Colton Crossing Rail to Rail Grade Separation Project

CITY OF COLTON
SAN BERNARINO COUNTY, CALIFORNIA

Environmental Assessment

Prepared by the
Federal Highway Administration
In Cooperation with the Federal Railroad Administration (FRA)

March 2011

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General Information About This Document

What's in this document:

The Federal Highway Administration (FHWA), in cooperation with the Federal Railroad Administration (FRA) and coordination with the San Bernardino Associated Governments (SANBAG)and the California Department of Transportation (Department or Caltrans) has prepared this Environmental Assessment (EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in San Bernardino County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or compensation measures.

What you should do:

- Please the read the Environmental Assessment. Additional copies of this document, as well as the technical studies, are available for review at the following locations:

  Caltrans District 8
  Environmental Studies/Support B
  464 W. 4th Street, MS 821
  San Bernardino, California 92401

  SANBAG
  1170 W. 3rd Street, 2nd Floor
  San Bernardino, California 92410-1715

  City of Colton
  Public Works Department
  650 N La Cadena Drive
  Colton, California 92324

  City of Colton
  Main Library
  656 9th Street
  Colton, California 92324

  City of Colton
  Luque Branch Library
  294 E. O Street
  Colton, California 92324

- We welcome your comments. If you have any comments regarding the proposed project, please send your written comments to the SANBAG by the deadline.
  - Submit comments via postal mail to San Bernardino Associated Governments, 1170 W. 3rd Street, 2nd Floor, San Bernardino, California 92410-1715: Attn: Jane Dreher, Public Information Officer.
  - Submit comments via email to : jdreher@sanbag.ca.gov.
  - Submit comments by the deadline: April 25, 2011.

What Happens Next:

After comments are received from the public and reviewing agencies, the Department, as FHWA's representative, and in cooperation with SANBAG and FRA will respond to comments, prepare the final environmental document and may: 1) give environmental approval to the proposed project, 2) undertake additional environmental studies, or 3) abandon the project. If the project is given environmental approval and funding is appropriated, part, or all, of the project can be designed and constructed.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Jane Dreher, Public Information Officer, SANBAG, 1170 W. 3rd Street, 2nd Floor, San Bernardino, California 92410-1715. Phone (909) 884-8276

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Colton Crossing Rail to Rail Grade Separation Project in the City of Colton, San Bernardino County, California

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to the:
National Environmental Policy Act (Federal) 42 USC 4332(2)(c)

by the
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

in coordination with
THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies
Federal Railroad Administration

March 23, 2011
Date of Approval

for WALTER C. WAIDELICH, JR.
Division Administrator, California Division
Federal Highway Administration

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Chapter 1 Proposed Project

1.1 Introduction

The Federal Highway Administration (FHWA), in cooperation with the Federal Railroad Administration (FRA) and coordination with the San Bernardino Associated Governments (SANBAG)and the California Department of Transportation (Department or Caltrans) proposes to grade-separate two existing mainline tracks, which run perpendicular to one another. The proposed project is called the Colton Crossing Rail to Rail Grade Separation (also referred to as the proposed project).

In the City of Colton, San Bernardino County, California, two Burlington Northern Santa Fe Railway (BNSF) San Bernardino Subdivision mainline tracks running in a north-south direction cross at-grade perpendicularly to two Union Pacific Railroad (UPRR) Alhambra/Yuma Subdivision mainline tracks running in an east-west direction. The crossing of these sets of tracks is known as the “Colton Crossing”. A substantial portion of freight movements between the Los Angeles area, the Inland Empire, and points east, north, and south must pass through the Colton Crossing. The at-grade nature of the Colton Crossing is an operational constraint bottleneck that results in delays to the regional rail network where these two heavily traveled rail lines intersect. Figure 1.1 shows project location and vicinity maps. The proposed project would grade-separate the UPRR tracks from the BNSF tracks to improve the operational efficiency of each line.

The estimated total project cost is $202 million. The proposed funding is $91.3 million from the Trade Corridor Improvement Fund (TCIF), $33.8 million from the Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant Program, $73.2 million provided by UPRR and BNSF and $3.7 million of State funds. The TCIF was established as part of the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 (also known as Proposition 1B) approved by California voters in November 2006. The TIGER Grant Program was established as part of the Federal American Recovery and Reinvestment Act of 2009. The project is listed in the 2008 Regional Transportation Plan (RTP) and 2011 Federal Transportation Improvement program (FTIP), project ID number 150D.

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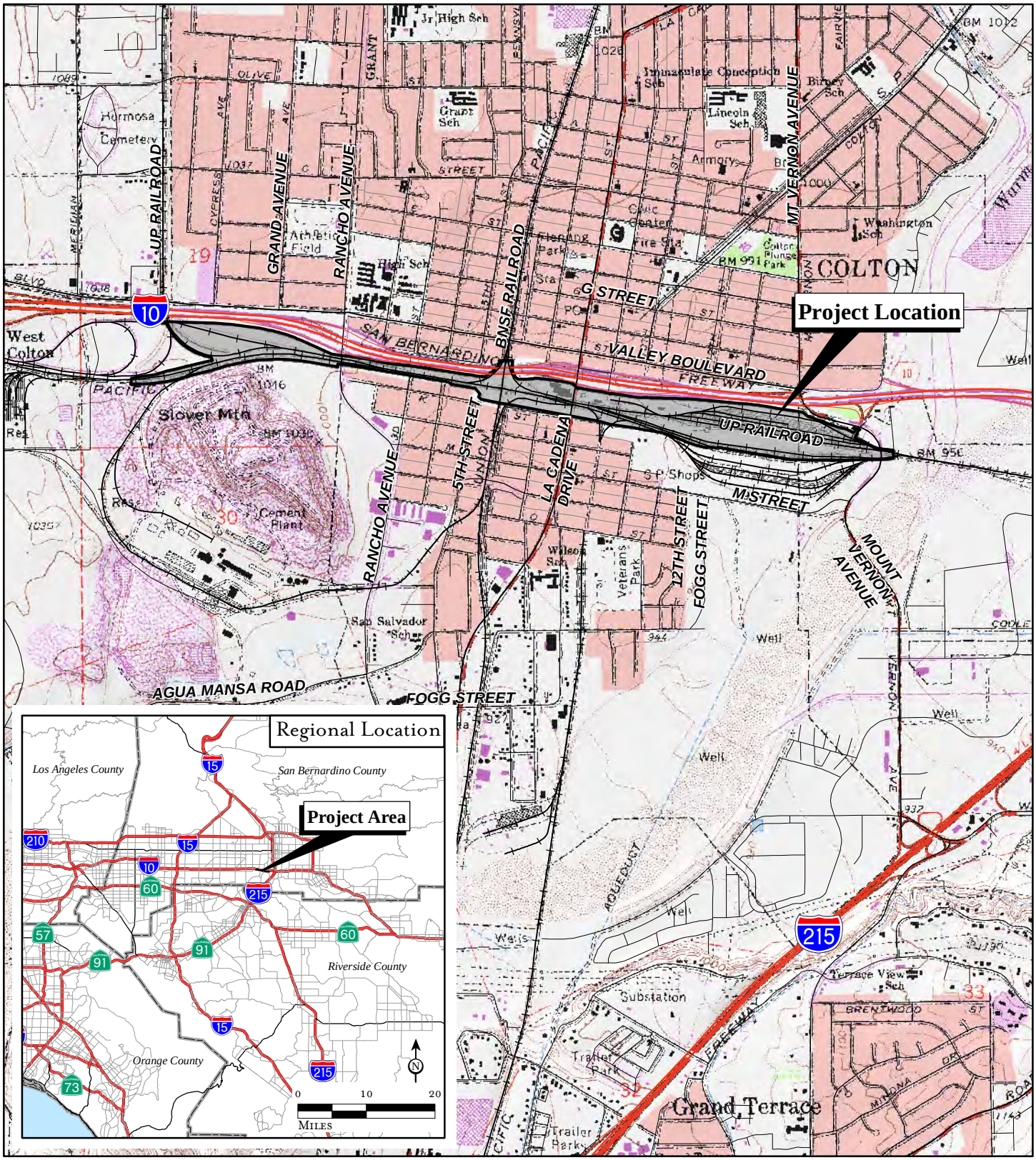

FIGURE 1.1

0 1,000 2,000
FEET

SOURCE: USGS 7.5' Quad: San Bernardino South, 1980, CA; Thomas Bros., 2009.

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Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Regional and Project Location

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1.1.1 Existing Facility

The UPRR tracks, located within the study area, run west to east and south of Interstate 10 (1-10). The project study area for the purpose of this study is from approximately 3,100 feet west of Rancho Avenue to approximately 180 feet east of Mount Vernon Avenue to the east. As detailed in Figure 1.2, there are currently two mainline UPRR tracks that run to the west of the Colton Crossing in the study area. At the western edge of the project study area, the existing mainline UPRR tracks connect to the UPRR Palmdale Cutoff Track through the Palmdale Cutoff Wye. Also in this area, the UPRR Bypass track, which allows trains to bypass the West Colton Yard located on the south side of I-10 west of Rancho Avenue, extends under the UPRR Palmdale cutoff track.

Just west of the Colton Crossing the existing mainline UPRR tracks are connected to the mainline BNSF tracks by a Wye Connection Track. This connection track runs underneath the I-10 Freeway Bridge, and becomes the third mainline BNSF track north of I-10.

East of the Colton Crossing, a connection track branches from the south off the easternmost BNSF mainline to become a third UPRR mainline through the corridor east of the crossing. This track provides connection to and from the UPRR Old Colton Rail Yard, located south of I-10 west of Mount Vernon Avenue, and allows connectivity between the BNSF and UPRR lines through the southeast quadrant of the Colton Crossing.

The UPRR mainline cross the BNSF mainline tracks within the project study area. There are two mainline BNSF tracks within the project study area. North of the project study area, from West Valley Boulevard to approximately Olive Street, there are three mainlines transitioning to six mainlines toward Laurel Street.

In addition to 1-10, vehicular and pedestrian corridors in the project area include Rancho Avenue, La Cadena Drive, Mouth Vernon Avenue, and Ninth Street, which each provide access between the northern and southern portions of the City. Ninth Street currently terminates northerly of the UPRR tracks. Unauthorized pedestrian movement across the existing mainline to access Ninth Street, from the south, to reach commercial areas north of I-10 has been observed in the project area.

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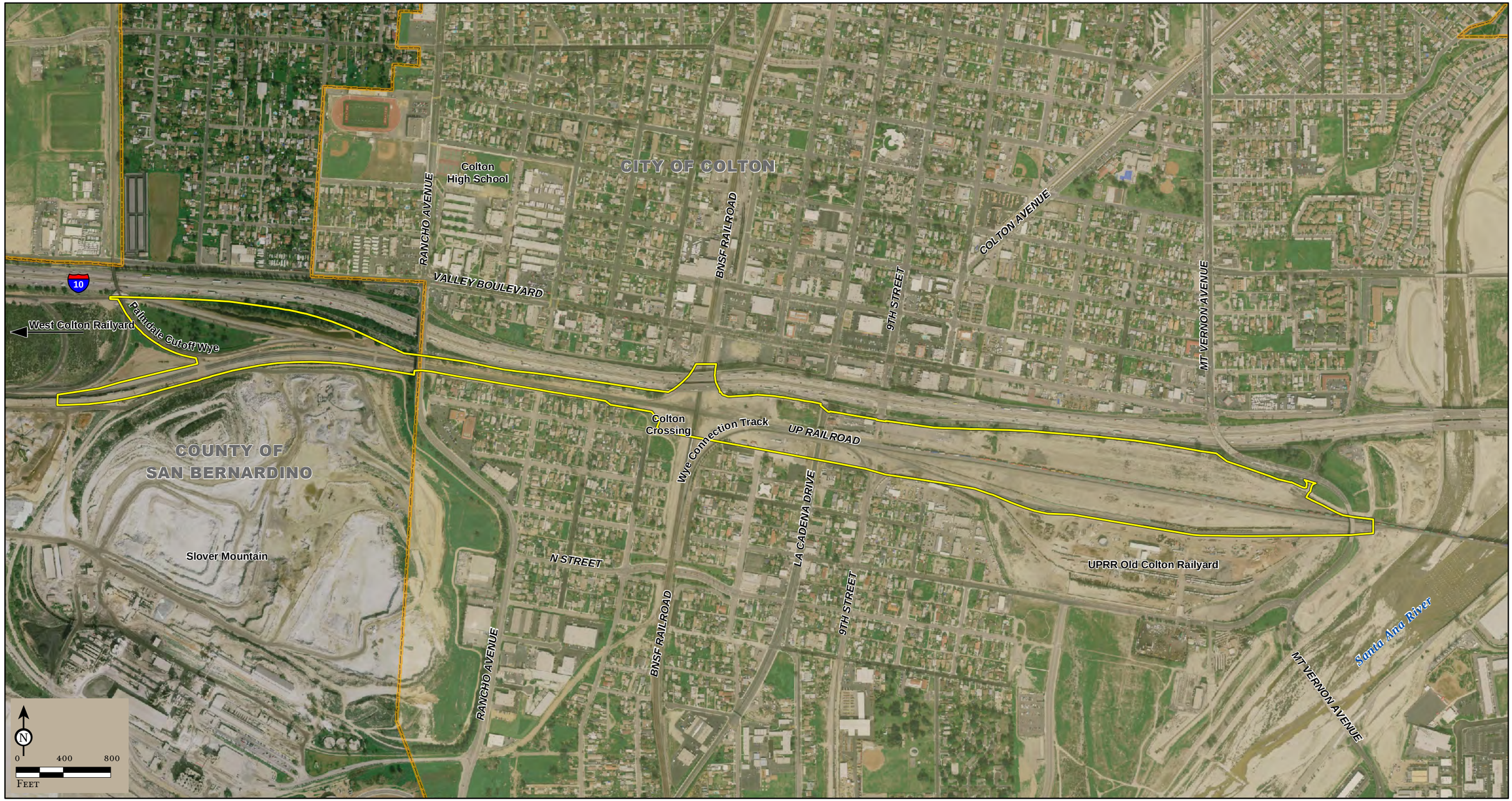

FIGURE 1.2

Project Boundary

City of Colton

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Project Study Area

SOURCE: AirPhotoUSA, 2008; County of San Bernardino, 2007

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1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to improve operational efficiency in the regional rail network that exists where the BNSF mainlines cross the UPRR mainlines in the City of Colton, the Colton Crossing. The specific project objectives include the following:

- Improve regional rail mobility and efficiency by eliminating the conflicting train movements at the Colton Crossing.
- Discourage a shift in goods movement from rail to truck because of conflicting train movements that cause delays and inefficiencies in rail traffic through the Colton Crossing.
- Support regional passenger rail service by minimizing delays at the Crossing, thus improving the operation and efficiency of passenger rail service.

1.2.2 Need

1.2.2.1 Operations, Transportation Demand, and Safety

Trains operating on the BNSF and UPRR main lines at Colton Crossing consist of freight trains of BNSF and UPRR, commuter passenger trains operated by Metrolink (the Southern California commuter rail operations authority), and long-distance passenger trains operated by Amtrak.

Freight trains consist of various types, such as intermodal trains that carry containerized freight or highway semi-trailers; bulk trains that consist of a single commodity such as grain moving between a single origin and destination; manifest trains that carry individual carloads of freight for many shippers and moving between multiple origins and destinations; and local freights and transfers that move freight cars between switching yards, or between yards and the docks or shipping and receiving facilities of railroad customers.

Amtrak and Metrolink trains are given priority movement by the host railroads (BNSF and UPRR) according to agreements with each passenger operator. This results in a lull in freight train activity during periods in which passenger train activity is high, in order to avoid freight train conflicts with passenger trains and to maintain commuter rail schedules.

Existing Train Volumes. Between 70 and 90 freight trains per day travel through the crossing at present (measured during the period of July 25 to August 3, 2010). The approximate proportion of each train type at present per day is as follows:

- ***5% bulk trains:*** Most of these trains deliver commodities to receivers within the Los Angeles Basin.
- ***5% local trains:*** These trains primarily move freight brought to Los Angeles Basin switching yards by manifest trains, to local shippers and receivers.
- ***20% manifest trains:*** These trains primarily move freight that would be delivered to receivers or picked up from shippers that are located in the Los Angeles Basin.
- ***70% intermodal trains:*** Approximately 60 percent of the freight carried by these trains moves between domestic U.S. shippers and receivers. The remaining 40 percent, equating to 28 percent of the trains, moves between the Ports of Los Angeles and Long Beach, and domestic shippers and receivers.
- Small volumes of traffic originating in or destined to Mexico pass through Colton Crossing.

Table 1.1.A presents existing and project future train volumes. Future train volumes are shown for both the potential opening year of the proposed project and a 20-year planning horizon. Within the modeling area for the rail operations analysis, the total weekly number of trains is currently 942 trains (both passenger and freight), which results in 135 trains on a daily basis as shown in Table 1.1.A. The geographic boundaries of this modeling area used in the rail operations analysis are outlined below:

- BNSF Cajon Subdivision: Summit (Cajon Pass) to San Bernardino.
- BNSF San Bernardino Subdivision: San Bernardino to Riverside.
- UPRR Yuma Subdivision: Beaumont to West Colton.
- UPRR Alhambra Subdivision: West Colton to Pomona.
- UPRR Los Angeles Subdivision: Riverside to Pomona.

Table 1.1.A: Existing and Forecast Train Volumes and Delay[1]

	Existing (2010)	2015	2035
Weekly Train Volume[2]			
Freight Passenger All	866 76 942	987 76 1,063	1,680 76 1,756
Daily Train Volume[2]			
Freight Passenger All	124 11 135	141 11 152	240 11 251
Cumulative Idling Time			
All Trains Per Week[3] (DD:HH:MM)	19:08:23	30:16:01	522:06:34
Cumulative Train Time			
Within Model Limits All Trains Per Week[4] (DD:HH:MM)	54:08:21	71:18:01	642:13:47

1 Within modeling area.
2 Total average train volumes include all trains within the model limits. Some of these trains do not pass through Colton Crossing, such as local trains that move between various yards, and trains that travel between UPRR's Mojave Subdivision and Alhambra Subdivision. These trains influence trains that travel through Colton Crossing, thus must be included in the model to provide accurate results.
3 Total idling time of all trains within the modeling area within one week.
4 Total time that all trains are traveling within the model area within one week.
Source: Rail Operations Analysis, February 2011

Future Train Volumes. Growth in train volumes within the modeling area is projected to occur in the future (both 2015 and 2035). Projected future train volumes are shown in Table 1.1.A and were developed using growth rates provided by the UPRR and BNSF. Future train volume growth rates and the effect of the Ports of Los Angeles and Long Beach on these growth rates are described below.

Freight train volume growth. BNSF and UPRR expect freight train traffic through Colton Crossing to grow at a 2.71 percent annual rate, compounded, from the present through 2035. (Train volume fluctuations around this average may occur on a weekly, seasonal, and yearly basis as a result of general economic conditions, changes in market demands for products carried by trains, and other conditions.) BNSF and UPRR provided this consensus compound annual growth rate (CAGR) for freight trains based on historic trends and economic growth predictions supplied by the firm Global Insights, Inc. According to UPRR and BNSF, the CAGR for the 20-year period covering 1989–2008 equaled 3.08 percent. The CAGR for the 10-year period covering 1999–2008 equaled 2.28 percent. An annual growth rate equaling 2.71 percent is justified due to the following factors:

- Projected growth rate falls in line with intermediate and long-term car loading trends;
- Positive prospects for freight rail going forward;
- Environmentally friendly mode of transportation;
- Conversion of truck freight to rail as a result of overall highway congestion;
- Recovery of overall economy; and
- Above average population growth projections for Southern California.

Port traffic growth. As described above, movement of goods between the Los Angeles and Long Beach Ports and domestic shippers and receivers represents approximately 28 percent of existing trains moving through the Colton Crossing. Port traffic contribution to total rail traffic through Colton Crossing is expected to remain proportional to other rail traffic through Colton Crossing. This assumption is documented by port and modal elasticity studies conducted by Leachman and Associates and the University of California, Berkeley for the Southern California Association of Governments (SCAG) in 2005 and was recently updated (Source: Port and Modal Elasticity Study, Phase II). These studies measured elasticity of demand for import and export containerized goods traffic through the ports compared to alternative ports serving the same inland U.S. markets.

Train Delay and Train Idling Caused by the Colton Crossing. Train delay is strongly influenced by the Colton Crossing in the existing and future conditions (2015 and 2035). Train delay is expressed in terms of cumulative idling time and cumulative train time within the model limits. Cumulative idling time refers to the total amount of time that trains spend idling within the model area waiting to complete their travel in or through the model area. Idling can occur on mainline tracks, connection tracks or in rail yards within the model area. The cumulative train time within the model limits refers to the total time that a train takes to pass through the model area or reach a destination within the model area. Previously referenced Table 1.1A illustrates the cumulative idling time, which indicates the level of delay of train movement within the modeling area. For the existing condition, the cumulative idling time within the model area on a weekly basis is 19 days; 8 hours and 23 minutes, which translates to 29.6 minutes per train on average. The train delay is forecast to increase in future conditions without the proposed project as shown in Table 1.1.A. In 2015, cumulative idling time is 30 days,

16 hours and 1 minute on a weekly basis, which translates to 41.5 minutes per train on average. By 2035, the cumulative idling time increases substantially to 522 days, 6 hours and 8 minutes on a weekly basis, which is 428 minutes (or 7 hours and 8 minutes) per train on average. In particular, westbound trains were observed in the rail model to accumulate on the UPRR Yuma Subdivision east of the Colton Crossing, waiting on clearance through the Colton Crossing. During peak periods, as many as five westbound trains were observed to be waiting either on the mainline at the crossing or in the vicinity of crossing in the 2015 condition. This condition would continue in 2035 with the predicted increase in train volumes and cumulative idling time.

Grade-Crossing Occupancy Times. Additionally, the existing Colton Crossing affects the operation of local arterials where they meet at-grade with the UPRR and BNSF mainlines. Grade-crossing occupancy times were most strongly influenced by the locations where trains staged waiting to cross Colton Crossing or other locations where trains accumulated behind other trains waiting to cross Colton Crossing, in the existing and future conditions. The results shown in Table 1.1.B demonstrate grade-crossing occupancy times. Planned/programmed grade separation projects and road closures within the rail model area have been incorporated into the rail operations analysis and are identified below.

Table 1.1.B: Existing and Forecast Delay at Arterial Crossings

At-Grade Crossing	Existing (2010)	2015 (No Build)	2035 (No Build)
	Average Daily Delay (No. of Trains/HH:MM)	*Average Daily Delay (No. of Trains/HH:MM)*	*Average Daily Delay (No. of Trains/HH:MM)*
3rd Street	65 | 02:36	76 | 03:12	140 | 05:41
Alessandro Road	40 | 02:25	49 | 03:00	98 | 05:54
Archibald Avenue	18 | 00:34	22 | 00:43	47 | 01:24
Beaumont Avenue	40 | 02:34	49 | 03:38	98 | 09:30
Bellegrave Avenue	19 | 00:37	23 | 00:46	48 | 01:41
Bon View Avenue	18 | 00:47	22 | 00:59	47 | 01:53
Brockton Avenue	17 | 00:49	22 | 01:04	47 | 02:22
Campus Avenue	48 | 01:48	59 | 02:15	120 | 04:03
Center Street	65 | 02:55	76 | 03:30	140 | 06:02
Chicago Avenue	65 | 02:38	76 | 03:14	140 | 05:41
Clay Street	18 | 00:40	22 | 00:49	47 | 01:54
Cridge Street	48 | 02:04	55 | 02:22	94 | 04:05
Cridge Street (BNSF)	48 | 02:04	55 | 02:22	94 | 04:05
E Street	52 | 02:52	CLOSURE[1]	CLOSURE[1]
Francis Avenue	18 | 00:34	22 | 00:43	47 | 01:26
H Street	52 | 02:49	CLOSURE[1]	CLOSURE[1]

Table 1.1.B: Existing and Forecast Delay at Arterial Crossings

At-Grade Crossing	Existing (2010)	2015 (No Build)	2035 (No Build)
	Average Daily Delay (No. of Trains/HH:MM)	*Average Daily Delay (No. of Trains/HH:MM)*	*Average Daily Delay (No. of Trains/HH:MM)*
Hamilton Boulevard	33 | 01:33	39 | 01:52	72 | 03:07
Hunts Lane	40 | 02:05	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Iowa Avenue	65 | 02:52	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Jurupa Road	19 | 00:37	23 | 00:46	48 | 01:50
Laurel Street	50 | 03:14	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Live Oak Canyon Road	40 | 02:46	49 | 03:36	98 | 07:35
Magnolia Avenue	17 | 00:50	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Main Street	41 | 01:42	47 | 01:58	83 | 02:58
Main Street (BNSF)	65 | 06:14	76 | 06:39	140 | 08:29
N. Milliken Avenue	31 | 01:00	GRADE SEPARATED[1]	GRADE SEPARATED[1]
S. Milliken Avenue	18 | 00:35	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Mission Inn Avenue	65 | 02:38	76 | 03:12	140 | 05:41
Monte Vista Avenue	41 | 01:26	47 | 01:40	82 | 02:34
N. San Antonio Avenue	41 | 01:27	47 | 01:41	83 | 02:34
Olive Street	52| 02:52	59 | 04:39	98 | 07:12
Palm Avenue	17 | 00:49	22 | 01:07	47 | 02:30
Palmyrita Avenue	65 | 02:49	76 | 03:26	140 | 06:07
Palomares Street	31 | 01:10	37 | 01:24	73 | 02:20
Panorama Road	17 | 00:54	21 | 01:09	46 | 02:18
Park Avenue	41 | 01:49	47 | 02:07	83 | 03:18
Rialto Avenue	39 | 02:21	46 | 02:44	84 | 04:34
Riverside Avenue	17 | 00:50	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Rutile Avenue	19 | 00:37	23 | 00:46	48 | 01:42
S. San Antonio Avenue	18 | 00:44	22 | 00:55	47 | 01:46
San Timoteo Road	40 | 02:35	49 | 04:32	98 | 15:12
Spruce St.	65 | 02:34	76 | 03:10	140 | 05:36
Streeter Avenue	17 | 00:48	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Sultanan Avenue	48 | 01:50	59 | 02:18	120 | 04:15
Valley Boulevard	52 | 02:47	58 | 03:12	97 | 05:00
Veile Avenue	39 | 02:00	48 | 02:25	98 | 04:45
Vine Avenue	18 | 00:45	22 | 00:57	47 | 01:49
Vineyard Avenue (AL)	31 | 01:01	GRADE SEPARATED[1]	GRADE SEPARATED[1]
Vineyard Avenue (LA)	18 | 00.36	22 | 00:46	47 | 01:30
Walnut Street	37 | 02:15	43 | 02:37	80 | 04:29
Whittier Avenue	40 | 02:09	49 | 02:42	98 | 06:45
Cumulative Idling Time/All Trains/Per Week (DD:HH:MM)[2]	1,922 | 92:31	2,274 | 91:18	3,448 | 172:01

[1] Planned and/or programmed grade separation and road closure projects have been included in the rail operations model.
[2] DD:HH:MM – Days/Hours/Minutes
Source: Rail Operations Analysis, February 2011

1.2.2.2 Local Roadways

As described in Table 1.1.B, local arterials that cross the UPRR and BNSF tracks at-grade currently experience substantial delay on a daily basis. The delay occurring at these at-grade crossings affects the operation of these local arterials and have the potential to affect the level of service on these roads and adjacent roads where traffic may divert to avoid waiting at an at-grade crossing.

1.2.2.3 Social Demands or Economic Development/Legislation

The need for improvements at the Colton Crossing is well documented in several Statewide documents prepared by Governor Schwarzenegger's Administration and supported by regional documents prepared by the SCAG and a national report prepared by the Association of American Railroad. In 2004, the Schwarzenegger Administration assembled a team of experts and stakeholders to analyze the State's challenges with goods movement. The result of this working group was the release of the *Goods Movement Action Plan* prepared by the Business, Transportation and Housing Agency (BTH) and the California Environmental Protection Agency in January 2007. Additionally, the Administration initiated the State's Strategic Growth Plan (SGP) that encompasses an infrastructure improvement program for the State's transportation system. The SGP is closely tied to the Administration's "Global Warming Solutions Act," also known as Assembly Bill 32 (AB 32), which is designed to reduce greenhouse gas emissions. The work from the SGP is included in the *California State Rail Plan 2007-08 to 2017-18*, prepared by the California Department of Transportation (Caltrans or Department) in March 2008.

At the regional level, several important studies and reports were prepared for SCAG regarding goods movement. One report is the *Inland Empire Railroad Main Line Study* prepared for SCAG, dated June 30, 2005. Another report is the *Multi-County Goods Movement Action Plan* prepared by Wilbur Smith Associates, dated April 2008, which builds on the *Statewide Goods Movement Action Plan* (January 2007).

Finally, a national report also provides conclusions on the Colton Crossing. That report is the *National Rail Freight Infrastructure Capacity and Investment Study* prepared for the Association of American Railroads, dated September 2007.

These reports include an extensive amount of data that have been thoroughly analyzed in determining the need for improvements at the Colton Crossing. The following is a summary of the key conclusions of these reports. Those interested in a

further understanding of the data and conclusions are encouraged to review each of the documents referenced in this summary.

Each of these reports concludes that improvements at the Colton Crossing are vital to the transportation network. These reports also all conclude that encouraging freight and passenger rail traffic has a positive impact on air quality. The conclusions of these reports are as follows:

- The *California State Rail Plan* includes the following policy statement:
    - Policy Statement No. 2: System Planning.
    - *A long range, sustainable, system planning program to identify freight rail system needs and projects, which increase mobility and enhance the environment should be pursued.*
    - The *California State Rail Plan* lists three improvement projects identified as choke points that should be addressed to provide for increased volumes of rail traffic. Colton Crossing is listed as one of the three improvement projects.[1]
- Chapter XVI of the *California State Rail Plan* identifies major freight issues affecting the State. Figure 16A of the report, illustrates some of the significant proposed freight rail projects that could help overcome the challenges facing California's goods movement system, accommodate international trade and also benefit the rest of the Nation. Nine projects are identified in Figure 16A. The fourth project identified is Colton Crossing.[2]
- A key strategy identified in the *Goods Movement Action Plan* is the need to "increase the share of container moves by rail and decrease the share of container moves by truck." In order to accomplish this goal the report states that removing and reducing rail system bottlenecks must occur.[3]
- As part of the *Goods Movement Action Plan*, the Infrastructure Working Group, BTH, and Caltrans analyzed the inventory of infrastructure projects against established infrastructure criteria. The result is a list of Preliminary Candidate

[1] California State Rail Plan, p. 208.
[2] California State Rail Plan, p. 223.
[3] Goods Movement Action Plan, p. II-7 and II-8.

Actions. The resulting list includes Colton Crossing improvements as needed in the short-term (0–3 years) and the intermediate term (4-10).[1]

- Table I-2 in the *Goods Movement Action Plan* provides a list of recommended trade corridor improvements. Colton Crossing is listed as one of the improvements. The system benefit associated with the improvement is listed as, "removes major railroad bottleneck; improves safety; reliability; enhances Metrolink/Amtrak services."[2]

- The *National Rail Freight Infrastructure Capacity and Investment Study* analyzed current rail volumes compared to current rail capacity for critical rail corridors nationally. The volume to capacity analysis was conducted similar to traffic studies, with level of service grades applied to each segment. Colton Crossing is identified as Level of Service E, which is "At-Capacity" and described as "very heavy traffic flow with limited capacity to accommodate maintenance and recover from incidents." The report also provided Level of Service projections for 2035 projected rail volumes without improvements. The Colton Crossing is identified as Level of Service F, which is an "above capacity" level of service. The report points to the necessity of improvements at Colton Crossing.[3]

- The *Inland Empire Railroad Main Line Study* provides an extensive analysis of projected demand compared to capacity for rail segments in the Inland Empire. The report concluded that the Colton Crossing "clearly would need to be grade-separated."[4] The issue of the timing of the improvements was raised later in the report. The report initially concluded based on its data that the Colton Crossing improvements would be required in 2025. However, "Metrolink and BNSF are projecting that a grade separation of Colton Crossing would be required by 2010 (whereas this study finds it unnecessary for the 2010 traffic levels but required for the 2025 traffic levels.)"[5] Whether the Colton Crossing improvements are required in 2010, 2025, or at some intermediate time, the report concludes the need for improvements at Colton Crossing.

- The California State Administration's *Strategic Growth Plan* (SGP) and the *GoCalifornia Strategy*, concluded that congestion is increasing statewide, eroding

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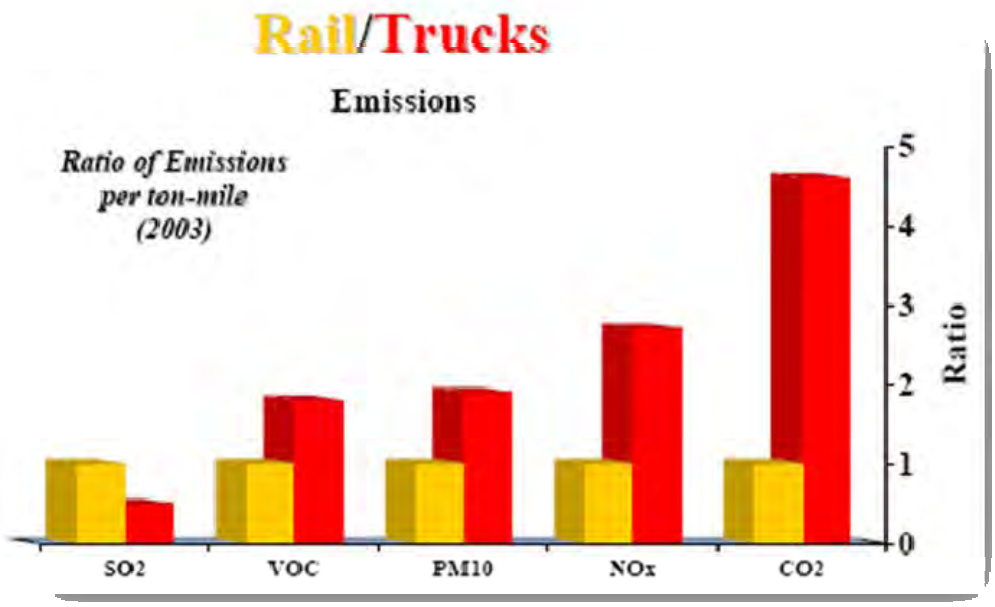
1 Goods Movement Action Plan, Table V-1, p. V-4.
2 Goods Movement Action Plan, Table I-2, p. V-22.
3 National Rail Freight Infrastructure Capacity and Investment Study, p 4-4 thru 4-8, Figure 4.4 (p. 4-10), and Figure 5.4 (p. 5-5).
4 Inland Empire Railroad Main Line Study, p. 48.
5 Inland Empire Railroad Main Line Study, p. 101.

the quality of life, and impacting the environment. Goods movement is part of the strategy of the *GoCalifornia* plan, which concludes that "Goods movement investments that separate truck traffic or increase the fraction of containers transported by rail are positive steps toward overall congestion reduction."[1]

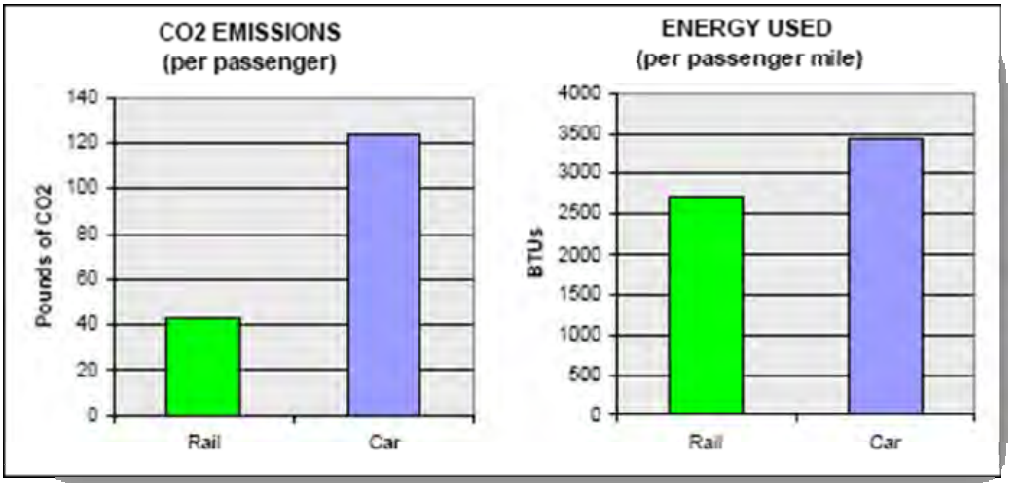
- California Assembly Bill 32 includes strategies to reduce greenhouse gas emissions. The promotion of rail freight movement is one key strategy in the bill pursued by the Department of Transportation. Greenhouse gas reductions per ton-mile of freight moved are significantly less with rail compared to truck freight. The following graph included in the *California State Rail Plan (Figure 18E)* provides a comparison of rail emissions to truck emissions.[2]



Source: California State Rail Plan (2008)

- Rail travel also improves air quality compared to automobile travel. According to data in the *California State Rail Plan*, "on a per passenger basis, trains emit 43 pounds of CO_2 while cars emit 124 pounds."[3] The following graph (Figure 1E from the State Rail Plan) provides a comparison of emissions.

1 Goods Movement Action Plan, p. III-3.
2 California State Rail Plan, p. 257.
3 California State Rail Plan, p. 13.



Source: California State Rail Plan (2008)

- According to the *California State Rail Plan*, ridership and train service has increased on all commuter and intercity rail lines in California recently.[1] As passenger rail demand increases, some lines that operate both passenger and freight traffic have insufficient capacity to accommodate the increased demand. For example, in 2004 Metrolink trains operated on time 95 percent of the time on Metrolink-controlled tracks. On the tracks owned by UPRR and BNSF, Metrolink trains operated on time 70 to 85 percent of the time.[2] The *California State Rail Plan* concludes, "Freight interference causes major operating problems for Metrolink especially on UPRR's Los Angeles Subdivision between Riverside and Los Angeles."[3]

Each of these reports concludes that 1) improvements are required at the Colton Crossing; 2) improvements to the rail system, including Colton Crossing, would discourage a shift to truck traffic, which could have significant positive effects on air quality and congestion; and 3) the demand for passenger rail is increasing, which reduces highway congestion and improves air quality; however, rail system improvements, including Colton Crossing, are necessary to facilitate both passenger and freight rail traffic demands.

1 California State Rail Plan, p. 232.
2 California State Rail Plan, p. 232.
3 ibid.

1.2.2.4 Modal Interrelationships and System Linkages

The delay of rail traffic experienced at the Colton Crossing has several ramifications, including effects on goods movement and highway congestion. Delays at the Colton Crossing impede the movement of goods in Southern California and other parts of the country. Each increment in delay reduces the quality of service and increases the cost of operating the rail line (e.g., passenger schedules and freight delivery schedules are affected). Rising fuel costs and deteriorating productivity across the freight transportation system has resulted in a rise in logistics cost, hampering the movement of goods. Freight transportation is vitally important to domestic economic productivity, the international competitiveness of American business, and the economic well-being of the population.

The demand for transportation is pressing the capacity of the nation's transportation system, particularly its highway transportation infrastructure. For example, on the highway system, vehicle miles traveled (VMT) grew approximately 96 percent between 1980 and 2005, while lane miles of roadways increased by only 5.7 percent.[1] The result is increased highway congestion. The United States Department of Transportation (USDOT) estimates that the cost of congestion across all modes of transportation could be three times as high as reported, if productivity losses, costs associated with cargo delays, and other economic impacts are included. These include losses relating to auto drivers, freight carriers, businesses, consumers, and the general public.[2] Railroads would add to the cost of congestion if they are not operated efficiently and delays mount, leading to freight transport being shifted from train to truck adding congestion to an already heavily congested highway system.

1.2.2.5 Air Quality Improvements

The delay of rail traffic experienced at the Colton Crossing also directly correlates to air quality emissions associated with congestion on the rail and highway systems.

An increase in congestion on the regional transportation system (both rail and highway) would result in an increase in air pollutant emissions. Trains that are left idling and stationary for prolonged periods would continually emit pollutants into the atmosphere. Cars and trucks left idling and stationary at grade crossings also continually emit pollutants into the atmosphere. Furthermore, energy consumption and emissions are greatest when vehicles (cars, trucks, and trains) must decelerate from speed to a stop and then accelerate back to a normal traveling speed.

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1 National Rail Freight Infrastructure Capacity and Investment Study, p. 2-1.
2 National Rail Freight Infrastructure Capacity and Investment Study, p. 2-2.

Trains passing through the Colton Crossing release a certain level of emissions. However, when a train must first idle prior to passing through the Colton Crossing, the emissions from that train increase by the amount of time the train spends idling. For example, a 7,500-foot long train with and average of 3.5 engines releases approximately 4.6 lbs per hour of nitrogen oxide (NO_X) while idling. If that train idles for 25 minutes at the Colton Crossing an additional 1.9 lbs of NO_X would be released for that particular train. Minimizing train delay also minimizes emissions of air pollutants both locally at the Colton Crossing and within a larger portion of the Inland Empire.

1.3 Project Description

This section describes the proposed action and the design alternatives that were developed by a multi-disciplinary team to achieve the project purpose and need while avoiding or minimizing environmental effects. The alternatives are Build Alternative (UP Flyover) and the No Build Alternative.

The proposed project is located within the existing UPRR right-of-way in the City of Colton, south of Interstate 10 (I-10), between Ranch Avenue and Mount Vernon Avenue in an area of Colton referred to as “South Colton.” The project limits extend along the UPRR right-of-way approximately from the Palmdale Cutoff Wye on the east to Mount Vernon Avenue on the west. The project study area encompasses approximately 105 acres. The project study area extends approximately 11,200 feet from east to west and approximately 710 feet, at its widest, from north to south. The project study area is located primarily within the corporate limits of the City. The western edge of the project study area, west of Rancho Avenue, extends into an unincorporated portion of San Bernardino County. Previously referenced Figure 1.1 identifies the regional and project location of the proposed crossing. The proposed project has independent utility and logical termini and does not rely on completion of other projects along the rail corridor for its implementation. The purpose of the project is to improve operational efficiency in the regional rail network that exists at the Colton Crossing.

1.4 Alternatives

Two alternatives are being considered for the proposed project; the Build Alternative and the No Build Alternative. Each of these alternatives is described below.

1.4.1 Build Alternative (UP Flyover)

The Build Alternative (UP Flyover Alternative) would raise the east-west UPRR mainline by placing it on an elevated structure to span over the BNSF mainline tracks from Rancho Avenue on the west to Mount Vernon Avenue on the east. The grade separated structure would contain two UPRR mainline tracks (the same as exists today) and a maintenance road. The existing southerly mainline track would remain operational providing access to the West Colton Yard and East Colton Yard. Trains traveling on the UPRR running track would cross over the BNSF at the same at-grade location as today. However, the number of trains would be much less than under existing conditions resulting in substantially less need for trains to sound horns. Also, as part of the Build Alternative, the special trackwork at the existing diamond would be replaced with a flange bearing frog design (reducing the banging associated with the train wheels crossing the diamond). This track would also be used during construction and there would be no need to construct southerly shoo-fly tracks to detour trains during construction. The existing northerly mainline track would be removed. Figure 1.3 illustrates the design of the proposed Build Alternative and Figure 1.3A indicates a typical cross-section of the structure.

1.4.1.1 Flyover Structure

The flyover structure would consist primarily of a cellular concrete retaining structure. Bridge structures would be used to cross over the BNSF/UPRR Connection Track, the BNSF mainline, tracks, and the existing La Cadena Drive undercrossing.

The cellular concrete retaining structure would consist of cellular concrete backfill faced precast wall panels. Cellular concrete consists of concrete that is combined with a foaming agent that produces a high-strength lightweight concrete fill material. The cellular concrete is mixed on site in a special apparatus and pumped between the precast wall panels, which serve as outer forms and provide a protective outer layer for the cellular backfill upon completion. The lightweight cellular concrete is being utilized to reduce the mass of the flyover structure to limit potential long-term settlement due to unconsolidated subsoils and to enhance seismic performance of the structure. Each lift of cellular concrete has a depth of approximately 4 feet. Therefore, at each end of the flyover structure, there would be conventional cast-in-place retaining walls with backfill to create a tapered transition to existing grade. The soils directly under the flyover structure would be strengthened utilizing stone columns arranged horizontally in a grid pattern. Stone columns would be constructed by a vibro-replacement method. This method utilizes a vibratory probe inserted into the ground that forces select backfill material into the soil and densifies the existing soil

N. HERMOSA AVENUE

N. CYPRESS AVENUE

W. VALLEY BOULEVARD

I-10 FREEWAY

027501114

PALMDALE CUTOFF WYE

QUARRY

0275011010

MATCHLINE SHEET 2

PROJECT BOUNDARY

POTENTIAL STAGING AREA

ACCESS ROAD

TEMPORARY CONSTRUCTION AREA ON CALTRANS ROW

EXISTING RAILROAD ROW

EXISTING STORM DRAIN

PROPOSED RETAINING WALL

PROPOSED BRIDGE STRUCTURE

HIDDEN BRIDGE STRUCTURE

PROPOSED TRACKS

GRADING LIMITS

BMP IMPROVEMENTS

MATCHLINE

N

0 100 200

SCALE: 1"=200'

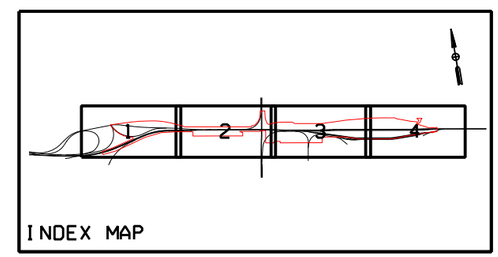

FIGURE 1.3
SHEET 1 OF 4

BUILD ALTERNATIVE
(UPRR FLYOVER)

COLTON CROSSING RAIL-TO-RAIL GRADE SEPARATION PROJECT
000001434

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CITY OF COLTON

W. VALLEY BOULEVARD

S. RANCHO AVENUE

N. 3RD STREET

N. 4TH STREET

PENNSYLVANIA AVENUE

EXISTING BNSF TRACKS

MODIFY CONNECTION TRACK

I-10 FREEWAY

MATCHLINE SHEET 1

W. K STREET

W. K STREET

EXISTING BNSF TRACKS

S. 3RD STREET

S. 4TH STREET

S. 5TH ST.

W. L STREET

W. L STREET

SOUTH COLTON

MATCHLINE SHEET 3

PROJECT BOUNDARY
POTENTIAL STAGING AREA
ACCESS ROAD
TEMPORARY CONSTRUCTION AREA ON CALTRANS ROW

EXISTING RAILROAD ROW
EXISTING STORM DRAIN
PROPOSED RETAINING WALL
PROPOSED BRIDGE STRUCTUR
HIDDEN BRIDGE STRUCTURE
PROPOSED TRACKS
GRADING LIMITS
BMP IMPROVEMENTS
MATCHLINE

N

0 100 200
SCALE: 1" =200'

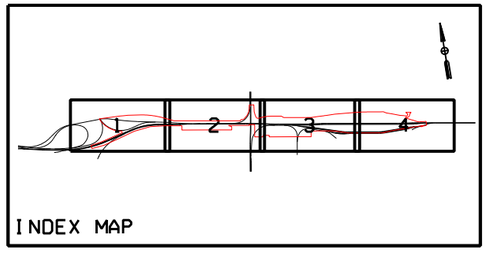

FIGURE 1.3
SHEET 2 OF 4

BUILD ALTERNATIVE
(UPRR FLYOVER)

COLTON CROSSING RAIL-TO-RAIL GRADE SEPARATION PROJECT
000001434

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W. VALLEY BOULEVARD

N. LA CADENA DRIVE

N. 9TH STREET

N. 10TH STREET

I-10 FREEWAY

W. K STREET

MODIFY CONNECTION TRACK

E. K STREET

MATCHLINE SHEET 2

S. 7TH STREET

W. L STREET

S. LA CADENA DRIVE

E. L STREET

S. 9TH STREET

E. L STREET

S. 10TH STREET

MATCHLINE SHEET 4

PROJECT BOUNDARY

POTENTIAL STAGING AREA

ACCESS ROAD

TEMPORARY CONSTRUCTION AREA ON CALTRANS ROW

EXISTING RAILROAD ROW

EXISTING STORM DRAIN

PROPOSED RETAINING WALL

PROPOSED BRIDGE STRUCTURE

HIDDEN BRIDGE STRUCTURE

PROPOSED TRACKS

GRADING LIMITS

BMP IMPROVEMENTS

MATCHLINE

N

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SCALE: 1" =200'

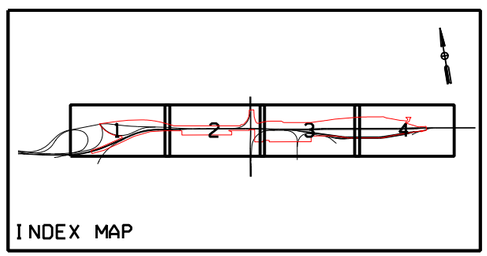

FIGURE 1.3
SHEET 3 OF 4

BUILD ALTERNATIVE
(UPRR FLYOVER)

COLTON CROSSING RAIL-TO-RAIL GRADE SEPARATION PROJECT
000001434

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W. VALLEY BOULEVARD

I-10 FREEWAY

UPRR STORAGE TRACKS

MOUNT VERNON AVENUE

SANTA ANA RIVER

MATCHLINE SHEET 3

PROJECT BOUNDARY
POTENTIAL STAGING AREA
ACCESS ROAD
TEMPORARY CONSTRUCTION AREA ON CALTRANS ROW

EXISTING RAILROAD ROW
EXISTING STORM DRAIN
PROPOSED RETAINING WALL
PROPOSED BRIDGE STRUCTURE
HIDDEN BRIDGE STRUCTURE
PROPOSED TRACKS
GRADING LIMITS
BMP IMPROVEMENTS
MATCHLINE

N

0 100 200
SCALE: 1"=200'

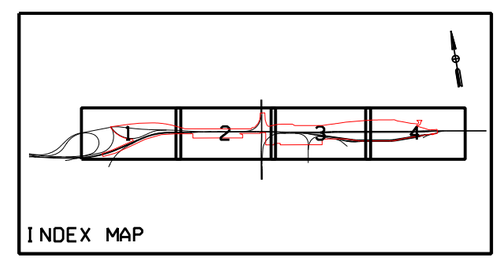

FIGURE 1.3
SHEET 4 OF 4

BUILD ALTERNATIVE
(UPRR FLYOVER)

COLTON CROSSING RAIL-TO-RAIL GRADE SEPARATION PROJECT
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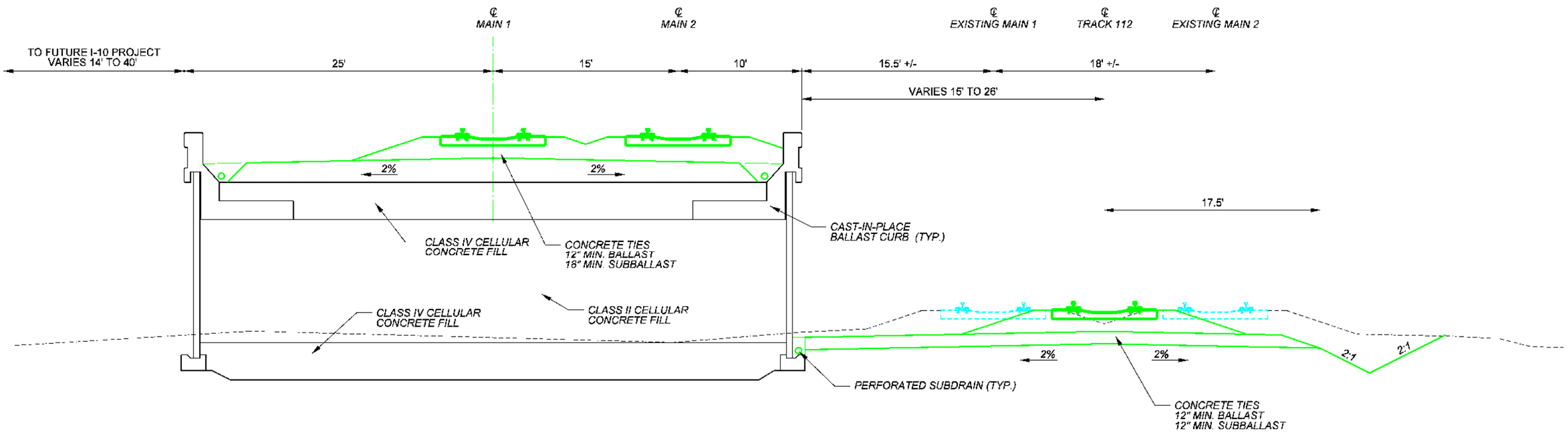

TYPICAL SECTION

STA. 8085+00 to STA. 8087+25

FIGURE 1.3A

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Typical Structural Cross Section of the Build Alternative

SOURCE: HDR, 2011

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column around the probe. The resultant columns of strengthened, densified soil would increase soil bearing capacity, reduce total and differential settlement, and reduce liquefaction potential.

Bridges over the BNSF/UPRR Connection Track, the BNSF mainline tracks, and the existing La Cadena Drive undercrossing would consist of conventional steel rolled-beam type spans with ballasted decks. The bridges would be fabricated from weathering steel, which facilitates bridge inspection and does not require painting. The substructure of the bridges would generally consist of 48 inch diameter cast-in-drilled-hole (CIDH) piles with cast-in-place pile caps and abutments. Several spans of the BNSF/UPRR Connection Track bridge would utilize straddle bents, stepped pile caps and modified bridge girder sections to provide the required vertical and horizontal rail clearances at that location while minimizing the depth of structure, with the goal of minimizing the height and maximum grade on the flyover.

The elevated portion of the tracks would begin just east of South Rancho Avenue and would continue to the east, returning to the existing grade before Mount Vernon Avenue, a distance of approximately 1.5 miles. The maximum grade of the tracks is approximately 1.20 percent. At its highest point, near where the new UPRR tracks would pass over the BNSF tracks, the top of rail would be approximately 40 feet above the existing grade. The structure would have concrete parapet and steel handrails consisting of either a pipe handrail system or on top of the parapet wall, for a total of approximately 4 to 8 feet above the top of rail, depending on the type of handrail. The total structure (wall/support and fence/handrail) at its highest point would be approximately 44 feet above the existing grade. At this height, the proposed overcrossing structure would be approximately 8 feet taller than the highest point of I-10 to its north. On the northerly side of the structure between Rancho Avenue and the BNSF crossing, a vehicle barrier to prevent rail maintenance vehicles from leaving the flyover structure and tight woven fence to reduce train headlight glare from affecting drivers on I-10 would be placed on the structure.

1.4.1.2 Staging Areas/Construction Access

As shown in Figure 1.4, staging areas would be provided throughout the project study area to provide access to work areas and provide for storage of materials. The open areas in each of the four quadrants of the Colton Crossing diamond would be used for staging, and may store materials needed for construction of the bridges over the BNSF connector and mainline, and La Cadena Avenue. Additionally, the area south

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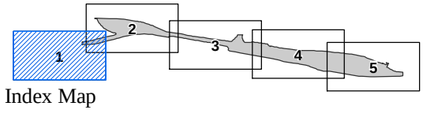
FIGURE 1.4

Sheet 1 of 5

Project Boundary
Staging Area
Staging Area/Stockpiling
Construction Access Road

N

0 100 200
FEET



Index Map

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Construction Staging Areas and Access Points

SOURCE: HDR; BingMaps, 2009; Thomas Bros., 2009

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VALLEY BOULEVARD

10

RANCHO AVENUE

Existing At-Grade Crossing

Temporary Crossing

FIGURE 1.4

Sheet 2 of 5

Project Boundary

Staging Area

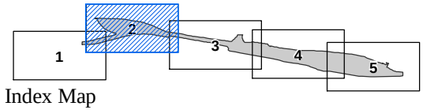
Staging Area/Stockpiling

Construction Access Road

N

0 100 200

FEET



Index Map

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Construction Staging Areas and Access Points

SOURCE: HDR; BingMaps, 2009; Thomas Bros., 2009

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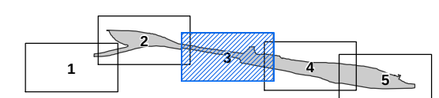
RANCHO AVENUE
VALLEY BOULEVARD
Light Duty Trucks
Limited Materials Delivery
10
Staging Area
Staging Area
Temporary At-Grade Crossing
Staging Area
Staging Area
Existing At-Grade Crossing
3RD STREET
4TH STREET
K STREET
5TH STREET
K STREET
7TH STREET

FIGURE 1.4
Sheet 3 of 5

Project Boundary
Staging Area
Staging Area/Stockpiling
Construction Access Road

N
0 100 200
FEET



Index Map

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Construction Staging Areas and Access Points

SOURCE: HDR; BingMaps, 2009; Thomas Bros., 2009
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VALLEY BOULEVARD

10

Staging Area

xisting At-Grade Crossing

Staging Area

Staging Area / Stockpiling

Temporary Crossing

Temporary Crossing

Staging Area

7TH STREET

LA CADENA DRIVE

I STREET

9TH STREET

10TH STREET

FIGURE 1.4

Sheet 4 of 5

Project Boundary

Staging Area

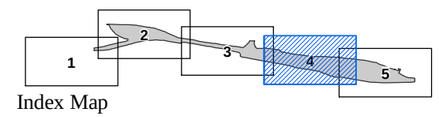
Staging Area/Stockpiling

Construction Access Road

N

0 100 200

FEET



Index Map

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Construction Staging Areas and Access Points

SOURCE: HDR; BingMaps, 2009; Thomas Bros., 2009

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VALLEY BOULEVARD

10

Staging Area / Stockpiling

MT. VERNON AVENUE

Eastern Access

Temporary At-Grade Crossing

Staging Area

FIGURE 1.4

Sheet 5 of 5

Project Boundary

Staging Area

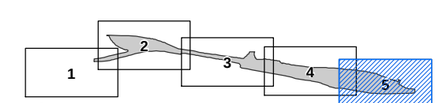
Staging Area/Stockpiling

Construction Access Road

N

0 100 200

FEET



Index Map

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Construction Staging Areas and Access Points

SOURCE: HDR; BingMaps, 2009; Thomas Bros., 2009

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and north of the existing mainline tracks, east of the existing Colton Crossing, within the UPRR right-of-way, would be used for staging.

Access to the project would be at the following locations:

- From Mount Vernon Avenue, north of railroad overpass;
- From 6th Street north of I-10, east of BNSF mainline (limited materials delivery);
- From 6th Street, north of I-10 (west of BNSF mainline, limited to light-duty trucks);
- From 5th Street via East M Street (limited materials delivery);
- From Pepper Avenue, via East Slover Avenue and existing UPRR maintenance roads; and
- From 9th Street, southerly to the UPRR right-of-way.

Primary western access to the construction area would be provided from Pepper Street and primary eastern access would be provided via Mount Vernon Avenue. Most of the construction materials and vehicles that would access the site via roadways would enter at one of these two locations. Secondary access points would be provided from Valley Boulevard via 9th Street and 6th Street, north of the existing mainline tracks, and from 5th Street south of the existing mainline tracks. Access via Valley Boulevard would be limited to light duty trucks on the west side of the BNSF mainline.

Use of these access points would require temporary at-grade crossings of the UPRR and BNSF tracks. The temporary crossings would be located at:

- UPRR mainline, west of Mount Vernon overpass;
- BNSF mainline, between UPRR crossing diamond and I-10 bridge;
- UPRR/BNSF connector, north of UPRR crossing diamond, west of BNSF tracks, south of I-10 bridge; and
- UPRR mainline, west of Rancho Avenue overpass.

In addition, the access roads would use existing at-grade crossings of UPRR tracks in the Old Colton Yard and on the mainline east of the crossing diamond. During

construction, this and the other temporary crossings may be manned by a UPRR flagman who would control the crossing. Rail traffic would have priority; construction traffic would have to wait for the rail traffic to pass.

1.4.1.3 Construction Duration

It is anticipated construction of the proposed project would take three years, with construction commencing in late 2011.

1.4.1.4 Drainage/Best Management Practices

The Build Alternative would require construction of drainage improvements and the development and implementation of Best Management Practices (BMPs) to mitigate the project's effect on local drainage and water quality.

Construction of the proposed project would necessitate the following drainage improvements:

- Removal of the existing open trapezoidal channel located south of and parallel to I-10 from Rancho Avenue to just west of the BNSF mainline. This facility would be replaced with a 54-inch pipe located between the future elevated structure and I-10.
- Placement of a new 78-inch pipe within the flyover structure to provide for future implementation of the Third Street Storm Drain per the County of San Bernardino Master Plan of Drainage.
- Replacement of the existing earthen trapezoidal channel associated with the 11th Street storm drain with three 72-inch smooth steel and/or corrugated metal pipes.

The following BMPs would be constructed to treat stormwater from the flyover structure:

- Two existing depressions at southwest corner of I-10 and Rancho Avenue; one or both would be used as proposed infiltration basins.
- Proposed infiltration/detention basin and/or structural BMP unit north of flyover structure at 11th Street.
- Proposed infiltration/detention basin and/or structural BMP unit north of flyover structure west of Mount Vernon Avenue.

1.4.1.5 Utilities

The proposed project would include the protection, relocation, and/or reconstruction of the existing utility features. Utility impacts include the following:

- Relocation of underground fiber optic cable, owned by MCI/Verizon, from Rancho Avenue to 9th Street;
- Raise or replacement of overhead electrical lines, owned by Southern California Edison (SCE), at 3rd Street;
- Removal or relocation of power pole, jointly owned by the City and SCE, at 3rd Street;
- Raise or reroute of overhead fiber optic cable, owned by Time Warner, Charter Communications and Sunesys, to provide sufficient clearance at 4th Street;
- Relocate pole of the overhead fiber optic cable on timber pole, owned by Time Warner and ComCast, to provide sufficient clearance at 4th Street;
- Raising of overhead communication line owned by City at 4th Street;
- Relocation or rerouting of underground fiber optic line , owned by Sprint, at the Colton Crossing;
- Raise or reroute of overhead electrical lines and removal/relocation of underground vault, owned by the City, at 9th Street;
- Removal and relocation of City-owned storm drain at 9th Street;
- Relocation of electrical poles, owned by SCE, at 11th Street;
- Removal and replacement of drop manhole for City sewer at 11th Street;
- Modify City storm drain culverts and structures at 11th Street; and
- Raise or reroute overhead electrical overhead electrical lines, owned by SCE at 15th Street.

1.4.1.6 Right-of-Way

Construction of the portion of the elevated structure west of the Colton Crossing would require acquisition by UPRR of a strip of right-of-way from Caltrans

consisting of approximately 0.65 acre, as shown in previously referenced Figure 1.3. In addition to the right-of-way required from Caltrans, a Caltrans encroachment permit would be required that would allow crews that are constructing the Colton Crossing to enter Caltrans right-of-way. A small portion of the existing 9th Street between the railway and the freeway ramps (currently barricaded from vehicle access) would need to be vacated by the City of Colton to accommodate the proposed flyover structure. The majority of the remaining construction activities are located within existing railroad right-of-way.

1.4.2 No Build Alternative

The No Build Alternative would not modify the existing at-grade mainline crossing. Rail tracks would remain in their existing configuration and rail activities would remain the same as occurs under current conditions. The No Build Alternative provides a baseline for comparing the effects associated with the Build Alternative.

1.4.3 Alternatives Considered but Eliminated from Further Discussion

Numerous Build Alternatives have previously been considered to alleviate the at-grade Colton Crossing. An Alternatives Analysis (April 2010) was conducted which documented the Build Alternatives considered by the project team. As part of the Analysis, each alternative was evaluated for the following: ability to meet the purpose and need, operational or safety considerations, social, economic, or environmental impacts, and cost. The following four alternatives were withdrawn from further consideration due to one or more of these criteria.

1.4.3.1 BNSF Flyover Alternative

This alternative entailed elevating the north south BNSF mainline tracks by placing them on a structure over the east-west UPRR mainline tracks and the adjacent I-10. The portion of the structure north of I-10 and south of the Colton Crossing would be on a retaining wall or embankment. The remaining portion would be on a bridge spanning the existing UPRR mainlines and I-10.

In order to span I-10, which is elevated approximately 30 feed above existing ground, the structure would need to be to approximately 60 feet above the existing ground. Due to this required height of the structure and a maximum allowable grade of 1.5 percent, the footprint of the alternative would extend past the Santa Ana River to the south and Laurel Boulevard to the north, a distance of approximately 2.7 miles.

Furthermore, in order to accommodate through rail traffic and to maintain connectivity between the UPRR and BNSF lines during construction, the existing mainline tracks would be realigned to the east by way of two temporary shoofly tracks located east of the proposed structure.

The BNSF Flyover Alternative was eliminated from further review due to excessive construction costs, operational difficulties, and unacceptable economic, social, and environmental impacts.

Cost. The rough order of magnitude cost of this alternative was $1,153,000,000. This was the second costliest of the proposed alternatives and is approximately $950,000,000 more expensive than the UP Flyover Alternative.

Severe Operational Problems. This alternative would have severe impacts to the local roadway network including 1) reduction in vehicular speed on the freeway during reconstruction of the I-10 Freeway Bridge resulting in delays that would have a spillover effect on the local roadway network; 2) closure of numerous local streets that cross the BNSF during construction; and 3) installation of an at-grade connection track west of the flyover that would perpetuate at-grade crossings at Valley Boulevard, H Street, E Street, and Olive Street even with construction of the BNSF flyover.

This alternative would also have negative impacts to train speeds and operations on both UPRR and BNSF corridors including 1) construction closures of existing connection tracks between BNSF and UPRR mainline tracks, as well as connections to the BNSF B yard leads that provide access to the BNSF B Yard from the BNSF mainlines; 2) reduction in the number of BNSF tracks, north of the Colton Crossing, from six to three tracks, which would reduce the speed of trains through this segment; and 3) reduction in the length of storage tracks, which would affect operations of the Northern BNSF Yard.

Unacceptable Adverse Social, Economic, or Environmental Impacts. The bridge structure over the existing UPRR mainlines and I-10 would require acquisition of approximately 122 properties and cause increases in noise and visual impacts. The flyover could introduce a physical feature that would be perceived as further dividing the City of Colton into the east and west sides thereby affecting community cohesion.

1.4.3.2 Depress BNSF Alternative

This alternative entailed depressing the north-south BNSF mainline tracks by placing them in a trench to cross under the UPRR mainlines, which would remain at-grade. The proposed trench would be located east of the existing tracks and measure approximately 88 feet wide, which would accommodate two mainline tracks and a maintenance road.

The trench would extend from just north of South La Cadena Drive on its southerly limit to just north of Laurel Boulevard on its northerly limit, a distance that covers approximately 2 miles. At its low point, the top of rail elevation would be approximately 30 feet below the existing ground. The existing UPRR tracks would cross the BNSF trench on a bridge that would span approximately 150 feet.

Two shoofly tracks would be constructed east of the proposed trench to allow BNSF to maintain operations during construction and to provide for a long-term connection between the BNSF mainlines and the UPRR tracks and existing rail yard. Additionally, a UPRR/BNSF connection track would be constructed west of the trench and would operate at grade until the BNSF mainline tracks exit the trench just north of Laurel Boulevard.

A segment of I-10 would need to be reconstructed. The existing freeway bridge that spans the BNSF rail line cannot accommodate the BNSF trench. Therefore, in order to keep the freeway in operation during the construction of the new bridge, the freeway would need to be realigned to the north for a distance of approximately 250 feet.

This alternative was eliminated from further consideration as part of the Alternatives Analysis for the following reasons:

Excessive Construction Cost. This alternative had a rough order of magnitude estimated cost of approximately $1,191,000,000. It was approximately $980,000,000 higher than the Build Alternative.

Severe Operational Problems. This alternative would have severe impacts to the local roadway network including 1) reduction in vehicular speed on the freeway during reconstruction of the I-10 Freeway Bridge resulting in delays that would have a spillover effect on the local roadway network; 2) closure of numerous local streets that cross the BNSF during construction; and 3) installation of an at-grade connection track west of the flyover that would perpetuate at-grade crossings at Valley

Boulevard, H Street, E Street, and Olive Street even with construction of the BNSF trench.

This alternative would also have impacts to train speeds and operations on both UPRR and BNSF corridors including 1) construction closures of existing connection tracks between BNSF and UPRR mainline tracks, as well as connections to the BNSF B yard leads that provide access to the BNSF B Yard from the BNSF mainlines; 2) reduction in the number of BNSF tracks, north of the Colton Crossing, from six to three tracks, which would reduce the speed of trains through this segment; and 3) reduction in the length of storage tracks, which would affect operations of the northern BNSF Yard.

Unacceptable Adverse Social, Economic, or Environmental Impacts. This alternative would potentially result in the following social, economic and environmental impacts: 1) acquisition of up to 122 properties associated with the trench construction, I-10 Freeway reconstruction and reconstruction of the Yuma Connection Tracks; 2) reconstruction of I-10 would cause substantial construction and commuter overflow traffic to local arterial roads resulting in noise, air pollution, and travel time delay issues in the local neighborhoods; 3) substantial traffic detouring and road closures would be required during construction of the trench due the numerous arterial crossings of the BNSF resulting in additional local delay and affecting emergency response to the project area; and 4) presence within a 100-year floodplain that would require special engineering to prevent floodwater from entering the trench, remove stormwater from the trench, and protect the trench from groundwater intrusion.

1.4.3.3 Depress UPRR Alternative

With this alternative, the UPRR mainline tracks would be placed in a trench to cross underneath the BNSF mainline tracks, which would remain at grade. The trench would be constructed north of the existing tracks and would accommodate two mainline tracks and a maintenance road in a proposed width of 65 feet. The existing BNSF tracks would be placed on a bridge structure to clear the proposed trench with a span length of approximately 120 feet. Two new shoofly tracks would need to be installed to the south of the proposed trench location.

The trench would extend from the Palmdale Cutoff Wye connection on the westerly extent to Mount Vernon Avenue on the easterly extent, a distance that covers over 2.2 miles. The maximum permitted grades in the trench is 1.5 percent. At the low point,

the top of rail elevation of the UPRR tracks would be 32 feet below the existing top of rail. Under the bottom bridge structure that would support the BNSF tracks the clearance would be 24 feet (based upon a structure depth of eight feet), which would be acceptable according to clearance requirements set in the design criteria.

This alternative was eliminated from further consideration as part of the Alternatives Analysis for the following reasons:

Excessive Construction Cost. This alternative had a rough order of magnitude estimated cost of $661,000,000. This cost is approximately $453,000,000 higher than the Build Alternative.

Severe Operational Problems. The following severe operational problems were identified: 1) extensive reconfiguration of the UPRR track in the vicinity of the Palmdale Cutoff Wye, during construction; 2) closure of the existing mainline track at the Palmdale Cutoff Wye to construct the trench and temporary closures of other tracks in this area, which would affect mainline and switching activities during construction; 3) conversion of the construction shoo-fly track to a permanent main track, southerly of the existing mainline, to accommodate train traffic from the Palmdale Cutoff Wye (which cannot be placed directly into the trench) and trains from the connection train track; 4) La Cadena Drive would have to be rebuilt as an overcrossing, with approximately a 10 percent gradient in order to maintain minimum clearances under I-10 and over the UPRR Trench; and 5) construction of a nonstandard shoofly for the existing BNSF tracks would be required to allow the existing tracks to cross over the UPRR trench, which would affect BNSF operations.

Unacceptable Adverse Social, Economic, or Environmental Impacts. This alternative would potentially result in the following social, economic and environmental impacts: 1) acquisition of up to 46 properties associated with the reconstruction of La Cadena Drive overcrossing; 2) closure of La Cadena Drive for up to 12 months, which would require detouring to parallel streets affecting access to downtown Colton businesses; 3) direct effects to Delhi soils and potentially affect habitat for the Delhi sands flower-loving fly associated with improvements at the Palmdale Wye Cutoff; 4) travel time delays associated with traffic detouring to parallel streets during closure of La Cadena Drive; 5) negative impacts to emergency services associated with closure of La Cadena Drive; and 6) presence within a 100-year floodplain that would require special engineering to prevent floodwater from

entering the trench, remove stormwater from the trench, and protect the trench from groundwater intrusion.

1.4.3.4 Combination Flyover/Depressed Alternative

The Combination Flyover/Depressed Alternative combined raising and lowering of the UPRR and BNSF mainline tracks. In the scenario analyzed, the top of rail elevation of the UPRR mainline tracks would be raised 25 feet while the BSNF mainline tracks would be lowered seven feet. By raising the UPRR and lowering the BNSF the overall footprint of this alternative was reduced since less length is required to get to the desired elevations to meet clearance requirements. The footprint of the UPRR modifications would be similar in length to that of the Build Alternative. This alternative was deemed non-constructible and was eliminated from further consideration early in the Alternatives Analysis.

The Combination/Flyover Depressed Alternative was deemed non-constructible due to the fact that it would be impossible to maintain operations during construction on both the BNSF and UPRR mainlines during construction. In order to construct this alternative, rail operations on both the UPRR and BNSF through the crossing would have to be halted for two to three weeks. The BNSF and UPRR lines could not afford a shutdown of this duration in such a critical location. For a crossing of such great importance, that would not be acceptable for either the BNSF or UPRR operations.

1.5 Permits and Approvals Needed

Table 1.5.A lists the permits, reviews, and approvals that would be required for project construction.

Table 1.5.A: Permits and Approvals Needed

Permit/Approval	Agency	Status
Encroachment Permit	Caltrans	Coordination would occur after environmental document approval
NPDES Construction General Permit	State Water Resources Control Board	Application would be submitted prior to construction.
Water Quality Management Plan	City of Colton/County of San Bernardino	Approval would be obtained after environmental document approval.
Section 404 Nationwide Permit	U.S. Army Corps of Engineers	Permits would be obtained after environmental document approval.
Streambed Alteration Agreement (Fish and Game Code Section 1602)	California Department of Fish and Game	Permits would be obtained after environmental document approval.

Table 1.5.A: Permits and Approvals Needed

Permit/Approval	Agency	Status
Water Quality Certification (Section 401 of the Clean Water Act)	Santa Ana Regional Water Quality Control Board	Permits would be obtained after environmental document approval.
Local Street Vacation	City of Colton	Vacation of 9th Street between the UPRR rail line and the freeway ramps.

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

As part of the scoping and environmental analysis conducted for the Colton Crossing Rail to Rail Grade Separation Project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

- **Coastal Zone:** There is no potential for adverse impacts to a coastal zone as the project area is located approximately 45 miles inland from the coast.

- **Wild and Scenic Rivers:** There is no potential for adverse impacts to wild and scenic rivers due to the absence of wild and scenic rivers within the vicinity of the project area.

- **Farmlands or Timberlands:** There is no potential for adverse impacts to farmlands or timberlands due to the absence of farmlands and timberlands within the vicinity of the proposed project.

- **Park and Recreational Resources:** There are no recreational resources on the proposed project site or within 0.5 mile of the site that would be adversely affected by the proposed project.

- **Solid Waste Disposal:** Construction of the proposed project would generate refuse and waste (e.g., wood for cement forms, bags, and remnant concrete). Railroad-related materials that are removed (e.g., metal rails, wooden ties, signals, and other facilities) will be recycled to the extent feasible by UPRR at other locations within its rail network. The amount of waste generated would be minimized to the degree practical, and would not cause any capacity limitations at local waste transfer or landfill facilities. The County of San Bernardino, Solid Waste Management Division, manages the disposal of solid waste for the project area, and local waste is disposed of in the nearby Colton Sanitary Landfill (SWIS #36-AA-0051). The County recently expanded the total capacity of this facility from 13.5 to 15.5 million cubic yards, which extended its useful life from 2009 to

2017 (SBC-SWMD website 2010). There is no potential for adverse impacts related to solid waste disposal.

HUMAN ENVIRONMENT

2.1 Land Use

The following items are discussed under land use: existing and future land use; consistency with State, regional, and local plans; and parks and recreation. The information for this section has been primarily summarized from the *Community Impact Assessment* (CIA) (February 2011) prepared for this project.

2.1.1 Affected Environment

2.1.1.1 Existing and Future Land Use

Existing land uses north of the project area (north of I-10) include businesses mixed with residential uses, as shown in Figure 2.1.1, Existing Land Uses. West Valley Boulevard and East Valley Boulevard serve as the main commercial district for the City of Colton. Existing land uses south of the project area include single-family residences mixed with commercial and industrial uses.

Existing and future land uses in the study area are controlled by the City of Colton (City) through exercise of its police power authority implemented by its General Plan and Zoning Code. Although existing land use is the result of development that has already occurred, the General Plan and Zoning Code work in tandem to control the location, type, intensity, and appearance of existing and future land uses. The Land Use Element of the City's General Plan was approved in 1987, while the Land Use Map and Zoning Map were most recently updated in February 2010. The City General Plan Land Use Map and Zoning Map are periodically updated and are required to be consistent with one another.

The General Plan is a comprehensive, long-term planning document guiding the physical development of the City. The City Zoning Code outlines the details under which land uses are located and provides additional development details regarding the type, intensity, and character of land use activity by zones that are consistent with the General Plan.

The portion of the project site in the City of Colton (east of Rancho Avenue) is classified as Low Density Residential (LD), Medium Density Residential (MD), and Heavy Industrial (HI) in both the City's General Plan Land Use Map and Zoning Map (Colton 2010). The portion of the project site on unincorporated San Bernardino County land (west of Rancho Avenue) is classified as Industrial (AM/SP) in the County's General Plan Land Use Map and Zoning Map (San Bernardino County,

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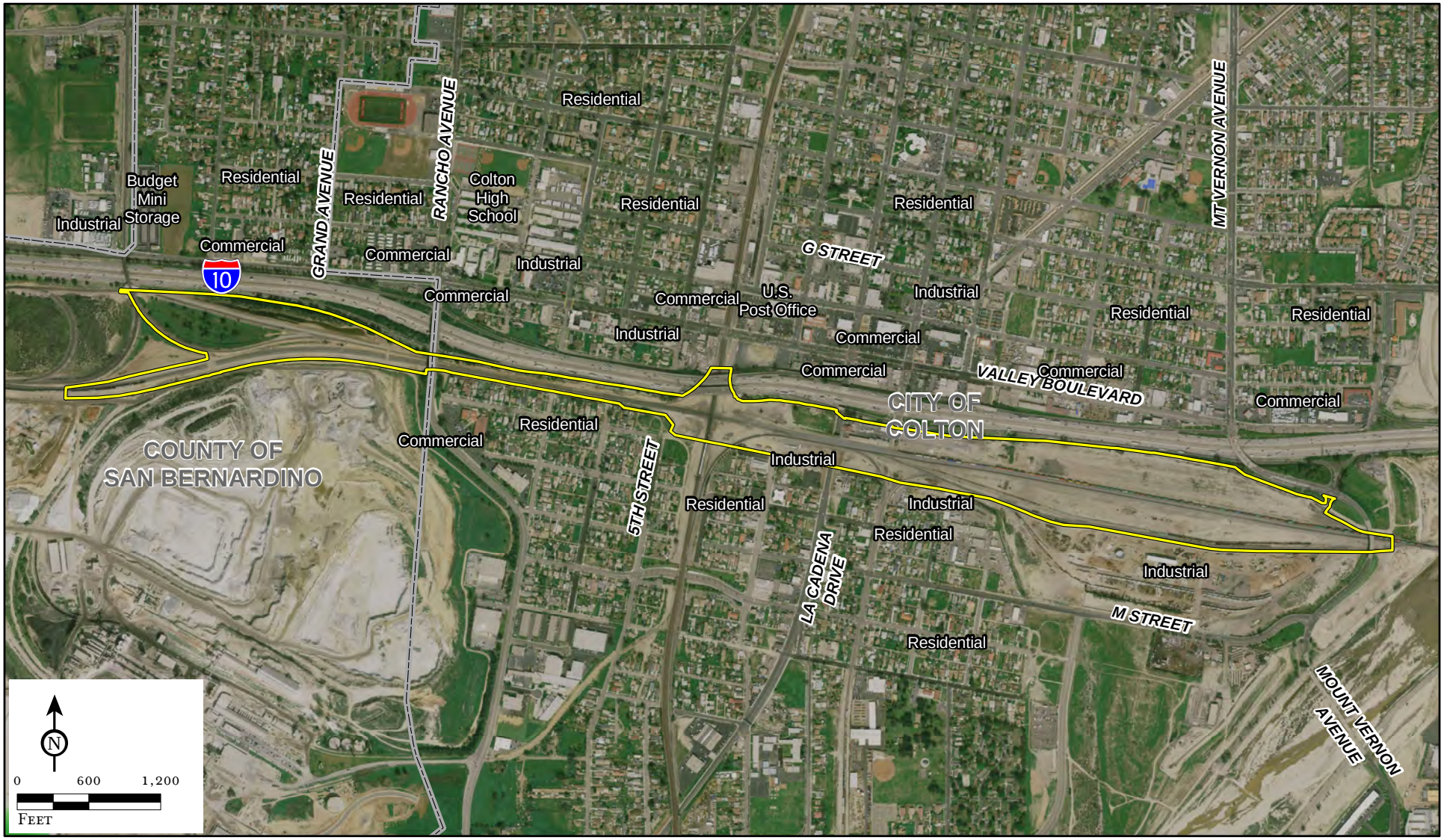

FIGURE 2.1.1

Project Area

City Boundary

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

SOURCE: Air Photo, USA 2008.

