

## NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016 for a term of five years. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

## Chapter 1 Proposed Project

### 1.1 Proposed Project

Changes have been made to this Environmental Document since the public circulation of the Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment (Draft IS/EA) between January 12, 2017, and February 13, 2017. Public and agency comments received during the circulation of the Draft IS/EA and the related Public Information Meeting, held on February 1, 2017, during the public circulation period, resulted in refinements that have been incorporated into this Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact (MND/FONSI). A vertical line in the outside margin indicates changes in the adjacent text of this document in relation to the corresponding part in the Draft IS/EA.

### 1.2 Introduction

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016 for a term of five years. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The California Department of Transportation (Caltrans) is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

Effective July 1, 2007, Caltrans was assigned environmental review and consultation responsibilities under NEPA pursuant to 23 United States Code (USC) 327. For this project, Caltrans is the lead agency under NEPA. The City of Lake Elsinore (City), in cooperation with RCTC and Caltrans, proposes to make improvements and ramp modifications to the Interstate 15 (I-15)/Railroad Canyon Road interchange and to construct a new interchange north of the existing I-15/Franklin Street overcrossing in the City of Lake Elsinore. The project includes ramp improvements and reconfigurations to the existing I-15/Railroad Canyon Road interchange. All Build Alternatives also include the construction of a new freeway interchange north of the existing I-15/Franklin Street overcrossing. All interchange improvements and construction would occur in the City of Lake Elsinore and the State right-of-way. Figure 1.1 illustrates the project location and vicinity.

The following four alternatives have been evaluated, including a “No Build” Alternative. The Preferred Alternative is Alternative 2.

- **Alternative 1:** This “No Build” Alternative proposes no improvements and maintains the existing lane and ramp configuration at Railroad Canyon Road.
- **Alternative 2 (Preferred Alternative):** This Alternative proposes to reconstruct the I-15/Railroad Canyon Road northbound ramps to a hook configuration to Grape Street; eliminate the existing northbound ramps at Railroad Canyon Road; and maintain a diamond configuration for the southbound ramps at Railroad Canyon Road with a new interchange at Franklin Street.
- **Alternative 3:** This Alternative proposes to reconstruct the I-15/Railroad Canyon Road northbound ramps to a hook configuration to Grape Street; eliminate the existing northbound entrance ramp at Railroad Canyon Road; reconstruct the southbound ramps to a hook configuration to Casino Drive; and eliminate the existing southbound and northbound exit ramp at Railroad Canyon Road with a new interchange at Franklin Street.
- **Alternative 4:** This Alternative proposes to reconstruct the five signalized intersection (Mission Trail-Lake Shore Drive, Casino Drive-Auto Center Drive, Southbound Ramps, Northbound Ramps, and Grape Street-Summerhill Drive) to yield control intersections (Roundabouts) along Railroad Canyon Road; reconstruct/widen and realign the southbound and northbound ramps with a new interchange at Franklin Street.

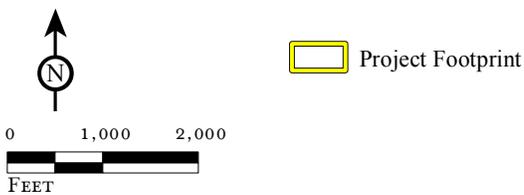
The estimated total capital and right-of-way costs for the Build Alternatives are approximately \$97.35 million (Alternative 2), \$110.4 million (Alternative 3), and \$95.65 million (Alternative 4). Construction is anticipated to begin during the 2018/2019 fiscal year and open to traffic in the 2019/2020 fiscal year. Funding for the project comes from multiple sources including the City of Lake Elsinore, the Transportation Uniform Mitigation Fund (TUMF), and State and federal sources.

The project is included in the Southern California Association of Governments (SCAG) 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for the Southern California region, which was adopted on April 7, 2016. The description provided in the RTP is as follows:

*“AT I-15/RAILROAD CYN RD IC: CONST 5-MULTI LN ROUNDABOUTS (SUMMERHILL DR – MISSION TR), WIDEN NB ENTRANCE RAMP FROM 2-3 LNS, WIDEN SB ENTRANCE RAMP FROM 1-3 LNS, AND RAMP ACCEL/ DECEL LNS AT RR CYN ROD (PH1); CONST NEW I-15/ FRANKLIN S IC,*



FIGURE 1.1



08-RIV-15-PM 18.3/21.0  
 EA. 0A4400  
 I-15/Railroad Canyon Road Interchange  
 Initial Study/Environmental Assessment

Regional and Project Location

SOURCE: Bing Aerial, 2015.

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*ADD AUX LNS FROM FRANKLIN ST IC TO MAIN ST IC & FROM FRANKLIN ST IC TO RR CYN I, REALIGN/WIDEN MAIN ST SB ON RAMP 1-2 LNS, AND CONST FRONTAGE RD ON WS AND ES OF I-15 F.”*

The Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) approved the 2017 Federal Transportation Improvement Program (FTIP) on September 1, 2016.

On May 12, 2017, FTA and FHWA approved Amendment 17-03 to the 2017 FTIP. The updated project description for the I-15/Railroad Canyon Road interchange improvement project (Project ID: RIV010206) approved in Amendment 17-03 is as follows:

*“AT I-15/RR CYN RD IC & NEW I-15/FRANKLIN ST IC: WIDEN RR CYN RD UC FROM 7 TO 8 LNS (SUMMERHILL DR – MISSION TR), RCNSTCT NB EXIT/ ENTRY RAMPS TO HOOK RAMP CNECTN TO GRAPE ST, WIDEN SB ENTRY RAMP FROM 1-2 LNS, WIDEN SHLDRS SB EXIT RAMP, WIDEN GRAPE ST TO CONST DEDICATED RT TN LN AT NB HOOK RAMP AND RR CYN RD, & CONS RAMP ACCEL/DECEL LNS AT RR CYN RD (PH 1); CONS NEW I-15/ FRANKLIN ST IC, CONST AUX LNS FROM FRANKLIN ST IC TO MAIN ST IC & FROM FRANKLIN ST IC TO RR CYN IC, REALIGN & RECONSTRUCT MAIN ST SB ON RAMP FROM 1-2 LNS, ON WS OF I-15 CONST AUTO CENTER DR EXTNSN FROM EX FRANKLIN ST TO ADOBE ST & ON ES OF I-15 AND CONS CNY ESTATE DR EXT FROM EX FRANKLIN ST TO CAMINO DEL NORTE (PH 2)”*

### **1.2.1 Existing Facility**

I-15 is a major north-south freeway that begins in the San Diego area and continues northerly through Riverside and San Bernardino Counties and into the State of Nevada. As such, I-15 is a primary interstate truck route for the transport of goods and materials between Southern California and points northeast. Within the Lake Elsinore region, I-15 serves interregional traffic between metropolitan areas and the rapidly growing Lake Elsinore communities.

The existing arterial system within the Lake Elsinore area is generally a south-north, west-east grid network with I-15 crossing the grid in a southeast-northwest direction at Railroad Canyon Road. Railroad Canyon Road begins at the intersection of the I-15 southbound ramps westerly of I-15 then continues in a northeasterly direction, and finally becomes Newport Road in the Canyon Lake area.

The undercrossing and interchange at Railroad Canyon Road and I-15 was constructed in the early 1980s to serve a predominantly agricultural/rural area. The interchange was constructed as a tight diamond interchange with southbound and northbound entrance and exit ramps. The interchange is located approximately 2.9 miles (mi) north of the Bundy Canyon Road interchange and approximately 1.8 mi south of the Main Street interchange.

Within the project limits, I-15 consists of a six-lane freeway, with three lanes in each direction and paved shoulders. The overall median is 70 feet (ft) including a 5 to 8 ft paved inside shoulder in each direction. The remaining 54 to 60 ft of the median is unpaved. The existing Railroad Canyon Road undercrossing was constructed in 1980, as two 54 ft wide, single span, cast-in-place pre-stressed concrete box girder bridge structures with concrete barriers on each side. The existing Railroad Canyon Road interchange configuration is a tight diamond with variable width entrance and exit ramps. All intersection movements at Railroad Canyon Road are controlled by signals. Existing pavement and all ramps on Railroad Canyon Road are asphalt concrete.

## 1.3 Purpose and Need

### 1.3.1 Purpose

The purpose of the project is to relieve congestion by improving traffic operations (through improvements of the Railroad Canyon Road interchange and correction of merging/diverging freeway and ramp movements) and meeting traffic demands (through construction of a new freeway interchange).

The objectives of the project are to:

- Relieve existing traffic congestion in the vicinity of Railroad Canyon Road at the I-15 ramps;
- Improve the overall operation of the I-15/Railroad Canyon Road interchange and surrounding streets;
- Accommodate the projected 2040 traffic flow and movement on ramp intersections during the a.m. and p.m. peak hours on Interstate 15; and
- Ensure that the facility is able to adequately handle the increasing flow of traffic while maintaining an acceptable level of service (LOS) “D” on the ramp intersections and an acceptable LOS “E” on the ramp merge/diverge points during the a.m. and p.m. peak periods.

### 1.3.2 Need

Severe traffic congestion occurs at the Railroad Canyon Road interchange, and congestion is anticipated to worsen in the future. The following traffic study documents were prepared for the project:

- *Traffic Impact Analysis – Interstate 15 (I-15) at Railroad Canyon Road Interchange* (August 2009)
- *Supplemental Traffic Memorandum – Updating Existing Traffic Data to 2009 and Opening Year to 2015* (December 2010)
- *Supplemental Traffic Impact Analysis- Phase 1 Improvements – I-15 at Railroad Canyon Interchange Opening Year 2015 Analysis* (June 2011)
- *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014)

It is anticipated that without any improvements, an LOS of E or F will occur by 2040 at all the intersections of Railroad Canyon Road from Summerhill Drive-Grape Street to Mission Trails-Lakeshore Drive. LOS defines the quality of traffic flow. All I-15 freeway ramp junctions will operate at LOS F during the 2040 a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road and Bundy Canyon Road southbound exit ramps, which operate at LOS E during the 2040 a.m. peak hour. Existing congestion and queuing on Railroad Canyon Road and the I-15 ramps is primarily caused by the close proximity of existing signalized intersections at I-15, Casino Drive-Auto Center Drive, Grape Street-Summerhill Drive, and Mission Drive-Lakeshore Drive. This situation creates recurring congestion and impaired traffic circulation and safety.

Making the improvements would ensure that the Railroad Canyon Road interchange would be able to handle the increased traffic volumes while maintaining an acceptable LOS D or better in the year 2040 on the ramp intersections during a.m. and p.m. peak hours and an acceptable LOS E or better in the year 2040 on the ramp merge/diverge points during a.m. and p.m. peak hours.

### 1.3.2.1 Capacity and Transportation Demand

The daily number of vehicles traveling on I-15, Railroad Canyon Road, and Franklin Street in the project area is forecast to increase over time, which would increase traffic congestion in the project area under the existing lane and ramp configurations. The quality of traffic flow on freeway segments is defined in terms of LOS. As illustrated in Table 1.A, there are six LOS designations, ranging from LOS A (free traffic flow with low volumes and high speeds, resulting in low densities) to LOS F (traffic volumes that exceed capacity and result in forced flow operations at low speeds, resulting in high densities). Similarly, the quality of traffic flow can also be defined in terms of LOS for intersections and is illustrated in Table 1.B. These LOS designations also range from LOS A to LOS F. Traffic counts are recorded for passenger cars, two-axle trucks, three-axle trucks, and four-axle trucks. Trucks are factored into Passenger Car Equivalent (PCEs) that convert traffic volumes to an equivalent number of passenger cars based on types of trucks.

**Table 1.A: Level of Service Criteria for Freeway Segments**

LOS	Density (pc/mi/ln)
A	≤11
B	>11–18
C	>18–26
D	>26–35
E	>35–45
F	>45 or any component v/c ratio > 1.00

Source: Transportation Research Board. *Highway Capacity Manual* (2010).

LOS = level of service

pc/mi/ln= passenger car/per mile/per lane

v/c = volume-to-capacity ratio

**Table 1.B: Level of Service Criteria for Signalized Intersections**

LOS	Control Delay (sec)
A	less than or equal to 10
B	>10–20
C	>20–35
D	>35–55
E	>55–80
F	>80

Source: Transportation Research Board. *Highway Capacity Manual* (2010).

LOS = level of service

sec = seconds

Table 1.C identifies the average daily traffic volumes for I-15 freeway mainline segments and ramps through the study area under baseline (2013) conditions and future (2040) conditions. All I-15 mainline segments in the study area currently operate at an acceptable LOS D or better during a.m. and p.m. peak hours, with the exception of the southbound segment between Main Street and Railroad Canyon Road, which operates at LOS E during the p.m. peak hour. All I-15 freeway ramp junctions are operating at LOS D or better during a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road southbound exit ramp, which operates at LOS E during the p.m. peak hour.

**Table 1.C: Baseline (2013) and Future (2040) No Build Freeway  
Mainline and Ramp Volumes**

Mainline Segments	Volumes	
	A.M. Peak Hour	P.M. Peak Hour
<b>Existing (2013)</b>		
I-15 Southbound (Main Street to Railroad Canyon Road)	3,986	5,279
I-15 Southbound (Railroad Canyon Road to Bundy Canyon Road)	3,900	4,500
I-15 Northbound (Bundy Canyon Road to Railroad Canyon Road )	4,050	4,300
I-15 Northbound (Railroad Canyon Road to Main Street)	4,663	4,305
<b>Future (2040)</b>		
I-15 Southbound (Main Street to Railroad Canyon Road)	6,037	8,030
I-15 Southbound (Railroad Canyon Road to Bundy Canyon Road)	5,900	6,800
I-15 Northbound (Bundy Canyon Road to Railroad Canyon Road )	6,150	6,550
I-15 Northbound (Railroad Canyon Road to Main Street)	7,118	6,558
Ramps	Volumes	
	A.M. Peak Hour	A.M. Peak Hour
<b>Existing (2013)</b>		
Main Street Southbound Entrance Ramp	313	320
Railroad Canyon Road Southbound Exit Ramp	766	1,283
Railroad Canyon Road Southbound Entrance Ramp	680	504
Bundy Canyon Road Southbound Exit Ramp	545	670
Bundy Canyon Road Northbound Entrance Ramp	670	840
Railroad Canyon Road Northbound Exit Ramp	543	886
Railroad Canyon Road Northbound Entrance Ramp	1,156	891
Main Street Northbound Exit Ramp	412	388
<b>Future (2040)</b>		
Main Street Southbound Entrance Ramp	461	503
Railroad Canyon Road Southbound Exit Ramp	1,210	2,026
Railroad Canyon Road Southbound Entrance Ramp	1,073	796
Bundy Canyon Road Southbound Exit Ramp	1,172	1,779
Bundy Canyon Road Northbound Entrance Ramp	1,497	1,076
Railroad Canyon Road Northbound Exit Ramp	858	1,400
Railroad Canyon Road Northbound Entrance Ramp	1,826	1,408
Main Street Northbound Exit Ramp	800	500

Source: Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange (November 2014).  
I-15 = Interstate 15

Table 1.D identifies the average density and LOS for the I-15 freeway mainline through the study area under baseline (2013) conditions. All I-15 mainline segments in the study area currently operate at an acceptable LOS D or better.

**Table 1.D: Baseline Year (2013) No Build Freeway Mainline Levels of Service**

Mainline Segments	AM Peak Hour		PM Peak Hour	
	Volume	LOS	Volume	LOS
<b>I-15 Southbound</b>				
Bundy Canyon Road to Railroad Canyon Road	3,900	C	4,500	C
Railroad Canyon Road to Main Street	3,986	C	5,279	D
<b>I-15 Northbound</b>				
Bundy Canyon Road to Railroad Canyon Road	4,050	C	4,300	C
Railroad Canyon Road to Main Street	4,663	D	4,305	C

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

I-15 = Interstate 15

LOS = level of service

pc/mi/ln= passenger car/per mile/per lane

Table 1.E provides the mainline freeway LOS for the opening year 2019 No Build scenario (Alternative 1). Comparing the values identified in Table 1.D indicates that the opening year (2019) LOS for one freeway segment within the study area (Railroad Canyon Road to Main Street along I-15 southbound) is expected to deteriorate to LOS E during the p.m. peak hour. Traffic congestion is generally expected to increase for northbound and southbound traffic during the p.m. peak hour.

**Table 1.E: Opening Year (2019) No Build Freeway Mainline Levels of Service**

Mainline Segments	AM Peak Hour		PM Peak Hour	
	Volume	LOS	Volume	LOS
<b>I-15 Southbound</b>				
Bundy Canyon Road to Railroad Canyon Road	4,300	C	5,001	D
Railroad Canyon Road to Main Street	4,396	C	5,868	E
<b>I-15 Northbound</b>				
Bundy Canyon Road to Railroad Canyon Road	4,500	C	4,800	D
Railroad Canyon Road to Main Street	5,182	D	4,805	D

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

I-15 = Interstate 15

LOS = level of service

pc/mi/ln= passenger car/per mile/per lane

Table 1.F summarizes the results of the freeway mainline area LOS analyses for design year 2040 No Build scenario (Alternative 1). Within the project limits, southbound I-15 is forecast to operate at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour while northbound, I-15 is forecast to operate at LOS E and F during the a.m. peak hour and LOS F in the p.m. peak hour.

**Table 1.F: Future Year (2040) No Build Alternative Mainline Levels of Service**

Freeway Segments	A.M. Peak Hour		P.M. Peak Hour	
	Volume	LOS	Volume	LOS
<b>Southbound</b>				
Main Street to Railroad Canyon Road	6,037	E	8,030	F
Railroad Canyon Road to Bundy Canyon Road	5,900	E	6,800	F
<b>Northbound</b>				
Bundy Canyon Road to Railroad Canyon Road	6,150	E	6,550	F
Railroad Canyon Road to Main Street	7,118	F	6,558	F

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

Note: Delay exceeds the limits reported by the Highway Capacity Manual.

LOS = level of service

Volume = Volume in Passenger Car Equivalents per Hour

Table 1.G identifies the average density and LOS at freeway ramp junction areas for baseline year (2013) conditions under the No Build conditions (Alternative 1). All ramp junction areas within the study area currently operate at acceptable levels of LOS D or better during a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road southbound exit ramp, which operates at LOS E during the p.m. peak hour.

Table 1.H provides the average density and LOS at freeway ramp junction areas for opening year (2019) No Build conditions (Alternative 1). Without the project, all southbound ramps within the study area operate at an acceptable LOS D or better during a.m. and p.m. peak hours, with the exception of the Main Street southbound entrance and the Railroad Canyon Road southbound exit ramps, which operate at LOS F during the p.m. peak hour, and the Bundy Canyon Road southbound exit ramp, which operates at LOS E during the p.m. peak hour.

**Table 1.G: Baseline (2013) Freeway Ramp Levels of Service**

Location	A.M. Peak Hour		P.M. Peak Hour	
	Density	LOS	Density	LOS
<b>Southbound</b>				
Main Street Entrance Ramp	27.2	C	34.0	D
Railroad Canyon Road Exit Ramp	30.3	D	37.4	E
Railroad Canyon Road Entrance Ramp	28.0	D	30.5	D
Bundy Canyon Road Southbound Exit Ramp	29.5	D	27.0	C
<b>Northbound</b>				
Bundy Canyon Road Entrance Ramp	28.8	D	30.6	D
Railroad Canyon Road Exit Ramp	30.2	D	32.1	D
Railroad Canyon Road Entrance Ramp	33.5	D	30.8	D
Main Street Northbound Exit Ramp	32.9	D	31.2	D

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

Density = passenger car equivalents per mile per lane

LOS = level of service

**Table 1.H: 2019 No Build Alternative Freeway Ramp Levels of Service**

Ramp Junctions	A.M. Peak Hour		P.M. Peak Hour	
	Density	LOS	Density	LOS
<b>Southbound</b>				
Main Street Entrance Ramp	29.5	D	37.2	F
Railroad Canyon Road Exit Ramp	33.4	D	41.1	F
Railroad Canyon Road Entrance Ramp	30.3	D	33.3	D
Bundy Canyon Road Exit Ramp	31.8	D	35.9	E
<b>Northbound</b>				
Bundy Canyon Road Entrance Ramp	31.7	D	33.4	D
Railroad Canyon Road Exit Ramp	32.5	D	34.7	D
Railroad Canyon Road Entrance Ramp	36.7	E	33.7	D
Main Street Exit Ramp	35.4	E	33.6	D

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

Note: Under the No Build Alternative, these ramp junctions would not be constructed.

Density = passenger car equivalents per mile per lane

LOS = level of service

All northbound ramps within the study area operate at an acceptable LOS D or better during a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road northbound entrance and the Main Street northbound exit ramp, which operate at LOS E during the a.m. peak hour.

Table 1.I summarizes the results of the ramp junction area LOS analyses for 2040 No Build conditions (Alternative 1). By 2040, all ramp junctions, with the exception of the Railroad Canyon Road southbound exit ramp and the Bundy Canyon Road southbound exit ramp (LOS E during the a.m. peak hour only), are forecast to operate at LOS F during the a.m. and p.m. peak hours under the No Build scenario.

