

dated May 10, 2010

- 4.3 All signatories agree to adhere to the Commission's Trade Corridor Enhancement Program, Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.
- 4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.
- 4.5 The City of Rancho Cucamonga agrees to secure funds for any additional costs of the project.
- 4.6 The City of Rancho Cucamonga agrees to report to Caltrans on a quarterly basis; after July 2019, reports will be on a semi-annual basis on the progress made toward the implementation of the project, including scope, cost, schedule, outcomes, and anticipated benefits.
- 4.7 Caltrans agrees to prepare program progress reports on a quarterly basis; after July 2019, reports will be on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.
- 4.8 The City of Rancho Cucamonga agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.
- 4.9 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits during the course of the project, and retain those records for four years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.
- 4.10 The Transportation Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for four years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost

See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope

See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Other Project Specific Provisions and Conditions

Attachments:

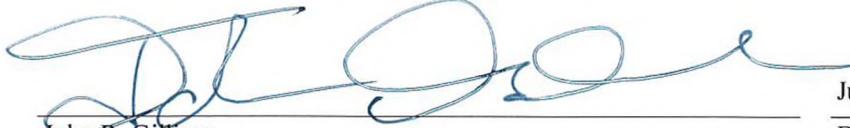
Exhibit A: Project Programming Request Form

Exhibit B: Project Report

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Etiwanda Avenue Grade Separation Project

Resolution TCER-P-1819-02B



John R. Gillison

June 7, 2018

Date

City of Rancho Cucamonga, City Manager

Project Applicant



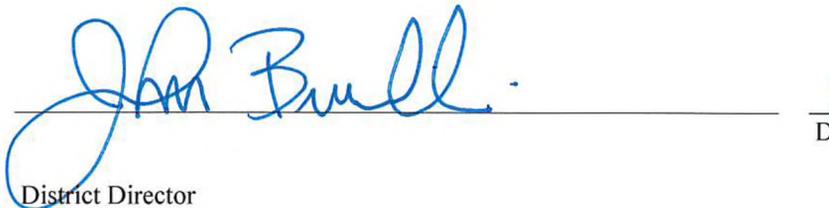
John R. Gillison

June 7, 2018

Date

City of Rancho Cucamonga, City Manager

Implementing Agency



District Director

6/14/18
Date

California Department of Transportation



Laurie Berman

7-18-18

Date

Director

California Department of Transportation



Susan Bransen

8/15/18

Date

Executive Director

California Transportation Commission

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 7 2018 v7.09)

General Instructions

Amendment (Existing Project) No					Date:	7/13/18
District	EA	Project ID	PPNO	MPO ID	Alt Proj. ID / prg.	
75	TC0011	0018000305	T0011			TCEP
County	Route/Corridor	PM Bk	PM Ahd	Project Sponsor/Lead Agency		
SBD	San Gabriel Rail Line	44.1	44.1	Caltrans		
				MPO	Element	
				SCAG	Rail	
Project Manager/Contact		Phone		E-mail Address		
Curt Billings		(909) 774-4069		Curt.Billings@CityofRC.us		
Project Title						
Etiwanda Avenue Grade Separation at SCRRRA and BNSF San Gabriel Subdivision, between Whittram Avenue and Napa Street						
Location (Project Limits), Description (Scope of Work)						
The proposed Etiwanda Avenue Grade Separation at SCRRRA and BNSF San Gabriel Rail Line, between Whittram Avenue and Napa Street, is located in the south east portion of the City of Rancho Cucamonga, borderd by the cities of Fontana to the east and Ontario is nearby to the south.						
The project will construct an overhead concrete girder bridge with a raised roadway profile and road widening, along Etiwanda Avenue and over the SCRRRA San Gabriel Subdivison at mile post 44.1 (CPUC Corssing No. 18.3-36-101SG-44.1 Etiwanda; DOT Crossing No. 026151P SCRRRA). An existing at grade crossing will be eliminated and access to local businesses will be maintained below the bridge superstructure.						
Component	Implementing Agency					
PA&ED	City of Rancho Cucamonga					
PS&E	City of Rancho Cucamonga					
Right of Way	City of Rancho Cucamonga					
Construction	City of Rancho Cucamonga					
Legislative Districts						
Assembly:	40	Senate:	23	Congressional:	31	
Project Benefits						
Eliminates an At-Grade Crossing, improves vehicle and rail safety, mobility and surface transportation. (cont. pg 2)						
Purpose and Need						
To establish a grade separation at the Etiwanda Avenue/SCRRRA grade crossing. A grade separation will reduce vehicular delays and queing along Etiwanda Avenue leading to improved mobility and LOS in compliance with CMP policy. The grade separation will provide for the safe operation of vehicles, trucks and trains whose volume is projected to increase within the project limits. It will also provide for improved emergency vehicle response times for the area. The existing Etiwanda Avenue grade crossing has experienced 7 train/vehicular accidents resulting in 2 fatalities and injuries. A new grade separation is needed to address the increase in forecasted regional traffic demand, to eliminate vehicle/train accidents and maintain satisfactory CMP designated LOS thresholds.						
Category		Outputs/Outcomes			Unit	Total
Local streets and roads		At-grade crossings eliminated			each	1
Local streets and roads		Local road operational improvements			Feet	6800
Local streets and roads		New local road bridge structures			each	1
Local streets and roads		Bicycle lane-feet			Feet	3400
ADA Improvements	Yes	Bike/Ped Improvements	Yes	Reversible Lane analysis	No	
Inc. Sustainable Communities Strategy Goals			Yes	Reduces Greenhouse Gas Emissions		
				Yes		
Project Milestone					Existing	Proposed
Project Study Report Approved					06/06/18	
Begin Environmental (PA&ED) Phase						01/16/18
Circulate Draft Environmental Document			Document Type	CE		06/04/18
Draft Project Report						N/A See Notes
End Environmental Phase (PA&ED Milestone)						06/06/18
Begin Design (PS&E) Phase						09/05/18
End Design Phase (Ready to List for Advertisement Milestone)						01/31/20
Begin Right of Way Phase						09/05/18
End Right of Way Phase (Right of Way Certification Milestone)						01/31/20
Begin Construction Phase (Contract Award Milestone)						06/01/20
End Construction Phase (Construction Contract Acceptance Milestone)						12/30/21
Begin Closeout Phase						01/02/22
End Closeout Phase (Closeout Report)						12/30/22

ADA Notice

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento,

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 7 2018 v7.09)

Date: 7/17/18

Additional Information

Project Benefits (Continued from pg 1):

A new grade separation at the Etiwanda Avenue grade crossing is needed to address mobility related to the increase in forecasted regional traffic demand, eliminate vehicle/train accidents and maintain satisfactory CMP designated LOS thresholds. Safety and community access for all modes of transportation will be improved with the elimination of an at grade railroad crossing. In addition, the quality of life for residents will be improved since the railroad will no longer be required to routinely sound the train horn per Federal Rail Administration rules. Eliminate approximately 12,180 minutes of vehicle delays per day based on 2020 estimated ADT. Fiber interconnect conduit will be installed to expand the City's existing intelligent transportation system from Whittram Avenue to the City limits bordering the City of Fontana at Napa Street. Traffic congestion will be reduced with the construction of an overhead highway bridge. Currently Etiwanda Avenue has a level of service (F) and an ADT of 21,000 vehicles. The 3,400 total linear feet of sidewalks and 5 feet wide bike lanes on Etiwanda Avenue. Reduce the annual vehicle emission by nearly 1,166 tons of CO₂, & NO_x combined.

The Etiwanda Avenue Grade Separation project between Napa Street and Whittram Avenue Project will construct a four-lane roadway overcrossing for 6,800 total linear feet of road at the Metrolink San Gabriel subdivision rail line (MP 44.1) which runs from Pasadena to San Bernardino.

Following the Metrolink San Gabriel subdivision rail line East of the I-15 freeway towards Etiwanda Avenue, there are two main tracks from CP Nolan (MP 44.5) to CP Beech (MP 47.6), track 1 on the north side and track 2 to its south. There is another spur to the sidetrack along the north side of the track at Etiwanda Avenue, site of the existing at grade road crossing. East of Etiwanda Avenue, where a Kaiser steel mill used to be, the California Auto Club Speedway now occupies the south side of the tracks. Calabash Avenue crosses the tracks (at a non-public grade crossing) at this location. There is an occasional-use Metrolink station here (CP Speedway, MP 45.3), an island platform in between the two main tracks, along with some storage tracks. Immediately east of this location is the BNSF Kaiser yard (CP Kaiser, MP 45.4), nominal destination of two daily switching turns out of San Bernardino, through which there is a third track, the "South Kaiser". East of Speedway the line and yard passes under the Cherry Avenue bridge in Fontana.

Separating surface transportation from the commuter and freight rail traffic railroad line will improve safety and operational efficiency to the mainline and several industry rail spurs nearby. It will reduce congestion and mitigate future growth impacts. Etiwanda Avenue provides surface transportation connections from local industries to several nearby freeways. It connects to the I-10 freeway 1.7 miles to the south and the I-60 freeway 3.5 miles further south. Also, 1.2 miles to the north it connects to the I-15 freeway via Foothill Blvd (Old Route 66).

The project links these existing corridors, which serve statewide needs, with an alternate capacity-enhancing local through route and thereby improving transportation resilience.

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PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 7 2018 v7.09)

Date: 7/13/18

Additional Information

Purpose and Need (Continued from pg 1):

Etiwanda Avenue is experiencing excessive delays and vehicular queues due to more than 52 daily train movements on the Metrolink San Bernardino Line. These delays and queuing are expected to worsen with continued growth and development adjacent to the project site. The most recent data shows that the existing Etiwanda Avenue at grade crossing has experienced 7 train/vehicular accidents resulting in 2 fatalities and injuries. The current roadway speed limit is 55 mph combined with increasing train trips are a concern with ongoing future growth in one of the fastest growing regions in the country.

Project Milestone (Continued from pg 1) Draft Project Report is not required for Statutory Exempt Projects.

Additional Information

INVESTMENT ANALYSIS
SUMMARY RESULTS

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Life-Cycle Costs (mil. \$)</td> <td style="text-align: right;">\$36.23</td> </tr> <tr> <td>Life-Cycle Benefits (mil. \$)</td> <td style="text-align: right;">\$40.2</td> </tr> <tr> <td>Net Present Value (mil. \$)</td> <td style="text-align: right;">\$3.99</td> </tr> <tr> <td>Benefit / Cost Ratio:</td> <td style="text-align: right;">1.11</td> </tr> <tr> <td>Rate of Return on Investment:</td> <td style="text-align: right;">4.5%</td> </tr> <tr> <td>Payback Period:</td> <td style="text-align: right;">17 years</td> </tr> </table>	Life-Cycle Costs (mil. \$)	\$36.23	Life-Cycle Benefits (mil. \$)	\$40.2	Net Present Value (mil. \$)	\$3.99	Benefit / Cost Ratio:	1.11	Rate of Return on Investment:	4.5%	Payback Period:	17 years	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">ITEMIZED BENEFITS (mil. \$)</th> <th colspan="2">Total Over</th> </tr> <tr> <th>20 Years</th> <th>Average Annual</th> </tr> </thead> <tbody> <tr> <td>Travel Time Savings</td> <td style="text-align: right;">\$33.8</td> <td style="text-align: right;">\$1.7</td> </tr> <tr> <td>Veh. Op. Cost Savings</td> <td style="text-align: right;">\$3.3</td> <td style="text-align: right;">\$0.2</td> </tr> <tr> <td>Accident Cost Savings</td> <td style="text-align: right;">\$0.5</td> <td style="text-align: right;">\$0.0</td> </tr> <tr> <td>Emission Cost Savings</td> <td style="text-align: right;">\$2.8</td> <td style="text-align: right;">\$0.1</td> </tr> <tr> <td>TOTAL BENEFITS</td> <td style="text-align: right;">\$40.2</td> <td style="text-align: right;">\$2.0</td> </tr> <tr> <td>Person-Hours of Time Saved</td> <td style="text-align: right;">3,819,369</td> <td style="text-align: right;">190,968</td> </tr> </tbody> </table>	ITEMIZED BENEFITS (mil. \$)	Total Over		20 Years	Average Annual	Travel Time Savings	\$33.8	\$1.7	Veh. Op. Cost Savings	\$3.3	\$0.2	Accident Cost Savings	\$0.5	\$0.0	Emission Cost Savings	\$2.8	\$0.1	TOTAL BENEFITS	\$40.2	\$2.0	Person-Hours of Time Saved	3,819,369	190,968
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<p><i>Should benefit-cost results include:</i></p> <p>1) Induced Travel? (y/n) <input type="checkbox"/> N <small>Default = Y</small></p> <p>2) Vehicle Operating Costs? (y/n) <input type="checkbox"/> Y <small>Default = Y</small></p> <p>3) Accident Costs? (y/n) <input type="checkbox"/> Y <small>Default = Y</small></p> <p>4) Vehicle Emissions? (y/n) <input type="checkbox"/> Y <small>includes value for CO₂ Default = Y</small></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">EMISSIONS REDUCTION</th> <th colspan="2">Tons</th> <th colspan="2">Value (mil. \$)</th> </tr> <tr> <th>Total Over 20 Years</th> <th>Average Annual</th> <th>Total Over 20 Years</th> <th>Average Annual</th> </tr> </thead> <tbody> <tr> <td>CO Emissions Saved</td> <td style="text-align: right;">45</td> <td style="text-align: right;">2</td> <td style="text-align: right;">\$0.0</td> <td style="text-align: right;">\$0.0</td> </tr> <tr> <td>CO₂ Emissions Saved</td> <td style="text-align: right;">23,227</td> <td style="text-align: right;">1,161</td> <td style="text-align: right;">\$0.7</td> <td style="text-align: right;">\$0.0</td> </tr> <tr> <td>NO_x Emissions Saved</td> <td style="text-align: right;">54</td> <td style="text-align: right;">3</td> <td style="text-align: right;">\$1.8</td> <td style="text-align: right;">\$0.1</td> </tr> <tr> <td>PM₁₀ Emissions Saved</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">\$0.1</td> <td style="text-align: right;">\$0.0</td> </tr> <tr> <td>PM_{2.5} Emissions Saved</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> <tr> <td>SO_x Emissions Saved</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">\$0.0</td> <td style="text-align: right;">\$0.0</td> </tr> <tr> <td>VOC Emissions Saved</td> <td style="text-align: right;">7</td> <td style="text-align: right;">0</td> <td style="text-align: right;">\$0.0</td> <td style="text-align: right;">\$0.0</td> </tr> </tbody> </table>	EMISSIONS REDUCTION	Tons		Value (mil. \$)		Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual	CO Emissions Saved	45	2	\$0.0	\$0.0	CO ₂ Emissions Saved	23,227	1,161	\$0.7	\$0.0	NO _x Emissions Saved	54	3	\$1.8	\$0.1	PM ₁₀ Emissions Saved	0	0	\$0.1	\$0.0	PM _{2.5} Emissions Saved	0	0	0	0	SO _x Emissions Saved	0	0	\$0.0	\$0.0	VOC Emissions Saved	7	0	\$0.0	\$0.0
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Exhibit B

Project Study Report (equiv.)

Etiwanda Avenue Grade Separation Project

Project Report

Etiwanda Avenue Grade Separation Project

at the SCRRA / BNSF San Gabriel Rail Line, MP 44.1
between Whittram Avenue and Napa Street

City of Rancho Cucamonga, California

August 3, 2018



Prepared By:
Curt Billings

Project Report

Etiwanda Avenue Grade Separation Project

at the SCRRA / BNSF San Gabriel Rail Line, MP 44.1
between Whittram Avenue and Napa Street

City of Rancho Cucamonga, California

APPROVAL RECOMMENDED:



Curt Billings, Project Manager

August 3, 2018

Date

APPROVED:

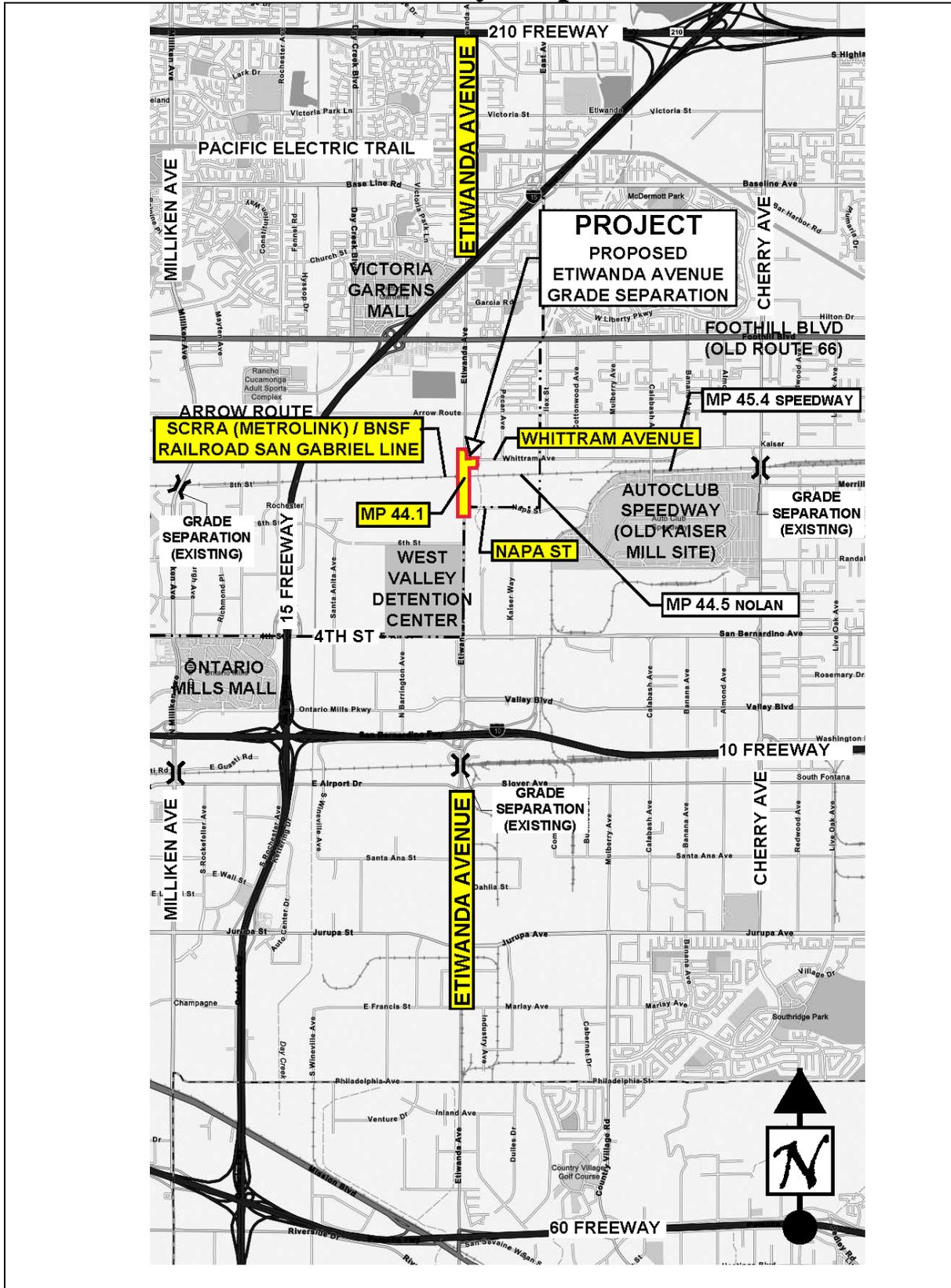


Jason Welday, PE., TE.
Director of Engineering

August 3, 2018

Date

Vicinity Map



This project study report-project development support has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.



Registered Civil Engineer

August 3, 2018

Date



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1. INTRODUCTION

The existing grade crossing is located on Etiwanda Avenue between Whittram Avenue and Napa Street in the City of Rancho Cucamonga. Etiwanda Avenue currently provides one to two vehicle lanes in each direction between Whittram Avenue and Napa Street and lacks sidewalks and bicycle lanes.

The proposed grade separation project consists of constructing an overhead concrete PC/PS girder, or equivalent, bridge type, with a raised roadway profile and road widening over the Southern California Regional Rail Authority (SCRRA) San Gabriel Subdivision rail line and Burlington Northern and Santa Fe (BNSF) industry spur track at mile post 44.1. A grade separation will reduce vehicle delays and queuing along Etiwanda Avenue, improve Level of Service, mobility, safety and emergency response times. The Project will eliminate the at grade roadway crossing and construct a complete street with two through lanes in each direction on Etiwanda Avenue between Whittram Avenue and Napa Street. The new road will include a striped median, bicycle lanes and sidewalks in both North and South directions and construct local roads to the adjacent businesses including approximately 500 feet of Whittram Avenue between the East Etiwanda Creek to the elevated signalized intersection at Etiwanda Avenue.

Project Limits	Etiwanda Avenue between Whittram Avenue and Napa Street, at the SCRRA / BNSF San Gabriel Rail Line, MP 44.1, San Bernardino County	
Number of Alternatives	3	
	Current Cost Estimate:	Escalated Cost Estimate:
Construction	\$55,826,000	\$60,000,000
Funding Source	30.20.723.100	
Funding Year	FY 2018/19 \$7,850M; FY 2019/2020 \$51,150M	
Environmental Determination or Document	Statutorily Exempt per Section 21080.13 of the Public Resources Code	
Project Description	Etiwanda Avenue Grade Separation	

2. RECOMMENDATION

Approve the Project Report recommendation to use alternative 1 for the Etiwanda Avenue Grade Separation Project.

Considering the advantages and disadvantages of the Project alternatives described in Section 6, the recommendation is for the City to move forward with Alternative 1 as most feasible alternative that minimizes impacts to the adjacent properties, motorists and pedestrians and to advance the Project towards preparing the plans, specifications, detailed estimates (PS&E) phase including right of way (R/W) certification and acquisition.

3. BACKGROUND

Etiwanda Avenue is designated a four-lane major arterial road in the City of Rancho Cucamonga circulation plan. In the south east industrial area of the City, Etiwanda Avenue crosses the Southern California Regional Rail Authority (SCRRA) railroad corridor at ground level and roadway traffic is reduced to one lane in each direction between Whittram Avenue and Napa Avenue. The current daily traffic consists of 2,000 trucks and 19,000 cars. This roadway traffic crosses the SCRRA railroad track that is also shared by the Burlington Northern and Sante Fe Railroad. This single railroad track carries 42 commuter trains and 15 freight trains each day. The train activity is projected to more than double to 136 trains each day by 2040, the portion of freight trains increasing from 15 to 50 trains or more a day. In response to the increased rail traffic, a double track is being planned for several miles along the rail the corridor. However, SCRRA has plans in the future to add a second commuter track adjacent to it active mainline track, as ridership and freight rail traffic increases. Anticipating future growth, the City's General Plan identified this crossing to be grade separated.

Etiwanda Avenue is identified in the City's General Plan Circulation Element as a "Major Arterial" and a MAP-21 NHS Principal Arterial regional north /south corridor that provides access to the commercial and industrial hubs of the City of Rancho Cucamonga, California and the City of Fontana, as well as the Auto Club Speedway, which attracts large regional event traffic with a grandstand capacity of 100,000 seats. Regional access to the Project site is provided by the I-10 and I-15 freeways.

Vehicle traffic and freight truck volumes continue to increase on Etiwanda and the adjacent industry spur tracks and delays and queuing are expected to worsen with continued growth and development near the Project site. Etiwanda Avenue street right of way is constrained north and south of the railroad crossing and traffic lanes are reduced to one lane in each direction. Traffic has been increasing on Etiwanda with redevelopment in the vicinity.

In March of 2015 Goodman Birtcher redeveloped the west side of Etiwanda Avenue between Whittram and Arrow Route with a new 1.6 million square foot warehouse on the old 75-acre Ameron concrete pipe manufacturing facility. Increased truck traffic and queuing at the Whittram Avenue and Arrow Route intersections on Etiwanda Avenue was mitigated with new and expanded signalized intersections. The west side of Etiwanda Avenue was widened from one lane southbound to two lanes including a striped median, bicycle lane, sidewalk and street lighting. Also, the project constructed nearly a mile of 36 in. dia. storm drain south on Etiwanda Avenue from Arrow Route to 6th Street.

North bound traffic queues at Whittram Avenue are expected to increase with projected ADT increases and signal coordination between the rail road flashing gate-controlled crossing and the Whittram Avenue traffic signal will be needed. Currently, the at grade crossing is widened to two lanes but striped to only one lane in each direction with short raised median at the railroad crossing, leaving a shoulder lane for an escape lane,

if traffic queues conflict with an oncoming train. As right of way constraints are eliminated, two traffic lanes in each direction will be extended to the crossing and the coordination between the railroad crossing and the Whittram Avenue signal will be necessary.

In January of 2018, Kular Trucking acquired the residential/commercial parcel (APN 029-162-14; at the south east corner of Whittram Avenue and Etiwanda Avenue. This parcel has two occupied homes and had a commercial nursery stockyard on site. The nursery stockyard has been replaced with short term truck parking on dirt in between the two homes since the change of ownership. There is has been no application filed for Planning department approval of the change in use.

In April of 2018, the City approved a Dedeaux Properties, LLC redevelopment plan for the SA recycling site, a 12-acre parcel on the west side of Etiwanda Avenue between the railroad and the Goodman Birtcher site, to be developed as a trailer parking and truck terminal facility. It will have two drive access connections to Etiwanda Avenue. The westerly 650-foot portion of the adjacent industry spur track crossing Etiwanda Avenue has recently been abandoned with the loss of the SA recycling operation and the track was quite claimed by BNSF to property owner. The City General Plan encourage use of existing industry spurs and their approved site plan includes the option for a future use if desired.

Burrtec is the local waste hauler for the region serving multiple cities. They are located on the east terminus of Napa Street and their only access is from Etiwanda Avenue. They operate over 500 truck trips daily northbound on Etiwanda.

The Ontario Mills mall is the largest shopping mall and outlet mall in San Bernardino County. It is in Ontario, 2.5 miles southwest of the Project, and draws 28 million annual visitors. Also, the San Bernardino County - West Valley Detention Center facility is one of the largest county jails in the State of California and is located at the south end of the Project. With a capacity of 3,347, the facility completes 50,000 to 60,000 bookings and releases each year.

Etiwanda Avenue provides surface transportation connections from it adjacent local industries to several nearby freeways. It connects to the I-10 freeway 1.7 miles to the south and to the I-60 freeway 3.5 miles further south. Also, 1.2 miles to the north, it connects to the I-15 freeway via Foothill Boulevard (Old Route 66). The Project links these existing corridors, which serve statewide needs, with an alternate capacity enhancing a local through route and thereby improving transportation resilience.

The Etiwanda Avenue Grade Crossing is sited within heavy industrial development with residential neighborhoods close by, within 1,900 feet to the north east on Whittram Avenue and 2,000 feet north at Arrow Route. Pedestrian bicycle improvements are non-existent, except for a recent addition of 1,600 linear feet of sidewalk and a southbound bike lane along the west side of Etiwanda Avenue north of Whittram Avenue and 1100' of sidewalk, including a bus bay, south of 6th Street.

Following the Metrolink San Gabriel subdivision rail line east of the I-15 freeway towards Etiwanda Avenue, there are two main tracks from CP Nolan (MP 44.5) to CP Beech (MP 47.6). Track 1 is on the north side and Track 2 is to its south. There is another spur to lineside industry along the north side of the track at Etiwanda Avenue, which is the site of the existing at-grade road crossing. East of Etiwanda Avenue, where a Kaiser steel mill used to be, the California Auto Club Speedway now occupies the south side of the tracks. Calabash Avenue crosses the tracks (at a non-public grade crossing) at this location. There is an occasional-use Metrolink station here (CP Speedway, MP 45.3), an island platform in between the two main tracks, along with some storage tracks. Immediately east of this location is the BNSF Kaiser yard (CP Kaiser, MP 45.4), a nominal destination of two daily switching turns out of San Bernardino, through which there is a third track, the “South Kaiser.” East of the Speedway, the line and yard passes under the Cherry Avenue Bridge in Fontana.

The existing at-grade crossing at Etiwanda Avenue has experienced seven train/vehicular accidents, resulting in two fatalities and injuries, appendix G. The roadway's 55 mph speed limit, combined with increasing train trips, is a concern, with ongoing future growth in one of the fastest growing regions in the country.