Existing Land Uses

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2008). The entire project site is located south of I-10. On-site land uses include a railroad yard and related heavy industrial uses.

The existing General Plan Land Use Element designations in the project site and surrounding areas are illustrated in Figure 2.1.2, while zoning designations are illustrated in Figure 2.1.3.

In most years, the City has grown slowly since it does not have a great deal of land available for new development. The study area is mostly built out. However, there are a few vacant parcels and areas within this part of the City that are considered to be under-utilized. The trend in the study area is redevelopment of existing older uses with an emphasis on improved access to both I-10 and I-215, and encouraging transit-orientated development where possible.

2.1.1.2 Consistency with State, Regional, and Local Plans

State plans applicable to the proposed project related to rail planning include the *Goods Movement Action Plan* (Business, Transportation and Housing Agency and the California Environmental Protection Agency 2007) and the *California State Rail Plan* (Caltrans 2008). Local plans applicable to the proposed project are limited to the City of Colton's General Plan and the County of San Bernardino's General Plan.

Goods Movement Action Plan. The *Goods Movement Action Plan* was prepared by the Business, Transportation and Housing Agency (BTH) and the California Environmental Protection Agency in January 2007 (BTH 2007). As part of the *Goods Movement Action Plan*, the Infrastructure Working Group, BTH, and Caltrans analyzed the inventory of infrastructure projects against established infrastructure criteria. The result is a list of Preliminary Candidate Actions. The resulting list includes Colton Crossing improvements as needed in the short term (0–3 years).

California State Rail Plan. The *California State Rail Plan 2007–08 to 2017–18* was prepared by Caltrans in March 2008. The *California State Rail Plan* lists three improvement projects identified as choke points that should be addressed to accommodate flow of rail traffic. Colton Crossing is listed as one of the three improvement projects. The plan also identifies some of the significant proposed freight rail projects that could help overcome the challenges facing California's goods movement system, accommodate international trade and also benefit the rest of the Nation. Nine projects are identified, the fourth project being Colton Crossing.

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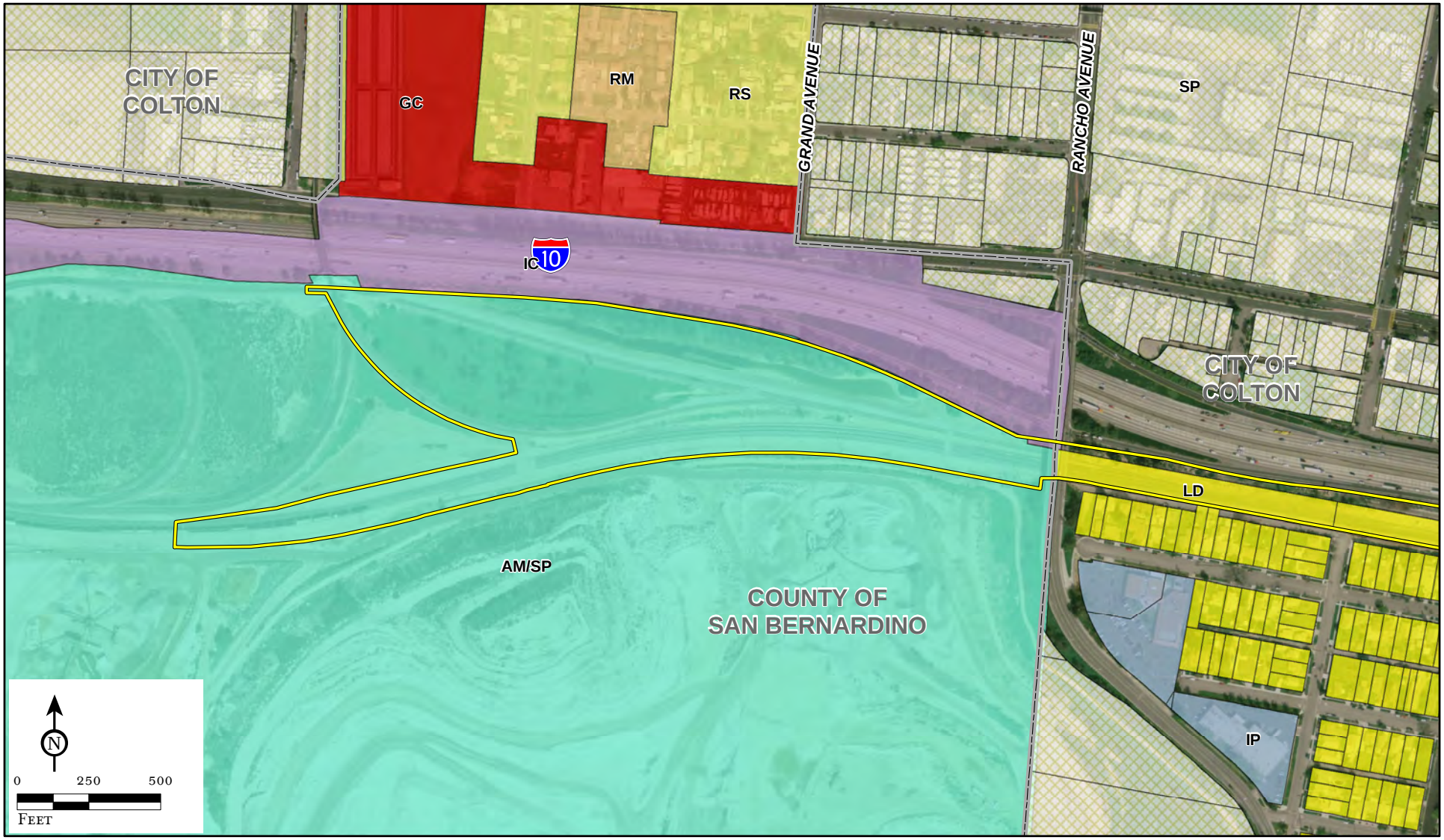

Project Area

City Boundary

San Bernardino County GP Land Use

7M-RM, Multiple Family Residential

RS, Single Family Residential

CG, General Commercial

IC, Community Industrial

AM/SP, Industrial

City of Colton GP Land Use

LD, Low Density Residential

MD, Medium Density Residential

HD, High Density Residential

BP, Business Park

GC, General Commercial

MU, Multi-Use Designation

IP, Industrial Park

LI, Light Industrial

HI, Heavy Industrial

OS, Open Space

PF, Public Facility

PC, Planned Community

SP, Specific Plan

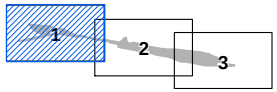

FIGURE 2.1.2
Sheet 1 of 3

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

General Plan Designations

SOURCE: Air Photo, USA 2008; San Bernardino County General Plan, 2008; City of Colton General Plan Map, 2010.

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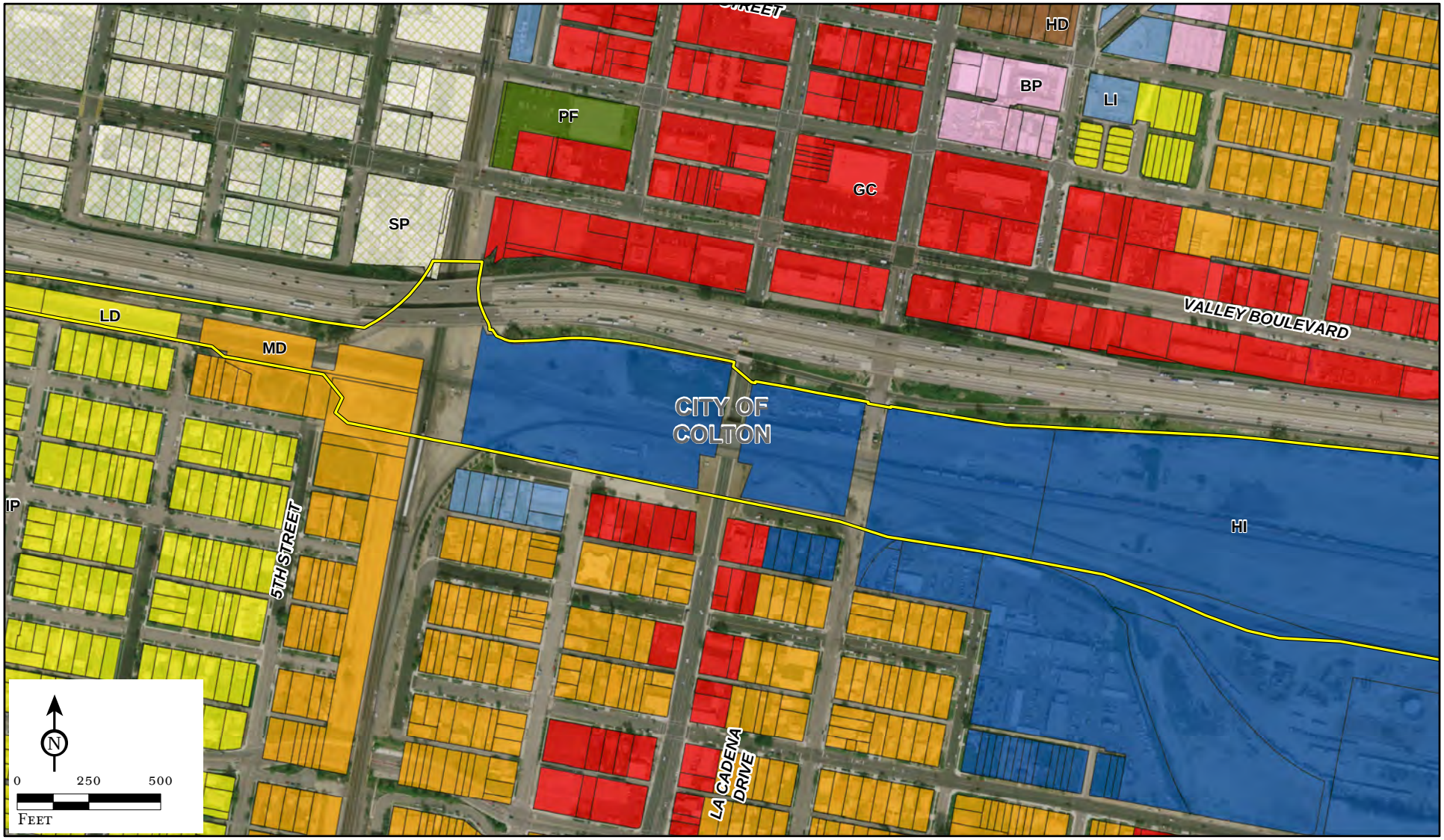

Project Area

City Boundary

San Bernardino County GP Land Use

7M-RM, Multiple Family Residential

RS, Single Family Residential

CG, General Commercial

IC, Community Industrial

AM/SP, Industrial

City of Colton GP Land Use

LD, Low Density Residential

MD, Medium Density Residential

HD, High Density Residential

BP, Business Park

GC, General Commercial

MU, Multi-Use Designation

IP, Industrial Park

LI, Light Industrial

HI, Heavy Industrial

OS, Open Space

PF, Public Facility

PC, Planned Community

SP, Specific Plan

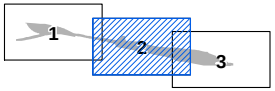

FIGURE 2.1.2
Sheet 2 of 3

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

General Plan Designations

SOURCE: Air Photo, USA 2008; San Bernardino County General Plan, 2008; City of Colton General Plan Map, 2010.

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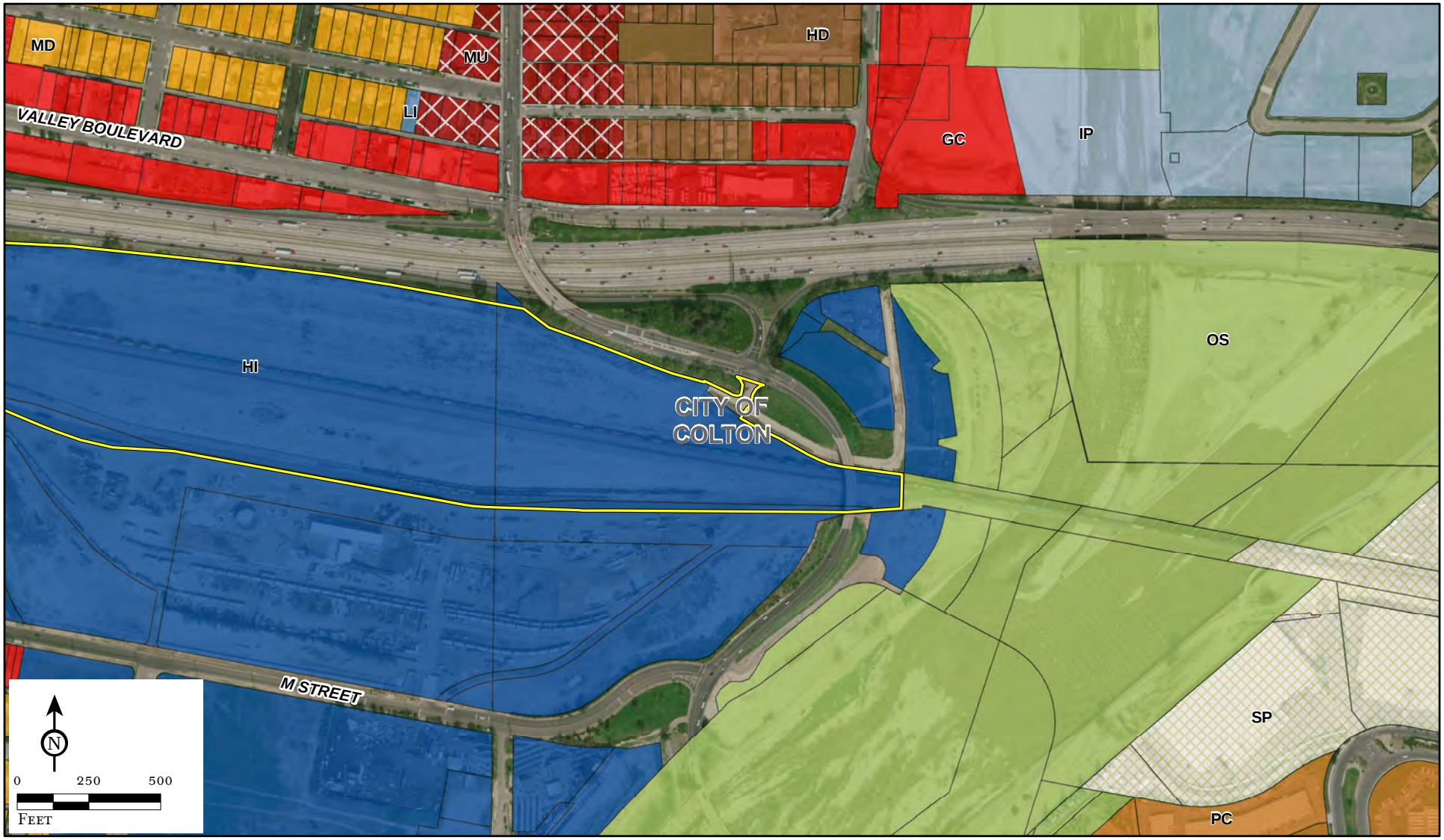

Project Area

City Boundary

San Bernardino County GP Land Use

7M-RM, Multiple Family Residential

RS, Single Family Residential

CG, General Commercial

IC, Community Industrial

AM/SP, Industrial

City of Colton GP Land Use

LD, Low Density Residential

MD, Medium Density Residential

HD, High Density Residential

BP, Business Park

GC, General Commercial

MU, Multi-Use Designation

IP, Industrial Park

LI, Light Industrial

HI, Heavy Industrial

OS, Open Space

PF, Public Facility

PC, Planned Community

SP, Specific Plan

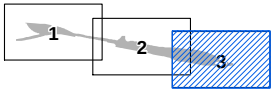

FIGURE 2.1.2
Sheet 3 of 3

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

General Plan Designations

SOURCE: Air Photo, USA 2008; San Bernardino County General Plan, 2008; City of Colton General Plan Map, 2010.

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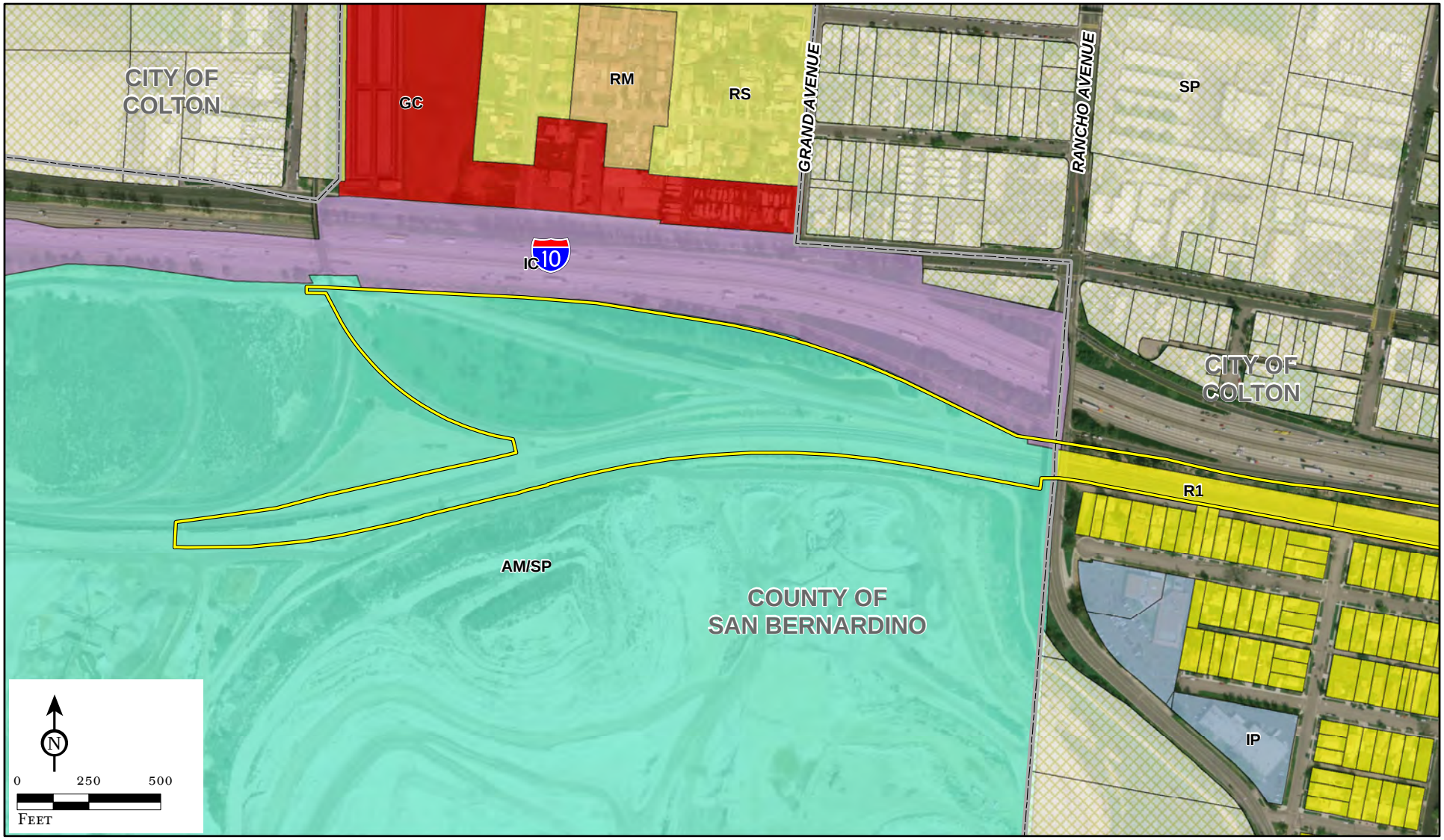

Project Area

City Boundary

San Bernardino County GP Land Use

7M-RM, Multiple Family Residential

RS, Single Family Residential

CG, General Commercial

IC, Community Industrial

AM/SP, Industrial

City of Colton Zoning

R1, Single-Family Residential

R2, Duplex Residential

R3, Multiple-Family Residential

BP, Office/Business Park

C2, General Commercial

IP, Industrial Park

M1, Light Industrial

M2, Heavy Industrial

OS, Open Space

PF, Public Facility

PC, Planned Community

SP, Specific Plan

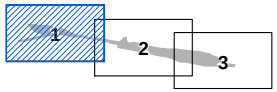

FIGURE 2.1.3
Sheet 1 of 3

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

Zoning Designations

SOURCE: Air Photo, USA 2008; San Bernardino County General Plan, 2008; City of Colton General Plan Zoning Map, 2010.

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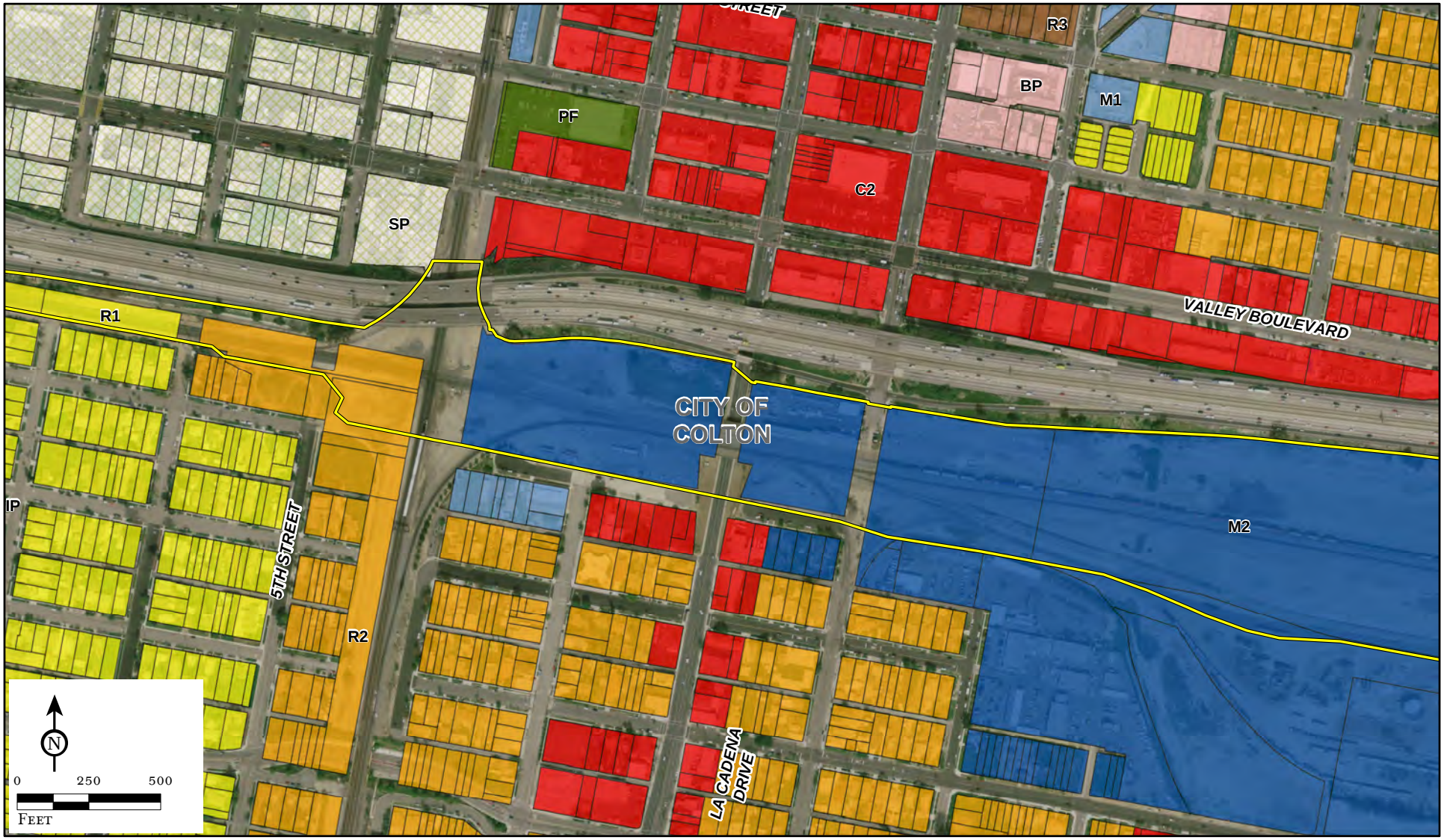

Project Area

City Boundary

San Bernardino County GP Land Use

7M-RM, Multiple Family Residential

RS, Single Family Residential

CG, General Commercial

IC, Community Industrial

AM/SP, Industrial

City of Colton Zoning

R1, Single-Family Residential

R2, Duplex Residential

R3, Multiple-Family Residential

BP, Office/Business Park

C2, General Commercial

IP, Industrial Park

M1, Light Industrial

M2, Heavy Industrial

OS, Open Space

PF, Public Facility

PC, Planned Community

SP, Specific Plan

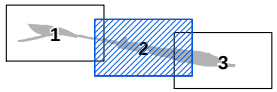

FIGURE 2.1.3
Sheet 2 of 3

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

Zoning Designations

SOURCE: Air Photo, USA 2008; San Bernardino County General Plan, 2008; City of Colton General Plan Zoning Map, 2010.

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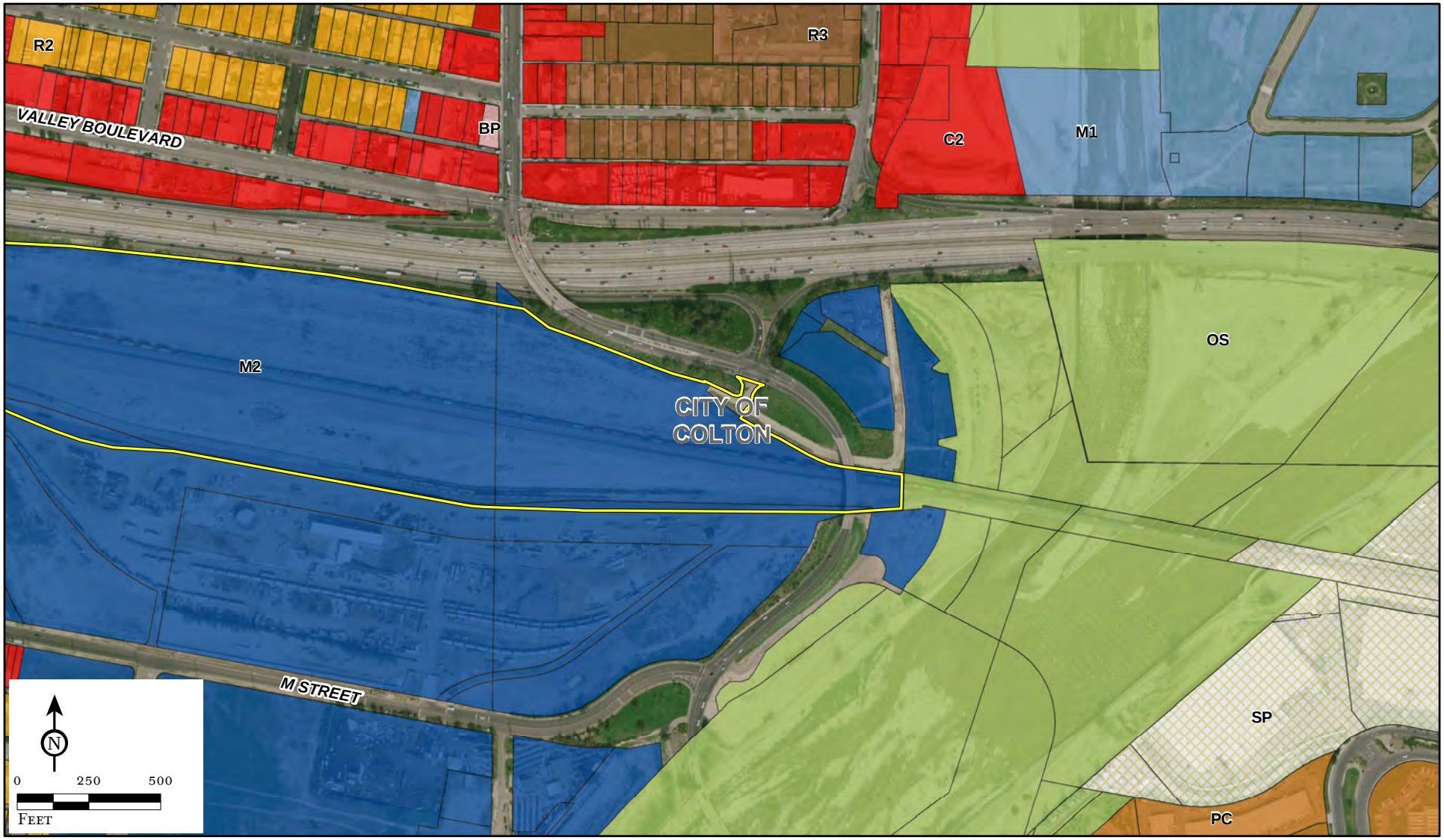

Project Area

City Boundary

San Bernardino County GP Land Use

7M-RM, Multiple Family Residential

RS, Single Family Residential

CG, General Commercial

IC, Community Industrial

AM/SP, Industrial

City of Colton Zoning

R1, Single-Family Residential

R2, Duplex Residential

R3, Multiple-Family Residential

BP, Office/Business Park

C2, General Commercial

IP, Industrial Park

M1, Light Industrial

M2, Heavy Industrial

OS, Open Space

PF, Public Facility

PC, Planned Community

SP, Specific Plan

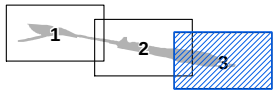

FIGURE 2.1.3
Sheet 3 of 3

Colton Crossing
Rail-to-Rail Grade Separation
Environmental Assessment

Zoning Designations

SOURCE: Air Photo, USA 2008; San Bernardino County General Plan, 2008; City of Colton General Plan Zoning Map, 2010.

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City of Colton General Plan (Adopted May 1987). The City of Colton General Plan provides a comprehensive strategy for managing the community's future. The General Plan emphasizes the desired or intended use of land in the community, including future development of the City of Colton and its sphere of influence as well as goals and policies to conserve, protect, or utilize natural resources. Applicable goals, policies, and objectives from the Colton General Plan include the following:

Land Use Goals and Policies

Objective 1	To create a land use pattern which provides a safe, harmonious and attractive residential living environment; a balanced hierarchy of commercial land uses which will service the consumer and economic needs of the City and region; a strong industrial base highly competitive within the area's labor force pool and industrial growth market; and adequate open space and recreational areas.
Industrial Principle 1	Industrial uses need to be located in areas compatible with surrounding uses such as adjacent to railroads and freeways.
Industrial Principle 5	The City should encourage labor intensive industrial uses to be linked with major public transportation routes serving the region in order to increase employment access to Colton facilities.

Air Quality Goals and Policies

Principle 1	Achieve air quality improvements in such a way that continued economic growth can be sustained.
Goal 1	Effective coordination of air quality improvement within the portion of the South Coast Air Basin in San Bernardino County and improved air quality through reductions in pollutants from Orange and Los Angeles countries.
Policy 1.4	Involve environmental groups, special interests and the general public in the formulation and implementation of programs which effectively reduce airborne pollutants.
Policy 1.5	Advocate and support innovative strategies to improve air quality.

Goal 2	A diverse and efficiently operated ground transportation system which generates the minimum feasible pollutants.
Policy 2.3.1	Cooperate in efforts to expand bus, rail, and other forms of transit in the portion of the South Coast Air Basin within San Bernardino.
Policy 2.3.2	Promote expansion of all forms of transit in the urbanized portions of San Bernardino, Orange, Los Angeles, and Riverside Counties.
Goal 4	A pattern of land uses which can be efficiently served by a diversified transportation system and land development projects which directly and indirectly generate the minimum feasible air pollutants.
Policy 4.3	Support a regional approach to regulation the location and design of land uses which are especially sensitive to air pollution.
Goal 5	Reduce particulate emissions from roads, parking lots, construction sites, and agricultural lands.

Noise Goals and Policies

Objective 1	To achieve and maintain an environment where noise is compatible with human activities interacting with a variety of land uses.

Safety Goals and Policies

Objective 1	Avoid or prevent damage from natural or man-made hazards by assessing their nature and location, taking steps to control them, and guiding human activities away from areas subject to hazards in which correction is not feasible.
Objective 2	Minimize unavoidable or unpreventable losses by requiring a thorough analysis of the geologic environment prior to design approval, and providing for requiring safe design, construction, and maintenance practices according to safety codes, ordinances, or special conditions placed on the project.

County of San Bernardino General Plan (March 2007). The County of San Bernardino General Plan provides a comprehensive strategy for managing the County's future. The General Plan emphasizes the desired or intended use of land within the County as well as goals and policies to conserve, protect, or utilize natural resources. Applicable goals and objectives from the County of San Bernardino General Plan include the following:

Land Use Element

Goal LU.9	Development will be in a contiguous manner as much as possible to minimize environmental impacts, minimize public infrastructure and service costs, and further countywide economic development goals.
Goal LU.11	Promote mutually beneficial uses of land to address regional problems through coordination and cooperation among the County, the incorporated cities, Southern California Association of Governments (SCAG), San Bernardino Associated Governments (SANBAG), the various special districts and other local, State, and Federal agencies.

Circulation Element

Goal CI.1	The County will provide a transportation system, including public transit, which is safe, functional, and convenient; meets the public's needs; and enhances the lifestyles of County residents.
Goal CI.2	The County's comprehensive transportation system will operate at regional, countywide, community, and neighborhood scales to provide connectors between communities and mobility between jobs, residences, and recreational opportunities.
Policy CI 2.1	Work with adjacent jurisdictions to minimize inconsistencies in existing and ultimate right-of-way and roadway capacity across jurisdictional boundaries.
Goal CI.4	The County will coordinate land use and transportation planning to ensure adequate transportation facilities to support planned land uses and ease congestion.

Policy CI.7	The County will encourage and pursue development of regional transportation facilities, including roads, railroad, and airports, to be a multi-modal transportation hub and promote economic development.

Conservation Element

Goal CO.4	The County will ensure good air quality for its residents, businesses, and visitors to reduce impacts on human health and the economy.

Safety Element

Goal S.1	The County will minimize the potential risks resulting from exposure of County residents to natural and man-made hazards in the following priority: loss of life or injury, damage to property, litigation, excessive maintenance, and other social and economic costs.
Goal S.6	The County will protect residents from natural and man-made hazards.

Economic Development Element

Goal ED.1	The County will have a vibrant and thriving local economy that spans a variety of industries, services, and other sectors.
Goal ED.8	The County will lead the region as a multi-modal transportation hub and spur economic development through air, rail, and highway systems.
Goal ED.10	The County will have a strong and diversified economic base.
Goal ED.15	Major economic development activity will be within urbanized or urbanizing areas in proximity to existing transportation facilities and other infrastructure.

2.1.2 Environmental Consequences

2.1.2.1 Temporary Impacts

Build Alternative

The temporary construction impacts of the Build Alternative would not result in a conflict with applicable State, regional, and local plans. Therefore, no adverse impacts associated with plan consistency would occur.

No Build Alternative

The No Build Alternative would not require any of the temporary construction activities associated with the Build Alternative within the project area; therefore, no conflict with applicable State, regional, and local plans would occur.

2.1.2.2 Permanent Impacts

Build Alternative

The Build Alternative would not result in the acquisition or displacement of any existing residential, commercial, or industrial land uses. In addition, the Build Alternative would not introduce a new land use or change an existing use. The project site has been utilized for rail activities since 1875. As such, the Build Alternative would be consistent with the existing land uses within the study area, which are primarily rail transportation uses. These railroad uses and existing residential and commercial to the south have been in this configuration for over 100 years. Therefore, the Build Alternative would not result in a substantial change to this existing land use pattern. Since land use patterns in the study area would remain the same, no adverse impacts related to land use compatibility would occur as a result of the Build Alternative.

The Build Alternative would result in the construction of a rail structure in the South Colton neighborhood. However, the Build Alternative would not require the acquisition of residential or commercial properties, nor would it result in the displacement of residents or employees. The only acquisition anticipated for the Build Alternative would be a portion of an existing Caltrans parcel, west of the BNSF crossing. Therefore, no land use impacts associated with permanent land acquisitions would occur.

The project site is designated for industrial uses in the County’s General Plan and Zoning. The project site is designated for industrial and residential uses under the City’s General Plan and Zoning designations. The area designated as residential is occupied by the UPRR rail yard and there is no intention of constructing residences

on these properties. The residential designation appears to be a mapping error. Therefore, the Build Alternative would be consistent with the land use designations for the site. The Build Alternative would also be consistent with City policies that support maintenance of a strong industrial base and placement of industrial uses adjacent to railroads. Additionally, the Build Alternative would be consistent with City policies supporting programs to improve local air quality and reduce airborne pollutants. The Build Alternative would reduce train idling in the area, which would reduce air pollutant emissions in the area and within the rail study area as a whole. Therefore, the Build Alternative would be consistent with applicable plans and policies in the area.

No Build Alternative

No construction would occur in the project area under the No Build Alternative; therefore, there would be no change to the existing land uses on the project site.

No new construction would occur but existing railroad uses would remain. Continuation of railroad use in the area would be consistent with the land use designations in the City and County General Plans and zoning designations. However, the No Build Alternative would not be consistent with City policies related to supporting programs that improve local air quality and reduce airborne pollutants since the existing delay at the rail to rail at-grade crossing would still occur.

2.1.3 Avoidance, Minimization, and/or Mitigation Measures

The Build Alternative would not result in adverse effects associated with land use and is consistent with State, regional, and local plans. Therefore, no avoidance, minimization, and/or mitigation measures are required.

2.2 Growth

2.2.1 Regulatory Setting

Under NEPA, a Federal agency must evaluate the direct and indirect effects of a proposed action. Indirect effects are those that are caused by the proposed action but will occur later in time or further removed in distance, but are still reasonably foreseeable. Indirect effects may include "growth-inducing effects" and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on environmental resources.

CEQ NEPA regulations, 40 CFR 1508.8, define indirect effects including those that are growth related.

2.2.2 Affected Environment

This section is based on the information from the *Community Impact Assessment* (February 2011), the *Rail Operations Analysis of the Colton Crossing Project*, (February 2011), and demographic information from the 2008 Southern California Association of Governments (SCAG) Regional Transportation Program (RTP) Growth Forecasts (http://www.scag.ca.gov/forecast/adoptedgrowth.htm). The project area for growth is within the City of Colton, with a focus on Census Tract 40.00, Census Tract 66.00, Census Tract 68.00, Census Tract 69.00, Census Tract 70.00, and Census Tract 71.08 (Figure 2.3.1, Section 2.3).

All of the study area census tracts are within the City of Colton. Table 2.2.A provides the 2010 populations and projected 2015, 2025, and 2035 populations for San Bernardino County, the City of Colton, and the project area census tracts.

According to SCAG population estimates, the population in San Bernardino County totaled approximately 2,182,049 in 2010 and is projected to total 2,385,478 in 2015. SCAG projects that the population in San Bernardino County will increase by approximately 44 percent, to 3,133,801 persons, between 2010 and 2035.

The 2010 population in the City of Colton was 58,815 persons and is projected to be 65,543 persons by 2015. SCAG projects that the population in the City of Colton will increase by approximately 52 percent, to 89,604 persons, between 2010 and 2035. All of the study area census tracts are projected to increase between 2010 and 2035. Census Tract 40.00 (166%), Census Tract 68.00 (127%), and Census Tract 69.00 (132%) have a higher projected increase in population than the projected 44 percent increase for San Bernardino County and 52 percent increase for the City. Census

Tract 71.08 (45%) is projected to have a higher population growth rate than the County, but less than the City's projected rate. Census Tract 66.00 (12%) and Census Tract 70.00 (40%) would have a lower projected population growth rate than that identified for the County and City.

Table 2.2.A: Population, Household, and Employment Estimates

Geographic Area	2010	2015	2025	2035	Percentage Increase 2010 to 2035
Population					
County of San Bernardino	2,182,049	2,385,748	2,582,765	3,133,801	43.6
City of Colton	58,815	65,543	71,880	89,604	52.3
Census Tract 40.00	3,381	4,564	5,713	8,980	165.6
Census Tract 66.00	11,204	11,548	11,834	12,564	12.1
Census Tract 68.00	1,526	1,937	2,334	3,460	126.7
Census Tract 69.00	5,148	6,586	7,977	11,930	131.7
Census Tract 70.00	8,424	9,178	9,879	11,824	40.4
Census Tract 71.08	2,496	2,741	2,971	3,611	44.7
Households					
County of San Bernardino	637,250	718,602	787,142	972,561	52.6
City of Colton	16,892	19,545	21,787	27,851	64.9
Census Tract 40.00	890	1,318	1,686	2,704	203.8
Census Tract 66.00	2,960	3,103	3,216	3,498	18.2
Census Tract 68.00	549	749	921	1,395	154.1
Census Tract 69.00	1,228	1,692	2,090	3,189	159.7
Census Tract 70.00	2,222	2,494	2,721	3,329	49.8
Census Tract 71.08	1,131	1,282	1,408	1,749	54.6
Employment					
County of San Bernardino	810,233	897,489	965,778	1,254,749	54.9
City of Colton	28,502	33,064	36,420	53,412	87.4
Census Tract 40.00	2,801	3,223	3,533	5,111	82.5
Census Tract 66.00	2,330	2,483	2,587	3,198	37.3
Census Tract 68.00	1,794	2,009	2,164	2,979	66.1
Census Tract 69.00	1,903	2,268	2,539	3,886	104.2
Census Tract 70.00	1,368	1,557	1,696	2,408	76.0
Census Tract 71.08	6,056	7,440	8,477	13,557	123.9

Source: Adopted 2008 SCAG RTP Growth Forecasts, http://www.scag.ca.gov/forecast/adoptedgrowth.htm, website accessed April 19, 2010.

As identified in Table 2.2.A, the number of households for the County is projected to be 637,250 in 2010 and 972,561 in 2035, an increase of approximately 53 percent. Similarly, the number of households for the City is projected to be 16,892 in 2010 and 27,851 in 2035, an increase of approximately 65 percent.

Based on the information identified in Table 2.2.A, the number of households for all study area census tracts is anticipated to increase. Projections for Census Tract 40.00 (204%), Census Tract 68.00 (154%), and Census Tract 69.00 (160%) are higher than projections for the County (53%) and the City (65%) and could be attributed to potential redevelopment that could occur within these census tracts. The potential redevelopment of this land could result in the removal and replacement of existing low-density land uses with higher density land uses. Projections for Census Tract 70.00 (50%) and Census Tract 71.08 (55%) are similar to what has been identified for the County and City. The projection for Census Tract 66.00 (18%) is lower than the increases identified for the County and City. This could be attributed to the nearly built out condition of this census tract, which would not have land available to develop additional residential areas.

2.2.3 Environmental Consequences

The analysis of growth-related, indirect impacts was prepared based on the *Guidance for Preparers of Growth-Related, Indirect Impact Analyses* (May 2006), which was developed by an interagency work group that included representatives from the Department, FHWA, and the United States Environmental Protection Agency (EPA). The analysis of growth-related impacts was developed by applying the following steps from the guidance document:

- Identify the potential for growth for each alternative (will the project change the location, rate, type, or amount of growth?);
- Assess the growth-related effects of each alternative to resources of concern (will these resources be affected?);
- Consider additional opportunities to avoid and minimize growth-related impacts;
- Compare the results of the analysis for all alternatives; and
- Document the process and findings of the analysis.

The analysis of growth-related effects relies extensively on the Rail Operations Analysis for assessment of growth in rail traffic and the General Plans of the affected local agencies, including the County of San Bernardino and the City of Colton for localized growth. In addition to the use of General Plan information related to land use, geographic information system (GIS) data from regional databases and environmental resource data collected for the proposed project were used to identify resources of concern in the project study area, as well as constraints and opportunities that may affect the location and rate of growth within the study area.

2.2.3.1 Temporary Impacts

Build Alternative

Growth is typically associated with long-term implications of a project and how the project permanently contributes to growth in the project study area. Given the urbanized nature of the project area and the Inland Empire, there is a large employment base. It is expected that workers within the Inland Empire or surrounding areas would be utilized during construction. Therefore, no temporary growth impacts related to an influx of construction workers would occur under this alternative.

No Build Alternative

Growth is typically associated with long-term implications of a project and how the project permanently contributes to growth in the project study area. Since the No Build Alternative would not involve construction activities within the study area, there would be no temporary growth impacts under this alternative.

2.2.3.2 Permanent Impacts

Build Alternative

The potential growth-related impacts of the Build Alternative were considered in the context of the first cut screening analysis approach to assess the likely growth-potential effect of the Build Alternative, and whether further analysis is necessary, based on consideration of the following:

- How, if at all, does the proposed project potentially change accessibility?
- How, if at all, do the project type, project location, and growth-pressure potentially influence growth? Some transportation projects may have very little influence on future growth, whereas other may have a great influence. Some geographic locations are more conducive to influencing growth, whereas other are highly constrained. These differences may result from physical constraints, planning and zoning factors, or local political considerations.
- Is project-related growth reasonably foreseeable as defined in NEPA? Under NEPA, indirect impacts need only be evaluated if they are reasonably foreseeable as opposed to remote and speculative.
- If there is project-related growth, how, if at all, will it affect resources of concern? Identify which resources of concern are likely to be affected by the foreseeable future growth. If a project is likely to influence future growth, but no resources of concern will be affected, then state so here and indicate that no further growth analysis is warranted.

The potential for the Build Alternative to influence growth based on these considerations is described as follows.

How, if at all, does the proposed project potentially change accessibility?

The Build Alternative would reduce train idling and gate down time in the project area through the provision of a continuous UPRR rail line along the existing corridor. This would eliminate the existing operational constraint associated with the crossing of the UPRR and BNSF lines. The Build Alternative would not provide additional transportation facilities as the proposed flyover structure would maintain the same number of rail tracks. Therefore, the Build Alternative would not result in changes in accessibility to the transportation system in this area.

How, if at all, do the project type, project location, and growth-pressure potentially influence growth?

The Build Alternative would not be expected to affect local growth beyond what is identified in the City of Colton and San Bernardino County General Plans since there would be no property acquisition within the study area (with the exception of the Caltrans parcel acquisition) and there is no railroad-associated development occurring within the existing rail yards or adjacent properties. Growth in the affected City and County is expected to occur with or without the project because the Build Alternative on its own cannot affect variables such as economic opportunities, employment, or housing availability, which directly affect local and regional development growth.

The No Build and Build Alternative's effect on rail growth was evaluated as part of the *Rail Operations Analysis* (February 2011). As documented in the Rail Operations Analysis, trains operating on the BNSF and UPRR main lines at Colton Crossing consist of freight trains of BNSF and UPRR, commuter passenger trains operated by Metrolink (the Southern California commuter rail operations authority), and long-distance passenger trains operated by Amtrak. Freight trains consist of various types, such as intermodal trains that carry containerized freight or highway semi-trailers; bulk trains that consist of a single commodity such as grain moving between a single origin and destination; manifest trains that carry individual carloads of freight for many shippers and moving between multiple origins and destinations; and local freights and transfers that move freight cars between switching yards, or between yards and the docks or shipping and receiving facilities of railroad customers. Between 70 and 90 freight trains per day travel through the crossing at present (measured during the period of July 25 to August 3, 2010). The approximate proportion of each train type at present per day was as follows:

- **5% local trains**. These trains primarily move freight brought to the Los Angeles Basin switching yards by manifest trains, to local shippers and receivers.
- **20% manifest trains.** These trains primarily move freight that would be delivered to receivers or picked up from shippers that are located in the Los Angeles Basin
- **70% intermodal trains.** Approximately 60 percent of the freight carried by these trains moves between domestic U.S. shippers and receivers. The remaining 40 percent moves between the Ports of Los Angeles and Long Beach and domestic shippers and receivers.
- Small volumes of rail traffic originating in or destined to Mexico pass through Colton Crossing.

As part of the Rail Operations Analysis, a growth rate was developed in consultation with BNSF and UPRR. Both BNSF and UPRR expect freight train traffic through Colton Crossing to grow over time at a 2.71 percent annual rate, compounded, from the present through 2035.[1] BNSF and UPRR provided this consensus compound annual growth rate (CAGR) for freight trains based on historic trends and economic growth predictions supplied by the firm Global Insights, Inc.

"Our decision is justified by the historical car loadings (Source: AAR Weekly Car Load reporting) of the western U.S. railroads. The CAGR for the 20 year period covering 1989–2008 equaled 3.08%. The CAGR for the ten year period covering 1999–2008 equaled 2.28%. We believe the justification for an annual growth rate equaling 2.71% is as follows:

- Projected growth rate falls in line with intermediate and long-term car loading trends.
- Positive prospects for freight rail going forward.
- Environmentally friendly mode of transportation.
- Conversion of truck freight to rail as a result of overall highway congestion.
- Recovery of overall economy.
- Above average population growth projections for Southern California."

As described in the Rail Operations Analysis, port traffic contribution to total rail traffic through the Colton Crossing was expected to remain proportional to other rail

[1] Train volume fluctuations around this average may occur on a weekly, seasonal, and yearly basis as a result of general economic conditions, changes in market demands for products carried by trains, and other conditions.

traffic through Colton Crossing as outlined above for existing conditions. This assumption was documented by port and modal elasticity studies conducted by Leachman and Associates and the University of California, Berkeley, for SCAG in 2005 and was recently updated.[1] These studies measured elasticity of demand for import and export containerized goods traffic through the ports compared to alternative ports serving the same inland U.S. markets.

The Build Alternative maintains the same number of mainline tracks as exist today. Additionally, the Rail Operations Analysis confirmed that there is adequate capacity of the rail infrastructure within the model limits, for the train characteristics, schedules, and frequencies provided by BNSF, UPRR, Metrolink, and Amtrak, for the train volumes for each of the three analysis years (2010, 2015, and 2035), in both the Build and No Build Alternatives. Therefore, the growth in train volumes is the same for both the No Build and Build Alternatives. The Build Alternative would not result in growth in train volumes greater than would occur with the No Build Alternative.

Is project-related growth reasonably foreseeable as defined in NEPA? Under NEPA, indirect impacts need only be evaluated if they are reasonably foreseeable as opposed to remote and speculative.

As discussed above, the Build Alternative was not expected to influence the amount, timing, or location of growth in the local area or train volumes. Therefore, no reasonably foreseeable project-related growth would be anticipated as a result of the Build Alternative.

If there is project-related growth, how, if at all, will it affect resources of concern?

As described above, the Build Alternative would not influence the amount, timing, or location of growth in the local area or train volumes. Because the Build Alternative would not influence growth in the area, it would not result in impacts to resources of concern. Based on the analysis provided above, it was determined that the Build Alternative would not result in project-related growth, and no further analysis is required.

No Build Alternative

As no associated improvements would occur within the study area under the No Build Alternative, there would be no growth-related impacts.

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[1] Port and Modal Elasticity Study, Phase II, 2005.

2.2.4 Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Build Alternative would not result in adverse effects associated with growth. Therefore, no avoidance, minimization, and/or mitigation measures are required.

2.3 Community Impacts

2.3.1 Community Character and Cohesion

2.3.1.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA), established that the Federal Government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). The Federal Highway Administration (FHWA) in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

2.3.1.2 Affected Environment

This section is based on the information from the *Community Impact Assessment* (February 2011), the *Rail Operations Analysis of the Colton Crossing Project* (February 2011), the *Noise and Vibration Assessment* (February 2011), and the *Historic Property Survey Report for Colton Crossing Rail-to-Rail Grade Separation Project* (February 2011) prepared for the proposed project.

Land use and economic activity are inherently considered in the community character analysis. The “look and feel” of a neighborhood, which ultimately derives from land use and economic activity, is the culmination of urban design and visual quality, traffic volumes, and pedestrian activity. The character of a neighborhood or a particular location within a neighborhood is also understood in terms of the cultural destinations located within it and nearby; these may be museums, libraries, hospitals and similar community facilities, as well as specialized community outreach centers, historic resources, public open spaces, memorials, and public art unique to the neighborhood.

The Build Alternative would be constructed in the South Colton neighborhood (generally bounded by Rancho Avenue, I-10, 12th Street, and Fogg Street). As identified in the *Historic Property Survey Report* (February 2011), in the 1890s, the South Colton neighborhood began to be inhabited by Mexican laborers reportedly brought in to work on the railroads. As a result, a predominantly Mexican neighborhood was established south of the Southern Pacific (SP) tracks, where there was already a small community of people from Abiqiui, New Mexico. By 1905, the

area had a population of 500 residents. By the early 1900s, the City of Colton became known as the "Hub City" due to the claim of being the leading citrus shipping point in California. The City continued to grow during the following decades and, in response to poverty, racism, and exclusion from the mainstream sociopolitical institutions, the South Colton area developed its own community institutions and a strong community support network. The period from World War I to the Depression saw continued segregation and little growth in the South Colton area. As a result, several small businesses, "including bakeries, groceries, restaurants, pool halls, taverns, clothing, and butcher shops, met most of the shopping needs of the community." In 1922, Juan Caldera, a local resident and owner of Caldera's Carniceria, built a recreational facility for the community that included a swimming pool, a baseball diamond, and bleachers. This facility, along with most of the small commercial businesses that once served the community, is now gone.

During and immediately after World War II, the South Colton area began to organize politically. In the 1950s, the community helped elect Colton's first Hispanic Councilman and in 1979, the City elected its first Hispanic mayor, along with two Hispanic council members, and a Hispanic school board member. One long-time business that is still operating is the 7th Street Market, located between L and M Streets outside the project study area.

Currently, the area is somewhat economically depressed and is characterized by extensively altered historic-period homes and a few historic-period commercial businesses. The original grid pattern of the streets has also been changed. East and West K Streets are cul-de-sacced in three places, La Cadena Drive has been realigned and now goes under the railroad tracks, most of South 6th Street has been removed to accommodate the railroad, and Rancho Avenue, the neighborhood's western boundary, was built sometime after 1968.

Aside from community facilities, such as Veteran's Park, and institutional uses, such as schools and houses of worship, the South Colton neighborhood is a mixture of residential, limited commercial, and industrial (e.g., rail line facilities) uses. Urban design and visual quality throughout the study area in general is characterized by residential streets and properties (single-family homes), utility poles and wires, and ornamental vegetation. Both the UPRR and BNSF corridors are also visible throughout the study area. Views of the San Bernardino Mountains are frequently masked throughout the year by atmospheric conditions (e.g., haze). Typical single-family homes in the area consist of single-story residences, with the majority being

set back and including lawn space between the building façades and the sidewalks. Typical views from industrial uses within the area include views of industrial properties/structures, utility poles and wires, railroad cars, stockpiled materials, and disturbed vegetation.

Demographic information regarding the project area was obtained from the 2000 Census as data from the 2010 Census at the County, City, and census tract level were not available at the time this document was prepared. The project area for community impacts encompasses the City of Colton, with a focus on Census Tract 40.00, Census Tract 66.00, Census Tract 68.00, Census Tract 69.00, Census Tract 70.00, and Census Tract 71.08 (Figure 2.3.1). All of the study area census tracts are within the City of Colton.

Community cohesion is the degree to which residents have a sense of belonging to their neighborhood, their level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, usually as a result of continued association over time. Elements of community cohesion can be found in demographic data used to profile communities from the 2000 United States Census. Some specific indicators of community cohesion are as follows:

- **Ethnicity:** Ethnic homogeneity is associated with a higher degree of community cohesion.
- **Age:** Elderly and stay-at-home parents tend to be more active in their community. They have time to become involved.
- **Housing Tenure:** Households that have been part of a community for a longer period of time tend to correlate with a higher degree of community cohesion.
- **Transit-Dependent Population:** Residents who tend to walk or use public transportation for travel tend to correlate with a higher degree of community cohesion.

Ethnicity. Table 2.3.A provides the ethnic composition for the City of Colton (City), San Bernardino County, and the project area census tracts.

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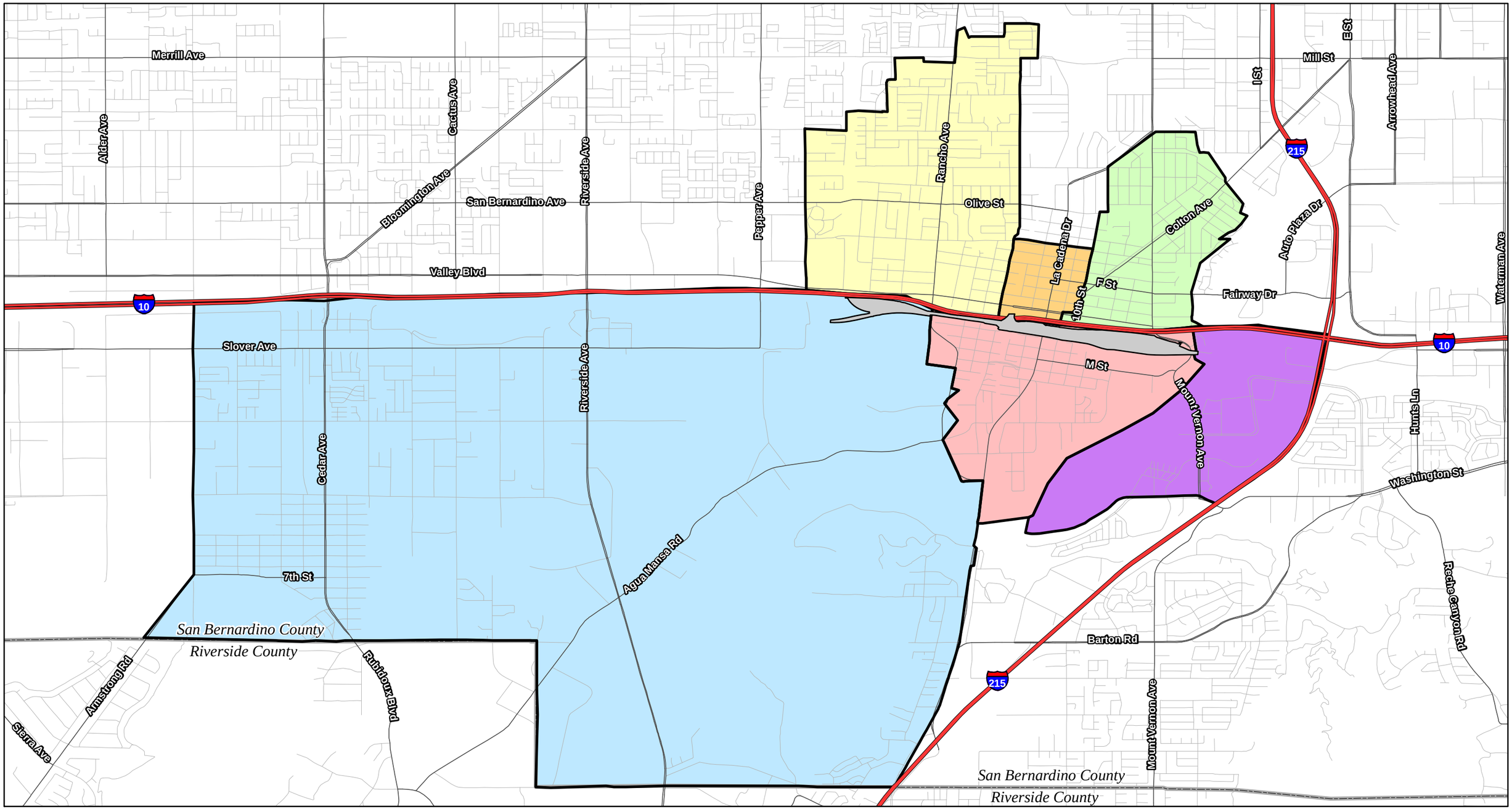

FIGURE 2.3.1

LEGEND

Study Area	68.00
Census Tracts (2000)	69.00
40.00	70.00
66.00	71.08

N

0 1700 3400
FEET

SOURCE: US Census (2000); Thomas Bros. (2008)

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Colton Crossing Rail-to-Rail Grade Separation
Environmental Assessment

Project Study Area Census Tracts

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Table 2.3.A: 2000 Ethnic Composition

Geographic Area	Percentage[1]						
	White	Black	American Indian/Native Alaskan	Asian	Hawaiian/ Pacific Islanders	Other	Hispanic[2]
County of San Bernardino	58.9%	9.0%	1.1%	4.6%	0.2%	20.0%	39.1%
City of Colton	42.6%	11.0%	1.2%	5.2%	0.22%	34.4%	60.7%
Census Tract 40.00	54.2%	3.5%	1.8%	1.2%	0.2%	34.4%	64.8%
Census Tract 66.00	44.9%	5.6%	1.5%	2.1%	0.3%	41.0%	73.5%
Census Tract 68.00	48.3%	6.2%	3.0%	0.89%	0.2%	38.9%	65.4%
Census Tract 69.00	32.3%	4.7%	1.8%	2.5%	0.2%	54.4%	86.4%
Census Tract 70.00	47.1%	4.4%	1.3%	1.0%	0.1%	41.0%	79.2%
Census Tract 71.08	41.7%	22.1%	0.87%	11.4%	0.38%	16.7%	28.5%

[1] Percentages do not add to 100 percent because the White, Black, American Indian and Alaska Native, Hawaiian and Pacific Islander, and Other categories include persons identified with one race only; the Hispanic category overlaps with other categories. Individuals may report more than one race.

[2] The Census Bureau recognizes Hispanic heritage as an ethnic group rather than as a separate group. If the percent Hispanic is added to the other racial groups, the total may exceed 100 percent.

Source: *Table P3 – Race: Total Population*, *Table P4 – Hispanic or Latino and Not Hispanic or Latino by Race: Total Population,* United States Census Bureau (2000 Census).

As identified in Table 2.3.A, of the total population within the County, White persons composed the largest racial group (58.9%) and persons identified as “Other” composed the next largest group at 20.0 percent. The remaining 21.0 percent (in order of descending percentages) were Black or African American, Asian, Native American, and Native Hawaiian/Pacific Islander. Of these racial groups, 39.1 percent identified themselves as Hispanic/Latino. The percentage of minority populations in the City of Colton is 57.4 percent, was higher than the County percentage of 41.1 percent.

The total population of the six census blocks comprising the population and housing study area was 38,338 persons in 2000. Of the total population, the proportion of White persons in the study area was 47.4 percent. Persons who identified themselves as “Other” in the study area composed the next largest racial group at 38.5 percent. The remaining 14.1 percent of the study area (in order of descending proportions) were Black or African American, Asian, American Indian and/or Native American, and Native Hawaiian/Pacific Islander. The percentage of minority populations (non-white) within the project census tracts was higher than the County percentage of 41.1

percent. All project study census tracts, with the exception of Census Tract 69.00 and Census Tract 71.08, have a lower percentage of minority populations (non-white) than the City percentage of 57.4 percent.

Age. Within San Bernardino County, individuals under 18 years of age composed 32 percent of the population in 2000 while senior citizens (age 65 and over) accounted for only 9 percent of the total population in the County. As identified in Table 2.3.B, of the City's residents, approximately 35 percent were below age 18 and 6 percent were over age 65.

Table 2.3.B: Age Distribution

Geographic Area	Total Population	Median Age	Under 18	%	65 and Over	%
County of San Bernardino	1,709,434	30.3	552,047	32.3	146,459	8.6
City of Colton	47,662	26.8	16,655	34.9	3,053	6.4
Census Tract 40.00	12,760	27.1	4,664	36.6	806	6.3
Census Tract 66.00	12,546	27.3	4,566	36.4	1,083	8.6
Census Tract 68.00	889	32.1	260	29.2	151	17.0
Census Tract 69.00	2,929	27.4	1,069	36.5	305	10.4
Census Tract 70.00	7,150	25.4	2,706	37.8	499	7.0
Census Tract 71.08	2,064	26.8	503	24.4	50	2.4

Source: *Table P13 – Median Age by Sex: Total Population, Table P12 – Sex by Age: Total Population,* United States Census Bureau, 2000 Census.

As identified in Table 2.3.B, Census Tracts 40.00, 66.00, and 70.00 have a higher percentage of residents under age 18 than the City. Census Tract 69.00 had the same percentage of residents under age 18 when compared to the City. Census Tracts 68.00 and 71.08 have lower percentages of residents under age 18 than the City. Census Tracts 66.00, 68.00, 69.00, and 70.00 all had higher percentages of residents over age 65 when compared to the City. Census Tract 40.00 has the same percentage of residents over age 65 as the City and Census Tract 71.08 has a lower percentage of residents over age 65 when compared to the City.

Housing Tenure. Table 2.3.C provides data on how long homeowners have been residing in their units for the study area census tracts, the City, and San Bernardino County.

Table 2.3.C: Housing Tenure

Geographic Area	Year Householder Moved Into Unit (%)					
	1969 or earlier	1970–1979	1980–1989	1990–1994	1995–1998	1999–2000
County of San Bernardino	7.1%	10.6%	26.0%	20.3%	26.7%	12.4%
City of Colton	14.0%	8.7%	20.1%	17.7%	26.9%	12.5%
Census Tract 40.00	8.9%	10.3%	14.8%	13.8%	15.7%	13.1%
Census Tract 66.00	24.7%	14.5%	19.5%	13.1%	20.2%	8.0%
Census Tract 68.00	27.2%	14.8%	40.7%	8.6%	8.6%	0%
Census Tract 69.00	40.5%	11.9%	13.6%	17.0%	11.1%	5.8%
Census Tract 70.00	24.8%	9.7%	17.3%	13.0%	21.4%	13.4%
Census Tract 71.08	0%	0%	32.9%	16.5%	15.3%	35.3%

Source: *Table H36: Tenure By Year Structure Built,* United States Census Bureau, 2000 Census.

As identified in Table 2.3.C, approximately 39 percent of occupants in San Bernardino County moved into their housing units between 1995 and 2000. Of these, approximately 27 percent moved into their units between 1995 and 1998, while approximately 12 percent moved into their units between 1999 and 2000. Similar to San Bernardino County, approximately 39 percent of Colton residents moved into their housing units between 1995 and 2000, while the remaining 61 percent of Colton residents moved in prior to 1994. Table 2.3.C is based on the 2000 Census, which does not reflect the recent fluctuations in housing ownership and mortgage financing.

As identified in Table 2.3.C, approximately half of Census Tract 71.08 residents moved into their housing units between 1995 and 2000. The majority of residents within Census Tracts 40.00, 66.00, 68.00, 69.00, and 70.00 moved into their units prior to 1990. This housing tenure trend within the project study area census tracts is similar to what is identified for the City (60%) and San Bernardino County (60%).

In addition to housing tenure, if there was a high percentage of renters in a community, this typically indicates that the people within the community are highly mobile and have had a history of changing residences frequently. Similarly, if there was a high percentage of homeowners who have been in their homes for many years in a community, it would indicate that the community is stable and cohesive.

As identified in the *Community Impact Assessment* (February 2011), of the total housing units in San Bernardino County, 88 percent were occupied and 12 percent were vacant. Of the total occupied housing units, 64 percent were owner-occupied

and 36 percent were rented. This is an indicator that San Bernardino County communities generally are stable and cohesive.

Of the total housing units in the City, 93 percent were occupied and 7 percent were vacant. Of the total occupied housing units within the City, 52.0 percent were owner-occupied and 48 percent were rented. This is an indicator that the City has a more mobile community when compared to the County. Although the data indicate a more mobile community, the City has a higher occupancy rate of its housing stock than the County.

Of the total occupied housing units within Census Tract 40.00, 77 percent of occupied were owner-occupied while Census Tract 66.00 has approximately 67 percent of housing units owner-occupied. The high percentages of homeowners within Census Tract 40.00 and 66.00 indicate that communities within these two census tracts are stable and cohesive. For Census Tracts 69.00 and 70.00, the percentage of owner-occupied and renters are roughly equal. These percentages indicate that communities within these areas are stable yet somewhat mobile. Of the total occupied units within Census Tract 68.00, 27 percent were owner-occupied. In Census Tract 71.08, of the total occupied units, 8 percent were owner-occupied and 92 percent were rented. The high percentages of renters within Census Tracts 68.00 and 71.08 indicate that communities within these areas are highly mobile and less cohesive than other census tracts within the project study area.

Transit-Dependent Population. Transit dependents are defined as people who are too young, too old, cannot afford, and/or do not have access to a personal automobile and rely on transit to reach their destinations. In Southern California, the transit-dependent population primarily consists of students, senior citizens, and low-income individuals. The Southern California Association of Governments (SCAG) projects that the percentage of senior citizens in Southern California will continue to rise over the next two decades, with approximately one in six people expected to be over age 64 in 2030.

In addition to identifying the age distribution, the *Community Impact Assessment* (February 2011) analyzed the percentage of the population that would be considered transit-dependent. This type of analysis changes the focus from the reasons why individuals may not drive (age, income, mobility) to identifying where there are limited vehicles available for individuals to use. Areas that have the largest disparity between auto drivers and autos available are more likely to be transit-dependent than

areas that have nearly a one to one ratio between auto drivers and autos available. For those areas that do have a large disparity between drivers and autos available, there may be multiple reasons why this disparity exists. It could be due to age, income, mobility, or a combination of factors. A project alternative would cause an adverse effect if it would displace a disproportionately high percentage of transit-dependent persons. Table 2.3.D provides the results of these transit-dependent inputs.

Table 2.3.D: Transit-Dependent Population (15 Years and Older Within a Household)

Geographic Area	Population (Age 15 and Over)	Persons in Group Quarters	Household Drivers[1]	Autos Available	Transit-Dependent Population (%)[2]
County of San Bernardino	1,244,296	45,141	1,199,155	980,187	17.6%
City of Colton	33,342	265	33,077	23,592	28.4%
Census Tract 40.00	8,805	220	8,585	6,560	23.0%
Census Tract 66.00	8,732	14	8,718	6,229	28.5%
Census Tract 68.00	660	0	660	337	48.9%
Census Tract 69.00	2,031	12	2,019	1,117	44.4%
Census Tract 70.00	4,814	0	4,814	2,877	40.2%
Census Tract 71.08	1,603	0	1,603	1,391	13.2%

[1] Household Drivers = Population Age 16 and over – Persons in Group Quarters
[2] Transit-Dependent Population Percentage = (Household Drivers – Autos Available) ÷ Population (Age 16 and Over)

Source: *Table P12 – Sex by Age: Total Population, Table P9 – Household Type (Including Living Alone) by Relationship, Table H46 – Aggregate Number of Vehicles Available by Tenure,* United States Census Bureau, 2000 Census.
Adapted from *Calculating/Analyzing Transit Dependent Populations Using 2000 Census Data and GIS* by: Todd Alan Steiss, Parsons Brinckerhoff.

As identified in Table 2.3.D, nearly half the population within Census Tract 68.00 (48.9%), Census Tract 69.00 (44.4%), and Census Tract 70.00 (40.2%) are considered to be transit-dependent. These census tracts have higher percentages of transit-dependent people than identified for the County (18%) and the City (28%). When compared to the City, Census Tract 40.00 (23%) and Census Tract 66.00 (29%) have similar percentages of people that are considered to be transit-dependent. Census Tract 71.08 (13%) has the lowest percentage of people considered to be transit-dependent when compared to the other project area census tracts, City, and County.

2.3.1.3 Environmental Consequences

2.3.1.3.1 Temporary Impacts

Build Alternative

Neighborhood Impacts. The estimated construction period is approximately three years for the Build Alternative. During the construction period, there would be a change in existing conditions resulting from the presence of construction workers, vehicles, and equipment (including lighting for safety during limited nighttime activities) in the project area.

The Build Alternative would involve standard construction techniques and require large-scale construction equipment and labor-intensive activities. Residences on K Street (between Slover Mountain and 5th Street) and along the terminus of 5th Street would be in close proximity to construction activities such as site grading, utility replacement, the hauling of equipment materials to and from the identified staging areas, and motor vehicles transporting the construction crews. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions.

As identified in the *Air Quality Analysis* (February 2011), exhaust and fugitive dust emissions generated during project construction would vary daily as construction activity levels change. The SCAQMD has established Rule 403 for reducing fugitive dust emissions. The best available control measures (BACM), as specified in SCAQMD Rule 403, will be incorporated into the project commitments. With the implementation of standard construction measures (providing 50% effectiveness) such as frequent watering (i.e., minimum twice per day) and measures identified in Section 4.12.4 (Air Quality), fugitive dust and exhaust emissions of criteria pollutants from construction activities would not result in any adverse air quality impacts to the local residents.

The majority of the construction activity would occur within existing railroad right-of-way and not within public roadways. However, periodic lane closures on La Cadena Drive may be required to construct the new rail overpass structure over this roadway. It is anticipated that the lane closures would affect one side of La Cadena Drive at a time. However, a Traffic Management Plan (TMP) will be prepared as described in Section 4.5.4 (Traffic) to address these periodic lane closures and other effects to the local arterial system and I-10 ramps. With implementation of the identified minimization measures, temporary construction effects associated with these periodic lane closures would not be adverse.

One potential source of construction noise impacts would be from trucks on haul routes and accessing the staging areas. Although the major haul routes would generally avoid residential areas, there is one potential access route that could cause noise impacts. This route is the construction access along South 5th Street to the potential staging area in the southwest quadrant of the Colton Crossing. As described in EA Section 2.14 (Noise/Vibration), it would be anticipated that the total number of vehicles accessing this staging area would be limited to approximately 10 vehicles day. The noise from these vehicles would be approximately 50 dBA L_{eq} at the residences along South 5th Street, substantially less than the threshold of 77 dBA L_{eq} and therefore would not be adverse.

Other potential sources of construction noise would include noise generated by construction equipment and activities. Typical noise levels at 50 feet from an active construction area range up to 91 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes soil import, grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes machinery such as backfillers, bulldozers, front loaders, compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. It should be noted that it may be necessary to perform some work at night during the course of the project. Examples of the type of work that may be performed would be railroad track and signal cutovers, bridge/culvert construction or replacement that would impact main tracks, utility work that would need to be performed during off-peak hours, or any critical path work required to stay on schedule. It is anticipated that most construction activities would occur during weekdays, but it is possible that a limited amount of work will be performed at night or on the weekends for safety or logistical reasons.

The analysis provided in Section 2.14 (Noise/Vibration), indicate that short-term potential noise impacts from construction of the Build Alternative may exceed significance thresholds south of I-10, with noise levels to the southwest potentially exceeding standards by 2 dB during the day and up to 10 dB at night, and levels to the southeast potentially exceeding standards by up to 1 dB at night. However, implementation of measures identified in Section 2.14 (Noise/Vibration) would minimize or avoid potential adverse construction noise impacts.

As identified in Section 2.14 (Noise/Vibration), the two construction operations most likely to cause building damage are blasting and pile driving, neither of which would be used during construction of the Build Alternative. Other activities, such as the use of tracked vehicles (e.g., bulldozers) and vibratory compactors, could result in perceptible levels of groundborne vibration. However, these activities would be limited in duration and vibration levels are well below thresholds for minor cosmetic building damage.

There are two thresholds for construction vibration impacts. The first is a peak particle velocity (PPV) of 0.5 in/sec, [1] which is considered a safe vibration level to avoid even minor cosmetic damage to typical residential structures. The predicted vibration levels are well below this limit at a distance of 25 feet from the construction equipment.

The second vibration threshold is based on the potential for the vibration to be annoying and intrusive to building occupants. For this effect, the FTA and FRA manuals recommend using the same impact thresholds that are used to assess impacts from train vibration. The FRA/FTA impact threshold from train vibration is 72 vibration decibels (VdB) for residential land uses, which translates to a PPV of 0.016 in/sec assuming a crest factor of 4. As identified in Section 2.14 (Noise/Vibration), a PPV of 0.016 in/sec could occur at distances of about 140 feet from a vibratory compactor. This means that some construction processes have the potential to generate vibration levels that exceed the limits for annoyance at the residences south of the construction site and west of the BNSF tracks. These vibration levels may be perceptible inside nearby residences; however, they are well below what is required to cause structural damage or even minor cosmetic damage and are not considered adverse.

As identified in Section 2.6, the Build Alternative would result in changes to the visual setting of the project site. The visual quality of the environment would be temporarily affected during construction due to the presence of construction equipment, equipment staging and materials storage area, and safety barricades. However, once construction activities are completed, construction equipment, equipment staging, and materials storage associated with the project would no longer be present in the area. In addition, upon completion of the Build Alternative, graded areas would be returned to their existing conditions. Given the existing condition of

[1] PPV = The maximum or peak velocity value during a given measurement period. If measurements are made in 3-axis then the resultant PPV or PPS is the vector sum = the square root of the summed squares of the maximum velocities, regardless of when in the time history those occur.

the project study area and the limited duration of the construction activities, potential temporary visual effects are not considered adverse.

Community Facilities and Services Impacts. No detours would be required for the Build Alternative as the majority of the construction would occur within existing railroad right-of-way. Periodic lane closures on La Cadena Drive may be required to construct the new rail overpass structure over this roadway. As such, emergency vehicle access could be affected by disruptions to circulation patterns and delays associated with construction traffic. Therefore, a TMP would be prepared to minimize traffic-related impacts (see Section 4.5.4 Traffic) during construction. The TMP includes requirements to coordinate with the City and local community service providers to ensure that information related to any lane closures is provided in a timely and ongoing basis. A TMP would adequately minimize any adverse effects resulting from construction traffic.

Construction workers within the project area may patronize the local businesses (e.g. food establishments) during the construction phase. It is not anticipated that these construction workers would utilize community facilities or services in the area outside of local businesses. Therefore, no adverse effects associated with this issue would occur.

No Build Alternative

Neighborhood Impacts. As no construction would occur within the study area under the No Build Alternative, there would be no short-term temporary construction impacts.

Community Facilities and Services Impacts. As no construction would occur within the study area under the No Build Alternative, there would be no short-term temporary construction impacts to community facilities or services.

2.3.1.3.2 Permanent Impacts

Build Alternative

Neighborhood Impacts. An assessment of community character and cohesion for the South Colton neighborhood indicates a relatively stable residential community with limited opportunities for large-scale residential and commercial development. Overall, conditions in the area provide for a neighborhood steadied by a well-established residential character. According to U.S. Census data, the City has experienced a population increase during the period 1990 to 2000. The six census tracts comprising the study area (Census Tracts 40.00, 66.00, 68.00, 69.00, 70.00, and 71.08) each experienced an increase in population during that same time period.

