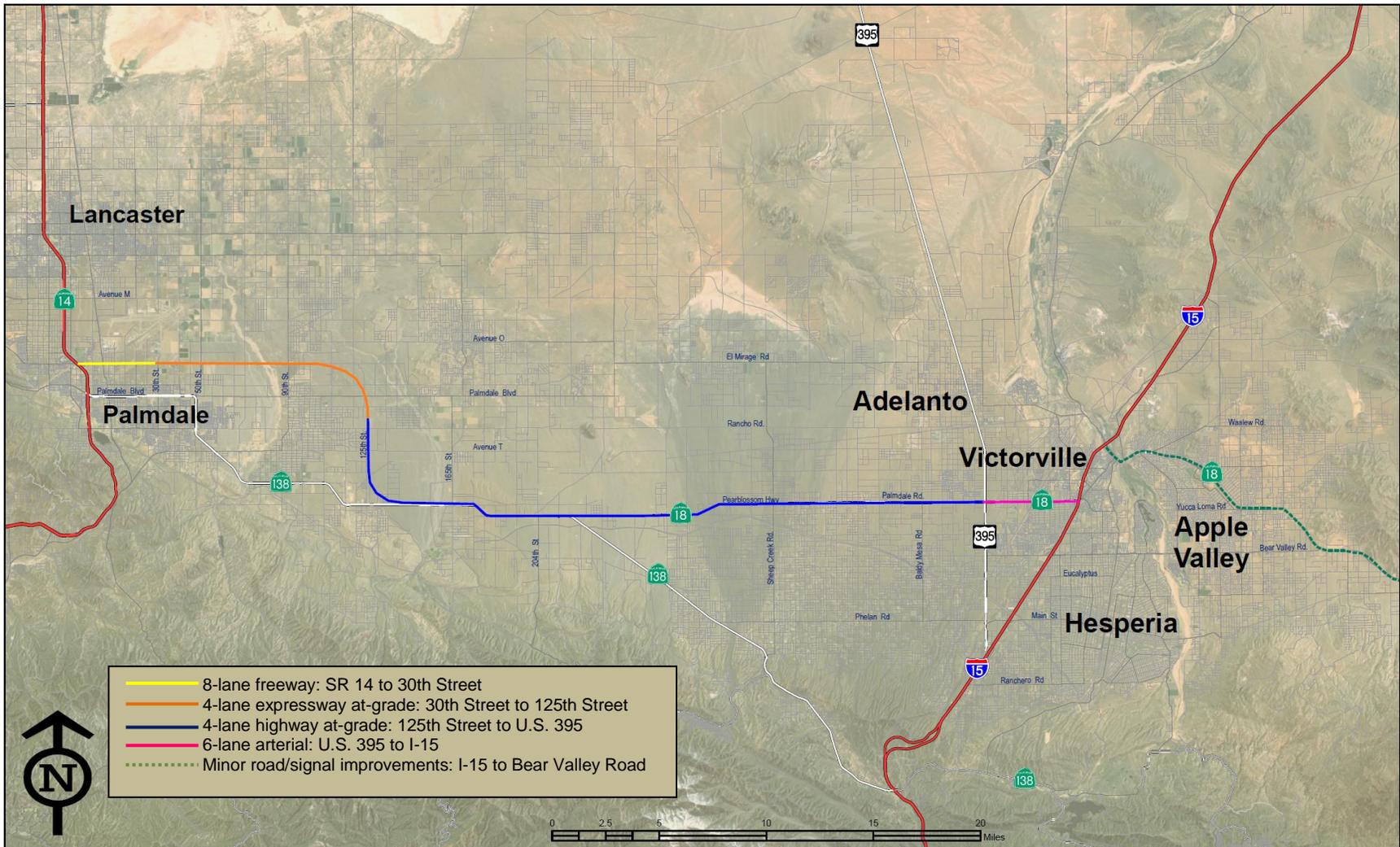


Figure 3. Transportation System Management Alternative

Expressway from 30th Street East to Longview Road

From the freeway terminus, the TSM Alternative would extend east as an access-controlled, four-lane divided expressway. After passing due east across Little Rock Wash then 100th Street East, the alignment bends southeast to Palmdale Boulevard, then south-southeast to Longview Road. A viaduct structure may be required across Little Rock Wash.