**Table 1.I: 2040 No Build Alternative Freeway Ramp Levels of Service**

Ramp Junctions	A.M. Peak Hour		P.M. Peak Hour	
	Density	LOS	Density	LOS
<b>Southbound</b>				
Main Street Entrance Ramp	38.6	F	56.5	F
Railroad Canyon Road Exit Ramp	40.3	E	57.8	F
Railroad Canyon Road Entrance Ramp	39.7	F	45.3	F
Bundy Canyon Road Exit Ramp	39.7	E	46.0	F
<b>Northbound</b>				
Bundy Canyon Road Entrance Ramp	42.4	F	43.1	F
Railroad Canyon Road Exit Ramp	40.0	F	43.6	F
Railroad Canyon Road Entrance Ramp	48.5	F	44.2	F
Main Street Exit Ramp	49.0	F	43.7	F

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

Density = Passenger Car Equivalents Per Mile Per Lane

LOS = level of service

Table 1.J identifies the LOS for study area intersections during the a.m. and p.m. peak hours in the baseline (2013), opening (2019), and future (2040) No Build conditions. As identified in Table 1.J, in the opening year (2019), all intersections in the study area, with the exception of three, are currently operating at satisfactory LOS. However, in the future year (2040), all study area intersections with the exception of Franklin Street at Avenue 6 (a.m. peak hour only), Franklin Street/Auto Center Drive (a.m. and p.m. peak hours), and Franklin Street/Canyon View Drive-Grunder Drive (a.m. and p.m. peak hours), are expected to operate at LOS E or F during a.m. and p.m. peak hours.

**Table 1.J: Baseline (2013), Opening (2019), and Future Year (2040) No Build Alternative Intersection Levels of Service**

Study Intersections	AM Peak Hour			PM Peak Hour		
	Baseline (2013)	Opening (2019)	Future (2040)	Baseline (2013)	Opening (2019)	Future (2040)
Franklin Street at Avenue 6	B	B	B	C	C	F
Franklin Street/Auto Center Drive	A	A	A	A	A	B
Franklin Street/Canyon View Drive-Grunder Drive	B	A	B	B	B	C
Diamond Drive-Railroad Canyon Road/Mission Trail-Lake Shore Drive	B	C	E	C	D	F
Diamond Drive-Railroad Canyon Road/Casino Drive-Auto Center Drive	B	C	E	C	C	F
Railroad Canyon Road/I-15 Southbound Ramps	D	D	F	E	F	F
Railroad Canyon Road/I-15 Northbound Ramps	E	E	F	F	F	F
Railroad Canyon Road/Grape Street-Summerhill Drive	F	F	F	F	F	F
Main Street/I-15 Southbound Ramps	C	D	F	B	F	F
Main Street/I-15 Northbound Ramps	C	F	F	C	F	F
Main Street/Camino Del Norte	B	C	F	C	E	F

Source: *Supplemental Traffic Impact Analysis-Interstate Route 15 (I-15) at Railroad Canyon Interchange* (November 2014).

I-15 = Interstate 15

LOS = level of service

## TRAFFIC ACCIDENTS

The average accident rate on the I-15 mainline and selected entrance and exit ramps is summarized in Table 1.K. As identified in Table 1.K, within the project limits, the combined actual accident rate of 0.32 is below the combined total freeway mainline statewide average accident rate of 0.87. In addition, the actual accident rate of 0.23 (northbound mainline) and 0.41 (southbound mainline) is below the northbound and southbound mainline statewide average accident rate of 0.87. All actual ramp accident rates (0.42 to 1.38) within the project limits are lower than the statewide average accident rate of 0.63 to 1.01, with the exception of the Railroad Canyon Road northbound exit ramp, which reflects an accident rate of 1.26; the Railroad Canyon Road southbound exit ramp, which reflects an accident rate of 1.38; and the Main Street northbound exit ramp, which reflects an accident rate of 1.09.

**Table 1.K: Accident Rates for the I-15 Mainline Freeway**

Location	Actual Accident Rates			Average Accident Rates (Statewide)		
	Fatal	Fatal + Injury	Total	Fatal	Fatal+ Injury	Total
Riv-15-18.3/21.0-Combined	0.003	0.12	0.32	0.004	0.27	0.87
Riv-15-18.3/21.0-NB Mainline Route 15	0.000	0.09	0.23	0.004	0.27	0.87
Riv-15-18.3/21.0-SB Mainline Route 15	0.006	0.14	0.41	0.004	0.27	0.87
Riv-15-18.930-SB Entrance Ramp at Railroad Canyon Road	0.000	0.11	0.21	0.002	0.22	0.63
Riv-15-18.937-NB Exit Ramp at Railroad Canyon Road	0.000	0.21	1.26	0.003	0.35	1.01
Riv-15-19.308-NB Entrance Ramp at Railroad Canyon Road	0.000	0.18	0.43	0.002	0.22	0.63
Riv-15-19.365-SB Exit Ramp at Railroad Canyon Road	0.000	0.57	1.38	0.003	0.35	1.01
Riv-15-20.661-SB Entrance Ramp at Main Street	0.000	0.00	0.67	0.002	0.22	0.63
Riv-15-20.732-NB Exit Ramp at Main Street	0.000	0.22	1.09	0.003	0.35	1.01

Source: *Traffic Accident Surveillance and Analysis System* (September 2015).

Note: Data are from October 1, 2011, to September 30, 2014.

I-15 = Interstate 15

As indicated by the primary collision factor data identified in Table 1.L, the primary collision factor at the Railroad Canyon Road northbound exit ramp between Post Mile (PM) 18.937 and PM 19.365 was from speeding, which accounted for 50.0 percent of all accidents at this location. The primary collision factor at the Railroad Canyon Road southbound exit ramp between PM 19.365 and PM 20.661 was also from speeding, which accounted for 54.5 percent of all accidents at this location. The primary collision factor at the Main Street southbound entrance ramp between PM 20.661 and PM 20.732 was from speeding, which accounted for 66.7 percent of all accidents at this location. The primary collision factor at the Main Street southbound exit ramp between PM 20.661 and PM 20.732 was also from speeding, which accounted for 40.0 percent of all accidents at this location.

As indicated by the data identified in Table 1.M, the most common accidents at the Railroad Canyon Road northbound exit ramp were rear-end collisions (41.7 percent), broadside collisions (25.0 percent), and hit objects (25.0 percent). The most common accidents at the Railroad Canyon Road southbound exit ramp were rear-end collisions (68.2 percent), broadside collisions (13.6 percent), and head-on and sideswipe collisions (9.1 percent).

The most common accidents at the Main Street southbound entrance ramp were rear-end collisions (67.7 percent), and sideswipe collisions (33.3 percent). The most common accidents at the Main Street southbound exit ramp were rear-end collisions (60.0 percent), and broadside collisions and other (20.0 percent). These accidents were attributed to speeding and existing congestion and queuing on I-15.

**Table 1.L: Primary Collision Factors for Railroad Canyon Road Northbound and Southbound Exit Ramps and Main Street Southbound Entrance and Exit Ramps**

Primary Collision Factors	Railroad Canyon Road NB Exit Ramp	Railroad Canyon Road SB Exit Ramp	Main Street SB Entrance Ramp	Main Street SB Exit Ramp
Influence of Alcohol	0.0%	18.2%	0.0%	0.0%
Following Too Close	0.0%	0.0%	0.0%	0.0%
Failure to Yield	0.0%	0.0%	0.0%	20.0%
Improper Turn	25.0%	4.5%	0.0%	0.0%
Speeding	50.0%	54.5%	66.7%	40.0%
Other Violations	25.0%	18.2%	0.0%	20.0%
Improper Driving	0.0%	0.0%	0.0%	0.0%
Other Than Driver	0.0%	4.5%	0.0%	0.0%
Unknown	0.0%	0.0%	33.3%	20.0%
Fell Asleep	0.0%	0.0%	0.0%	0.0%
Not Stated	0.0%	0.0%	0.0%	0.0%

Source: *Traffic Accident Surveillance and Analysis System* (September 2015).

Note: Data are from October 1, 2011, to September 30, 2014.

I-15 = Interstate 15

NB = northbound

SB = southbound

**Table 1.M: Types of Collision for Railroad Canyon Road Southbound Exit Ramp and Main Street Southbound Entrance Ramp**

Types of Collisions	Railroad Canyon Road NB Exit Ramp	Railroad Canyon Road SB Exit Ramp	Main Street SB Entrance Ramp	Main Street SB Exit Ramp
Head-On	0.0%	9.1%	0.0%	0.0%
Sideswipe	8.3%	9.1%	33.3%	0.0%
Rear-End	41.7%	68.2%	67.7%	60.0%
Broadside	25.0%	13.6%	0.0%	20.0%
Hit Object	25.0%	0.0%	0.0%	0.0%
Overturn	0.0%	0.0%	0.0%	0.0%
Auto-Pedestrian	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	20.0%
Not Stated	0.0%	0.0%	0.0%	0.0%

Source: *Traffic Accident Surveillance and Analysis System* (September 2015).

Note: Data are from October 1, 2011, to September 30, 2014.

I-15 = Interstate 15

NB = northbound

SB = southbound

Existing LOS deficiencies during the p.m. peak hour are attributable to five closely spaced signalized intersections along Railroad Canyon Road (between Summerhill Drive – Grape Street and Mission Trail – Lakeshore Drive). This condition interferes with the capacity and function of the interchange and could contribute to the frequency of rear-end collision accidents occurring on this interchange. The operational improvements associated with the interchange modifications is expected to decrease the overall accident rate by reducing congestion and queuing on the freeway ramps and Railroad Canyon Road.

### 1.3.2.2 Economic Development

Continued growth in housing, retail, and commercial development will require Railroad Canyon Road and Franklin Street to be improved to its ultimate configuration within the project limits to accommodate future traffic demands. In conformance with the City of Lake Elsinore General Plan, the Build Alternatives considered included Railroad Canyon Road being widened at minimum, to a six-lane facility (three through lanes in each direction) with dual left-turn and right-turn lanes where necessary. The Build Alternatives considered also included a new Franklin Street four-lane overcrossing to accommodate the new I-15/Franklin Street interchange. The existing Franklin Street overcrossing will remain in place to another crossing of I-15.

Existing land uses in the study area surrounding the existing I-15/Railroad Canyon Road interchange are characterized by urbanized development, including commercial, office, recreational, and residential. Existing land uses in the study area surrounding the planned I-15/Franklin Street interchange currently consist of vacant land and residential uses. Based on Table 3.1-2 of the City of Lake Elsinore's General Plan Environmental Impact Report (EIR), land use designations in the City's General Plan area include 9,631 acres of residential uses, 1,501 acres of business-related uses, 354 acres of mixed use, 3,787 acres of public/quasi-public uses, and 4,325 total acres of open space uses (parks or permanent open spaces). The remaining acreage within the City that is not subject to development includes flood control facilities and road rights-of-way.

Existing land uses adjacent to the project site are designated by the General Plan as Public/Institutional, General Commercial, and Medium-Density Residential. The Public/Institutional designation is typically located along major transportation corridors and indicates areas owned and maintained by public agencies. This designation allows for uses such as schools, roads, utility substations, sewage treatment plants, civic facilities, and cemeteries. The General Commercial designation provides for a wide range of retail and service uses including stores, restaurants, hotels, theaters, offices, and specialized services. Medium-density residential uses allow for up to 12 dwelling units per acre and typically consists of a range of attached and detached single-family units as well as multiple family units. Based on SCAG population projections for the years 2020 through 2035, the City of Lake Elsinore is expected to grow by approximately 33 percent. The City does not currently have a growth management/control ordinance in place.

### 1.3.2.3 Modal Interrelationships and System Linkages

The City of Lake Elsinore is served by transit routes (Bus Routes 8, 22, 40, and 206) offered by the Riverside Transit Agency (RTA). These routes service different parts of the City as well as surrounding communities such as Temecula, Murrieta, Sun City, Wildomar, Menifee, and Riverside. The existing bus routes within the project limits include:

- RTA Route 8, Lake Elsinore Walmart to Lake Elsinore Outlet Center
- RTA Route 40, Lake Elsinore to Sun City

The above bus routes pass through the project area at Railroad Canyon Road and/or Grape Street. The only bus stop located within the project area is at the Lake Elsinore Walmart, which is located within the Walmart shopping center (on the southeast corner of the intersection of Grape Street and Railroad Canyon Road).

There is also a commuter link route between Temecula, Murrieta, Lake Elsinore, and the Corona Metrolink station. The commuter link service is provided by the RTA and offers express

bus routes for long-distance commuters traveling to Metrolink, Coaster, and Sprinter rail stations. The existing commuter link route within the project vicinity is Route 206. Metrolink is operated by the Southern California Regional Rail Authority (SCRRA), which provides commuter rail services to the Counties of Los Angeles, Riverside, San Bernardino, San Diego, Orange, and Ventura. There are no Metrolink stations within the City; however, the RTA commuter link enables people within the City to connect to the nearest Metrolink station in Corona.

Other transportation facilities in the region that City residents and workers utilize include the Ontario International Airport, French Valley Airport, and Hemet-Ryan Airport. The Ontario International Airport is a commercial service airport approximately 41 mi northwest of the I-15/Railroad Canyon Road interchange. French Valley Airport and Hemet-Ryan Airport are general aviation airports owned by the County of Riverside. There are no parallel or contiguous transportation facilities that could reduce traffic demand at the I-15/Railroad Canyon Road interchange that would offset the need for improvements to this interchange.

#### **1.3.2.4 Air Quality Improvements**

As referenced above, there are various modes of transportation available in the project area, including RTA bus routes, a Metrolink commuter link, and bicycle paths along roadways. However, existing and approved planned development of the area surrounding these two interchanges would generate more trips, which is anticipated to lead to greater congestion in the project area.

This project is designed to alleviate existing and future congestion at the I-15/Railroad Canyon Road interchange ramps during peak hours to improve traffic flow through the interchange and to provide additional access in the I-15/Franklin Street area. Ramp metering would also be employed to this end.

#### **1.3.2.5 Independent Utility and Logical Termini**

Federal regulations (23 Code of Federal Regulations [CFR] 771.111 [f]) require “independent utility” and “logical termini” be established for a transportation improvement project evaluated under NEPA. The following discusses the specific criteria listed in 23 CFR 771.111(f) and how the I-15/Railroad Canyon Road interchange project satisfies these criteria in separate analysis:

- a) *Connect logical termini and be of sufficient length to address environmental matters on a broad scope;*
- b) *Have independent utility or independent significance (be usable and require a reasonable expenditure event if no additional transportation improvements in the area are made); and*
- c) *Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.*

#### **a) Connect logical termini and be of sufficient length to address environmental matters on a broad scope.**

Railroad Canyon Road is a regionally important east/west route within the City of Lake Elsinore. It is currently a four-lane arterial east and west of the existing I-15/Railroad Canyon Road interchange; the section between the ramp terminal intersections is also four lanes. Alternatives 2 and 3 would widen the roadway to six through lanes at a minimum through the interchange. The easterly terminus is the point east of the interchange at which the existing Railroad Canyon Road would transition from six lanes to four lanes and the westerly terminus is approximately 500 ft west of the ramp terminal intersection for Railroad Canyon Road with the I-15 northbound

entrance- and exit-ramps. This provides logical termini by widening Railroad Canyon Road through the ramp terminal intersections before transitioning back to a four-lane section west of I-15. On I-15, the improvement limits also provide logical termini by establishing northerly and southerly limits based on the maximum length of the required on-ramp and off-ramp modifications.

Alternative 4 of the project would reconstruct the roadway to accommodate five roundabouts through the interchange from Mission Trail-Lake Shore Drive to Grape Street-Summerhill Drive. The easterly terminus is the point east of interchange where the existing Railroad Canyon Road would transition from six lanes to four lanes and the westerly terminus is approximately 400 ft west of the Mission Trail-Lake Shore Drive intersection for Railroad Canyon Road. This provides logical termini by reconstruction of Railroad Canyon Road through the ramps and local street roundabouts before transitioning back to a four-lane section west and east of I-15. On I-15, the improvement limits also provide logical termini by establishing northerly and southerly limits based on the maximum length of the required on-ramp and off-ramp modifications.

As described earlier in this section, the I-15/Railroad Canyon Road interchange project specifically addresses existing and forecasted congestion and traffic volumes at the interchange. The project proposes improvements on Railroad Canyon Road at its crossing of I-15 to accommodate the ramp and mainline improvements, with those improvements of sufficient length on the I-15 mainline and the ramp facilities to address the identified purposes of the project.

In addition, the project proposes the construction of a new I-15 interchange approximately 1,160 ft north of the existing Franklin Street overcrossing. The improvements at the existing Railroad Canyon Road interchange and the future Franklin Street interchange would effectively address both the congestion at the Railroad Canyon Road interchange and the merge/diverge of the ramp facilities.

***b) Have independent utility or independent significance (be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made).***

The project has independent utility as it will improve traffic conditions on Railroad Canyon Road and the ramps connecting I-15 to Railroad Canyon Road. These improvements would benefit the traveling public even if no additional improvements were made to either Railroad Canyon Road, Franklin Street, or I-15.

***c) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.***

The project would meet the identified need for congestion relief and merge/diverge improvements as an independent project and is not dependent on any other projects to meet the identified purpose for the interchange improvements. The project would not restrict consideration of alternatives to improve Railroad Canyon Road east of I-15 (i.e., alternatives to widen Railroad Canyon Road on one or both sides of the road would not be precluded). Similarly, the project would not restrict consideration of alternatives to improve Franklin Street east or west of I-15. The project would also not restrict considerations of alternatives to improve the portion of I-15 located within the project area.

## 1.4 Project Description

This section describes the proposed action and the design alternatives that were developed by a multidisciplinary team to achieve the project purpose and need while avoiding or minimizing environmental impacts. The alternatives are Alternative 1 (No Build Alternative), Build Alternative 2 (Preferred Alternative), Build Alternative 3, and Build Alternative 4.

The project (Build Alternative 2) includes ramp improvements and reconfigurations to the existing I-15/Railroad Canyon Road interchange. The project also includes the construction of a new freeway interchange north of the existing I-15/Franklin Street overcrossing. The regional location and regional vicinity of the project are illustrated in Figure 1.1. All interchange improvements and construction would occur in the City of Lake Elsinore.

The purpose of the project is to relieve congestion by improving traffic operations (through improvements of the Railroad Canyon Road interchange and correction of merging/diverging freeway and ramp movements) and meeting traffic demands (through construction of a new freeway interchange), reducing existing and future congestion by widening Railroad Canyon Road to six lanes, eliminating the northbound ramp intersection, both northbound and southbound ramp intersections, or conversion of all five closely spaced signalized intersections to roundabouts, and improving the overall operational characteristics of the Railroad Canyon Road interchange. The purpose of the new interchange at Franklin Street is to relieve congestion at the adjacent interchanges.

## 1.5 Alternatives

### 1.5.1 Project Alternatives

For build alternatives to be considered feasible, they must meet the project's purpose and need while maintaining operational performance at the interchange ramps, on the I-15 mainline, or at local intersections. Project cost and severity of impacts are also considered.

Due to the high cost of constructing the improvements as one entire project, it was determined that the entire project could be divided into two viable, cost-effective phased segments with independent utility and logical termini. This resulted in identifying two separate phases:

- **Phase 1:** Construct all related modifications to the Railroad Canyon Road interchange, including ramp acceleration and deceleration lanes.
- **Phase 2:** Construct all related modifications to the new Franklin Street interchange, including frontage roads, auxiliary lanes to Main Street and Railroad Canyon Road, and the realignment and widening of southbound Main Street entrance ramp and install traffic signals at the Main Street ramp intersections.

#### 1.5.1.1 Build Alternatives

##### **ALTERNATIVE 2 (PREFERRED ALTERNATIVE)**

This alternative proposes to reconstruct the northbound ramps to a hook configuration at Grape Street, eliminate the existing northbound diamond ramps at Railroad Canyon Road, and maintain a diamond configuration for the southbound ramps at Railroad Canyon Road with a new interchange at new Franklin Street.

- **Phase 1:** This phase of Alternative 2 would reconstruct the northbound ramps to a hook configuration at Grape Street, eliminate the existing northbound diamond ramps at Railroad Canyon Road, and maintain a diamond configuration for the southbound ramps at Railroad

Canyon Road. The southbound entrance ramp would be widened to two lanes starting at Railroad Canyon Road and merge to a single lane as it connects with the planned auxiliary lane to southbound I-15. This phase of the alternative also proposes to construct an acceleration lane at the entrance ramps and a deceleration lane at the exit ramps.

- **Phase 2:** This phase of Alternative 2 would construct all related modifications to the new Franklin Street interchange, including frontage roads, auxiliary lanes to Main Street and Railroad Canyon Road, and realign and widen to two lanes the southbound Main Street entrance ramp and install traffic signals at the Main Street ramp intersections.