While not fully representative of existing conditions (2010) specific to the South Colton area, these data combined with knowledge of no major trend in large-scale residential development in the study area since 2000, indicate a stable residential population.

Pedestrian volumes are anticipated to be higher in the project study area due to the higher percentages of transit dependent populations in these census tracts (previously referenced Table 2.3.D). As previously identified, the study area is well served by public transportation and it is anticipated that no disruption of existing bus services in the area would occur with implementation of the Build Alternative. As reported in the 2000 Census, the majority of the residents in the study area census tract surrounding the project study area have lived in the neighborhood for more than 10 years, indicating an area with a high potential for community cohesion.

Although the Build Alternative would result in the construction of a rail structure in the South Colton neighborhood, the proposed project would not require the acquisition of residential or commercial properties, nor would it result in the displacement of those residents and employees. The only acquisition anticipated for this alternative would be a portion of an existing Caltrans parcel adjacent to I-10, west of the BNSF crossing. The absence of residential and commercial takings within this community would help maintain the social fabric of existing neighborhoods. Therefore, no adverse impacts to community character or cohesion would occur.

The Build Alternative would result in a positive effect on local air quality by reducing air pollutant emissions, a positive effect on noise levels (through a reduction of noise associated with the blowing of train horns and the replacement of the existing special trackwork at the diamond crossing with flange-bearing frogs[1]), and no adverse visual impacts with implementation of the identified measures in Section 2.6.4 (Visual/ Aesthetics).

As identified in Table 2.3.D, Census Tracts 68.00 (49%), 69.00 (44%), and 70.00 (40%) have nearly half of the residents within the area that meet the criteria for transit-dependent populations. These percentages are higher than those identified for the County (18%) and the City of Colton (28%).

The City of Colton is divided by I-10, which creates a physical barrier that limits access between the northern and southern portions of the City. Within the project study area, there are three north-south access points across I-10. These are Rancho

[1] "Special trackwork" is used at locations where rails intersect and at switches for turnouts and crossovers. The special insert used where two rails cross is called a "frog."

Avenue (which is an existing overcrossing on the western portion of the project limits), La Cadena Drive (which is an existing undercrossing in the middle portion of the project limits), and Mount Vernon Avenue (which is an existing overcrossing on the eastern portion of the project limits).

Other north-south trending roads between Rancho Avenue and Mount Vernon Avenue, with the exception of 9th Street, do not provide a connection from the area south of I-10 to the area north of I-10. South 9th Street currently terminates at the railroad tracks. However, as illustrated in Figure 2.3.2, north of the railroad tracks, South 9th Street continues until it reaches the existing undercrossing at I-10 where South 9th Street turns into North 9th Street. Based on historical field observations, conversations with City staff, and input from residents at the community meetings held for the proposed project, people in the area utilize the I-10 undercrossing at 9th Street to access commercial uses located on West Valley Boulevard. In order to access the I-10 undercrossing at 9th Street from the south, residents in the area have to trespass on railroad property and illegally cross the railroad tracks.

As illustrated in Figure 2.3.3, La Cadena Drive provides a legal undercrossing that connects commercial uses on West Valley Boulevard, construction of the Build Alternative would maintain the existing north/south access points at Rancho Avenue, La Cadena Drive, and Mount Vernon Avenue. The proposed flyover structure would be constructed between the existing UPRR tracks and I-10. As a result, the Build Alternative would eliminate the access across the railroad property along 9th Street, which is currently unsafe and illegal.

Community Facilities and Services Impacts. As an existing rail facility, the Build Alternative does not affect any community facilities and services, does not generate any increase in demand for community services or facilities or directly affect these services or facilities. Therefore, there would be no new permanent impacts to community facilities or services.

No Build Alternative

Neighborhood Impacts. No railroad grade separation would occur under the No Build Alternative. As described in Section 2.13 (Air Quality), it is anticipated that idling time at the crossing would increase in the future with the current at-grade configuration. This increase in idling time would result in greater emissions of air pollutants. In addition, local residents would continue to experience train noise (including horn noise) on the mainline tracks adjacent to their homes.

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PHOTOGRAPH 1: *Existing conditions.*

PHOTOGRAPH 2: *Proposed conditions.*

FIGURE 2.3.2

Colton Crossing Rail-to-Rail Grade Separation
Environmental Assessment

9th Street Undercrossing

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PHOTOGRAPH 1: *Existing conditions.*

PHOTOGRAPH 2: *Proposed conditions.*

Note: Existing conditions are anticipated to remain at the La Cadena Undercrossing with implementation of the Proposed Action.

FIGURE 2.3.3

Colton Crossing Rail-to-Rail Grade Separation
Environmental Assessment

La Cadena Drive Undercrossing

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Community Facilities and Service Impacts. No construction would occur within the project area under the No Build Alternative. Since the No Build Alternative maintains existing conditions in the area, there would be no permanent impact to community services or facilities. Therefore, there would also be no new demand for new or expanded community facilities.

2.3.1.4 Avoidance, Minimization, and/or Mitigation Measures

As part of the project planning and development process, efforts would be taken to avoid or minimize impacts to community services, sensitive environments, and the overall community. Implementation of the identified avoidance and minimization measures would minimize temporary construction-related adverse effects of the Build Alternative related to community character and cohesion. The following measures have been identified to minimize community effects associated with the implementation of the Build Alternative.

CCM-1 During the Project Study & Engineering phase, a Lighting Master Plan will be prepared with input from the local community, City, Caltrans, and UPRR to identify appropriate lighting for the portion of the proposed structure that will span over La Cadena Drive. Additionally, the lighting in the existing I-10 undercrossing at La Cadena Drive will be evaluated and determined whether it meets minimum lighting requirements as outlined in the City's Municipal Code. If existing lighting does not meet minimum requirements, then the existing lighting fixtures within this undercrossing will be upgraded to achieve minimum standards of the City.

2.3.2 Relocation and Property Acquisition

2.3.2.1 Regulatory Setting

The Caltrans Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). See Appendix A for a copy of the Caltrans Title VI Policy Statement.

2.3.2.2 Affected Environment

This section is based on the information regarding relocations and relocation impacts from the *Community Impact Assessment* (February 2011) prepared for this project. The study area for the assessment of relocation impacts includes the City of Colton, Census Tract 40.00, Census Tract 66.00, Census Tract 68.00, Census Tract 69.00, Census Tract 70.00, and Census Tract 71.08 (previously referenced Figure 2.3.1). This study area was selected because it covers the entire segment of the proposed project. Land uses in the project area include single-family residential, commercial, industrial, and vacant land.

2.3.2.3 Environmental Consequences

2.3.2.3.1 Temporary Impacts

Build Alternative

Construction of the Build Alternative would not require temporary construction easements (TCEs) on private property. No direct effect to businesses within the project study area would occur as the Build Alternative would not result in acquisition or displacement of local businesses in the area. In addition, the Build Alternative would not require any closures of roadways or detouring of traffic. Although there may be temporary impacts due to periodic lane closure on La Cadena Drive, construction activities would be anticipated to result in a short-term benefit to local businesses since construction workers on the project site may patronize local business establishments within the City. Therefore, the Build Alternative would not result in temporary relocation impacts.

No Build Alternative

The No Build Alternative would not require construction within the study area and therefore would not result in temporary impacts related to business or residential relocations.

2.3.2.3.2 Permanent Impacts

Build Alternative

Implementation of the Build Alternative would require the construction of the slope and retaining wall adjacent to the eastbound I-10 within the Caltrans right-of-way. Construction of the portion of the elevated structure west of the Colton Crossing would require acquisition by UPRR of a strip of Caltrans right-of-way that would encompass an area approximately 0.65 acre, extending westward from South 5th Street. As the remaining construction activities are located within existing UPRR

right-of-way, the acquisition of homes or businesses for additional right-of-way takes or easements would not be anticipated.

For parking impacts, although existing parking area on UPRR property would be eliminated, this parking area is currently only utilized for UPRR activities. The parking area does not serve other businesses in the area. Therefore, the loss of this existing parking would not affect economic activities in the project study area.

Implementation of the Build Alternative would not result in the acquisition or displacement of any homes, businesses, or public facilities. Therefore, no secondary effects would occur to existing property values. Substantial secondary impacts from the proposed project on local businesses and overall regional economy are not anticipated. As no businesses would be displaced and no businesses are located in close proximity to the construction limits of the proposed project, secondary impacts to the local economy are not likely to occur.

No Build Alternative

The No Build Alternative would not require residential or commercial displacements or full and partial acquisitions within the study area; therefore, it would not result in permanent relocation impacts.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Build Alternative would not result in adverse effects associated with relocation and property acquisition. Therefore, no avoidance, minimization, and/or mitigation measures are required.

2.3.3 Environmental Justice

2.3.3.1 Regulatory Setting

All projects involving a Federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994. This Executive Order directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2010, this was $22,050 for a family of four. For 2000 (the year of the Census data used for this analysis), this was $17,050 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix A of this document.

2.3.3.2 Affected Environment

This section is based on the information from the *Community Impact Assessment* (February 2011). The discussion of environmental justice that follows has been prepared in accordance with the applicable guidance for addressing environmental justice, including U.S. Department of Transportation Order 5610.2 (April 15, 1997), FHWA Order 6640-23 (December 2, 1998), the FHWA Western Resource Center Interim Guidance (March 2, 1999), the FHWA California Division Environmental Justice Environmental Documents Checklist, and the Department Desk Guide – Environmental Justice in Transportation Planning an Investments (January 2003). Consistent with this guidance, the environmental justice analysis for the proposed project describes (1) the existing study area population and the presence of minority and low-income population groups in the study area; (2) potential adverse effects and measures to avoid or minimize those effects for all study area population groups, including minority and low-income population groups; (3) potential disproportionately high and adverse effects on minority and low-income population groups; and (4) community outreach and public involvement efforts.

"Low-income" and "minority populations" are defined as any readily identifiable group of low-income or minority persons who live in geographically adjacent areas, or groups of geographically dispersed or transient persons who would be similarly affected by a proposed FHWA program, policy, or activity. Transportation agencies such as Caltrans and the FRA must collect and evaluate data on minority and income characteristics, increase public participation in decision-making, and provide mitigation measures to avoid or minimize the adverse effects of the Federal action. The following four measures are used as the basis to evaluate environmental justice:

- Percentage of non-white residents in the project area census tracts;
- Percentage of Hispanic residents (the United States Census Bureau considers Hispanic or Latino ethnicity distinct from racial background) in the project area census tracts;
- Percentage of population below the poverty level in the project area census tracts; and
- Median household income in the project area census tracts.

Based on the four measures listed above, Table 2.3.E summarizes the percentage of the population considered to be part of the environmental justice populations in the study area census tracts and the City of Colton.

Table 2.3.E: Environmental Justice Populations

Geographic Area	Non-White (not including Hispanic)	Hispanic	Percentage Below Poverty Level	Median Household Income
County of San Bernardino	41.1%	39.1%	15.4%	$42,066
City of Colton	57.4%	60.7%	19.6%	$35,777
Census Tract 40.00	45.8%	64.8%	25.3%	$36,569
Census Tract 66.00	55.1%	73.5%	18.4%	$38,770
Census Tract 68.00	51.7%	65.4%	29.5%	$15,313
Census Tract 69.00	67.7%	86.4%	30.9%	$22,121
Census Tract 70.00	52.9%	79.2%	30.9%	$26,333
Census Tract 71.08	58.3%	28.5%	15.3%	$31,455

Source: United States Census, 2000.

Guidance for environmental justice from the Council on Environmental Quality (1997) defines *minority populations* as those communities that meet at least one of the following criteria.

- The minority population is greater than 50 percent of the total population.
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The effects of the project would be disproportionately high and adverse if the effects are (1) borne predominantly by a minority or low-income population in the study area or; (2) more severe or greater in magnitude to minority and low-income populations when compared with the same effects on non-minority or non-low income populations in the study area.

The project study area is divided among six census tracts, one city, and one county. However, the majority of the construction activities and the proposed project is within Census Tract 69.00.

As identified in previously referenced Table 2.3.E and illustrated in Figure 2.3.4, the percentage of the Non-White population within the project study area census tracts is highest in Census Tract 69.00 (67.7%). This was higher than the reference

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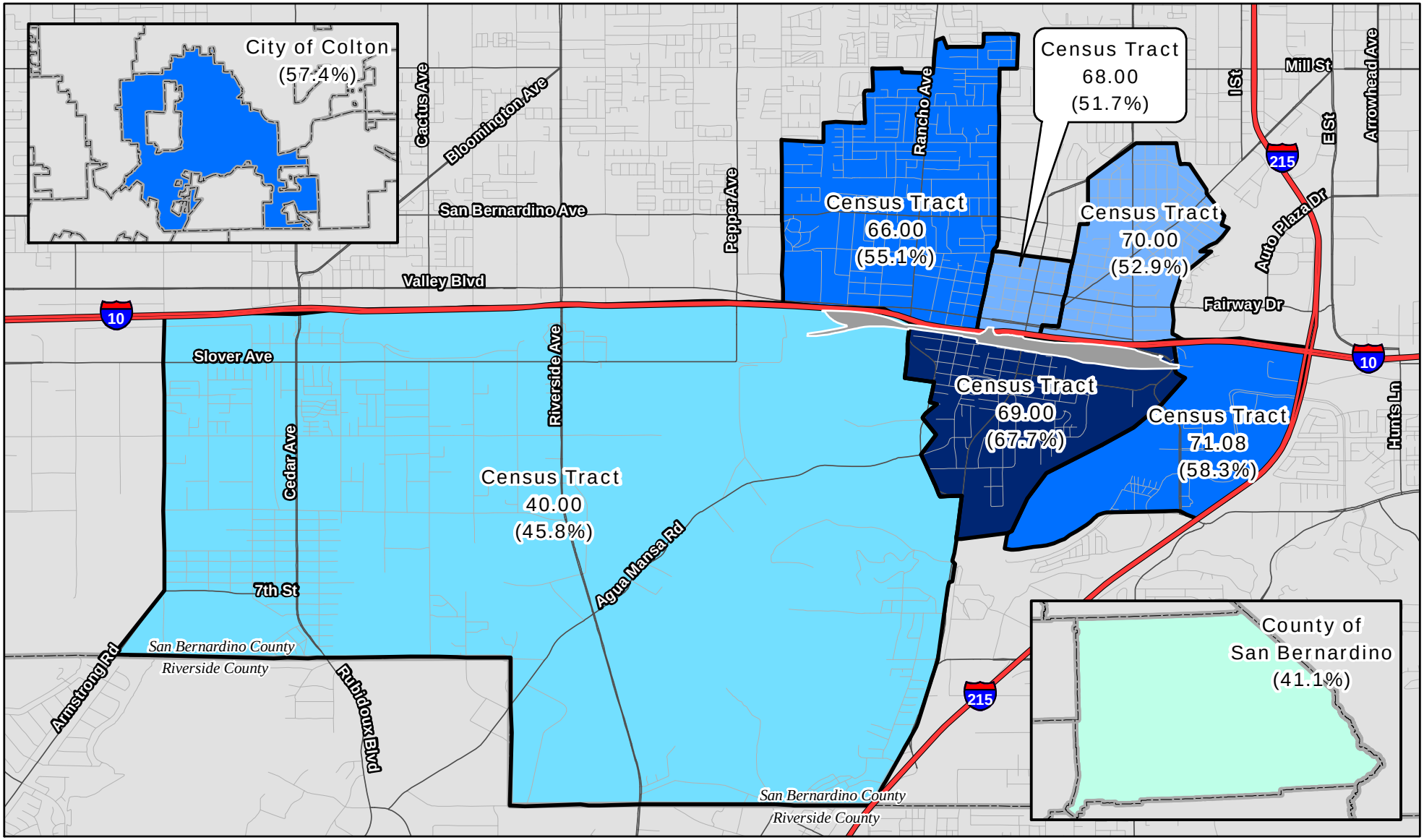

LEGEND

Project Limits

Percentage of Non-White Persons

- < 45%
- 46% - 50%
- 51% - 55%
- 56% - 60%
- > 61%

N

0 2500 5000
FEET

SOURCE: US Census (2000); Thomas Bros. (2008)

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FIGURE 2.3.4

Colton Crossing Rail-to-Rail Grade Separation Environmental Assessment

Percentage of Non-White Persons

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communities of San Bernardino County and City of Colton. As illustrated in Figure 2.3.5, this census tract also had the highest percentage of Hispanic residents (86%). This was higher than the reference populations in San Bernardino County and Colton, which had 39 and 61 percent Hispanic residents, respectively.

As identified in previously referenced Table 2.3.E and illustrated in Figure 2.3.5., Census Tracts 71.08 and 66.00 had a comparable percentage of the population living below poverty when compared to San Bernardino County. Census Tracts 40.00, 68.00, 69.00, and 70.00 all had higher percentages of their population below poverty when compared to the County and City percentages. Of the study area census tracts, Census Tracts 69.00 and 70.00 had the highest percentage the population living below poverty when compared to the reference communities of San Bernardino County and Colton.

As identified in Table 2.3.E and illustrated in Figure 2.3.6, all study area census tracts had lower median household incomes than San Bernardino County. Census Tracts 40.00 and 66.00 had higher median household incomes when compared to the City. Census Tracts 68.00, 69.00, 70.00, and 71.08 had lower median household incomes when compared to the City (Figure 2.3.7). Based on the data previously provided, the study area had a higher percentage of minorities, a greater percentage of the population below the poverty level and median incomes less than those identified for the City and County. As such, these census tracts would be considered to be minority and low income populations.

2.3.3.3 Environmental Consequences

2.3.3.3.1 Temporary Impacts

Build Alternative

As discussed previously in Section 2.3.1.2.1 (Temporary Impacts – Build Alternative), implementation of the Build Alternative would result in temporary air, noise, vibration, and visual effects throughout the study area. The temporary air, noise, vibration, and visual effects from project construction activities would primarily affect uses along the construction haul routes and construction areas. The proposed action is the improvement of an existing infrastructure feature. Therefore, these temporary construction effects would occur in the project area regardless of existing population as there is no other feasible location for these improvements to be made. As such, construction effects associated with the proposed action would affect all populations in the area equally. The construction of the proposed action will not require any displacement or property acquisitions and would not affect any businesses

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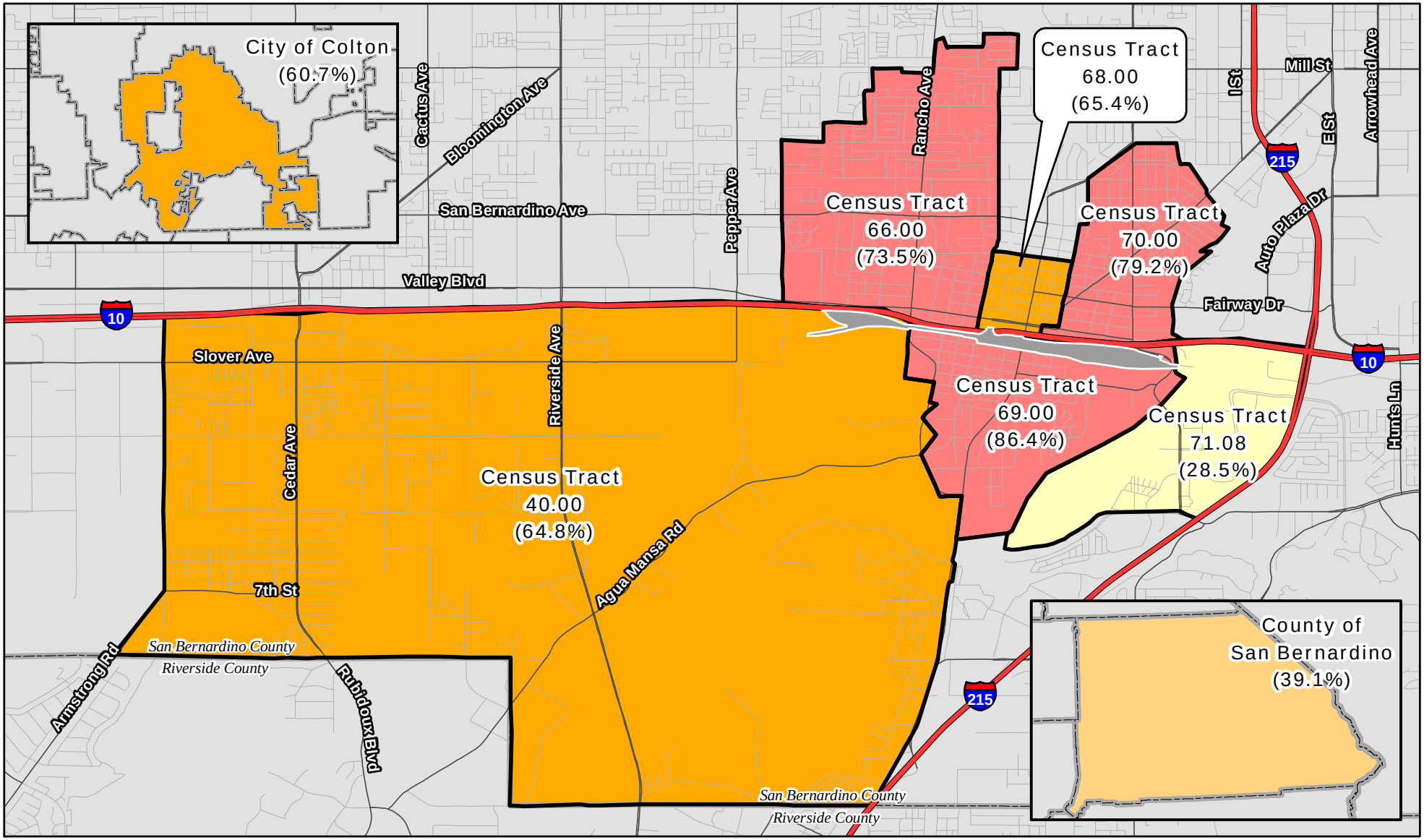

LEGEND

Project Limits

Percentage of Hispanic Persons

- < 30%
- 31% - 50%
- 51% - 70%
- > 71%

N

0 2500 5000
FEET

SOURCE: US Census (2000); Thomas Bros. (2008)

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FIGURE 2.3.5

Colton Crossing Rail-to-Rail Grade Separation
Environmental Assessment

Percentage of Hispanic Persons

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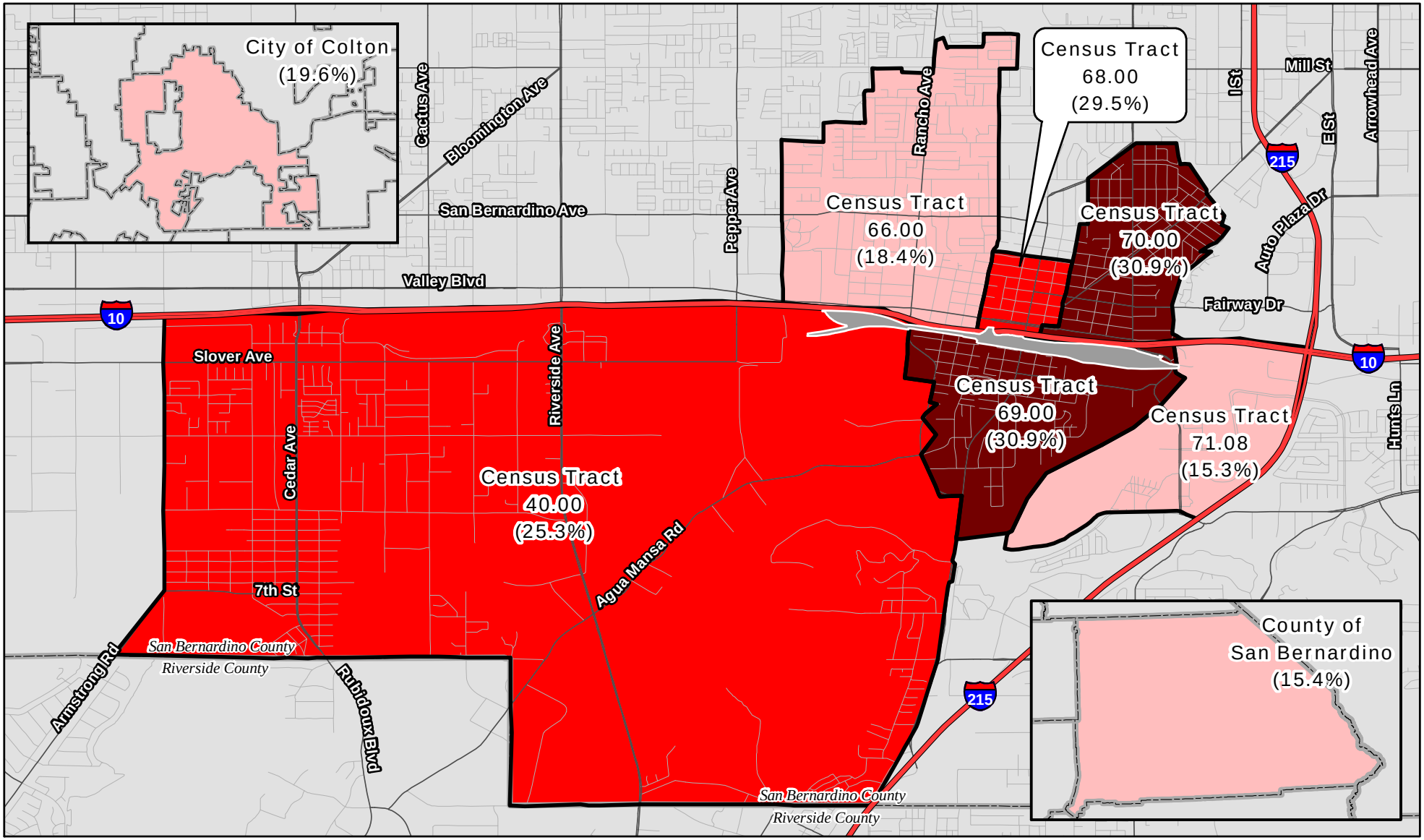

LEGEND

Project Limits

Percentage of Population Below Poverty Level

- < 20%
- 21% - 30%
- > 30%

N

0 2500 5000
FEET

SOURCE: US Census (2000); Thomas Bros. (2008)

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FIGURE 2.3.6

Colton Crossing Rail-to-Rail Grade Separation
Environmental Assessment

Percentage of Population Below Poverty Level

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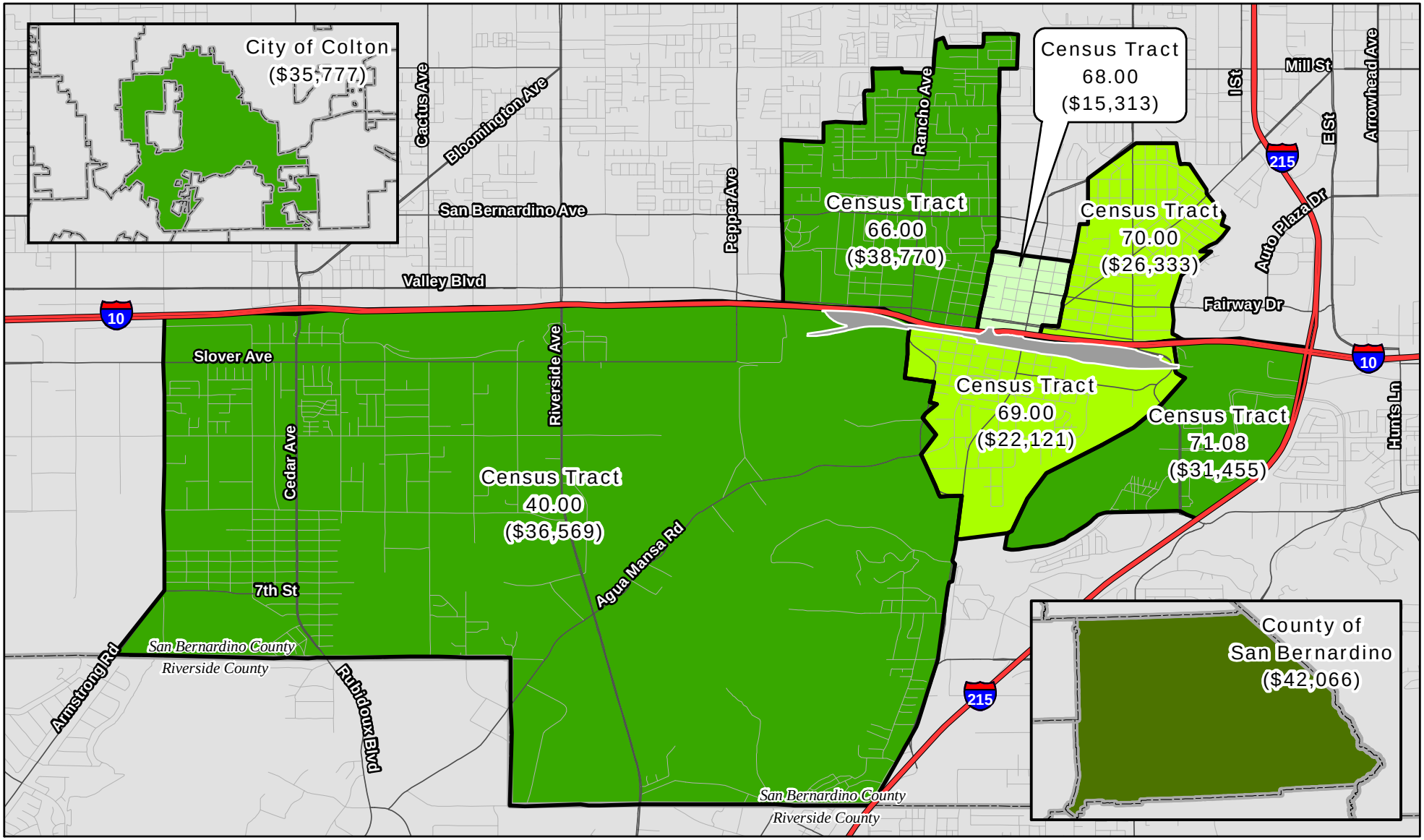

LEGEND

Project Limits

Median Household Income

- < $20,000
- $21,000-$30,000
- $31,000-$40,000
- > $41,000

N

0 2500 5000
FEET

SOURCE: US Census (2000); Thomas Bros. (2008)

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FIGURE 2.3.7

Colton Crossing Rail-to-Rail Grade Separation Environmental Assessment

Median Household Income

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that provide unique services to minority and/or low-income populations, are owned by minorities, or employ large numbers of minorities.

In addition, construction impacts would be short-term and occur only during the construction period when the contractors, personnel, and equipment are operating at the site. Avoidance, minimization, and mitigation measures have been identified as part of the technical studies and incorporated into this EA to address these short-term impacts to community character and cohesion (Section 2.3.1.4, **Measure CCM-1**), air quality (Section 2.13.4, **Measures AQU-1** through **AQU-3**), noise (Section 2.14.4, **Measure NOI-1**), visual (Section 2.6.4, **Measures VIS-1** and **VIS-2**). Implementation of these measures would ensure that there would be no disproportionately high or adverse temporary construction impacts to environmental justice populations.

No Build Alternative

The No Build Alternative would not result in any construction activities within the project area that could adversely affect environmental justice populations. Therefore, the No Build Alternative would not result in adverse temporary environmental justice impacts to environmental justice populations.

2.3.3.3.2 Permanent Impacts

Build Alternative

As identified in Section 2.3.1.3, the Build Alternative would benefit most study area residents, including minority and low-income populations. As previously identified in Section 2.13 (Air Quality), implementation of the Build Alternative would reduce train delay/idling on mainline tracks and gate down time for road/rail at-grade crossings within the local community. These improvements in delay would result in benefits to the local community. As previously identified, emissions of air contaminants would be anticipated to decrease within the rail study area and local area between Rancho Avenue and Mount Vernon Avenue. In addition, a reduction in mobile source air toxics would be anticipated with implementation of the Build Alternative.

As identified in the *Noise and Vibration Assessment* (February 2011), 17 of the 19 sensitive receptor locations show no increase in projected noise levels under the Build Alternative. The remaining two sensitive receptor locations are anticipated to experience positive noise benefits (e.g., lower noise levels) under the Build Alternative. The reduced use of train horns on the UPRR mainline track would also

result in a marginal noise benefit at sensitive noise receivers located along segments of West K Street and South 4th Street. Because the I-10 traffic noise would be shielded by the UPRR embankment, additional noise benefits due to the Build Alternative would be predicted at sensitive noise receptors located along West K Street and South 4th Street. Noise at other representative sensitive noise receptors would not change as a result of the Build Alternative. However, noise reductions may occur at these noise receptors as a result of other cumulative projects planned for the area (e.g., Laurel Street Grade Separation, Colton Quiet Zone Project, and 9th Street Rail Line Realignment). In addition, the Build Alternative would eliminate the need for trains to sound their horns when they cross the BNSF mainline and would replace the existing special track work, which will significantly reduce the banging noise from the diamond crossing that is audible at several sensitive receivers south of I-10.

Construction of the Build Alternative would introduce an additional urban feature into the community with the construction of the overcrossing structure. However, with the aesthetic treatment of the structure, the scale of the structure would be reduced. No permanent displacements of low-income or minority residents are planned, and no permanent adverse effects would result from the Build Alternative.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been included in the Build Alternative. Based on the current proportion of minority residents, residents below poverty, and median household incomes in the study area census tracts, disproportionate impacts to environmental justice/transit-dependent populations are not anticipated as a result of the Build Alternative. Based on the above discussion and analysis, the project will not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice.

No Build Alternative

The implementation of the No Build Alternative would result in the continuation of existing conditions within the study area. Train volumes are projected to increase between existing conditions (2010) and the 2035 horizon year. As identified in Section 2.5 (Traffic) and Section 2.13 (Air Quality), train idling and associated emissions would increase and residents would continue to experience train noise and horns associated with rail activities on the existing mainline facility. The identified minority and low income populations would continue to be exposed to these conditions. The selection of the No Build Alternative would not result in any of the

identified project benefits such as reductions in train idling, reductions in associated air pollutant emissions, and reductions in train horn noise and vibration.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

Measures identified for community character and cohesion (EA Section 2.3.1.4, **Measure CCM-1**), air quality (EA Section 2.13.4, **Measures AQU-1** through **AQU-3**), noise (EA Section 2.14.4, **Measure NOI-1**), visual (EA Section 2.6.4, **Measures VIS-1** and **VIS-2**) would also be applicable to the environmental justice population in the study area.

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HUMAN ENVIRONMENT

2.4 Utilities and Emergency Services

2.4.1 Affected Environment

2.4.1.1 Utilities

This section is based on the information from the City of Colton's website, a Community Impact Assessment prepared by LSA Associates in 2010, the Colton Crossing Alternatives Analysis (LSA 2010), and the City's General Plan adopted in 1987. The project area is located within the City of Colton which provides water, sewer, and electrical services to the project area. The Southern California Gas Company provides natural gas, and Southern California Edison maintains several regional electrical distribution lines through the area. Solid waste services are provided by Colton Disposal, a subsidiary of Republic Services (Colton 2010). Table 2.4.A lists all local utility providers.

Table 2.4.A: Utility Service Providers

Water	City of Colton and Riverside Highland Water Company (limited)
Sewer	City of Colton
Flood Control	City of Colton and Elsinore Valley Municipal Water District (limited)
Solid Waste	Colton Disposal (Republic Services)
Gas	Southern California Gas Company
Electricity	City of Colton, Southern California Edison (some jointly owned)
Telephone	SBC Phone Services augmented by Verizon, Sprint, Charter Communications, and AT&T (some lines fiber optic cable)
Cable	Time Warner Cable (formerly TCI Cablevision of California, Adelphia, and Comcast Cablevision)
Other	Kinder Morgan (oil transmission)

2.4.1.2 Fire Protection

Fire protection services for the project area are provided by the City of Colton Fire Department (CFD) with "mutual aid" services readily available from the San Bernardino County Fire Department. The CFD is responsible for providing fire suppression, emergency medical services, technical rescue, fire prevention, weed abatement, and disaster preparedness services to the City of Colton. These services are provided by four (4) fire stations strategically located throughout the City, which results in average response times of less than six minutes. Fire services are managed through the following three divisions: Operations, Fire Safety, and Disaster Preparedness.

The CFD has a total of 46 uniformed personnel, which includes the Fire Chief, Battalion Chiefs, Fire Captains, Engineers, Firefighter/Paramedics, and Firefighters. There are 15 full-time firefighters staffed among the four fire stations (Station Nos. 211, 212, 213, and 214) on any given day. The CFD currently utilizes 3 paramedic fire engines, 1 paramedic squad, 1 ladder truck, 1 Type 3 brush engine, 1 O.E.S. engine, 1 rescue unit, 1 fire investigation unit, 1 battalion chief vehicle, 1 utility truck and rescue trailer, 1 breathing support trailer, 2 reserve engines, 1 reserve squad, and 1 reserve battalion chief vehicle. The paramedic engine companies are staffed with three personnel each, the paramedic squadrons are staffed with two firefighters each, and the ladder company is staffed with three firefighters. The closest fire station to the project site is Fire Station 211 located at 303 East E Street, which is approximately 0.34 mile northeast of the project site.

In addition to providing fire services, the CFD is responsible for the inspection and enforcement of all State and local codes as they pertain to fire and life safety in commercial, industrial, and state-regulated facilities. In addition, the Fire Safety Division is responsible for the inspection of new construction, fire and life safety protective systems, new occupancies, and state licensed facilities. Fire Safety staff also provides plan review services to ensure planned development complies with State and local codes as they pertain to fire and life safety (LSA 2010)(CFD 2010).

2.4.1.3 Police Protection

Police protection services to the project area are provided by the City of Colton Police Department (CPD), which receives all calls at the main station located at 650 North La Cadena Drive approximately 0.45 mile north of the project area. The CPD also has a mutual aid agreement with all adjacent cities as a primary resource, and with the County of San Bernardino Sheriff-Coroner Department as a secondary resource. The mission of the CPD is to protect life and property, solve neighborhood problems, and enhance the quality of life in the community.

Response time is the period of time between when a call is received by a dispatcher and the arrival of a patrol officer. The response time varies depending upon the nature of the call. Typical calls are prioritized based upon the urgency of the incident. The average emergency call response time for the officer assigned to the beat that includes the subject project site is less than five minutes. Other response times vary depending on the level of priority in conjunction with the availability of an officer.

The California Highway Patrol (CHP) has jurisdiction on freeways in California, including I-10. The nearest CHP office to the project site is located at 2211 Western Avenue in San Bernardino, approximately 35 miles northeast of the project area. This facility is the west San Bernardino Valley office that serves the Cities of Colton, Fontana, Rialto, San Bernardino, Loma Linda, and the unincorporated communities of Bloomington and Crestmore.

Other law enforcement in the project area includes the UPRR police force. UPRR police officers are commissioned in the states in which the UPRR has right-of-way. Officers also carry federal commissions issued by the USDOT, enabling UPRR officers to conduct intrastate law enforcement operations. The UPRR Police Department is certified by the California Commission on Peace Officers Standards and Training, and officers meet the same standards as any other sworn peace officer. The UPRR Police also respond to reports of hazardous materials accidents along its right-of-way, as well as railroad crossing and personal injury accidents. UPRR Police officers, working with UPRR Hazardous Materials Specialists, assist local agencies during railway spills and accidents, providing critical liaison between the railroad, shipping company and local police and fire departments.

2.4.1.4 Schools

The Colton Joint Unified School District (CJUSD) is located in San Bernardino County and serves the communities of Colton, Bloomington, and Grand Terrace, as well as portions of Fontana, Loma Linda, and unincorporated San Bernardino County. The CJUSD currently has a student enrollment of approximately 24,337 students across eighteen elementary schools, four middle schools, three comprehensive high schools, and one alternative school. There are two schools in the vicinity of the project area: Colton High School, 777 West Valley Boulevard, Colton (0.12 mile north); and Washington High School, 900 East C Street, Colton (0.50 mile northeast) (CJUSD 2010).

2.4.1.5 Hospitals

The following major hospitals are located within 5 miles of the project:

- Arrowhead Regional Medical Center at 400 N. Pepper Avenue in Colton (0.6 mile northwest of the site);
- Loma Linda University Medical Center at 11234 Anderson Street in Loma Linda (2.9 miles southeast);

- Community Hospital of San Bernardino at 1805 Medical Center Drive in San Bernardino (4.6 miles north); and
- Kaiser Permanente Fontana Medical Center at 9961 Sierra Avenue in Fontana (4.8 miles west of the site).

2.4.2 Environmental Consequences

2.4.2.1 Temporary Impacts

Build Alternative

During construction, incremental delay in the delivery of services may occur on local roadways, including slightly longer fire and police response times. No detours are anticipated for this project except for temporary closures necessary for the construction staging. Temporary reductions or closures may occur when barriers are being moved into position, when lanes are being restriped, when falsework is being installed or removed, or when the rail lines are being restored to their completed conditions. These temporary closures would likely be limited to non-peak travel hours, and would not adversely affect accessibility to residential or commercial land uses. The City of Colton and San Bernardino County Fire and Police/Sheriff Departments would be notified of all temporary road closures during the all phases of the construction.

A construction staging plan and Transportation Management Plan (TMP) would need to be prepared for the proposed project to minimize traffic-related impacts during construction.

SCE overhead power lines running perpendicular to the project along 3rd and 9th Streets would be elevated above the proposed grade separation structure. The elevated SCE overhead lines would join the existing SCE lines at touch down points to the north and south. The proposed project would include the protection, relocation, and/or reconstruction of the exiting utility features." All utility relocation work, including but not limited to those outlined in Table 2.4.B, would be closely coordinated with the involved utility agency, so no adverse impacts are expected as a result of project construction. During relocation of other utility lines, disturbance to utility services would be avoided or minimized to the extent feasible.

Table 2.4.B: Utility Relocation Impacts during Construction [1]

#	Location	Utility	Facility	Disposition
1	Rancho Avenue	TW Cable	OVHD fiber optic cable	Relocation may not be necessary; no change
2	Rancho Avenue	Charter Communications	OVHD fiber optic cable	Relocation may not be necessary; no change
3	Rancho Avenue	So. Cal Gas Co.	UG natural gas line	Casing may be necessary (size unknown?)
	Rancho Avenue	MCI/Verizon Business	UG Fiber Optic Cable	Cable segment from Rancho Ave to 9th Street to be relocated
	3rd Street	City of Colton	Overhead power line	Relocate pole
12	3rd Street	So. Cal. Edison (jointly owned with City)	Power pole #123065S	Pole to be removed or relocated as needed
13	3rd Street	So. Cal. Edison	Power pole #4480157E	May be raised or replaced with a higher pole
14	3rd Street	So. Cal. Edison	OVHD crossing 3-wire distribution	Appears to provide enough clearance; no change
15	3rd Street	City of Colton (jointly owned with SCE)	Power Pole #123065S	Pole to be removed
16	3rd Street	City of Colton	OVHD Primary Overhead Distribution Lines	Appears to provide enough clearance; no change
17	3rd Street	AT&T	UG Fiber Optic Cable	Casing is needed-relocate or protect in place
18	3rd Street	City of Colton	12” Water Main with casing	Casing to be extended-relocate or protect in place
19	3rd Street	City of Colton	18” Sanitary sewer with casing	Casing to be extended-relocate or protect in place
20	3rd Street	RH Water Co.	24” Water Main	Casing to be extended-relocate or protect in place
4	4th Street	TW Cable	OVHD fiber optic cable	Cables to be raised or rerouted to provide sufficient clearance
5	4th Street	TW Cable	OVHD fiber optic cable	Cables to be raised or rerouted to provide sufficient clearance
6	4th Street	TW Cable	OVHD fiber optic cable	Cables to be raised or rerouted to provide sufficient clearance
7	4th Street	TW Cable	OVHD fiber optic cable	Cables to be raised or rerouted to provide sufficient clearance
	4th Street	TW Cable (Adelphia)	OVHD fiber optic cable on timber pole	Relocate pole
	4th Street	TW Cable (TCI)	OVHD fiber optic cable on timber pole	Relocate pole
	4th Street	ComCast	Overhead fiber optic cable on timber pole	Relocate pole
8	4th Street	Charter Comm.	OVHD fiber optic cable	12+ feet may be needed to provide proper vertical clearance; cable to be raised or rerouted
9	4th Street	Sunesys	OVHD fiber optic cable	12+ feet may be needed to provide proper vertical clearance; cable to be raised or rerouted
10	4th Street	City of Colton	Primary OVHD Distribution Lines with 69 kV transmission line	Appears to provide enough clearance; no change
11	4th Street	City of Colton	OVHD Distribution Wires with 69 kV transmission line	Appears to provide enough clearance; no change
	4th Street	City of Colton	OVHD communication line	Wire to be raised
41	5th Street	City of Colton	14” sewer line	Casing to be extended-relocate or protect in place

Table 2.4.B: Utility Relocation Impacts during Construction [1]

#	Location	Utility	Facility	Disposition
42	5th Street	City of Colton	48” storm drain	Pipe protection to be provided, concrete cap or relocate
43	5th Street	So. Cal. Gas Co.	8” gas line in 12” casing	Relocate or protect in place if active
45	BNSF/UPRR Crossing	Sprint	UG fiber optic cable	Cable to be relocated or rerouted
26	7th Street	City of Colton	Primary OVHD distribution lines	Wires to be raised or rerouted
27	7th Street	City of Colton	Power pole #3730F	May need to be removed and relocated with a higher pole
28	7th Street	City of Colton	Power pole #3731F	May need to be raised or replaced with a higher pole
29	7th Street	City of Colton	12” water main	Install casing-relocate or protect in place
30	7th Street	City of Colton	18” sanitary sewer	Install casing-relocate or protect in place
44	La Cadena Drive	AT&T	UG fiber optic cable	Relocate or protect in place
31	9th Street	City of Colton	Primary OVHD distribution lines	Wires to be raised or rerouted
32	9th Street	City of Colton	Vault (LV154)	Need to be removed or relocated
33	9th Street	City of Colton	Power pole #2613F	May need to be raised or replaced with a higher pole
34	9th Street	City of Colton	Power pole #2614F	May need to be raised or replaced with a higher pole
35	9th Street	City of Colton	16” water main	Casing to be extended-relocate or protect in place
36	9th Street	So. Cal. Gas. Co.	12” natural gas line with 24” casing	Casing to be extended-relocate or protect in place
37	9th Street	City of Colton	UG power lines	Install casing-relocate or protect in place
38	9th Street	City of Colton	Storm drain	Relocate or protect in place
39	9th Street	AT&T	UG fiber optic cable	Casing to be extended-relocate or protect in place
40	9th Street	Kinder Morgan	20” oil pipe line	Relocate or protect in place
22	11th Street	So. Cal. Edison	Poles, guy wires, and building	Relocate poles, guy wires, and building
23	11th Street	City of Colton	18” VCP sewer	Remove and replace drop manhole at north end of storm drain culvert to farther north
24	11th Street	City of Colton	48” CMP double storm drain	Storm drain culverts and structures to be modified
	11th Street	Kinder Morgan	20” oil pipe line	Conflicts with 11th Street drainage-relocate or protect in place
46	13th Street	Elsinore Valley MWD	30” RCP storm drain	To be encased, relocated or protected in place
25	15th Street	So. Cal Edison	OVHD power lines	Wires to be raised or rerouted

OVHD = overhead UG = underground TW = Time Warner
[1] may be overlapped with numbered and unnumbered items, list is for conceptual planning only
Source: *Preliminary Utilities Conflict Assessment,* HDR 2010 as updated on 2/14/11

Any utilities located in streets within the project area would be kept in place to the extent practical, although manholes may need to be adjusted in various locations. Table 2.4.B enumerates temporary impacts to the various local utility lines and companies or agencies providing utilities in the project area.

No Build Alternative

The No Build Alternative would not involve construction activities within the study area; therefore, no temporary impacts to utilities or emergency services would occur.

2.4.2.2 Permanent Impacts

Build Alternative

After construction of the Build Alternative, there would be no long-term impacts to community facilities and services. The proposed project would not result in an increase in population, and thus would not increase demand for utilities, nor would any utility facilities be acquired or displaced by project construction. There would be no adverse long-term impacts to utility facilities and services.

Implementation of the project would improve transportation and circulation within the project area by eliminating conflicts and delays at off-site at-grade crossings to the north, east, and west of the project area, although the actual benefit to local circulation would be incremental and difficult to accurately calculate, especially as distance from the project site increases. Once operational, no reduction in the number of travel lanes or intersecting road closures is planned as a result of the Build Alternative.

Any relocation or undergrounding of utilities as a result of the Build Alternative would occur during the construction phase and would be permanently maintained by the utility purveyor during completion of the project. Any changes to utility existing utility lines would be coordinated and decided upon with the utility companies during the final design phase.

The Build Alternative would not increase the demand for domestic water services, wastewater facilities, or solid waste disposal. Therefore, no permanent adverse impacts to these utilities would occur.

No Build Alternative

The No Build Alternative would not involve construction activities within the project area; therefore, no permanent impacts to utilities or emergency services would occur.

2.4.3 Avoidance, Minimization, and/or Mitigation Measures

Implementation of a TMP, as discussed in detail in Section 2.5, *Traffic and Transportation*, would minimize temporary construction-related impacts to emergency services. With implementation of the measures described below, there would be no adverse impacts to the utilities (i.e., water and drainage, electricity, telecommunications, and cable services) as a result of the Build Alternative:

ULT-1 During the Plans, Specifications, and Estimates (PS&E) stage, UPRR would conduct an updated utility search to determine all utility conflicts that require positive location, protection in place, and/or relocation. Proposed undergrounding of existing utilities would be coordinated and decided upon by the utility companies during the final design phase.

ULT-2 Prior to commencement of construction, UPRR would coordinate with all affected utility providers to establish exact procedures and specifications for all facilities to be protected in place and relocated during construction to ensure that utility services are not disrupted.

2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.5.1 Regulatory Setting

Federal Railroad Administration (FRA) Regulations (64 FR 28545), state that environmental documents should consider possible impacts to all modes of transportation, including passenger and freight rail, as well as potential impacts to roadway traffic congestion.

2.5.2 Affected Environment

2.5.2.1 Vehicular Traffic

This section is based in part on the *Colton Crossing Grade Separation Vehicular Traffic Study* (February 2011) prepared by Iteris, Inc. The report studied existing traffic conditions (2010), construction staging (2012) traffic conditions, opening year (2015) traffic conditions, and forecast year (2035) traffic conditions. Impacts from the proposed project during construction and on opening year (2015) and forecast year (2035) traffic conditions were assessed.

The study area for the analysis of the proposed project traffic impacts and benefits includes the following intersections:

1. Pennsylvania Avenue/Laurel Street
2. 8th Street/Laurel Street
3. La Cadena Drive-Bordwell Avenue/Laurel Street
4. Pennsylvania Avenue/Olive Street
5. 7th Street/Olive Street
6. La Cadena Drive/Olive Street
7. Pennsylvania Avenue/E Street
8. 7th Street/E Street
9. Pennsylvania Avenue/H Street
10. 7th Street/H Street
11. La Cadena Drive/H Street
12. Rancho Avenue/Valley Boulevard
13. 3rd Street/Valley Boulevard
14. Pennsylvania Avenue/Valley Boulevard
15. 7th Street/Valley Boulevard
16. La Cadena Drive/Valley Boulevard
17. 9th Street/Valley Boulevard
18. Rancho Avenue/I-10 Westbound Ramps
19. Rancho Avenue/I-10 Eastbound Ramps
20. 9th Street/I-10 Westbound Off-Ramp
21. 9th Street/I-10 Eastbound Ramps
22. 9th Street/L Street
23. 9th Street/M Street
24. 9th Street/N Street
25. 9th Street/O Street

The study area for the analysis of the proposed project traffic impacts and benefits includes the following at-grade rail crossings:

1. BNSF track at Valley Boulevard
2. BNSF track at H Street
3. BNSF track at E Street
4. BNSF track at Olive Street
5. BNSF track at Laurel Street

2.5.2.2 Rail Operations

This section is based in part on the *Rail Operations Analysis of the Colton Crossing Project* (February 2011) prepared by HDR Engineering, Inc. The purpose of the rail operations study was to quantify rail operations outcomes resulting from the proposed Colton Crossing rail-to-rail grade separation project. The outcomes are physical metrics of a train's performance, including the following:

- Train travel time over the Colton Crossing;
- Train travel time over selected track configuration or geometry within the Colton Crossing;
- Fuel consumption;
- Average train speed;
- Train delay over the Colton Crossing;
- Motor vehicles delay at road/rail at-grade crossings.

The rail operations study was based on the following three assumptions, estimates and projections obtained from UPRR and BNSF regarding future rail operations. First, the proportion of trains using connection tracks to mainline tracks would continue into the future as at present. Second, train characteristic such as train length, average number of locomotives per train, and horsepower per ton, would continue as at present. Third, freight volume growth would continue in the future, at the same rate whether or not the project is constructed.

In total, the rail operations study was based on the following key assumptions:

- Train traffic would continue to grow.
- Train traffic would grow at an average of 2.71 percent annually, compounded. Development of this growth rate is described in Section 1.2.2.1.The proportion of freight traffic through Colton Crossing that originates or terminates at the Ports of Los Angeles and Long Beach would remain constant. Discussion of port growth is provided in Section 1.2.2.1.

- Train length, horsepower per ton, and other train make-up details would remain constant.
- No rail infrastructure in the vicinity of the project beyond the project limits was expected to change at this time, with the exception of programmed grade separation projects identified in Section 1.2.2.1, Table 1.1.B.
- At-grade public road/rail crossings in this study area would remain in place, be closed, or be grade separated; no new at-grade public grade-crossings would be created.
- Passenger trains (Metrolink and Amtrak) would continue to receive priority on-time movement as at present.

As a result of these rail operations assumptions, the rail operations study focuses on the effects of the Build And No Build Alternatives on the rail operations outcomes described previously (time, delay, fuel consumption, road/rail at-grade crossing occupancy).

The rail operations study used the Rail Traffic Controller (RTC) train dispatching simulation model to measure changes in train operations. The RTC model was used because it is widely used, understood, and it accurately measures all of the desired rail operations outcomes in the study.

The report studied rail operations outcomes for existing rail traffic conditions (2010), opening year (2015) rail traffic conditions, and forecast year (2035) rail traffic conditions. Impacts from the proposed project on opening year and forecast year rail traffic conditions were assessed.

The study area for the analysis of the proposed project rail impacts and benefits included all at-grade road/rail crossings located along the following rail segments:

- BNSF Cajon Subdivision: Summit (Cajon Pass) to San Bernardino.
- BNSF San Bernardino Subdivision: San Bernardino to Riverside.
- UPRR Yuma Subdivision: Beaumont to West Colton.
- UPRR Alhambra Subdivision: West Colton to Pomona.
- UPRR Los Angeles Subdivision: Riverside to Pomona.

2.5.2.3 Existing (2010) Intersection Levels of Service

Intersection Levels of Service (LOS) are analyzed using the *Highway Capacity Manual* (HCM) 2000 operations method. In this methodology, LOS is defined by the

average control delay experienced by vehicles at an intersection, taking into account the effects of intersection characteristics such as lane geometry and signal phasing. Table 2.5.A presents the delay associated with each LOS grade and gives a qualitative description of intersection operations at that grade, for signalized and unsignalized intersections.

Table 2.5.A: Intersection Level of Service Definitions

Level of Service	Description	Signalized Intersection Delay (seconds per vehicle)	Unsignalized Intersection Delay (seconds per vehicle)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	>10 and ≤ 20	>10 and ≤ 15
C	Good operation. Occasionally drivers might have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20 and ≤ 35	>15 and ≤ 25
D	Fair operation. Some long-standing vehicle queues develop on critical approaches to intersections. Delays may be up to several minutes.	>35 and ≤ 55	>25 and ≤ 35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>55 and ≤ 80	>35 and ≤ 50
F	Forced flow. Represents jammed conditions. Backups form downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop-and-go type traffic flow.	>80	>50

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, DC, 2000.

According to the City of Colton General Plan, the minimum intersection level of service standard is LOS E; however, the City of Colton is in the process of updating its General Plan, and the level-of-service standard may be revised to LOS D or better for acceptable intersection operations. Consequently, intersections operating at LOS E or F are considered unsatisfactory. This standard is applied to all study intersections, including City intersections as well as joint City/Caltrans intersections where freeway ramps terminate.

Table 2.5.B identifies the existing LOS and delay in seconds at the study area intersections during the a.m. and p.m. peak hours.

Table 2.5.B: Existing (2010) Intersection LOS

Intersection	Traffic Control	A.M. Peak Hour		P.M. Peak Hour	
		LOS	Delay	LOS	Delay
1. Pennsylvania Avenue/Laurel Street	AWSC	C	16.1	A	9.9
2. 8th Street/Laurel Street	TWSC	A	2.0	A	2.4
3. La Cadena Drive-Bordwell Avenue/Laurel Street	Signal	C	31.2	C	29.4
4. Pennsylvania Avenue/Olive Street	AWSC	B	14.1	B	10.0
5. 7th Street/Olive Street	TWSC	A	3.3	A	2.7
6. La Cadena Drive/Olive Street	Signal	B	10.7	B	10.3
7. Pennsylvania Avenue/E Street	TWSC	A	3.9	A	2.4
8. 7th Street/E Street	AWSC	A	9.0	A	8.4
9. Pennsylvania Avenue/H Street	TWSC	A	10.0	A	4.7
10. 7th Street/H Street	AWSC	B	11.1	A	9.5
11. La Cadena Drive/H Street	Signal	A	9.7	A	9.4
12. Rancho Avenue/Valley Boulevard	Signal	C	34.9	C	31.4
13. 3rd Street/Valley Boulevard	Signal	C	21.6	B	15.8
14. Pennsylvania Avenue/Valley Boulevard	TWSC	A	3.2	A	1.7
15. 7th Street/Valley Boulevard	TWSC	A	8.1	A	4.1
16. La Cadena Drive/Valley Boulevard	Signal	D	36.0	C	32.0
17. 9th Street/Valley Boulevard	Signal	C	32.8	C	34.2
18. Rancho Avenue/I-10 Westbound Ramps	Signal	C	20.6	B	18.7
19. Rancho Avenue/I-10 Eastbound Ramps	Signal	C	27.8	C	34.5
20. 9th Street/I-10 Westbound Off-Ramp	TWSC	A	4.3	A	4.8
21. 9th Street/I-10 Eastbound Ramps	TWSC	C	23.6	**E**	**45.9**
22. 9th Street/L Street	AWSC	A	7.1	A	7.1
23. 9th Street/M Street	AWSC	A	7.8	A	7.9
24. 9th Street/N Street	AWSC	A	7.2	A	7.0
25. 9th Street/O Street	AWSC	A	7.3	A	7.5

HCM 2000 Operations Methodology; AWSC = All-way stop-controlled; TWSC = Two-way stop-controlled (average delay of all movements and corresponding LOS are reported)
LOS = Level of Service
Delay = Average Vehicle Delay (Seconds)
Bold indicates unsatisfactory LOS
Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

As identified in Table 2.5.B, the 9th Street/I-10 Eastbound Ramps intersection currently operates at an unsatisfactory LOS during the p.m. peak hour.

2.5.2.4 Existing (2010) Vehicular Delay at Rail At-Grade Crossings

Total existing vehicular delay at five existing at-grade road/rail crossing were calculated and are summarized in Table 2.5.C. Vehicular delay was calculated by applying the gate down time to the number of vehicles queued at the gates and measured by total vehicle delay in minutes resulting from trains passing through the

crossing and includes delay associated with rail conflict and time for traffic queues to dissipate.

Table 2.5.C: Existing (2010) At-Grade Crossings Vehicular Delay

At-Grade Crossing	Gate Downtime (hourly average in minutes)	Vehicular Delay (hourly total in minutes)
Laurel Street Crossing		
A.M. Peak Hour	11.65	384
P.M. Peak Hour	11.65	254
Olive Street Crossing		
A.M. Peak Hour	9.95	220
P.M. Peak Hour	9.95	197
E Street Crossing		
A.M. Peak Hour	9.95	68
P.M. Peak Hour	9.95	46
H Street Crossing		
A.M. Peak Hour	9.75	165
P.M. Peak Hour	9.75	96
Valley Boulevard Crossing		
A.M. Peak Hour	9.65	522
P.M. Peak Hour	9.65	461

Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

2.5.2.5 Existing (2010) Rail Operations

Total existing rail delay at the existing at-grade road/rail crossings within the study limits were calculated and are summarized in Table 2.5.D.

Table 2.5.D: Average Daily Train Delay at Grade Crossings in Rail Study Area

At-Grade Crossing	No Build Alternative: Existing Infrastructure (Trains / HH:MM)			Build Alternative: Future Infrastructure (Trains / HH:MM)		
	2010	2015	2035	2010	2015	2035
3rd Street	65 / 02:36	76 / 03:12	140 / 05:41	65 / 02:31	76 / 03:00	141 / 05:20
Alessandro Road	40 / 02:25	49 / 03:00	98 / 05:54	40 / 02:25	49 / 02:58	98 / 05:50
Archibald Avenue	18 / 00:34	22 / 00:43	47 / 01:24	18 / 00:34	22 / 00:43	48 / 01:24
Beaumont Avenue	40 / 02:34	49 / 03:38	98 / 09:30	40 / 02:27	49 / 03:07	98 / 08:08
Bellegrave Avenue	19 / 00:37	23 / 00:46	48 / 01:41	19 / 00:37	23 / 00:46	49 / 01:42
Bon View Avenue	18 / 00:47	22 / 00:59	47 / 01:53	18 / 00:47	22 / 01:00	48 / 01:54
Brockton Avenue	17 / 00:49	22 / 01:04	47 / 02:22	17 / 00:48	22 / 01:00	47 / 02:14
Campus Avenue	48 / 01:48	59 / 02:15	120 / 04:03	48 / 01:48	59 / 02:15	120/ 04:04

Table 2.5.D: Average Daily Train Delay at Grade Crossings in Rail Study Area

At-Grade Crossing	No Build Alternative: Existing Infrastructure (Trains / HH:MM)			Build Alternative: Future Infrastructure (Trains / HH:MM)		
	2010	2015	2035	2010	2015	2035
Center Street	65 / 02:55	76 / 03:30	140 / 06:02	65 / 02:50	76 / 03:23	141 / 05:50
Chicago Avenue	65 / 02:38	76 / 03:14	140 / 05:41	65 / 02:33	76 / 03:00	141 / 05:18
Clay Street	18 / 00:40	22 / 00:49	47 / 01:54	18 / 00:39	22 / 00:49	48 / 01:54
Cridge Street	48 / 02:04	55 / 02:22	94 / 04:05	48 / 01:56	55 / 02:12	94 / 03:49
Cridge Street (BNSF)	48 / 02:04	55 / 02:22	94 / 04:05	48 / 01:56	55 / 02:12	94 / 03:49
E Street	52 / 02:52	Closure	Closure	52 / 02:57	Closure	Closure
Francis Avenue	18 / 00:34	22 / 00:43	47 / 01:26	18 / 00:35	22 / 00:44	48 / 01:27
H Street	52 / 02:49	Closure	Closure	52 / 02:54	Closure	Closure
Hamilton Boulevard	33 / 01:33	39 / 01:52	72 / 03:07	33 / 01:34	39 / 01:52	72 / 03:08
Hunts Lane	40 / 02:05	Grade Separated	Grade Separated	40 / 02:09	Grade Separated	Grade Separated
Iowa Avenue	65 / 02:52	Grade Separated	Grade Separated	65 / 02:47	Grade Separated	Grade Separated
Jurupa Road	19 / 00:37	23 / 00:46	48 / 01:50	19 / 00:37	23 / 00:46	49 / 01:51
Laurel Street	50 / 03:14	Grade Separated	Grade Separated	50 / 03:04	Grade Separated	Grade Separated
Live Oak Canyon	40 / 02:46	49 / 03:36	98 / 07:35	40 / 02:48	49 / 03:31	98 / 07:24
Magnolia Avenue	17 / 00:50	Grade Separated	Grade Separated	17 / 00:48	Grade Separated	Grade Separated
Main Street	41 / 01:42	47 / 01:58	83 / 02:58	41 / 01:41	47 / 01:56	83 / 02:56
Main Street (BNSF)	65 / 06:14	76 / 06:39	140 / 08:29	65 / 06:08	77 / 06:35	141 / 08:24
N Milliken Avenue	31 / 01:00	Grade Separated	Grade Separated	31 / 01:01	Grade Separated	Grade Separated
S Milliken Avenue	18 / 00:35	Grade Separated	Grade Separated	18 / 00:35	Grade Separated	Grade Separated
Mission Inn Avenue	65 / 02:38	76 / 03:12	140 / 05:41	65 / 02:33	76 / 03:02	141 / 05:24
Monte Vista Avenue	41 / 01:26	47 / 01:40	82 / 02:34	41 / 01:26	47 / 01:40	82 / 02:34
N. San Antonio Avenue	41 / 01:27	47 / 01:41	83 / 02:34	41 / 01:27	47 / 01:40	83 / 02:33
Olive Street	52 / 02:52	59 / 04:39	98 / 07:12	52 / 02:53	59 / 03:19	98 / 05:07
Palm Avenue (UP)	17 / 00:49	22 / 01:07	47 / 02:30	17 / 00:47	22 / 00:59	47 / 02:12
Palmyrita Avenue	65 / 02:49	76 / 03:26	140 / 06:07	65 / 02:43	76 / 03:14	141 / 05:46
Palomares Street	31 / 01:10	37 / 01:24	73 / 02:20	31 / 01:09	37 / 01:23	72 / 02:17

Table 2.5.D: Average Daily Train Delay at Grade Crossings in Rail Study Area

At-Grade Crossing	No Build Alternative: Existing Infrastructure (Trains / HH:MM)			Build Alternative: Future Infrastructure (Trains / HH:MM)		
	2010	2015	2035	2010	2015	2035
Panorama Road	17 / 00:54	21 / 01:09	46 / 02:18	17 / 00:53	22 / 01:06	47 / 02:12
Park Avenue	41 / 01:49	47 / 02:07	83 / 03:18	41 / 01:49	47 / 02:06	83 / 03:17
Rialto Avenue	39 / 02:21	46 / 02:44	84 / 04:34	39 / 02:23	46 / 02:46	85 / 04:36
Riverside Avenue	17 / 00:50	Grade Separated	Grade Separated	17 / 00:49	Grade Separated	Grade Separated
Rutile Avenue	19 / 00:37	23 / 00:46	48 / 01:42	19 / 00:37	23 / 00:46	49 / 01:43
S San Antonio	18 / 00:44	22 / 00:55	47 / 01:46	18 / 00:45	22 / 00:56	48 / 01:47
San Timoteo Road	40 / 02:35	49 / 04:32	98 / 15:12	40 / 02:09	49 / 02:35	98 / 08:41
Spruce Street	65 / 02:34	76 / 03:10	140 / 05:36	65 / 02:28	76 / 02:56	141 / 05:12
Streeter Avenue	17 / 00:48	Grade Separated	Grade Separated	17 / 00:46	Grade Separated	Grade Separated
Sultanan Avenue	48 / 01:50	59 / 02:18	120 / 04:15	48 / 01:50	59 / 02:18	120 / 04:15
Valley Boulevard	52 / 02:47	58 / 03:12	97 / 05:00	52 / 02:53	58 / 03:18	97 / 05:10
Veile Avenue	39 / 02:00	48 / 02:25	98 / 04:45	39 / 01:58	48 / 02:23	98 / 04:42
Vine Avenue	18 / 00:45	22 / 00:57	47 / 01:49	18 / 00:46	22 / 00:57	48 / 01:50
Vineyard Avenue (AL)	31 / 01:01	Grade Separated	Grade Separated	31 / 01:01	Grade Separated	Grade Separated
Vineyard Avenue (LA)	18 / 00:36	22 / 00:46	47 / 01:30	18 / 00:36	22 / 00:46	48 / 01:30
Walnut Street	37 / 02:15	43 / 02:37	80 / 04:29	37 / 02:15	44 / 02:37	82 / 04:29
Whittier Avenue	40 / 02:09	49 / 02:42	98 / 06:45	40 / 02:01	49 / 02:32	98 / 06:20
Total occupancy for all crossings per week	1922 / 92:31	2274 / 91:18	3448 / 172:01	1922 / 90:53	2279 / 85:34	4331 / 158:28

[1] Within modeling area

[2] Total average train volumes include *all* trains within the model limits. Some of these trains do not pass through Colton Crossing, such as local trains that move between various yards, and trains that travel between UPRR's Mojave Subdivision and Alhambra Subdivision. These trains influence trains that travel through Colton Crossing, thus must be included in the model to provide accurate results.

Source: Rail Operations Analysis, February 2011.

Table 2.5.E presents cumulative train idling times at the rail crossings in the rail study limits. In addition, cumulative total train times in the rail study limits are also presented in Table 2.5.E.

Table 2.5.E: Cumulative Train Idling and Total Train Times in Rail Study Area

At-Grade Crossing	No Build Alternative: Existing Infrastructure (Trains / HH:MM)			Build Alternative: Future Infrastructure (Trains / HH:MM)		
	2010	2015	2035	2010	2015	2035
Cumulative Idling Time, all Trains, per week (DD:HH:MM)	19:08:23	30:16:01	522:06:34	02:22:36	04:10:31	304:20:30
Cumulative Train Time within Model Limits, all Trains, per week (DD:HH:MM)	54:08:21	71:18:01	642:13:47	35:10:28	41:21:09	375:01:47

[1] Within modeling area

[2] Total average train volumes include *all* trains within the model limits. Some of these trains do not pass through Colton Crossing, such as local trains that move between various yards, and trains that travel between UPRR's Mojave Subdivision and Alhambra Subdivision. These trains influence trains that travel through Colton Crossing, thus must be included in the model to provide accurate results.

Source: Rail Operations Analysis, February 2011

2.5.2.6 Pedestrian and Bicycle Facilities

Pedestrian and bicycle activity in the project area is limited to existing travel routes located east of Rancho Avenue, west of Mount Vernon Avenue, and south of I-10 (and the UPRR railroad tracks). There are four roads that currently provide access across the I-10 freeway plus three east-west local roads that connect to them. The north-south roads are Rancho Avenue, La Cadena Drive, 9th Street, and Mount Vernon Avenue. The east-west roads are K Street, an alley located between K and L Streets, and L Street. Existing pedestrian and bicycle attributes for these roads are described as follows.

- Rancho Avenue is a four-lane major arterial and crosses over the UPRR tracks and I-10. One southbound lane drops away at approximately L Street. The east side (northbound lanes) of Rancho Avenue contains a sidewalk while the opposite side does not. The sidewalk intersects with a paved walkway that negotiates the elevation difference between Rancho Avenue and the K Street cul-de-sac to the east. Additional pedestrian and bicycle access to the roadway is provided at the Rancho Avenue/M Street intersection. Rancho Avenue is neither signed nor marked for bicycle lanes and is not planned as a bicycle route according to the Bicycle Route Master Plan located in the Circulation Element of the City's General Plan. The road is posted with a 45 mile per hour (mph) speed limit and "no parking any time" signs.
- La Cadena Drive is a four-lane major arterial and crosses under the UPRR tracks and I-10. Both sides of the road contain sidewalks. A paved walkway connecting

the K Street cul-de-sac to the east joins La Cadena Drive at the intersection of La Cadena Drive and the alley between K Street and L Street. Additional pedestrian and bicycle access to the roadway is provided at the La Cadena Drive/L Street and La Cadena Drive/M Street intersections. La Cadena Drive is signed as a bicycle lane in each direction. The road is posted with a 45 mph speed limit and parking is allowed.

- 9th Street is a two-lane local street that terminates south of the UPRR tracks at K Street. The center of the street contains a UPRR rail switching track. North of the UPRR tracks, 9th Street begins again and crosses under I-10. Anecdotal evidence provided by the railroads, City, and residents in the area supports that local residents cross the UPRR tracks to reach 9th Street to the north. This is not a lawful pedestrian or bicycle access.
- K Street is a two-lane local street with three discontinuous segments in the project area: West K Street between Rancho Avenue and 5th Street (BNSF railroad tracks), West K Street between BNSF railroad tracks and La Cadena Drive, and E K Street between La Cadena Drive and 9th Street. As stated previously, there is a paved walkway that negotiates the elevation difference from the West K Street cul-de-sac to the east side of Rancho Avenue. Another paved walkway connects the West K Street cul-de-sac, directly east of La Cadena Drive to the intersection of La Cadena Drive and the alley between K Street and L Street.
- The alley between K and L Streets provides an additional east-west connection, working in conjunction with K Street to provide pedestrian and bicycle access to major travel routes. The alley contains two discontinuous segments in the project area: between Rancho Avenue and 5th Street (BNSF railroad tracks) and between the BNSF railroad tracks and 10th Street.
- L Street is also a two-lane local road providing an additional east-west connection, working in conjunction with K Street to provide pedestrian and bicycle access to major travel routes. L Street also contains two discontinuous segments in the project area: between Rancho Avenue and 5th Street (BNSF railroad tracks) and between BNSF railroad tracks and 10th Street.

2.5.2.7 Transit Facilities

Transit is provided to the City of Colton by Omnitrans and Metrolink. Omnitrans Bus Route 19 connects Fontana, Colton, and Redlands. Route 19 travels and contains bus stops on Mount Vernon Avenue, M Street, O Street, and La Cadena Drive within the project vicinity. Bus Route 1 connects Colton and San Bernardino and has transfer

locations throughout the City to other bus routes. The nearest bus stop is located on Valley Boulevard, east of La Cadena Drive. Route 1 provides a connection to the San Bernardino Metrolink Station. There are no bus routes on Rancho Avenue.

2.5.2.8 Truck Routes

The City of Colton General Plan Circulation Element includes a Truck Route Master Plan that designates truck routes within the City. Designated truck routes within the vicinity of the project study area include Rancho Avenue, La Cadena Drive, Fogg Street, M Street (east of Fogg Street), Mount Vernon Avenue, and Valley Boulevard.

2.5.3 Environmental Consequences

2.5.3.1 Temporary Impacts

Build Alternative

Rail Traffic. During construction, trains would utilize the existing mainline tracks to ensure rail traffic is not disrupted. Once the structure is complete, the tracks would be incrementally moved onto the flyover. The southerly mainline track would remain as a connector track between UPRR yards and BNSF Mainlines. The Build Alternative would result in no temporary disruption of rail traffic.

Vehicular Traffic. Project construction is scheduled to start in late 2011 and end in 2014. Peak construction activity is anticipated to occur during February or March of 2012. Construction traffic impacts were analyzed for Year 2012 during peak construction activity. Because permanent or long-term temporary road closures were not anticipated to occur during construction of the Build Alternative, no traffic detour analysis is required. For these reasons, traffic conditions during Year 2012 were analyzed on the same arterial network with and without the additional on-road vehicles due to construction, including construction worker trips and truck trips.

Table 2.5.F identifies Year 2012 without construction traffic intersection levels of service and delay at the study area intersections during the a.m. and p.m. peak hours.

As identified in Table 2.5.F, the 9th Street/I-10 Eastbound Ramps intersection is forecast to operate at an unsatisfactory LOS during the p.m. peak hour without project construction traffic.

Table 2.5.F: Year 2012 Without Construction Intersection LOS

Intersection	Traffic Control	A.M. Peak Hour		P.M. Peak Hour	
		LOS	Delay	LOS	Delay
1. Pennsylvania Avenue/Laurel Street	AWSC	C	17.7	B	10.3
2. 8th Street/Laurel Street	TWSC	A	2.1	A	2.5
3. La Cadena Drive-Bordwell Avenue/Laurel Street	Signal	C	32.0	C	29.8
4. Pennsylvania Avenue/Olive Street	AWSC	B	14.9	B	10.5
5. 7th Street/Olive Street	TWSC	A	3.4	A	2.9
6. La Cadena Drive/Olive Street	Signal	B	10.7	B	10.5
7. Pennsylvania Avenue/E Street	TWSC	A	2.0	A	1.1
8. 7th Street/E Street	AWSC	A	8.8	A	8.4
9. Pennsylvania Avenue/H Street	TWSC	A	5.7	A	3.0
10. 7th Street/H Street	AWSC	B	10.1	A	9.0
11. La Cadena Drive/H Street	Signal	A	9.7	A	9.4
12. Rancho Avenue/Valley Boulevard	Signal	D	38.7	D	35.0
13. 3rd Street/Valley Boulevard	Signal	C	23.8	B	16.6
14. Pennsylvania Avenue/Valley Boulevard	TWSC	B	14.6	A	2.2
15. 7th Street/Valley Boulevard	TWSC	D	29.7	A	5.6
16. La Cadena Drive/Valley Boulevard	Signal	C	25.3	D	35.3
17. 9th Street/Valley Boulevard	Signal	C	34.2	D	36.7
18. Rancho Avenue/I-10 Westbound Ramps	Signal	C	23.4	B	20.6
19. Rancho Avenue/I-10 Eastbound Ramps	Signal	C	28.5	D	36.3
20. 9th Street/I-10 Westbound Off-Ramp	TWSC	A	4.4	A	5.1
21. 9th Street/I-10 Eastbound Ramps	TWSC	D	29.1	**F**	**70.6**
22. 9th Street/L Street	AWSC	A	7.2	A	7.2
23. 9th Street/M Street	AWSC	A	7.9	A	8.1
24. 9th Street/N Street	AWSC	A	7.3	A	7.1
25. 9th Street/O Street	AWSC	A	7.3	A	7.5

HCM 2000 Operations Methodology; AWSC = All-way stop-controlled; TWSC = Two-way stop-controlled (average delay of all movements and corresponding LOS are reported)
LOS = Level of Service
Delay = Average Vehicle Delay (Seconds)
Bold indicates unsatisfactory LOS
Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

Table 2.5.G identifies Year 2012 with construction traffic intersection levels of service and delay at the study area intersections during the a.m. and p.m. peak hours.

As identified in Table 2.5.G, the 9th Street/I-10 Eastbound Ramp intersection was forecast to operate at an unsatisfactory LOS during the p.m. peak hour with project construction traffic. With implementation of the avoidance and minimization measures outlined in Section 2.5.4, potential temporary impacts related to construction traffic would not be adverse.

