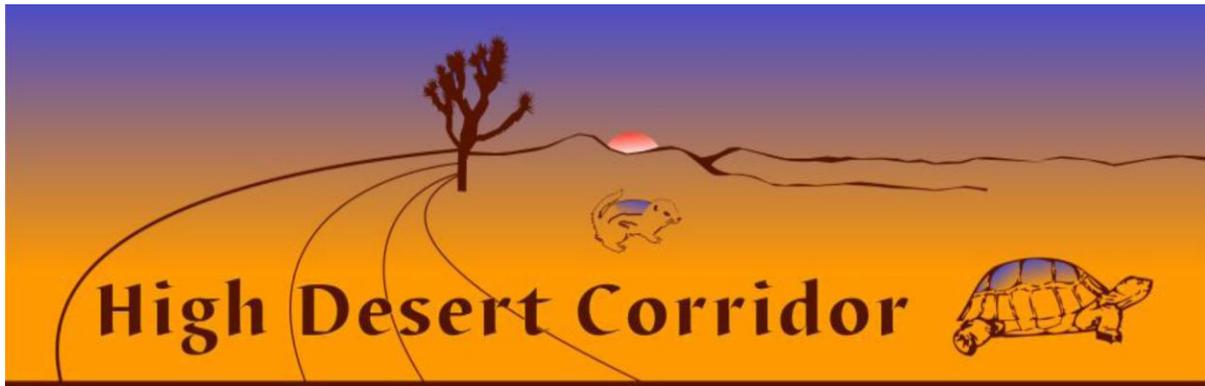


Narrative on Phasing



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

November 2013

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TABLE OF CONTENTS

Introduction.....	1
Available and Projected Funding Sources	1
Alternative Development Scenarios.....	2
Relationship of Funding Approach to Project Cost and Schedule	10
Relationship with Other Infrastructure Projects.....	11
Green Energy Potential within the Corridor	13
References.....	13

TABLES

Table 1. Project Funding Scenarios	3
Table 2. Self-Financing Capabilities of HDC Project.....	10

FIGURES

Figure 1. Location of Phased Construction Components, Scenario No. 1 Publicly Funded Highway Facility	5
Figure 2. Location of Phased Construction Components, Scenario No. 2 P3 Toll Facility (Highway Only)	6
Figure 3. Location of Phased Construction Components, Scenario No. 3 Freeway/Expressway Plus P3 High-Speed Rail Facility	7
Figure 4. Location of Phased Construction Components, Scenario No. 4 P3 Freeway/Expressway Plus P3 Rail Facility.....	8

INTRODUCTION

Due to the length (63 miles) and complexity (i.e., multiple modes, potential tolling application, and green energy features) of the proposed High Desert Corridor (HDC) Project and the need for funding support to be identified, construction of the project will need to be temporally phased for logically defined segments within the entire corridor. This phasing is tied to the availability and timing of public and/or private funding. The following narrative offers several scenarios to illustrate how the corridor might be developed under differing assumptions regarding the timing and availability of funding, and also reflecting how completion of the HDC Project may be influenced by the development of associated projects by others.

AVAILABLE AND PROJECTED FUNDING SOURCES

While the HDC is currently (November 2013) in the Project Approval/Environmental Document (PA/ED) stage, neither public nor private funding has as yet been programmed for design, construction, or operation of the project. To date, approximately \$50 million in public funding has been programmed for the proposed project, a portion of which will not be available until after fiscal year 2020, if then. Moreover, a ban on future federal earmarks, once considered a potential major source of funding for this project, is likely to remain in place for the foreseeable future. Given these considerations, combined with the potential for revenue to be generated by the corridor itself, the sponsoring agencies (i.e., Los Angeles County Metropolitan Transportation Authority [Metro] and California Department of Transportation [Caltrans]) are considering alternative financing mechanisms and construction sequences to deliver this significant public infrastructure project.

Recognizing that public funds alone will likely not be sufficient to complete the project, and further understanding that the corridor could offer opportunities to capture revenue from private sources, Metro has contracted with InfraConsult, LLC to prepare an Interim Business Plan (InfraConsult, 2012a) for delivering the HDC as a public-private partnership (P3). The Business Plan contains both 'high' and 'low' toll revenue forecasts that are used to determine a range of public funding potentially required to support the project. The results of the Business Plan analysis show that public funding between \$1.5 and \$2.3 billion is required for delivery of the project without a rail component.