Highway from Longview Road to US 395

The north-south portion of this segment would run along or parallel with Longview Road past its terminus at East Avenue T before bending southeast to a new signalized T-intersection at SR 138. Extending east from the community of Pearblossom, this TSM component involves widening where necessary along the existing SR 138/SR 18 highway to four lanes. A roadway cross section similar to what currently exists along SR 138 (Pearblossom Highway) from Longview Road to 165th Street East is assumed. This cross section provides standard-width shoulders, two 12-foot-wide travel lanes per direction, and a wide median. A 4- to 20-foot median is assumed to facilitate left-turn movements to cross streets and driveways.

Continuing east, SR 138 was widened to four lanes between Longview Road and 165th Street East in 2006/2007 as part of Caltrans' SR 138 Corridor Improvement Program. This program entails complete widening of SR 138 from Avenue T in Palmdale to the junction of SR 18 in Llano. While technically a part of the TSM Alternative, the segment of SR 138 east of Longview Road would not require widening.

Arterial Highway between US 395 and I-15

From approximately 5 miles east of U.S. Highway 395 (US 395) (west of Caughlin Road) to I-15, SR 18 (Palmdale Boulevard) would be widened to a six-lane arterial highway in accordance with City of Victorville roadway standards. The City's General Plan circulation map designates this portion of Palmdale Road as a "super arterial" having a 124-foot ROW.

Roadway and Signal Improvements

The TSM Alternative would also include minor improvements to roadway sections and signals along SR 18 from I-15 to Bear Valley Road. The strategy behind these works would be to focus on improving traffic flow designed to increase average travel speeds while reducing vehicle delay and idling. Specific projects may include traffic signal synchronization and intersection improvements.

SUMMARY OF THE EVALUATION PROCESS

Several factors were considered in evaluating the TSM Alternative. These include:

- Meeting the proposed project's purpose and need
- Benefits estimates
- Cost effectiveness

Purpose and Need for the High Desert Corridor

Route Continuity

The TSM Alternative would not address the need for a continuous, direct east-west connection between the developed areas of the southern Antelope and Victor valleys, because the areas are separated by distances that make connection using existing roads subject to localized conditions that are difficult to overcome without creating a new corridor and developing access restrictions. Except for the freeway/expressway components across Palmdale, the TSM Alternative route follows the existing, circuitous highway routing that currently contributes to traffic congestion on SR 138/SR 18 and adjoining highways and local streets.

The TSM Alternative would require motorists to travel several miles in the wrong direction to reach some destinations. For example, a motorist traveling from Apple Valley to Los Angeles/Palmdale Regional Airport must first travel northwest on SR 18 to I-15, then south on I-15 to SR 18 (Palmdale Boulevard), then west to Pearblossom, then back north and northwest several miles to East Avenue P-8, then west and farther north to the airport. Eastbound travelers intending to access I-15 northbound would also drive several miles out of direction to reach their destinations. According to the *Traffic Study Report* (Parsons, 2013), the TSM Alternative route is 4 miles longer than the build alternatives. For these reasons, the TSM Alternative would not perform well in terms of route continuity.

Mobility

By building the freeway/expressway component across approximately 3.3 miles of Palmdale, the TSM Alternative would partially address existing mobility issues within the SR 138/SR 18 corridor. For the remaining 60 miles of the corridor, motorists' mobility would be challenged by speed limit changes, signal- and stop-controlled intersections, and direct-access points (e.g., driveways and local roadways) that impede traffic flow. Furthermore, with the TSM Alternative, trucks and other commercial traffic using the corridor would still be required to transition among rural highway, local arterials, and freeway segments. In comparison with freeway travel under the build alternatives at buildout, the TSM Alternative would require travel through more than 30 roadway intersections plus numerous driveway and unpaved road access points between its short freeway terminus in Palmdale and I-15 in Victorville; therefore, in comparison to the build alternatives, the TSM Alternative offers substantially less benefit in terms of mobility.