Table 2.5.G: Year 2012 With Construction Intersection LOS

Intersection	Traffic Control	A.M. Peak Hour		P.M. Peak Hour	
		LOS	Delay	LOS	Delay
1. Pennsylvania Avenue/Laurel Street	AWSC	C	17.7	B	10.3
2. 8th Street/Laurel Street	TWSC	A	2.1	A	2.5
3. La Cadena Drive-Bordwell Avenue/Laurel Street	Signal	C	32.0	C	29.8
4. Pennsylvania Avenue/Olive Street	AWSC	B	14.9	B	10.5
5. 7th Street/Olive Street	TWSC	A	3.4	A	2.9
6. La Cadena Drive/Olive Street	Signal	B	10.7	B	10.5
7. Pennsylvania Avenue/E Street	TWSC	A	2.0	A	1.1
8. 7th Street/E Street	AWSC	A	8.8	A	8.4
9. Pennsylvania Avenue/H Street	TWSC	A	5.7	A	3.0
10. 7th Street/H Street	AWSC	B	10.1	A	9.0
11. La Cadena Drive/H Street	Signal	A	9.7	A	9.4
12. Rancho Avenue/Valley Boulevard	Signal	D	38.7	D	35.0
13. 3rd Street/Valley Boulevard	Signal	C	23.8	B	16.6
14. Pennsylvania Avenue/Valley Boulevard	TWSC	B	14.6	A	2.2
15. 7th Street/Valley Boulevard	TWSC	D	29.7	A	5.6
16. La Cadena Drive/Valley Boulevard	Signal	C	25.3	D	35.3
17. 9th Street/Valley Boulevard	Signal	C	34.2	D	36.7
18. Rancho Avenue/I-10 Westbound Ramps	Signal	C	23.4	B	20.6
19. Rancho Avenue/I-10 Eastbound Ramps	Signal	C	28.5	D	36.3
20. 9th Street/I-10 Westbound Off-Ramp	TWSC	A	4.4	A	5.1
21. 9th Street/I-10 Eastbound Ramps	TWSC	D	29.1	**F**	**70.6**
22. 9th Street/L Street	AWSC	A	7.2	A	7.2
23. 9th Street/M Street	AWSC	A	7.9	A	8.1
24. 9th Street/N Street	AWSC	A	7.3	A	7.1
25. 9th Street/O Street	AWSC	A	7.3	A	7.5

HCM 2000 Operations Methodology; AW SC = All-way stop-controlled; TW SC = Two-way stop-controlled (worst-case approach delay)
LOS = Level of Service
Delay = Average Vehicle Delay (Seconds)
Bold indicates unsatisfactory LOS
Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

Pedestrian/Bicycle/Transit Routes. During construction of the Build Alternative, all construction activities would remain within the project limits (see Figures 1.2 and 1.4) and therefore would not affect existing legal pedestrian and bicycle access routes. Pedestrian and bicycle access to all existing sidewalks, local roads, alleys, and the two K Street cul-de-sac walkway connections to Rancho Avenue and La Cadena Drive would remain unaffected, except for limited lane closures on La Cadena Drive during construction of the rail crossing over the roadway. Transit services on Valley Boulevard would not be affected and service on La Cadena Drive would only be affected by temporary lane closures. Implementation of the minimization measure below, which requires notification of the public and affected service agencies

regarding construction activities, would limit effects to pedestrians, bicyclists and transit buses that utilize La Cadena Drive. Potential construction effects to pedestrians, bicyclists, and transit services were not considered adverse.

No Build Alternative

The No Build Alternative would not include any construction in the project area; therefore, the No Build Alternative would not result in short-term adverse impacts on traffic circulation, pedestrian, bicycle or transit access.

2.5.3.2 Permanent Impacts

Build Alternative

Rail Traffic. The existing two mainline tracks would be relocated to the new structure and the existing southerly at-grade mainline track would be converted to a connection between the West Colton Yard and Old Colton Yard and to the BNSF railroad mainlines. There would be no permanent adverse effects to railroad facilities.

- **Rail Operations: Opening Year 2015.** Total rail delay and train times in Opening Year 2015 at the at-grade rail crossings within the study limits were calculated and summarized in previously referenced Table 2.5.D. As seen in the table, average daily train delays would be reduced at the vast majority of at-grade crossings with the Build Alternative. Correspondingly, the Build Alternative would result in substantial reductions in cumulative idling and cumulative train times in Year 2015 as shown in Table 2.5.E. Cumulative idling times would be reduced from 30 days, 16 hours, and 1 minute in the No Build Alternative to 4 days, 10 hours, and 31 minutes in the Build Alternative. This represents an 86 percent reduction in cumulative idling times. Similarly, cumulative total train times would be reduced from 71 days, 18 hours, and 1 minute in the No Build Alternative to 41 days, 21 hours, and 9 minutes in the Build Alternative. This represents a 42 percent reduction in cumulative total train times.
- **Rail Operations: Forecast Year 2035.** Total rail delay and train times in Forecast Year 2035 at the at-grade rail crossings within the study limits were calculated and summarized in previously referenced Table 2.5.D. As seen in the table, average daily train delays would be reduced at the vast majority of at-grade crossings with the Build Alternative. Correspondingly, the Build Alternative would result in substantial reductions in cumulative idling and cumulative train times in Year 2035 as shown in Table 2.5.E. Cumulative idling times would be reduced from 522 days, 6 hours, and 34 minutes in the No Build Alternative to 304 days, 20 hours, and 30 minutes in the Build Alternative. This represents a 42

percent reduction in cumulative idling times. Similarly, cumulative total train times would be reduced from 642 days, 13 hours, and 47 minutes in the No Build Alternative to 375 days, 1 hour, and 47 minutes in the Build Alternative. This represents a 42 percent reduction in cumulative total train times.

The reduction in train delays at the Colton Crossing would free up rail capacity within the study area, resulting in a positive effect on passenger and freight trains using other rail corridors in the vicinity. In addition, this positive effect would help to increase the frequency of "on-time" passenger train service on routes passing through the crossing.

Vehicular Traffic. The Build Alternative would result in a change in rail traffic patterns. These changes in rail traffic patterns have the potential to affect the operation of at-grade road/rail crossings at arterial roadway, to cause vehicular traffic redistribution to routes without railroad gates, as well as at intersections adjacent to the Build Alternative. The intersections adjacent to the at-grade road/rail crossings are currently affected by vehicle queues that form due to the gate down time. This condition is exacerbated by the existing rail to rail grade crossing (Colton Crossing), which causes additional train delays and lower speeds and thus longer blockages of area roadways as discussed in Section 2.5.2.5. Consequently, the Build Alternative impacts and benefits to intersection levels of service (year 2015 and 2035), at-grade road/rail crossing vehicular delay, and pedestrian and bicycle facilities have been assessed as follows.

- **Intersection Levels of Service: Opening Year 2015.** The Build Alternative would not directly modify or alter roadways and intersections. However, the local agency (City of Colton) plans to modify existing at-grade road/rail crossings in the study area. These include the closure of H Street and E Street at-grade road/rail crossings with the BNSF rail line and the planned Laurel Street grade separation with BNSF rail line. Opening Year 2015 traffic volumes were developed with these modifications in place based on SCAG's RTP Travel Demand Model.

  In addition, the traffic analysis determined that the Build Alternative would not generate new trips or result in redistribution of existing trips in Opening Year 2015. Trip redistribution would not occur because the change in delays in the project vicinity would not cause any traffic redistribution within the intersection study area. For example, the reduction in delay at the Olive Street crossing was estimated to be approximately 1.4 minutes per train crossing during peak hours

while the increase in delay at the Valley Boulevard crossing was estimated to be approximately 0.1 minutes (six seconds) per train during peak hours. These minimal decreases and increases in delay would not cause any traffic redistribution within the project study area in the City of Colton. The regional travel demand model results also show that these nominal changes in vehicle delay would not result in localized shifts in traffic patterns. Therefore, the No Build and Build Alternative opening year 2015 traffic volumes would be the same. Similarly, the Opening Year 2015 level of service calculations for the No Build and Build Alternative would be the same.

Table 2.5.H identifies Opening Year 2015 intersection levels of service and delay at the study area intersections during the a.m. and p.m. peak hours.

As identified in Table 2.5.H, the 9th Street/I-10 Eastbound Ramp intersection was forecast to operate at an unsatisfactory LOS during the a.m. and p.m. peak hours in Opening Year 2015 with and without the Build Alternative. As stated previously, the Build Alternative would not generate any additional trips and would not cause any substantial redistribution of traffic volumes due to the nominal changes in crossing delay that would result from the Build Alternative. Thus, the Build Alternative would not substantially impact any intersection service levels and there are no adverse effects on local intersections in 2015.

Table 2.5.H: Opening Year 2015 Intersection LOS[1]

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay	LOS	Delay
1. Pennsylvania Avenue/Laurel Street	C	20.0	B	10.8
2. 8th Street/Laurel Street	A	2.1	A	2.6
3. La Cadena Drive-Bordwell Avenue/Laurel Street	C	32.7	C	30.2
4. Pennsylvania Avenue/Olive Street	C	16.0	B	11.1
5. 7th Street/Olive Street	A	3.4	A	2.9
6. La Cadena Drive/Olive Street	B	10.9	B	11.0
7. Pennsylvania Avenue/E Street	A	2.1	A	1.1
8. 7th Street/E Street	A	8.9	A	8.6
9. Pennsylvania Avenue/H Street	A	5.9	A	3.0
10. 7th Street/H Street	B	10.4	A	9.2
11. La Cadena Drive/H Street	A	9.8	A	9.6
12. Rancho Avenue/Valley Boulevard	D	40.1	C	33.7
13. 3rd Street/Valley Boulevard	C	22.9	B	16.9
14. Pennsylvania Avenue/Valley Boulevard	C	19.8	A	2.3
15. 7th Street/Valley Boulevard	E	38.8	A	6.4
16. La Cadena Drive/Valley Boulevard	C	26.7	C	27.0
17. 9th Street/Valley Boulevard	D	36.4	D	40.6
18. Rancho Avenue/I-10 Westbound Ramps	C	25.8	C	22.7

Table 2.5.H: Opening Year 2015 Intersection LOS[1]

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay	LOS	Delay
19. Rancho Avenue/I-10 Eastbound Ramps	C	29.6	D	45.4
20. 9th Street/I-10 Westbound Off-Ramp	A	4.5	A	5.5
21. 9th Street/I-10 Eastbound Ramps	**E**	**39.4**	**F**	**115.3**
22. 9th Street/L Street	A	7.2	A	7.2
23. 9th Street/M Street	A	7.9	A	8.2
24. 9th Street/N Street	A	7.3	A	7.1
25. 9th Street/O Street	A	7.3	A	7.6

[1] Year 2015 Traffic volumes and corresponding delay/LOS values are the same for the Build and No Build Alternatives.
HCM 2000 Operations Methodology
LOS = Level of Service
Delay = Average Vehicle Delay (Seconds)
Bold indicates unsatisfactory LOS
Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

- **Intersection Levels of Service: Forecast Year 2035.** Forecast Year 2035 traffic volumes were developed with planned and programmed transportation improvement in place and based on SCAG's RTP Travel Demand Model and programmed grade separation projects in a similar manner as Opening Year 2015 traffic volume development.

  The traffic analysis determined that the Build Alternative would not generate new trips or result in redistribution of existing trips in Forecast Year 2035, similar to Opening Year 2015. Trip redistribution would not occur because the change in delays in the project vicinity would not cause any traffic redistribution within the intersection study area. For example, the reduction in delay at the Olive Street crossing was estimated to be approximately 1.3 minutes per train crossing during peak hours while the increase in delay at the Valley Boulevard crossing was estimated to be approximately 0.1 minutes (six seconds) per train during peak hours. These minimal decreases and increases in delay would not cause any traffic redistribution within the project study area in the City of Colton. The regional travel demand model results also show that these nominal changes in vehicle delay would not result in localized shifts in traffic patterns. Therefore, the No Build and Build Alternative Forecast Year 2035 traffic volumes would be the same. Similarly, the Forecast Year 2035 level of service calculations for the No Build and Build Alternative would be the same.

  Table 2.5.I identifies Forecast Year 2035 intersection levels of service and delay at the study area intersections during the a.m. and p.m. peak hours.

Table 2.5.I: Forecast Year 2035 Intersection LOS[1]

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay	LOS	Delay
1. Pennsylvania Avenue/Laurel Street	**E**	**41.3**	C	16.6
2. 8th Street/Laurel Street	A	2.2	A	2.9
3. La Cadena Drive-Bordwell Avenue/Laurel Street	D	36.6	C	33.1
4. Pennsylvania Avenue/Olive Street	**F**	**69.7**	C	15.8
5. 7th Street/Olive Street	A	3.5	A	3.1
6. La Cadena Drive/Olive Street	B	13.7	B	12.8
7. Pennsylvania Avenue/E Street	A	2.0	A	1.2
8. 7th Street/E Street	B	10.2	A	9.7
9. Pennsylvania Avenue/H Street	A	5.2	A	3.1
10. 7th Street/H Street	B	12.0	B	11.0
11. La Cadena Drive/H Street	B	11.1	B	11.8
12. Rancho Avenue/Valley Boulevard	**F**	**94.2**	D	52.2
13. 3rd Street/Valley Boulevard	C	22.8	B	18.9
14. Pennsylvania Avenue/Valley Boulevard	B	13.8	A	2.9
15. 7th Street/Valley Boulevard	**F**	**80.9**	D	28.3
16. La Cadena Drive/Valley Boulevard	D	41.1	D	39.3
17. 9th Street/Valley Boulevard	D	47.3	D	43.7
18. Rancho Avenue/I-10 Westbound Ramps	**F**	**123.9**	**E**	**77.5**
19. Rancho Avenue/I-10 Eastbound Ramps	**E**	**78.2**	**F**	**156.7**
20. 9th Street/I-10 Westbound Off-Ramp	A	7.3	A	9.6
21. 9th Street/I-10 Eastbound Ramps	**F**	**284.0**	**F**	**338.3**
22. 9th Street/L Street	A	7.3	A	7.2
23. 9th Street/M Street	A	8.1	A	8.6
24. 9th Street/N Street	A	7.4	A	7.2
25. 9th Street/O Street	A	7.7	A	7.9

[1] Year 2015 Traffic volumes and corresponding delay/LOS values are the same for the Build and No Build Alternatives.
HCM 2000 Operations Methodology LOS = Level of Service Delay = Average Vehicle Delay (Seconds)
Bold indicates unsatisfactory LOS
Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

As identified in Table 2.5.I, the following seven intersections were projected to operate at unsatisfactory levels of service in Forecast Year 2035 with and without the Build Alternative:

- Pennsylvania Avenue/Laurel Street (LOS E, a.m. peak hour);
- Pennsylvania Avenue/Olive Street (LOS F, a.m. peak hour);
- Rancho Avenue/Valley Boulevard (LOS F, a.m. peak hour);
- 7th Street/Valley Boulevard (LOS F, a.m. and p.m. peak hours);
- Rancho Avenue/I-10 Westbound Ramps (LOS F, a.m. peak hour and LOS E, p.m. peak hour);
- Rancho Avenue/I-10 Eastbound Ramps (LOS E, a.m. peak hour and LOS F, p.m. peak hour); and

- 9th Street/I-10 Eastbound Ramps (LOS F, a.m. and p.m. peak hours).

As stated previously, the Build Alternative would not generate any additional trips and would not cause any substantial redistribution of traffic volumes due to the nominal changes in crossing delay that would result from the Build Alternative. Thus, the Build Alternative would not substantially affect any intersection service levels and there would be no adverse effects on local intersections in 2035.

- **At-Grade Rail Crossing Vehicular Delay: Opening Year 2015.** As previously noted, planned and programmed transportation improvements within the study area include the elimination of the H Street and E Street at-grade road/rail crossings and a planned grade separation of the Laurel Street at-grade road/rail crossing. As a result of these future projects, only the Olive Street and Valley Boulevard at-grade road/rail crossings would remain in Opening Year 2015 within the vicinity of the project area. Vehicular delay at the two at-grade road/rail crossings was calculated and is summarized in Table 2.5.J.

Table 2.5.J: Opening Year 2015 At-Grade Crossings Vehicular Delay

At-Grade Crossing	No Build Alternative		Build Alternative		Change in Delay	
	Gate Downtime (hourly average in minutes)	Vehicular Delay (hourly total in minutes)	Gate Downtime (hourly average in minutes)	Vehicular Delay (hourly total in minutes)	Hourly Total	Per Vehicle
Olive Street Crossing						
A.M. Peak Hour	14.20	497	10.15	254	-243	-0.71
P.M. Peak Hour	14.20	472	10.15	245	-227	-0.68
Valley Boulevard Crossing						
A.M. Peak Hour	9.95	838	10.25	889	51	0.05
P.M. Peak Hour	9.95	710	10.25	753	43	0.05

Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

The difference in vehicular delay due to the Build Alternative conditions is also shown in Table 2.5.J. With the Build Alternative, total vehicle delay would decrease substantially at the Olive Street crossing. Delay was forecast to be reduced in the a.m. and p.m. peak hours by 49 percent and 48 percent, respectively, resulting in a beneficial effect on delay. At Valley Boulevard, total vehicle delay would increase by 6 percent during each peak hour, resulting in a nominal impact. The reason for increased delay at Valley Boulevard was explained as follows. Occasionally in the no-build case, two trains on the BNSF main tracks, each moving in opposite directions, would encounter conflicting UP trains simultaneously or near-simultaneously and stop or slow down. When the

UP train clears, both BNSF trains resume moving at the same time. Valley Boulevard is nearer to the Colton diamonds than Olive, H, and E, thus it is more likely to be occupied by two trains at once (each moving in opposite directions). One of the trains, in effect, is able to cross Valley Boulevard without its time in the crossing being counted against the total crossing occupancy time – it is being masked by the other train also present at the same time. With the Build Alternative, however, trains are more likely to be independent actors and not accumulate in groups at Colton Crossing, thus Valley crossing occupancy time is increased – one train moving in one direction is less frequently masking the occupancy of a train moving in the other direction. The crossings that are farther away from the Colton Crossing diamonds are less influenced by this effect. The average increase in delay at Valley Boulevard is only a few seconds per vehicle, which would not result in traffic redistribution as confirmed by the regional travel demand model projections. Consequently, the substantially reduced at-grade gate closures at Olive Street and the nominally increased at-grade gate closures at Valley Boulevard would not result in shifting of traffic patterns to other grade crossings, freeways, or freeway ramp locations and impacts to area intersections would not be adverse.

- **At-Grade Rail Crossing Vehicular Delay: Forecast Year 2035.** As previously noted, planned and programmed transportation improvements within the study area include the elimination of the H Street and E Street at-grade road/rail crossings and a planned grade separation of the Laurel Street at-grade crossing. As a result of these future projects, only the Olive Street and Valley Boulevard at-grade road/rail crossings would remain in Forecast Year 2035. Vehicular delays at the two at-grade rail crossing were calculated and are summarized in Table 2.5.K.

Table 2.5.K: Forecast Year 2035 At-Grade Crossings Vehicular Delay

At-Grade Crossing	No Build Alternative		Build Alternative		Change in Delay	
	Gate Downtime (hourly average in minutes)	Vehicular Delay (hourly total in minutes)	Gate Downtime (hourly average in minutes)	Vehicular Delay (hourly total in minutes)	Hourly Total	Per Vehicle
Olive Street Crossing						
A.M. Peak Hour	22.08	1,380	15.67	695	-685	-1.26
P.M. Peak Hour	22.08	1,089	15.67	548	-541	-1.18
Valley Boulevard Crossing						
A.M. Peak Hour	15.50	2,732	16.00	2,911	179	0.11
P.M. Peak Hour	15.50	1,745	16.00	1,859	114	0.09

Source: Colton Crossing Grade Separation Vehicular Traffic Study, February 2011

The difference in vehicular delay due to the Build Alternative conditions is also shown in Table 2.5.K. With the Build Alternative, total vehicle delay would decrease substantially at the Olive Street crossing. Delay was forecast to be reduced in the a.m. and p.m. peak hours by 50 percent during each peak hour, resulting in a beneficial effect on delay. At Valley Boulevard, total vehicle delay would increase by 7 percent during each peak hour, resulting in a nominal impact. The average increase in delay at Valley Boulevard was only a few seconds per vehicle, which would not result in traffic redistribution as confirmed by the regional travel demand model projections. The increase in delay at Valley Boulevard in year 2035 is a result of similar conditions as described above for the 2015 condition. Consequently, the substantially reduced at-grade gate closures at Olive Street and the nominally increased at-grade gate closures at Valley Boulevard would not result in shifting of traffic patterns to other grade crossings, freeways, or freeway ramp locations and impacts to area intersections would not be adverse.

Pedestrian/Bicycle/Transit Access. The Build Alternative would result in no change to vicinity roadways, walkways, bicycle routes, or transit routes. Legal pedestrian and bicycle access to all existing sidewalks, local roads, alleys, and the two K Street cul-de-sac walkway connections to Rancho Avenue and La Cadena would remain unaffected. However, the ability of pedestrians to illegally cross the UPRR tracks to access the 9th Street undercrossng of I-10 would be permanently blocked by the raised track structure (see Figure 2.3.2). The permanent removal of this unsafe undercrossing is a benefit of the Build Alternative. Transit routes would be unaffected by the Build Alternative.

No Build Alternative

The No Build Alternative analysis assumes no improvements to the roadway or rail network between existing conditions, 2015, and 2035 conditions.

Rail Traffic. With the No Build Alternative, there would be no change to UPRR and BNSF railroad mainlines and yards within and adjacent to the project area.

- **Rail Operations: Opening Year 2015 and Forecast Year 2035.** With the No Build Alternative, there would be no separation of the UPRR and BNSF crossing. Rail delays and total rail times in the rail study area would continue as forecast with existing infrastructure, and the substantial reduction in rail delays, idling, times, and total train times would not be experienced.

Vehicular Traffic.

- **Intersection Levels of Service: Opening Year 2015 and Forecast Year 2035.** As identified previously, traffic volumes within the study area would be the same for the Build and No Build Alternatives. Consequently, the No Build intersection levels of service and delay values are contained in previously referenced Table 2.5.H for Opening Year 2015 conditions. Similarly, the No Build intersection levels of service and delay values are contained in previously referenced Table 2.5.I for Forecast Year 2035 conditions. The No Build Alternative would result in the same intersection impacts as compared to the Build Alternative in both the Opening Year 2015 and Forecast Year 2035 conditions.
- **At-Grade Rail Crossing Vehicular Delay: Opening Year 2015 and Forecast Year 2035.** Previously referenced Tables 2.5.J and 2.5.K present the No Build Alternative vehicular delay at the two at-grade rail crossings for Opening Year 2015 and Forecast Year 2035, respectively. With the No Build Alternative, the reduction in total vehicle delay at the Olive Street crossing would not occur. With the No Build Alternative, the slight increase in total vehicle delay at the Valley Boulevard crossing would not occur.

Pedestrian Access. The No Build Alternative would not involve any construction within the study area; therefore, legal pedestrian and bicycle access to all existing sidewalks, local roads, alleys, and the two K Street cul-de-sac walkway connections to Rancho Avenue and La Cadena would remain unaffected. However, the existing illegal pedestrian crossing of the UPRR tracks to access the 9th Street undercrossng of I-10 would potentially continue. Transit routes would be unaffected by the No Build Alternative.

2.5.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would avoid and/or minimize potential project impacts of the Build Alternative on traffic and circulation during construction:

TRA-1 A Transportation Management Plan (TMP) would be prepared for the construction phases of the project. The objectives of a TMP are to maintain the safe movement of vehicles through the construction zone and to provide for the highest level of traffic circulation and access during the construction period. The TMP would include detailed information on measures taken for off-peak or nighttime work; flagging, lane, shoulder,

street, ramp, or total facility closures; project phasing; temporary traffic screens; and details regarding the Construction Progress Schedule and delay penalties. The TMP would be prepared by the contractor prior to construction and would consist of but not be limited to the following elements to mitigate traffic inconvenience caused by construction activities:

- Coordination and communication among all affected local agencies that provide services within the project study area, including but not limited to City of Colton Public Works Department, Colton Police Department, Colton Fire Department, Omnitrans, and utility providers.
- Traffic Control: This project would require traffic control elements such as lane/shoulder closures and temporary signing/striping on City streets.
- Public Awareness Campaign (PAC): Although the majority of any major roadway closures would occur at night, vehicles traveling through the construction zone would likely experience longer than normal delays. To reduce these delays and confusion to the motoring public during construction activities, the City UPRR would implement a PAC. The purpose of the PAC would be to keep the surrounding community abreast of the project's progress and construction activities that could affect travel plans. The use of brochures and mailers, hand-delivering notices to the vicinity, providing a telephone hotline, posting informational signs, local cable television and news advertising, media releases, opportunities to field questions on the project through internet and e-mail, notifications to targeted groups regarding revised transit schedules/maps, rideshare organizations, schools, and organizations representing people with disabilities, commercial traffic reporters/feeds, and public meetings, as appropriate, are effective tools for disseminating this information.
- Signing: Information signing in the form of existing electronic message signs, changeable message signs, ground-mounted/fabric signs, and panel signs would be posted on Mount Vernon Avenue, La Cadena Drive, and Rancho Avenue and the local roadways south of and nearest to the railroad tracks prior to and during construction to inform motorists of delays, ramp closures, and alternate travel routes.

TRA-2 During the PS&E phase, identify the temporary conversion of the 9th Street/I-10 Eastbound Ramps intersection from one-way stop control to all-way stop control within the project plans and specifications approved by UPRR. The contractor would complete the temporary conversion. At the conclusion of project construction, the City in consultation with Caltrans would determine whether or not the additional traffic controls should be removed or remain in place. If it is determined that the intersection shall be converted back to one-way stop control, the contractor shall complete the conversion.

2.6 Visual/Aesthetics

2.6.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the Federal Government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings [42 U.S.C. 4331(b)(2)]. To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

2.6.2 Affected Environment

A Visual Impact Assessment (VIA) (February 2011) has been prepared to describe the features of the proposed project and analyze and identify the potential impacts associated with the Colton Crossing Rail to Rail Grade Separation project. The VIA analyzes the potential effect of the proposed project on existing viewsheds of adjacent properties.

2.6.2.1 Visual Setting

The proposed project area is located within the existing UPRR right-of-way in the City of Colton (City) and unincorporated land in San Bernardino County, south of I-10, between Rancho Avenue and Mount Vernon Avenue. The topography is relatively flat and elevation ranges from approximately 950 to 1,020 feet above mean sea level, sloping from west to east, down toward the Santa Ana River. Vegetation within the project limits consists primarily of nonnative species adapted to human disturbance. Vegetation in non-developed areas includes ornamental plantings and ruderal vegetation.

Existing land uses within the project study area consist of a mix of freeway (I-10), railroad and railroad-related uses, industrial uses and residential uses. Existing on-site land uses consist of railroad and railroad-related uses. Existing land uses north of the project area (north of I-10) include commercial businesses mixed with residential uses. West Valley Boulevard and East Valley Boulevard, located north of I-10, serve as the main commercial district for the City of Colton. West of Rancho Avenue and south of I-10, the existing adjacent land use is an aggregate mining operation. East of Rancho Avenue and south of I-10, the existing adjacent land uses consist of residential uses. East of the Colton Crossing and south of K Street, existing land uses

consist of a mix of commercial and industrial uses with a few non-conforming residential uses.

The visual character within the project limits is shaped primarily by the existing transportation systems, which includes the I-10 freeway and the UPRR and BNSF rail lines. The project is located in an industrialized, urban, developed area. Frequent rail traffic is common to the viewshed along both the UPRR and BNSF rail lines within the project limits. Idling trains, particularly along the UPRR right-of-way and along the 9th Street rail segment, is a common occurrence. The existing buildings in the project study area and vicinity are typically one or two stories and consist primarily of single-family residential uses and a mixture of commercial and industrial uses. The area southerly of the UPRR tracks has been developed with railroad, residential, commercial, and industrial uses since the late 1800s.

I-10, located immediately north of the project study area, is an urban corridor and includes urban elements such as lighting, signage, and landscaping. The majority of the I-10 is elevated along the project study area. At its peak height in the project vicinity east of the Colton Crossing, I-10 is approximately 36 feet above the existing grade at the Colton Crossing. West of 3rd Street, I-10 is at grade. Beginning from approximately 3rd Street and due east, the I-10 structure elevates in grade along embankments where it transitions into a bridge overpass to cross the existing BNSF connector track and BNSF mainlines. East of the existing Colton Crossing, the I-10 structure continues east above grade along embankments, and transitions into short bridge spans across La Cadena Drive and 9th Street (an existing interchange). I-10 returns to grade approximately at the junction of the 9th Street eastbound on-ramp and the I-10 eastbound mainlines. Due to the elevated segment of the I-10 in the project study area and presence of mature vegetation, most views to the north from south of the I-10 are obstructed. Similarly, most views to the south from the north of the I-10 are also obstructed by the I-10 structure and sound walls. A small segment of I-10 west of 3rd Street in the project area is at grade and existing views are relatively unobstructed.

While the City's General Plan does not identify specific unique visual resources within the City, topographic features such as the ridgelines of the San Bernardino Mountains to the north, Blue Mountain and surrounding hills to the southeast, Slover Mountain to the west, and the La Loma Hills to the southwest of the project site that form City's skyline views and contribute to the character of the City were considered to be visual resources. Similarly, the County of San Bernardino does not identify specific unique visual resources within the County; therefore the topographic features

identified previously were dually considered to be visual resources of the County. The I-10 corridor is not an officially-designated State Scenic Highway nor is the I-10 corridor an eligible State Scenic Highway. No local roadways are designated as scenic highways within the project area.

The Colton Crossing is located to the west of the Santa Ana River. The concrete and channelized Santa Ana River is located approximately 350 feet east of the project limits. However, this portion of the river adjacent to the project study area is not vegetated and the area between the river and the project study area is highly disturbed and consists of ruderal vegetation and disturbed areas. The Santa Ana River is not considered an aesthetic resource.

2.6.2.2 Viewer Groups

Visual changes to an existing setting could result in a positive or a negative perception of the project depending on the viewer groups. Thus, viewer sensitivity is a combination of visual quality changes and viewer response to those changes. Viewer sensitivity to a project varies depending on familiarity with existing views, the sense of ownership of these views, and the activities viewers perform in relationship to those views. Visual perception is the act of seeing or recognizing an object and can be affected by physical conditions such as distance and speed. As an observer's distance increases, the ability to see the details of an object decreases. Similarly, as an observer's speed increases, the sharpness of later vision declines and the observer tends to focus along the line of travel. Thus, the physical location of the viewer group and the duration of its view would affect viewer exposure. All of these factors potentially affect perception and reaction to visual changes. The existing viewer groups in the vicinity of the proposed project can be described as follows:

- Residential neighborhoods are located to the south of the UPRR tracks. Residential neighborhoods are also located north of the I-10 freeway; however, these residents would not be exposed to the proposed changes due to intervening buildings, trees, sound walls of the I-10 freeway, and the I-10 freeway structure itself. Residents are the most sensitive viewer group, and the proposed project could affect them to the highest degree as they would be exposed to those changes 24 hours per day. Residential viewer exposure is high.
- Commercial viewer groups that would be affected by the proposed project are located south of the study area along La Cadena Drive. The majority of commercial uses in the vicinity of the proposed project are located north of I-10; however, they would not be exposed to the proposed changes due to intervening

buildings, trees, sound walls along the north side of the I-10 freeway, and the I-10 freeway structure itself. Commercial viewer exposure is moderate as commercial viewers would be exposed to changes during normal business hours. Commercial viewers are considered moderately sensitive viewers as they would be infrequently exposed to proposed changes.

- San Bernardino and Riverside County residents and employees traveling on I-10 represent a large part of the viewers within the proposed project area. A driver's awareness of surrounding views may vary based on travel speed, purpose of travel, personal sensitivity to visual values, and the visual quality of the area. Daily commuter viewers are considered moderately to highly sensitive viewers as they would be exposed to proposed changes on a daily basis.
- Non-local people traveling on I-10 through the project area are not familiar with the sights and are infrequent users; thus, they are not susceptible to physical changes in their surroundings. Traveling viewer exposure is low as exposure is relatively short and noncontiguous throughout the proposed project area.
- The Santa Ana River Trail is located to the southeast of the project area adjacent to and southeast of the Santa Ana River. The recreational viewer group includes individuals engaged in walking, jogging, running, or biking along the Santa Ana River Trail. Recreational viewer exposure is low as recreational viewers would be exposed to changes for a short duration of time as they pass through the project area. Recreational viewers are considered moderately to highly sensitive viewers as they would be exposed to proposed changes on a daily basis.

2.6.2.3 Landscape Units

Landscape units represent distinct areas in the visual landscape that can be identified by the visual and physical characteristics that separate them from adjacent uses. The purpose of identifying these areas is to allow for consideration of visual changes in the context of the surrounding visual environment. The following four distinct landscape units have been identified:

- **Landscape Unit 1: Transportation Corridor** consists of I-10 to the north of the project area and includes urban elements such as lighting, signage, and landscaping.
- **Landscape Unit 2: Residential** is located south of the project study area and includes residential properties located to the south and adjacent to the project limits.
- **Landscape Unit 3: Industrial** is located south of the project study area and east of the Crossing and includes the UPRR corridor, UPRR rail yard, and industrial uses typical of light industrial development in Southern California.

- **Landscape Unit 4: Recreational** is located southeast of the project area and east of the Santa Ana River and includes the Santa Ana River bed and bank, Santa Ana River Trail, and various recreational amenities.

2.6.2.4 Visual Character

Visual character is descriptive and non-evaluative, which means it is based on defined attributes that are neither good nor bad. A change in visual character cannot be described as having good or bad attributes until it is compared with the viewer response to that change. The visual character of the four landscape units in the vicinity of the proposed project is described below.

Landscape Unit 1: Transportation Corridor. I-10 is an urban corridor and includes urban elements such as lighting, signage, and landscaping. This unit is characterized by the UPRR right-of-way, the elevated I-10 freeway structure running east-west in the project area, and the distant views of Slover Mountain and Blue Mountain and surrounding hills to the south and southeast. Adjacent residential and commercial development is also visible from this landscape unit in small segments in the vicinity of Rancho Avenue. Views of Blue Mountain and surrounding hills are frequently masked throughout the year by atmospheric conditions (e.g., haze). Additionally, the La Loma Hills to the south are visible from this landscape unit. This landscape unit exhibits moderately to low harmonious form, line, color, and texture with moderate to low diversity and continuity.

Landscape Unit 2: Residential. This unit is characterized by residential streets and residential properties (single-family homes), utility poles and wires, and ornamental vegetation. Both the UPRR and BNSF corridors are visible from this landscape unit. Views to the north of the San Bernardino Mountains are frequently masked throughout the year by atmospheric conditions (e.g., haze). This landscape unit exhibits low visual value in terms of form, line, color, and texture with low diversity and continuity.

Landscape Unit 3: Industrial. This unit is characterized by industrial properties, utility poles and wires, railroad cars, stockpiled materials, and disturbed vegetation. The UPRR corridor and 9th Street rail segment is visible from this landscape unit. Views of the San Bernardino Mountains to the north are frequently masked throughout the year by atmospheric conditions (e.g., haze). This landscape unit exhibits low visual value in terms of form, line, color, and texture with low diversity and continuity.

Landscape Unit 4: Recreational. This unit is characterized by the bed and bank of the Santa Ana River, industrial properties, utility poles and wires, and ornamental

vegetation. The San Bernardino Mountains are partially visible in the background. Views of the San Bernardino Mountains to the north are frequently masked by atmospheric conditions (e.g., haze). The UPRR corridor and I-10 freeway structure within or adjacent to the project study area are present within this landscape unit; however, they are not visible. This landscape unit exhibits low visual value in terms of form and line, with moderate visual value in terms of color and texture. This landscape unit exhibits moderate diversity and continuity.

2.6.2.5 Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed, then comparing these three criteria with the view as modified by the proposed Build Alternative. The three criteria for evaluating visual quality are defined as follows:

- **Vividness** is the visual power or memorability of landscape components as they combine in distinctive visual patterns.
- **Intactness** refers to the visual integrity of the natural and built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.
- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual manmade components in the landscape.

The visual quality of the four landscape units in the project area is described below.

Landscape Unit 1: Transportation Corridor. This landscape unit exhibits a low to moderate level of visual quality due to the presence of landforms including Slover, Mountain, Blue Mountain and surrounding hills, and the La Loma Hills. Blue Mountain and the surrounding hills combine to exhibit continuity in form, line, and texture; however, they do not exhibit great vividness of color. The scale of the mountains exhibits contrast with the relatively flat landscape in the midground; however, they do not overwhelm the pattern character of the landscape unit. Visual diversity from within this landscape unit is low to moderate due to the scale and expanse of the freeway structure; however, boundaries between land uses are distinguishable by the presence and absence of ornamental vegetation. Views within this landscape unit exhibit low to moderately consistent form, line, color, and texture with moderate diversity and continuity. The existing visual quality from Landscape

Unit 1 is moderately low to moderate due to the moderately low to moderate levels of vividness and low levels of unity and intactness.

Landscape Unit 2: Residential. The scale of the I-10 freeway structure, because it is raised mostly throughout the project area, exhibits high contrast with the foreground landscape components. The landforms visible from this landscape unit do not combine to exhibit continuity in form, line, or color. Visual diversity from within this landscape unit is low as due to the scale and dominance of the freeway structure. Visual continuity from within this landscape unit is low as landform, vegetation, and manmade development patterns are not maintained and harmonious. The monotonous pattern, colors, and forms of roadway structures and the visual presence of overhead utility poles and lines create a view that exhibits low visual value. The existing visual quality from Landscape Unit 2 is very low to low due to the low levels of vividness and low levels of unity and intactness.

Landscape Unit 3: Industrial. Similar to Landscape Unit 2, the scale of the freeway structure from this landscape unit exhibits striking contrast with the foreground landscape components. The landforms visible from this landscape unit do not combine to exhibit continuity in form, line, or color. Visual diversity from within this landscape unit is low due to the scale and dominance of the freeway structure. Visual continuity from within this landscape unit is low as landform, vegetation, and manmade development patterns are not maintained and harmonious. The monotonous pattern, colors, and forms of roadway structures and the visual presence of overhead utility poles and lines create a view that exhibits low visual value. The existing visual quality from Landscape Unit 3 is very low to low due to the low levels of vividness and low levels of unity and intactness.

Landscape Unit 4: Recreational. The landforms visible from this landscape unit do not combine to exhibit continuity in form or line; however, they do exhibit moderate vividness of color and moderate continuity in texture within the riverbed and bank. Views within this landscape unit exhibit striking contrast between the relatively undisturbed riverbed and bank with the manmade development in the midground; however, they do not overwhelm the pattern character of the view. Visual diversity from within this landscape unit is moderate as boundaries between land uses are distinguishable by the presence and absence of ornamental vegetation. Visual continuity from within this landscape unit is moderate as landform, vegetation, and manmade development patterns are generally maintained. The existing visual quality from Landscape Unit 4 is moderately low due to the low levels of unity and

intactness; however, vividness is rated moderate due to the abundance of vegetation and the positive contrast to surrounding manmade development.

2.6.2.6 Project Viewshed

A viewshed is a subset of a landscape unit and is composed of all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the proposed project. The viewshed also includes the locations of viewers likely to be affected by visual changes brought about by project features. Seven viewing locations, called Key Views, were identified. These seven Key Views best reveal the existing visual character of the four landscape units. They also best represent the typical visual character of proposed project components and potential visual character changes that would affect viewers. Figure 2.6.1 shows the locations of the seven Key Views.

The following describes seven Key Views and the viewer groups that each Key View represents:

Key View 1. As shown in Figure 2.6.2, Key View 1 is a view from a commuter perspective along I-10. The photo was taken from the I-10 eastbound lanes west of the crossing. The view is afforded from the transportation corridor landscape unit and faces the residential landscape unit in South Colton. Viewer sensitivity from this key view is considered to be moderate. It is important to note that commuters traveling along I-10 in the vicinity of Key View 1 are afforded views at varying durations. Therefore, commuter viewer exposure is low as exposure is relatively short and noncontiguous throughout the proposed project area.

Visual resources afforded within Key View 1 include mountains, hills, vegetation, and residential development. The dominant features in this key view are Blue Mountain and surrounding hills located in the background as they exhibit distinct contrast with the landforms and land cover visible in the midground, although the clarity is affected by atmospheric conditions (e.g., haze or smog) throughout the majority of the year. Land cover includes the railroad tracks, roadways, residential development, and vacant land in the middle ground. Vegetation visible within this key view consists of ruderal plants, grasses, and mature trees. The foreground consists of the I-10 freeway shoulder and railing.

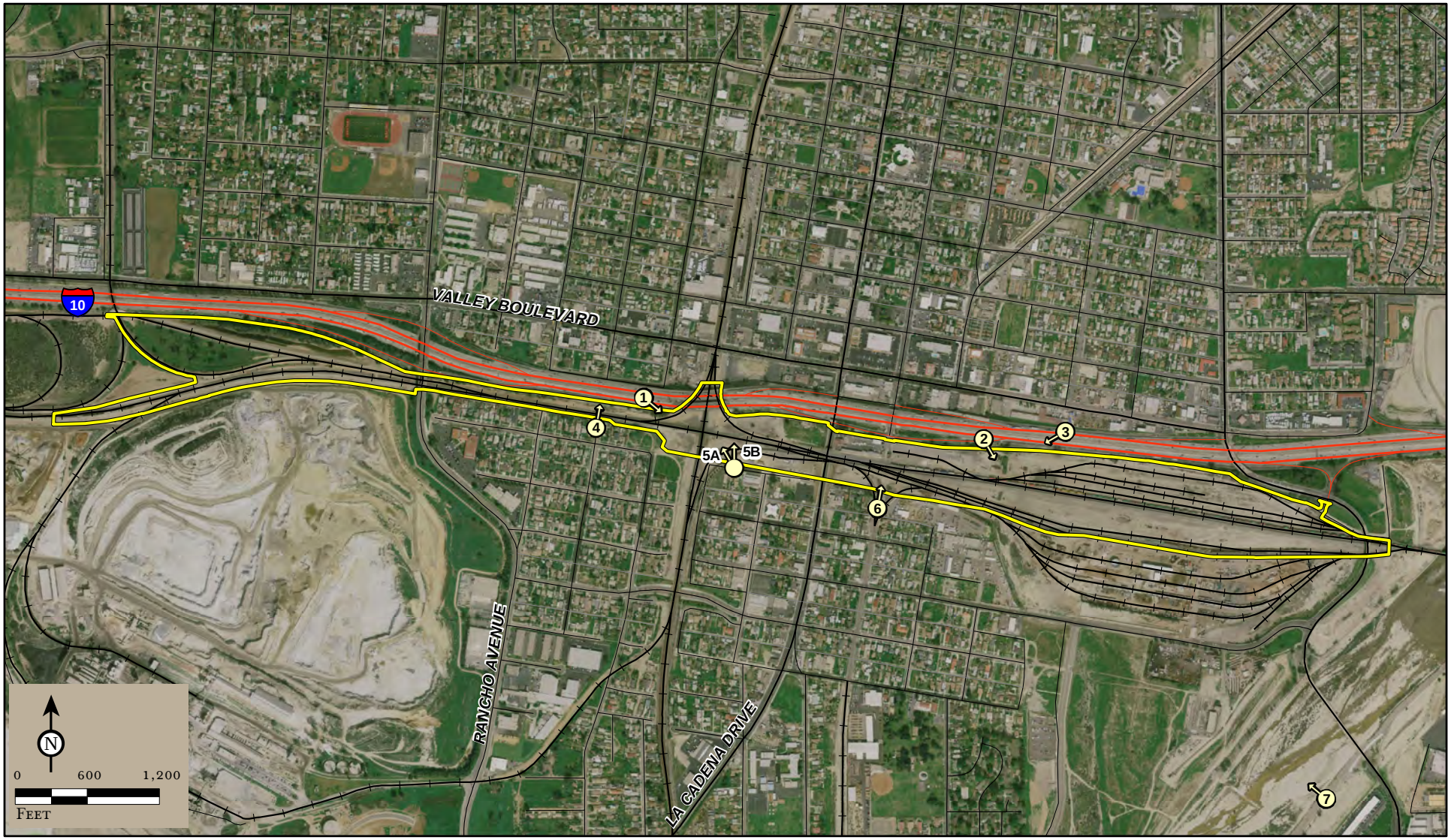

FIGURE 2.6.1

Study Area

Photograph location and direction taken

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Photograph Key Map

SOURCE: AirPhotoUSA, 2008; Thomas Bros, 2009

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KEY VIEW 1: *View facing southeast toward the Colton Crossing with Blue Mountain and surrounding hills in the background. The photograph is taken from the I-10 Eastbound lanes.*

KEY VIEW 2: *View facing southeast toward the UPRR railyard with Blue Mountain and surrounding hills in the background. The photograph is taken from the I-10 Eastbound On-Ramp at 9th Street.*

FIGURE 2.6.2

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

SOURCE: LSA Associates, Inc., 2010

Key Views 1 & 2

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Key View 2. As shown in Figure 2.6.2, Key View 2 is afforded from the transportation corridor landscape unit and faces the industrial landscape unit in South Colton. The photo was taken from the I-10 Eastbound 9th Street on-ramp east of the crossing. The view is looking southeast toward the industrial/commercial areas of the City south of the UPRR right-of-way. Viewer sensitivity from this key view is considered to be moderate. Similar to Key View 1, it is important to note that commuters traveling along I-10 in the vicinity of Key View 2 are afforded views at varying durations. Therefore, commuter viewer exposure is low as exposure is relatively short and noncontiguous throughout the proposed project area.

Visual resources afforded within Key View 2 include mountains, hills, vegetation, and industrial development. Similar to Key View 1, the dominant features in this key view are Blue Mountain and the surrounding hills located in the background as they exhibit distinct contrast with the landforms and land cover visible in the midground, although the clarity is affected by atmospheric conditions (e.g., haze or smog) throughout the majority of the year. Visible land cover from this vantage point consists of vacant land, railroad, railroad cars, industrial development, commercial development, residential development, and mature trees.

Key View 3. As shown in Figure 2.6.3, Key View 3 represents the transportation corridor landscape unit and is taken from the I-10 westbound lanes west of the Mount Vernon Avenue overcrossing. The view faces southwest toward the La Loma Hills and represents a commuter perspective. Viewer sensitivity from this key view is considered to be moderately low. It is important to note that commuters traveling along westbound I-10 in the vicinity of Key View 3 are afforded views at varying durations. Passing motorists along the I-10 freeway corridor in the project area are frequent and views outside of the immediate corridor are only afforded in segments where there are short periods of vehicle gaps. Commuter viewer exposure is low as exposure is relatively short and noncontiguous throughout the proposed project area due to intervening vehicles along I-10.

Visual resources afforded within Key View 3 include hills, vegetation, and industrial development. The I-10 eastbound lanes in the foreground are the dominant feature from this vantage point. Other elements include rail cars along the UPRR within the midground and the La Loma Hills in the background. Land cover consists of the I-10 median barrier rail, I-10 eastbound lanes, ruderal vegetation, stationary rail cars, utility poles, and mature tree stands. The foreground view is dominated by the I-10 median barrier, I-10 eastbound lanes, and passing motorists.

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KEY VIEW 3: *View facing southwest toward the La Loma Hills. The photograph is taken from the I-10 Westbound lanes.*

KEY VIEW 4: *View facing north toward the UPRR railroad tracks and I-10 freeway. The photograph is taken from the north end of South 4th Street in the residential neighborhood south of the UPRR railroad tracks.*

FIGURE 2.6.3

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

SOURCE: LSA Associates, Inc., 2010

Key Views 3 & 4

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Key View 4. As shown in Figure 2.6.3, Key View 4 represents the residential landscape unit and is taken from the South 4th Street northern terminus. The view faces north toward the existing UPRR track and I-10 freeway structure. The view represents the residential perspective. Viewer sensitivity from this key view is considered to be high.

Visual resources afforded within Key View 4 include mountains, vegetation, infrastructure, and residential development. Visible land cover within this viewpoint is the railroad track and gravel utilized within the railroad right-of-way, chain-link fencing, the I-10 freeway structure and embankments, a freeway sign, power poles and lines, mature trees, and disturbed vegetation. The dominant features in this view are the railroad tracks and I-10 freeway structure in the midground and the green foliage of the shrubs and trees adjacent to the I-10 corridor. The San Bernardino Mountains are visible in the background; however, the clarity is affected by atmospheric conditions throughout the majority of the year.

Key View 5A/5B. As shown in Figure 2.6.4, Key Views 5A and 5B are from the commercial area along West K Street south of the UPRR right-of-way. Key View 5 consists of two different perspectives taken from the same location. Key View 5A depicts a northwesterly viewshed while Key View 5B depicts a north viewshed. These two different perspectives are included to provide a better visualization of the structure as it traverses the existing Colton Crossing (Key View 5A) and at its peak height (Key View 5B). This view represents the residential landscape unit and the residential/commercial viewer group. It should be noted that there are residential uses in the vicinity of this key view; however, the City has designated this area in its General Plan for commercial uses. Viewer sensitivity from this key view is considered to be moderate (commercial) and high (residential).

Visual resources afforded within Key Views 5A and 5B include vegetation, infrastructure, and industrial development. Visible land cover within these viewpoints is the railroad track and gravel utilized within the railroad right-of-way, the I-10 freeway structure and embankments, a freeway sign, power poles and lines, mature trees, and disturbed vegetation. The foreground is dominated by the existing curved railroad track that connects the BNSF railroad to the UPRR. The midground view consists of vacant railroad right-of-way property, utility poles, and railroad-related infrastructure (e.g., signals, railroads, and control boxes). The background view consists of a vegetated embankment, I-10 freeway structure, and a few mature trees.

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KEY VIEW 5A: *View facing northwest toward the I-10 freeway at the Colton Crossing. The photograph is taken from the western terminus of West K Street, east of the Colton Crossing.*

KEY VIEW 5B: *View facing north toward the I-10 freeway at the Colton Crossing. The photograph is taken from the western terminus of West K Street, east of the Colton Crossing.*

FIGURE 2.6.4

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Key Views 5A & 5B

SOURCE: LSA Associates, Inc., 2010

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Key View 6. As shown in Figure 2.6.5, Key View 6 is taken from the northern terminus of South 9th Street south of the UPRR right-of-way. The view is looking north toward the UPRR right-of-way and 9th Street underpass. This view faces the transportation corridor and represents the industrial landscape unit and the residential/ commercial viewer group. It should be noted that there are residential uses in the vicinity of this key view; however, the City has designated this area for commercial uses. Viewer sensitivity from this key view is considered to be moderate (commercial) and high (residential).

Visual resources afforded within Key View 6 include vegetation, infrastructure, and industrial development. The key components within this view are the roadway and gates restricting access to UPRR right-of-way property in the foreground; railroads, utility poles and lines, and the vacant Santa Fe depot building (formerly Cal-Wal Gypsum) in the midground; and the I-10 freeway structure in the background. Vegetation in the form of mature trees and mature shrubs on the I-10 freeway embankment is also visible from this view.

Key View 7. As shown in Figure 2.6.5, Key View 7 is taken from the Santa Ana River Trail, south of the existing Mount Vernon Avenue overcrossing traversing the Santa Ana River, looking northwest toward the project study area. The Santa Ana River Trail is located approximately 0.5 mile to the southeast of the proposed project site and visibility of the project site is greatly obstructed by intervening topography, vegetation, and manmade development. This view represents the recreational landscape unit and the recreational viewer group. Viewer sensitivity from this key view is considered to be moderately high.

Visual resources within Key View 7 include mountains, hills, riverbed, vegetation, and industrial development. The key components within this view are the Santa Ana River bed, bank, and vegetation in the foreground; industrial uses, utility poles and lines, and mature tree stands in the midground; and the distant San Bernardino Mountains in the background.

The I-10 freeway structure is present within this key view; however, intervening natural and manmade elements mask the structure completely.

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KEY VIEW 6: *View facing north toward the UPRR railroad tracks and I-10 freeway at the 9th Street on- and off-ramps. The photograph is taken from the northern terminus of South 9th Street at the intersection of East K Street.*

KEY VIEW 7: *View facing north toward the Colton Crossing with Slover Mountain and the San Bernardino Mountains in the background. The photograph is taken from the Santa Ana River Trail, south of Mount Vernon Avenue.*

FIGURE 2.6.5

Colton Crossing Rail-to-Rail Grade Separation Project
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Key Views 6 & 7

SOURCE: LSA Associates, Inc., 2010

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2.6.3 Environmental Consequences

2.6.3.1 Temporary Impacts

Build Alternative

Implementation of the Build Alternative would result in temporary visual changes due to grading and other construction activities. Visual impacts due to construction activities would also result from the temporary alteration of topography and vegetation within the project area. Vehicles such as automobiles, pick-up trucks, and dump trucks would be visible. Heavy equipment such as backhoes, graders, excavators, and potentially construction cranes would be visible. Project components and workers would be visible during site clearing, grading, bridge construction, and site clean-up. Construction equipment and activities would be seen by various viewers in proximity to the project area, including adjacent and nearby residents, motorists on I-10 and nearby streets, pedestrians, and potentially from the Santa Ana River Trail. View durations would vary from brief to extended periods, depending on the viewer groups and viewer locations. Construction activities would be visible for those elements of the Build Alternative from the existing residential, commercial, and industrial uses. Upon completion of the Build Alternative, equipment and construction materials would no longer be present. Upon completion of the Build Alternative, graded areas would be returned to their existing conditions. Given the existing condition of the project study area and the limited duration of the construction activities, potential temporary visual effects are not considered adverse.

No Build Alternative

The No Build Alternative does not include any changes to the physical environment; therefore, no temporary impacts to visual resources would occur.

2.6.3.2 Permanent Impacts

Build Alternative

Computerized visual simulations were prepared for each of the seven Key Views to analyze and assess the potential visual effects and impacts of the project. Figures 2.6.6A through 2.6.13B depict the visual simulations for each of the seven Key Views. These visual simulations were prepared as part of the VIA to show the visual impacts of the construction and operation of the Build Alternative. The visual simulations are strictly for conceptual analysis and are not intended to provide a precise, scaled depiction of the Built Alternative; rather, they illustrate the potential future post-project visual character of the project area.

Permanent visual impacts under the Build Alternative are discussed below for each Key View.

Key View 1. From Key View 1, the overall character and experience for the commuter viewer group would change with the Build Alternative. Under this alternative, the main physical change that would occur within this view is the construction of the new overpass structure (refer to Figure 2.6.6A).

Despite the elevated vantage point of this view along I-10, the construction of the proposed elevated structure would change the visual quality within this view. Due to the elevated rail structure at approximately the same height as the I-10, the introduction of new intermittent light sources from train headlights would occur. These new intermittent light sources may affect passing motorists on I-10; therefore, the Build Alternative includes the installation of glare screens to reduce the effects of glare from passing trains. The installation of railing and glare screens within this segment would introduce encroaching elements, but would minimally obstruct existing views as evidenced in Figure 2.6.6A. During periods when trains utilize the overcrossing structure, the existing views of Blue Mountain and surrounding hills would be obstructed (refer to Figure 2.6.6B). It is important to note that passing trains utilizing the overcrossing structure would not permanently obstruct views of Blue Mountain and surrounding hills. While there would be a physical change to the environment through the construction of a new overcrossing structure within this viewpoint, the new structure would not result in the permanent obstruction of existing scenic features visible from this vantage point.

The general overall visual character of the existing landscape setting from this key view would not change substantially as the proposed elevated structure is at a similar elevation as the existing I-10 freeway structure and would not result in a substantial contrast in scale, form, or color. However, the installation of railing and glare screens would add vertical and horizontal line elements and encroach into the viewshed. This viewshed is already affected by encroaching features, such as utility lines, and the Build Alternative would not result in the introduction of new encroaching features.

Minimization and mitigation measures are not required; however, implementation of **Measure VIS-1** provided in Section 2.6.4 would enhance the aesthetic environment of this view. Visual change resulting from the Build Alternative is not expected to be adverse.

PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.6A

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 1

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.6B

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 1

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Key View 2. The character and visual quality of Key View 2 would not be substantially affected under the Build Alternative. The main physical changes that would occur within this view would be the construction of the new overcrossing structure (refer to Figure 2.6.7A). Due to the elevated vantage point of this view, implementation of the Build Alternative would not change or degrade the visual quality within this view. While the industrial land uses visible in the existing condition would be obstructed by the construction of the proposed structure, the overall character of this key view would not substantially change. The proposed Build Alternative improvements would slightly alter the visual quality of the site. While there would be a physical change to the environment through the construction of a new overcrossing structure within this viewpoint, the new structure would not result in the obstruction of existing scenic features (e.g., Blue Mountain and surrounding hills) visible from this vantage point nor would it introduce new encroaching features. While new intermittent light sources from train headlights would be introduced at a higher elevation, impacts would not be adverse given the distance of approximately 300 feet from the vantage point.

During periods when trains utilize the overcrossing structure, the existing views of Blue Mountain and surrounding hills would be obstructed (refer to Figure 2.6.7B). It is important to note that passing trains utilizing the overcrossing structure would not permanently obstruct views of Blue Mountain and surrounding hills.

The general overall visual character of the existing landscape setting would not change substantially as the proposed elevated structure is at a similar elevation as the existing I-10 freeway structure and would not result in a substantial contrast in scale, form, line, or color.

Minimization and mitigation measures are not required; however, implementation of **Measure VIS-2** provided in Section 2.6.4 would enhance the aesthetic environment of this view. Visual change associated with the Build Alternative is not expected to be adverse.

Key View 3. Under the Build Alternative, the overall visual character of Key View 3 would change due to the construction of the proposed overcrossing structure. This key view depicts the view of the structure from the westbound lanes of the I-10 freeway at grade (refer to Figure 2.6.8A).

Under the Build Alternative, the commuter viewer group would see the north side of the proposed structure from a non-elevated vantage point. Construction of the

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.7A

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 2

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.7B

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 2

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.8A

Colton Crossing Rail-to-Rail Grade Separation Project
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Visual Simulation of Key View 3

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proposed structure would obstruct the existing industrial land uses visible in the existing condition and introduce new encroaching features in the form of railings; however, ridgelines of the La Loma Hills in the background are preserved. It is important to note that passing automobile traffic along the I-10 eastbound lanes currently provides a similar level of obstruction of the La Loma Hills in the background, although the obstruction by passing automobiles is intermittent and not permanent. Due to the low visual quality of the existing site, visual changes under the Build Alternative are not anticipated to be substantial at Key View 3.

During periods when trains utilize the overcrossing structure, the existing views of the La Loma Hills would be obstructed (refer to Figure 2.6.8B). It is important to note that passing trains utilizing the overcrossing structure would not permanently obstruct views of the La Loma Hills. The general overall visual character of the existing landscape setting would change as the proposed elevated structure is at a higher elevation than the existing I-10 freeway structure from this vantage point. While new intermittent light sources from train headlights would be introduced at a higher elevation, impacts would not be adverse given the distance of approximately 450 feet from this vantage point. The Build Alternative would result in a contrast in form.

Implementation of **Measure VIS-2** provided in Section 2.6.4 would enhance the aesthetic environment of this view. Visual change associated with the Build Alternative is not expected to be adverse.

Key View 4. Implementation of the Build Alternative would change the overall character of Key View 4. The main physical changes that would occur within this view would be the construction of the new overcrossing structure in close proximity to existing residences south of the Build Alternative area (refer to Figure 2.6.9A). From a residential perspective, construction of the proposed structure would result in the obstruction of the existing I-10 freeway embankment and vegetation and would obstruct the partial views to the north of the San Bernardino Mountains in the background. The installation of railing would introduce new vertical and horizontal lines as additional encroaching features into this viewshed resulting in a moderately low impact due to the presence of extensive existing encroaching features. While the elevated structure would introduce new intermittent light sources from train headlights at a higher elevation, this new light source would not affect the residences as the light would not spill over into their property. Implementation of the Build Alternative would result in a moderate contrast with the scale of the existing landscape setting.

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.8B

Colton Crossing Rail-to-Rail Grade Separation Project
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Visual Simulation of Key View 3

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.9A

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 4

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During periods when passing trains utilize the overcrossing structure, the existing viewshed would be further obstructed; however, this additional obstruction would only occur periodically and is not permanent (refer to Figure 2.6.9B).

Viewer response to the visual changes created by the project at Key View 4 is expected to be negative for the residents living in the vicinity because of the placement of the proposed structure (the new overcrossing) proximate (approximately 90 feet) to existing residential uses. In the existing condition, the UPRR is at-grade and the Build Alternative would construct a large elevated structure north of the at-grade railroad tracks and south of the I-10 freeway structure closer to existing residences to the south (as opposed to the existing separation of approximately 130 feet between existing residential uses and the I-10 freeway structure) creating a more enclosed space between residential properties and the I-10 freeway structure.

Implementation of **Measure VIS-1** provided in Section 2.6.4 would minimize visual impacts within this view. These effects would be further mitigated and reduced through implementation of **Measure VIS-2** and visual effect would not be adverse.

Key View 5. Implementation of the Build Alternative would change the overall character of Key View 5 minimally. The main physical changes that would occur within this view would be the construction of the new overcrossing structure (refer to Figures 2.6.10A and 2.6.11A). Construction of the proposed structure would result in the partial obstruction of the existing I-10 freeway bridge structure, embankment, and vegetation and would obstruct the partial views of the San Bernardino Mountains in the background. The visual character of this key view would change with the construction of the proposed overcrossing although a reduction in visual quality would not occur. Implementation of the Build Alternative would not result in adverse visual impacts to the commercial and residential viewers located to the south of the proposed structure because the addition of the proposed structure (the new overcrossing) north of the existing tracks near these existing uses is relatively far removed by approximately 330 feet and the I-10 freeway structure is an existing urban structure already obstructing views.

While the proposed structure would introduce a new source of intermittent light from train headlights at a higher elevation, this new source of light would not affect the existing uses to the south as the light would not spill over into properties. Implementation of the Build Alternative would not result in a contrast with the scale and form of the existing landscape setting. During periods when passing trains utilize the overcrossing structure, the existing viewshed would be further obstructed; however, this additional obstruction would only occur periodically (refer to Figures 2.6.10B and 2.6.11B) and is not adverse.

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.9B

Colton Crossing Rail-to-Rail Grade Separation Project
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Visual Simulation of Key View 4

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.10A

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 5A

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.10B

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 5A

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.11A

Colton Crossing Rail-to-Rail Grade Separation Project
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Visual Simulation of Key View 5B

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.11B

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 5B

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Minimization and mitigation measures are not required; however, implementation of **Measure VIS-1** and **Measure VIS-2** provided in Section 2.6.4 would enhance the aesthetic environment of this view. Visual change associated with the Build Alternative is not expected be adverse.

Key View 6. Implementation of the Build Alternative would change the overall character of Key View 6 moderately. The main physical changes that would occur within this view would be the construction of the new overcrossing structure (refer to Figure 2.6.12A).

Construction of the proposed structure would result in the obstruction of the existing I-10 freeway bridge structure, embankment, and vegetation and would obstruct the partial views to the north of the San Bernardino Mountains in the background. The visual character of this key view would moderately change with the construction of the proposed overcrossing resulting in a decrease in vividness. Implementation of the Build Alternative would not result in adverse visual impacts to the commercial and residential viewers located to the south of the proposed structure because the addition of the proposed structure (the new overcrossing) is relatively far removed and the I-10 freeway structure is an existing urban structure already obstructing views.

While the proposed structure would introduce a new source of intermittent light from train headlights at a higher elevation, this new source of light would not affect the existing uses to the south as the light would not spill over into properties. Implementation of the Build Alternative would not result in a contrast with the scale and form of the existing landscape setting. During periods when passing trains utilize the overcrossing structure, the existing viewshed would be further obstructed; however, this obstruction would only occur periodically and is not permanent (refer to Figure 2.6.12B).

Minimization and mitigation measures are not required; however, implementation of **Measure VIS-1** and **Measure VIS-2** provided in Section 2.6.4 would enhance the aesthetic environment of this view. Visual change associated with the Build Alternative is not expected be adverse.

Key View 7. Implementation of the Build Alternative would not change the overall character of Key View 7. The main physical changes that would occur within this view would be the construction of the new overcrossing structure; however, due to the distance from this key view location, the presence of the proposed elevated structure is not discernable (refer to Figures 2.6.13A and 2.6.13B).

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.12A

Colton Crossing Rail-to-Rail Grade Separation Project
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Visual Simulation of Key View 6

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.12B

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 6

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure.*

FIGURE 2.6.13A

Colton Crossing Rail-to-Rail Grade Separation Project
Environmental Assessment

Visual Simulation of Key View 7

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PHOTOGRAPH 1: *Existing view .*

PHOTOGRAPH 2: *View with structure and train.*

FIGURE 2.6.13B

Colton Crossing Rail-to-Rail Grade Separation Project
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Visual Simulation of Key View 7

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Construction of the proposed structure would not result in any obstructions of views. The visual character of this key view would not change with the construction of the proposed overcrossing. Minimization and/or mitigation measures are not required. The Build Alternative does not result in any visual change at this Key View.

No Build Alternative

The No Build Alternative does not include any changes to the physical environment within the study area; therefore, no additional permanent impacts to visual resources would occur. The No Build Alternative would maintain the existing condition and would not alter existing views to and from the project area.

2.6.4 Avoidance, Minimization, and/or Mitigation Measures

The measures listed below are designed to avoid and/or minimize the potential adverse visual impacts that may result from the construction and operation of Build Alternative.

VIS-1 During the Project Study & Engineering phase, UPRR would prepare a landscape program that addresses landscape treatment within the Caltrans right-of-way and within residential properties to the south of the UPRR right-of-way.

This plan would include landscape treatment along I-10 between Rancho Avenue and the freeway crossing of the BNSF railroad, within southerly residential properties, and within City of Colton right-of-way to utilize areas adjacent to the UPRR right-of-way for landscaping and it would include placement of plant species compatible with the climatological conditions (e.g., xeric) of the geographic area while still promoting the enhancement of the project area, to the extent feasible. This program would incorporate all applicable procedures and requirements as detailed in the publication Caltrans *Highway Design Manual,* Section 902.1, Planting Guidelines (November 2001), and the City of Colton General Plan.

The landscape program would include, but would not be limited to, the following components, as feasible, within Caltrans right-of-way from Rancho Avenue to the BNSF grade separation structure:

- Maintain the visual planting character of the I-10 corridor;
- Consider guidance provided in the Interstate 10 Corridor Landscape Master Plan for landscaping;

- Incorporate all applicable procedures and requirements as detailed in the publication Caltrans *Highway Design Manual*, Section 902.1, Planting Guidelines (November 2001);
- Plant drought-resistant plants within the I-10 right-of-way, which promotes use of xeric (adapted to arid conditions) landscaping techniques; and
- Provide low-maintenance, erosion control groundcover species in the palette to preserve existing views and prevent erosion.

The landscape program would include the following components, as feasible, within private residential parcels southerly of the UPRR right-of-way from Rancho Avenue to 5th Street and City-owned right-of-way on W. K Street and E. K Street, east of the existing Colton Crossing:

- Establish a Tree Planting Program that provides monies to residential property owners and the City of Colton within this area to plant trees within their property to screen views of the flyover structure. The Tree Planting Program would provide adequate funds to provide for purchase and planting of a selected palette of tree species. Tree species to be included in the selected palette should emphasize drought-tolerant species and native species, but may also contain fruit-bearing trees. Trees within City right-of-way would be consistent with the adopted City Tree Replacement Palette.

VIS-2 During final design, the UPRR would incorporate aesthetic wall treatments into the final design of the Build Alternative. The selection process for aesthetic wall treatments would be developed in consultation with the City of Colton and City-designated stakeholders. The selection of aesthetic wall treatments would be based on the following criteria:

- Design would include the application of a variety of textures and patterns to promote visual interest and to deter vandalism. Textures and patterns would not consist of protruding features or shapes nor would they include sharp edges; and
- Design would include the application of subtle reliefs at caps and/or parapets to enhance shadow lines and to promote visual interest. Relief depth of textures and patterns and at caps and/or parapets would be restricted to a maximum depth of 2 inches thereby facilitating inspection for cracking and structural deficiencies; and

- Design for wall treatments on the north side of the structure would maintain compatibility with the I-10 Corridor Landscape Master Plan; and
- Design would not incorporate bold or bright colors that may interfere with day-to-day railroad operations. To the extent feasible, concrete treatments would be integral-colored or stained to reduce the frequency of maintenance activities; and,
- Treatments would be applied by form liner in basic patterns and repetitions so as to facilitate future maintenance and/or replacement.
- Design of the treatment and materials used in the treatment would consider graffiti control and the long term need to remove graffiti.

Examples that meet the criteria specified above are illustrated in Figures 2.6.14A and 2.6.14B, while Figures 2.6.15A and 2.6.15 B illustrate the proposed Build Alternative from Key View 5A with conceptual wall treatments applied.

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PHOTOGRAPH 1: *Conceptual wall treatment Option A*

PHOTOGRAPH 2: *Conceptual wall treatment Option B*

FIGURE 2.6.14A

Colton Crossing Rail-to-Rail Grade Separation Project
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Aesthetic Wall Treatment Options

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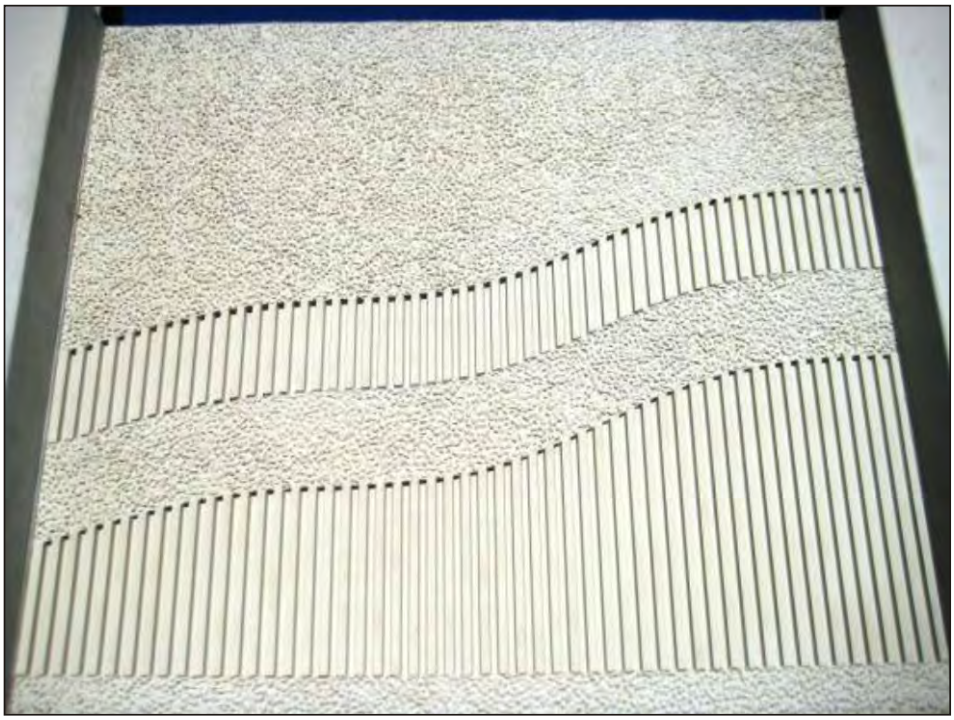

PHOTOGRAPH 1: *Conceptual wall treatment Option C.*

PHOTOGRAPH 2: *Conceptual wall treatment Option D*

FIGURE 2.6.14B

Colton Crossing Rail-to-Rail Grade Separation Project
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Aesthetic Wall Treatment Options

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Simulation 1: *Staggered pattern wall treatment.*

Simulation 2: *Stacked pattern wall treatment.*

FIGURE 2.6.15A

Colton Crossing Rail-to-Rail Grade Separation Project
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Wall Treatment Simulation for Key View 5A

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Simulation 3: *Ribbed pattern wall treatment.*

Simulation 4: *Combination pattern wall treatment.*

FIGURE 2.6.15B

Colton Crossing Rail-to-Rail Grade Separation Project
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Wall Treatment Simulation for Key View 5A

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2.7 Cultural Resources

2.7.1 Regulatory Setting

"Cultural resources" as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include the National Historic Preservation Act of 1966, as amended, (NHPA), which sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (National Register). Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) among the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both State and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties.

2.7.2 Affected Environment

This section is based on the *Draft Historic Property Survey Report* (Draft HPSR, February 2011), the *Historical Resources Evaluation Report* (HRER, February 2011), the *Archaeological Survey Report* (ASR, February 2011), the *Extended Phase I Survey Report* (XPI, February 2011), and the *Environmentally Sensitive Area Action Plan* (ESA, February 2011). While the studies have been completed, the findings presented below are preliminary, pending SHPO concurrence. Consultation with SHPO is pending and will be conducted consistent with the Section 106 PA, prior to final approval of the Environmental Assessment.

The Draft HPSR identified an Area of Potential Effects (APE) for the proposed project, which was established in consultation with the Department. The APE maps can be found in Attachment A of the Draft HPSR.

The APE was established as the limit of potential direct and indirect impacts. This includes the horizontal and vertical areas proposed for (1) direct effects associated with ground-disturbing activities, including, but not limited to, existing and proposed

right-of-way (ROW), temporary and permanent construction easements, proposed sound and retaining walls, and staging areas, and is generally limited to the existing UPRR ROW; and (2) indirect effects that are the result of visual, noise, or other effects, and generally includes all properties that are adjacent to the proposed ROW unless they are undeveloped.

The records search and literature review that was conducted for the project indicated that 26 area-specific surveys have been conducted within a 1-mile radius of the APE. Three of these studies dealt specifically with the portions of the Colton Crossing APE. One hundred-seven (107) cultural resources were identified within one mile of the APE. These include twelve (12) archaeological resources and ninety-five (95) historic built environment resources. Five of these cultural resources have been recorded within the Colton Crossing APE: Site No. 36-007976 (CA-SBR-7976H; a railroad spur and siding); the former Southern Pacific (SP) railroad, 36-010330 (CA-SBR-10330H); the former Atchison, Topeka and Santa Fe (AT&SF) railroad, 36-006847 (CA-SBR-6847H); the former Pacific Electric (PE) railroad, 36-06101 (CA-SBR-6101H); and a reported historic trail (CA-SBR-21H). None of the cultural resources previously documented within, or adjacent, to the APE is listed in the National Register.

A Sacred Lands File (SLF) search was requested from the Native American Heritage Commission (NAHC) on April 19, 2010. The NAHC responded on April 29, 2010, indicating that the results of the SLF search did not indicate the presence of Native American cultural resources within one-half mile of the APE. In addition, the NAHC recommended consulting with nine individuals representing six groups. All individuals/groups were contacted via email and follow-up telephone calls between May 26 and August 4, 2010 (Attachment F of the Draft HPSR). Paul Macarro and Anna Hoover (Pechanga Band of Luiseño Indians) and Joe Ontiveros (Soboba Band of Luiseño Indians) deferred comment to the San Manuel Band of Mission Indians. Ann Brierty (San Manuel Band of Mission Indians) indicated that project is in the review process and that any subsequent Tribal requests and inquiries would be addressed to the lead agency. Goldie Walker (Serrano Nation of Indians) and Michael Contreras (Morongo Band of Mission Indians) requested further consultation in the event of the discovery of prehistoric cultural resources during construction. No other concerns or requests were expressed by those contacted regarding the project. Attachment G of the Draft HPSR includes representative examples of the form letters sent to designated contacts/Native American groups, related email correspondence, and a summary record of the Section 106 consultation.

As discussed in the Draft HPSR and Chapter 3.0, there has been extensive public outreach conducted for the proposed project both with the City and the local community. In addition to the public meetings conducted for the NEPA/CEQA process, formal historic consultation was conducted with the City of Colton, as well as a variety of historical groups and individuals knowledgeable in local history. During a PDT meeting, the City of Colton indicated that they would like the following potential cultural resources addressed in the HPSR for the project, South Colton, the depot, the American Railway Express building, and the San Salvador Old Commercial Center District, which is a planning district not a historic district. Each of these is addressed in the HPSR and none was determined to meet any of the local, state, or federal criteria for historic significance.

The results of the architectural survey, archaeological survey, and the XPI survey indicate that there are five historic-period (45 years of age or older) built environment resources and 16 historical archaeological resources within the project APE that required documentation and evaluation. The built environment resources include an approximately 1.85-mile segment of the Southern Pacific Railroad (36-010330), an approximately 200-foot (ft) segment of the California Southern Railroad (36-006847), a former American Railway Express Company building (APE Map Reference No. 3), a former Southern Pacific passenger depot (APE Map Reference No. 4), and the historic period South Colton residential neighborhood (APE Map Reference No. 5). Only a small portion of the historic period neighborhood is located within the project APE. The portion within the project APE was intensively surveyed and the entire historic period neighborhood was surveyed at the reconnaissance level.

There are 16 archaeological resources within the APE: one previously recorded railroad siding with concrete features (36-007976/CA-SBR-7976H); three historic refuse deposits (36-022637/CA-SBR-14410H, 36-022180/CA-SBR-14123H, and 36-022181/CA-SBR-14124H); two historic refuse deposits with structural remains at the former sites of historic buildings (36-022179/CA-SBR-14122H and 36-022182/CA-SBR-14125H); nine surface concrete features (36-022625/CA-SBR-14400H, 36-022626/CA-SBR-14401, 36-022627/CA-SBR-14402H, 36-022628/CA-SBR-14403H, 36-022629/CA-SBR-14404H, 36-022630/CA-SBR-14405H, 36-022632/CA-SBR-14407H, 36-022633/CA-SBR-14408H, and 36-022634/CA-SBR-14409H), and one brick feature (36-022631/CA-SBR-14406H).

Of the 21 cultural resources within the APE that required evaluation, fourteen were determined not eligible for the National Register and are not considered to be

significant cultural resources (Historic Properties). The seven remaining historical archaeological sites (36-022627, 36-022629, 36-022630, 36-022631, 36-022632, 36-022633, and 36-022634) were not evaluated as part of this project, but will be considered eligible for the National Register under Criterion D for the purposes of this project only. These resources are located within the APE, but can be protected in place through establishment of Environmentally Sensitive Areas (ESAs). In addition to the resources that were individually evaluated for the project described above, the possibility of a historic district consisting of the Colton rail yard was also considered. However, extensive modifications and alterations to all extant resources within the APE combined with the removal of the majority of historic period buildings preclude the presence of a historic district within the APE. The surface and subsurface archaeological resources identified in the ASR and XPI contain minimal data or information and therefore do not comprise an archaeological district.

In accordance with FHWA regulations for Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties, "historic sites" mean properties listed on or eligible for inclusion in the National Register that warrant preservation in place. Archaeological sites may be protected under Section 4(f) only if all consulting parties have agreed that the site's primary value warrants preservation in place. An archaeological site whose value is in the data it contains (is eligible for the National Register under Criterion D), whether or not the data are recovered, and has minimal value for preservation in place, is not protected by Section 4(f). The seven archaeological sites within the project APE that are presumed eligible for the National Register, are eligible under Criterion D, and do not warrant preservation in place. Therefore, there are no Section 4(f) historic sites within the project area.

2.7.3 Environmental Consequences

2.7.3.1 Temporary Impacts

Build Alternative

The Build Alternative would require ground disturbance and modification to the roadways. These construction activities could result in impacts to unknown buried cultural materials or human remains. Any impacts to buried resources would be considered permanent; therefore, an analysis of temporary impacts is not applicable.

No Build Alternative

The No Build Alternative does not involve any construction activities or improvements within the project area; therefore, no temporary impacts to cultural resources would occur.

2.7.3.2 Permanent Impacts

Build Alternative

There are 21 cultural resources within the APE that required evaluation. As noted above, only seven are considered to be historic properties and warrant protection under NHPA Section 106 (36-022627, 36-022629, 36-022630, 36-022631, 36-022632, 36-022633, and 36-022634). The Draft HPSR presents a Finding of No Adverse Effect with Standard Conditions–ESAs, according to Section 106 PA Stipulation X.B(2) and 36 CFR 800.5(b). Gary Jones, who meets the Professionally Qualified Staff Standards in Section 106 Programmatic Agreement (Section 106 PA) Attachment 1 as a(n) Principal Investigator-Prehistoric Archaeology, has reviewed the ESA Action Plan and the measures outlined below and determined that they are adequate to protect these seven sites in place.

The portion of the APE located east of Colton Crossing, which constitutes the former Colton rail yard, is sensitive for historical archaeological resources associated with the long history of the railroad; it is possible that previously unknown buried historical archaeological resources could be discovered by construction of the Build Alternative. In the event that previously unknown buried cultural materials or human remains are encountered during construction, compliance with **Measures CUL-1, CUL-2,** and **CUL-4** presented below will minimize potential impacts to unknown cultural resources and/or human remains.

As noted above, **Measure CUL-3** will mitigate potential impacts to known historical resources within the APE.

No Build Alternative

The No Build Alternative does not include any changes to the physical environment within the project area; therefore, no impacts to cultural resources would occur.

2.7.4 Avoidance, Minimization, and/or Mitigation Measures

Previously unrecorded historical archaeological resources may be buried within the APE. The following measures have been identified to avoid and/or minimize impacts to known and unknown cultural resources.

