ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT

Stockton Channel Viaduct Bridge Northbound (EA 10-0X462)

Resolution SHOPP-P-2425-01B
(to be completed by CTC)

1. FUNDING PROGRAM

- ☐ Active Transportation Program
- ☐ Local Partnership Program (Competitive)
- ☐ Solutions for Congested Corridors Program
- ☑ State Highway Operation and Protection Program
- ☐ Trade Corridor Enhancement Program

2. PARTIES AND DATE

2.1 This Project Baseline Agreement (Agreement) effective on August 15, 2024 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, Caltrans, and the Implementing Agency, Caltrans, sometimes collectively referred to as the "Parties".

3. RECITAL

3.1 Whereas at its 3/22/2024 meeting the Commission approved the State Highway Operation and Protection Program and included in this program of projects the Stockton Channel Viaduct Bridge Northbound (EA 10-0X462), the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as ***Exhibit A***, the Project Report attached hereto as ***Exhibit B***, the Performance Metrics Form, if applicable, attached hereto as ***Exhibit C***, as the baseline for project monitoring by the Commission.

3.2 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.

4.2 To adhere, as applicable, to the provisions of the Commission:

- ☐ Resolution _____, "Adoption of Program of Projects for the Active Transportation Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Local Partnership Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated _____
- ■ Resolution G-24-34, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated 3/22/2024
- ☐ Resolution _____, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated _____

4.3 All signatories agree to adhere to the Commission's 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 Caltrans agrees to secure funds for any additional costs of the project.

4.6 _____ agrees to report to Caltrans on a quarterly basis; on the progress made toward the implementation of the project, including scope, cost, schedule, and anticipated benefits/performance metric outcomes.

4.7 Caltrans agrees to prepare program progress reports on a 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 Caltrans 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 Caltrans agrees to submit a timely Project Performance Analysis as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.10 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 and performance metric outcomes during the course of the project, and retain those records for six years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.

4.11 The 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 six 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 Performance Metrics
See Performance Metrics Form, if applicable, attached as Exhibit C.

5.4 Additional Provisions and Conditions *(Please attach an additional page if additional space is needed.)*

The project construction capital is currently programmed at $315,900,000. The Supplemental Project Report (February 2024) estimates the construction capital at $551,200,000. The Department is actively seeking additional funding sources to address the shortfall, such as competitive federal grants and/or additional SHOPP funding capacity.

Attachments:

Exhibit A: Project Programming Request Form
Exhibit B: Project Report
Exhibit C: Performance Metrics Form *(if applicable)*

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Project Name: Stockton Channel Viaduct Bridge Northbound (EA 10-0X462)

Resolution: SHOPP-P-2425-04B

(to be completed by CTC)

Dina EL-Nakhal — Digitally signed by Dina EL-Nakhal Date: 2024.06.24 09:27:33 -07'00'

Project Manager — Date

Project Applicant

Dina EL-Nakhal — Digitally signed by Dina EL-Nakhal Date: 2024.06.24 09:30:20 -07'00'

Project Manager — Date

Implementing Agency

06/24/2024
Date

District Director
California Department of Transportation

Michael D. Keever for 01/10/2025
Date

Tony Tavares
Director
California Department of Transportation

10/31/2025
Date

Tanisha Taylor

Executive Director
California Transportation Commission

August CTC SB1 SHOPP Baseline Agreement

Final Audit Report 2024-07-29

Created:	2024-07-23
By:	Lauren Applegate (s147989@dot.ca.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAAI_0SYj_0LuOHY3egKDZ47BVNTT9bxs4c

"August CTC SB1 SHOPP Baseline Agreement" History

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Agreement completed.
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Baseline agreement information was extracted from Caltrans' project data systems. Project description, funding and performance measures are from CTIPS. Project delivery milestones are from PRSM. All information is current and accurate.

STATE OF CALIFORNIA ● DEPARTMENT OF TRANSPORTATION

BASELINE AGREEMENT

Date:	07/17/24 02:11:15 AM

District	EA	Project ID	PPNO	Project Manager
10	0X462	1020000077	3133B	EL-NAKHAL, DINA H

County	Route	Begin Postmile	End Postmile	Implementing Agency	
SJ	5	25.6	28.0	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

Project Nickname

10-0X462 Stockton Channel Viaduct Bridge Replacement /Northbound

Location/Description

In Stockton, at the Stockton Channel Viaduct Bridge No. 29-0176R, from Route 4 West to Mount Diablo Avenue. Bridge replacement to address lightweight concrete deck deterioration, superstructure deficiencies and load carrying capacity deficiencies, and West Fremont Street/North Pershing Avenue interchange modifications including Park Street Undercrossing No. 29-0202S demolition. This is a Construction Manager/General Contractor (CMGC) project.

Legislative Districts

Assembly:	17	**Senate:**	05	**Congressional:**	18

PERFORMANCE MEASURES

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Bridge Health	0.0	2992.0	272208.0		275200	Square feet of bridge deck
Programmed Condition	Bridge Health	311466.0	0.0	0.0		311466	Square feet of bridge deck

Project Milestone	Actual	Planned
Project Approval and Environmental Document Milestone	06/30/21	
Right of Way Certification Milestone		04/01/26
Ready to List for Advertisement Milestone		05/31/27
Begin Construction Milestone (Approve Contract)		06/30/28

FUNDING (Allocated amounts are shaded)

Component	Fiscal Year	SHOPP					Total
PA&ED							0
PS&E							0
RW Support	26/27	1,100					1,100
Const Support	26/27	8,000					8,000
RW Capital							0
Const Capital	26/27	315,900					315,900
Total		325,000					325,000

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

To: LYLE STOCKTON
SHOPP Office Chief
Division of Financial Programming
DISTRICT DIRECTORS
DIVISION CHIEFS

Date: July 3, 2024

File: 10-0X462 - 102000077
SJ-5– PM 25.6/28.0
SJ-4-PM R15.7/R16.2

From: DINA EL-NAKHAL
Corridor Manager
District 10

Subject: **BASELINE AGREEMENT CLARIFICATION MEMORANDUM**

This memorandum is written to accompany the SB-1 Baseline Agreement for the Stockton Channel Viaduct Bridge Northbound in San Joaquin County. The purpose of this memorandum is to update the project postmiles, milestone dates in the Project Report's R/W Cert (M410), RTL (M460), Approve Contract (M500). In addition, this memo seeks to clarify the the performance measure discrepancy between the CTIPS and the Asset Tool.

The project postmiles for EA 0X462 are SJ-5-PM 25.6/28.0 and SJ-4-R15.7/R16.2

The SPR will reflect the following milestone dates and asset correction.

Milestone Date Corrections				Asset - Bridge Sq ft	
	R/W Cert (M410)	RTL (M460)	Approve Contract (M500)	Programmed	Actual
SPR	4/1/2026	5/31/2027	6/30/2028	272,208	311,466

If you have any further questions, please contact me at 209-351-4432

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

M e m o r a n d u m

To: JAMES R. ANDERSON
HQ Division Chief
Transportation Programming

Date: June 3, 2024

File: 10-SJ-5 (25.6/28.0), 4 (R15.7/R16.2)
EA 10-0X460, 10-0X462
PID 1012000259/ 1020000077

From: Dina EL-Nakhal
Project Manager
D10 Program Project Management & Asset Management

Subject: Supplemental Project Report

EXECUTIVE SUMMARY

The purpose of this Supplemental Project Report (SPR) is to authorize changes in schedule for EA 0X462. The SPR is required to document the modification of schedule from February 2024.

RECOMMENDATION:

The Project Development Team (PDT) recommends approval of the Supplemental Project Report and for the project to adjust the schedule of EA 0X462

BACKGROUND/DISCUSSION:

The original Project Report was approved on 06/30/2021 (see Attachment B) and Supplemental Project Reports were approved 5/20/2022 and 2/2/2024.

Project EA 0X462 is a child project of EA 0X460 and was programmed (Long Lead) in the 2022 SHOPP with Construction Capital, Construction Support and RW Support funds programmed in FY 26/27. The 2024 SHOPP was adopted in March 2024 and it included EA 0X462.

N Pershing Ave Off-ramp

The existing N Pershing Ave off-ramp from I-5 NB will be reconfigured to a loop ramp that will terminate at the N Pershing Ave and Park St intersection. This is in response to community concerns over the existing ramp configuration, which currently routes traffic from NB I-5 onto N Pershing Ave directly into residential neighborhoods. Also, motorists currently wishing to travel south on N Pershing Ave toward Fremont St, or to neighborhoods to the west, must stop at a 2-way stop intersection on W Flora St and wait for a break in N Pershing Ave cross traffic.

Asset Management

The project build alternative will 272,209 Square Feet of Bridge Health in poor condition will be improved in project 10-0X462 (BR # 290176 R), which accounts for 49.4% of the District's target and add 36,266 Square Feet of New Bridge. The project will eliminate 2,992 Square Feet of good condition for BR 29-0S0S.

Primary Asset:

- Performance Measure: Bridge – Health (201.110)

EA	Bridge Number	Pre-Condition (SF)	New (SF)	Post-Condition (SF)
0X462	29-0202S	2,992 SF		0 SF
0X462	290176 R	272,209 - Poor	36,266	308,475 - Good

EA 10-0X462 is a long lead project. Below is a table representing the potential program funding:

Funding Source	Fiscal Year Estimate				
20.XX.201.110				26/27	Total
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support					
PS&E Support					
Right of Way Support				$1,100	$1,100
Construction Support				$8,000	$8,000
Total Support Cost				$9,100	$9,100
Right of Way					
Construction				$315,900	$315,900
Total Capital Cost					$315,900
Project Total				$325,000	$325,000

Project Schedule

The following is the proposed updated schedule:

Project Milestones		Milestone Date (Month-Year)	Milestone Designation (Target/Actual)
Program Project	M015	Jun-16	Actual
Begin Environmental	M020	Jan-17	Actual
Begin Project Report	M040	Aug-16	Actual
Circulate DPR & DED in District	M060	Oct-20	Actual
Approve DPR	M100	Dec-20	Actual
Circulate DED Externally	M120	Feb-21	Actual
Approve FED	M160	Apr-21	Actual
PA & ED	M200	Jun-21	Actual
R/W Requirements	M224	Mar-24	Actual
Regular RW	M225	Aug-24	Target
PS&E to DOE (EA 0X462)	M377	Apr-27	Target
Draft Structures PS&E (EA 0X462)	M378	Feb-27	Target
Ready to List (EA 0X462)	M460	May-27	Target
Fund Allocation (EA 0X462)	M470	Jun-27	Target
HQ Advertise (EA 0X462) *	M480	Feb-28	Target
Award (EA 0X462)	M495	Jun-28	Target
Approve Contract (EA 0X462)	M500	Jun-28	Target
Contract Acceptance (EA 0X462)	M600	Jun-32	Target
End Project (All Contracts)	M800	Jun-33	Target
Project Closeout	M900	Jun-34	Target

Note: Early work packages for 0X462 may be identified and awarded early.

* M480 may be eliminated if contract awarded to CMGC.

Note: Early work packages for 0X462 may be identified and awarded early.

* M480 may be eliminated if contract awarded to CMGC.

3. PROJECT PERSONNEL

Dina EL-Nakhal	Project Manager	(209) 351-4432
Amit Nijhawan	Design Manager	(559) 349-3308
Jerry Prigmore	Project Engineer	(559) 401-9809
Manjit Singh	Construction Manager	(209) 470-2053
Jonathan Coley	Environmental Manager	(209) 479-4083
Alma Maldonado	RW Manger	(209) 948-7846
Imran Fazal	Traffic Investigations	(209) 639-3854
Willie Kuhl	Traffic Operations	(209) 608-3774
Sam Wong	Hydraulics Manager	(559) 908-9693
Krishnakant Andurlekar	DES Bridge Design	(916) 227-8381
Austin Prince	DES Bridge Design	(805) 698-8905
Segaran Logeswaran	DES Geotechnical	(916) 227-1070
Thienan Nguyentan	Traffic Safety	(209) 986-9404
Steve Lee	Traffic Design	(559) 383-5416
Derran Reitz	Electrical Design	(559) 981-7534
Augustin "Gus" Escutia	Landscape Architecture	(209) 948-3861
Mandeep Dhesi	Materials Engineering	(209) 948-7567
Arlene Cordero	Traffic Electrical ITS/TMS Elements	(209) 948-7449

5. ATTACHMENTS

A. Project Report (June 2021)
B. Supplemental Project Report (May 2022)
C. Supplemental Project Report (February 2024)
D. SHOPP Performance Measures

This Supplemental Project Report has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and engineering data upon which recommendations, conclusions, and decisions are based.

JERRY PRIGMORE — 6/3/2024 *Date*

ACTION REQUIRED/APPROVALS:

Approval to update the locations in an approved Project Report is formally given with the District Director's signature to this memo.

Recommended For Approval: Dina El-Nakhal — 6/4/2024 Date

DINA EL-NAKHAL
Project Manager
209- 351-4432 Telephone

Concurrence For Right of Way: Cristin Hallissy — 6/3/2024 Date — 209-693-3741 Telephone

CRISTIN HALLISSY
Deputy District Director
Right of Way and Environmental
District 10

Approved: Gurwinder Sekhon — 06/11/2024 Date

Gurwinder Sekhon
Acting Deputy District Director, D10 PPM-AM

GRACE MAGSAYO
Acting District 10 Director

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

M e m o r a n d u m

To: JAMES R. ANDERSON
HQ Division Chief
Transportation Programming

Date: January 10, 2023

File: 10-SJ-5 (25.6/28.0),
4 (R15.7/R16.2)
EA:10-0X4601
10-0X461
10-0X462
ID # 1012000259
1020000076
1020000077

From: Amit Nijhawan
Design Manager
Central Region Services
Design Branch F

Subject: Supplemental Project Report

EXECUTIVE SUMMARY

The purpose of this Supplemental Project Report (SPR) is to authorize changes in scope within the revised project limits. The SPR is required to document the addition/modification of scope from the original Project Report, approved June 2021.

The changes in scope include the following:

- Reconfiguration of the N Pershing Ave off-ramp.
- Constructing a closed median at the Buena Vista Ave bridge structures.
- Additional Local street improvements within the project limits.
- Updated and added drainage basin locations.
- Addition of Traffic Management System (TMS) elements to the project.

RECOMMENDATION:

The Project Development Team (PDT) recommends approval of the Supplemental Project Report and for the project to complete the Plans, Specifications, and Estimate (PS&E) phase with the inclusion of the proposed changes in scope.

"Provide a safe and reliable transportation network that serves all people and respects the environment"

BACKGROUND/DISCUSSION:

The original Project Report was approved on 06/30/2021 (see Attachment B).

During the PS&E phase, it was determined that the Left and Right Buena Vista Ave UC structures needed to be widened to the inside to close the gap between the bridges, to address maintenance, inspection and enforcement vehicle parking, and to improve detouring and staging of traffic during construction.

District 10 Traffic Operations also recommended adding TMS elements on SB Route 5 at PM 25.98 to provide advanced warning to the traveling public with real-time traffic and weather conditions. To accommodate this recommendation, the project limits have been extended to the south.

PROJECT UPDATES

1. PROJECT LIMITS

The approved Project Report PR identified the project limits from PM 26.1 to PM 27.6 on Route 5 only. This SPR proposes to extend the project limits as shown below to accommodate additional work proposed by this SPR.

- Route-5 (PM 25.6/PM 28.0)
  From 0.26 miles south of Route 4/5 separation area to 0.1 miles north of Monte Diablo Ave.
- Route-4 (PM R15.7/PM R16.2)
  From 0.26 miles west of Route 4/5 separation area to 0.15 miles east of Route 4/5 Separation area.

2. ADDED PROJECT FEATURES

Route 5

The I-5 mainline alignment will be modified to accommodate a southwesterly shift of the Stockton Channel Viaduct structures by 50' to avoid right of way (RW) impacts on the northeast side of the freeway. Due to the greater span depth of the proposed structure, the profile of the structure will be 5' to 15' higher than the existing profile and conform to the existing profile at approximately 500' south of the existing Begin Bridge and 1500' north of the

existing End Bridge. These distances are subject to change as the design progresses.

N Pershing Ave Off-ramp

The existing N Pershing Ave off-ramp from I-5 NB will be reconfigured to a loop ramp that will terminate at the N Pershing Ave and Park St intersection. This is in response to community concerns over the existing ramp configuration, which currently routes traffic from NB I-5 onto N Pershing Ave directly into residential neighborhoods. Also, motorists currently wishing to travel south on N Pershing Ave toward Fremont St, or to neighborhoods to the west, must stop at a 2-way stop intersection on W Flora St and wait for a break in N Pershing Ave cross traffic.

Buena Vista Ave UC Bridge Median

The structure will be widened by closing the median gap in conformance with criteria in the Highway Design Manual. The existing Concrete Barrier (Type 9) will be replaced with Concrete Barrier (Type 842).

W Fremont St / N Pershing Ave

The existing W Fremont Street and N Pershing Avenue intersection will be reconstructed to accommodate proposed bridge columns and facilitate right-turn traffic movements. Existing sidewalk and curb ramps will be reconstructed to the current standard. Class II Bike Lanes will be installed to accommodate the City of Stockton's future Bicycle Master Plan within the project limits.

Traffic Management System

District 10 Traffic Management recommends the installation of a Changeable Message Sign (CMS), Closed-Circuit Television (CCTV) camera, Roadside Weather Information System (RWIS), and Vehicle Detection System (VDS) along with a Maintenance Vehicle Pullout (MVP) on SB Route 5 at PM 25.98 to provide advanced warning to the traveling public with real-time traffic and weather conditions. These Intelligent Transportation System (ITS) elements improve mobility, safety, and the efficiency of the existing roadway infrastructures as well as maximizing the efficiency of the District 10 Traffic Management Center (TMC).

Drainage Basins

The Park St UC and W Oak St UC structures will be removed and the area under the existing N Pershing Ave ramp between W Oak St and W Flora St will be re-graded by removing the existing embankment. Two new interconnected drainage basins will be created in this area for storage and treatment of additional storm water.

Refinement of Preferred Alternative

Selection of Alternative 3, complete bridge replacement, as the Preferred Alternative in the Project Report required design of new widened bridge structures to replace the existing structures and conform to current standards. Options to widen the structures to the southwest and the northeast were evaluated, and it was determined that widening to the northeast would have a substantially higher impact on privately-owned parcels and R/W costs as shown in the table below:

Alignment Evaluation

	Alignment Shift	
	Proposed Southwest	Proposed Northeast
Number of affected parcels	5	19
Total RW costs	$9,821,851	$35,692,653

In addition, widening to the northeast would preclude the proposed reconfiguration discussed above of the N Pershing Ave off-ramp as a loop ramp and would require retention of the existing off-ramp. The current traffic routing that is of concern to local residents, and the Flora St stop at Pershing Ave could be improved by construction of a roundabout at the intersection of the off-ramp, N Pershing Ave and W Flora St, but this would require additional environmental evaluations and reports, adding months to the pre-construction environmental work schedule, and would require RW takes of parcels that may be National Register of Historic Places (NRHP) eligible.

The PDT determined that Alternative 3E, which would construct the project in 4 stages, widening to the southwest with a resulting southwestward bridge alignment shift, would best address stakeholder comments and community concerns. This alternative included a braided ramp from Route 4 to northbound I-5 that was eliminated due to excessive cost and project scope

limitations. The alternative without the braided ramp was designated Alternative 3E1.

Environmental Changes

The proposed Pershing Ave loop offramp is located within the existing Caltrans RW. The widening to the southwest will necessitate the acquisition of additional permanent RW on the southwest side of the structure and Temporary Construction Easements (TCEs) on both sides. The attached Area of Potential Affect (APE) mapping shows required RW and TCEs. "Caltrans-Determined TCEs" were determined using offsets from the proposed structure footprint. "Contractor-Suggested TCEs" were determined by the Construction Manager/General Contractor (CMGC) consultant by analyzing access needs and the space requirements of cranes, barges and other construction equipment.

Asset Management

As mentioned in the project report, 10-0X460 was split into two "child" projects 10-0X461 (SHOPP 2022) and 10-0X462 (SHOPP 2024) due to funding limitations. The performance objectives for both projects under the "parent" project (10-0X460) are consistent with the 2019 State Highway System Management Plan and SHOPP Ten-Year Plan.

The Bridge Health Performance Target in 2019 SHSMP for District 10 is 550,904 Square Feet of fair and 13,649 Square Feet of poor condition. The project build alternative will improve 259,937 Square Feet of Bridge Health in poor condition in project 10-0X461 (BR # 290176 L), which accounts for 1904% of the District's target. In addition, 272,209 Square Feet of Bridge Health in fair condition will be improved in project 10-0X462 (BR # 290176 R), which accounts for 49.4% of the District's target.

Primary Asset:

- Performance Measure: Bridge – Health (201.110)

EA	Bridge Number	Pre-Condition (SF)	New (SF)	Post-Condition (SF)
0X461	290176 L	259,937 - Poor	89,100	349,037 - Good
0X462	290176 R	272,209 - Fair	36,266	308,475 - Good

All SHOPP Project Performance Measures are shown in Attachment G.

Traffic Accident Data

For mainline I-5, State Route 4 and N Pershing Avenue off-ramp, SR 4 to NB I-5 Connector, the three-year (April 1, 2019 to March 31, 2022) traffic accident data are summarized as follow:

Mainline I-5

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	I	F+I	Fatal	F+I	Total	Fatal	F+I	Total
SJ 5 25.599-28.000	308	1	98	99	0.003	0.31	0.95	0.004	0.34	1.04

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include 111 sideswipe collisions, 61 hit object collisions, 116 rear-end collisions, 9 broadside collisions, 3 overturn collisions, one head-on collision, two auto/pedestrian, and five other types. There were 250 multi-vehicle collisions, 126 collisions during dark times, and 37 collisions when the surface pavement was deemed wet per the reported accidents. Most of the hit objects 36 were related to vehicles hitting bridge barriers, guardrails, or bridge railings.
It is anticipated that the installation of the current standard shoulders, Midwest Guardrail Systems, structure replacement, and bridge railings in the project build alternatives within the project limits along I-5 will reduce the occurrence of collisions.

State Route 4

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	I	F+I	Fatal	F+I	Total	Fatal	F+I	Total
SJ 4 R15.7-R16.2	5	0	3	3	0.000	0.14	0.23	0.008	0.39	0.93

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period

include one sideswipe collisions, three hit object collisions, and one rear-end collisions. There were two accidents hitting bridge rail and guardrail, and one accident hitting trees.

It is anticipated that the installation of the current standard shoulders, Midwest Guardrail Systems, structure replacement, and bridge railings reduce the number of collisions.

SR 4 to NB I-5 Connector

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
SR 4 to NB I-5 Connector/ 26.454	7	0.00	5	5	0.00	0.18	0.26	0.002	0.08	0.30

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include one rear-end collision, two sideswipe, one broadside, and three hit objects accidents.

I-5 NB Off-ramp to N Pershing Avenue

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
NB I-5/Auxiliary Lane to N Pershing Ave Off-ramp/ 26.88	2	0	0	0	0.00	0.00	0.14	0.003	0.38	1.04

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include one-hit object collision and one sideswipe collision accident.

It is expected that reconfigured N Pershing Ave off-ramp with a wider shoulder and new bridge railing will help in reducing the number of collisions.

FUNDING, PROGRAMMING AND ESTIMATE

Project Estimate (Current and Escalated)

EA 10-0X460 of the SCV Bridge Replacement project was programmed as a long lead project in the SHOPP for PA&ED and PS&E. Below is a table showing the project funding:

Funding Source	**Fiscal Year Estimate**				
20.XX.201.110	**(Prior)**	**20/21**	**24/25**	**26/27**	**Total**
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support	$4,169				**$4,169**
PS&E Support		$18,802			**$18,802**
Right of Way Support					
Construction Support					
Total Support Cost					**$22,971**
Right of Way					
Construction					
Total Capital Cost					
Project Total	**$4,169**	**$18,802**			**$22,971**

EA 10-0X461 of the SCV Bridge Replacement project was programmed in the 2022 SHOPP cycle for RW and Construction phases as shown in the following program funding table:

Funding Source	**Fiscal Year Estimate**				
20.XX.201.110	**(Prior)**	**20/21**	**24/25**	**26/27**	**Total**
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support					
PS&E Support					
Right of Way Support			$1,100		**$1,100**
Construction Support			$8,000		**$8,000**
Total Support Cost					**$9,100**
Right of Way			$24,300		**$24,300**
Construction			$216,600		**$216,600**
Total Capital Cost					**$240,900**
Project Total			**$250,000**		**$250,000**

EA 10-0X462 is a long lead project. Below is a table representing the potential program funding:

Funding Source	**Fiscal Year Estimate**				
20.XX.201.110				**Future**	**Total**
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support					
PS&E Support					
Right of Way Support				$1,100	**$1,100**
Construction Support				$8,000	**$8,000**
Total Support Cost				$9,100	**$9,100**
Right of Way					
Construction				$315,900	**$315,900**
Total Capital Cost					**$315,900**
Project Total				**$325,000**	**$325,000**

The following Table shows the cost of SB bridge, Buena Vista bridge, Fremont Ave. on- and off-ramps, retaining wall and SB roadway work under EA 10-0X461 for RW and Construction phases:

Funding Source	**Fiscal Year Estimate**				
20.XX.201.110	**(Prior)**	**26/27**	**27/28**	**28/29**	**Total**
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support					
PS&E Support					
Right of Way Support			$1,100		**$1,100**
Construction Support			$8,000		**$8,000**
Total Support Cost					**$9,100**
Right of Way			$24,300		**$24,300**
Construction			$367,500		**$367,500**
Total Capital Cost					**$391,800**
Project Total			**$400,900**		**$400,900**

EA 10-0X462 is a long lead project. Below is a table representing the potential cost for NB bridge, N Pershing Avenue on- and off-ramps, a retaining wall and NB roadway work:

Funding Source	**Fiscal Year Estimate**				
20.XX.201.110				**28/29**	**Total**
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support					
PS&E Support					
Right of Way Support				$1,100	**$1,100**
Construction Support				$8,000	**$8,000**
Total Support Cost				$9,100	**$9,100**
Right of Way					
Construction				$551,200	**$551,200**
Total Capital Cost				**$551,200**	**$551,200**
Project Total				**$560,300**	**$560,300**

Project Schedule

The following is the proposed updated schedule:

Project Milestones		Milestone Date (Month-Year)	Milestone Designation (Target/Actual)
Program Project	M015	Jun-16	Actual
Begin Environmental	M020	Jan-17	Actual
Begin Project Report	M040	Aug-18	Actual
Circulate DPR & DED in District	M060	Jul-19	Actual
Approve DPR	M100	Dec-20	Actual
Circulate DED Externally	M120	Feb-21	Actual
Approve FED	M160	Apr-21	Actual
PA & ED	M200	Jun-21	Actual
Bridge Site Data Accepted (EA 0X461)	M221	Jan-24	Target
R/W Requirements	M224	Apr-24	Target
Regular RW	M225	Jun-24	Target
PS&E to DOE (EA 0X461)	M377	Mar-26	Target
Draft Structures PS&E (EA 0X461)	M378	Nov-25	Target
Right of Way Certification	M410	Oct-25	Target
Ready to List (EA 0X461)	M460	Jun-26	Target
Fund Allocation (EA 0X461)	M470	Oct-26	Target
HQ Advertise (EA 0X461) *	M480	Jan-27	Target
Award (EA 0X461)	M495	May-27	Target
Approve Contract (EA 0X461)	M500	May-27	Target
Bridge Site Data Accepted (EA 0X462)	M221	Mar-24	Target
PS&E to DOE (EA 0X462)	M377	Jul-27	Target
Draft Structures PS&E (EA 0X462)	M378	Feb-27	Target
Ready to List (EA 0X462)	M460	Nov-27	Target
Fund Allocation (EA 0X462)	M470	Jan-28	Target
HQ Advertise (EA 0X462) *	M480	Feb-28	Target
Award (EA 0X462)	M495	Jun-28	Target
Approve Contract (EA 0X462)	M500	Jun-28	Target
Contract Acceptance (EA 0X461)	M600	Jun-31	Target
Contract Acceptance (EA 0X462)	M600	Jun-32	Target
End Project (All Contracts)	M800	Jun-33	Target
Project Closeout	M900	Jun-34	Target

Note: Early work packages for 0X461 and 0X462 may be identified and awarded early.

***** M480 may be eliminated if contract awarded to CMGC.

3. PROJECT PERSONNEL

Dina EL-Nakhal	Project Manager	(209) 351-4432
Amit Nijhawan	Design Manager	(559) 349-3308
Jerry Prigmore	Project Engineer	(559) 401-9809
Manjit Singh	Construction Manager	(209) 470-2053
Jonathan Coley	Environmental Manager	(209) 479-4083
Alma Maldonado	RW Manger	(209) 948-7846
Imran Fazal	Traffic Investigations	(209) 639-3854
Willie Kuhl	Traffic Operations	(209) 608-3774
Sam Wong	Hydraulics Manager	(559) 908-9693
Krishnakant Andurlekar	DES Bridge Design	(916) 227-8381
Austin Prince	DES Bridge Design	(805) 698-8905
Segaran Logeswaran	DES Geotechnical	(916) 227-1070
Thienan Nguyentan	Traffic Safety	(209) 986-9404
Steve Lee	Traffic Design	(559) 383-5416
Derran Reitz	Electrical Design	(559) 981-7534
Augustin "Gus" Escutia	Landscape Architecture	(209) 948-3861
Mandeep Dhesi	Materials Engineering	(209) 948-7567
Arlene Cordero	Traffic Electrical ITS/TMS Elements	(209) 948-7449

5. ATTACHMENTS

A. Title Sheet
B. Typical Cross Sections
C. Layout Sheets
D. APE mapping
E. Project Report (June 2021)
F. Supplemental Project Report (May 2022)
G. SHOPP Performance Measures

This Supplemental Project Report has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and engineering data upon which recommendations, conclusions, and decisions are based.

JERRY PRIGMORE — *Date* 1/10/2024

ACTION REQUIRED/APPROVALS:

Approval to update the locations in an approved Project Report is formally given with the District Director's signature to this memo.

Recommended For Approval: Dina El-Nakhal — 1/19/24 (Date)

DINA EL-NAKHAL
Project Manager
(209) 351-4432
Telephone

Concurrence For Right of Way: Cristin Hallissy — 1/29/2024 (Date)

CRISTIN HALLISSY
Deputy District Director
Right of Way and Environmental
District 10
(209) 693-3741
Telephone

Approved: Grace Magsayo — 02/02/2024 (Date)

GRACE MAGSAYO
Acting District 10 Director

SIGNATURE REQUIRED: 10-0X462 Baseline Agreement

Final Audit Report 2024-06-24

Created:	2024-06-24
By:	Natalia Castillo Deleon (s157078@dot.ca.gov)
Status:	Signed
Transaction ID:	CBJCHBCAABAAe3o-864-a9xzhSN2l7DxgfDOKgln3ouN

"SIGNATURE REQUIRED: 10-0X462 Baseline Agreement" History

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10 - SJ - 5 - PM 26.1/27.6
EA 10-0X4600 – Project No. 1012000259 – PPNO 3133
Program 20.XX.201.110 – SHOPP
June 2021

Project Report
To
Request Programming in the 2022 SHOPP
And
for Project Approval

On Interstate I-5 in City of Stockton within San Joaquin County

Between PM 26.1, at I-5 and State Route 4 Separation

And PM 27.6, 0.6 mile north of Stockton Channel Viaduct

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:

HUMBERTO ALMAGUER, Acting District Division Chief, Right of Way

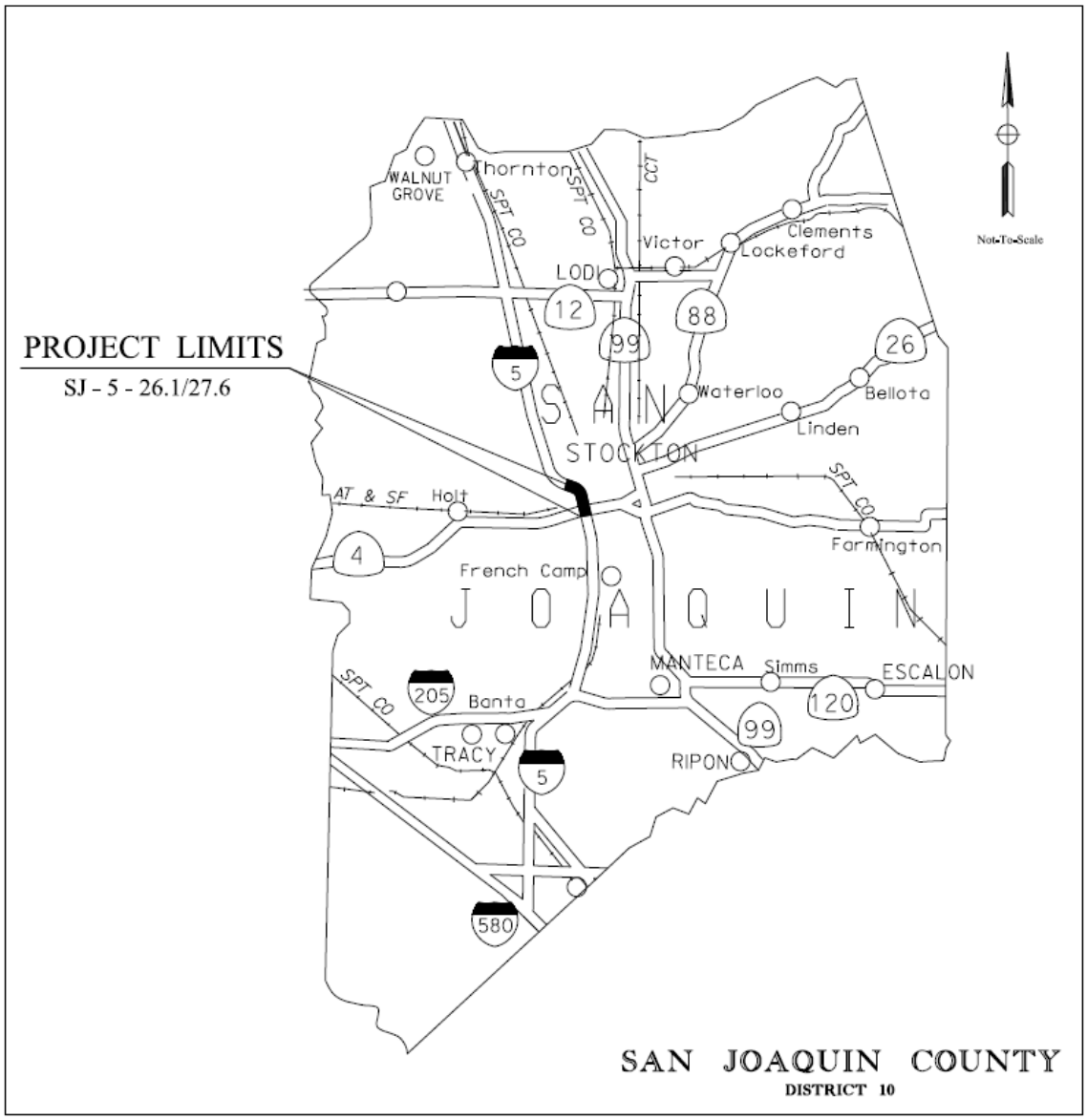
APPROVAL RECOMMENDED:

SAMUEL E. SHERMAN, Project Manager

PROJECT APPROVED:

DENNIS T. AGAR, District 10 Director — *Date* 06/30/21

Vicinity Map



This Draft Project Report 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.

Ashlyn F. Swan — June 7, 2021

Ashlyn F. Swan — *Date*

Registered Civil Engineer

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1. INTRODUCTION

The California Department of Transportation (Caltrans) proposes to reconstruct or replace the northbound (NB) and southbound (SB) Stockton Channel Viaduct bridges (SCV) and Park Street Undercrossing, existing bridge number (Br. No.) 29-0176L/R and 29-0202S, in the City of Stockton within San Joaquin County on Interstate 5 (I-5) between post miles (PM) 26.1 and 27.6 (See **Attachment A**). The overall project construction limits include I-5 from the State Route (SR) 4/I-5 Interchange Separation (Br. No. 29-0232L/R) to the Carlton Avenue Undercrossing (Br. No. 29-0198L/R). The specific viaduct bridge work limits along I-5 are between PM 26.5/27.0.

The Project Approval & Environmental Document (PA&ED) development phase support was programmed in the 2016 State Highway Operations and Protection Program (SHOPP). The remaining support and capital costs are programmed into the 2022 and future SHOPP cycles with funding from the 20.XX.201.110 Bridge Rehabilitation and Replacement program. Traditional Design-Bid-Build, Construction Manger General Contractor (CMGC) or Design-Build delivery methods could be used to deliver the project.

Project Description:

The preferred alternative to replace the structures will close the median gap for traffic handling purposes, address upgrading the structures to meet more current design, seismic, and liquefaction standards and calculations, water clearance standards, standard bridge railing and traffic safety devices, and be able to handle federally permitted load capacities for freight mobility. The preferred alternative will resolve the high skew (57°) between the structure foundations and mainline alignment reducing future maintenance costs caused by dynamic movement of the structure due to traffic loads.

Construction of the structure replacement alternative is anticipated to occur in two separate contracts, or funding phases, with the first beginning in 2025 and approximately 5 years to complete and the second contract beginning in 2030 and approximately 3 years to complete.

Project Limits	10-SJ-5-PM 26.1/27.6	
	Current Cost Estimate: (2020/21)	**Escalated Cost Estimate: (24/25) / (26/27)**
Capital Outlay Support	$37,002,000	
Capital Outlay Construction	$399,400,000	$322,000,000 $160,500,000
Capital Outlay Right-of-Way	$7,900,000	$9,100,000
Funding Source	20.XX.201.110	
Funding Year	2024/2025 (Build Project Contract 1) 2026/2027 (Build Project Contract 2)	
Type of Facility	8-Lanes (1 High Occupancy Vehicle Lane) with Auxiliary Lanes Freeway	
Number of Structures	3	
SHOPP Project Output	535,137 Square Feet (3 Bridges)	
Environmental Determination or Document	Initial Study with Mitigated Negative Declaration (CEQA) and an Environmental Assessment (EA) (NEPA)	
Legal Description	In San Joaquin County In City of Stockton On I-5 From the I-5/SR 4 Separation To the Carlton Avenue Undercrossing	
Project Development Category	4B	

2. RECOMMENDATION

It is recommended that this Project Report (PR) be approved using the preferred alternative for this project and the project move forward to the next phase. Federal Highway Administration (FHWA), United States Coast Guard (USCG), San Joaquin Council of Governments (SJCOG) and City of Stockton have been contacted and input received regarding the project and recommended preferred Alternative 3.

3. BACKGROUND

Built in 1972, the left and right structures of the SCV were originally constructed using lightweight reinforced concrete (RC) decks set on simple widely spaced and continuous welded steel composite plate girders on RC piers and RC abutments with U-type wingwalls. These parallel 2,725-foot-long bridges have an on-going history of maintenance related issues involving extensive repairs of concrete decks, steel finger joints, and steel superstructure. The superstructure includes the deck, finger joints, hinges,

girders, lateral bracing, and bearings. The substructure includes the bents, columns, foundations, piers, abutments, and wingwalls.

The original structures have undergone seismic retrofit in 1998. The retrofit work addressed some of the superstructure deficiencies, however it did not involve any work to the substructures. Historical project and maintenance records indicate continual repair of the deteriorated concrete decks, steel finger joints, and steel superstructures.

In October 2014, a Fact and Findings report was issued by Structure Maintenance and Investigations (SM&I) presenting a summary of deficiencies through performed tests and analysis of the structures. The summary identified the following deficiencies:

- Deck: There are numerous spalls throughout the bridge decks with the top mat of reinforcement exposed due to shallow concrete cover. The bridge decks are delaminated with large patched areas throughout. Unsound concrete on the bridge decks and failed steel finger joints have been repeatedly repaired by District 10 Bridge Maintenance Crews; however, the repaired spall locations are subject to rapid failure.
- Steel Girders, Lateral Bracing and Abutment Walls: Freckled rust continues forming at scattered locations through the structure on the steel elements. The welds of the lateral bracings to their end plates connecting to the steel girders are broken at multiple locations. Cracking at the abutments occurs diagonally near the exterior steel girders and vertically throughout the walls.

The existing structures are limited to accommodating the lowest federally rated permitted loads. The existing girders cannot be strengthened to support all Caltrans rated permitted loads (or American Association of State Highway and Transportation Officials [AASHTO] required load rating for structures) but can be strengthened to accommodate the majority of permit loads and is a major constraint for freight movement along this key freight corridor in California. Currently, permitted loads exceeding the structures load rating utilizing I-5 are routed via alternative routes to avoid traversing the structures due to the Viaduct structures deficient load rating. The structures cross the Stockton Channel at a high skew (57°), which is a major cause of the structural deficiencies.

In June 2015, A Project Study Report-Project Development Support (PSR-PDS) was approved to authorize moving into the PA&ED phase. The approved PSR-PDS included 3 alternatives for further evaluation: 1) Bridge Deck Replacement with light weight concrete deck; 2) Replace Bridge Superstructure; and 3) Replace Bridges. Additionally, as identified to be evaluated during the PA&ED development phase in the approved PSR-PDS, the westbound (WB) and eastbound (EB) SR 4 connectors to NB I-5 Pershing

Avenue Off-ramp and NB I-5 exiting traffic to Pershing Avenue Off-ramp at the SCV experience reoccurring congestion during peak hour commutes, particularly during the afternoon commute. After the Traffic Operations branch performed an operational analysis with and without improvements in 2018, the Project Development Team (PDT) considered including improvements for the NB I-5 to Pershing Avenue Off-ramp/SR 4 connectors braided ramp design to address the existing traffic operational congestion. However, subsequently the project scope was validated to address primarily the structural integrity of the existing viaduct bridges. The PDT determined that the operational improvements would add excessive cost to the project, require access modifications requiring FHWA approval and may require additional improvements to either the I-5/SR 4 freeway-to-freeway Interchange or I-5/Pershing Avenue-Fremont Street Interchange and also make the project a FHWA Project of Air quality Concern. Therefore, the operational improvements were not included in the project since they are not part of the need and purpose of this structure rehabilitation/replacement project. Furthermore, Alternative 1 was rejected by the PDT since it did not address the structures' inability to handle desired permitted load capacities for interstate travel. At the request of the former District Director, Alternative 1A was developed to handle the majority of desired permitted load capacities, but not accommodate all loads as is the case in Alterantives 2 and 3. During the development of this report, Alternative 3 was altered in that the profile increased to accommodate the span and depth of the proposed structure.

In 2018, Caltrans initiated a project for the removal and replacement of unsound concrete at delaminated sections of the decks and finger joints and was recommended as a short-term strategy under bridge rehabilitation project (10-1C940_), until a long-term strategy project is approved and constructed. Construction of the 10-1C9404 Contract is proposed to begin in the winter 2020 and is anticipated to be completed by summer 2021, pending winter weather delays and any seasonal work suspensions.

Community Involvement

Caltrans outreach to FHWA, United States Coast Guard, City of Stockton, San Joaquin County, and San Joaquin Council of Governments occurred during the preparation of the approval documents. On December 4, 2020, the Draft Project Report was approved for circulating the Draft Environmental Document (DED) to the public. The DED was circulated and open to public comment from February 4 to March 4, 2021. Due to COVID-19 health restrictions, a Virtual Public Open House was held on February 18, 2021 to present the alternatives and obtain public input and comments via the virtual meeting. Taking into consideration the public input and comments as well as Caltrans evaluation of all alternatives, the PDT on March 22, 2021, decided on Alternative 3 as the recommended preferred alternative. Further coordination with several agencies and the public will occur in the Design and ROW Phases for each build contract.

Existing Facility (I-5 Structure and Roadway Information)

Structure Information (Preferred Alternative)

Structure Name and Bridge Number	Width Between Curbs			Replace Bridge Railings	Vertical Clearance			Work Identified in STRAIN	Replace Bridge Approach Rail	Replace Bridge Approach Slab	
	Exist (ft)	RRR Std (ft)	Proposed (ft)	(Y/N)	Exist (ft)	RRR Std (ft)	Proposed (ft)	(Y/N)	(Y/N)	(Y/N)	#
Stockton Channel Viaduct 29-0176L/R	78	78	86	Y	45	N/A	47	Y	Y	Y	7
Park Street Undercrossing 29-0202S	26	26	26	Y	14.7	N/A	20.7	N	Y	Y	2

Roadway Geometric Information

10-SJ-5, PM 26.1/26.5 (South of the SCV)		**Existing**	**Proposed**	**Minimum RRR Standards**
Minimum Curve Radius	Radius (ft)	3,000	3,000	N/A
Through Traffic Lanes	Number of Lanes (Total)	4	4	N/A
	Number of HOV Lanes	1	1	N/A
	Lane Width (ft)	12	12	12
Paved Shoulder Width	Left (ft)	8	8-10 *	8
	Right (ft)	10	10	10
Median Width	(ft)	36	36	N/A
Bicycle Route	(Y/N)	N	N	N

* Inside shoulder varies with 8 feet on the I-5/SR 4 Separation to 10 feet north of separation and south of SCV.

10-SJ-5, PM 27.0/27.6 (North of the SCV)		**Existing**	**Proposed**	**Minimum RRR Standards**
Minimum Curve Radius	Radius (ft)	3,200	3,200	N/A
Through Traffic Lanes	Number of Lanes (Total)	4	4	N/A
	Number of HOV Lanes	1	1	N/A
	Lane Width (ft)	12	12	12
Paved Shoulder Width	Left (ft)	8-10 *	10	8
	Right (ft)	10	10	10
Median Width	(ft)	36	36	N/A
Bicycle Route	(Y/N)	N	N	N

* Existing Inside shoulder varies with 8 feet on the SCV bridge to 10 feet north of SCV.

4. PURPOSE AND NEED

Purpose:
The purpose of this project is to ensure the long-term serviceability and structural integrity and improve the permit load rating of the SCV (Br. No. 29-0176L/R) on I-5 in San Joaquin County.

Need:
The need for the project is to address structural deficiencies and continual bridge repairs. The SCV structures exhibit concrete and steel superstructure/foundation deficiencies. These deficiencies include longstanding issues of concrete deck deterioration resulting in ongoing maintenance challenges, widely spaced steel girders, freckled rust forming at various locations throughout the steel elements, damaged steel bracing, cracking in the concrete retaining walls, bents and columns. The structures also have nonstandard bridge railings. Substructure deficiencies also include potential for undermining due to soil liquefaction during seismic activity. In addition, the current structures are rated poor for accommodation of permit loading, which is required for goods movement.

4A. Problem, Deficiencies, Justification

The SCV structures lightweight concrete decks exhibit spalling and delamination with large patched areas throughout the decks. Over the years, large areas of unsound concrete at delaminated sections of the decks and failed steel finger joints have been repeatedly repaired by District 10 Bridge Maintenance Crews; moreover, the spalls are subject to rapid failure. Over the last thirteen years, over $30 million and 12 various associated repairs/projects have occurred to attempt to maintain existing structures. These repeated repairs/workers have exposed numerous maintenance workers, construction staff and contractor employees to high-speed traffic and typically involve work at night-time due to I-5 traffic volumes. Furthermore, each of these repairs/projects also expose traveling vehicles to additional lane reductions and construction work zones which increases potential for worker and vehicle safety concerns.

Due to the structural deficiencies (pointedly the differential and significant girder deflections and relatively shallow bridge deck), the structures currently have a low permit load rating, requiring permitted loads to use other means, such as routed around to other structures using alternative routes, to successfully navigate to the other side of the channel. The permitted loads constraint requires nearly 300 permitted loads annually over the last 6 years to use alternative routes. The detours add additional vehicle miles traveled and delay time for permitted loads each year. Additionally, local roads are utilized as part of the detour paths for the permitted loads. Freight mobility is

also impacted by the need for additional lane closures associated with recurrent maintenance repairs. This fact is amplified by virtue of expected 75% increase of overall freight movement over the next 30 years. Thus, additional delays to non-permitted and permitted vehicles is expected to have significant economic cost and traffic impacts.

If these deficiencies are not addressed, the bridge decks and structural integrity of the viaduct will continue to deteriorate resulting in reoccurring emergency repairs and increased maintenance costs as well as exposing Maintenance staff to traffic hazards. The structures will also further deteriorate, continue to reduce freight mobility, create user delays/economic impact, and expose workers to further safety issues.

4B. Regional and System Planning

Route Description

I-5 is the principal south/north highway traversing California beginning at the Mexican border and continuing north to the Oregon border. In addition to serving interregional, regional/commuter and local traffic, I-5 provides primary access for the movement of people, goods and services and is considered a major lifeline transportation route for industrial, commercial and agricultural products of the communities in the Central Valley of California. I-5 is also a major connector for all east/west routes throughout the Central Valley, providing linkages between the San Francisco Bay area, the Central Valley, foothill communities, and the Sierra Nevada Mountains. This controlled access facility is not accessible to either bicycles or pedestrians within the project limits and north of Interstate 205.

Sytem Classification

I-5 is functionally classified as an interstate for its entire extent. For the project location, I-5 is on the Freeway and Expressway System, the National Highway System, the Strategic Highway Network and part of the National Network for Surface Transportation Assistance Act (STAA) Trucks. I-5 is also included in the Interregional Road System and is identified as a High Emphasis and Focus Route. I-5 is not on the Scenic Highway System, nor is it bicycle accessible north of Interstate 205.

Planning Horizon

The Transportation Concept Report (TCR) for I-5 (May 2012) identifies the concept Level of Service (LOS) as LOS D, with a concept facility for the 20-year (2030) planning horizon as 10-lane freeway and the Ultimate Transportation Corridor (UTC) as also a 10-lane freeway. The UTC determines the facility needed beyond the 20-year planning horizon to assist in preservation of adequate ROW to accommodate future improvements.

4C. Traffic

The Average Daily Traffic (ADT) and design designation information, including the 20-year design hourly volume (DHV), equivalent single-axle load (ESAL), traffic index (TI), directional split as applicable and peak hour (PH) truck percentage, for various identified years for mainline I-5 and various connectors/ramps modified with the proposed project within the project limits are shown on the following pages:

Mainline I-5:

Present Year ADT (2020)	128,900	
Construction Year ADT (2025)	135,700	
20-Year ADT (2045)	167,100	TI_{20} = 15.0 (for ESAL = 206.0 million)
40-Year ADT (2065)	207,700	TI_{40} = 18.0 (for ESAL = 457.6 million)
DHV (2045)	18,000	
Directional Traffic Split	52 %	
PH Truck %	19.2 %	

SB I-5 to EB SR 4 2-lane Exit Connector (Ramp "A"):

Present Year ADT (2020)	27,500	
Construction Year ADT (2025)	28,350	
20-Year ADT (2045)	32,500	TI_{20} = 15.0 (for ESAL = 82.9 million)
40-Year ADT (2065)	38,300	TI_{40} = 16.5 (for ESAL = 177.9 million)
DHV (2045)	3,550	
Directional Traffic Split	Not Applicable (N/A)	
PH Truck %s	19.2 %	

SB I-5 to WB SR 4 Single-lane Exit Connector (Ramp "E"):

Present Year ADT (2020)	5,550	
Construction Year ADT (2025)	5,950	
20-Year ADT (2045)	7,950	TI_{20} = 13.0 (for ESAL = 18.8 million)
40-Year ADT (2065)	10,900	TI_{40} = 14.0 (for ESAL = 43.5 million)
DHV (2045)	720	
Directional Traffic Split	N/A	
PH Truck %s	19.2 %	

EB SR 4 to NB I-5 1-lane Entrance Connector (Ramp "B"):

Present Year ADT (2020)	3,700	
Construction Year ADT (2025)	3,850	
20-Year ADT (2045)	4,550	TI_{20} = 12.0 (for ESAL = 11.4 million)
40-Year ADT (2065)	5,400	TI_{40} = 13.0 (for ESAL = 24.9 million)
DHV (2045)	900	
Directional Traffic Split	N/A	
PH Truck %s	19.2 %	

WB SR 4 to NB I-5 2-lane Entrance Connector (Ramp "H"):

Present Year ADT (2020)	29,800	
Construction Year ADT (2025)	31,100	
20-Year ADT (2045)	37,500	TI_{20} = 15.5 (for ESAL = 93.6 million)
40-Year ADT (2065)	46,700	TI_{40} = 17.0 (for ESAL = 205.2 million)
DHV (2045)	3,450	
Directional Traffic Split	N/A	
PH Truck %s	19.2 %	

NB I-5/Auxiliary Lane to Pershing Avenue Off-ramp (Ramp "I"):

Present Year ADT (2020)	14,200	
Construction Year ADT (2025)	14,900	TI_5 = 11.5 (for Temporary Pershing Off-ramp)
20-Year ADT (2045)	17,800	TI_{20} = 12.5 (for ESAL = 18.5 million)
40-Year ADT (2065)	20,700	TI_{40} = 14.0 (for ESAL = 40.6 million)
DHV (2045)	1,950	
Directional Traffic Split	N/A	
PH Truck %	8.0 %	

Fremont Street to SB I-5 On-ramp (Ramp "J"):

Present Year ADT (2020)	9,550	
Construction Year ADT (2025)	10,100	
20-Year ADT (2045)	12,400	TI_{20} = 12.0 (for ESAL = 12.7 million)
40-Year ADT (2065)	14,700	TI_{40} = 13.5 (for ESAL = 28.2 million)
DHV (2045)	1,350	
Directional Traffic Split	N/A	
PH Truck %	8.0 %	

SB I-5 to Fremont Street Off-ramp (Ramp "S"):

Present Year ADT (2020)	4,550	
Construction Year ADT (2025)	4,700	
20-Year ADT (2045)	5,350	TI_{20} = 11.0 (for ESAL = 5.7 million)
40-Year ADT (2065)	6,100	TI_{40} = 12.0 (for ESAL = 12.2 million)
DHV (2045)	590	
Directional Traffic Split	N/A	
PH Truck %	19.2 %	

Traffic Operations Analysis

In April 2018, a traffic operations analysis for the No-Build scenario and the proposed improvements to I-5 at the Stockton Channel Viaduct in the design year of 2045 was completed by the District 10 Freeway and Highway Operations branch. See **Attachment N** for the complete traffic operations analysis. The analysis was done only for the NB direction between the SR 4 NB connectors and Mount Diablo Avenue Interchange area for the primary direction and area of existing and forecasted congestion.