Level of Service and Congestion

Based on population growth projections for the southern High Desert region, traffic congestion is predicted to get much worse, with several existing rural and urban intersections expected to operate at unacceptable levels of service (i.e., LOS E or F) in 2020, 2040, or both years. The TSM Alternative would alleviate existing and future traffic congestion for approximately 3.3 miles across the north side of Palmdale by moving traffic off local streets to a new freeway. Widening along existing state routes 138 and 18 would also somewhat improve future traffic conditions; however, unlike the build alternatives, the TSM Alternative would not remove the above-mentioned conditions that contribute to traffic congestion (i.e., lower speed limits in urban areas, cross traffic at intersections, direct local roadway and driveway access points) that impede traffic flow. The travel time analysis conducted using the Southern California Association of Government's travel forecast model shows that the TSM Alternative would outperform the No Build Alternative, but it would substantially underperform any of the build alternatives. During the morning (AM) peak period, travel time from Apple Valley to Lancaster is projected to take more than 0.5 hour longer than with the build alternatives. During the afternoon (PM) peak period, the TSM Alternative would be projected to take almost 35 minutes longer. Given these considerations, future traffic congestion under a TSM Alternative project would be much worse than conditions under any of the build alternatives.

Safety and Reliability

TSM Alternative improvements would result in safety benefits through development of a controlled-access highway across Palmdale, eliminating all two-lane State highway segments, and making road and signal improvements to improve traffic flow; however, the TSM Alternative would not achieve the level of safety and reliability associated with the build alternatives, because it would retain multiple access points via private driveways and intersections and an at-grade railroad crossing. The frequency of accident occurrence is typically lower on freeways and expressways when compared to other types of regional roads and city streets. Data provided in the *Traffic Study Report* (Parsons, 2013, see Table 5-3) for the HDC Project indicates that traffic injury and fatality rates for urban arterials are much higher than for urban freeways.

Due to its location on the desert floor just north of the San Gabriel Mountains, the wide washes and other water courses that traverse north across the SR 138/SR 18 highway can bring flash flooding, especially during summer when heavy localized monsoonal thunderstorms are typical. A new freeway/expressway associated with the build alternatives would not be prone to flooding, because preliminary design entails construction of the new facility approximately 10 feet above existing grade of the desert floor.

Regional Transportation System Accessibility

By adding a new highway across Palmdale to the community of Pearblossom and widening existing highway east to I-15, the TSM Alternative would somewhat improve east-west accessibility across the southern High Desert region. This could be beneficial to either the Los Angeles/Palmdale Regional Airport or Southern California Logistics Airport (SCLA), both of which have generated considerable interest as potential centers for future economic growth. The TSM Alternative would also improve access to the Palmdale Transportation Center for regional bus and rail transit, and for potential future HSR transfers.

However, the TSM Alternative would not achieve the high level of accessibility to these transportation systems associated with the build alternatives, because it would rely on an existing indirect and discontinuous route across the region with numerous intersections, while requiring out-of-direction travel to reach connections with major north-south highway facilities. Unlike the build alternatives, the TSM Alternative would not include a direct and continuous new route connecting major north-south highway facilities at freeway-to-freeway interchanges with direct ramp connectors.

While the proposed build alternatives would cross the High Desert along an east-west extension of Air Expressway, providing excellent access to SCLA, the TSM Alternative would extend west from Palmdale Boulevard, located approximately 4.5 miles to the south of SCLA. Motorists trying to access SCLA from Palmdale Boulevard would likely choose to navigate north along US 395, which can experience heavy congestion during peak travel periods.

In Palmdale, both the TSM and build alternative projects include a west-end freeway; thus, local access to the Los Angeles/Palmdale Regional Airport and Palmdale Transportation Center would be similar. However, regional access to these transportation centers would be inferior with the TSM Alternative, again because of the aforementioned alignment and operational deficiencies.

Greenhouse Gas Emissions

In comparison to the build alternatives, the TSM Alternative would result in lower greenhouse gas (GHG) emissions during construction but much higher emissions over long-term operations. Carbon dioxide and other GHG-contributor emissions during construction of the TSM Alternative would be much less than

any of the build alternatives, because it is a considerably smaller project; however, emissions from vehicles during TSM Alternative operations would be much greater due to longer routing, numerous required stops and starts, and increased congestion. The use of green energy technologies is not planned with the TSM Alternative; therefore, this option for reducing GHG emissions would not be available.

Benefits Estimates

Benefits evaluated for the TSM Alternative and discussed below are “user” benefits, revenue transfers, reductions in external costs, and life-cycle benefits. These benefits were calculated for the *Traffic Study Report* (Parsons, 2013) using Federal Highway Administration’s Surface Transportation Efficiency Analysis Model (STEAM), 2.0, and are shown in Table 1.