CUL-1 An archaeological monitor will be retained by UPRR and be present during ground-disturbing activities within the top four feet of the surface within the APE at the Colton Crossing and eastward. The monitor shall meet the Secretary of Interior Professional Qualifications Standards for historical archaeology. The monitor shall have the authority to temporarily halt or divert construction activities to assess the significance of archaeological finds and consult with the appropriate agency staff. The agency staff and consultant archaeologist will determine the need for salvage excavation, laboratory analysis, curation of materials, and reporting requirements.

CUL-2 If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

CUL-3 Environmentally Sensitive Areas (ESAs) will be established for the following seven archaeological sites: 36-022627, 36-022629, 36-022630, 36-022631, 36-022632, 36-022633, and 36-022634. The ESAs will consist of areas within and near the limits of construction where access is prohibited or limited for the preservation of each archaeological site. The ESA boundary of each site includes the surface exposure of the site and potential subsurface deposits identified during the remote sensing program, and a buffer of 20 feet. No work shall be conducted within the ESA. All designated ESAs and fencing limits will be shown on final design plans and appropriate fencing requirements included in the PS&E. Fencing will consist of high visibility fencing material and will be 4 feet high. The archaeological monitor who meets the Secretary of Interior Professional Standards for historical archaeology shall monitor the placement of the ESA fencing, inspect the fencing periodically throughout the construction period, order replacement of fencing (if needed) and monitor removal of fencing at the end of construction (see ESA Action Plan in the Draft HPSR, Attachment F).

CUL-4 If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the

remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact UPRR and the Caltrans District 8 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. This provision shall be included in the contract specifications approved by UPRR.

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2.8 Hydrology and Floodplains

2.8.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all Federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments;
- Risks of the action;
- Impacts on natural and beneficial floodplain values;
- Support of incompatible floodplain development; and
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

2.8.2 Affected Environment

This section is based on the *Summary Floodplain Encroachment Report* (October 2010) prepared for the proposed project.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Nos. 06071C8679H and 06071C8679H (August 28, 2008), the following floodplains are located within the project area:

- **11th Street Storm Drain floodplain:** Zone X (other flood areas: areas of 0.2% annual chance flood [500-year floodplain], areas of 1% annual chance flood [100-year floodplain] with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood), Zone AE (special flood hazard area subject to inundation by the 1% annual chance flood with base flood elevations determined, and regulatory floodway).

- **Colton Southwest Storm Drain floodplain:** Zone X (other flood areas: 500-year floodplain, 100-year floodplain with average depths of less than 1 foot or with

drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood).

The FEMA FIRM maps are included in Appendix E.

Floodplains and wetlands in their natural or relatively undisturbed state can provide natural and beneficial water resource values (e.g., natural moderation of floods, water quality maintenance, and groundwater recharge), living resource values (e.g., fish, wildlife, and plant species), and cultural resource values (e.g., open space, archaeological and historical resources, natural beauty, scientific study, outdoor education, and recreation).

The 11th Street Storm Drain and Colton Southwest Storm Drain floodplains do not support living resource values. Vegetation and wildlife are nonexistent along the affected floodplains. These culverts are artificial earthen channels with scattered vegetation. These channels were constructed primarily for flood control purposes and lacks resources suitable for supporting fish and wildlife species.

Beneficial water resource values are identified in the Water Quality Control Plan for the Santa Ana Region (Basin Plan, updated February 2008). The Basin Plan does not identify any beneficial uses for the 11th Street Storm Drain or Colton Southwest Storm Drain. However, the Basin Plan for the Santa Ana River basin identifies six beneficial uses for Reach 4 of the Santa Ana River, which is a receiving water for runoff from the project area. These beneficial uses are as follows:

- GWR: Groundwater Recharge.
- REC-1: Body-contact recreation (swimming/wading).
- REC-2: Non-body contact recreation (boating/fishing).
- WARM: Warm water habitat for fish amenable for reproduction in warm water.
- WILD: Habitat for wild plants and animals.
- SPWN: Spawning, reproduction and development habitat for fish and wildlife.

Even though the 11th Street Storm Drain and Colton Southwest Storm Drain are tributary to the Santa Ana River, there is no indication that these floodplains support storage for floodplain management.

Additionally, there is no evidence to support that the 11th Street Storm Drain or Colton Southwest Storm Drain floodplains are used to connect communities via cultural values (i.e., no trails or other visual impacts). Therefore, the 11th Street Storm

Drain and Colton Southwest Storm Drain floodplains do not support cultural resource values.

2.8.3 Environmental Consequences

2.8.3.1 Temporary Impacts

Build Alternative

Construction activities within the 11th Street Storm Drain and Colton Southwest Storm Drain floodplains have the potential to cause impacts to the beneficial water resource values of the Santa Ana River discussed above by affecting water quality. As discussed in detail in Section 2.9, Water Quality and Storm Water Runoff, potential impacts to water quality could occur during construction of the proposed project due to increased erosion and sedimentation or accidental spills. However, Best Management Practices (BMPs), including erosion and sediment control measures, would be implemented during construction of the Build Alternative to reduce impacts to water quality and beneficial water resource values. Therefore, construction of the Build Alternative would not result in short-term adverse impacts to natural and beneficial floodplain values.

No Build Alternative

The No Build Alternative would not result in construction activities within the study area; therefore, it would not result in temporary impacts related to hydrology and floodplains.

2.8.3.2 Permanent Impacts

Build Alternative

Potential permanent hydrology and floodplain impacts discussed in relation to the Build Alternative are floodplain encroachments; interruption of emergency access; risks to life and property; incompatible floodplain development; and impacts to natural and beneficial floodplain values.

Floodplain Encroachments. The proposed project would not result in longitudinal encroachments of a base floodplain. At the 11th Street Storm Drain, the project improvements would cause a lateral encroachment into the floodplain/floodway. Given that the east-west project crosses the north-south floodway, the improvements would result in a transverse encroachment (i.e., perpendicular to the direction of flow) of the 11th Street Storm Drain floodplain/floodway.

At the Colton Southwest Storm Drain, the project improvements would also cause a lateral encroachment onto the floodplain but the bridge opening would provide a means for floodplain flows to continue though the project. Given that the east-west project crosses the north-south floodplain, the project improvements would result in a transverse encroachment of the Colton Southwest Storm Drain floodplain.

A "significant encroachment," as defined in 23 Code of Federal Regulations (CFR), Section 650.105(q), is a highway encroachment that would result in (1) a significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation, (2) a significant risk, or (3) a significant adverse impact on natural and beneficial floodplain values. The potential for the Build Alternative to result in impacts that would result in a significant encroachment are discussed in detail below.

Interruption of Emergency Access. In response to the first criterion of a significant encroachment, the Build Alternative involves a railroad mainline used for goods movement (freight) from the ports of Los Angeles to the rest of the country. The railroad is not used during emergency situations by the community. In those instances, other modes of transportation such as, but not limited to, I-10 freeway, I-215 freeway, major arterials, and local roads are used by emergency vehicles and for evacuation routes by the community. Since the Build Alternative does not involve a transportation facility used by the community during an emergency, the resulting floodway encroachment would not cause a substantial impact to emergency vehicles or to the community's use during an evacuation.

Risks to Life and Property. Given that that Build Alternative would raise the east-west UPRR mainline by placing it on an elevated structure, the wider project footprint would affect the lateral extent of the 11th Street Storm Drain floodplain/floodway upstream of the existing culvert and would require a longer culvert. The proposed replacement culvert would be designed to result in no net rise of the Base Flood Elevations upstream or downstream from the project. During the Plans, Specifications, and Estimates (PS&E) phase, additional or replacement culverts would be designed such that no increase in the Base Flood Elevations would occur. Because the encroachment at the 11th Street Storm Drain is within a regulatory floodway, a No Rise Certification would be processed to demonstrate no change in Base Flood Elevation. Modeling of the change in the floodplain/floodway elevation would occur during PS&E. Currently, drainage improvements at 11th Street include three 72-inch smooth steel and/or corrugated metal pipes underneath the proposed

flyover structure. Design of the drainage improvement would be refined during final design to ensure no increase in the Base Flood Elevation. Currently, there are no known physical constraints to prevent a no-rise design solution. Because the proposed encroachment would not increase flooding or pose a risk to life or property, the resulting floodway encroachment at 11th Street does not cause a substantial risk.

Based on field observation, the shaded Zone X of the Colton Southwest Storm Drain floodplain applies to a 500-year storm event and not a 100-year flood with a depth of less than a foot. There are approximately 500 feet of 500-year floodplain along the UPRR mainline. There may be an underlying 100-year floodplain, but the depth would be less than a foot (the width is undetermined, but would be less than that of the 500-year floodplain). Ponding behind the UPRR tracks occurs until the UPRR elevation is overtopped. The Zone X designation continues downstream of the UPRR, but is split on either side of the BNSF railroad. Elements of the Build Alternative (e.g., structure, piers, and abutments) may encroach onto the Colton Southwest Storm Drain floodplain adjacent to the UPRR and BNSF tracks. However, existing drainage patterns would be maintained through the project area (via the proposed bridge opening), allowing excess surface flows to be conveyed southerly similar to existing conditions. In addition, the proposed project would not preclude future master plan drainage improvements at this location. Since any 100-year floodplain would consist of shallow ponding, encroachments would have little to no impact on the 100-year water surface. The Build Alternative would avoid impacts with the design of the bridge opening such that there is no increase to the 100-year floodplain. During the PS&E phase, modeling would be performed to confirm design requirements needed to avoid any impacts to the 100-year floodplain at the Colton Southwest Storm Drain floodplain.

The project may have the potential to cause some changes to the Colton Southwest Storm Drain floodplain. However, the proposed encroachment would not increase the risk of flooding or pose a risk to life or property. Hence, the resulting floodway encroachment at Colton Southwest Storm Drain does not cause a substantial risk.

In addition, based on the assessment of level of risk in the *Location Hydraulic Study Forms*, the improvements in the 11th Street Storm Drain and Colton Southwest Storm Drain floodplains are considered “low” risk.

Incompatible Floodplain Development. The project area is bounded by I-10 to the north, existing residential development to the south (east of Rancho Avenue), and Cal

Portland Cement to the south (west of Rancho Avenue). Since the property is owned by the UPRR, it is expected that UPRR would not encourage other developments (either direct or indirectly) within its property. The only floodplain being affected is located within the railroad right-of-way. Immediately upstream, the floodplain is located within Caltrans right-of-way. Hence, it is not anticipated that the Build Alternative would support probable incompatible floodplain development.

Impacts to Natural and Beneficial Floodplain Values. As discussed previously, the 11th Street Storm Drain and Colton Southwest Storm Drain floodplains do not support natural resource or cultural resource values. Therefore, the Build Alternative would not result in impacts to natural resource or cultural resource values. However, there is a potential for the Build Alternative to affect water resource values. As discussed in detail in Section 2.9, the Build Alternative would result in a net increase in impervious surfaces and therefore an increase in runoff and pollutant loading. The runoff from the proposed railway improvements would have the potential to affect the beneficial water resource values of the Santa Ana River. However, treatment BMPs would be implemented during operation of the Build Alternative to reduce impacts to water quality and beneficial water resource values. Therefore, operation of Build Alternative would not result in long-term adverse impacts to natural and beneficial floodplain values.

Summary of Floodplain Encroachments. In summary, the floodplain encroachments would not pose a substantial potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation, a significant risk, or a significant adverse impact on natural and beneficial floodplain values. Therefore, the proposed encroachments are not considered significant encroachments as defined in 23 CFR 650.105(q).

No Build Alternative

The No Build Alternative would not result in the construction of the rail-to-rail grade separation within the study area. Therefore, the No Build Alternative would not result in permanent adverse impacts related to hydrology and floodplains.

2.8.4 Avoidance, Minimization, and/or Mitigation Measures

Measures to minimize temporary construction impacts and long-term operational impacts on the natural and beneficial floodplain values related to water quality are discussed in Section 2.9. In addition, the following measures are required to minimize potentially adverse impacts to the 11th Street Storm Drain regulatory floodway.

HYD-1 The 11th Street culvert would be designed during the Plans, Specifications, and Estimates (PS&E) phase such that the size of the additional or replacement culvert(s) would result in no increases in the Base Flood Elevation. During PS&E, the effect of the Build Alternative on the Base Flood Elevation at the 11th Street Storm Drain would be confirmed as part of the Final Hydrology and Hydraulics Report prepared during this phase such that no impact to Base Flood Elevations occurs from the Build Alternative. In addition, the effect of the Build Alternative on the Colton Southwest Storm Drain would be confirmed during PS&E to determine the design requirements needed to prevent an increase in the 100-year floodplain elevations. The Final Hydrology and Hydraulics Report would be prepared by a qualified registered professional engineer and would be approved by UPRR.

HYD-2 A No Rise Certification for the 11th Street Storm Drain floodway would be included as part of the Final Hydrology and Hydraulics Report, and would be submitted to the City of Colton for review and approval, prior to completion of the Report.

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2.9 Water Quality and Storm Water Runoff

2.9.1 Regulatory Setting

2.9.1.1 Federal Requirements: Clean Water Act

In 1972, the Federal Water Pollution Control Act was amended, making the discharge of pollutants to the waters of the United States from any point source unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The Federal Water Pollution Control Act was subsequently amended in 1977, and was renamed the Clean Water Act (CWA). The CWA, as amended in 1987, directed that storm water discharges are point source discharges. The 1987 CWA amendment established a framework for regulating municipal and industrial storm water discharges under the NPDES program. Important CWA sections are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal project that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the State that the discharge will comply with other provisions of the act.
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) establishes addresses storm water and non-storm water discharges.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

2.9.1.2 State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives) required by the CWA, and regulating discharges to ensure that the objectives are met. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, each state identifies waters failing to meet standards for specific pollutants, which are state listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the CWA requires establishing Total Maximum Daily Loads (TMDLs). TMDLs establish allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

2.9.1.3 State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

NPDES Program. The SWRCB adopted Caltrans Statewide NPDES Permit (Order No. 99-06-DWQ) on July 15, 1999. This permit covers all Caltrans rights-of-way, properties, facilities, and activities in the State. NPDES permits establish a 5-year permitting time frame. NPDES permit requirements remain active until a new permit has been adopted.

In compliance with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs) within the Caltrans right-of-way.

Municipal NPDES Permit. The City of Colton is a co-permittee under the *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the San Bernardino County Flood Control District, the County of San Bernardino, and the Incorporated Cities of San Bernardino County within the Santa Ana Region*, Order No. R8-2010-0036 (NPDES No. CAS618036). The NPDES permit prohibits discharges, sets limits on pollutants being discharged into receiving waters, and requires implementation of technology-based standards.

Under the NPDES permit, the City as a co-permittee is responsible for the management of storm drain systems within its jurisdiction. Cities are required to implement management programs, monitoring programs, implementation plans, and all BMPs outlined in the Municipal Storm Water Management Program (MSWMP) (previously identified as the Drainage Area Management Plan [DAMP] in the County's two prior NPDES permits) and to take any other actions as may be necessary to protect water quality to the maximum extent possible (MEP). In addition, each city is required to implement an MSWMP and develop a long-term assessment strategy for effectiveness of the MSWMP.

Category Projects within the City are required to develop and implement Water Quality Management Plans (WQMPs) to reduce pollutants and maintain and reduce downstream erosion and stream habitat from all new development and significant redevelopment projects that fall into one of the categories of priority projects. The co-permittees must ensure that a Category Project meets WQMP requirements. Category Projects include significant redevelopment projects that create 5,000 square feet or more of impervious surface, home subdivisions of 10 units or more, industrial/ commercial developments of 100,000 square feet or more, automotive repair shops, restaurants of 5,000 square feet or more, hillside developments of 10,000 square feet or more, developments of 2,500 square feet of impervious surface or more adjacent to or discharging directly into environmentally sensitive areas, or parking lots of 5,000 square feet or more. In addition, Non-Category Projects that have a precise plan of development (e.g., all commercial or industrial projects, residential projects <10 dwelling units, and all other land development projects with potential for significant adverse water quality impacts) or subdivision of land must prepare and implement a WQMP. San Bernardino County has prepared a Model Water Quality Management Plan Guidance document for preparation of project-specific WQMPs. The Model Water Quality Management Plan Guidance document was approved by the Santa Ana RWQCB on April 30, 2004, and updated on June 9, 2005.

UPRR is not a co-permittee of the NPDES permit but is a potential discharger of urban runoff in the permitted areas. Under the permit, it is expected that UPRR will work cooperatively with the permittees to manage urban runoff. Pursuant to 40 CFR 122.26(a), the Santa Ana RWQCB has the authority to require non-cooperating entities to adhere to the requirements of the NPDES permit or issue individual discharge permits to those entities. Therefore, to comply with this requirement, a WQMP will be prepared for the proposed project that specifies the BMPs to be implemented during operation.

City of Colton Municipal Code. Storm water discharge is also regulated under Title 12-Storm Drains and Floodplain Management of the City of Colton Code of Ordinances. Under Title 12, discharge of non-stormwater is permissible only when connection to the storm drain system is made in accordance with a valid city permit, approved construction plan, or an NPDES permit and/or Notice of Intent (NOI). In addition, projects within the City are required to comply with the requirements of the Construction General Permit and the Municipal NPDES Permit, which includes preparation of a Storm Water Pollution Prevention Plan (SWPPP) and implementation of construction and post-construction BMPs.

Construction Activity Permitting. Section II.E.3 of the Municipal NPDES Permit (Order No. R8-2010-0036, NPDES No. CAS618036), states that projects over 1 acre must comply with the requirements of the NPDES General Permit for Construction Activities (Construction General Permit). Construction General Permit (Order No. 2009-0009-DWQ, adopted on September 2, 2009, will become effective on July 1, 2010. The permit would regulate storm water discharges from construction sites that result in a disturbed surface area (DSA) of 1 acre or greater, and/or are part of a common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit.

The newly adopted permit separates projects into Risk Levels 1–3. Requirements apply according to the Risk Level determined. The overall risk level is based on two factors: receiving water risk and sediment risk. Sediment risk is the amount of sediment that can be discharged into the receiving water body. Receiving water risk is the risk sediment discharges pose to the receiving water body. Applicants are required to develop and implement an effective SWPPP and an Annual Report.

2.9.2 Affected Environment

This section is based on the Water Quality Assessment Report (February 2011) prepared for the proposed project. Section 1602, 401, and 404 compliance is discussed in Section 2.16, Wetlands and Other Waters, of this EA.

2.9.2.1 Surface Water

The project area is located in the Santa Ana River Watershed. The Santa Ana River Watershed is divided into hydrologic areas (HA) that are subdivided into hydrologic subareas (HSA). The project area lies within the Colton HSA of the Colton-Rialto HA.

The Santa Ana River is located immediately east of the project limits. The Santa Ana River transitions from Reach 5 to Reach 4 at the San Jacinto Fault, just east of the project limits. Runoff from the project site is discharged to the Colton Southwest Storm Drain and the 11th Street Storm Drain, which cross the project area, and eventually discharges into Reach 4 of the Santa Ana River. Reach 4 is defined as the portion of the river from Mission Boulevard in Riverside to the San Jacinto Fault in San Bernardino.

The following beneficial uses are identified in the Santa Ana RWQCB's *Water Quality Control Plan - Santa Ana River Basin* (Basin Plan) for Reach 4 of the Santa Ana River:

- GWR: Groundwater Recharge;
- REC-1: Body-contact recreation (swimming/wading);
- REC-2: Non-body contact recreation (boating/fishing);
- WARM: Warm water habitat for fish amenable for reproduction in warm water;
- WILD: Habitat for wild plants and animals; and
- SPWN: Spawning, reproduction and development habitat for fish and wildlife.

Reach 4 of the Santa Ana River is listed as impaired for pathogens on the 2010 California 303(d) List of Water Quality Limited Segments, approved by the SWRCB in October 2006 and by the EPA in June 2007. The potential source of the pathogen impairment is listed as nonpoint sources. The proposed TMDL completion date is January 1, 2019.

2.9.2.2 Groundwater

As designated by the Santa Ana RWQCB (Region 8), the project area is within the Colton Groundwater Management Zone of the Upper Santa Ana River Basin. Groundwater in the Colton Groundwater Management Zone is found primarily in alluvial deposits and is replenished primarily by infiltration from Lytle Creek, Reche Creek, and the Santa Ana River. Lesser amounts of recharge occur through percolation of precipitation, irrigation and septic returns, and underflow through fractured basement rock and the San Jacinto Fault.

The local groundwater aquifer serves as the municipal supply for the City of Colton. However, there are no designated sole-source aquifers in the project area.

During borings conducted for the proposed project, groundwater within the project area was encountered at depths ranging from 117 to 123 ft below ground surface (bgs). A perched water zone was encountered during one boring at 73.5 ft bgs.

The following beneficial uses are identified in the *Basin Plan* for the Colton Groundwater Management Zones:

- GWR: Groundwater Recharge;
- AGR: Agricultural Supply;
- IND: Industrial Service Supply; and
- PROC: Industrial Process Supply.

2.9.3 Environmental Consequences

2.9.3.1 Temporary Impacts

Build Alternative

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants could have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, during storm events erosion and sedimentation could occur at an accelerated rate. During construction of the Build Alternative, the total disturbed area would be approximately 36 acres. In addition, chemicals, liquid products, and petroleum products (such as paints, solvents, and fuels), concrete-related waste, and other construction debris and waste may be spilled or leaked, and have the potential to be discharged into receiving waters.

Due to the depth to groundwater (greater than 117 ft bgs), groundwater dewatering is not anticipated during project construction. Perched groundwater may be encountered during construction of the cast-in-drilled-hole (CIDH) piles; however, this would not require groundwater dewatering because perched groundwater would drain into the hole and dissipate. Although not anticipated, groundwater dewatering would be necessary if groundwater is encountered during construction. Groundwater may contain high levels of total dissolved solids, salinity, high nitrates, or other contaminants, which could be introduced to surface waters during groundwater dewatering. Other non-storm water dewatering discharges are not anticipated during construction.

Under the Construction General Permit, the project would be required to prepare an SWPPP and implement construction BMPs detailed in the SWPPP during construction activities. Construction BMPs would include, but not be limited to, Erosion and Sediment Control BMPs designed to minimize erosion and retain sediment on-site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

The requirements of the Construction General Permit are based on the risk level of the project. The overall risk level is based on two factors: receiving water risk and sediment risk. Runoff from the project site would not discharge to a 303(d) listed waterbody impaired for sediment or discharge to a waterbody with designated beneficial uses of SPAWN, COLD, and MIGRATORY; therefore, the receiving water risk is low. Based on the anticipated construction schedule (September 2011 through March 2014), the project sediment risk would be high (soil loss = 267 tons/acre). Therefore the project would be Risk Level 2. Risk Level 2 projects are required to implement Good Housekeeping, Erosion Control, and Sediment Control BMPs; perform quarterly non-storm water discharge observations; weekly, pre-storm, interim storm, and post-storm inspections; prepare and implement a Rain Event Action Plan (REAP); prepare and submit, via Storm Water Multi-Application and Report Tracking System (SMARTS), an Annual Report; collect storm water samples; and comply with the pH and turbidity Numeric Action Levels specified in the Construction General Permit.

When construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, as presented in **Measure WQU-1** in Section 2.9.4, then no adverse water quality impacts would occur during construction of the Build Alternative.

In the event that groundwater and any other non-storm water dewatering activities are required during construction, the project would comply with the requirements of the De Minimus Permit (Order No. R8-2009-0003, NPDES No. CAG998001). This permit requires discharges to conduct monitoring of dewatering discharges and to adhere to effluent and receiving water limitations contained within the permit so that water quality of surface waters is ensured protection. Compliance with this permit, as stipulated in **Measure WQU-3**, would minimize water quality impacts of during dewatering.

No Build Alternative

Under the No Build Alternative, no improvements to the UPRR mainline, other than routine maintenance, would be made within the project area. Therefore, the No Build Alternative would result in no short-term adverse impacts to water quality from construction-related activities.

2.9.3.2 Permanent Impacts

Build Alternative

Pollutants of concern in runoff from the railroad mainline include sediments, heavy metals, oil and grease, trash and debris, pesticides, and organic compounds. The Build Alternative would result in a permanent increase of impervious surfaces and a permanent increase in runoff and pollutant loading in the project area. The Build Alternative would increase the impervious surface area by approximately 9.2 acres compared to the existing railroad mainline. An increase in impervious area would increase the volume of runoff during storms, which would more effectively transport pollutants to receiving waters.

Currently, runoff from the UPRR mainline in the project area is untreated. In order to prevent degradation of receiving water quality with implementation of the proposed project, Source Control, Site Design, and Treatment Control BMPs would be implemented to target constituents of concern in runoff from the project area. Site Design BMPs are planning methods and concepts that are taken into consideration during project design (e.g., reducing impervious surface areas). Source Control BMPs are pollution prevention practices that are designed to reduce pollutants in runoff from a project site (e.g., street sweeping, drainage system maintenance). Treatment Control BMPs are engineered systems that use physical, chemical, or biological processes to remove pollutants.

Proposed Site Design BMPs include minimizing impervious surface areas by constructing maintenance areas and maintenance roads using ballast, which is permeable and conducive to infiltration. In addition, runoff from the at-grade portion of the project area would drain to the adjoining graded ditches and would infiltrate directly into the underlying native soils. Proposed Source Control BMPs include education of property owners, activity restrictions, spill contingency plans, employee training and education program, common area catch basin inspection, protections of slopes and channels, storm drain signage, energy dissipaters (in culverts), trash storage areas and litter control, and alternative building materials (concrete instead of wood ties, which are treated with creosote and other chemicals). Proposed Treatment Control BMPs include non-vegetated drainage swales, detention basins, infiltration basins, and/or manufactured/proprietary devices to treat runoff from the elevated structure. Potential Treatment Control BMP locations are shown previously in Figure 1.3, in Chapter 1 Proposed Project. The Treatment BMP design would be finalized during the final design.

The Treatment Control BMPs would target constituents of concern from the railroad mainline (sediments, heavy metals, oil and grease, trash and debris, pesticides, and organic compounds). Reach 4 of the Santa Ana River is listed as impaired for pathogens on the 2010 California Section 303(d) List of Water Quality Limited Segments. However, pathogens are not a constituent of concern from the railroad mainline. Therefore, the proposed project would address General Purpose Pollutant Removal.

As stated above, the Source Control, Site Design, and Treatment Control BMPs would target constituents of concern from the railroad mainline. Therefore, when Site Design, Source Control, and Treatment Control BMPs are implemented as stipulated in **Measure WQU-2** in Section 2.9.4, the Build Alternative would not result in adverse impacts to water quality.

No Build Alternative

Under the No Build Alternative, there would not be an increase in impervious area within the project area. Therefore, the Build Alternative would not result in an increase in long-term pollutant loading. In addition, existing railroad runoff in this area would remain unchanged and untreated.

2.9.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures are required to avoid and/or minimize potential project impacts to water quality:

WQU-1 During construction, the Union Pacific Railroad (UPRR) would comply with the provisions of the *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit, as they relate to construction activities for the project. This would include submission of the Permit Registration Documents, including a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board (SWRCB) via the Storm Water Multi-Application and Report Tracking System (SMARTS) at least 7 days prior to the start of construction. Construction activities would not commence until a Waste Discharger Identification (WDID) number is received from the SMARTS. The SWPPP would be prepared by a Qualified SWPPP Developer (QSD) and would meet the requirements of the Construction General Permit and would identify potential pollutant sources associated with construction activities; identify non-storm water discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site. BMPs would include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control BMPs. The BMPs identified in the SWPPP would be implemented during project construction. UPRR would comply with the Risk Level 2 sampling and reporting requirements of the Construction General Permit. A Rain Event Action Plan (REAP) would be prepared and implemented by a Qualified SWPPP Developer (QSP) within 48 hours prior to a rain event of 50 percent or greater probability of precipitation according to the National Oceanic and Atmospheric Administration (NOAA). UPRR or its contractor shall also prepare and submit an Annual Report no later than September 1 of each year using the SMARTS. A Notice of Termination (NOT) would

be submitted to the SWRCB within 90 days of completion of construction and stabilization of the site.

WQU-2 During final design, UPRR would prepare a Final Water Quality Management Plan (WQMP) that details the Source Control, Site Design, and Treatment Control BMPs to be incorporated into the proposed project. The BMPs would be consistent with the San Bernardino County Stormwater Program *Model Water Quality Management Plan Guidance* and *Water Quality Management Plan Template* and would be properly designed, installed, and maintained to target pollutants of concern. The WQMP would be submitted to the City of Colton and County of San Bernardino for review and approval.

WQU-3 UPRR would comply with the provisions of the *General Waste Discharge Requirements for Discharges to Surface Waters that Pose and Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2009-0003, NPDES No. CAG998001), as they relate to discharge of non-storm water dewatering wastes for the project. This would include submitting to the Santa Ana Regional Water Quality Control Board (RWQCB) a Notice of Intent (NOI) at least 45 days prior to the start of construction and monitoring reports by the 30th day of each month following the monitoring period.

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2.10 Geology/Soils/Seismic/Topography

2.10.1 Regulatory Setting

For geologic and topographic features, the key Federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features."

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Seismic impacts have been evaluated using the anticipated Maximum Credible Earthquake (MCE), from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.10.2 Affected Environment

This section is based on the *Geotechnical Investigation for the Proposed Colton Crossing Project* (CHJ 2010a), the *Initial Site Assessment*, the *Phase 1 Environmental Site Assessment* (CHJ 2010b), and the *Preliminary Site Investigation* (CHJ 2010c) all prepared in 2010 for the Colton Crossing project.

2.10.2.1 Topography

The topography of the project area is relatively flat but gently slopes east toward the nearby Santa Ana River. In the project area, elevations vary from approximately 956 feet above mean sea level (amsl) at east end of the site and rise to a maximum of 1,046 feet at the northwest corner of the site. The ground surface on site is essentially flat with a grade of 0.67 percent (GoogleEarth 2010).

2.10.2.2 Geology

The proposed project area is located within the Peninsular Ranges Geomorphic Province (PRGP), which is a series of mountain ranges separated by northwest-trending valleys, sub-parallel to faults branching from the San Andreas Fault. General geology consists of granitic rock intruding the older metamorphic rocks. The Peninsular Ranges extend into lower California and are bounded on the east by the Colorado Desert. The Los Angeles Basin and the Channel Islands are part of this region (CGS 2010).

The project site is located on the Rialto-Colton bench, a geomorphic feature located in the northern portion of the Perris structure block of the PRGP. This area consists of

relatively older sediments deposited along the eastern portion of the Lytle Creek alluvial fan and younger Santa Ana River deposits that are elevated relative to the present day river channel. The San Bernardino Valley proper is located just northeast of the Rialto-Colton bench and was formed as a structurally down-dropped block of crystalline bedrock material overlain by a thick accumulation of alluvium, composed of floodplain and alluvial fan deposits. The San Bernardino Valley is bounded on the north and east by the San Andreas Fault and the San Bernardino Mountains (CHJ 2010a).

The site is located in the Riverside Hydrologic Subarea of the Santa Ana Drainage Province. The regional groundwater flow direction in the vicinity of the site is to the south-southeast, toward the Santa Ana River just east of the site (CHJ 2010b). Based on borings performed as part of the geotechnical investigation and site assessment reports, groundwater levels in the project area are relatively deep (i.e., greater than 50 feet below ground surface (bsg), on the order of 117–123 feet bgs). However, the reports also found historical high groundwater depths on the eastern portion of the site (near Mount Vernon Avenue, on the order of 20–25 feet). During a major seismic event, the potential for liquefaction within the western and central portions of the project site is considered low, while the potential for liquefaction in the eastern portion of the site is considered medium (page 20, CHJ 2010a).

2.10.2.3 Soils

Soil classification and conservation is the responsibility of the U.S. Natural Resource Conservation Service (NRCS) formerly known as the U.S. Soil Conservation Service (SCS). The site is generally underlain by three main soil types: Tujunga loamy sand (TcB) in the western portion; Hanford course sandy loam (HaC) in the center; and Tujunga gravelly loamy sand (TvC) in the eastern portion. In addition, there is a small amount of Dehli fine sand (Db) in the far northwest corner of the site. These alluvial soils are derived from granitic materials formed by erosion in the San Gabriel and San Bernardino Mountains to the north. The potential for erosion from flowing water over these soils is slight to moderate where they are left exposed, but only the Delhi soil has a substantial erosion potential from wind since it is essentially windblown sand (SCS 1980).

Although the project area and its attendant soils have been disturbed over a long period of time by rail activities, Table 5 of the SCS Soil Survey for this area indicates the Hanford and Tujunga soils on site have medium strength for such improvements as embankments (SCS 1980). Data from the NRCS and Caltrans Seismic Design

Criteria (SDC) indicate the project soils are generally suitable for supporting the proposed overcrossing structure and related improvements.

The on-site soils are not generally suitable for agricultural use, and the only on-site soil that has any recognized agricultural suitability is in the central portion of the site. The Hanford soil is considered a Class IIe-1 soil when irrigated, which means it is considered a "prime" agricultural soil by the NRCS. The other soils are classified as IIIe-4 (TuB, Db) or IVs-4 (TvC), which means they are generally unsuited for agricultural use. Given the only "prime" soil is isolated within the site, the project area is heavily industrialized, and it has supported construction and operation of heavy rail-related facilities and uses for many years, it is reasonable to conclude that the local soils are not generally suitable for agricultural use.

2.10.2.4 Faulting and Seismicity

The two principal seismic considerations for most sites in Southern California are the potential for surface rupture along active fault traces and damage to structures due to seismically induced ground shaking. Caltrans seismic hazards maps were reviewed to obtain peak bedrock acceleration (PBA) median. Geological maps and strong motion data published by the United States Geological Survey (USGS) and California Geological Survey (CGS), formerly California Division of Mines and Geology (CDMG), were also reviewed.

The most dominant geologic feature of the region is the San Andreas Fault Zone, which is a State-designated Alquist-Priolo Earthquake Fault Zone that traverses most of California in a northwest-southeast direction. This regional fault is located approximately 8 miles northeast of the project site and is expected to produce an MCE 8.0 earthquake sometime within the next 50 years (Caltrans 1996).

The San Jacinto Fault, another designated Alquist-Priolo Earthquake Fault Zone, is adjacent to the northeast corner of the project site (approximately 125 feet northeast of Station 85), and another splay of the San Jacinto Fault is located approximately 0.9 mile northeast of the project site. This fault is expected to produce an MCE 7.5 earthquake sometime within the next 50 years (CHJ 2010a).

The Rialto-Colton Fault crosses the center of the project site in a northwest-southeast direction; it is classified as a concealed fault and may be associated with the San Jacinto Fault. It is believed to extend northwest and eventually connect to the Day Canyon Fault along the San Gabriel Mountains (page 10, CHJ 2010a). The Rincon-Colton Fault could be considered "active" based on the Caltrans criteria of movement

within the last 700,000 years before present (page 11, CHJ 2010a). According to state mapping and database info, this fault could produce an MCE 6.75 earthquake sometime within the next 50 years. The horizontal PBA for the general project area was estimated to be approximately 0.6g from Caltrans California Seismic Hazards Map (Caltrans 1996); however, site-specific calculations in the project geotechnical investigation concluded the most appropriate design peak ground acceleration for the project site is 0.5g based on available data and conditions.

CHJ conducted a detailed review of available archival and field data on this fault structure, and the project geotechnical investigation determined that the potential for rupture on this fault is “very low” (page 11, CHJ 2010a). The investigation found several other faults in the surrounding region, but none of them was considered capable of surface rupture, was mapped as crossing the site, or projected toward the site (pages 13-14, CHJ 2010a).

Soil borings conducted as part of the geotechnical investigation found groundwater at depths ranging from 117 to 123 feet bgs, and perched groundwater was found in one location at 73 feet bgs. Historical groundwater levels in the area, especially at the east end of the site near the Santa Ana River, are generally more shallow than in the center or western portions of the site (CHJ 2010a)(CHJ 2010b).

2.10.3 Environmental Consequences

2.10.3.1 Temporary Impacts

Build Alternative

According to local soil sampling (CHJ 2010a)(CHJ 2010b), there is a small potential that expansive soil, as defined in the current California Building Code (CBC), may exist in the project area. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, potential project-related temporary impacts related to expansive soils would be mitigated fully and would not be adverse.

No Build Alternative

The No Build Alternative would not result in the construction of the grade-separated crossing or related improvements within the study area, and therefore would not result in any adverse temporary impacts related to geology and soils.

2.10.3.2 Permanent Impacts

The structure would consist primarily of a cellular concrete retaining structure. Bridge structures would be used to cross over the BNSF/UPRR Connection Track, the BNSF

mainline tracks, and the existing La Cadena Drive undercrossing. The cellular concrete retaining structure would consist of cellular concrete backfill faced precast wall panels. Cellular concrete consists of concrete that is combined with a foaming agent that produces a high-strength lightweight concrete fill material. The cellular concrete would be mixed on site in a special apparatus and pumped between the precast wall panels, which would serve as outer forms and provide a protective outer layer for the cellular backfill upon completion. The lightweight cellular concrete would be utilized to reduce the mass of the flyover structure to limit potential long-term settlement due to unconsolidated subsoils and to enhance seismic performance of the structure.

The flyover structure would have conventional cast-in-place walls at the east and west approaches with backfill to create tapered transitions to existing grade. The soils directly under the "footprint" of the flyover structure would be strengthened utilizing stone columns arranged horizontally in a grid pattern. Stone columns would be constructed by a vibro-replacement method, which uses a vibratory probe inserted into the ground that forces select backfill material into the soil and densifies the existing soil column around the probe. The resultant columns of strengthened, densified soil would increase soil bearing capacity, reduce total and differential settlement, and reduce liquefaction potential (Section 1.4.1.1).

Bridges over the BNSF/UPRR Connection Track, the BNSF mainline tracks, and the existing La Cadena Drive undercrossing would consist of conventional steel rolled-beam type spans with ballasted decks. The bridges would be fabricated from weathering steel, which facilitates bridge inspection and does not require painting. The substructure of the bridges would generally consist of 48-inch diameter cast-in-drilled-hole (CIDH) piles with cast-in-place pile caps and abutments. Several spans of the BNSF/UPRR Connection Track bridge would utilize straddle bents, stepped pile caps and modified bridge girder sections to provide the required vertical and horizontal rail clearances at that location while minimizing the depth of structure, with the goal of minimizing the height and maximum grade on the flyover. These design characteristics would help minimize potential impacts on the structure from soils and other geotechnical constraints, as outlined below.

Build Alternative

The discussion of potential permanent impacts related to the Build Alternative includes fault-induced ground rupture, seismic ground shaking, secondary effects of seismic shaking, slope stability, and subgrade stability.

Fault-Induced Ground Rupture. As discussed above, there are known Alqist-Priolo faults in the region, including the San Andreas and San Jacinto Faults that could produce substantial ground shaking. In addition, the Rialto-Colton Fault is a concealed fault that crosses the center of the site in a northwest-southeast direction. The project geotechnical investigation found a low potential for ground surface fault rupture on the project site; however, it did recommend a number of special precautions or restrictions would need to be included in project design to ensure that the project is not adversely affected by fault-induced ground rupture. At a minimum, the Build Alternative would need to be built to current applicable American Railway Engineering and Maintenance-of-Way Association (AREMA), UPRR and State seismic standards in this regard, as outlined below in Section 2.10.4.

Seismic Ground Shaking. Faults in the project area have been documented as producing earthquakes with a magnitude greater than moment magnitude (Mw) of 7.8, and a PGA of 0.6g was estimated following the 2009 Caltrans seismic design procedure. Depending on soil condition and location within the site, the computed ground motion in the site specific area could reach 0.5g. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, potential project-related permanent impacts related to seismic ground shaking would not be adverse.

Secondary Effects of Seismic Shaking. Secondary effects of seismic shaking are non-tectonic processes that are directly related to strong seismic shaking. Ground deformation, including fissures, settlement, displacement, and loss of bearing strength, are common expressions of these processes and are among the leading causes of damage to structures during moderate to large earthquakes. Secondary effects leading to ground deformation include liquefaction, settlement, and landsliding. Other hazards indirectly related to seismic shaking are inundation, tsunamis, and seiches. These potential secondary effects of seismic shaking on the Build Alternative are discussed below.

- *Liquefaction:* Liquefaction is a phenomenon in which loose, saturated soils behave similarly to fluid when subjected to high-intensity ground shaking. Primary factors influencing liquefaction potential include groundwater elevation, soil type and grain size distribution, relative density of soil, initial confining pressure, and intensity and duration of ground shaking. Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands and nonplastic silts that are saturated. Silty sands have also been proven susceptible to

liquefaction. In addition, soils most susceptible to liquefaction are saturated low-density sands and silts within 50 feet of the ground surface.

Based on information contained in the project geotechnical investigation (CHJ 2010a), the project site is underlain by medium dense sands and gravels, but groundwater does not appear to be present in these liquefaction susceptible deposits. Given the depth to groundwater (approximately 117–123 feet bgs with perched groundwater found at 73 feet bgs), the potential for liquefaction to occur during a seismic event was considered medium in the eastern portion of the site and low in the central and western portions of the site. Since the site does have some potential for seismically induced liquefaction, the geotechnical investigation included a number of engineering parameters to address liquefaction during design. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, the potential for adverse liquefaction effects on the structures constructed for the Build Alternative have been addressed, but more specific design information would be provided during final design.

- *Seismically Induced Settlement:* Strong ground shaking can cause settlement by allowing sediment particles to become more tightly packed, thereby reducing pore space. As stated above, seismically induced settlement due to liquefaction is anticipated to be low in the central and western portions of the project site, and medium in the eastern portion of the site. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, the potential for adverse seismically induced settlement on the structures constructed for the Build Alternative would be addressed, although more specific design requirements in this regard would be provided during final design (CHJ 2010a).
- *Seismically Induced Landslides:* No existing landslides or landslide-prone formations are known to exist within the project area. Therefore, the potential for seismically induced landsliding was considered low, and the project area would not be subject to adverse impacts related to seismically induced landslides.
- *Seismically Induced Inundation:* Strong seismic ground motion can cause dams and levees to fail, resulting in damage to structures and properties located downstream of those water retention facilities. The Build Alternative is located within the identified dam inundation area for the Seven Oaks Dam upstream on the Santa Ana River. While the Build Alternative could be adversely affected by seismically-induced inundation, the potential overall risk was considered relatively low, and the design parameters of the Seven Oaks Dam have already effectively mitigated this potential impact, so no additional measures are needed.

- *Tsunamis and Seiches:* A tsunami, or seismically generated sea wave, is generally created by a large, distant earthquake occurring near a deep ocean trough. A seiche is an earthquake-induced wave in a confined body of water such as a lake or reservoir. Damage from tsunamis is typically confined to coastal areas that are 20 feet or less above sea level. The project site is not near the coast. Therefore, the Build Alternative would not be at risk of inundation from a tsunami or seiche.

Slope Stability. The discussion of slope stability addresses the stability of natural slopes and of the proposed slopes.

- *Stability of Natural Slopes:* In areas of steep natural slopes or steep rock cuts combined with adverse joint patterns in fractured rock materials, seismically induced rock falls are a possibility. Since the site is essentially flat with no adjacent uplands, the site has little or no potential for rock falls. With the currently proposed slope gradients, potential for rock falls is considered low for properly engineered and constructed slopes; therefore, the Build Alternative would not be adversely affected by instability associated with natural slopes. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, any potential impact from slope instability on the structures constructed for the Build Alternative would be further investigated during final design and addressed.
- *Stability of Proposed Slopes:* The final design of the Build Alternative would include the construction of manufactured slopes. The final design would incorporate appropriate design features to address slope stability constraints in manufactured slopes, as necessary. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, any potential impact from manufactured slope instability on the structures constructed for the Build Alternative would be further investigated during final design and addressed.

Subgrade Stability. The discussion of subgrade stability addresses the compressible soils, expansive soils, corrosive soils, and erosion.

- *Compressible Soils:* When a load such as fill soils is placed, the underlying soil layers undergo a certain amount of compression due to the deformation and relocation of soil particles and the expulsion of water or air from the void spaces between the grains. Some settlement occurs immediately after a load is applied, and some additional settlement occurs over time after placement of the load. For engineering applications, it is important to estimate the total amount of settlement

that will occur following placement of a given load and the rate of compression (consolidation). Because the subsurface soils on the project area are predominantly granular, the soils are not expected to undergo consolidation settlement (settlement over long periods of time). Therefore, the Build Alternative would not be adversely affected by compressible soils. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, any potential impact from compressible soils would be further investigated during final design and addressed.

- *Expansive Soils:* Untreated expansive soils underlying a foundation slab or road alignment can cause damage, including heaving, tilting, and cracking. The soils on the project site are predominantly sands, with varying amounts of silt and gravel. The clay content of these soils is not substantial; therefore, the on-site soils are anticipated to be non-expansive or have a very low expansion potential. There may be localized, discontinuous layers of clayey soils with higher expansion potential within the project area; however, no laboratory testing was performed to evaluate the expansion potential of these soils. With implementation of the avoidance and minimization measures outlined in Section 2.10.4, however, any potential impacts from localized expansive soils would be further investigated during final design and addressed.
- *Corrosive Soils:* Corrosive soils contain constituents or physical characteristics that react with concrete (water-soluble sulfates) or ferrous metals (chlorides, low percentage of hydrogen levels, and low electrical resistivity). Fine-grained soils (predominantly clays) are the typical soil types responsible for corrosive site conditions. Because the native subsurface soils in the project area are composed predominantly of coarse-grained soils (medium sands with gravel and dense sands) with little clay binder, corrosive soil would not be expected and the construction of the Build Alternative would not be adversely affected by corrosive soils.
- *Erosion:* Because the native soils in the project area are anticipated to be predominantly sands with relatively minor amounts of clay, there would be the potential for moderate to severe erosion on the slopes. Any slopes would be particularly prone to erosion from runoff from new pavement areas, especially during heavy rains; therefore, operation of the Build Alternative could result in adverse water quality impacts related to erosion, which are evaluated in Section 2.8.

No Build Alternative

The No Build Alternative would not result in the construction of the railroad grade separation or improvements within the project area and therefore would not result in any adverse permanent impacts related to geology and soils.

2.10.4 Avoidance, Minimization, and/or Mitigation Measures

The measures below would avoid and/or minimize the potential adverse impacts of geotechnical and soils conditions on structures constructed under the Build Alternative of the proposed project:

GEO-1 During the Plans, Specifications, and Estimates (PS&E) Phase, the design and construction of the project structures would comply with the recommendations in the *Preliminary Geotechnical Investigation* (pages 30–51) prepared for the project (CHJ 2010a) and would be consistent with appropriate UPRR and American Railway Engineering and Maintenance-of-Way Association (AREMA) standards. Additional detailed geotechnical investigations would be conducted by qualified geotechnical personnel as needed to assess geotechnical conditions at specific locations within the project area for the purposes of more specific foundation or construction design. Additional construction requirements or refinements would be incorporated into the final project design as appropriate.

GEO-2 All of the following requirements would be included in the final design for the project and so noted on appropriate plans:

- Structures would be designed to resist the maximum credible earthquake associated with nearby faults.
- Design and construction of the project in accordance with current Federal, State, AREMA, and UPRR standards as applicable, and the California Building Code.

2.11 PALEONTOLOGY

2.11.1 Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of Federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. (e.g., Antiquities Act of 1906 [16 U.S.C. 431–433], Federal-Aid Highway Act of 1956 [23 U.S.C. 305]).

2.11.2 Affected Environment

This section is based on the *Paleontological Resources Identification and Evaluation Report* (November 2010) prepared by LSA Associates, Inc. The project is within the Perris Block portion of the northwestern Peninsular Range Geomorphic Province of California. The Perris Block extends from the southern foot of the San Gabriel and San Bernardino Mountains southeast to the vicinity of Bachelor Mountain and Poly Butte. It is bounded on the southwest by the Elsinore Fault Zone and on the northeast by the San Jacinto Fault. The Perris Block consists of late Mesozoic granitic plutons that have intruded and metamorphosed Paleozoic marine carbonates and sediments. The surface of the Perris Block has been tectonically tilted eastward, leaving marble outcrops like nearby Slover Mountain to the west, and granitic outcrops like the Jurupa Hills to the south, which have been elevated and exposed. This tilting has allowed Pleistocene sediments to cover the east side of the Block, filling the eastern San Bernardino, Lakeview, and San Jacinto Valleys. The block tilted eastward prior to late Pleistocene time. The Santa Ana River is immediately east of the project, and has incised the Perris Block from its northern margin to the Elsinore Fault Zone. For reference, the project site is depicted on the *San Bernardino South, California* U.S. Geological Survey (USGS) 15-minute quadrangle.

Within the region, the Chino Hills to the west contain fossiliferous Miocene marine and continental sediments. The sedimentary rocks in the Santa Ana Mountains to the south consist of fossiliferous early Tertiary marine sandstones and Pleistocene to Holocene alluvial deposits. The San Gabriel Mountains to the northwest are composed of granitic and metamorphic rocks, as are the San Bernardino Mountains to the north.

Geologic mapping shows that the project area is underlain by middle Pleistocene alluvium and young (Holocene) alluvium sediments derived from the Santa Ana River. The Pleistocene sediments consist of old aeolian (windborne) dune sands and

old aeolian sand sheets. The Holocene deposits consist of young alluvial valley deposits and very young wash deposits. According to available records, near-surface late Pleistocene fossils have been found throughout this part of the western San Bernardino Basin.

Within the project area, Holocene alluvium (i.e., deposited in the last 9,000 years) is not considered to contain significant paleontological resources; however, underlying Pleistocene sediments may contain vertebrate fossils. Therefore, all areas of the project with Holocene sediments have the potential to be underlain by Pleistocene sediments that may contain fossils.

2.11.2.1 Paleontological Records Search and Literature Review

A literature review utilizing recent geologic mapping summaries, unpublished reports, paleontological assessment and monitoring reports, field notes, and published literature as appropriate was conducted for the project. In addition, a paleontological resource locality search was conducted through the San Bernardino County Museum, which responded that Pleistocene sediments in the project area are known to produce significant paleontological resources. The Los Angeles County Museum of Natural History was also consulted and added that “Nearby, however, are exposures of older Quaternary deposits, and these may underlie the surficial sediments in the proposed project area.” Both museums concluded that excavations into the older Quaternary alluvial deposits exposed in the project study area may well encounter vertebrate fossils, and substantial excavations in the sedimentary deposits in the proposed project area should be monitored closely to quickly and professionally collect any fossils discovered (LSA 2010).

The County of San Bernardino maintains a Paleontological Resource Sensitivity Map (PRSM), which graphically presents the distribution of geologic formations underlying County land that have paleontological sensitivity. The degree of sensitivity is based on available scientific data where local sedimentary formations either have a record of producing fossils or have a realistic potential to contain paleontological resources (LSA 2010). The PRSM divides the County into sensitivity polygons based on the following resource sensitivity categories:

- High sensitivity (H) is based on formations or mappable rock units that are known to contain or have the correct age and depositional conditions to contain significant paleontological resources. This category contains the following two sub-categories:

  - H_a includes areas where nonrenewable paleontological resources are known from *surface outcrops*.
  - H_b indicates areas of high sensitivity where sediments containing paleontological resources are expected *at depth*. The depth at which these sediments occur is determined by actual on-site conditions. Using data available, it appears that construction excavation will affect areas designated H_a and H_b in a similar fashion, so both can be considered cumulatively as having high sensitivity to contain paleontological resources.

- Low sensitivity (L) is determined by a qualified vertebrate paleontologist conducting a literature and records review as well as a field survey. Low sensitivity cannot be determined simply by looking for rock unit descriptions on a geologic map. The actual sensitivity must be determined by a records search and field inspection.
- Undetermined sensitivity (U) designates areas underlain by sedimentary rocks about which literature and unpublished studies cannot determine if they contain significant nonrenewable paleontological resources. This category is not applicable to this study since all sediments within this USGS quadrangle have undergone research and field review, and polygons that were formerly designated "undetermined sensitivity (U)" have now been referred to either low (L) or high (Ha/Hb) sensitivity.

The County did not have a digital version of its PRSM available at the time the project paleontological study was prepared; however, preliminary versions of the PRSM from 1985 indicate the project will cross sediments with paleontological sensitivities designated as high at surface (H_a) on the west half of the project, and Low (L) at the surface on the east half of the project. The project geotechnical report (Zhai 2009) also suggests that the subsurface sediments on the west and the east half of the project would be designated High at Depth (H_b).

Figure 2.11.1 shows the project area in relation to the PRSM mapping and indicates that the western portion of the project is considered to have high paleontological sensitivity at the surface and at depth, while the eastern portion would have high sensitivity only at depth.

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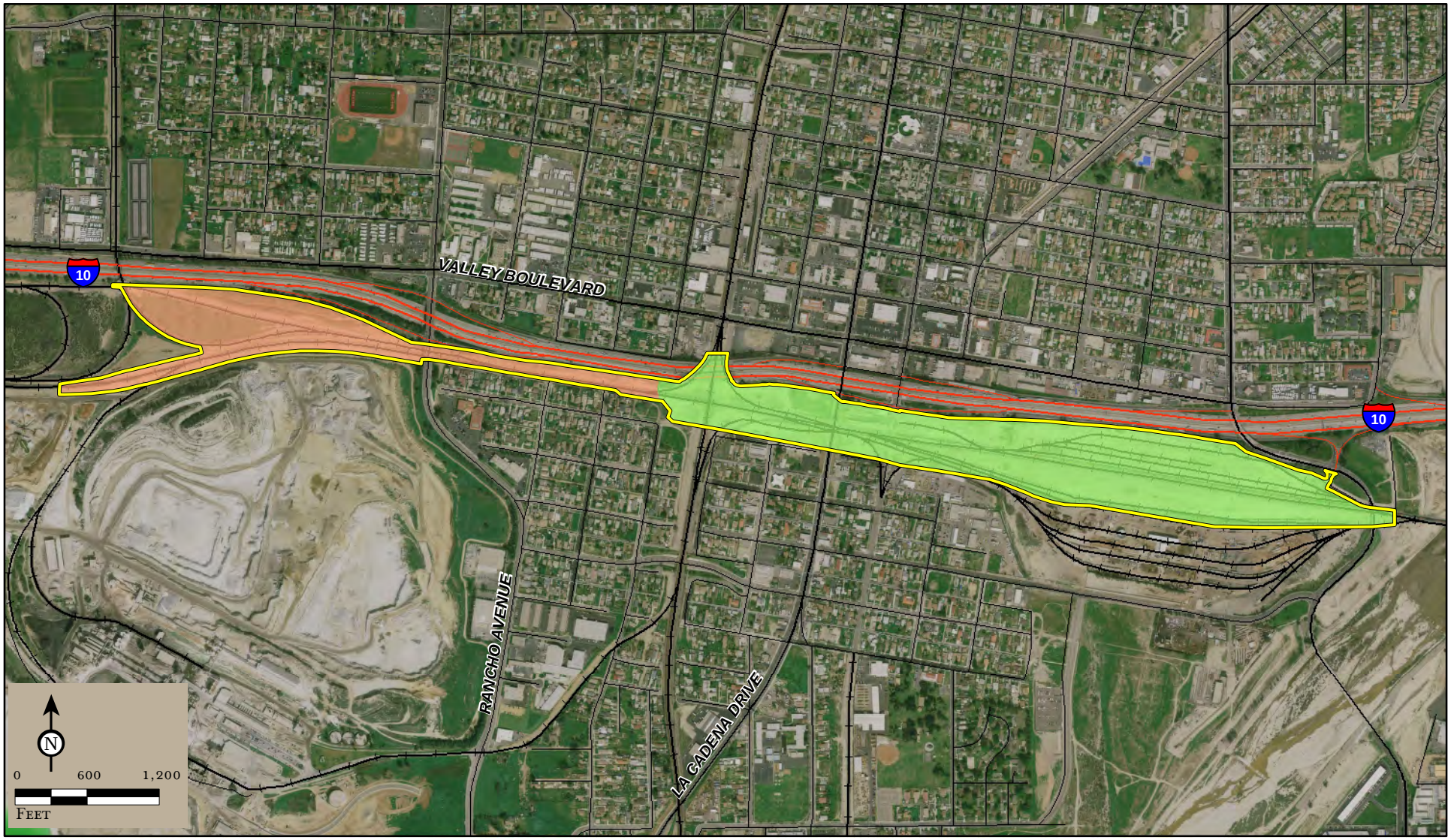

FIGURE 2.11.1

Project Boundary

Paleontological Sensitivity

High Sensitivity at Depth

High Sensitivity at Surface

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Paleontological Resources

SOURCE: AirPhotoUSA, 2008; USGS, 2003

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2.11.2.2 Paleontological Field Assessment

A field assessment was performed by qualified paleontological staff and included a walk-over and driving survey of the project site, as well as observation of bore-holes as part of the project geotechnical report (CHJ). Native sediments were encountered at depths of 3 feet, and silty sands with gravel stringers continued to depths of 12 to 18 feet. Below the silty sands, sandy silts and greenish-gray silty clays continued from 20 to 40 feet in some locations. Compact Pleistocene aeolian silty sands were visible on the surface of the western half of the project. Boring logs suggested that fine-grained Pleistocene sediments that were suitable for preservation of fossils also occurred beneath Holocene sediments that cover the eastern portion of the project.

Fieldwork and field observations of subsurface data indicate that sediments at depth on western and eastern portions of the project are similar, and that their fine-grained characteristics have high potential to contain fossiliferous materials. The field assessment also found two large mammal bone fragments that appeared to be fossilized.

2.11.3 Environmental Consequences

2.11.3.1 Temporary Impacts

Build Alternative

The project is expected to disturb sediments with a high potential to contain nonrenewable paleontological resources because the project is located in an area identified as having high paleontological sensitivity at the surface and at depth. While most excavation for the Build Alternative would generally be less than 10 feet below ground surface (bgs), the elevated bridge column footings will require drilling (augering) up to 72 inches diameter to a depth of 100 feet. The drilling has the potential to encounter Pleistocene sediments containing fossils; however, the project paleontological study did not anticipate special situations that would require project redesign to avoid critical localities or strata (LSA 2010).

In addition, stone columns for the bridge structure would be constructed by a vibro-replacement method, which utilizes a vibratory probe inserted into the ground that forces select backfill material into the soil and densifies the existing soil column around the probe. The resultant columns of strengthened, densified soil would increase soil bearing capacity, reduce total and differential settlement, and reduce liquefaction potential. This method of construction of the columns would not have soil spoil associated with it; therefore, any paleontological resources (fossils) would

remain in situ. The construction of the columns would not have an adverse impact on paleontological resources.

Impact minimization measures would need to be implemented that provide the same level for protection as a Paleontological Mitigation Plan (PMP). The PMP would also be incorporated in an appropriate manner into the plans and specifications of the Build Alternative. With implementation of the measures are outlined in Section 2.11.4, impacts to any paleontological resources would not be adverse.

No Build Alternative

The No Build Alternative does not include any changes to the physical environment within the project area; therefore, no impacts to paleontological resources would occur.

2.11.3.2 Permanent Impacts

Build Alternative

Adverse impacts occur to paleontological resources when soil or rock that contains the resource is disturbed. The disturbance of potential fossil-bearing soils would only occur with the Build Alternative during construction and not during operation of the project; therefore, operation of the proposed project would not have an adverse impact on paleontological resources.

No Build Alternative

The No Build Alternative does not include any changes to the physical environment within the project area; therefore, no impacts to paleontological resources would occur.

2.11.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures are proposed to minimize impacts to paleontological resources that may be encountered during construction:

PAL-1 A Paleontological Mitigation Plan (PMP) would be prepared by a qualified paleontologist prior to completion of final project design and the recommendations incorporated into the PS&E. The PMP would include, but not be limited to, the following:

- A trained paleontological monitor would be present during ground-disturbing activities within undisturbed sediments determined likely to contain paleontological resources. The monitoring would be conducted

on a half-time basis when excavation is occurring in the western portion of the site, and in the eastern portion of the site and for bridge footings where excavation exceeds 10 feet in depth. If paleontological resources are encountered during excavation, the monitoring would increase to full-time.

- The monitor would be empowered to temporarily halt or redirect construction activities to ensure avoidance of adverse impacts to paleontological resources. The monitor would be equipped to rapidly remove any large fossil specimens encountered during excavation.
- If small fossil vertebrate remains are located during the monitoring program, standard samples (12 cubic meters/6,000 lbs) of sediment would be collected and processed to recover microvertebrate fossils. Processing would include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains.
- Upon encountering a large deposit of bone, salvage of all bone in the area would be conducted with additional field staff and in accordance with modern paleontological techniques.
- All fossils would be prepared to a reasonable point of identification. Excess sediment or matrix would be removed from the specimens to reduce the bulk and cost of storage. Itemized catalogs of all material collected and identified would be provided to the museum repository along with the specimens.
- A report documenting the results of the monitoring and salvage activities and the significance of the fossils would be prepared and submitted to Caltrans and the project team within 30 days of the end of grading or excavation activities.
- All fossils collected during this work, along with the itemized inventory of these specimens, would be offered to the San Bernardino County Museum or other appropriate museum repository for permanent curation and storage.

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2.12 Hazardous Waste/Materials

2.12.1 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many State and Federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other Federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992;
- Clean Water Act (CWA);
- Clean Air Act (CAA);
- Safe Drinking Water Act;
- Occupational Safety and Health Act (OSHA);
- Atomic Energy Act;
- Toxic Substances Control Act (TSCA); and
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when Federal activities or Federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the Federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, and cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

2.12.2 Affected Environment

This section is based on the *Initial Site Assessment* (CHJ 2010a), *Phase 1 Environmental Site Assessment* (CHJ 2010a), and the *Preliminary Site Investigation* (CHJ 2010b) prepared for the Colton Crossing project. The following were conducted as part of the Initial Site Assessment (ISA) and Phase 1 Environmental Site Assessment (ESA):

- **Environmental Database Review:** A records search of Federal and State environmental databases for the project area (previously referenced Figure 1.2 shows the limits of the project area) and properties up to approximately 660 feet (0.125 mile) from the project area was conducted on April 14, 2010. However, the search of the National Priority List (NPL) was for a 1-mile radius.
- **Agency Records Review:** The Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substances Control (DTSC) were contacted with regard to obtaining and reviewing documents for properties located within and adjacent to the project area. Data contained on their websites were reviewed for any relevant information.
- **Historic Research:** Aerial photographs, topographic maps, oil well maps, and parcel maps were reviewed.
- **Site Reconnaissance:** On May 21, 2010, a site visit of the project area was conducted to assess its current land uses and to visually search for indications of surface and subsurface contamination.

The following is a summary of the findings, conclusions, and recommendations from the ISA and Phase I ESA by CHJ Incorporated (2010a) and the Preliminary Site Investigation (CHJ 2010b).

Hazardous Substance Storage or Use. The project area includes locations identified as containing Recognized Environmental Conditions (RECs) or areas contaminated by various hazardous materials from historical rail-related activities. According to the Phase 1 ESA report, “Soil stockpile adjacent to the south of the main line tracks in the East Colton Yard area … is from fuel bunker excavations and is likely to be contaminated. Subsurface unidentified organic material in the northeast quadrant of the (site) … may be contaminated and may have impacted the underlying soils. … The potential for surficial soil contamination due to the general use of the project area as a rail yard represents an REC. … Although the contamination has not been fully delineated, the fuel bunker area is considered to have a very low potential to

substantially impact the soils north of the track" (CHJ 2010a). Organic materials were found in a small area located just south of the I-10 freeway, just north of the railroad tracks, and just east of S. 6th Street.

No other evidence of hazardous substances was observed within or adjacent to the project right-of-way.

Underground and Aboveground Storage Tanks. No leaking underground storage tanks (LUST) or aboveground storage tanks (ASTs) were identified in the ISA adjacent to the project site or adjacent areas.

In the surrounding area, the identified LUST case at 125 N. 9th Street represents a historical REC, but the documented soil contamination was remediated and is not considered to have a potential to impact the project area. The identified LUST case adjacent to the south of the main line tracks in the west portion of the Southern Pacific East Colton Yard also represents an REC; however, the residual soil contamination has been delineated and is considered to have a very low potential to affect the project area. The four LUST cases north of I-10 in the project vicinity are well documented and are not considered to represent a potential to affect the project site; therefore, these LUST sites are not identified as RECs.

Polychlorinated Biphenyls. No evidence of polychlorinated biphenyl (PCB)-containing equipment was observed in the area adjacent to the project site.

Asbestos-Containing Materials. Testing was conducted for asbestos-containing materials (ACMs) on the structures within the project area. ACMs were found to exist in the old buildings to be demolished at 125 N. 9th Street on the former Cal-Wal Gypsum Supply site just south of the I-10 freeway between La Cadena Drive and 9th Street.The results of the survey have been issued as a separate Preliminary Site Investigation (PSI) report titled "Asbestos, Lead, and Miscellaneous Materials (Universal Wastes) Survey Report," dated August 7, 2010. These materials will need to be removed and disposed of in accordance with applicable regulations at the beginning of construction (CHJ 2010a).

Hazardous Waste Disposal. No evidence of a release of hazardous materials to grade was observed during reconnaissance of the project site. In addition, no evidence of solid waste disposal at the site was observed. Several businesses located in the general area of the project do handle and store various hazardous wastes; however, none appears to be disposing of these wastes on site.

No indication of onsite disposal was noted during the reconnaissance survey. No evidence of onsite disposal was noted at any of the off-site facilities that handle or store hazardous wastes.

Two drainage channels cross the project site, the SD-8 and SD-9 system in the western portion of the site, and the 11th Street Drain (SD-10) in the eastern portion of the site (page 7, HDR June 2010). Based on site history, soils within the site are suspected of being contaminated due to their proximity to the rail yard and possible mishandling and/or disposal of wastes or materials. Based on UPRR personnel interviews, disposal of hazardous materials has reportedly not occurred on site during the last 10 years, however, previous site history specific to that area is unknown. UPRR personnel reported that no specific hazmat investigations have been conducted within the project site. A sampling scope for this area was developed, authorized, and implemented concurrently with the Phase I process. The analytical results indicated slightly elevated hydrocarbon and heavy metal detections. While the specific detections were not high, the elevated hydrocarbons and metals may be indicative of disposal of contaminated soil or other hazardous materials over time.

Lead-Based Paint. Due to the age of the structures on the former Cal-Wal Gypsum Supply site, lead-based paint (LBP) contamination was found in the buildings to be demolished at 125 N. 9th Street. The results of the surveys have been issued as a separate PSI report titled “Asbestos, Lead, and Miscellaneous Materials (Universal Wastes) Survey Report” (CHJ 2010).

No other potential LBP was observed during site reconnaissance surveys, however, it is possible that elevated lead concentrations may be found in older buildings or structures affected by project construction, or be present within the striping paint associated with the onsite and adjacent roadways.

Weed Control. Railroad operations have historically been known to use various substances for weed control within the railroad right-of-way. Surface soils within the railroad right-of-way may contain hazardous materials from the use of weed control, including herbicides, arsenic, and lead. Soil sampling for these substances was not performed.

Aerially Deposited Lead (ADL). Lead is generally encountered in unpaved areas (or formerly unpaved areas) adjoining older roads primarily as a result of deposition from historical vehicle emissions. A preliminary survey for lead deposition was conducted on site, and detected levels were within or below the published regulatory screening

levels for exposure in children. No specific areas were identified that warranted further investigation; therefore, no special handling of material during construction due to lead levels was recommended (CHJ 2010a)(CHJ2010b).

2.12.3 Environmental Consequences

2.12.3.1 Temporary Impacts

Build Alternative

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, storage, handling, disposal, and transport of potentially hazardous materials during construction of the Build Alternative to protect human health and the environment. No storage or disposal has been identified at the site and no off-site sources considered likely to affect the site were identified. Based on these findings, no substantial concerns related to hazardous materials use, storage, or disposal have been identified within the project area.

Based on the findings of the ISA and Phase 1 ESA, the project would not encroach onto any adjacent or off-site parcels except for a narrow section of the I-10 Freeway right-of-way along the northern project boundary.

Groundwater in the area is determined to be at least 70 feet below ground level in most of the project area, with the possible exception of the far eastern portion of the site (adjacent to the Santa Ana River).

No LUST or ASTs were identified in or near the project area that would negatively affect construction of the proposed improvements. Therefore, the proposed improvements would not be affected by LUST or AST sites.

Lead and other heavy metals such as chromium may be present within yellow thermoplastic paint markings on the pavement of La Cadena Drive or Rancho Avenue. These surfacing materials would be tested for metals prior to removal.

ACMs and LBP were identified on structures within the existing project area planned for demolition, such as the former Santa Fe Freight Depot. These materials would need to be removed by a licensed contractor and disposed of in a certified landfill.

The ISA and Phase 1 ESA determined that surface soils within the project area may contain hazardous materials from the use of weed control, including herbicides,

arsenic, and lead. The proposed grade-separated overpass structure would span over the existing BNSF tracks, and proposed improvement plans also show related construction activities adjacent to the UPRR tracks, Sampling and analysis for herbicides, arsenic, and lead should be conducted. Any soil removal from the project site would be performed and soils remediated or disposed of according to existing regulations.

It should be noted that an "undefined area of unidentified organic material" was reported by UPRR personnel in the northeast portion of the site (located just southeast of the I-10 freeway and S. 6th Street) that represents an REC and may require additional evaluation if it would be affected by construction activities.

No Build Alternative

The No Build Alternative would not involve ground or structure disturbance within the project area; therefore, no temporary impacts related to hazardous waste materials would occur.

2.12.3.2 Permanent Impacts

Build Alternative

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, the operation of the proposed project would not result in adverse impacts related to hazardous waste or materials.

Risk of Upset. If a train carrying hazardous materials were to derail while traveling on the flyover, there would be a slight increase in the risk of upset compared to the present at-grade travel. This would be due to the increased height that the engine(s) or rail cars could fall and would have an increased risk of spilling their load(s). However, the flyover would also decrease the current potential for conflicts between trains at the existing at-grade crossing. An at-grade train accident involving the release of hazardous materials presents approximately the same relative risk to human health and safety as an accident involving the flyover. In addition, freight trains would be on the flyover for a very limited amount of time compared to their overall length of travel, so the increase in relative risk from accidents along the elevated track is negligible. Therefore, the overall change in risk of upset involving hazardous materials would only be incrementally increased and is not considered to be substantial. The railroads would address the flyover when updating their emergency

response plans, and it is not expected that the flyover would substantially change response times for police and fire personnel and equipment from existing conditions if a train accident were to occur in the project area.

The proposed project would incrementally reduce the risk of wildland fires through removal of the existing weedy vegetation and construction of large concrete structures. This type of environment is less conducive to the spreading of wildland fires. The proposed project would, therefore, create no adverse wildland fire impacts.

The surrounding urban neighborhood and private properties would continue be maintained privately in accordance with UPRR and Colton Fire Department standards and monitored as needed by UPRR and the Colton Fire Department.

No Build Alternative

The No Build Alternative would not change the existing physical environment within the project area; therefore, no permanent adverse impacts would occur. As with the Build Alternative, routine maintenance activities would continue and would be required to follow applicable regulations with respect to handling and disposal of potentially hazardous materials.

2.12.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures are proposed to avoid and/or minimize potential impacts related to hazardous materials.

HAZ-1 During grading, soil excavation would be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous material sources, such as buried 55-gallon drums and underground tanks. If discolored soils, soils with an unusual odor, or undocumented subsurface structures are encountered during grading, work will be halted in that area and a qualified environmental professional would evaluate the situation and recommend the most appropriate course of action (e.g., sampling, remediation, etc).. Depending on the type and extent of contaminated materials found onsite, the environmental professional may recommend entering into a Voluntary Cleanup Agreement (VCA) with the California Department of Toxic Substances Control (DTSC) to oversee remediation of the contamination, as appropriate.

HAZ-2 The prime contractor would ensure that any soils that will be disturbed on or adjacent to the project site, and that are suspected of being contaminated by hazardous materials, would be appropriately tested and/or remediated prior to the start of construction. If contamination is suspected or identified prior to construction activities, an environmental professional would determine the most appropriate course of action required.

HAZ-3 Prior to the start of grading in the general area where "unidentified organic material" was found north of the railroad tracks just southeast of the I-10 freeway and S. 6th Street, soil sampling and testing for hydrocarbons and metals would be conducted. Backhoe trenching may be needed to fully evaluate the lateral and vertical extent of the material. Any soil found to be contaminated in excess of applicable health standards would be remediated and disposed of according to applicable regulations. This investigation would be addressed as a separate PSI report.

HAZ-4 A licensed contractor would be retained to properly document, inspect, monitor, and remediate the identified asbestos-containing materials, lead-based paint, and miscellaneous universal wastes, as described in the Preliminary Site Investigation report, dated (CHJ 2010). If asbestos-containing materials or lead-based paint are found, they would be removed and properly disposed of prior to demolition or renovation, in accordance with rules and regulations of the South Coast Air Quality Management Control District and California Department of Toxic Substances Control.

HAZ-5 Lead and other heavy metals such as chromium may be present within yellow thermoplastic paint markings on the pavement with the project area. These paint markings would be sampled and tested for lead by trained and/or licensed professionals. Representative samples of striping paint would be collected from the affected roadways. The field and analytical data obtained during this study would be used to provide a review of the sampling locations and descriptions, a summary of the analytical results, and recommendations for striping paint removal, containment, and off-site transportation and disposal, as

appropriate. These surfacing materials would be tested for lead based paint prior to removal.

HAZ-6 If dewatering is required during grading or construction, the onsite water would be tested to assure it does not exceed any established health standards for heavy metals, organic materials, or other contaminants. Water removed from construction areas that is contaminated will be disposed of by a licensed contractor in an approved landfill according to applicable regulations.

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2.13 Air Quality

2.13.1 Regulatory Setting

The Clean Air Act (CAA) as amended in 1990 is the Federal law that governs air quality. These laws set standards for the quantity of pollutants that can be in the air. At the Federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2). The standards for these pollutants are shown in Table 2.13.A.

Table 2.13.A: National Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standards[1]		
		Primary[1,3]	Secondary[2,4]	Method[5]
Ozone (O_3)	1-Hour	No Federal standard	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	15 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	None	Nondispersive Infrared Photometry (NDIR)
	1-Hour	35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	53 ppb (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	100 ppb	None	
Lead	Calendar Quarter	1.5 µg/m^3	Same as Primary Standard	High-Volume Sampler and Atomic Absorption
	Rolling 3-Month Average[6]	0.15 µg/m^3		
Sulfur Dioxide (SO_2)[7]	3-Hour	–	0.5 ppm (1300 µg/m^3)	Spectrophotometry (Pararosaniline Method)
	1-Hour	75 ppb (196 µg/m^3)	–	

Source: California Air Resources Board (ARB), September 8, 2010

[1] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 mg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current Federal policies.

[2] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[3] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[4] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[5] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

[6] National lead standard, rolling 3-month average: final rule signed October 15, 2008.

[7] On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. EPA also proposed a new automated Federal Reference Method (FRM) using ultraviolet technology, but will retain the older pararosaniline methods until the new FRM have adequately permeated State monitoring networks. The EPA also revoked both the existing 24-hour SO_2 standard of 0.14 ppm and the annual primary SO_2 standard of 0.030 ppm, effective August 23, 2010. The secondary SO_2 standard was not revised at this time; however, the secondary standard is undergoing a separate review by EPA. Note that the new standard is in units of parts per billion (ppb).

EPA = United States Environmental Protection Agency
mg/m^3 = milligrams per cubic meter
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
$\mu g/m^3$ = micrograms per cubic meter
ppm = parts per million
ppb = parts per billion
°C = degrees Celsius

Under the 1990 Clean Air Act Amendments, the United States Environmental Protection Agency (EPA) included provisions requiring Federal agencies to ensure that actions undertaken in nonattainment or attainment-maintenance areas are consistent with applicable State Implementation Plan (SIP) for achieving the goals of the Clean Air Act requirements. The process of determining whether or not a Federal action is consistent with an applicable SIP is called conformity. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. The proposed project must conform at both levels to be approved.

The EPA General Conformity Rule applies only to Federal actions that result in emissions of nonattainment or maintenance pollutants, or their precursors, in federally designated nonattainment or maintenance areas. The EPA General Conformity Rule establishes a process to demonstrate that Federal actions would be consistent with applicable SIPs and would not cause or contribute to new violations of the NAAQS, increase the frequency or severity of existing violations of the NAAQS, or delay the timely attainment of the NAAQS. The emissions thresholds that trigger requirements of the General Conformity Rule for Federal actions emitting nonattainment or maintenance pollutants, or their precursors, are called *de minimis* levels. The general conformity *de minimis* thresholds are defined in 40 Code of Federal Regulations (CFR) 93.153(b).

Air quality monitoring stations are located throughout the nation and maintained by the local air districts and state air quality regulating agencies. Data collected at permanent monitoring stations are used by the EPA to identify regions as

"attainment," "nonattainment," or "maintenance," depending on whether the regions meet the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. In addition, different classifications of nonattainment, such as marginal, moderate, serious, severe, and extreme, are used to classify each air basin in the state on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the NAAQS. Attainment status for each of the criteria pollutants in the South Coast Air Basin (Basin) where the proposed project is located is listed in Table 2.13.B.

Table 2.13.B: Attainment Status for Criteria Pollutants in the Basin

Pollutant	Federal
O_3 (1-hour)	Revoked June 2005
O_3 (8-hour)	Extreme Nonattainment[1]
PM_{10}	Serious Nonattainment[2]
$PM_{2.5}$	Nonattainment[3]
CO	Attainment/Maintenance
NO_2	Attainment/Maintenance
Lead	Nonattainment (Los Angeles County only)
All others	Attainment/Unclassified

Source: www.epa.gov/airquality/greenbk/index.html, 2010.

Based on the attainment status listed in Table 2.13.B, the *de minimis* thresholds that apply to the project area are listed in Table 2.13.C. These thresholds apply to all direct and indirect emissions generated during construction and operation of a proposed project.

Table 2.13.C: *De Minimis* Thresholds for the South Coast Air Basin

Pollutant	Threshold (Tons/year)
NO_X	10
VOC	10
PM_{10}	70
$PM_{2.5}$	100
CO	100

NO_X = oxides of nitrogen
VOC = volatile organic compounds
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
CO = carbon monoxide
Source: United States Environmental Protection Agency, 2010 (http://www.epa.gov/air/genconform/deminimis.html).

2.13.2 Affected Environment

This section is based on the *Air Quality Analysis* (February 2011), Draft General Conformity Analysis (February 2011), and the current air quality guidelines as of February 2011.

The project site is located in the City of Colton within San Bernardino County, an area within the South Coast Air Basin (Basin) that includes Orange County and the nondesert parts of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by the South Coast Air Quality Management District (SCAQMD), a regional agency created for the Basin.

Climate in the Basin is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary, and high mountains surround the rest of the Basin. The region lies in the semi-permanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana wind conditions do occur.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site monitoring temperature is the San Bernardino Station.[1] The annual average maximum temperature recorded at this station is 79.9°F, and the annual average minimum is 48.2°F. January is typically the coldest month in this area of the Basin. Summer and fall temperatures in the area are usually in the 90–100°F range during the day, with sometimes stagnant conditions. The average July maximum temperature is 96.2°F. The high maximum temperatures and nearly constant sunlight enhance ozone concentrations. Wintertime conditions are often cold and stable, with an average January minimum temperature of 38.5°F and frequent near-ground-level inversion layers; these conditions can enhance local concentrations of fine particulate matter.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin along the coastal side of the mountains. The climatological station closest to the site that

[1] Western Regional Climatic Center. 2010. http://www.wrcc.dri.edu (accessed July 16, 2010).

monitors precipitation is the San Bernardino Station. Average rainfall measured at this station varied from 3.25 inches in February to 0.71 inches or less between May and October, with an average annual total of 16.12 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high and the surrounding mountains. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed from mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Inversion layers are significant in determining ozone (O_3) and particulate matter formation. O_3 and its precursors mix and react to produce higher concentrations under an inversion. The inversion also simultaneously traps and holds directly emitted pollutants such as carbon monoxide (CO). Particulate matter less than 10 microns in size (PM_{10}) is both directly emitted and created indirectly in the atmosphere as a result of chemical reactions. Concentration levels of these pollutants are directly related to inversion layers due to the limitation of mixing space.