With adequate public funding in place, a future concessionaire for the HDC could potentially finance the project with a combination of private equity and funds using the following toll-revenue-based financing instruments:

- Transportation Infrastructure Finance and Innovation Act (TIFIA) loan through the U.S. Department of Transportation affording favorable interest rates and flexible repayment terms;
- Private Activity Bonds (PABs) providing tax-exempt debt at lower rates of interest.

Subsequent to completing the Interim Business Plan, Metro contracted with InfraConsult, LLC to prepare a Public-Private Partnership Feasibility Evaluation (InfraConsult, 2012b) to assess the net financial impact of adding high-speed passenger rail and other uses to the HDC. The proposed XpressWest project, currently planned to extend from Las Vegas to Victorville, could use the HDC to extend rail service to Palmdale, at the western end of the corridor; therefore, it offers the potential for additional funding to be

brought to the project through Railroad Rehabilitation Improvement Financing (RRIF). RRIF is a revolving loan and loan-guarantee program administered through the Federal Railroad Administration (FRA). If the proceeds from these various funding sources could be combined and focused on a single project, then the toll facility and passenger rail service could potentially take advantage of both TIFIA and RRIF loans. The Feasibility Evaluation concludes, “the addition of high-quality, high-speed passenger rail service enhances the overall financial viability of an HDC Project, assuming that the proposed XpressWest service is implemented between Victorville and Las Vegas and achieves the forecasted level of ridership.”

XpressWest submitted a \$5.5 billion RRIF loan request to FRA in 2011 to finance the Las Vegas to Victorville service. After 2.5 years of review, XpressWest was notified on June 28, 2013, by the Secretary of Transportation that further review of their loan application was suspended. The Secretary said that “serious issues persist with XpressWest’s loan request,...including your difficulty satisfying domestic manufacturing requirements” under the Buy America Program. XpressWest has indicated that federal funding for the project will continue to be pursued.

ALTERNATIVE DEVELOPMENT SCENARIOS

As shown in Table 1, the project could be phased according to one of four different funding scenarios:

1. Publicly Funded Highway Facility
2. P3 Toll Facility (Highway Only)
3. Freeway/Expressway Plus P3 High-Speed Rail Facility
4. P3 Freeway/Expressway Plus P3 Rail Facility

For each of these, it should be noted that funding has not been secured; therefore, the time frames provided should be considered conceptual and illustrative of typical time frames from other projects of a similar scale. In addition, Scenarios 2, 3, and 4 have green-energy components, including solar energy facilities to supply all or a portion of the highway’s electrical needs.

Scenario No. 1: Publicly Funded Highway Facility

As stated above, there is substantial uncertainty associated with the future of fully publicly funded highway projects; however, assuming public funding would become available, this option could be implemented in four phases using either a design-bid-build (DBB) or a design-build (DB) approach. Project phasing is arranged to prioritize segments within the corridor that are projected to experience the highest traffic volumes in upcoming years. In this way, and as shown in Figures 1 through 4, the first phase includes a 10-mile western segment across Palmdale and a 9.7-mile eastern segment extending from U.S. Highway 395 (US 395) to east of Interstate 15 (I-15). Higher-demand highway sections (i.e., in Palmdale and between US 395 and I-15) would initially be built as a 4-lane freeway, with available right-of-way (ROW) to add lanes over time as demand warrants. After the above segments are completed and pending funding availability, an expressway would be constructed to connect State Route (SR) 14 with I-15. Additional phases entail completing the east-end expressway into Apple Valley and upgrading the Central Segment (90th Street East in Palmdale to US 395) from expressway to freeway status. Depending on funding availability, construction for this phase could extend over more than 20 years starting in 2018.