The project scope does not include the NB I-5/Pershing Off-ramp braided ramp as discussed in the background section of this report even though it was evaluated. The analysis for the No-Build scenario is validated as consistent for all the proposed project alternatives since no access modifications or capacity modifications are proposed in the current scope. Per the analysis, the existing (year 2017 at the time of the analysis) congestion along NB I-5 during peak hour between the SR 4 NB connectors and Pershing Avenue Off-ramp auxiliary lane weave section, confirmed acceptable operations during both morning (AM) and evening (PM) peak hour periods at the Monte Diablo Off-ramp. The overall corridor was also shown to operate more efficiently during the AM peak hour period than the PM peak hour period. Per the analysis, the design forecasted (2045) indicated significant delays and congestion along NB I-5 during peak hour between the SR 4 NB connectors and Pershing Avenue Off-ramp auxiliary lane weave section, confirmed acceptable operations during both morning (AM) and evening (PM) peak hour periods at the Monte Diablo Off-ramp but with anticipated increased delay times for both. The overall corridor was also shown to operate more efficiently during the AM peak hour period than the PM peak hour period. No additional widening of I-5 was evaluated in the analysis as the project's Need and Purpose is not related to traffic congestion or relief of the congestion. The proposed improvements do not decrease the expected traffic operations in either the NB or SB I-5 direction through the project limits as compared to the No-Build scenario.

Accident Data and Collision Summary

For mainline I-5 and various connectors/ramps, the three-year (January 1, 2017 to December 31, 2019) traffic accident data is summarized as follows:

Mainline I-5

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
I-5 / 26.1 -27.6	220	4	73	77	0.020	.38	1.09	0.003	.27	.84

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include seventy-five sideswipe collisions, sixty-seven hit object collisions, sixty-six rear end collisions, six broadside collisions, four overturn collisions, one head on collision and one other accident. One hundred sixty-four involved multi-vehicle collisions, eighty collisions during dark time, and thirty-six collisions when surface pavement was deemed wet per the reported accidents. Most of the hit objects (thirty-three) were related to vehicles hitting guard or bridge railing. The proposed project build alternatives improve the guard railing and bridge railing within the project limits along I-5.

SR 4 to NB I-5 Connector

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
SR 4 to NB I-5 Connector/ 26.454	3	0	2	2	0.000	.08	.12	0.001	.07	.26

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include two rear end collisions and one overturn collision accident. The proposed project build alternatives improve the guard railing and bridge railing along a portion of the connector within the project limits proposed to be rehabilitated.

SB I-5 to SR 4 Connector

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
I-5 to SB SR 4 Connector/ 26.624	6	0	2	2	0.000	.08	.12	0.001	.07	.26

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include four hit object collisions, one rear end collision and one sideswipe collision accident. The proposed project build alternatives improve the guard railing and bridge railing along a portion of the connector within the project limits proposed to be rehabilitated.

NB I-5 to Pershing Avenue Off-ramp

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
NB I-5/Auxiliary Lane to Pershing Ave. Off-ramp/ 26.88	5	0	1	1	0.000	.07	.34	0.008	.39	1.03

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include two hit object collisions, two rear end collisions and one sideswipe collision accident. The proposed project build alternatives improve the off-ramp with a 2 feet wider outside shoulder and replace guard railing and bridge railing along the ramp within the project limits proposed to be rehabilitated.

Pershing Avenue On-ramp to NB I-5

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
Pershing Ave. On-ramp to NB I-5 / 27.221	1	0	0	0	0.000	.00	.24	0.006	.23	.63

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include one hit object collision accident. The proposed project build alternatives do not include any rehabilitation work for this on-ramp.

SB I-5 to Fremont Street Off-ramp

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
SB I-5 to Fremont Street Off-ramp/ 27.222	9	0	3	3	0.000	.69	2.06	0.006	.39	1.25

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include seven hit object collisions, one head on collision and one broadside collision accident. The proposed project build Alternative 3 proposes to modify the off-ramp with a concrete barrier atop a retaining wall along the outside of the off-ramp edge of pavement along the ramp within the project limits proposed to be rehabilitated.

Fremont Street On-ramp to SB I-5

Location / PM	Number of Accidents				Accident rates (ACC/MVM)					
					Actual			Average		
	Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
Fremont St. On-ramp to SB I-5 / 26.975	6	0	3	3	0.000	.32	.64	0.007	.21	.61

Source: Caltrans District 10 TASAS Table B data.

The actual accidents that occurred at this location during the study period include one hit object collision, one rear end collision, one sideswipe collision, two overturn collisions and one broadside collision accident. The proposed project build Alternatives 1A and 2 propose to rehabilitate the on-ramp and for Alternative 3 only the project proposes to modify the on-ramp with a concrete barrier atop a retaining wall along the outside of the off-ramp edge of pavement along the ramp within the project limits proposed to be rehabilitated.

5. ALTERNATIVES

5A. Preferred Alternative

The project's preferred build Alternative 3 is to replace the existing Viaduct structures (Br. No. 29-0176L/R) and the Park Street Undercrossing (Br. No. 29-0202S). See **Attachments B** and **C** for layouts, typical cross sections and staging/traffic handling information. The Advanced Planning Study for Alternative 3 is also attached to this report (See **Attachment D**). The cost estimate for Alternative 3 is also attached to this report (See **Attachment E**).

The reconstruction of the existing SCV bridge superstructures replaces the decks, girders, railings, diaphragms, and expansion joints, along with replacing the existing abutments, wingwalls, foundations, and piers in order to meet current standards. Reconstruction of the SCV structures addresses full accommodations for permit load requirements, water clearance standards, and updated structure standards.

Construction of temporary connections and/or detours for local ramps and connectors to and from SR 4 will be included in the work to keep traffic moving through the interchanges at both ends of the structures. Limited full closures with detours will be required to complete the work. SCV structure reconstruction will include a structure to close the median between the left and right structures to be utilized for traffic handling during construction.

The electrical work on this project includes replacing the existing lighting to current standards and replacement of Intelligent Transportation System (ITS) elements within the project limits. A fiber optic line will be installed across the existing bridges along I-5 under project EA: 10-1F400. The fiber optic line will be maintained during construction and restoring or replacing this line upon the completion of structure contract work is anticipated.

Permanent ROW acquisition for the project as well as Temporary Construction Easement (TCE) for construction will be acquired. Acquisition is anticipated for a basin needed for dewatering during construction and retention basin post construction while TCE's may be utilized to stage construction equipment, materials, and dewatering needs. TCE's will be finalized during the Plans, Specifications, and Estimates (PS&E) phase of the project. In-water work is necessary and access to the Stockton Deepwater Channel is required to perform work of strengthening, including lateral support for identified liquefaction potential, or reconstructing the existing foundations.

During structure inspections, structures are evaluated and rated for loading capacity, among other criteria inspected, and included in an inspection report conducted every two years. These load ratings are used to establish routes for oversized/overweight or extra-legal load network and annually permitted

vehicles based on the generation, destination, dimensions, and weight of the permitted vehicle and load. The SCV structures are rated poor for goods movements and permitting and in the lowest category for the permit rated loads (least weight capacity per axle). These structures are the only structures along the I-5 corridor with this deficient load rating within the City of Stockton. Currently, permitted loads exceeding the load rating utilizing I-5 are rerouted to avoid the structures using alternative transportation facilities due to the SCV structures low load rating.

Roadway Features:

- Replace pavement north and south of the I-5 bridge structures, amount and area differs as described under each alternatives section, including a portion of the following connectors/ramps:
    - WB SR 4/NB I-5 connector “Ramp H” (approximately 1,200 feet)
    - EB SR 4/NB I-5 connector “Ramp B” (approximately 900 feet)
    - SB I-5/WB SR 4 connector “Ramp E” (approximately 500 feet)
    - SB I-5/EB SR 4 connector “Ramp A” (approximately 600 feet)
    - Pershing Avenue Off-ramp “Ramp I” (to Flora Street)
    - Fremont Street On-ramp “Ramp J“ (full length)
    - Fremont Street Off-ramp “Ramp S” (full length)
- Replace portions of median barriers and guardrails.
- Replace a soundwall atop concrete barrier along the outside of NB I-5 north of the Stockton Channel.
    - 14 feet height
- Replace or modify drainage systems.
- Clear and grub including tree removal in the area between NB I-5, Pershing Avenue and Pershing Avenue On-ramp.
    - For the construction of the proposed temporary Pershing Avenue Off-ramp during closure of the construction of the permanent Pershing Avenue Off-ramp.
- Require comprehensive stage construction and traffic handling/detours.
    - NB I-5 will temporarily reduce capacity to remove the high occupancy vehicle (HOV) lane accommodating 3 through lanes and an auxiliary lane on the facility with median cross overs as needed.
    - SB I-5 will temporarily reduce capacity to remove the high occupancy vehicle (HOV) lane accommodating 3 through lanes and an auxiliary lane on the facility with median switch overs as needed.
    - Connectors
        - Traffic from SR 4 will be reduced to a single lane prior to entering NB I-5 either along current alignment or utilizing a median cross over.
        - Traffic to SR 4 will remain along current alignment or utilizing a median cross over.

  - Ramps
    - A temporary Pershing Avenue Off-ramp in a loop configuration will be required while structure rehabilitation or reconstruction occurs along the outside of NB I-5 and the Pershing Off-ramp.
    - Fremont On-ramp will be detoured while structure rehabilitation or reconstruction occurs to other local on-ramps.
    - Replacement of Park Street Undercrossing structure.
  - Local Streets
    - Various local roads will be used to detour traffic during construction of the project due to closures of ramps and connectors.
    - Realignment of local road Weber Avenue will be necessary.
- Anticipate construction staging areas within State ROW including existing property managed areas. Existing air space leases for businesses located north of the Stockton Channel and the City park/boat launch (Morelli Park) will be suspended or terminated during construction.

Structure Features:

- Replace bridge deck surfaces with normal-weight concrete on I-5 in both directions including connectors/auxiliary lanes, a portion of Pershing Avenue Off-ramp and a portion of the Fremont Street On-ramp.
- Closing of the median between the existing left and right bridges including a new median concrete barrier that will be situated along the center alignment line.
- In-water work within the Stockton Channel including dewatering to a proposed temporary retention basin, proposed to be located on the south side of the channel, west of SB I-5 and north of Weber Avenue.
- The preferred alternative would provide an estimated 75-year design life.
- Replacement of the structures and foundations will accommodate current standards, seismic recommendations, and permit loads up to and including a 15-axle permit load.
- New structures proposed are to be cast-in-place and/or precast segmental construction over the waterway and conventional cast-in-place on falsework construction on the end spans. Closure pours between stages will be necessary.
- The concrete cast-in-place and/or precast segmental construction proposed requires the profile to be raised approximately 23 feet due to the high skew crossing of the channel and maintaining clear width and height requirements.
- Large diameter Cast-in-Drilled-Hole (CIDH) and/or cast-in-steel-shell piles as well as driven piles are expected for the replacement bridges.

- Replace Park Street Undercrossing with a new structure extending SCV to abutment located east of Park Street.

Nonstandard Design Features:
A Design Standard Determination Document (DSDD) has been approved on June 4, 2021 for the following exceptions:

Based on the current Caltrans Highway Design Manual (HDM), the following **BOLDFACE** and Underlined Nonstandard Design Features were identified for this project:
BOLDFACE Nonstandard Features: (Numbering per DSDD)
[NOTE: except as noted for combined item]:

- (A-1) HDM **201.1**, **202.2(1)**, **203.1**, **203.2**, and **309.1(1)** – The stopping sight distance and associated nonstandard features along a horizontal curve for I-5 in both directions south of the SCV with a design speed of 62 mph and the NB I-5 to Pershing Avenue Off-ramp with a design speed of 35 mph.
- (A-2) HDM **204.3** – Mainline I-5 profile, on and north of SCV, is designed with a steeper than 3% grade due to profile elevation changes on SCV.
- (A-3) HDM **309.4** – The guard building within the boat launch facility at Morelli Park is located under SCV and therefore no offset is provided.
- (A-4) HDM **308.1**, 403.6(1) and **405.3(2)(a)** – The right-turn-only lane at the Fremont Street on-ramp to SB I-5 has only a 2 feet shoulder and does not include an adjacent bike lane.
    - 403.6(1) is Underlined nonstandard feature but combined with BOLDFACE nonstandard features
- (A-5) HDM **501.3** – The interchange spacing between I-5/SR 4 Interchange and I-5/Pershing Avenue-Fremont Street Interchange is less than 2 miles.
- (A-5) HDM 504.4(6) and **504.7** – The branch connector diverging auxiliary lane length is less than 1,500 feet and 2,500 feet weaving distance between Fremont Street to SB I-5 On-ramp and SB I-5/SR 4 branch connector exit.
    - **504.4(6)** is Underlined nonstandard feature but combined with BOLDFACE nonstandard features
- (A-6) HDM **502.2** – The I-5/Pershing Avenue-Fremont Street Interchange ramps connect to two various local roads and the Pershing Avenue Off-ramp is an isolated off-ramp.
- (A-7) HDM **504.3(3)** – The minimum intersection distance (curb return to curb return) between the Pershing Avenue Off-ramp/Flora Street ramp intersection and Flora Street/Pershing Avenue local road intersection.
- (A-7) HDM **504.8** – The access control limits at the Pershing Avenue Off-ramp intersection.

UNDERLINED Nonstandard Features: (Numbering per DSDD)

- (B-1) HDM 202.5(1) and 202.5(2) – The superelevation transition per HDM Figure 202.5A at the mainline I-5 horizontal curve north of SCV with an ending station of 1509+97.
- (B-2) HDM 301.3 – Gore area between NB I-5 and Pershing Avenue On-ramp is designed with a greater than 5% algebraic difference in cross slope due to the rise in profile and correction of existing nonstandard superelevation rate to standard.
- (B-3) HDM 304.1 – The existing and proposed side slopes horizonal to vertical ratio are steeper than 4:1 at various sideslope locations.
- (B-4) HDM 504.2(5) – Pershing Avenue descending off-ramp vertical profile is designed to exceed 8% grade due to profile elevation changes on SCV and maintaining existing profile elevation at Pershing Avenue/Flora Street intersection area.
- (B-5) HDM 504.2(5)(b) – Fremont Street ascending on-ramp vertical profile grade steeper than 2% with ramp truck volume greater than 20 vehicles per hour.
- (B-6) HDM 504.3(5) –The lane drop length at the Pershing Avenue On-ramp.
- (B-7) HDM 504.3(5) and 504.3(6) –The single lane Pershing Avenue Off-ramp.
- (B-8) HDM 504.4(2) – The horizontal curve radius along the connectors EB SR 4/NB I-5 (Ramp “B”), WB SR 4/SB I-5 (Ramp “D”), SB I-5/WB SR 4 (“Ramp E”), and EB SR 4/SB I-5 (Ramp “F”).
- (B-8) HDM 504.4(5) – The single lane connectors EB SR 4/NB I-5 (Ramp “B”), SB I-5/WB SR 4 (Ramp “E”), and EB SR 4/SB I-5 (Ramp “F”).

5B. Rejected Alternatives

There are three rejected alternatives known as Alternative 1, Alternative 1A, and Alternative 2, and the rejected No-Build Alternative.

The No-Build Alternative assumes that no improvements would be made to the SCV or along Pershing Avenue Off-ramp, other than projects that are already approved in the area. With the No-Build Alternative, certain permitted loads would not be allowed and as a result there would be a continued reduction of freight mobility. This alternative would not meet the need and purpose of the project because the bridge would remain unchanged and the structural integrity of the structures would not improve. For these reasons, this alternative was eliminated from further study and consideration.

Alternative 1 proposed to replace the existing lightweight reinforced concrete bridge deck on both the left and right structures with a new lightweight concrete deck and superstructure rehabilitation, which includes cross-bracing and bearing replacements, did not address the structures’ inability to handle

desired permitted load capacities for interstate travel. For this reason as well as ongoing maintenance issues with the existing deck, the alternative was eliminated from further study and consideration.

Alternative 1A proposed to replace the existing lightweight reinforced concrete bridge deck on both the left and right structures with a new deck, closing the median. It would also include superstructure and substructure rehabilitation. The rehabilitation strategy did not address the skew angle of the structures to the foundations. This alternative was the lowest estimated construction cost out of the viable alternatives; however, it does not meet all current federal load permit ratings. For this reason as well as ongoing maintenance issues with the existing deck, the alternative was eliminated from further study and consideration.

Alternative 2 proposed to replace the existing lightweight reinforced concrete bridge deck on both the left and right structures with a new deck, closing the median, superstructure rehabilitation including replacement of steel girders, and substructure rehabilitation. This alternative was designed to meet current federal load permit ratings; however, this alternative did not address the skew angle of the structures to the foundations. For this reason, the alternative was eliminated from further study and consideration.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

An asbestos survey and lead testing must be performed by a licensed asbestos consultant and a Certified Lead Inspector (CLI) prior to any work on the bridges. A Caltrans Standard Special Provision (SSP) and a requirement for a plan to handle the materials will be included in the construction contract to ensure the health and safety of workers and the public.

The lead-based paint used on the metal girder under the roadway and roadway striping is above regulatory levels and would be considered hazardous if it is removed. Appropriate avoidance and minimization measures would be used to ensure any loose material is handled and disposed of appropriately. The following are SSP that will be used if a hazardous substance is encountered during construction:

- There is potential to encounter non-hazardous concentrations of aerially deposited lead while working in unpaved areas within the project limits. The Caltrans SSP pertaining to Earth Material Containing Lead, 7-1.02K(6)(j)(iii) would be added to the construction contract.
- The sheet packing material used as railing shims is considered nonhazardous. However, disturbance of the material by cutting, abrading, sanding, grinding, etc. would require compliance with the California

Occupational Safety and Health Administration asbestos standard (Title 8, California Code of Regulations §1529). Written notification to the San Joaquin Valley Air Pollution Control District is required 10 working days prior to the start of any demolition activity even when asbestos is not present. The Caltrans SSP 14-11.16 (Asbestos-Containing Construction Materials in Bridges) will be added to the construction contract to ensure that all the materials are properly handled and disposed.

- The orange paint applied to the steel girder system would be considered a California and federal hazardous waste based on lead content if stripped, blasted, or otherwise separated from the substrate (base material). The Caltrans SSP 14-11.13 (Disturbance of Existing Paint Systems on Bridges) will be added to the construction contract to ensure that all material separated from the substrate (base material) is properly handled and disposed.
- Yellow traffic striping on the roadway would be considered a California hazardous waste based on lead content if stripped, blasted, or otherwise separated from the base material. The Caltrans SSP 14-11.12 (Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue) will be added to the construction contract to ensure that all material separated from the substrate is properly handled and disposed.
- The project required excavation of the Stockton Channel to advance bridge footings. As a result, excess soil material (sand, silt, clay) may be produced. It is unknown if contaminates would be present in the excess bed material. Therefore, the excess shall be surveyed for hazardous materials, which may include but are not limited to, heavy metals, petroleum hydrocarbons, pesticides and volatile organic compounds, prior to construction activities. Once the excess soil material is properly classified, special provisions will be included in the construction contract to ensure the material is properly handled.

6B. Value Analysis

Currently the National Highway System Designation Act of 1995, 23 United States Code, Section 106 mandates that the U.S. Secretary of Transportation require state departments of transportation to carry out a Value Analysis (VA) study for all projects on the National Highway System costing $50 million or more. However, per a memo dated February 5, 2019, from the Caltrans Chief Engineer, currently Caltrans must consider a VA for all projects over $25 million. A VA study for this project was completed in October 2018 and a summary is attached to this report (see **Attachment J**).

There was a total of 12 VA Alternatives (VAA) evaluated with 3 rejected (VAA-1, VAA-2, and VAA-3) and 9 recommended for acceptance as shown below. The implementation of the 9 accepted alternatives would result in an estimated savings of $130,000,000 and reduce the project schedule's duration by 12 months.

The 9 accepted VAA are as follows:

VAA-4: Shift I-5 alignment on both sides to reduce construction stages.
VAA-5: Use two separate bridges to reduce channel span length.
VAA-6: Use imported fill for south bridge approach.
VAA-7: Include wider shoulders to accommodate future maintenance.
VAA-8: Construct exclusionary structures to allow for year-round work in channel.
VAA-9: Relocate begin bridge of Pershing Avenue Off-ramp to north of SR 4/ I-5 interchange.
VAA-10: Use earth with wrapped face wall in lieu of bridges for the temporary tie-in structures.
VAA-11: Include ramp metering at Fremont Street and Pershing Avenue On-ramps on I-5.
VAA-12: Include pedestrian / bike path in separate lane with bridge.

VAA-4 was removed from further consideration in the PA&ED phase because it was considered to involve excessive ROW impacts, and furthermore this alternative would result in significantly greater roadway approach work. Although VAA-4 has not been considered in the PA&ED phase, this alternative may be reevaluated during the PS&E phase, and if deemed as being viable, it may be included as part of this project.

VAA-5, VAA-6 and VAA-10 will be considered in the PS&E phase with the structure type selection process and final structure design.

VAA-7 is incorporated for the inside wider shoulder on the bridge along NB and SB I-5 with the proposed center-span construction, however, the outside shoulder additional widening is not accepted due to the excessive cost.

VAA-8 is incorporated in the cost estimate for an exclusionary structure in the channel to protect fish from the foundation and structural work in the water.

VAA-9 would substitute the originally proposed reconfigured Pershing Avenue Off-ramp and auxiliary lane with a shorter off-ramp and auxiliary lane. VAA-9 and the reconfiguration of the Pershing Avenue Off-ramp was rejected during early PA&ED phase because the PDT determined these operational improvements did not fit the need and purpose to address the structural integrity of the existing bridge.

VAA-11 was found not to have a positive impact to the project; therefore, costs are deemed excessive to the project and will not be incorporated.

VAA-12 has been cleared environmentally, but ROW, construction cost, design, or structural aspects were not incorporated into proposed alternatives improvements due to funding constraints.VAA-12 would be considered in a separate project should funding become available.

6C. Resource Conservation

There are no major facilities that can be salvaged and relocated for this project; however, this project will be designed and constructed to conserve critical resources.

6D. Right of Way (ROW) and Utility Issues

For all three build alternatives, the proposed ROW includes acquisition of permanent ROW and temporary construction easements (TCE). The proposed partial acquisition of one property consists of 0.64 acre for the proposed drainage basin located on the south side of the channel and west side of the SCV for storing deck surface drainage. The proposed TCE includes a total of 1.09 acres on 5 separate properties related to the construction of the SCV. The TCE vary from 0.04 acre to 0.7 acre southwest of the SCV, northeast of the SCV and along both sides of the existing State ROW within the channel.

Utility relocations/involvements are anticipated for this project due to the realignment of local road Weber Avenue. Utility companies proposed to be impacted/involved include American Telephone & Telegraph communication/telephone lines; Cal Water Company water lines; City of Stockton sewer and storm drain lines; and Pacific, Gas & Electric gas and electrical lines. During the PS&E phase, subsurface utilities will be further investigated to identify those that would potentially be impacted by excavation for substructure replacement/rehabilitation and pile installations. No aerial utility impacts during construction are anticipated. There are no rail lines in the vicinity that will be impacted by this project, but they are shown on the project title sheet and a clearance memo/short clause will be required. See **Attachment F** for the approved Right of Way Data Sheet for the preferred alternative.

6E. Environmental Compliance

The project will have impacts to Water of the United States; Waters of the State of California; Threatened and Endangered Special Status Species; Essential Fish Habitat; and Paleontological resources. However, with the implementation of avoidance, minimization and mitigation measures the impacts would result in a less than significant impact to the resources. This project will comply with State and Federal regulations. The environmental document for the proposed project is an Initial Study (IS) with Mitigated Negative Declaration (MND) under the California Environmental Quality Act (CEQA) and a Routine Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). All environmental issues and concerns stipulated in the IS/MND will be complied with during construction. See **Attachment G** for the Final Environmental Document (FED).

6F. Air Quality Conformity

An air quality conformity analysis is not required for this project as there is no access or capacity modifications proposed with any of the alternatives. Per the July 2020 Air Quality Memo, this project is exempt from air quality conformity analysis under conformity exemptions per Table 2 of 40 CFR § 93.126 – "Widening narrow pavements or reconstructing bridges (no additional travel lanes)".

6G. Title VI Considerations

The project does not propose to make any changes to the existing conditions that would affect low income or minority groups.

6H. Noise Summary

As documented in the Draft Project Report and consistent with the information in the Noise Study Report and Noise Abatement Decision Report, the project impacts would result in potential short-term noise impacts during construction and long-term noise impacts after the completion of the project.

For this project, residential exterior areas where frequent human use occurs that would benefit from a lowered noise level are limited to outdoor activity areas at the apartments' balconies facing the Pershing Avenue Off-ramp. There is a total of 24 front-row apartments represented by the swimming pool location that would be impacted by the proposed project. These residences would experience future calculated noise levels ranging from 66 dBA to 69 dBA because of the project. According to Caltrans noise protocol (2011), a residential noise level of 66 dBA is considered approaching the NAC for residences and noise abatement would have to be considered.

For the residential area to the southeast of the SCV, a proposed soundwall was considered to attenuate the traffic noise. However, the proposed soundwall was found not to be feasible because it would not be able to bring the future traffic noise level below the existing background noise level of 68.7 dBA for the studied receivers.

For the residential area to the northeast of the SCV, an existing soundwall (SW 1) was validated to remain as there is no alteration of the existing Pershing Avenue On-ramp. The existing soundwall (SW 2) would be required to be removed and therefore was evaluated. For this project, the soundwall would be replaced at the same location but since the proposed I-5 profile is raised in this area the soundwall height was evaluated with a higher height (14 feet instead of 10 feet). The noise abatement with the higher wall was deemed reasonable per the approved NADR (October 2020).

Construction noise control shall conform to the provisions in Section 14-8.02 "Noise Control" of the Standard Specifications. The noise level from the contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBA Equivalent Continuous Sound Pressure Level (Leq) at 50 feet. All equipment must be fitted with adequate mufflers and operated according to the manufacturers' specifications. Construction noise varies greatly depending on the construction process, type and condition of equipment used, as well as layout of the construction site. Temporary construction noise impacts would be unavoidable in areas immediately adjacent to the proposed project alignment.

Compliance with the construction hours, as per Caltrans' Standard Specifications will be required to minimize construction noise impacts on sensitive land uses adjacent to the project site.

6I. Biological Resources

The 2020 Natural Environment Study determined the project would have impact to Waters of the United States; Waters of the State of California; Special Status Species; Threatened and Endangered Species; and Essential Fish Habitat. Among these species are migratory birds and bats. With the implementation of avoidance, minimization, and mitigation measure any impacts would be reduced to less than significant.

Migratory Birds – The contractor will be required to take measures to prevent disturbing areas that will cause conflict between performing necessary work and nesting migratory birds. Birds will be allowed to nest in any area where conflicts with construction are not anticipated. The use of bird exclusionary devices is anticipated on this project to prevent nests where work is expected to occur during the nesting period. Migratory birds nesting period is between February 1 and September 1. If construction occurs during this nesting period, a focused survey for active nests will be conducted by a qualified biologist within 15 days prior to beginning any project-related activities. If migratory bird nests are discovered, then all work that would impact nesting would be suspended and coordination would occur with the United States Fish and Wildlife Services (USFWS) and the California Department of Fish and Wildlife (CDFW).

Bats – The contractor will take measures to prevent disturbing any areas that will cause conflict between performing necessary work and any roosting bats. Bats will be allowed to roost in any areas where conflicts with construction activities are not anticipated. The use of bat exclusionary devices is anticipated on this project to prevent roosting where work is expected to occur during the spawning period. Roosting bats are anticipated to occupy day-roost sites and attempt spawning activities between February 1 and September 1. If construction occurs during this time, a focused survey for

day-roosting bats will be conducted by a qualified biologist within 15 days prior to beginning any project-related activities. If day-roosting bats are discovered, then all work that would impact nesting would be suspended and coordination would occur with the CDFW.

6J. Storm Water

A Storm Water Data Report (SWDR) was prepared for this phase of the project (See **Attachment I** for project signed coversheet). The project will be constructed in compliance with storm water quality regulations using a stormwater pollution prevention plan and construction site best management practices. This project will include permanent treatment to be determined during the PS&E phase.

6K. Complete Streets

The proposed project is on I-5, which is an access-controlled freeway where bicyclists and pedestrian are not allowed; hence ordinarily complete streets elements at the SCV on I-5 would not be considered. Currently, there are no connections in the local area across the Stockton Channel within the project vicinity. Due to funding constraints, a pedestrian overcrossing was cleared environmentally for the project, but is not included in this project scope, cost, or schedule. Should funding become available, the pedestrian overcrossing will be evaluated at that time via a separate project. See **Attachment O** for the City of Stockton and San Joaquin County conceptual pedestrian and bicycle plans, which do not include any proposed pedestrian or bike facility utilizing I-5. There are several local streets for perpetuating pedestrian and bicyclists through the City of Stockton west and east of I-5 and north and south of SR 4.

6L. Green House Gas Emissions (GHG)

The proposed project is not anticipated to help minimize the use of fuel supplies, energy sources, or reduce GHG emissions outside of the proposed lighting. In an effort to reduce the effect of GHG emissions, this project will replace the existing lighting with energy-efficient light emitting diode (LED) lighting, which reduce the associated energy costs by as much as 80 percent. While the proposed project will result in GHG emissions during construction, it is expected that the project will not result in any increase in operational greenhouse gas emissions. The proposed project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With implementation of construction greenhouse gas-reduction measures, the impact would be less than significant.

6M. Climate Change

The scope of this project is not susceptible to climate change factors such as increased flooding. This location, however, is vulnerable to drought and excessive heat conditions. The scope of work for this project will not have significant impacts to climate change.

This project is not located within a coastal zone, but due to its relative proximity to the San Joaquin River Delta, it could potentially be vulnerable to sea level rise (SLR). The SLR projections are estimated at 14 inches by the year 2050, and at 40 to 55 inches increase in mean sea level by the year 2100. The proposed scope of work is to rehabilitate or replace the structures over the water elevating the profile in order to strengthen the structures to accommodate transportation needs. This project is not scoped to increase the vertical clearance above the water, but to meet the United States Coast Guard requirement of 45 feet clear between the high-water mark and bridge soffit over the water for a clear width of 150 feet.

6N. Asset Management

The performance objectives in this project are consistent with the 2019 State Highway System Management Plan and SHOPP Ten-Year Plan. The bridge health performance target in 2019 SHSMP for District 10 is 550,904 square feet (SF) for fair condition and 13,649 SF for poor condition. The project build alternative will improve 272,208 SF of fair bridge health condition for Br. No. 29-0176 R, which accounts for 49.4% of the District's target, 259,937 SF of poor bridge health condition for Br. No. 29-0176 L, which accounts for 1904% of the District's target, and 2,992 SF of fair bridge health condition for Br. No. 29-0202S. The build alternative will improve a total of 532,145 SF of fair and poor bridge health conditions and is a Bridge Anchor project that will be addressing the primary Bridge Health objective achieved by replacement on three bridges (Br. No. 29-0176L, 29-0176R, and 29-0202S). See **Attachment P** for SHOPP Project Output from the SHOPP Asset Management Tool.

Design Option 2 (SCV extends to Park Street Undercrossing):

EA	Bridge Number	Pre-Condition (SF)	Post-Condition (SF)
10-0X461_	29-0176L	272,208 SF (POOR)	282,860 SF
10-0X462_	29-0176R	259,937 SF (FAIR)	293,891 SF
10-0X462_	29-0202S	2,992 SF (GOOD)	2,992 SF
Total SF of SHOPP Output		535,137 SF	535,137 SF

Due to the SHOPP funding constraints, the project performance output was split into two different projects, EA 10-0X461_ for Br. No. 29-0176L and EA 10-0X462_ for Br. No. 29-0176R and Br. No. 29-0202S. All SHOPP Project Performance Measures are shown in **Attachment P**.

7. OTHER CONSIDERATIONS AS APPROPRIATE

7A. Public Hearing Process

The Draft Environmental Document was circulated from February 4 to March 4, 2021, and a virtual public meeting was held on February 18, 2021 from 6 pm to 8 pm, Pacific Standard Time. The comments were noted from the meeting and various ways to submit comments and addressed in the FED. The FED was approved on April 29, 2021 (See **Attachment G**). No design changes were made due to the public comments for Alternative 3.

7B. Route Matters

The existing I-5 corridor through the project limits was adopted as a freeway by the California Highway Commission on January 27, 1960. The original Freeway Agreement (FA) covering the project limits was approved in March 3, 1961 between Caltrans and the City of Stockton. A subsequent superseding FA, in entirety, with the City of Stockton was approved in January 12, 1967. This project does not require any route matter changes or any access modification.

7C. Permits

The District consulted with the United States Coast Guard (USCG), Eleventh Coast Guard District, in August 2018 to determine if a permit is required for the proposed project and is anticipated to require a permit. During construction, access below the bridge deck will be necessary requiring approval from the USCG prior to proceeding with the work.

Anticipated project permits or approvals include the USFWS (Biological Opinion), National Marine Fisheries Service (Biological Opinion), CDFW (1602 Streambed Alteration Agreement and 2081 Incidental Take Permit), U.S. Army Corps of Engineers (404 Permit), and the Regional Water Quality Control Board (401 Water Quality certification).

7D. Transportation Management Plan

A preliminary Transportation Management Plan (TMP) was prepared for this project (See **Attachment H**), however, a comprehensive TMP will be developed during the PS&E phase to mitigate impacts of project construction by applying various techniques which may include:

- Close coordination with local agencies as well as with emergency service providers such as Fire, Police, and Emergency Medical Services (EMS) prior to start of construction activities.

- Public education and awareness. Brochures and newsletters are versatile communication tools that can provide information in an attractive and informal format. Both can educate readers about the purpose and benefits of the project, describe the timeline for the work, and present tips for avoiding construction work areas. A map in the brochure or newsletters efficiently conveys the scope of the project, detours, and phases of construction. Newsletters, which are typically larger in size than brochures and frequently have multiple issues, also can carry articles or stories on construction progress. Newsletters and brochures can be useful handouts or mailings for businesses, residents, event planners, and community groups. Public education and awareness information will be made available in multiple languages to provide equitable access to all populations.

- Installation of traffic control or safety devices that will reduce speed and traffic volume while maintaining maximum mobility and access, as well as providing traffic enforcement.

- Providing signage to inform the motorists through detour routes including points of beginning of detour and end of detour and detour descriptions (See **Attachment I**).

- Utilizing nighttime work when appropriate. Nighttime work is most appropriate when detours will be required as volumes drop substantially from day to night. Also, lane closures would be specific to the area of work needed. Excessive lane closure lengths should not be permitted.

- Adjusting signal timing in the impacted areas to optimize traffic flow.

- Deploying an incident management plan that is designed to detect and clear incidents quickly. An incident management plan may include but is not limited to: On-site tow vehicles, enhanced police presence, and closed-circuit television (CCTV)/traffic monitoring stations (TMS).

The main objectives of the TMP are to maintain efficient and safe movement of vehicles through the construction zones and to provide public awareness of potential impacts on I-5 and any adjacent streets that may need to be detoured (See **Attachment I**).

Brochures, mailers, press releases, paid advertising, public information meetings, changeable massage signs, and the internet to publicize project information would be used for all viable alternatives. They would also include participation of the Construction Zone Enhanced Enforcement Program (COZEEP) for incident management.

The TMP will be updated and certified during the PS&E phase to determine

specific traffic impacts and to make changes required for traffic mitigation. Lane Closure Review Committee (LCRC) approval for overall traffic handling, several of the full closures and associated detours and coordination with Local Agencies including emergency services and the California Highway Patrol are anticipated to be required for this project.

7E. Stage Construction

Major stage construction (SC) and traffic handling (TH) impacts are anticipated for this project (see **Attachment C**). Limits of work are shown in **Attachment B**. The total estimated conceptual stage construction period is approximately 8.5 years or 102 months; this accounts for winter suspensions and anticipated timing constraints of such a large and complex structure and roadway project. Construction staging concepts and associated TH are described as follows for the preferred alternative:

Stage 1 SC and TH – Center Structure Portion and Median Portion of I-5 Roadways North and South of Bridge Structures

The anticipated duration of Stage 1 is estimated at 2.5 years or 30 months. In Stage 1, the center span structure and the center roadway portions are constructed. The following summary explains the conceptual stage construction and associated traffic handling proposed in Stage 1. This work is proposed to be constructed as part of the first build construction project.

The primary SC work is to build the center structure and in both the SB and NB directions of I-5 roadways within the median and portions of the existing inside lane south and north of the bridges. For Alternative 3 only, due to the required higher structure and roadway profile elevation, the roadway portions to the south and north of the new center span are proposed to utilize mechanically stabilized earth retaining (MSE) walls to minimize the earthwork limits and eliminate any additional lane reductions in both directions. Additionally, this stage will construct the new bridge center span portion and roadways south and north of the bridges, as well as demolish a portion of both the left and right SCV structures. Also, construction of the proposed basin in the southwest area will be required primarily for in channel dewatering and other dewatering needs on the south side of the channel. Drainage area is available in the northeast area of the project for any additional dewatering needs on the north side of the channel. Finally, towards the end of Stage 1, a portion of a proposed temporary roadway crossover between SB I-5 and existing EB SR 4 2-lane connector south of the bridge would be constructed, which would be used in TH during Stage 2, Phase 1 for access of the high-volume connector traffic.

The primary TH impacts is a temporary lane reduction (HOV lane closed) in both directions on I-5 (from near the I-5/SR 4 Separation at PM 26.1 to near and south of Carlton Avenue Undercrossing at PM 27.6), temporary traffic shift up to 8' toward outside edge of pavement in both direction with temporary reduction of shoulder widths/shoulder closures on I-5 in both directions, and lane closures or full closures of local roads (Weber Avenue, Fremont Street and Pershing Avenue) during false work installation and removal. Additionally, closure and removal of air-space leased buildings and closure of City of Stockton operated Morelli Park are required.

Stage 2, Phase 1, 2 and 3 SC and TH – SB I-5 Structure Portion and SB I-5 Roadways North and South of Bridge Structures

The anticipated total duration of Stage 2 three conceptual phases is estimated at 2.5 years or 30 months. In Stage 2 the SB side structure and roadway portions are constructed as well as the SB ramps and connector work are completed. The following summary explains the conceptual stage construction phases and associated traffic handling in Stage 2. This work is proposed to be constructed as part of the first build construction project.

In Stage 2, Phase 1, the primary SC work is to build the SB structure, SB I-5 to SR 4 Connectors, portions of SB I-5 roadway north of the bridge and Fremont Street On-ramp. Additionally, this phase will construct the new bridge SB side span portion and roadways north of the bridges, as well as demolish the remaining portion of the left SCV structure. Removal and construction of both the Fremont Street Off-ramp and the Fremont Street On-ramp as well as a new retaining wall at the outside edge of pavement will be constructed. The temporary signing and striping would be installed for providing access to the portion of temporary crossover built in Stage 1 on the south side of the bridge.

In Stage 2, Phase 1, the primary TH impacts is retaining the lane reduction from Stage 1 in both directions on I-5; a temporary major traffic shift of up to 55' toward the NB side into the Stage 1 constructed center section/span with temporary reduction of shoulder widths/shoulder closures along SB I-5; temporary SB I-5 to EB SR 4 connector movement, full closure of SB I-5 to WB SR 4 connector movement with a proposed detour utilizing existing I-5/Charter Way/Martin Luther King Jr. Blvd. Interchange SB Off-ramp; lane closures or full closures of local roads (Weber Avenue, Fremont Street and Pershing Avenue) during false work installation and removal; full closure of Fremont Street On-ramp with a proposed detour utilizing existing Monte Diablo Avenue Interchange SB I-5 On-ramp, and full closure of Fremont Street Off-ramp with a proposed detour utilizing existing Monte Diablo Avenue Interchange SB I-5 Off-ramp. Continued closure and removal of air-space leased buildings and closure of City of Stockton operated Morelli Park are

required. The anticipated duration of Stage 2, Phase 1 is estimated at 18 months.

In Stage 2, Phase 2, the primary SC work is to build the remaining SB I-5 roadway portion south of the new bridge as well as removal of the existing temporary roadway crossover used in Phase 1 and built in Stage 1. A new retaining wall at the outside edge of pavement will be constructed.

In Stage 2, Phase 2, the primary TH change is to provide SB I-5 to EB and WB SR 4 connector traffic access to use the structure/roadway constructed in Phase 1. This will allow ending the full closure and detour for WB SR 4 connector. NB and SB I-5 traffic remain as per Phase 1 and Fremont Street On-ramp and Off-ramp remain closed during Phase 2. The anticipated duration of Stage 2, Phase 2 is estimated at 8 months.

In Stage 2, Phase 3, the primary SC work is to build the temporary Pershing Avenue Off-ramp between Pershing Avenue and the existing NB I-5 soundwall north of the bridge, including the temporary MSE walls to accommodate the high embankment of the temporary off-ramp. Additionally, a portion of the temporary crossover between SR 4 to NB I-5 connector would be constructed in this phase to be used for TH during Stage 3, Phase 1 and Phase 2.

In Stage 2, Phase 3, the only TH change from Phase 2 is the temporary closure of one lane (inside lane) on the Pershing Avenue On-ramp to accommodate the temporary off-ramp construction. All movements to the on-ramp would be perpetuated and Park Street east of Pershing Avenue would need to be temporarily modified to only allow one through lane (outside lane) to the on-ramp with the other lane a temporary dedicated left turn lane to Pershing Avenue. Additionally, some nighttime lane closures along NB I-5 outside lane and SR 4 to NB I-5 connector inside lane are anticipated for the construction of the temporary roadway crossover. The anticipated duration of Stage 2, Phase 3 is estimated at 4 months.

Stage 3, Phase 1, 2 and 3 SC and TH – NB I-5 Structure Portion and NB I-5 Roadways North and South of Bridge Structures

The anticipated total duration of Stage 3 three conceptual phases is estimated at 3.5 years or 42 months. In Stage 3 the NB side structure and roadway portions are constructed as well as the NB ramps and connector work are completed. The following summary explains the conceptual stage construction phases and associated traffic handling in Stage 3. This work is proposed to be constructed as part of the second build construction project.

In Stage 3, Phase 1, the primary SC work is to build a portion of the NB structure and portion of NB I-5 roadway north of the bridge. Additionally, this phase will construct the new bridge NB side span portion and roadways north of the bridge as well as demolish a portion of the right SCV structure north of the channel. The temporary signing and striping would be installed for providing access to the temporary roadway crossover built in portion in Stage 2, Phase 3. Also, towards the end of Stage 3, Phase 1 the temporary signing and striping would be installed for providing access for NB I-5 and EB SR 4 connector traffic to the temporary Pershing Avenue Off-ramp.

In Stage 3, Phase 1, the primary TH change is the major traffic shifts for NB and SB I-5 up to 62' toward the SB side. NB traffic will use the Stage 1 constructed center section/span with temporary reduction of shoulder widths/shoulder closures along NB I-5. The SB I-5 traffic will be shifted to the ultimate SB structure/roadway but with reduced shoulder width/shoulder closures. Also, the NB I-5 access and EB SR 4 connector access to the existing Pershing Avenue Off-ramp will not be available will be detoured via the Monte Diablo Avenue Interchange utilizing NB I-5. However, access to existing Pershing Avenue Off-ramp from the WB SR 4 high-volume connector is maintained during Stage 3, Phase 1. Additionally, the Fremont Street Off-ramp and On-ramp will be open to traffic. The anticipated duration of Stage 3, Phase 1 is estimated at 6 months.

In Stage 3, Phase 2, the primary SC work is to build the remaining portion of the NB span structure and portion of SR 4 to NB I-5 connector roadway south of the bridge. Additionally, this phase will construct the new bridge NB side span portion over and south of the channel as well as demolish the remaining portion of the right SCV structure is required. The temporary signing and striping would be installed for providing access to the portion of temporary roadway crossover built in Stage 2, Phase 3.

In Stage 3, Phase 2, the only TH change from Phase 1 is the opening of temporary NB I-5 and SR 4 Connector access to the temporary Pershing Avenue Off-ramp and the closing of Pershing Avenue Off-ramp access from WB SR 4. This temporary off-ramp is proposed to have a temporary auxiliary lane 2,400 feet in length to provide weaving ability between the NB I-5 and connectors movements and off-ramp movement. Furthermore, existing detours to Monte Diablo Interchange will be maintained to provide options to NB traffic to various portions of the City of Stockton and Pershing Avenue. The anticipated duration of Stage 3, Phase 2 is estimated at 6 months.

In Stage 3, Phase 3, primary SC work is to build the remaining portion of NB I-5 roadway south of the new bridge, removal of the temporary roadway crossover used in Phase 1 and Phase 2, construction of the remaining roadway portions of SR 4 NB connectors, construction of a soundwall atop the retaining wall along outside NB I-5 north of the bridge, removal of

temporary Pershing Avenue Off-ramp, and all permanent signing and striping. Weber Avenue roadway will be realigned and a new retaining wall constructed at the outside edges of pavement along NB I-5 and SR 4 to NB I-5 Connector.

In Stage 3, Phase 3, primary TH changes include the SR 4 to NB I-5 Connector access to newly constructed NB bridge, NB I-5 traffic shift from the Phase 2 configuration on the south side to the ultimate NB lanes configuration on the north side, and SB I-5 traffic shift from ultimate SB lanes configuration on the north side to Phase 2 configuration on the south side. Nighttime and proposed weekend full closures of the connectors are anticipated for final roadway work on the connectors. The anticipated duration of Stage 3, Phase 3 is estimated at 9 months.

7F. Accommodation of Oversize Loads

All new structures, ramps, and auxiliary lanes will be designed to accommodate STAA trucks. After construction of the project is completed, the structures will be able to accommodate all permittable loads with the preferred alternative improvements.

7G. Graffiti Control

The following measures would be implemented during design, where feasible, to discourage graffiti:

- Use of planting along soundwall for all Alternatives and where appropriate, to cover vertical surfaces;
- Bridge piers, barriers and retaining walls would be designed with architectural treatment and/or texture; and
- Restricting access to structures and signs by using fencing and anti-climb measures on pole-mounted signs and graffiti guards on bridge-mounted signs.

Graffiti removal efforts during construction would be based on practices specified in the Caltrans Maintenance Manual.

7H. Homeless Encampment Protection

Homeless encampments are only one aspect of homelessness that will be considered for this project. The growing number of homeless encampments is jeopardizing the transportation infrastructure, by carving out holes in the embankments, fires which lead to uncontrolled containment, illegal dumping and litter that require continuous attention from maintenance crews and state funds to clean up these areas.

Additional measures, where feasible, shall be considered to protect areas near and around the structures including but not limited to the following:

- Protective fencing;
- Hard surface treatments for embankment slopes;
- Eliminating slope benches at abutments/embankments;
- Evaluating VAA-6 from the VA recommended VA alternative under and at the SCV south end abutment area, just south of Weber Avenue, to eliminate open space area currently being used as a homeless encampment area

7I. Life-Cycle Cost Analysis

A Life-Cycle Cost Analysis (LCCA) was completed in October 2018, in which Alternatives 2 and 3 were evaluated. Alternative 1 was not evaluated as it does not meet the need and purpose of the project. Subsequent Alternative 1A also is not included in the LCCA evaluation as it is a minimum build alternative and does not provide sufficient service life and does not meet permit loading requirements for long term evaluation. The LCCA utilized the California Life-Cycle Benefit/Cost Analysis Model (Cal-B/C) version 6.2, dated December 2017. This model has been developed by Caltrans for the purpose of evaluating the life-cycle costs of transportation projects (See **Attachment L**).

Cal-B/C was used to calculate the present-day costs for an 85-year life-cycle for each alternative with the results summarized below:

Alternative	Initial Investment (2018 $'s)	85-Year Life-Cycle Costs (2018 $'s)	Total 85-Year Life Cycle Costs (2018 $'s)
Alt 2- Superstructure Replacement	$432.6 Million	$282.4 Million	$714.4 Million
Alt 3 – Full Replacement	$540.6 Million	$1.1 Million	$541.5 Million

It is assumed that Alternative 2 would require replacement of the full superstructure after 50 years of service and Alternative 3 has substantially higher present-day costs.

The 20-year outputs of the Cal-B/C model have been summarized below:

	Alternative 1A	Alternative 2	Alternative 3
Life-Cycle Costs (mil. $)	N/A	$432.6	$540.6
Life-Cycle Benefits (mil. $)	N/A	$159.9	$170.6
Net Present Value (mil. $)	N/A	-$272.7	-$370.1

NOTE: Alternative 1A was not evaluated for Life Cycle Value since it is a minimum build alternative and does not meet permit loading requirements obtained with Alternative 2 and Alternative 3 as well as only provide a service life of less than 30 years.

As with any model, these findings are estimated. The findings of this model are indicative of the relative value of the particular alternative. The top line includes the full life-cycle cost for a 20-year period. The net present value shows whether the project has a positive return on investment. The model is designed for new improvements and doesn't fairly depict the life-cycle benefits of a rehabilitation project.

For this model, the LCCA has determined that the preferred alternative is the better value from a life-cycle cost perspective over an 85-year time span.

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

It has been determined that this project is eligible for Federal-aid funding.

Programming

The project PA&ED support costs were programmed in the 2016 SHOPP with funding from the 20.XX.201.110 Bridge Rehabilitation and Replacement Program in FY 2016/17.

The project PS&E/ROW support costs are proposed to be programmed in the 2020/21 Fiscal Year for Contract 1 with funding from the 20.XX.201.110 Bridge Rehabilitation and Replacement Program. The Overall project support and capital costs are provided in the outlay table for the preferred alternative.

A Project Change Request (PCR) was approved in August 2018 to update the proposed programming costs and indicate a Design-Build delivery method. A subsequent PCR was approved in April 2020 to split the project into two "child" projects (10-0X461_ and 10-0X462_) for construction in separate programming cycles as well as updated programming costs. A third PCR was approved in May 2020 to update the proposed programming cost to add available D10 programming to PS&E support costs (created via percentage of capital costs), which was deemed sufficient essentially to support Design-Build delivery. Another PCR is anticipated with the recommendation of the preferred alternative for ultimate programming of both "child" projects support and capital costs and final approved construction methodology, which is anticipated to be either Design-Bid-Build, CMGC or Design-Build A bottoms-up workplan for estimated delivery resources would be generated after the project delivery method is agreed upon.