Surface or radiation inversions are formed when the ground surface becomes cooler than the air above it during the night. The earth's surface goes through a radiative process on clear nights, when heat energy is transferred from the ground to a cooler night sky. As the earth's surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

The combination of stagnant wind conditions and low inversions produces the greatest concentration of pollutants. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in Los Angeles and Orange Counties are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and oxides of nitrogen (NO_X) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the

brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

2.13.3 Environmental Consequences

2.13.3.1 Temporary Impacts

Build Alternative

Construction activities produce combustion emissions of criteria pollutants from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust and fugitive dust emissions generated during project construction would vary daily as construction activity levels change.

Construction activities produce combustion emissions from various sources such as utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Construction-related effects can also occur due to relocated emissions from traffic on temporarily relocated or diverted tracks. While the actual amount of emissions may not increase if traffic volumes and operating conditions do not change, the effect of emissions may increase if they are moved closer to sensitive receptors or if traffic temporarily increases in the vicinity of sensitive receptor sites.

Equipment Exhaust and Related Construction Activities

Construction of the Build Alternative has been split into multiple phases. The construction emissions associated with each of these phases was based on a construction schedule and equipment developed by the project engineer. The construction emissions for each phase were calculated using the equipment list, the construction schedule, and EPA and SCAQMD emission rates. The total exhaust emissions generated within each of the construction phases are listed in Table 2.13.D.

Throughout the construction schedule, the various construction phases would overlap. The worst-case condition would be 2012 when site grading, foundation work, retaining wall construction, the UPRR overhead structure construction, the connector overhead structure construction, and the La Cadena overhead structure construction would occur. Table 2.13.E lists the emissions that would be generated during each year of the current construction schedule. The emissions listed in Tables 2.13.D and

2.13.E were calculated using Tier 3 emission rates for all on-site equipment. Table 2.13.E shows that construction equipment/vehicle emissions would exceed the *de minimis* threshold for NO_X in 2012 and 2013. A General Conformity analysis prepared for the proposed project (LSA, February 2010) determined that the exceedances of the *de minimis* levels would not conflict with the assumptions included in the SIP. Therefore, the project's exceedances of the *de minimis* levels would not result in any short-term impacts.

Table 2.13.D: Construction Emissions by Sub-Phase (Tons)

Sub-Phase	CO	ROCs	NO_X	PM_{10}	$PM_{2.5}$
Relocate/Encase On-site Utilities	1.25	0.13	1.62	2.69	0.70
A: Mobilization	NA[1]	NA	NA	NA	NA
B: Demolition, Clearing, & Grubbing	0.16	0.02	0.22	0.37	0.09
C: Install Drainage Improvements	1.28	0.15	1.83	0.49	0.18
D: Site Grading	1.16	0.13	1.56	2.61	0.67
E: Foundation Work	0.57	0.06	0.65	1.69	0.40
F: Retaining Walls	2.11	0.23	2.82	3.11	0.84
G: BNSF OH Structure	4.49	0.42	5.04	6.11	1.67
H: Connector OH Structure	7.66	0.79	9.91	12.20	3.33
I: La Cadena OH Structure	3.00	0.28	3.37	4.07	1.11
J: Trackwork	6.05	0.74	9.99	3.63	1.42
K: Construct Signal	3.01	0.31	3.55	7.30	1.77

[1] On-road vehicle trips and off-road equipment usage during the mobilization phase is expected to be minimal.
Source: LSA Associates, Inc., December 2010.

Table 2.13.E: Annual Construction Emissions (Tons)

Year	CO	ROCs	NO_X	PM_{10}	$PM_{2.5}$
2011	4.9	0.5	6.4	7.4	2.0
2012	15.7	1.6	**19.2**	24.2	6.6
2013	7.5	0.9	**10.9**	9.3	2.7
2014	2.7	0.3	4.1	3.3	1.0
De Minimis Criteria	**100**	**10**	**10**	**70**	**100**
Exceed Criteria?	NO	NO	YES	NO	NO

Source: LSA Associates, Inc., December 2010.

Fugitive Dust

Fugitive dust emissions are generally associated with land clearing, exposure, and cut-and-fill operations. Dust generated daily during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions. Fugitive dust also would

be generated as construction equipment or trucks travel on unpaved areas of the construction site and the access roads.

$PM_{2.5}$ and PM_{10} emissions from construction operations were calculated based on the total acreage that would be disturbed during each construction phase and are included in the emissions listed in Tables 2.13.D and 2.13.E. The construction emissions for each phase were calculated using the provided equipment list and construction schedule, and EPA and SCAQMD emission rates.

State Health & Safety Code Section 41700 prohibits "visible emissions" as do rules regarding visible emissions and nuisance in most air districts; in general, to meet these rules, visible emissions cannot cross the property line. Visible emissions in the South Coast area are defined as 20 percent opacity (Rule 403).

Additionally, the SCAQMD has established Rule 403 for reducing fugitive dust emissions. The best available control measures (BACM), as specified in SCAQMD Rule 403, shall be incorporated into the project commitments. With the implementation of standard construction measures (providing 50% effectiveness) such as frequent watering (e.g., minimum twice per day) and **Mitigation Measures AQU-1** through **AQU-4**, fugitive dust and exhaust emissions of criteria pollutants from construction activities would not result in any adverse air quality impacts.

Naturally Occurring Asbestos (NOA)

The project is located in San Bernardino County, which is not among the counties listed as containing serpentine and ultramafic rock. The project is located in a valley area with deep alluvial fill, which even in a county with ultramafic rock would be less likely to have substantial amounts of naturally occurring asbestos. Therefore, the impact from NOA during project construction would be minimal to none.

No Build Alternative

The No Build Alternative proposes no improvements to the railroad crossing within the project area. As a result, no construction-related activities would occur under this alternative, and there would be no short term construction-related adverse impacts.

2.13.3.2 Permanent Impacts

Build Alternative

Implementation of the Build Alternative would reduce on-road delays at the rail to rail at-grade crossing within the project vicinity. In addition, grade separating the Colton Crossing would increase the average train speeds and reduce idling in the

project area. The following analyses were conducted to estimate the change in on-road and rail emissions within the project area.

Vehicle Emissions

The purpose of the proposed project is to alleviate existing and future rail congestion within Southern California. By increasing the average train speed in the project area the Build Alternative would reduce the gate down time and on-road delays at nearby at-grade rail crossings.

A vehicular traffic analysis prepared by Iteris (February 2011) estimated the impact that the Build Alternative would have on vehicle delay at the at grade rail crossings in the project area. As shown in Table 2.13.F, the Build Alternative would reduce the vehicle idling in 2015 and 2035. The potential impact of the Build Alternative on project area vehicle emissions were calculated using the emission rates from the EMFAC2007 model.

Table 2.13.F: Peak Hour Vehicle Delay

At Grade Rail Crossing	Traffic Conditions	Total Vehicle Delay (min)
Olive Street/BNSF	2015 No Build	969
	2015 Build	499
	2035 No Build	2,469
	2035 Build	1,243
Valley Boulevard/BNSF	2015 No Build	1,548
	2015 Build	1,642
	2035 No Build	4,477
	2035 Build	4,770

Source: Iteris, February 2011.

The vehicle delay data listed in Table 2.13.F, along with the EMFAC2007 emission rates, were used to calculate the CO, reactive organic gas (ROG), NO_X, SO_X, PM_{10}, and $PM_{2.5}$ emissions for the 2015 and 2035 conditions. The results of the modeling are listed in Tables 2.13.G and 2.13.H. As shown, the Build Alternative would decrease the emissions within the project area. Therefore, the Build Alternative would not contribute substantially to vehicle emissions.

Table 2.13.G: 2015 Change in Vehicle Emissions (lbs/day)

Pollutant	2015 No Build Emissions	2015 With Build Alternative Emissions	Build Alternative-Related Change
CO	0.47	0.40	-0.07
ROG	0.09	0.08	-0.01

Table 2.13.G: 2015 Change in Vehicle Emissions (lbs/day)

Pollutant	2015 No Build Emissions	2015 With Build Alternative Emissions	Build Alternative-Related Change
NO_X	0.44	0.37	-0.07
SO_2	0.00	0.00	0.0
PM_{10}	0.004	0.004	0.0
$PM_{2.5}$	0.004	0.003	-0.001
CO_2	35.1	29.8	-5.3

Source: LSA Associates, Inc., February 2011.

Table 2.13.H: 2035 Change in Vehicle Emissions (lbs/day)

Pollutant	2035 No Build Emissions	2015 With Build Alternative Emissions	Build Alternative-Related Change
CO	1.49	1.29	-0.2
ROG	0.25	0.22	-0.03
NO_X	1.42	1.23	-0.19
SO_2	0.001	0.001	0.0
PM_{10}	0.006	0.005	-0.001
$PM_{2.5}$	0.005	0.004	-0.001
CO_2	106.2	91.9	-14.3

Source: LSA Associates, Inc., February 2011.

In addition to the local arterials and freeway ramps evaluated in the traffic analysis, the rail operation analysis prepared by HDR (February 2011) calculated the gate down time at 51 at-grade railroad crossings within the project study area. As shown in Table 2.13.I, the construction of the Build Alternative would reduce the average gate down time within the project area by 1.6 hours in the existing conditions, 5.7 hours in 2015, and 13.5 hours in 2035. This reduction in gate down time would reduce vehicle idling emissions within the project study area.

Table 2.13.I: Change in Grade Crossing Average Delay (Hours)

Year	Baseline	With Build Alternative	Build Alternative-Related Change
2010	92.5	90.9	-1.6
2015	91.3	86.6	-5.7
2035	172.0	158.5	-13.5

Source: HDR, February 2011.

By comparison, the Rail Operations Study determined the gate down time at Olive Street and Valley Boulevard would be reduced by 1.2 hours and 1.9 hours in 2015 and 2035, respectively, which resulted in the vehicle emissions reductions identified in Tables 2.13.G and 2.13.H. When the reduction in gate down time of 5.7 hours in 2015 and 13.5 hours in 2035 is applied to the number of vehicles at those 51

crossings, the total reduction in vehicle delay and corresponding reduction in emissions, is anticipated to be substantial based on the calculated results at Olive Street and Valley Boulevard.

Rail Emissions

Implementing the Build Alternative would reduce train idling and increase the average train speeds within the project study area. The rail operations analysis, estimated the change in train speed and idling due to the Build Alternative. Tables 2.13.J and 2.13.K summarize the increase in the average train speed and the reduction in idle time per train within the project study area. Using EPA emission rates and the data in Tables 2.13.J and 2.13.K the rail operation emissions within the project study area were calculated. Tables 2.13.L, 2.13.M, and 2.13.N summarize the change in rail emissions within the project study area. As shown, the Build Alternative would decrease the emissions of air pollutants within the area. Therefore, the Build Alternative would result in a net benefit related to rail emissions within the rail study area. The emissions in Tables 2.13.J and 2.13.K reflect the reduced idling time and increased speed of the trains no longer having to slow down and/or stop before proceeding through the Colton Crossing.

Table 2.13.J: Change in Average Train Speed (mph)

Year	No Build	With Build Alternative	Build Alternative-Related Change
2010	17.3	26.7	9.4
2015	15.6	26.8	11.2
2035	3.3	5.7	2.4

Source: HDR, February 2011.

Table 2.13.K: Change in Idle Time per Train (Hours)

Year	No Build	With Build Alternative	Build Alternative-Related Change
2010	0.5	0.07	-0.43
2015	0.7	0.1	-0.6
2035	7.1	4.2	-2.9

Source: HDR, February 2011.

Table 2.13.L: 2010 Change in Rail Emissions (lbs/day)

Pollutant	2010 No Build Emissions	2010 With Build Alternative Emissions	Build Alternative-Related Change
CO	4,632.0	4,296.0	-336.0
ROG	1,087.2	1,008.0	-79.2
NO_X	26,460.0	24,285.6	-2,174.4

Table 2.13.L: 2010 Change in Rail Emissions (lbs/day)

Pollutant	2010 No Build Emissions	2010 With Build Alternative Emissions	Build Alternative-Related Change
SO_2	152.6	148.8	-3.8
PM_{10}	729.6	672.0	-57.6
$PM_{2.5}$	672.0	619.2	-52.8
CO_2	83,040,000	80,880,000	-2,160,000

Note: Baseline and with project emissions do not reflect actual regional rail emissions. The emissions are a representation of the change in regional rail operations that are anticipated due to the Build Alternative.
Source: LSA Associates, Inc. February 2011.

Table 2.13.M: 2015 Change in Rail Emissions (lbs/day)

Pollutant	2015 No Build Emissions	2015 With Build Alternative Emissions	Build Alternative Related Change
CO	5,472.0	4,992.0	-480.0
ROG	1,284.0	1,168.8	-115.2
NO_X	31,200.0	28,149.6	-3,050.4
SO_2	183.6	178.3	-5.3
PM_{10}	861.6	780.0	-81.6
$PM_{2.5}$	794.4	717.6	-76.8
CO_2	99,840,000	96,960,000	-2,880,000

Note: Baseline and with project emissions do not reflect actual regional rail emissions. The emissions are a representation of the change in regional rail operations that are anticipated due to the Build Alternative.
Source: LSA Associates, Inc. February 2011.

Table 2.13.N: 2035 Change in Rail Emissions (lbs/day)

Pollutant	2035 No Build Emissions	2035 With Build Alternative Emissions	Build Alternative-Related Change
CO	16,320.0	9,528.0	-6,792.0
ROG	3,823.2	2,232.0	-1,591.2
NO_X	99,984.0	58,368.0	-41,616.0
SO_2	379.7	368.4	-11.3
PM_{10}	2,688.0	1,569.6	-1,118.4
$PM_{2.5}$	2,472.0	1,442.4	-1,029.6
CO_2	206,400,000	200,400,000	-6,000,000

Note: Baseline and with project emissions do not reflect actual regional rail emissions. The emissions are a representation of the change in regional rail operations that are anticipated due to the Build Alternative.
Source: LSA Associates, Inc. February 2011.

A local rail emission analysis was conducted to determine if the proposed Colton Crossing project would affect the sensitive receptors within the vicinity of the rail to rail grade separation. Table 2.13.O summarizes the rail operations along the UPRR and BNSF track under the No Build and Build Alternative scenarios. The speeds listed in Table 2.13.O represent the rail speeds along the UPRR and BNSF tracks

within the immediate vicinity of the Colton Crossing and are not representative of the entire project study area.

Table 2.13.O: Local Train Operations

Category	No Build Alternative			Build Alternative	
	2010	2015	2035	2015	2035
Number of Freight Trains per day on UPRR Tracks	62	71	120	71	120
Number of Freight Trains per day on BNSF Tracks	62	71	120	71	120
Train Speed UPRR Main Tracks	20 mph	16 mph	16 mph	22 mph	22 mph
Train Speed BNSF Main Tracks	22 mph	18 mph	18 mph	28 mph	28 mph

Source: HDR, February 2011.

Using EPA emission rates and the data in Table 2.13.O, the local rail operation emissions were calculated. Tables 2.13.P and 2.13.Q summarize the change in local rail emissions. As shown, the Build Alternative would decrease the emissions of air pollutants within the area. Therefore, the Build Alternative would have a net benefit related to local rail emissions.

Table 2.13.P: 2015 Change in Local Rail Emissions (lbs/day)

Pollutant	2015 No Build Emissions	2015 With Build Alternative Emissions	Build Alternative-Related Change
CO	2,136	1,656	-480
ROG	504	384	-120
NO_X	12,000	9,360	-2,640
SO_2	71	59	-12
PM_{10}	336	264	-72
$PM_{2.5}$	312	240	-72

Note: Baseline and with project emissions do not reflect actual regional rail emissions. The emissions are a representation of the change in regional rail operations that are anticipated due to the Build Alternative.
Source: LSA Associates, Inc. February 2011.

Table 2.13.Q: 2035 Change in Local Rail Emissions (lbs/day)

Pollutant	2035 No Build Emissions	2035 With Build Alternative Emissions	Build Alternative-Related Change
CO	3,576	2,808	-768
ROG	840	672	-168
NO_X	20,112	15,840	-4,272
SO_2	84	106	22
PM_{10}	552	432	-120
$PM_{2.5}$	504	408	-96

Note: Baseline and with project emissions do not reflect actual regional rail emissions. The emissions are a representation of the change in regional rail operations that are anticipated due to the Build Alternative.
Source: LSA Associates, Inc. February 2011.

The Colton Crossing structure introduces a new hump into the vertical alignment of the UPRR Alhambra and Yuma Subdivisions. The existing alignment has a local summit near Milepost 533 at an elevation of approximately 1,103 feet above sea level. The mainline then descends through Colton Crossing at Milepost 538.70 to a low point where it crosses the Santa Ana River at Milepost 539.9 at an elevation of 948 feet. The mainline then ascends nearly continuously to a major regional summit at Milepost 562.8 near Beaumont, at an elevation of 2,591 feet. The new structure would introduce a new minor summit at an elevation of approximately 988 feet. This new summit would not introduce a substantial effect on locomotive effort for trains, and thus a local emissions increase in comparison to the existing vertical alignment, for the following reasons:

1. Most westbound trains operating on the UPRR mainline over Colton Crossing stop at West Colton Yard, which stretches from Milepost 532.5 to Milepost 537.7, to change train crews, exchange train cars, or to terminate. Similarly, most eastbound trains operating on the UPRR mainline over Colton Crossing accelerate from a standstill at West Colton Yard. Westbound trains are braking while descending from Beaumont, both to control speed on the descent and ultimately to stop at West Colton in both the Build and No-Build scenarios, and the introduction of the hump for the Colton Crossing structure would serve to absorb braking effort and not introduce a requirement for additional tractive effort to overcome the grade. Eastbound trains accordingly accelerate from a stop at West Colton in either the Build or No-Build scenarios.
2. Many westbound and eastbound trains operating on the UPRR mainline at present must stop at Colton Crossing to wait for conflicting train movements on the BSNF mainline to clear. The Colton Crossing structure would eliminate the requirement for this stop. Thus, the tractive effort used to both brake UPRR trains to a stop, and then accelerate UPRR trains back to their best available track speed, would no longer be required once trains begin using the Colton Crossing structure.
3. Due to the length of typical freight trains (in excess of 5,000 feet), the very low acceleration rates of trains (compared to rubber-tired vehicles), and the requirement to avoid excessive slack run-ins or run-outs of train car couplings, trains tend to “net out” local perturbations in vertical alignment. The Colton Crossing structure was compared to the local vertical topography a minor hump. Westbound trains would tend to coast over the structure to avoid slack run-outs as they descend from Beaumont: westbound trains would typically have slack

bunched against the locomotives as they approach the low point at the Santa Ana River; a heavy application of tractive effort would tend to accelerate the front end of the train away from the rear end of the train and potentially exceed coupling strength between cars toward the midpoint of the train. Eastbound trains would tend to accelerate slowly when leaving Colton and avoid use of full throttle until the entire train is beyond the Santa Ana River to avoid slack run-ins caused when the front end of the train decelerates rapidly when it encounters the ascending grade beyond the Santa Ana River, while the rear end of the train is simultaneously attempting to accelerate while descending the Colton Crossing Structure.

Accordingly, the Colton Crossing Structure would not increase local train tractive effort and thus locomotive emissions, and compared to the existing rail alignment requiring many trains to stop at the Colton Crossing, the Structure would serve to decrease local tractive effort and thus emissions.

Mobile Source Air Toxics (MSAT) Analysis

The following Mobile Source Air Toxics (MSAT) emission analysis was prepared in accordance with the September 2009 FHWA guidance. Generally, this guidance is intended to be applied to roadway and highway projects. However, in this case, FHWA guidance is being applied because the proposed project would affect on-road emissions at the existing road/rail crossings, there is currently no other guidance for determining MSAT emissions from rail projects, and FHWA is the NEPA lead.

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries). The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted into the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in its latest rule on the Control of Hazardous Air

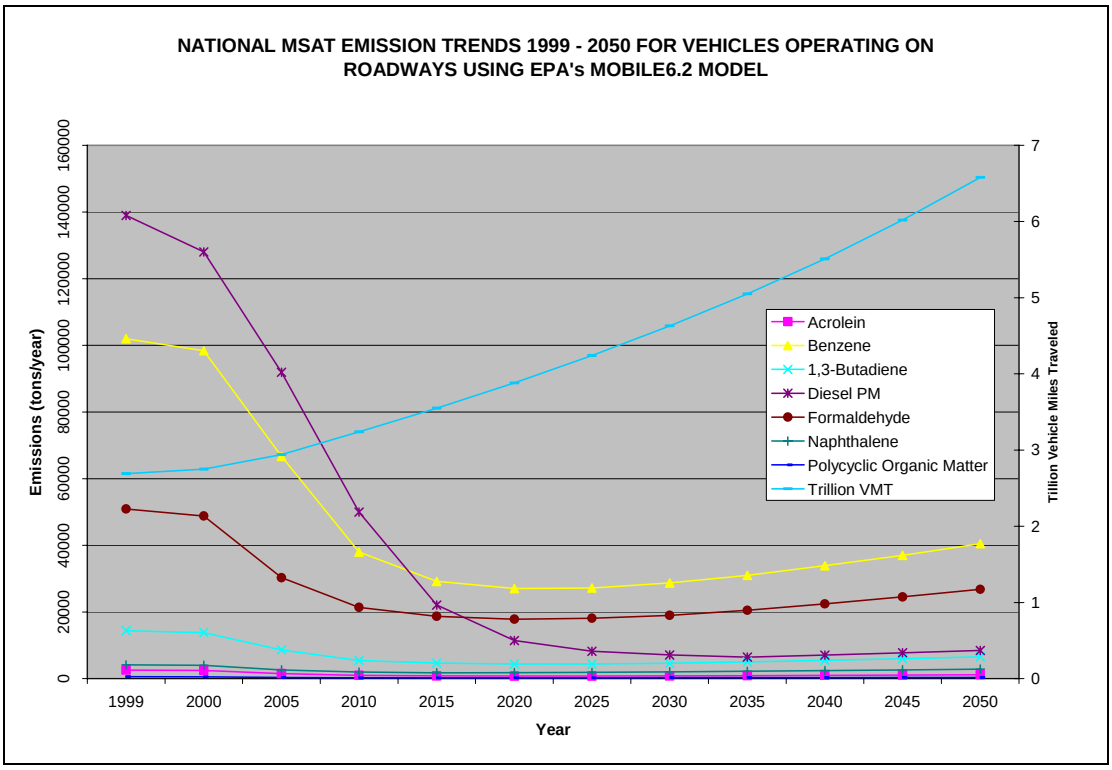
Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System (IRIS).[1] In addition, the EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from its 1999 National Air Toxics Assessment (NATA).[2] These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter (POM). While the FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule described above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using the EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles traveled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown on the following page. The projected reduction in MSAT emissions would be slightly different in California due to the use of the EMFAC2007 emission model in place of the MOBILE6.2 model.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the National Environmental Policy Act (NEPA).

1 http://www.epa.gov/ncea/iris/index.html.
2 http://www.epa.gov/ttn/atw/nata1999/.

National MSAT Emission Trends



Information that is Unavailable or Incomplete

At this time, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of project alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the CAA and its amendments and has specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants, and maintains the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects."[1] Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative

[1] EPA, http://www.epa.gov/ncea/iris/index.html.

estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of the FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations[1] or in the future as vehicle emissions substantially decrease.[2]

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts. Each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified due to required lifetime (i.e., 70-year) exposure methodologies, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE 6.2 model, the California EPA's Emfac2007 model, and the EPA's Draft Motor Vehicle Emission Simulator (MOVES) 2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE 6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of the EPA's guideline CAL3QHC model was conducted in an NCHRP study,[3] which documents poor model performance at ten sites across the country; three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality

1 HEI, http://pubs.healtheffects.org/view.php?id=282.
2 HEI, http://pubs.healtheffects.org/view.php?id=306.
3 EPA, http://www.epa.gov/scram001/dispersion_alt.htm#hyroad.

benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to forecast MSAT exposure near roadways reliably, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by the HEI.[1] As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA[2] and the HEI[3] have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires the EPA to determine a “safe” or “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld the EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

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1 http://pubs.healtheffects.org/view.php?id=282.
2 http://www.epa.gov/risk/basicinformation.htm#g.
3 http://pubs.healtheffects.org/getfile.php?u=395.

Because of these limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

As indicated in Tables 2.13.F, 2.13.I, 2.13.J, and 2.13.K, implementing the proposed project would reduce on-road vehicle delay, improve train speed, and reduce train idling. Consequently, this project is considered to have low potential MSAT effects. However, to ensure that the proposed project would not contribute to local MSAT emissions, an MSAT emissions analysis was performed. The results of this analysis are summarized below.

MSAT Emission Analysis

The basic procedure for analyzing emissions for on-road MSAT is to calculate emission factors using EMFAC2007 and apply the emission factors to speed and VMT data specific to the project. EMFAC2007 is the latest emission inventory model developed by the ARB and approved by the EPA that calculates emission inventories for motor vehicles operating on roads in California. The emission factors information used in this analysis is from EMFAC2007 and is specific to the Basin.

This analysis focuses on seven MSAT pollutants identified by the EPA as being the highest priority MSATs.[1] These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (DPM), formaldehyde, naphthalene, and POM. EMFAC2007 provides emission factor information for DPM, but does not provide emission factors for the remaining six MSATs. Each of the remaining six MSATs, however, is a constituent of motor vehicle ROG emissions, and EMFAC2007 provides emission factors for ROG. The ARB has supplied Caltrans with “speciation factors” for four MSATs not directly estimated by EMFAC2007. Each speciation factor represents the portion of total ROG emissions that is estimated to be a given MSAT. For example, if a speciation factor of 0.03 is provided for benzene, its emissions level is estimated to be 3 percent of total ROG emissions, utilizing the speciation factor as a multiplier once total ROG emissions are known. However, the ARB has not provided speciation factors for naphthalene and

[1] U.S. Environmental Protection Agency (2001) Control of Emissions of Hazardous Air Pollutants from Mobile Sources: Final Rule. *Federal Register*, Vol. 66, No. 61, pp. 17230–17273. March 29.

POM. This analysis used the ARB-supplied speciation factors to estimate emissions of the aforementioned MSATs as a function of ROG emissions.

The diesel PM emissions from the rail operations were calculated using the emission rates published by the EPA in *Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder* (June 30, 2008).

MSAT Emission Results

The emission factors from EMFAC2007 are pollutant emissions in grams per mile of vehicle travel and grams per hour for vehicle idling. Multiplying these emission factors by the total vehicle delay listed in previously referenced Table 2.13.F provides an estimate of the emissions within the project area.

Vehicle emissions vary by speed. Generally, emissions are higher on a grams-per-mile basis for slower speeds. For some pollutants, including volatile organic compounds (VOC), emissions increase with speed at speeds greater than 50 mph. The average a.m. and p.m. peak hour vehicle speeds in the project area were provided by Iteris (February 2011).

As described above, on-road emission factors for DPM and ROG have been obtained for the Basin using EMFAC2007. Results of the analyses are tabulated in Tables 2.13.R and 2.13.S, which show implementation of the Build Alternative would result in a decrease in on-road MSAT emissions.

In addition to the on-road emissions, the proposed project would reduce the rail delay and increase the average train speed within Southern California. Table 2.13.T summarizes the rail DPM emissions within the project study area and shows implementation of the proposed project would result in a decrease in rail DPM emissions compared to the No Build condition.

The emissions in Tables 2.13.R through 2.13.T reflect the reduced idling time and increased speed of the trains no longer having to slow down and/or stop before proceeding through the Colton Crossing and the reduced vehicle idling emissions due to the reduced gate down time at the road/rail at-grade crossings in the rail study area.

Table 2.13.R: 2015 Changes in MSAT Emissions

Year 2015 Toxic Air Contaminant	Existing Emissions (g/day)	2015 No Build Alternative Emissions (g/day)	2015 Build Alternative Emissions		
			g/day	Change from Existing	Change from No Build
Diesel Particulate Matter	10.6	18.6	15.9	5.3	-2.7
Benzene	9.1	16.3	13.4	4.3	-2.9
1,3-Butadiene	1.71	3	2.53	0.82	-0.47
Naphthalene[1]	N/A	N/A	N/A	N/A	N/A
POM[1]	N/A	N/A	N/A	N/A	N/A
Acrolein	0.215	0.39	0.331	0.116	-0.059
Formaldehyde	3.6	6.3	5.3	1.7	-1
Average Percentage Change	–	–	–	+76.7%	-16.0%

[1] The emissions for these pollutants are not included because speciation factors are not available.

g/day = grams per day MSAT = Mobile Source Air Toxics N/A = Not Available

Source: LSA Associates, Inc. 2011.

Table 2.13.S: 2035 Changes in MSAT Emissions

Year 2035 Toxic Air Contaminant	Existing Emissions (g/day)	2035 No Build Alternative Emissions (g/day)	2035 Build Alternative Emissions		
			g/day	Change from Existing	Change from No Build
Diesel Particulate Matter	10.6	45	38.8	28.2	-6.2
Benzene	9.1	39	33.6	24.5	-5.4
1,3-Butadiene	1.71	7.3	6.2	4.49	-1.1
Naphthalene[1]	N/A	N/A	N/A	N/A	N/A
POM[1]	N/A	N/A	N/A	N/A	N/A
Acrolein	0.215	0.94	0.79	0.575	-0.15
Formaldehyde	3.6	15.1	12.8	9.2	-2.3
Average Percent Change	–	–	–	+265%	-14.1%

[1] The emissions for these pollutants are not included because speciation factors are not available.

gms/day = grams per day MSAT = Mobile Source Air Toxics N/A = Not Available

Source: LSA Associates, Inc., 2011.

Table 2.13.T: Change in Rail Diesel PM Emissions (g/day)

Year	No Build Alternative Emissions	Build Alternative Emissions	Build Alternative-Related Change
2010	331,300	305,350	-25,950
2015	391,600	354,500	-37,100
2035	1,219,000	712,000	-507,000

Source: LSA Associates, Inc., February 2011.

No Build Alternative

The No Build Alternative would not result in any improvements to the railroad crossing within the project area. As a result, neither a CO hotspot analysis nor a particulate matter hot spot analysis would be required. Therefore, the No Build Alternative would not have additional impacts regarding CO hotspots, particulate matter hotspots, diesel particulate matter exhaust, or mobile source air toxics.

The No Build Alternative would not generate the short-term construction emissions listed in Tables 2.13.D and 2.13.E. However, the No Build Alternative would not result in any of the improvements in long-term emissions listed in Section 2.13.3.2 for the Build Alternative.

2.13.3.3 Conformity

Conformity determinations require the analysis of direct and indirect emissions associated with the proposed project and their comparison to the without project condition. If the total of direct and indirect emissions from the project reaches or exceeds the regionally significant thresholds (identified in Table 2.13.C), the Lead Agency must perform a conformity determination to demonstrate the positive conformity of the Federal action.

As stated previously, the Build Alternative would improve long-term air quality within the project area. However, as shown in Table 2.13.E, the short-term construction emissions would exceed the NO_X *de minimis* threshold. Therefore, a Draft General Conformity Analysis report (LSA February 2011) was prepared to demonstrate that the proposed project's construction emissions would be in conformance with the SIP. The General Conformity Analysis determined that as the short-term construction emissions are consistent with the Air Quality Management Plan assumptions, it would conform to the purpose of the approved SIP and it is consistent with all applicable requirements.

2.13.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be implemented during construction activities to avoid or minimize potential adverse impacts on air quality.

AQU-1 During clearing, grading, earthmoving, or excavation operations, excessive fugitive dust emissions would be controlled by regular watering or other dust preventive measures using the following procedures, as specified in the South Coast Air Quality Management

District (SCAQMD) Rule 403. All material excavated or graded would be sufficiently watered to prevent excessive amounts of dust. Watering would occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. All material transported on site or off site would be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earthmoving, or excavation operations would be minimized so as to prevent excessive amounts of dust. These control techniques would be indicated in project specifications. Visible dust beyond the property line emanating from the project would be prevented to the maximum extent feasible.

The construction contractor would also adhere to SCAQMD's Rule 403 requirements for large operations if the disturbed surface area exceeds 50 acres or if daily earthmoving exceeds 5,000 cubic yards.

AQU-2 Project grading plans would show the duration of construction. Ozone precursor emissions from construction equipment vehicles would be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications.

AQU-3 All trucks that are to haul excavated or graded material on site would comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads.

AQU-4 All on-site mobile diesel-powered construction equipment greater than 50 Hp shall meet the Tier 2 emissions standards as defined in the USEPA Nonroad Diesel Engine Rule and, to the extent feasible, the contractor shall use vehicles and equipment that meet Tier 3 standards.

2.14 Noise and Vibration

This section is based on the *Noise and Vibration Assessment, Colton Crossing Grade Separation Project* prepared by ATS Consultants for the project in February 2011 (ATS 2011). This assessment is based on the impact thresholds provided in the Federal Transit Administration (FTA) manual Transit Noise and Vibration Impact Assessment (FTA 2006) and the Federal Railroad Administration (FRA) manual *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (FRA 2005). In addition, the Surface Transportation Board (STB) has a separate set of criteria for assessing noise impacts of rail mergers and other projects over which it has purview. For this analysis, the FTA/FRA criteria have been used because they are widely used on rail projects of all types and because they tend to identify more impacts than the STB noise criteria. The FTA/FRA criteria have also been used instead of the FHWA noise criteria since they apply to rail noise rather than vehicular noise sources. According to ATS, the project noise consultant, Caltrans recommended using FTA/FRA noise and vibration criteria at the outset of the project as they are the criteria most applicable to this particular project (H. Saurenman with ATS, personal communication, February 2011).

2.14.1 Regulatory Setting

2.14.1.1 National Environmental Policy Act and 23 CFR 772

The National Environmental Policy Act (NEPA) of 1969 is the primary Federal law that provides the broad basis for analyzing and abating rail- and highway-related noise effects. The intent of this law is to promote the general welfare and to foster a healthy environment.

2.14.1.2 FTA/FRA Guidelines

Noise impacts and benefits for the Colton Crossing project have been based on the criteria provided in the FRA (2005) and FTA (2006) guidance manuals. The noise impact criteria in the two manuals are identical as they are applied to freight rail projects. Although neither guidance manual is specifically oriented to freight rail projects, FRA/FTA criteria are based on the best available research on community response to noise and have been used to assess potential impacts from a number of freight rail projects.

Operational Noise. Table 2.14.A lists the three land-use categories that the FRA/ FTA noise impact criteria use along with the applicable noise metric for each category. For Category 2 (residential) land uses, noise exposure is characterized using

the day-night averaged noise level (L_{dn}), while for Category 1 and Category 3 land uses, noise exposure is characterized using the maximum one-hour equivalent continuous sound level (L_{eq}).

Table 2.14.A: FRA/FTA Land Use Categories and Noise Metrics

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq}(h)$[(a)]	A tract of land where quiet is an essential element of their intended purpose. This category includes lands set aside for serenity and quiet and such land uses as outdoor amphitheaters and concert pavilions, as well as national historic landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor L_{dn}	Residences and buildings in which people sleep. This category includes homes, hospitals, and hotels, where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_e(h)$[(a)]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities can also be considered to be in this category. Certain historical sites and parks are also included.

(a) L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.
Source: FRA Guidance Manual, Oct 2005.

FRA/FTA defines two levels of noise impact: moderate and severe. In accordance with the FRA and FTA guidance manuals, mitigation to eliminate noise impacts must be investigated for both degrees of impact. The FRA manual states that for severe impacts "…there is a presumption by FRA that mitigation is incorporated into the project unless there are truly extenuating circumstances which prevent it." In considering mitigation for severe impacts in this study, the goal has been to reduce noise levels to below the moderate impact threshold. The noise assessment presents a series of tables and graphs to show how impact levels can be calculated from ambient noise levels. According to the Noise Assessment, an existing noise of 60 dBA L_{dn} yields a threshold of 57.8 dBA L_{dn} for moderate impacts and 63.4 dBA L_{dn} for severe impacts.

Construction Noise. FRA/FTA guidelines state that an appropriate impact threshold for construction noise is a 30-day average L_{dn} of 75 dBA or ambient plus 10 decibels, whichever is *greater*. Because the existing noise levels in much of the project area are quite high, the impact threshold selected for the analysis of construction noise impacts is a 30-day average L_{dn} of 75 dBA.

Operational Vibration. The FRA/FTA has issued guidance on how to assess vibration impacts for a corridor that already is heavily used.

- If the project will not cause a significant increase in the number of vibration events and the project will result in vibration levels that are at no more than 5 decibels greater than the existing vibration, the existing train traffic can be ignored and the standard vibration impact thresholds can be applied. A significant increase in rail traffic is defined by FRA and FTA as an approximate doubling of the number of trains.
- If the project would cause the existing rail tracks to be relocated closer to sensitive receivers, impact occurs if the relocation would result in at least a 3 decibel increase in vibration levels and the resulting vibration level would exceed the FRA/FTA impact threshold.

This means that the condition under which vibration impact could occur for the proposed project is that the predicted vibration levels exceed the existing vibration levels by at least 3 decibels and exceed the applicable impact threshold (72 VdB).

Construction Vibration. The FTA/FRA uses two thresholds for assessing impacts from construction vibration. The first is a peak particle velocity (PPV) of 0.5 in/sec, which is considered a safe vibration level to avoid even minor cosmetic damage to typical residential structures. The predicted vibration levels are well below this limit at a distance of 25 feet from the construction equipment.

The second threshold is based on the potential for the vibration to be annoying and intrusive to building occupants. For this effect, the FTA and FRA manuals recommend using the same impact thresholds that are used to assess impacts from train vibration. The FRA/FTA impact threshold from train vibration is 72 VdB for residential land uses, which translates to a PPV of 0.016 in/sec assuming a crest factor of 4.

2.14.2 Affected Environment

The study area for the assessment included the mixed land uses on either side of the BNSF tracks north of I-10 to the north City limit, and the residential uses immediately south of the Colton Crossing.

The existing noise and vibration environment in the study area was dominated by freight and passenger trains on the BNSF and UPRR tracks and vehicular traffic on

I-10. The use of horns as trains approach at-grade road/rail crossing was by far the loudest noise source in the study area. Other rail-related noise and vibration sources were the locomotive engines, the rail cars, wheel squeal when trains traverse the tight radius curves of the connection tracks in the northwest and southeast quadrants of the Colton Crossing, wheel impacts at turnouts, crossovers and the diamond crossing, and various noises from activities within the UPRR yard south of I-10 (ATS 2010).

2.14.2.1 Surrounding Land Use and Sensitive Receivers

The study area contains many sensitive receptors (i.e., uses containing individuals who are sensitive to elevated noise levels) including a variety of multifamily and single-family residential uses (ATS 2010). The noise assessment identified 19 "typical" sensitive receptor locations (R1–R19) in the project area. Based on those locations, ATS selected 24 noise and vibration measurement locations, with 14 short-term (ST) and 10 long-term (LT) stations. Figure 2.14.1 shows the locations of these 24 noise and vibration monitoring sites.

2.14.2.2 Existing Noise Levels

The primary source of noise in the project area was traffic on surrounding streets and the I-10 freeway, as well as railroad noise from the BNSF and UPRR tracks. Noise measurements were conducted at ten locations (LT01–LT10) throughout the study area.

Long-term noise measurements were performed at 10 sites, with 4 sites located south of I-10 and the remaining 6 sites located north of the freeway. Table 2.14.B shows the compiled ambient noise calculations for the ten LT measurement locations.

Table 2.14.B: Summary of Long-Term Noise Measurements

Site	Location	Days Measured	L_{day}	L_{night}	L_{dn}
LT01	396 W. East Street	4	**67**	**67**	**74**
LT02	291 W. E Street	8	**80**	**81**	**87**
LT03	Recycling Center	2	**71**	**68**	**75**
LT04	110 N. 3rd Street	3	**67**	**64**	**71**
LT05	639 W. K Street	5	N/A	N/A	**76**
LT06	146 S. 4th Street	4	**70**	**68**	**75**
LT07	264 W. K Street	4	**74**	**74**	**80**
LT08	372 W. M Street	2	**63**	**62**	**68**
LT09	N. 8th Street and Laurel Street	3	**74**	**76**	**82**
LT10	1161 N. 7th Street	2	**85**	**88**	**94**

Note: Values in bold exceed applicable standards.
Source: Summarized from Table 9, ATS 2011.

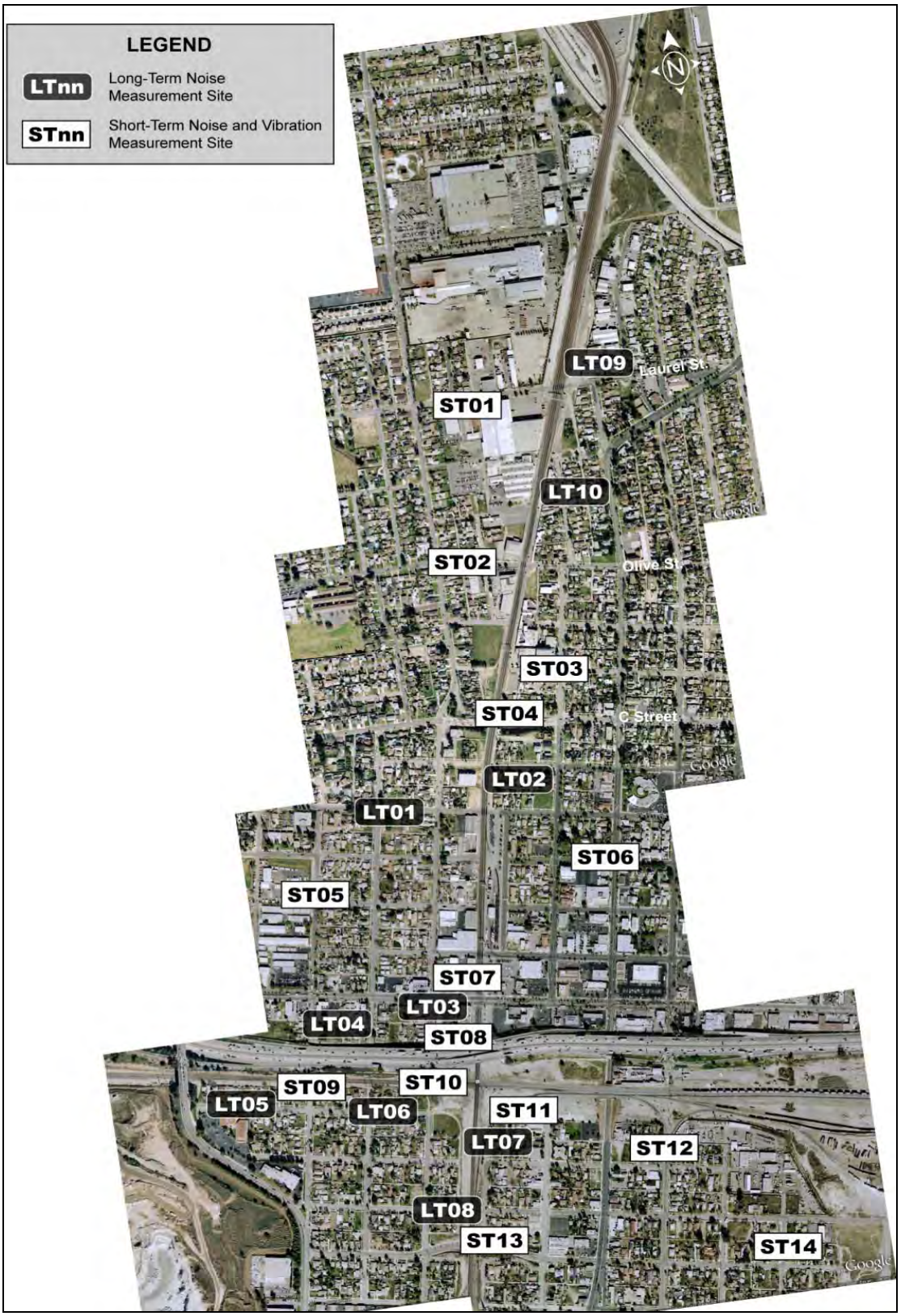

Figure 2.14-1: Noise and Vibration Measurement Sites

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Noise sources observed during the measurement in approximate order of importance are as follows:

- **Train Horns:** FRA requirements are that, unless a special quiet zone has been established, horns on the lead locomotive must be sounded starting a quarter mile or 20 seconds before any at-grade rail/roadway crossing. The horn is to be sounded in a long-long-short-long pattern with the sequence ending as the lead locomotive clears the grade crossing. The horns are required to generate a sound level of 94 to 105 dBA at a distance of 100 feet in front of the locomotive. At the measurement locations, the maximum sound level from the horns exceeded 100 dBA at two locations near BNSF grade crossings and exceeded 90 dBA at several other locations.

  The measured L_{dn} near several BNSF grade crossings reached or exceeded 80 dBA because of horn noise at grade crossings, as shown in Table 2.14.C.

Table 2.14.C: Long-Term Noise with and without Trains

Site	Address	Measured L_{dn} (dBA)		Difference (dBA)
		With Trains	Without Trains[(a)]	
LT01	396 West E Street	74	64	10.0
LT02	291 West E Street	87	62	24.6
LT03	Recycling Center	75	69	5.6
LT04	110 N 3rd Street	71	71	-0.2
LT05	639 West K Street	76	—[(b)]	—[(b)]
LT06	146 South 4th Street	75	73	2.0
LT07	264 West K Street	80	70	9.9
LT08	372 West M Street	68	61	6.9
LT09	North 8th Street and Laurel Street	82	62	20.0
LT10	1161 North 7th Street	94	69	24.7

(a) Estimated L_{dn} without noise from trains.
(b) Because of equipment malfunction, data used to estimate L_{dn} without train noise was not recorded at Site LT05.
Source: Table 8, ATS 2011

- **Locomotives:** The noise levels generated by locomotives vary depending on throttle setting and are relatively independent of speed. That is, a locomotive cruising at 50 mph and a low-throttle setting would generate less noise than a locomotive accelerating from a stop at full power. All freight trains have locomotives located at the front of the trains, but a number of the trains observed during the noise measurement program also had “helper” locomotives in the middle or at the end of the train.

- **Rail Cars:** The steel wheels of the rail cars rolling on the steels rails would generate noise that is directly related to speed; the higher the speed, the louder the noise. Rail cars in good condition with wheels operating on smooth track are relatively quiet. However, there are often several "bad actor" vehicles on a long train that generate substantially higher noise and vibration levels.
- **Wheel Squeal:** Locomotives and rail cars operating on sharp radius curves would often generate wheel squeal. The amount of squeal can vary widely with one train generating little or no squeal and the next train generating substantial squeal. Factors such as track lubrication, rail condition, and humidity can have a strong influence on the amount of wheel squeal.
- **Yard Movements:** Switching in and around yards would generate additional impact noises as trains decelerate and accelerate. Noise would also be generated when rail cars are maneuvered into position and joined into a train. This noise source was audible but not an important contributor to L_{dn}. In addition, noise was generated when rail cars change tracks at the crossing diamond.
- **Freeway:** In addition to the rail-related noise sources, there was relatively continuous noise from traffic on I-10 and, to a lesser extent, vehicular traffic on other surface streets in the area. I-10 traffic was a major noise source at most sites south of the freeway and at the Sites LT03 and LT04.

The primary noise sources in residential areas north of I-10 were freight trains, Metrolink commuter trains, and traffic noise from the freeway and surface arterials. However, train horns generated the highest noise levels near the road/rail at-grade crossing locations.

The noise sources in residential areas south of I-10 were similar to those north of I-10; however, there were fewer road/rail at-grade crossings where train horns must be sounded, so there was substantially less horn noise south of I-10. The one notable exception to this was that most BNSF trains and half of the UPRR trains were observed to sound their horns as they approached the diamond that switches trains onto different tracks at the Colton Crossing. Additional noise sources south of I-10 were trains operating on the connector track in the southeast quadrant of the Colton Crossing and noise from operations in the UPRR yard. Trains operating on the connector track were observed to generate wheel squeal, although lubrication was being used at the time of the measurements that reduced the amount of wheel squeal. More wheel squeal was noticed on the connector track in the northwest quadrant than on the connector track in the southeast quadrant. At this connector track, however, the

squeal occurred when the trains passed under I-10 and where the sensitive receivers are shielded from the squeal noise by the I-10 structure.

The highest train noise levels were measured at sites close to BNSF road/rail at- grade crossings (LT02, LT09, and LT10) where the measured L_{dn} exceeded 80 dBA. These three sites were located within 60 feet from the nearest track and the residual noise levels without trains were at least 20 decibels lower than the L_{dn} with trains. For sites relatively close to the freeway, train noise caused L_{dn} to be a maximum of 6 decibels greater than the L_{dn} without trains. The only exception was site LT07 where the L_{dn} with trains was 10 decibels greater than L_{dn} without trains because of the proximity to the southeast UPRR connection tracks.

The high noise levels at sites near the BNSF road/rail at-grade crossings were primarily due to train horns. The L_{dn} with the trains was 25 decibels higher than the L_{dn} without trains at LT02 and LT10. At both of these sites, the maximum levels of horn noise exceeded 100 dBA. At LT10, the average maximum noise level (L_{max}) for the horn noise was 115 dBA. Without train horns, the noise levels from the train would be substantially lower at LT01, LT02, LT09, and LT10.

2.14.2.3 Existing Vibration Levels

Vibration was recorded at one of the LT noise sites. The measurements ranged from 24 hours to 7 days. Ambient vibration in the project area was dominated by the train pass-bys. Background vibration measurements showed that the L_{eq} without trains was between 40 and 65 VdB, while the L_{max} from train pass-bys at the Colton vibration sites ranged from 60 to 87 dBA and depended on train speeds, distance from the tracks, and location. The FRA threshold limits for human annoyance inside residences ranges from 72 VdB for frequent events to 80 VdB for infrequent events. The vibration assessment determined that the “frequent” threshold applies to this project. The vibration levels from train pass-bys were below 72 VdB at all sites except ST07, ST09, ST10 and ST12, as shown in Table 2.14.D. The higher vibration levels at these four sites stems from the proximity of the measurement points to the train tracks. For these high-vibration sites, the distance from the nearest tracks ranged from 25 feet to 120 feet. In general, the locomotives showed higher vibration than the rail cars, but occasional high vibration levels from freight cars occurred during the measurements. It should be noted that all reported vibration levels represent outdoor measurements.

Table 2.14.D: Summary of Short-Term Vibration Measurements

Site	Location	Vibration, VdB			
		L_{max}	Average L_{max} (Locomotives)	Average L_{max} (Rail cars)	L_v (Without Trains)
ST01	281 Laurel Street	62	53	62	44
ST02	309 6th Street	76	71	68	46
ST03	7th and B Streets	72	72	67	43
ST04	283 C Street	82	80	71	52
ST05	3rd and G Streets	—	—	—	45
ST06	9th and F Streets	56	52	54	47
ST07	Valley Boulevard Grade Crossing	77	73	73	59
ST09	181 S. 3rd Street	87	84	81	51
ST10	5th and K Streets	81	76	75	64
ST12	9th and K Streets	83	81	73	50
ST13	330 6th Street	77	76	72	45
ST14	11th and N Streets	—	—	—	50

Source: Table 11, ATS 2011

2.14.3 Environmental Consequences

2.14.3.1 Temporary Impacts

Build Alternative

As shown in Table 2.14.E, typical noise levels at 50 feet from an active construction area range up to 91 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes soil import, grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings. Table 2.14.F shows that the maximum noise impact distance would be 160 feet during construction of the overhead structure and trackwork.

Table 2.14.E: Typical Construction Equipment Noise Levels

Equipment Description	L_{max} at 50 feet(1) (dBA)	Typical Usage Factor (2)	Impact Device?
All other equipment > 5 HP	85	50	No
Auger drill rig	85	20	No
Backhoe	80	40	No
Bar bender	80	20	No
Blasting	94	N/A	Yes

Table 2.14.E: Typical Construction Equipment Noise Levels

Equipment Description	L_{max} at 50 feet(1) (dBA)	Typical Usage Factor (2)	Impact Device?
Boring jack power unit	80	50	No
Chain saw	85	20	No
Clam shovel	93	20	Yes
Compactor (ground)	80	20	No
Compressor (air)	80	40	No
Concrete batch plant	83	15	No
Concrete mixer truck	85	40	No
Concrete pump truck	82	20	No
Concrete saw	90	20	No
Crane (mobile or stationary)	85	16	No
Dozer	85	40	No
Dump truck	84	40	No
Excavator	85	40	No
Flatbed truck	84	40	No
Front end loader	80	40	No
Generator (25 kVA or less)	70	50	No
Generator (more than 25 kVA)	82	50	No
Gradall	85	40	No
Grader	85	40	No
Horizontal boring hydraulic jack	80	25	No
Hydra break ram	90	10	Yes
Impact pile driver (diesel or drop)	95	20	Yes
Jackhammer	85	20	Yes
Impact hammer (hoe ram)	90	20	Yes
Paver	85	50	No
Pickup truck	55	40	No
Pneumatic tools	85	50	No
Pumps	77	50	No
Rock drill	85	20	No
Scraper	85	40	No
Slurry plant	78	100	No
Slurry trenching machine	82	50	No
Soil mix drill rig	80	50	No
Tractor	84	40	No
Vacuum street sweeper	80	10	No
Vibratory concrete mixer	80	20	No
Vibratory pile driver	95	20	No
Welder/Torch	73	40	No

(1) Sound level when operating at close to maximum load condition.
(2) Percent of work shift that equipment typically is in use.
Source: ATS 2010 Table 16 and FHWA 2006 and Caltrans 2009 as cited in ATS 2011.

Table 2.14.F: Noise Impact Distances for Major Construction Phases

Construction Activity	L_{eq} at 50 feet (dBA)	Impact Distance (feet)		Predicted Noise, L_{eq} (dBA)	
		Daytime Construction[(a)]	Nighttime Construction[(b)]	Southwest Quadrant[(c)]	Southeast Quadrant[(d)]
Demolition, clearing and grubbing	85	130	320	78	68
Install drainage improvements	84	120	300	77	68
Site grading	85	130	310	77	68
Foundation work	86	140	360	78	69
Retaining walls	84	120	270	76	67
OH structures	87	160	400	79	70
Trackwork	87	160	400	79	70
Construct signal	82	90	220	74	65
Maximum	**87**	**160**	**400**	**79**	**70**

(a) Impact distance is based on an impact occurring when the work shift L_{eq} would exceed 77 dBA at a sensitive receptor for more than 30 days (equivalent to L_{dn} exceeding 75 dBA when there is limited construction during the nighttime hours of 10 p.m. to 7 a.m.) Estimated impact distances have been rounded to the nearest 10 feet.
(b) Impact distance is based on an impact occurring when the work shift L_{eq} would exceed 69 dBA at a sensitive receptor for more than 30 days (equivalent to L_{dn} exceeding 75 dBA when there is extensive construction during the nighttime hours of 10 p.m. to 7 a.m.). Estimated impact distances have been rounded to the nearest 10 feet.
(c) The closest receiver in the southwest quadrant of the Colton Crossing diamond frog is 120 feet from the future construction activities. This quadrant extends from 5th Street to Rancho Avenue.
(d) The closest receiver in the southeast quadrant of the Colton Crossing diamond frog is 350 feet from the future construction activities.
Source: Table 21, ATS 2011.

As discussed in Section 2.14.1, the construction noise impact threshold being used for this project was a 30-day average L_{dn} of 75 dBA. Assuming that noise-producing construction activities would be largely limited to daytime hours (7 a.m. to 10 p.m.), the impact threshold would not be exceeded as long as the daytime L_{eq} from construction activities would be lower than 75 dBA.

It should be noted that it may be necessary to perform some work at night during the course of the project. Examples of the type of work that may be performed would be railroad track and signal cutovers, bridge/culvert construction or replacement that would affect main tracks, or utility work that would need to be performed during off-peak hours. It is anticipated that most construction activities would occur during weekdays, but it possible that a limited amount of work would be performed at night or on the weekends for safety or logistical reasons.

Assuming that when nighttime construction must be performed, the L_{dn} would be dominated by noise during the nighttime hours (10 p.m. to 7 a.m.), the impact threshold would not be exceeded as long as the nighttime L_{eq} from construction activities is less than 69 dBA.

Previously referenced Table 2.14.F also shows the predicted levels of construction noise at the residences in the southwest and southeast quadrants that would be closest to the construction zone. Major construction activities would be approximately 120 to 160 feet from the first row of residences in the southwest quadrant of the diamond crossing. The closest residences in the southeast quadrant would be more than 160 feet from major construction activities. The highest predicted work shift L_{eq} is 79 dBA at the closest residences in the southwest quadrant (between 5th Street and Rancho Avenue) and is 70 dBA at the closest residence in the southeast quadrant. Based on the analysis presented in Table 2.14.F, the following conclusions can be made:

- Construction noise is likely to exceed the daytime impact threshold of 77 dBA L_{eq} by approximately 2 decibels at the closest residences in the southwest quadrant but unlikely to exceed the threshold in the southeast quadrant.
- When nighttime construction is required, the construction noise is likely to exceed the nighttime impact threshold of 69 dBA by up to 10 decibels in the southwest quadrant and by approximately 1 decibel in the southeast quadrant.

Another potential noise impact during construction would be from trucks on haul routes and accessing the staging areas. The major haul routes would avoid residential areas. This noise has been incorporated into the construction site noise predictions. The one potential access route that could cause noise impacts to adjacent residences is the access along South 5th Street to the potential staging area in the southwest quadrant of the Colton Crossing. It is anticipated that this staging area would be utilized on a limited basis for materials storage and the number of vehicles accessing this staging area would be approximately 10 per day. The noise from these vehicles would be approximately 50 dBA L_{eq} at the residences along South 5th Street, substantially less than the daytime work shift impact threshold of 77 dBA L_{eq} and the nighttime work shift impact threshold of 69 dBA L_{eq}.

Potential construction noise impacts within the southeast and southwest quadrants of the existing crossing would be minimized with implementation of the measures outlined in Section 2.14.4 and are not considered adverse.

Vibration. The two construction operations most likely to cause building damage are blasting and pile driving, neither of which would be used during construction of the Build Alternative. Other activities, such as the use of tracked vehicles (e.g., bulldozers) and vibratory compactors, could result in perceptible levels of

groundborne vibration; however, these activities would be limited in duration and vibration levels are well below thresholds for minor cosmetic building damage. Table 2.14.G shows the approximate vibration velocity level at 25 feet for the equipment expected to generate the highest vibration levels during each construction phase.

Table 2.14.G: Construction Vibration Velocity Levels

Construction Activity[(a)]	Most Vibratory Equipment	Reference Equipment	Ref PPV @ 25 feet (in/sec)	Approximate Distance to PPV of 0.016 in/sec[(b)]
Demolition, clearing and grubbing	Bulldozer (Cat D-7)	Large Bulldozer	0.089	80 feet
Install Drainage Improvements	Compaction Machinery	Vibratory Roller	0.21	140 feet
Site Grading	Compactor	Vibratory Roller	0.21	140 feet
Foundation Work	Crane-mounted Drill	Caisson drilling	0.089	80 feet
Trackwork	Compactor	Vibratory Roller	0.21	140 feet
Construct Signal	Boring Machine	Caisson drilling	0.089	80 feet

(a) Construction Activities A, F, G, and I are not anticipated to require use of high-vibration generating equipment.
(b) Distance at which the FRA/FTA vibration annoyance threshold of 72 VdB is reached.
Source: Table 22, ATS 2011

As discussed in Section 2.14.1.2, there are two thresholds for impact from construction vibration. The first is a peak particle velocity (PPV) of 0.5 in/sec, which is considered a safe vibration level to avoid even minor cosmetic damage to typical residential structures. As shown in Table 2.14.G, the predicted vibration levels would be well below this limit at a distance of 25 feet from the construction equipment.

The second threshold is based on the potential for the vibration to be annoying and intrusive to building occupants. For this effect, the FTA and FRA manuals recommend using the same impact thresholds that are used to assess impacts from train vibration. The FRA/FTA impact threshold from train vibration is 72 VdB for residential land uses, which translates to a PPV of 0.016 in/sec assuming a crest factor of 4. As shown in Table 2.14.G, a PPV of 0.016 in/sec could occur at distances of about 140 feet from a vibratory compactor. This means that some construction processes have the potential to generate vibration levels that exceed the limits for annoyance at the residences south of the construction site and west of the BNSF tracks (between Rancho Avenue and 5th Street). It is important to recognize that although these vibration levels may be perceptible inside residences, they would be well below what is required to cause structural damage or even minor cosmetic damage. Potential construction vibration impacts within the southeast quadrants of

the existing crossing would be minimized with implementation of the measures outlined in Section 2.14.4 and are not considered adverse.

No Build Alternative

The No Build Alternative would not result in the construction of improvements within the project area and therefore would not result in temporary noise or vibration impacts.

2.14.3.2 Permanent Impacts

Build Alternative

Long-Term Exterior Noise Impacts. Based on the projection methodologies outlined in the project *Noise and Vibration Assessment*, 17 of the 19 sensitive receptor locations show no increase in projected noise levels, while two locations show reductions for one or both of the future horizon years (2015 and 2035). The calculations for each receptor site are shown in Table 2.14.H. The two sites that show decreases in projected future noise levels corresponded to Site LT05 at 639 West K Street (R13) and Site LT06 at 146 South 4th Street (R14), as shown in previously referenced Figure 2.14.1. Site LT05 shows a 4 dBA reduction by 2015 and 2035. Similarly, Site LT06 shows a 5 dBA reduction by 2015 and 2035. The Build Alternative would be expected to reduce noise levels incrementally along the northern rail line by reducing idling that currently results when trains on the northern line wait for trains on the east-west line to pass the diamond interchange.

Table 2.14.H: Summary of Noise Impact Assessment

Receiver	Side of I-10	Noise Levels, L_{dn} (dBA)						Change Due to Project(3)		Impact/No Change/Benefit (I/N/B)	
		Existing		Future							
		2009(1)	2010(2)	2015(2)		2035(2)					
		No Build	No Build	No Build	Build	No Build	Build	2015	2035	2015	2035
R1	N	72	72	73	73	75	75	0	0	N	N
R2	N	82	82	83	83	85	85	0	0	N	N
R3	N	94	95	95	95	97	97	0	0	N	N
R4	N	80	81	81	81	83	83	0	0	N	N
R5	N	78	79	80	80	82	82	0	0	N	N
R6	N	87	89	89	89	92	92	0	0	N	N
R7	N	87	89	89	89	92	92	0	0	N	N
R8	N	70	71	72	72	74	74	0	0	N	N
R9	N	74	75	76	76	79	79	0	0	N	N
R10	N	64	66	66	67	69	69	0	0	N	N
R11	N	75	77	78	78	80	80	0	0	N	N
R12	N	71	76	76	76	77	77	0	0	N	N

Table 2.14.H: Summary of Noise Impact Assessment

Receiver	Side of I-10	Noise Levels, L_{dn} (dBA)						Change Due to Project[3]		Impact/No Change/Benefit (I/N/B)	
		Existing		Future							
		2009[1]	2010[2]	2015[2]		2035[2]					
		No Build	No Build	No Build	Build	No Build	Build	2015	2035	2015	2035
R13	S	76	76	77	73	79	75	**-4**	**-4**	**B**	**B**
R14	S	75	82	83	78	85	80	**-5**	**-5**	**B**	**B**
R15	S	80	83	84	84	87	87	0	0	N	N
R16	S	68	69	70	70	72	73	0	0	N	N
R17	S	78	78	79	79	81	81	0	0	N	N
R18	S	73	72	72	73	74	75	0	0	N	N
R19	S	64	64	65	64	66	66	0	0	N	N

1 Based on measurements in 2009.
2 Based on noise models that were calibrated to the noise measurements from 2009.
3 Because of round-off error, some differences are off by 1 decibel.
Source: Table 18, ATS 2011.

Construction of the Build Alternative would be expected to have an effect on the use of train horns in the project study area. One location where use of train horns might change as a result of the Build Alternative is at the diamond crossing. The vast majority of the UPRR trains would use the flyover. The UPRR trains would still sound their horns when there were maintenance workers on the flyover, which would happen less frequently than it does under current conditions. In addition to a reduction in train horn noise, overall noise impacts from the yard would be reduced by: reducing the diamond crossing for the mainline tracks from the existing four to two; changing the design of the diamond crossing to a flange bearing frog design; substantial reduction of UPRR trains using the diamond crossing; and there would be a general reduction in maintenance activities in the area as a result of the Build Alternative. In addition, incidents involving non-railroad personnel near on the tracks that trigger usage of UPRR horns would be substantially reduced with the Build Alternative. The Build Alternative also would tend to reduce horn sounding on the BNSF tracks because there would be less maintenance work at the diamond crossing.

Therefore, the Build Alternative would not result in any adverse increase in long-term noise levels in the project area, and noise levels at some locations would be incrementally reduced as a result of the proposed rail improvements.

Long-Term Exterior Vibration Impacts. Similar to the conclusions reached regarding project noise, 17 of the 19 sensitive receptor locations show no increase in projected vibration levels, while two locations show reductions for one or both of the future horizon years (2015 and 2035). The calculations for each receptor site are

shown in Table 2.14.I. The two sites that showed decreases in projected future vibration levels corresponded to Site LT05 at 639 West K Street (R13) and Site LT06 at 146 South 4th Street (R14), as shown in previously referenced Figure 2.14-1. Site LT05 shows a 19 dBA reduction by 2015 and 2035, while the Site LT06 location shows a 9 dBA reduction by 2015 and 2035. Therefore, the Build Alternative would not result in any substantial increases in long-term vibration levels in the project area, and vibration levels at two locations would be reduced after construction of the proposed rail improvements. The Build Alternative would have no effect on vibration levels at most locations and would result in a beneficial reduction in vibration levels at residences between Rancho Avenue and 5th Street.

Table 2.14.I: Summary of Vibration Impact Analysis

Receiver	Vibration Velocity Level, L_{max} (VdB)				Impact/ No Impact / Benefit (I/N/B)
	Existing (2010) & Future No Build (2015 & 2035)	Future Build (2015 & 2035)	Build - No Build (2015 & 2035)	Impact Threshold	
R1	62	62	0	N/A	N
R2	84	84	0	N/A	N
R3	87	87	0	N/A	N
R4	76	76	0	N/A	N
R5	73	73	0	N/A	N
R6	83	83	0	N/A	N
R7	86	86	0	N/A	N
R8	70	70	0	N/A	N
R9	72	72	0	N/A	N
R10	69	69	0	N/A	N
R11	72	72	0	N/A	N
R12	69	69	0	N/A	N
R13[1]	85	66	**-19**	N/A	**B**
R14	76	67	**-9**	N/A	**B**
R15	73	73	0	N/A	N
R16	73	73	0	N/A	N
R17	86	86	0	N/A	N
R18	77	77	0	N/A	N
R19	69	69	0	N/A	N

1 Assumes that the special trackwork on the existing tracks would be replaced with flange-bearing frogs and would be used only by a limited number of trains for local movements. The majority of the trains would use the UPRR mainline on the flyover, which would have no special trackwork.

Source: Table 19, ATS 2011.

No Build Alternative

The No Build Alternative would not result in the construction of improvements within the project area and therefore would not result in long-term noise or vibration impacts.

2.14.4 Avoidance, Minimization, and/or Abatement Measures

Based on the project noise assessment, the Build Alternative would not be projected to increase long-term noise or vibration levels at any sensitive receivers in the project area to levels above established thresholds. Therefore, no long-term noise reduction measures are required.

The analysis in Section 2.14.3 indicates that short-term potential noise impacts from construction of the Build Alternative may exceed the threshold criteria. The following measure would minimize potential construction noise impacts at residences south of the UPRR right-of-way, in particular the residences between Rancho Avenue and 5th Street.

NOI-1 Development of a Noise Control Plan by the contractor would be included in the project specifications approved by UPRR. The contractor would be required to have a qualified acoustical professional develop a Noise Control Plan that demonstrates how the contractor would achieve the noise limits in Table 2.14.J. The plan would include measurements of existing noise, a list of the major pieces of construction equipment that would be used, and predictions of the noise levels at the closest noise-sensitive receptors. The Noise Control Plan prepared by the contractor would be approved by UPRR prior to construction. Measures to be included in the Noise Control Plan shall include, but not be limited to, the following:

- Specific noise limits that should not be exceeded will be identified. The recommended noise limits are given in Table 2.14.J. Also, the contractor would be required to conduct noise monitoring to demonstrate compliance with contract noise limits.
- Require the contractor to only use equipment that meets the noise limits in Table 2.14.JTable 2.14..
- Where the construction cannot be performed in accordance with the requirements of the noise limits, the contractor should be required to investigate alternative construction measures that would result in lower sound levels.

- The contractor should be required to use the following best management practices for noise abatement whenever practical:
  - Utilize specialty equipment equipped with enclosed engines and/or high performance mufflers, as feasible.
  - Locate equipment and staging areas as far from noise-sensitive receptors as possible.
  - Limit unnecessary idling of equipment.
  - Install temporary noise barriers as needed where feasible.
  - Reroute construction-related truck traffic away from residential streets to the extent permitted by the relevant municipality.
  - Avoid impact pile driving where possible. Current construction plans do not include any impact pile driving.

Table 2.14.J: Recommended Limits on Construction Noise

Land Use	Recommended Maximum Allowable Sound Level, dBA			
	Daytime		Nighttime	
	L_{eq}[a,c]	L_{max}[b]	L_{eq}[a,d]	L_{max}[b]
FRA/FTA Category 2, Residential Land Uses (includes hotels/motels, and any other locations where people sleep)	75	85	69	79
FRA/FTA Category 3, Institutional Land Uses (schools, churches, libraries, theaters)	75	85	75[e]	85[e]

Note: These noise limits are applicable at the property line of the affected land use

(a) L_{eq} is the root-means-square sound level measured over a 20-minute period.

(b) L_{max} is the maximum instantaneous sound level measured using the "slow" setting on a standard sound level meter.

(c) If baseline daytime L_{eq} is greater than 70 dBA, the allowable level of construction noise is increased to: Noise Limit = baseline daytime L_{eq}+5 dB. The baseline L_{eq} must be established by measurements of existing noise levels prior to initiation of construction. The minimum measurement period for establishing baseline L_{eq} is 21 days.

(d) If baseline nighttime L_{eq} is greater than 66 dBA, the allowable level of construction noise is increased to: Noise Limit = baseline nighttime L_{eq}+3 dB. The baseline L_{eq} must be established by measurements of existing noise levels prior to initiation of construction. The minimum measurement period for establishing baseline noise L_{eq} is 21 days.

(e) For noise-sensitive facilities with primarily daytime use, there are no nighttime noise limits unless the facility is in use. The daytime noise limits apply when the facility is in use during nighttime hours.

Source: Table 23, ATS 2011

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BIOLOGICAL ENVIRONMENT

2.15 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA) are discussed below in Section 2.19, Threatened and Endangered Species. Wetlands and other waters are also discussed in Section 2.16.

2.15.1 Affected Environment

This section is based on the *Natural Environment Study (Minimal Impact)* (NES[MI]) (February 2011) and the *Wetland/Waters Delineation and Assessment Report* (February 2011) prepared for the proposed project.

2.15.1.1 Soils

According to *Soil Survey of San Bernardino County, Southwestern Part, California* (G.A. Woodruff 1980), the soils within the project study area consist of Tujunga gravelly loamy sand, Tujunga loamy sand, Hanford coarse sandy loam, quarries and pits, and Delhi fine sand. Delhi fine sand (Db) is mapped from the Palmdale Cutoff Wye west to beyond Pepper Avenue. The soil characteristics are typical of Delhi sands along the mainline track and adjacent to Pepper Avenue. Loose sand is present in the road shoulders, adjacent vacant land, and the western corner of the Palmdale Cutoff Wye area. Some areas mapped as Delhi fine sand are currently developed or covered with imported soil or gravel, including soil at the eastern track at the Palmdale Cutoff Wye, which has been covered with gravelly, imported fill. Soils in the central and eastern portions of the project study area are loamy or silty, paved, or covered with imported material, and unsuitable for Delhi sands flower-loving fly (DSF).

2.15.1.2 Vegetation

The study area assessed for biological resources is referred to as the Biological Study Area (BSA). The BSA was mostly developed or highly disturbed by railroad and

adjacent freeway infrastructure and consists of paved areas, buildings, bare ground, ornamental plantings, and ruderal vegetation. Vegetation in the BSA consists primarily of nonnative species adapted to human disturbance. Vegetation in undeveloped areas includes ornamental plantings and ruderal vegetation. Refer to Figure 2.15.1 for a map of land use and vegetation within the BSA.

Ruderal vegetation persists around fencing, buildings, vacant lots, and drainages. Dominant vegetation is annual brome species (*Bromus* sp.) and tocalote (*Centauria melitensis*). Forbs include Russian thistle (*Salsola tragus*), Jimson weed (*Datura wrightii*), shortpod mustard (*Hirschfeldia incana*), horseweed (*Conyza canadensis*), and annual sunflower (*Helianthus annuus*). Dominant tree species include Peruvian pepper tree (*Schinus molle*), eucalyptus (*Eucalyptus* sp.), Mexican palm (*Washingtonia robusta*), velvet ash (*Fraxinus velutina*), and chinaberry (*Melia azedarach*).

Vegetation in loamy and silty soils in the BSA was dominated by rip gut brome, tocalote, Russian thistle, and short pod mustard, plant species that are not typically dominant in DSF habitat. Habitat in the central and eastern portions of the BSA was not suitable for the DSF due to development, disturbance, and absence of suitable soils.

The vegetation adjacent to the western portions of the BSA is dominated by California buckwheat (*Eriogonum fasciculatum*) interspersed with annual grasses and forbs. The western BSA is mapped by NRCS as Delhi fine sand and currently developed or covered with imported soil or gravel, including soil at the eastern track at the Palmdale Cutoff Wye, which has been covered with gravelly, imported fill unsuitable for DSF. There are five areas adjacent to the western portion of the BSA that have low to moderate suitability for DSF.

There are three surface drainage features within the BSA. The majority of the vegetation is nonnative in the open earthen drainage (Drainage Feature 1), located in the eastern half of the BSA. The trees are velvet ash, chinaberry, and Mexican palm. The understory consists of saplings of the same species with a few scattered mule fat shrubs (*Baccharis salicifolia*) and blue elderberry (*Sambucus mexicana*). Herbaceous vegetation was mostly annual grasses with horseweed, Jimson weed, and goose grass (*Galium aparine*).

Vegetation was mostly upland and dominated by eucalyptus trees and saplings in the isolated earthen retention basin (Drainage Feature 2) located in the western half of the

Biological Study Area (BSA)

Earthen Channel
(Potentially USACE/CDFG Jurisdictional)

5 ft Trapezoidal Concrete Channel
(Potentially USACE/CDFG Jurisdictional)

Culvert

SBCFCD Storm Drain

Vegetation and Land Use

California Buckwheat Scrub

Developed/Disturbed/Ruderal

Ornamental Vegetation

Willow Scrub/Hydrophytic Vegetation
(Potentially CDFG Jurisdiction)

Soil Types

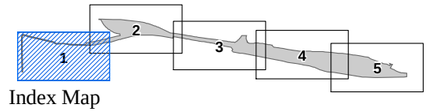
Db, Delhi Fine Sand

GP, Quarries and Pits

HaC, Hanford Coarse Sandy Loam, 2-9% Slopes

TuB, Tujunga Loamy Sand, 0-5% Slopes

TvC, Tujunga Gravelly Loamy Sand, 0-9% Slopes



Index Map

FIGURE 2.15.1
Sheet 1 of 5

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Land Use, Biological Features, Soil Types and Site Photograph Locations

SOURCE: BingMaps, 2009; Thomas Bros., 2009

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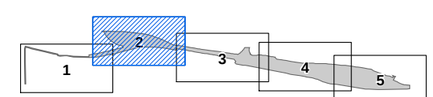

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FIGURE 2.15.1
Sheet 2 of 5

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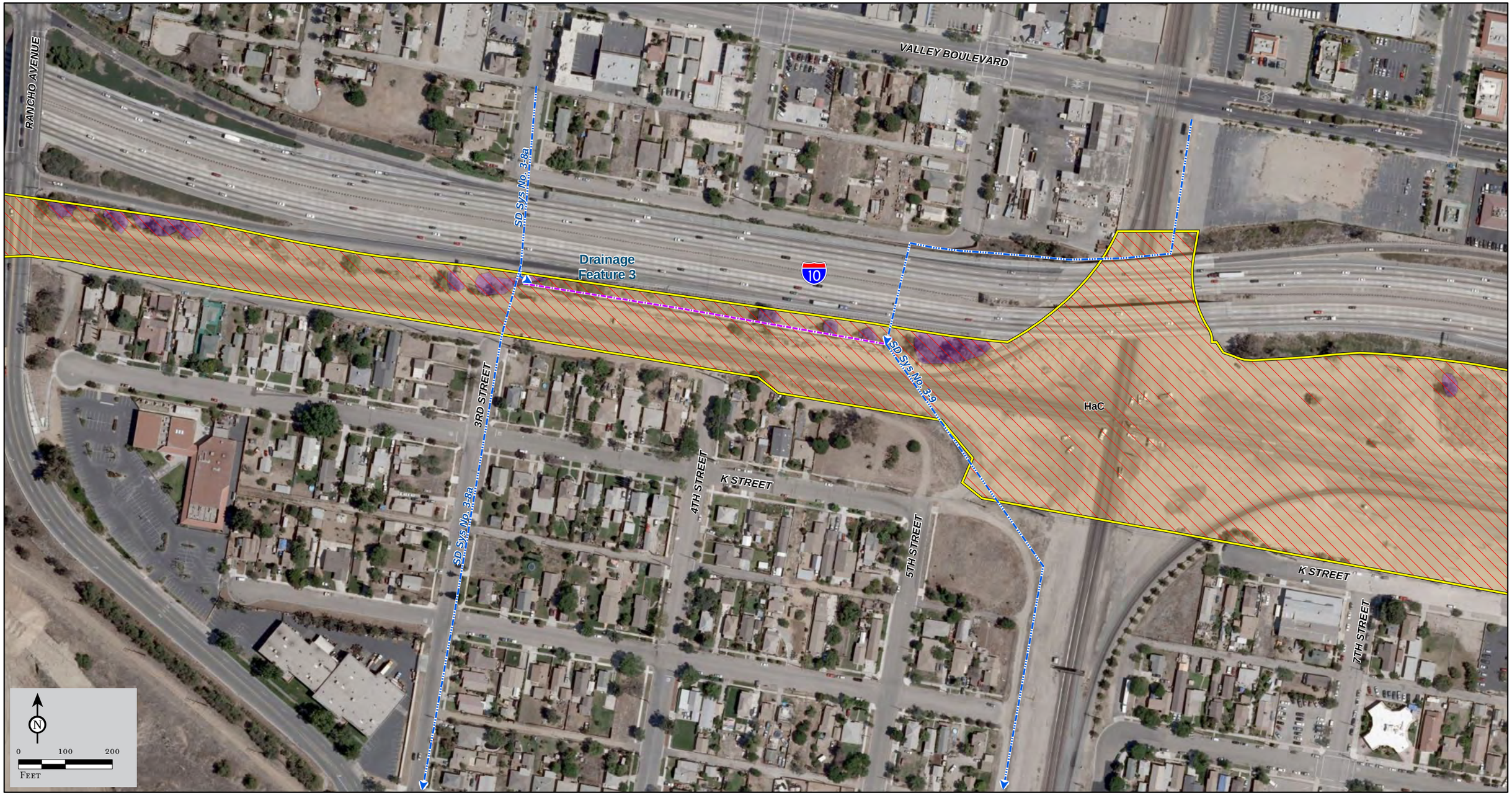

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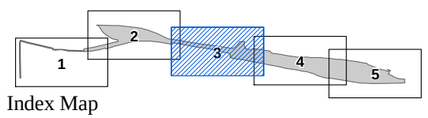

Index Map

FIGURE 2.15.1
Sheet 3 of 5

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Land Use, Biological Features, Soil Types and Site Photograph Locations

SOURCE: BingMaps, 2009; Thomas Bros., 2009

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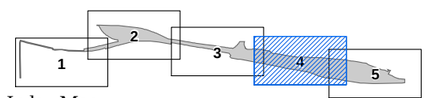

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FIGURE 2.15.1
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Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Land Use, Biological Features, Soil Types and Site Photograph Locations

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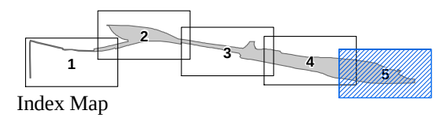

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FIGURE 2.15.1
Sheet 5 of 5

Colton Crossing Rail-to-Rail Grade Separation Project Environmental Assessment

Land Use, Biological Features, Soil Types and Site Photograph Locations

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BSA. The basin inlet is surrounded by Goodding's willow (*Salix gooddingii*) and mule fat with brome species, umbrella sedge (*Cyperus involucratus*), and goose grass (total area of 0.09 acre). Drainage Feature 3 was a concrete-lined v-ditch without vegetation.