### ALTERNATIVE 3

This alternative proposes to reconstruct the northbound ramps to a hook configuration at Grape Street; eliminate the existing northbound ramps at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Casino Drive; and eliminate the existing southbound ramps at Railroad Canyon Road with a new interchange at new Franklin Street.

- **Phase 1:** This phase of Alternative 3 would reconstruct the northbound ramps to a hook configuration at Grape Street, eliminate the existing northbound diamond ramps at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration at Casino Drive, and eliminate the existing southbound diamond ramps at Railroad Canyon Road. This phase of the alternative also proposes to construct an acceleration lane at the entrance ramps and a deceleration lane at the exit ramps.
- **Phase 2:** This phase of Alternative 3 would construct all related modifications to the new Franklin Street interchange, including frontage roads, auxiliary lanes to Main Street and Railroad Canyon Road, and realign and widen to two lanes the southbound Main Street entrance ramp and install traffic signals at the Main Street ramp intersections.

### ALTERNATIVE 4

Reconstruct the five signalized intersection (Mission Trail-Lake Shore Drive, Casino Drive-Auto Center Drive, Southbound Ramps, Northbound Ramps, and Grape Street-Summerhill Drive) to yield control intersection (roundabouts) along Railroad Canyon Road; reconstruct/widen the southbound and northbound ramps with a new interchange at Franklin Street.

- **Phase 1:** This phase of Alternative 4 would reconstruct the five signalized intersections (Mission Trail-Lake Shore Drive, Casino Drive-Auto Center Drive, I-15 southbound ramps, I-15 northbound ramps, and Grape Street-Summerhill Drive) to yield control intersections (roundabouts) along Railroad Canyon Road. This phase also proposes to construct an acceleration lane at each entrance ramp and a deceleration lane at each exit ramp.
- **Phase 2:** This phase of Alternative 4 would construct all related modifications to the new Franklin Street interchange, including frontage roads, auxiliary lanes to Main Street and Railroad Canyon Road, and realign and widen to two lanes the southbound Main Street entrance ramp and install traffic signals at the Main Street ramp intersections.

The project considers intersection lane modifications at the existing interchange as a primary component of the operational improvement. Since intersection lane improvements at an existing intersection would not change traffic patterns dramatically but would merely improve operations, the No Build Alternative's volumes were applied to the traffic model to predict traffic volumes for the Build Alternative scenarios, which can be modified to include additional turn lanes.

### **1.5.1.2 No Build Alternative**

#### **ALTERNATIVE 1**

This “No Build” Alternative proposes no improvements and maintains the existing lane and ramp configuration at Railroad Canyon Road. Under Alternative 1, no interchange reconstruction would occur. This alternative would not improve operations, increase highway capacity, or reduce highway congestion within the project area. As shown in Table 1.F, LOS on all freeway mainline segments in the study area would deteriorate to unsatisfactory LOS by 2040 without improvements. Additionally, as shown in Table 1.I, LOS on all freeway ramps in the study area would deteriorate to unsatisfactory LOS by 2040 without improvements. Furthermore, as shown in Table 1.J, LOS on all study area intersections (with the exception of the Franklin Street/Auto Center Drive and Franklin Street/Canyon View Drive-Grunder Drive intersections) would deteriorate to unsatisfactory LOS by 2040 without improvements. This alternative would not maximize mobility and accessibility of the regional transportation system as existing freeway deficiencies would remain in current and future year conditions. The No Build Alternative for the proposed project is not consistent with the mobility goals of the Regional Congestion Management Program. Additionally, with no improvements implemented at the Railroad Canyon Road interchange, congestion would remain high and air quality would not improve over the existing condition. Other direct effects of the No Build Alternative include increased maintenance costs for aging facilities. Potential indirect effects of the No Build Alternative could include negative impacts to the local economy due to severe congestion, reduced accessibility, and reduced mobility. In a cumulative context, the No Build Alternative has the potential to result in cumulative impacts if regional congestion is addressed through multiple smaller improvement projects that would be implemented over an extended period of time.

### **1.5.1.3 Common Design Features of the Build Alternatives**

The following design features are the same for all of the Build Alternatives:

#### **RAILROAD CANYON ROAD INTERCHANGE AREA**

- Auxiliary and deceleration lanes at ramp entrance and exits.
- Construct retaining walls.
- Construct best management practice (BMP) facilities (water quality basins, bio-filtration swales, and strips).
- Construct maintenance vehicle pull-outs.
- Install ramp meter systems, California Highway Patrol (CHP) enforcement areas, and a high-occupancy vehicle (HOV) preferential lane at all entrance ramps.
- Install erosion control and new landscape.

#### **FRANKLIN STREET INTERCHANGE AREA**

- Construct a new four-lane overcrossing/interchange approximately 1,160 ft north of the existing Franklin Street overcrossing. The existing Franklin Street overcrossing would be protected in place and kept in operation after construction of the project.
- Construct new northbound diamond ramps.
- Construct new southbound diamond ramps.
- Construct auxiliary lanes to Railroad Canyon Road and Main Street.
- Install ramp meter systems, CHP enforcement areas, and an HOV preferential lane at all entrance ramps.

- Construct, realign, widen, and extend Auto Center Drive to tie into new Franklin Street-Avenue 6 to Flint Street.
- Construct, realign, and extend Camino Del Norte-Canyon Estates Drive.
- Install traffic signals at ramp intersections and adjacent local road intersections.

#### **MAIN STREET INTERCHANGE AREA**

- Realign and widen to two lanes the southbound entrance ramp to provide a standard merge-diverge distance to the new southbound exit ramp at Franklin Street.
- Construct auxiliary lanes to Franklin Street.
- Install ramp meter system, CHP enforcement area, and an HOV preferential lane at southbound entrance ramp.
- Install traffic signals at ramp intersections.

#### **TEMPORARY CONSTRUCTION EASEMENTS**

Under all of the Build Alternatives, construction of improvements would require 113 Temporary Construction Easements (TCEs), totaling an area of 1,390,395 square feet (sf). These TCEs would be required in all four quadrants of the existing I-15/Railroad Canyon Road interchange and the I-15/Franklin Street interchange to construct and widen local streets, and construct ramps, retaining walls, and the Franklin Street interchange.

#### **MANDATORY DESIGN EXCEPTIONS**

A Fact Sheet for Exceptions to Mandatory Design Standards was approved on April 13, 2010, and a Supplemental Mandatory Design Exception was approved on March 22, 2011. The following are the Mandatory Design Exceptions.

- **Mandatory Design Exception Feature No. 1 (all Alternatives), Interchange Spacing:** The minimum interchange spacing shall be one mile in urban areas, two miles in rural areas, and two miles between freeway-to-freeway interchanges and local street interchanges.

The distance between the New Franklin Street interchange and the existing Main Street interchange and the New Franklin Street interchange and the existing Railroad Canyon Road interchange is non-standard as the standard distance is 1.0 mile and the planned distance is 0.9 mile. Auxiliary lanes would be provided to further mitigate the non-standard interchange spacing. There is also sufficient weaving<sup>1</sup> distance between the new Franklin Street IC and adjacent interchange's to allow LOS D or better during a.m. and p.m. 2040 design year peak hours, with the exception of the Franklin Street southbound entrance ramp to Railroad Canyon southbound exit ramp that would operate at LOS E during the 2040 p.m. peak hour.

- **Mandatory Design Exception Feature No. 2 (all Alternatives), Shoulder Width:** The standard inside shoulder width for freeways is 10 ft.

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<sup>1</sup> A weaving section is the length of one-way roadway in which vehicles are crossing paths, changing lanes, or merging with through traffic as they enter or exit a freeway.

The freeway locations identified in Table 1.N have existing non-standard inside shoulder widths. The I-15 freeway median within the project limits is 70 to 100 ft wide and unpaved except for the inside shoulders. Although a 10 ft wide inside paved shoulder is not currently provided in the project limits and the project does not propose to widen the existing inside freeway shoulder widths, the 30 ft clear recovery zone to the inside (in the median) is provided, allowing errant vehicles to recover even in the absence of the standard 10 ft wide paved shoulder. The 70 to 100 ft wide median also provides more than a 10 ft wide clear shoulder even if only 5 to 8 ft of it is paved.

**Table 1.N: Non-Standard Freeway Shoulders**

Freeway Location	Existing (Proposed) Inside Shoulder Width	Standard Inside Shoulder Width
Northbound STA 975+51 to STA 1013+90	5 ft	10 ft
Northbound STA 1021+58 to STA 1098+42	8 ft	10 ft
Northbound STA 1105+30 to 1107+10	8 ft	10 ft
Southbound STA 969+04 to STA 1014+10	5 ft	10 ft
Southbound STA 1022+83 to STA 1027+33	8 ft	10 ft
Southbound STA 1094+78 to STA 1107+10	8 ft	10 ft

Source: Fact Sheet Exceptions to Mandatory and Advisory Design Standards (September 2015).

ft = foot/feet

STA = Station

- **Mandatory Design Exception Feature No. 3 (Alternative 2), Distance Between Ramp Intersection and Local Road:** The standard minimum distance between the ramp intersections and local road intersections shall be 400 ft.

The distance between the ramp intersection and local roads is an existing non-standard condition and is planned to remain as it currently exists. The distance between the southbound ramp intersection and Casino Drive-Auto Center Drive is 259 ft (existing curb return to curb return distance is 265 ft).

- **Mandatory Design Exception Feature No. 4 (Alternative 2), Cross Slope:** The standard cross slope to be used for new construction on the traveled way for all types of surfaces shall be 2 percent.

The planned ramps connect to the local road at a cross slope varying from 0.178 percent to 4 percent. This cannot be avoided without reconstructing the intersection grades.

- **Mandatory Design Exception Feature No. 5 (Alternatives 2 and 4), Distance Between Ramp Intersection and Local Road:** The standard minimum shoulder distance between the ramp intersections and local road intersections shall be 400 ft.

The distance between the ramp intersection and local roads is an existing non-standard condition and is planned to remain as it currently exists. The planned distance between the southbound ramp intersection and Casino Drive-Auto Center Drive is 287 ft (existing curb return to curb return distance is 265 ft). The planned distance between the northbound ramp intersection and Grape Street-Summerhill Drive is 100 ft (existing curb return to curb return distance is 115 ft). To provide for the required 400 ft between ramp and local road intersections, realignment or closure of the local streets and/or business relocation would be required.

- Mandatory Design Exception Feature No. 6 (Alternative 4), Standards for Superelevation:**<sup>1</sup> Based on a maximum superelevation rate for a given condition ( $e_{max}$ ) selected by the designer for one of the conditions, superelevation rates from Table 202.2 of the Caltrans *Highway Design Manual* (2015) shall be used within the given range of the curve radii.

A non-standard superelevation rate is proposed for locations identified in Table 1.O.

**Table 1.O: Non-Standard Superelevation (SE) Rates**

Freeway Location	Radius (ft)	Standard SE Rate	Proposed SE Rate	Comfortable Speed
Location 2 - Northbound Exit Ramp	740	11%	8%	50 mph
Location 3 - Northbound Exit Ramp	437	12%	8%	38 mph
Location 4 - Southbound Entrance Ramp	250	12%	8%	35 mph
Location 5 - Southbound Exit Ramp	127	12%	8%	35 mph
Location 6 - Southbound Exit Ramp	740	11%	8%	45 mph

Source: Fact Sheet Exceptions to Mandatory and Advisory Design Standards (September 2015).

ft = foot/feet

mph = miles per hour

*Northbound Exit Ramp (Locations 2 and 3).* To provide a standard superelevation rate, the ramp would have to be realigned and lengthened. This would require additional right-of-way acquisition, which would require relocation of the service station at the corner of Railroad Canyon Road and Grape Street. Due to the short distance between the intersection at the roundabout design limit at Railroad Canyon Road and the first curve, the maximum rate of change would exceed 6 percent per 100 ft if a standard superelevation rate is used. The location of the curves where the design exception is requested is near the intersection of Railroad Canyon Road, where the design speed is approximately 30 mph, and the comfortable speed for this curve is 38 mph (Location 3) and 50 mph (Location 2).

*Southbound Entrance Ramp (Location 4).* To provide a standard superelevation rate, the roundabout would have to be moved further east and would encroach into the existing southbound undercrossing bridge. Due to the short distance between the intersection at the roundabout design limit at Railroad Canyon Road and the first curve, the maximum rate of change would exceed 6 percent per 100 ft if a standard superelevation rate is used. The location of the curve where the design exception is requested is near the intersection of Railroad Canyon Road where the design speed is approximately 30 mph and the comfortable speed for this curve is 35 mph.

*Southbound Exit Ramp (Locations 5 and 6).* To provide a standard superelevation rate, the ramp would have to be realigned and lengthened. This would require additional right-of-way acquisition, which would require relocation of the retail center at the corner of Railroad Canyon Road and the southbound exit ramp. Due to the short distance between the intersection at the roundabout design limit at Railroad Canyon Road and the first curve, the maximum rate of change would exceed 6 percent per 100 ft if a standard superelevation rate is used. The location of the curves where the design exception is requested is near the intersection of Railroad Canyon Road, where the design speed is approximately 30 mph, and the comfortable speed for this curve is 35 mph (Location 5) and 45 mph (Location 6).

<sup>1</sup> The rotation of the pavement on the approach to and through a horizontal curve intended to assist the driver by counteracting the lateral acceleration produced by tracking the curve.

- **Mandatory Design Exception Feature No. 7 (Alternative 4), Shared (Pedestrian and Bicycle) Facility Widths:** A minimum 2 ft wide shoulder, composed of the same pavement material as the path or all weather surfaces, free of vegetation, shall be provided adjacent to the traveled way of the path when not on the structure.

The standard shoulder width between the Railroad Canyon Road northbound entrance ramp and Summerhill Drive, and the northeast corner of the intersection at Railroad Canyon Road and Summerhill Drive is non-standard as the standard width is 2 ft and the proposed distance is 0 ft. To provide for the required 2 ft shoulder width, additional business acquisitions would be required.

#### **ADVISORY DESIGN EXCEPTIONS**

A Fact Sheet for Exceptions to Advisory Design Standards was approved on March 24, 2010. A Supplemental Advisory Design Exception was approved on March 21, 2011. The following are the Advisory Design Exceptions.

- **Advisory Design Exception Feature No. 1 (Alternative 2), Angle of Intersection:** When a right angle cannot be provided due to physical constraints, the interior angle should be designed as close to 90 degrees as is practical, but should not be less than 75 degrees. Mitigation should be considered for the affected intersection design features.

The interior angle of intersection of Railroad Canyon Road at the Southbound Exit Ramp is 62 degrees in its existing condition. The existing intersection provides a stopping sight distance of 550 ft (50 mph).

- **Advisory Design Exception Feature No. 2 (Alternatives 2 and 3), Access Control at Ramp Termini:** For new construction, access control should extend 100 ft beyond the end of the curb return or ramp radius in urban areas and 300 ft in rural areas, or as far as necessary to ensure that entry onto the facility does not impair operational characteristics.

The planned north access control opposite the Grape Street ramps extends 50 ft beyond the end of the Grape Street northbound entrance ramp curb return.

- **Advisory Design Exception Feature No. 3 (all Alternatives), Superelevation Transitions and Runoff:** Standard Superelevation Transition Lengths are 300 ft.

Non-standard superelevation transitions lengths are planned at the Grape Street Northbound Exit Ramp (200 ft) and the Grape Street Northbound Entrance Ramp (235 ft). For runoff, two-thirds of the superelevation runoff should be on the tangent and one-third within the curve. Table 1.P summarizes the planned non-standard runoff lengths.

- **Advisory Design Exception Feature No. 4 (all Alternatives), New Construction, Two Curb Ramp Design:** On new construction, two Americans with Disabilities (ADA) ramps should be installed at each corner as shown on the Standard Plans.

The following intersections have single curb cut access ramps only: Location 1 (Franklin Street and Southbound Ramps); Location 2 (Franklin Street and Northbound Ramps); Location 3 (Main Street Southbound Ramps); and Location 4 (Franklin Street and Auto Center Drive). At all intersections, it was determined that the use of two ramps was not practical because the location of crosswalks and signals associated with the two curb ramps would create operational conflicts with pedestrians and vehicles.

**Table 1.P: Non-Standard Runoff (1/3L and 2/3L)**

Location (Ramp)	Standard SE Length	Reg 2/3 Runoff	Reg 1/3 Runoff	Beginning Transition	Ending Transition	Planned SE Runoff
Grape Street Northbound Exit Ramp	300	200	100	(2/3) 1002+14	(2/3) 1005+02 (BC)	288
	300	200	100	(1/3) 1005+02 (BC)	(1/3) 1005+14	12
	300	200	100	1005+14	1007+14	200
	300	200	100	1005+14	1007+14	
Grape Street Northbound Entrance Ramp	300	200	100	(2/3) 1005+43	(2/3) 1006+44 (BC)	101
	300	200	100	(1/3) 1006+44 (BC)	(1/3) 1007+78	134

Source: Supplemental Traffic Memorandum – Updating Existing Traffic Data to 2009 and Opening Year to 2015 (March 2011).  
SE = superelevation

- **Advisory Design Exception Feature No. 5 (all Alternatives), Location and Design of Ramp Intersections on Crossroads:** Ramp terminals should connect where the grade of the overcrossing is 4 percent or less to avoid potential overturning of trucks.

The planned northbound exit ramp connects to existing Grape Street at a location where the grade is approximately 4.44 percent to 4.66 percent and the northbound entrance ramp connects to existing Grape Street at a location where the grade is approximately 4.10 percent.

- **Advisory Design Exception Feature No. 6 (all Alternatives), Distance Between Ramp Intersection and Local Road:** The standard minimum shoulder distance between the ramp intersections and local road intersections shall be 400 ft. The preferred minimum distance should be 500 ft.

The planned curb return to curb return distance between the Franklin Street southbound ramp intersection and Auto Center Drive is 426 ft and the planned curb return to curb return distance between the Franklin Street northbound ramp intersection and Camino Del Norte is 404 ft. In order to provide for the preferred 500 ft distance between ramp and local road intersections, the frontage road would have to be realigned causing right-of-way impacts to existing businesses and the County landfill.

- **Advisory Design Exception Feature No. 7 (all Alternatives), Standard for Grade:** The minimum grades should be 0.5 percent in snow country and 0.3 percent at other locations.

Railroad Canyon Road was constructed with a centerline profile grade of -0.17 percent to -0.20 percent from east of the Casino Drive-Auto Center Drive intersection to east of the Grape Street-Summerhill Drive intersection (approximate station number 16+50 to station number 29+00) and a -2 percent crown. Railroad Canyon Road is superelevated at 6 percent just through the Grape Street-Summerhill Drive intersection (approximate station number 25+00 to station number 34+00). Maintaining the existing grade on Railroad Canyon Road would not cause any flooding issues. The 10 percent ( $Q_{(10)}$ ) design storm would be maintained within the shoulder or 1/2 outer lane per HDM Table 731.3.

- **Advisory Design Exception Feature No. 8 (All Alternatives), Superelevation Transition and Runoff:** A superelevation transition should be designed in accordance with the diagram and tabular data shown in Figure 202.5A of the Caltrans *Highway Design Manual* (2015) to satisfy the requirements of safety, comfort, and pleasing appearance. Two-thirds of the superelevation runoff should be on the tangent and one-third within the curve.

All Alternative 4 Railroad Canyon Locations. The roundabout design provides PRC to slow vehicles as they approach the roundabout. The Point of Reversing Curves (PRC) does not allow for standard superelevation transition lengths and runoff (1/3 and 2/3). The roundabout design provides PRC to slow vehicles as they approach the roundabout. The PRC combined with a standard 12 percent superelevation and the difference in superelevation from a minus to a plus superelevation creates a condition that would exceed the 6 percent per 100 ft maximum superelevation rate. By reducing the superelevation to 8 percent, this allows the superelevation of the curve to be 6 percent per 100 ft. Since the curves are located to the approach of the roundabout where slower speeds are anticipated, comfortable speed was chosen for design. A comfortable speed of 25 mph is achieved prior to the design limits of the roundabout.

- **Advisory Design Exception Feature No. 9 (Alternative 4), Compound Curves:**<sup>1</sup> Superelevation of compound curves should follow the procedure as shown in Figure 202.6 of the Caltrans *Highway Design Manual* (2015). Where feasible, the criteria in the Caltrans *Highway Design Manual* Index 202.5 should apply. Where compound curves are necessary, the shorter radius should be at least two-thirds the longer radius when the shorter is 1,000 ft or less. On one-way roads, the larger radius should follow the smaller radius.

The roundabout design provides PRC to slow vehicles as they approach the roundabout. In addition, the roundabout design further reduces the speed with an introduction of a point of compound curves (PCC) prior to entering the design limit of the roundabout. The PCC do not allow for standard superelevation transition lengths and runoff (1/3 and 2/3). It is proposed to provide a 6 percent per 100 ft maximum superelevation transition rate. To provide standard superelevation transition length and runoff at the compound curve location, the northbound ramp roundabout would have to be moved further east encroaching into the Grape Street-Summerhill Drive roundabout. The relocation/realignment of the roundabout locations would impact several properties.