Advanced construction capital funding would be required earlier, starting in FY 2021/22, for the Design-Build method as funding to support both

design and construction would start immediately after PA&ED milestone is achieved. After discussion with the design/construction community and based on previous Design-Build projects that savings of 10-25% are possible for this project through Design-Build methodology if structure type, materials and construction methodology is constrained by predetermined performance criteria, design method and traffic management constraints (e.g. 3 lanes minimum in each direction).

Additional design support funding would likely be needed to support the CMGC delivery method as additional construction support would be needed to hire a CMGC contractor shortly after PA&ED is completed.

PROPOSED SUPPORT AND CAPITAL OUTLAY: (All Phases)

Funding Source	Fiscal Year Estimate				
20.XX.201.110	**16/17 (Prior)**	**20/21**	**24/25**	**26/27**	**Total**
Project Cost Component	In thousands of dollars ($1,000)				
PA&ED Support	$4,169				**$4,169**
PS&E Support		$18,802			**$18,802**
Right of Way Support		$2,200			**$2,200**
Construction Support			$9,000	$7,000	**$16,000**
Total Support Cost					**$41,171**
Right of Way			$9,100		**$9,100**
Construction			$322,000	$160,500	**$482,500**
Total Capital Cost					**$491,600**
Project Total	**$4,169**	**$21,002**	**$340,100**	**$167,500**	**$532,771**

Key assumptions for capital cost estimate:

1. Current FY = 2020/2021
2. Support Cost Escalation rate = 3.2% per year to 21/22, 2% thereafter
3. Construction Capital Cost Escalation rate = 3.2% per year
4. Right of Way Capital Escalation Rate = 5.0% per year
5. Support Costs are estimated on basis of Design-Build project delivery method.

The estimated support to capital cost ratio is 8.4%.

Estimate

The current total capital estimate (See **Attachment E**) is $407,300,000. This cost includes the estimated current ROW capital cost of $7,900,000 and the estimated current construction capital of $399,400,000. The construction capital cost includes approximately 85% structure related cost and 15% roadway related cost. The total current structure cost consists of the SCV

replacement covering the SB, NB and median center span portion; several structure-designed retaining walls and MSE walls as well as the temporary MSE wall for the temporary Pershing Avenue off-ramp; and the Pershing Avenue Off-ramp replacement bridge extended to the proposed north side abutment of Park Street. The roadway costs are primarily related to roadway earthwork/pavement costs (33%) and traffic related costs (30%).

9. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
Program Project	M015	06/28/16	Actual
Begin Environmental	M020	01/19/17	Actual
Begin Project Report	M040	08/24/18	Actual
Circulate DPR & DED in District	M060	07/02/19	Actual
Approve DPR	M100	12/04/20	Actual
Circulate DED Externally	M120	02/04/21	Actual
Approve FED	M160	04/29/21	Actual
PA & ED	M200	06/30/21	Target
Bridge Site Data Accepted	M221	01/31/22	Target
Regular ROW	M225	07/01/22	Target
PS&E to DOE	M377	02/15/24	Target
Draft Structures PS&E **	M378	04/30/24	Target
Right of Way Certification	M410	08/30/24	Target
* Ready to List (Phase 1)	M460	09/30/24	Target
* Fund Allocation (Phase 1)	M470	12/11/24	Target
* HQ Advertise (Phase 1)	M480	01/06/25	Target
* Award (Phase 1)	M495	04/25/25	Target
* Approve Contract (Phase 1)	M500	05/28/25	Target
* Ready to List (Phase 2)	M460	01/06/30	Target
* Fund Allocation (Phase 2)	M470	04/02/30	Target
* HQ Advertise (Phase 2)	M480	05/06/30	Target
* Award (Phase 2)	M495	08/25/30	Target
* Approve Contract (Phase 2)	M500	09/30/30	Target
* Contract Acceptance (Phase 1)	M600	11/30/30	Target
* Contract Acceptance (Phase 2)	M600	05/15/34	Target
End Project (All Contracts)	M800	05/28/35	Target
Project Closeout	M900	02/28/36	Target

* The schedule assumes a Design-Bid-build or CMGC project delivery method with two separate build projects due to SHOPP funding constraints and approved PCR project split.
** Structure PS&E to District is based on early Structure Design starting in mid-July 2021.

10. RISKS

Fifteen overall project risks are currently identified in the risk matrix (See **Attachment M**). There is potential for public controversy and informal environmental scoping may be of value in defining environmental impacts and issues of concerns to the community. Additional known hazardous materials are known to exist, due to previous ship painting operations and wood preservative operations that existed historically. The following high risks have been identified:

- Migratory Bird Treaty Act (MBTA) Surveys
- Vertical Clearance / Bridge Scaffolding
- Additional Geotechnical investigations and structural design changes

The risk for discovery of hazardous material in the channel was mitigated with additional construction capital cost included in the estimate for each alternative and therefore is not identified as a high risk in the risk register

11. EXTERNAL AGENCY COORDINATION

Federal Highway Administration (FHWA)
FHWA has been contacted regarding this project on September 4, 2019 and March 29, 2021 per a meeting with Caltrans. The meeting in 2019 discussions focused on access modifications that are not part of the current proposed project scope. Since the project cost is expected to be over $500 million and on an interstate route, this project is considered a Project of Division Interest (PODI) and a major project in accordance with the current FHWA and Caltrans Joint Stewardship and Oversight Agreement. The meeting in 2021 discussions focused on the changes that occurred removing the need for an approved Project Oversight Agreement and the incorporation of an annual project update. The link to the Draft Project Report was forwarded in March 2021 and this FPR will be circulated to FHWA for their courtesy review in May 2021.

The project requires the following coordination:

Port of Stockton Authority and USCG
The Port of Stockton Authority and USCG were contacted regarding this project on September 4, 2018 per a meeting with Caltrans. That discussion focused on bridge permit requirements and criteria for vertical and lateral clearance. Port of Stockton Authority and USCG coordination is anticipated to be required.

United States Department of Fish and Wildlife Services (USFWS) and National Marine Fisheries Service (NMFS)
Coordination with USFWS and NMFS is required to approve the Biological Assessment and provide an approved Biological Opinion for the Section 7 consultation.

California Department of Fish and Game (CDFG)
Coordination with CDFG is required to obtain a 1602 Streambed Alteration Agreement/Permit as well as Section 2081 (b) and (c) Incidental Take Permit.

California State Lands Commission (CSLC)
Coordination with CSLC is anticipated for work in the water and the temporary construction easements within the Port of Stockton Channel.

Central Valley Flood Protection Board (CVFPB)
Coordination with CVFPB is anticipated.

United States Army Corps of Engineers (USACE)
Coordination with USACE is anticipated to obtain a Clean Water Act 404 Permit.

Regional Water Quality Control Board – Central Valley (RWQCB-CV)
Coordination with RWQCB-CV is anticipated to obtain a Clean Water Act 401 Water Quality Certification.

City of Stockton and San Joaquin County
Coordination with the City of Stockton and San Joaquin County is needed for road closure and detour discussions/agreements for various traffic impacts with this project. Local roads that may be closed, have lane closures, or are part of a proposed potential detour include but are not limited to Navy Drive, South Fresno Avenue, Weber Avenue, Washington Street, Center Street, South Lincoln Street, Charter Way/Martin Luther King Junior Boulevard, Fremont Street, Pershing Avenue, and Monte Diablo Avenue.

12. PROJECT REVIEWS

Field Review	(PM, Design, Env., Maint., Constr., Struct.)	Date	02/04/20
District Program Advisor	Ed Morente	Date	10/16/20
HQ Bridge SHOPP Program Advisor	Diana Campbell	Date	10/16/20
District Maintenance	Tanya Sanguinetti	Date	10/20/20
District Traffic Safety Engineer	Mark Orr	Date	10/20/20
District Constructability Review	Various Team Members	Date	10/14/20
Headquarters Design Coordinator	Paul Gennaro	Date	10/20/20
Project Manager	Sam Sherman	Date	10/20/20
FHWA	Lamin Williams	Date	03/29/21

13. PROJECT PERSONNEL

Sam Sherman, Project Manager	(209) 948 7889
Anton Kismetian, Design Manager	(559) 230 3141
Ashlyn Swan, Project Engineer	(559) 383 5941
Krishnakant Andurlekar, DES-Structural Design	(916) 227 8381
Kyoung-Hyeog Lee, DES-Structural Design	(916) 227 8412
Pete Norboe, DES-Structural Design	(916) 227 8109
Scott Guidi, Environmental Manager	(209) 990 5719
James Gonzalez, Chief, Central Region Right of Way	(559) 445 6219
Jonathan Coley, Environmental Planner	(209) 990-5716
Jason Meigs, Biologist	(209) 932 2371
Diana Campbell, HQ Bridge Program Advisor	(916) 227 2442
Eduardo Morente, Maintenance Eng. – Br. Coord.	(209) 948 3847
Greg Heath, Maintenance-Bridge, Supervisor	(209) 948 7822
Joe Norman, Maintenance Area Superintendent	(209) 948 7820
Stephen Pozzo, Structures Construction	(209) 610 8650
Manjit Singh, Construction Manager (Acting Chief)	(209) 470 2053
Don Rogers, Hydraulics Engineer	(209) 948 7969
Jeffrey Whitaker, Storm Water	(559) 243 3568
Agustin “Gus” Escutia, Landscape	(209) 948 3861
Mandeep Dhesi, Materials Eng. Manager	(209) 948-7567
Vu Nguyen, Freeway and Highway Operations	(209) 603 5126

14. ATTACHMENTS

Attachment A	Location Map
Attachment B	Layouts and Typical Cross Sections (Alternative 3 only)
Attachment C	Construction Staging Concept (Alternative 3 only)
Attachment D	Advanced Planning Study Plans (Alternative 3 only)
Attachment E	Project Cost Estimate (Alternative 3 only)
Attachment F	Right of Way Data Sheet (Alternative 3 only)
Attachment G	Final Environmental Document
Attachment H	Preliminary Traffic Management Plan Checklist
Attachment I	Traffic Impacts Summary (Full Closures & Detours)
Attachment J	Storm Water Data Report (Signed cover sheet)
Attachment K	Value Analysis Study Report (Summary only)
Attachment L	Life-Cycle Cost Analysis (Structure LCCA only)
Attachment M	Risk Management Plan
Attachment N	Traffic Operations Analysis Memo
Attachment O	City of Stockton Existing and Planned Pedestrian/Bicycle Plans
Attachment P	SHOPP Project Output

ATTACHMENT A
Location Map

INDEX OF PLANS

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON

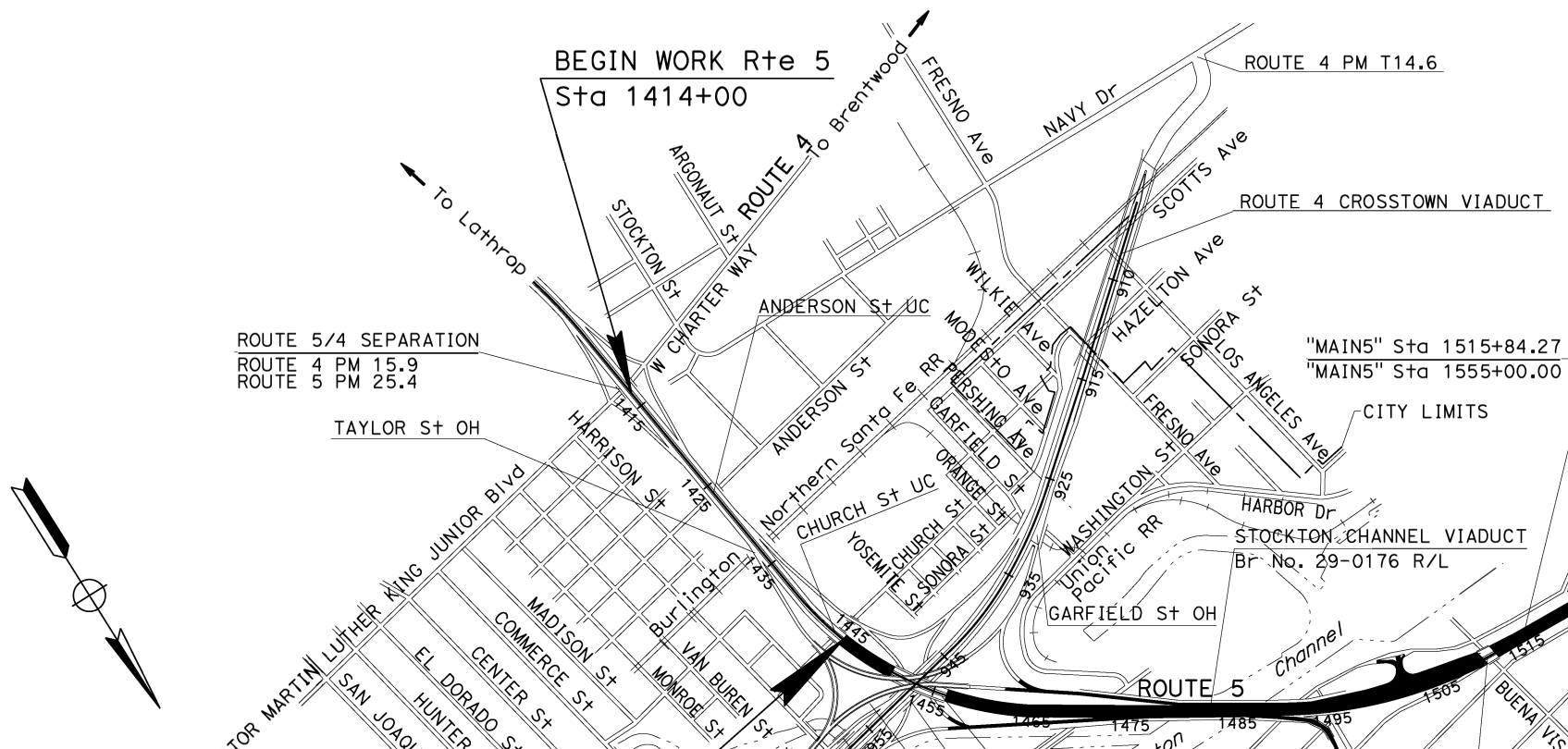
STATE HIGHWAY

IN SAN JOAQUIN COUNTY IN STOCKTON ON ROUTE 5 FROM THE CHURCH STREET UNDERCROSSING TO THE CARLTON AVENUE UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2018

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	SJ	5	26.1/27.6	1	XXX

LOCATION MAP



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PROJECT MANAGER: JES PADDA
DESIGN MANAGER: KAL DAHER

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

ATTACHMENT A - LOCATION MAP

CONTRACT No.	10-0X4600
PROJECT ID	1012000259

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TIME PLOTTED => 10:57
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ATTACHMENT B
Alternatives
[Layouts and Typical Cross Sections]

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"MAIN4"
EC "MAIN4" 943+37.33
"RAMPC"
"RAMPC" Sta 39+60.44 EB
"RAMPC" Sta 35+73.27 PCC
Br No. 29-0233 H
"RAMPA" Sta 46+49.27 EB
"RAMPA" Sta 44+95.80 EC
"RAMPA" Sta 50+38.00
CONFORM TO Exist
Beg REMOVE DIKE
Beg CRCP
Beg CONCRETE DIKE
"MAIN5" Sta 1457+40.89 EB
Br No. 29-0232 L
R=3000'
I-5 SB
Br No. 29-0232 R
I-5 NB
"MAIN5" Sta 1457+58.13
Beg REMOVE BARRIER
Beg CONCRETE BARRIER
TYPE WB-31 TRANSITION RAILING
"MAIN5" Sta 1458+34.68, 76.00' Rt
Beg MGS
"MAIN5" Sta 1463+66.14
CONFORM TO Exist
Beg REMOVE DIKE
Beg CRCP
Beg CONCRETE DIKE
"MAIN5" Sta 1466+70.21
Beg MSE WALL
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL
"MAIN5" Sta 1465+23.30 EC
N57°34'27"W 2809.49'
"RAMPA" Sta 53+74.33
OSD-RSP DRAIN
"RAMPE" Sta 22+12.94
CONFORM TO Exist
Beg REMOVE MBGR
Beg JPCP
Beg MGS
"RAMPE" Sta 22+92.90
CONFORM TO Exist
Beg REMOVE DIKE
Beg REMOVE C&G
Beg JPCP
Beg CONCRETE DIKE
"WASH"
"WASH" Sta 25+69.39 EC
"RAMPE" Sta 23+86.89 EC
END MGS
IN-LINE TERMINAL SYSTEM
"RAMPE" Sta 23+95.35
END REMOVE MBGR
WASHINGTON STREET
R/W
"RAMPE"
"RAMPB" Sta 36+25.22
CONFORM TO Exist
Beg REMOVE DIKE
Beg CRCP
Beg CONCRETE DIKE
"RAMPB" Sta 39+01.35 PCC
"RAMPB" Sta 39+59.53
OSD-RSP DRAIN
"RAMPB" Sta 41+86.95 EC
"RAMPB"
"RAMPH" Sta 20+94.60
CONFORM TO Exist
Beg REMOVE DIKE
Beg CRCP
Beg CONCRETE DIKE
"RAMPH" Sta AHEAD = 29+17.97
"RAMPH" Sta BACK = 29+31.15
"RAMPH" Sta 29+19.15 = "RAMPB" Sta 44+82.95 END
IN-LINE TERMINAL SYSTEM
ALL ALTERNATIVES
REMOVE MBGR
INSTALL MGS
"RAMPH" Sta 31+64.81
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL
"RAMPH"
"RAMPH" Sta 19+56.43 EC
R/W
MORMON SLOUGH
MATCH LINE

ALTERNATIVE 3
PRELIMINARY LAYOUT
L-1

SCALE: 1"=50'

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"RAMPA" Sta 58+00.00, 24.00' Lt =
"RAMPE" Sta 28+18.08 END

"RAMPA" Sta 56+63.90
"RAMPE" Sta 26+93.22
END REMOVE DIKE
END JPCP
END CRCP
END CONCRETE DIKE

"WASH" Sta 29+59.58 =
"WEBER2" Sta 17+96.88

"WASH" Sta 29+97.07 BC

WASHINGTON STREET "WASH"

"WASH" Sta 33+30.12 =
"WEBER1" Sta 18+04.53

ALL ALTERNATIVES
REMOVE MBGR
REMOVE CRASH CUSHION
INSTALL MGS

WEBER AVENUE "WEBER1"

"MAIN5" Sta 1480+50.00, Lt 66.00' =
"RAMPA" Sta 67+63.76 END

"WASH" Sta 32+25.80 EC

"RAMPA" Sta 58+20.61 PI

"RAMPA" Sta 63+06.22 PC

BASIN

"MAIN5" Sta 1468+27.45 BB
END MSE WALL
END RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

"WEBER2" Sta 20+32.85 BC

ALL ALTERNATIVES
INSTALL DOUBLE MGS
INSTALL SEVERE DUTY CRASH CUSHION SYSTEM

"MAIN5" Sta 1468+62.00 BB

I-5 SB

Br No. 29-176L

"MAIN5"

2809.49'
N57°34'27"W

"MAIN5" Sta 1468+37.23
END REMOVE BARRIER

"MAIN5" Sta 1468+07.45
END CONCRETE BARRIER TRANSITION BLOCK

I-5 NB

Br No. 29-176R

MATCH LINE

MATCH LINE

"RAMPH" Sta 34+87.97 BC

"RAMPH" Sta 36+55.51 EC

"MAIN5" Sta 1475+50.00, Rt 66.00' =
"RAMPH" Sta 39+55.57 END

WEBER AVENUE

"WEBER1" Sta 23+54.19 =
"WEBER2" Sta 23+54.19 EC

TYPE WB-31 TRANSITION RAILING

"RAMPH" Sta 32+23.13
END REMOVE DIKE
END CRCP
END CONCRETE DIKE
END RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

MORMON SLOUGH

STOCKTON CHANNEL

R/W

ALTERNATIVE 3
PRELIMINARY LAYOUT
L-2

SCALE: 1"=50'

LAST REVISION | DATE PLOTTED => 09-OCT-2020
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PROJECT NUMBER & PHASE 00000000001

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STOCKTON CHANNEL

"MAIN5" Sta 1490+03.95, Lt 66.00' =
"RAMPJ" Sta 1490+03.95 Beg

R/W

"RAMPJ" Sta 1493+25.39 BC

"RAMPJ" Sta 1496+05.34 PCC

FREMONT STREET

SB I-5 ONLY

"RAMPJ" Sta 1496+22.74
Beg REMOVE DIKE
Beg REMOVE CURB AND GUTTER
Beg CRCP
Beg CONCRETE DIKE
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

ALTERNATIVE 3
REMOVE MBGR

"MAIN5" Sta 1496+39.33 EB
Beg CONCRETE BARRIER

"MAIN5" Sta 1496+01.20
Beg REMOVE BARRIER

"MAIN5" Sta 1493+32.79 BC

Br No. 29-176L I-5 SB

Br No. 29-176R I-5 NB

"MAIN5" N57°34'27"W 2809.49'

ALL ALTERNATIVES
INSTALL DOUBLE MGS
INSTALL SEVERE DUTY CRASH CUSHION SYSTEM

ALL ALTERNATIVES
REMOVE MBGR
REMOVE CRASH CUSHION
INSTALL MGS

"RAMPJ" Var 1495

"MAIN5" Sta 1496+29.33 EB
Beg MSE WALL
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL
Beg CRCP

"MAIN5" Sta 1496+20.48, 77.09' Rt
Beg REMOVE SOUND WALL WITH CONCRETE BARRIER

"RAMPI" Sta 1491+96.96 BC

"MAIN5" Sta 1487+50.26, Rt 66.00' =
"RAMPI" Sta 1487+50.26 Beg

"RAMPI" Sta 1495+25.91 EB
Beg CRCP
Beg REMOVE DIKE
Beg CONCRETE DIKE
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

"MAIN5" Sta 1496+29.33, 77.09' Rt
Beg RETAINING WALL
Beg SOUND WALL WITH CONCRETE BARRIER

OAK STREET

MATCH LINE

MATCH LINE (SHEET L-4)

MATCH LINE (SHEET L-5)

MATCH LINE (SHEET L-4)

ALTERNATIVE 3
PRELIMINARY LAYOUT
L-3

SCALE: 1"=50'

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MATCH LINE (SHEET L-3)

MATCH LINE (SHEET L-3)

MATCH LINE (SHEET L-5)

MATCH LINE (SHEET L-5)

"RAMPI" Sta AHEAD = 1496+83.76 EC
"RAMPI" Sta BACK = 1496+83.68 POT

"RAMPI" Sta 1497+82.50 BB
END CRCP
END REMOVE DIKE
END CONCRETE DIKE
END RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MARSONRY WALL

"RAMPI" Sta 1498+98.75 EB
Beg CRCP
Beg REMOVE DIKE
Beg CONCRETE DIKE
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

"RAMPI" Sta 1499+85.99
END RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MARSONRY WALL

"RAMPI" Sta 1502+23.52
CONFORM TO Exist
END REMOVE DIKE
END CRCP
END CONCRETE DIKE

"PERSHING AVENUE SB" Sta 7+83.32 =
"RAMPT" Sta 1494+98.14 Beg

"RAMPI" Sta 1500+06.48 BC

"RAMPI" Sta 1504+18.66 EC

"RAMPT"
"RAMPI"
PERSHING AVENUE
PARK AVENUE
FLORA St
Br. No. 29-0202 S
R/W
24' 7 Var
24'
12'
10'
8'
4'
6
4
3
2
1495
1500
1505

ALTERNATIVE 3
PRELIMINARY LAYOUT
L-4

SCALE: 1"=50'

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"RAMPJ" Sta 1504+01.93
"RAMPJ" Sta 1504+82.69
CONFORM TO Exist
END REMOVE DIKE
END CRCP
END CONCRETE DIKE

"FREMONT" Sta 22+70.81 =
"RAMPS" Sta 1500+61.35 Beg

"FREMONT" Sta 22+50.82 =
"RAMPJ" Sta 1504+33.93 END

"RAMPS" Sta 1500+93.10
"RAMPS" Sta 1499+85.62
CONFORM TO Exist
Beg REMOVE DIKE
Beg CRCP
Beg CONCRETE DIKE

"RAMPJ" Sta 1504+82.69 END

FREMONT STREET

SB I-5 ONLY

"RAMPS" Sta 1499+85.62 Beg

"RAMPS" Sta 1501+12.98
Beg RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

"RAMPJ" Sta 1503+59.88
END RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

"RAMPJ" Sta 1502+81.89 POT

"RAMPJ" Sta 1501+03.21 PCC

R/W

"RAMPS" Sta 1501+90.97 POT

"RAMPS" Sta 1508+90.41
CONFORM TO Exist
END REMOVE DIKE
END CRCP
END CONCRETE DIKE

"RAMPS" Sta 1503+79.94 EC

"RAMPS" Sta 1505+04.12 BC

"RAMPS" Sta 1506+94.11
END RETAINING WALL ON PILE FOUNDATION WITH WITH CONCRETE BARRIER AND MASONRY WALL

"RAMPS" Sta 1507+81.55, 4.00' Rt
END REMOVE CURB AND GUTTER

"RAMPS" Sta 1509+32.18 EC

"MAIN5" Sta 1510+73.54, Lt 66.00' =
"RAMPJ" Sta 1510+73.54 END

BUENA VISTA AVENUE

"RAMPJ" Sta 1502+62.62
END REMOVE CURB AND GUTTER

"RAMPS" Sta 1502+12.44
Beg REMOVE CURB AND GUTTER

"RAMPS"

"MAIN5" Sta 1509+11.62
CONFORM TO Exist
END REMOVE DIKE
END CRCP
END CONCRETE DIKE

"MAIN5" Sta 1509+71.82 EC

Br No. 29-0195 L

Br No. 29-0195 R

I-5 SB

"MAIN5"

I-5 NB

"MAIN5" Sta 1505+19.32
END MSE WALL
END RETAINING WALL ON PILE FOUNDATION WITH CONCRETE BARRIER AND MASONRY WALL

"MAIN5" Sta 1510+96.03
END CONCRETE BARRIER

"RAMPT" Sta 1498+57.09 BC

"RAMPT"

"RAMPT" Sta 1502+82.98 PRC

"RAMPT" Sta 1499+96.97 EC

"MAIN5" Sta 1505+37.86, 77.09' Rt
END REMOVE SOUND WALL WITH CONCRETE BARRIER
END SOUND WALL WITH CONCRETE BARRIER
END RETAINING WALL
Beg TYPE B4 CURB

"MAIN5" Sta 1507+74.57
END TYPE B4 CURB

MATCH LINE (SHEET L-3)

MATCH LINE (SHEET L-4)

MATCH LINE (SHEET L-4)

MATCH LINE

ALTERNATIVE 3
PRELIMINARY LAYOUT
L-5

SCALE: 1"=50'

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ALTERNATIVE 3
PRELIMINARY LAYOUT
L-6

SCALE: 1"=50'

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DATE PLOTTED => 05-MAY-2020

TIME PLOTTED => 11:39

BORDER LAST REVISED 7/2/2010

USERNAME => s135268

DGN FILE => Alt3ea006.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

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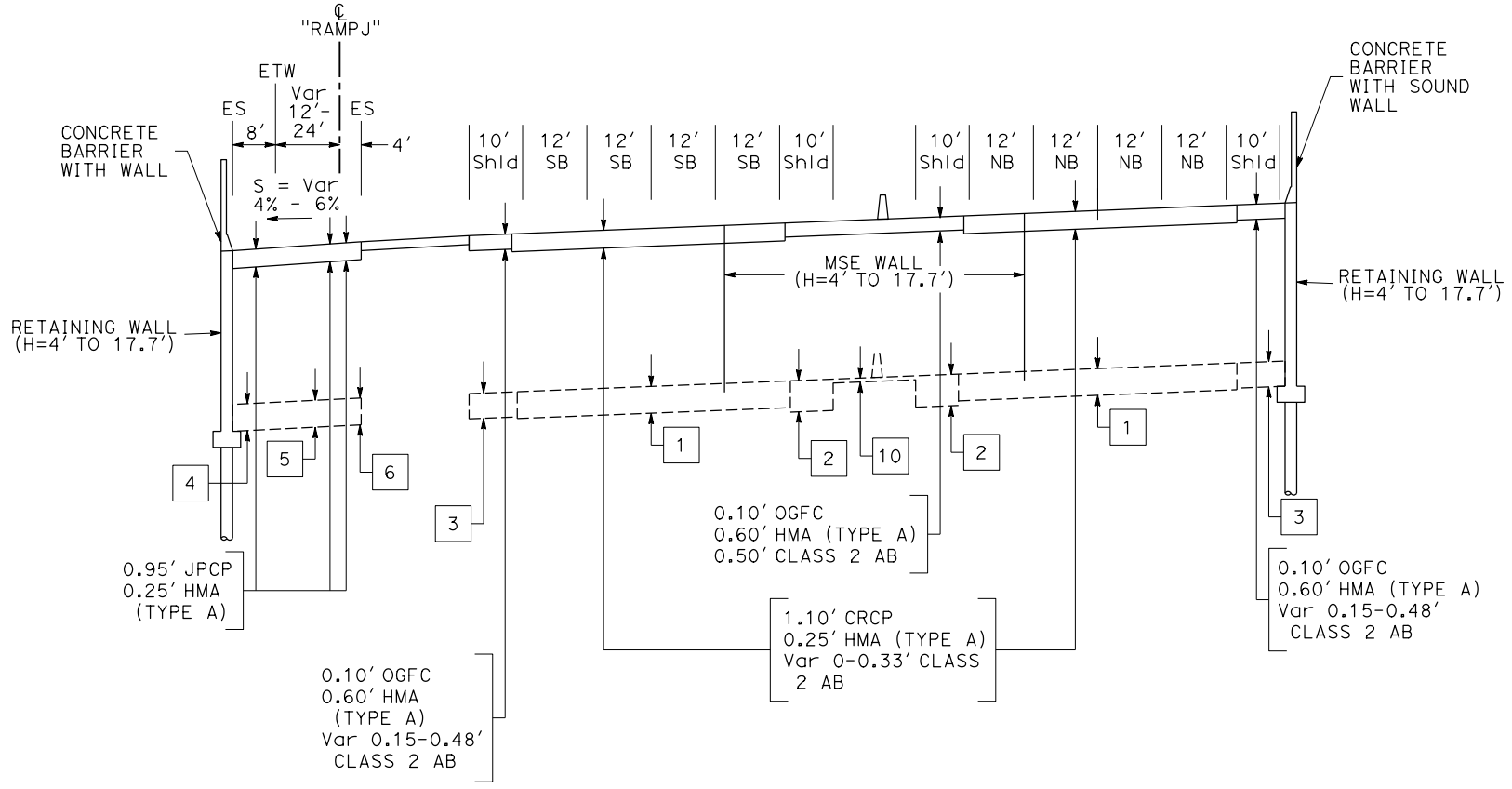
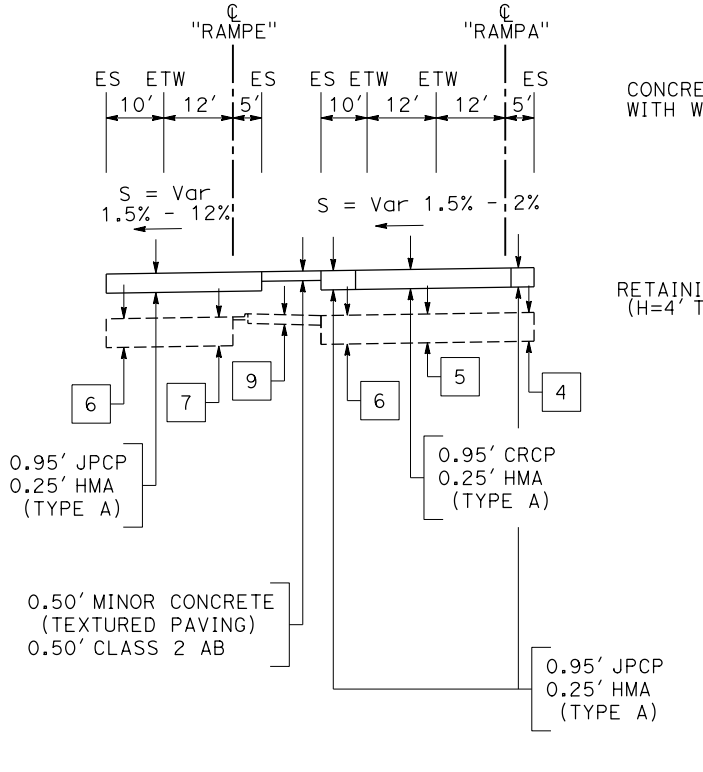
Caltrans

NOTES:

1. RETAINING WALLS WILL BE CONSTRUCTED ON PILE FOUNDATIONS AND DESIGNED BY STRUCTURES. SEE STRUCTURE SHEETS FOR DETAILS.
2. FOR DIKE LIMITS, SEE LAYOUT SHEETS.
3. FOR MIDWEST GAURDRAIL SYSTEMS, SEE LAYOUT AND SUMMARY OF QUANTITIES SHEETS.

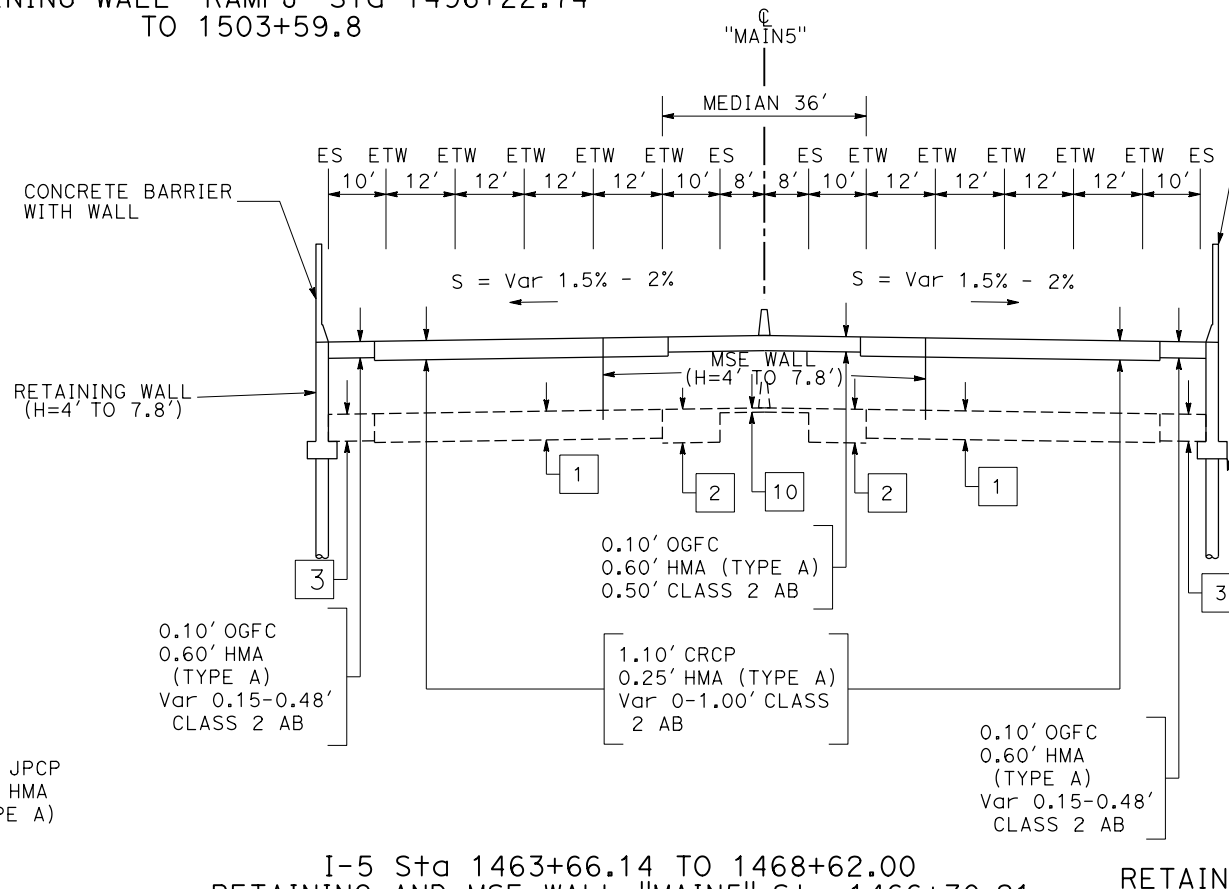


"RAMPJ" Sta 1496+22.74 TO 1504+82.69
RETAINING WALL "RAMPJ" Sta 1496+22.74 TO 1503+59.8

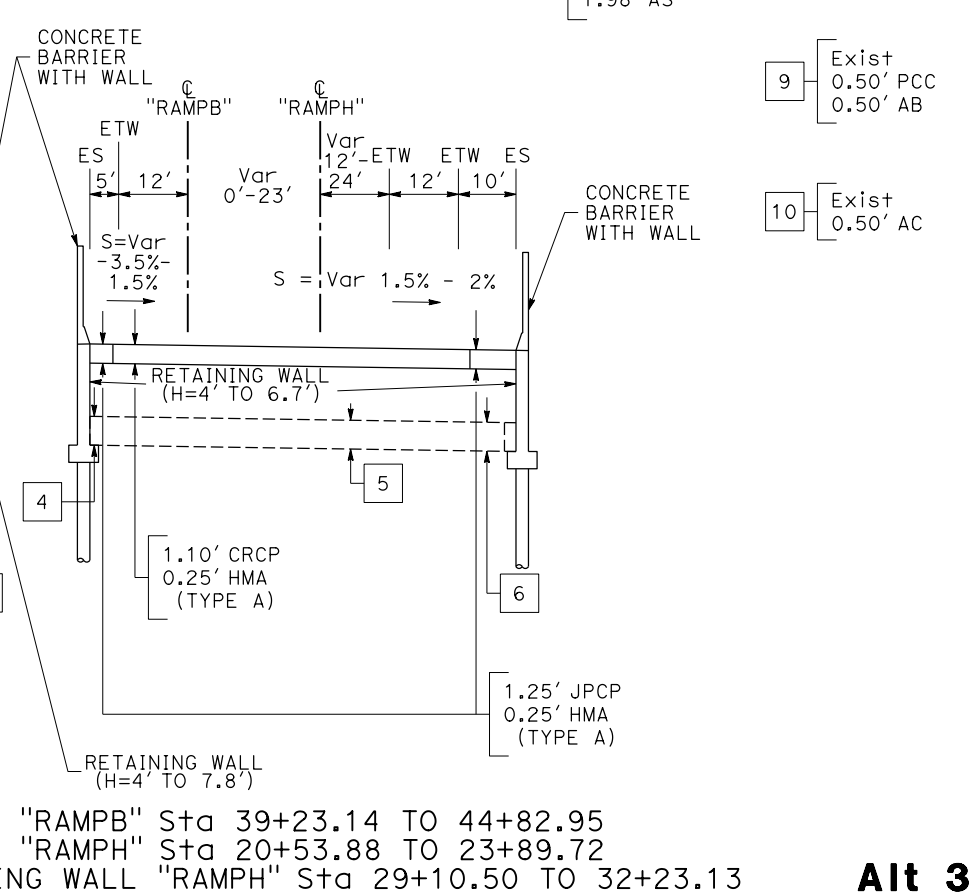


"RAMPA" Sta 50+38.00 TO 56+63.90
"RAMPE" Sta 22+12.94 TO 26+93.22

I-5 Sta 1495+83.98 TO 1509+11.62
RETAINING AND MSE WALL "MAIN5" Sta 1495+83.98 TO 1505+19.32



I-5 Sta 1463+66.14 TO 1468+62.00
RETAINING AND MSE WALL "MAIN5" Sta 1466+70.21 TO 1468+62.00



"RAMPB" Sta 39+23.14 TO 44+82.95
"RAMPH" Sta 20+53.88 TO 23+89.72
RETAINING WALL "RAMPH" Sta 29+10.50 TO 32+23.13

NO SCALE

STRUCTURAL SECTION:

1	Exist 1.10' PCC 0.25' AC 1.00' AS
2	Exist 0.65' AC 0.90' AB 1.65' AS SEG
3	Exist 0.85' AC 0.70' AB 1.50' AS
4	Exist 0.20' AC 0.45' AB 1.98' AS
5	Exist 0.75' PCC 0.50' CTB 1.75' AS
6	Exist 0.25' AC 0.55' AB 1.00' AS
7	Exist 0.67' PCC 0.35' CTB 1.98' AS
8	Exist 0.35' AC 0.75' CTB 1.15' AS
9	Exist 0.50' PCC 0.50' AB
10	Exist 0.50' AC

Alt 3

PRELIMINARY CROSS SECTIONS

SHEET 1

LAST REVISION 00-00-00 | DATE PLOTTED => 06-OCT-2020 | TIME PLOTTED => 10:35

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => 10-0X460_PrelimX-Sections_PAnED-MatRept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

PLANS APPROVAL DATE

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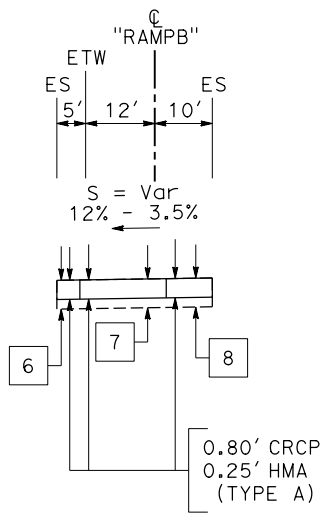
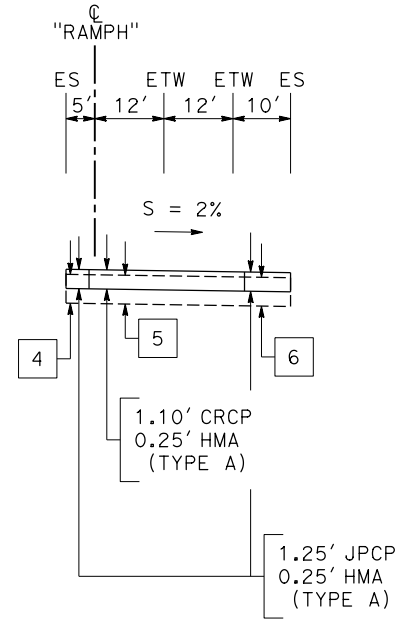
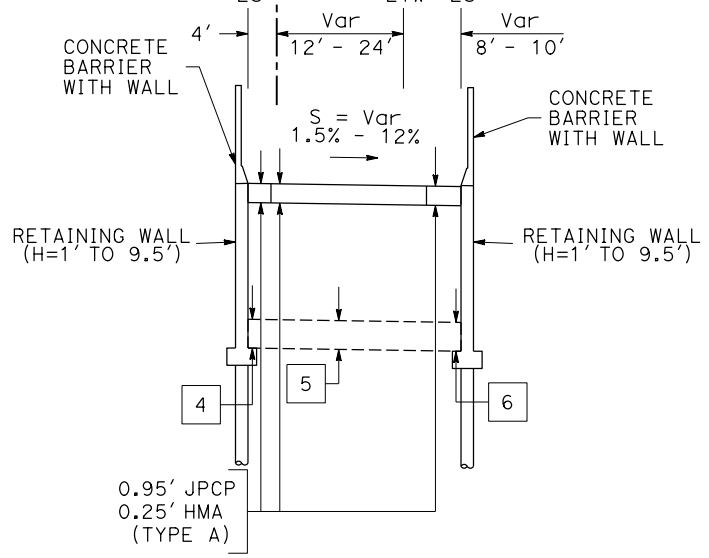
* - ROADWAY SECTION IF OPTIONAL EXTENTION OF STRUCTURE TO NORTH SIDE OF PARK STREET IS NOT PROPOSED.



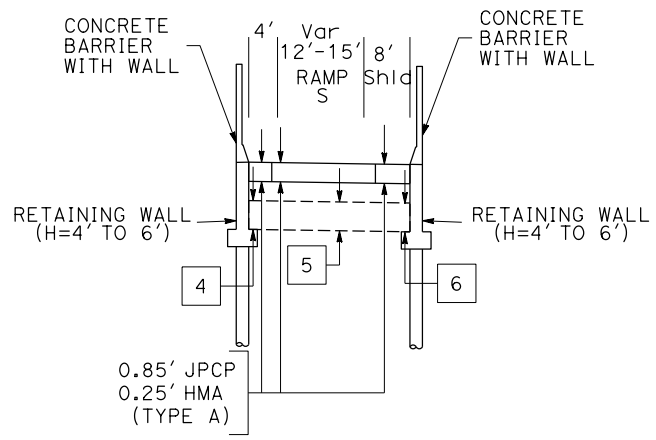
"RAMPB" Sta 36+49.31 TO 39+23.14



"RAMPH" Sta 20+95.60 TO 23+53.88



*"RAMPI" Sta 1495+25.91 TO 1497+82.50
"RAMPI" Sta 1498+98.75 TO 1502+23.32
*RETAINING WALL "RAMPI" Sta 1495+25.91 TO 1497+82.50
RETAINING WALL "RAMPI" Sta 1498+98.75 TO 1499+85.99



"RAMPS" Sta 1499+85.62 TO 1508+90.41
RETAINING WALL "RAMPS" Sta 1501+12.98 TO 1506+94.11

NO SCALE

Alt 3
PRELIMINARY CROSS SECTIONS
SHEET 2

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY
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FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 06-OCT-2020
TIME PLOTTED => 10:36

BORDER LAST REVISED 7/2/2010
USERNAME => s135268
DGN FILE => 10-0X460_PrelimX-Sections_PAnED-MatRept.DGN
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE 00000000001

ATTACHMENT C
Stage Construction
and
Traffic Handling
Concepts

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

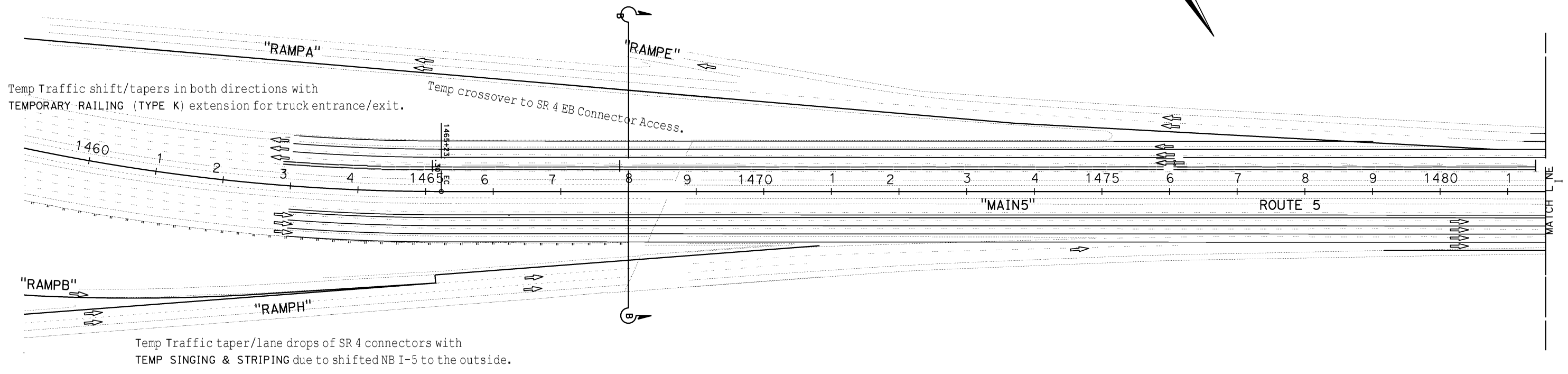
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

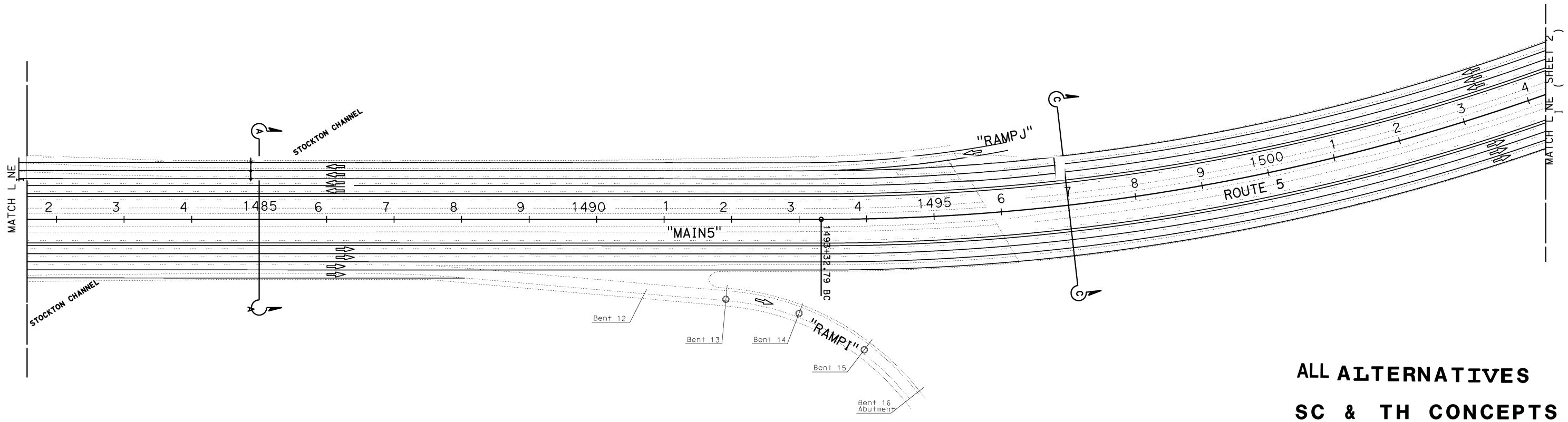
TRAFFIC HANDLING:

- CLOSE HOV LANES IN BOTH NB AND SB I-5 DIRECTIONS OF TRAVEL.
- SHIFT NB I-5 AND SB I-5 TRAFFIC REDUCING OUTSIDE SHOULDERS TO 1 FOOT.
- SET TEMPORARY RAILING TYPE K.