4. PURPOSE AND NEED

Purpose:

The purpose of the proposed Project is to widen and construct Etiwanda Avenue as a grade separated roadway over the SCRRA/BNSF San Gabriel subdivision, currently an at-grade crossing. A grade separation will reduce vehicle and truck delays and queuing along Etiwanda Avenue, and improve mobility, safety and level of service at the crossing. It will also provide for the safe transit of pedestrians, bicyclists, vehicles, trucks and trains. Furthermore, the project will provide for improved response times in the area for first responders, such as police officers, firefighters, paramedics and emergency medical technicians.

Need:

The existing Etiwanda Avenue grade crossing has experienced 7 train/vehicular accidents resulting in 2 fatalities and injuries. This grade crossing has not experienced a vehicle/train accident in 20 years, but the roadway's 55 mph speed limit combined with over 57 daily train trips are a concern with anticipated future growth. Increases in vehicular traffic and truck volumes on Etiwanda Avenue, combined with 57 daily train movements on the SCRRA San Gabriel sub-division rail line are resulting in excessive delays and vehicular queues. This delay and queuing is expected to worsen with continued growth and development near the project.

The City of Rancho Cucamonga's 2010 General Plan policy CM-1.1 identified that a grade separation at Etiwanda Avenue and the Metrolink / BNSF corridor will be needed to offset future traffic circulation impacts; and to implement these improvements as funding becomes available. At the time, Etiwanda Avenue immediately to the north of

the Project site was operating at a LOS F, with a traffic delay of 99.9 seconds.

Separating surface transportation from the commuter and freight rail traffic railroad line will improve safety and operational efficiency to the mainline and several industry rail spurs nearby. It will reduce congestion and mitigate future growth impacts.

A grade separation at the Etiwanda Avenue at-grade crossing is needed to address mobility issues related to the increase in forecasted regional traffic demand, eliminate vehicle/train accidents, and to maintain satisfactory San Bernardino County Transit Authority (SBCTA) Congestion Management Plan (CMP) designated LOS thresholds.

The project satisfies multiple goals of the Southern California Associated Governments (SCAG) 2016 RTP/SCS, including the maximization of mobility and accessibility for all people and goods, improving regional economic development and competitiveness, ensuring travel safety and reliability for all people and goods, and the continued protection of the environment and health of residents by improving air quality.

The Project will provide a safe and clearly marked pedestrian and bicycling route to South East portion of the City that is difficult for pedestrians and bicyclists to access. It will facilitate improved non-motorized circulation and provide the area with a connection to the Pacific Electric Trail to the north of the project and to the area's overall trail system. The Project will reduce traffic congestion and truck traffic on city streets by providing a more efficient and direct route for commercial traffic to access the I-10 and I-15 freeways.

Etiwanda Avenue ADT has grown to 21000 vehicles, a combination 10% freight trucks and 90% cars. This ADT is projected to grow to 30,000 by 2040 with the largest increase in trucks. More heavy freight trucks are expected because of recent and planned industrial and truck terminal development near the Project site. This development is also reliant on several industry rail spurs nearby.

5. UTILITIES

There are many existing utility lines underground and overhead within the proposed roadway alignment. Below is a list and locations within the project area of the known utilities:

San Gabriel Valley (SGV) Water Company
Storm Drains
Proposed Southern California Edison (SCE)
GTE
Fontana Water Co.
Inland Empire Utilities Agency
Next Communications
Charter Communications
Frontier Communications

- Overhead SCE Power line
- 36” Sewer
- 36” High Pressure Gas
- 36” CLMC Water
- 24” Fuel
- 16” Gas
- 15” Sewer
- 12” Gas
- 12.66’ Metropolitan Water District (MWD)
- 12.75” Gas
- 8” Gas

ETIWANDA AVENUE BETWEEN 600 FEET NORTH OF WHITTRAM AVENUE AND 600 FEET SOUTH OF NAPA STREET					
BETWEEN 600 FEET NORTH OF WHITTRAM AVENUE AND WHITTRAM AVENUE					
West of Street Centerline			East of Street Centerline		
Approx. Distance to Street CL	Infrastructure	Reference Drawing	Reference Drawing	Infrastructure	Approx. Distance to Street CL
65'	144 - inch dia. MWD Water (N/S)	B-73250, Sheet C-33			
46' to 65'	144 - inch dia. MWD Water (N/S)	B-73251, Sheet C-34			
27'	2-inch dia. Gas (N/S)	006-W18-2, Sheet 2	006-W18-2, Sheet 2	30-inch dia. Gas (N/S)	Not noted
17'	3-inch dia. Water (N/S)	006-W18-2, Sheet 2	006-W18-2, Sheet 2	3-inch dia. Gas (N/S)	Not noted
14' and 20'	12-inch dia. Water (N/S)	006-W18-2, Sheet 2	006-W18-2, Sheet 2	3-inch dia. Gas (N/S)	Not noted
			006-W18-2, Sheet 2	36-inch dia. Sewer (N/S)	5'
35'	16-inch dia. Gas (N/S)	D5081-10, Sheet PP-1	D5081-10, Sheet PP-1	2-inch dia. Gas (N/S)	28'
17'	3-inch dia. Water (N/S)	D5081-10, Sheet PP-1	D5081-10, Sheet PP-1	36-inch dia. Gas (N/S)	26'
20'	12-inch dia. Water (N/S)	D5081-10, Sheet PP-1	D5081-10, Sheet PP-1	8-inch dia. Gas (N/S)	22'
Not noted	16-inch dia. Gas (N/S)	88-519-11, Sheet 21	88-519-11, Sheet 21	36-inch dia. Gas (N/S)	Not noted
			88-519-11, Sheet 21	2-inch dia. Gas (N/S)	Not noted
			88-519-11, Sheet 21	8-inch dia. Gas (N/S)	Not noted
			88-519-11, Sheet 21	36-inch dia. Gas (N/S)	5'
6' to 0'	36-inch dia. Storm Drain (N/S)	2335-D, Sheet 5	2335-D, Sheet 5	36-inch dia. Storm Drain (N/S)	0' to 15'
7' and varies	36-inch dia. Storm Drain (N/S)	2335-D, Sheet 6			
BETWEEN WHITTRAM AVENUE AND RAILROAD TRACK					
West of Street Centerline			East of Street Centerline		
Approx. Distance to Street CL	Infrastructure	Reference Drawing	Reference Drawing	Infrastructure	Approx. Distance to Street CL
15' to 46'	144 - inch dia. MWD Water (N/S)	B-73251, Sheet C-34			
36'	16-inch dia. Gas (N/S)	D5019-004, Sheet 4	D5019-004, Sheet 4	18-inch dia. Water (N/S)	42'
30'	Telephone Conduit (N/S)	D5019-004, Sheet 4	D5019-004, Sheet 4	36-inch dia. Gas (N/S)	36'
15'	3-inch dia. Water (N/S)	D5019-004, Sheet 4	D5019-004, Sheet 4	2-inch dia. Gas (N/S)	29'
7'	36-inch dia. Reclaimed Water (N/S)	D5019-004, Sheet 4	D5019-004, Sheet 4	8-inch dia. Gas (N/S)	28'
			D5019-004, Sheet 4	30-inch dia. Storm Drain	18'
			D5019-004, Sheet 4	36-inch dia. Sewer (N/S)	5'
19'	12-inch dia. Water (N/S)	008-W9-4, Sheet 4	008-W9-4, Sheet 4	36-inch dia. Gas (N/S)	33'
Not noted	3-inch dia. Aband. Water (N/S)	008-W9-4, Sheet 4	008-W9-4, Sheet 4	3-inch dia. Gas (N/S)	28'
Not noted	42-inch dia. IEUA Rec. Water (N/S)	008-W9-4, Sheet 4	008-W9-4, Sheet 4	3-inch dia. Gas (N/S)	27'
			2335-D, Sheet 5	36-inch dia. Sewer (N/S)	5'
			2335-D, Sheet 5	36-inch dia. Storm Drain (N/S)	15'

PRELIMINARY UTILITY INVESTIGATION - ETIWANDA AVENUE GRADE SEPARATION					
ETIWANDA AVENUE BETWEEN 600 FEET NORTH OF WHITTRAM AVENUE AND 600 FEET SOUTH OF NAPA STREET					
BETWEEN RAILROAD TRACK AND NAPA STREET					
West of Street Centerline			East of Street Centerline		
Approx. Distance to Street CL	Infrastructure	Reference Drawing	Reference Drawing	Infrastructure	Approx. Distance to Street CL
15'	144 - inch dia. MWD Water (N/S)	B-73252, Sheet C-35			
44'	16-inch dia. Gas (N/S)	D5016-008, Sheet 8	D5016-008, Sheet 8	42-inch dia. Sewer (N/S)	5'
36'	12-inch dia. Gas (N/S)	D5016-008, Sheet 8	D5016-008, Sheet 8	60-inch dia. Storm Drain (N/S)	15'
30'	Telephone Conduit (N/S)	D5016-008, Sheet 8	D5016-008, Sheet 8	36-inch dia. Gas (N/S)	20'
24'	36-inch dia. IEUA Rec. Water (N/S)	D5016-008, Sheet 8	D5016-008, Sheet 8	8-inch dia. Gas (N/S)	28'
			D5016-008, Sheet 8	12-inch dia. Fuel Gas (N/S)	50'
			2335-D, Sheet 5	36-inch dia. Storm Drain (N/S)	15' +/-
			2335-D, Sheet 4	36-inch & 42-inch dia. SD (N/S)	11'
BETWEEN NAPA STREET AND 600 FEET SOUTH OF NAPA STREET					
West of Street Centerline			East of Street Centerline		
Approx. Distance to Street CL	Infrastructure	Reference Drawing	Reference Drawing	Infrastructure	Approx. Distance to Street CL
48'	GTE Conduit (N/S)	D5016-007 - Sheet 7	D5016-007 - Sheet 7	12-inch dia. Fuel Gas (N/S)	50'
20'	15-inch dia. Sewer (N/S)	D5016-007 - Sheet 7	D5016-007 - Sheet 7	8-inch dia. Gas (N/S)	28'
12'	36-inch dia. IEUA Rec. Water (N/S)	D5016-007 - Sheet 7	D5016-007 - Sheet 7	36-inch dia. Gas (N/S)	20'
	152-inch dia. Water (E/W)	D5016-007 - Sheet 7	D5016-007 - Sheet 7	152-inch dia. Water (E/W)	
			D5016-007 - Sheet 7	60 -inch dia. Storm Drain (N/S)	15'
			D5016-007 - Sheet 7	42-inch dia. Sewer (N/S)	5'
Not noted	15-inch dia. Non-rec. water (N/S)	88-519-9, Sheet 19	88-519-9, Sheet 19	36-inch dia. Sewer (N/S)	5'
			88-519-9, Sheet 19	36-inch dia. Gas (N/S)	Not noted
			88-519-9, Sheet 19	8-inch dia. Gas (N/S)	Not noted
Not noted	12-inch dia. Gas (N/S)	88-519-10, Sheet 20	88-519-10, Sheet 20	36-inch dia. Sewer (N/S)	5'
	12-inch dia. Gas (E/W)	88-519-10, Sheet 20	88-519-10, Sheet 20	8-inch dia. Gas (N/S)	Not noted
	152-inch dia. Water (E/W)	88-519-10, Sheet 20	88-519-10, Sheet 20	152-inch dia. Water (E/W)	
			88-519-10, Sheet 20	12-inch dia. Gas (E/W)	
			88-519-10, Sheet 20	36-inch dia. Gas (N/S)	Not noted
			2335-D, Sheet 4	42-inch dia. Storm Drain (N/S)	11'
			2335-D, Sheet 3	42-inch & 54-inch dia. SD (N/S)	9'

6. ALTERNATIVES

Based on the Etiwanda Avenue Grade Separation (PSR Equivalent) approved by the City Council on June 6, 2018, there are basically two viable alternatives for the project:

Alternative 1- Etiwanda Ave / SCRRA/BNSF RR Overhead

This Alternative will widen Etiwanda Avenue to four lanes and construct a grade-separated crossing over the SCRRA/BNSF railroad tracks. The proposed roadway width is consistent with the City of Rancho Cucamonga’s General Plan Major Arterial

standard with 100' minimum right-of-way width, and 72' curb-to-curb width. A profile and cross section with a reduced design speed of 45 MPH was developed to minimize retaining wall visual and access impacts to existing development adjacent to the project limits.

Analysis for the reduced design speed for a 50 MPH profile showed that the Etiwanda Ave and Whittram Ave intersection would need to be raised about 6' over the 45 MPH design, creating a 7.3% grade down Whittram Ave from this intersection toward the East Etiwanda Creek. This configuration would make Whittram Ave unsuitable for truck access and street connections.

The objective of this alternative is to provide an overhead crossing, utilizing MSE walls to support the raised approaching roadway which minimize impacts to the adjacent private development and span the railroad right-of-way.

Typical Section

Starting at the south end of Etiwanda Avenue, the existing roadway section consists of two lanes in each direction with left turn pockets at the Napa Street intersection. Heading north, Etiwanda Avenue tapers down to one lane in the northbound direction north of the Whittram Avenue intersection to the north end of the project limits.

This Alternative will widen Etiwanda Avenue to four traffic lanes (12' inside, 13' outside) plus a 12' median/left turn-lane and two (2) 5' bike lanes, and construct a grade-separated crossing over the SCRRA/BNSF railroad tracks, with the exception of an additional 14' northbound right turn lane onto Whittram Avenue, a transition of one northbound traffic lane and bike lane to a 10' shoulder from north of Whittram Avenue to the north project limits, and a transition from a Class 2 bike lane to a Class 3 bike lane between 500' south of Whittram Avenue to the north project limits. North of the Whittram Avenue intersection, the proposed roadway section will taper down from four lanes (2 southbound, 2 northbound) down to three lanes (2 southbound, 1 northbound) to match the existing cross section at the north end of the project limit.

Horizontal Alignment

Existing Etiwanda Avenue is a north-south secondary arterial street. The horizontal alignment was developed from south to north as follows:

- The south end of the alignment starts approximately 200' south of Napa Street in the existing four-lane section.
- The north end of the alignment ends approximately 400' north of Whittram Avenue in the existing three-lane section.

The proposed horizontal alignment of Etiwanda Avenue will follow the existing street centerline alignment and will be able to accommodate the design speed of 55 MPH per City's Street Design Policy for Major Arterials. However, the design speed will be governed by the vertical alignment and the standard minimum stopping sight distance of 45 MPH.

Vertical Alignment

The proposed vertical alignment of Etiwanda Avenue will be from south to north as follows:

- The south end of the proposed vertical profile will match the existing roadway and begin at Sta 44+00.00 with a 1.39% grade.
- At Sta 44+00.00 begin a 450' long sag vertical curve ending at Sta 48+50.00 with an exit grade of 6.25%. This vertical curve passes through the Napa Street intersection.
- At Sta 51+00.00 begin a 1,000' long crest vertical curve ending at Sta 61+00.00 with an exit grade of -3.85%.
- At Sta 62+50.00 begin a 450' long sag vertical curve ending at Sta 67+00.00 with an exit grade of 1.81%, which matches the existing street at the north end of the proposed vertical profile. This vertical curve passes through the Whittram Avenue intersection.

The proposed vertical alignment will accommodate the design speed of 45 MPH, which meets the Caltrans Highway Design Manual guidelines for Arterial Throughways.

Because of the proposed raised vertical alignment on Etiwanda Avenue, the existing local streets which connect to Etiwanda Avenue will need to be moderately raised to meet the reconstructed Etiwanda profile at their intersection. At the south end, Napa Street's profile will be raised 4.5' and the signal reconstructed at its intersection with Etiwanda Avenue. At the north end, Whittram Avenue's profile will be raised 10.5 feet and the signal reconstructed at its intersection with Etiwanda Avenue.

There are also new roadways proposed to provide access to the properties which will no longer be directly accessible from Etiwanda Avenue when this alternative is constructed.

- One roadway is proposed to diverge from Etiwanda Avenue north of Napa Street as a frontage road at existing grade and circle back on the other opposite side of Etiwanda Avenue, south of the Rail Road crossing. This will provide access to the truck scale which is currently accessed directly from Etiwanda Avenue further north but would otherwise be cut off when the Etiwanda Avenue overhead structure and MSE walls are constructed.
- Another roadway is proposed to connect at a T- intersection with Whittram Avenue, east of Etiwanda Avenue, turn south and west underneath the new proposed overhead structure. The existing road under the bridge will be resurfaced, sidewalks and lighting added. Existing driveway access to Etiwanda will be maintained. This new roadway provide access to the properties on both the east and west sides of Etiwanda Avenue, north of the railroad crossing and south of Whittram Avenue. Access to existing underground utilities and vaults for this at grade roadway will be maintained.

Walls

This alternative proposes MSE walls along the proposed raised approaching roadway sections to avoid having embankment slopes that extend into private property. This includes along Etiwanda Avenue from the intersection with Napa Street to the beginning of the overhead bridge structure and from the end of the overhead bridge structure to approximately 400' north of Whittram Avenue. MSE walls are also proposed along Whittram Avenue from the Etiwanda Avenue intersection to about 350' to the east. Type 5 walls are proposed along the south access road from Etiwanda Sta 47+00 to about 54+00 in both the northbound and southbound direction.

Structures

This alternative has two feasible structural options, A and B, for the overhead structure. Option A will utilize precast prestressed concrete (PC/PS) Bulb-T girders for superstructure with a maximum total structure depth of 6'-0", and Option B will be cast-in-place prestressed concrete (CIP/PS) continuous box girder superstructure with a structure depth of 5'-6".

For Option A (PC/PS Bulb-T girders), there will be no falsework required for the bridge superstructure construction, thus will considerably reduce the construction time and meets both SCRRRA and BNSF RR requirements for the overhead structure design criteria. Option B (CIP/PS box girder) will require less structure depth as compared to the PC/PS Bulb-T girder alternative, but it will require falsework. BNSF design guidelines specifically state that the use of cast-in-place (CIP) beams is not permitted for overhead superstructures while SCRRRA does allow the use of CIP construction. From constructability standpoint, both options are feasible, but coordination and prior approval with the BNSF RR will be necessary if Option B (CIP/PS box girder) is chosen.

For either option, the proposed overhead structure will be a multi-span with multi-column bents structure from the begin bridge (BB) approximately Sta 65+00.00 to the end bridge (EB) approximately Sta 71+ 05.00 for a total structure length of 605 feet. The proposed structure depth depends on the structural option chosen. Option A (PC/PS Bulb-T girders) would have a 6'-6" structure depth, while Option B (CIP/PS box girder) would have a 5'-6" structure depth. The falsework depth associated with Option B would be approximately 2'-6" minimum.

The proposed vertical profile will meet or exceed the minimum temporary vertical clearance of 22'-6" mandated by BNSF plus required structure depth and will meet or exceed the final SCRRRA/BNSF required permanent vertical clearance of 24'-0" over the existing railroad tracks. The vertical clearance over the Whittram Avenue re-alignment exceeds the minimum vertical clearance of 15'-0" per Caltrans Standards.

Right-of-Way

The existing Etiwanda Avenue right-of-way width varies; south of the railroad crossing from mostly 100' full width except for two parcels, Bolger which is reduced to 30 feet

and an SCE owned parcel which is reduced to 40 feet, both on the east side; 100' at the railroad; and 85'-110' on the north end. Since the minimum right-of-way width of 100'

Traffic Handling

It is proposed that the new access roadways from Napa Street and the Whittram Avenue re-alignment will be constructed in the first stage.

In the second stage, it is proposed that Etiwanda Avenue between Napa Street and Whittram Avenue will be closed for construction of the Etiwanda overhead structure and roadway. Traffic will be detoured around the project site using Arrow Route, Milliken Avenue, and 4th Street.

Local traffic needing to access the adjacent project site properties north of the railroad tracks can be routed along Arrow Route and Pecan Avenue to Whittram Avenue. Access to the properties south of the railroad will be maintained on Napa Street from Etiwanda Avenue. Some short-term detours may be needed during construction of the Napa Street and Whittram Avenue intersections with Etiwanda Avenue. The existing at-grade RR crossing will remain intact and operational for train operations during construction.

The City of Rancho Cucamonga has identified this Alternative as The Locally Preferred Alternative for approval during the PA/ED phase of the project.

The major benefit of this alternative is there will be minimal impacts to the numerous underground utilities, especially the 12 foot dia. Metropolitan Water District (MWD) water line buried approximately 10' below the existing grade along Etiwanda Ave a mile of the recently constructed 36" storm drain constructed by the Goodman Birtcher 1.6 M square foot warehouse and Etiwanda Avenue can remain open during construction with staged bridge construction and maintain access to local business.

The following are some of the major benefits, but not all:

- Minimal impact to the numerous underground utilities, especially the 12-foot diameter MWD water line.
- Minimal right of way permanent take and temporary construction easement, thus less impact to the properties along both sides of Etiwanda Avenue.
- Minimal impacts to the rail road main line and industry spur operations
- Aesthetically striking with raised street profile.
- Self-draining, does not require maintain a pump station.
- Provides access as it exists today, from current Etiwanda Avenue roadway, which will be kept in place between the railroad and Whittram Avenue, under the bridge structure. Keeping this road in place eliminates encumbering four adjacent properties with long driveway ramps for truck access.

The major disadvantage of this alternative is that it will result a long-elevated structure because the 24-foot required clearance for a road and bridge structure over the railroad tracks is substantially greater the 15-foot vertical clearance for a road under the railroad

and its bridge structure. Also, the outrigger/straddle bents will need to be located precisely after extensive potholing investigations are completed to avoid impacts and repositioning the numerous underground utilities.

The following are some of the major disadvantages but not all:

- Higher initial structure construction costs due to long bridge structure and retaining walls (MSE wall along Etiwanda Avenue)
- There will be a greater vertical difference in elevation to matching up with the existing local streets, Napa Street and Whittram Avenue, to connect to elevated Etiwanda Avenue.
- The City of Rancho Cucamonga will be responsible to maintain the bridge superstructure in perpetuity.
- May require the full acquisition of one residential/commercial parcel (APN 029-162-14; Kular Trucking Line) at the south east corner of Whittram Avenue and Etiwanda Avenue. This underdeveloped parcel is necessary to provide pedestrian and vehicle access, including large trucks, to the old Etiwanda Avenue that will remain under the bridge structure and provide access to the four adjacent parcels.

Alternative 2- Etiwanda Ave / SCRRA/BNSF RR Underpass

This alternative will impact the existing 12' diameter MWD transmission line approximately 10' below existing grade. This line connects to another major east west transmission line near 4th street would be relocated at significant cost to MWD to accommodate the construction of this alternative.

This Alternative will widen Etiwanda Avenue to four lanes and construct a grade-separated crossing carrying the SCRRA/BNSF railroad tracks. The proposed roadway width is consistent with the City of Rancho Cucamonga's General Plan Major Arterial Standard with 100' minimum right-of-way width, and 72' curb-to-curb width. In consultation with the City, a profile and cross section with a reduced design speed of 45 MPH was developed to minimize impacts to existing development adjacent to the project limits.

The objective of this alternative is to provide an underpass which minimizes impacts to the adjacent private development and the railroad right-of-way.

Typical Section

Starting at the south end of Etiwanda Avenue, the existing roadway section consists of two lanes in each direction with left turn pockets at the Napa Street intersection. Heading north, Etiwanda Avenue reduces down to three lanes in each direction (two southbound, one northbound) at the intersection with Whittram Avenue and maintains this section to the north end of the project limits.

The proposed typical cross section for Etiwanda Avenue will meet the City's requirements for a Major Arterial by providing for two traffic lanes (12' inside, 13' outside), one 12' median and one 5' bicycle lane in each direction for a 72' curb-to-

curb width. With 6' sidewalks, the total roadway typical section width is 84'. Where the proposed underpass crosses underneath the new railroad structures, the median will accommodate an 8' raised median for the structure columns.

The existing left turn pockets on Etiwanda Avenue will be maintained along with the four traffic lanes at the Napa Street intersection at the south end of the project. At the north end of the project, the proposed roadway section will taper down from four lanes approximately 500' north of the new Whittram Avenue intersection down to three lanes (two southbound, one northbound) to match the existing cross section at the north end of the project limit.

Horizontal Alignment

Existing Etiwanda Avenue is a north-south Secondary Arterial street. The horizontal alignment was developed from south to north as follows:

- The south end of the alignment starts approximately 250' north of Napa Street in the existing four lane section.
- The north end of the alignment ends approximately 500' north of the new Whittram Avenue intersection in the existing three lane section.

The proposed horizontal alignment of Etiwanda Avenue will follow the existing street on a tangent and will be able to accommodate a minimum design speed of 50 MPH per City's Street Design Policy. However, the design speed will be governed by the vertical alignment and the standard minimum stopping sight distance.

Vertical Alignment

The proposed vertical alignment of Etiwanda Avenue will be from south to north as follows:

- The south end of the proposed vertical profile will match the existing roadway and begin at Sta 48+25.00 with a 1.24% grade.
- At Sta 48+25.00 begin a 450' long crest vertical curve ending at Sta 52+75.00 with an exit grade of -3.31%.
- At Sta 52+25.00 begin a 750' long sag vertical curve ending at Sta 60+75.00 with an exit grade of 5.99%.
- At Sta 61+75.63 begin a 450' long crest vertical curve ending at Sta 66+25.63 with an exit grade of 2.10% which matches the existing street at the north end of the proposed vertical profile.

The proposed vertical alignment will accommodate the design speed of 45 MPH, which meets the Caltrans Highway Design Manual guidelines for Arterial Throughways, pending the review and approval of the City Engineer. To meet City's Street Design Policy, this segment would need to be reclassified as a Secondary Arterial.

There are also new roadways proposed to provide access to the properties which will no longer be directly accessible from Etiwanda Avenue when this alternative is constructed.

- One roadway is proposed to extend north from Napa Street east of Etiwanda Avenue and provide access to the properties in the southeast quadrant of the crossing.
- Existing Whittram Avenue is proposed to be relocated 200' south of the existing Whittram Avenue intersection. To the east, the new Whittram Avenue re-alignment is with additional legs providing access to properties in the northeast quadrant of the crossing. On the west side, a new roadway is proposed to extend west from the proposed intersection to the properties in the northwest quadrant of the crossing.

Walls

This alternative proposes retaining walls along the proposed lowered roadway sections to avoid having cut slopes that extend into private property. This includes along Etiwanda Avenue from approximately 250' north of Napa Street to approximately 500' north of the Whittram Avenue re-alignment, and along the proposed Whittram Avenue re-alignment from approximately 400' west to 400' east of the proposed intersection.

Structures

This alternative proposes a new structure for the railroad tracks at existing grade. The proposed structure will be a two-span prestressed precast concrete box superstructure with columns in the median of Etiwanda Avenue.

The proposed vertical profile will meet the BNSF required permanent vertical clearance of 17'-6" for a concrete superstructure, plus required structure depth of 4'-0", with a ballast plus track thickness of 2'-6".

Right-of-Way

The existing Etiwanda right-of-way width varies from 90'-100' on the south end, 100' at the RR, and 85'-110' on the north end. Since the minimum right-of-way width of 100' for Major Arterials is wider than the existing right-of-way width in some areas, this segment could be reclassified as a Secondary Arterial (88' minimum right-of-way width).

The major benefits of this alternative are the initial structure costs will be less than Alternative 1.

The following lists some of the major benefits, but not all:

- Lower initial structure construction costs due to a shorter bridge structure and retaining walls (Type 1 wall along the railroad right of way)
- Less vertical difference in elevation to matching up with the existing local streets, Napa Street and Whittram Avenue, to connect to an elevated Etiwanda Avenue

The major disadvantage of this alternative is that there will be significant impacts to the numerous underground utilities, especially the 12-foot diameter MWD water line buried approximately 10' below the existing grade along Etiwanda Avenue. The following are some of the major disadvantages, but not all:

- Significant impact to the numerous underground utilities, especially the 12-foot dia. MWD water line. Nearly all underground utilities will have to be relocated and the recently installed 36" storm drain.
- Major impacts to the railroad operation. Temporary railroad shoofly will impact industry spur connections, will have to be built and switching the railroad tracks back and forth will be unavoidable.
- Right of way take for utilities relocations will substantially affect the properties and their future use along Etiwanda Avenue
- Will create drainage issue because of depressing the Etiwanda Ave profile locally by more than 20 feet. May need to build a new pump station/plant, or to modify the street drainage system greatly.

Alternative 3 Withdrawn from Consideration

A flyover of the SCRRA mainline over Etiwanda Avenue was evaluated as part of this PSR. This alternative would raise the SCRRA mainline track above the existing finished street grade and span over Etiwanda Avenue with a structure without depressing Etiwanda Avenue. The existing mainline operating speeds for SCRRA passenger operations on the San Gabriel subdivision would be maintained at 79 mph.