Table 1. Summary of High Desert Corridor Project Benefits

Benefit Type	High Desert Corridor / SR 18 New Freeway / Expressway Build Alternative	High Desert Corridor / SR 18 New Freeway with Tolls Alternative	High Desert Corridor / SR 18 TSM Alternative
User Benefits			
In-Vehicle Travel Time	\$522,936,800	\$497,912,100	\$107,361,400
Fuel Costs	\$8,525,200	(\$3,330,500)	\$6,100,600
Non-Fuel Operating Costs	(\$21,285,800)	(\$24,626,200)	(\$3,307,400)
Internal Accident Costs	\$50,161,800	\$47,117,100	\$1,031,600
Revenue Transfers	\$10,493,500	\$14,351,100	(\$757,600)
Reduction in External Costs			
Emissions	(\$21,437,800)	(\$25,175,900)	(\$2,244,500)
Global Warming	(\$5,912,300)	(\$8,255,800)	\$424,800
Noise	\$708,500	\$534,600	(\$301,700)
External Accident Costs	(\$3,481,000)	(\$3,788,200)	(\$803,800)
Life Cycle Benefits 2020-2040 Total	\$8.72 Billion	\$7.73 Billion	\$1.67 Billion (est.)

Source: Parsons, 2013, High Desert Corridor Traffic Study Report.

User Benefits

User benefits are for the driver of vehicles using the roadway. Four user benefits were analyzed, as follows:

In-Vehicle Travel Time. As motorists are able to shift routes to higher-speed facilities and take advantage of increased network capacity, cumulatively substantial travel time savings can result. Due to circuitous routing across the High Desert, the TSM Alternative would result in increased travel times compared with the build alternatives. On average, in-vehicle travel time savings are projected to be 4.8 times lower than the build alternatives.

Fuel Costs. Fuel costs decrease when congestion relief allows automobiles to travel at higher speeds. Most motor vehicles consume fuel most efficiently while traveling between 35 and 60 miles per hour (mph). The TSM Alternative would provide improved mobility across Palmdale, remove existing 2-lane

bottlenecks along SR 138/SR 18, and improve capacity between US 395 and I-15. Fuel cost savings would be lower compared to the build alternatives, except for the tolling alternative.

Non-Fuel Operating Costs. These operating costs include vehicle maintenance, brakes, and tires; they increase in relation to total vehicle miles traveled (VMT). VMT and associated non-fuel operating costs would increase for the build alternatives as motorists seek higher-speed routes. Non-fuel operating costs would be better with the TSM Alternative compared to the build alternatives.

Internal Accident Costs. Internal accident costs are defined as costs inflicted on and perceived by transportation facility users. The rates of crashes resulting in property damage and injuries are highest for urban principal arterials and lowest for urban freeways and expressways. On the west end of the corridor, the TSM Alternative would shift VMT from local surface streets to a freeway/expressway facility, resulting in a decrease in crashes of all types in Palmdale; however, the TSM Alternative does not compare favorably with the build alternatives because of the numerous at-grade crossings and driveway access points on principal arterials outside of Palmdale. Projected cost savings would be, on average, approximately 50 times lower for the TSM Alternative compared to the build alternatives.

Revenue Transfers

Revenue transfers are the tax portion of fuel costs, which are collected or not collected as a result of increased or decreased fuel consumption. Fuel cost savings due to more-efficient vehicular operations with the TSM Alternative would produce a net loss of revenue transfers. To the extent that the TSM Alternative would attract more motorists to operate within the SR 138/SR 18 corridor, the associated increased fuel consumption would produce additional tax revenues. In comparison with the other alternatives, the TSM Alternative would be the only one resulting in negative revenue transfers.

Reduction in External Costs

A reduction in external costs benefits the community affected by the project, not including drivers using the roadway. Four benefits were analyzed to determine the reduction in external costs of the build alternatives versus the TSM Alternative. These include:

Emissions. Vehicle pollution costs are based on VMT and speed. Emission rates generally decline as speeds increase to 55 mph and then tend to increase with speed after 55 mph is exceeded. While all alternatives listed in Table 1 would result in higher emissions, the TSM Alternative in comparison would have the smallest effect at approximately 10 percent of the build alternative costs.

Global Warming. Global warming refers to the warming of Earth's atmosphere due to the greenhouse effect. Global warming effects are related to gallons of fuel consumed. In comparison to the build alternatives, the TSM Alternative would be the only one to provide a global warming benefit.