Table 1. Project Funding Scenarios

Phase	Description	Construction Timeframe	Notes
Scenario No. 1. Publicly Funded Highway Facility			
1	Concurrent construction of two separate segments: (1) approximately 10-mile segment between SR 14 and 90 th Street, and (2) approximately 9.7-mile segment between US 395 and Dale Evans Parkway, east of I-15	2018 to 2022/23	West Segment – Purchase ROW first, then build 4-lane freeway with future expansion to 6 lanes depending on funding availability East Segment – Purchase ROW first, then build 4-lane freeway to I-15 (with future expansion to 6 lanes when funding is available) and expressway east of I-15 to Dale Evans Parkway
2	Build expressway to connect west end to east end (i.e., 90 th Street to US 395)	Post 2023 to 2029/30	4-lane facility
3	Acquire ROW, then extend expressway from Dale Evans Parkway to east terminus at SR 18	2030 to 2034/35	4-lane facility tapering to a 2-lane at-grade expressway
4	Transition middle segment (90 th Street to US 395) from expressway to freeway	2035 to 2039	6 lanes and 8 total interchanges
Scenario No. 2. Public-Private Partnership (P3) Toll Facility (Highway Only)			
1	Acquire ROW, then concurrent construction of Scenario #1 Phases 1 and 2, which extends between SR 14 and Dale Evans Parkway, east of I-15	2018 to 2024/26	Tollway portion = 90 th Street to US 395 Phase 4, as described in Scenario #1, would be co-joined to this phase, as the corridor between SR 14 and I-15 would be developed as a freeway; this would be a green energy corridor
2	Acquire ROW, then extend expressway from Dale Evans Parkway to terminus at SR 18	2026 to 2030/31	4-lane facility tapering to a 2-lane at-grade expressway
Scenario No. 3. Freeway/Expressway Plus P3 High-Speed Rail Facility			
1	Acquire ROW, then conduct grading for a combined rail/highway facility, and then construct rail between SR 14 and I-15	2018 to 2021	Timing/phasing for this scenario depends on whether XpressWest moves forward (assumed to be in 2015); also in addition, it is likely that construction would not start until the Las Vegas to Victorville leg is complete (assumed to be in 2020); goal would be to open Victorville to Palmdale rail segment 1 year after Las Vegas to Victorville segment is opened
2	With rail established, assume funding to be available to construct highway between SR 14 and Dale Evans Parkway, east of I-15	2021 to 2025	3- to 4-year construction duration

Table 1. Project Funding Scenarios

Phase	Description	Construction Timeframe	Notes
3	Acquire ROW, then extend expressway from Dale Evans Parkway to terminus at SR 18	2025 to 2029/30	4-lane facility tapering to a 2-lane at-grade expressway
Scenario No. 4. P3 Freeway/Expressway Plus P3 Rail Facility			
1	Acquire ROW, then conduct grading for a combined rail/highway facility, and then construct rail between SR 14 and I-15	2018 to 2021	Timing/ phasing for this scenario depends on whether XpressWest moves forward (assumed to be in 2015); also in addition, it is likely that construction would not start until the Las Vegas to Victorville leg is complete (assumed to be in 2020)
2	Construct highway between SR 14 and Dale Evans Parkway, with segment between 90 th Street and US 395 built as a toll facility	2021 to 2025	Assuming P3 funding for the highway, it may be possible to advance the construction start date approximately 1 to 2 years in comparison with Scenario #3
3	Acquire ROW, then extend expressway from Dale Evans Parkway to terminus at SR 18	2025 to 2029/30	4-lane facility tapering to a 2-lane at-grade expressway

Source: Caltrans and Parsons, 2013.