- **Advisory Design Exception Feature No. 10 (Alternative 4), Reversing Curves-Transition Length and Rate:** When horizontal curves reverse direction the connecting tangents should be long enough to accommodate the standard superelevation runoffs given on Figure 202.5. If this is not possible, the 6 percent per 100 feet rate of change should govern (see Index 202.5(3)).

The roundabout design provides PRC to slow vehicles as they approach the roundabout. In addition, the roundabout design further reduces the speed with an introduction of a point of compound curves (PCC) prior to entering the design limit of the roundabout. The PCC do not allow for standard superelevation transition lengths and runoff (1/3 and 2/3). It is proposed to provide a 6 percent per 100 ft maximum superelevation transition rate. To provide standard superelevation transition length and runoff at the compound curve location, the northbound ramp roundabout would have to be moved further east encroaching into the Grape Street-Summerhill Drive roundabout. The relocation/realignment of the roundabout locations would impact several properties.

- **Advisory Design Exception Feature No. 11 (Alternative 4), Standard Designs:** Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3L (two lane entrances and exits) and/or Figure 504.4 (diverging branch connections), as appropriate, in the Caltrans *Highway Design Manual* (2015).

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<sup>1</sup> The combination of two or more simple circular curves of different radii having their curvature in the same direction.

The existing northbound entrance ramp is a short ramp that merges with the freeway prior to the San Jacinto River Bridge with a 2,400 ft radius, curving right. To make the Railroad Canyon Road northbound entrance standard, the ramp would have to be lengthened by approximately 500 ft. Lengthening the Railroad Canyon Road northbound entrance ramp will require the widening of the San Jacinto River bridge.

- **Advisory Design Exception Feature No. 12 (Alternative 4), Lane Drop.** Depending on approach geometry and speed, the standard lane drop transition between the limit line and the 6 ft separation point should be accomplished with a taper of between 30:1 and 50:1 (longitudinal to lateral).

The existing northbound entrance ramp is a short ramp that merges with the freeway prior to the San Jacinto River Bridge. To provide two general purpose lanes and one HOV preferential lane, without impacting the San Jacinto River Bridge, it was decided to provide a 16:1 lane drop. The entrance ramp will merge into an acceleration/auxiliary lane. Increasing the lane drop taper would result in widening the existing San Jacinto River bridge.

- **Advisory Design Exception Feature No. 13 (Alternative 4), Sidewalk and Walkways.** The minimum width of a sidewalk should be 8 feet between a curb and a building when in urban and rural main street place types. For all other locations the minimum width of sidewalk should be 6 feet when contiguous to a curb or 5 feet when separated by a planting strip.

Due to existing development and right-of-way constraints, the project proposes to reduce the sidewalk width to 5 ft, north of Railroad Canyon Road crossing Summerhill Drive and crossing the I-15 northbound entrance ramp.

#### **HIGH-OCCUPANCY VEHICLES**

HOV preferential lanes will be incorporated at all entrance ramps at the Railroad Canyon Road interchange, at the new Franklin Street interchange, and the southbound Main Street on ramp for all Build Alternatives.

#### **RAMP METERING**

All entrance ramps will have ramp meters, except for Alternative 4, at the Railroad Canyon Road northbound on-ramp.

#### **CALIFORNIA HIGHWAY PATROL ENFORCEMENT AREAS**

Provisions for a CHP Enforcement Area have been included in all entrance ramps, except for the new Grape Street and Casino Drive entrance ramps where 10 ft wide shoulders will be provided for Alternatives 2 and 3. The CHP has concurred with the 10 ft wide shoulders at the two entrance ramp locations.

#### **PARK AND RIDE FACILITIES**

There are no Park and Ride Facilities planned for this project. A review of the project site revealed no viable locations for Park and Ride Facilities. The surrounding area at Railroad Canyon Road is fully developed with existing businesses.

#### **GEOTECHNICAL BORING AND UTILITY POTHOLING**

Geotechnical boring and utility potholing activities will be conducted during final design, and the environmental effects of these activities are considered and evaluated in this Final IS/EA.

The duration of the geotechnical borings would be 1 day or less at any given geotechnical borehole location. The geotechnical borings typically use small 8-inch-diameter borings drilled

with a truck-mounted, hollow-stem auger or mud rotary drill rig to a minimum depth of 75 feet below ground surface or refusal. If groundwater is encountered at any borehole locations, a well permit will be obtained, and a well may be installed to monitor groundwater levels at these locations. Any water generated during bailing and surging will be contained in a 55-gallon drum and discharged off site. An engineer or geologist will supervise the boring explorations and monitoring well installations, observe and classify soil samples, and prepare logs of borings. Upon completion, the borings will be backfilled with soil from the excavation.

Utility potholing will be conducted, as needed, within existing local street rights of way to verify locations of underground utilities. Appropriate permits will be obtained from the affected local jurisdiction, and all potholing activities will be conducted in accordance with those permits.

### **UTILITY INVOLVEMENT**

There are several known utilities within the project limits. The following utility purveyors are located within the project area:

- Elsinore Valley Municipal Water District
- Southern California Gas Company
- Southern California Edison (SCE) Company
- Verizon Telephone
- Time Warner Cable

In general, the above utilities can be protected in place with the exception of the overhead SCE distribution lanes (power poles) that will need to be relocated, but it is not expected to have impacts on project delivery.

### **RAILROAD INVOLVEMENT**

There is no railroad involvement on this project.

### **HIGHWAY PLANTING**

There is no existing landscaping or mature trees or shrubbery within the project area, with the exception of the Main Street southbound entrance ramp. New landscaping will be incorporated as a separate landscaping project funded from this parent project.

### **EROSION CONTROL**

Erosion control has been included in the estimated costs. Additionally, the final plans and specifications will include provisions for a Storm Water Pollution Prevention Plan (SWPPP) and the BMPs would be implemented during construction. All disturbed areas will be treated with permanent erosion control.

### **NOISE BARRIERS**

Based on the Noise Study Report (NSR) (August 2015) and the Noise Abatement Decision Report (NADR) (December 2015) prepared for the project, there are no noise barriers planned within the project area.

### **ROADWAY REHABILITATION**

The existing pavement on Railroad Canyon Road and all ramps consist of asphalt concrete (AC). The I-15 freeway travel lanes are concrete with inside AC shoulders and outside concrete

shoulders. Most of the existing mainline is Portland cement concrete pavement, and the Portland cement concrete/AC shoulder appears to be in fair-to-good condition. The ramps and local roads/streets are generally in fair-to-good condition. Localized areas show unrepaired or patched/filled longitudinal and transverse cracks. In general, rehabilitation of Hot Mixed Asphalt (HMA) pavements (where required) may include flexible or rigid overlay, mill and overlay, lane/shoulder removal and replacement, complete reconstruction/replacement, cold in-place recycling, or a combination thereof. A pavement condition study, along with deflection study (CTM 356)<sup>1</sup> and coring to evaluate structural adequacy is commonly performed to select the most appropriate rehabilitation option during final design.

Rehabilitation of concrete pavements may generally include grooving; grinding; unbonded rigid overlay with flexible interlayer; crack, seat, and asphalt overlay; or replacement. The selection of the appropriate rigid pavement rehabilitation strategy should be based upon life-cycle costs, load transfer efficiency of the joints, materials testing, ride quality, safety, maintainability, constructability, visual inspection of pavement distress, and other factors listed in Chapter 610 of Caltrans *Highway Design Manual* (2015).

Detailed condition surveys, deflectometer studies, and development of rehabilitation strategies and materials were not included in the scope of work for this report. The scope of rehabilitation to be implemented for the project should be defined by the City, Riverside County Transportation Commission (RCTC), and Caltrans, and the rehabilitation strategy should be selected based on additional studies including pavement condition surveys, coring, and deflection studies (as necessary) and documented in the final materials report during the Plans, Specifications, and Estimates (PS&E) phase of the project.

Most ramps will be reconstructed and/or realigned; therefore, all ramps will have new pavement, thereby eliminating the need for pavement rehabilitation. Local streets outside State jurisdiction will be reconstructed and rehabilitated where necessary.

## **STRUCTURE WORK**

All planned bridge widening would be compatible with the ultimate I-15 freeway of 10 lanes plus auxiliary lanes (Half Width Standard Typical Cross Section: 1 ft concrete barrier, 10 ft inside shoulder, one 12 ft HOV lane, 4 ft buffer, four 12 ft mixed flow lanes, 12 ft auxiliary lane, where needed, and a 10 ft shoulder). Minimum falsework clearance of 15 ft will be maintained at the new Franklin Street overcrossing. Lighting will be provided at all structure overcrossings and undercrossings where pedestrian facilities are constructed.

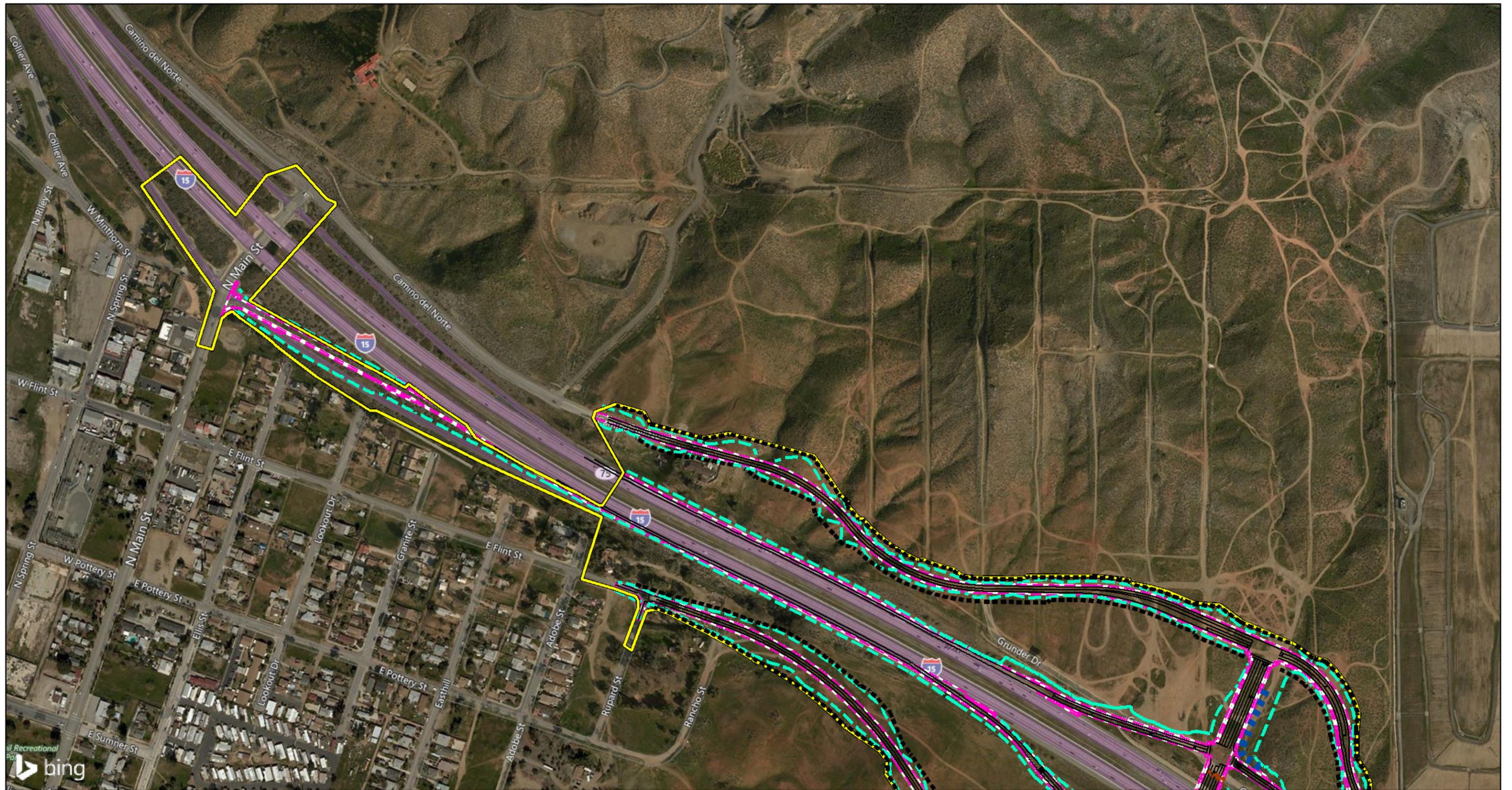
### **1.5.1.4 Unique Features of the Build Alternatives**

#### **ALTERNATIVE 2 – NORTHBOUND HOOK RAMPS TO GRAPE STREET (PREFERRED ALTERNATIVE)**

As illustrated in Figure 1.2, under this alternative, the existing I-15/Railroad Canyon Road interchange would be reconstructed to provide hook ramps for northbound traffic to enter and exit the freeway on Grape Street. Additional through lanes on Railroad Canyon Road will be constructed, as well as on the freeway ramps in conjunction with a new full movement interchange at Franklin Street. Typical cross sections and profiles for this alternative are illustrated in Appendix H. Alternative 2 proposes the following unique features:

<sup>1</sup> Caltrans Materials Engineering and Testing Services conducts specialized laboratory and field testing, provides inspections, and gives expert advice on all phases of transportation engineering involving materials and manufactured products. California Test Method 356 (CTM 356) is the method of examination to obtain flexible pavement deflection measurements for determining pavement rehabilitation requirements.

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|---------------------------------|-------------------------------------|
| Project Footprint               | Alt 2 Contour Grading               |
| Detention Basins                | Alt 2 Cut and Fill (Grading Limits) |
| Staging Area                    | Proposed TCE                        |
| Proposed ROW, Alternative 2     | Temporary Road                      |
| Proposed ROW, Alternative 2 & 3 | Alt 2 Pavement Edges                |
| Retaining Walls                 | Alt 2 Alignment                     |
|                                 | Soundwalls                          |

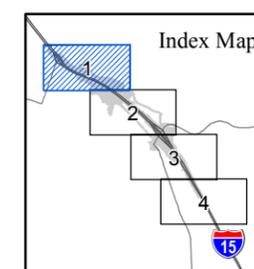
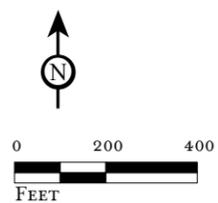
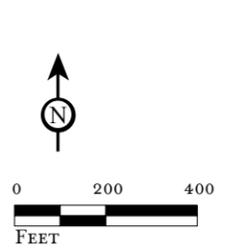
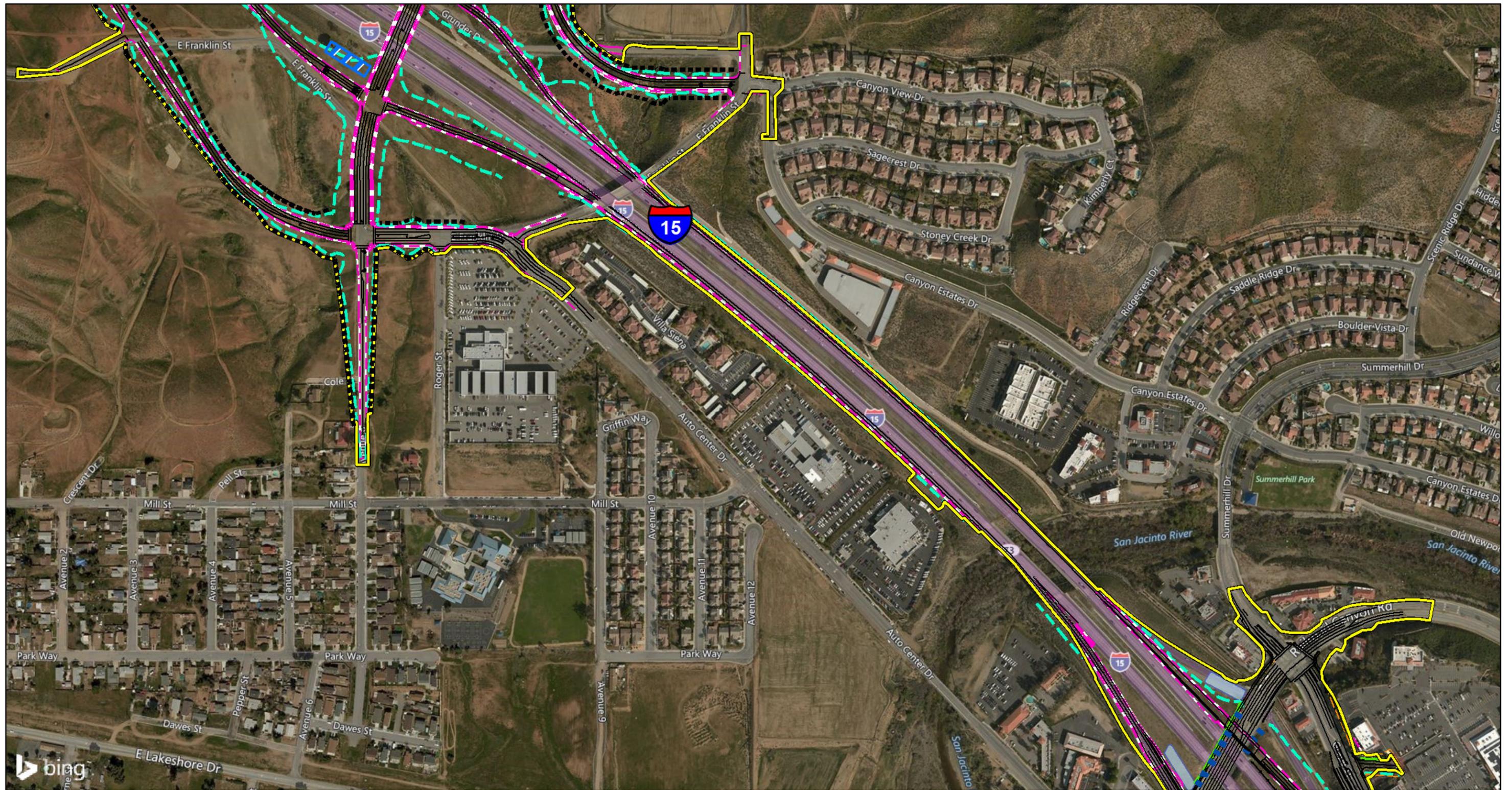


FIGURE 1.2  
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- Project Footprint
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- Staging Area
- Proposed ROW, Alternative 2
- Proposed ROW, Alternative 2 & 3
- Retaining Walls
- Alt 2 Contour Grading
- Alt 2 Cut and Fill (Grading Limits)
- Proposed TCE
- Temporary Road
- Alt 2 Pavement Edges
- Alt 2 Alignment
- Soundwalls

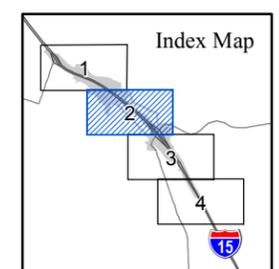
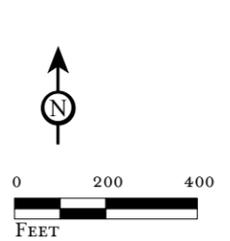


FIGURE 1.2  
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- Project Footprint
- Detention Basins
- Staging Area
- Proposed ROW, Alternative 2
- Proposed ROW, Alternative 2 & 3
- Retaining Walls
- Alt 2 Contour Grading
- Alt 2 Cut and Fill (Grading Limits)
- Proposed TCE
- Temporary Road
- Alt 2 Pavement Edges
- Alt 2 Alignment
- Soundwalls