Noise. More noise is typically generated when vehicles operate in stop-and-go traffic versus free-flow conditions. In comparison to the build alternatives, the TSM Alternative would be the only one to not produce a noise 'benefit.'

External Accident Costs. These costs are defined as costs inflicted on users but not perceived by users. These include changes in accident conditions within a general area that may be influenced by a project or facility improvement. For example, the proposed HDC Project would shift more VMT to the High Desert Corridor from the surrounding roadway system, thereby resulting in a decrease in accidents of all types on other roads currently serving similar travel demands. While each of the build alternatives and the TSM

Alternative would result in a disbenefit in terms of external accident costs, the TSM Alternative would have the lowest reduction for this category.

Life-Cycle Benefits (2020 – 2040) Total

As shown in the bottom row of Table 1, all of the build and TSM alternatives result in life-cycle benefits for the 20-year period between 2020 and 2040; however, life-cycle benefits attributable to the TSM Alternative are, on average, only 20 percent of the benefits calculated for the build alternatives.

Cost Estimates

Cost estimates were developed by Caltrans for the *Project Report*. The preliminary cost estimate for a 63-mile-long build alternative involving a new freeway/expressway is approximately \$2.8 billion, exclusive of ROW costs (Caltrans, 2012). While the cost estimate for the TSM Alternative would be lower than any of the build alternatives, the overall public benefit of the TSM Alternative would be the lowest.

Due to the length (more than 50 miles) and complexity of the project, and due to the need for funding support to be identified, construction of the project would need to be temporally phased, with construction being developed for logically defined segments within the entire corridor. The TSM Alternative would be conducive to such a phased approach, given that it includes lower-cost roadway improvements that can be easily packaged into individual construction contracts; however, the same funding constraints would apply to the build alternatives, so there is no major comparative benefit to the TSM Alternative in this regard. A substantial negative with regard to the TSM Alternative would be to use public funding in support of a project that would result in major out-of-direction travel for eastbound motorists from Palmdale wishing to go north on I-15 and westbound motorists wishing to go south on SR 14.

RECOMMENDATIONS FOR THE ENVIRONMENTAL DOCUMENT

The TSM Alternative has been assessed herein for potential full analysis in the DED for the project in comparison to the build alternatives. As discussed above, the TSM Alternative under evaluation is considered ‘enhanced’ and comparable to the build alternatives because it includes components that go beyond the typical, relatively low-cost measures (e.g., traffic light synchronization) to improve the operational efficiency of existing highway facilities.

However, based on the evaluation presented above and as illustrated in the reasons listed below, the TSM Alternative is not recommended for further analysis in the DED.

Failure to Meet Objectives of Purpose and Need

The primary reason for rejecting this alternative is that it would not meet the objectives of the project’s Purpose and Need, as follows:

1. Connectivity. The TSM Alternative would not address the need for a continuous, direct east-west connection between the developed areas of the southern Antelope and Victor valleys.
2. Mobility. The TSM Alternative would only partially address the need for improved mobility within the corridor, because vehicular traffic would still be required to transition between rural highway, local arterials, expressway, and freeway. As under current conditions, motorists’

- mobility would be challenged by speed limit changes, signal- and stop-controlled intersections, and direct-access points (e.g., driveways and local roadways) that impede traffic flow.
3. Level of Service and Congestion. The TSM Alternative would not fully address systemic conditions that contribute to traffic congestion.
 4. Safety. The TSM Alternative would not address the need for improved safety and reliability across the entire corridor.
 5. Regional Transportation System Accessibility. The TSM Alternative would not achieve a high level of accessibility to the regional transportation system, because it would rely on an existing indirect and discontinuous route across the region.

Inferior Overall Benefits

As shown in Table 1, annual and life-cycle benefits attributable to the TSM Alternative are, on average, approximately five times less than benefits calculated for the build alternatives.

Uneconomical Expenditure of Public Funds

The TSM Alternative would use public funding in support of a project that would result in major out-of-direction travel for eastbound motorists from Palmdale wishing to go north on I-15 and westbound motorists wishing to go south on SR 14.

REFERENCES

- Caltrans (California Department of Transportation). 2011. Alternatives Analysis, New State Route 138/E-220, Palmdale to Apple Valley (SR-14 to SR-18). September.
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