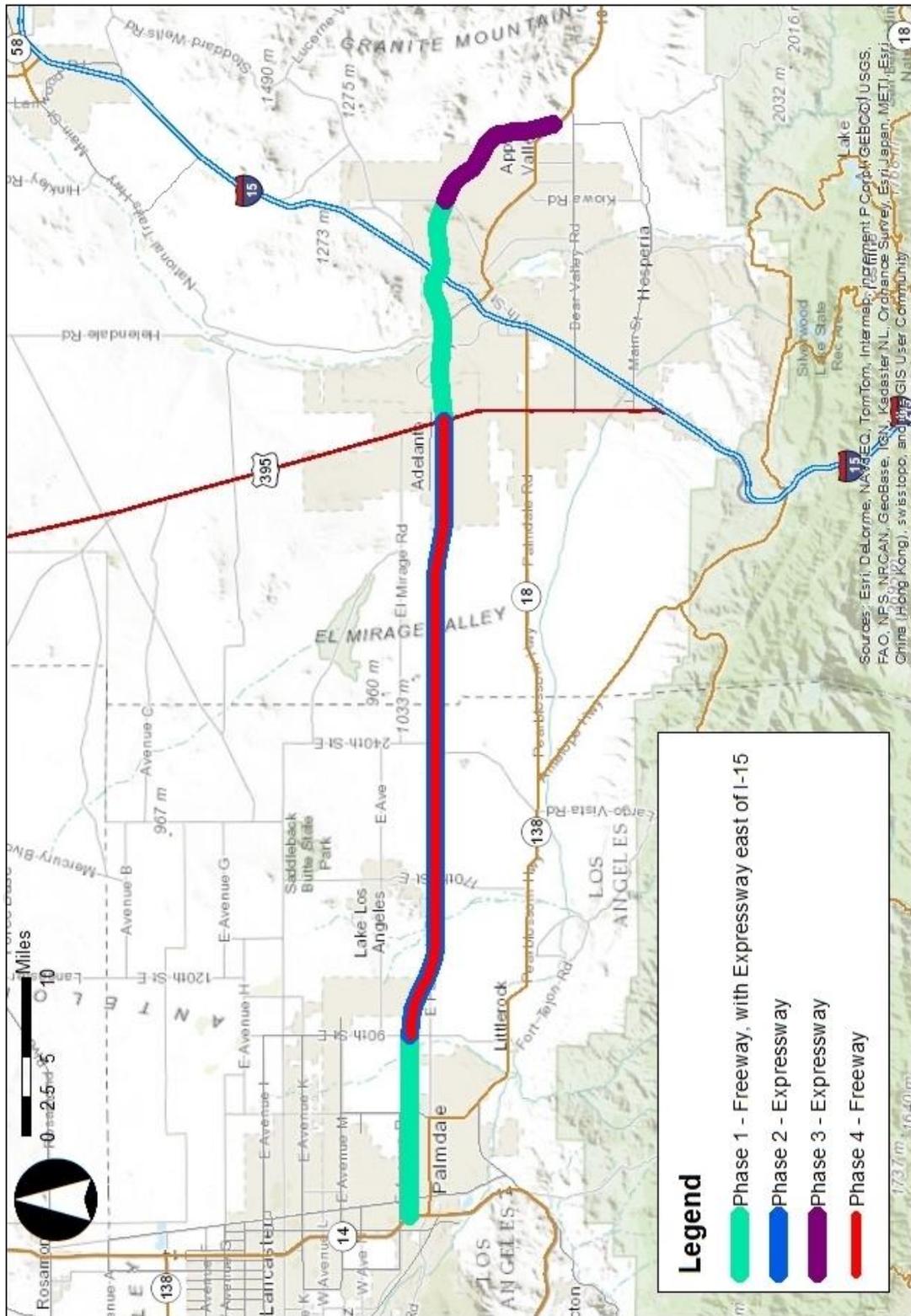


Figure 1. Location of Phased Construction Components, Scenario No. 1 Publicly Funded Highway Facility