Advantages

This alternative would eliminate the need for major construction on Etiwanda Avenue. It would maintain private property access from the arterial street with minimal disruption to the existing ingress and egress patterns.

Disadvantages

This alternative would result in extensive track reconstruction to be able to maintain the existing rail operations of 4 railroad spur tracks that provide service to industrial customers to the east and west of Etiwanda Avenue. This location of the San Gabriel subdivision has spur connections to the north and south of the mainline track. In order to not interrupt rail operations during construction a shoofly to the north and south of the mainline track would be needed. In addition, the Nolan Control Point signal (Milepost 44.5) would have to be reconstructed and communication lines between it and the downstream Rochester Control Point signal (Milepost 42.3) and upstream Speedway Control Point signal (Milepost 45.3) would have to be reconstructed just to accommodate the temporary shoofly construction and operation. Given the railroad maximum vertical grade of 1%, approximately 4,600 feet of mainline track reconstruction would occur to span over Etiwanda Avenue. Thus, this alternative would require approximately 9,200 feet of temporary track shoofly construction and additional extensive track realignment and construction of the 4 existing railroad spur lines in the vicinity of the construction limits. The shoofly alignments east of Etiwanda Avenue would cross the East Etiwanda Creek and require the construction of two temporary railroad bridges to span this unimproved creek.

Despite all of these improvements, this alternative would not eliminate the grade crossing at Etiwanda Avenue. A grade crossing for the railroad spur servicing the recycling centers in the northwest quadrant of the project limits would still cross Etiwanda Avenue. Given these factors, this alternative was deemed to not meet the project's purpose and need and was withdrawn from consideration.

7. SYSTEM PLANNING AND COORDINATION

Local Planning

The Etiwanda Avenue grade separation is identified in the City of Rancho Cucamonga's General Plan Circulation Element. The roadway cross section and profile of the Etiwanda grade separation have been modified in consultation with the City to minimize impacts to existing land use and access in the vicinity of the proposed grade separation. The design speed for the grade separation profile has been modified to 45 mph which is less than the General Plan designated design speed of 55 mph.

The standard curb to curb cross section width for a Major Arterial as defined by City Standards is 72'. The proposed Etiwanda Avenue grade separation will use a curb to curb width of 70' to avoid airspace and access impacts to existing structures adjacent to Etiwanda Avenue.

Railroad Planning

The Etiwanda Avenue Grade Separation will clear span the SCRRA right of way width of 100'. This does not preclude the railroad from future expansion of the San Gabriel subdivision within the project limits.

8. RIGHT-OF-WAY

Right of Way acquisitions of private property including temporary construction easements (TCE) will be needed for the construction of the Etiwanda Avenue Grade Separation Alternative 1. This will potentially include the full acquisition of one parcel, APN 0229-162-14 at the south east corner of Whittram Avenue and Etiwanda Avenue. It is currently used for commercial and residential purposes. The acquisition may result in relocation of two occupied homes on the parcel and relocation assistance will be provided if necessary. The proposed overhead construction and associated access road configuration will result in the following property impacts:

APN	Address	ST NAME	OWNER NAME	TCE	Acquisition
0229-131-31	8688	ETIWANDA	GOODMAN RANCHO SPE LLC	Yes	NO
0229-131-07	8810	ETIWANDA	JONES FAMILY TRUST OF 2010	Yes	Part take
0229-161-01	8705	ETIWANDA	COLOMBERO FAMILY PTNSHP	Yes	NO
0229-151-15	8685	ETIWANDA	COLOMBERO FAMILY PTNSHP	Yes	NO
0229-162-14	8783 ETIWANDA / 12949 WHITTRAM		KULAR TRUCK LINE INC	Yes	full
0229-161-03	8733	ETIWANDA	COLOMBERO FAMILY PTNSHP	Yes	Part take
0229-161-02	8717	ETIWANDA	COLOMBERO FAMILY PTNSHP	Yes	Part take
0229-131-16	8768	ETIWANDA	DP ETIWANDA LLC	Yes	Part take
0229-131-27		ETIWANDA	ATCHISON TOPEKA AND SANTA FE RR CO	Yes	Part take
0229-131-28		ETIWANDA	ATCHISON TOPEKA AND SANTA FE RR CO	Yes	Part take
0229-131-20		ETIWANDA	SAN BERNARDINO COUNTY TRANSPORTATION	Yes	NO
0229-162-15	8821	ETIWANDA	STRACK FAMILY TRUST 3-13-14 - EST OF	Yes	NO
0229-291-55	8939	ETIWANDA	BOLGER, DAVID F TR	Yes	Part take
0229-291-17	8889	ETIWANDA	8889 ETIWANDA LLC	Yes	Part take
0229-162-09	8841	ETIWANDA	SAN BERNARDINO COUNTY TRANSPORTATION	Yes	NO
0229-283-79	8996	ETIWANDA	RELIANT ENERGY ETIWANDA INC	NO	NO
0229-291-22	8949	ETIWANDA	SOUTHERN CALIFORNIA EDISON COMPANY	Yes	Part take
0229-162-10	8833	ETIWANDA	SAN BERNARDINO COUNTY TRANSPORTATION	Yes	NO
0229-131-26	8822	ETIWANDA	DP ETIWANDA LLC	Yes	NO
0229-161-19	12940	WHITTRAM	COLOMBERO FAMILY PTNSHP	NO	NO
0229-161-04	12928	WHITTRAM	COLOMBERO FAMILY PTNSHP	Yes	NO
0229-161-20	12974	WHITTRAM	COLOMBERO FAMILY PTNSHP	NO	NO
0229-161-05	12934	WHITTRAM	COLOMBERO FAMILY PTNSHP	Yes	NO

Utilities

The 12 foot dia. MWD water main line will be protected in place. All of the remaining previously identified existing underground utilities will be protected in place where possible when conflicts for placing bridge support structures can be avoided. Conflicts requiring relocation will be identified after extensive potholing investigations are conducted early in the design phase. The overhead utilities will be relocated to avoid conflicts with the overhead alternative.

Railroad

This proposed alternative will not have an effect on the railroad operations. If structural Option A (PC/PS girder superstructure) is chosen, there will be no falsework required thus requiring minimal railroad involvement. If structural Option B (CIP/PS continuous box girder superstructure) is chosen, falsework is required which would require approval and coordination with SCRRA and BNSF Railroad. This alternative will not preclude future expansion of the SCRRA/BNSF operations.

9. TITLE VI CONSIDERATIONS

The Project does not have any Title VI Considerations, since all the sidewalks at intersections will be constructed with ramps for access to the sidewalk, and these will all comply with current ADA requirements.

10. CONSIDERATIONS REQUIRING DISCUSSION

Environmental Compliance:

On May 16, 2018, the California Transportation Commission (CTC) approved and programmed with 100% State funding from a \$60 million grant from the Transportation Corridor Enhancement Program (TCEP), funded by Senate Bill 1 Gas Tax, for the Etiwanda Grade Separation project. Since there are no Federal funds allocated to the project a NEPA clearance is not required.

On June 6, 2018 the City of Rancho Cucamonga determined that the project is Statutorily Exempt per the California Environmental Quality Act (CEQA) Article 18. Statutory Exemptions, Section § 15282. Other Statutory Exemptions, paragraph (g):

Any railroad grade separation project which eliminates an existing grade crossing, or which reconstructs an existing grade separation as set forth in Section 21080.13 of the Public Resources Code.

The Notice of Exemption was filed with the Office of Planning and Research and with the County Clerk as specified in Section 21080.13 (2) of the Public Resources Code. A copy is included in Appendix B.

11. OTHER CONSIDERATIONS AS APPROPRIATE

Permits:

The permits anticipated for all alternatives are:

- 1) San Bernardino County General NPDES Permit (SWPPP)
- 2) Right of Entry (ROE) permit with SCRRA for access to the railroad right of way.
- 3) Construction and Lane Closure permits shall be obtained by the construction contractor from the Cities of Rancho Cucamonga, City of Fontana, and County of San Bernardino for construction activities within their jurisdictions.

Staged Construction:

Staged construction is very critical to the success of the project and to minimize impacts to the local businesses and greenhouse gases cause by a lengthy detour. The nearest detour route to the easterly, for example to Cherry Avenue, would add an additional 3 miles and alternatively a detour westerly to Milliken Avenue to the west would add four miles. In addition, wait times for all travelers at several signalized intersections along the detour route would be increased by the increase truck and vehicle traffic.

It is preferred that the bridge structure proposed in alternative 1 can be staged and constructed in two halves with a closure pour completing the two portions as shown in Attachment F. This would allow one lane in each direction to be open during construction. Current practice in California requires up to 60 days waiting period for the closure pour after the release of falsework for bridge staged construction and this

time is accounted for in the proposed 18-month construction schedule. Temporary railroad gates would be required to shift both directions of traffic to one side of the roadway right of way while the first half of the bridge can be constructed. Coordination of the timing of limited short duration closures to shift traffic etc., will be required to maintain access with the local businesses, some of which generate truck traffic from their site, 24 hours a day.

Public outreach including on site web camera monitoring is included in the project costs to alert the public of the ongoing construction activities

Graffiti Control and Architectural features:

The bridge structure and retaining wall design will include architectural features, security cameras, lighting, and textured finishes. The architectural features will be compatible with the surrounding area and discourage graffiti, vandalism and theft. The request for the project design proposals in the PS&E phase will ask for architectural conceptual proposals from prospective designers for review and rating and will be considered in the final selection process for the bridge design. In addition, the surfaces accessible to the public shall be sprayed with anti-graffiti protection, in accordance with Caltrans standard specifications section 78-4.06, or current version.

12 FUNDING, PROGRAMMING AND ESTIMATE

State-Only Funding

SB-1 Trade Corridor Enhancement Program	\$60,000,000
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On May 16, 2018, the California Transportation Commission (CTC) approved a \$60 million grant from the Transportation Corridor Enhancement Program (TCEP), which is funded by Senate Bill 1 Gas Tax, for the Project. This grant will provide 100% State funding for the Etiwanda Grade Separation project costs after a Baseline Agreement can be executed between the City, Caltrans and the CTC. The SB-1 TCEP program administration guidelines were approved by the CTC on May 16, 2018 and stipulate that Project Baseline Agreements are to be adopted by the CTC six months after the Project's environmental determination is certified.

The estimated Project costs are programmed for the project by the City of Rancho Cucamonga in its Fiscal Year 2018/2019 budget, from SB-1 TCEP account (Fund 181) and are identified under the Capital Improvement Project Account No. 11813035650/1922181-0, These funds are anticipated to be reimbursed the SB-1 TCEP program after qualified expenses are accounted for by the City, and approved for reimbursement by Caltrans and the CTC.

Programming

On May 16, 2018, the California Transportation Commission (CTC) approved and programmed with 100% State funding from a \$60 million grant from the Transportation Corridor Enhancement Program (TCEP), funded by Senate Bill 1 Gas Tax, for the Etiwanda Grade Separation project

Component	Prior	18/19	19/20	20/21	21/22	22/23	23/24+	Total	Funding Agency
Proposed Funding (\$1,000s)									Notes
E&P (PA&ED)		0						0	SB 1- TCEP
PS&E		2,000						2,000	
R/W SUP (CT)								0	
CON SUP (CT)								0	
R/W		5,000						5,000	
CON			52,150					52,150	
TOTAL	0	7,000	52,150	0	0	0	0	59,150	

Estimate

**Etiwanda / SCRRRA / BNSF Railroad Grade Separation
Preliminary Project Cost Estimate**

No.	Roadway Items	Unit	Unit Cost	Quantity	Total
	<i>Earthwork</i>				
1	Roadway Excavation	CY	\$15	15700	\$235,500
2	Imported Borrow	CY	\$20	11900	\$238,000
3	Clearing and Grubbing	AC	\$100,000	1	\$100,000
4	<i>Pavement Structural Section</i>				
5	Asphalt Concrete	TON	\$100	10000	\$1,000,000
6	Aggregate Base	CY	\$45	5000	\$225,000
7	<i>Drainage</i>				
8	Storm Drains	LS	\$450,000	1	\$450,000
9	Water Quality Treatment	LS	\$100,000	1	\$100,000
10	Water Pollution Control	LS	\$100,000	1	\$100,000
11	<i>Specialty Items</i>				
12	Retaining Walls (MSE)	SF	\$120	50000	\$6,000,000
13	Structure Excavation (Type 5 wall)	CY	\$25	740	\$18,500
14	Structure Backfill (Type 5 wall)	CY	\$60	1520	\$91,200
15	Structural Concrete (Type 5 wall)	CY	\$650	730	\$474,500
16	Bar Reinforcing Steel (Type 5 wall)	LB	\$1.27	74200	\$94,234
17	Concrete Barrier Type 26	LF	\$275	2500	\$687,500
18	Concrete Barrier Type 736	LF	\$275	2860	\$786,500
19	Minor Concrete sidewalk, curb & gutter	CY	\$450	1620	\$729,000
20	Chain Link Fence	LF	\$45	3700	\$166,500
21	<i>Traffic Items</i>				
22	Flashing Beacon	LS	\$100,000	1	\$100,000
23	Lighting	LS	\$80,000	1	\$80,000
24	Install Traffic Signal with Video Detection	LS	\$350,000	2	\$700,000
25	Install Signal Interconnect Conduits	LS	\$100,000	1	\$100,000
26	Install Fiber Interconnect Terminal	EA	\$7,000	2	\$14,000
27	Install CCTV at Whittram and Napa	EA	\$25,000	2	\$50,000
28	Permanent Signing & Striping	LS	\$250,000	1	\$250,000
29	Traffic Control Systems	LS	\$150,000	1	\$150,000
30	Transportation Management Plan	LS	\$20,000	1	\$20,000
31	<i>Removals</i>				
32	Remove Exist. Street Light	LS	\$1000	1	\$1,000
33	Remove Concrete sidewalk, curb, driveway	CY	\$200	375	\$75,000
34	Remove Chain Link Fence	LF	\$12	690	\$8,280
	ROADWAY SUBTOTAL (Items 1-34)				\$13,044,714
No.	Structure Items	Unit	Unit Cost	Quantity	Total
1	Plan & specs update to current Caltrans Stds	LS	\$160000	1	\$160,000
2	Architectural Treatment	LS	\$1000000	1	\$1,000,000
3	2 stage constuction of bridge	LS	\$2000000	1	\$2,000,000
4	Bridge Structure	SF	\$550	50400	\$27,720,000
	STRUCTURE SUBTOTAL (Items 1-4)				\$30,880,000

13. DELIVERY SCHEDULE

Project Milestones	Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
BEGIN ENVIRONMENTAL	01/16/18	01/16/18
END ENVIRONMENTAL	06/06/18	06/06/18
BEGIN DESIGN	09/05/18	09/05/18
END DESIGN	01/31/20	
RIGHT OF WAY CERTIFICATION	01/31/20	
CONSTRUCTION START	06/01/20	
CONSTRUCTION END	12/30/18	
BEGIN PROJECT CLOSEOUT	01/02/22	
END PROJECT CLOSEOUT	12/30/22	

14. RISKS

Potential loss of SB-1 funding for all phases of project not allocated prior November 2018 due to outcome vote on a repeal measure on the November 6, 2018 ballot. If repeals and there are not banked funds for the construction phase of the project the City of Rancho Cucamonga would need to secure alternate funds possibly from a combination of CPUC grade separation funding, Federal funding, State Section 190 program funds, or other sources.

15. EXTERNAL AGENCY COORDINATION

California Public Utilities Commission

California Public Utilities Commission General Order 88-B will be required for authorization to alter and eliminate the existing Highway-Rail crossing with the construction of the new rail/highway bridge overpass.

Caltrans

The project administration guidelines approved by the CTC on May 16, 2018 stipulate that Master Agreements between the City of Rancho Cucamonga and Caltrans shall be executed, and requirements followed, in order for the City to receive reimbursement of project costs.

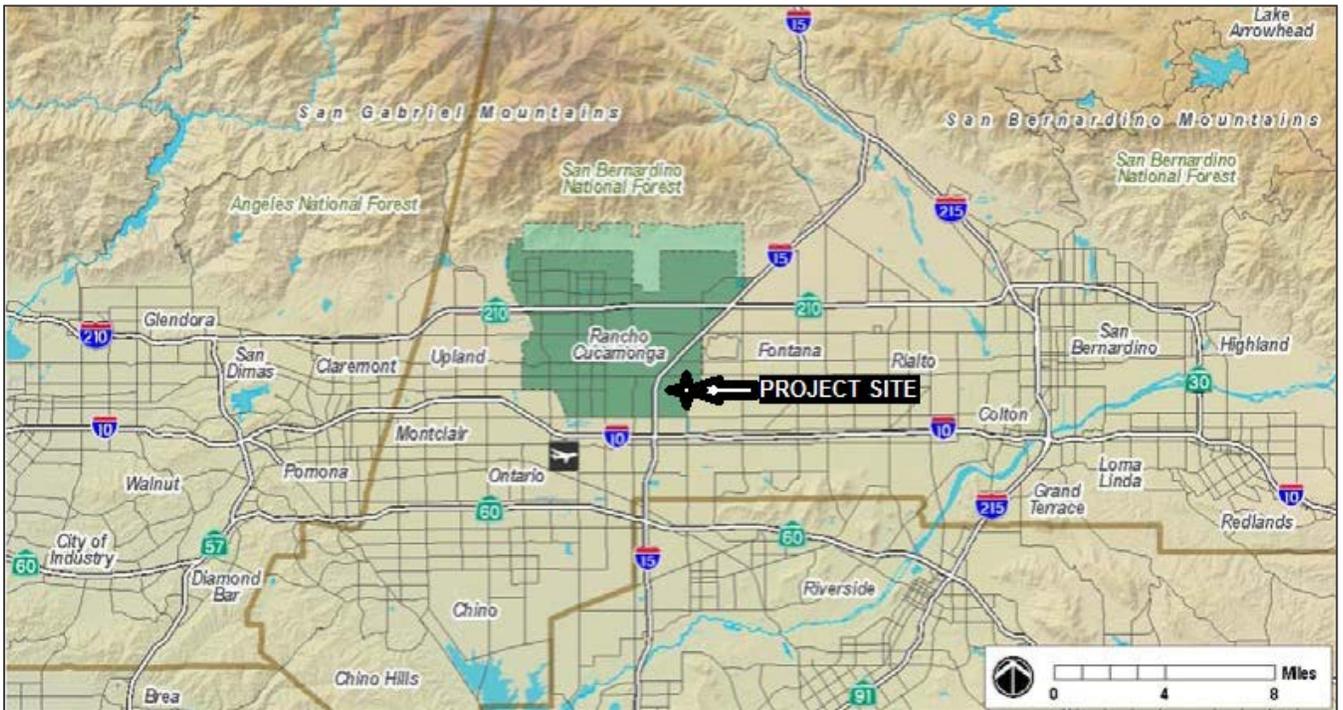
California Transportation Commission

The project administration guidelines approved by the CTC on May 16, 2018 stipulate that Project Baseline Agreements between the City of Rancho Cucamonga and Caltrans shall be executed, and requirements followed, for the City to receive reimbursement of project costs.

16. ATTACHMENTS (68 pages)

Attachment A

REGIONAL LOCATION MAP



Attachment B

STATUTORY EXEMPTION NOTICE OF EXEMPTION

CLERK OF THE BOARD OF SUPERVISORS
NOTICE OF EXEMPTION

2018 JUN 11 AM 9:28
COUNTY OF SAN BERNARDINO
CALIFORNIA

TO: Clerk of the Board of Supervisors
County of San Bernardino
385 N. Arrowhead, 2nd Floor
San Bernardino, CA 92415

FROM: City of Rancho Cucamonga
P. O. Box 807
Rancho Cucamonga, CA 91729

Project Title: Etiwanda Grade Separation Project

Project Location Specific: Etiwanda Ave. from Napa St. to Whittram Ave.

Project Location - County: San Bernardino

Description of Nature, Purpose, and Beneficiaries of Project: Railroad grade separation project that eliminates an existing grade crossing to improve mobility, safety, and level of service at the Southern California Regional Rail Authority railroad corridor.

Name of Public Agency Approving Project: City of Rancho Cucamonga

Name of Person or Agency Carrying Out Project: Curt Billings, City of Rancho Cucamonga

Exempt Status: (Check one)

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c))
- Statutory Exemptions. Section 15301 - Existing Facilities**
- Statutory Exemptions. Section 15282(g)

Reasons Why Project is Exempt: Grade separation project will eliminate an existing grade crossing.

Lead Agency Contact Person: Curt Billings, Associate Engineer

Area Code/Telephone/Extension: (909) 774-4069

Signature: 
Title: Planning Director

Date: 6/6/18

DATE FILED & POSTED
Posted On: 6-11-18
Removed On: 7-24-18
Receipt No: 36-05112018-388

ATTACHMENT 3

Attachment C

PROGRAMMING REQUEST FORM

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
 PROJECT PROGRAMMING REQUEST
 DTP-0001 (Revised June 7, 2018 v7.09)

General Instructions

Amendment (Existing Project)		No	Date:	7/13/18	
District	EA	Project ID	PPNO	MPO ID	Alt Proj. ID / prg.
75	TC0011	0018000305	T0011		TCEP
County	Route/Corridor	PM Bk	PM Ahd	Project Sponsor/Lead Agency	
SBD	San Gabriel Rail Line	44.1	44.1	Caltrans	
				MPO	Element
				SCAG	Rail
Project Manager/Contact		Phone		E-mail Address	
Curt Billings		(909) 774-4069		Curt.Billings@CityofRC.us	
Project Title					
Etiwanda Avenue Grade Separation at SCRRA and BNSF San Gabriel Subdivision, between Whittram Avenue and Napa Street					
Location (Project Limits), Description (Scope of Work)					
The proposed Etiwanda Avenue Grade Separation at SCRRA and BNSF San Gabriel Rail Line, between Whittram Avenue and Napa Street, is located in the south east portion of the City of Rancho Cucamonga, bordered by the cities of Fontana to the east and Ontario is nearby to the south. The project will construct an overhead concrete girder bridge with a raised roadway profile and road widening, along Etiwanda Avenue and over the SCRRA San Gabriel Subdivision at mile post 44.1 (CPUC Crossing No. 18.3-36-101SG-44.1 Etiwanda; DOT Crossing No. 026151P SCRRA). An existing at grade crossing will be eliminated and access to local businesses will be maintained below the bridge superstructure.					
Component		Implementing Agency			
PA&ED	City of Rancho Cucamonga				
PS&E	City of Rancho Cucamonga				
Right of Way	City of Rancho Cucamonga				
Construction	City of Rancho Cucamonga				
Legislative Districts					
Assembly:	40	Senate:	23	Congressional:	31
Project Benefits					
Eliminates an At-Grade Crossing, improves vehicle and rail safety, mobility and surface transportation. (cont. pg 2)					
Purpose and Need					
To establish a grade separation at the Etiwanda Avenue/SCRRA grade crossing. A grade separation will reduce vehicular delays and queuing along Etiwanda Avenue leading to improved mobility and LOS in compliance with CMP policy. The grade separation will provide for the safe operation of vehicles, trucks and trains whose volume is projected to increase within the project limits. It will also provide for improved emergency vehicle response times for the area. The existing Etiwanda Avenue grade crossing has experienced 7 train/vehicular accidents resulting in 2 fatalities and injuries. A new grade separation is needed to address the increase in forecasted regional traffic demand, to eliminate vehicle/train accidents and maintain satisfactory CMP designated LOS thresholds.					
Category		Outputs/Outcomes		Unit	Total
Local streets and roads		At-grade crossings eliminated		each	1
Local streets and roads		Local road operational improvements		Feet	6800
Local streets and roads		New local road bridge structures		each	1
Local streets and roads		Bicycle lane-feet		Feet	3400
ADA Improvements	Yes	Bike/Ped improvements	Yes	Reversible Lane analysis	No
Inc. Sustainable Communities Strategy Goals		Yes	Reduces Greenhouse Gas Emissions		
Yes		Yes			
Project Milestone				Existing	Proposed
Project Study Report Approved				06/06/18	
Begin Environmental (PA&ED) Phase					01/16/18
Circulate Draft Environmental Document		Document Type	CE		06/04/18
Draft Project Report					08/03/18
End Environmental Phase (PA&ED Milestone)					06/06/18
Begin Design (PS&E) Phase					09/05/18
End Design Phase (Ready to List for Advertisement Milestone)					01/31/20
Begin Right of Way Phase					09/05/18
End Right of Way Phase (Right of Way Certification Milestone)					01/31/20
Begin Construction Phase (Contract Award Milestone)					06/01/20
End Construction Phase (Construction Contract Acceptance Milestone)					12/30/21
Begin Closeout Phase					01/02/22
End Closeout Phase (Closeout Report)					12/30/22

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento,

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 7 2018 v7.09)

Date: 7/13/18

Additional Information

Project Benefits (Continued from pg 1):

A new grade separation at the Etiwanda Avenue grade crossing is needed to address mobility related to the increase in forecasted regional traffic demand, eliminate vehicle/train accidents and maintain satisfactory CMP designated LOS thresholds. Safety and community access for all modes of transportation will be improved with the elimination of an at grade railroad crossing. In addition, the quality of life for residents will be improved since the railroad will no longer be required to routinely sound the train horn per Federal Rail Administration rules. Eliminate approximately 12,180 minutes of vehicle delays per day based on 2020 estimated ADT. Fiber interconnect conduit will be installed to expand the City's existing intelligent transportation system from Whittram Avenue to the City limits bordering the City of Fontana at Napa Street. Traffic congestion will be reduced with the construction of an overhead highway bridge. Currently Etiwanda Avenue has a level of service (F) and an ADT of 21,000 vehicles. The 3,400 total linear feet of sidewalks and 5 feet wide bike lanes on Etiwanda Avenue. Reduce the annual vehicle emission by nearly 1,166 tons of CO₂, & NO_x combined.

The Etiwanda Avenue Grade Separation project between Napa Street and Whittram Avenue Project will construct a four-lane roadway over-crossing for 6,800 total linear feet of road at the Metrolink San Gabriel subdivision rail line (MP 44.1) which runs from Pasadena to San Bernardino.

Following the Metrolink San Gabriel subdivision rail line East of the I-15 freeway towards Etiwanda Avenue, there are two main tracks from CP Nolan (MP 44.5) to CP Beech (MP 47.6), track 1 on the north side and track 2 to its south. There is another spur to the sidetrack along the north side of the track at Etiwanda Avenue, site of the existing at grade road crossing. East of Etiwanda Avenue, where a Kaiser steel mill used to be, the California Auto Club Speedway now occupies the south side of the tracks. Calabash Avenue crosses the tracks (at a non-public grade crossing) at this location. There is an occasional-use Metrolink station here (CP Speedway, MP 45.3), an island platform in between the two main tracks, along with some storage tracks. Immediately east of this location is the BNSF Kaiser yard (CP Kaiser, MP 45.4), nominal destination of two daily switching turns out of San Bernardino, through which there is a third track, the "South Kaiser". East of Speedway, the line and yard passes under the Cherry Avenue bridge in Fontana.

Separating surface transportation from the commuter and freight rail traffic railroad line will improve safety and operational efficiency to the mainline and several industry rail spurs nearby. It will reduce congestion and mitigate future growth impacts. Etiwanda Avenue provides surface transportation connections from local industries to several nearby freeways. It connects to the I-10 freeway 1.7 miles to the south and the I-60 freeway 3.5 miles further south. Also, 1.2 miles to the north it connects to the I-15 freeway via Foothill Blvd (Old Route 66).

The project links these existing corridors, which serve statewide needs, with an alternate capacity-enhancing local through route and thereby improving transportation resilience.

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 7 2018 v7.09)

Date: 7/13/18

Additional Information

Purpose and Need (Continued from pg 1):

Etiwanda Avenue is experiencing excessive delays and vehicular queues due to more than 52 daily train movements on the Metrolink San Bernardino Line. These delays and queuing are expected to worsen with continued growth and development adjacent to the project site. The most recent data shows that the existing Etiwanda Avenue at grade crossing has experienced 7 train/vehicular accidents resulting in 2 fatalities and injuries. The current roadway speed limit is 55 mph combined with increasing train trips are a concern with ongoing future growth in one of the fastest growing regions in the country.