2.15.1.3 Wildlife Corridors

The project area is located along an urban area that is already highly disturbed. No wildlife movement corridors currently exist within the BSA. The concrete and channelized Santa Ana River is located approximately 350 feet east of the BSA. However, this portion of the river nearest the BSA was not vegetated, and the area between the river and the BSA was also highly disturbed and consists of ruderal vegetation and developed areas.

2.15.2 Environmental Consequences

2.15.2.1 Temporary Impacts

Build Alternative

All impacts are considered permanent for purposes of this analysis and based on the project design. Therefore, there are no temporary impacts to natural communities. Permanent impacts are discussed below.

There are no wildlife corridors within the BSA; therefore, the Build Alternative would not result in temporary impacts to wildlife corridors.

No Build Alternative

The No Build Alternative would not result in the construction of the rail to rail grade separation within the project area and therefore would not result in any adverse temporary impacts to natural communities in the BSA within the project area.

2.15.2.2 Permanent Impacts

Build Alternative

The majority of the BSA is considered to be highly disturbed and dominated by ruderal and ornamental species. The entire area within the BSA, except for Drainage Feature 2, is considered to be permanently affected by the project. There is 0.09 acre of willow scrub/hydrophytic vegetation associated with Drainage Feature 2 that would be avoided. The other drainage features and other areas within the BSA are considered to be non-special-status vegetation communities and land use. Given the highly disturbed nature of the site, effects to natural communities are not considered adverse.

There are no wildlife corridors within the BSA; therefore, the proposed project would not affect any wildlife movement corridors in the vicinity.

No Build Alternative

The No Build Alternative would not result in the construction of the rail to rail grade separation and therefore would not result in any adverse permanent impacts to natural communities in the BSA within the project area.

2.15.3 Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the Build Alternative would not result in adverse effects to natural communities. Therefore, no avoidance, minimization, and/or mitigation measures are required.

2.16 Wetlands and Other Waters

2.16.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the Federal level, the Clean Water Act (33 USC 1344) is the primary law regulating wetlands and surface waters. The Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the Environmental Protection Agency (EPA).

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of Federal agencies with regard to wetlands. Essentially, this executive order states that a Federal agency, such as FHWA, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

The Regional Water Quality Control Boards (RWQCB) issues water quality certifications in compliance with Section 401 of the CWA. Refer to Section 2.9, Water Quality, for additional details.

The California Department of Fish and Game (CDFG), under Sections 1600, et seq. of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams. Through provisions of Sections 1600, et seq. the CDFG is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife

resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water.

2.16.2 Affected Environment

This section is based on the *Natural Environment Study (Minimal Impact)* (NES[MI]) (February 2011) and *Wetland/Waters Delineation and Assessment Report* (February 2011) prepared for the proposed project.

Table 2.16.A lists the acreages of USACE/RWQCB and CDFG jurisdiction for the drainage features within the Biological Study Area (BSA). Figure 2.16.1 shows the locations of the potential jurisdictional areas. All features lack at least one of the three wetland criteria; thus, there are no wetlands within the BSA. Drainage Features 1 and 3 are part of or connected to the County storm drain systems. These drainages are discussed in further detail below.

Table 2.16.A: Drainage Features and Acreage

Drainage Features	USACE/ RWQCB Area[1] (acres)	CDFG Area[2] (acres)
Feature 1: Open Storm Drain (part of 11th Street Storm Drain, SBCFCD SD System No. 3-10)	0.01	0.05
Feature 2: Infiltration Basin (hydrophytic vegetation area only, between Cypress and Rancho Avenues; Caltrans)	0.00	0.09
Feature 3: Trapezoid Concrete Channel (Caltrans; connected to Colton S.W. Storm Drain, between 3rd and 5th Streets, SBCFCD SD Sys 3-9, then continues as buried storm drain through BSA)	0.09	0.38

1 USACE/RWQCB = United States Army Corps of Engineers/Regional Water Quality Control Board, non-wetland waters (based on Ordinary High Water Mark [OHWM]; no wetlands.
2 CDFG = California Department of Fish and Game (based on bed and bank).
Source: Natural Environment Study (Minimal Impacts) February 2011.

The drainage features identified in the Wetland/Waters Delineation (Jurisdictional Delineation [JD]) report are conceded to be jurisdictional in order to expedite USACE jurisdiction determination procedures. During final design, concurrence on the finding of the Wetland/Waters Delineation (Jurisdictional Delineation) and a Preliminary Jurisdictional Determination would be requested from the USACE.

2.16.2.1 Drainage Feature 1

Drainage Feature 1 is part of San Bernardino County Flood Control District Storm Drain System at 11th Street (SBCFCD SD System No. 3-10) and receives flow from double 48-inch reinforced concrete pipes (RCP) from under I-10. Three sample points

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2'/6' Ordinary High Water Mark/ Streambed (ACOE/CDFG)

Culvert

Non-Impacted Hydrophytic Vegetation (Potentially CDFG Jurisdictional)

SBCFCD Storm Drain

Soil Types

Db, Delhi Fine Sand

GP, Quarries and Pits

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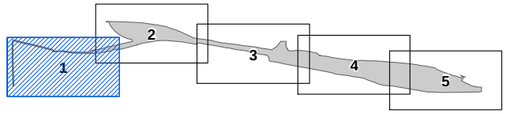
TuB, Tujunga Loamy Sand, 0-5% Slopes

TvC, Tujunga Gravelly Loamy Sand, 0-9% Slopes

N

0 100 200

Feet



Index Map

FIGURE 2.16.1

Sheet 1 of 5

Colton Crossing Rail to Rail Grade Separation Project Environmental Assessment

Drainage Features

SOURCE: AirPhotoUSA, 2008; Thomas Bros., 2009

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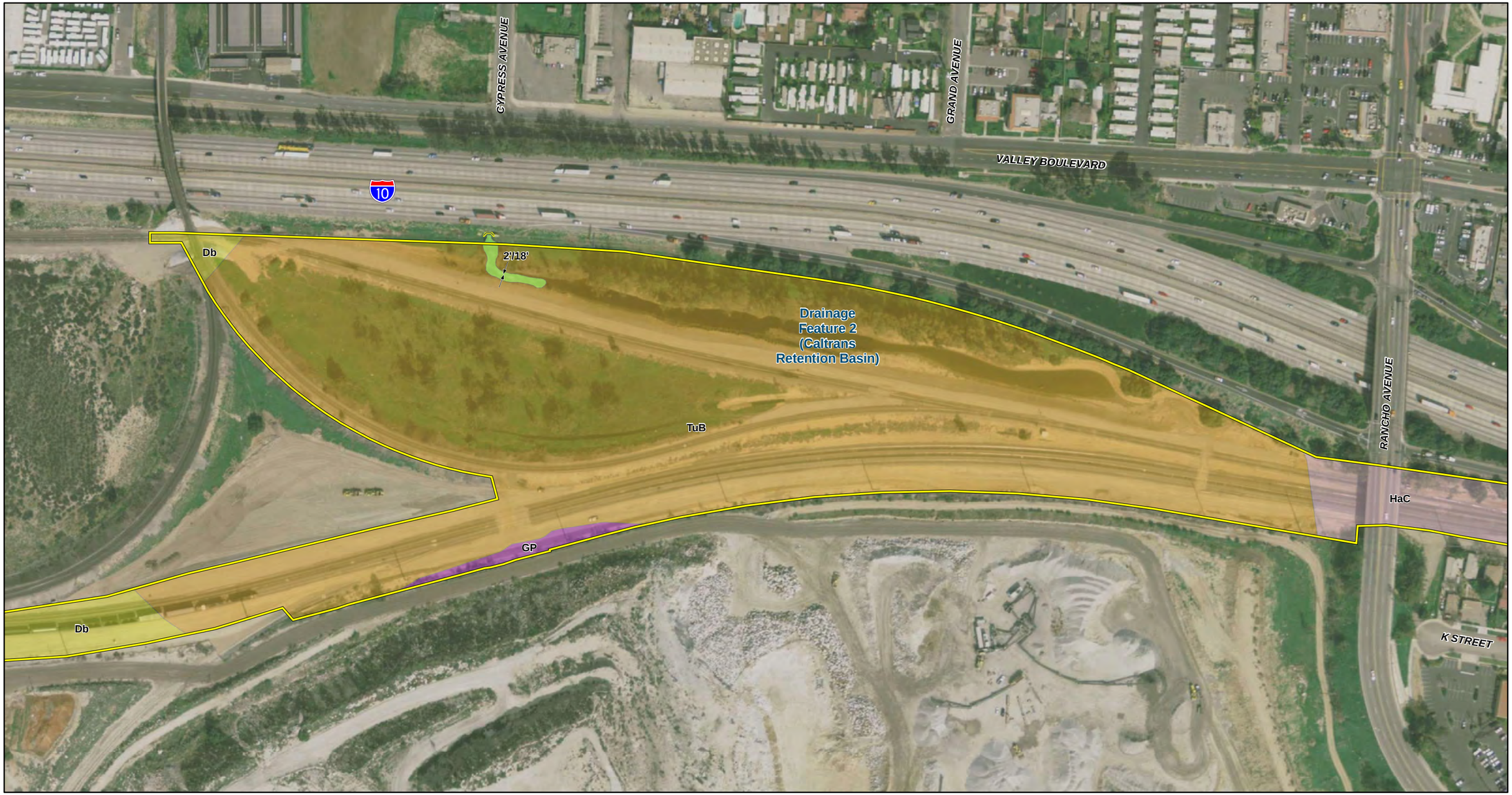

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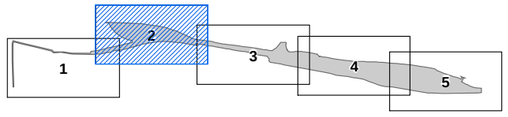
N

0 100 200

Feet



Index Map

FIGURE 2.16.1

Sheet 2 of 5

Colton Crossing Rail to Rail Grade Separation Project Environmental Assessment

Drainage Features

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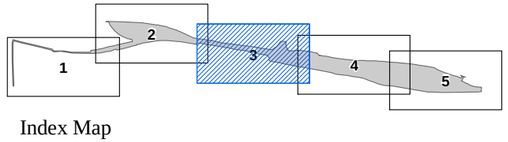
FEET



Index Map

FIGURE 2.16.1

Sheet 3 of 5

Colton Crossing Rail to Rail Grade Separation Project Environmental Assessment

Drainage Features

SOURCE: AirPhotoUSA, 2008; Thomas Bros., 2009

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10
10TH STREET
SD Sys No. 3-10
VALLEY BOULEVARD
12TH STREET
13TH STREET
9TH STREET
LA CADENA DRIVE
HaC
2'/6'
Drainage
Feature 1
(SD Sys No. 3-10)
2'/6'
TuB
TvC
2'/6'
7TH STREET
K STREET
L STREET
10TH STREET
9TH STREET
SD Sys No. 3-10
To the Santa Ana River

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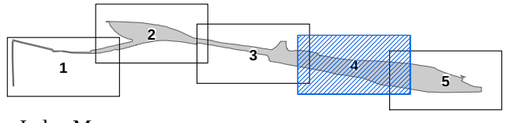

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FIGURE 2.16.1
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Colton Crossing Rail to Rail Grade Separation Project Environmental Assessment

Drainage Features

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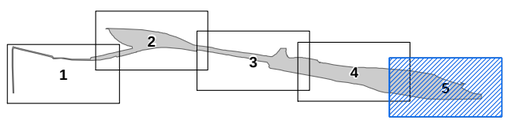

Index Map

FIGURE 2.16.1

Sheet 5 of 5

Colton Crossing Rail to Rail Grade Separation Project Environmental Assessment

Drainage Features

SOURCE: AirPhotoUSA, 2008; Thomas Bros., 2009

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were taken along this 280-linear foot (LF) open storm drain feature. Average width of the ordinary high water mark (OHWM) is 2 feet.

At the opening of the culvert in Drainage Feature 1, there is a 10-foot by 5-foot (0.001 acre) depression filled with water. No hydrophytic vegetation is located in or near the scoured ponding area at the culvert outlets. The soil does not meet the criteria for hydric soils according to the current guidelines from the NRCS. This drainage feature is not considered wetlands, since no portion of Drainage Feature 1 has all three wetland parameters. Downstream from the ponded depression, the drainage is a dry streambed, with upland vegetation, including chinaberry and Chinese elm, with a few scattered mule fat shrubs. Nonnative upland brome grass was the groundcover on the slopes.

Drainage Feature 1 was presumed subject to USACE, CDFG, and RWQCB jurisdiction.

2.16.2.2 Drainage Feature 2

Drainage Feature 2 is a Caltrans infiltration basin constructed for I-10 in a location that does not have a history of a natural streambed, as verified by topographic maps and historic aerial photographs.

Goodding's willows, eucalyptus, chinaberry, and mule fat are dense at the outlet of the culvert on the freeway embankment (and are shown as hydrophytic vegetation in Figure 2.16.1). The soils show no signs of hydric conditions. A large stand of eucalyptus trees is located in an upland area, between the freeway and the basin. Lower growing vegetation and scattered mule fat are present in the infiltration basin. Total area of riparian vegetation associated with a bed and bank is 0.09 acre. The length of the bed is 200 feet and the width is an average of 20 feet.

With the exception of the area labeled as "hydrophytic vegetation" in Figure 2.16.1, the infiltration basin lacks an OHWM or other jurisdictional field indicators defined for arid areas, lacks a defined bed-and-bank, and lacks aquatic/riparian-dominated habitat.

Drainage Feature 2 was presumed subject to CDFG jurisdiction; however, as isolated waters, unlikely to be subject to USACE and RWQCB jurisdiction under CWA Sections 401 and 404. Nevertheless, Drainage Feature 2 would be treated as USACE/ RWQCB jurisdictional.

2.16.2.3 Drainage Feature 3

Drainage Feature 3 is an open 5-foot wide, 900 LF, concrete-lined trapezoid channel located parallel to I-10 west of Rancho Avenue, within Caltrans right-of-way. It does not contain hydric soil or hydrophytic vegetation and does not meet wetland criteria. It is not part of the existing SBCFCD system, but is connected to the system upstream via Storm Drain No. 3-8a and downstream via Storm Drain No. 3-9a. This 0.09-acre drainage feature is a roadside ditch constructed concurrently with I-10 and conveys runoff from local urban development and freeway infrastructure.

Drainage Feature 3 would be treated as subject to USACE, CDFG, and RWQCB jurisdiction.

2.16.2.4 Functions and Values

The physical condition of the BSA is extremely disturbed and altered. Vegetation, soils, and hydrology are not in a natural condition. The primary function of the drainages is to manage seasonal storm waters and prevent local flooding. Surface water is directed off site as quickly as possible or retained on site to avoid flooding of the highways, railroad, and residential areas to the south. All the drainages were dry and without a sufficient inundation period to create wetland conditions. The primary function of the infiltration basin (Drainage Feature 2) is to capture sediment and contaminants from the urban areas and roads preventing their discharge into the Santa Ana River. The drainages do not provide additional benefits to society, such as recreation or aesthetics.

2.16.3 Environmental Consequences

2.16.3.1 Temporary Impacts

Build Alternative

All impacts to wetlands and other waters with the Build Alternative were considered permanent and are discussed below.

No Build Alternative

The No Build Alternative would not involve construction activities associated with the Build Alternative within the project area; therefore, no adverse temporary impacts to wetlands and other waters would occur within the project area.

2.16.3.2 Permanent Impacts

Build Alternative

The Build Alternative would result in the loss of Drainage Features 1 and 3. These open drainage ditches would be converted into belowground storm drain channels and connect to the existing belowground storm drain system. Drainage Feature 1 has 0.01 acre of USACE and 0.05 acre of CDFG jurisdictional area. Drainage Feature 3 had 0.09 acre of USACE jurisdictional area and 0.38 acre of CDFG jurisdictional area. Therefore, the Build Alternative would result in 0.10 acre of permanent impacts to USACE jurisdictional areas (non-wetland waters) and 0.43 acre of CDFG jurisdictional areas. There are no USACE wetlands in the project area; therefore, no wetlands would be affected by the Build Alternative.

Since most of the runoff conveyed downstream from Drainage Features 1 and 3 either evaporates or percolates into the groundwater prior to reaching the Santa Ana River and since surface runoff that does ultimately reach the Santa Ana River does so only during extreme storm events or heavy rainfall years, it is likely the USACE would conclude that the loss of Drainage Features 1 and 3 would not have a substantial adverse effect on the chemical, physical, or biological integrity of downstream traditional navigable waters. In addition, Drainage Features 1 and 3 are artificial drainage ditches constructed primarily for flood control purposes, are highly disturbed, and lack sufficient resources suitable for supporting native fish and wildlife species. Based on these existing conditions, impacts to Drainage Features 1 and 3 would not be considered adverse.

The Build Alternative would avoid Drainage Feature 2; therefore, no adverse impacts to this drainage would occur.

No Build Alternative

The No Build Alternative would not result in the construction of the rail to rail grade separation and therefore would not result in any adverse permanent impacts to wetlands and other waters within the project area.

2.16.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures are required to ensure compliance with applicable laws and regulations. Any mitigation for impacts to USACE, RWQCB, or CDFG would be determined during the permitting process.

WET-1 Prior to initiating construction, Union Pacific Railroad (UPRR) would submit a Pre-Construction Notification (PCN) form and Preliminary Jurisdictional Determination to the United States Army Corps of Engineers (USACE) to obtain coverage under a Nationwide Permit (NWP), pursuant to Section 404 of the Federal Clean Water Act (CWA).

If mitigation is required by the USACE, the appropriate type and level of mitigation would be determined in coordination with the USACE based on the quantity and quality of jurisdictional resources to be affected. Typical mitigation could include replacement and/or enhancement of on-site or off-site habitat. An example of enhancement mitigation would be the payment of in lieu fees or the purchase of established mitigation bank credits for enhancement of some identified USACE jurisdictional area. The specific mitigation bank is subject to approval by the USACE and possibly in coordination with the California Department of Fish and Game (CDFG) and the Santa Ana Regional Water Quality Control Board (RWQCB) under guidelines described by these regulatory agencies through the permitting process. Applicable mitigation would be in-lieu fee contribution to County of Riverside Parks and Open Space-Santa Ana River Mitigation Bank or a Santa Ana Watershed Association riparian and wetland restoration/enhancement project.

WET-2 In the event that a Section 404 authorization or permit is required for the proposed project, UPRR would submit an application for a 401 Water Quality Certification to the Santa Ana RWQCB and obtain a certification of water quality from the Santa Ana RWQCB prior to initiating construction. In the event that a Section 404 authorization or permit is not required for the proposed project, then prior to initiating construction, UPRR would submit an application for a State waste discharge permit to the Santa Ana RWQCB for proposed impacts to Waters of the State and obtain appropriate authorization from RWQCB.

WET-3 Prior to obtaining initiation of construction, UPRR would submit a Lake or Streambed Alteration Notification (SAN) to the CDFG for their review. The CDFG may or may not choose to issue a Streambed Alteration Agreement. Notification from the CDFG of either issuance of an Alteration Agreement or determination that it is not required would be obtained prior to initiating construction.

2.17 Plant Species

2.17.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) is responsible for the protection of federally listed special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. “Special status” is a general term for species that are afforded varying levels of regulatory protection. This section of the document discusses all federally protected special-status plant species including USFWS candidate species.

The highest level of protection is given to species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA). Refer to Section 2.19 in this document for detailed information regarding these species. The regulatory requirements for the FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 CFR Part 402.

2.17.2 Affected Environment

This section is based on the *Natural Environment Study (Minimal Impacts) (NES[MI])* (February 2011) prepared for the proposed project.

A literature review and records search was conducted on June 3, 2010, to identify the existence or potential occurrence of special-status plant species within or in the vicinity of the Biological Study Area (BSA). A search of the California Natural Diversity Data Base (CNDDB) information (Version 3.1.0, June 3, 2010), administered by the CDFG, and the California Native Plant Society’s (CNPS) Online Inventory of Rare and Endangered Plants of California (Version 7-10b, April 21, 2010) (CNPS Inventory), was conducted for special-status plant species expected to occur in the vicinity of the BSA. Other special-status plant species known to occur in the general area were also considered.

A reconnaissance-level field survey was conducted on June 7 and November 11, 2010, to assess the BSA for the presence of various special-status plant species and suitability of habitat to support such species.

The results of the literature review indicated the potential occurrence of 9 special-status plant species within a 3-mile radius of the BSA. Five of the 9 special-status plant species are federally and/or State-listed as endangered or threatened species and are discussed in Section 2.19, Threatened and Endangered Species.

The remaining 4 special interest/special-status plant species identified as potentially occurring in the BSA are:

- Bristly sedge (*Carex comosa*);
- Parry's spineflower (*Chorizanthe parryi* var. *parryi*);
- Pringle's monardella (*Monardella pringlei*); and
- Brand's phacelia (*Phacelia stellaris*).

Table 2.17.A provides habitat descriptions and further details of these special-status plant species. No special-status plant species were observed or otherwise detected on site at the time of the site visit. As discussed in Table 2.17.A, no suitable habitat exists within the project limits for any special-status plant species.

Table 2.17.A: Special-Status Plant Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
Carex comosa Bristly sedge	US: – CA: SP CNPS: 2	Bogs and fens, freshwater marshes and swamps, and lake margins below 425 meters (1,400 feet). Known from Lake, Santa Cruz, San Francisco, Shasta, San Joaquin, and Sonoma Counties, and Idaho, Oregon, and Washington. Believed extirpated from San Bernardino County (last known occurrence was in 1882).	None	Suitable habitat (marshes) for this species is not found within the BSA.
Chorizanthe parryi var. *parryi* Parry's spineflower	US: – CA: SP CNPS: 3	Dry sandy soils in chaparral or coastal scrub at 40 to 1,750 meters (100 to 5,700 feet) elevation. Known only from Riverside and San Bernardino Counties and possibly extending into Los Angeles County.	None	Suitable habitat (native habitat) for this species is not found within the BSA.
Monardella pringlei Pringle's monardella	US: – CA: SP CNPS: 1A	Sandy hills in coastal sage scrub at 300 to 400 meters (980 to 1,300 feet) elevation. Known only from two occurrences west of Colton. Last seen in 1941. Habitat lost to urbanization. Presumed extinct.	None	Suitable habitat (sandy soils and coastal sage scrub) for this species is not found within the BSA.
Phacelia stellaris Brand's phacelia	US: FC CA: – CNPS: 1B	Sandy openings, sandy benches, dunes, sandy washes, or river floodplains in coastal sage scrub at 5 to 400 meters (20 to 1,300 feet) elevation. In western Riverside County, this species appears to be restricted to sandy washes and benches in alluvial floodplains. In California, known only from Los Angeles (believed extirpated), Riverside, and San Diego Counties.	None	Suitable habitat (active alluvial floodplain and native habitat) for this species is not found within the BSA.

Legend and Source provided on next page

Legend and Source for Table 2.17.A	
US: Federal Classifications	
FC	Candidate for listing as Threatened or Endangered.
CA: State Classifications	
SP	Special Plant. Refers to any other plant monitored by the Natural Diversity Data Base, regardless of its legal or protection status.
CNPS: California Native Plant Society Classifications	
1A	Plants presumed extinct in California.
1B	Plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere.
2	Plants considered by CNPS to be rare, threatened, or endangered in California, but more common elsewhere.
3	Plants suggested by CNPS for consideration as endangered but about which more information is needed.

Source: *Natural Environment Study (Minimal Impacts)* (NES[MI]) (February 2011)

2.17.3 Environmental Consequences

2.17.3.1 Temporary Impacts

Build Alternative

The Build Alternative would not result in temporary impacts to special-status plant species because they are considered absent from the BSA.

No Build Alternative

The No Build Alternative would not result in the construction of the rail-to-rail grade separation within the project area and therefore would not result in any adverse temporary impacts to special-status plant species, which are also considered absent from the BSA.

2.17.3.2 Permanent Impacts

Build Alternative

The Build Alternative would not result in permanent impacts to special-status plant species because they are considered absent from the BSA.

No Build Alternative

The No Build Alternative would not result in the construction of the rail-to-rail grade separation within the project area and therefore would not result in any adverse permanent impacts to special-status plant species, which are also considered absent from the BSA.

2.17.4 Avoidance, Minimization and/Mitigation Measures

Based on the above discussion and analysis, the Build Alternative would not result in adverse effects to special-status plant species. Therefore, no avoidance, minimization, and/or mitigation measures are required.

2.18 Animal Species

2.18.1 Regulatory Setting

Many Federal laws regulate impacts on wildlife. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the Federal Endangered Species Act (FESA). All other Federal candidate and protected special-status animal species are discussed here, including USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act (NEPA);
- Migratory Bird Treaty Act (MBTA); and
- Fish and Wildlife Coordination Act.

If work is being done on Federal land (e.g., BLM or Forest Service lands), then those agencies' regulations, policies, and Habitat Conservation Plans are followed.

Refer to Section 2.19 in this document for detailed information regarding species formally listed or proposed for listing as endangered or threatened under the FESA.

2.18.2 Affected Environment

This section is based on the *Natural Environment Study (Minimal Impacts)* (NES[MI]) (February 2011) prepared for the project.

A literature review and records search was conducted on June 3, 2010, to identify the existence or potential occurrence of special-status animal species within or in the vicinity of the Biological Study Area (BSA). A search of the California Natural Diversity Data Base (CNDDB) information (Version 3.1.0, June 3, 2010), which is administered by the CDFG, was conducted for special-status animal species expected to occur in the vicinity of the BSA. Other special-status animal species known to occur in the general area were also considered.

A reconnaissance-level field survey was conducted on June 7, 2010, to assess the BSA for the presence of various special-status animal species and suitability of habitat to support such species. A second site survey was conducted on November 11,

2010, to survey areas added to the BSA for additional staging areas south of the crossing, Pepper Avenue, and the track improvements at the Palmdale Cutoff Wye.

The results of the literature review indicated the potential occurrence of 13 special-status animal species within a 3-mile radius of the BSA. Six of the 13 special-status animal species are federally and/or State-listed as endangered or threatened species and are discussed in Section 2.19, Threatened and Endangered Species.

The remaining 7 special interest/special-status animal species identified as potentially occurring in the BSA are:

- Arroyo chub (*Gila orcuttii*);
- Burrowing owl (*Athene cunicularia*);
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*);
- Western mastiff bat (*Eumops perotis*);
- Western yellow bat (*Lasiurus xanthinus*);
- Southern grasshopper mouse (*Onychomys torridus ramona*); and
- Los Angeles pocket mouse (*Perognathus longimembris brevinasus*).

Table 2.18.A provides habitat descriptions and further details of these special-status animal species. No special-status animal species were observed or otherwise detected on site at the time of the site visit. As discussed in Table 2.18.A, no suitable habitat exists within the project limits for any special-status animal species; however, there are ornamental trees that may provide nesting habitat for some special-status bird species.

Table 2.18.A: Special-Status Animal Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
FISH				
Gila orcuttii Arroyo chub	US: – CA: CSC	Perennial streams or intermittent streams with permanent pools; slow water sections of streams with mud or sand substrates; spawning occurs in pools. Native to Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita River systems; introduced in Santa Ynez, Santa Maria, Cuyama, and Mojave River systems and smaller coastal streams.	None	Suitable habitat (perennial streams) for this species is not found within the BSA.

Table 2.18.A: Special-Status Animal Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
BIRDS				
Athene cunicularia (burrow sites) Burrowing owl	US: – CA: CSC	Open country in much of North and South America. Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. They avoid thick, tall vegetation, brush, and trees, but may occur in areas where brush or tree cover is less than 30 percent.	None	No suitable burrows were observed within the BSA. Soils are highly compacted.
Coccyzus americanus occidentalis (nesting) Western yellow-billed cuckoo	US: FC CA: SE	Breeds and nests in extensive stands of dense cottonwood/willow riparian forest along broad, lower flood bottoms of larger river systems at scattered locales in western North America; winters in South America.	None	Suitable habitat (dense riparian forest) for this species is not found within the BSA.
MAMMALS				
Eumops perotis Western mastiff bat	US: – CA: CSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, and tunnels, and travels widely when foraging.	None	Suitable habitat (native vegetation and tall roosting areas) for this species is not found within the BSA.
Lasiurus xanthinus Western yellow bat	US: – CA: SA	Occurs in southern California in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees. Forages over water and among trees.	None	Suitable habitat (palm oases) for this species is not found within the BSA.
Onychomys torridus ramona Southern grasshopper mouse	US: – CA: CSC	Arid habitats, especially scrub habitats with friable soils. Coastal scrub, mixed chaparral, sagebrush, low sage, bitterbrush, and grassland habitats. Arid portions of southwestern California and northwestern Baja California.	None	Suitable habitat (friable soils and native habitats) for this species is not found within the BSA.
Perognathus longimembris brevinasus Los Angeles pocket mouse	US: – CA: CSC	Prefers sandy soil for burrowing, but has been found on gravel washes and stony soils. Found in coastal sage scrub in Los Angeles, Riverside, and San Bernardino Counties.	None	Suitable habitat (sandy soils and native habitats) for this species is not found within the BSA.

Legend and Source provided on next page

Legend and Source for Table 2.18.A	
US: Federal Classifications	
FC	Candidate for listing as Threatened or Endangered.
CA: State Classifications	
SE	Taxa State-listed as Endangered.
CSC	California Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SA	Special Animal. Refers to any other animal monitored by the Natural Diversity Data Base, regardless of its legal or protection status.

Source: *Natural Environment Study (Minimal Impacts)* (NES[MI]) (February 2011)

2.18.3 Environmental Consequences

2.18.3.1 Temporary Impacts

Build Alternative

Vegetation clearing associated with the Build Alternative has the potential to disturb ornamental trees that may provide nesting habitat for special-status bird species and other migratory birds. With the measures presented in Section 2.18.4, potential impacts to special-status bird species and migratory birds during construction would not be adverse.

No Build Alternative

The No Build Alternative would not result in the construction of the rail to rail grade separation and therefore would not result in any adverse temporary impacts to special-status animal species or migratory birds within the project area.

2.18.3.2 Permanent Impacts

Build Alternative

The Build Alternative would not result in adverse permanent impacts to special-status bird species or migratory birds because removal and disturbance of vegetation would cease upon construction completion.

No Build Alternative

The No Build Alternative would not result in the construction of the of the rail to rail grade separation and therefore would not result in any adverse permanent impacts to special-status animal species or migratory birds within the project area.

2.18.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would avoid and/or minimize impacts to migratory birds during construction of the Build Alternative.

ANI-1 All vegetation clearing would be restricted to outside the active breeding season (February 15 through August 15) for birds whenever possible. If vegetation clearing must occur during breeding season, a qualified biologist would conduct clearance surveys for active bird nests immediately prior to any clearing of vegetation to ascertain whether any raptors or other migratory birds are actively nesting in the Biological Study Area (BSA). During the clearance surveys, the location of any active bird nests would be mapped by the biologist, and an appropriate buffer where work would not take place would be established and monitored. The buffer would be delineated by flagging, which would remain in place until the nest is either abandoned or the young have fledged. If active nests are present, appropriate buffer area would be determined on a case-by-case basis, depending on nesting species, subject to discussion with the resources agencies when nesting is discovered. This requirement would be included in the PS&E for the project.

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2.19 Threatened and Endangered Species

2.19.1 Regulatory Setting

The primary Federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC), Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this Act, the FHWA or another agency delegated authority to do so by the FHWA, e.g., Caltrans, is required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an Incidental Take statement. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

2.19.2 Affected Environment

This section is based on the *Natural Environment Study (Minimal Impacts)* (NES[MI]) (November 2010) prepared for the project.

A literature review and records search were conducted on June 3, 2010, to identify the existence or potential occurrence of special-status biological resources (e.g., plant and animal species) within or in the vicinity of the BSA. Current database records reviewed included the following:

- California Natural Diversity Data Base (CNDDB) information (Version 3.1.0, June 3, 2010), which is administered by the CDFG.
- California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants of California (Version 7-10b, April 21, 2010) (CNPS Inventory).

Searches in both of these databases were conducted for special-status species expected to occur in the vicinity of the BSA. Other special-status species known to occur in the general area were also considered. In addition, a list of federally listed plant and animal species that potentially occur within the BSA was received from the USFWS on July 2, 2010, and is included in Chapter 3, Comments and Coordination.

A reconnaissance-level field survey was conducted on June 7, 2010, to assess the BSA for the presence of various special-status animal species and suitability of habitat to support such species. A second site survey was conducted on November 11, 2010, to survey areas added to the BSA for the additional staging areas south of the crossing, Pepper Avenue, and the track improvements at the Palmdale Cutoff Wye.

During the course of the surveys, the BSA was assessed for the presence of various special-status species, including vegetation, wildlife, and suitability of habitat to support such species.

The results of the literature review indicated the potential occurrence of 6 threatened and/or endangered plant species and 6 threatened and/or endangered animal species within a 3-mile radius of the BSA.

The threatened and/or endangered plant species identified as potentially occurring in the BSA are:

- Marsh sandwort (*Arenaria paludicola*);
- Salt marsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*);
- Slender-horned spineflower (*Dodecahema leptoceras*);
- Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*);
- Gambel's water cress (*Nasturtium gambelii*); and
- Brand's phacelia (*Phacelia stellaris*).

The threatened and/or endangered animal species identified as potentially occurring in the BSA are:

- Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*);
- Santa Ana sucker (*Catostomus santaanae*);
- Southwestern willow flycatcher (*Empidonax traillii extimus*);
- Coastal California gnatcatcher (*Polioptila californica californica*);
- Least Bell's vireo (*Vireo bellii pusillus*); and
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*).

Habitat descriptions and further details of the threatened and/or endangered plant and animal species are shown in Tables 2.19.A and 2.19.B.

Table 2.19.A: Threatened and/or Endangered Plant Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
Arenaria paludicola Marsh sandwort	US: FE CA: SE CNPS: 1B	Found in freshwater marshes from 3 to 170 meters (10 to 560 feet) elevation, where it grows up through dense mats of *Typha*, *Juncus*, *Scirpus*, etc. Known to presently occur only in San Luis Obispo County. Believed extirpated from Los Angeles, San Francisco, Santa Cruz, Riverside, and San Bernardino Counties, and from the State of Washington. The last known record of this species in Riverside, San Bernardino, or Los Angeles Counties is from 1900.	None	BSA is outside suitable elevation for this species.
Corylanthus maritimus ssp. *maritimus* Salt marsh bird's beak	US: FE CA: SE CNPS: 1B	Coastal dunes and salt marshes below 30 meters (100 feet) elevation. In California, known from Los Angeles, Orange, Santa Barbara, San Diego, San Luis Obispo, and Ventura Counties. Historical collections referred to this taxon from alkaline meadow in vicinity of San Bernardino Valley are intermediate to *C. maritimus* ssp. *canescens*. Also occurs in Mexico.	None	BSA is outside of suitable elevation range for species. Suitable habitat (coastal dunes and salt marshes) for this species is not found within the BSA.
Dodecahema leptoceras Slender-horned spineflower	US: FE CA: SE CNPS: 1B	In the Vail Lake area, occurs in gravel soils of Temecula arkose deposits in openings in chamise chaparral. In other areas, occurs in sandy cobbly riverbed alluvium in alluvial fan sage scrub (usually late seral stage), on floodplain terraces and benches that receive infrequent overbank deposits from generally large washes or rivers, where it is most often found in shallow silty depressions dominated by leather spineflower (*Lastarriaea coriacea*) and other native annual species, and is often associated with cryptogamic soil crusts composed of bryophytes, algae and/or lichens. Occurs at 200 to 760 meters (600 to 2,500 feet) elevation. Known only from Los Angeles, Riverside, and San Bernardino Counties.	None	Suitable habitat (native habitat) for this species is not found within the BSA.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	US: FE CA: SE CNPS: 1B	Sandy soils of floodplains and terraced fluvial deposits of the Santa Ana River and larger tributaries (Lytle and Cajon Creeks, lower portions of City and Mill Creeks) at 120 to 625 meters (400 to 2,100 feet) elevation in San Bernardino and Riverside Counties.	None	Suitable habitat (sandy soils) for this species is not found within the BSA.

Table 2.19.A: Threatened and/or Endangered Plant Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
Nasturtium gambelii Gambel's water cress	US: FE CA: ST CNPS: 1B	Marshes and swamps from 5 to 330 meters (20 to 1,100 feet) elevation. Currently believed to occur in California only in Santa Barbara and San Luis Obispo Counties. There are historical records from Los Angeles, Orange, San Diego, and San Bernardino Counties, although the San Diego County records may be based on misidentification of another species. Also occurs in Baja California.	None	Suitable habitat (marshes) for this species is not found within the BSA.
Phacelia stellaris Brand's phacelia	US: FC CA: – CNPS: 1B	Sandy openings, sandy benches, dunes, sandy washes, or river floodplains in coastal sage scrub at 5 to 400 meters (20 to 1,300 feet) elevation. In western Riverside County, this species appears to be restricted to sandy washes and benches in alluvial floodplains. In California, known only from Los Angeles (believed extirpated), Riverside and San Diego Counties.	None	Suitable habitat (active alluvial floodplain and native habitat) for this species is not found within the BSA.

LEGEND	
US: Federal Classifications	
FE	Taxa listed as Endangered.
FC	Candidate for listing as Threatened or Endangered.
CA: State Classifications	
SE	Taxa State-listed as Endangered.
ST	Taxa State-listed as Threatened.
CNPS: California Native Plant Society Classifications	
1B	Plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere.

Source: *Natural Environment Study (Minimal Impacts)* (November 2010)

Table 2.19.B: Threatened and/or Endangered Animal Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
INVERTEBRATES				
Rhaphiomidas terminatus abdominalis Delhi sands flower-loving fly	US: FE CA: SA	Restricted to Delhi series sands in western Riverside and San Bernardino Counties.	Low to Moderate	Suitable habitat for this species is found adjacent and outside the BSA, north and west of Slover Mountain.

Table 2.19.B: Threatened and/or Endangered Animal Species Potentially Occurring or Known to Occur in the Project Area

Species of Concern	Status	Habitat	Potential to Occur	Rationale
FISH				
Catostomus santaanae Santa Ana sucker	US: FT CA: CSC	The Santa Ana sucker's historical range includes the Los Angeles, San Gabriel, and Santa Ana River drainage systems located in southern California. An introduced population also occurs in the Santa Clara River drainage system in southern California. Found in shallow, cool, running water.	None	Suitable habitat (perennial streams) for this species is not found within the BSA.
BIRDS				
Empidonax traillii extimus Southwestern willow flycatcher	US: FE CA: SE	Rare and local breeder in extensive riparian areas of dense willows or (rarely) tamarisk, usually with standing water, in the southwestern U.S. and (formerly?) northwestern Mexico. Winters in Central and South America. Below 6,000 feet elevation.	None	Suitable habitat (dense riparian habitat with water) for this species is not found within the BSA.
Polioptila californica californica Coastal California gnatcatcher	US: FT CA: CSC	Inhabits coastal sage scrub in low-lying foothills and valleys in cismontane southwestern California and Baja California.	None	Suitable habitat (coastal sage scrub) for this species is not found within the BSA.
Vireo bellii pusillus Least Bell's vireo	US: FE CA: SE	Riparian forests and willow thickets. The most critical structural component of least Bell's vireo habitat in California is a dense shrub layer 2 to 10 feet (0.6–3.0 meter) above ground. Nests from central California to northern Baja California. Winters in southern Baja California.	None	Suitable habitat (riparian forests and thickets) for this species is not found within the BSA.
MAMMALS				
Dipodomys merriami parvus San Bernardino kangaroo rat	US: FE CA: CSC	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In San Bernardino County, this species occurs primarily in the Santa Ana River and its tributaries north of Interstate 10, with small remnant populations in the Etiwanda alluvial fan, the northern portion of the Jurupa Mountains in the south Bloomington area, and in Reche Canyon.	None	Suitable habitat (gravelly and sandy soils, friable soils) for this species not found within the BSA.

Legend and Source provided on next page

LEGEND	
US: Federal Classifications	
FE	Taxa listed as Endangered.
FT	Taxa listed as Threatened.
CA: State Classifications	
SE	Taxa State-listed as Endangered.
CSC	California Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
SA	Special Animal. Refers to any other animal monitored by the Natural Diversity Data Base, regardless of its legal or protection status.

Source: *Natural Environment Study (Minimal Impacts)* (November 2010)

A habitat site assessment (HSA) was conducted to determine if focused surveys would be required for Delhi sands flower-loving fly, San Bernardino kangaroo rat, and any other listed species. An HSA was conducted for the Delhi sands flower-loving fly due to the BSA location within United States Department of Agriculture (USDA) mapped Delhi soils. There are five areas adjacent to the western portion of the BSA within mapped Delhi soils that have low to moderate suitability for DSF. The two habitat areas north of Slover Mountain have a low potential for DSF due to disturbance and isolation from larger habitat areas, and the remaining three habitat areas to the west have a moderate potential for DSF due to lesser degrees of disturbance and isolation.

UPRR has prepared a draft habitat conservation plan (HCP) for the DSF (HDR Engineering, Inc. 2007). The Alhambra Subdivision Double-Track and Improvement Project (Alhambra) between Slover and Pepper Avenues would affect low, moderate, and highly suitable DSF habitat areas. This area is located north of and parallel to the western section of the Colton Crossing BSA. Presence of DSF in the suitable habitat areas was assumed for purposes of completing FESA Section 7 consultation for the Alhambra Project. The Colton Crossing BSA is adjacent to the southern edge of the Alhambra HCP study area, but the Colton Crossing BSA and actual grading limits avoid DSF habitat.

Soils along the eastern end are highly compacted and heavily disturbed and not suitable for the San Bernardino kangaroo rat.

No threatened and/or endangered plant or animal species were observed or otherwise detected on site at the time of the site visit. As shown in Tables 2.19.A and 2.19.B, no suitable habitat exists within the project limits that would likely support any threatened and/or endangered plant or animal species.

2.19.3 Environmental Consequences

2.19.3.1 Temporary Impacts

Build Alternative

The Build Alternative would not result in adverse temporary impacts to threatened and/or endangered plant or animal species because they are considered absent from the BSA. The western portion of the BSA avoids adjacent suitable habitat (soils and vegetation) for the DSF. In addition to the dust suppression measures identified in Section 2.13 and the stormwater control measures outlined in Section 2.9, installation of temporary fencing along the construction limits adjacent to suitable DSF habitat would be sufficient for avoiding direct and indirect effects to the DSF habitat adjacent to the BSA.

No Build Alternative

The No Build Alternative would not result in the construction of the rail to rail grade separation within the project area and therefore would not result in any adverse temporary impacts to threatened and/or endangered plant or animal species as such species are considered absent from the BSA.

2.19.3.2 Permanent Impacts

Build Alternative

The Build Alternative would not result in adverse permanent impacts to threatened and/or endangered plant or animal species because they are considered absent from the BSA.

No Build Alternative

The No Build Alternative would not result in the construction of the rail-to-rail grade separation within the project area and therefore would not result in any adverse permanent impacts to threatened and/or endangered plant or animal species as such species are considered absent from the BSA.

2.19.4 Avoidance, Minimization, and/or Mitigation Measures

In addition to the dust suppression measures identified in Section 2.13 and the stormwater control measures outlined in Section 2.9, the following measures would serve to avoid direct and indirect impacts to DSF habitat adjacent to the BSA

TE-1 Prior to initiation of grading activities and staging, the contractor would install temporary snow fencing along the access roads and grading limits

adjacent to identified DSF habitat under the direction of a qualified biologist. This fencing would be maintained throughout the construction period. If the fencing is damaged for any reason, said fencing would be replaced within three working days. These fencing areas and requirements would be shown on project plans and included in the PS&E package approved by UPRR.

2.20 Invasive Species

2.20.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring Federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999 directs the use of the State's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.20.2 Affected Environment

This section is based on the *Natural Environment Study (Minimal Impact)* (NES[MI]) (February 2011) prepared for the proposed project.

The California Invasive Plant Council (Cal-IPC) 2006 Invasive Plant Inventory is based on information submitted by members, land managers, botanists, and researchers throughout the State as well as published sources. The inventory highlights nonnative plants that are serious problems in wildlands (natural areas that support native ecosystems, including national, State, and local parks; ecological reserves; wildlife areas; National Forests; Bureau of Land Management lands; etc.). The inventory categorizes plants as High, Moderate, or Limited based on the species' negative ecological impact in California. Plants categorized as High have severe ecological impacts. Plants categorized as Moderate have substantial and apparent, but not severe, ecological impacts. Plants categorized as Limited are invasive, but their ecological impacts are minor on a statewide level.

A total of 13 nonnative plants occurring on the Cal-IPC Invasive Plant Inventory were identified in the Biological Study Area (BSA). Table 2.20.A lists the nonnative, invasive plant species that were observed in the BSA during the site visit and their Cal-IPC ratings.

Table 2.20.A: Invasive Species Observed in the Biological Study Area

Scientific Name	Common Name	Cal-IPC Rating
Anacardiaceae	**Sumac family**	
Schinus molle	Peruvian pepper tree	Limited
Arecaceae	**Palm family**	
Washingtonia robusta	Mexican fan palm	Moderate
Asteraceae	**Sunflower family**	
Centaurea melitensis	Tocalote	Moderate
Cirsium sp.	Thistle	Moderate
Brassicaceae	**Mustard family**	
Hirschfeldia incana	Short-pod mustard	Moderate
Chenopodiaceae	**Saltbush family**	
Salsola tragus	Russian thistle	Limited
Euphorbiaceae	**Spurge family**	
Ricinus communis	Castor bean	Limited
Myrtaceae	**Myrtle family**	
Eucalyptus sp.	Eucalyptus	Limited to High
Poaceae	**Grass family**	
Bromus diandrus	Ripgut brome	Moderate
Bromus madritensis	Foxtail chess	High
Cynodon dactylon	Bermuda grass	Moderate
Solanaceae	**Nightshade family**	
Nicotiana glauca	Tree tobacco	Moderate
Tamaricaceae	**Tamarisk family**	
Tamarix ramosissima	Mediterranean tamarisk	High

LEGEND
High: These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment.
Moderate: These species' reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance.
Limited: These species are invasive but their ecological impacts are minor. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. These species may be locally persistent and problematic.
http://www.cal-ipc.org/ip/inventory/index.php
Source: *Natural Environment Study (Minimal Impacts)* (NES[MI]) (February 2011)

2.20.3 Environmental Consequences

2.20.3.1 Temporary Impacts

Build Alternative

Impacts related to invasive species were considered permanent impacts because the introduction of invasive species into previously undisturbed areas would result in permanent impacts to the habitat. Therefore, impacts related to invasive species as a result of construction of the Build Alternative are described below under permanent impacts.

No Build Alternative

Under the No Build Alternative, there would be no construction within the project area and no temporary project-related changes related to invasive species that occur within the BSA.

2.20.3.2 Permanent Impacts

Build Alternative

Construction of the Build Alternative includes vegetation removal, including vegetation identified as invasive. However, construction of the Build Alternative also has the potential to spread invasive species by the entering and exiting of construction equipment contaminated by invasive species, disturbances to soil surfaces, and improper removal and disposal of invasive species, which results in the seed being spread along the roadway and construction area. With implementation of the avoidance and minimization measures outlined in Section 2.20.4, potential project-related permanent impacts related to invasive species would not be adverse.

No Build Alternative

The No Build Alternative would not result in the construction of the rail-to-rail grade separation within the project area; therefore, there would be no permanent impacts related to the spread of invasive species by construction activities. In addition, the No Build Alternative would allow invasive species to remain on the project site, which would perpetuate a seed source for the spread of invasive species.

2.20.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures are required to avoid and/or minimize project impacts related to invasive species:

INS-1 In compliance with Executive Order 13112, during construction, invasive species would be removed and controlled within the construction limits.

INS-2 During construction, inspection and cleaning of construction equipment would be performed to minimize the importation of nonnative plant material, and eradication strategies (i.e., weed abatement programs) would be employed should an invasion occur.

INS-3 In compliance with Executive Order 13112, any revegetation, including erosion control, would utilize plant species that prevent the introduction or spread of invasive species, and use of species listed on the California

Invasive Plant Council's Invasive Plant Inventory with a high or moderate rating would be avoided.

2.21 Cumulative Impacts

2.21.1 Regulatory Setting

Cumulative impacts are impacts on the environment that result from the incremental impact of a proposed project together with the impacts of other past, present and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant impacts taking place over a period of time.

Cumulative impacts on resources in the project area may result from the impacts of the transportation project together with other past, present, and reasonably foreseeable projects such as residential, commercial, industrial, and other development, as well as from agricultural activities and the conversion to more intensive types of agricultural cultivation. Such land use activities may result in cumulative effects on a variety of natural resources such as species and their habitats, water resources, and air quality. Additionally, they can also contribute to cumulative impacts on the urban environment such as changes in community character, traffic volume and patterns, increased noise, housing availability, and employment.

Cumulative impacts are best evaluated at a geographic scale that reflects their extent and likelihood of occurrence, such as a watershed or air shed, and must not be artificially limited to jurisdictional boundaries. Additionally, different resources may have different cumulative impact areas.

The following definition of cumulative impacts under NEPA is found in 40 CFR, Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations:

> "Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.
>
> Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

2.21.2 Methodology

The cumulative impact analysis for the project was developed by following the eight-step process as follows:

1. Identify resources to be analyzed;

2. Define the study area for each resource;
3. Describe the current health and historical context for each resource;
4. Identify direct and indirect impacts of the proposed project;
5. Identify other reasonably foreseeable actions that affect each resource;
6. Assess potential cumulative impacts;
7. Report results; and
8. Assess the need for mitigation.

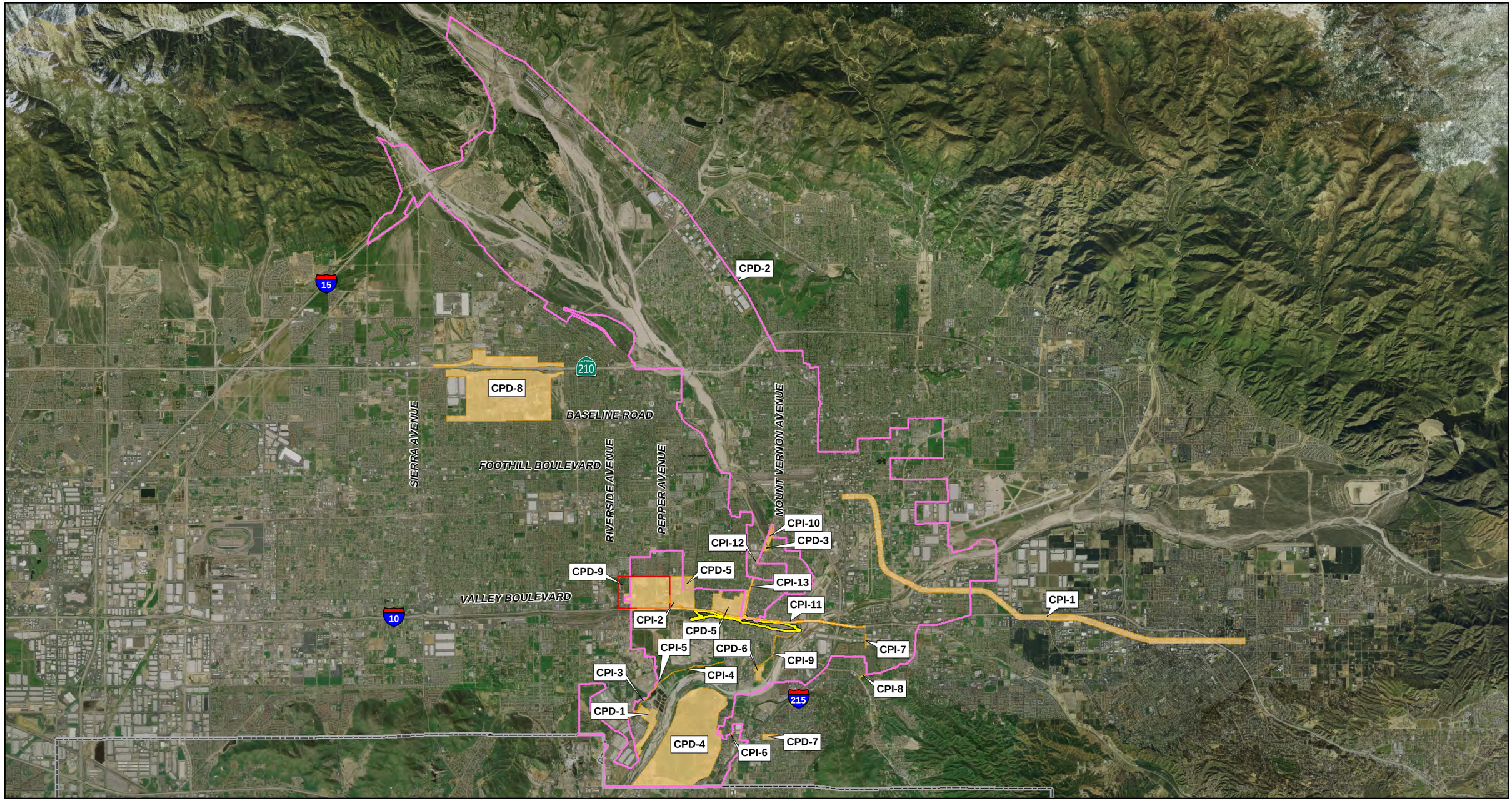
If the proposed project would not result in a direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource. This cumulative impact analysis includes resources that would be substantially affected by the project and resources that are currently in poor or declining health, or that are at risk even if the project's impacts to that resource would not be substantial.

The reasonably foreseeable actions used in this cumulative impact analysis were based on information available from the City of Colton, the County of San Bernardino, and the Southern California Association of Governments (SCAG). Examples of reasonably foreseeable actions included future development for which a General Plan, Specific Plan, tract map, or other discretionary approvals that designates future land uses; projects for which the applicable jurisdiction has received a formal application for site development; and infrastructure improvement projects approved or planned by the local jurisdictions or another public agency.

The City and regional agencies identified 22 reasonably foreseeable projects within the area. Figure 2.21.1 illustrates the locations of these cumulative projects while Table 2.21.A provides a summary of these cumulative projects.

2.21.2.1 Resources Excluded from Cumulative Impacts Analysis

Most if not all of the potential impacts of the Build Alternative are limited in scope and to a small geographic area. With the recommended mitigation measures, no impacts of the project were identified as adverse under NEPA. Therefore, all of the potential impacts could be reasonably excluded from any analysis of cumulative impacts. However, the analysis in Section 2.21.4 is provided for each potential environmental issue to demonstrate that the project would not create any cumulative impacts based on project design and after implementation of all recommended mitigation measures.



Project Boundary

Cumulative Projects

CPD-2, San Bernardino Enterprise Zone

CPD-9, Colton Super Block Site

All Other Projects

Counties

N

0 4,800 9,600

FEET

SOURCE: AirPhotoUSA, 2008; Thomas Bros., 2009

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FIGURE 2.21.1

Colton Crossing Rail to Rail Grade Separation Project Environmental Assessment

Cumulative Projects

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Table 2.21.A: Cumulative Projects Summary

Cumulative Project Map ID	Project Summary	Project Status	Lead Agency
Development Projects			
CPD-1	**Agua Mansa Commerce Center:** Includes the subdivision of 94.18 acres into 13 numbered lots, for future development of an industrial business center in the City of Colton. The Agua Mansa Commerce Center would consist of eleven speculative (specific tenant information is unknown at this time) industrial buildings totaling approximately 1,360,450 square feet of floor area, a truck/trailer parking lot, detention basin, and related infrastructure.	**Under Construction.** Construction of the required infrastructure is approximately 85 percent complete. Landscape improvements are in progress. Timeline for pad development has not been submitted to the City.	City of Colton
CPD-2	**San Bernardino Enterprise Zone (SBEZ):** The San Bernardino Valley Enterprise Zone (SBVEZ) is a joint effort by the Cities of San Bernardino and Colton and the County of San Bernardino to facilitate development as provided for in their respective General Plans. The project is designed to spur revitalization of depressed areas of the cities and county through a program that provides incentives for development of industrial and commercial businesses within a zone, which concurrently has the benefit of creating jobs for area residents. The Enterprise Zone encompasses approximately 5,698 acres in the City of Colton. Within the City of Colton, 1,494 acres of residential, 980 acres of industrial, 1,448 acres of commercial, 1,211 acres of public facilities, and 565 acres of other land uses are included in the project area.	**In Process.** Expansion of the SBVEZ is in progress and completion is expected to occur by mid-2011. The expansion would add the remaining industrial/commercial properties in Colton to the SBEZ.	Cities of San Bernardino, Colton, and unincorporated areas of San Bernardino County
CPD-3	**Design Review for Proposed Warehouse Buildings and Parking Lot:** Construction of 27,090 square feet of warehouse space and 455 parking spaces. First phase to include 12,600 square feet of construction. Second phase to include 14,490 square feet of warehouse construction. Located on Bordwell Avenue at Johnston Street in City of Colton.	**Under construction.**	City of Colton
CPD-4	**Pellissier Ranch Specific Plan**: The adoption and implementation of the Specific Plan would lead to as many as 2,969 dwelling units on the site, over 2.0 million square feet of commercial retail, office and light industrial uses, 2 school sites, an expanded landfill, and various parks and open space areas.	**In Process.** Planning document is in its environmental review stage. Adoption of specific plan anticipated for summer 2011.	City of Colton

Table 2.21.A: Cumulative Projects Summary

Cumulative Project Map ID	Project Summary	Project Status	Lead Agency
CPD-5	**West Valley Specific Plan Amendment:** The proposed Specific Plan includes a mix of single-family detached residences, attached condominiums and townhomes, a cluster of multifamily homes, a K–8 school, open space as parks, habitat and detention basins, a commercial area consisting of retail, a hotel, offices, and several industrial business park sites to include an automobile dealership. Approximately 373 acres of the total 476 acres West Subarea are affected by this amendment.	**In Process.** Planning document is in its environmental review stage. Adoption of specific plan amendment anticipated for Summer 2011.	City of Colton
CPD-6	**Colton Soil Safe Project:** The project proposed by Soil Safe of California, Inc. (Soil Safe) involves the placement of inert engineered fill within the project site to elevate the property out of the 100-year floodplain, cover an existing abandoned dump (Guyaux landfill) on site, and control stormwater running into and off of the property. As a result of the proposed project, several potential Programmatic Elements may occur in the future by other parties, such as the Maturin Group and/or the City of Colton. These elements involve the potential construction of the Fogg Street extension and future land use changes. The proposed project is located in the southern portion of the City of Colton and north of the City of Grand Terrace.	**In Process.** In its environmental review stage. It is anticipated this project would be the Public Hearing milestone of its environmental phase by the end of the 2010.	City of Colton
CPD-7	**Town Square Shopping Center:** Town Square would include approximately 140,000 square feet of retail space located on the south side of Barton Road between Michigan Street and Canal Street. This project proposes a new Stater Bros. Market that would sit just south of the existing Miguel's Jr. Mexican Restaurant as well as area for numerous retail units.	**In Process.** Construction is expected to begin in fall/winter 2011.	City of Grand Terrace

Table 2.21.A: Cumulative Projects Summary

Cumulative Project Map ID	Project Summary	Project Status	Lead Agency
CPD-8	**Renaissance Specific Plan:** The project accommodates 16.2 million square feet of business and commercial uses (835,200 square feet of which is existing and expected to remain), 1,667 residential units, one school, one community park, and multiple neighborhood parks. The project would create an integrated mixed-use community that combines a variety of housing types closely linked to opportunities for employment, services, and schools. The project may include residential products such as single-family detached, small-lot residences, duplexes, triplexes, stacked flats, and courtyard clusters. To accommodate the intended array of housing types, the average allowable residential density in the project is mixed, ranging from 3 to 30 units per acre.	**In Process:** Currently in environmental review.	City of Rialto
CPD-9	**Colton Super Block Site:** Encompasses approximately 250 acres of undeveloped and under-developed land. Overall vision for this site is a transit-orientated development containing mixed uses such as office space, retail space, hotels, theaters, and other entertainment venues. Block site is bounded by I-10 on the south, Pepper Avenue on the east, San Bernardino Avenue on the north, and Riverside Avenue on the east.	**In Process.** Conceptual phase.	City of Colton
Infrastructure Projects			
CPI-1	**Redlands Corridor:** This project would expand mass transit options for commuters traveling along the I-10 corridor through the use of existing rail right-of-way to help meet the growing local and regional travel markets. Would develop transit centers serving rapidly growing population and employment centers and maximize transit connections for riders by linking new transit with intermodal hubs, such as the E Street station.	**In Process.** Currently undergoing feasibility analysis.	SANBAG

Table 2.21.A: Cumulative Projects Summary

Cumulative Project Map ID	Project Summary	Project Status	Lead Agency
CPI-2	**Valley Boulevard Realignment and Pepper Avenue Widening:** County of San Bernardino has taken the lead on this project, which would realign the existing configuration of Valley Boulevard and expand Pepper Avenue. New water, sewer, utilities, and appurtenances would be installed during the construction phase of this project. In addition, the installation of the following improvements would be provided: New street lighting, traffic installation, a new median with stamped concrete and landscaping that would connect to Rialto's city limits. Improvements would be completed along Pepper Avenue between Valley Boulevard and the Arrowhead Medical Center, and along Valley Boulevard, from the County limits to Eucalyptus Avenue.	**Constructed.** Project completed July 2008	County of San Bernardino
CPI-3	**Agua Mansa Widening Phase 1:** Improvements would be made along Agua Mansa Road from the San Bernardino Flood Control Channel to Riverside Avenue. Improvements include widening the road carriageway to four 12-foot lanes with a 14-foot median. The project would also align the Rialto Channel with the existing channel crossing and a raised median would be constructed to better control traffic left-turn movements from Riverside Avenue to the RIX facility. Additionally, the project would install curb, gutter, and sidewalk along this portion of Agua Mansa Road. Phase 1 entails the following: realignment, widening, and reconstruction of Agua Mansa Road from Riverside Avenue to Rialto Channel.	**Constructed.** Project completed November 2010.	City of Colton
CPI-4	**Agua Mansa Widening Phase 2:** Improvements would be made along Agua Mansa Road from the San Bernardino Flood Control Channel to Riverside Avenue. Improvements include widening the road carriageway to four 12-foot lanes with a 14-foot median. The project would also align the Rialto Channel with the existing channel crossing and a raised median would be constructed to better control traffic left-turn movements from Riverside Avenue to the RIX facility. Additionally, the project would install curb, gutter, and sidewalk along this portion of Agua Mansa Road. Phase 2 entails the following: realignment, widening, and reconstruction of Agua Mansa Road to four lanes, from Rialto Channel to Rancho Avenue.	**In Process.** Currently in design phase.	City of Colton

Table 2.21.A: Cumulative Projects Summary

Cumulative Project Map ID	Project Summary	Project Status	Lead Agency
CPI-5	**Agua Mansa Widening Phase 3:** Improvements would be made along Agua Mansa Road from the San Bernardino Flood Control Channel to Riverside Avenue. Improvements include widening the road carriageway to four 12-foot lanes with a 14-foot median. The project would also align the Rialto Channel with the existing channel crossing and a raised median would be constructed to better control traffic left-turn movements from Riverside Avenue to the RIX facility. Additionally, the project would install curb, gutter, and sidewalk along this portion of Agua Mansa Road. Phase 3 entails the widening of the existing bridge over Rialto Channel.	**In Process.** Currently in design and environmental work.	City of Colton
CPI-6	**Barton Road Bridge Improvements:** Project consists of replacing the existing bridge structure with a new 178-foot, 47.5-foot wide bridge spanning the Southern Pacific Railroad. The replacement structure would include two 12-foot driving lanes, two 8-foot shoulders, two 1.75-foot wide barriers, and a single 4-foot walkway. The bridge replacement would be a joint project between the City of Colton and the City of Grand Terrace. The project requires right-of-way acquisition and encroachment permits from Caltrans, the railroad, and Southern California Edison.	**In Process.** City of Grand Terrace would complete environmental and right-of-way acquisition work. City of Colton would lead for construction phase, anticipated to commence winter 2011.	City of Grand Terrace and City of Colton
CPI-7	**Hunts Lane Grade Separation:** Project is designed to provide a bridge over the railroad tracks that cross Hunts Lane, thereby eliminating the need for motorists to wait for trains. The new bridge would accommodate two traffic lanes, a sidewalk, and a bicycle lane in each direction and would raise the height of Hunts Lane from just south of Riverwood to north of Oliver Holmes Road.	**In Process.** Completion of the design and right-of-way is expected by summer 2010. Construction is expected to begin in 2011 and last approximately 18–24 months.	Cities of Colton and San Bernardino and SANBAG
CPI-8	**Washington Street Extension:** Project proposes to extend Washington Street from its current ending point near La Mariposa Street to La Cadena Drive, 2,560 linear feet away. The proposed extension would pass through Grand Terrace's city limits.	**In Process.** Securing funding for design and environmental work.	City of Colton

Table 2.21.A: Cumulative Projects Summary

Cumulative Project Map ID	Project Summary	Project Status	Lead Agency
CPI-9	**9th Street Track Relocation Project:** The Riverside Industrial Lead includes a segment of "street-running" along 9th Street in the City of Colton. Ninth Street traverses an area of the City of Colton that is primarily residential with pockets of light industrial land uses. A preferred alternative was identified to completely relocate the track from 9th Street. The preferred alternative parallels Fogg Street and ties into the existing main track ahead of the Santa Ana River Bridge.	**In Process.** In PA/ED phase.	City of Colton
CPI-10	**Metrolink Eastern Maintenance Facility:** Metrolink is planning a proposed maintenance facility adjacent to West Laurel Street	**Constructed.** This facility opened as of May 2010.	Metrolink
CPI-11	**I-10 Freeway Widening:** I-10 is proposed to be widened to allow for the implementation of High Occupancy Vehicle (HOV) and/or High Occupancy Toll (HOT) lanes through the City of Colton. One of the proposed alignments that would install one new HOV lane and provide room for an additional lane to be built in the future.	**In Process.** Preparing PA/ED.	Caltrans
CPI-12	**Laurel Street Grade Separation:** A railroad grade separation at Laurel Street would reduce the impact rail operations.	**In Process.** In PA/ED phase.	City of Colton and SANBAG
CPI-13	**Colton Quiet Zone Project:** This project would result in the establishment of a Quiet Zone between Valley Boulevard and Olive Street. Implementation of the Quiet Zone project would also reduce the need for trains on the BNSF line to sound their horns due to the elimination of at-grade crossings and placement of vehicular/pedestrian control devices.	**In Process.**	City of Colton and SANBAG

Source: City of Colton, December 6, 2010.

2.21.2.2 Resources Evaluated for Cumulative Impacts

The following analysis demonstrates that all of the potential impacts of the Build Alternative were either not adverse on a cumulative basis, or could be substantially reduced by implementation of the recommended mitigation measures. Therefore, none of the environmental issues identified in Sections 2.1 through 2.20 requires additional analysis relative to cumulative impacts.

- **Land Use:** As discussed in Section 2.1, Land Use, improvements needed to accommodate the Build Alternative would occur largely within existing railroad right-of-way. Construction of the portion of the elevated structure west of the Colton Crossing would not result in the acquisition or displacement of any existing residential, commercial, or industrial land uses. In addition, the Build Alternative would not introduce a new land use or change an existing use. The Build Alternative was also consistent with City policies that support maintenance of a strong industrial base and placement of industrial uses adjacent to railroads and also consistent with City policies supporting programs to improve local air quality and reduce airborne pollutants.

  The project site has been utilized for rail activities since 1875. As such, the Build Alternative would be consistent with the existing land uses within the study area, which are primarily rail transportation uses. Since land use patterns in the study area would remain the same and since the Build Alternative would be consist with local and regional goals and plans, no cumulatively considerable effects related to land use compatibility would occur as a result of the Build Alternative.

- **Growth:** As discussed in Section 2.2, Growth, the Build Alternative would reduce train idling and gate down time in the project area through the provision of a continuous UPRR rail line along the existing corridor. This would eliminate the existing operational constraint associated with the crossing of the UPRR and BNSF lines. The Build Alternative would not provide additional transportation facilities as the proposed flyover structure would maintain the same number of rail tracks. Therefore, the proposed project would not result in changes in accessibility to the transportation system in this area.

  The Build Alternative would not be expected to affect local growth beyond what is identified in the City of Colton and San Bernardino County General Plans since there would be no property acquisition within the study area (with the exception of the Caltrans parcel acquisition) and there would be no railroad associated

development occurring within the existing rail yards or adjacent properties. Growth in the affected City and County would be expected to occur with or without the proposed project because the project on its own cannot affect variables such as economic opportunities, employment, or housing availability, which directly affect local and regional development growth. Therefore, the Build Alternative would not result in project-related growth effects and would not provide a cumulatively considerable effect in that regard.

- **Community Impacts (Community Character and Cohesion):** As discussed in Section 2.3, Community Impacts, the Build Alternative would not physically divide an established community, open any new areas to development, or change the accessibility of the areas surrounding the project area. Therefore, the Build Alternative would not affect the character or cohesion of the study area census tracts, City, or County. The rail to rail grade separation would provide long-term benefits to the community by relieving congestion, improving air quality, and reducing noise in the area. Therefore, the Build Alternative would not result in cumulatively considerable impacts to community character and cohesion.

- **Community Impacts (Relocations):** Implementation of the Build Alternative would require acquisition by UPRR of a strip of Caltrans right-of-way that would encompass an area approximately 15 feet wide by 1,900 feet long (approximately 0.65 acre), extending westward from South 5th Street. As the remaining construction activities are located within existing UPRR right-of-way, the acquisition of homes or businesses for additional right-of-way takes or easements is not anticipated. The Build Alternative would not result in displacement or relocation of residents and businesses. Therefore, the Build Alternative would not result in cumulatively considerable relocation effects.

- **Community Impacts (Environmental Justice):** As discussed in Section 2.3, Community Impacts, the Build Alternative would not cause disproportionately high and adverse effects on any minority or low-income neighborhoods or populations as per EO 12898 regarding environmental justice. Therefore, the Build Alternative would not result in cumulatively considerable effects to environmental justice populations.

- **Utilities and Emergency Services:** As discussed in Section 2.4, Utilities and Emergency Services, utilities and emergency services would only be temporarily affected during the construction period. Any relocation or undergrounding of

utilities as a result of the Build Alternative would occur during the construction phase and would be permanently maintained by the utility purveyor during the implementation of the project. Any changes to existing utility lines would be coordinated and decided upon with the utility companies during the final design phase. Standard procedures such as coordination with utility and emergency providers and implementation of a TMP would avoid or minimize impacts as outlined in **Measure ULT-1**, **Measure ULT-2**, and **Measure TRA-1** (see Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities). The Build Alternative would not result in permanent adverse effects to utilities or emergency services. Therefore, the Build Alternative would not result in cumulatively considerable effects on utilities or emergency services.

- **Traffic and Transportation/Pedestrian and Bicycle Facilities:** As discussed in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, the Build Alternative would improve the efficiency of the overall rail circulation system, improve the long-term performance of this railway segment, and improve safety on this portion of the rail line by eliminating the existing operational constraint in the area. Average daily train delays in opening year (2015) and forecast year (2035) at the at-grade rail crossings would be reduced at the vast majority of at-grade crossings with the Build Alternative. Cumulative idling times are reduced by 86 percent in the opening year (2015) and by 42 percent in the forecast year (2035).

  With the Build Alternative, total vehicle delay would decrease substantially at the Olive Street crossing during opening year (2015) and forecast year (2035). At Valley Boulevard, total vehicle delay would increase by 6 percent during each peak hour, resulting in a nominal impact. However, the average increase in delay at Valley Boulevard is only a few seconds per vehicle, which would not result in traffic redistribution as confirmed by the regional travel demand model projections. Consequently, the substantially reduced at-grade gate closures at Olive Street and the nominally increased at-grade gate closures at Valley Boulevard would not result in shifting of traffic patterns to other grade crossings, freeways, or freeway ramp locations and impacts to area intersections would not be adverse.

  Construction-related traffic impacts would be avoided or minimized through implementation of **Measures TRA-1** and **TRA-2** as outlined in Section 2.5

(Traffic). Therefore, the Build Alternative would not result in cumulatively considerable temporary or operational effects to traffic and transportation.

- **Visual/Aesthetics:** As discussed in Section 2.6, Visual/Aesthetics, the Build Alternative would not result in adverse visual effects to viewers within the area. While the proposed structure would introduce a new source of intermittent light from train headlights at a higher elevation, this new source of light would not affect the existing uses to the south as the light would not spill over into properties. Implementation of the Build Alternative would not result in a contrast with the scale and form of the existing landscape setting. Implementation of **Minimization Measures VIS-1** and **Measure VIS-2** provided in Section 2.6.4 would enhance, minimize, and/or mitigate visual impacts associated with the Build Alternative. Therefore, the visual change associated with the Build Alternative would not be expected to have an adverse cumulative effect to viewer response and cumulative visual effects would not be cumulatively considerable.

- **Cultural Resources:** As discussed in Section 2.7, none of the built environmental features and most of the archaeological features are not considered eligible for the National Register. Seven resources that are potentially eligible for the National Register (under Criterion D) would be avoided through establishment of Environmentally Sensitive Areas within the construction zone. In the event that previously unknown buried cultural materials or human remains are encountered during construction, compliance with the measures provided in Section 2.7.4 would avoid and/or minimize potential adverse impacts to previously unknown cultural resources or human remains. Therefore, the Build Alternative's effects to cultural resources would not be cumulatively considerable.

- **Hydrology and Floodplains:** As discussed in Section 2.8, Hydrology and Floodplains, the Build Alternative would not result in longitudinal encroachments of a base floodplain. However, the Build Alternative would result in a lateral encroachment at the 11th Street Storm Drain floodplain/floodway and Colton Southwest Storm Drain floodplain. Although the Build Alternative would result in an encroachment of a floodplain/floodway, the resulting floodway encroachment would not cause an adverse impact to emergency vehicles or to the community's use during an evacuation since the rail to rail grade separation would not be utilized as an evacuation route. The proposed project design would include a culvert system to avoid a rise in the Base Flood Elevations (BFE) of the 11th Street Storm Drain floodplain/floodway.

As a result, the proposed encroachment would not increase flooding or pose a risk to life or property. Elements of the Build Alternative (e.g., structure, piers, and abutments) may encroach onto the Colton Southwest Storm Drain floodplain adjacent to the UPRR and BNSF tracks. However, existing drainage patterns would be maintained through the project area (via the proposed bridge opening), allowing excess surface flows to be conveyed southerly similar to existing conditions. In addition, the proposed project would not preclude future master plan drainage improvements at this location. The Build Alternative would avoid impacts with the design of the bridge opening such that there is no increase to the BFE. The project may have the potential to cause some changes to the Colton Southwest Storm Drain floodplain; however, the proposed encroachment would not increase the risk of flooding or pose a risk to life or property.

The only floodplain being affected is located within the railroad right-of-way. Immediately upstream, the floodplain is located within Caltrans right-of-way. Hence, it is not anticipated that the Build Alternative would support probable incompatible floodplain development. As discussed in detail in Section 2.9, the Build Alternative would result in a net increase in impervious surfaces and therefore an increase in runoff and pollutant loading, which would have the potential to affect the beneficial water resource values of the Santa Ana River. However, treatment BMPs would be implemented during operation of the Build Alternative to reduce impacts to water quality and beneficial water resource values. Therefore, operation of the Build Alternative would not result in long-term adverse impacts to natural and beneficial floodplain values. Implementation of **Measures HYD-1** through **HYD-2** would substantially reduce potential adverse drainage impacts from construction and operation of the project. Therefore, the Build Alternative would not result in cumulatively considerable hydrology and floodplains impacts.

- **Water Quality and Storm Water Runoff:** As discussed in Section 2.9, Water Quality and Storm Water Runoff, and the section above on Hydrology and Floodplains, the Build Alternative would not make substantial modifications to existing drainage channels or patterns, but the local topography would change slightly to accommodate the rail to rail grade separation and related improvements. The Build Alternative would increase the impervious surface area by approximately 9.2 acres compared to the existing railroad mainline. An increase in impervious area would increase the volume of runoff during storms,

which would more effectively transport pollutants to receiving waters. However, runoff from the UPRR mainline in the project area is currently untreated.

Implementation of **Measures WQU-1**, **WQU-2, and WQU-3**, including preparation of a Storm Water Pollution Prevention Plan (SWPPP) and Water Quality Management Plan (WQMP), would minimize potential drainage impacts from construction and operation of the project through the use of Site Design, Source Control, and Treatment Control BMPs. Therefore, the Build Alternative would not result in cumulatively considerable adverse effects associated with water quality and storm water runoff.

- **Geology and Soils:** As discussed in Section 2.10, Geology/Soils/Seismic/ Topography, adverse effects of the Build Alternative related to geology, soils, seismicity, and topography would be localized and limited to the grading limits of the Build Alternative. Improvements related to the rail to rail grade separation are relatively surficial and so impacts would be localized and would not affect regional geology. The analysis recommends implementation of **Measures GEO-1** through **GEO-2**, which includes adherence to mitigation measures detailed in the geotechnical investigation prepared for the proposed project. Implementation of these measures would minimize potential permanent impacts, resulting in no adverse effects. Therefore, the Build Alternative would not result in cumulatively considerable effects to geology and soils.

- **Paleontology:** As discussed in Section 2.11, Paleontology, identified potential adverse impacts to paleontological resources occur only for construction of the Build Alternative. However, implementation of **Measure PAL-1** would minimize potential effects and they are not considered adverse. The Build Alternative would not result in cumulatively considerable paleontological impacts with implementation of the minimization measures.

- **Hazardous Waste:** As discussed in Section 2.12, Hazardous Waste/Materials, implementation of the Build Alternative would not result in an adverse impact related to hazardous waste and materials. Routine maintenance activities during project operation would be similar to the existing routine maintenance. In addition, routine maintenance and construction activities would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. It would also not change any surrounding land uses that may utilize hazardous materials as part of their

operation or maintenance. Implementation of **Measures HAZ-1** through **HAZ-6** would avoid and/or minimize any potential impacts related to hazardous materials. Therefore, the Build Alternative would not result in cumulatively considerable hazardous waste and materials impacts.