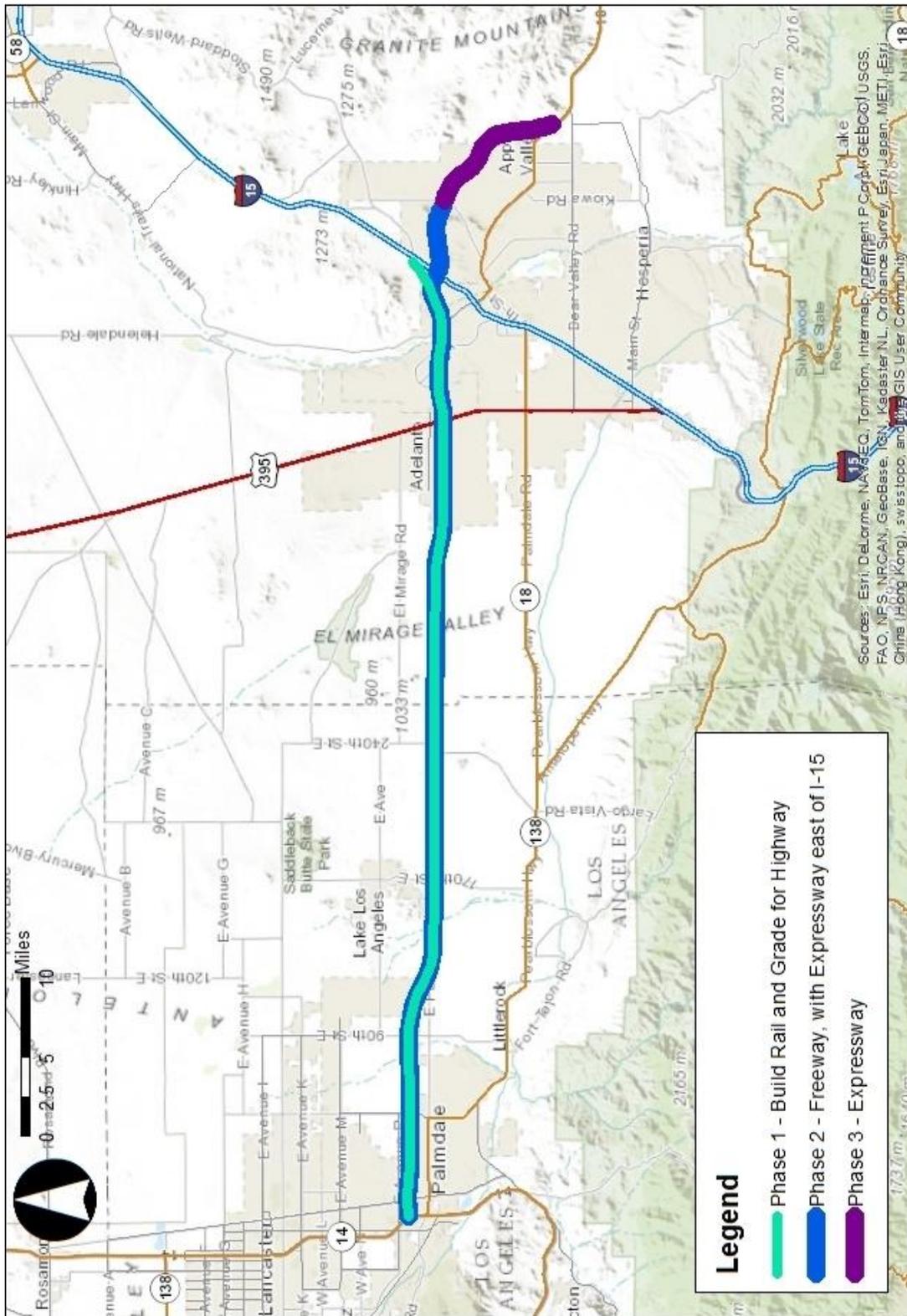


Figure 3. Location of Phased Construction Components, Scenario No. 3
Freeway/Expressway Plus P3 High-Speed Rail Facility