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 07 2018 v7.09)

Date: 7/13/18

Additional Information																																																
<p>3</p> <p>INVESTMENT ANALYSIS</p> <p>SUMMARY RESULTS</p>																																																
<p>Life-Cycle Costs (mil. \$) <input type="text" value="\$36.23"/></p> <p>Life-Cycle Benefits (mil. \$) <input type="text" value="\$40.2"/></p> <p>Net Present Value (mil. \$) <input type="text" value="\$3.99"/></p>		<table border="1"> <thead> <tr> <th>ITEMIZED BENEFITS (mil. \$)</th> <th>Total Over 20 Years</th> <th>Average Annual</th> </tr> </thead> <tbody> <tr> <td>Travel Time Savings</td> <td>\$33.8</td> <td>\$1.7</td> </tr> <tr> <td>Veh. Op. Cost Savings</td> <td>\$3.3</td> <td>\$0.2</td> </tr> <tr> <td>Accident Cost Savings</td> <td>\$0.5</td> <td>\$0.0</td> </tr> <tr> <td>Emission Cost Savings</td> <td>\$2.6</td> <td>\$0.1</td> </tr> <tr> <td>TOTAL BENEFITS</td> <td>\$40.2</td> <td>\$2.0</td> </tr> </tbody> </table>			ITEMIZED BENEFITS (mil. \$)	Total Over 20 Years	Average Annual	Travel Time Savings	\$33.8	\$1.7	Veh. Op. Cost Savings	\$3.3	\$0.2	Accident Cost Savings	\$0.5	\$0.0	Emission Cost Savings	\$2.6	\$0.1	TOTAL BENEFITS	\$40.2	\$2.0																										
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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised June, 7 2018 v7.09)

Date: 7/13/18

District	County	Route	EA	Project ID	PPNO	Alt. ID
75	SBD	San Gabriel Rail	TC0011	0018000305	T0011	
Project Title: Etiwanda Avenue Grade Separation at SCRRA and BNSF San Gabriel Subdivision, between Whittram Ave and Napa Street						

Existing Total Project Cost (\$1,000s)									Implementing Agency
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	
E&P (PA&ED)									City of Rancho Cucamonga
PS&E									City of Rancho Cucamonga
R/W SUP (CT)									City of Rancho Cucamonga
CON SUP (CT)									City of Rancho Cucamonga
R/W									City of Rancho Cucamonga
CON									City of Rancho Cucamonga
TOTAL									
Proposed Total Project Cost (\$1,000s)									Notes
E&P (PA&ED)		850						850	
PS&E		2,000						2,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W		5,000						5,000	
CON			52,150					52,150	
TOTAL		7,850	52,150					60,000	

Fund No. 1:	SB 1 - Trade Corridor Enhancement Program (TCEP)								Program Code	
Existing Funding (\$1,000s)									30.20.723.100	
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total	Funding Agency	
E&P (PA&ED)									Caltrans	
PS&E										
R/W SUP (CT)										
CON SUP (CT)										
R/W										
CON										
TOTAL										
Proposed Funding (\$1,000s)									Notes	
E&P (PA&ED)		850						850	Local Agency will not need the PA&ED \$850k, the PSR and Statutory Exemption was approved at City Council on 6/6/18. Local funds were used on the NOE.	
PS&E		2,000						2,000		
R/W SUP (CT)										
CON SUP (CT)										
R/W		5,000						5,000		
CON			52,150					52,150		
TOTAL		7,850	52,150					60,000		

Fund No. 2:									Program Code	
Existing Funding (\$1,000s)									Funding Agency	
Component	Prior	18-19	19-20	20-21	21-22	22-23	23-24+	Total		
E&P (PA&ED)										
PS&E										
R/W SUP (CT)										
CON SUP (CT)										
R/W										
CON										
TOTAL										
Proposed Funding (\$1,000s)									Notes	
E&P (PA&ED)										
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R/W										
CON										
TOTAL										

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (Revised Feb,20 2018 v7.07)

Complete this page for amendments only

Date: 7/5/18

District	County	Route	EA	Project ID	PPNO	Alt. ID
08	SBD	San Gabriel Rail Line	TC001	0018000305	T0011	

SECTION 1 - All Projects

Project Background
Programming Change Requested
Reason for Proposed Change
If proposed change will delay one or more components, clearly explain 1) reason the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded
Other Significant Information

SECTION 2 - For SB1 Projects Only
Alternative Project Request (Please follow the individual SB1 program guidelines for specific criteria)

SECTION 3 - All Projects								
Approvals								
I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.*								
<table border="1"> <thead> <tr> <th>Name (Print or Type)</th> <th>Signature</th> <th>Title</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Curt Billings</td> <td></td> <td>Associate Engineer / Project Manager</td> <td>6/4/2018</td> </tr> </tbody> </table>	Name (Print or Type)	Signature	Title	Date	Curt Billings		Associate Engineer / Project Manager	6/4/2018
Name (Print or Type)	Signature	Title	Date					
Curt Billings		Associate Engineer / Project Manager	6/4/2018					

Attachments

- 1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
- 2) Project Location Map

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
FAX (916) 653-5776
TTY 711
www.dot.ca.gov



*Making Conservation
a California Way of Life.*

January 30, 2018

Ms Susan Bransen
Executive Director
California Transportation Commission
1120 N Street, MS-52
Sacramento, CA 95814

Dear Ms. Bransen:

On behalf of the California Department of Transportation (Caltrans), we are excited for the opportunity to participate in the new Trade Corridor Enhancement Program (TCEP), which receives funding from Senate Bill 1 (SB 1), the Road Repair and Accountability Act of 2017, and the National Highway Freight Program. This cycle will program over \$1.3 billion for projects related to the routes and transportation infrastructure vital to California's trade and freight economy. As specified in Section 2192 of the Streets and Highways Code, and outlined in California Transportation Commission (CTC) guidelines, 40 percent of the funding totaling \$536 million, is designated as the Caltrans share of the program. This letter is the official TCEP project submittal for Caltrans.

The proposed projects have been carefully selected to not only meet the intent and requirements of the program and the CTC guidelines, but also meet the needs of multiple local, regional, and state partners. Our focus was selecting projects that are shovel ready. Caltrans has diligently worked with our co-applicants and other partners to create the best possible projects to support freight within California. The Administration continues to see this program as vital for completing freight projects on the border with Mexico, and for completing rail safety grade separation projects—several of the nominated projects invest in these areas. The projects also help the State support the goals and policies identified in the California Freight Mobility Plan, California Sustainable Freight Action Plan, and the National Highway Freight Program.

Enclosed is the Caltrans prioritized list of projects, which includes Caltrans and partner agency submittals. The list also identifies the SB1 funding distribution between Caltrans share and the regional share. The Caltrans TCEP funding request is for \$556 million which is slightly more than the \$536 million programming target identified in the guidelines; however, as projects may receive funding from multiple sources, and some adjustments to funding shares may be made, Caltrans believes all the nominated projects could be programmed.

Ms. Susan Bransen
January 30, 2018
Page 2

In two weeks we will be submitting Caltrans project nomination request for the Solutions for Congested Corridor Program, which will show a balanced investment strategy for the State of California. Some projects nominated here for TCEP may also be nominated for the Solutions for Congested Corridor Program.

We greatly appreciate the CTC's consideration of nominated projects, as they are a critical components of the transportation infrastructure for the entire State of California and individual regions. We believe this is a strong list of projects for this first round of SB 1 TCEP funding.

If you require any additional information, please contact Coco Briseno at (916) 654-5368 or by email sent to coco.briseno@dot.ca.gov.

Sincerely,



MALCOLM DOUGHERTY
Director

Enclosure

Trade Corridor Enhancement Program – Caltrans Project Application List

Priority	County	Route	Project Name	State TCEP Request	Partner TCEP Request	Total TCEP Request	Application Submitted By:
1	LA	005	LA 5 North Corridor, HOV-Truck	\$80,000	\$167,000	\$247,000	LA METRO
2	SD IMP	VAR	Border System Network Improvements	\$70,489	\$45,000	\$115,489	Caltrans
3	VEN	034	Rice Avenue Rail Safety Grade Separation	\$68,606	\$0	\$68,606	Caltrans
4	SBD	Off System	Etiwanda Ave Rail Safety Grade Separation	\$60,000	\$0	\$60,000	Caltrans
5	ORA	057	Route 57/Lambert Road Interchange Improvement	\$38,650	\$27,055	\$65,705	Caltrans
6	SB	101	US 101 Santa Barbara South Coast Multi-Modal Corridor	\$0	\$16,000	\$16,000	SBCTC
7	ALA	Off System	Go Port 7th St Grade Separation (East segment)	\$70,000	\$105,000	\$175,000	Caltrans
8	SBD	010	I-10 Corridor Contract 1 (Express Lanes)	\$19,000	\$45,000	\$64,000	SBCTA
9	SHA	005	Redding to Anderson 6 Lane (Big and Little Easy)	\$41,700	\$24,000	\$65,700	Caltrans
10	LA	057	Route 57/60 Confluence: Chokepoint Relief Project	\$92,000	\$88,000	\$180,000	Caltrans
11	SBD	395	US-395 Widening Phase 1	\$1,000	\$23,292	\$24,292	SBCTA
12	MER	099	Livingston Widening (N/B)	\$15,000	\$14,047	\$29,047	Caltrans
			Totals:	\$556,445	\$554,394	\$1,110,839	



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January 30, 2018

Susan Bransen, Executive Director
California Transportation Commission
1120 N Street, Mail Station 52
Sacramento, CA 95814

**Subject: TCEP Applications from the SCAG Region and Consistency with
2016 RTP/SCS and Regional Freight Plan**

Dear Ms. Bransen:

On behalf of the Southern California Association of Governments (SCAG), I offer this letter compiling project nominations from agencies located within the SCAG region seeking Trade Corridor Enhancement Program (TCEP) funding and to confirm consistency of the project nominations with SCAG's 2016-2040 Regional Transportation Plan / Sustainable Communities Strategy (2016 RTP/SCS) and Regional Freight Plan. The tables on the following pages provide additional details on the consistency determination.

As the Metropolitan Planning Organization (MPO) for the six county (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties) Southern California area, SCAG is responsible for developing the Sustainable Communities Strategy as part of the Regional Transportation Plan. The 2016 RTP/SCS is the adopted long-range regional plan that integrates the transportation system with land use planning to balance the region's future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS was adopted by the SCAG Regional Council in April 2016, and subsequently approved and accepted by the U.S. Department of Transportation and the California Air Resources Board, respectively.

If you have any questions or need clarifications regarding this correspondence, please contact Ms. Annie Nam, Manager of Goods Movement and Transportation Finance, at (213) 236-1827 or nam@scag.ca.gov.

Sincerely,

HASAN IKHRATA
Executive Director

Regional Agency-Led Project Nominations

County	Project Lead	Project Title	Listed in / Consistent with 2016 RTP/SCS?	Listed in / Consistent with Regional Freight Plan? ¹
Los Angeles	Metro ² (in partnership with Port of Los Angeles, Port of Long Beach, and Alameda Corridor-East Construction Authority)	America’s Global Freight Gateway: Southern California Rail Project	Yes (RTP ID 1120015 and 1120018, pg. 142; RTP ID ³ 1O0706LA01 and 1O0706LA03, pg. 11; RTP ID LA0G172 and LA0C8094, pg. 12; RTP ID LA0G1047, pg. 17; Pier G/J Double Track—RTP ID 1O0710, pg. 143)	Yes (pg. 52; Rail Access Improvements to Port of Long Beach & Port of Los Angeles, pg. 72; Rail Package—Grade Separations, pg. 73.)
Los Angeles	Port of Los Angeles	Port of Los Angeles National Highway Freight Network Improvement Program: State Route 47-Vincent Thomas Bridge & Harbor Boulevard-Front Street Interchange Improvement Project	Yes (RTP ID 1120007, pg. 140)	Yes (Map ID A.15, pg. 63)
Los Angeles	Metro (in partnership with Caltrans District 7)	Interstate 5 (I-5) Golden State Chokepoint Relief Project	Yes (RTP ID ⁴ LA0G440 and 1162S010, pg. 11)	Yes (Map ID A.2, pg. 62)
Los Angeles	Metro (in partnership with Caltrans District 7)	Interstate 605 (I-605)/State Route 91 (SR-91) Interchange Improvement: Gateway Cities Freight Crossroads Project	Yes (RTP ID ⁵ 1M1004, pg. 36)	Yes (Map ID A.12, pg. 63)

¹ SCAG’s Regional Freight Plan is incorporated in the California Freight Mobility Plan (CFMP).

² Los Angeles County Metropolitan Transportation Authority (Metro)

³ Project listed in [2016 RTP/SCS Amendment #2](#).

⁴ Project listed in [2016 RTP/SCS Amendment #2](#).

⁵ Project listed in [2016 RTP/SCS Amendment #1](#).

Subject: TCEP Applications from the SCAG Region and Consistency with 2016 RTP/SCS and Regional Freight Plan

County	Project Lead	Project Title	Listed in / Consistent with 2016 RTP/SCS?	Listed in / Consistent with Regional Freight Plan? ¹
Los Angeles	Metro	SR-71 Freeway Conversion Project	Yes (RTP ID 1M1001, pg. 148)	Not listed but consistent (e.g., Map ID J. [Freight Arterial O&M], pg. 73)
Riverside	City of Moreno Valley	SoCal Freight Gateway: SR 60 Truck Safety and Efficiency Project – Phase 1A (SR-60 / Moreno Beach Drive Interchange)	Yes (RTP ID RIV041052- RIV041052, pg. 238)	Yes (Map ID I. [Goods Movement—Bottleneck Relief Strategy, pg. 73])
Riverside	City of Coachella	State Route 86 / Avenue 50 New Interchange Project	Yes (RTP ID RIV110825, pg. 191 and RTP ID RIV061159- RIV061159, pg. 239)	Yes (Map ID A.48, pg. 67)
Riverside	City of Beaumont	Pennsylvania Avenue Grade Separation Project	Yes, (RTP ID S3120023, pg. 386)	Yes, (Table 18, pg. 55)
Riverside	City of Beaumont	SR-60 / Potrero Boulevard Interchange Project Phase 2	Yes (RTP ID RIV050535- RIV050535, pg. 236)	Yes (Map ID A.40, pg. 66)
Riverside	City of Beaumont	Oak Valley Parkway Interchange Improvement (I-10 / Oak Valley Parkway Interchange)	Yes (RTP ID RIV060115- RIV060115, pg. 229)	Yes (Map ID A.38, pg. 66)
Riverside	City of Beaumont	California Avenue Grade Separation Project	Yes (RTP ID 3G01G26, pg. 185)	Yes (Table 17, pg. 53)
Riverside	City of Calimesa	I-10 / County Line Road Interchange	Yes (RTP ID RIV131201- RIV131201, pg. 230)	Yes (Map ID A.38, pg. 66)

Subject: TCEP Applications from the SCAG Region and Consistency with 2016 RTP/SCS and Regional Freight Plan

County	Project Lead	Project Title	Listed in / Consistent with 2016 RTP/SCS?	Listed in / Consistent with Regional Freight Plan? ¹
San Bernardino	SBCTA ⁶ (in partnership with Caltrans District 8)	I-10 Corridor Contract I (Express Lanes) (between Los Angeles / San Bernardino county line and I-15)	Yes (RTP ID 4122004-20159902, pg. 298)	Yes, I-10 corridor is identified as High Priority Bottleneck/ Congested Areas on pg. 26
San Bernardino	SBCTA (in partnership with Caltrans District 8)	US-395 Widening from SR-18 to Chamberlaine Way	Yes (RTP ID 4M0802, pg. 307)	Not listed but consistent (e.g., Map ID J. [Freight Arterial O&M], pg. 73)
San Bernardino	City of Hesperia	I-15 / Muscatel Street New Interchange	Yes (RTP ID 4160007, pg. 300)	Not listed but consistent (e.g., Map ID J. [Freight Arterial O&M], pg. 73)
Ventura	Port of Hueneme	Structure for Transfer of Automobiles Creating Key Economic Development Project (STACKED Project)	Yes (included in RTP ID 7160001, pg. 312)	Yes, Port of Hueneme Access Projects included on pg. 37 and ITS (e.g., Map ID J. [Goods Movement—ITS Strategy], pg. 73)

⁶ San Bernardino County Transportation Authority (SBCTA)

Subject: TCEP Applications from the SCAG Region and Consistency with 2016 RTP/SCS and Regional Freight Plan

Caltrans-Led Project Nominations

County	Project Lead	Project Title	Listed in / Consistent with 2016 RTP/SCS?	Listed in / Consistent with Regional Freight Plan? ⁷
Los Angeles	Caltrans District 7 (in partnership with Metro, City of Diamond Bar, and City of Industry)	SR-57/60 Confluence: Chokepoint Relief Program	Yes (RTP ID ⁸ 1M0104, pg. 11)	Yes (Map ID A.11, pg. 63)
Los Angeles	Caltrans HQ (in partnership with BNSF Railway and Metrolink ⁹)	Hobart Yard New Lead Tracks	Yes (RTP ID RRC0701, pg. 313)	Yes (Map ID E.1-A to E.1-N, pg. 70)
Orange	Caltrans District 12 (in partnership with OCTA ¹⁰ and City of Brea)	State Route 57 (SR- 57) Truck Climbing Lane Phase I— Lambert Road Interchange Improvement Project	Yes (RTP ID ORA120320, pg. 175)	Yes (e.g., Map ID A.25, pg. 65)
Ventura	Caltrans District 7 (in partnership with City of Oxnard, VCTC ¹¹ , and Ventura County)	Rice Avenue/State Route 34 (SR-34) Grade Separation Project	Yes (RTP ID VEN040401, pg. 319)	Yes (Table 17, pg. 54)
San Bernardino	Caltrans HQ (in partnership with City of Rancho Cucamonga)	Etiwanda Grade Separation	Yes (RTP ID #4GL04-201134, pg. 276)	Not listed but consistent (e.g., Map ID H. Rail-Highway Grade Separation, pg. 73)
Imperial (and San Diego)	Caltrans District 11 (in partnership with SANDAG ¹² and ICTC ¹³)	The California-Mexico Border System Project ¹⁴	Yes (RTP ID 6160002 and 6120003 on pg. 104; Component 4 – RTP ID 7160001, pg. 312)	Yes (Map ID A.67 and A.68, pg. 68; Map ID J. [Goods Movement—ITS Strategy], pg. 73)

⁷ SCAG’s Regional Freight Plan is incorporated in the California Freight Mobility Plan (CFMP).

⁸ Project listed in [2016 RTP/SCS Amendment #2](#).

⁹ Southern California Regional Rail Authority (Metrolink)

¹⁰ Orange County Transportation Authority (OCTA)

¹¹ Ventura County Transportation Commission (VCTC)

¹² San Diego Association of Governments (SANDAG)

¹³ Imperial County Transportation Commission (ICTC)

¹⁴ Project components 5 (SR-98 Improvements) and 6 (Calexico East POE Truck Crossing Improvement) and portions of component 4 (ITS Technology / Advanced Technology Corridors at Border Ports of Entry Pilot Project) are located within the SCAG region.

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0040
(916) 319-2040
FAX (916) 319-2140

DISTRICT OFFICE
10350 COMMERCE CENTER DRIVE, SUITE A200
RANCHO CUCAMONGA, CA 91730
(909) 476-5023
FAX (909) 476-8062

E-MAIL
Assemblymember.Steinorth@assembly.ca.gov

January 11, 2018

Assembly California Legislature



MARC STEINORTH
ASSEMBLYMEMBER, FORTIETH DISTRICT

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Ms. Susan Bransen, Executive Director
California Transportation Commission
1120 N Street, MS-52
P.O. Box 942873
Sacramento, CA 95814

RE: Support Letter for City of Rancho Cucamonga Grant Applications under the SB 1 Transit Corridor Enhancement Program for 2018

Dear Ms. Bransen:

This letter is to express my support for a grant application being jointly submitted by the California Department of Transportation (Caltrans) and the City of Rancho Cucamonga for funding of the Etiwanda Grade Separation Project under the Transit Corridor Enhancement Program (Caltrans 40% Share).

The Etiwanda Grade Separation Project will construct a railroad grade separation at the intersection of Etiwanda Avenue and the Metrolink/BNSF tracks south of Arrow Route in the City of Rancho Cucamonga. Once complete, the project will reduce vehicular delays and improve mobility and goods movement throughout the Inland Empire, stimulate economic development in the area by providing improvement access to manufacturing and distribution space, enhance safety at the railroad crossing and improvement emergency response times, and accommodate existing and projected traffic volumes in one of the fastest growing regions in the country. The total estimated cost for the project is \$60 million and includes design, right-of-way, construction, and administration costs.

This projects fit into a comprehensive transportation plan, outlined in the City's General Plan. They contribute to the achievement of the mobility and sustainability goals of the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for southern California, as well as State plans such as the California Transportation Plan and the California Freight Mobility Plan.

These projects can be delivered within the prescribed timelines outlined in the guidelines for the Transit Corridor Enhancement Program with the investment of SB 1 funds. We greatly appreciate your consideration of this requests, which will result in significant benefits to safety, mobility, accessibility, economic development, and sustainability, not only in San Bernardino County, but for citizens and businesses throughout southern California.

If you have any questions, please do not hesitate to call my office at (916) 319-2040.

Sincerely,

A handwritten signature in blue ink that reads "M Steinorth".

Marc Steinorth
Assembly District 40

Attachment D

**2018 TRADE CORRIDOR ENHANCE PROGRAM FINAL ADOPTED
PROGRAM**

2018 Trade Corridor Enhancement Program
Final Adopted
Program of Projects
(1,000's)

Transmittal 3

Region	CO	Applicant Agency	Project Title	Project Description	Priority	Consensus Rating	Total Project Cost	Total Requested Amount	Recommended Regional Funding	Recommended State Funding	Federal State Funding	2017-18	2018-19	2019-20	CON	R/W	PS&E	PA&ED	
North	ALA	Caltrans, MTC, ACTC	7th Street Grade Separation (East)	Reconstruct existing four lane underpass at the UPRR mainline tracks to meet current geometric standards.	ACTC 1 of 3 Caltrans 7 of 12	High	\$ 252,000	\$ 175,000	\$ 105,000	\$ 70,000				\$ 175,000	\$ 175,000				
North	ALA	MTC, ACTC	Freight Intelligent Transportation System (FITS)	Install and implement ITS elements and other technologies, which include changeable message signs, closed circuit TV, fiber optic and Wi-Fi communications, traffic signal enhancements, vehicle and queue detection, train queue detection, weight-in-motion, information application, and smart parking system.	ACTC 2 of 3	High	\$ 30,600	\$ 12,456	\$ 12,456	\$ -			\$ 12,456	\$ 12,456					
North	ALA	City of Emeryville	Quiet Zone Safety Engineering Measures	Install four quadrant gates, raised median, and sidewalks at three at-grade railroad crossings.	1 of 1	Medium	\$ 6,480	\$ 4,200	\$ 4,200	\$ -			\$ 4,200	\$ 4,200					
North	KER	KCOG	Rt 58 / 99 Bakersfield Freeway Connector	Grade separate exit and entry ramps, construct southbound auxiliary lane, two lane collector-distributor road, retaining walls, and widen bridge.	1 of 1	Medium High	\$ 50,000	\$ 25,000	\$ 25,000	\$ -	F		\$ 25,000	\$ 25,000					
North	MER	Caltrans, MCAG	Rt 99 Livingston Widening, North Bound	Widen 7.65 miles to 3 lanes, northbound direction only	Caltrans 12 of 12	Medium	\$ 37,420	\$ 29,050	\$ 14,050	\$ 15,000	F		\$ 29,050	\$ 29,050					
North	SJ	Port of Stockton	Fyffe Avenue Grade Separation	Replace an at-grade crossing with a new grade separated overcrossing.	1 of 1	High	\$ 13,000	\$ 9,000	\$ 9,000	\$ -			\$ 1,000	\$ 8,000	\$ 8,000			\$ 1,000	
North	SJ	City of Tracy	Central Valley Gateway (2 projects):		1 of 1	Medium													
		City of Tracy	1. Rt 205 / International Parkway Interchange Improvements	Widen ramps, construct turn pockets, install bike/pedestrian improvements, and signal modification.			\$ 15,690	\$ 7,600	\$ 7,600	\$ -				\$ 7,600	\$ 7,150	\$ 450			
		City of Tracy	2. Rt 580 / International Parkway Interchange Improvements	Widen ramps, construct turn pockets, install bike/pedestrian improvements, and signal modification.			\$ 8,970	\$ 5,180	\$ 5,180	\$ -				\$ 5,180	\$ 5,180				
North	SCL	Santa Clara VTA	Rt 101 / 25 Interchange Improvements Phase 1	Construct/relocate interchange north of the existing location by replacing a two-lane bridge with four-lane bridge/interchange, construct auxiliary lane, modify/construct frontage roadway, install bike lanes, sidewalks, and traffic signals.	1 of 1	Medium	\$ 65,000	\$ 4,200	\$ 4,200	\$ -			\$ 4,200				\$ 4,200		
North	SOL	STA	Rt 80/680/12 Interchange, Package 2A	Construct a new two lane highway alignment and bridge, an off-ramp, install ramp metering and changeable message signs, and braided ramp connection.	1 of 1	Medium +	\$ 76,000	\$ 53,200	\$ 53,200	\$ -			\$ 53,200	\$ 53,200					
North	STA	StanCOG	Rt 132 West Freeway / Expressway Phase 1	Construct new two lane expressway with full access control and grade separation divided highway.	1 of 1	Medium	\$ 149,400	\$ 30,000	\$ 21,000	\$ -			\$ 21,000	\$ 21,000					
TOTAL - NORTH REGION							\$ 704,560	\$ 354,886	\$ 260,886	\$ 85,000									
North Target							\$ 217,000												
South	LA	LA Metro	Southern California Rail Projects (6 of 8 projects):		LA Metro 2 of 4	High													
		LA Metro	1. Southern Terminus Gap Closure	Add 5000 feet of main line track.			\$ 9,529	\$ 5,992	\$ 5,992	\$ -	F		\$ 5,992	\$ 5,992					
		LA Metro	2. Terminal Island Railyard Enhancements	Add 31,000 feet of on-dock staging/storage tracks.			\$ 34,015	\$ 21,645	\$ 21,645	\$ -	F		\$ 21,645	\$ 21,645					
		LA Metro	4. Pier G & J Double Track	Add 9,000 feet of double track.			\$ 25,000	\$ 14,000	\$ 14,000	\$ -	F		\$ 14,000	\$ 14,000					
		LA Metro	6. Montebello Boulevard Grade Separation	Replace an at-grade crossing with a new grade separated undercrossing.			\$ 128,611	\$ 49,000	\$ 49,000	\$ -			\$ 49,000	\$ 49,000					
		LA Metro	7. Turnbull Canyon Road Grade Separation	Replace an at-grade crossing with a new grade separated overcrossing. Add sidewalks/bike lanes.			\$ 86,246	\$ 29,000	\$ 29,000	\$ -			\$ 29,000	\$ 29,000					
		LA Metro	8. Rosecrans/Marquardt Grade Crossing	Replace an at-grade crossing with a new grade separated crossing.			\$ 155,300	\$ 9,000	\$ 9,000	\$ -			\$ 9,000	\$ 9,000					
South	LA	LA Metro	Rt 605 / 91 Interchange Improvement: Gateway Cities Freight Crossroads Project	Add new general purpose and/or auxiliary lanes and modify on and off ramps.	LA Metro 3 of 4	Medium High	\$ 187,800	\$ 90,000	\$ 32,000		F		\$ 32,000			\$ 29,000	\$ 3,000		
South	LA	Caltrans, LA Metro	Rt 5 Golden State Chokepoint Relief	Add truck lanes, HOV lanes, auxiliary lanes, soundwalls, and an ITS hub station. Widen seven bridges and improve access to weigh station.	LA Metro 1 of 4 Caltrans 1 of 12	High	\$ 539,200	\$ 247,000	\$ 167,000	\$ 80,000	F		\$ 247,000	\$ 247,000					
South	LA	LA Metro	Rt 71 Freeway Conversion	Add one HOV and one mixed flow lane in each direction, close three at-grade crossings, install sound walls and pedestrian bridge.	LA Metro 4 of 4	Medium High	\$ 175,519	\$ 44,000	\$ 44,000	\$ -			\$ 44,000	\$ 44,000					
South	LA	Caltrans, LA Metro	Rt 57 / 60 Confluence: Chokepoint Relief Program	East bound improvements include interchange modifications, auxiliary lanes and three new bridges.	LA Metro - Caltrans 10 of 12	Medium High	\$ 288,600	\$ 180,000	\$ 2,000	\$ 20,000			\$ 22,000			\$ 5,000	\$ 17,000		
South	ORA	Caltrans, City of Brea	Rt 57 / Lambert Road Interchange Improvement	Install auxiliary lanes, modify ramps and widen Lambert Road to accommodate future truck climbing lane.	Caltrans 5 of 12	Medium	\$ 100,000	\$ 65,705	\$ 27,055	\$ 38,650	F		\$ 65,705	\$ 65,705					
South	RIV	City of Moreno Valley	Rt 60 Truck Safety and Efficiency, Phase 1A	Replace 50 year old with new six lane bridge, reconfigure the north side of the Route 60/Moreno Beach Drive Interchange, and construct auxiliary lanes.	1 of 1	Medium	\$ 24,000	\$ 16,800	\$ 16,800	\$ -			\$ 16,800	\$ 16,800					
South	SBD	SBCTA, Caltrans	Rt 395 Widening from SR 18 to Chamberlaine Way	Widen route 395 from two to four lanes, construct turn lanes, and install signals.	SBCTA 2 of 2 Caltrans 11 of 12	Medium High	\$ 52,321	\$ 24,292	\$ 23,292	\$ 1,000			\$ 24,292	\$ 24,292					
South	SBD	Caltrans, SBCTA	Rt 10 Corridor, Contract 1 (Express Lanes)	Add two express lanes and auxiliary lanes.	SBCTA 1 of 2 Caltrans 8 of 12	Medium High	\$ 625,400	\$ 64,000	\$ 53,831	\$ 64,000	F	\$ 117,831		\$ 117,831					
South	SBD	Caltrans, City of Rancho Cucamonga	Etiwanda Avenue Grade Separation	Replace an at-grade crossing with a new grade separated overcrossing. Add 1,700 feet of sidewalks/bike lanes.	Caltrans 4 of 12	Medium	\$ 60,000	\$ 60,000	\$ -	\$ 60,000			\$ 7,850	\$ 52,150	\$ 52,150	\$ 5,000	\$ 2,000	\$ 850	
South	VEN	Caltrans	Rt 34 (Fifth St) / Rice Avenue Grade Separation	Grade separate existing overcrossing and widen from four lanes to six lanes, install connector roads, signals, and sidewalks.	Caltrans 3 of 12	High	\$ 79,192	\$ 68,606	\$ -	\$ 68,606			\$ 12,406	\$ 56,200	\$ 56,200	\$ 8,000	\$ 4,406		
TOTAL - SOUTH REGION							\$ 2,570,733	\$ 989,040	\$ 494,615	\$ 332,256									
South Target							\$ 467,000												