CONSTRUCTION SEQUENCE:

= DEMOLISH AND RECONSTRUCT CENTER 56 FOOT OF I-5
_ THROUGHOUT ROADWAY PORTIONS OF WORK PER ALTERNATIVE
= DEMOLISH INSIDES OF LEFT AND RIGHT VIAUCT STRUCTURES AND CONSTRUCT CENTER SPAN OF STRUCTURE (excluding Median. Conc. Barrier)
- CONSTRUCT MEDIAN CROSSOVER FOR SB I-5 TO SR 4 CONNECTOR TRAFFIC TO BE USED TO STAGE 2





NO SCALE

ALL ALTERNATIVES
SC & TH CONCEPTS
I-5 CENTER STAGE 1
SHEET 1

REVISED BY | DATE REVISED
CALCULATED | DESIGNED BY | DRAWN BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DATE PLOTTED => 08-OCT-2020
TIME PLOTTED => 10:44

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-A1-3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

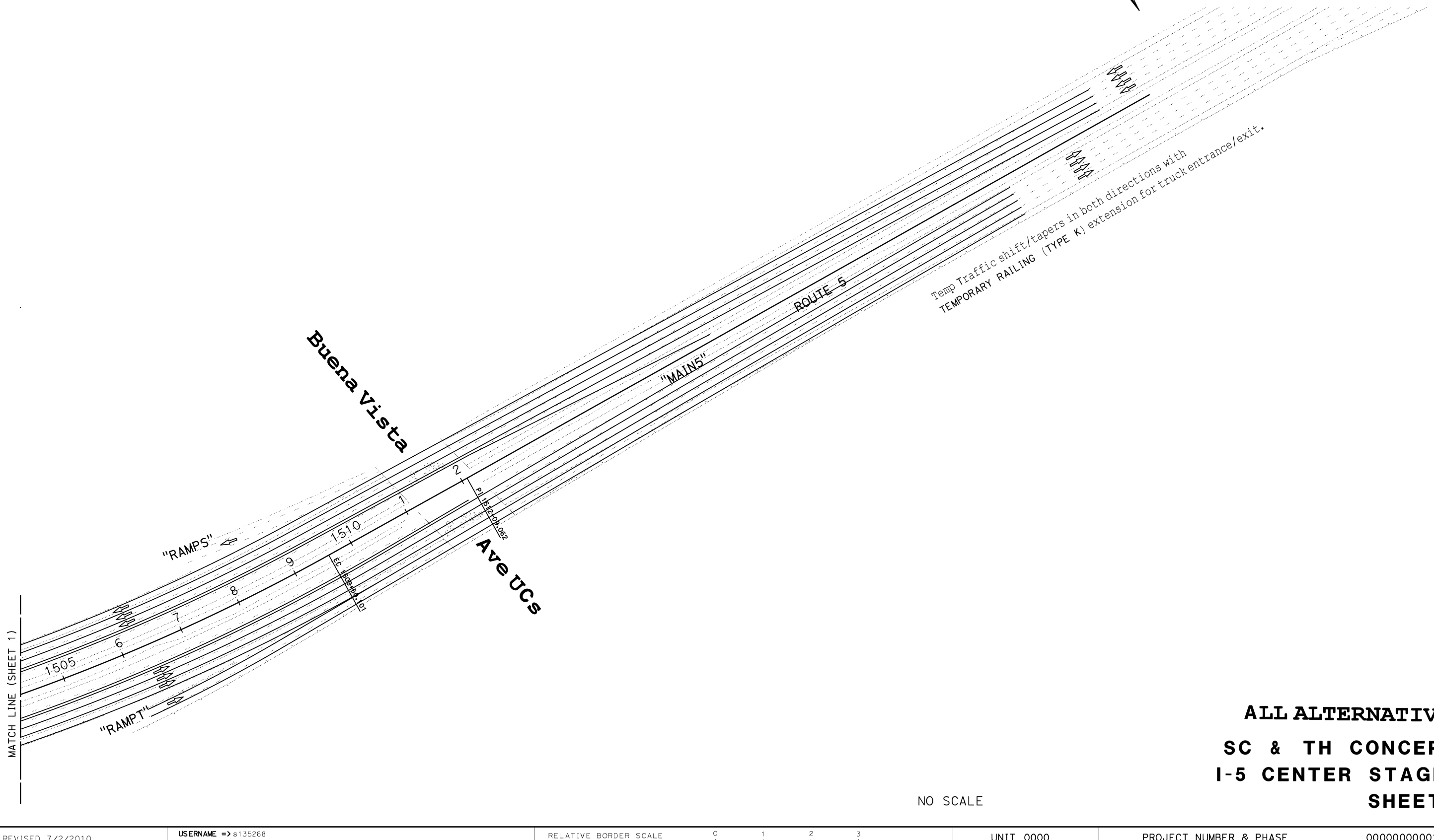
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



NO SCALE

ALL ALTERNATIVES
SC & TH CONCEPTS
I-5 CENTER STAGE 1
SHEET 2

LAST REVISION: DATE PLOTTED => 07-OCT-2020
00-00-00 TIME PLOTTED => 16:10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

FUNCTIONAL SUPERVISOR

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY	DATE REVISED

BORDER LAST REVISED 7/2/2010

USERNAME => s135268
DGN FILE => TH-Alt3_3-StageConcept.DGN

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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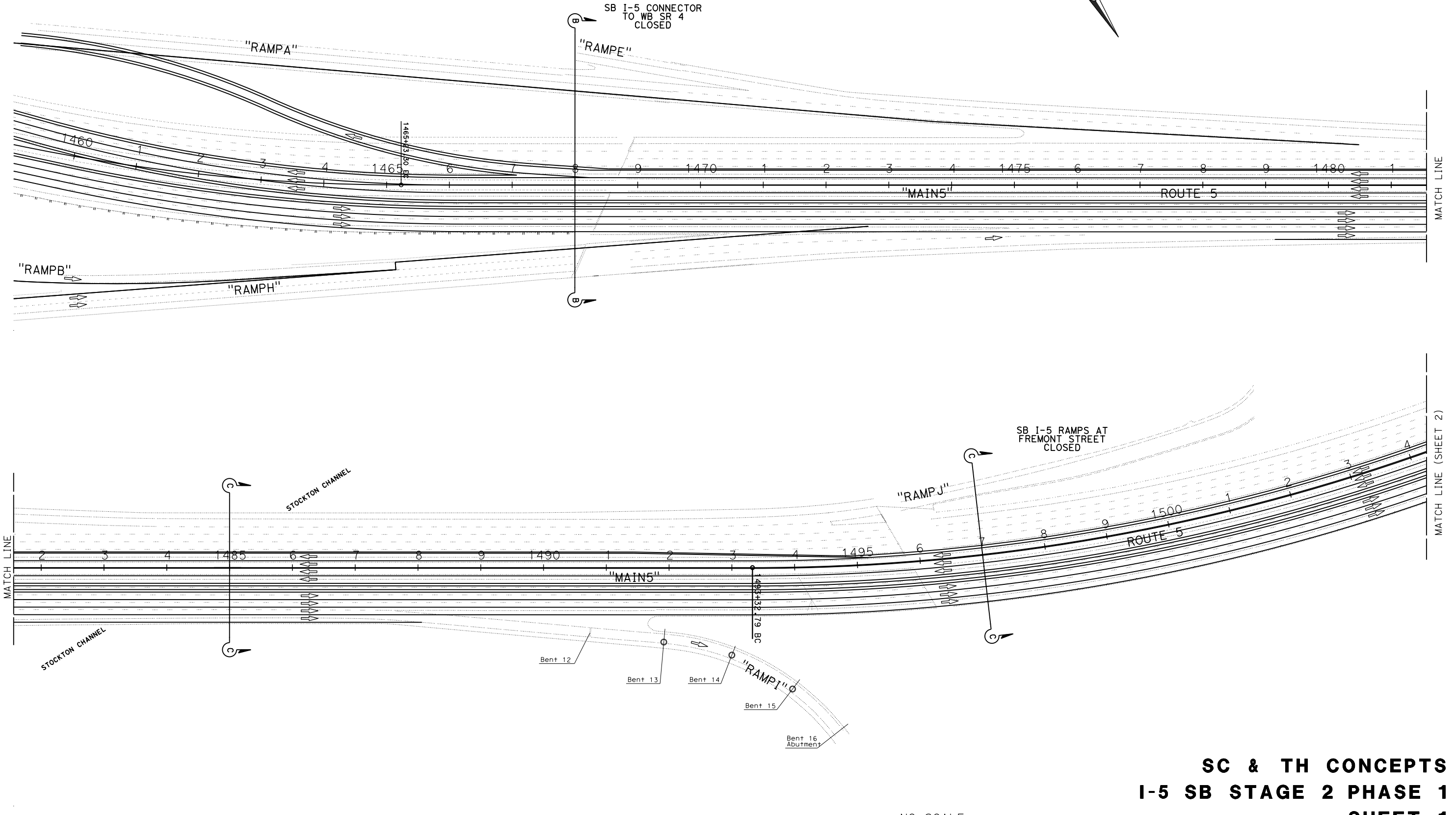
TRAFFIC HANDLING: PHASE 1

- CLOSE SB I-5 RAMPS AT FREMONT STREET.
- TRAFFIC TO WB SR 4 TO USE SB I-5 TO CHARTER WAY EXIT.
- TRAFFIC TO EB SR 4 SINLGE LANE EXIT.
- SHIFT SB I-5 TRAFFIC TO CENTER SPAN CONSTRUCTED IN STAGE 1.
- SB I-5 CONNECTOR TRAFFIC TO EB SR 4 TO USE MEDIAN CROSSOVER.
- NB I-5 TRAFFIC TO REMAIN.

CONSTRUCTION SEQUENCE: PHASE 1

- DEMOLISH AND RECONSTRUCT SB "MAIN5" BB TO NORTHERN CONFORM STATION PER ALTERNATIVE
- DEMOLISH AND RECONSTRUCT CONNECTORS TO SR 4
- DEMOLISH AND RECONSTRUCT SB I-5 RAMPS AT FREMONT STREET



NO SCALE

SC & TH CONCEPTS
I-5 SB STAGE 2 PHASE 1
SHEET 1

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

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Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 13:04

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-Alt3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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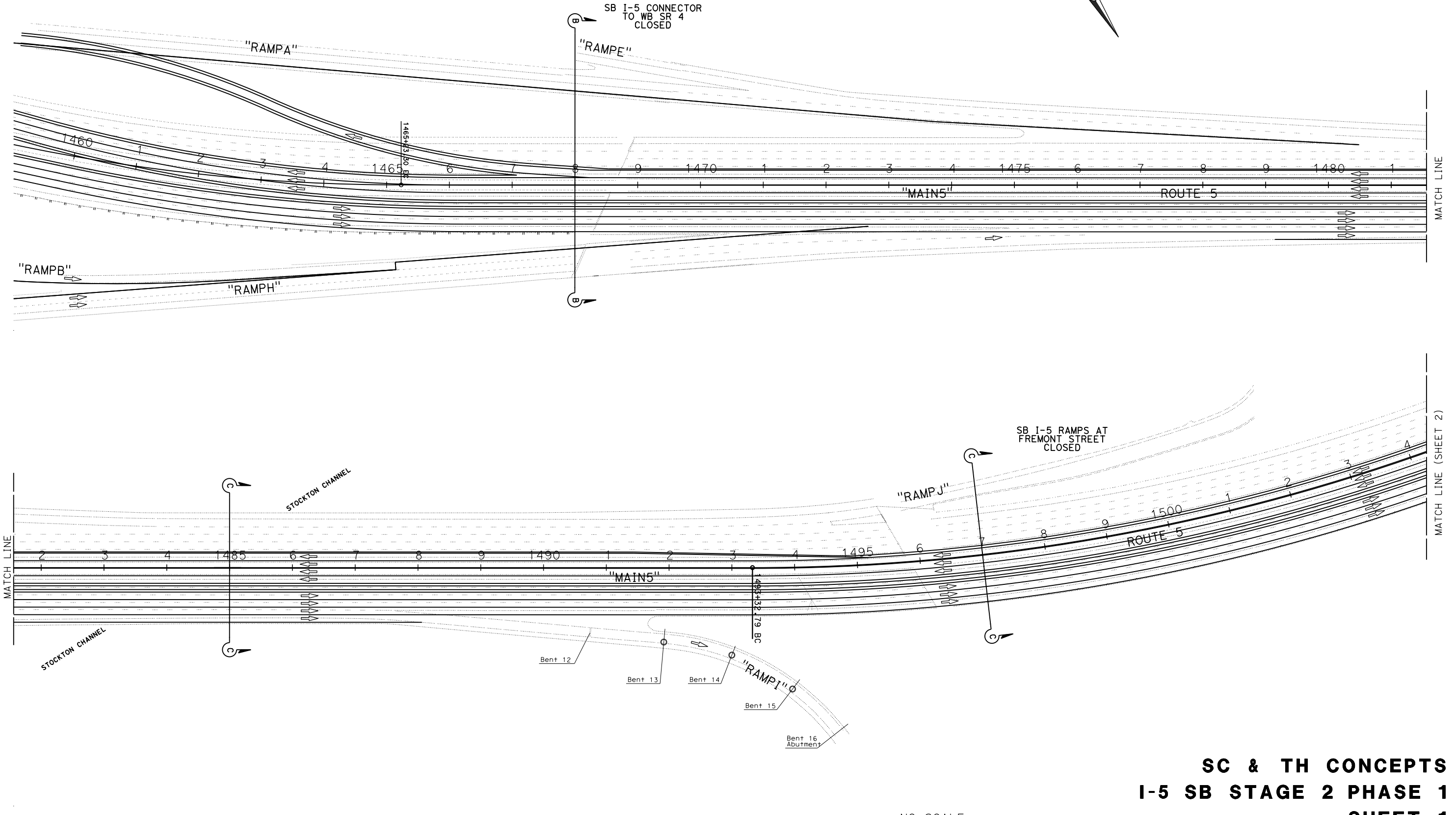
TRAFFIC HANDLING: PHASE 1

- CLOSE SB I-5 RAMPS AT FREMONT STREET.
- TRAFFIC TO WB SR 4 TO USE SB I-5 TO CHARTER WAY EXIT.
- TRAFFIC TO EB SR 4 SINLGE LANE EXIT.
- SHIFT SB I-5 TRAFFIC TO CENTER SPAN CONSTRUCTED IN STAGE 1.
- SB I-5 CONNECTOR TRAFFIC TO EB SR 4 TO USE MEDIAN CROSSOVER.
- NB I-5 TRAFFIC TO REMAIN.

CONSTRUCTION SEQUENCE: PHASE 1

- DEMOLISH AND RECONSTRUCT SB "MAIN5" BB TO NORTHERN CONFORM STATION PER ALTERNATIVE
- DEMOLISH AND RECONSTRUCT CONNECTORS TO SR 4
- DEMOLISH AND RECONSTRUCT SB I-5 RAMPS AT FREMONT STREET



NO SCALE

SC & TH CONCEPTS
I-5 SB STAGE 2 PHASE 1
SHEET 1

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 13:04

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-Alt3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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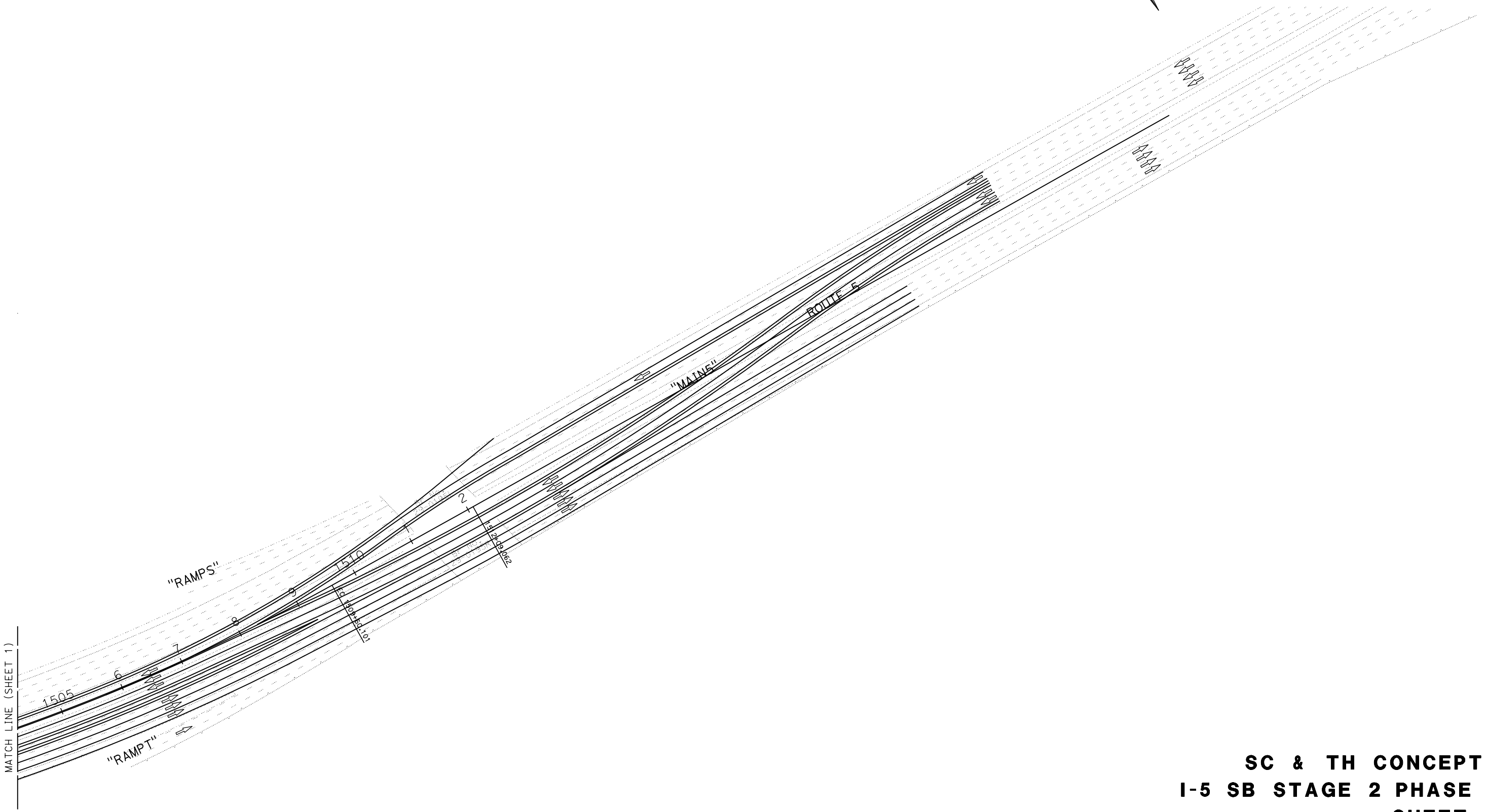

NO SCALE

SC & TH CONCEPTS
I-5 SB STAGE 2 PHASE 1
SHEET 2

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

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Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 15:07

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-Alt3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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TRAFFIC HANDLING: PHASE 2

- SHIFT SR 4 CONNECTOR TRAFFIC BACK TO CONNECTOR OFF-RAMP.
- OPEN SB I-5 OFF-RAMP AT FREMONT STREET.
- SB I-5 FREMONT STREET ON-RAMP REMAINS CLOSED.
- CLOSE #1 LANE NB I-5 PERSHING AVENUE ON-RAMP FOR TEMPORARY PERSHING AVENUE OFF-RAMP CONSTRUCTION.

CONSTRUCTION SEQUENCE: PHASE 2

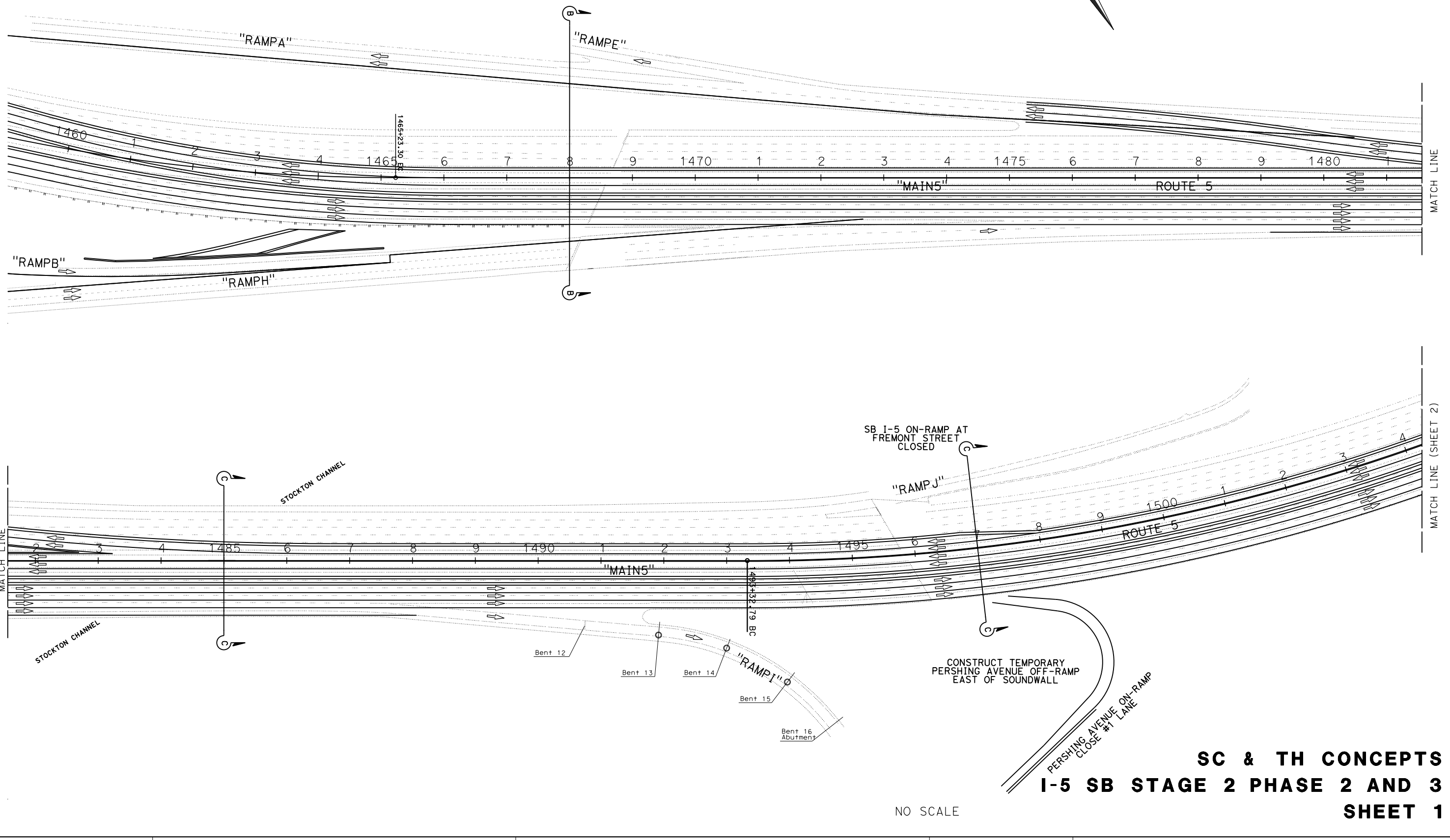
- DEMOLISH MEDIAN CROSSOVER FROM SB I-5 TO EB SR 4
- DEMOLISH AND RECONSTRUCT SB "MAIN5" CONFORM STATION PER ALTERNATIVE TO BB

TRAFFIC HANDLING: PHASE 3

- NB I-5 PERSHING AVENUE ON-RAMP TO REMAIN SINGLE LANE.

CONSTRUCTION SEQUENCE: PHASE 3

- CONSTRUCT PORTION OF MEDIAN CROSSOVER FROM SR 4 TO NB I-5
- CONSTRUCT PORTION OF TEMPORARY PERSHING AVENUE OFF-RAMP EAST OF SOUNDWALL ALONG NB I-5



NO SCALE

SC & TH CONCEPTS
I-5 SB STAGE 2 PHASE 2 AND 3
SHEET 1

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 14:00

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-Alt3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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NO SCALE

SC & TH CONCEPTS
I-5 SB STAGE 2 PHASE 2 AND 3
SHEET 2

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 15:03

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-Alt3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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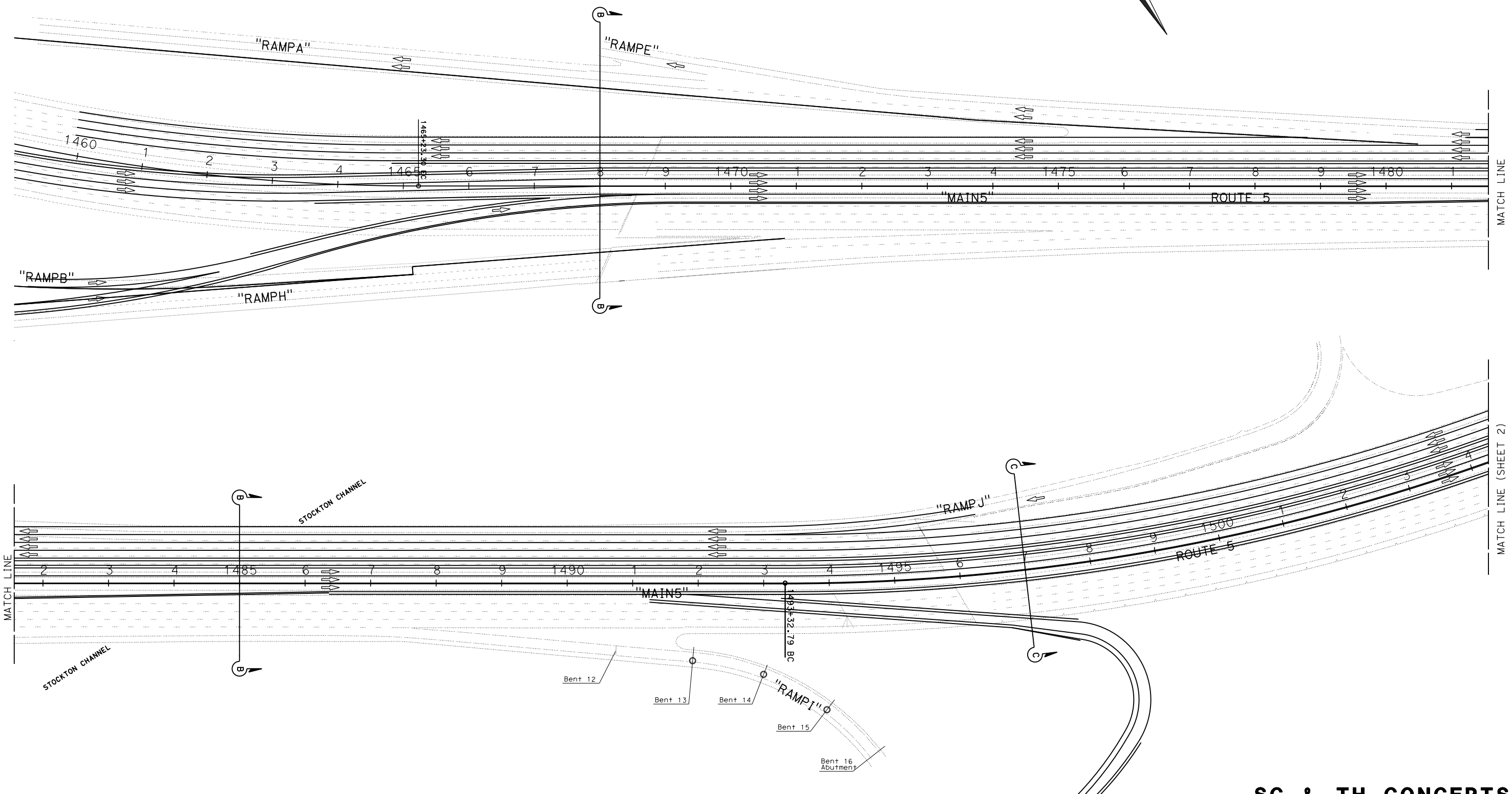
TRAFFIC HANDLING: PHASE 1

- SHIFT SB I-5 TRAFFIC TO SB I-5.
- SHIFT NB I-5 TRAFFIC TO CENER SPAN CONSTRUCTED IN STAGE 1.
- SHIFT NB I-5 CONNECTOR TRAFFIC TO MEDIAN CROSSOVER.
- NB I-5 OFF-RAMP FOR PERSHING AVENUE RESTRICTED TO WB SR 4 TRAFFIC TO PERSHING AVENUE ONLY. ALL OTHER TRAFFIC FOR PERSHING AVENUE OFF-RAMP TO EXIT MONTE DIABLE AVENUE OFF-RAMP OR COUNTRY CLUB BOULEVARD OFF-RAMP.

CONSTRUCTION SEQUENCE: PHASE 1

- FINISH CONSTRUCT MEDIAN CROSSOVER FOR NB I-5 CONNECTOR TRAFFIC FROM SR 4
- DEMOLISH AND RECONSTRUCT "MAIN5" Sta 1489+00.00 TO NORTHERN CONFORM PER ALTERNATIVE
- CONSTRUCT TEMPORARY PERSHING AVENUE OFF-RAMP BEHIND TEMPORARY RAILING TYPE K



NO SCALE

SC & TH CONCEPTS
I-5 NB STAGE 3 PHASE 1
SHEET 1

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 14:02

BORDER LAST REVISED 7/2/2010 | USERNAME => s135268 | DGN FILE => TH-Alt3_3-StageConcept.DGN | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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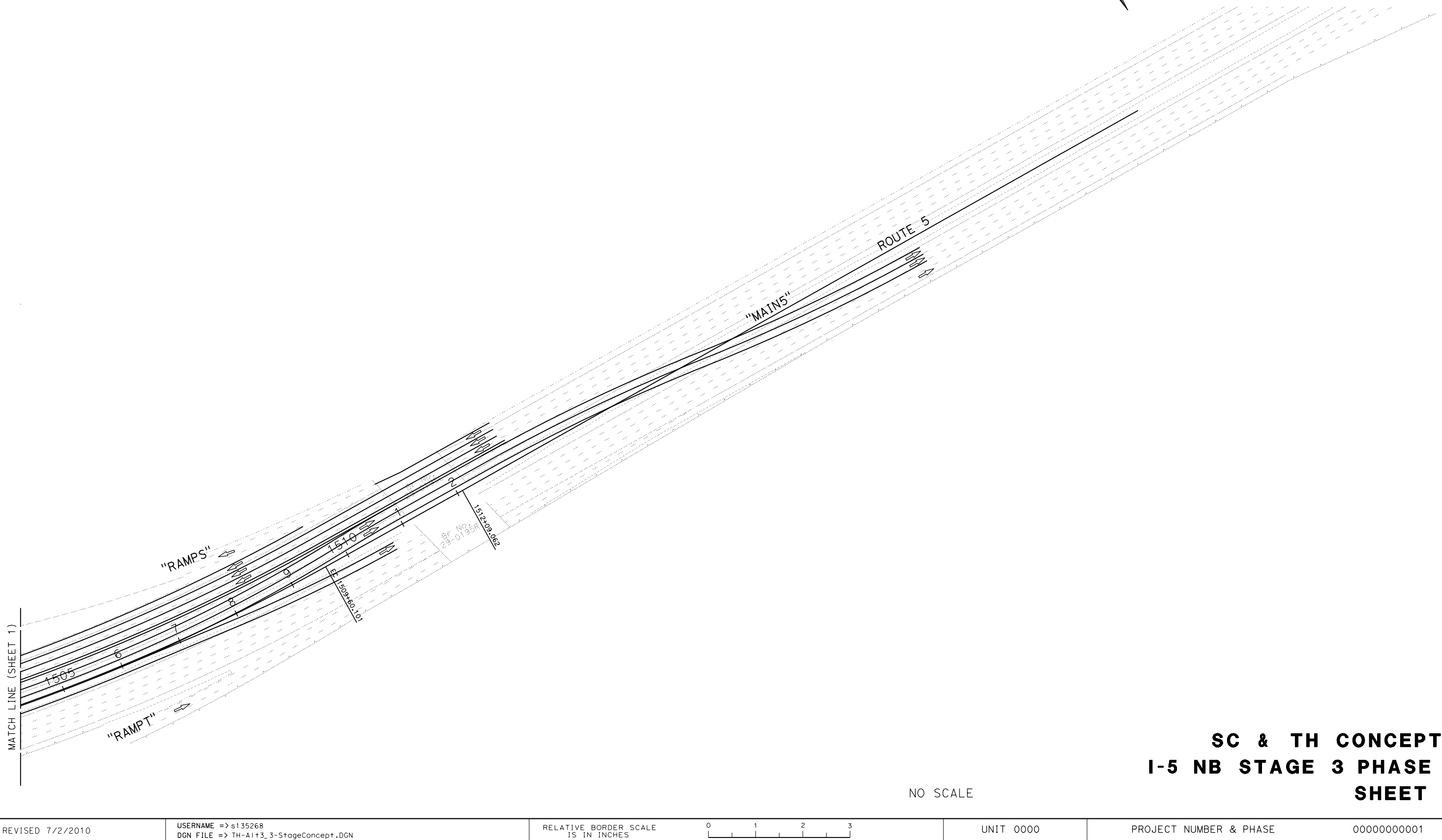

NO SCALE

SC & TH CONCEPTS
I-5 NB STAGE 3 PHASE 1
SHEET 2

LAST REVISION 00-00-00
DATE PLOTTED => 12-OCT-2020
TIME PLOTTED => 09:29

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

BORDER LAST REVISED 7/2/2010

USERNAME => s135268
DGN FILE => TH-Alt3_3-StageConcept.DGN

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 00000000001

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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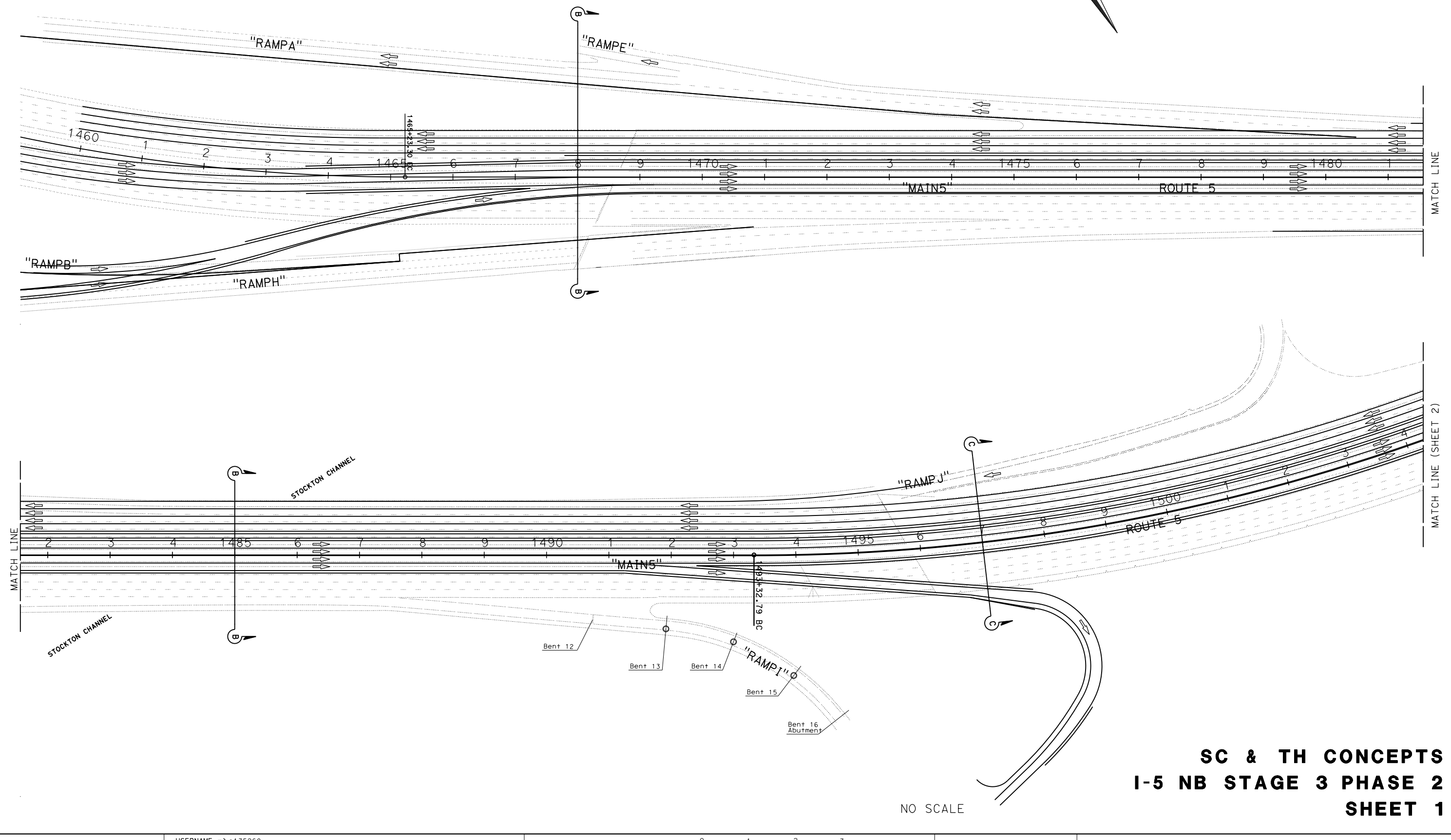
TRAFFIC HANDLING: PHASE 2

- OPEN TEMPORARY PERSHING AVENUE OFF-RAMP TO TRAFFIC.

CONSTRUCTION SEQUENCE: PHASE 2

- DEMOLISH AND RECONSTRUCT "MAIN5" Sta 1470+00.00 TO NORTHERN CONFORM PER ALTERNATIVE OUTSIDE OF LIMITS ALREADY CONSTRUCTED
- DEMOLISH AND RECONSTRUCTION AS MUCH OF THE CONNECTORS FROM SR 4 AS POSSIBLE



SC & TH CONCEPTS
I-5 NB STAGE 3 PHASE 2
SHEET 1

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LAST REVISION 00-00-00 | DATE PLOTTED => 12-OCT-2020 | TIME PLOTTED => 14:03

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

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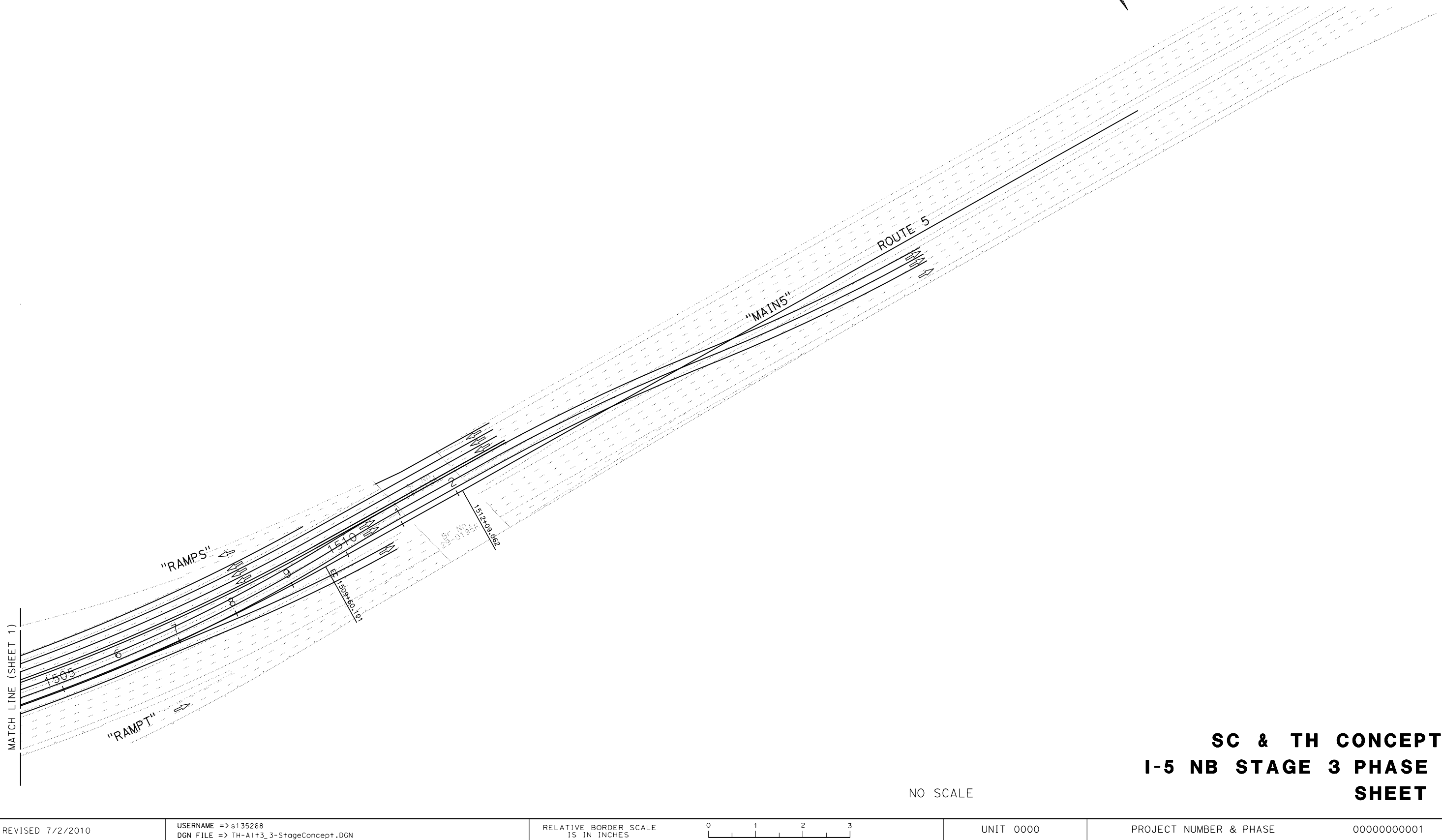

SC & TH CONCEPTS
I-5 NB STAGE 3 PHASE 2
SHEET 2

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TRAFFIC HANDLING: PHASE 3

- OPEN NB I-5 OFF-RAMP AT PERSHING AVENUE.
- USE WEEKEND CLOSURES TO FINISH RAMP WORK THEN SHIFT NB I-5 CONNECTOR TRAFFIC BACK TO ORIGINAL ALIGNMENT.
- SHIFT I-5 TRAFFIC BACK TO ORIGINAL ALIGNMENT TO ACCESS PERSHING AVENUE OFF-RAMP.
- SHIFT NB I-5 TRAFFIC TOWARDS MEDIAN FOR SOUNDWALL WORK.

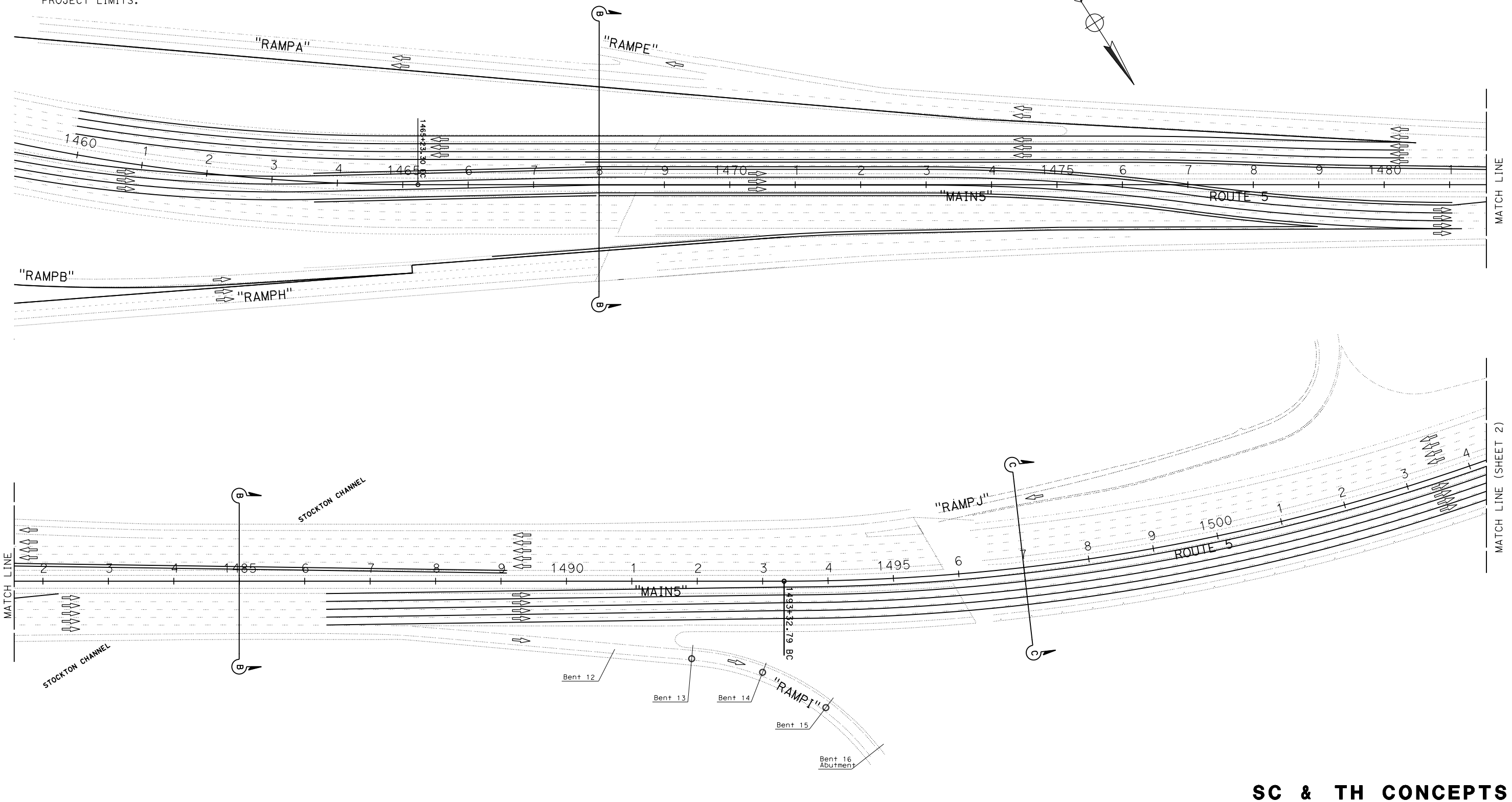
TRAFFIC HANDLING: FINAL

- SHIFT TRAFFIC BACK TO ORIGINAL ALIGNMENT THROUGHOUT PROJECT LIMITS.

CONSTRUCTION SEQUENCE: PHASE 3

- DEMOLISH TEMPORARY PERSHING AVENUE OFF-RAMP
- CONSTRUCT SOUNDWALL NORTH OF STOCKTON CHANNEL VIADUCT
- DEMOLISH AND RECONSTRUCT "MAIN5" SOUTHERN CONFORM PER ALTERNATIVE TO BB
- CONSTRUCT MEDIAN BARRIER
- FINAL BASIN GRADING

ALTERNATIVE 3 ONLY:
- CONSTRUCT WEBER AVENUE



NO SCALE

SC & TH CONCEPTS
I-5 NB STAGE 3 PHASE 3
SHEET 1

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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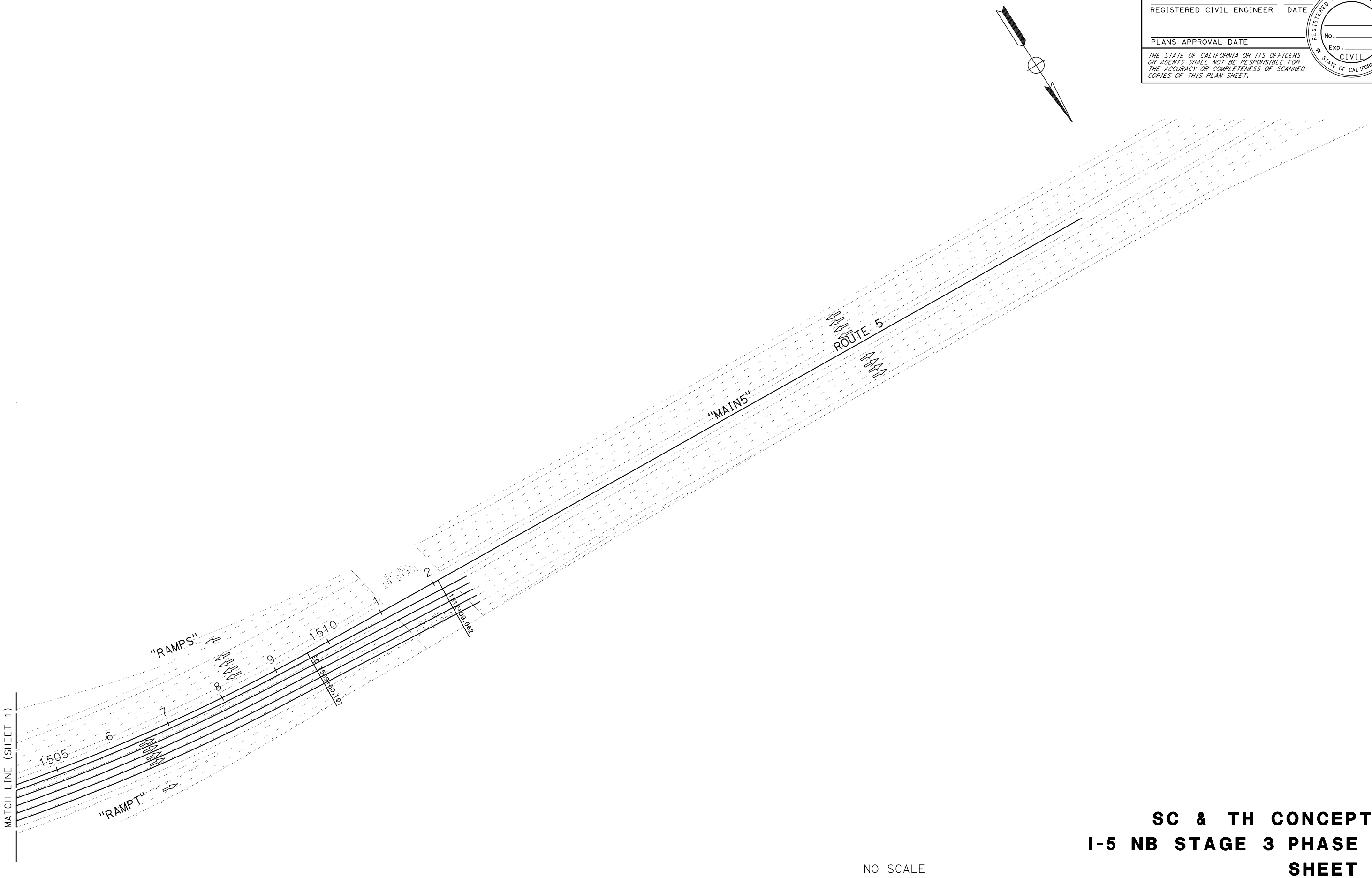

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SC & TH CONCEPTS
I-5 NB STAGE 3 PHASE 3
SHEET 2

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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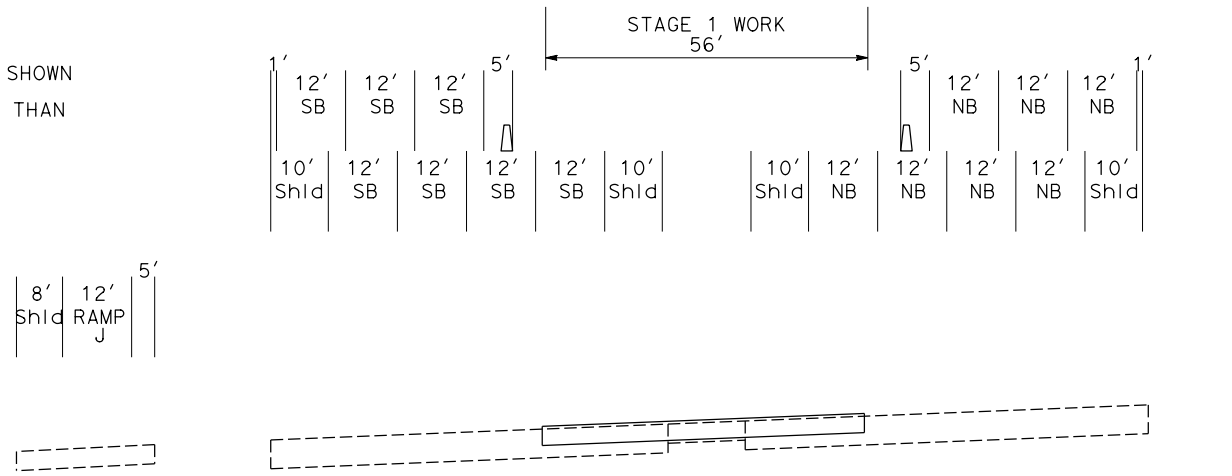
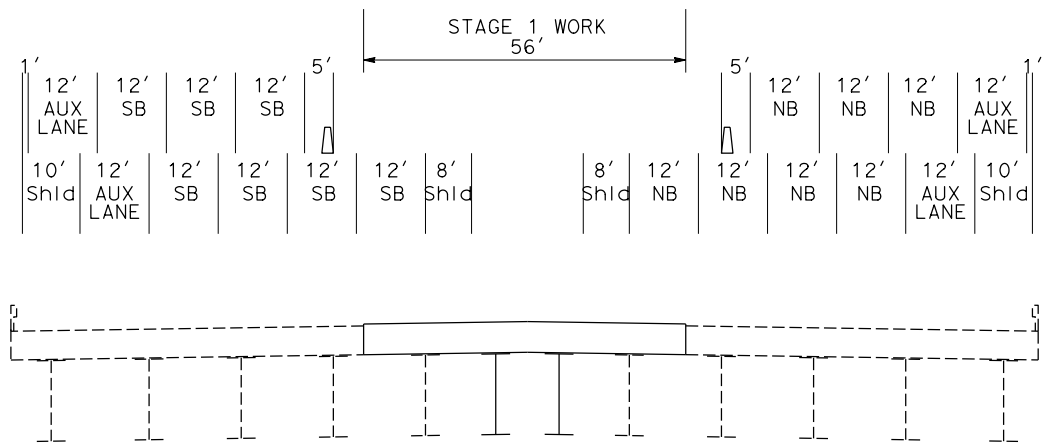
2. ALTERNATIVE 2 INCREASES PROFILE BY 8 MORE INCHES THAN ALTERNATIVE 1A.