- **Air Quality:** The use of construction equipment on site would result in localized exhaust emissions. As identified in Section 2.13, Air Quality, construction equipment/vehicle emissions would exceed the *de minimis* threshold for NO_X in 2012 and 2013. However, SCAQMD requirements for the reduction of emissions during construction would be adhered to in order to reduce emissions generated by construction equipment. With the implementation of standard construction measures (providing 50% effectiveness) such as frequent watering (e.g., minimum twice per day) and **Measures AQU-1** through **AQU-3**, fugitive dust and exhaust emissions of criteria pollutants from construction activities would not result in any adverse air quality impacts. In addition, a general conformity analysis was performed to demonstrate that the proposed project's construction emissions would be in conformance with the SIP even with the exceedance of the NO_X *de minimis* threshold. The general conformity analysis determined that the short-term construction emissions would conform to the purpose of the approved SIP and it would be consistent with all applicable requirements and would not result in cumulatively considerable temporary air quality impacts.

  As identified in Section 2.13, Air Quality, implementation of the Build Alternative would reduce on-road delays at the rail to rail at-grade crossing within the project area. In addition, grade separating the Colton Crossing would increase the average train speeds and reduce idling in the project area and improve local circulation within the rail study area. Emissions of all criteria pollutants were reduced with the Build Alternative when compared to the No Build Alternative. The Build Alternative would result in a net benefit on air quality within the rail study area and within the local community. Therefore, the Build Alternative would not result in cumulatively considerable operational air quality impacts.

- **Noise:** As identified in Section 2.14, Noise, there are potential short-term noise impacts from construction of the Build Alternative. Construction noise impacts may exceed significance thresholds south of I-10, with noise levels to the southwest potentially exceeding standards by 2 dB during the day and up to 10 dB at night, and levels to the southeast potentially exceeding standards by up to 1 dB at night. As for any major infrastructure project, there would be increased noise

and vibration levels during construction of the Build Alternative. However, the contractor would be required to implement measures to ensure no structures are damaged and to minimize vibration in the residential areas near the construction site. Potential construction noise and vibration impacts during construction would be minimized through implementation of **Measure NOI-1** and are not considered adverse noise impacts. Therefore, the contribution of the Build Alternative to construction noise and vibration impacts is not expected to be cumulatively considerable.

For operational noise levels, 17 of the 19 sensitive receptor locations show no increase in projected noise levels, while two locations show reductions for one or both of the future horizon years (2015 and 2035). Therefore, the Build Alternative would result in a neutral effect on or reduction in long term noise levels.

In addition, there are three other planned projects that would affect cumulative noise levels in the study area. These projects are (1) establishing a Quiet Zone between Valley Boulevard and Olive Street, (2) constructing a grade separation at Laurel Street, and (3) the Realignment of the 9th Street Rail Line. The Quiet Zone and the Laurel Street Grade Separation projects would eliminate most BNSF horn noise north of I-10, which would substantially reduce noise levels at the sensitive receivers north of I-10. There would also be a small noise reduction south of I-10 because northbound BNSF trains would no longer be required to sound their horns prior to the Valley Boulevard grade crossing. The Realignment of the 9th Street Rail Line would also reduce train noise and train vibration at receivers located on 9th Street, although the reduction would be relatively small because the tracks in the 9th Street are used relatively infrequently.

The cumulative effects of the above three projects and the Build Alternative would result in substantial noise reductions (i.e., no adverse impacts) in the general area around the existing Colton Crossing. Based on this information, the contribution of the Build Alternative to long-term noise impacts is expected to result in a cumulatively considerable noise benefit.

- **Natural Communities:** As discussed in Section 2.15, Natural Communities, implementation of the Build Alternative would not result in an adverse impact on these resources. The majority of the BSA is considered to be highly disturbed and dominated by ruderal and ornamental species. Given the highly disturbed nature of the site, effect to natural communities is not considered adverse. Therefore, the

Build Alternative would not result in cumulatively considerable impacts associated with natural communities.

- **Wetlands and Other Waters:** As discussed in Section 2.16, Wetlands and Other Waters, implementation of the Build Alternative would not result in a substantial adverse impact on these resources. The project would result in the permanent loss of approximately 0.10 acre of land of permanent impacts to USACE jurisdictional areas (non-wetland waters) and 0.43 acre of CDFG jurisdictional areas. There are no USACE wetlands in the project area; therefore, no wetlands would be affected by the Build Alternative. With implementation of **Measures WET-1** through **WET-3**, including obtaining a Streambed Alteration Agreement, obtaining a Section 401 Water Quality Certification, and the replacement of jurisdictional resources, if deemed appropriate, potential wetland impacts are not considered adverse. Therefore, the Build Alternative would not contribute to cumulatively considerable effects associated with wetlands or other waters.

- **Plant Species:** As discussed in Section 2.17, Plant Species, implementation of the Build Alternative would not result in any impacts special status or otherwise sensitive plant species within the project area as the project area does not contain any special-status plants. Therefore, the Build Alternative would not contribute to cumulatively considerable effects on plant species.

- **Animal Species:** As discussed in Section 2.18, Animal Species, no special-status animal species were observed or otherwise detected on site at the time of the site visit and no suitable habitat exists within the project limits for any special-status animal species. Therefore, the Build Alternative would not contribute to cumulatively considerable effects on animal species.

  During construction, there would be the potential to disturb ornamental trees that may provide nesting habitat for special-status bird species and other migratory birds. Implementation of **Measure ANI-1** (nesting season work restrictions) would minimize potential impacts and these impacts are not considered adverse. These impacts would be temporary and would not contribute to cumulatively considerable impacts to animal species.

- **Threatened or Endangered Species:** As discussed in Section 2.19, Threatened or Endangered Species, implementation of the Build Alternative would not result in adverse temporary or permanent impacts to threatened and/or endangered plant or animal species because they are considered absent from the biological survey

area (BSA). There is suitable habitat (soils and vegetation) for the Delhi sands flower-loving fly (DSF) adjacent to the BSA. Implementation of the dust suppression measures identified in Section 2.13, stormwater control measures outlined in Section 2.9, and **Measure TE-1**, would be sufficient for avoiding direct and indirect effects to the DSF habitat adjacent to the BSA and potential indirect effects to DSF are not considered adverse. Since impacts of the Build Alternative are not adverse, they would not substantially contribute to adverse cumulative impacts associated with threatened or endangered species.

- **Invasive Species:** As discussed in Section 2.20, Invasive Species, construction of the Build Alternative has the potential to spread invasive species by the entering and existing of construction equipment contaminated by invasive species, disturbances to soil surfaces, and improper removal and disposal of invasive species, which results in the seeds being spread along the roadway and construction area. Implementation of **Measures INS-1** through **INS-3** would be sufficient to avoid and/or minimize this potential impact. Therefore, the Build Alternative would not contribute to a cumulatively considerable effect related to invasive species.

Based on the nature of the project, the existing condition of resources in the project area, and the technical studies prepared for this Environmental Assessment, the Build Alternative would not result in any adverse cumulative environmental impacts and therefore no important environmental resources would be at risk as a result of project implementation.

2.21.3 Avoidance, Minimization, and/or Mitigation Measures

No measures beyond those identified in Sections 2.1 through 2.20 are required to address the Build Alternative's contribution to cumulative impacts. The measures identified address both temporary and permanent impacts.

Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies involved in the Colton Crossing Rail to Rail Grade Separation project is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis necessary, potential impacts and mitigation measures, and related environmental requirements. The scoping process for the project focused on agency consultation and public participation accomplished through a variety of formal and informal methods, including a communications committee, subcommittee, a focus group, public information meetings, monthly project development team (PDT) meetings, interagency coordination meetings, and consultation with interested parties. This chapter summarizes the results of the efforts to fully identify, address, and resolve project-related issues through early and continuing coordination in the scoping process.

3.1 Committee Meetings

As part of the project process, multiple agency stakeholder committees and public participation meetings were formed and held.

3.1.1 Communications Committee

The Colton Crossing Communications Committee is a communications taskforce that was formed to identify ways to best communicate the project and development process to the citizens of the City of Colton. The committee, which meets on a regular basis, consists of:

- San Bernardino Associated Governments (SANBAG);
- The City of Colton;
- BNSF Railway;
- Union Pacific Railroad; and
- California Department of Transportation.

This group was created to receive updates from the Colton Crossing PDT. The Committee has met on a regular basis since 2008.

3.1.2 Colton Crossing Subcommittee

The Colton City Council has established a separate Colton Crossing Subcommittee that consists of elected officials and City staff. This subcommittee was established to

receive input regarding the project status and to provide guidance to the project team regarding City concerns. The Subcommittee met on October 23 and November 28, 2008, and February 20, 2009, to discuss the preliminary alternatives under consideration during development of the Alternatives Analysis.

Meetings were held with the Subcommittee on February 12, 2011, to provide an update on the project and on March 22 to solicit input on the aesthetic treatment of the proposed structure and landscaping program.

3.1.3 Colton Crossing Focus Group

Per a recommendation by the Colton Crossing Subcommittee, a focus group was formed to gather initial feedback on the proposed project. The first focus group meeting took place in January 2009 and consisted of residents, business, and community leaders. The preliminary alternatives under consideration were discussed and input was solicited regarding the alternatives under consideration and the information to be discussed at the Community Meetings (described below).

A second focus group meeting was conducted on March 23, 2010, to present the draft conclusions of the Alternatives Analysis and to discuss the next steps in the project process.

3.2 Community Meetings

On February 18 and 19, 2009, the public had its first opportunity to learn about the proposed project firsthand. There were two meetings held, one in South Colton at the Luque Center and the other at the Hutton Center North Colton, to provide the best accessibility to the community by those nearest the potential project areas. The community meetings were publicized in the *San Bernardino Sun*, *The Press Enterprise*, *La Prensa*, *The Colton Courier*, the City of Colton's Channel 3 Station, and at various public locations in the City. Additionally, 5,000 flyers were distributed door-to-door near the project area. Technical experts in design, noise and vibration, traffic, environmental, and cultural resources were on hand to address issues and concerns from residents and other stakeholders. Information was available in English and Spanish and bilingual staff was on hand.

A second set of community meetings was held on July 13 and 15, 2010. The public had an opportunity once again to speak with the project team at public information meetings held at the Hutton Center in North Colton and the Luque Center in South Colton. Similar to the first community meetings, the second community meetings

were publicized in the *San Bernardino Sun, The Press Enterprise, La Prensa, The Colton Courier*, the City of Colton's Channel 3 Station, and at various public locations in the City. Additionally, 5,000 flyers were distributed door-to-door near the project area. Technical experts in design, noise and vibration, traffic, and environmental issues were on hand to address issues and concerns from residents and other stakeholders. Information was available in English and Spanish and bilingual staff was on hand.

3.3 Public Information Meeting

Public information meetings were held on March 16 and March 17, 2011, in association with the public review period for the Initial Study/Mitigated Negative Declaration prepared for the proposed project by Caltrans. The public had an opportunity to speak with the project team at two public information meetings held at the Hutton Center in North Colton and the Luque Center in South Colton. Similar to the community meetings, the public information meetings were publicized in the *San Bernardino Sun, The Press Enterprise, La Prensa, The Colton Courier*, the City of Colton's Channel 3 Station, and at various public locations in the City. All media was provided bilingually, in Spanish and English. Additionally, 5,000 flyers were distributed door-to-door near the project area and the public notice was distributed to all persons who had expressed interest in receiving project updates. Information regarding the project status, proposed alternatives under consideration, and potential environmental effects were presented at the metings. Handouts describing the project were available at the meeting in English and Spanish and bilingual staff was on hand to assist attendees. After the presentation, attendees were able speak directly to members of the project technical team to discuss the project and its environmental effects. As part of these meetings, attendees were given the opportunity to provide written comments on the project and/or provide verbal comments to a court reporter. Environmental concerns raised at the meeting included: if there would be an increase in air pollution with an increase in train activity and vehicles stopped at the at-grade crossing along the BNSF line at Valley Boulevard, dust and noise during construction, and dust, noise and erosion that is occurring because of railroad maintenance that is being conducted along the BNSF tracks in South Colton. These public meetings meet the public involvement requirements, as outlined in 23 U.S.C. 128 and 40 CFR Parts 1500 through 1508.

3.4 Interagency Coordination and Consultation

The formulation of project alternatives and evaluation of environmental effects has been carried out through a cooperative dialogue among the FHWA, Department, SANBAG, and representatives of public agencies. The following sections summarize the results of the Department's efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

3.4.1 Agency/Stakeholder Briefing Meetings

Two briefing meetings with affected agencies and stakeholders have been conducted with regional and local public agencies, elected officials and other stakeholders to provide updates on the proposed project and solicit input from these agencies regarding the proposed project.

In February 2009, SANBAG presented agencies and stakeholders with a project update and solicited input from the parties in attendance. The meeting was attended by the City of Colton, the Port of Long Beach, Riverside County Transportation Commission, San Bernardino County Flood Control, South Coast Air Quality Management District, Metrolink, Union Pacific, BNSF, and representatives from San Bernardino County Supervisor Josie Gonzales, Senator Gloria Negrete McLeod, and Senator Robert Dutton. A presentation was also made to Assembly member Wilmer Amina Carter staff.

A second stakeholder briefing meeting was held on June 23, 2010, at SANBAG to discuss the alternatives analysis that was conducted. An update on the project funding and alternatives that were selected for environmental review was presented. The meeting was attended by the City of Colton, the Port of Los Angeles, SCAG, SCAQMD, UPRR, BNSF, and representatives from San Bernardino County Supervisor Josie Gonzales, Senator Gloria Negrete McLeod, Congressman Joe Baca, and Assemblymember Wilmer Amina Carter.

3.4.2 Native American Consultation and Coordination

In April 2010, consultation with the Native American Heritage Commission (NAHC) was initiated. The NAHC was requested to review its Sacred Lands File (SLF) and to provide a list of the individuals and organizations that may have knowledge of cultural resources for the project Area of Potential Effects (APE). In its April 29, 2010, correspondence, the NAHC stated that no Native American cultural resources or sacred sites are located within the project APE. In its response, the NAHC sent a

list of Native American contacts in the vicinity of the project for further consultation. This letter is included on page 3-9.

On May 26, 2010, letters were sent to the list of Native American individuals and organizations requesting information from the individuals and organizations that may have knowledge of cultural resources in the project area. Six individuals representing the Native American groups were contacted via certified mail and email on February May 26, 2010. Letters were followed by telephone calls and emails during August 2010. This correspondence provided a description of the proposed project and a request for the identification of potential effects to any cultural resources, sacred lands, or other heritage sites within the proposed project area. Table 3.A summarizes the responses received to this correspondence.

Table 3.A: Summary of Native American Responses

Date	Contact	Response
May 26, 2010	Morongo Band of Mission Indians Michael Contreras, Cultural Heritage Project Manager	Mr. Contreras responded via email on August 30, 2010, and indicated that they had no known concerns but they would like to be notified of any inadvertent discoveries as the project proceeds.
May 17, 2010	Pechanga Band of Mission Indians	Tribe has requested Government to Government Consultation, which is being administered by Caltrans, District 8. Caltrans documented a response from Paul Macarro and Anna Hoover, representatives of the Pechanga Band of Mission Indians on May 17, 2010, wherein they deferred to San Manuel Band of Mission Indians. Caltrans issued a written “Record of Conversation” of this conversation on May 17, 2010.
May 26, 2010	Ramona Band of Cahuilla Mission Indians Joseph Hamilton, Chairman John Gomez	In a phone call with the Chairman’s Assistant, it relayed that Ann Brierty handles all the cultural issues. An email was therefore sent to Ann but addressed to the Chairman. On August 4, 2010, an email was received from San Manuel Band of Mission Indians (see below).
May 26, 2010	San Manuel Band of Mission Indians Ann Brierty, Policy/Cultural Resources Department	Received email from Ann Brierty on August 4, 2010, indicating that “all cultural resource inquiries, request for comment…are handled/forwarded to the PCRM [Policy/Cultural Resources Dept.]” Ms. Brierty wrote further that “this project is in the process of review and plan to forward/contact the lead agency, should additional documents, reports and inquires be requested by the Tribe.”
May 26, 2010	Serrano Nation of Indians Goldie Walker	In a Phone conversation on August 30, 2010, with Goldie Walker she reported that she has no knowledge of any cultural resources on the site. Her only concern is that if any human remains or artifacts are found that she be contacted and allowed to provide further consultation.

Table 3.A: Summary of Native American Responses

Date	Contact	Response
June 1. 2010	Soboba Band of Luiseno Indians	Tribe has requested Government to Government Consultation, which is being administered by Caltrans, District 8. Mr. Joe Ontiveros of the Soboba Cultural Resources Department sent a letter to Caltrans dated July 22, 2010, wherein they deferred to the San Manuel Band of Mission Indians.

Source: *Historic Property Survey Report* (LSA Associates, Inc., February 2011).

3.4.3 United States Fish and Wildlife Service

On June 2, 2010, a letter was sent to the USFWS requesting a list of proposed, threatened, or endangered species potentially occurring in the vicinity of the proposed project. On July 2, 2010, the USFWS sent a response letter and the Proposed, Threatened, or Endangered Species List for species potentially occurring in the vicinity of the proposed project. This letter is included on page 3-11.

3.4.4 South Coast Air Quality Management District

Representatives from Caltrans, SANBAG and the project consultant team met with the SCAQMD on July 6, 2010, to discuss the alternatives being brought forward for evaluation, alternatives withdrawn from further consideration, potential air quality impacts of the proposed project, and the methods to be employed in preparing the technical air quality analysis.

3.4.5 State Historic Preservation Officer

Coordination of the Draft Historic Property Survey Report (HPSR) with the State Historic Preservation Officer (SHPO) is ongoing. Consultation with the SHPO regarding the conclusions of the HPSR is being conducted consistent with the requirements of the Section 106 Programmatic Agreement (PA) and is expected to be completed prior to project approval.

3.5 Local Interest Groups

3.5.1 Historical Societies/Historic Preservation Groups

On April 19, 2010, local historical societies/historic preservation groups were sent requests for historical information for the project area. The following groups were sent letters:

- Railway & Locomotive Historical Society;
- San Bernardino Railroad Historical Society;

- City of San Bernardino Historical and Pioneer Society;
- The Electric Railway Historical Association of Southern California;
- Los Angeles Railroad Heritage Foundation;
- Southern California's Railway Museum;
- Agua Mansa Museum and Cemetery;
- San Bernardino County Museum;
- Larry Sheffield, local historian;
- Leslie Rios, local historian spearheading oral history project for Mexican-American railroad communities;
- Union Pacific Historical and Technical Society;
- Southern Pacific Historical and Technical Society;
- Atchison Topeka & Santa Fe Railway Subjects (fan site); and
- California State Railroad Museum.

Table 3.B provides the responses from each group that was contacted.

Table 3.B: Summary of Historical Societies and Organizations Responses

Date	Contact	Response
April 19, 2010	Railway & Locomotive Historical Society, Pomona	No response
April 19, 2010	San Bernardino Railroad Historical Society	No response
April 19, 2010	City of San Bernardino Historical and Pioneer Society	No response
April 19, 2010	The Electric Railway Historical Association of Southern California	No response
April 19, 2010	Los Angeles Railroad Heritage Foundation	No response
April 19, 2010	Southern California's Railway Museum	No response
April 19, 2010	Agua Mansa Museum and Cemetery	No response
April 19, 2010	San Bernardino County Museum	No response
April 19, 2010	Larry Sheffield, local historian	No response
April 19, 2010	Leslie Rios, local historian spearheading oral history project for Mexican-American railroad communities	No response
May 27, 2010.	Southern Pacific Historical and Technical Society	Responses received from David Coscia on May 27 and 28, 2010, indicating that there are numerous rail-to-rail crossings and that most had a crossing tower. He noted that there were probably 30–50 crossing towers in Los Angeles, Orange, Riverside, and San Bernardino Counties alone.
April 19, 2010	Atchison Topeka & Santa Fe Railway	No response

Table 3.B: Summary of Historical Societies and Organizations Responses

Date	Contact	Response
May 27, 2010.	California State Railroad Museum	Email correspondence regarding rail-to-rail crossings sent. Response received on May 29, 2010, providing two other online sources for information.
April, May 2010	John Bromley, Director of Historic Programs, Union Pacific Railroad	Map received on May 11, 2010, and supplemental information received August 10, 2010.

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

April 29, 2010

Ms. Victoria Avalos, Archaeologist
LSA ASSOCIATES, INC.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

Sent by FAX to: 951-781-4277
No. Pages: 4

Re: Request for a Sacred Lands File Search and Native American Contacts List **for the proposed "Colton Crossing Grade Separation Project"**; located in the Community of Colton; San Bernardino County, California

Dear Ms. Avalos:

The Native American Heritage Commission (NAHC), the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources (c.f. CA Public Resources Code §21070; also c.f. *Environmental Protection Information Center v. Johnson [198]) 170 Cal App. 3rd 604*), was able to perform a record search of its Sacred Lands File (SLF) for the affected project area (APE) requested. The California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177)) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the 2007 CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." The NAHC SLF search **did not indicate** the presence of Native American cultural resources within one-half mile of the proposed project site (APE).

Also, this letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway., Culturally-affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. Furthermore we suggest that you contact the California Historic Resources Information System (CHRIS) at the Office of Historic Preservation Coordinator's office (at (916) 653-7278, for referral to the nearest Information Center of which there are 10.

Consultation with tribes and interested Native American consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f]*et seq),* 36 CFR Part 800.3 (f) (2), the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. . The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes.*

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery.

Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties.' However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC. Consultation on specific projects must be the result of an on-going relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

The response to this search for Native American cultural resources is conducted in the NAHC Sacred Lands Inventory, established by the California Legislature (CA Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10) although Native Americans on the attached contact list may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contacts

Native American Contacts
April 30, 2010
San Bernardino County

Pechanga Band of Mission Indians
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P.O. Box 1477 Luiseno
Temecula , CA 92593
pmacarro@pechanga-nsn.
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(951) 676-2768
(951) 506-9491 Fax

Ramona Band of Cahuilla Mission Indians
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P.O. Box 391670 Cahuilla
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admin@ramonatribe.com
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(951) 763-4325 Fax

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Morongo Band of Mission Indians Tribal Elder
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Banning , CA 92220 Cahuilla
siva@dishmail.com
(951) 849-4676

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and fed eral NAGPRA. And 36 CFR Part 800.3.

TSan Juan Capistrano Town Center (Number 1859); located in the City of San Juan Capistrano; Orange County, California for Colton Crossing Grade Separation Project; located in the City of Colton area; San Bernardino County, California for which a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
April 30, 2010
San Bernardino County

Joseph Ontiveros, Cultural Resource Department
SOBOBA BAND OF LUISENO INDIANS
P.O. BOX 487 Luiseno
San Jacinto , CA 92581
(951) 654-5544, ext 4137
(951) 663-5279
jontiveros@soboba-msn.gov

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

TSan Juan Capistrano Town Center (Number 1958); located in the City of San Juan Capistrano; Orange County, California for Colton Crossing Grade Separation Project; located in the City of Colton area; San Bernardino County, California for which a Sacred Lands File search and Native American Contacts list were requested.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SB-10B0603-10SL0811

JUL 2, 2010

Craig Wentworth
Office Chief
Biological Studies and Permits Branch
Department of Transportation
District 8
Environmental Planning (MS 822)
464 West 4th Street, 6th Floor
San Bernardino, California 92401-1400

Attention: Josh Jaffery, Environmental Planner

Subject: Request for a List of Proposed, Threatened, or Endangered Species Potentially Occurring in the Vicinity of the Colton Crossing Grade Separation Project, City of Colton, San Bernardino County, California

Dear Mr. Wentworth:

This letter is in response to your request, received by our office on June 3, 2010, for information on federally endangered, threatened, proposed, and candidate species that may occur in the vicinity of the Colton Crossing Grade Separation Project. The project site is located along the Union Pacific Railroad right-of-way approximately 0.5 mile west of South Rancho Avenue to just east of Mount Vernon Avenue in the City of Colton and unincorporated San Bernardino County, California. To assist you in evaluating the potential occurrence of federally listed endangered, threatened, proposed, and candidate species that may occur in the vicinity of the proposed action, we are providing the enclosed list.

Because we do not have site-specific information for the proposed project, we recommend that you seek assistance from a biologist familiar with the habitat conditions and associated species in and around the project site to assess the actual potential for direct, indirect, and cumulative impacts likely to result from the proposed activity. We also suggest that you contact the California Department of Fish and Game regarding State-listed and sensitive species that may occur within the project area. Please note that State-listed species are protected under the provisions of the California Endangered Species Act.

As a reminder, if a proposed project is authorized, funded, or carried out by a Federal agency and may affect a federally listed species, then section 7 consultation pursuant to the Endangered

TAKE PRIDE IN AMERICA

Species Act of 1973 (Act), as amended, is required. If a proposed project does not involve a Federal agency, but is likely to result in the take of a listed animal species, then the project proponent should apply for an incidental take permit, pursuant to section 10 of the Act.

Please note that due to out-of-date data on the U. S. Fish and Wildlife Service Critical Habitat Portal, the Carlsbad Fish and Wildlife Office is now hosting all critical habitat GIS data within our jurisdictional area on our website at http://www.fws.gov/carlsbad. Select the GIS DATA link to access current critical habitat layers.

Should you have any questions regarding the species listed or your responsibilities under the Act, please contact Sally Brown of this office at (760) 431-9440, extension 278.

Sincerely,

Sally Brown

for Karen A. Goebel
Assistant Field Supervisor

Enclosure

Federally Endangered, Threatened, Proposed, and Candidate Species and Critical Habitat that May Occur in the Vicinity of the Colton Crossing Grade Separation Project, City of Colton, San Bernardino County, California

June 25, 2010

Common Name	Scientific Name	Federal Status	Critical Habitat in Vicinity
Plants			
Santa Ana River woolly-star	*Eriastrum densifolium* subsp. *sanctorum*	endangered	N/A*
slender-horned spine flower	*Dodecahema leptoceras*	endangered	N/A
Gambel's watercress	*Rorippa gambellii*	endangered	N/A
marsh sandwort	*Arenaria paludicola*	endangered	N/A
salt marsh bird's beak	*Cordylanthus maritimus* subsp. *maritimus*	endangered	N/A
Brand's phacelia	*Phacelia stellaris*	candidate	N/A
Invertebrates			
Delhi Sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	endangered	N/A
Fish			
Santa Ana sucker	*Catostomus santaanae*	threatened	present
Birds			
coastal California gnatcatcher	*Polioptila californica californica*	threatened	absent
Least Bell's vireo	*Vireo bellii pusillus*	endangered	absent
southwestern willow flycatcher	*Empidonax traillii extimus*	endangered	present
yellow-billed cuckoo	*Coccyzus americanus*	candidate	N/A
Mammals			
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	endangered	absent

* N/A = Not Applicable

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Chapter 4 List of Preparers

The following persons were principally responsible for preparation of this Environmental Assessment (EA) or substantial background materials.

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Jacob Waclow, Transportation Engineer

David Tedrick, South Team Leader, Environmental Specialist

Deborah Suciu Smith, FHWA Resource Center

4.2 California Department of Transportation, District 8

David Bricker, Deputy Director, Environmental Planning

Savat Khamphou, Local Assistance Engineer

Marie Petry, Office Chief, Environmental/Support B

Olufemi Odufalu, Office Chief, Environmental Cultural Studies Branch

Catherine B. Jochai, CLA, Chief, Office of Storm Water Quality, District NPDES Storm Water Coordinator

Gabrielle Duff, Associate Environmental Planner, Prehistoric Archaeology (PQS)

Gary Jones, Associate Environmental Planner, Archaeologist, Cultural Support

Andrew Walters, Associate Environmental Planner/Architectural History

Ray Desselle, District Landscape Architect

Miriam Bishop, Associate Landscape Architect

Craig Wentworth, Senior Environmental Planner/Biologist

Josh Jaffery

4.3 San Bernardino Association of Governments

Garry Cohoe, Director of Freeway Construction, project oversight

Khalil Saba, Project Manager, project oversight

Paul Melocoton, Assistant Project Manager, project oversight

4.4 LSA Associates, Inc. (Project Environmental Analysis)

Deborah Pracilio, Principal, Project Manager

Lynn Calvert-Hayes, AICP, Principal, Quality Assurance Review (Environmental)

David Atwater, Environmental Planner, Assistant Project Manager, Visual Impact Assessment and EA Analysis

Casey Tibbet, M.A., Principal Architectural Historian, Historical Resources Evaluation Report

Curt Duke, Principal, ASR and HPSR Quality Assurance Review

Dah-Win Sheu, Visual Impact Assessment Technical Report Review

Tung-chen Chung, Ph.D., INCE Board Certified, Principal, Air Quality Technical Report Technical Review

Keith Lay, Associate, Air Quality Specialist, Air Quality Technical Report and EA Analysis

Kelly Czechowski, Senior Environmental Planner, Community Impact Assessment, EA Analysis and Cumulative Impacts

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Margaret Gooding, GIS/Graphics Specialist, Figures for Technical Reports and the EA

Maria Lum, Associate/Biologist, Natural Environmental Study, Jurisdictional Delineation, and EA Analysis

Nicole West, Senior Environmental Specialist, Water Quality Assessment Report, and EA Analysis

Raymond Hussey, AICP, Associate, EA Analysis for Land Use and Traffic

Riordan Goodwin, Archaeologist, Archaeological Survey Report and Historic Property Survey Report

Robert Reynolds, Associate/Paleontologist/Geologist, Paleontological Identification and Evaluation Report

Ron Brugger, Senior Air Quality Specialist, Federal Air Quality Conformity Report

Steven Dong, Editor and Word Processor

Wendy Walters, Senior Biologist, Natural Environment Study (Minimal Impacts) and EA Analysis

4.5 HDR Engineering (Engineering Lead and Project Management)

Tom Kim, P.E., Vice President, Project Manager

Mark Evans, P.E., Deputy Project Manager

Aaron Rubio Staff Engineer, Design Plans

Barry Butterfield, Senior Environmental Engineer, Construction Analysis

Mark Hemphill, Dir. Railway Consulting Services, Rail Operations Analysis

Scott Hale PMP, Senior Rail Modeler, Rail Operations Analysis

Bill Flores, Jr., P.E., CPESC, CPSWQ, Senior Engineer, Water Quality Management Plan

Ken Warfield, Senior Designer, Design Plans

Mark Seits, P.E., CFM, Senior Engineer, Preliminary Drainage Report, Location Hydraulic Study, Summary Floodplain Evaluation Report

4.6 CHJ Engineering (Project Geotechnical Analysis and Initial Site Assessment for Hazardous Materials)

Ann Laudermilk REA, Initial Site Assessment

Robert Johnson, RCE, REA, Initial Site Assessment

John S. McKeown, EG, Project Geologist, Geotechnical Investigation

James F. Cooke RCE, Project Engineer, Geotechnical Investigation

Jay J. Martin, EG, Vice President, Geotechnical Investigation

Allen D. Evans, GE, Vice President, Geotechnical Investigation

4.7 Iteris (Vehicular Traffic Technical Report)

Gary Hamrick, Vice President, Vehicular Traffic Report Oversight

Vamshi Akkinepally PTP, Transportation Engineer, Vehicular Traffic Report

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4.8 ATS Consulting (Noise Technical Report)

Hugh Saurenman PhD, President, Noise Technical Report Oversight

Shankar Rajaram PhD, Associate, Noise Technical Report

4.9 Vandermost Consulting Services

Peter Carlson, Vice President, Peer review of technical studies and environmental document

Taylor Reynolds, Assistant Project Manager, Peer review of technical studies and environmental document

Kyle Morales, Senior Project Manager, Peer review of Natural Environment Study and Jurisdictional Delineation

4.10 PCR Services Corporation

Heidi Rous CCP, Director Air Quality, Climate & Acoustics Division, Peer review of Air Quality and Noise Assessments

Kyle Kim Ph.D., Senior Scientist, Peer review of Noise Assessment

Margarita Wuellner, Ph.D., Director of Historic Resources, Peer Review of Historic Property Survey Report

Kyle Garcia, Senior Archaeologist, Peer review of Paleontological Identification Report/Paleontological Evaluation Report and Historic Property Survey Report

4.11 ENVIRON

Carol Serlin, RG, Principal, Peer review of Initial Site Assessment

Bozena Szeremeta, Senior Manager, Peer review of Initial Site Assessment

Chapter 5 Distribution List

This Environmental Assessment (EA) was distributed to the state, regional, and local agencies listed in this section as well as potentially-impacted parcel owners in the project area.

Federal Agencies

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Sally Brown
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Carlsbad, California 92011

Connell Dunning
U.S. Environmental Protection Agency
Region 9
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San Francisco, California 94105

State Agencies

California Department of Conservation
Director
801 K. Street, 24th Floor
Sacramento, California 95814

California Department of Water Resources
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Sacramento, California 95814

State of California, Dept. of Fish & Game, Region 6
3602 Inland Empire Boulevard, Suite C-220
Ontario, California 91764

California Air Resources Board
1001 I Street
Sacramento, California 95812

State Water Resources Control Board
1001 I Street
Sacramento, California 95814

Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, California 95814

State Clearinghouse
Executive Officer
Office of Planning and Research
1400 Tenth Street
Sacramento, California 95814

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Water Quality Control Board
Santa Ana Region
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Riverside, California 92501

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IGR Coordinator
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Diamond Bar, California 91765

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San Bernardino, California 92415

San Bernardino County Fire Department
Dan Wurl, Fire Chief
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San Bernardino, California 92415-0451

County of San Bernardino
Administrative Office
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San Bernardino, California 92415-0120

San Bernardino County Sheriff's Department
Rod Hoops, Sheriff
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San Bernardino, California 92415-0061

San Bernardino County
Department of Public Works
825 East Third Street, Room 145
San Bernardino, California 92415-0835

Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, California 92501

City of Colton
Public Works Department
160 S. 10th Street
Colton, California 92324

City of Colton Fire Department
Tom Hendrix, Fire Chief
303 East E Street
Colton, California 92324

City of Colton
Community Development Department
650 N La Cadena Drive
Colton, California 92324

City of Colton Police Department
Bob Miller, Chief of Police
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Colton, California 92324

Colton Main Library
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Colton California 92324

Colton Library Luque Branch
294 E. O Street
Colton, California 92324

Omnitrans East Valley
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San Bernardino, California 92411

Rod Foster, City Manager
City of Colton
650 N. La Cadena Drive
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Metrolink
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Amtrak Oakland Office
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Federal Legislators

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Hon. Barbara Boxer, Senator
United States Senate
201 North E Street, Suite 210
San Bernardino, California 92401-1520

Hon. Joe Baca, Congress Member
United States House of Representatives, District 43
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San Bernardino, California 92401-1507
Attn: Stephen Wall

State Legislators

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California State Senate, District 32
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Attn: Marti Rodriquez

Hon. Wilmer Amina Carter, Assembly Member
California State Assembly, District 62
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Rialto, California 92376

Hon. Bob Dutton, Senator
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Rancho Cucamonga, California 91730
Attn: Larry Broedow

Local Elected Officials

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San Bernardino County Board of Supervisors, District 5
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Attn: Frances Vasquez

Supervisor Brad Mitzelfelt
San Bernardino County Government Center
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Attn: Andi Garcia

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Morongo Band of Mission Indians
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Pechanga Band of Mission Indians
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Utilities, Services, and Businesses

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Grand Terrace, California 92313-5602

Colton Disposal (Republic Services)
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The Gas Company
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Southern California Edison
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Houston, Texas 77002

Charter Communications
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St. Louis, Missouri 63131

Time-Warner Cable
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New York, New York 10023

AT&T
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Dallas, Texas 75202

Sunesys, LLC.
Western Regional Office
1325 Pico, Suite 106
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Meeks & Daley Water Co.
31315 Chaney Street
Lake Elsinore, California 92530-2743

Southern California Gas Company
Post Office Box C
Monterey, Park California 91756

Chapter 6 References

ATS Consulting 2010. *Draft Noise and Vibration Assessment, Colton Crossing Grade Separation Project.* December.

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HDR Engineering, Inc. 2010. *Summary Floodplain Encroachment Report for Colton Crossing Grade Separation Project*. October 11.

HDR Engineering, Inc. 2010. *Preliminary Drainage Report for the Colton Crossing Grade Separation Project.* August 30.

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LSA Associates, Inc. 2011. *Colton Crossing Rail-to-Rail Grade Separation, Natural Environment Study NES (MI)(Minimal Impacts).* February.

LSA Associates, Inc. 2011. *Community Impact Assessment (CIA), Colton Crossing Rail to Rail Grade Separation* Project. February.

LSA Associates, Inc. 2011. *Environmentally Sensitive Area Action Plan* (ESA), *Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California*. February.

LSA Associates, Inc. 2011. *Extended Phase I Survey Report* (XPI), *Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California*. February.

LSA Associates, Inc. 2011. *Historic Property Survey Report, Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California*. February.

LSA Associates, Inc. 2011. *Historical Resources Evaluation Report (HRER), Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California*. February.

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Appendix A TITLE VI POLICY STATEMENT

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DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. Box 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711

Flex your power!
Be energy efficient!

July 20, 2010

TITLE VI
POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Charles Wahnon, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353 or toll free 1-866-810-6346 (voice), TTY 711, fax (916) 324-1869, or via email: charles_wahnon@dot.ca.gov.

Cindy McKim
CINDY McKIM
Director

Appendix B ENVIRONMENTAL COMMITMENT REPORT

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Date:

ENVIRONMENTAL COMMITMENT RECORD (ECR)

Colton Crossing Rail to Rail Grade Separation Project

No.	Description of Commitment	Ref.	Responsible Party/Monitor	Timing/Phase	Commitment Source	Comments
ULT-1	During the Plans, Specifications, and Estimates (PS&E) stage, UPRR would conduct an updated utility search to determine all utility conflicts that require positive location, protection in place, and/or relocation. Proposed undergrounding of existing utilities would be coordinated and decided upon by the utility companies during the final design phase.	EA, Section 2.4	UPRR/Resident Engineer/Construction Contractor	During final design and construction	UPRR	
ULT-2	Prior to commencement of construction, UPRR would coordinate with all affected utility providers to establish exact procedures and specifications for all facilities to be protected in place and relocated during construction to ensure that utility services are not disrupted.	EA, Section 2.4	UPRR/Resident Engineer/Construction Contractor	During final design and construction	UPRR	
TRA-1	A Transportation Management Plan (TMP) will be prepared for the construction phases of the project. The objectives of a TMP are to maintain the safe movement of vehicles through the construction zone and to provide for the highest level of traffic circulation and access during the construction period. During construction, some traffic delays are anticipated. The TMP will include detailed information on measures taken for off-peak or nighttime work; flagging, lane, shoulder, street, ramp, or total facility closures; project phasing; temporary traffic screens; and details regarding the Construction Progress Schedule and delay penalties. The TMP will be prepared by the contractor prior to construction and will consist of but not be limited to the following elements to mitigate traffic inconvenience caused by construction activities: • Coordination and communication among all affected local agencies that provide services within the project study area, including but not limited to City of Colton Public Works Department, Colton Police Department, Colton Fire Department, Omnitrans, and utility providers. • Traffic Control: This project will require traffic control elements such as lane/shoulder closures and temporary signing/striping on City streets. • Public Awareness Campaign (PAC): Although the majority of any major roadway closures will occur at night, vehicles traveling through the construction zone will likely experience longer than normal delays. To reduce these delays and confusion to the motoring public during construction activities, the City UPRR will implement a PAC. The purpose of the PAC is to keep the surrounding community abreast of the project's progress and construction activities that could affect travel plans. The use of brochures and mailers, hand-delivering notices to the vicinity, providing a telephone hotline, posting informational signs, local cable television and news advertising, media releases, opportunities to field questions on the project through internet and e-mail, notifications to targeted groups regarding revised transit schedules/maps, rideshare organizations, schools, and organizations representing people with disabilities, commercial traffic reporters/feeds, and public meetings, as appropriate, are effective tools for disseminating this information. • Signing: Information signing in the form of existing electronic message signs, changeable message signs, ground-mounted/fabric signs, and panel signs will be posted on Mount Vernon Avenue, La Cadena Drive, and Rancho Avenue and the local roadways south of and nearest to the railroad tracks prior to and during construction to inform motorists of delays, ramp closures, and alternate travel routes.	EA, Section 2.5	UPRR/Resident Engineer/Construction Contractor/SANBAG	During final design and construction	UPRR	
TRA-2	During the PS&E phase, identify the temporary conversion of the 9th Street/I-10 Eastbound Ramps intersection from one-way stop control to all-way stop control within the project plans and specifications approved by UPRR. The contractor will complete the temporary conversion. At the conclusion of project construction, the City in consultation with Caltrans will determine whether or not the additional traffic controls should be removed or remain in place. If it is determined that the intersection shall be converted back to one-way stop control, the contractor shall complete the conversion.	EA, Section 2.5	UPRR/Resident Engineer/Construction Contractor/Caltrans/ SANBAG	During final design	UPRR	

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CCM-1	During the Project Study & Engineering phase, a Lighting Master Plan will be prepared with input from the local community, City, Caltrans, and UPRR to identify appropriate lighting for the portion of the proposed structure that will span over La Cadena Drive. Additionally, the lighting in the existing I-10 undercrossing at La Cadena Drive will be evaluated and determined whether it meets minimum lighting requirements as outlined in the City's Municipal Code. If existing lighting does not meet minimum requirements, then the existing lighting fixtures within this undercrossing will be upgraded to achieve minimum standards of the City.	EA, Section 2.3	UPRR/Resident Engineer/Caltrans Landscape Architect, SANBAG, and City of Colton	During final design	UPRR	
VIS-1	During the Project Study & Engineering phase, UPRR shall prepare a landscape program that addresses landscape treatment within the Caltrans right-of-way and within residential properties to the south of the UPRR right-of-way. This plan shall include landscape treatment along I-10 between Rancho Avenue and the freeway crossing of the BNSF railroad, within residential properties, and within City of Colton right-of-way to use areas adjacent to the project area for revegetation and it shall include landscaping with plant species compatible with the climatological conditions (e.g., xeric) of the geographic area while still promoting the enhancement of new project structures to the extent feasible. This program shall incorporate all applicable procedures and requirements as detailed in the publication Caltrans Highway Design Manual, Section 902.1, Planting Guidelines (November 2001), and the City of Colton General Plan. The landscape program shall include, but shall not be limited to, the following components, as feasible within Caltrans right-of-way from Rancho Avenue to the BNSF grade separation structure: a. Maintain the visual planting character of the I-10 corridor; b. Consider guidance provided in the Interstate 10 Corridor Landscape Master Plan for landscaping; c. Incorporate all applicable procedures and requirements as detailed in the publication Caltrans Highway Design Manual, Section 902.1, Planting Guidelines (November 2001); d. Plant drought-resistant plants within the I-10 right-of-way, which promotes use of xeric (adapted to arid conditions) landscaping techniques; and e. Provide low-maintenance, erosion control groundcover species in the palette to preserve existing views and prevent erosion. The landscape program shall include the following components, as feasible, within private residential parcels southerly of the UPRR right-of-way from Rancho Avenue to 5th Street and City-owned right-of-way on W. K Street and E. K Street, east of the existing Colton Crossing: f. Establish a Tree Planting Program that provides monies to residential property owners and the City of Colton within this area to plant trees within their property to screen views of the flyover structure. The Tree Planting Program shall provide adequate funds to provide for purchase and planting of a selected palette of tree species. Tree species to be included in the selected palette should emphasize drought-tolerant species and native species, but may also contain fruit-bearing trees. Trees within City right-of-way shall be consistent with the adopted City Tree Replacement Palette.	EA, Section 2.6	UPRR/Resident Engineer/Caltrans Landscape Architect, SANBAG, and City of Colton	During final design	UPRR	
VIS-2	During final design, the UPRR shall incorporate aesthetic wall treatments into the final design of the proposed project. The selection process for aesthetic wall treatments shall be developed in consultation with the City of Colton and City-designated stakeholders. The selection of aesthetic wall treatments shall be based on the following criteria: • Design shall include the application of a variety of textures and patterns to promote visual interest and to deter vandalism. Textures and patterns shall not consist of	EA, Section 2.6	UPRR/Resident Engineer/Caltrans, City of Colton and SANBAG	During final design	UPRR	

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	protruding features or shapes nor shall they include sharp edges; and • Design shall include the application of subtle reliefs at caps and/or parapets to enhance shadow lines and to promote visual interest. Relief depth of textures and patterns and at caps and/or parapets shall be restricted to a maximum depth of 2 inches thereby facilitating inspection for cracking and structural deficiencies; and • Design for wall treatments on the north side of the structure shall maintain compatibility with the I-10 Corridor Landscape Master Plan; and • Design shall not incorporate bold or bright colors that may interfere with day-to-day railroad operations. To the extent feasible, concrete treatments shall be integral-colored or stained to reduce the frequency of maintenance activities; and • Treatments shall be applied by form liner in basic patterns and repetitions so as to facilitate future maintenance and/or replacement; and • Design of the treatment and materials used in the treatment shall consider graffiti control and the long-term need to remove graffiti.					
VIS-3	During the Project Study & Engineering phase the UPRR will prepare a lighting plan for the I-10/Rancho Avenue ramps prior to construction. The lighting fixtures will be designed consistent with Caltrans lighting standards to minimize glare on adjacent properties and into the night sky. Lighting will be shielded and focused within the ramp right-of-way.	EA, Section 2.6	UPRR/Resident Engineer/City of Colton	During final design	UPRR	
CUL-1	An archaeological monitor will be retained by UPRR and be present during ground-disturbing activities within the top four feet of the surface within the APE at the Colton Crossing and eastward. The monitor shall meet the Secretary of Interior Professional Qualifications Standards for historical archaeology. The monitor shall have the authority to temporarily halt or divert construction activities to assess the significance of archaeological finds and consult with the appropriate agency staff. The agency staff and consultant archaeologist will determine the need for salvage excavation, laboratory analysis, curation of materials, and reporting requirements.	EA, Section 2.7	UPRR/Resident Engineer/Construction Contractor/ SANBAG	During construction	UPRR	
CUL-2	If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.	EA, Section 2.7	UPRR/Resident Engineer/Construction Contractor/ SANBAG	During construction	UPRR	
CUL-3	Environmentally Sensitive Areas (ESAs) will be established for the following seven archaeological sites: 36-022627, 36-022629, 36-022630, 36-022631, 36-022632, 36-022633, and 36-022634. The ESAs will consist of areas within and near the limits of construction where access is prohibited or limited for the preservation of each archaeological site. The ESA boundary of each site includes the surface exposure of the site and potential subsurface deposits identified during the remote sensing program, and a buffer of 20 feet. No work shall be conducted within the ESA. All designated ESAs and fencing limits will be shown on final design plans and appropriate fencing requirements included in the PS&E. Fencing will consist of high visibility fencing material and will be 4 feet high. The archaeological monitor who meets the Secretary of Interior Professional Standards for historical archaeology shall monitor the placement of the ESA fencing, inspect the fencing periodically throughout the construction period, order replacement of fencing (if needed) and monitor removal of fencing at the end of construction (see ESA Action Plan in the Draft HPSR, Attachment F).	EA, Section 2.7	UPRR/Resident Engineer/Construction Contractor/ SANBAG	During construction	UPRR	
CUL-4	If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact UPRR and Caltrans District 8 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as	EA, Section 2.7	UPRR/Resident Engineer/Construction Contractor/San Bernardino County Coroner's Office/SANBAG	During construction	Health and Safety Code	

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	applicable. This provision shall be included in the contract specifications approved by UPRR.					
WQU -1	During construction, the Union Pacific Railroad (UPRR) would comply with the provisions of the *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit) (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit, as they relate to construction activities for the project. This would include submission of the Permit Registration Documents, including a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board (SWRCB) via the Storm Water Multi-Application and Report Tracking System (SMARTS) at least 7 days prior to the start of construction. Construction activities would not commence until a Waste Discharger Identification (WDID) number is received from the SMARTS. The SWPPP would be prepared by a Qualified SWPPP Developer (QSD) and would meet the requirements of the Construction General Permit and would identify potential pollutant sources associated with construction activities; identify non-storm water discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site. BMPs would include, but not be limited to, Good Housekeeping, Erosion Control, and Sediment Control BMPs. The BMPs identified in the SWPPP would be implemented during project construction. UPRR would comply with the Risk Level 2 sampling and reporting requirements of the Construction General Permit. A Rain Event Action Plan (REAP) would be prepared and implemented by a Qualified SWPPP Developer (QSP) within 48 hours prior to a rain event of 50 percent or greater probability of precipitation according to the National Oceanic and Atmospheric Administration (NOAA). UPRR or their contractor shall also prepare and submit an Annual Report no later than September 1 of each year using the SMARTS. A Notice of Termination (NOT) would be submitted to the SWRCB within 90 days of completion of construction and stabilization of the site.	EA, Section 2.9	UPRR/Resident Engineer/Construction Contractor/ SANBAG	Prior to and during construction	NPDES General Permit	
WQU-2	During final design, UPRR would prepare a Final Water Quality Management Plan (WQMP) that details the Source Control, Site Design, and Treatment Control BMPs to be incorporated into the proposed project. The BMPs would be consistent with the San Bernardino County Stormwater Program *Model Water Quality Management Plan Guidance* and *Water Quality Management Plan Template* and would be properly designed, installed, and maintained to target pollutants of concern. The WQMP would be submitted to the City of Colton and County of San Bernardino for review and approval.	EA, Section 2.9	UPRR/Resident Engineer/ SANBAG	During final design	Municipal permit	
WQU-3	UPRR would comply with the provisions of the General Waste Discharge Requirements for Discharges to Surface Waters that Pose and Insignificant (De Minimus) Threat to Water Quality (Order No. R8-2009-0003, NPDES No. CAG998001), as they relate to discharge of non-storm water dewatering wastes for the project. This would include submitting to the Santa Ana Regional Water Quality Control Board (RWQCB) a Notice of Intent (NOI) at least 45 days prior to the start of construction and monitoring reports by the 30th day of each month following the monitoring period.	EA, Section 2.9	UPRR/Resident Engineer	During final design, construction, and maintenance	SBCFCD, FEMA	
GEO-1	During the Plans, Specifications, and Estimates (PS&E) Phase, the design and construction of the project structures would comply with the recommendations in the *Preliminary Geotechnical Investigation* (pages 30–51) prepared for the project (CHJ 2010a) and would be consistent with appropriate UPRR and American Railway Engineering and Maintenance-of-Way Association (AREMA) standards. Additional detailed geotechnical investigations would be conducted by qualified geotechnical personnel as needed to assess geotechnical conditions at specific locations within the project area for the purposes of more specific foundation or construction design. Additional construction requirements or refinements would be incorporated into the final project design as appropriate.	EA, Section 2.10	UPRR/Resident Engineer/Construction Contractor/ SANBAG	During final design	Preliminary Geotechnical Investigation, AREMA standards	
GEO-2	All of the following requirements would be included in the final design for the project and so noted on appropriate plans: • Structures would be designed to resist the maximum credible earthquake associated	EA, Section 2.10	UPRR/Resident Engineer/ SANBAG	During final design	applicable Federal, State, AREMA, and UPRR standards and California Building Code	

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	with nearby faults. • Design and construction of the project in accordance with current Federal, State, AREMA, and UPRR standards as applicable, and the California Building Code.					
HAZ-1	During grading, soil excavation shall be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous material sources, such as buried 55-gallon drums and underground tanks. If discolored soils, soils with an unusual odor, or undocumented subsurface structures are encountered during grading, work shall be halted in that area and a qualified environmental professional shall evaluate the situation and recommend the most appropriate course of action (e.g., sampling, remediation, etc). Depending on the type and extent of contaminated materials found onsite, the environmental professional may recommend entering into a Voluntary Cleanup Agreement (VCA) with the California Department of Toxic Substances Control (DTSC) to oversee remediation of the contamination, as appropriate. This requirement shall be included in the contract specifications approved by UPRR.	EA, Section 2.12	UPRR/Resident Engineer/Construction Contractor/ Qualified Environmental Professional/ SANBAG	During construction	ISA	
HAZ-2	The prime contractor shall ensure that any soils that shall be disturbed on or adjacent to the project site, and that are suspected of being contaminated by hazardous materials, shall be appropriately tested and/or remediated prior to the start of construction. If contamination is suspected or identified prior to construction activities, an environmental professional shall determine the most appropriate course of action required. This requirement shall be included in the contract specifications approved by UPRR.	EA, Section 2.12	UPRR/Resident Engineer/Construction Contractor/Qualified Environmental Professional/SANBAG	During final design and during construction	ISA	
HAZ-3	Prior to the start of grading in the general area where “unidentified organic material” was found north of the railroad tracks just southeast of the I-10 freeway and S. 6th Street, soil sampling and testing for hydrocarbons and metals shall be conducted. Backhoe trenching may be needed to fully evaluate the lateral and vertical extent of the material. Any soil found to be contaminated in excess of applicable health standards shall be remediated and disposed of according to applicable regulations. This requirement shall be included in the contract specifications approved by UPRR.	EA, Section 2.12	UPRR/Resident Engineer/Construction Contractor/SANBAG	During final design and during construction	ISA	
HAZ-4	A licensed contractor shall be retained to properly document, inspect, monitor, and remediate the identified asbestos-containing materials, lead-based paint, and miscellaneous universal wastes, as described in the Preliminary Site Investigation report, dated August 7, 2010. If asbestos-containing materials or lead-based paint are found, they shall be removed and properly disposed of prior to demolition or renovation, in accordance with rules and regulations of the South Coast Air Quality Management Control District and California Department of Toxic Substances Control. This requirement shall be included in the contract specifications approved by UPRR.	EA, Section 2.12	UPRR/Resident Engineer/Construction Contractor/ SANBAG	During final design and during construction	ISA, SCAQMD, DTSC	
HAZ-5	If dewatering is required during grading or construction, the onsite water shall be tested to assure it does not exceed any established health standards for heavy metals, organic materials, or other contaminants. Water removed from construction areas that is contaminated shall be disposed of by a licensed contractor in an approved landfill according to applicable regulations. This requirement shall be included in the contract specifications approved by UPRR.	EA, Section 2.12	UPRR/Resident Engineer/Construction Contractor/ SANBAG	During final design	ISA	
AQU-1	During clearing, grading, earthmoving, or excavation operations, excessive fugitive dust emissions would be controlled by regular watering or other dust preventive measures using the following procedures, as specified in the South Coast Air Quality Management District (SCAQMD) Rule 403. All material excavated or graded would be sufficiently watered to prevent excessive amounts of dust. Watering would occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day. All material transported on site or off site would be either sufficiently watered or securely covered to prevent excessive amounts of dust. The area disturbed by clearing, grading, earthmoving, or excavation operations would be minimized so as to prevent excessive amounts of dust. These control techniques would be indicated in project specifications. Visible dust beyond the property line emanating from the project would be prevented to the maximum extent feasible. The construction contractor would also adhere to SCAQMD’s Rule 403 requirements for large	EA, Section 2.13	UPRR/Construction Contractor/SANBAG	During construction	SCAQMD	

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<table>
<tr><th>No.</th><th>Description of Commitment</th><th>Ref.</th><th>Responsible Party/Monitor</th><th>Timing/Phase</th><th>Commitment Source</th><th>Comments</th></tr>
<tr><td></td><td>operations if the disturbed surface area exceeds 50 acres or if daily earthmoving exceeds 5,000 cubic yards.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>AQU-2</td><td>Project grading plans would show the duration of construction. Ozone precursor emissions from construction equipment vehicles would be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications.</td><td>EA, Section 2.13</td><td>UPRR/Resident Engineer/Construction Contractor</td><td>Prior and during construction</td><td>SCAQMD</td><td></td></tr>
<tr><td>AQU-3</td><td>All trucks that are to haul excavated or graded material on site would comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2), and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads.</td><td>EA, Section 2.13</td><td>UPRR/Resident Engineer/Construction Contractor</td><td>During construction</td><td>SCAQMD</td><td></td></tr>
<tr><td>AQU-4</td><td>Contractor will be required to provide evidence to the Resident Engineer or construction manager at the start of work and periodically (at least every 6 months) during construction that the off-road equipment fleet (s) and portable equipment in use comply with applicable State and South Coast AQMD vehicle fleet emission reduction regulations, including a vehicle and equipment inventory indicating appropriate ARB registration or air district permits.</td><td>EA, Section 2.13</td><td>UPRR/Resident Engineer/Construction Contractor</td><td>During construction</td><td>SCAQMD</td><td></td></tr>
<tr><td>NOI-1</td><td>Development of a Noise Control Plan by the contractor would be included in the project specifications approved by UPRR. The contractor would be required to have a qualified acoustical professional develop a Noise Control Plan that demonstrates how the contractor would achieve the noise limits in Table 2.14.J. The plan would include measurements of existing noise, a list of the major pieces of construction equipment that would be used, and predictions of the noise levels at the closest noise-sensitive receptors. The Noise Control Plan prepared by the contractor would be approved by UPRR prior to construction. Measures to be included in the Noise Control Plan shall include, but not be limited to, the following:

Specific noise limits that should not be exceeded will be identified. The recommended noise limits are given in Table 2.14.J. Also, the contractor would be required to conduct noise monitoring to demonstrate compliance with contract noise limits.
Require the contractor to only use equipment that meets the noise limits in Table 2.14.J.
Where the construction cannot be performed in accordance with the requirements of the noise limits, the contractor should be required to investigate alternative construction measures that would result in lower sound levels.
The contractor should be required to use the following best management practices for noise abatement whenever practical:

Utilize specialty equipment equipped with enclosed engines and/or high performance mufflers, as feasible.
Locate equipment and staging areas as far from noise-sensitive receptors as possible.
Limit unnecessary idling of equipment.
Install temporary noise barriers as needed where feasible.
Reroute construction-related truck traffic away from residential streets to the extent permitted by the relevant municipality.
Avoid impact pile driving where possible. Current construction plans do not include any impact pile driving.

Table 2.14.J: Recommended Limits on Construction Noise
<table>
<tr><th rowspan="3">Land Use</th><th colspan="4">Recommended Maximum Allowable Sound Level, dBA</th></tr>
<tr><th colspan="2">Daytime</th><th colspan="2">Nighttime</th></tr>
<tr><th>$L_{eq}^{(a,c)}$</th><th>$L_{max}^{(b)}$</th><th>$L_{eq}^{(a,d)}$</th><th>$L_{max}^{(b)}$</th></tr>
</table></td><td>EA, Section 2.14</td><td>UPRR/Resident Engineer/Construction Contractor/SANBAG</td><td>During construction</td><td>UPRR</td><td></td></tr>
</table>

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	FRA/FTA Category 2, Residential Land Uses (includes hotels/motels, and any other locations where people sleep): 75 / 85 / 69 / 79 FRA/FTA Category 3, Institutional Land Uses (schools, churches, libraries, theaters): 75 / 85 / 75[(e)] / 85[(e)] Note: These noise limits are applicable at the property line of the affected land use (a) L_{eq} is the root-means-square sound level measured over a 20-minute period. (b) L_{max} is the maximum instantaneous sound level measured using the "slow" setting on a standard sound level meter. (c) If baseline daytime L_{eq} is greater than 70 dBA, the allowable level of construction noise is increased to: Noise Limit = baseline daytime L_{eq}+5 dB. The baseline L_{eq} must be established by measurements of existing noise levels prior to initiation of construction. The minimum measurement period for establishing baseline L_{eq} is 21 days. (d) If baseline nighttime L_{eq} is greater than 66 dBA, the allowable level of construction noise is increased to: Noise Limit = baseline nighttime L_{eq}+3 dB. The baseline L_{eq} must be established by measurements of existing noise levels prior to initiation of construction. The minimum measurement period for establishing baseline noise L_{eq} is 21 days. (e) For noise-sensitive facilities with primarily daytime use, there are no nighttime noise limits unless the facility is in use. The daytime noise limits apply when the facility is in use during nighttime hours. Source: Table 23, ATS 2011					
WET-1	Prior to initiating construction, Union Pacific Railroad (UPRR) would submit a Pre-Construction Notification (PCN) form and Preliminary Jurisdictional Determination to the United States Army Corps of Engineers (USACE) to obtain coverage under a Nationwide Permit (NWP), pursuant to Section 404 of the Federal Clean Water Act (CWA). If mitigation is required by the USACE, the appropriate type and level of mitigation would be determined in coordination with the USACE based on the quantity and quality of jurisdictional resources to be affected. Typical mitigation could include replacement and/or enhancement of on-site or off-site habitat. An example of enhancement mitigation would be the payment of in lieu fees or the purchase of established mitigation bank credits for enhancement of some identified USACE jurisdictional area. The specific mitigation bank is subject to approval by the USACE and possibly in coordination with the California Department of Fish and Game (CDFG) and the Santa Ana Regional Water Quality Control Board (RWQCB) under guidelines described by these regulatory agencies through the permitting process. Applicable mitigation would be in-lieu fee contribution to County of Riverside Parks and Open Space-Santa Ana River Mitigation Bank or a Santa Ana Watershed Association riparian and wetland restoration/enhancement project.	EA, Section 2.16	UPRR/Resident Engineer/USACE/CDFG/ RWQCB/SANBAG	Prior to and after construction	NES, Section 404 of the Federal CWA	
WET-2	In the event that a Section 404 authorization or permit is required for the proposed project, UPRR would submit an application for a 401 Water Quality Certification to the Santa Ana RWQCB and obtain a certification of water quality from the Santa Ana RWQCB prior to initiating construction. In the event that a Section 404 authorization or permit is not required for the proposed project, then prior to initiating construction, UPRR would submit an application for a State waste discharge permit to the Santa Ana RWQCB for proposed impacts to Waters of the State and obtain appropriate authorization from RWQCB.	EA, Section 2.16	UPRR/Resident Engineer/RWQCB/SANBAG	Prior to construction	NES, Section 401 and 404 of the Federal CWA	
WET-3	Prior to obtaining initiation of construction, UPRR would submit a Lake or Streambed Alteration Notification (SAN) to the CDFG for their review. The CDFG may or may not choose to issue a Streambed Alteration Agreement. Notification from the CDFG of either issuance of an Alteration Agreement or determination that it is not required would be obtained prior to initiating construction.	EA, Section 2.16	UPRR/Resident Engineer/CDFG/SANBAG	Prior to construction	NES, Streambed Alteration Agreement	
ANI-1	All vegetation clearing would be restricted to outside the active breeding season (February 15 through August 15) for birds whenever possible. If vegetation clearing must occur during breeding season, a qualified biologist would conduct clearance surveys for active bird nests immediately prior to any clearing of vegetation to ascertain whether any raptors or other migratory birds are actively nesting in the Biological Study Area (BSA). During the clearance	EA, Section 2.18	UPRR/Resident Engineer/CDFG/SANBAG	During construction	NES, Migratory Bird Treaty Act	

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	surveys, the location of any active bird nests would be mapped by the biologist, and an appropriate buffer where work would not take place would be established and monitored. The buffer would be delineated by flagging, which would remain in place until the nest is either abandoned or the young have fledged. If active nests are present, appropriate buffer area would be determined on a case-by-case basis, depending on nesting species, subject to discussion with the resources agencies when nesting is discovered. This requirement would be included in the PS&E for the project.					
TE-1	Prior to initiation of grading activities and staging, the contractor would install temporary snow fencing along the access roads and grading limits adjacent to identified DSF habitat under the direction of a qualified biologist. This fencing would be maintained throughout the construction period. If the fencing is damaged for any reason, said fencing would be replaced within three working days. These fencing areas and requirements would be shown on project plans and included in the PS&E package approved by UPRR.	EA, Section 2.19	UPRR/Construction Contractor	Prior and during construction	NES, USFWS, CDFG	
INS-1	In compliance with Executive Order 13112, during construction, invasive species would be removed and controlled within the construction limits.	EA, Section 2.20	UPRR/Resident Engineer/Construction Contractor	During and maintenance	NES, EO 13112	
INS-2	During construction, inspection and cleaning of construction equipment would be performed to minimize the importation of nonnative plant material, and eradication strategies (i.e., weed abatement programs) would be employed should an invasion occur.	EA, Section 2.20	UPRR/Resident Engineer/Construction Contractor	Prior to and during construction	NES	
INS-3	In compliance with Executive Order 13112, any revegetation, including erosion control, would utilize plant species that prevent the introduction or spread of invasive species, and use of species listed on the California Invasive Plant Council's Invasive Plant Inventory with a high or moderate rating would be avoided.	EA, Section 2.20	UPRR/Resident Engineer/Construction Contractor/SANBAG	After construction	NES, EO 13112	

Appendix C LIST OF ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Material
ADA	Americans with Disabilities Act
ADL	Aerially Deposited Lead
APE	Area of Potential Effects
ARB	(California) Air Resources Board
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASR	Archaeological Survey Report
AST	aboveground storage tank
BACM	Best Available Control Measures
Basin	South Coast Air Basin
BAT	Best Available Technology
BCT	Best Conventional Technology
BFE	Base Flood Elevation
bgs	Below ground surface
BMP	Best Management Practices
BNSF	Burlington Northern Santa Fe
BSA	Biological Study Area
BTH	Business, Transportation and Housing Agency
CAA	Federal Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CAGR	compound annual growth rate
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CBC	California Building Code
CCAA	California Clean Air Act
CDFG	California Department of Fish & Game
CDMG	California Division of Mines and Geology
CEQ	Council on Environmental Quality

CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act
CFD	Colton Fire Department
CFR	Code of Federal Regulations
CGS	California Geological Survey (formerly CDMG)
CHP	California Highway Patrol
CIA	Community Impact Assessment
CIDH	cast-in-drilled-hole
CJUSD	Colton Joint Unified School District
CNDDB	California Natural Diversity Data Base
CNEL	Community Equivalent Noise Level
CNPS	California Native Plant Society
CO	carbon monoxide
CPD	Colton Police Department
CWA	Clean Water Act
DAMP	Drainage Area Management Plan
dBA	A-weighted Decibels
DPM	diesel particulate matter
DSA	Disturbed Surface Area
DSF	Delhi sands flower-loving fly
DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map

FRA	Federal Rail Authority
ft	foot/feet
GIS	geographic information systems
HA	Hydrologic Area
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HEI	Health Effects Institute
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HPSR	Historic Property Survey Report
HRER	Historical Resources Evaluation Report
HSA	Habitat Site Assessment
HSA	Hydrologic Subarea
I-10	Interstate 10
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
JD	Jurisdictional Delineation
LBP	lead-based paint
L_{dn}	day-night averaged noise level
L_{eq}	equivalent continuous sound level
LF	linear foot/feet
L_{max}	maximum noise level
LOS	Level of Service
LT	Long-term
LUST	leaking underground storage tank
m	meter(s)
MBTA	Migratory Bird Treaty Act of 1918
MCE	Maximum Credible Earthquake
MEP	Maximum Extent Possible
MI	Minimal Impact
MOVES	Motor Vehicle Emission Simulator
mph	Miles per hour
MS4	Municipal Separate Storm Sewer System

MSAT	Mobile Source Air Toxics
MSWMP	Municipal Storm Water Management Program
NAAQS	National Ambient Air Quality Standards
NAFTA	North American Free Trade Agreement
NAHC	Native American Heritage Commission
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act of 1966
NO_2	nitrogen dioxide
NOA	Naturally Occurring Asbestos
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Construction
NOCC	Notice of Completion of Construction
NOI	Notice of Intent
NOT	Notice of Termination
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRCS	Natural Resource Conservation Service
NWP	Nationwide Permit
O_3	ozone
OH	overhead
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Act
PA	Programmatic Agreement
PAC	Public Awareness Campaign
Pb	lead
PBA	Peak Bedrock Acceleration
PCBs	polychlorinated biphenyls
PCN	Pre-Construction Notification
PDT	Project Development Team
PGA	Peak Ground Acceleration

PM	particulate matter
PM	post mile
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
PMP	Paleontological Mitigation Plan
POM	polycyclic organic matter
PPV	Peak Particle Velocity
PRGP	Peninsular Ranges Geomorphic Province
PRSM	Paleontological Resource Sensitivity Map
PS&E	Plans, Specifications, and Estimates
PSI	Preliminary Site Investigation
PSRE	Project Study Report Equivalent
RAP	Relocation Assistance Program
RCP	reinforced concrete pipe
RCRA	Resource Conservation and Recovery Act of 1976
REC	Recognized Environmental Condition
ROG	Reactive Organic Gas
ROW	right-of-way
RTP	Regional Transportation Program
RWQCB	Regional Water Quality Control Board
SAN	Streambed Alteration Notification
SANBAG	San Bernardino Associated Governments
SBCFCD	San Bernardino County Flood Control District
SBEZ	San Bernardino Enterprise Zone
SBVEZ	San Bernardino Valley Enterprise Zone
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Soil Conservation Service
SDC	Seismic Design Criteria
SER	Standard Environmental Reference
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan

SMARTS	Storm Water Multi-Application and Report Tracking System
SO_2	sulfur dioxide
SP	Southern Pacific
ST	Short-term
STB	Surface Transportation Board
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCE	Temporary Construction Easement
TCIF	Trade Corridor Improvement Fund
TIGER	Transportation Investment Generating Economic Recovery
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TSCA	Toxic Substances Control Act
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VCA	Voluntary Cleanup Agreement
VdB	Vibration decibels
VIA	Visual Impact Assessment
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WDID	Waste Discharger Identification
WPCP	Water Pollution Control Plan
WQMP	Water Quality Management Plan
XPI	Extended Phase One Survey

Appendix D LIST OF TECHNICAL STUDIES

The following technical studies were used in the preparation of this Environmental Assessment (EA).

Community Impact Assessment (CIA), Colton Crossing Rail to Rail Grade Separation Project. Prepared by LSA Associates, Inc., February 2011.

Colton Crossing Grade Separation Air Quality Analysis. Prepared by LSA Associates, Inc., February 2011.

Colton Crossing Rail-to-Rail Grade Separation, Natural Environment Study NES (MI)(Minimal Impacts). Prepared by LSA Associates, Inc., February 2011.

Colton Crossing Grade Separation Vehicular Traffic Study. Prepared by Iteris, Inc., November 2010.

Draft Initial Site Assessment (ISA), Colton Crossing Grade Separation Project, Colton, California. Includes ISA Checklist and Phase 1 Environmental Site Assessment. Prepared by CHJ Incorporated, August 31, 2010.

Draft Preliminary Site Investigation (PSI) Representative Sampling, Colton Crossing Grade Separation Project, Colton, California. Prepared by CHJ Incorporated, September, 2010.

Environmentally Sensitive Area Action Plan (ESA), *Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California*. Prepared by LSA Associates, Inc., February 2011.

Extended Phase I Survey Report (XPI), *Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California*. Prepared by LSA Associates, Inc., February 2011.

Historic Property Survey Report, Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California. Prepared by LSA Associates, Inc., February 2011.

Historical Resources Evaluation Report (HRER), Colton Crossing Rail-to-Rail Grade Separation Project, City of Colton, San Bernardino County, California. Prepared by LSA Associates, Inc., February 2011.

Location Hydraulic Study for Colton Crossing Grade Separation Project. Prepared by HDR Engineering, Inc. October 2010.

Noise and Vibration Assessment, Colton Crossing Grade Separation Project. Prepared by ATS Consulting, December 2010.

Paleontological Resources Identification and Evaluation Report, Colton Crossing Rail-to-Rail Grade Separation Project City of Colton San Bernardino County, California. Prepared by LSA Associates, Inc., February 2011.

Preliminary Drainage Report for the Colton Crossing Grade Separation Project. Prepared by HDR Engineering, Inc. August 30, 2010.

Draft Geotechnical Investigation Proposed Colton Crossing Project. Prepared by CHJ Incorporated, August 20, 2010.

Rail Operations Analysis of the Colton Crossing Project. Prepared by HDR Engineering, Inc. February 2011.

Summary Floodplain Encroachment Report for Colton Crossing Grade Separation Project, prepared by HDR Engineering, Inc. October 11, 2010.

Water Quality Assessment Report Colton Crossing Rail-to-Rail Grade Separation Project, prepared by LSA Associates, Inc. February 2011.

Appendix E FEMA FLOODPLAIN MAPS

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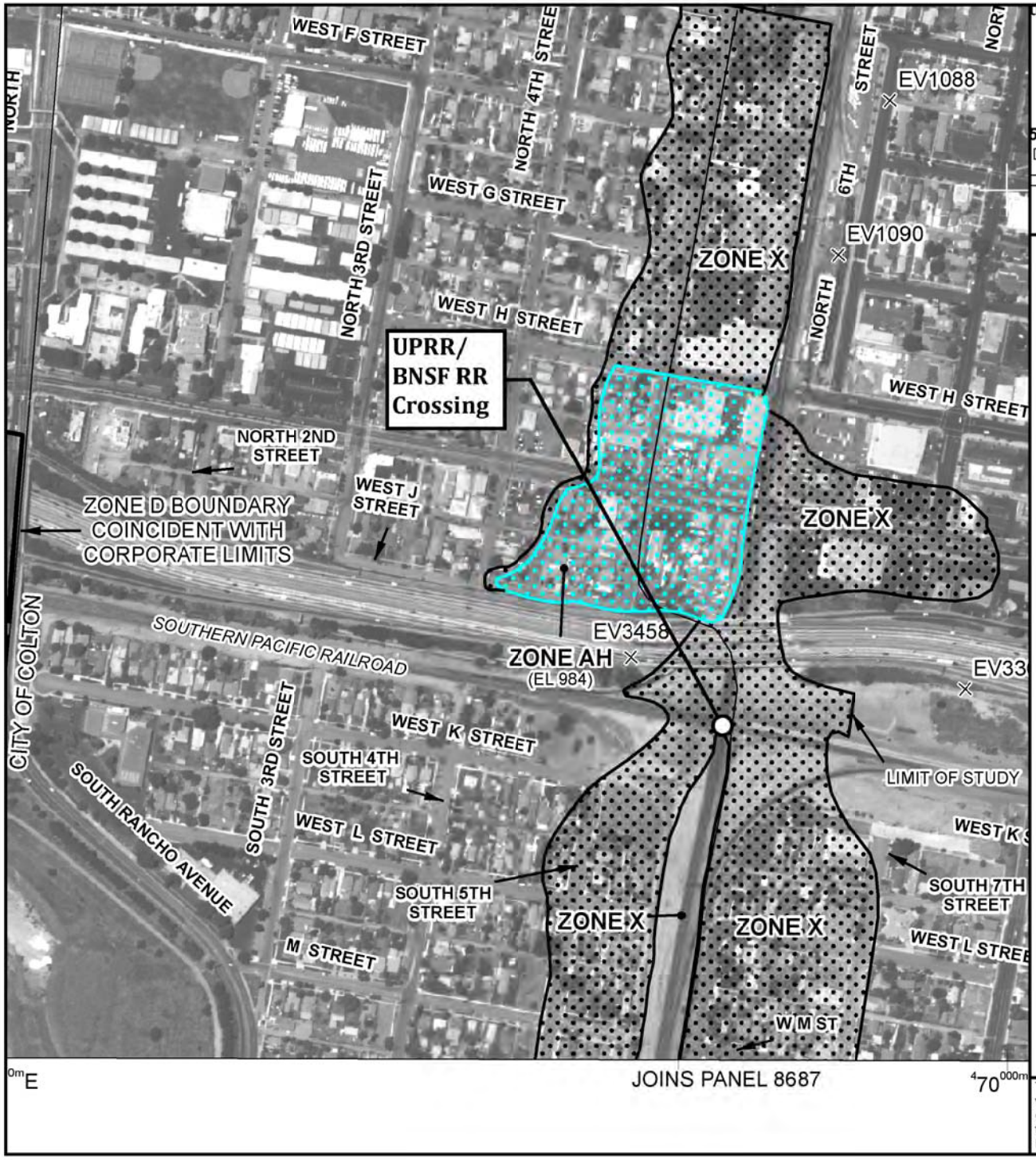


ional Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

50 0 500 1000 FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 8679H

FIRM

FLOOD INSURANCE RATE MAP

SAN BERNARDINO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 8679 OF 9400

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLTON, CITY OF	060273	8679	H
SAN BERNARDINO COUNTY	060270	8679	H
SAN BERNARDINO, CITY OF	060281	8679	H

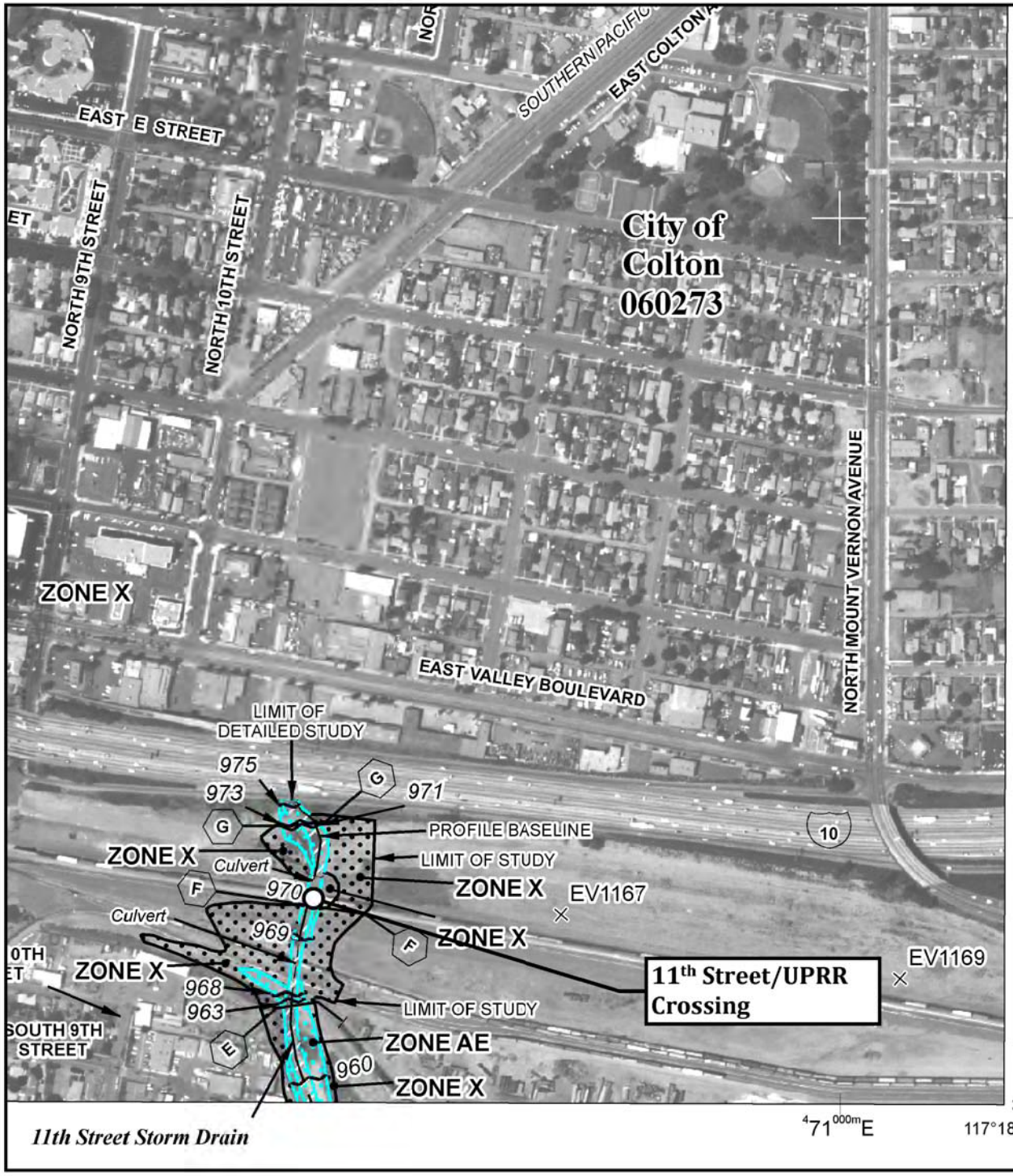
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06071C8679H

MAP REVISED
AUGUST 28, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



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