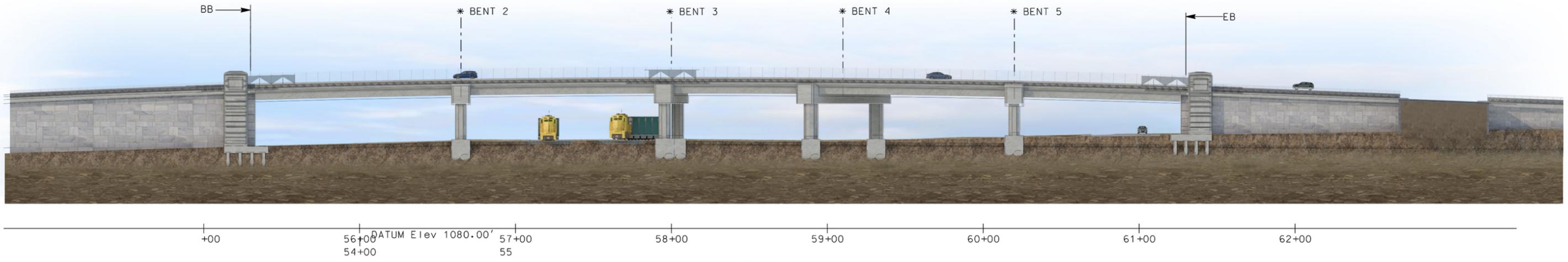
2018 Trade Corridor Enhancement Program
Final Adopted
Program of Projects
(1,000's)

Region	CO	Applicant Agency	Project Title	Project Description	Priority	Consensus Rating	Total Project Cost	Total Requested Amount	Recommended Regional Funding	Recommended State Funding	Federal State Funding	2017-18	2018-19	2019-20	CON	R/W	PS&E	PA&ED	
Border	SD	Caltrans, SANDAG, ICTC, SCAG	California-Mexico Border System Network Improvements (6 projects):		Caltrans 2 of 12	Medium High													
	SD	Caltrans, SANDAG, ICTC, SCAG	1. Rt 125/905 Connector	Construct freeway to freeway South-West Connector.			\$ 36,255	\$ 21,980	\$ 21,980	\$ -			\$ 21,980	\$ 21,980					
	SD	Caltrans, SANDAG, ICTC, SCAG	2. Rt 11/Siempre Viva Interchange and Commercial Vehicle Enforcement Facility, Segment 2B	Construct new interchange and begin site prep for the Commercial Vehicle Enforcement Facility, which includes drainage and utilities.			\$ 45,400	\$ 45,400	\$ -	\$ 37,118			\$ 4,810	\$ 32,308	\$ 32,308	\$ 200	\$ 4,610		
	SD	Caltrans, SANDAG, ICTC, SCAG	3. Otay Mesa East Port of Entry Segment 3A	Begin site preparations which include drainage and utilities.			\$ 40,350	\$ 29,770	\$ -	\$ 5,050			\$ 5,050			\$ 1,150	\$ 3,900		
	SD/IMP	Caltrans, SANDAG, ICTC, SCAG	4. Advanced Technology Corridors at Border POEs	Implement a fiber optic cable network to facilitate an advanced traveler information and border wait time system.			\$ 39,175	\$ 11,969	\$ -	\$ 11,969			\$ 2,317	\$ 9,652	\$ 9,652		\$ 2,317		
	IMP	Caltrans, SANDAG, ICTC, SCAG	5. Rt 98 Improvements	Widen Route 98 from four to six lanes, install associated sidewalks, Class II bike lanes, and curb ramps.			\$ 11,650	\$ 3,370	\$ -	\$ 3,370				\$ 3,370	\$ 3,370				
IMP	Caltrans, SANDAG, ICTC, SCAG	6. Calexico East POE Truck Crossing Improvement	Widen bridge to add truck lanes and passenger lanes along with eight foot shoulders.			\$ 29,844	\$ 3,000	\$ -	\$ 3,000			\$ 3,000						\$ 3,000	
Border	SD	SANDAG	Sorrento to Miramar, Ph2 Intermodal Improvements	Add 1.9 miles of double track in slowest area, install signal improvements and retaining walls.	1 of 1	Medium High	\$ 129,037	\$ 10,500	\$ 10,500	\$ -			\$ 10,500			\$ 10,500			
Border	SD	City of San Diego	Otay Mesa Truck Route, Phase 4A	Widen and pave existing service road, redirect laden/unladen trucks on dedicated route.	1 of 1	Medium +	\$ 19,530	\$ 6,000	\$ 6,000	\$ -			\$ 6,000		\$ 6,000				
Border	SD	SD Unified Port District	National City Marine Terminal Rail Track Extension	Construct connector track and realign Marina Way.	Port 2 of 2	Medium	\$ 13,120	\$ 9,184	\$ 585	\$ -	F		\$ 585				\$ 585		
Border	SD	SD Unified Port District	Tenth Avenue Marine Terminal Beyond Compliance Environmental Enhancements	Expand shore power and purchase "Bonnet" system.	Port 1 of 2	Medium	\$ 8,100	\$ 5,670	\$ 5,600	\$ -	F			\$ 5,600	\$ 5,600				
TOTAL - BORDER REGION							\$ 372,461	\$ 146,843	\$ 44,665	\$ 60,507									
Border Target							\$ 89,000												
Central	SB	SBCAG	Rt 101 Multimodal Corridor	Construct HOV lanes between Carpentaria and Santa Barbara, reconstruct or replace bridges and overcrossing, install sound walls and ITS elements.	Caltrans 6 of 12	Medium	\$ 276,575	\$ 16,000	\$ 16,000	\$ 35,000				\$ 51,000	\$ 51,000				
Central Target							\$ 16,000												
Other	SHA	Caltrans, SRTA	Rt 5, Redding to Anderson Widening, Phase 2	Widen road and structures from four to six lanes, replace two bridges, and install closed circuit TV and fiber optic cable.	Caltrans 9 of 12	Medium+	\$ 126,258	\$ 65,700	\$ 24,000	\$ 41,700	F	\$ 65,700			\$ 65,700				
Other Target							\$ 16,000												
GRAND TOTAL							\$ 4,050,587	\$ 1,572,469	\$ 840,166	\$ 554,463									

SUMMARY	REGIONAL	STATE	TOTAL
TARGETS	\$ 805,000	\$ 536,000	\$ 1,341,000
RECOMMENDATION	\$ 840,166	\$ 554,463	\$ 1,394,629
DIFFERENCE	\$ 35,166	\$ 18,463	\$ 53,629

Attachment E

PLANS AND COST ESTIMATES



Profile



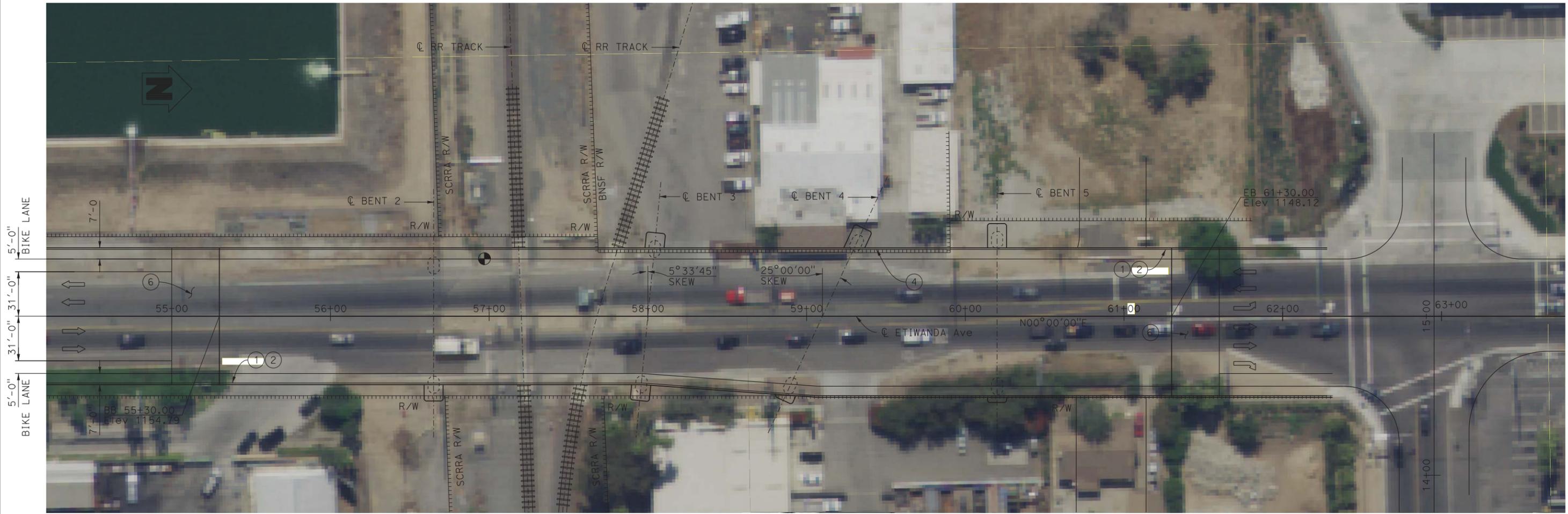
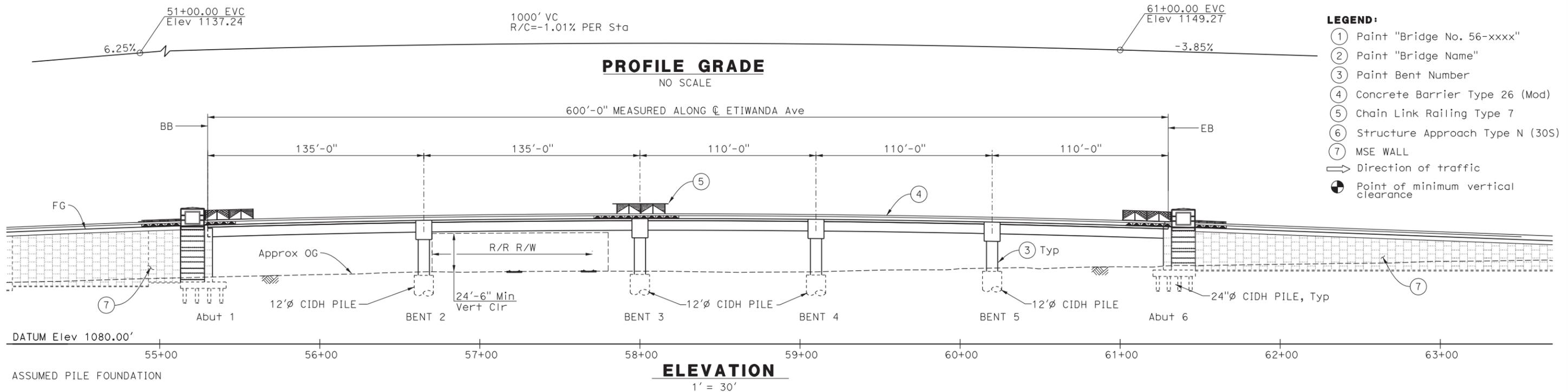
Plan

LEGEND:
 — WALL
 — BRIDGE

Conceptual Plan
 Not for Construction

Etiwanda Avenue
 Grade Separation
 Plan & Profile

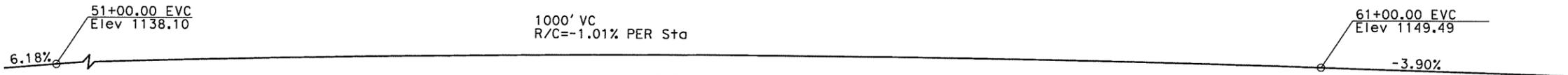




- NOTES:**
1. FOR ROADWAY WIDTH AND TRAFFIC LANE LAYOUT, SEE "ROAD PLANS".
 2. FOR UNDERGROUND UTILITIES, SEE "ROAD PLANS".
 3. FOR MSE WALL LAYOUT, SEE "ROAD PLANS".

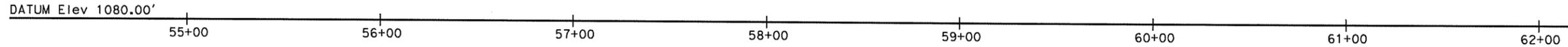
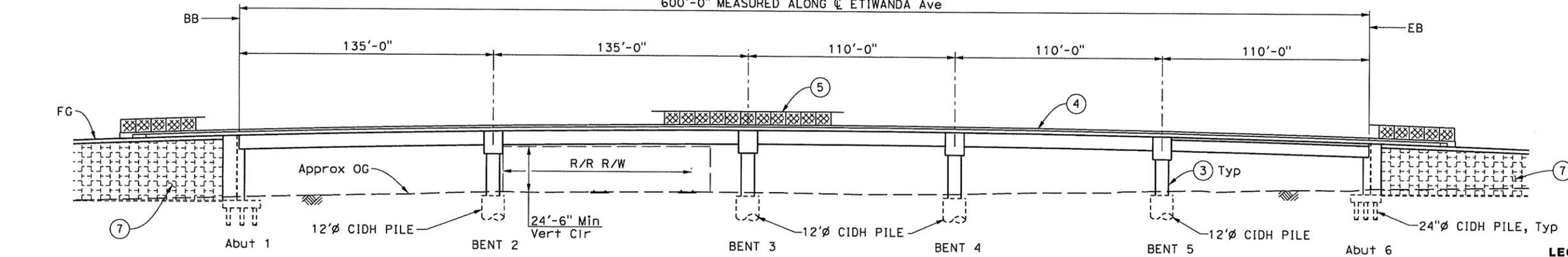
GENERAL PLAN





PROFILE GRADE
NO SCALE

600'-0" MEASURED ALONG C ETIWANDA Ave

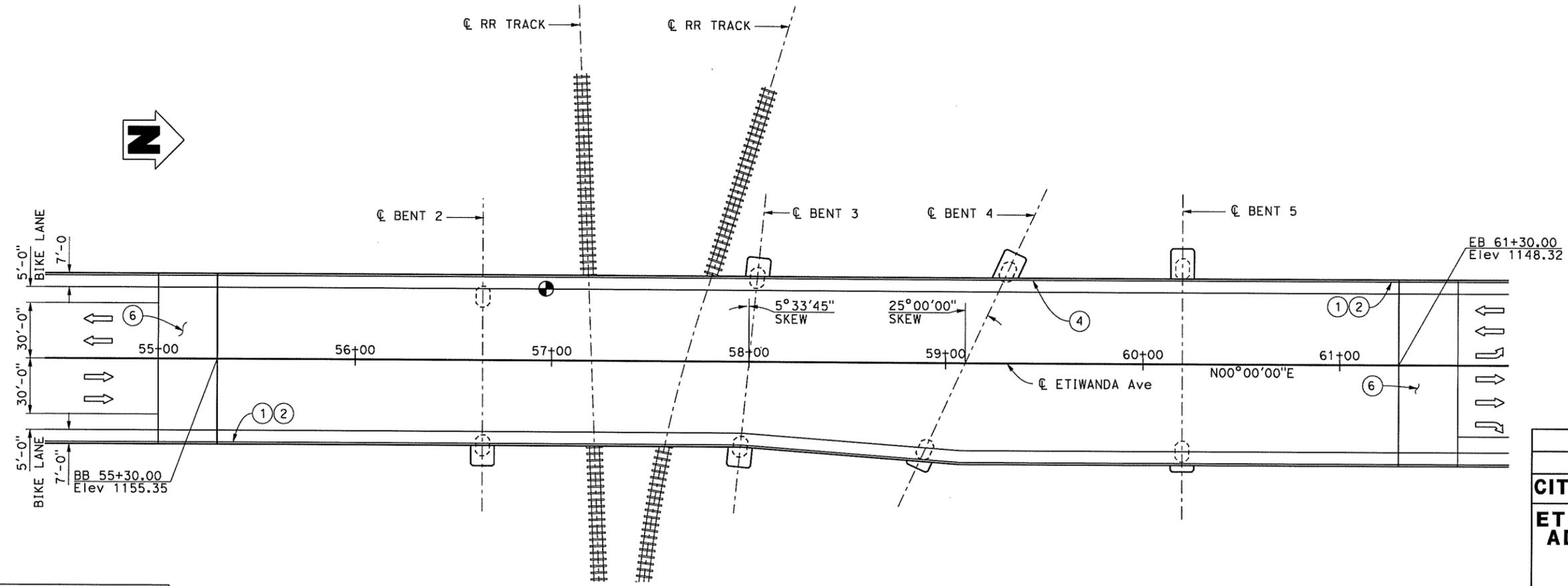


ASSUMED PILE FOUNDATION

ELEVATION
1' = 30'

- LEGEND:**
- ① Paint "Bridge No. 56-xxxx"
 - ② Paint "Bridge Name"
 - ③ Paint Bent Number
 - ④ Concrete Barrier Type 26 (Mod)
 - ⑤ Chain Link Railing Type 7
 - ⑥ Structure Approach Type N (30S)
 - ⑦ MSE WALL
 - ➔ Direction of traffic
 - ⊙ Point of minimum vertical clearance

- NOTES:**
1. FOR ROADWAY WIDTH AND TRAFFIC LANE LAYOUT, SEE "ROAD PLANS".
 2. FOR UNDERGROUND UTILITIES, SEE "ROAD PLANS".
 3. FOR MSE WALL LAYOUT, SEE "ROAD PLANS".

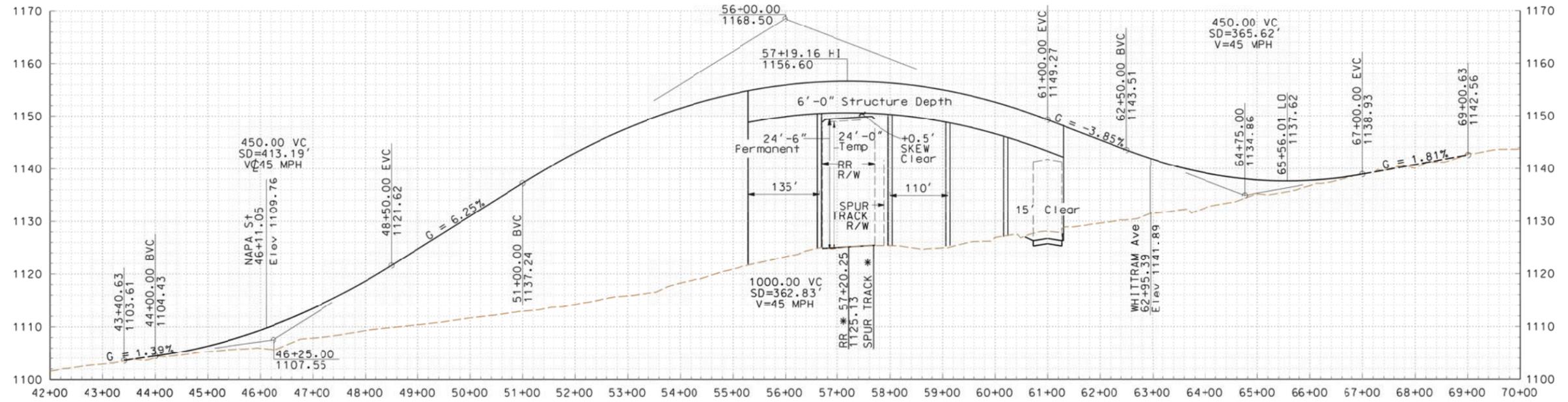


PLAN
1' = 30'

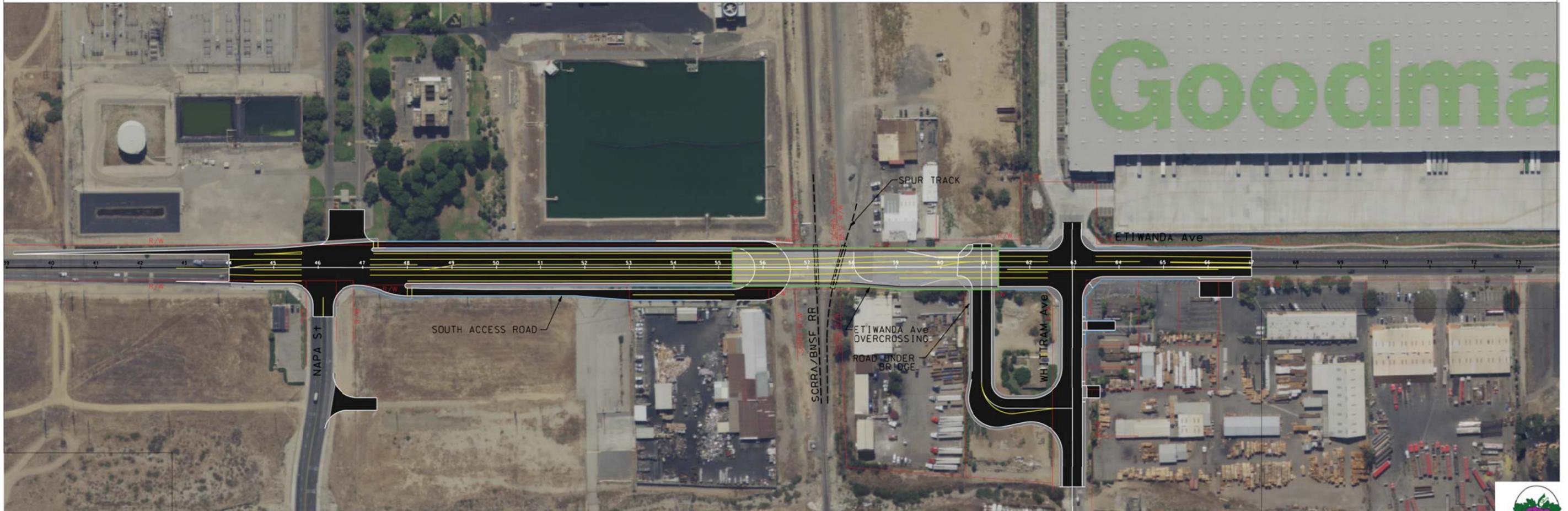
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CITY OF RANCHO CUCAMONGA			
ETIWANDA AVE GRADE SEP ADVANCE PLANING STUDY GENERAL PLAN (ALTERNATIVE 1)			
APPROVED BY: CITY ENGINEER	PLAN PREPARED BY: JACOBS		DATE: RCE:
DESIGN	5757 PLAZA DR, SUITE 100 CYPRESS, CA 90630 PHONE: 714-303-3400	RECOMMENDED	SHEET
DRAWN			OF
CHECKED		R.C.E. NO.	DRAWING NO.
		DATE	FILE NO.