I-5 Sta 1497+00



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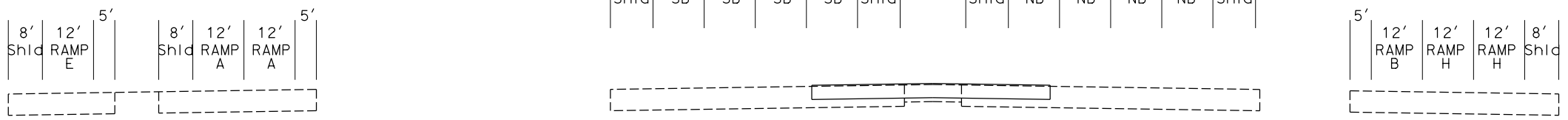

I-5 Sta 1468+00

Alt 1A - SC & TH CONCEPTS
CROSS SECTIONS
STAGE 1

NO SCALE

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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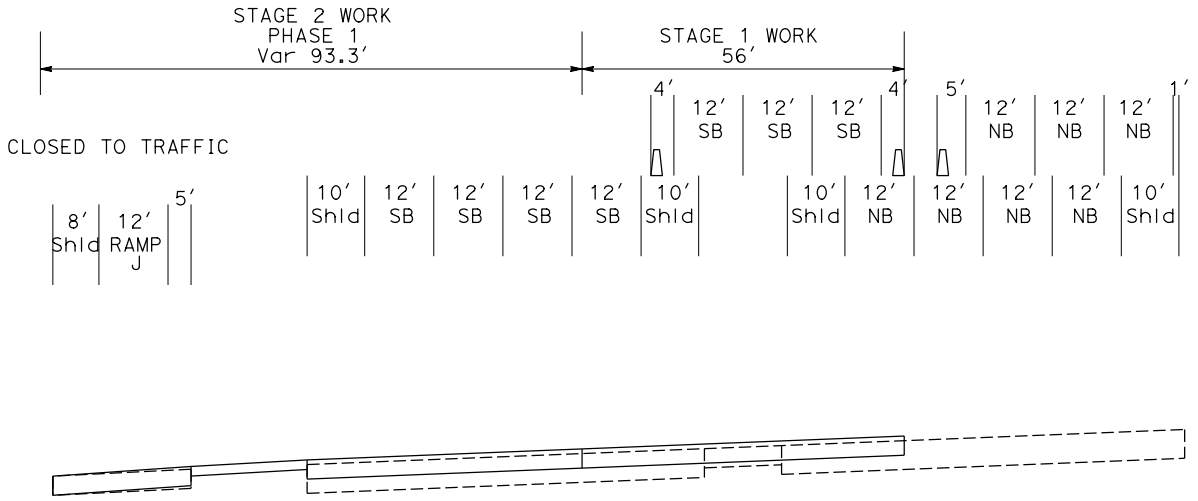

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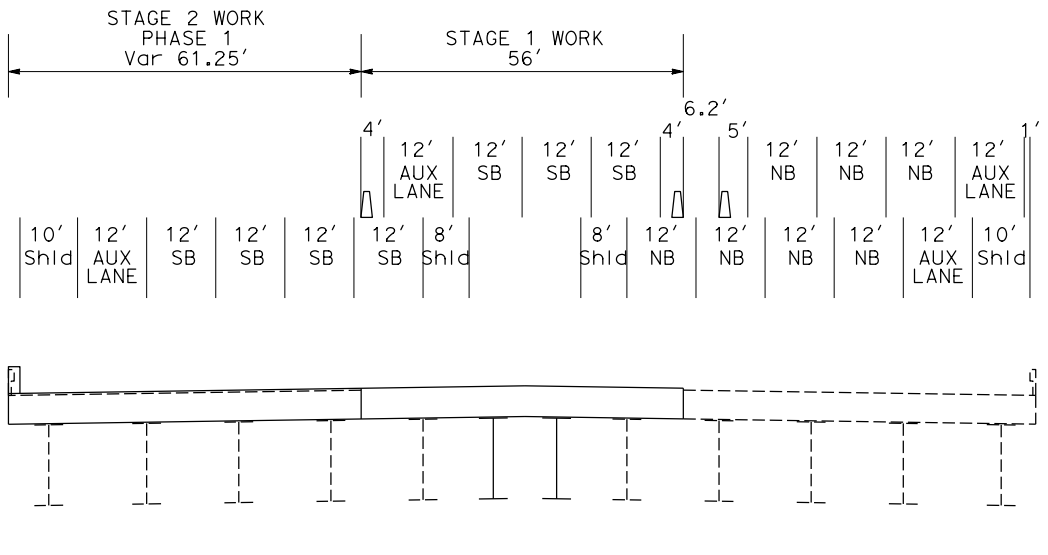

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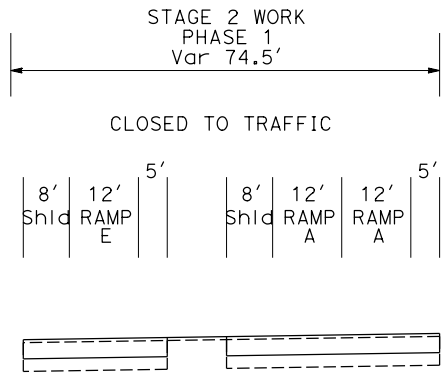

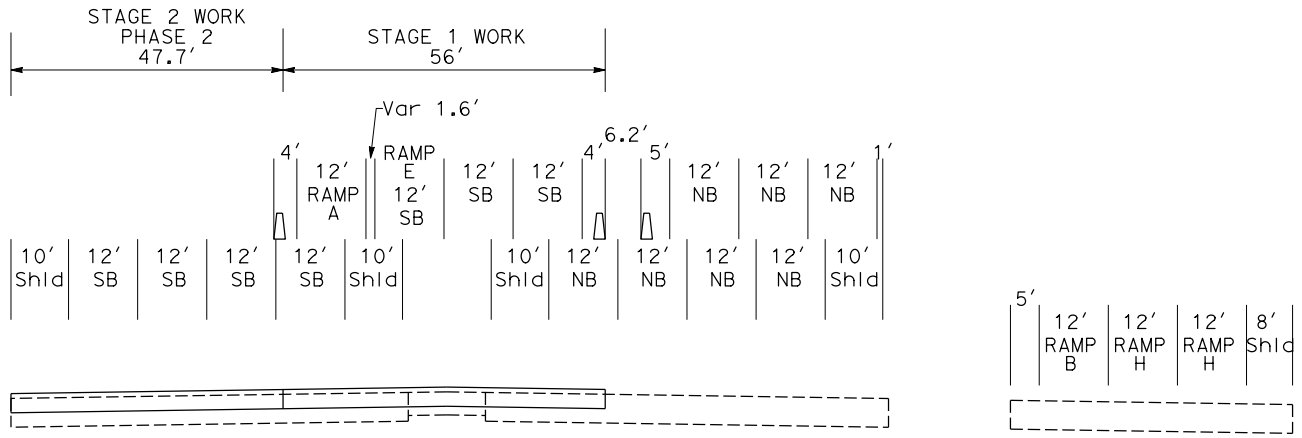

I-5 Sta 1468+00

NO SCALE

Alt 1A - SC & TH CONCEPTS
CROSS SECTIONS
STAGE 2 PHASE 1 AND 2

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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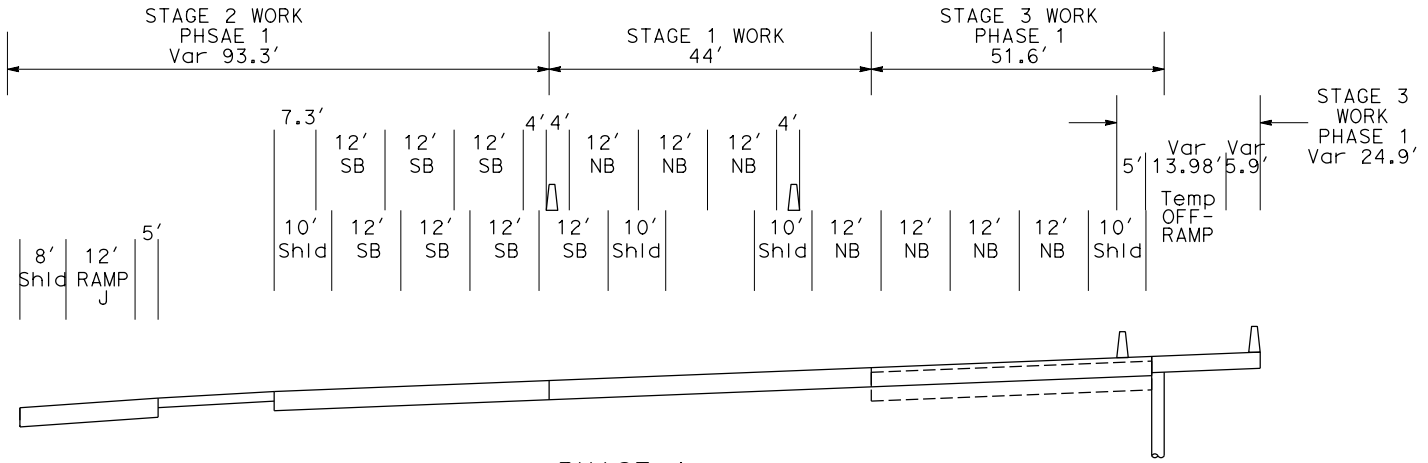

PHASE 1

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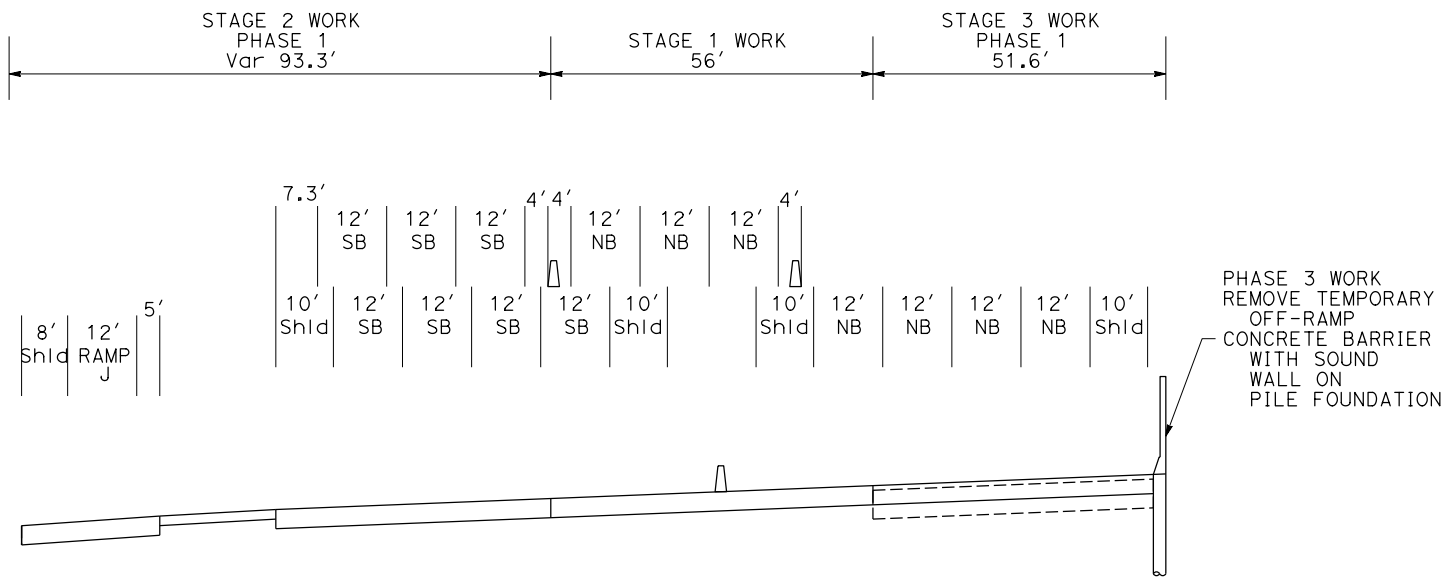

PHASE 3

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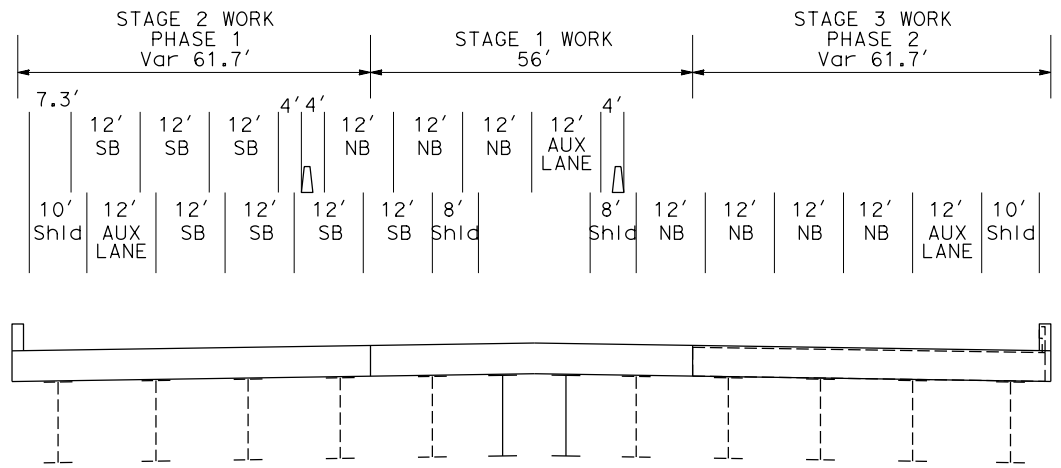

PHASE 2

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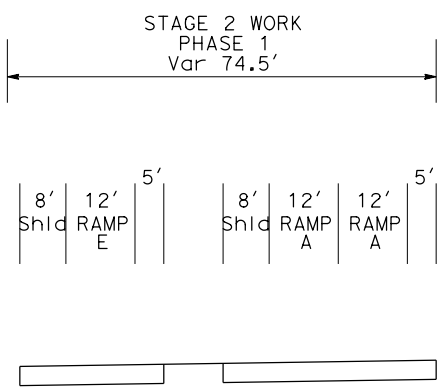

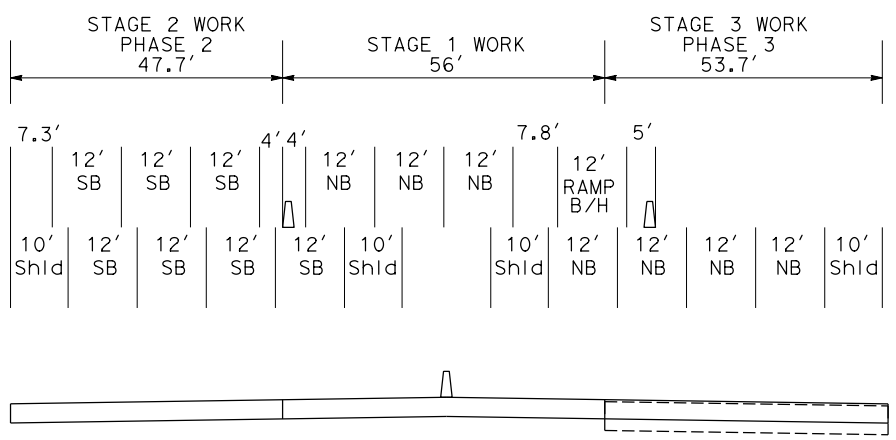

PHASE 2 AND 3

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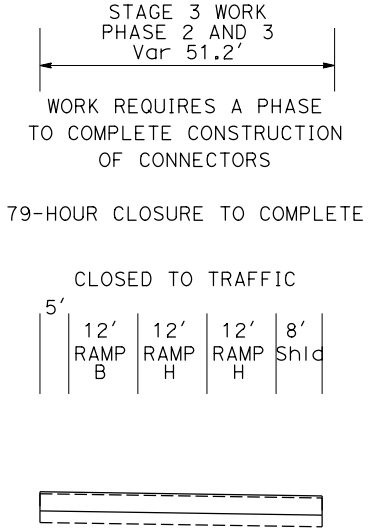

NO SCALE

Alt 1A - SC & TH CONCEPTS CROSS SECTIONS STAGE 3 PHASE 1, 2, AND 3

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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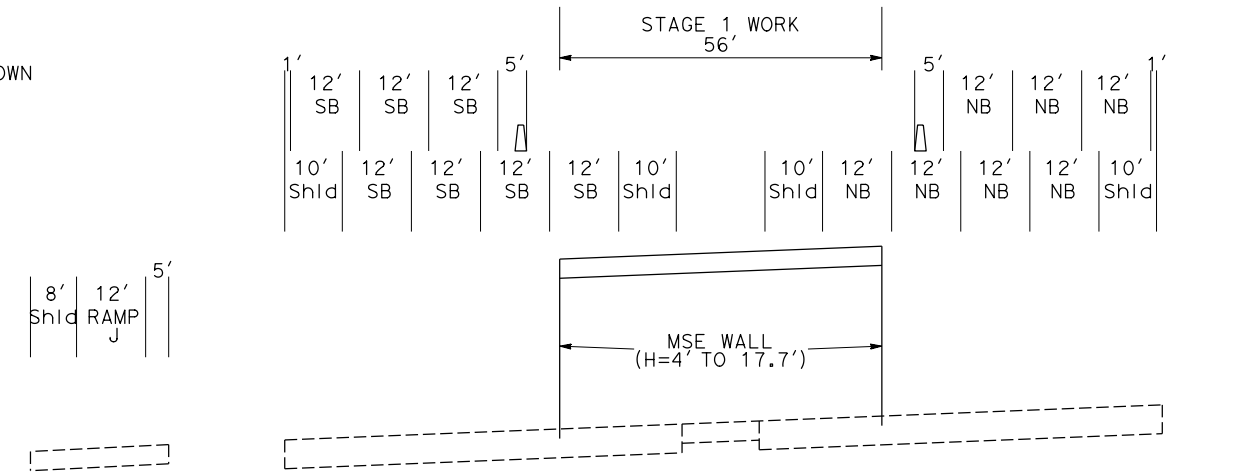

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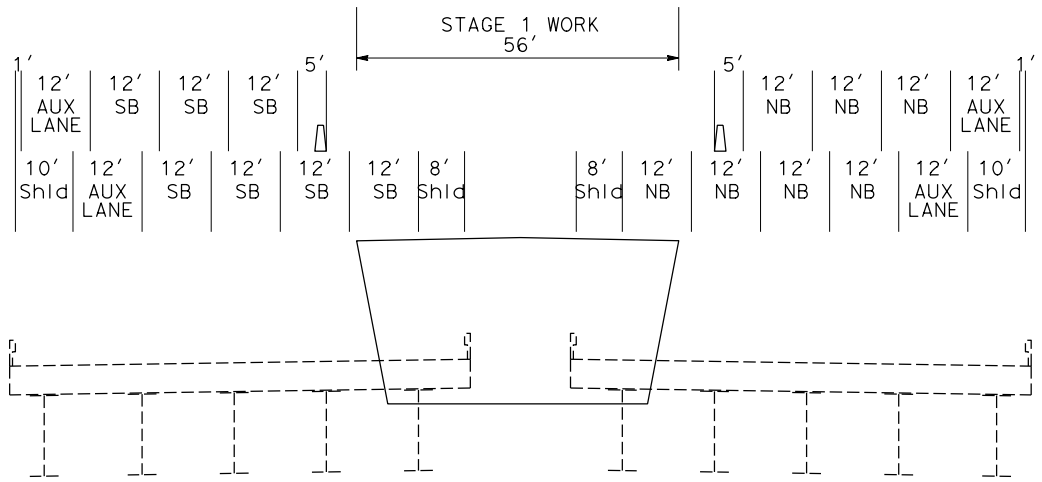

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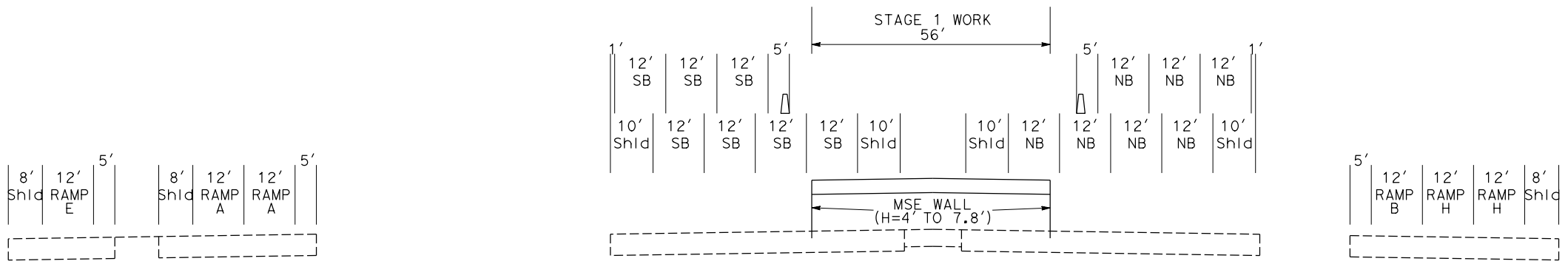

I-5 Sta 1468+00

Alt 3 - SC & TH CONCEPTS
CROSS SECTIONS
STAGE 1

NO SCALE

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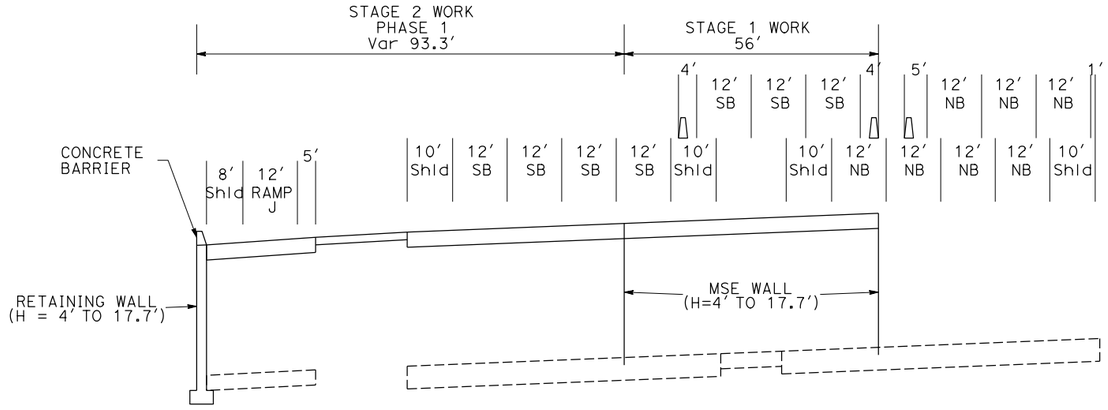

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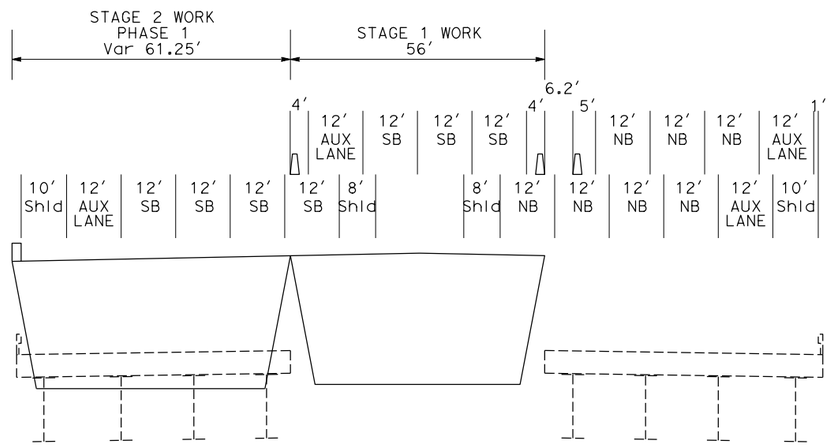

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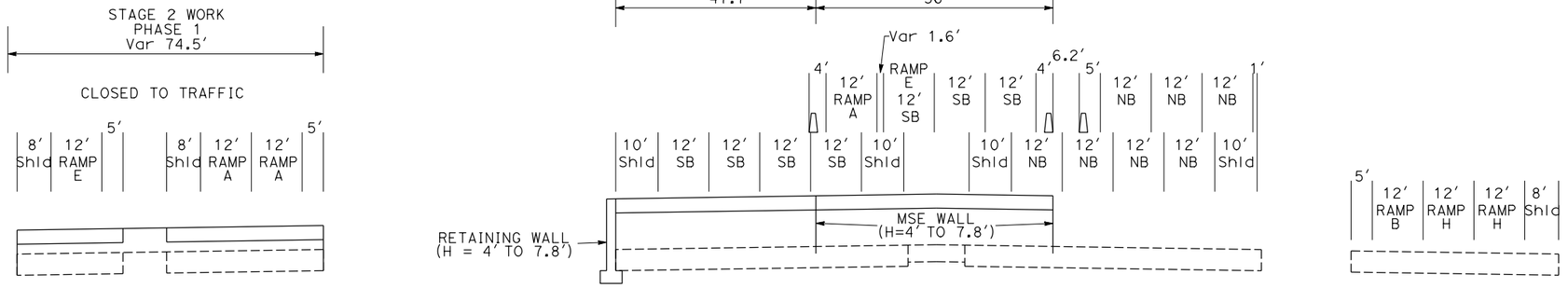

I-5 Sta 1468+00

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Alt 3 - SC & TH CONCEPTS
CROSS SECTIONS
STAGE 2 PHASE 1 AND 2

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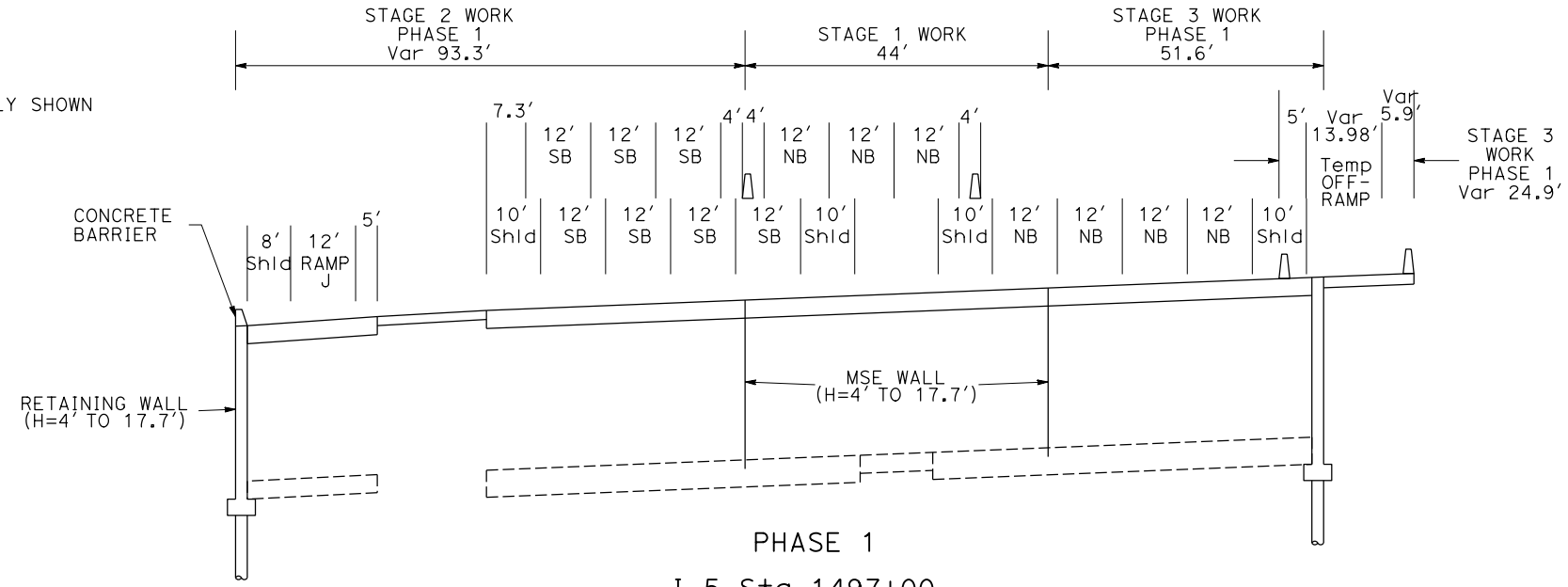
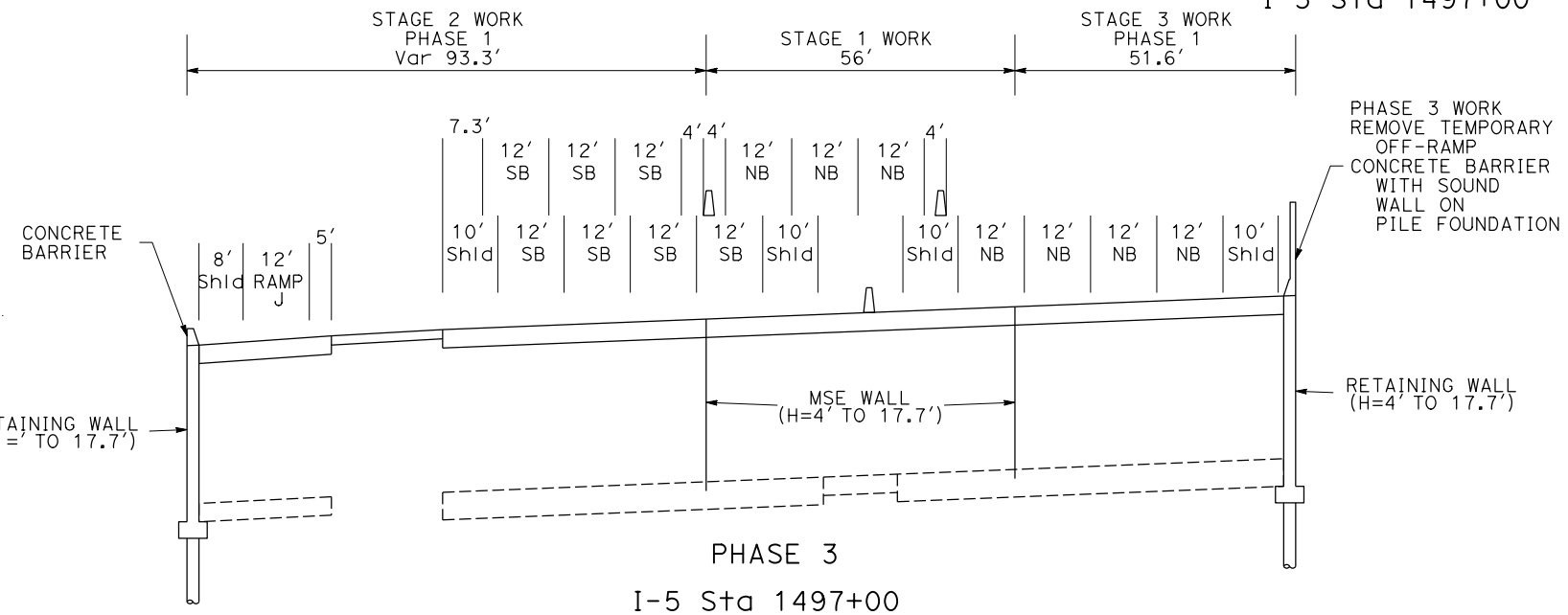


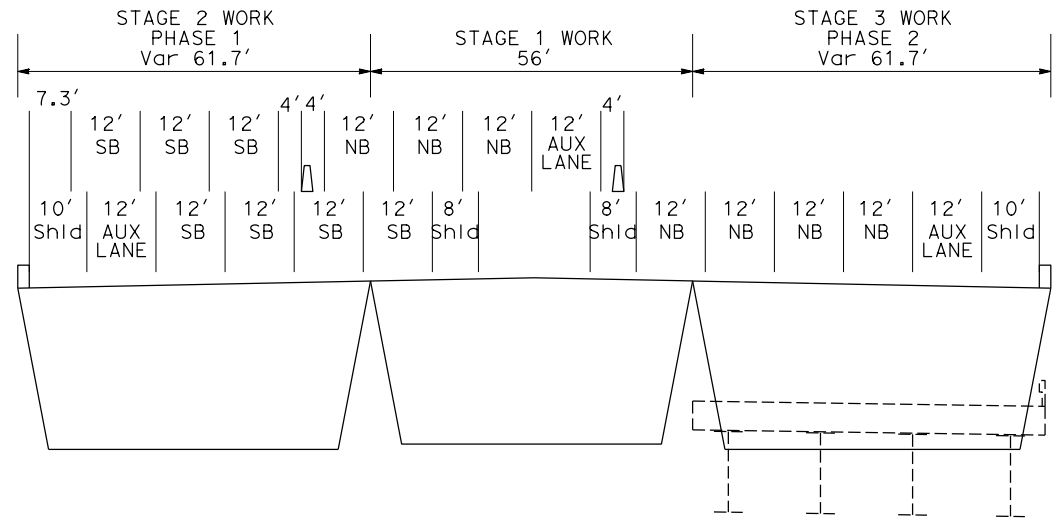
PHASE 1

I-5 Sta 1497+00



PHASE 3

I-5 Sta 1497+00



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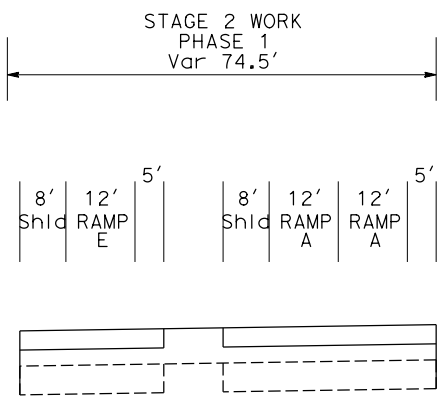
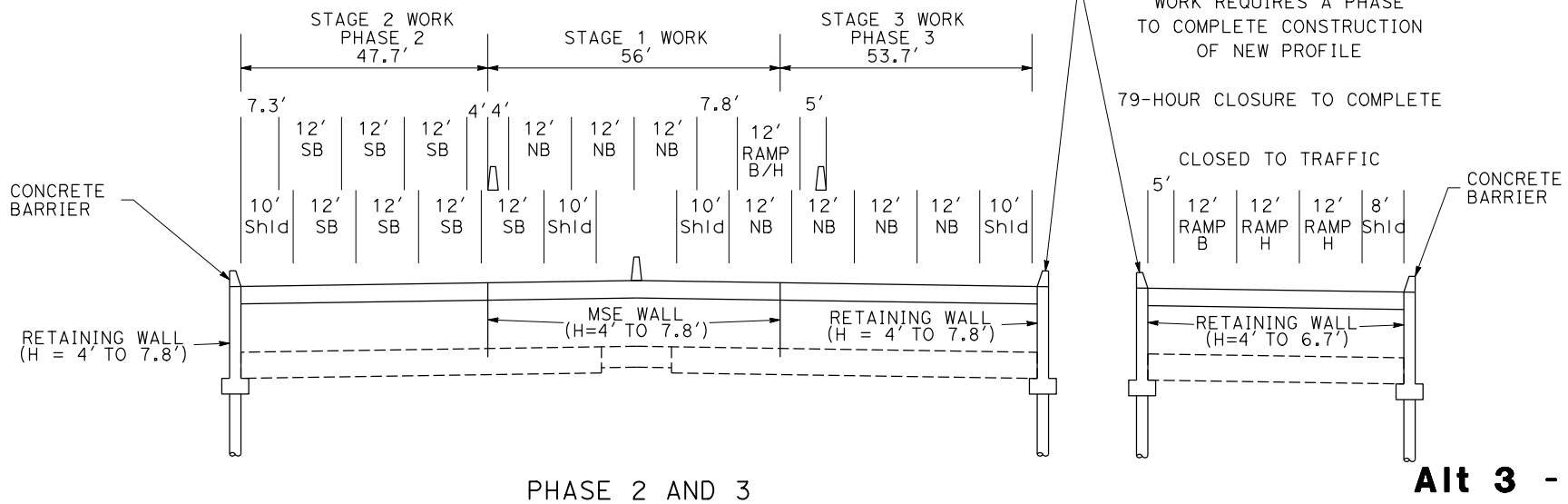
I-5 Sta 1485+00





PHASE 2 AND 3

I-5 Sta 1468+00

NO SCALE

Alt 3 - SC & TH CONCEPTS CROSS SECTIONS STAGE 3 PHASE 1, 2, AND 3

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ATTACHMENT D
Advanced Planning Study
(Summary and Alternative 3
Preferred Alternative Only)

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

M e m o r a n d u m

Making Conservation
a California Way of Life.

To: **SAM SHERMAN**
PROJECT MANAGER

Date: March 25, 2021

File: 10-SJ-5-PM 26.1/27.6
10-0X460
1012000259
Stockton Channel Viaduct/
Pershing Ramp
Br. No. 29-0176R/L

K. Andurlekar

From: **KRISHNAKANT ANDURLEKAR**
Complex Bridge Design Branch
Office of Bridge Design North
Structure Design
Division of Engineering Services

Subject: **UPDATED ADVANCE PLANNING STUDY**

Attached is the Updated Advance Planning Study for the above referenced project as requested by your memo dated April 15, 2020. The previous planning studies were sent to you on July 08, 2019 and March 22, 2018. This updated APS considers elimination of braided Pershing Offramp, Temporary Offramp to Pershing Avenue north of existing ramp and accommodates 3 through lanes and maintain an auxiliary lane with access from/to SR 4 connectors (SB offramp and NB onramp), and Fremont Onramp & Pershing Offramp.

The center widening was required to maintain 4 consecutive open lanes in each direction at all times except for possible temporary closures for construction activity. Temporary offramp to Pershing Ave was requested by district to divert offramp traffic during the existing offramp is being strengthened or replaced.

The forecast structure cost, including time related overhead, mobilization and contingencies, is as follows:

Structure Name	Br. No.	Estimated Cost	Working Days
Stockton Channel Viaduct Alt 1A: Strengthen super and substructure of Mainline & Pershing Offramp for P9 permit live load and normal weight concrete deck, center widening with steel girders, Seismic retrofit, and Temporary Pershing offramp	29-0176R/L	$160,980,000	1613
Stockton Channel Viaduct Alt 2: Replace superstructure of Mainline and Pershing Offramp with high strength steel girders and retrofit substructure all designed for P15 permit live load and normal weight deck, center widening with steel girders, Seismic retrofit, and Temporary Pershing Offramp	29-0176R/L	$263,077,000	1570
Stockton Channel Viaduct Alt 3 (Option 1): Replace existing bridge with new concrete segmental bridge designed for P15 permit live load. Includes temporary and permanent Pershing Ramp with RW, and Park Street UC replacement.	29-0176R/L	$334,296,000	1890
Stockton Channel Viaduct Alt 3 (Option 2): Replace existing bridge with new concrete segmental bridge designed for P15 permit live load. Includes temporary Pershing Ramp and permanent Pershing Ramp Viaduct extended to Park Street UC Abutment.	29-0176R/L	$334,753,000	1890

This Advance Planning Study and associated cost is based on the following assumptions:

1. Proposed footing and substructure retrofit are based on preliminary geotechnical and seismic information. Further retrofit may be required if found to be deficient by final geotechnical analysis.

2. Liquefaction potential and the potential of lateral spreading appear to be low at all other supports except at the river banks (adjacent to Bents 8 & 9).

3. For Alternative 3 only, the new profile can accommodate 15 feet rise over the existing bridge profile at the center of Stockton channel to accommodate a deeper segmental box girder. Additional retaining walls are required at both approaches of mainline bridge to accommodate differences in the elevations.

4. See the list of additional assumptions for each alternative listed on the respective planning study sheets.

5. Early design activities will take place during the PA&ED phase to request Preliminary Foundation Report for Alternative 3.

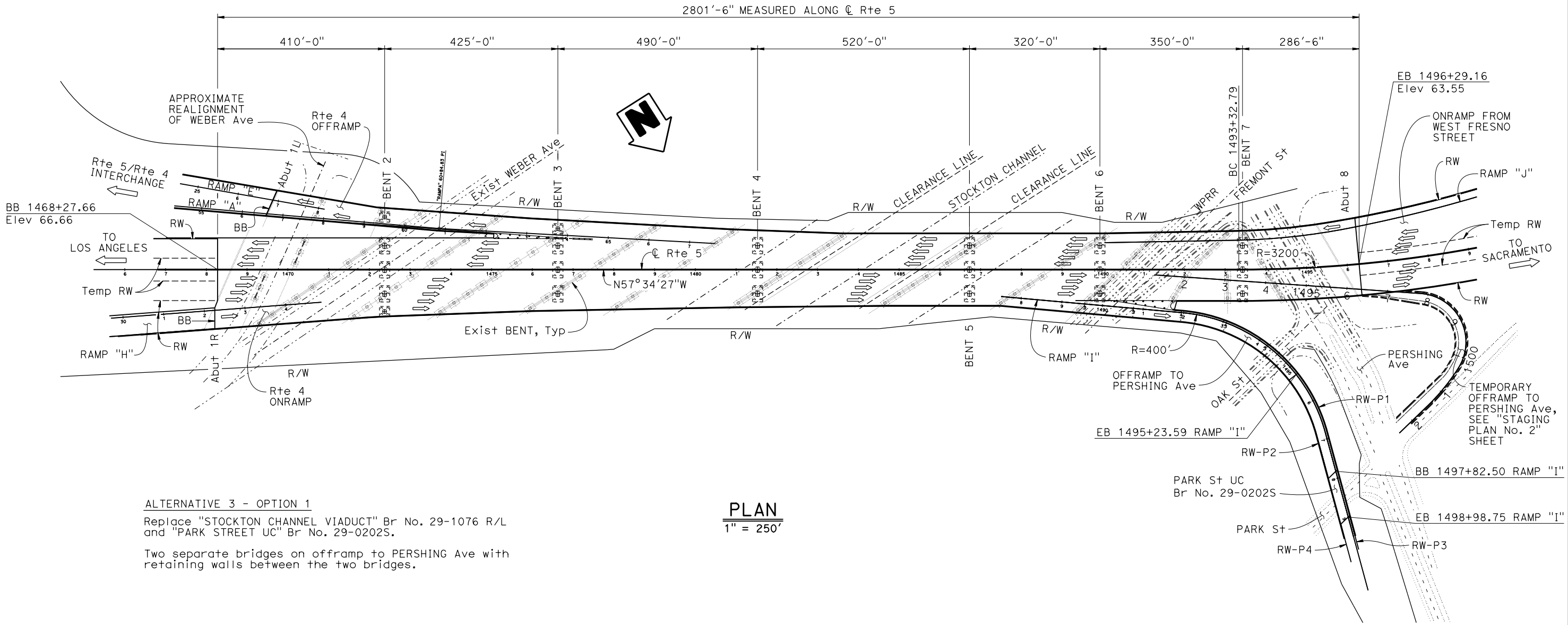
If you have any questions or if you need additional information regarding this study, please contact Kyoung Lee at (916) 227-8412 or Krishnakant Andurlekar at (916) 227-8381 or (916) 849-2305.

Attachments
Planning studies for 3 Alternatives

c: ANTON KISMETIAN, Senior Design-Manager, District Project Engineer
KHALED DAHER, Branch Chief, Central Region - Design
ELIAS KURANI, Chief, Office of Bridge Design Central
DAN ADAMS, Chief, Office of Bridge Design North
DES SD Task Management@ DOT, , Structure Design Task Management Support Unit
MICHAEL DOWNS, Technical Liaison Engineer, OBDC
HERNAN PEREZ, Branch Chief, Preliminary Investigations North
THOMAS SONG, Chief, Office of Geotechnical Design North
EROL KASLEN, Chief, Structure Maintenance and Investigations - Office North
DIANA CAMPBELL, Program Advisor, Office of Bridge Asset Management
CORY COWDEN (A), Chief, Bridge Maintenance Design & Analysis
EROL KASLAN, Deputy Division Chief, Structure Maintenance and Investigations
PEGGY LIM, Project Liaison Engineer - District 6 & 10
MICHAEL FRANCIS (A), Deputy Division Chief, Office of Structure Construction

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



PLAN
1" = 250'

ALTERNATIVE 3 - OPTION 1

Replace "STOCKTON CHANNEL VIADUCT" Br No. 29-1076 R/L and "PARK STREET UC" Br No. 29-0202S.

Two separate bridges on offramp to PERSHING Ave with retaining walls between the two bridges.

ALTERNATIVE 3 (OPTION 1 OR 2) MAINLINE ESTIIMATE	
DATE OF ESTIMATE	03/16/21
AREA (SQFT)	571,994
STRUCTURE SUBTOTAL	$193,869,277
BR. REMOVAL SUBTOTAL	$8,645,625
TOTAL COST	$309,398,000

Total includes 10% TRO, 10% mobilization and 25% contingency

NOTES:
1. Existing Substructure as well as New Structure is shown.
2. Hinges not shown.
3. Structure Approach not shown.
4. For retaining walls, see "RETAINING WALL LAYOUT" sheet.
5. For Stage Construction, see "STAGING PLAN" sheets.
6. For Typical Sections, see "TYPICAL SECTION" sheet.
7. For Notes and Assumptions, see "ASSUMPTIONS" sheet.

LEGEND:
- Existing Structure
- Direction of traffic
- New Footing, Piles and Columns
- 8'ø CIDH Bent Piles

DESIGNED BY J. Posey/K. Lee	DATE 10-02-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3 - Opt 1
DRAWN BY L. Goldthwait/G. Dickerson	DATE 10-07-20	DESIGN BRANCH COMPLEX BRIDGE	GENERAL PLAN
CHECKED BY M. Okimura/P. Norboe	DATE 12-11-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 1 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:32
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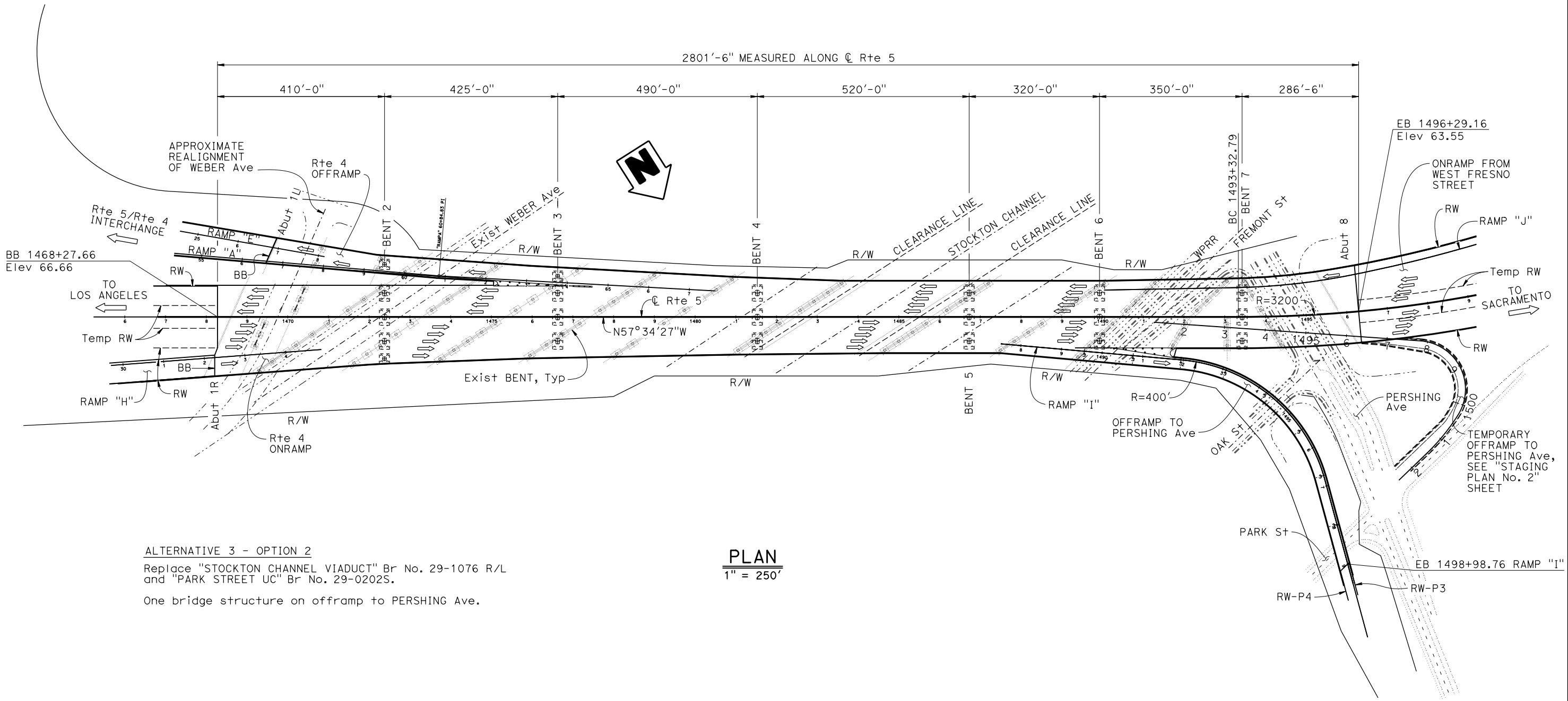
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



ALTERNATIVE 3 - OPTION 2

Replace "STOCKTON CHANNEL VIADUCT" Br No. 29-1076 R/L and "PARK STREET UC" Br No. 29-0202S.

One bridge structure on offramp to PERSHING Ave.

PLAN
1" = 250'

NOTES:
1. Existing Substructure as well as New Structure is shown.
2. Hinges not shown.
3. Structure Approach not shown.
4. For retaining walls, see "RETAINING WALL LAYOUT" sheet.
5. For Stage Construction, see "STAGING PLAN" sheets.
6. For Typical Sections, see "TYPICAL SECTION" sheet.
7. For Notes and Assumptions, see "ASSUMPTIONS" sheet.

LEGEND:
- Existing Structure
- Direction of traffic
- New Footing, Piles and Columns
- 8'ø CIDH Bent Piles

DESIGNED BY J. Posey/K. Lee	DATE 10-02-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3 - Opt 2
DRAWN BY L. Goldthwait/G. Dickerson	DATE 10-07-20	DESIGN BRANCH	GENERAL PLAN
CHECKED BY M. Okimura/P. Norboe	DATE 12-11-20	COMPLEX BRIDGE	STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 2 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

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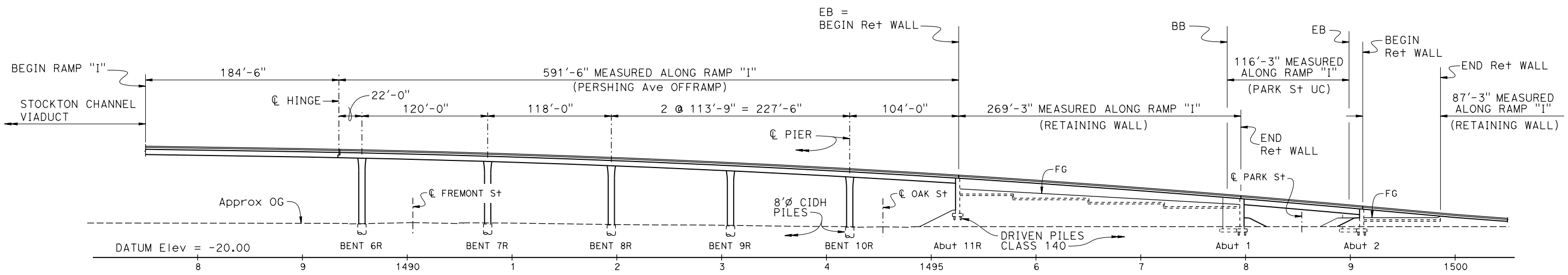
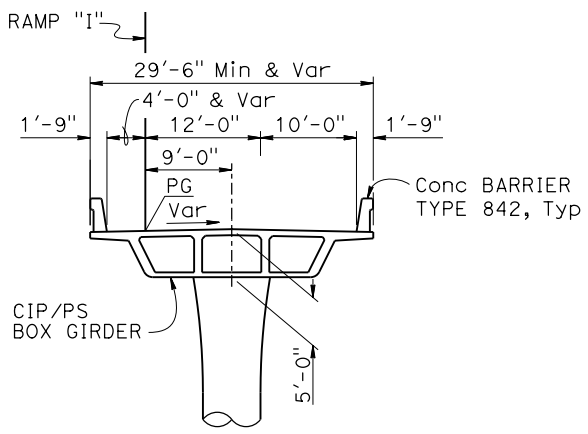


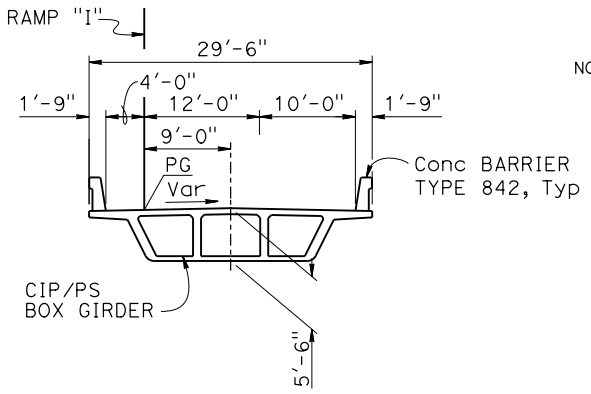
DEVELOPED ELEVATION

1" = 100'

NOTE: Mainline Bridge Bents not shown for clarity.