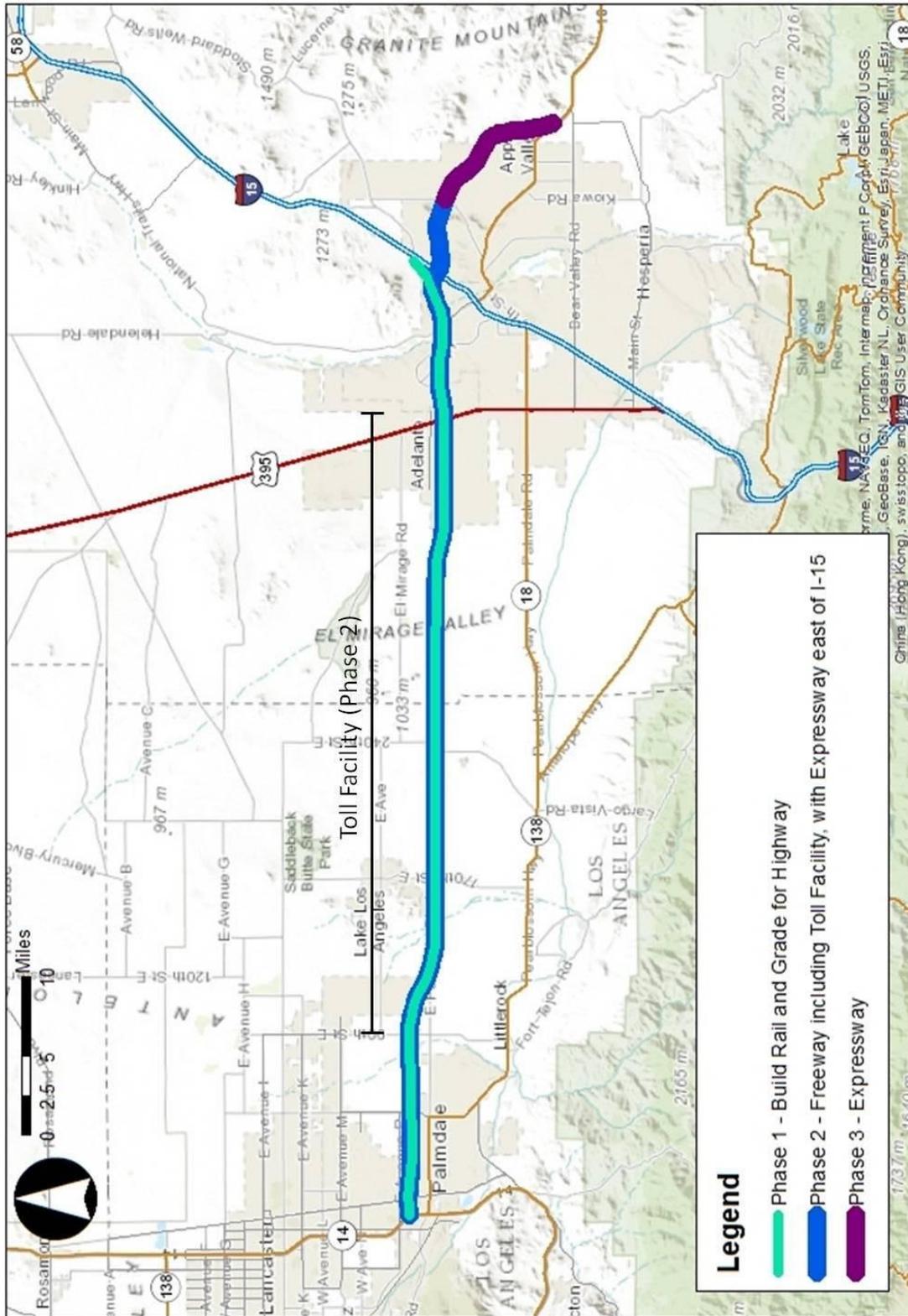


Figure 4. Location of Phased Construction Components, Scenario No. 4
P3 Freeway/Expressway Plus P3 Rail Facility

Scenario No. 2: Public-Private Partnership Toll Facility (Highway Only)

This approach would apply available public funding, as well as funding from a P3, given that studies have shown that highway toll revenues would be insufficient to cover the capital costs of construction for the entire corridor, thereby presenting a significant funding gap that would need to be closed by public funding sources (Metro, 2013). Studies indicate that the optimal location for establishing a toll segment is the Central Segment between 90th Street East in Palmdale to US 395 in Adelanto. Under this scenario, a DB approach would be used for the two segments on both ends of the toll road, with the toll segment being delivered using a design-build-finance-operate-maintain (DBFOM) approach. Under this scenario, the entire corridor between SR 14 and I-15 would be constructed as a single freeway project to enable access to, and tolling on, the Central Segment. Construction of the east-end expressway into Apple Valley would occur as funding became available. Depending on funding availability, construction for this scenario could extend over 13 years beginning in 2018; however, it is possible that the segments connecting the Antelope and Victor valleys could be completed as early as 2024.

Scenario No. 3: Freeway/Expressway Plus Public-Private Partnership High-Speed Rail Facility

With this approach, the ROW between the Palmdale Transportation Center (approximately 6th Street East) and I-15 in Adelanto/Victorville would be constructed as a multimodal corridor to accommodate high-speed rail in addition to a freeway and expressway. The first phase of this project would be to construct grading for a combined highway/rail facility, then the railroad component would be constructed, with a target of opening the Victorville to Palmdale rail extension within 1 year after the Las Vegas to Victorville segment is operational. With rail established, and a P3 funding stream secured, the highway between SR 14 and east of I-15 to Dale Evans Parkway would be completed. As with the other scenarios, the east-end expressway into Apple Valley would be the final segment to be built. Construction timing depends on when the XpressWest project is completed from Las Vegas to Victorville.

Scenario No. 4: Public-Private Partnership Freeway/Expressway Plus Public-Private Partnership Rail Facility

This scenario assumes that the project would be implemented using a combined P3 approach, taking advantage of highway tolls and the revenue stream from rail fares. A potential advantage of this scenario would be delivery of most of the new facilities using a combination of public and private funding sources, with the principal objectives being accelerated project delivery schedules, cost-effective use of public funds, and optimized risk sharing (InfraConsult, 2013). The construction phases for this scenario would be identical to Scenario No. 3. Construction timing would depend on when the XpressWest project is built from Las Vegas to Victorville.

RELATIONSHIP OF FUNDING APPROACH TO PROJECT COST AND SCHEDULE

According to San Bernardino County Supervisor Brad Mitzelfelt, the High Desert Corridor Joint Powers Authority (HDCJPA) was created to attract the private sector to invest in financing and construction of the project. The idea is to combine “private sector dollars in the public-private partnership model...to accomplish in 10 years what traditionally might have taken 30” (Brad Mitzelfelt, 2011).