ETIWANDA OVERCROSSING



PROFILE
NO SCALE

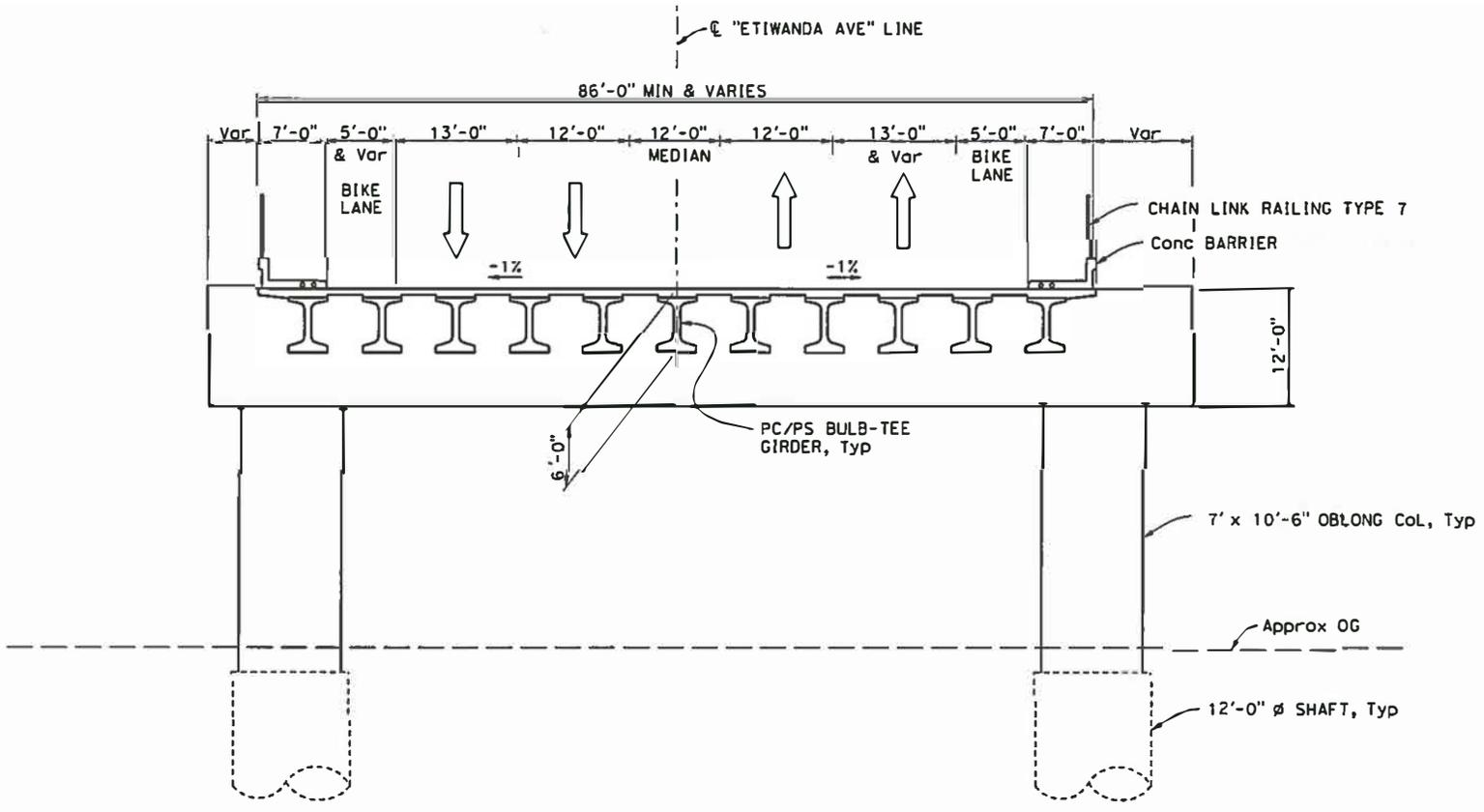


LEGEND:
 WALL
 BRIDGE

PLAN
NO SCALE

ETIWANDA AVE GRADE SEP
PLAN & PROFILE

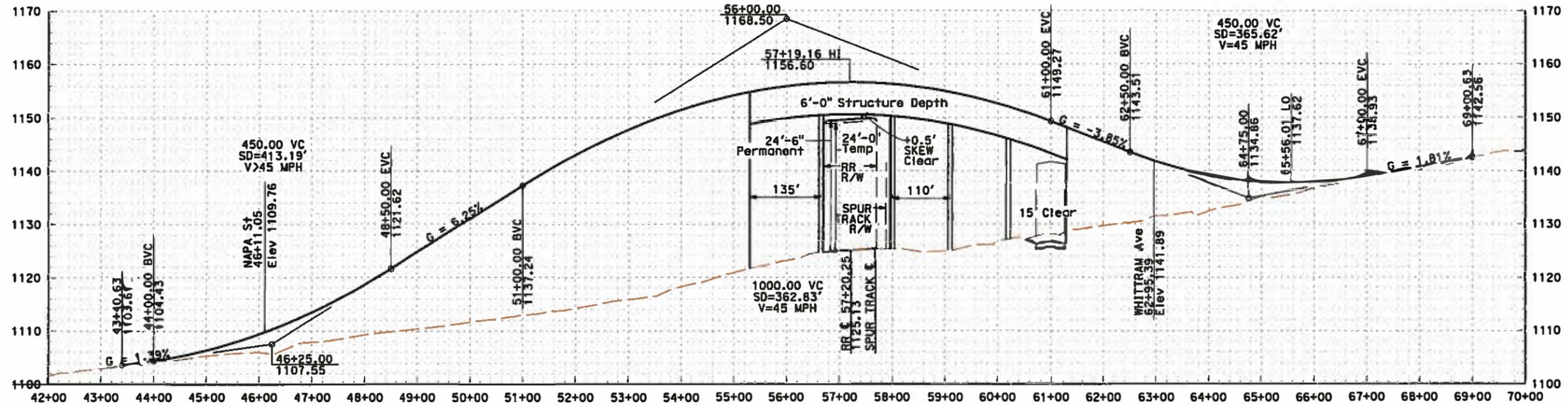




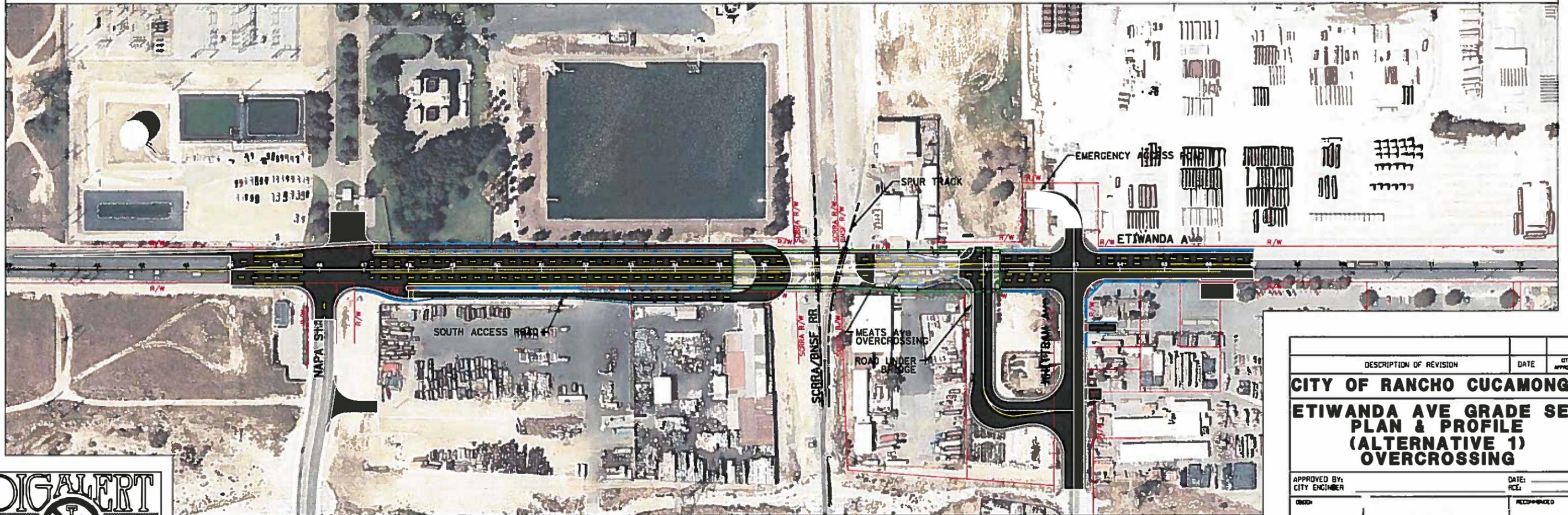
TYPICAL SECTION
NO SCALE

**CITY OF RANCHO CUCAMONGA
ETIWANDA AVE GRADE SEP
TYPICAL SECTION
(ALTERNATIVE 1)
OVERCROSSING**

ETIWANDA OVERCROSSING



PROFILE
NO SCALE



PLAN
NO SCALE

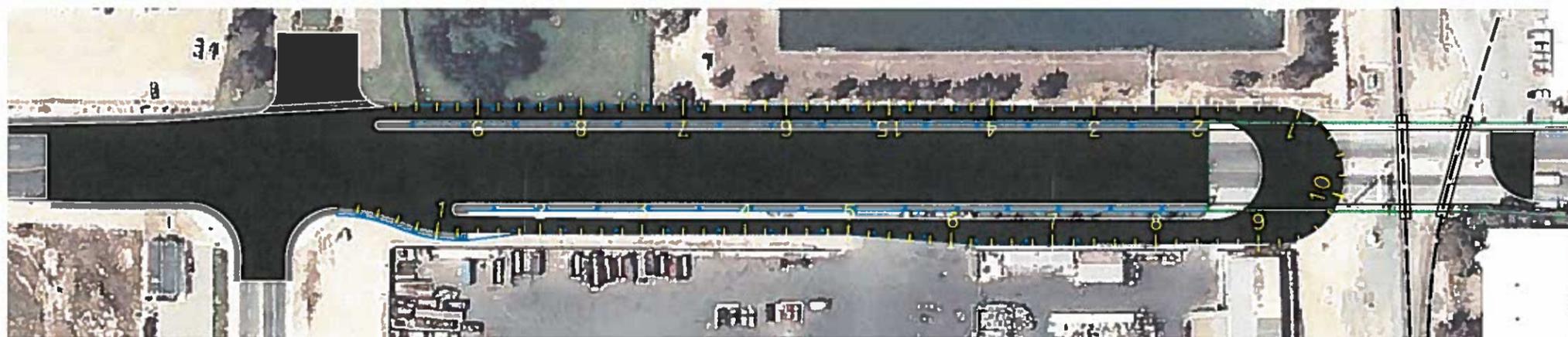
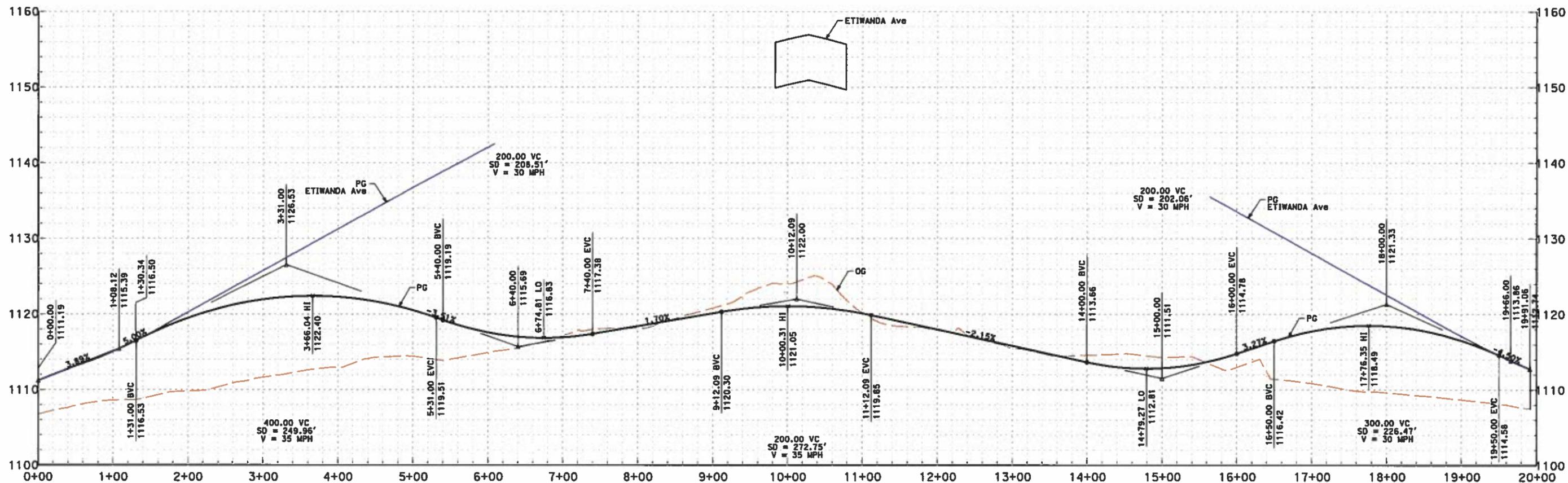
LEGEND:
 WALL
 BRIDGE

DESCRIPTION OF REVISION	DATE	CITY APPROVED
CITY OF RANCHO CUCAMONGA		
ETIWANDA AVE GRADE SEP		
PLAN & PROFILE		
(ALTERNATIVE 1)		
OVERCROSSING		
APPROVED BY: CITY ENGINEER	DATE:	REC'D:
DESIGNED	DATE	RECOMMENDED
DRAWN	DATE	CHECKED
DATE	FILE NO	DRAWING NO.

DIGALERT

 DIAL BEFORE YOU DIG
 TWO WORKING DAYS BEFORE YOU DIG
 TOLL FREE 1-800-227-2608
 A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

SOUTH ACCESS ROAD
DESIGN SPEED = 30 MPH



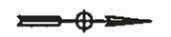
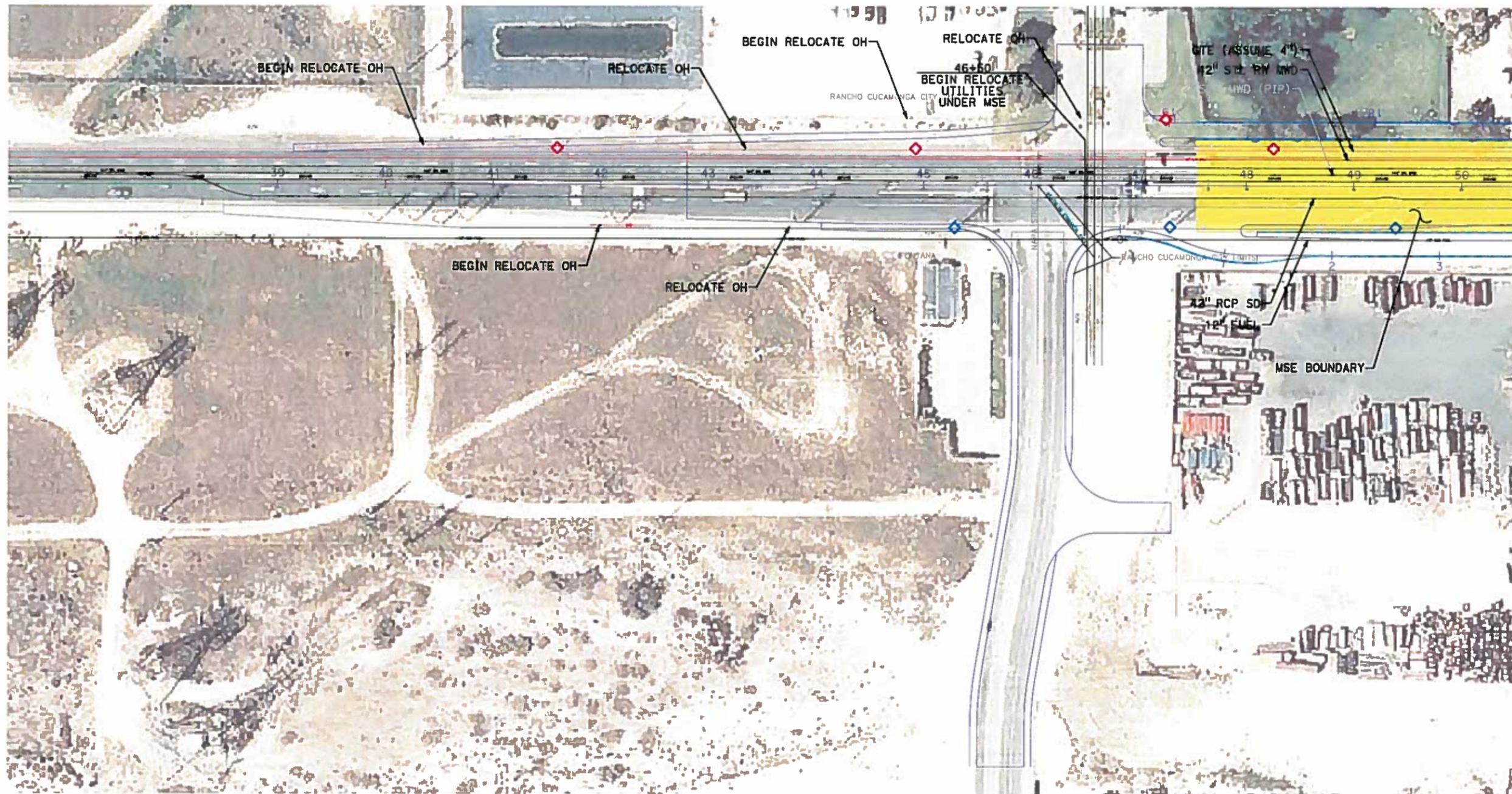
DESCRIPTION OF REVISION	DATE	CITY APPROVED
CITY OF RANCHO CUCAMONGA		
ETIWANDA AVE GRADE SEP		
PLAN & PROFILE		
(ALTERNATIVE 1)		
SOUTH ACCESS ROAD		
APPROVED BY: CITY ENGINEER	DATE:	FILE NO:
DESIGN	PLAN PREPARED BY: JACOBS	RECOMMENDED
DRAWN	8757 PLAZA DR, SUITE 100 CYPRESS, CA 94503 PHONE: 714-580-3400	SHEET
CHECKED	DATE	DRAWING NO.



LEGEND:
— WALL



NO SCALE



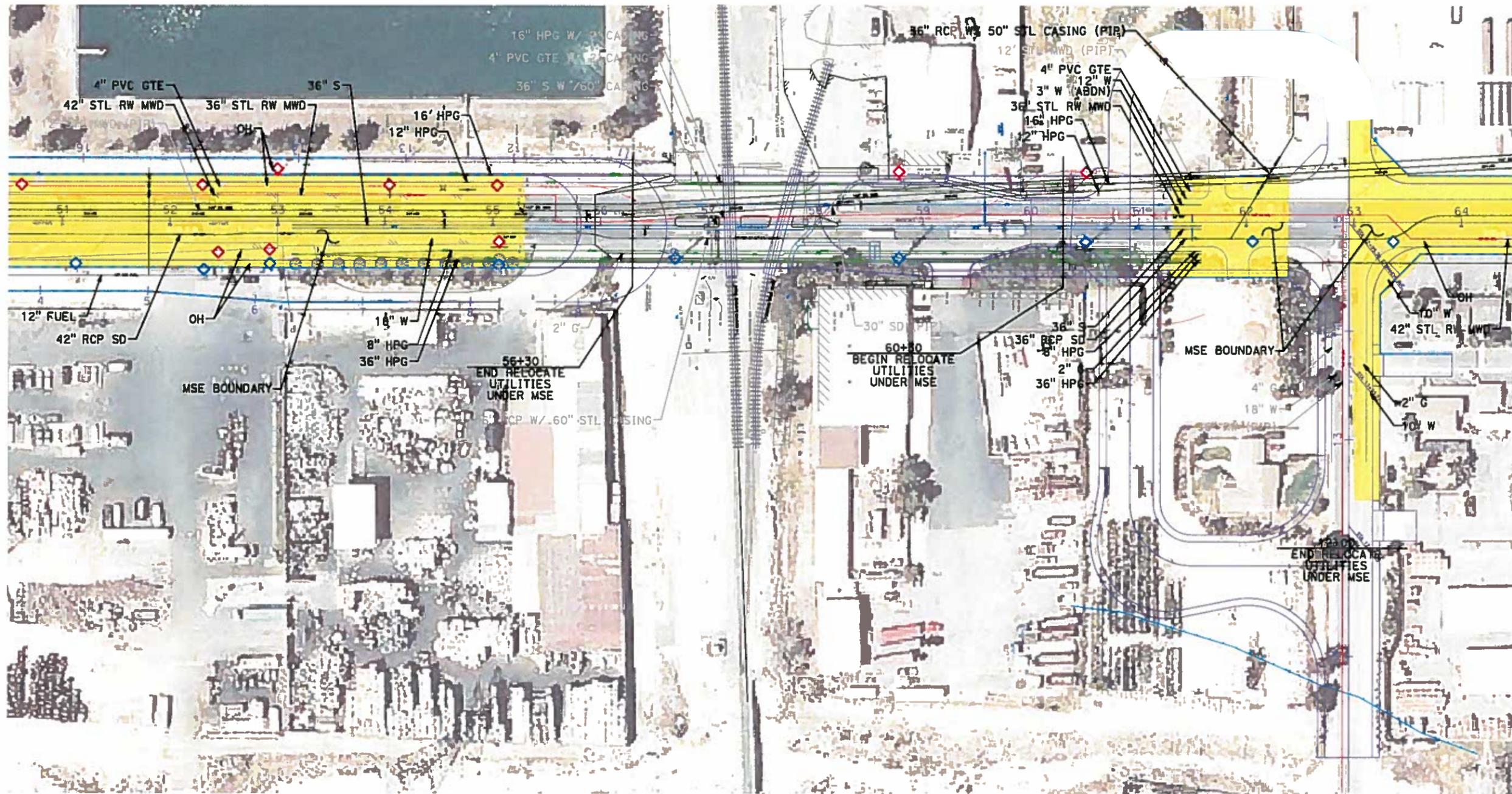
SCALE: 1" = 50'

- ◆ RELOCATE LARGE PP
- ◇ RELOCATE SHORT PP

JACOBS

**UTILITIES
U-1**

FOR DISCUSSION PURPOSES ONLY



- ◆ RELOCATE LARGE PP
- ◇ RELOCATE SHORT PP

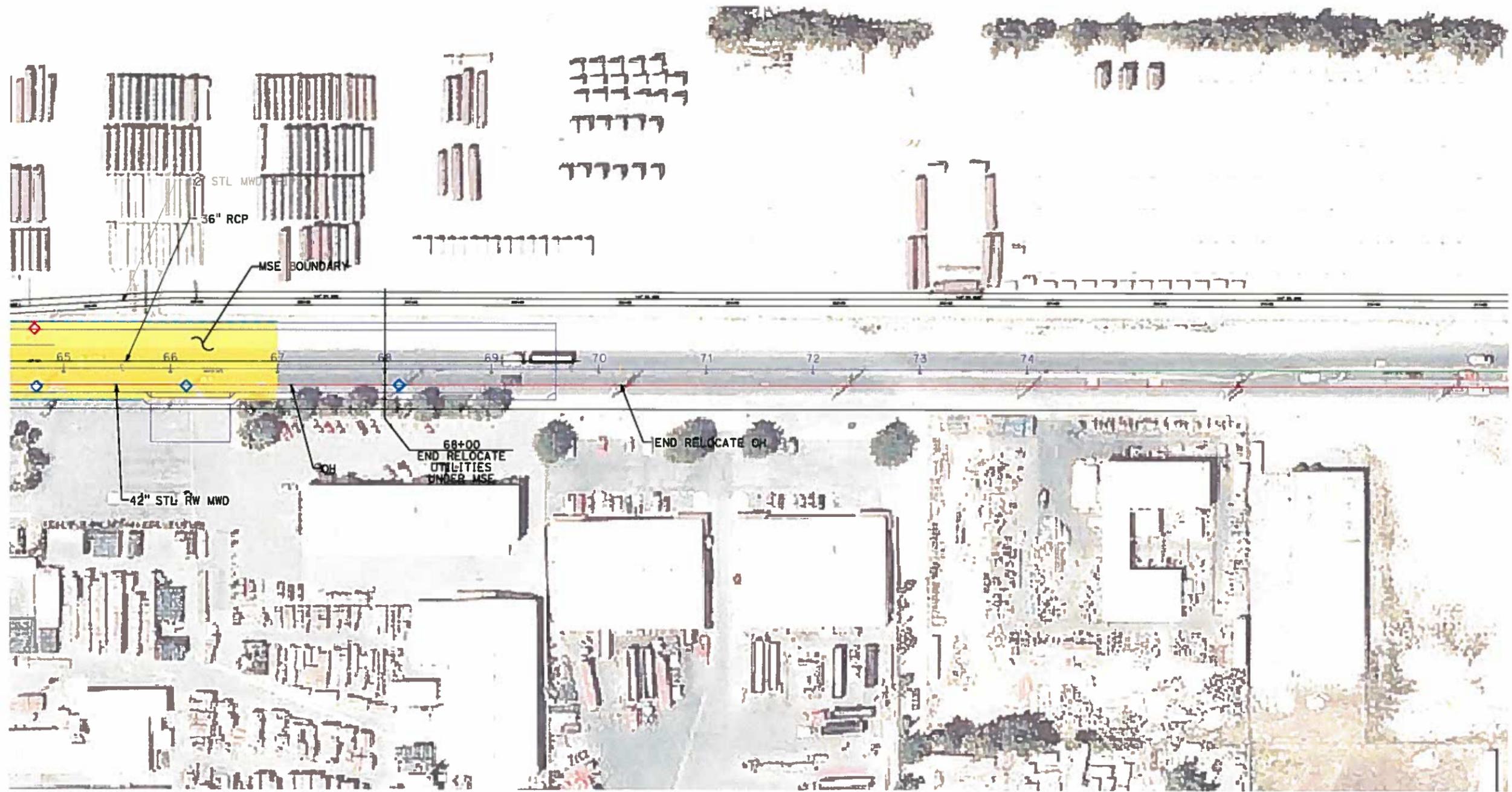


SCALE: 1" = 50'

JACOBS

**UTILITIES
U-2**

FOR DISCUSSION PURPOSES ONLY



- ◆ RELOCATE LARGE PP
- ◇ RELOCATE SHORT PP



SCALE: 1" = 50'

JACOBS

**UTILITIES
U-3**

FOR DISCUSSION PURPOSES ONLY



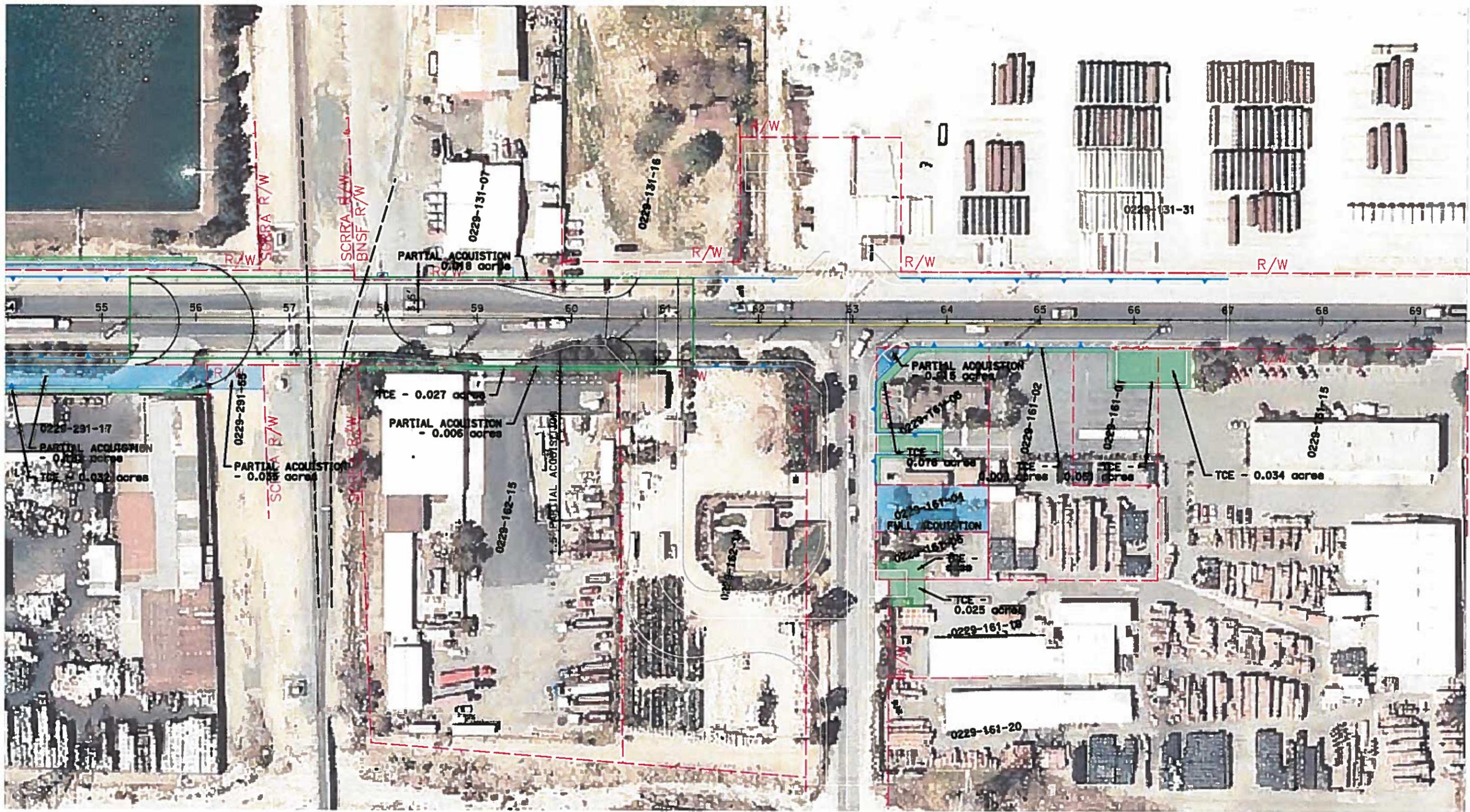
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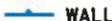
LEGEND:
— WALL

JACOBS

ACQUISITIONS AND TCES
A-1

FOR DISCUSSION PURPOSES ONLY



LEGEND:
 WALL


 SCALE: 1" = 50'

FOR DISCUSSION PURPOSES ONLY

JACOBS

ACQUISITIONS AND TCES
 A-2

Attachment F

SOILS REPORT

December 10, 2010
Project No. 208033002

Mr. Curt Billings
City of Rancho Cucamonga
10500 Civic Center Drive
Rancho Cucamonga, California 91729

Subject: Preliminary Geotechnical and Foundation Report
Etiwanda Avenue Grade Separation
Rancho Cucamonga, California

Dear Mr. Billings:

In accordance with your request and authorization, we have prepared this preliminary geotechnical and foundation report for the proposed Etiwanda Avenue Grade Separation project located in Rancho Cucamonga, California. This report summarizes our findings and conclusions regarding the geologic and geotechnical site conditions and provides preliminary foundation recommendations for the proposed grade separation.

We appreciate the opportunity to be of service on this project.

Sincerely,
NINYO & MOORE


Michael L. Putt, C.E.G.
Senior Project Geologist




Carol A. Price, C.E.G.
Principal Geologist


Soumitra Guha, Ph.D., G.E.
Principal Engineer




Kurt S. Yoshii, G.E.
Principal Engineer

EBP/MLP/SG/CAP/sc

Distribution: (1) Addressee (via e-mail)

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Appendices

Appendix A – Log of Test Borings
Appendix B – Laboratory Testing

1. INTRODUCTION

In accordance with your request and authorization, we have prepared this preliminary geotechnical and foundation report for the proposed grade separation at the existing at-grade crossing of Etiwanda Avenue and the Southern California Regional Rail Authority (SCRRA) and Burlington Northern Santa Fe rail lines (BNSF) in Rancho Cucamonga, California (Figure 1). The purpose of our geotechnical evaluation was to assess the geologic and geotechnical site conditions based on readily available published background documents, a site reconnaissance, a preliminary subsurface evaluation, and limited laboratory testing to provide preliminary geotechnical recommendations for the project, including recommended foundation type and typical foundation parameters. This report presents our preliminary findings, conclusions, and recommendations regarding the geotechnical aspects of the proposed project.