PERSHING OFFRAMP



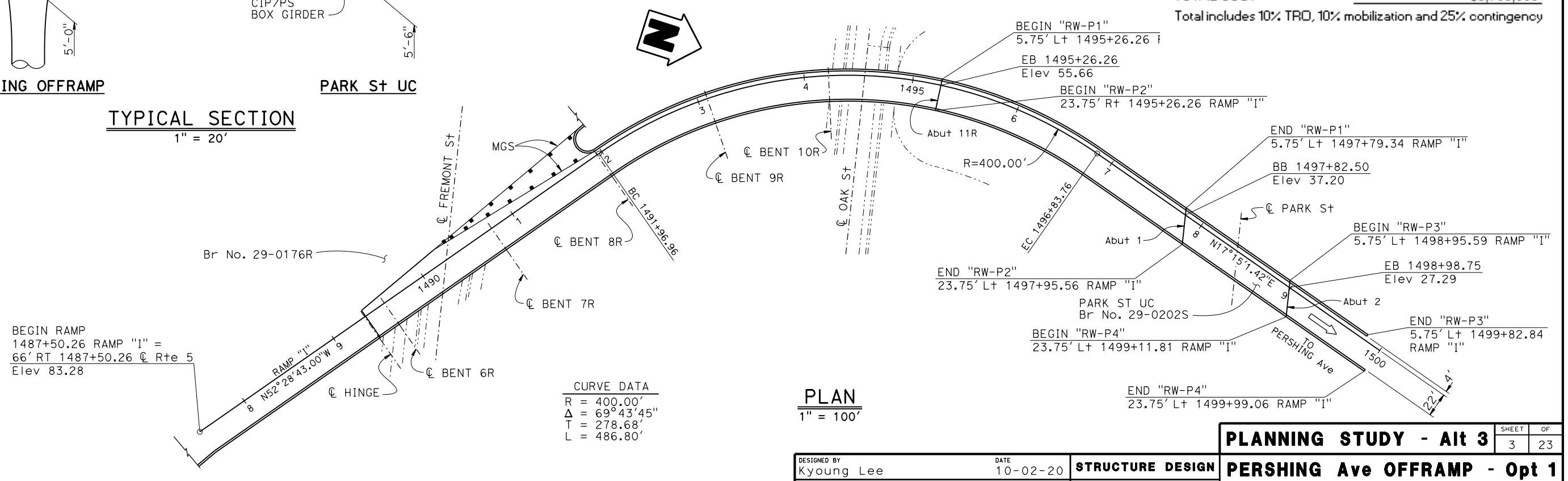
PARK St UC

TYPICAL SECTION

1" = 20'

ALTERNATIVE 3 PERSHING OFF-RAMP OPTION 1	
DATE OF ESTIMATE	03/16/21
AREA (SQFT)	26,321
STRUCTURE SUBTOTAL	$6,352,740
BR. REMOVAL SUBTOTAL	N/A
TOTAL COST	$9,706,000

Total includes 10% TRO, 10% mobilization and 25% contingency



CURVE DATA
R = 400.00'
Δ = 69°43'45"
T = 278.68'
L = 486.80'

PLAN

1" = 100'

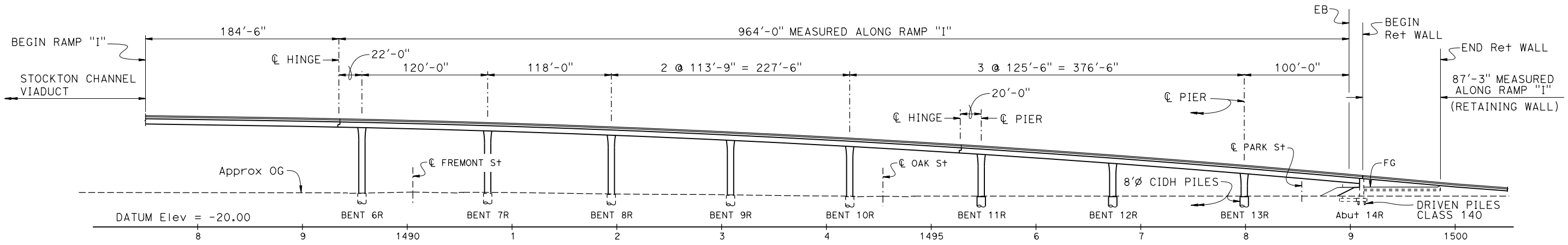
DESIGNED BY	DATE
Kyoung Lee	10-02-20
DRAWN BY	DATE
Gerald Dickerson	10-07-20
CHECKED BY	DATE
Pete Norboe	12-11-20
APPROVED	DATE
Krishnakant Andurlekar	01-22-21

STRUCTURE DESIGN
DESIGN BRANCH
COMPLEX BRIDGE

PLANNING STUDY - Alt 3	SHEET 3	OF 23
PERSHING Ave OFFRAMP - Opt 1		
STOCKTON CHANNEL VIADUCT		
UNIT: 3575	BRIDGE No.: 29-0176 R/L & 29-0202S	
PROJECT EA: 10-0X460	PROJECT No. & PHASE: 10120002590	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1

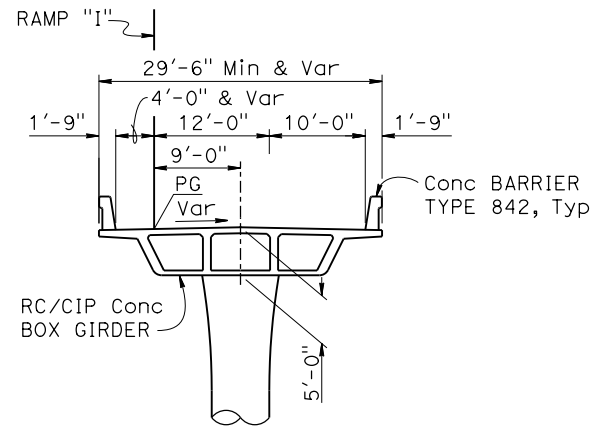


DEVELOPED ELEVATION
1" = 100'

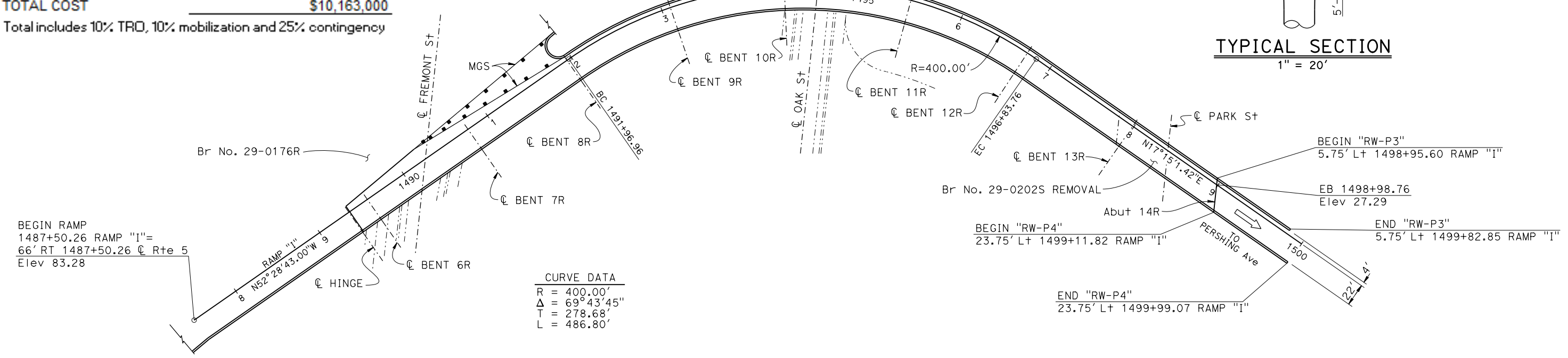
NOTE: Mainline Bridge Bents not shown for clarity.

ALTERNATIVE 3 PERSHING OFF RAMP OPTION 2	
DATE OF ESTIMATE	03/16/21
AREA (SQFT)	33,881
STRUCTURE SUBTOTAL	$6,651,909
BR. REMOVAL SUBTOTAL	N/A
TOTAL COST	$10,163,000

Total includes 10% TRO, 10% mobilization and 25% contingency



TYPICAL SECTION
1" = 20'



CURVE DATA
R = 400.00'
Δ = 69°43'45"
T = 278.68'
L = 486.80'

PLAN
1" = 100'

DESIGNED BY: Kyoung Lee	DATE: 10-02-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY: Gerald Dickerson	DATE: 10-07-20	DESIGN BRANCH: COMPLEX BRIDGE	PERSHING Ave OFFRAMP - Opt 2
CHECKED BY: Pete Norboe	DATE: 12-11-20		STOCKTON CHANNEL VIADUCT
APPROVED: Krishnakant Andurlekar	DATE: 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 R/L
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 4 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1

DESIGN AND CONSTRUCTION NOTES AND ASSUMPTIONS

1. Traffic will pass under the existing structure during construction
2. Traffic will pass on the existing structure during construction
3. Accelerated construction schedule anticipated
4. Shoring may be required for construction at bent locations
5. Temporary Night closure will be required for removal and construction
6. Contaminated/hazardous materials is anticipated at support locations
7. Epoxy coated reinforcement will not be required
8. Construction access difficulties are anticipated
9. Conflicts with existing facilities at support locations is anticipated
10. Potential support conflicts with existing facilities anticipated
11. Falsework fabrication, lifting and placement difficulties anticipated
12. Utilities assumed to be present in construction area
13. Seasonal and daily construction time restrictions anticipated
14. Temporary shoring will be required
15. Night work along with temporary lane closures will be needed.
16. Construction equipment size and placement will be issues of concern
17. Construction equipment and materials storage space an issue of concern
18. Horizontal clearance restrictions present for construction activities
19. Difficulties anticipated in substructure construction at many locations
20. Existing building demolition required for construction of substructure components
21. Subsurface investigations will be required for design
22. Architectural treatment anticipated in design
23. Noise restrictions not anticipated
24. Liquefaction potential considered in design at certain substructure locations
25. Temporary supports may be required for construction and demolition
26. Protective covers required for structure removal
27. Large cranes to be employed for member lifting at bents. Traveler component lifting
28. Slope Paving not incorporated into the study
29. Rip Rap not incorporated into the study- District item
30. New seal course anticipated for certain bent locations
31. New Joint seal placement incorporated in the study
32. Approach work up to structure approach slabs by District
33. No dropping of concrete to surfaces below allowed
34. Special high early strength concrete anticipated for use
35. Cast-In-Place Presetressed Segmental Box Girder superstructure employed
36. Segmental operations extend outward from Cast-In-Place cantilevered pier tables-typical
37. Certain bridge spans may be constructed on conventional falsework
38. Assumptions made regarding CIP cantilevered pier table spans per location
39. Assumptions made regarding CIP/PS box girder segment lengths
40. Bent skews limited to reduce design complications from segmental operations
41. Standard segmental bridge traveler configuration/components anticipated to be employed
42. Variable depth superstructure to be employed. Parabolic soffiit
43. CIP span closure pours anticipated at the centerline of each span typical
44. CIP footings anticipated for all bent locations
45. CISS Piles anticipated for foundations at all supports
46. CISS Pile diameters, and depths assumed for this study
47. Column numbers and diameters assumed for this study
48. Vertical tiedown anchors anticipated at certain bent footing/pile interfaces
49. Assumptions made regarding subsurface conditions for foundation design
50. Ground water anticipated for CISS Pile construction
51. No conduits incorporated into the median barrier
52. Assumptions made regarding number of girders, girder spacings and girder features
53. Internal wingwalls/stub walls located within abutment sections
54. Detour not required for construction of median closure/widening
55. Main bridge span lengths over channel set by existing clearance constraints with parabolic box
56. Replacement bent locations set to clear existing bents and other existing facilities
57. Multiple parallel segmental box girders employed for stageing superstructure construction
58. Segmental bridge components, configuration and dimensions extracted from other projects
59. Ramp structures may be constructed with conventional CIP/PS box girder superstructure
60. Assume acceptable traffic handling configurations can be achieved off structures
61. Assumptions conventional seat type abutments founded on CISS piles
62. Enlarged abutment end diaphragm sections may be employed to counteract uplift forces
63. Type A Excavation is anticipated for certain bent locations in and adjacent to channel
64. Abutment 14R on "Pershing Ave Offramp" - Opt 2 is assumed to be precast concrete driven displacement pile footings
65. Column isolation casing may be necessary at Bent 12R and 13R for "Pershing Ave Offramp - Opt 2"
66. Abutments of "Park Street UC" - Opt 1 are assumed to be precast concrete driven displacement pile footings
67. Footings for all permanent retaining walls except RW P1 - P4, are assumed to be precast concrete driven pile footing
68. Footings for RW P1 - P4 on "Pershing Ave Offramp", are assumed to be spread footing
69. Temp RWs in Construction STAGE 1 are assumed to be MSE walls
70. Non-standard drainage systems will be necessary at the abutments due to the Temp RWs remaining in place.

MAIN BRIDGE FEATURES

BRIDGE LENGTH = 2801'-6" ALONG ℄ RTE 5

BRIDGE WIDTH = VARIES, 179'-6" Min

BRIDGE DEPTH = VARIES, 10'-0"-28'-0"

NUMBER OF SPANS = 7

SPAN LENGTH = VARIES, 286'-6"-520'-0"

NUMBER OF CONSTRUCTION STAGES = 4

STRUCTURE TYPE: SPAN 2-6 CIP/PS SEGMENTAL BOX GIRDER,
SPAN 1 AND 7 CIP/PS BOX GIRDER ON FW

NUMBER OF HINGES = 2

NUMBER OF CANTILEVERED PIER TABLE SPANS = 15 (5 Per STAGE)

CANTILEVER PIER TABLE SPAN LENGTH = Varies, 33'-0" - 43'-0"

CIP/PS BOX GIRDER SEGMENT LENGTH = 14'-0" to 15'-3"

CIP/RC CLOSURE POUR LENGTH = 14'-0" to 15'-3"

NUMBER OF BENTS = 6 PER STAGE

CISS PILE SIZE - VARIES, 24" Dia AT Abut.,
60" Dia AT BENTS 2, 3, 6, AND 7; 84" Dia AT BENTS 4 AND 5

DESIGNED BY Kyoung Lee	DATE 10-09-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Gerald Dickerson	DATE 10-09-20	DESIGN BRANCH COMPLEX BRIDGE	ASSUMPTIONS
CHECKED BY Pete Norboe	DATE 12-11-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 R/L / PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 5 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

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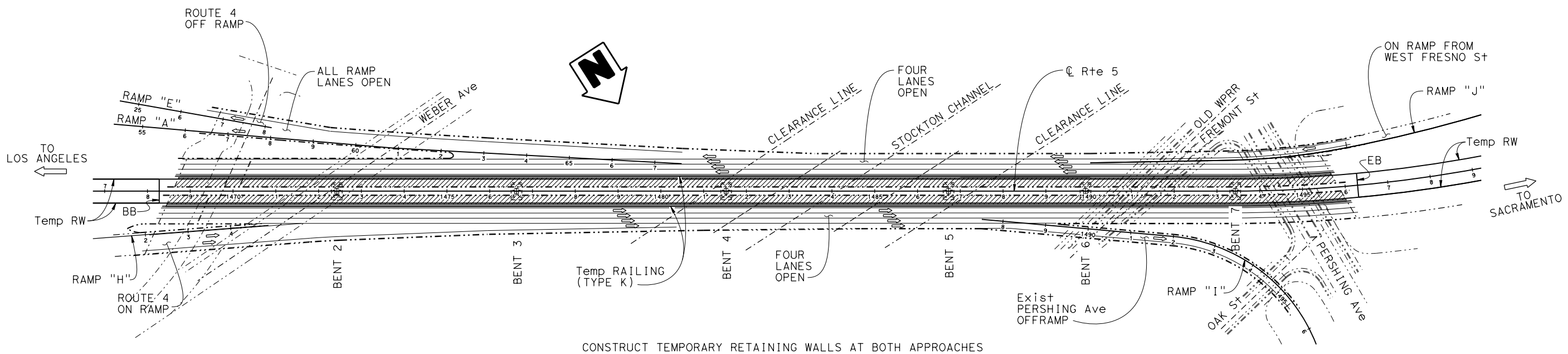
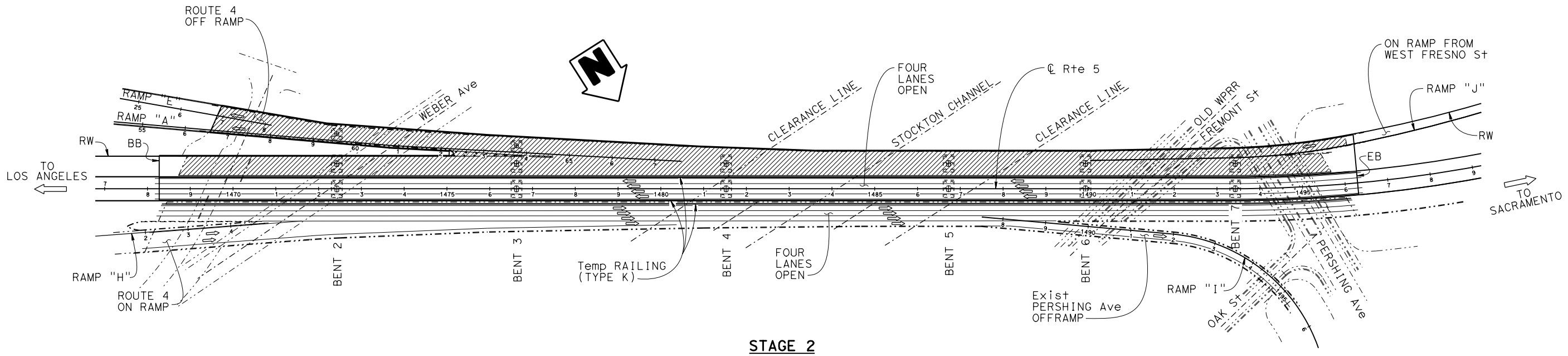


CONSTRUCT TEMPORARY RETAINING WALLS AT BOTH APPROACHES OF THE MAINLINE BRIDGE FOR ELEVATED PROFILE GRADE, SEE "NOTE 5" ON "STAGING PLAN No. 2" SHEET.

STAGE 1



STAGE 2

PLAN
1" = 250'

NOTE:
For "STAGE 3A" and "STAGE 3B", see "STAGING PLAN No. 2" sheet.

LEGEND:
-·-·-·- Existing Structure
▨ Bridge Removal (Portion)

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-1-stage1.dgn USERNAME => s135156

DESIGNED BY J. Posey/K. Lee	DATE 07-28-20	STRUCTURE DESIGN
DRAWN BY L. Goldthwait/G. Dickerson	DATE 09-02-20	DESIGN BRANCH
CHECKED BY M. Okimura/P. Norboe	DATE 12-11-20	COMPLEX BRIDGE
APPROVED Krishnakant Andurlekar	DATE 01-22-21	

PLANNING STUDY - Alt 3 | SHEET 6 | OF 23

STAGING PLAN No. 1

STOCKTON CHANNEL VIADUCT

UNIT: 3575 | BRIDGE No.: 29-0176 R/L

PROJECT EA: 10-0X460 | PROJECT No. & PHASE: 10120002590

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

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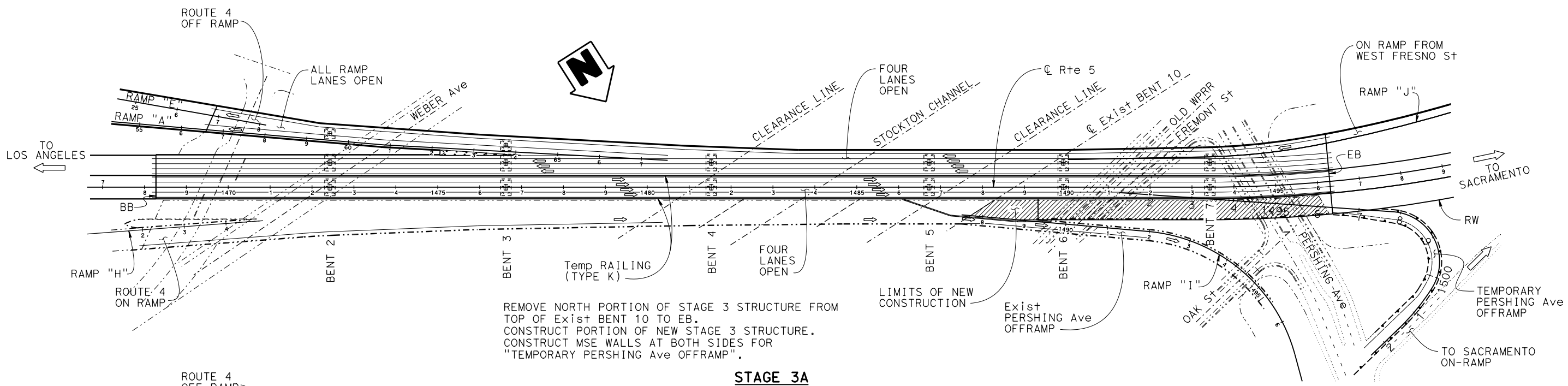
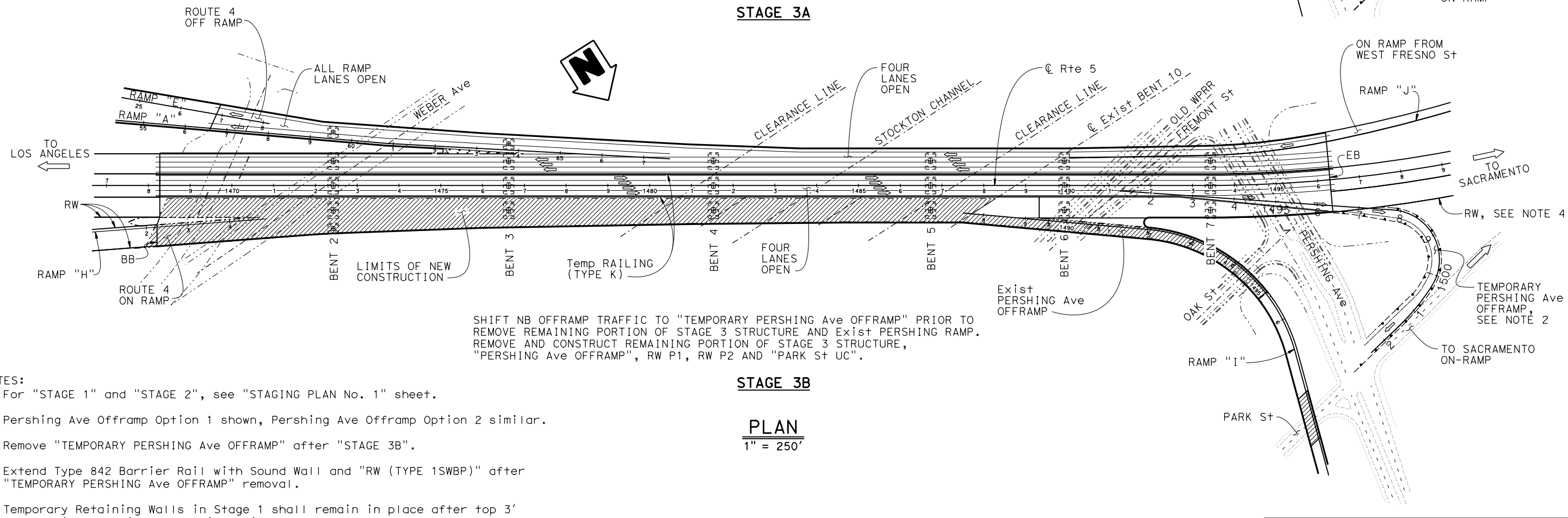


REMOVE NORTH PORTION OF STAGE 3 STRUCTURE FROM TOP OF Exist BENT 10 TO EB.
CONSTRUCT PORTION OF NEW STAGE 3 STRUCTURE.
CONSTRUCT MSE WALLS AT BOTH SIDES FOR "TEMPORARY PERSHING Ave OFFRAMP".

STAGE 3A



SHIFT NB OFFRAMP TRAFFIC TO "TEMPORARY PERSHING Ave OFFRAMP" PRIOR TO REMOVE REMAINING PORTION OF STAGE 3 STRUCTURE AND Exist PERSHING RAMP.
REMOVE AND CONSTRUCT REMAINING PORTION OF STAGE 3 STRUCTURE, "PERSHING Ave OFFRAMP", RW P1, RW P2 AND "PARK St UC".

STAGE 3B

PLAN
1" = 250'

NOTES:
1. For "STAGE 1" and "STAGE 2", see "STAGING PLAN No. 1" sheet.
2. Pershing Ave Offramp Option 1 shown, Pershing Ave Offramp Option 2 similar.
3. Remove "TEMPORARY PERSHING Ave OFFRAMP" after "STAGE 3B".
4. Extend Type 842 Barrier Rail with Sound Wall and "RW (TYPE 1SWBP)" after "TEMPORARY PERSHING Ave OFFRAMP" removal.
5. Temporary Retaining Walls in Stage 1 shall remain in place after top 3' and required portion for drainage is removed.

LEGEND:
-·-·-·- Existing Structure
▨ Bridge Removal (Portion)

DESIGNED BY J. Posey/K. Lee	DATE 07-28-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY L. Goldthwait/G. Dickerson	DATE 10-14-20	DESIGN BRANCH COMPLEX BRIDGE	STAGING PLAN No. 2
CHECKED BY M. Okimura/P. Norboe	DATE 12-11-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 7 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

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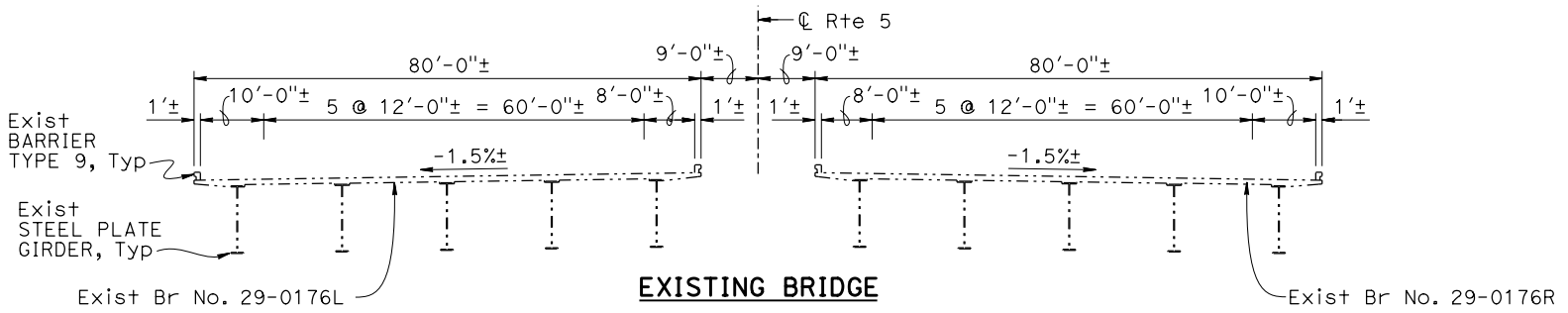
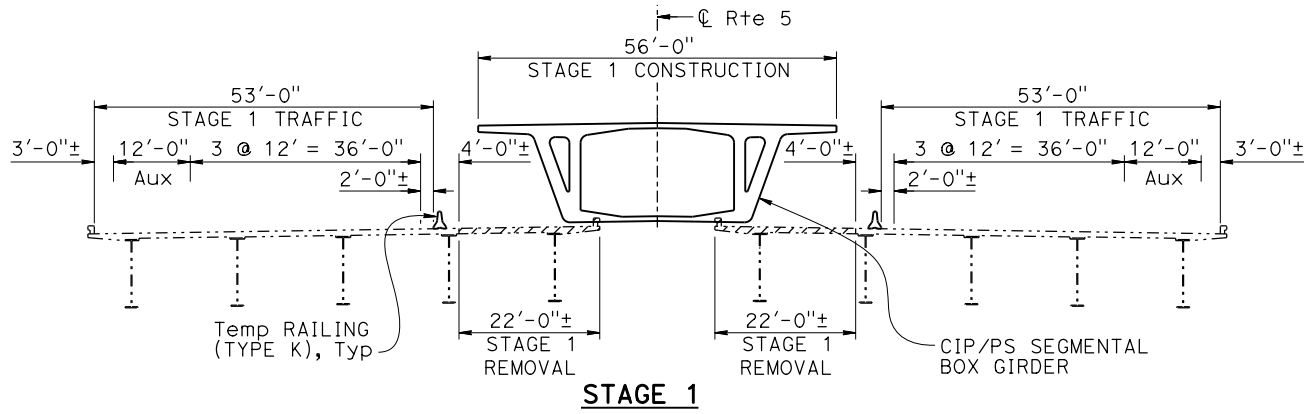
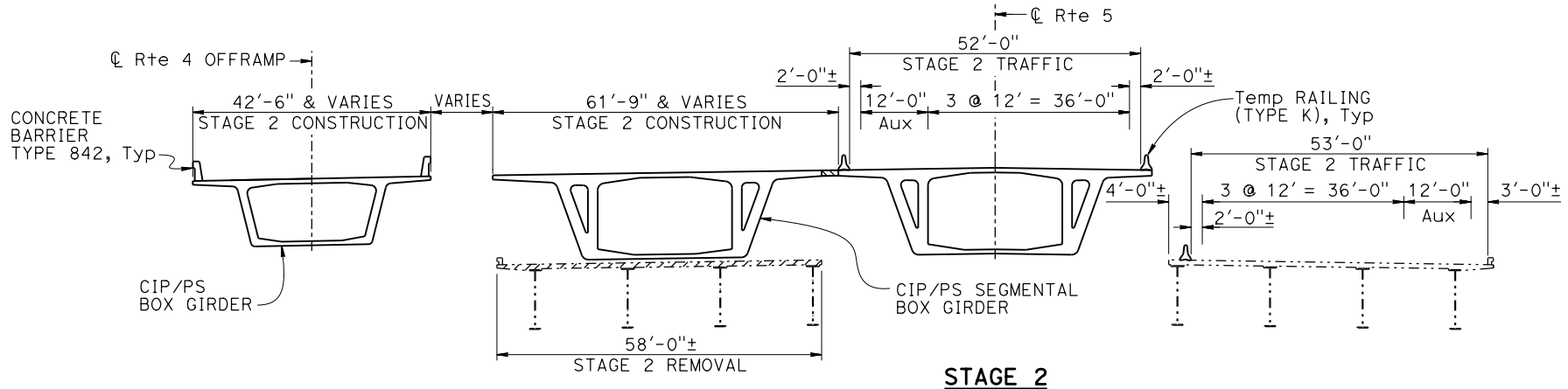


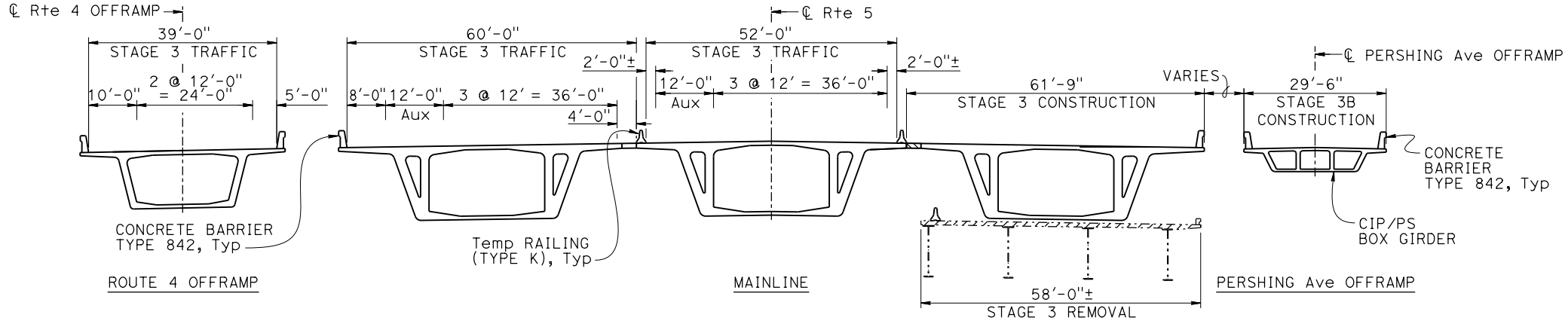
EXISTING BRIDGE



STAGE 1



STAGE 2



NOTES AND ASSUMPTIONS:

1. Temporary Railing (Type K) will be required on the new and existing structures in construction stages.
2. Temporary Railing (Type K) will be anchored to the bridge deck where offset distance to EOD is less than 2'-0".
3. Substandard shoulder widths will be required during construction.
4. Longitudinal deck closure pours employed between adjacent parallel box girders.
5. Transverse post-tensioning in the mainline bridge webs will be employed at each construction stage.
6. Superelevation of the mainline bridge structure deck will be set at 2%.
7. Sloping faced exterior girders employed for typical box girder.

LEGEND:

- Existing Structure
- Bridge Removal (Portion)
- Closure Pour

STAGE 3A: From Sta 1489+55.00 to EB
STAGE 3B: From BB to Sta 1489+55.00

STAGE 3A & STAGE 3B

STAGE CONSTRUCTION

1" = 30'

DESIGNED BY J. Posey/K. Lee	DATE 07-28-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY L. Goldthwait/G. Dickerson	DATE 10-14-20	DESIGN BRANCH COMPLEX BRIDGE	STAGING PLAN No. 3
CHECKED BY P. Nguyen/P. Norboe	DATE 12-11-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 R/L
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 8 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-1-stage3.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1

NOTES:

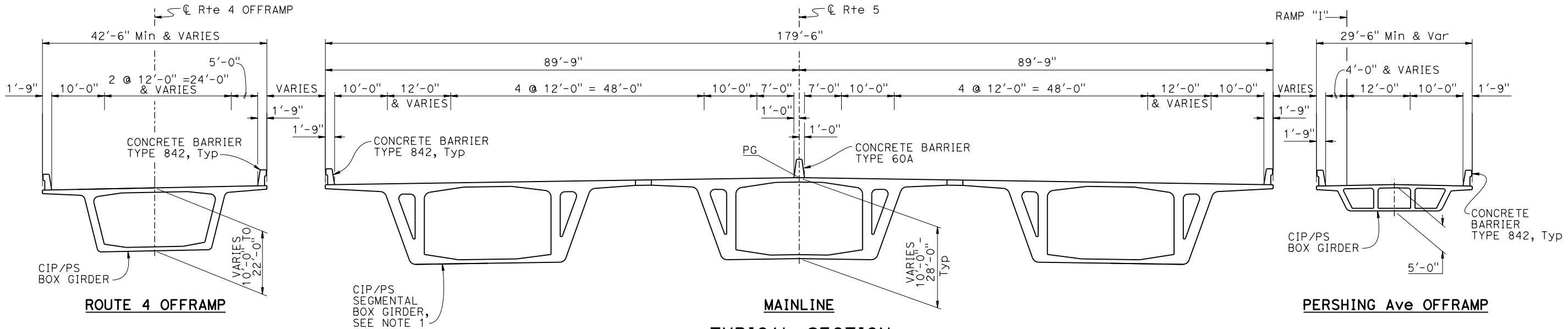
1. Portions of the superstructure will be cast on conventional ground base falsework. Portions will be CIP/PS Segmental Cast using a Traveler System.
2. Profile over channel will need to be raised 15'± above existing grade to maintain current vertical clearance.
3. Box girder details shown are approximate. Dimensions and geometry subject to change.
4. All features not shown.
5. For staging, see "STAGING PLAN" sheets.

(1) CIP/PS Concrete Box Girder cast on falsework

(2) CIP/PS Concrete Cantilevered Box Girder Pier Table cast on falsework

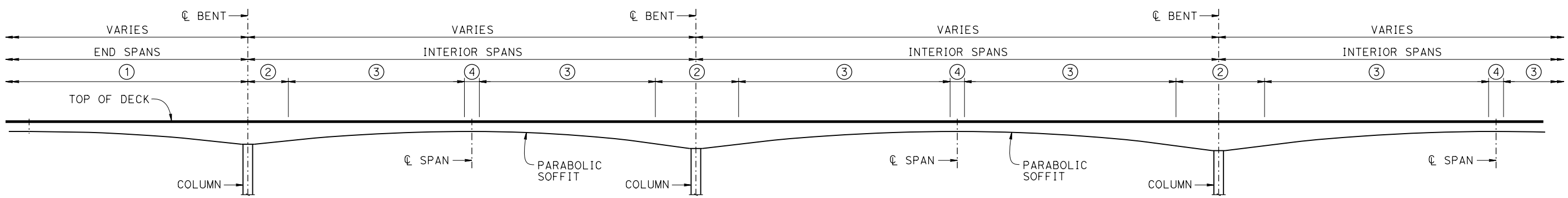
(3) CIP/PS Concrete Segmental Box Girder cast using Traveler

(4) CIP/PS Concrete Span closure pour



TYPICAL SECTION

1" = 20'



PART ELEVATION

No Scale

For bridge features, see "ASSUMPTIONS" sheet

DESIGNED BY J. Posey/K. Lee	DATE 10-02-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY J.M. Hunter/G. Dickerson	DATE 10-07-20	DESIGN BRANCH COMPLEX BRIDGE	TYPICAL SECTION
CHECKED BY M. Okimura/P. Norboe	DATE 12-11-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176 R/L
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

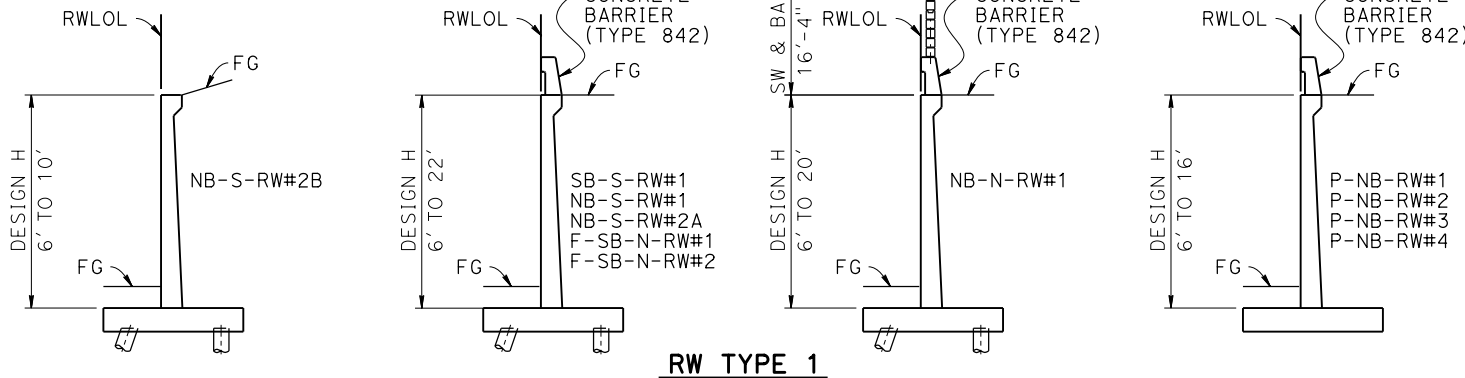
SHEET 9 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176ir_alt3-m-ts.dgn USERNAME => s135156

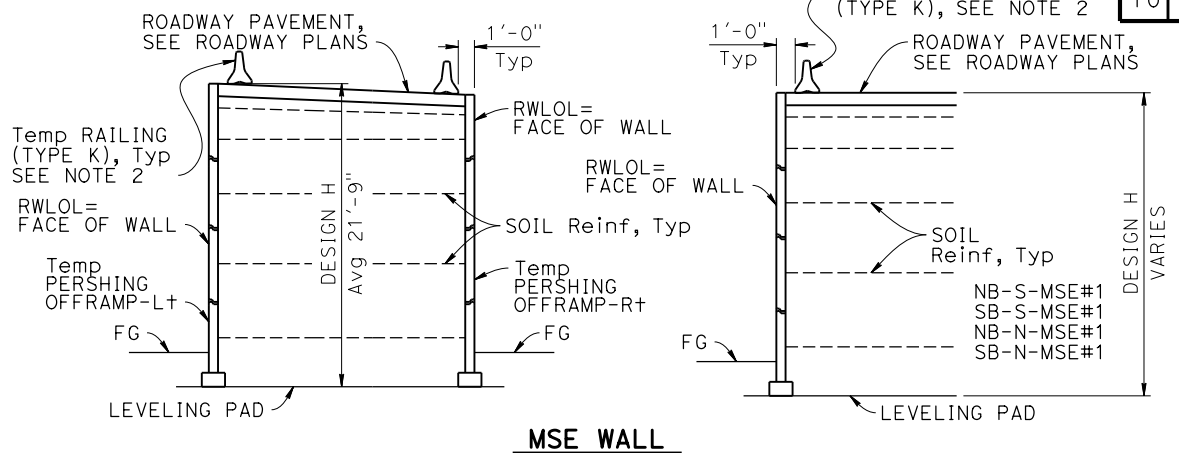
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



RW TYPE 1

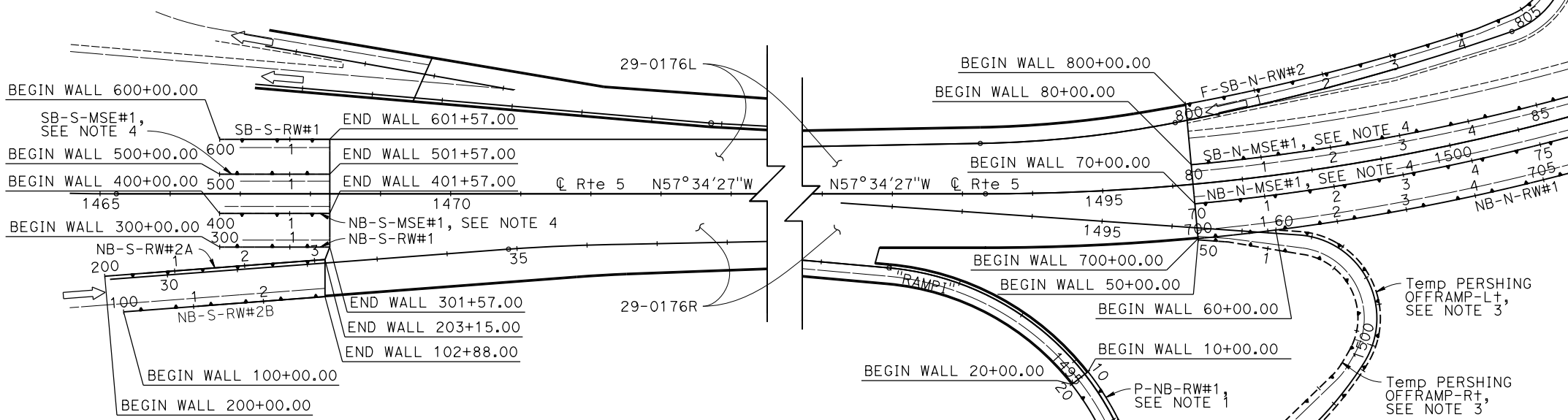
All piles not shown.



MSE WALL

TYPICAL SECTION

NO SCALE



PLAN

1" = 100'

NOTES:

1. P-NB-RW#1 and P-NB-RW#2 are for Alt3 - Option 1 only.
2. Temp railing (Type K) must be pinned to the roadway pavement.
3. Temp PERSHING OFFRAMP - Lt and Rt to be removed after construction.
4. Minimum 3ft of top MSE pannels to be removed prior to be buried under roadway.