The above-mentioned Feasibility Evaluation (InfraConsult, LLC, 2012b) assessed whether the HDC could be partially or fully self financing either with or without high-speed rail. The results are summarized in Table 2.

Table 2. Self-Financing Capabilities of HDC Project

Project Scenario	Affected Segment / Operation	Self Financing?	Contribution to Funding Gap Reduction?	Discussion
No. 1	Entire Corridor	No	No	Project will not generate toll revenues
No. 2	West Segment	No	No	No toll revenues generated within these segments
	East Segment	No	No	
	Central Segment	Yes	Minimal to None	Toll revenues are not expected to offset capital costs for other highway segments
No. 3	Freeway/ Expressway	No	No	Highway will not generate toll revenues
	High-Speed Rail	No	No	Passenger fares insufficient to finance all capital costs
No. 4	Freeway/ Expressway	No	No	Central Segment toll revenues are not expected to offset capital costs for other highway segments
	Rail – 1 Seat Ride ¹	Yes	Yes	Combined revenues will cover construction and operational costs
	Rail – 2 Seat Ride ²	No	No	Fare revenues cover operation and maintenance (O&M) and life-cycle costs, but not all capital costs
	Rail – Enhanced 2 Seat Ride ³	Yes	Yes, <\$100M	Fare revenues may slightly reduce public subsidy needed for highway

Notes:

- 1) Assumes concessionaire will operate a continuous ‘1 seat’ high-speed ride from Los Angeles Union Station to Las Vegas and retain all passenger rail revenues associated with the entire route; concessionaire is also assumed to operate the 32-mile tolled (Central) segment of the highway.
- 2) Assumes concessionaire will operate service only as far as Palmdale; concessionaire is also assumed to operate the 32-mile tolled (Central) segment of the highway.
- 3) Same as ‘2 seat’ ride except it is assumed that high-speed rail is operational from Union Station to Palmdale, and passengers have a convenient cross-platform transfer to access Victorville-bound trains.

Source: *InfraConsult, 2012b.*

For *Scenario No. 1*, while not the preferred funding option for this project, a publicly funded project could conceivably be constructed as funds become available. The source of these future funds is not currently known, but it is understood that any such project would not realistically be completed end-to-end for approximately 25 years (approximately 2039). This approach does not take advantage of cost efficiencies associated with a P3 model. With this funding approach, while not affecting the project schedule, the public sector would be responsible for expenditures associated with future O&M over the life of the facility.

Scenario No. 2 assumes that the highway would be partially funded through a P3 arrangement with a private concessionaire. The advantage of this project is delivery several years earlier than Scenario No. 1 and at a lower overall cost. In addition, there would be cost advantages associated with using DBFOM¹ in addition to DB to construct the project; however, capital cost construction for the east and west segments not subject to toll revenues would leave a funding gap that must be closed, estimated to be between \$1.5 and \$2.3 billion (InfraConsult, 2012b, pp. S-6, 1).

The uncertainty about obtaining adequate public funding in a timely manner prior to the start of construction is a key concern for this scenario.

With *Scenario No. 3*, an additional up-front construction subsidy on the order of \$900 million would be needed to support the rail component. Additionally, the ability of rail fare monies to support the highway component depends on whether future high-speed rail service is in place from Los Angeles Union Station to Palmdale (see additional discussion below). Assuming high-speed rail is not available for future passengers wishing to access the Palmdale Transportation Center from the Los Angeles metropolitan region, studies indicate that passenger fare revenues would be sufficient to cover O&M and life-cycle costs but not the capital costs. The overall conclusion of the financial analysis is that high-speed rail would enhance the overall financial viability of the HDC Project (InfraConsult, LLC, 2012b); however, there is scheduling and cost uncertainty associated with this scenario, including FRA's curtailment of XpressWest's RRIF loan application review in June 2013.

Under *Scenario No. 4*, it is assumed that the toll facility and passenger rail service could potentially take advantage of both TIFIA and RRIF loans, thereby substantially increasing the eligible amount of project financing that could be obtained at below-market interest rates. A feasibility study conducted for Metro has determined that this scenario may provide enough funds to finance, operate, and maintain the project (InfraConsult, 2012b). As with Scenario No. 3, the financial performance of this project is linked with the nature and quality of future rail service to Palmdale from Los Angeles Union Station. There is also scheduling and cost uncertainty associated with this scenario, including FRA's curtailment of XpressWest's RRIF loan application review.