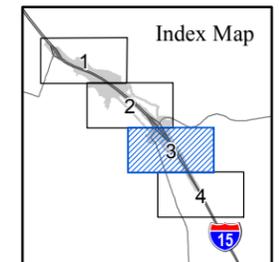
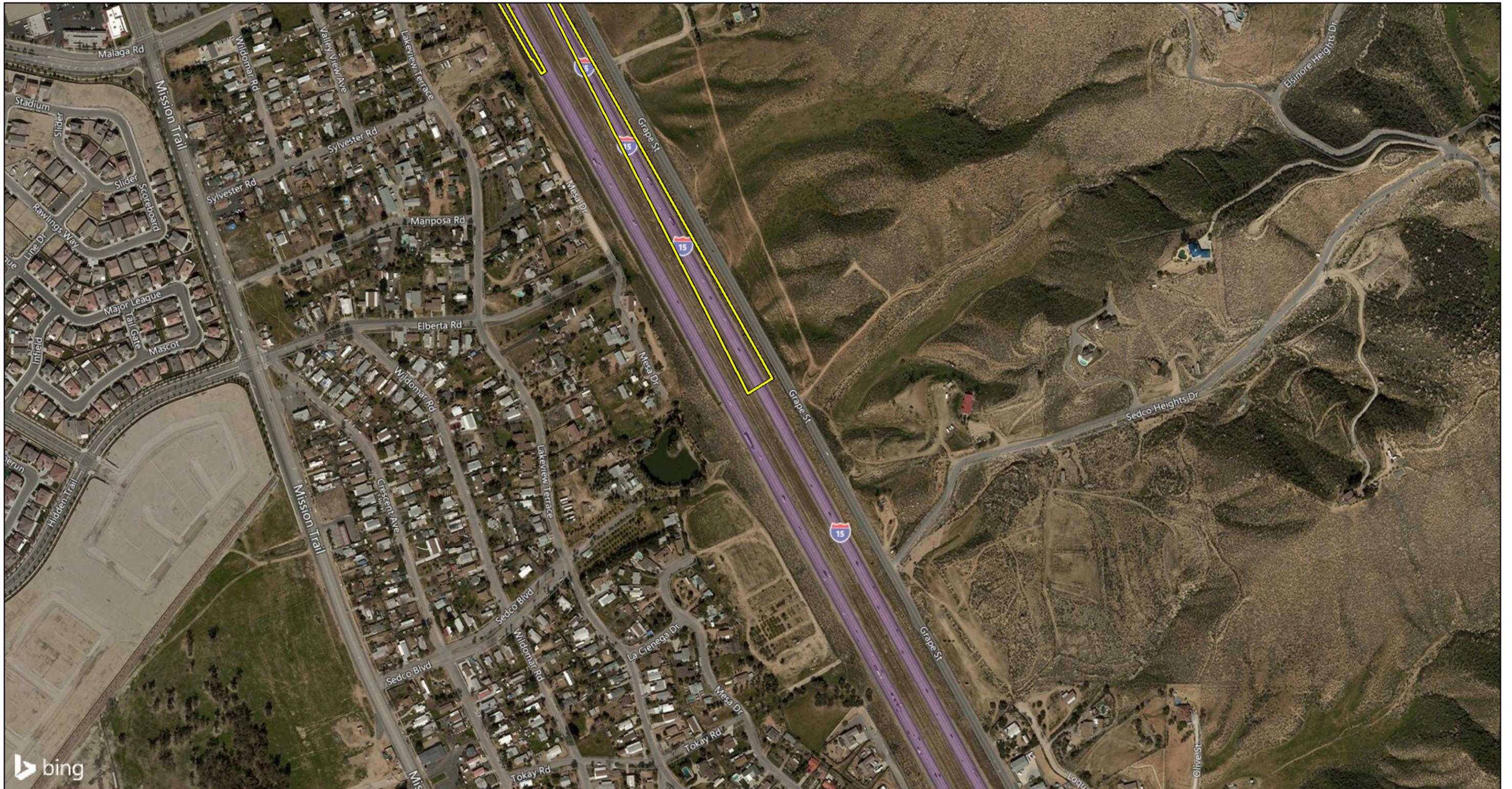


FIGURE 1.2  
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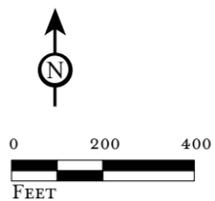
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|---------------------------------|-------------------------------------|
| Project Footprint               | Alt 2 Contour Grading               |
| Detention Basins                | Alt 2 Cut and Fill (Grading Limits) |
| Staging Area                    | Proposed TCE                        |
| Proposed ROW, Alternative 2     | Temporary Road                      |
| Proposed ROW, Alternative 2 & 3 | Alt 2 Pavement Edges                |
| Retaining Walls                 | Alt 2 Alignment                     |
|                                 | Soundwalls                          |

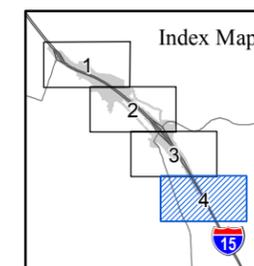


FIGURE 1.2  
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*Railroad Canyon Road Interchange Area*

- Widen Railroad Canyon Road under the freeway to eight travel lanes (three lanes in each direction with dual left-turn lanes to the southbound entrance ramp).
- Widen the existing southbound entrance ramp to three lanes departing Railroad Canyon Road, tapering to one acceleration lane approximately 1,000 ft in length before entering the freeway.
- Reconstruct the existing southbound exit ramp and construction of a deceleration lane approximately 1,000 ft in length.

*Right-of-Way Acquisition*

New permanent right-of-way would be required for the planned improvements under Alternative 2. The planned improvements under this alternative would require the partial acquisition of 57 parcels (39 residentially zoned parcels and 18 commercially zoned parcels), totaling 798,787 sf. Of these 57 partial acquisitions, 7 parcels are located within the Railroad Canyon Road interchange area (Phase 1) and 50 parcels are located within the Franklin Street interchange area (Phase 2). Alternative 2 would also require the full acquisition of 12 residentially zoned parcels totaling 184,276 sf. All 12 parcels that would be fully acquired are located within the Franklin Street interchange area (Phase 2). Alternative 2 would displace a single-family residence in the northwest quadrant of the planned I-15/Franklin Street interchange in the City. In general, the partial acquisitions consist of several feet of frontage area along major arterials.

*Mandatory Design Exceptions*

There are no unique mandatory design exceptions identified for Alternative 2.

*Advisory Design Exceptions*

There are no unique advisory design exceptions identified for Alternative 2.

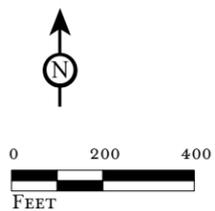
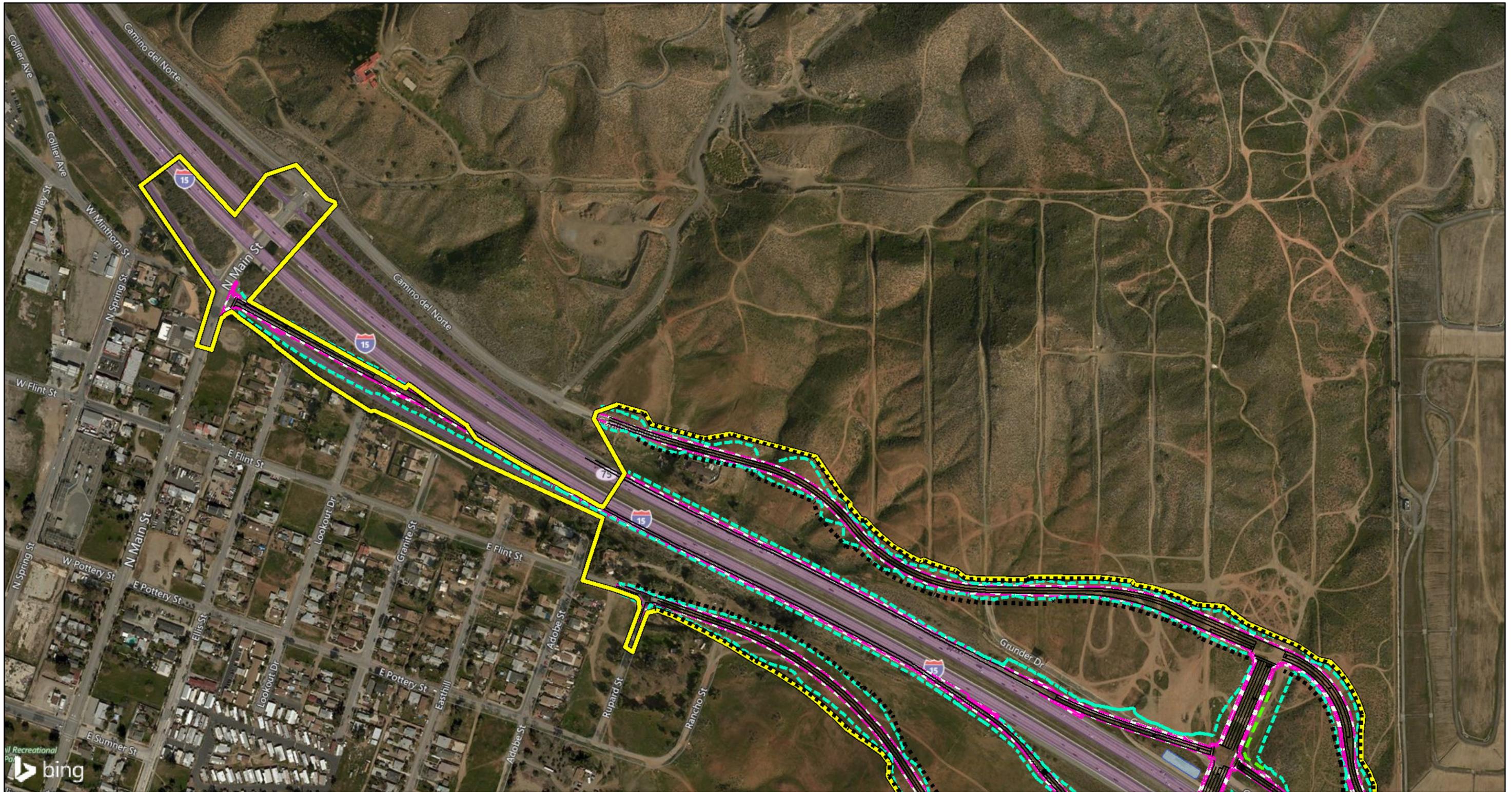
**ALTERNATIVE 3 – NORTHBOUND HOOK RAMPS TO GRAPE STREET AND SOUTHBOUND HOOK RAMPS TO CASINO DRIVE**

As illustrated in Figure 1.3, under Alternative 3, the existing I-15/Railroad Canyon interchange would be reconstructed to provide hook ramps for northbound traffic to enter and exit the freeway on Grape Street and hook ramps for southbound traffic to enter and exit the freeway on Casino Drive, and additional through lanes on Railroad Canyon Road, as well as on the freeway ramps in conjunction with a new full movement interchange at Franklin Street. Typical cross sections and profiles for this alternative are illustrated in Appendix H. Alternative 3 proposes the following unique features:

*Railroad Canyon Road Interchange Area*

- Widen Railroad Canyon Road under the freeway to six travel lanes (three lanes in each direction).
- Eliminate the existing southbound entrance ramp and the southbound exit ramp at Railroad Canyon Road.
- Construct new southbound hook ramps connecting to Casino Drive and with a southbound acceleration lane approximately 1,000 ft in length at Casino Drive entrance ramps and a deceleration lane approximately 1,300 ft in length at the Casino Drive exit ramp.

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- Project Footprint
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- Detention Basin
- Proposed ROW, Alternative 3
- Proposed ROW, Alternatives 2 & 3
- Retaining Walls
- Alt 3 Contour Grading
- Alt 3 Cut and Fill (Grading Limits)
- Alt 3 Pavement Edges
- Alt 3 Proposed Alignment
- Proposed TCE

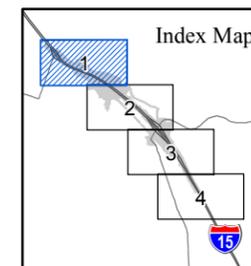
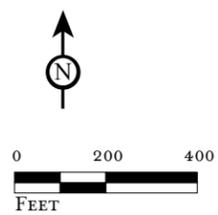
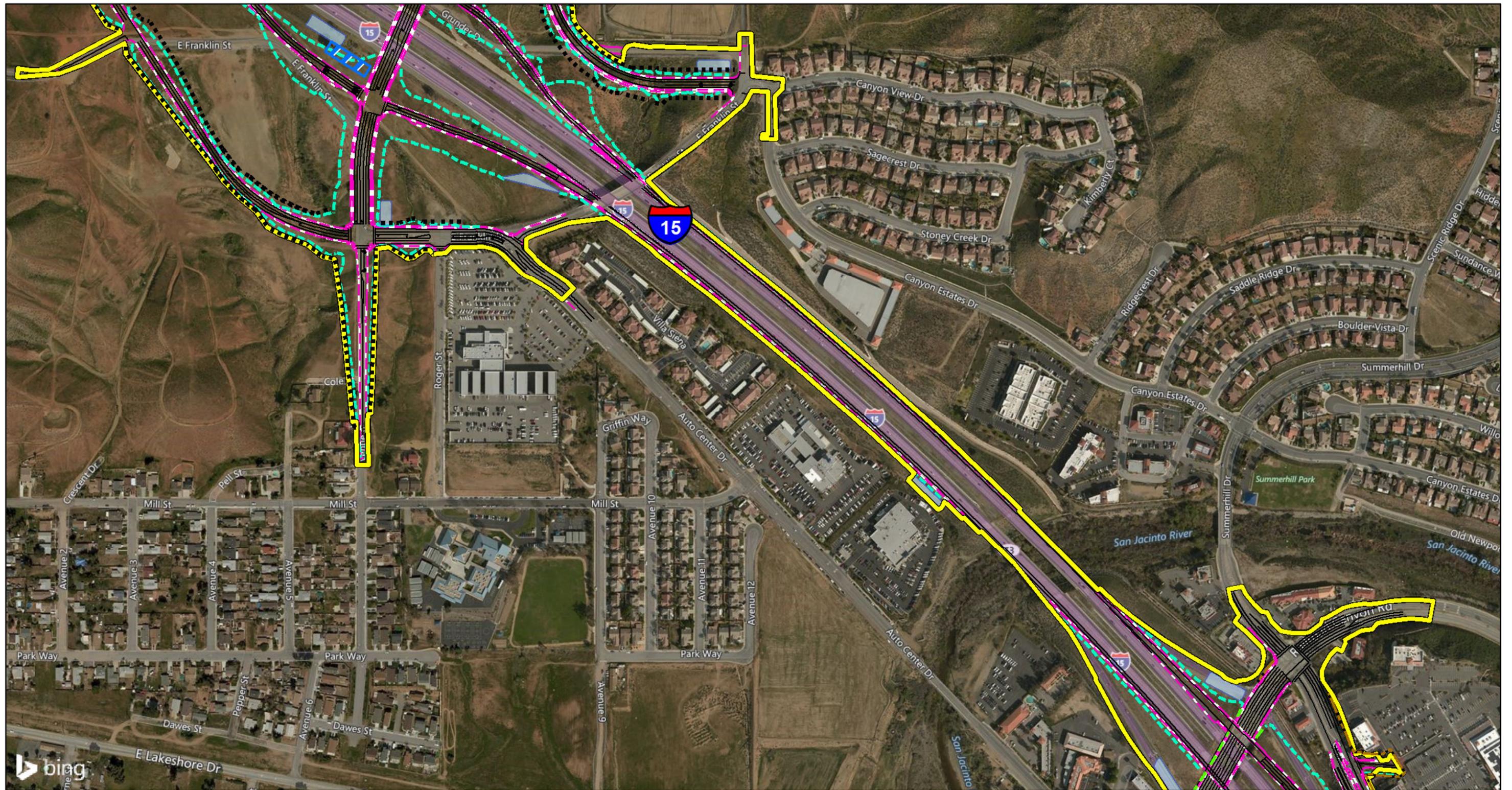


FIGURE 1.3  
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- Project Footprint
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- Proposed ROW, Alternatives 2 & 3
- Retaining Walls
- Alt 3 Contour Grading
- Alt 3 Cut and Fill (Grading Limits)
- Alt 3 Pavement Edges
- Alt 3 Proposed Alignment
- Proposed TCE

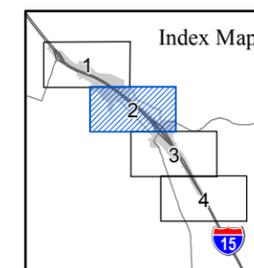


FIGURE 1.3  
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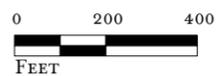
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| Project Footprint                | Alt 3 Contour Grading               |
| Staging Area                     | Alt 3 Cut and Fill (Grading Limits) |
| Detention Basin                  | Alt 3 Pavement Edges                |
| Proposed ROW, Alternative 3      | Alt 3 Proposed Alignment            |
| Proposed ROW, Alternatives 2 & 3 | Proposed TCE                        |
| Retaining Walls                  |                                     |

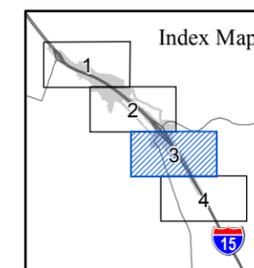


FIGURE 1.3  
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Conceptual Improvements, Alternative 3

SOURCE: Bing Aerial, 2015; SC Engineering, 2014 & 2015.

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SOURCE: Bing Aerial, 2015; SC Engineering, 2014 & 2015.

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| Project Footprint                | Alt 3 Contour Grading               |
| Staging Area                     | Alt 3 Cut and Fill (Grading Limits) |
| Detention Basin                  | Alt 3 Pavement Edges                |
| Proposed ROW, Alternative 3      | Alt 3 Proposed Alignment            |
| Proposed ROW, Alternatives 2 & 3 | Proposed TCE                        |
| Retaining Walls                  |                                     |

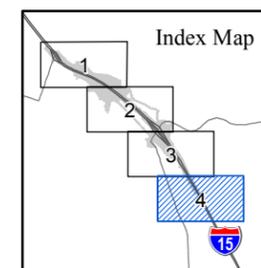


FIGURE 1.3  
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### *Right-of-Way Acquisition*

New permanent right-of-way would be required for the proposed improvements under Alternative 3. The proposed improvements under this alternative would require the partial acquisition of 66 parcels (39 residentially zoned parcels and 27 commercially zoned parcels), totaling 873,232 sf. Of these 66 partial acquisitions, 16 parcels are located within the Railroad Canyon Road interchange area (Phase 1) and 50 parcels are located within the Franklin Street interchange area (Phase 2). Alternative 3 would also require the full acquisition of 13 parcels (12 residentially zoned parcels and 1 commercially zoned parcel) totaling 187,891 sf. There would be one full parcel acquisition within the Railroad Canyon Road interchange area (Phase 1) and 12 parcels that would be fully acquired within the Franklin Street interchange area (Phase 2). Alternative 3 would also displace a single-family residence in the northwest quadrant of the proposed I-15/Franklin Street interchange in the City. Alternative 3 would also result in two business displacements (a Pizza Hut and a Sizzler restaurant) that would require relocation. In general, the partial acquisitions consist of several feet of frontage area along major arterials.

### *Mandatory Design Exceptions*

There are no unique mandatory design exceptions identified for Alternative 3.

### *Advisory Design Exceptions*

There is a unique advisory design exception identified for Alternative 3 as it relates to Advisory Design Exception Feature No. 2. On new construction, two curb ramps should be installed at each corner as shown on the Standard Plans. The following intersections—Location 3 (Casino Drive Southbound Ramps – Alternative 3 only) and Location 5 (Casino Drive Southbound Ramps – Alternative 3 only)—have single curb cut access ramps only.

## **ALTERNATIVE 4 – ROUNDABOUT ALTERNATIVE**

As illustrated in Figure 1.4, under Alternative 4, the existing I-15/Railroad Canyon interchange would be reconstructed to provide yield control intersections (roundabouts) and reconstruct/widen the southbound and northbound ramps with a new interchange at Franklin Street. Typical cross sections and profiles for this alternative are illustrated in Appendix H. Alternative 4 proposes the following unique features:

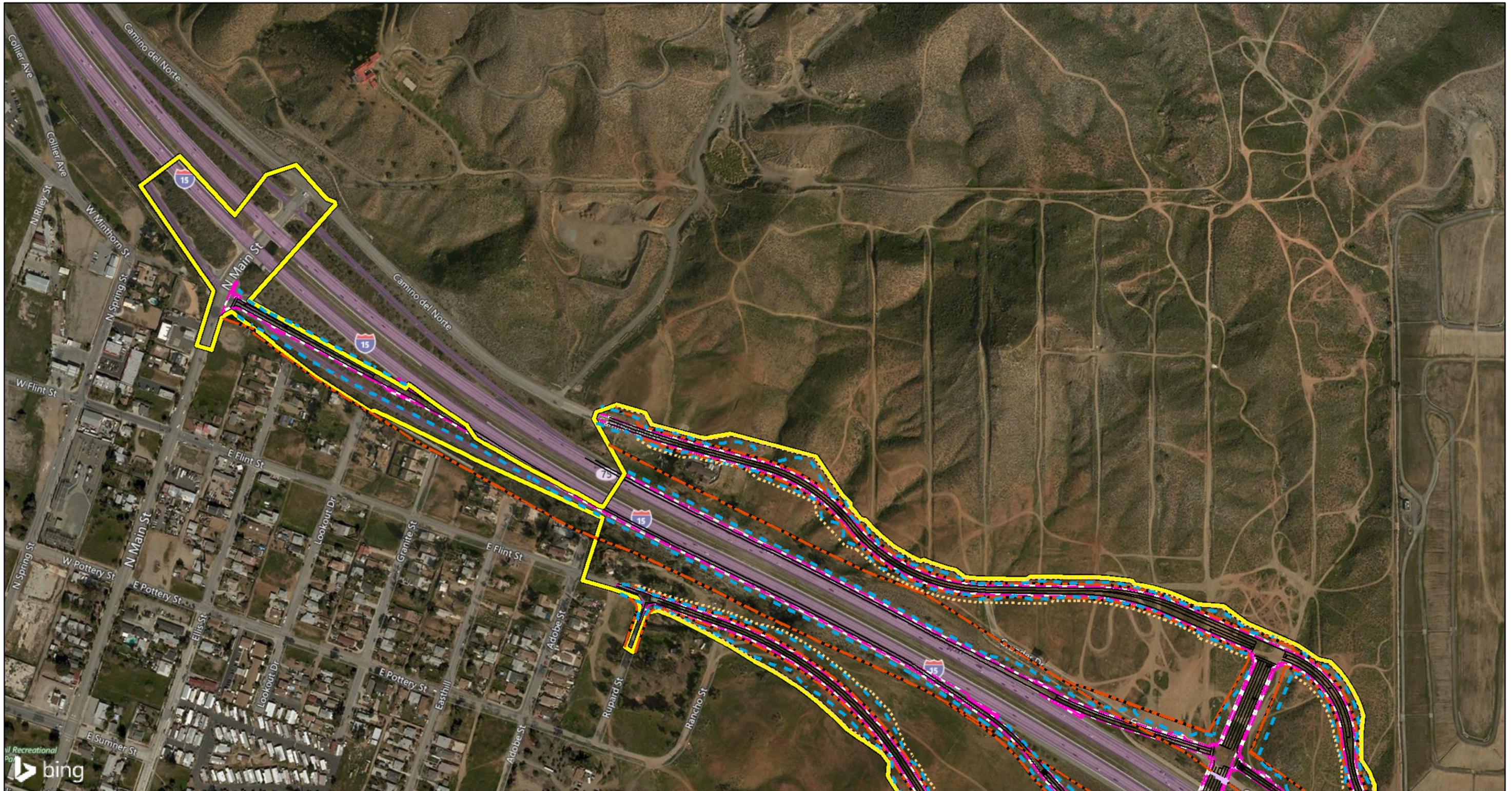
### *Railroad Canyon Road Interchange Area*

- Construct yield control intersections (roundabouts) at the five signalized intersections (Mission Trail/Lake Shore Drive, Casino Drive/Auto Center Drive, I-15 southbound ramps, I-15 northbound ramps, and Grape Street/Summerhill Drive) along Railroad Canyon Road.
- Construct an acceleration lane approximately 1,000 ft in length at the southbound entrance ramps and a deceleration lane approximately 1,300 ft in length at the northbound exit ramps.