2. SCOPE OF SERVICES

We developed our scope of services based on our understanding of the project and California Department of Transportation (Caltrans) guidelines for the preparation of geotechnical and foundation reports. The scope of our geotechnical services included the following:

- Project coordination, scheduling of field work, and review of readily available background materials, including geologic maps and published literature, stereoscopic aerial photographs, in-house information, and existing plans for nearby improvements provided by the City of Rancho Cucamonga.
- A geotechnical site reconnaissance to select and mark the proposed boring locations and to coordinate with Underground Service Alert for underground utility location.
- Acquisition of City of Rancho Cucamonga construction permit and street and lane closure permit, to conduct a subsurface evaluation.
- Scheduling of traffic control in accordance with the Work Area Traffic Control Handbook (W.A.T.C.H.) manual and City of Rancho Cucamonga requirements.
- Subsurface exploration consisting of the drilling, logging, and sampling of four exploratory hollow-stem auger borings. Two borings were drilled to approximately 71½ feet deep near the SCRRA railroad lines, and one boring each was drilled to approximately 51½ feet near the intersections at Whittram Avenue and Napa Street. The borings were logged by a representative of our firm, and bulk and relatively undisturbed soil samples were collected at

selected intervals for laboratory testing. The borings were backfilled with on-site soils and patched with quick-set concrete.

- Laboratory testing performed on representative soil samples, including in-situ moisture content and dry density, percent passing the No. 200 sieve, consolidation, direct shear, soil corrosivity, and resistance value (R-value).
- Data compilation and geotechnical analysis of the information obtained from our background review, subsurface evaluation, and laboratory testing. Our geotechnical analyses includes the evaluation of seismic design criteria, earthwork, temporary excavation and shoring, preliminary foundation recommendations, groundwater conditions, anticipated settlement and differential settlement, corrosion potential of the soils at the bridge location, and other preliminary design criteria for the bridge foundations.
- Preparation of this Preliminary Geotechnical and Foundation Report presenting our findings, conclusions, and preliminary foundation recommendations for the subject project.

3. SITE DESCRIPTION

The subject site is located in the San Bernardino Valley region, approximately 1 mile east of Interstate 15 and approximately 1¼ miles north of Interstate 10 (Figure 1). Etiwanda Avenue is a two-lane, undivided, north-south arterial that crosses two sub-parallel railroad tracks including a mainline SCRRA track and a BNSF spur track to the north of the main line. The existing Etiwanda Avenue/SCRRA crossing is an at-grade intersection controlled by railroad traffic signals. The SCRRA right-of-way is approximately 100 feet wide at the east side of Etiwanda Avenue. On the west side of Etiwanda there is an approximately 100 feet wide SCRRA right-of-way and a 100 feet wide BNSF right-of-way where the spur track angles in a northwest direction, across Etiwanda Avenue. The property located at the southeast quadrant of the railroad crossing is currently being used by a metal recycling business. The southwest quadrant is currently a retention pond with bordering vegetation for the adjacent power plant. The properties located at the remaining two quadrants are occupied by commercial buildings with associated parking and landscaping.

The project site coordinates are approximately 34.0930 degrees north latitude and approximately -117.5238 degrees west longitude (Google Earth, 2010). The site terrain is relatively flat to gently sloping to the south with a ground surface elevation of approximately 1,133 feet above mean

sea level (MSL) near Whittram Avenue to approximately 1,110 feet near Napa Street (Google Earth, 2010). In general, vegetation is sparse adjacent to the railroad right-of-way. Landscaping consisting of grass, low shrubs, and a few trees were observed on the properties at the four corners of the project site. Some of the major utilities located along Etiwanda Avenue include a 144-inch-diameter Metropolitan Water District (MWD) main line, a 3-inch-diameter water line, several gas lines up to 36-inch-diameter, a 36-inch sewer main line, and fiber optic lines.

4. PROPOSED CONSTRUCTION

The city of Rancho Cucamonga plans to provide uninterrupted flow of vehicular and railroad traffic at the intersection of Etiwanda Avenue and the SCRRA and BNSF railroad lines by constructing a grade separation between the roadway and the railroad lines. Specific details regarding the proposed improvements are not known at this time.

Based on our discussions with the city, we understand that two grade separation alternatives are being considered: 1) constructing an overcrossing that will route Etiwanda Avenue traffic over the rail lines; and 2) constructing an undercrossing that will route traffic under the rail lines. We anticipate that bridge structures would be on the order of 20 to 25 feet high and supported by driven, pre-stressed concrete piles and/or cast-in-drilled-hole (CIDH) reinforced concrete piles. Due to the presence of numerous utility lines within and adjacent to Etiwanda Avenue, we anticipate that constructing a bridge structure supported by a deep foundation system that will transfer foundation loads beneath the existing utilities will be appropriate.

We anticipate that development of the proposed improvements will generally involve earthwork associated with the construction of foundations, abutment embankments, retaining or mechanically stabilized earth (MSE) walls, new pavements, drainage modifications, utilities, traffic signaling, lighting, curbs, gutters, hardscape, and landscaping.

5. SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface evaluation at the site was performed on October 14 and 15, 2010, and consisted of the drilling, logging, and sampling of four small-diameter borings to depths of up to approximately 71½ feet. The exploratory borings were drilled using truck-mounted drilling equipment utilizing hollow-stem augers. The purpose of the borings was to evaluate the subsurface soil conditions in the general location of the proposed grade-crossing and to collect bulk and relatively undisturbed soil samples for laboratory testing. Logs and the approximate locations of the exploratory borings are presented on the Log of Test Borings (LOTB) sheet located in Appendix A.

Laboratory testing was performed on representative soil samples to evaluate in-situ moisture content and dry density, percent passing the No. 200 sieve, consolidation potential, shear strength, soil corrosivity (soil pH, electrical resistivity, water-soluble sulfate content, and chloride content), and R-value. The results of the moisture content and dry density tests are reported on the LOTB sheet (Appendix A). The other laboratory test results are presented in Appendix B.

6. GEOLOGY AND SUBSURFACE CONDITIONS

The following sections describe geologic, soil, and groundwater conditions at the project site based on our review of published background documents, site reconnaissance, and subsurface evaluation.

6.1. Regional Geology

The proposed project is located within the Chino Basin, which is part of the Peninsular Ranges geomorphic province of southern California (Norris and Webb, 1990). The province is generally characterized by northwest-trending mountain ranges and structural basins separated by sub-parallel fault zones. The site is located within the central portion of the Chino Basin, east of the San Jose Hills and south of the east-west trending San Gabriel Mountains.

The regional geologic structure is dominated by active faults and fault zones such as the Whittier fault zone (southwest), the San Jacinto fault zone (east), and the San Andreas fault zone (northeast). The predominant major tectonic activity associated with these and other

faults within this regional tectonic framework is right-lateral, strike-slip movement (Norris and Webb, 1990).

6.2. Site Geology

Published geologic maps indicate that the near-surface earth materials underlying the project area consist primarily of early Holocene-age and late Pleistocene-age young alluvial fan deposits generally comprised of slightly to moderately consolidated silt and sand with boulders (Morton, 2003). The geologic map for the site is shown on Figure 2.

Our subsurface evaluation indicates that the site is underlain by fill and alluvial deposits. Shallow fill generally consisting of very loose to loose, silty sand was encountered below the pavement sections in the four borings. The fill extended to depths ranging from approximately 4 to 10 feet.

Below the fill, alluvial sediments primarily consisting of loose to very dense, silty sand, clayey sand, and sand with silt were encountered to the total depths explored up to approximately 71½ feet. More detailed descriptions are presented on the LOTB sheet in Appendix A.

6.3. Groundwater

Groundwater was not encountered in our exploratory borings during our subsurface evaluation. Based on review of relatively recently published groundwater information, the depth to groundwater in the vicinity of the site is reported to be between 400 and 450 feet below the ground surface (Chino Basin Watermaster, 2006). It should be noted that fluctuations in the level of groundwater at the subject site may occur due to variations in ground surface topography, groundwater pumping, subsurface stratification, rainfall, irrigation practices, and other factors which may not have been evident at the time of our evaluation. Shallow perched groundwater conditions may be present in places and seepage should be anticipated.

7. FAULTING AND SEISMICITY

Based on our background review, review of aerial photographs, and site reconnaissance, the ground surface in the vicinity of the subject site is not transected by known active or potentially active faults (Figure 3). The subject site is not located within a State of California Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) (Hart and Bryant, 1997). However, the subject site is considered to be in a seismically active area, as is much of southern California. Table 1 presents a list of selected known potentially active and active faults in the area, approximate distance to these faults, and the Maximum Credible Earthquake magnitudes associated with each fault.

The subject site is located approximately 3.8 miles southeast of the Redhill-Etiwanda Avenue fault, approximately 5.1 miles south of the Sierra Madre fault zone, and approximately 5.3 miles southwest of the San Jacinto fault (San Bernardino Section). Therefore, the potential for strong ground motion at the project site is considered significant.

Table 1 – Seismic Parameters for Maximum Credible Earthquakes

Fault Name	Fault I.D. Number ¹	Fault to Site Distance ² (miles)	Fault Type ²	Maximum Credible Earthquake Magnitude ²
Redhill-Etiwanda Avenue	228	3.8	R	6.4
Sierra Madre	298	5.1	R	6.9
San Jacinto (San Bernardino Section)	229	5.3	RLSS	7.5
San Jacinto (San Bernardino Valley)	230	9.7	RLSS	7.5
San Andreas (San Bernardino Mountains)	315	12.2	RLSS	7.8

Notes:
¹ Caltrans Deterministic Fault Database, 2007b
² Caltrans ARS Online Web Tool, 2009a
 RLSS – Right Lateral Strike Slip
 R – Reverse

7.1. Strong Ground Motion

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong

ground motion. Based on the Caltrans Acceleration Response Spectra (ARS) (Caltrans, 2009a) and the Caltrans Deterministic Peak Ground Acceleration (PGA) Map (Caltrans, 2007a), the design seismic event with respect to the proposed improvements should be an earthquake associated with the Redhill-Etiwanda Avenue fault. The Caltrans Deterministic PGA Map (Caltrans, 2007a) indicates that the grade separation site is mapped near the 0.3g peak bedrock acceleration contour (Figure 4). Based on our evaluation using the Caltrans ARS (Caltrans, 2009a) and the probabilistic PGA from the United States Geological Survey (USGS, 2010) ground motion calculator (web-based), it is our opinion that a peak ground acceleration of 0.54g is appropriate for the site. The design ARS curve evaluated for the site is presented on Figure 5. The design ARS curve represents an equally probable response spectrum in horizontal directions and applies to both the deterministic and probabilistic spectra. The design ARS curve does not include potential site response in the vertical direction.

7.2. Surface Fault Rupture

Surface fault rupture is generally caused by relative displacement across a fault during an earthquake. No active or potentially active faults are known to underlie the project site; therefore, the potential for surface fault rupture is considered to be low.

7.3. Liquefaction and Seismically Induced Settlement

Liquefaction is the phenomenon in which loosely deposited granular soils with clay contents (particles less than 0.005 millimeters [mm]) of less than 15 percent, the liquid limit less than 35 percent, and the natural moisture content higher than 90 percent of the liquid limit and located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, causing the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size,

relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

Published documents indicated that groundwater at the site is generally in excess of approximately 400 feet below the ground surface. Groundwater was not encountered to a depth of approximately 71½ feet in our exploratory borings at the time of drilling. Due to the depth of the groundwater, it is our opinion that liquefaction and liquefaction-related seismic hazards (e.g., dynamic settlement, ground subsidence, and/or lateral spreading) are not design considerations for the project.

8. CONCLUSIONS

Based on our review of the geologic literature, subsurface evaluation, and laboratory test results, it is our opinion that the proposed construction is feasible from a geotechnical perspective provided that the preliminary geotechnical recommendations presented in this report are considered in the preliminary design of the project. In general, the following preliminary conclusions were made:

- Due to potential settlement from relatively loose surficial soils and the presence of major utilities along the project alignment, shallow footings are generally not recommended for the roadway bridge structure or railroad bridge (depending on the grade-crossing alternative selected). Consequently, we recommend that the proposed grade separation be supported on deep foundations, such as driven or cast-in-place piles, at the abutment and bent locations.
- Earth embankments for the bridge approaches, if proposed, may be on the order of 20 feet high. Preliminary analysis indicates that initial settlement resulting from the construction of these embankments is approximately 3 inches. Potential impact to existing utilities located under these embankments should be evaluated and relocation of these utilities may need to be considered if such settlement will cause damage. Further evaluation of the potential settlement in the areas of the proposed embankments should be performed for the final geotechnical/foundation report. If relocation of existing utilities is not an option, earth embankments may not be feasible.
- Excavations should be feasible with conventional, heavy duty earthmoving equipment in good working condition.
- Groundwater was not encountered in our exploratory borings which extended to depths of approximately 71½ feet. However, perched groundwater conditions and/or seepage could be

encountered during the excavations for deep foundations and should be anticipated. Consequently, if groundwater is encountered, the contractor should take appropriate measures during construction to reduce the potential for sloughing of the drilled holes, including the use of casing and/or drilling mud, and placement of the concrete utilizing tremie methods

- Limited consolidation testing of the subsurface soils indicates that settlement may occur under saturation in some areas. We recommend that additional consolidation testing be performed as part of the final geotechnical foundation report.
- The subject site is not located within a State of California Earthquake Fault Zone (Alquist-Priolo Special Studies Zone), and based on our review of published geologic maps, there are no known mapped active faults underlying the site. Therefore, the potential for surface fault rupture at the site is considered to be low.
- The potential for seismically induced liquefaction is not a design consideration.
- Site improvements should be designed for a peak ground acceleration of 0.54g.
- Based on the results of our preliminary laboratory corrosion tests, the site is considered non-corrosive per Caltrans (2003) corrosion guidelines.

9. PRELIMINARY RECOMMENDATIONS

The following preliminary geotechnical recommendations are provided for consideration in the preliminary design of the proposed grade crossing. Detailed geotechnical design and construction recommendations should be provided once additional details regarding the proposed design are developed and additional subsurface exploration is performed at the project site.

9.1. Earthwork

Earthwork at the site is anticipated to consist of excavations for deep foundations, removal and recompaction to provide suitable support for retaining wall footings, backfilling behind retaining walls and abutments, construction of approach embankments, and subgrade preparation for pavement. Earthwork should be performed in accordance with the requirements of applicable governing agencies and the preliminary recommendations presented in the following sections.

9.1.1. Construction Plan Review and Pre-Construction Conference

We recommend that the construction plans be submitted to Ninyo & Moore for review to evaluate adherence to the recommendations provided in this report and future design-level reports. We also recommend that a pre-construction conference be held with the owner or agency representative, geotechnical consultant, civil engineer, structural engineer, and contractor in attendance.

9.1.2. Site Preparation

Prior to performing site excavations, the surface areas should be cleared of existing vegetation, surface obstructions, and other deleterious materials. Vegetation and debris from the clearing operations should be disposed of at a legal dumpsite away from the project area. Obstructions that extend below finish grade, if any, should be removed and the resulting holes filled with compacted fill.

Considering the presence of relatively loose to medium dense fill and alluvial soils at the site, we recommend that remedial grading be performed to establish competent foundation conditions for the approach embankments and the areas of MSE and retaining walls supported by spread footings, if proposed. The non-engineered fill soils should be removed to underlying competent native alluvial soils. For preliminary planning purposes, where alluvial soils are encountered within the upper 5 feet of the foundation subgrade, the alluvium should be removed to a depth of 5 feet below the planned finish grade. The depths of remedial grading should be further evaluated during the design phase of the project.

Remedial grading should consist of 1) removal of existing fill and alluvial soils to a depth of 5 feet or more below the planned finish grade, and 2) replacement of excavated materials with on-site or import fill compacted to 95 percent relative compaction as evaluated by American Society for Testing and Materials (ASTM) D 1557. The lateral limits of remedial grading should extend a horizontal distance beyond the embankment or MSE or retaining wall a distance equal to or greater than the depth of excavation.

Areas to receive fill or other improvements should be scarified approximately 12 inches, brought to slightly over the laboratory optimum moisture content, and compacted to 95 percent relative compaction as evaluated by ASTM D 1557.

9.1.3. Excavation and Shoring

We recommend that excavations be designed and constructed in accordance with Occupational Safety and Health Administration (OSHA) regulations. These regulations provide trench sloping and shoring design parameters for excavations up to 20 feet deep based on the soil types encountered. For planning purposes, we recommend that the following OSHA soil classifications be used for temporary excavations and other purposes:

Fill and Alluvial Soil Type C

Upon making the excavations, the soil classifications and excavation performance should be evaluated in the field by the geotechnical consultant in accordance with OSHA regulations. Recommendations for temporary shoring can be provided, if requested.

9.1.4. Fill Material

In general, the existing on-site soils should be suitable for reuse as fill. If earthen embankments are proposed, import soil is anticipated for construction of approach embankments at the abutments. Import fill should consist of clean, granular material that meets Caltrans Standard Specifications for structure backfill (Caltrans, 2006e). Soil should be tested for corrosive properties prior to importation. We recommend that imported materials be non-corrosive per Caltrans (2003) corrosion guidelines. It should be understood that the impact of corrosive soil on the work can vary significantly due to the variables involved in manufacturing of concrete during construction. Materials for use as fill should be evaluated by the geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

On-site and import fill material should be free of trash, debris, or other deleterious material. Material for use as fill should not contain rocks or lumps larger than approximately 3 inches in size.

9.1.5. Fill Placement and Compaction

Fill material should be placed and compacted in accordance with project specifications. Fill should be tested for specified compaction by the geotechnical consultant and Caltrans guidelines and sound construction practice. Fill should be compacted to a relative compaction of 95 percent in accordance with ASTM test method D 1557. Aggregate base for the construction of the proposed pavement sections should also be compacted to a relative compaction of 95 percent. Fill should be tested for specified compaction by the geotechnical consultant. The lift thickness for fill soils will vary depending on the type of compaction equipment used but should generally be placed in lifts not exceeding 8 inches in loose thickness.

9.1.6. Slope Construction

We recommend that slopes for the project be constructed at inclinations no steeper than 2:1 (horizontal to vertical). The project plans and specifications should contain design features to reduce the potential for erosion of the on-site soils both during and after construction. Fill slopes should be constructed in a manner (e.g., overfilling and cutting to grade) such that the recommended degree of compaction is achieved to the finished slope face. Appropriate drainage devices should be provided to direct surface runoff away from slope faces.

9.2. Approach Embankments

Embankment slopes, if proposed, should be stable against both deep-seated and surficial failures at an inclination of 2:1 (horizontal to vertical) or flatter. To reduce the potential for erosion, we recommend that slopes be planted with drought-tolerant vegetation as soon as practicable after grading. Abutment slopes beneath the bridges may be paved to reduce the potential for erosion.

Based on our evaluation, settlement of granular embankment fill material under self weight or the settlement of the recompacted foundation soils will be approximately 3 inches for an embankment height of 20 feet. The majority of fill settlement will take place relatively quickly during construction. Settlement monitoring of approach embankments should be considered.

9.3. Abutments and Retaining Walls

Abutments and retaining walls may be designed in accordance with the Caltrans Standard Plans (Caltrans, 2006d). We recommend that unrestrained (yielding) cantilever retaining walls be designed in accordance with standard Caltrans Type I, or equivalent, walls. In general, based on our preliminary analysis, the subgrade soils should provide sufficient bearing capacity to support these retaining walls. In areas where loose materials are encountered, overexcavation and recompaction of the underlying soils may be appropriate. Further sub-surface evaluation performed as part of the final geotechnical/foundation report should evaluate this issue.

Retaining walls should have non-expansive backfill and free-draining conditions. Measures should be taken to reduce moisture build-up behind abutment walls. Abutment wall backfill should meet the specifications for structure backfill (Caltrans, 2006e) for free-draining conditions. Abutment walls should include free-draining backfill materials and perforated drains as designed by the project civil engineer and should be constructed in accordance with Bridge Detail 3-5 on Plan B0-3 of the Standard Plans (Caltrans, 2006d).

For dynamic analyses, an effective soil passive lateral resistance of 5 kips per square foot (ksf) may be used for the abutment wall with a height of 5½ feet or higher. For abutment walls with other heights, the passive lateral resistance may be calculated proportionally using the formula in accordance with the Caltrans Seismic Design Criteria (Caltrans, 2006c):

$$\text{Passive Lateral Resistance} = (h_{bw} \text{ or } h_{dia}/5.5) \times 5 \text{ ksf}$$

where, h_{bw} = abutment backwall height, h_{dia} = abutment diaphragm height.

9.4. Deep Foundations

We recommend that the bridge structure foundations consist of either CIDH reinforced-concrete pile foundations or driven, pre-stressed, concrete pile foundations, or a combination of both. Due to potential settlement from relatively loose surficial soils and the presence of major utilities at the site, shallow footings are not recommended for the main structure. We have assumed that the type of foundations at each bent, abutment, or wingwall location will depend on the actual bridge design, loading demand, and utility obstruction constraints.

9.4.1. Preliminary Axial Pile Capacity

Preliminary axial pile capacities were analyzed using the SHAFT 5.0 computer program (Ensoft, 2001) for CIDH piles and FHWA Driven 1.2 computer program (Blue-Six Software, 2001) for driven piles. Soil strength parameters were estimated from our sampler blow counts. Pile capacities were evaluated for 48-inch, 60-inch, and 72-inch-diameter, CIDH piles with pile lengths of 40 feet, 50 feet, and 50 feet, respectively. Pile capacities were also evaluated for Caltrans-standard 100-ton, 14-inch-square driven concrete piles with a pile length of 50 feet. Axial capacities were based on side friction resistance; end bearing was not included in our analysis. Pile capacities were analyzed with the pile cap at the ground surface. For preliminary planning purposes, the axial capacities for typical CIDH and driven piles are summarized in Table 2 below.

Table 2 – Summary of Axial Capacities

Pile Type/Size	Design Length (feet)	Design Load (kips)	Nominal Resistance (kips)	
			Compression	Tension
48 inches CIDH	40	240	480	192
60 inches CIDH	50	400	800	320
72 inches CIDH	50	470	940	376
14 inches Driven	50	200	400	160
Note: A factor of safety of 2.0 was used in obtaining the design load from nominal resistance in compression.				

9.4.2. Preliminary Lateral Capacity

Lateral pile capacities were analyzed using the computer program LPILE Plus, Version 5.0M (Ensoft, 2010). Pile capacities were evaluated for 48-inch, 60-inch, and 72-inch-diameter CIDH piles with pile lengths of 40 feet, 50 feet, and 50 feet, respectively. Pile capacities were also evaluated for Caltrans-standard 100-ton, 14-inch-square driven concrete piles with a pile length of 50 feet. For preliminary planning purposes, results of our analysis for free-head conditions are summarized in the following tables.

Table 3 – Lateral Load Capacity of 48-inch-diameter CIDH Pile

Allowable Deflection (inches)	Free-Head Condition		
	0.25	0.50	1.00
Lateral Capacity, kips	58.7	86.8	145.4
Maximum Positive Moment, feet-kips	520.8	724.3	1,171.5
Maximum Negative Moment, feet-kips	1.8	3.0	5.8
Depth to Maximum Positive Moment, feet*	12.0	12.0	12.0
Depth to Maximum Negative Moment, feet*	36.0	36.0	35.5
Depth to First Point of Zero Deflection, feet*	20.0	20.0	20.5
Note: *Depth is measured from the bottom of pile cap (top of the pile).			

Table 4 – Lateral Pile Capacity of 60-inch-diameter CIDH Pile

Allowable Deflection (inches)	Free-Head Condition		
	0.25	0.50	1.00
Lateral Capacity, kips	104.0	148.1	238.9
Maximum Positive Moment, feet-kips	1,056.3	1,448.6	2,289.9
Maximum Negative Moment, feet-kips	12.3	18.0	29.9
Depth to Maximum Positive Moment, feet*	13.5	13.5	14.0
Depth to Maximum Negative Moment, feet*	43.0	43.0	43.0
Depth to First Point of Zero Deflection, feet*	22.5	22.5	23.5
Note: *Depth is measured from the bottom of pile cap (top of the pile).			

Table 5 – Lateral Load Capacity of 72-inch-diameter CIDH Pile

Allowable Deflection (inches)	Free-Head Condition		
	0.25	0.50	1.00
Lateral Capacity, kips	158.7	223.7	354.8
Maximum Positive Moment, feet-kips	1,756.3	2,432.8	3,858.5
Maximum Negative Moment, feet-kips	0.0	0.0	0.0
Depth to Maximum Positive Moment, feet*	15.0	15.0	16.0
Depth to Maximum Negative Moment, feet*	0.0	0.0	0.0
Depth to First Point of Zero Deflection, feet*	25.5	24.5	25.5
Note: *Depth is measured from the bottom of pile cap (top of the pile).			

Table 6 – Lateral Load Capacity 14-inch-square Driven Pile

Allowable Deflection (inches)	Free-Head Condition		
	0.25	0.50	1.00
Lateral Capacity, kips	4.7	6.7	9.8
Maximum Positive Moment, feet-kips	17.5	27.2	47.0
Maximum Negative Moment, feet-kips	0.6	1.0	2.4
Depth to Maximum Positive Moment, feet*	5.5	5.0	5.5
Depth to Maximum Negative Moment, feet*	17.0	16.5	16.0
Depth to First Point of Zero Deflection, feet*	10.5	9.5	9.5
Note: *Depth is measured from the bottom of pile cap (top of the pile).			

Maximum moments generated by the indicated deflections are based on geotechnical considerations. We recommend that the maximum moment capacities of the piles be evaluated by the structural engineer. Lateral capacities for pile lengths and embedment conditions that are different from those assumed in our analyses may be different than those indicated.

For lateral loading, piles in a group may be considered to act individually when the center-to-center spacing is more than 3D (where D is the diameter of the pile) in the direction normal to loading and more than 8D in the direction parallel to loading. The following table presents the lateral load reduction factors to be applied for various pile spacing for in-line loading.

Table 7 – Lateral Load Group Reduction Factors

Center-to-Center Pile Spacing for In-Line Loading	Group Efficiency (Ratio of Lateral Resistance of Pile in a Group to Single Pile)
8D	1.00
7D	0.94
6D	0.88
5D	0.82
4D	0.76
3D	0.70

9.5. Preliminary Pavement Design

Based on communication with the City of Rancho Cucamonga, we understand the traffic index (TI) for Etiwanda Avenue is 9. Based on our limited laboratory testing, R-values of 62 and 81 were obtained from the pavement subgrade soils. A design R-value of 60 was used in our analysis. We recommend that additional R-value testing be performed during the subsequent evaluation to prepare the final geotechnical/foundation report. Preliminary flexible and rigid pavement design sections were evaluated in accordance with the California Department of Transportation Highway Design Manual (2006f). The preliminary pavement structural sections are summarized in the table below.

Table 8 – Preliminary Pavement Structural Sections

Traffic Index	Design R-value	Recommended Pavement Sections			
		Flexible Pavement		Rigid Pavement	
		AC/CL2AB (inches)	Full Depth AC (inches)	JPCP/AB (inches)	JPCP/LCB (inches)
9	60	5.0/5.0	7.0	10.0/7.0	8.5/5.0
Notes: AC – Asphalt Concrete Type A CL2AB – Class II Aggregate Base LCB – Lean Concrete Base JPCP – Jointed Plain Concrete Pavement					

In order to provide suitable support for the proposed pavement areas, we recommend that the subgrade soils be scarified approximately 12 inches, moisture conditioned to slightly

over optimum moisture content, and compacted to a relative compaction of 95 percent as evaluated by ASTM 1557. Crushed aggregate base should conform to Section 26 of Caltrans Standard Specifications (2006e). The crushed aggregate base material should be placed at a relative compaction of 95 percent in accordance with ASTM D 1557. Asphalt concrete and Portland cement concrete should conform to the Caltrans Standard Specifications (2006e). We recommend that the paving operations be observed and tested by Ninyo & Moore.