RELATIONSHIP WITH OTHER INFRASTRUCTURE PROJECTS

Other proposed highway and rail infrastructure projects proposed across the high desert region could affect project phasing. These are discussed in the following paragraphs and include XpressWest High-Speed Rail, California High-Speed Rail, and US 395 Widening.

¹ With DBFOM, "traffic revenue risk could: (a) fall entirely to the concessionaire; (b) be shared between Metro and the concessionaire; or (c) fall entirely to Metro who will compensate the concessionaire through an Availability Payment structure."

XpressWest High-Speed Rail

Two of the four alternative project scenarios described above involve development of a multipurpose corridor supplying highway and railroad transportation. High-speed passenger rail service is being considered for potential extension from a proposed XpressWest station in Victorville to the Palmdale Transportation Center. There are several reasons supporting this extension. First, XpressWest has received a National Environmental Policy Act Record of Decision for development of rail service as far as Victorville. Second, extending rail service approximately 50 miles west to Palmdale would establish a connection with existing Metrolink service and planned future California High-Speed Rail service to downtown Los Angeles. Third, adding rail to the corridor would enhance the financing capacity of the corridor.

As discussed above, XpressWest was recently unsuccessful in obtaining funding as part of a \$5.5 billion RRIF loan request to FRA. Despite this setback, XpressWest intends to continue pursuing federal funding for the project. It is noted that the RRIF application was based on financing a project that would terminate approximately 80 miles outside of downtown Los Angeles. Studies have shown that extending the project to Palmdale would be more financially productive.

California High-Speed Rail

The California High Speed Rail Authority is responsible for planning, designing, building, and operating a high-speed rail system to connect the major metropolitan areas of the state. As currently planned, by year 2029, the system will run from San Francisco to the Los Angeles basin in under 3 hours at speeds capable of more than 200 miles per hour. First service between the San Joaquin Valley and Los Angeles, via Palmdale, is planned for 2022.

Establishing high-speed rail service to downtown Los Angeles would benefit the proposed project alternatives with a rail component. In reference to Table 2, Scenario No. 4, there are some interesting conclusions reached in the P3 Feasibility Evaluation. Under the 2-seat ride (no High-Speed Rail Project), InfraConsult projects a \$900 million subsidy for the rail component. For an 'enhanced 2-seat ride' (High-Speed Rail Project serving downtown Los Angeles), it is projected that the cost of rail service would be covered by fare revenues, albeit assuming highly favorable financial terms. A 1-seat ride project, as defined in the Table 2 notes, would be most productive financially, according to InfraConsult (2012b), wherein "total project revenues from the multimodal corridor are robust enough to support a P3 concession without any public funding contributions during construction or operations." Reasons provided for enhanced financial capacity with high-speed rail are: (1) an additional robust revenue stream generated by rail service; and (2) a combined project would allow a concessionaire to obtain a greater amount and diversity of low-interest financing.

US 395 Widening

The San Bernardino Associated Governments (SANBAG), in cooperation with Caltrans, has plans to widen and/or realign US 395 from I-15 in Hesperia north past Kramer Junction. A six-lane freeway is ultimately proposed between I-15 and SR 18, tapering to a four-lane freeway north of SR 18 to Purple Sage Road in Adelanto. This project, known as the Southern Alignment, is identified on the Caltrans District 8 Web site as Project G (34041). Acquisition of ROW, design, and construction will occur over several years, depending on funding availability. In the interim, the California Transportation Commission in May 2012 approved funding for a project that will widen the median and shoulders along US 395, install rumble strips, resurface the roadway, and widen the following intersections to

accommodate the new width of US 395: Colusa Road, Desert Flower Road, Purple Sage Street, Shadow Mountain Avenue, Sun Hill Ranch, and Princess Pat Mine. While the schedules are currently unknown, it is possible that construction activities for the US 395 and HDC projects could overlap. Considering that US 395 is a major highway crossing of the HDC alignment, it is critical that future design and construction activities for these projects are closely coordinated.

GREEN ENERGY POTENTIAL WITHIN THE CORRIDOR

The HDC Project is being proposed as a laboratory for new technologies. Beside high-speed rail, the corridor is being considered for alternative energy production, with a preliminary conclusion that a solar array system may be potentially cost effective. According to InfraConsult (2012b), development of such a system has the potential to fully power the high-speed rail trains in the corridor, as well as provide all other power needs such as the standard level of highway illumination. It is also estimated that the solar array can be implemented at a cost savings versus power purchase from existing sources.

Other green energy concepts, including wind energy, have been reviewed but are not as promising for development within the HDC.

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