### *Right-of-Way Acquisition*

New permanent right-of-way would be required for the proposed improvements under Alternative 4. The proposed improvements under this alternative would require the partial acquisition of 64 parcels (one residentially zoned parcel, 12 commercially zoned parcels, 43 vacant parcels, 7 roadway parcels, and one landscaped area), totaling 815,431 sf. Of these 64 partial acquisitions, 13 parcels are located within the Railroad Canyon Road interchange area (Phase 1) and 51 parcels are located within the Franklin Street interchange area (Phase 2). Alternative 4 would also require the full acquisition of 13 parcels (1 residentially zoned parcel, 11 vacant parcels, and one Caltrans parcel) totaling 174,199 sf.

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- Project Footprint
- Alt 4 Proposed ROW
- Alt 4 Proposed Retaining Walls
- Alt 4 Alignment
- Alt 4 Pavement Edges
- Alt 4 Contour Grading
- Alt 4 Cut and Fill (Grading Limits)
- Alt 4 TCE
- Staging Area

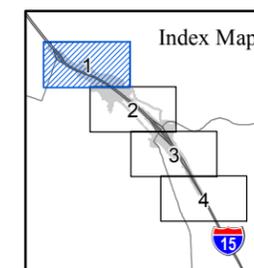
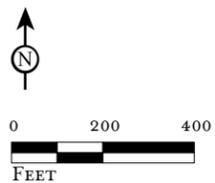
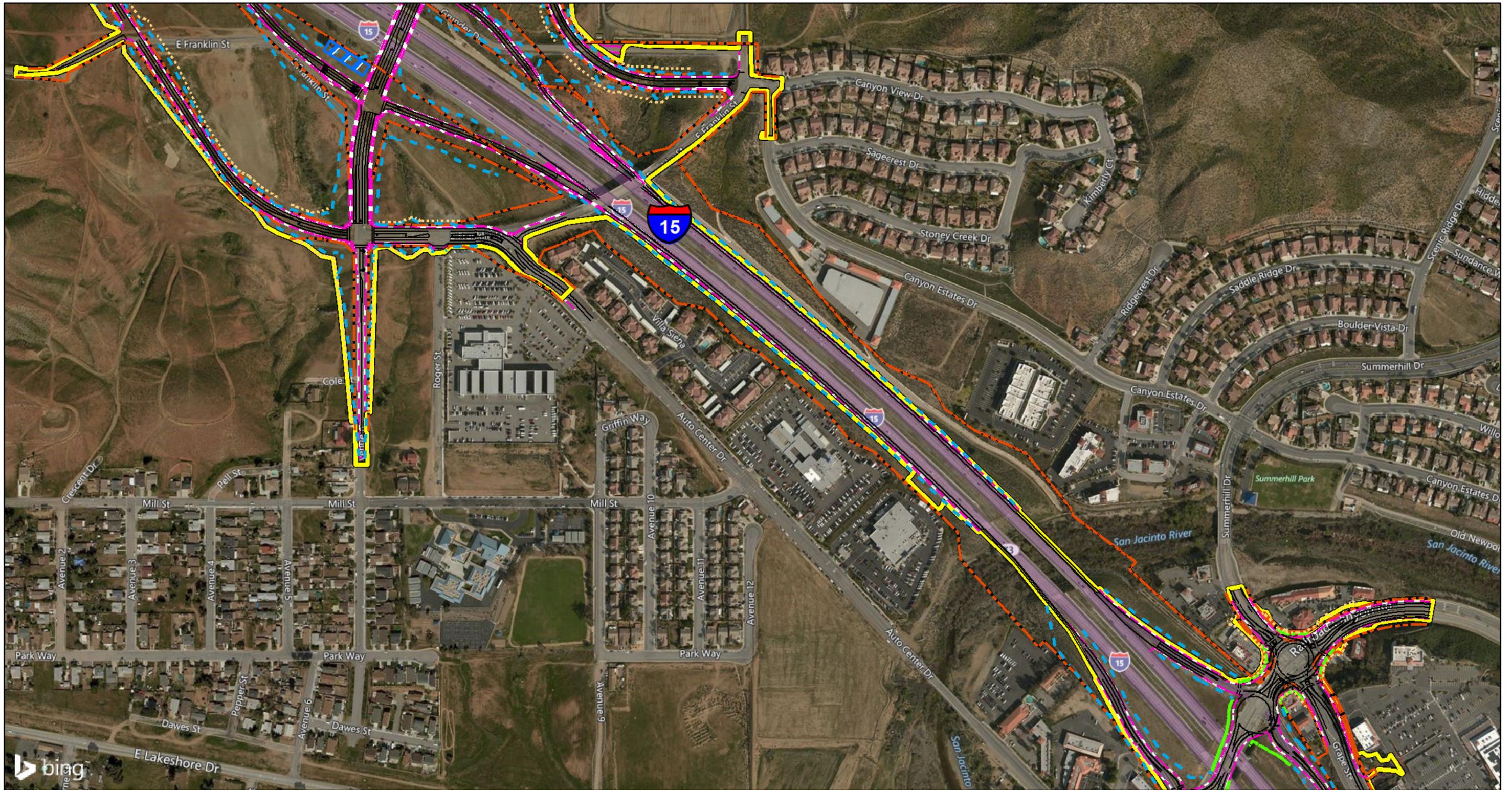


FIGURE 1.4  
Sheet 1 of 4

08-RIV-15-PM 18.3/21.0  
EA. 0A4400  
I-15/Railroad Canyon Road Interchange  
Initial Study/Environmental Assessment

Conceptual Improvements, Alternative 4

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- Project Footprint
- Alt 4 Proposed ROW
- Alt 4 Proposed Retaining Walls
- Staging Area
- Alt 4 Alignment
- Alt 4 Pavement Edges
- Alt 4 Contour Grading
- Alt 4 Cut and Fill (Grading Limits)
- Alt 4 TCE

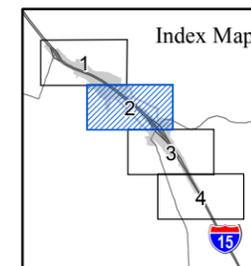
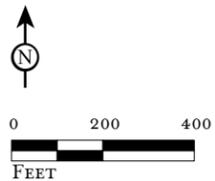


FIGURE 1.4  
Sheet 2 of 4

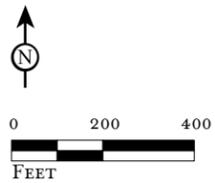
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EA. 0A4400  
I-15/Railroad Canyon Road Interchange  
Initial Study/Environmental Assessment

Conceptual Improvements, Alternative 4

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- Project Footprint
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- Alt 4 Contour Grading
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- Alt 4 TCE
- Staging Area



SOURCE: Bing Aerial, 2015; SC Engineering, 2014 & 2015.

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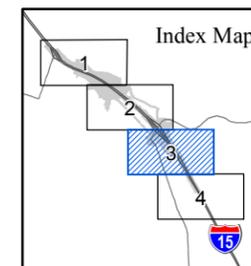
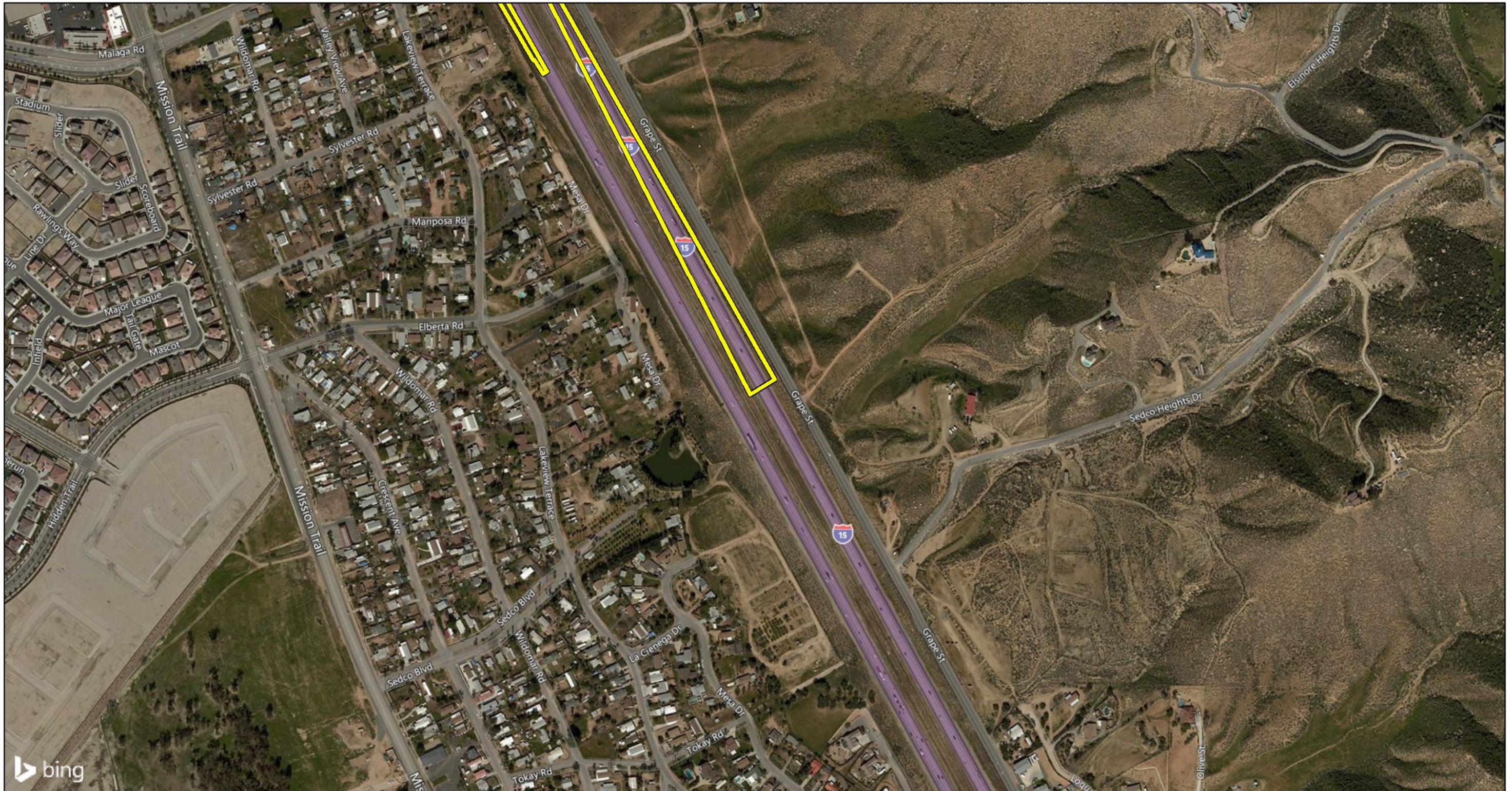


FIGURE 1.4  
Sheet 3 of 4

08-RIV-15-PM 18.3/21.0  
EA. 0A4400  
I-15/Railroad Canyon Road Interchange  
Initial Study/Environmental Assessment

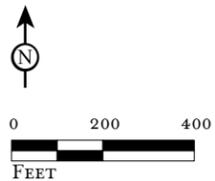
Conceptual Improvements, Alternative 4

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- Project Footprint
- Alt 4 Proposed ROW
- Staging Area
- Alt 4 Proposed Retaining Walls
- Alt 4 Alignment
- Alt 4 Pavement Edges
- Alt 4 Contour Grading
- Alt 4 Cut and Fill (Grading Limits)
- Alt 4 TCE



SOURCE: Bing Aerial, 2015; SC Engineering, 2014 & 2015.

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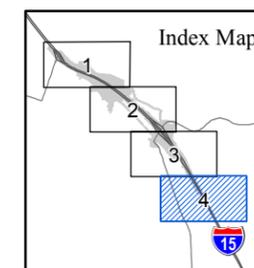


FIGURE 1.4  
Sheet 4 of 4

08-RIV-15-PM 18.3/21.0  
EA. 0A4400  
I-15/Railroad Canyon Road Interchange  
Initial Study/Environmental Assessment

Conceptual Improvements, Alternative 4

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There would be four full parcel acquisitions within the Railroad Canyon Road interchange area (Phase 1) and 9 parcels that would be fully acquired within the Franklin Street interchange area (Phase 2). Alternative 4 would also displace a single-family residence in the northwest quadrant of the proposed I-15/Franklin Street interchange in the City. No business displacements would occur under Alternative 4.

#### *Mandatory Design Exceptions*

There are three mandatory design exceptions identified for Alternative 4 as it relates to Mandatory Design Exception Feature Nos. 3, 4, and 5. For Design Exception Feature No. 3 (Distance Between Ramp Intersection and Local Road), the distance between the ramp intersection and local roads is an existing non-standard condition. The proposed distance between the southbound ramp intersection and Casino Drive-Auto Center Drive is 287 ft and the proposed distance between the northbound ramp intersection and Grape Street-Summerhill Drive is 100 ft.

For Design Exception Feature No. 4 (Standards for Superelevation), the northbound exit ramp, southbound entrance ramp, and southbound exit ramp propose a standard superelevation rate of 8 percent, below the standard superelevation rate set for the curve radii.

For Design Exception Feature No. 5 (Shared [pedestrian and bicycles] Facility Widths), a width of 0.0 ft is proposed between the Railroad Canyon Road northbound entrance ramp and Summerhill Drive, and the northeast corner of the Railroad Canyon Road/Summerhill Drive intersection, below the standard width of 2.0 ft.

#### *Advisory Design Exceptions*

There are six advisory design exceptions identified for Alternative 4 as it relates to Advisory Design Exception Feature Nos. 5, 6, 7, 8, 9, and 10. For Design Exception Feature No. 5 (Standard for Grade), the existing Railroad Canyon Road was constructed with a centerline profile of -0.17 percent to -0.20 percent from east of the Casino Drive-Auto Center Drive intersection to east of the Grape Street-Summerhill Drive intersection and a 2 percent crown. This grade is below the standard 0.3 percent grade. Maintaining the existing grade on Railroad Canyon Road would not result in flooding impacts.

For Design Exception Feature No. 6 (Superelevation Transition), the roundabout design provides PRC to slow vehicles as they approach the roundabout. The PRC does not allow for standard superelevation transition lengths and runoff (1/3 and 2/3). In order to reduce vehicle speed exiting the freeway, a series of reversing curves are used to accomplish the speed reduction after the gore area.

For Design Exception Feature No. 7 (Compound Curves), the roundabout design provides PRC to slow vehicles as they approach the roundabout. In addition, the roundabout design further reduces the speed with an introduction of a PCC prior to entering the design limit of the roundabout. The PCC does not allow for standard superelevation transition lengths and runoff (1/3 and 2/3). It is proposed to provide a 6 percent per 100 ft maximum superelevation transition rate.

For Design Exception Feature No. 8 (Standard Designs), the existing northbound entrance ramp is a short ramp that merges with the freeway prior to the San Jacinto River Bridge with a 2,400 ft radius, curving right. This nonstandard distance is proposed to be retained as is.

For Design Exception Feature No. 9 (Standards for Grades), the existing grade along Railroad Canyon Road is 0.17 percent to 0.20 percent, below the standard of 0.30 percent minimum. It is

proposed to hold the existing grade to avoid major reconstruction as no flooding impacts would occur.

For Design Exception Feature No. 10 (Lane Drop), the existing northbound entrance ramp is a short ramp that merges with the freeway prior to the San Jacinto River Bridge. In order to provide two general purpose lanes and one HOV preferential lane without impacting the San Jacinto River Bridge, it is proposed to provide a 16:1 lane drop and the entrance ramp will merge into an existing acceleration/auxiliary lane.

#### **1.5.1.5 Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives**

Although Transportation System Management measures alone could not satisfy the purpose and need of the project, the following Transportation System Management measures have been incorporated into the Build Alternatives for this project:

- Additional intersection turning lanes
- Roundabouts
- Acceleration/deceleration lanes in the project area on I-15
- Ramp metering

The project is being designed to provide for improved access to I-15 and to improve the project segment of Railroad Canyon Road, and is consistent with the City of Lake Elsinore General Plan Circulation Element. Existing facilities that assist in TSM and TDM alternatives within the City of Lake Elsinore include public transportation services by RTA. RTA provides alternate forms of public transportation, which help reduce the number of motor vehicles within the City of Lake Elsinore. In addition, regional ridesharing opportunities are promoted by the Western Riverside Council of Governments (WRCOG).

#### **NO BUILD (NO ACTION) ALTERNATIVE (ALTERNATIVE 1)**

The No Build Alternative would not include improvements to the I-15/Railroad Canyon Road interchange or construct the I-15/Franklin Street interchange. Except for normal maintenance, there are no committed improvements included in the No Build Alternative, although the City of Lake Elsinore would be able to make needed local street improvements, consistent with its General Plan. In addition, under the No Build Alternative, LOS would continue to deteriorate at the I-15/Railroad Canyon Road interchange and surrounding area. This alternative is not consistent with the mobility goals of the Regional Congestion Management Plan and would not meet the project's purpose and need.

#### **1.5.2 Comparison of Alternatives**

A comparison among Alternative 1 – No Build Alternative, Alternative 2 (Preferred Alternative), Alternative 3, and Alternative 4 is provided in Table 1.Q. Because the interchange is within a developed area, it is preferred that the Build Alternatives minimize right-of-way acquisition and displacements to reduce costs and severity of impacts, and maintain local circulation and performance, while meeting the purpose and need for the project. After comparing and weighing the benefits and impacts of the feasible alternatives, which are summarized in Table 1.Q, the Project Development Team (PDT) identified Alternative 2 as the Preferred Alternative at a PDT meeting on April 19, 2017.