9.6. Preliminary Corrosion Analysis

The corrosion potential of the on-site soil was evaluated for its effect on steel and concrete structural members. The corrosion potential was evaluated using the results of limited laboratory tests on samples obtained during the subsurface evaluation. Laboratory testing was performed on representative soil samples to evaluate pH, minimum electrical resistivity, and chloride and soluble sulfate content. The pH and minimum electrical resistivity tests were performed in accordance with California Test (CT) 643, and sulfate and chloride tests were performed in accordance with CT 417 and 422, respectively.

Test results indicate that the pH of the soils ranged from approximately 7.2 to 7.3, minimum electrical resistivity ranged from approximately 2,010 to 6,300 ohm-cm, chloride contents ranged from approximately 90 to 100 parts per million (ppm), and soluble sulfate contents ranged from approximately 70 to 320 ppm. In accordance with Caltrans Corrosion Guidelines (2003) and Memo 3.1 of the Bridge Memo To Designers (Caltrans, 2005), a corrosive site is an area where the soil contains more than 500 ppm of chlorides, more than 2,000 ppm of sulfates, has a pH of less than 5.5, or an electrical resistivity of less than 1,000 ohm-cm. Therefore, the project site is considered to be non-corrosive per Caltrans guidelines. Type II cement may be used with a water-cement ratio of 0.50 or less for structures that will be in contact with site soils.

10. ADDITIONAL FIELD WORK AND LABORATORY TESTING

This report is preliminary in nature and is intended for preliminary planning and design. Following further development of the proposed grade separation design, we recommend that additional subsurface evaluation be performed at the locations of the proposed abutments, bents, embankments, and retaining walls. In addition, additional laboratory testing to further evaluate the soil characteristics, consolidation potential, shear strength, R-value, and corrosivity should also be performed.

11. LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this preliminary report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. Our conclusions and recommendations are based on our review of readily available background materials, including preliminary assessment of the observed conditions, proposed improvements, and field evaluation in general accordance with Caltrans guidelines. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

12. REFERENCES

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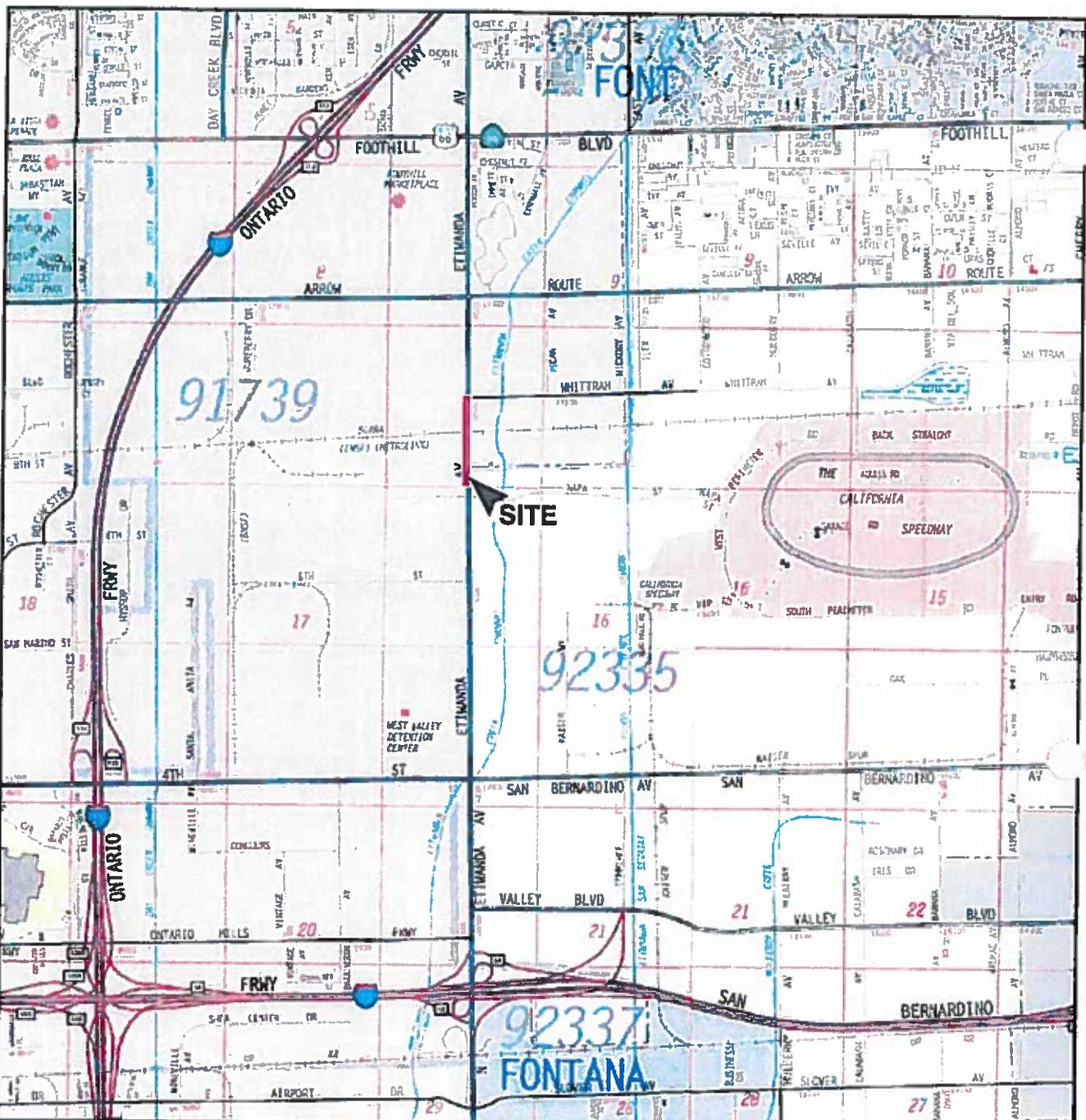
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AERIAL PHOTOGRAPHS				
Source	Date	Flight	Numbers	Scale
USDA	2-2-53	AXL-35K	109 to 111	1:20,000



208033 AT DWG. - G.K.

REFERENCE 2007 THOMAS GUIDE FOR SAN BERNARDINO AND RIVERSIDE COUNTIES STREET GUIDE AND DIRECTORY

APPROXIMATE SCALE IN FEET



NOTE: ALL DIMENSIONS DIRECTIONS AND LOCATIONS ARE APPROXIMATE.
Map © Rand McNally P.L.L.C. 2007



Ninyo & Moore

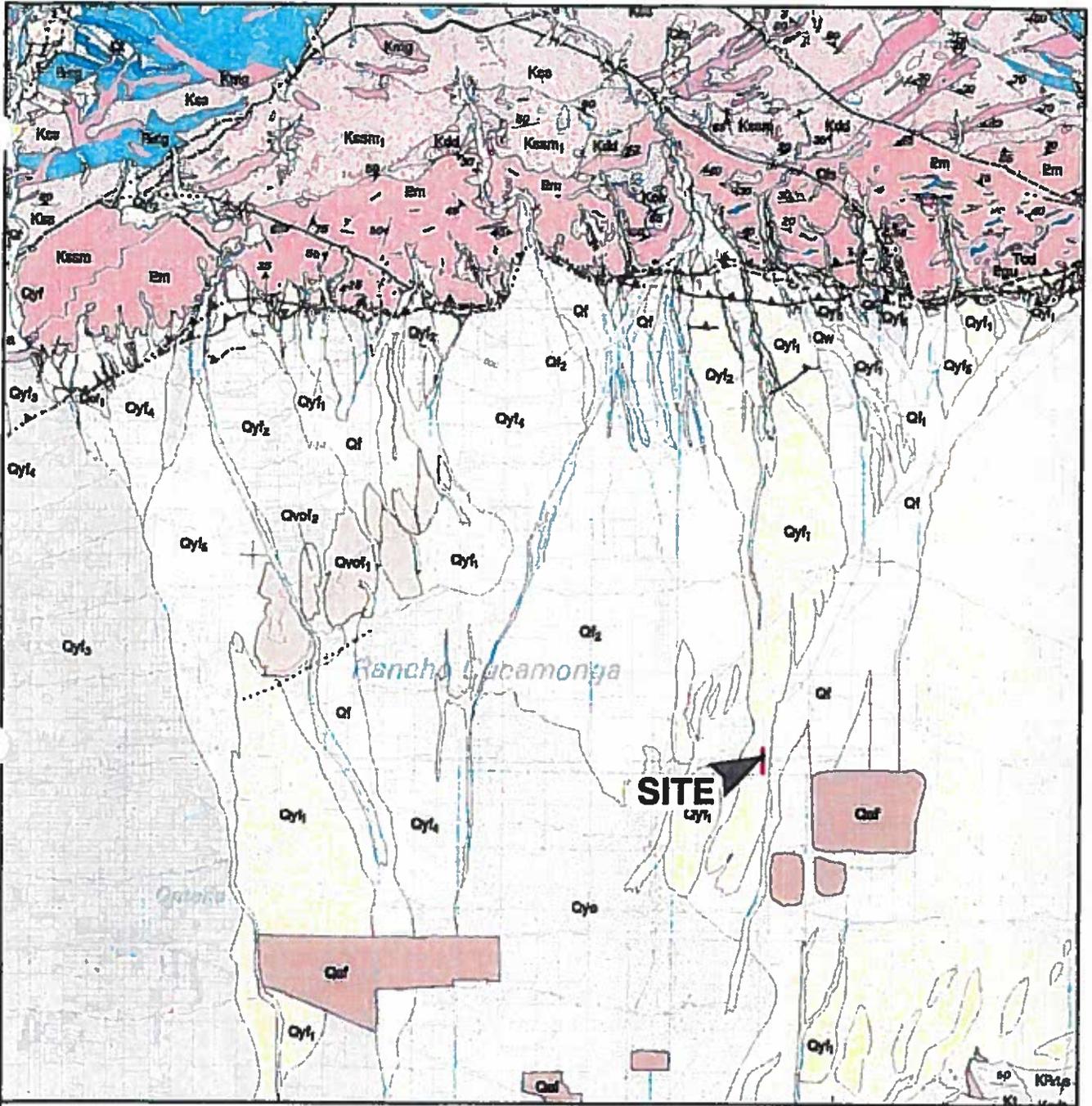
SITE LOCATION

FIGURE

PROJECT NO.	DATE
208033002	12/10

ETIWANDA AVENUE GRADE SEPARATION
RANCHO CUCAMONGA, CALIFORNIA

1



208033_A2.DWG.....G.K.

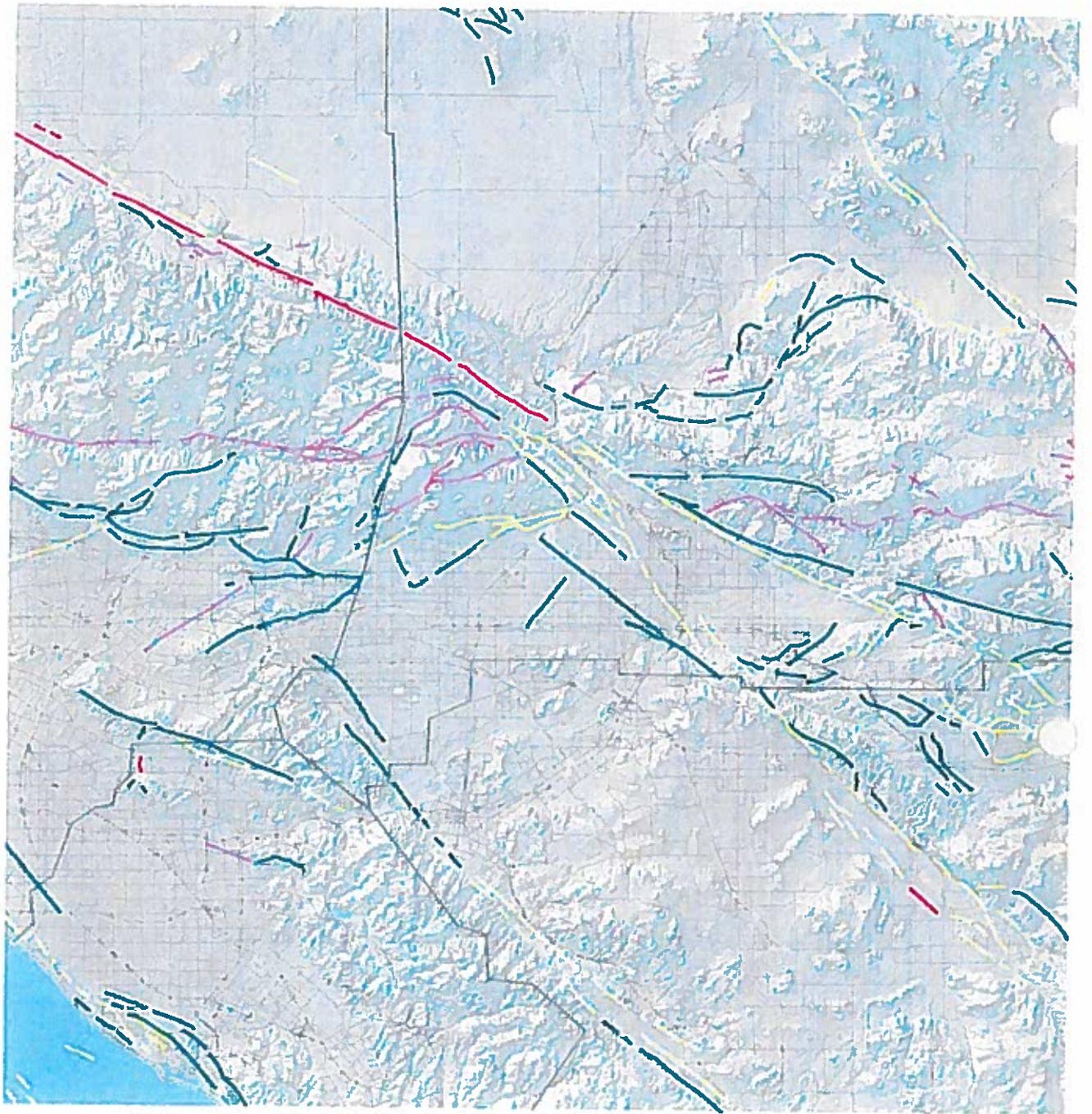
REFERENCE: MORTON, D.M. AND MILLER, F.Y., 2003. GEOLOGIC MAP OF THE SAN BERNARDINO 30'X60' QUADRANGLE, CALIFORNIA.



LEGEND	
Q1	VERY YOUNG ALLUVIAL-FAN DEPOSITS (LATE HOLOCENE)
Q2	VERY YOUNG ALLUVIAL-FAN DEPOSITS UNIT 2
Qy1	YOUNG ALLUVIAL-FAN DEPOSITS UNIT 1
Qy5	YOUNG EOLIAN DEPOSITS

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

Ningo & Moore		GEOLOGY	FIGURE
PROJECT NO.	DATE	ETIWANDA AVENUE GRADE SEPARATION RANCHO CUCAMONGA, CALIFORNIA	2
208033002	12/10		

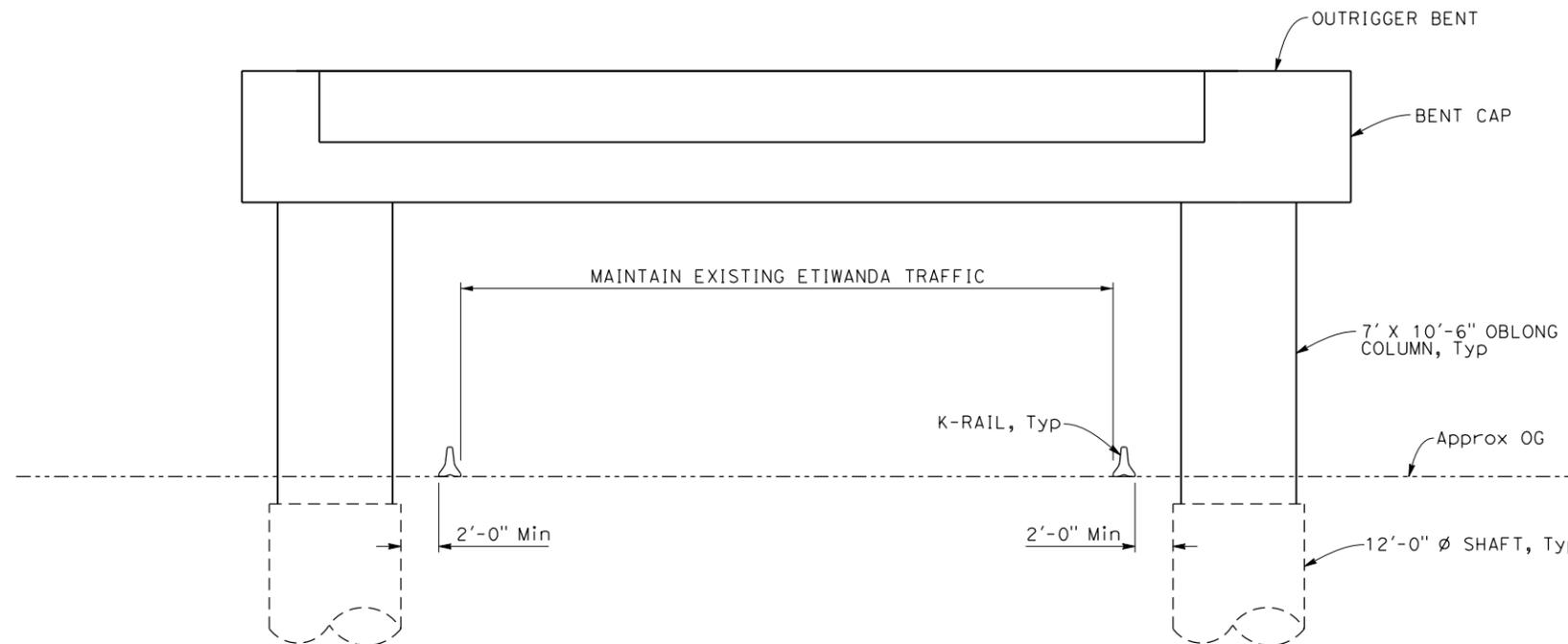


Attachment G

STAGED CONSTRUCTION

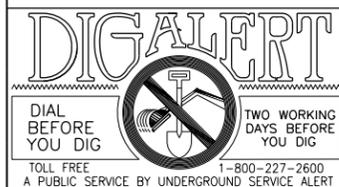
STAGE 1 NOTES:

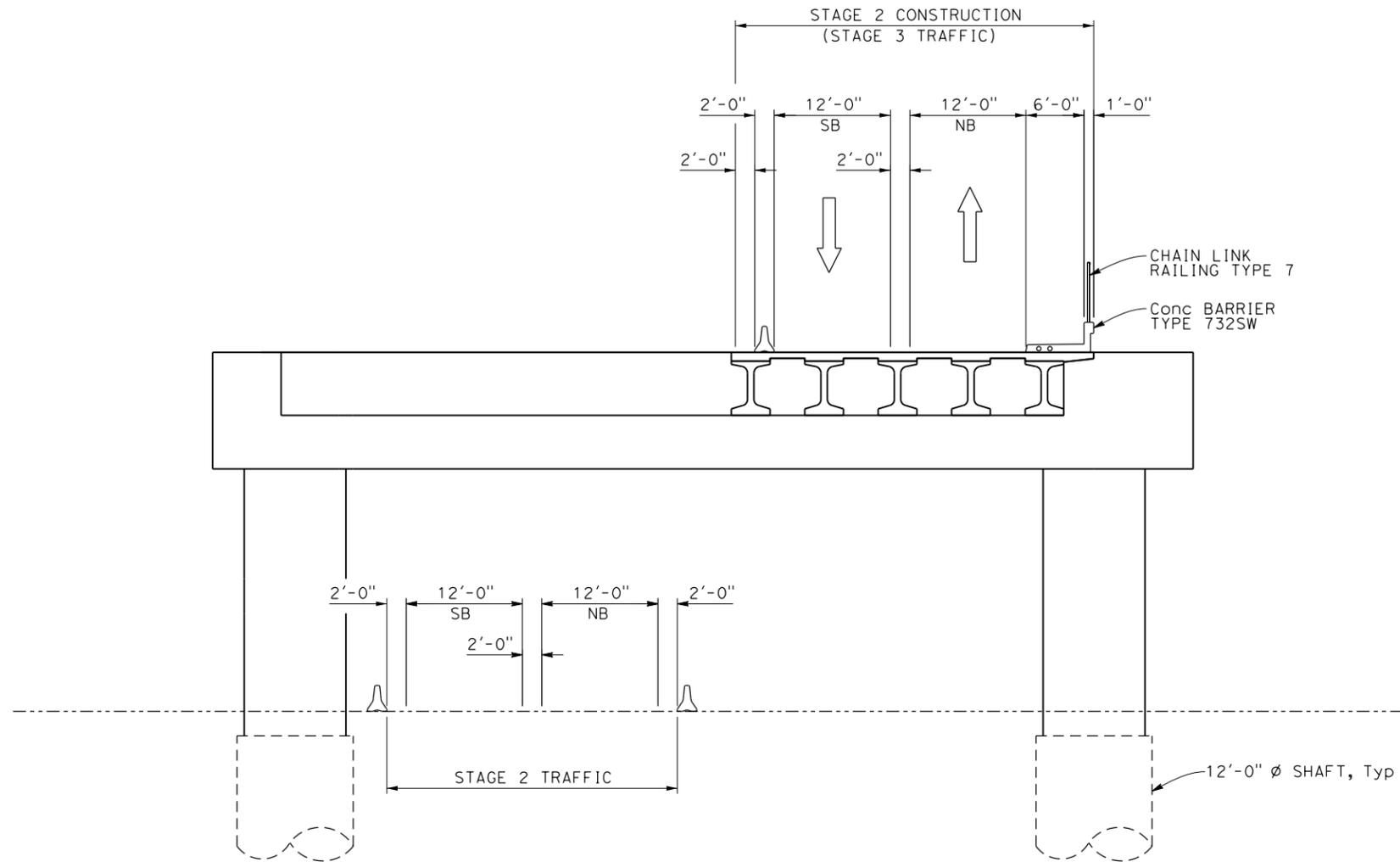
1. KEEP TRAFFIC WITHOUT INTERRUPTION ON THE EXISTING ETIWANDA AVENUE.
2. BUILD NEW OUTRIGGER BENT (CIDH SHAFT, COLUMN AND BENT CAP) TO SPAN THE ENTIRE ETIWANDA AVENUE SUPPORTED ON TWO COLUMNS OUTSIDE OF EXISTING TRAFFIC AREA.



STAGE 1 CONSTRUCTION
NO SCALE

DESCRIPTION OF REVISION	DATE	CITY APPROVED:
CITY OF RANCHO CUCAMONGA		
ETIWANDA AVE GRADE SEP		
STAGE CONSTRUCTION		
APPROVED BY: CITY ENGINEER	DATE:	RCE:
DESIGN	PLAN PREPARED BY:	RECOMMENDED
DRAWN		SHEET
CHECKED		OF
	R.C.E. NO	DRAWING NO.
	DATE	FILE NO





STAGE 2 NOTES:

1. MOVE TRAFFIC ON EXISTING ETIWANDA AVE TO THE WEST ONE LANE EACH DIRECTION.
2. CONSTRUCT HALF OF THE NEW BRIDGE SUPERSTRUCTURE AND APPROACH WALLS ON THE EAST SIDE.
3. NEW HALF OF BRIDGE SHOULD ACCOMMODATE ONE LANE OF TRAFFIC EACH DIRECTION AND A SIDEWALK.
4. MOVE TRAFFIC FROM EXISTING ETIWANDA AVE TO THE NEW HALF OF BRIDGE.

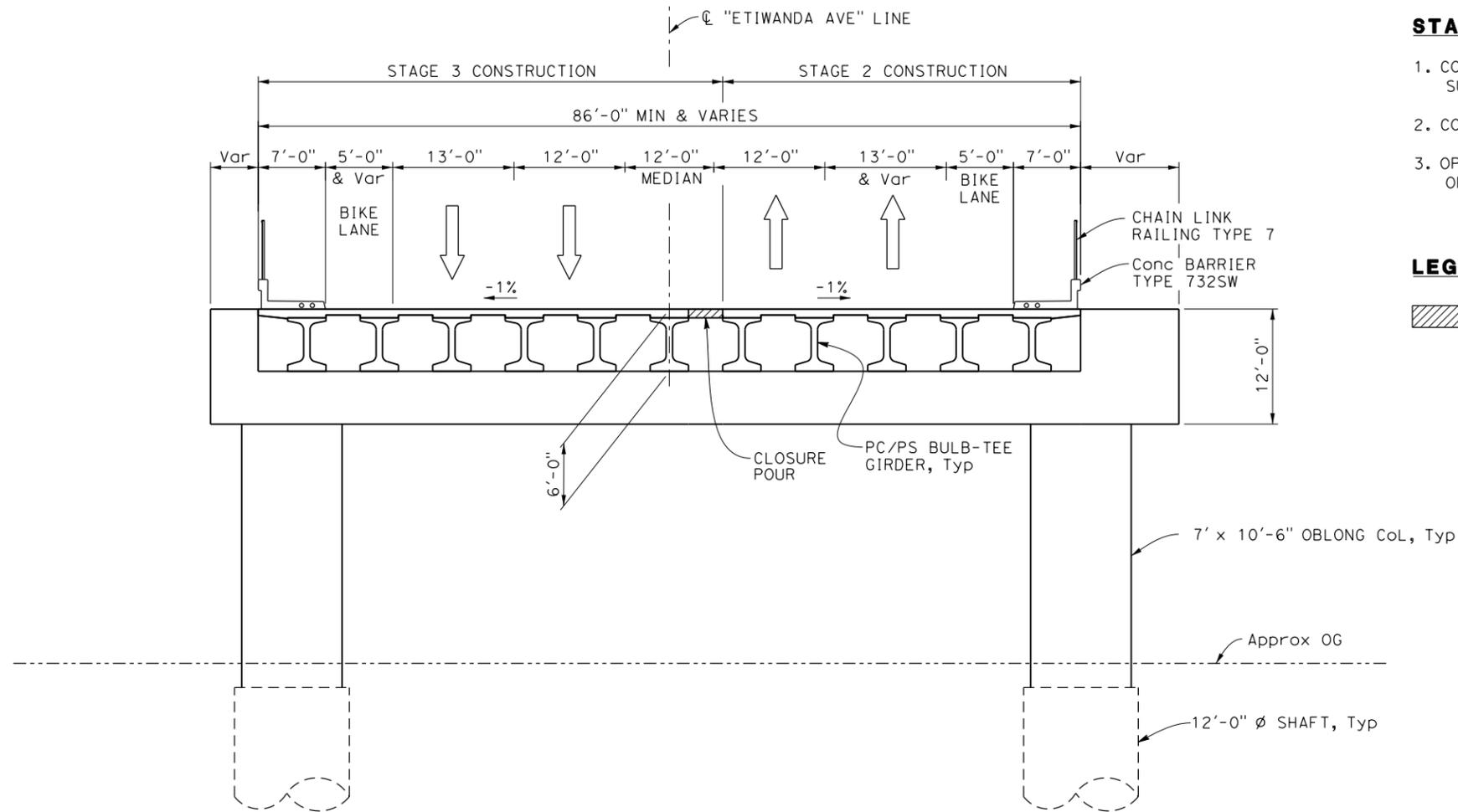
STAGE 2 CONSTRUCTION

NO SCALE

DESCRIPTION OF REVISION	DATE	CITY APPROVED:
CITY OF RANCHO CUCAMONGA		
ETIWANDA AVE GRADE SEP		
STAGE CONSTRUCTION		
APPROVED BY: CITY ENGINEER	DATE:	RCE:
DESIGN	PLAN PREPARED BY:	RECOMMENDED
DRAWN		SHEET
CHECKED		OF
	R.C.E. NO	DRAWING NO.
	DATE	FILE NO



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STAGE 3 NOTES:

1. CONSTRUCT THE REMAINING HALF OF THE NEW BRIDGE SUPERSTRUCTURE AND APPROACH WALLS.
2. CONNECT BOTH SUPERSTRUCTURE BY CLOSURE POUR.
3. OPEN BRIDGE FOR TRAFFIC. RE-STRIPE FOR TWO LANES OF TRAFFIC EACH DIRECTION.

LEGEND:

CLOSURE POUR

STAGE 3 CONSTRUCTION

NO SCALE

DESCRIPTION OF REVISION	DATE	CITY APPROVED:
CITY OF RANCHO CUCAMONGA		
ETIWANDA AVE GRADE SEP		
STAGE CONSTRUCTION		
APPROVED BY: CITY ENGINEER	DATE:	RCE:
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