ALTERNATIVE 3 (OPTION 1 OR 2)
TEMPORARY PERSHING OFF -RAMP

DATE OF ESTIMATE	03/16/21
AREA (SQFT)	N/A
STRUCTURE SUBTOTAL	$1,859,561
BR. REMOVAL SUBTOTAL	N/A
TOTAL COST	$2,841,000

Total includes 10% TRO, 10% mobilization and 25% contingency

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RETAINING WALL LAYOUT
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

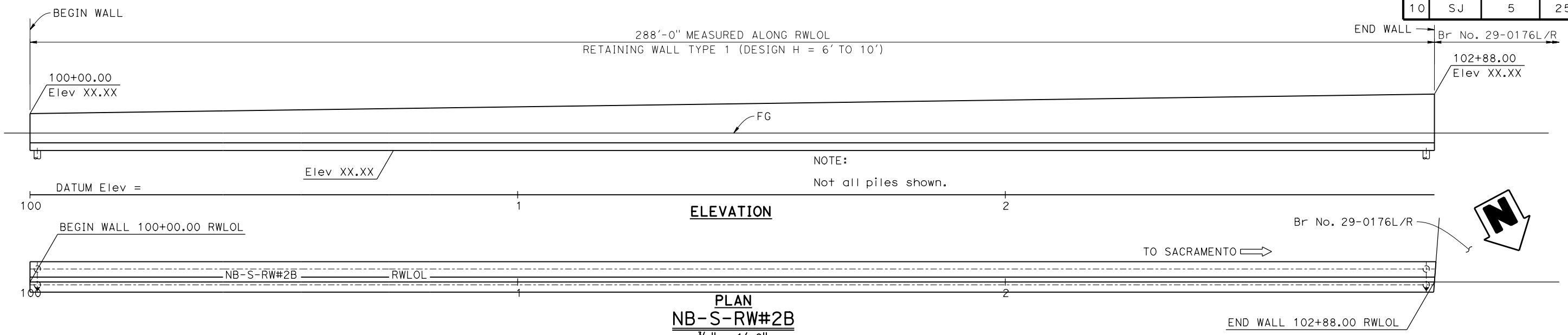
SHEET 10 OF 23

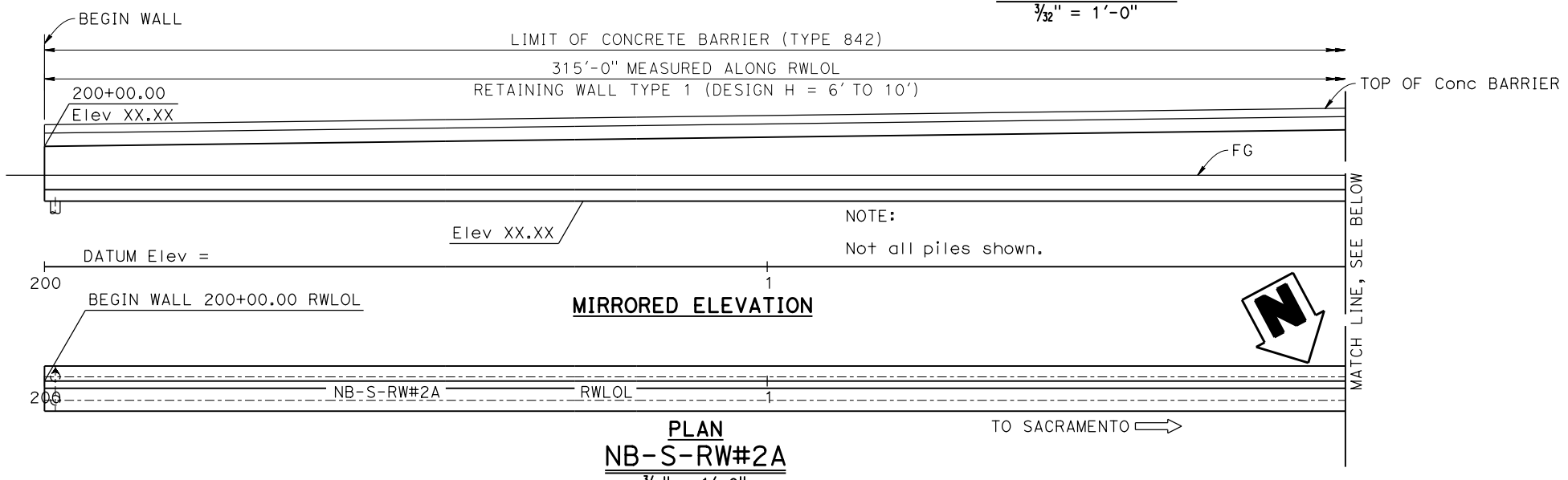
STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

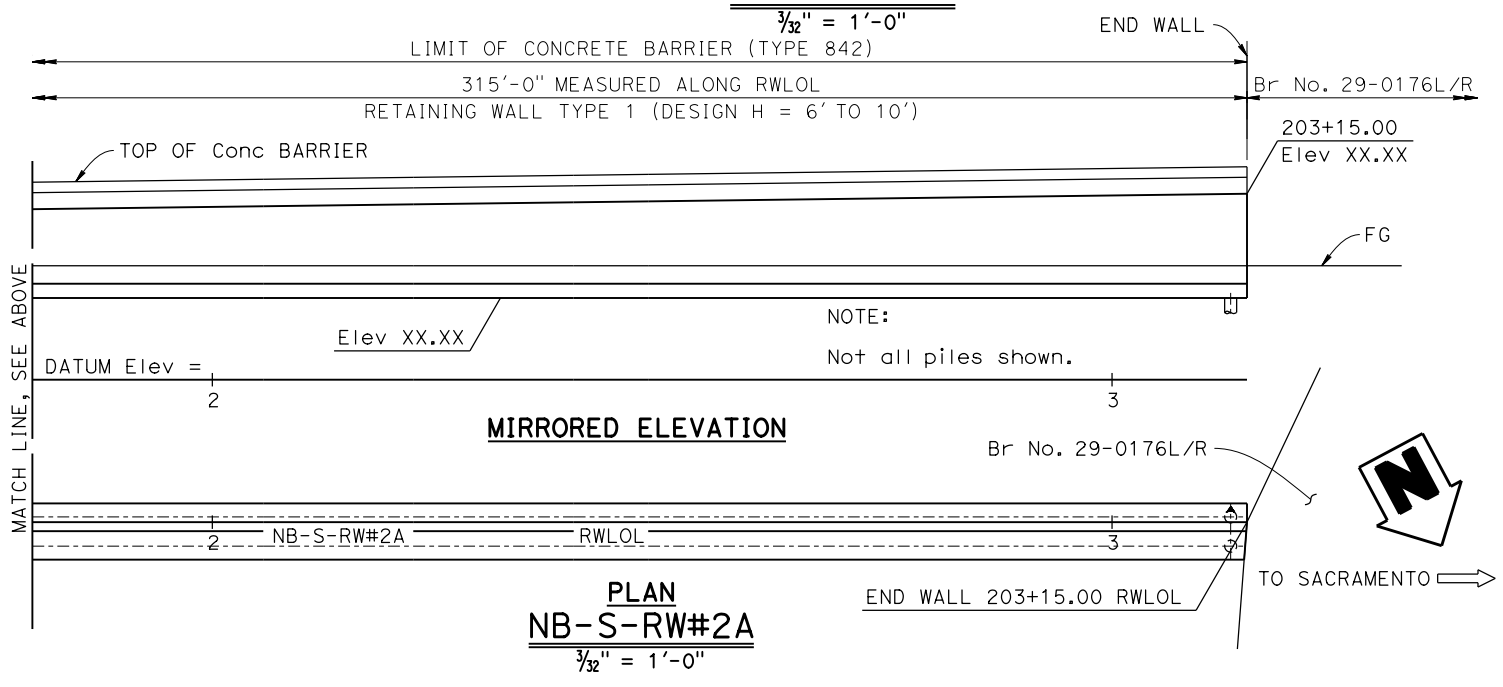
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rw_lo1.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1







LEGEND:

- Vertical Pile
- X:1 Battered Pile

ALTERNATIVE 3 (OPTION 1 OR 2) RETAINING WALL SUMMARY		
DATE OF ESTIMATE		3/16/2021
F-SB-N-RW#1		$540,000
F-SB-N-RW#2		$2,329,000
NB-N-MSE#1		$1,323,000
NB-N-RW#1		$4,474,000
NB-S-MSE#1		$136,000
NB-S-RW#1		$359,000
NB-S-RW#2A		$720,000
NB-S-RW#2B		$651,000
SB-N-MSE#1		$1,324,000
SB-S-MSE#1		$136,000
SB-S-RW#1		$359,000
TOTAL COST		$12,351,000

Total includes 10% TRO, 10% mobilization and 25% contingency

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RW STRUCTURE PLANS No. 1
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

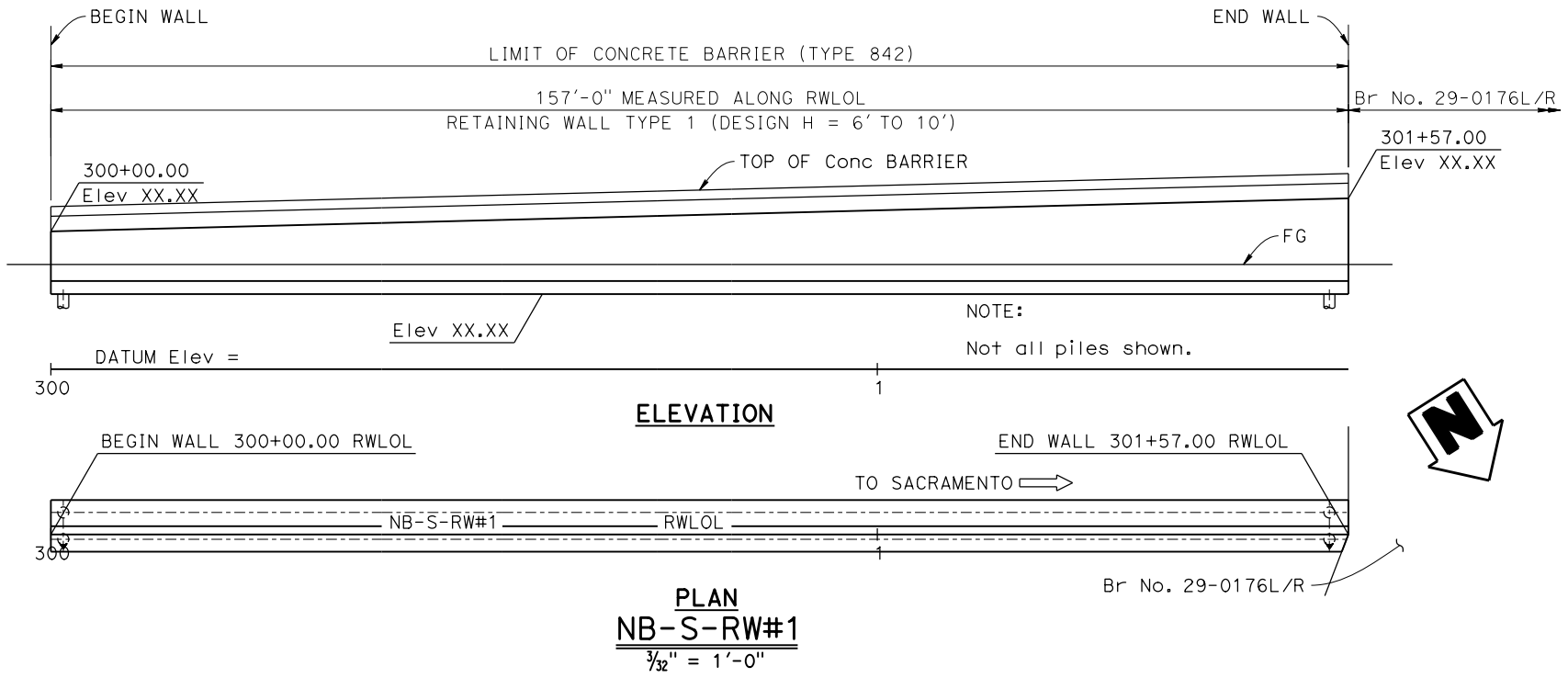
SHEET 11 OF 23

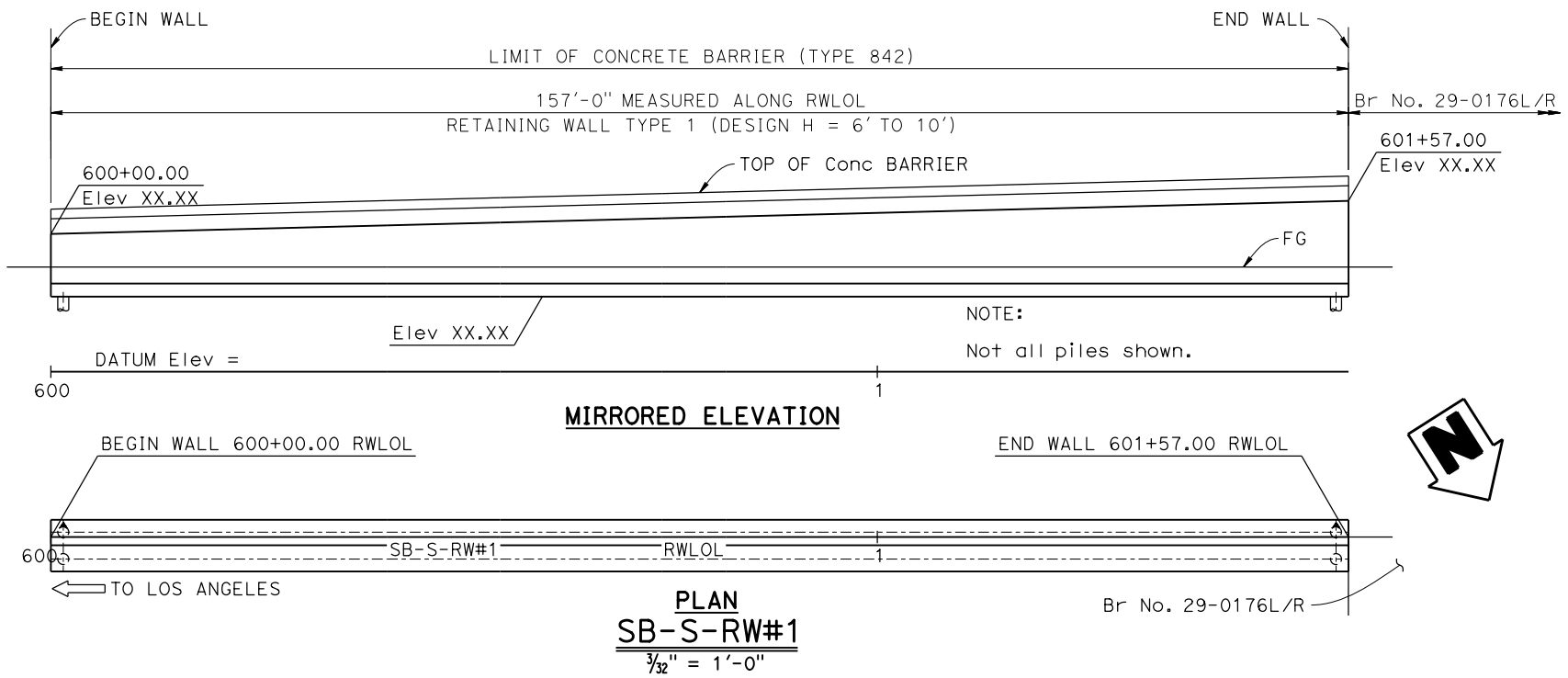
STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp01.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1





LEGEND:

- Vertical Pile
- X:1 Battered Pile

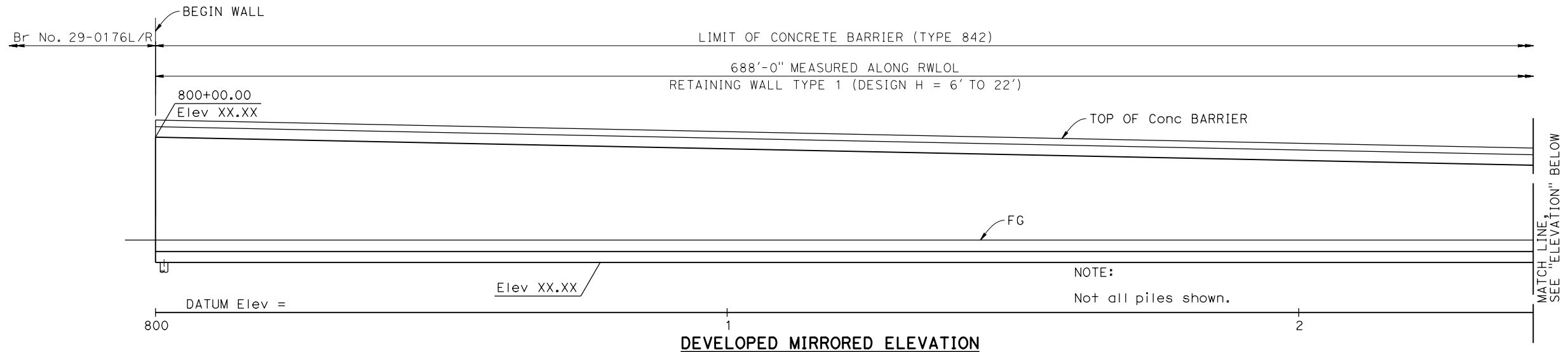
DESIGNED BY: Kyoung Lee	DATE: 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3 — SHEET 12 OF 23
DRAWN BY: Franklin Maagma	DATE: 12-11-20	DESIGN BRANCH: COMPLEX BRIDGE	RW STRUCTURE PLANS No. 2
CHECKED BY: Krishnakant Andurlekar	DATE: 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED: Krishnakant Andurlekar	DATE: 01-22-21		UNIT: 3575 — BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 — PROJECT No. & PHASE: 10120002590

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

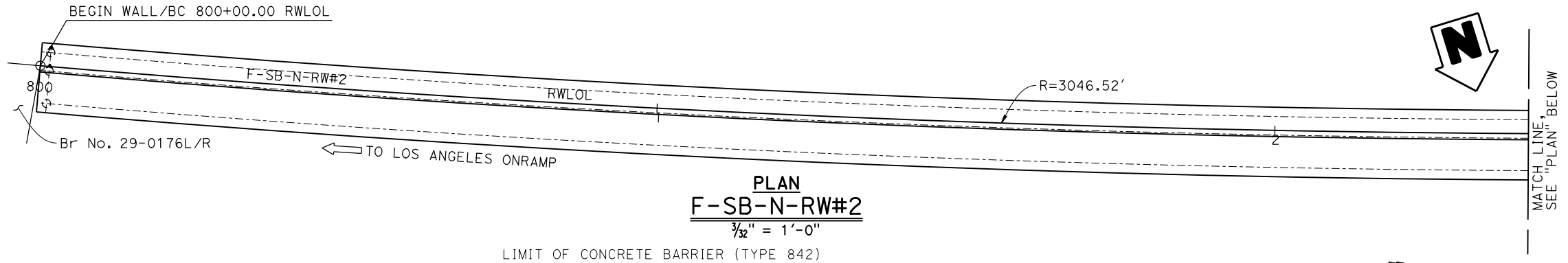
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp02.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

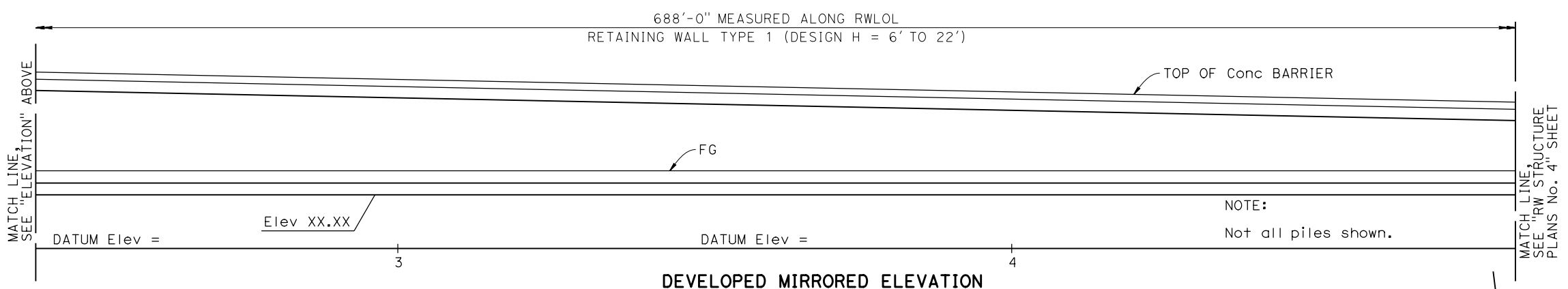
Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



DEVELOPED MIRRORED ELEVATION

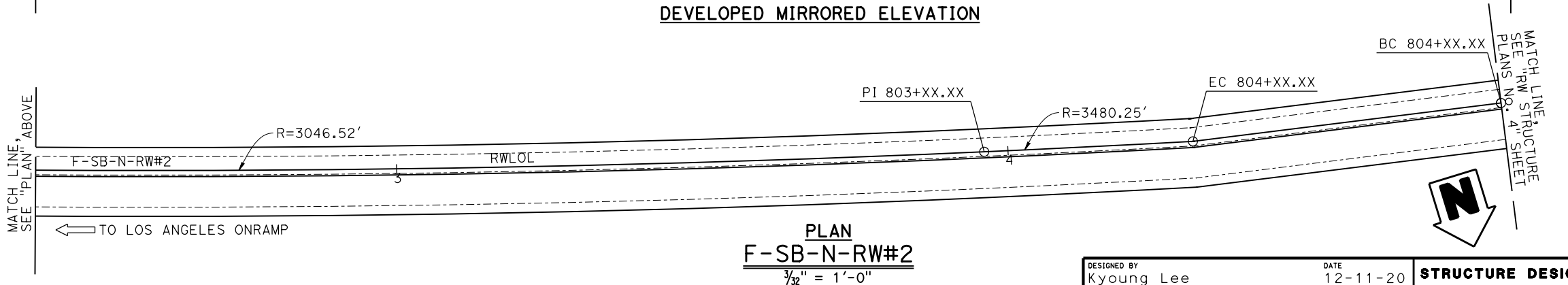


PLAN
F-SB-N-RW#2
3/32" = 1'-0"



DEVELOPED MIRRORED ELEVATION

LEGEND:
- Vertical Pile
- X:1 Battered Pile



PLAN
F-SB-N-RW#2
3/32" = 1'-0"

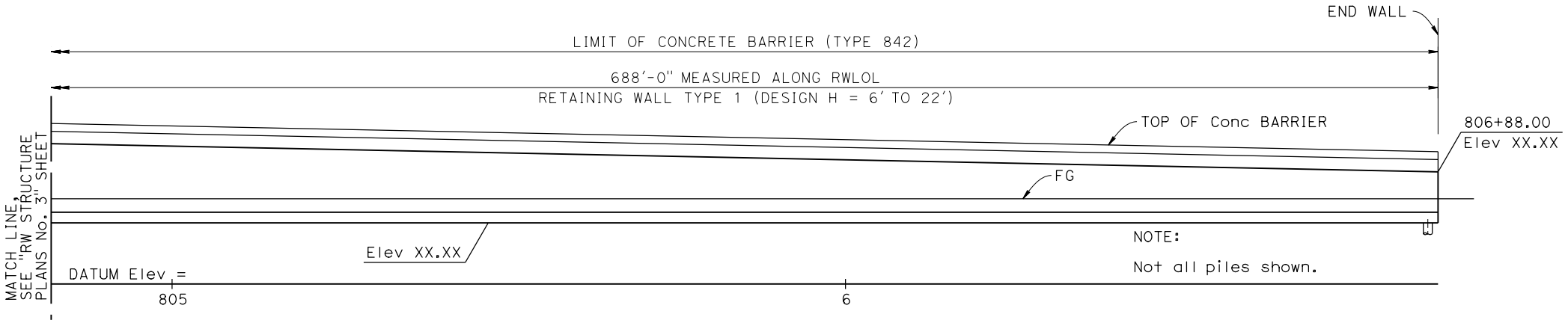
DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RW STRUCTURE PLANS No. 3
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 13 OF 23

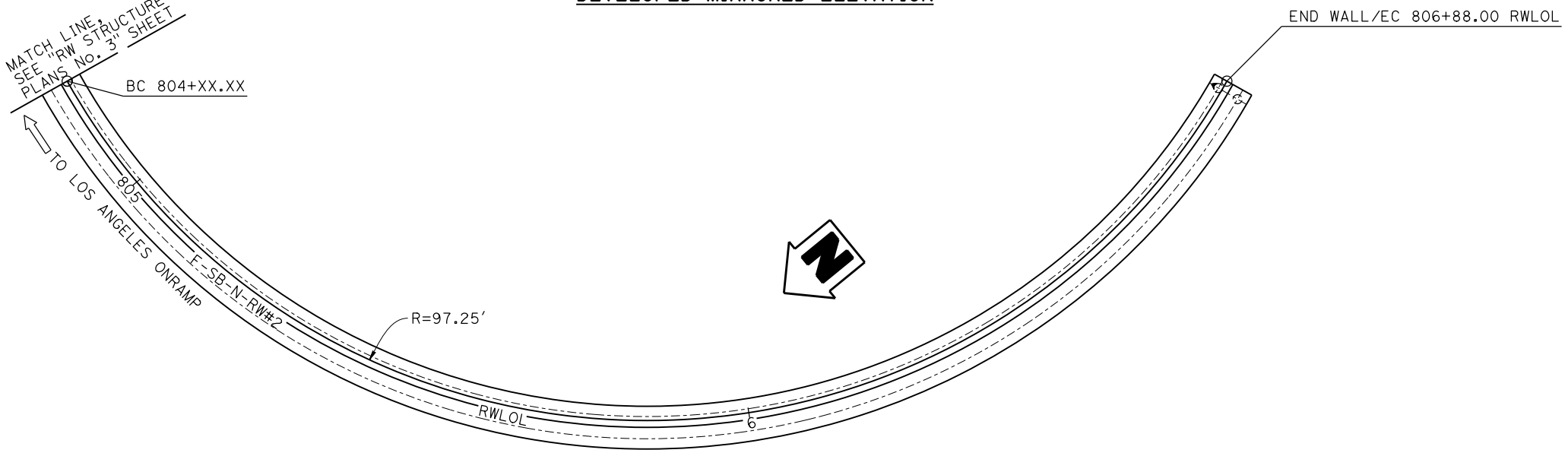
STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp03.dgn USERNAME => s135156

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



DEVELOPED MIRRORED ELEVATION



PLAN
F-SB-N-RW#2
3/32" = 1'-0"

LEGEND:

- Vertical Pile
- X:1 Battered Pile

DESIGNED BY: Kyoung Lee	DATE: 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY: Franklin Maagma	DATE: 12-11-20	DESIGN BRANCH	RW STRUCTURE PLANS No. 4
CHECKED BY: Krishnakant Andurlekar	DATE: 12-17-20	COMPLEX BRIDGE	STOCKTON CHANNEL VIADUCT
APPROVED: Krishnakant Andurlekar	DATE: 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

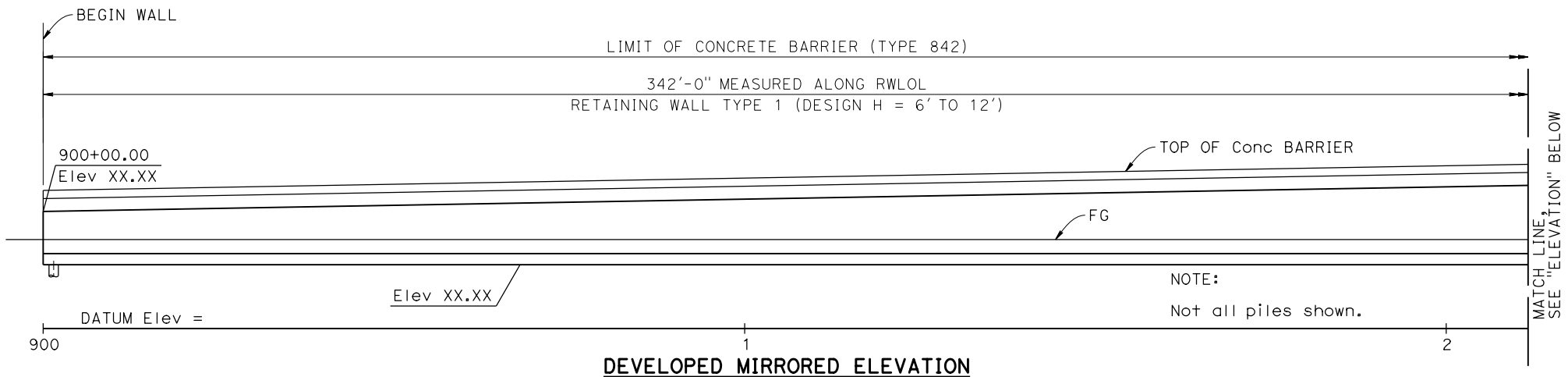
SHEET 14 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

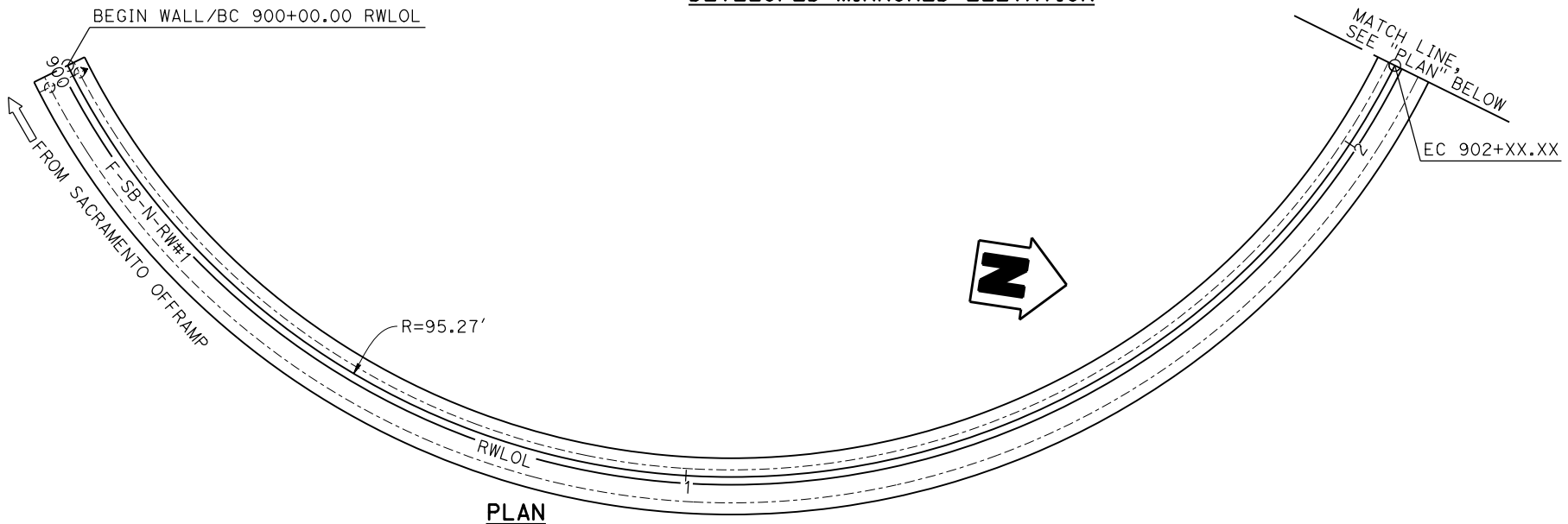
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp04.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

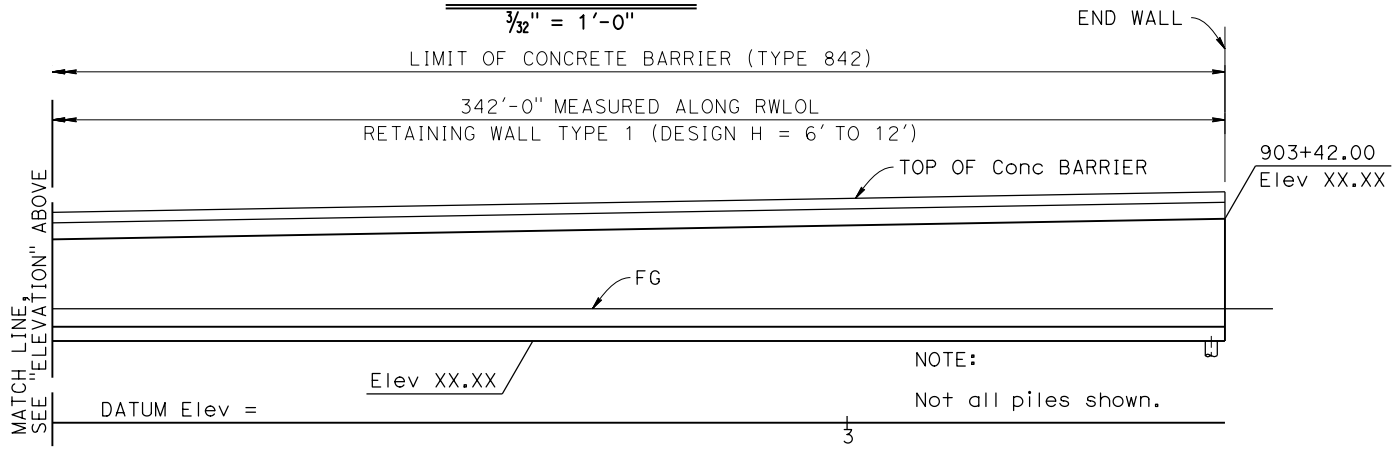
Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



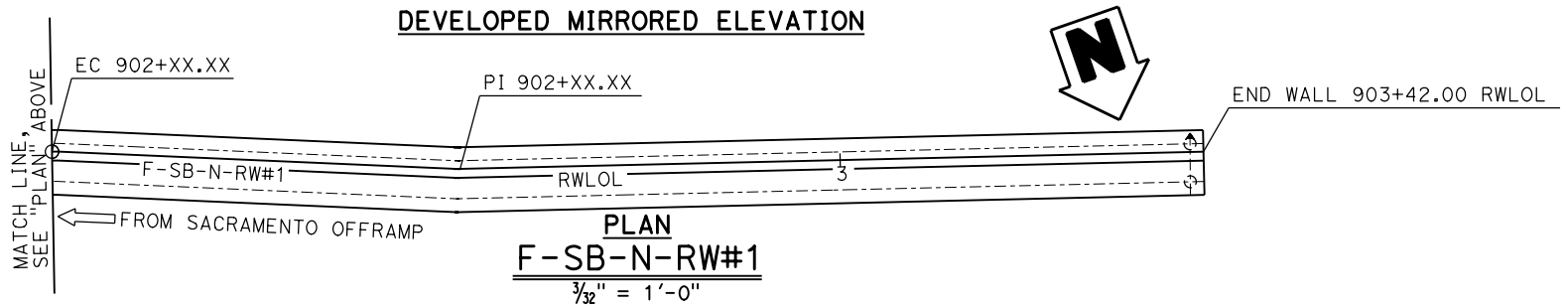
DEVELOPED MIRRORED ELEVATION



PLAN
F-SB-N-RW#1
3/32" = 1'-0"



DEVELOPED MIRRORED ELEVATION



PLAN
F-SB-N-RW#1
3/32" = 1'-0"

LEGEND:

- Vertical Pile
- X:1 Battered Pile

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

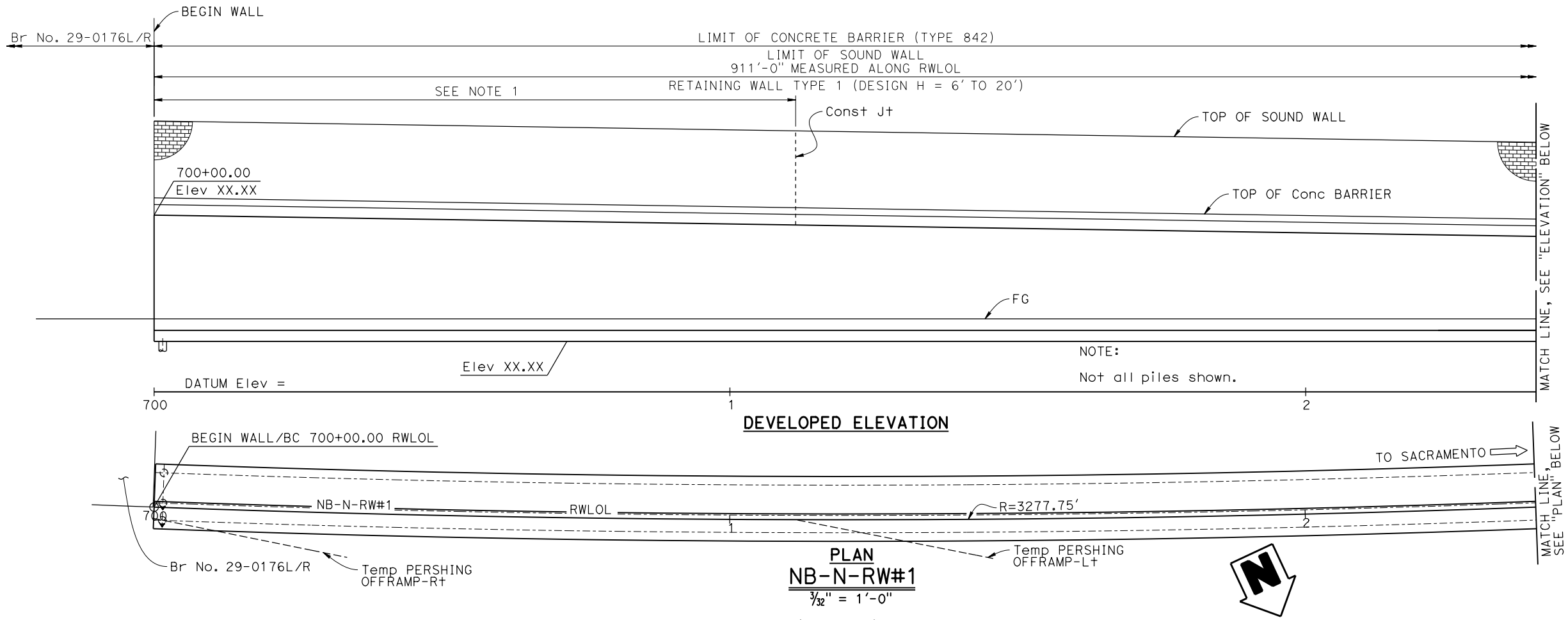
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp05.dgn USERNAME => s135156

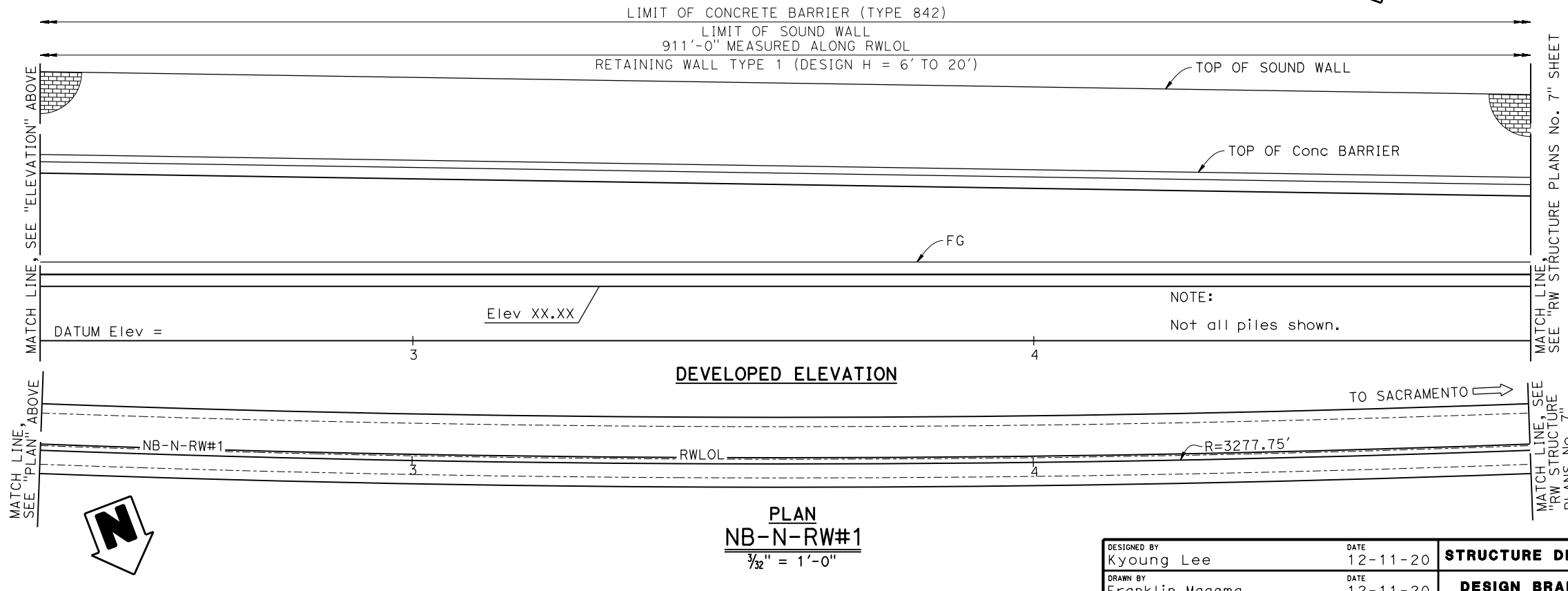
DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RW STRUCTURE PLANS No. 5
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 15 OF 23

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1





LEGEND:

- Vertical Pile
- X:1 Battered Pile

NOTE:

1. Barrier rail and sound wall to be built prior to remove Temp PERSHING OFFRAMP.

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RW STRUCTURE PLANS No. 6
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

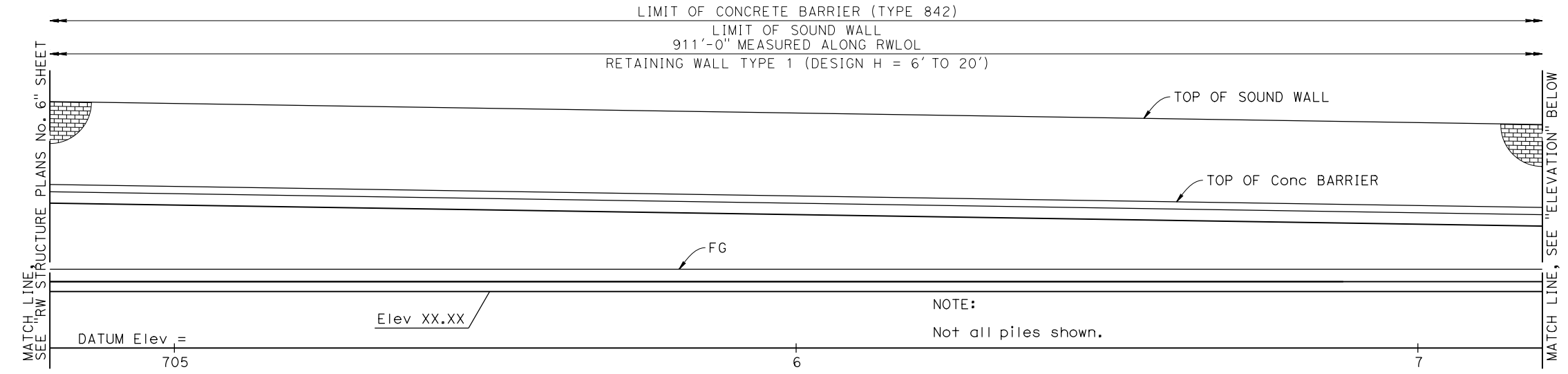
SHEET 16 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

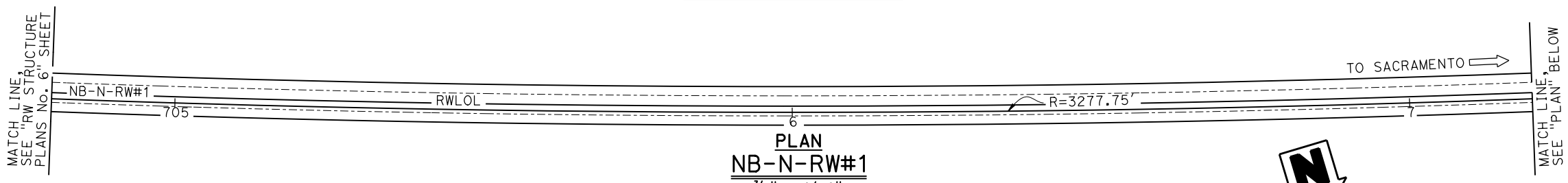
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp06.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

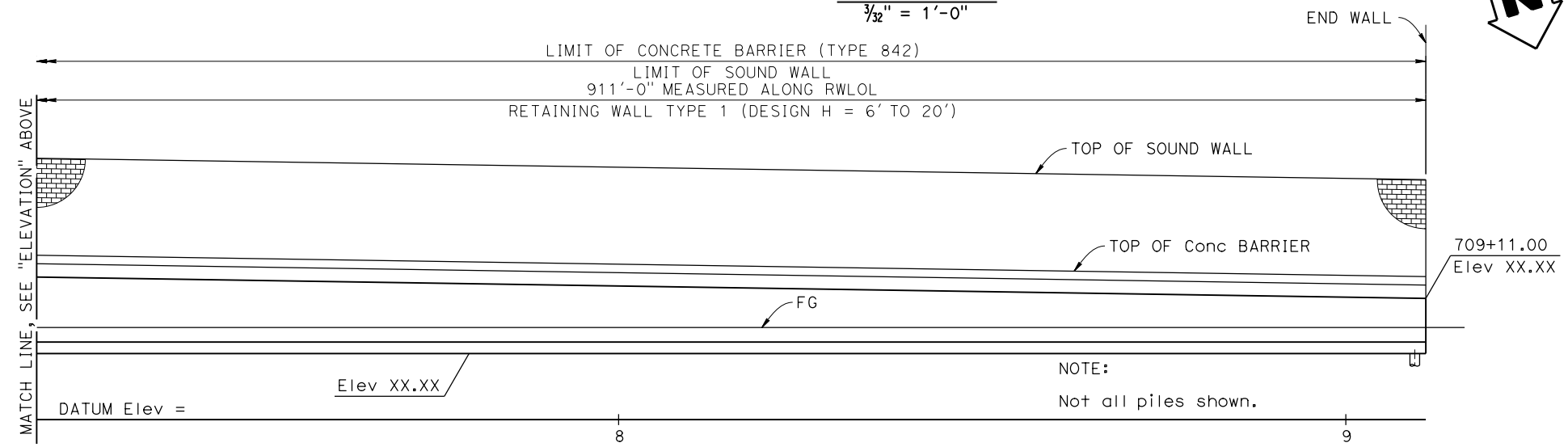
Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



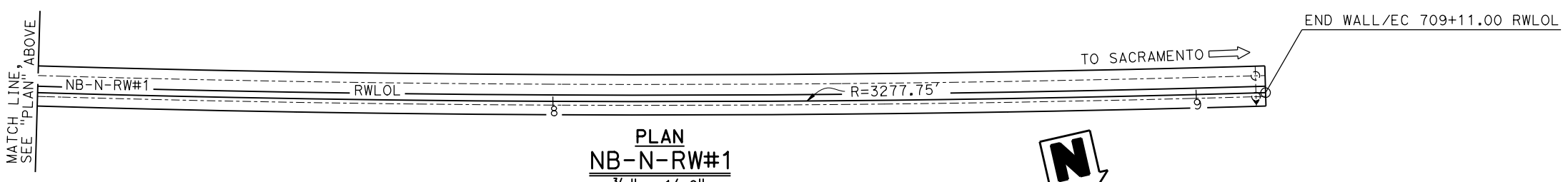
DEVELOPED ELEVATION



PLAN
NB-N-RW#1
3/32" = 1'-0"



DEVELOPED ELEVATION



PLAN
NB-N-RW#1
3/32" = 1'-0"

LEGEND:

- Vertical Pile
- X:1 Battered Pile

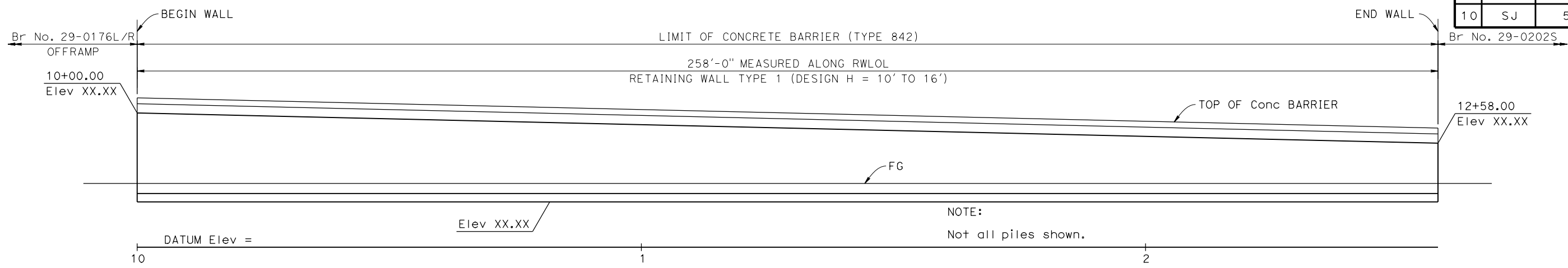
DESIGNED BY: Kyoung Lee	DATE: 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3 — SHEET 17 OF 23
DRAWN BY: Franklin Maagma	DATE: 12-11-20	DESIGN BRANCH: COMPLEX BRIDGE	RW STRUCTURE PLANS No. 7
CHECKED BY: Krishnakant Andurlekar	DATE: 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED: Krishnakant Andurlekar	DATE: 01-22-21		UNIT: 3575 — BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 — PROJECT No. & PHASE: 10120002590

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

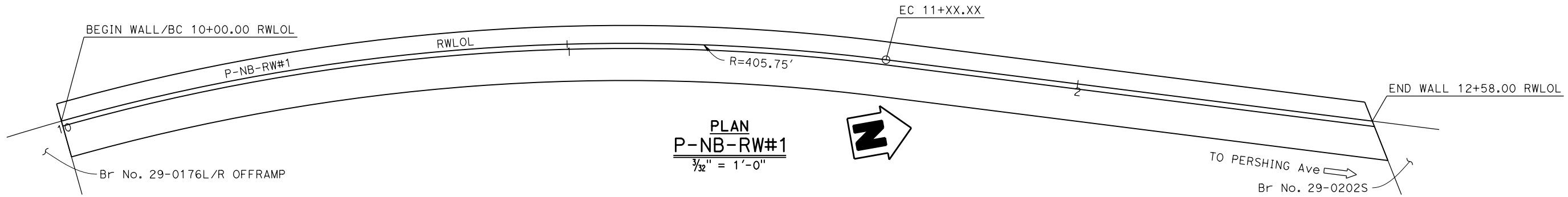
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp07.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

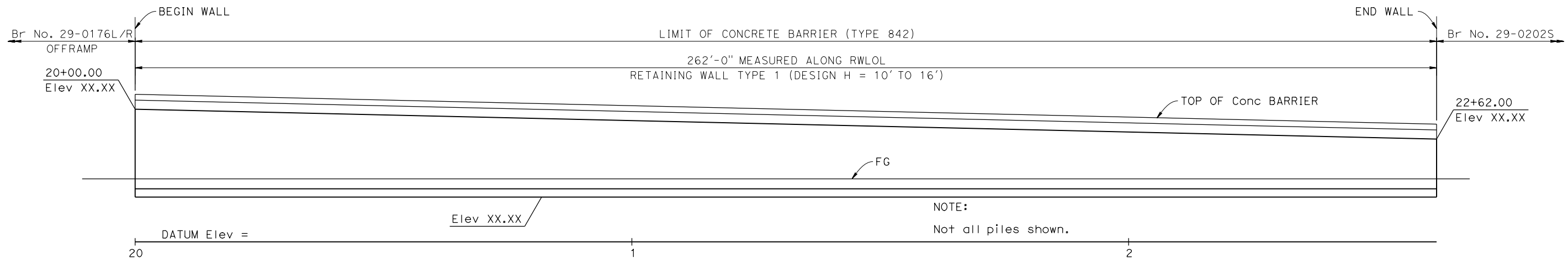
Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



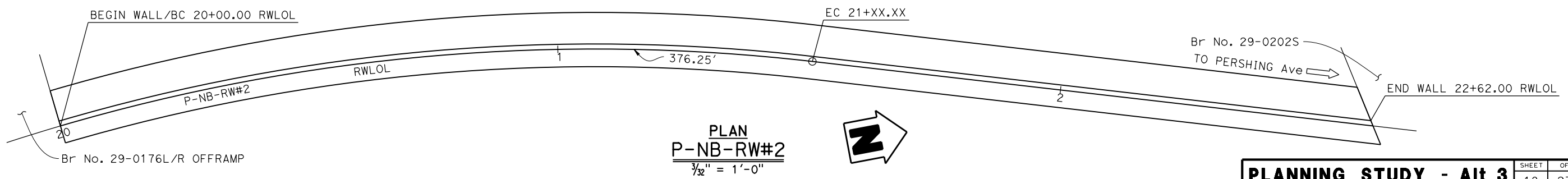
DEVELOPED MIRRORED ELEVATION



PLAN
P-NB-RW#1
3/32" = 1'-0"



DEVELOPED ELEVATION



PLAN
P-NB-RW#2
3/32" = 1'-0"

DESIGNED BY: Kyoung Lee	DATE: 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY: Franklin Maagma	DATE: 12-11-20	DESIGN BRANCH: COMPLEX BRIDGE	RW STRUCTURE PLANS No. 8
CHECKED BY: Krishnakant Andurlekar	DATE: 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED: Krishnakant Andurlekar	DATE: 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

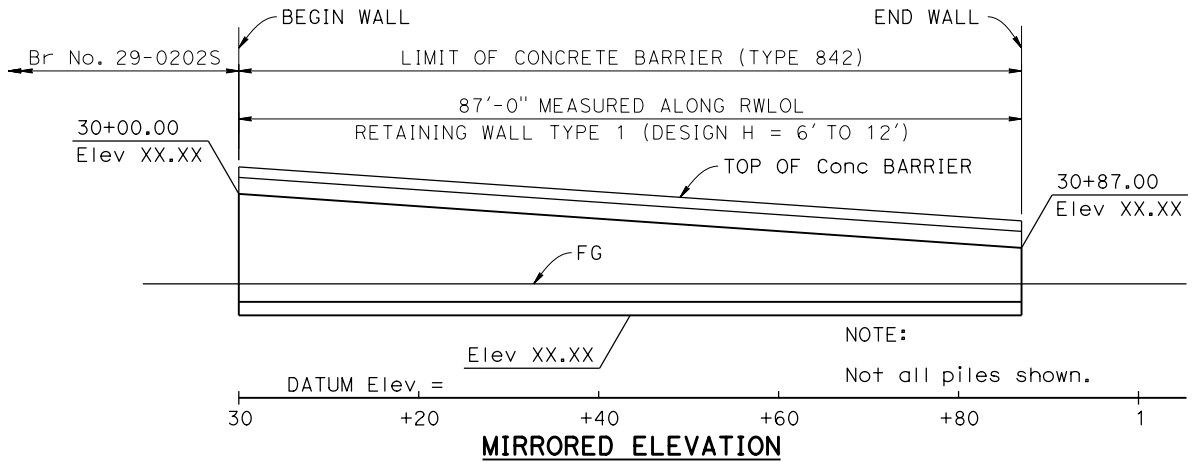
SHEET 18 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

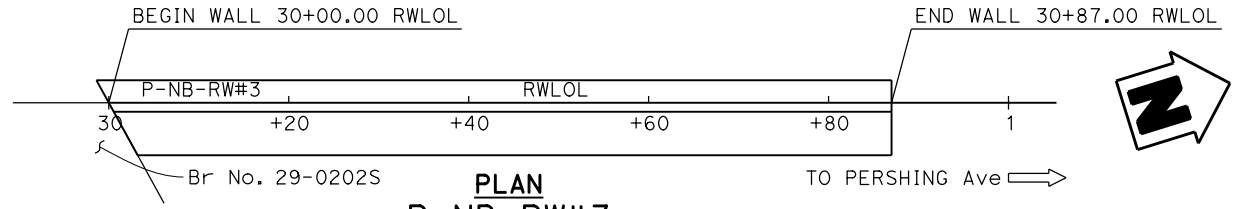
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp08.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



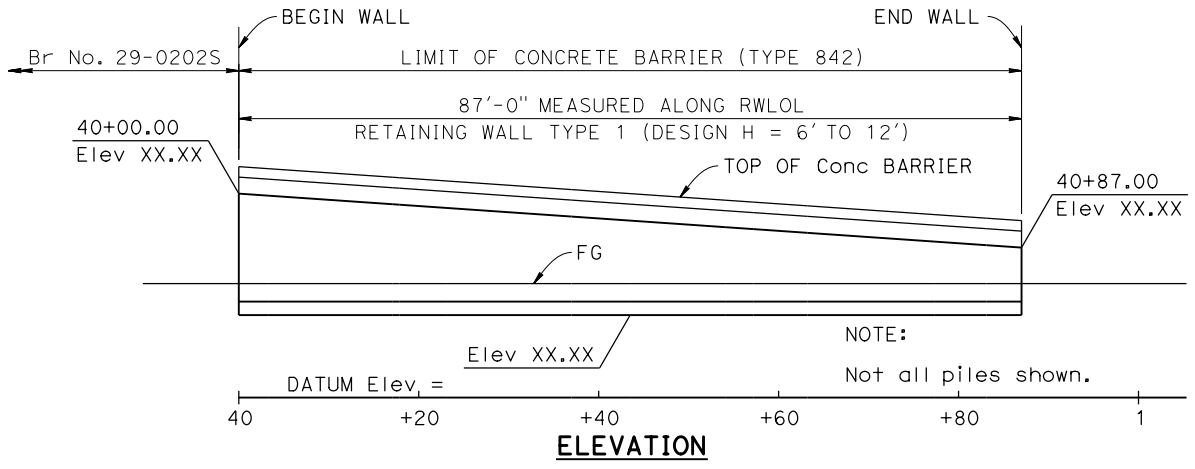
MIRRORED ELEVATION



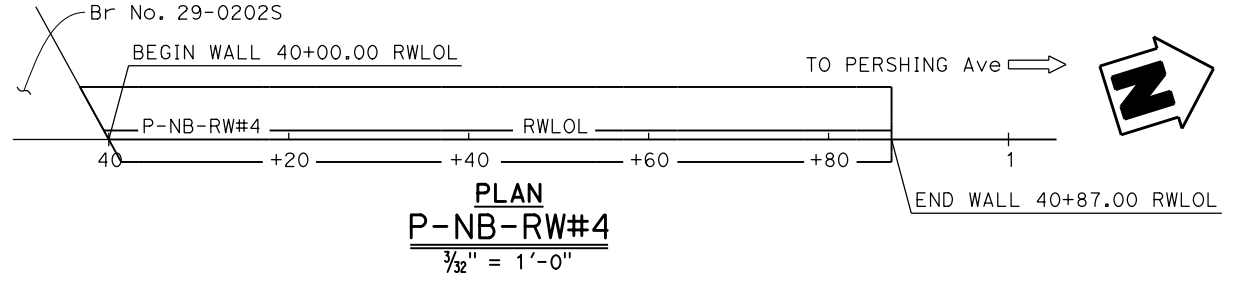
PLAN

P-NB-RW#3

3/32" = 1'-0"