**Table 1.Q: Comparison of Alternatives**

<b>Issue</b>	<b>Alternative 1 (No Build)</b>	<b>Alternative 2 (Preferred)</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
Community Impacts/ Displacement/ Relocations	No change to existing condition of site. No property acquisitions and relocations would occur.	Construction of Alternative 2 would require the partial acquisition of 57 parcels (39 residentially zoned parcels and 18 commercially zoned parcels), and would also require the full acquisition of 12 residentially zoned parcels. Of these 57 parcels, 7 parcels are located within the Railroad Canyon Road interchange area (Phase 1) and 50 parcels are located within the Franklin Street interchange area (Phase 2). Alternative 2 would displace one single-family residence in the northwest quadrant of the planned I-15/ Franklin Street interchange in the City. A total of 3–4 residents would be displaced as a result of the acquisition of this residential unit. No business displacements would occur under Alternative 2.	Construction of Alternative 3 would require the partial acquisition of 66 parcels (39 residentially zoned parcels and 27 commercially zoned parcels) and would also require the full acquisition of 13 parcels (12 residentially zoned parcels and 1 commercially zoned parcel). Of these 66 parcels, 16 parcels are located within Railroad Canyon Road interchange area (Phase 1) Alternative 3 would also displace one single-family residence in the northwest quadrant of the planned I-15/Franklin Street interchange in the City. A total of 3–4 residents would be displaced as a result of the acquisition of this residential unit. Alternative 3 would also result in two business displacements (a Pizza Hut and a Sizzler) that would require relocation. TCEs would not require the relocation of residents, businesses, or employees and TCE parcel owners would be compensated for temporary use of their property during construction.	Construction of Alternative 4 would require the partial acquisition of 64 parcels (one residentially zoned parcel, 12 commercially zoned parcels, 43 vacant parcels, 7 roadways parcels, and one landscaped area) and would also require the full acquisition of 13 parcels (1 residentially zoned parcel, 11 vacant parcels, and one Caltrans parcel) totaling 174,199 sf. Of these 64 parcels, 13 parcels are located within the Railroad Canyon Road Interchange area (Phase 1). Alternative 4 would also displace a single-family residence in the northwest quadrant of the planned I-15/ Franklin Street interchange in the City. No business displacements would occur under Alternative 4.

**Table 1.Q: Comparison of Alternatives**

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
<p>Traffic and Transportation/ Pedestrian and Bicycle Facilities</p>	<p>The No Build Alternative would not involve any construction activities; therefore, no temporary impacts would occur. The No Build Alternative would not provide any improvements at the existing I-15/Railroad Canyon Road interchange or on Railroad Canyon Road. No construction at the new Franklin Street overpass would occur, nor would there be any improvements to Franklin Street. Therefore, traffic operations at these interchanges, and on Railroad Canyon Road and the project segment of I-15, would continue as they currently exist and would worsen over time. The No Build Alternative will not provide adequate LOS and operational conditions at the study area intersections.</p> <p>The No Build Alternative would not involve any construction; therefore, any proposed bicycle lanes would not be provided unless they are completed as part of a separate local project.</p>	<p><b>Construction</b></p> <p>Traffic delays are expected during project construction for the ramp widening and reconstruction, modifications to local intersections, and the construction of a new interchange. No extended ramp closures are anticipated.</p> <p>Construction of Alternative 2 would temporarily affect traffic on Railroad Canyon Road, Franklin Street, the I-15 mainline, and the I-15 ramps associated with each of the interchanges. Freeway operations may be affected during construction of the ramps, the new I-15/Franklin Street interchange and associated improvements. Limiting construction to off-peak hours would minimize impacts to operation of the I-15 mainline and/or ramps during ongoing construction, if necessary. Temporary nighttime closures of mainline lanes, the on-ramps and off-ramps in either direction, and Railroad Canyon Road may be required during construction.</p> <p>Sidewalk closures on Railroad Canyon Road and Franklin Street and roadwork during construction would affect pedestrian and bicycle access. Staged construction plans would include provisions for maintaining access to existing driveways, pedestrian and bicycle access at all times during construction.</p>	<p><b>Construction</b></p> <p>Traffic delays are expected during project construction for the ramp widening and reconstruction, modifications to local intersections, and the construction of a new interchange. No extended ramp closures are anticipated.</p> <p>Construction of Alternative 3 would temporarily affect traffic on Railroad Canyon Road, Franklin Street, the I-15 mainline, and the I-15 ramps. Freeway operations may be affected during construction of the ramps, construction of the planned I-15/Franklin Street interchange, and associated project improvements. Limiting construction to off-peak hours would minimize impacts to operation of the I-15 mainline and/or ramps during ongoing construction, if necessary. Temporary nighttime closures of mainline lanes, the on-ramps and off-ramps in either direction, and Railroad Canyon Road may be required during construction.</p> <p>Sidewalk closures on Railroad Canyon Road and Franklin Street and roadwork during construction would affect pedestrian and bicycle access. Staged construction plans would include provisions for maintaining access to existing driveways, pedestrian and bicycle access at all times during construction.</p>	<p><b>Construction</b></p> <p>Traffic delays are expected during project construction for the ramp widening and reconstruction, modifications to local intersections, and the construction of a new interchange. Construction of Alternative 4 may require full ramp closure for up to two weeks.</p> <p>Construction of Alternative 4 would temporarily affect traffic on Railroad Canyon Road, Summerhill Drive, Grape Street, Auto Center Drive, Casino Drive, Lakeshore Drive, Mission Trail, Franklin Street, the I-15 mainline, and the I-15 ramps. Freeway operations may be affected during construction of the ramps, construction of the planned I-15/Franklin Street interchange, and associated project improvements. Limiting construction to off-peak hours would minimize impacts to operation of the I-15 mainline and/or ramps during ongoing construction, if necessary. Temporary nighttime closures of mainline lanes, the on-ramps and off-ramps in either direction, and full ramp closures of up to 2 weeks may be required during construction.</p> <p>Sidewalk closures on Railroad Canyon Road, Summerhill Drive, Grape Street, Auto Center Drive, Casino Drive, Lakeshore Drive, Mission Trail, and Franklin Street</p>

Table 1.Q: Comparison of Alternatives

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
		<p><b>LOS</b></p> <p>During the 2019 Opening Year a.m. and p.m. peak hours, the northbound and southbound freeway segments in the study area are projected to operate at LOS D or better, with the exception of the southbound segments between Main Street and Railroad Canyon Road, which operates at LOS E during the p.m. peak hour.</p> <p>During the Design Year 2040 a.m. and p.m. peak hours, the northbound and southbound freeway segments in the study area are projected to operate at LOS D or better.</p> <p>All freeway ramp junctions are projected to operate at LOS D or better during the 2019 Opening Year a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road southbound exit, the Main Street southbound entrance ramp, the northbound Railroad Canyon Road entrance ramp, and the Main Street northbound exit ramp.</p> <p>All freeway ramp junctions are projected to operate at LOS D or better during the Future Year 2040 a.m. and p.m. peak hours, and the southbound Bundy Canyon Road exit ramp (LOS F during the p.m. peak hour). These conditions are not caused by or aggravated by the project, as the freeway ramps are also projected to operate at unsatisfactory conditions under the</p>	<p><b>LOS</b></p> <p>During the 2019 Opening Year a.m. and p.m. peak hours, the northbound and southbound freeway segments in the study area are projected to operate at LOS D or better, with the exception of the southbound segments between Main Street and Railroad Canyon Road, which operates at LOS E during the p.m. peak hour.</p> <p>During the Design Year 2040 a.m. and p.m. peak hours, the northbound and southbound freeway segments in the study area are projected to operate at LOS D or better.</p> <p>All freeway ramp junctions are projected to operate at LOS D or better during the 2019 Opening Year a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road southbound exit, the Main Street southbound entrance ramp, the northbound Railroad Canyon Road entrance ramp, and the Main Street northbound exit ramp.</p> <p>All freeway ramp junctions are projected to operate at LOS D or better during the Future Year 2040 a.m. and p.m. peak hours, with the exception of the southbound Railroad Canyon Road-Casino Drive exit ramp (LOS E during p.m. peak hour) and the southbound Bundy Canyon Road exit ramp (LOS F</p>	<p>and roadwork during construction would affect pedestrian and bicycle access. Staged construction plans would include provisions for maintaining access to existing driveways, pedestrian and bicycle access at all times during construction.</p> <p><b>LOS</b></p> <p>During the 2019 Opening Year a.m. and p.m. peak hours, the northbound and southbound freeway segments in the study area are projected to operate at LOS D or better, with the exception of the southbound segments between Main Street and Rail Road Canyon Road, which operates at LOS E during the p.m. peak hour.</p> <p>During the Design Year 2040 a.m. and p.m. peak hours, the northbound and southbound freeway segments in the study area are projected to operate at LOS D or better.</p> <p>All freeway ramp junctions are projected to operate at LOS D or better during the 2019 Opening Year a.m. and p.m. peak hours, with the exception of the Railroad Canyon Road southbound exit, the Main Street southbound entrance ramp, the northbound Railroad Canyon Road entrance ramp, and the Main Street northbound exit ramp.</p>

**Table 1.Q: Comparison of Alternatives**

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
		<p>No Build Alternative.</p> <p>All freeway merge-weaves are projected to operate at LOS D or better during the Future Year 2040 a.m. and p.m. peak hours, with the exception of one southbound freeway segment, between new Franklin Street and Railroad Canyon Road, which is forecast to operate at LOS E during the p.m. peak hour. These conditions are not caused by or aggravated by the project, as this freeways segment is also projected to operate at unsatisfactory conditions under the No Build Alternative.</p> <p>The intersections of Railroad Canyon Road improve to LOS D or better during the Opening Year 2019 a.m. and p.m. peak hours. Intersections that are outside of the Phase I Railroad Canyon Road area improvements would be operating at unsatisfactory LOS during the a.m. and p.m. peak hours, with or without Phase 1 improvements.</p> <p>All study area intersections are projected to operate at LOS D or better during the a.m. and p.m. peak hours in Future Year 2040, with the exception of the Railroad Canyon Road/Grape Street-Summerhill Drive intersection, which is forecast to operate at LOS E during the p.m. peak hour.</p>	<p>during the p.m. peak hour). These conditions are not caused by or aggravated by the project, as the freeway ramps are also projected to operate at unsatisfactory conditions under the No Build Alternative.</p> <p>All freeway merge-weaves are projected to operate at LOS D or better during the Future Year 2040 a.m. and p.m. peak hours, with the exception of one southbound segment, between new Franklin Street and Railroad Canyon Road, which is forecast to operate at LOS E during the p.m. peak hour. These conditions are not caused by or aggravated by the project, as this freeways segment is also projected to operate at unsatisfactory conditions under the No Build Alternative.</p> <p>The intersections of Railroad Canyon Road improve to LOS D or better during the Opening Year 2019 a.m. and p.m. peak hours. Intersections that are outside of the Phase I Railroad Canyon Road area improvements would be operating at unsatisfactory LOS during the a.m. and p.m. peak hours, with or without Phase 1 improvements.</p> <p>All study area intersections are projected to operate at LOS D or better during the a.m. and p.m. peak hours in Future Year 2040, with the exception of the Railroad</p>	<p>All freeway ramp junctions are projected to operate at LOS D or better during the Future Year 2040 a.m. and p.m. peak hours, and the southbound Bundy Canyon Road exit ramp (LOS F during the p.m. peak hour). These conditions are not caused by or aggravated by the project, as the freeway ramps are also projected to operate at unsatisfactory conditions under the No Build Alternative.</p> <p>All freeway merge-weaves are projected to operate at LOS D or better during the Future Year 2040 a.m. and p.m. peak hours, with the exception of one southbound segment, between new Franklin Street and Railroad Canyon Road, which is forecast to operate at LOS E during the p.m. peak hour. These conditions are not caused by or aggravated by the project, as this freeways segment is also projected to operate at unsatisfactory conditions under the No Build Alternative.</p> <p>The intersections of Railroad Canyon Road improve to LOS B or better during the Opening Year 2019 a.m. and p.m. peak hours. Intersections that are outside of the Phase I Railroad Canyon Road area improvements would be operating at unsatisfactory LOS during the a.m. and p.m. peak hours, with or without Phase 1 improvements.</p>

**Table 1.Q: Comparison of Alternatives**

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
		<p><b>Queuing</b></p> <p>No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at entrance ramps as the total ramp demand does not exceed the total ramp meter rate. No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at exit ramps as the peak hour queue does not exceed the available ramp length.</p> <p>No queuing would occur during the Future Year 2040 a.m. or p.m. peak hours at entrance ramps as the total ramp demand does not exceed the total ramp meter rate. No queuing would occur during the Future Year 2040 a.m. or p.m. peak hours at exit ramps as the peak hour queue does not exceed the available ramp length.</p> <p><b>Pedestrian and Bicycle Facilities</b></p> <p>Within the project limits, existing nonstandard curb ramps would be upgraded to conform to ADA requirements. New curb ramps would meet ADA requirements. In addition, all planned new sidewalks would meet the requirements to provide ADA access. These features would improve pedestrian</p>	<p>Canyon Road/Grape Street-Summerhill Drive intersection, which is forecast to operate at LOS E during the p.m. peak hour.</p> <p><b>Queuing</b></p> <p>No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at entrance ramps as the total ramp demand does not exceed the total ramp meter rate. No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at exit ramps as the peak hour queue does not exceed the available ramp length.</p> <p>No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at entrance ramps as the total ramp demand does not exceed the total ramp meter rate. No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at exit ramps as the peak hour queue does not exceed the available ramp length.</p> <p><b>Pedestrian and Bicycle Facilities</b></p> <p>Within the project limits, existing nonstandard curb ramps would be upgraded to conform to ADA requirements. New curb ramps would meet ADA requirements. In addition, any new sidewalks that are planned would be designed per ADA standards and requirements. These features</p>	<p>All study area intersections are projected to operate at LOS D or better during the a.m. and p.m. peak hours in Future Year 2040.</p> <p><b>Queuing</b></p> <p>No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at entrance ramps as the total ramp demand does not exceed the total ramp meter rate. No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at exit ramps as the peak hour queue does not exceed the available ramp length.</p> <p>No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at entrance ramps as the total ramp demand does not exceed the total ramp meter rate. No queuing would occur during the Opening Year 2019 a.m. or p.m. peak hours at exit ramps as the peak hour queue does not exceed the available ramp length.</p> <p><b>Pedestrian and Bicycle Facilities</b></p> <p>Within the project limits, existing nonstandard curb ramps would be upgraded to conform to ADA requirements. New curb ramps would meet ADA requirements. In addition, any new sidewalks that are planned would be designed per ADA standards and requirements. These features</p>

**Table 1.Q: Comparison of Alternatives**

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
		<p>access at both interchanges. Railroad Canyon Road is identified as a Class II bicycle facility. Planned new bicycle facility features that are incorporated into the project design would be consistent with the City of Lake Elsinore General Plan and would improve bicycle access in the interchange areas.</p>	<p>would improve pedestrian access at both interchanges. Railroad Canyon Road is identified as a Class II bicycle facility. Planned new bicycle facility features that are incorporated into the project design would be consistent with the City of Lake Elsinore General Plan and would improve bicycle access in the interchange areas.</p>	<p>would improve pedestrian access at both interchanges. Railroad Canyon Road is identified as a Class II bicycle facility. Planned new bicycle facility features that are incorporated into the project design would be consistent with the City of Lake Elsinore General Plan and would improve bicycle access in the interchange areas.</p>
<p>Visual and Aesthetics</p>	<p>The No Build Alternative does not include any changes to the physical environment; therefore, no temporary or permanent impacts to visual resources would occur.</p>	<p>Visual impacts associated with Alternative 2 would result from construction activities, including the presence of equipment, materials, and workers at the freeway interchange and staging areas, and along the streets and roads leading to the interchange. Visual impacts due to construction activities would also result from the temporary alteration of landforms and vegetation within the project area.</p> <p>Implementation of Alternative 2 would not result in adverse visual impacts with implementation of Minimization Measures.</p>	<p>Visual impacts associated with Alternative 3 would result from construction activities, including the presence of equipment, materials, and workers at the freeway interchange and staging areas, and along the streets and roads leading to the interchange. Visual impacts due to construction activities would also result from the temporary alteration of landforms and vegetation within the project area. The primary difference in temporary impacts under Alternative 3 is the demolition and construction activity that would occur at the Casino Drive ramps. Construction and demolition activities would not occur at the Casino Drive ramps under Alternative 2.</p> <p>Implementation of Alternative 3 would not result in adverse visual impacts with implementation of Minimization Measures.</p>	<p>As described under Alternative 2, visual impacts would result from construction activities, including the presence of equipment, materials, and workers at the freeway interchange and staging areas, and along the streets and roads leading to the interchange. Visual impacts due to construction activities would also result from the temporary alteration of landforms and vegetation within the project area. The primary difference in temporary impacts under Alternative 4 is the construction activity and temporary closures that would occur at the intersections at Railroad Canyon Road with Lakeshore Drive, Casino Drive, and Summerhill Road, as well as I-15 on- and off-ramps. Construction activities would not occur at these intersections under either Alternative 2 or Alternative 3.</p> <p>Implementation of Alternative 4 would not result in adverse visual impacts with implementation of Minimization Measures.</p>

Table 1.Q: Comparison of Alternatives

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Water Quality and Storm Water Runoff	The No Build Alternative would not result in change in impervious surface area or require temporary soil disturbance, a change in pollutant loading, volume of storm water runoff, a requirement for the addition of Treatment BMPs, or result in potential improvement to water quality.	During construction, the total disturbed area from Alternative 2 would be approximately 41.1 acres. The existing surface area within the project area is 36.3 acres. Alternative 2 would create approximately 18.8 acres of new impervious surface, bringing the total amount of impervious surfaces within the project area to 55.1 acres. Runoff from the proposed project would be expected to contain higher concentrations of metals and oil and grease and lower levels of bacteria, viruses, nutrients, and pesticides compared to existing conditions.	During construction, the total disturbed area from Alternative 3 would be approximately 42.0 acres. The existing impervious surface area within the project area is 36.3 acres. Alternative 3 would create approximately 20.7 acres of new impervious surface, bringing the total amount of impervious surfaces within the project area to 57.0 acres. Stormwater runoff in the area would be expected to contain higher concentrations of metals and oil and grease and lower levels of bacteria, viruses, nutrients, and pesticides compared to existing conditions.	During construction, the total disturbed area from Alternative 4 would be approximately 41.0 acres. Cut-and-fill impacts associated with Alternative 4 would be the same as those identified for Alternative 2. The existing impervious surface area within the project area is 36.3 acres. Alternative 4 would create approximately 18.2 acres of new impervious surface, bringing the total amount of impervious surfaces within the project area to 54.5 acres. Stormwater runoff in the area would be expected to contain higher concentrations of metals and oil and grease and lower levels of bacteria, viruses, nutrients, and pesticides compared to existing conditions.
Noise	Under the No Build Alternative, there would be no construction and no temporary project-related noise generated. Six receptors would or would continue to approach or exceed the NAC under the No Build Alternative future year conditions.	<p>The worst-case composite noise level at the nearest residence during this phase of construction would be 88 dBA <math>L_{max}</math> at a distance of 50 ft from an active construction area.</p> <p>Under the future with project conditions, of the modeled receptors, 9 receptors would approach or exceed the 67 dBA <math>L_{eq}</math> NAC. Of the modeled receptors, one of the sensitive receptors would approach or exceed the NAC under Activity Category C.</p> <p>Interior noise levels at a church, school, and two medical facilities under Alternative 2 traffic conditions would not approach or</p>	<p>The worst-case composite noise level at the nearest residence during this phase of construction would be 88 dBA <math>L_{max}</math> at a distance of 50 ft from an active construction area.</p> <p>Under the future with project conditions, of the modeled receptors, 10 receptors would approach or exceed the NAC under Activity Category B, which has an exterior NAC of 67 dBA <math>L_{eq}</math> for residential uses. Of the modeled receptors, none of the sensitive receptors would approach or exceed the NAC under Activity Category C, which has an exterior NAC of 72 dBA <math>L_{eq}</math>.</p>	<p>The worst-case composite noise level at the nearest residence during this phase of construction would be 88 dBA <math>L_{max}</math> at a distance of 50 ft from an active construction area.</p> <p>Under the future with project conditions, of the modeled receptors, 8 receptors would approach or exceed the 67 dBA <math>L_{eq}</math> NAC. Of the modeled receptors, one of the sensitive receptors would approach or exceed the NAC under Activity Category C.</p> <p>Interior noise levels at a church, school, and two medical facilities under Alternative 4 traffic</p>

**Table 1.Q: Comparison of Alternatives**

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
		<p>exceed 52 dBA <math>L_{eq}</math> NAC. Therefore, no noise abatement measures for these buildings are required.</p> <p>Of the seven modeled noise barriers evaluated for Alternative 2, four noise barriers were capable of reducing noise levels by 5 dBA or more, as required to be considered feasible. Noise Barrier Nos. 2-1, 2-2B, and 2-5 were determined to not be feasible because the barrier would not reduce noise levels by 5 dBA or more.</p> <p>None of the feasible noise barriers under Alternative 2 were determined to be reasonable because the estimated noise barrier construction cost exceeded the total reasonable allowance.</p>	<p>Interior noise levels at all four hotels under Alternative 3 traffic conditions would not approach or exceed 52 dBA <math>L_{eq}</math> NAC. Therefore, no noise abatement measures for the hotel rooms are required. Of the four modeled noise barriers evaluated under Alternative 3, three noise barriers were capable of reducing noise levels by 5 dBA or more, as required to be considered feasible.</p> <p>None of the feasible noise barriers under Alternative 3 were determined to be reasonable because the estimated noise barrier construction cost exceeded the total reasonable allowance.</p>	<p>conditions would not approach or exceed 52 dBA <math>L_{eq}</math> NAC. Therefore, no noise abatement measures for these buildings are required.</p> <p>Of the six modeled noise barriers evaluated for Alternative 4, four noise barriers were capable of reducing noise levels by 5 dBA or more, as required to be considered feasible. Noise Barrier Nos. 4-2B, and 4-5 were determined to not be feasible because the barrier would not reduce noise levels by 5 dBA or more.</p> <p>None of the feasible noise barriers under Alternative 4 were determined to be reasonable because the estimated noise barrier construction cost exceeded the total reasonable allowance.</p>
Hazardous Waste/Materials	Under the No Build Alternative, there would be no change to the existing site conditions. Therefore, no potentially hazardous waste/materials would be generated or encountered during acquisition of needed additional property or construction as a result of the project.	Alternative 2 would involve disturbance of existing soils and structures; therefore, hazardous soil contaminants (LBP and ADL) and structural materials (PCBs, LBP, and ACM) may be encountered during project construction. Typical hazardous materials used during construction (e.g., solvents, paints, and fuels) would be handled in accordance with standard procedures. There are standard regulations and Caltrans policies (avoidance and minimization measures) that must be followed with respect to the use,	Alternative 3 would also involve disturbance of existing soils and structures; therefore, hazardous soil contaminants (ADL and LBP) and structural materials (PCBs, LBP, and ACM) may be encountered during project construction. Typical hazardous materials used during construction (e.g., solvents, paints, and fuels) would be handled in accordance with standard procedures. There are standard regulations and Caltrans policies (avoidance and minimization measures) that must	Alternative 4 would also involve disturbance of existing soils and structures; therefore, hazardous soil contaminants (ADL and LBP) and structural materials (PCBs, LBP, and ACM) may be encountered during project construction. Typical hazardous materials used during construction (e.g., solvents, paints, and fuels) would be handled in accordance with standard procedures. There are standard regulations and Caltrans policies (avoidance and minimization measures) that must

Table 1.Q: Comparison of Alternatives

Issue	Alternative 1 (No Build)	Alternative 2 (Preferred)	Alternative 3	Alternative 4
		<p>storage, handling, disposal, and transport of potentially hazardous materials during implementation of Alternative 2 to protect human health and the environment.</p> <p>Routine maintenance activities during operation of the proposed project would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, implementation of Alternative 2 would not result in adverse impacts related to hazardous waste or materials.</p>	<p>be followed with respect to the use, storage, handling, disposal, and transport of potentially hazardous materials during construction of Alternative 3 to protect human health and the environment.</p> <p>Routine maintenance activities during operation of the proposed project follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, implementation of Alternative 3 would not result in adverse impacts related to hazardous waste or materials.</p>	<p>be followed with respect to the use, storage, handling, disposal, and transport of potentially hazardous materials during construction of Alternative 4 to protect human health and the environment.</p> <p>Routine maintenance activities during operation of the proposed project follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, implementation of Alternative 4 would not result in adverse impacts related to hazardous waste or materials.</p>
Cost	There would be no construction and no final design and construction costs.	The estimated cost to construct Alternative 2 is \$97.35 million.	The estimated cost to construct Alternative 3 is \$110.4 million.	The estimated cost to construct Alternative 4 is \$95.65 million.

ADA = Americans with Disabilities Act  
 Caltrans = California Department of Transportation  
 City = City of Lake Elsinore  
 ft = foot/feet  
 I-15 = Interstate 15

LOS = level of service  
 sf = square feet  
 TCE = temporary construction easements

### 1.5.2.1 General Design Differences

Alternative 2 consists of the reconstruction of the northbound ramps to a hook configuration to Grape Street, elimination of the existing northbound ramps at Railroad Canyon Road, maintaining a diamond configuration for the southbound ramps at Railroad Canyon Road, construction of a new interchange at Franklin Street, and realignment of the Main Street southbound entrance ramp. Similarly, Alternative 3 consists of the reconstruction of the northbound ramps to a hook configuration to Grape Street, elimination of the existing northbound ramps at Railroad Canyon Road, construction of a new interchange at Franklin Street, and realignment of the Main Street southbound entrance ramp. However, instead of maintaining the diamond configuration for the southbound ramps at Railroad Canyon Road, Alternative 3 proposes to reconstruct the southbound ramps to a hook configuration to Casino Drive and eliminate the existing southbound ramps at Railroad Canyon Road. Alternative 4 proposes to reconstruct five consecutive signal-controlled intersections into yield-controlled intersections roundabouts, including at the existing northbound and southbound ramps. The existing diamond configuration at the Railroad Canyon Road interchange will be reconstructed and slightly realigned to accommodate the roundabout design.

For Alternative 2, the northbound exit ramp at Railroad Canyon Road includes a 1,300 ft deceleration lane which opens up to two lanes and eventually three lanes at its intersection with Railroad Canyon Road, west of Grape Street. The northbound entrance ramp west of Grape Street is a three lane entry ramp comprised of an HOV bypass lane and two metered lanes and tapers down to one lane into the auxiliary lane to merge with I-15 mainline. The southbound exit ramp at Railroad Canyon Road will be modified to a two lane exit ramp which opens up to three lanes at its intersection with Railroad Canyon Road. The southbound entrance ramp at Railroad Canyon Road will be widened to a three lane entry ramp comprised of one HOV bypass lane and two metered lanes and tapers down to one lane into the auxiliary lane to merge with I-15 mainline. The entrance ramps will provide for a 1,000 ft acceleration lane.

Alternative 2 includes the widening of Railroad Canyon Road under the freeway to eight travel lanes (three lanes in each direction with dual left-turn lanes to the southbound entrance ramp), the widening of the existing southbound entrance ramp to three lanes departing Railroad Canyon Road and tapering to one acceleration lane before entering the freeway, and widening of the existing southbound exit ramp to two lanes exiting the freeway, widening to four lanes approaching Railroad Canyon Road. Alternative 3 includes the widening of Railroad Canyon Road under the freeway to six travel lanes (three lanes in each direction), elimination of the existing southbound entrance and exit ramp at Railroad Canyon Road, and construction of new hook ramps connecting to Casino Drive with a southbound acceleration lane. Alternative 4 proposes to reconstruct five consecutive signal-controlled intersections into yield-controlled roundabouts generally following the existing alignment of Railroad Canyon Road. Widening of the existing Railroad Canyon Road would occur under Alternative 4; however, this alternative would retain 4 travel lanes (two in each direction) throughout the alignment crossing underneath I-15.

## 1.6 Identification of the Preferred Alternative

The Draft IS/EA prepared and approved for the I-15/Railroad Canyon Road Interchange Improvement Project, was circulated for public review and comment between January 12 and February 13, 2017. In addition to meeting the project's purpose and need, the identification of the Preferred Alternative was based upon the following factors:

- Community impacts, including right-of-way acquisition and displacements
- Operational performance

- Severity of impacts
- Project cost

With respect to the project's potential community impacts, Alternative 2 has the least amount of property acquisitions and would result in no additional residential displacements compared to Alternatives 3 and 4 and fewer business displacements than Alternative 3. Alternative 2 is anticipated to result in displacement of 1 residence and no businesses, and anticipated to potentially require full acquisition of 12 parcels. Alternative 3 would be anticipated to require displacement of 1 residence and 2 businesses, and would be anticipated to potentially require full acquisition of 13 parcels. Alternative 4 would be anticipated to displace 1 residence and no businesses, and would potentially require full acquisition of 13 parcels. As identified in the Draft IS/EA, minimizing right-of-way acquisition and business displacements was one of the specific evaluation criteria for the project.

Alternative 2 would improve operation and reduce future congestion at the I-15/Railroad Canyon Road interchange. All mainline segments and study area intersections would operate at acceptable LOS upon completion of Phase 2. One freeway ramp junction, Railroad Canyon Road Southbound Exit Ramp, would operate at LOS E during the p.m. peak hour. When compared to Alternatives 3 and 4, Alternative 2 would provide similar operational performance. As identified in the Draft IS/EA, operational performance was one of the specific evaluation criteria for the project.

### 1.6.1 Alternatives Considered But Eliminated from Further Discussion

Several Build Alternatives have been studied over the past several years. A Value Analysis Study was conducted for the project in the summer of 2006, which included coordination from Caltrans, the City of Lake Elsinore, and consultants. The Value Analysis Study was approved on October 2006 and recommended the following alternatives as summarized in Table 1.R:

**Table 1.R: Value Analysis Alternatives Considered**

Alternative	Conclusion
Single Point (Urban) Interchange	The PDT agreed to further investigate this alternative, but was later discarded because of poor LOS operation and not meeting the purpose and need of the project.
Tight Diamond Interchange	The PDT agreed to discard as not viable due to poor operational LOS.
Realign the Northbound Entrance Ramps and Exit Ramps with Summerhill Drive	The PDT agreed to discard as not viable due to environmental and right-of-way impacts to existing recently constructed businesses.
New Split Diamond Interchange at the existing Franklin Street overcrossing	The PDT agreed to discard as not viable due to non-standard design features.
New Full Movement Interchange at the existing Franklin Street overcrossing	The PDT agreed to further investigate this alternative, but was discarded at FHWA's request to construct a new interchange approximately 0.2 mile north of the existing Franklin Street overcrossing.
New Full Movement Interchange at Franklin Street with Braided Ramps to Railroad Canyon Road	The PDT agreed to discard as not viable due to environmental and right-of-way impacts to existing recently constructed businesses.
New Overcrossing at Malaga Road	The PDT agreed to further investigate this alternative, but was later discarded because of poor LOS operation and not meeting the purpose and need of the project.
Make Casino Drive a Right In/Right Out Access using a Raised Median	The PDT agreed to discard as not viable due to environmental and right-of-way impacts to existing recently constructed businesses.

LOS = level of service

PDT = Project Development Team

In the spring and summer of 2008, a *Draft Traffic Impact Analysis* (June 2008) was prepared that outlined the various scenarios and alternatives that would be further investigated as identified in Table 1.R. The *Draft Traffic Impact Analysis* investigated the following four scenarios:

- **Scenario A:** This scenario assumes that there will be improvements only at the I-15/Railroad Canyon Road interchange.
- **Scenario B:** This scenario assumes that there will be improvements at the I-15/Railroad Canyon Road interchange, and a new interchange will be constructed at the existing Franklin Street at I-15 overcrossing.
- **Scenario C:** This scenario assumes that there will be improvements at the I-15/Railroad Canyon Road interchange, and a new overcrossing will be constructed at Malaga Road at I-15.
- **Scenario D:** This scenario assumes that there will be improvements at the I-15/Railroad Canyon Road interchange, a new interchange will be constructed at the existing Franklin Street at I-15, and a new overcrossing will be constructed at Malaga Road at I-15.

A summary of the previous alternatives that were associated with each of the above scenarios is included in Table 1.S.

**Table 1.S: Alternatives Eliminated from Further Consideration**

<b>Alternative</b>	<b>Alternative Description</b>
Alternative 2A	Reconstruct the existing diamond configuration.
Alternative 2B	Reconstruct the existing diamond configuration with a new interchange at Franklin Street.
Alternative 2C	Reconstruct the existing diamond configuration with a new overcrossing at Malaga Road.
Alternative 2D	Reconstruct the existing diamond configuration with a new interchange at Franklin Street and a new overcrossing at Malaga Drive.
Alternative 3A	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, and maintain a diamond configuration for the southbound ramps at Railroad Canyon Road.
Alternative 3B	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, and maintain a diamond configuration for the southbound ramps at Railroad Canyon Road with a new interchange at Franklin Street.
Alternative 3C	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, and maintain a diamond configuration for the southbound ramps at Railroad Canyon Road with a new overcrossing at Malaga Road.
Alternative 3D	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, and maintain a diamond configuration for the southbound ramps at Railroad Canyon Road with a new interchange at Franklin Street and a new overcrossing at Malaga Drive.
Alternative 4A	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road.
Alternative 4B	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road with a new interchange at Franklin Street.

**Table 1.S: Alternatives Eliminated from Further Consideration**

<b>Alternative</b>	<b>Alternative Description</b>
Alternative 4C	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road with a new overcrossing at Malaga Road.
Alternative 4D	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road with a new interchange at Franklin Street and a new overcrossing at Malaga Drive.
Alternative 5A	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, construct a new southbound loop exit ramp to Railroad Canyon Road, construct a new southbound entrance ramp from Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road.
Alternative 5B	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, construct a new southbound loop exit ramp to Railroad Canyon Road, construct a new southbound entrance ramp from Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road with a new interchange at Franklin Street.
Alternative 5C	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, construct a new southbound loop exit ramp to Railroad Canyon Road, construct a new southbound entrance ramp from Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road with a new overcrossing at Malaga Road.
Alternative 5D	Reconstruct the northbound ramps to a hook configuration to Grape Street, widen the existing northbound entrance ramp at Railroad Canyon Road, construct a new southbound loop exit ramp to Railroad Canyon Road, construct a new southbound entrance ramp from Casino Drive, and widen the existing southbound exit ramp at Railroad Canyon Road with a new interchange at Franklin Street and a new overcrossing at Malaga Drive.
Alternative 6A	Reconstruct the existing configuration to a single point interchange.
Alternative 6B	Reconstruct the existing configuration to a single point interchange with a new interchange at Franklin Street.
Alternative 6C	Reconstruct the existing configuration to a single point interchange with a new overcrossing at Malaga Road.
Alternative 6D	Reconstruct the existing configuration to a single point interchange with a new interchange at Franklin Street and a new overcrossing at Malaga Drive.

An Alternative Reduction Workshop was held on September 23–24, 2008, with representatives from Caltrans Design, Traffic Operations, Planning, Environmental and the City of Lake Elsinore. At the Alternative Reduction Workshop, all alternatives for Scenarios A, C, and D were discarded. In addition, Alternatives 2 and 6 were discarded. Alternatives 3B, 4B, and 5B were modified, as recommended by the Alternative Reduction Workshop team, and as described below:

- **New Alternative 2 (Previous Alternative 3B):** Reconstruct the northbound ramps to a hook configuration to Grape Street, eliminate the existing northbound exit/entrance ramps at Railroad Canyon Road, maintain a diamond configuration for the southbound ramps at Railroad Canyon Road, and construct a new interchange at Franklin Street.
- **New Alternative 3 (Previous Alternative 4B):** Reconstruct the northbound ramps to a hook configuration to Grape Street, eliminate the existing northbound exit/entrance ramps at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Casino

Drive, eliminate the existing southbound exit/entrance ramp at Railroad Canyon Road, and construct a new interchange at Franklin Street.

- **New Alternative 4 (Previous Alternative 5B):** Reconstruct the northbound ramps to a hook configuration to Grape Street, eliminate the existing northbound exit/entrance ramp at Railroad Canyon Road, reconstruct the southbound ramps to a hook configuration to Auto Center Drive, eliminate the existing southbound exit/entrance ramps at Railroad Canyon Road, and construct a new interchange at Franklin Street.

In October 2008, the FHWA recommended the following items be incorporated into the project:

- Move the new Franklin Street overcrossing/interchange approximately 0.22 mile north of its current location, which would provide 1.0-mile interchange spacing between Railroad Canyon Road and the new Franklin Street and 0.9 mile between Main Street and Franklin Street.
- Eliminate the existing northbound entrance ramp at Railroad Canyon Road for Alternatives 2 and 3.
- Eliminate the existing southbound exit ramp at Railroad Canyon Road for Alternative 3.

All of the FHWA recommendations were incorporated into Alternatives 2 and 3. In the spring of 2009, the *Draft Traffic Impact Analysis* was revised to address the four alternatives; and the PDT, in agreement with the City of Lake Elsinore, agreed to discard New Alternative 4. Alternative 4 was discarded for the following reasons:

- Environmental impacts to the San Jacinto River.
- Non-standard interchange spacing between Railroad Canyon Road to Franklin Street and Franklin Street to Main Street.
- Non-standard merge-diverge distance between the southbound Main Street entrance ramp and the new Franklin Street southbound exit ramp.
- Right-of-way impacts to existing business.

## 1.7 Stage Construction

Conceptual Stage Construction plans will be prepared and included in the project PS&E. Preliminary Staging Concept plans have been prepared for Alternative 2 and reviewed by the City of Lake Elsinore. There are no long-term detours anticipated for the project. Temporary nighttime full ramp or Railroad Canyon Road closures to erect/remove bridge falsework or place K-rail barriers will be required for Alternative 2. Full ramp closures will be planned for 10 consecutive calendar days or less for Alternative 2. In addition to contract items for traffic control, the Engineer's estimate will include supplemental funds for "Maintaining Traffic." All work can be accomplished using the "Manual on Uniform Traffic Control Devices for Streets and Highways, Temporary Traffic Control," and supplemented by Caltrans Standard Plans (T-Series) and the project PS&E.

Because the entire project is being divided into two viable cost-effective phases with logical termini, the stage construction is itemized below for each phase project:

## **Alternative 2, Phase 1 Project – Railroad Canyon Road Interchange Area**

### **Stage 1**

- Maintain traffic on all existing roadway facilities
- Construct portions of the new northbound Grape Street ramps and related bridge structure
- Construct non-conflicting widening and other improvements using standard shoulder closures at the southbound ramps
- Construct non-conflicting widening and other improvements using standard shoulder closures, including retaining wall, at Railroad Canyon Road
- Construct traffic signal at the new intersection of Grape Street and the northbound ramps

### **Stage 2**

- Close the northbound exit ramp at Railroad Canyon Road and detour traffic to Main Street
- Construct the remaining portions of the new Grape Street ramps
- Complete the traffic signal at the new intersection of Grape Street and the northbound ramps and activate new signal
- Close the southbound entrance ramp and detour traffic to Main Street and Bundy Canyon Road and construct the remaining portions of the southbound exit ramp

### **Stage 3**

- Remove existing northbound entrance ramp
- Complete traffic signal work and interconnect

## **Alternative 2, Phase 2 Project – New Franklin Street and Main Street Interchange Area**

### **Stage 1**

- Construct the new Franklin Street overcrossing, ramps, and new frontage road system, while maintaining existing traffic on all existing roadway facilities
- Construct non-conflicting widening and other improvements at the southbound Main Street entrance ramp

### **Stage 2**

- Close the southbound entrance ramp at Main Street and detour traffic to the new Franklin Street southbound entrance ramp
- Construct the remaining portions of the southbound Main Street entrance ramp

## **1.8 Permits and Approvals Needed**

Table 1.T lists the permits, reviews, and approvals that are or may be required prior to construction of the project.

**Table 1.T: Permits and/or Approvals Needed**

<b>Agency</b>	<b>Permit/Approval</b>	<b>Status</b>
State Water Resources Control Board (SWRCB)	Section 402 NPDES (Construction Activity)	Application and Notice of Intent will be submitted prior to construction.
Santa Ana Regional Water Quality Control Board (RWQCB)	Section 401 Certification or Waiver	The City will submit the application to the RWQCB after approval of the Final Environmental Document. The City will coordinate with the RWQCB to obtain water quality certification during final design. The RWQCB will provide comments on the application. Meetings between the City and the RWQCB will be held if necessary during final design. The City will obtain the certification or waiver from the RWQCB during final design and will implement the requirements included in the certification or waiver.
United States Army Corps of Engineers (USACE)	Section 404 Permit, Nationwide (NWP)	The Preliminary Jurisdictional Delineation was submitted to the USACE on July 6, 2017. Caltrans will obtain the Preliminary Jurisdictional Determination from USACE during the PS&E phase. In addition, prior to obtaining grading permits, the City will submit a Pre-Construction Notification form to the USACE to obtain coverage under NWPs 14 and 33, pursuant to Section 404 of the Federal Clean Water Act.
United States Fish and Wildlife Service (USFWS)	Multiple Species Habitat Conservation Plan (MSHCP) Consistency Determination	Caltrans submitted a request for an MSHCP Consistency Determination and Determination of Biologically Equivalent or Superior Preservation (DBESP) to USFWS on December 28, 2016, and resubmitted the revised documents on June 30, 2017. USFWS issued a letter concurring that the project was consistent with the MSHCP and DBESP on August 14, 2017.
California Department of Fish and Wildlife (CDFW)	Section 1602  MSHCP Consistency Determination	Application will be submitted after Environmental Document approval. The City will coordinate with CDFW to obtain agreement regarding riparian habitat impacts and mitigation.  Caltrans submitted a request for an MSHCP Consistency Determination and Determination of Biologically Equivalent or Superior Preservation (DBESP) to CDFW on December 28, 2016, and resubmitted the revised documents on June 30, 2017. CDFW issued a letter concurring that the project was consistent with the MSHCP and DBESP on August 14, 2017.
Federal Highway Administration (FHWA)	Air Quality Conformity Determination	The Air Quality Conformity report was submitted to the FHWA on June 28, 2017. The FHWA approved the project-level air quality conformity determination on July 24, 2017.
California Department of Transportation (Caltrans)	Construction Encroachment Permit	Application for a Caltrans construction encroachment permit will be submitted by the City prior to construction.

Caltrans = California Department of Transportation  
City = City of Lake Elsinore  
IS/EA = Initial Study/Environmental Assessment  
NPDES = National Pollutant Discharge Elimination System  
PS&E = Plans, Specifications, and Estimates