ELEVATION



PLAN

P-NB-RW#4

3/32" = 1'-0"

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RW STRUCTURE PLANS No. 9
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

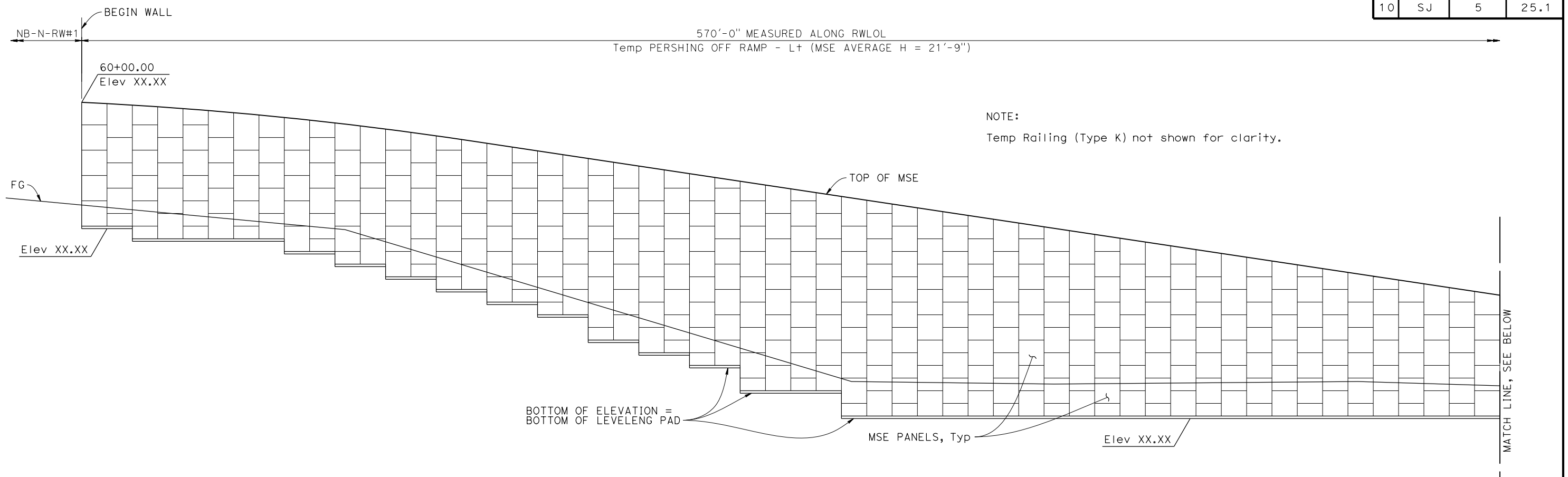
SHEET 19 OF 23

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp09.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

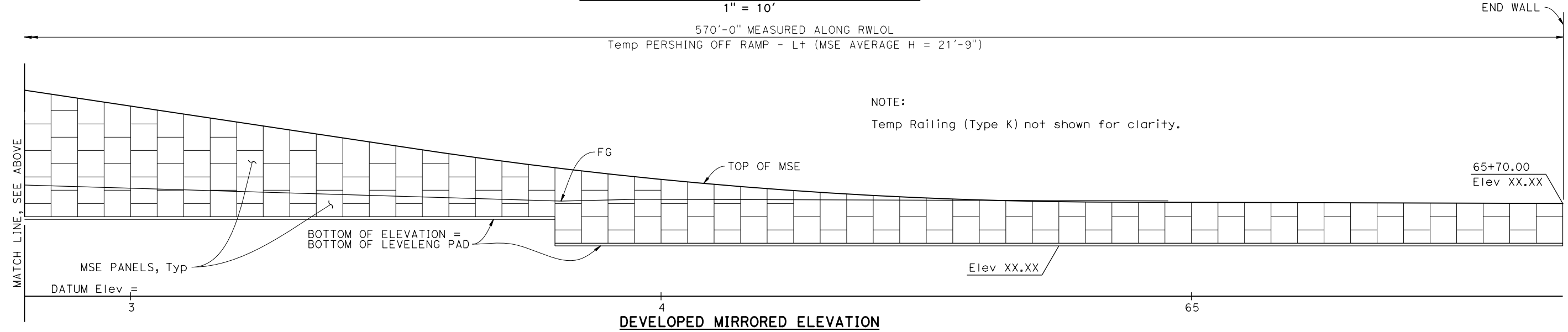
Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



DEVELOPED MIRRORED ELEVATION

Temp PERSHING OFF RAMP - Lt

1" = 10'



DEVELOPED MIRRORED ELEVATION

Temp PERSHING OFF RAMP - Lt

1" = 10'

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20	COMPLEX BRIDGE
APPROVED Krishnakant Andurlekar	DATE 01-22-21	

PLANNING STUDY - Alt 3 SHEET 20 OF 23

RW STRUCTURE PLANS No. 10

STOCKTON CHANNEL VIADUCT

UNIT: 3575 | BRIDGE No.: 29-0176L/R

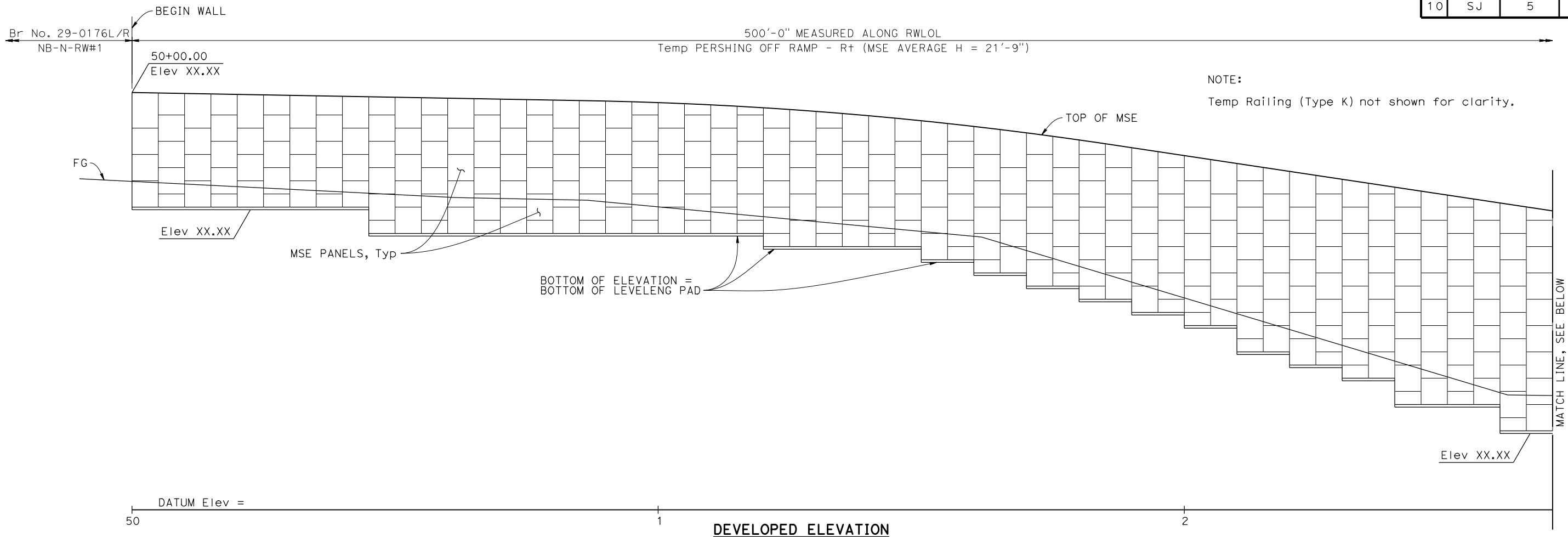
PROJECT EA: 10-0X460 | PROJECT No. & PHASE: 10120002590

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

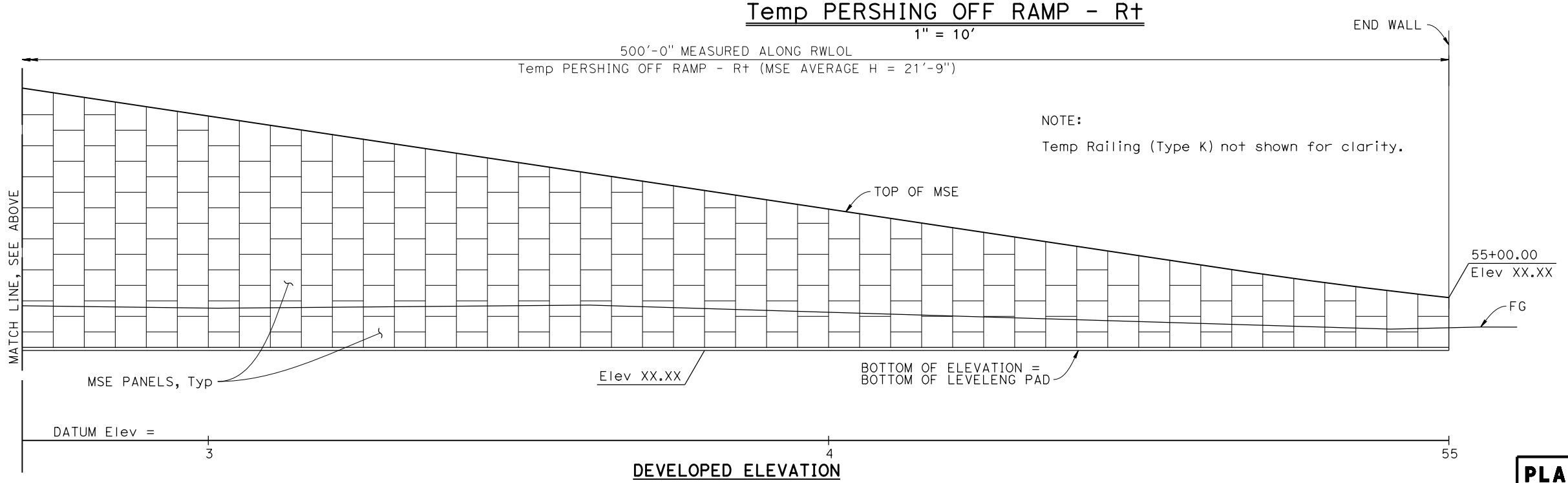
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp10.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



DEVELOPED ELEVATION
Temp PERSHING OFF RAMP - Rt
1" = 10'



DEVELOPED ELEVATION
Temp PERSHING OFF RAMP - Rt
1" = 10'

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp11.dgn USERNAME => s135156

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20	COMPLEX BRIDGE
APPROVED Krishnakant Andurlekar	DATE 01-22-21	

PLANNING STUDY - Alt 3 SHEET 21 OF 23

RW STRUCTURE PLANS No. 11

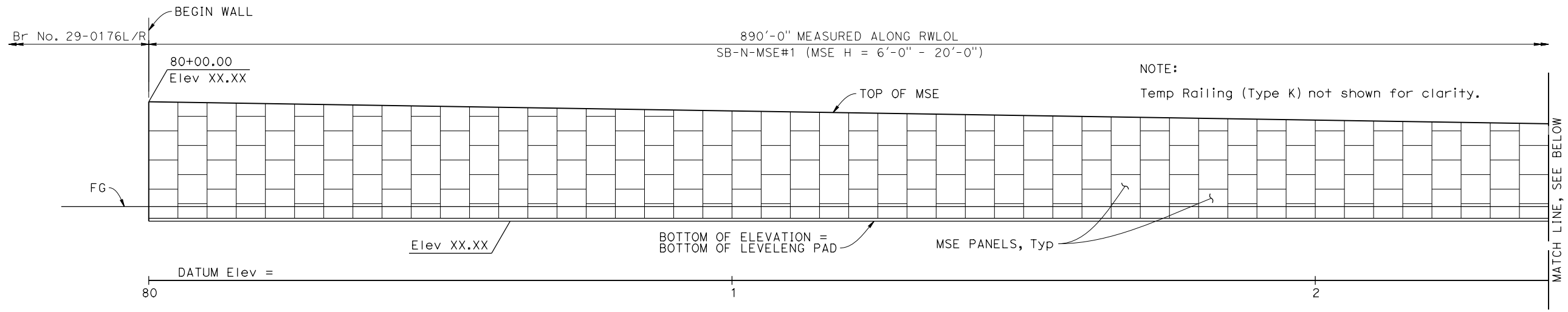
STOCKTON CHANNEL VIADUCT

UNIT: 3575 | BRIDGE No.: 29-0176L/R

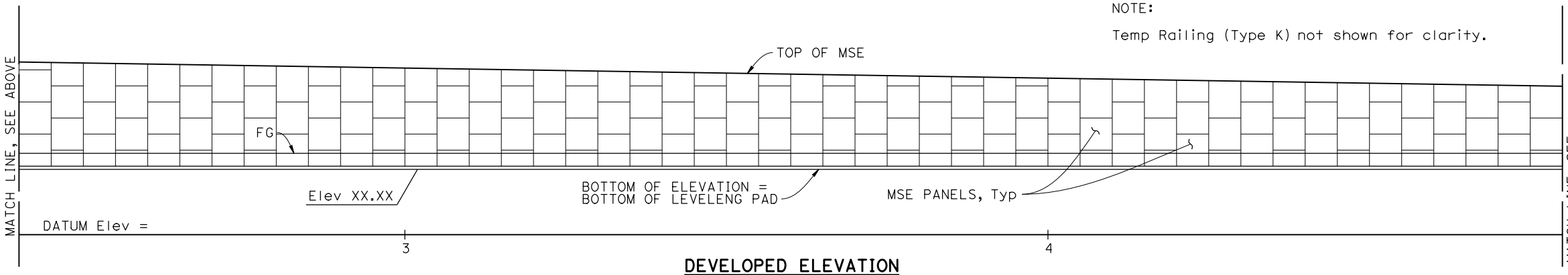
PROJECT EA: 10-0X460 | PROJECT No. & PHASE: 10120002590

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



DEVELOPED ELEVATION
SB-N-MSE#1
1" = 10'



DEVELOPED ELEVATION
SB-N-MSE#1
1" = 10'

NOTE:

1. SB-N-MSE#1 shown, NB-N-MSE#1 similar.

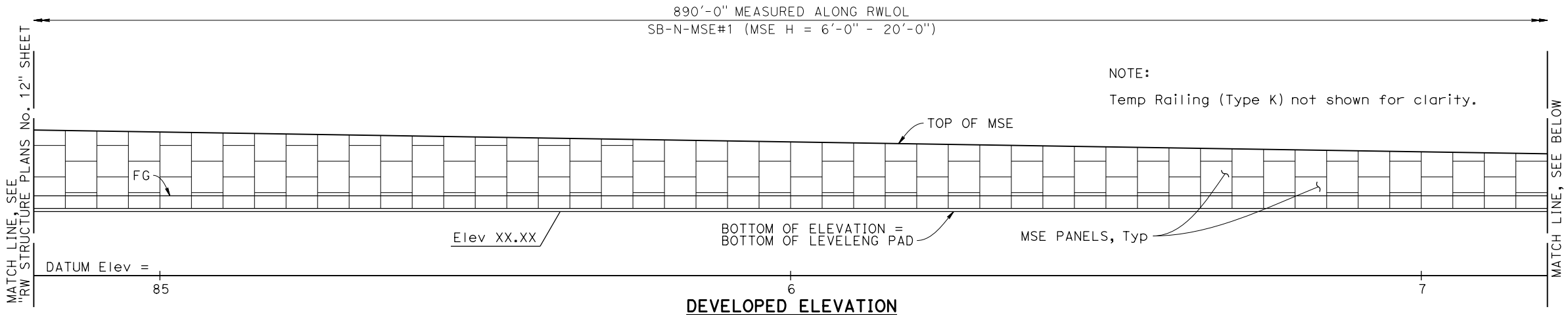
DESIGNED BY: Kyoung Lee	DATE: 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3 — SHEET 22 OF 23
DRAWN BY: Franklin Maagma	DATE: 12-11-20	DESIGN BRANCH	RW STRUCTURE PLANS No. 12
CHECKED BY: Krishnakant Andurlekar	DATE: 12-17-20	COMPLEX BRIDGE	STOCKTON CHANNEL VIADUCT
APPROVED: Krishnakant Andurlekar	DATE: 01-22-21	UNIT: 3575	BRIDGE No.: 29-0176L/R
		PROJECT EA: 10-0X460	PROJECT No. & PHASE: 10120002590

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

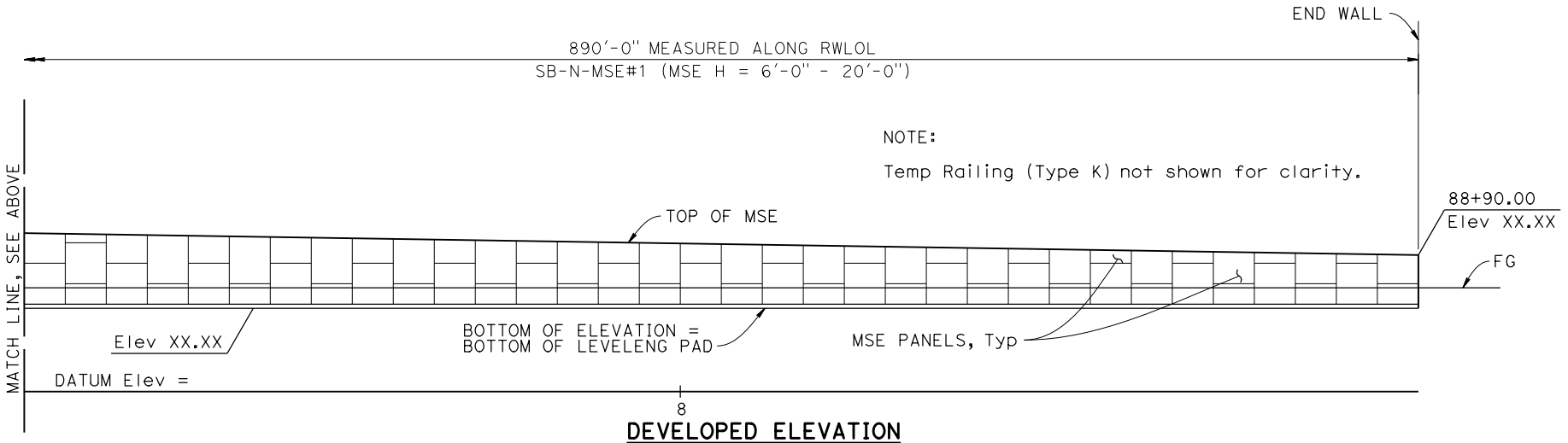
DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp12.dgn USERNAME => s135156

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

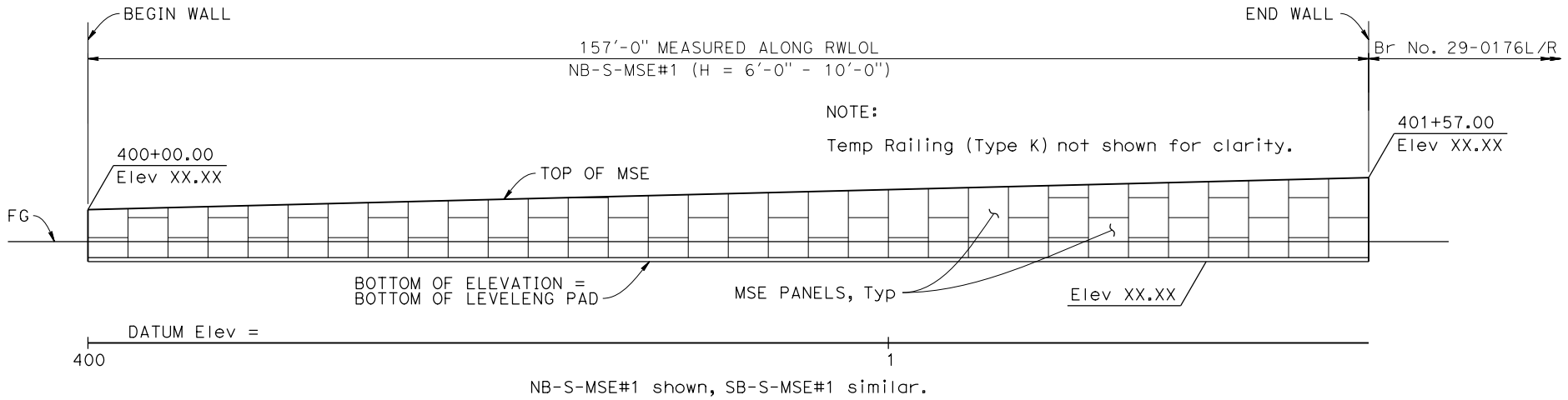
Dist	COUNTY	ROUTE	POST MILE
10	SJ	5	25.1



DEVELOPED ELEVATION
SB-N-MSE#1
1" = 10'



DEVELOPED ELEVATION
SB-N-MSE#1
1" = 10'



NB-S-MSE#1 shown, SB-S-MSE#1 similar.

MIRRORED ELEVATION
NB-S-MSE#1
1" = 10'

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REVISION 1/11/2019)

DATE PLOTTED => 9-MAR-2021 TIME PLOTTED => 16:33
FILE => 29-0176lr_alt3-p-rwsp13.dgn USERNAME => s135156

DESIGNED BY Kyoung Lee	DATE 12-11-20	STRUCTURE DESIGN	PLANNING STUDY - Alt 3
DRAWN BY Franklin Maagma	DATE 12-11-20	DESIGN BRANCH COMPLEX BRIDGE	RW STRUCTURE PLANS No. 13
CHECKED BY Krishnakant Andurlekar	DATE 12-17-20		STOCKTON CHANNEL VIADUCT
APPROVED Krishnakant Andurlekar	DATE 01-22-21		UNIT: 3575 / BRIDGE No.: 29-0176L/R
			PROJECT EA: 10-0X460 / PROJECT No. & PHASE: 10120002590

SHEET 23 OF 23

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

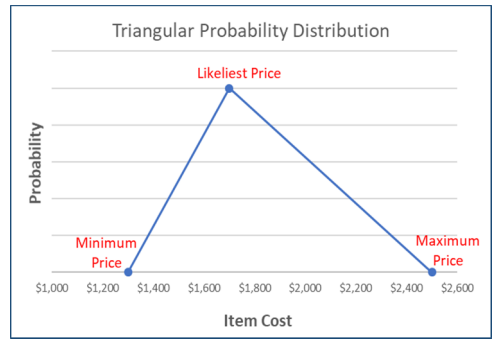
[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

#REF!

ALTERNATIVE 3 FULL REPLACEMENT

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	CIP/PS box segmental
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	JP/KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
LENGTH	2802
WIDTH	Varies
AREA	571994
EST. NO.	3
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
141110	WORK AREA MONITORING (BRIDGE		LS	1	$100,000.00	$150,000.00	$200,000.00	$150,000
192003	STRUCTURE EXCAVATION (BRIDGE)		CY	8136	$50.00	$70.00	$80.00	$569,520
192008	STRUCTURE EXCAVATION (TYPE A)	Bent 4 & 5	CY	4218	$250.00	$300.00	$350.00	$1,265,400
193003	STRUCTURE BACKFILL (BRIDGE)		CY	4684	$80.00	$90.00	$100.00	$421,560
460200	GROUND ANCHOR (VERTICAL)		EA	48	$5,000.00	$6,000.00	$7,000.00	$288,000
495115	FURNISH 24" CAST-IN-STEEL SHELL CONCRETE PILING	t = 3/4"	LF	12420	$175.00	$205.00	$225.00	$2,546,100
495116	DRIVE 24" CAST-IN-STEEL SHELL CONCRETE PILE		EA	207	$5,000.00	$10,000.00	$15,000.00	$2,070,000
495185	FURNISH 60" CAST-IN-STEEL SHELL CONCRETE PILING	t = 1"	LF	6880	$770.00	$830.00	$870.00	$5,710,400
495186	DRIVE 60" CAST-IN-STEEL SHELL CONCRETE PILE		EA	86	$40,000.00	$50,000.00	$60,000.00	$4,300,000
495185	FURNISH 84" CAST-IN-STEEL SHELL CONCRETE PILING	t = 1 1/2"	LF	2880	$1,580.00	$1,780.00	$1,980.00	$5,126,400
495186	DRIVE 84" CAST-IN-STEEL SHELL CONCRETE PILE		EA	36	$120,000.00	$130,000.00	$140,000.00	$4,680,000
500040A	PRESTRESSING (SEGMENTAL CIP/PS BOX GIRDER)		LB	5075685	$2.00	$2.50	$3.00	$12,689,213
500050A	PRESTRESSING (TRANSVERSE)		LB	563965	$2.00	$2.50	$3.00	$1,409,913
500060A	PRESTRESSING (VERTICAL)		LB	100668	$2.00	$2.50	$3.00	$251,670
510000	SEAL COURSE CONCRETE	Bent 4 &5	CY	1367	$300.00	$350.00	$400.00	$478,450
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	6692	$300.00	$350.00	$400.00	$2,342,200
510062A	STRUCTURAL CONCRETE, BRIDGE	Segmental	CY	51503	$1,400.00	$1,600.00	$1,800.00	$82,404,800
510054	STRUCTURAL CONRETE, BRIDGE (POLYMER FIBER)	Segmental	CY	21185	$1,400.00	$1,600.00	$1,800.00	$33,896,000
510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)		CY	672	$850.00	$900.00	$950.00	$604,800
518051	PTFE SPHERICAL BEARING		EA	62	$10,000.00	$15,000.00	$20,000.00	$930,000
519098	JOINT SEAL ASSEMBLY (MR=5")		LF	556	$850.00	$950.00	$1,000.00	$528,200
519099	JOINT SEAL ASSEMBLY (MR=6")		LF	302	$900.00	$1,000.00	$1,100.00	$302,000
522000A	BAR REINFORCING STEEL, BRIDGE	Segmental	LB	20475427	$0.95	$1.05	$1.10	$21,499,198
600037	PREPARE CONCRETE BRIDGE DECK SURFACE		SQFT	562189	$0.15	$0.20	$0.25	$112,438
600041	FURNISH POLYESTER CONCRETE OVERLAY	t= 1"	CF	46845	$65.00	$70.00	$75.00	$3,279,150
600043	PLACE POLYESTER CONCRETE OVERLAY		SQFT	562189	$1.00	$1.50	$2.00	$843,284
750505	BRIDGE DECK DRAINAGE SYSTEM		LB	17100	$8.00	$10.00	$15.00	$171,000
839725	CONCRETE BARRIER (TYPE 60MA)		LF	2862	$80.00	$100.00	$120.00	$286,200
600114	CONCRETE BARRIER (TYPE 842)		LF	6530	$90.00	$100.00	$110.00	$653,000
860000A	FUTURE UTILITY CONDUITS	2" diameter	LF	7357	$25.00	$35.00	$40.00	$257,495
							SUBTOTAL	$190,066,390

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL	Steel I girder	SQFT	514904	$10.00	$15.00	$20.00	$7,723,560

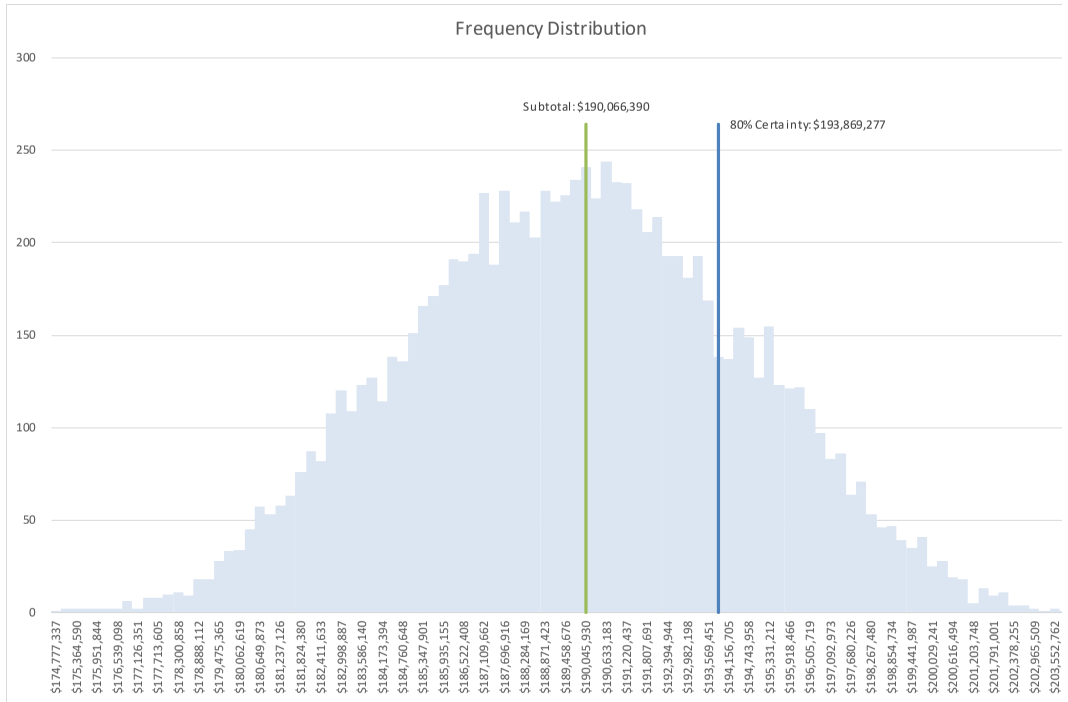
Notes

Highlighted cells represent the quantities and prices that are included in the model.
Base Case the sum of the Quantity multiplied by "Likeliest" Item Price

Comments
See plan sheets.

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values	
0%	$179,982,177	
10%	$189,421,593	BASED ON THE ASSUMPTIONS USED TO
20%	$192,091,419	CREATE THE MODEL, DES STRUCTURE
30%	$194,022,870	OFFICE ENGINEER RECOMMENDS THAT
40%	$195,727,682	THE PROGRAMMING LEVEL BUDGET
50%	$197,322,813	FOR THIS PROJECT BE DESIGNATED AT
60%	$198,825,238	THE 80% FORECAST VALUE.
70%	$200,495,426	
80%	**$202,514,903**	
90%	$205,127,871	
100%	$214,364,422	

BRIDGE COST PER SQUARE FOOT	$339	DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency
BRIDGE REMOVAL	$8,645,600	
ESTIMATED COST Subtotal + Bridge	$202,515,000	
TOTAL	$309,398,000	INCLUDES mobilization: 10%, structure TRO: 10% and contingei 25%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

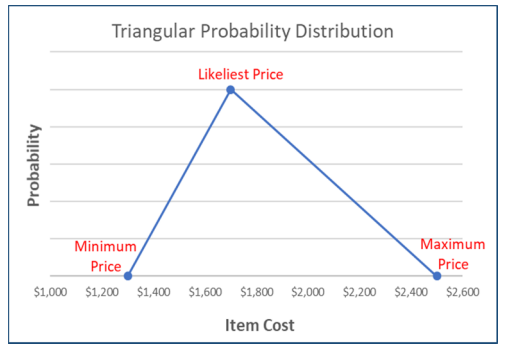
[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (TEMP PERSHING OFF RAMP)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	MSE wall
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
LENGTH	1070
WIDTH	N/A
AREA	N/A
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
477020	MECHANICALLY STABILIZED EMBANKMENT		SQFT	12350	$70.00	$80.00	$85.00	$988,000
477020	MECHANICALLY STABILIZED EMBANKMENT		SQFT	10833	$70.00	$80.00	$85.00	$866,640
							SUBTOTAL	$1,854,640

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL							

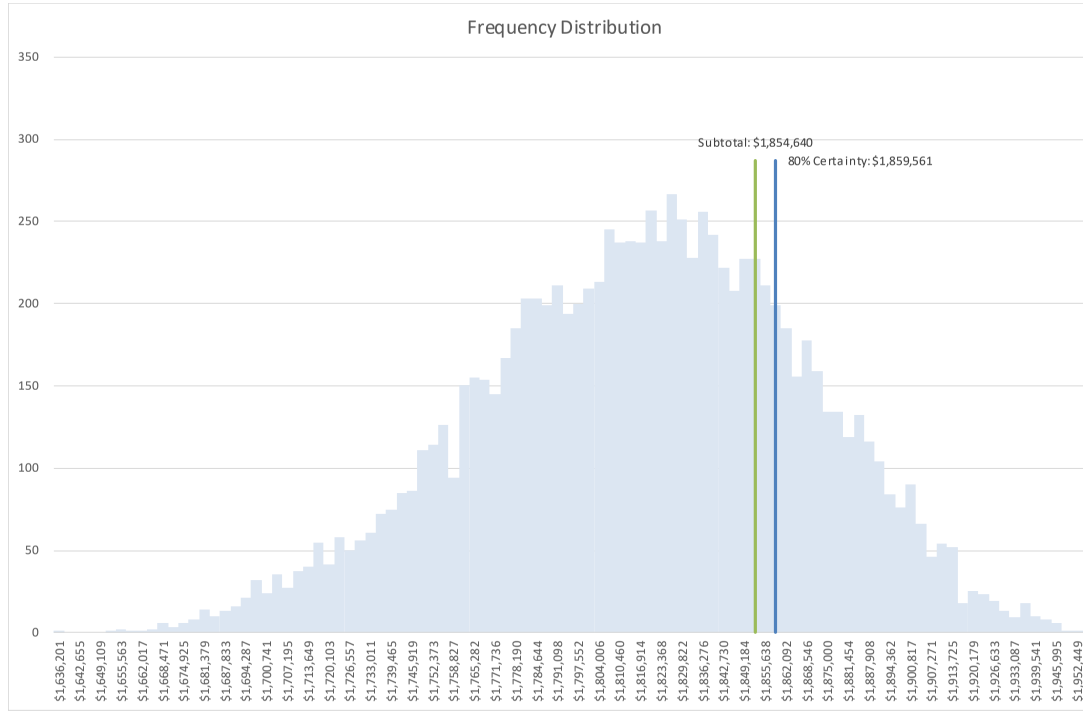
Notes

Highlighted cells represent the quantities and prices that are included in the model.
Base Case the sum of the Quantity multiplied by "Likeliest" Item Price

Comments
See plan sheets.

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$1,636,201
10%	$1,747,710
20%	$1,772,075
30%	$1,788,748
40%	$1,804,394
50%	$1,817,867
60%	$1,830,597
70%	$1,844,414
80%	**$1,859,561**
90%	$1,880,681
100%	$1,958,903

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	N/A
BRIDGE REMOVAL	N/A
ESTIMATED COST Subtotal + Bridge	$1,860,000
TOTAL	$2,841,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 25%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 PERSHING OFF RAMP & PARK ST UC
OPTION 1

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R & 29-0202S
TYPE:	CIP/PS box girder
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KL

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	5.0 & 5.5
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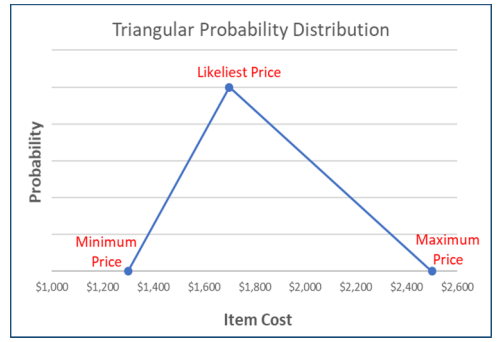
AREA	26321
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192003	STRUCTURE EXCAVATION (BRIDGE)		CY	596	$50.00	$65.00	$80.00	$38,740
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	1066	$50.00	$55.00	$60.00	$58,630
193003	STRUCTURE BACKFILL (BRIDGE)		CY	373	$80.00	$90.00	$100.00	$33,570
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	2213	$65.00	$70.00	$80.00	$154,910
490738	FURNISH PILING (CLASS 140)	Alt X	LF	3120	$45.00	$50.00	$55.00	$156,000
490739	DRIVE PILE (CLASS 140)	Alt X	EA	52	$2,500.00	$3,000.00	$3,500.00	$156,000
490618	96" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	300	$2,300.00	$2,700.00	$3,000.00	$810,000
510001	PRESTRESSING CAST IN PLACE CONCRETE		LB	83543	$2.00	$2.30	$2.50	$192,149
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	60	$300.00	$350.00	$400.00	$21,000
510062A	STRUCTURAL CONCRETE, BRIDGE		CY	1637	$1,200.00	$1,350.00	$1,500.00	$2,209,950
510054	STRUCTURAL CONRETE, BRIDGE (POLYMER FIBER)		CY	650	$1,100.00	$1,250.00	$1,400.00	$812,500
510060	STRUCTURAL CONCRETE, RETAINING WALL		CY	821	$650.00	$700.00	$750.00	$574,700
519088	JOINT SEAL (MR=1")		LF	59	$80.00	$90.00	$100.00	$5,310
519100	JOINT SEAL (MR=2")		LF	59	$90.00	$110.00	$120.00	$6,490
520102	BAR REINFORCING STEEL, BRIDGE		LB	535449	$1.10	$1.20	$1.30	$642,539
520103	BAR REINFORCING STEEL, RETAINING WALL		LB	103773	$1.40	$1.60	$1.75	$166,037
750505	BRIDGE DECK DRAINAGE SYSTEM		LB	1573	$8.00	$10.00	$15.00	$15,730
839746	CONCRETE BARRIER (TYPE 842)		LF	2034	$90.00	$100.00	$110.00	$203,400
							SUBTOTAL	$6,257,655

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL							

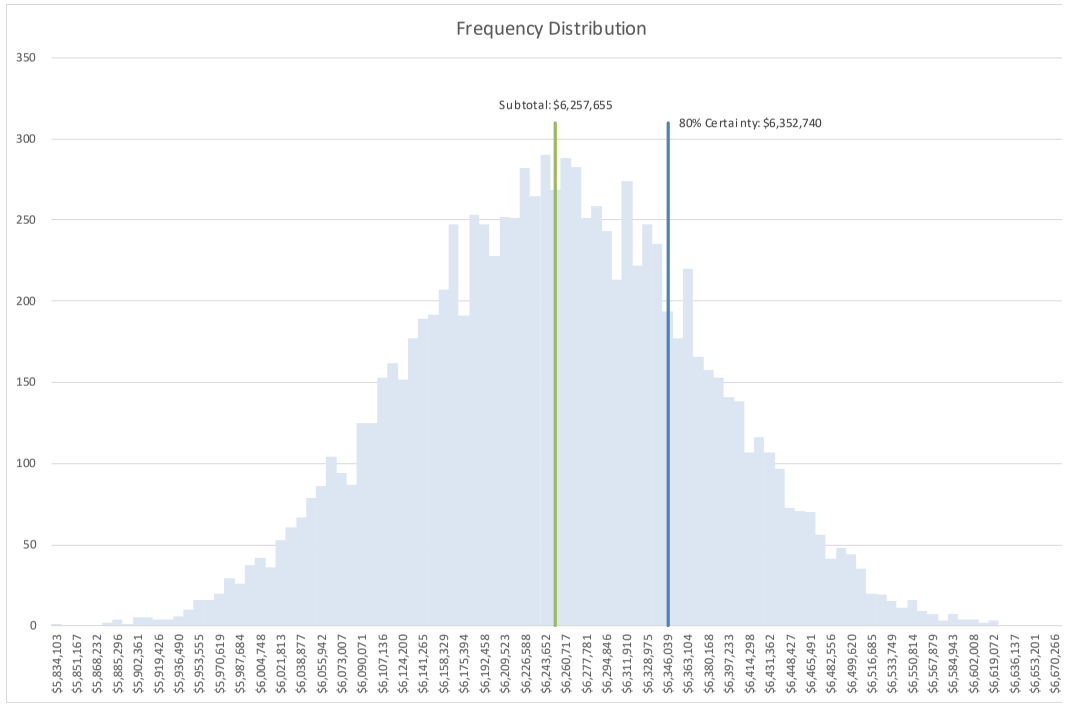
Notes

Highlighted cells represent the quantities and prices that are included in the model.
Base Case the sum of the Quantity multiplied by "Likeliest" Item Price

Comments
See plan sheets.

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$5,834,103
10%	$6,088,978
20%	$6,142,177
30%	$6,182,068
40%	$6,216,176
50%	$6,247,495
60%	$6,278,885
70%	$6,313,355
80%	**$6,352,740**
90%	$6,404,789
100%	$6,687,330

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	$241
BRIDGE REMOVAL	N/A
ESTIMATED COST Subtotal + Bridge	$6,353,000
TOTAL	$9,706,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingei 25%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 PERSHING OFF RAMP & PARK ST UC
OPTION 2

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R & 29-0202S
TYPE:	CIP/PS box girder
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KL

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	5.0
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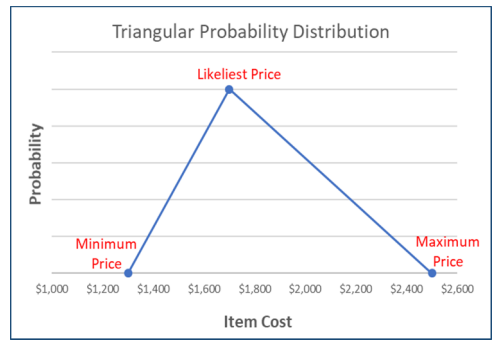
AREA	33881
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192003	STRUCTURE EXCAVATION (BRIDGE)		CY	149	$50.00	$65.00	$80.00	$9,685
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	219	$50.00	$55.00	$60.00	$12,045
193003	STRUCTURE BACKFILL (BRIDGE)		CY	106	$80.00	$90.00	$100.00	$9,540
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	341	$65.00	$70.00	$80.00	$23,870
490738	FURNISH PILING (CLASS 140)	Alt X	LF	1200	$45.00	$50.00	$55.00	$60,000
490739	DRIVE PILE (CLASS 140)	Alt X	EA	20	$2,500.00	$3,000.00	$3,500.00	$60,000
490618	96" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	480	$2,300.00	$2,700.00	$3,000.00	$1,296,000
510001	PRESTRESSING CAST IN PLACE CONCRETE		LB	108418	$2.00	$2.30	$2.50	$249,361
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	21	$300.00	$350.00	$400.00	$7,350
510062A	STRUCTURAL CONCRETE, BRIDGE		CY	1844	$1,200.00	$1,350.00	$1,500.00	$2,489,400
510054	STRUCTURAL CONRETE, BRIDGE (POLYMER FIBER)		CY	837	$1,100.00	$1,250.00	$1,400.00	$1,046,250
510060	STRUCTURAL CONCRETE, RETAINING WALL		CY	147	$650.00	$700.00	$750.00	$102,900
519100	JOINT SEAL (MR=2")		LF	89	$90.00	$110.00	$120.00	$9,790
520102	BAR REINFORCING STEEL, BRIDGE		LB	658688	$1.10	$1.20	$1.30	$790,426
520103	BAR REINFORCING STEEL, RETAINING WALL		LB	16240	$1.40	$1.60	$1.75	$25,984
750041	ISOLATION CASING		LB	7709	$12.00	$16.00	$20.00	$123,344
750505	BRIDGE DECK DRAINAGE SYSTEM		LB	2766	$8.00	$10.00	$15.00	$27,660
839746	CONCRETE BARRIER (TYPE 842)		LF	2008	$90.00	$100.00	$110.00	$200,800
							SUBTOTAL	$6,544,405

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL							

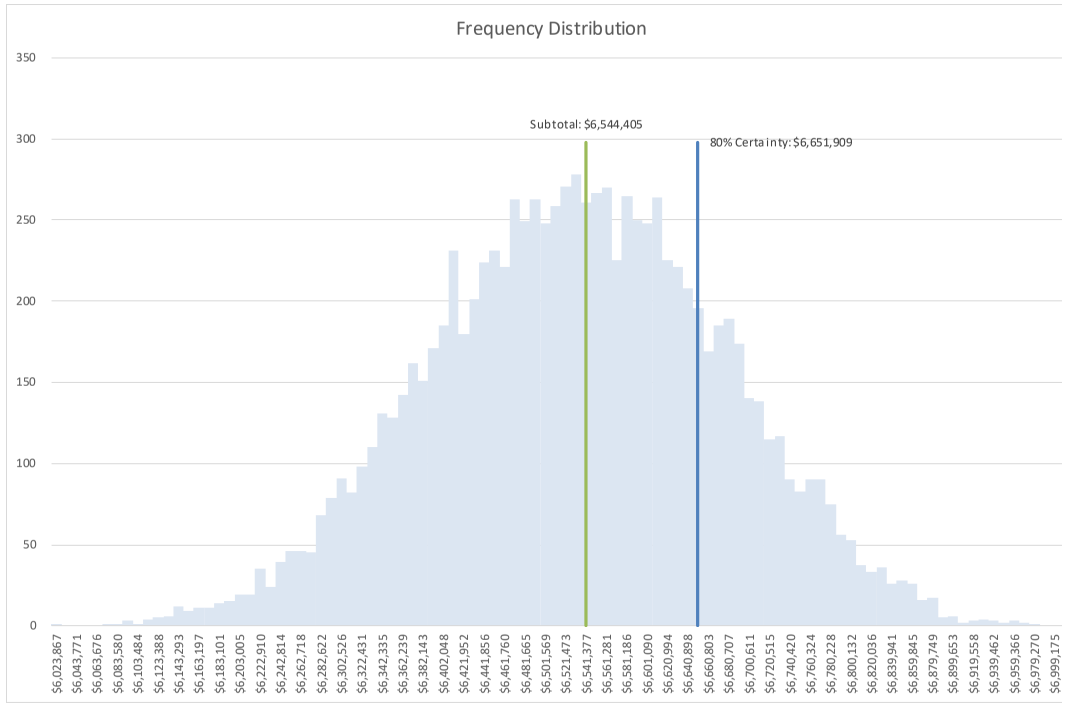
Notes

Highlighted cells represent the quantities and prices that are included in the model.
Base Case the sum of the Quantity multiplied by "Likeliest" Item Price

Comments
See plan sheets.

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$6,023,867
10%	$6,341,165
20%	$6,403,257
30%	$6,449,955
40%	$6,490,479
50%	$6,528,693
60%	$6,566,380
70%	$6,606,095
80%	**$6,651,909**
90%	$6,712,460
100%	$7,019,079

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	$196
BRIDGE REMOVAL	N/A
ESTIMATED COST Subtotal + Bridge	$6,652,000
TOTAL	$10,163,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingei 25%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (F-SB-N-RW#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
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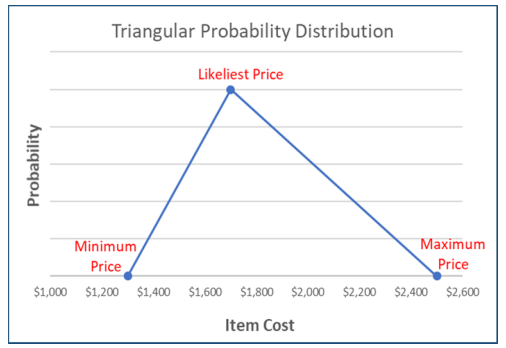
AREA	N/A
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	422	$50.00	$55.00	$60.00	$23,210
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	640	$65.00	$70.00	$80.00	$44,800
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	278	$650.00	$700.00	$750.00	$194,600
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	31500	$1.40	$1.60	$1.75	$50,400
839746	CONCRETE BARRIER (TYPE 842)		LF	342	$90.00	$100.00	$110.00	$34,200

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

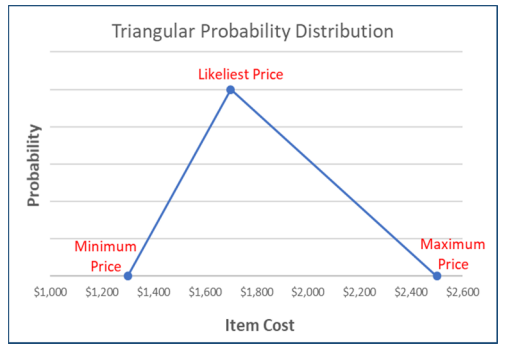
[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (F-SB-N-RW#2)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW w piling
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
LENGTH	688
WIDTH	N/A
AREA	N/A
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	1216	$50.00	$55.00	$60.00	$66,880
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	2426	$65.00	$70.00	$80.00	$169,820
497036	FURNSIH PILING (CLASS 90)	Alt X	LF	1630	$35.00	$40.00	$45.00	$65,200
497037	DRIVE PILE (CLASS 90)	Alt X	EA	184	$1,500.00	$1,800.00	$2,000.00	$331,200
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	896	$650.00	$700.00	$750.00	$627,200
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	108600	$1.40	$1.60	$1.75	$173,760
839746	CONCRETE BARRIER (TYPE 842)		LF	688	$90.00	$100.00	$110.00	$68,800

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (NB-N-MSE#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	MSE wall
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
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EST. NO.	1
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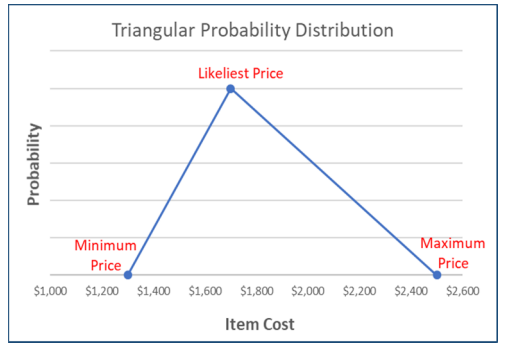
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
477020	MECHANICALLY STABILIZED EMBANKMENT		SQFT	10680	$70.00	$80.00	$85.00	$854,400

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (NB-N-RW#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW w piling
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
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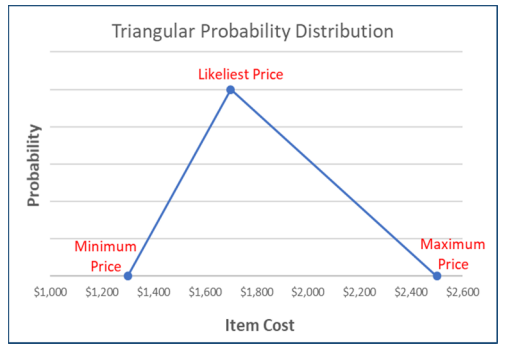
WIDTH	N/A
AREA	N/A
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	1720	$50.00	$55.00	$60.00	$94,600
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	3520	$65.00	$70.00	$80.00	$246,400
497036	FURNSIH PILING (CLASS 90)	Alt X	LF	12268	$35.00	$40.00	$45.00	$490,720
497037	DRIVE PILE (CLASS 90)	Alt X	EA	266	$1,500.00	$1,800.00	$2,000.00	$478,800
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	1295	$650.00	$700.00	$750.00	$906,500
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	158150	$1.40	$1.60	$1.75	$253,040
582001	SOUNDWALL (MASONRY BLOCK)		SQFT	10932	$25.00	$30.00	$35.00	$327,960
839746	CONCRETE BARRIER (TYPE 842)		LF	911	$90.00	$100.00	$110.00	$91,100

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (NB-S-MSE#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	MSE wall
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
LENGTH	157
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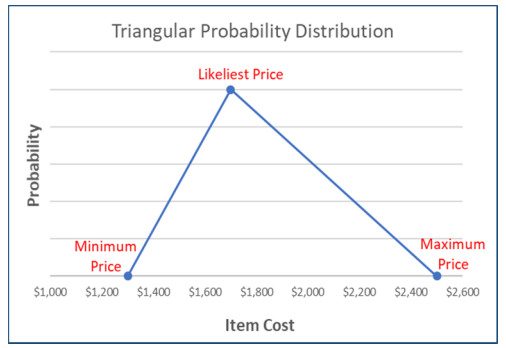
AREA	N/A
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
477020	MECHANICALLY STABILIZED EMBANKMENT		SQFT	1099	$70.00	$80.00	$85.00	$87,920

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (NB-S-RW#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW w piling
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
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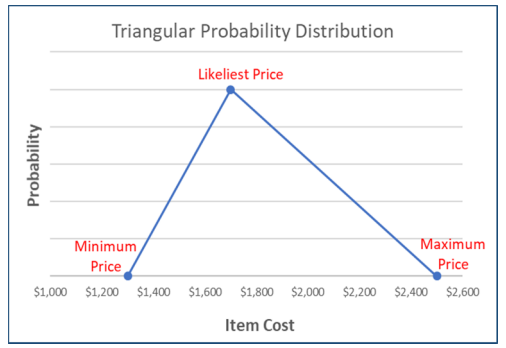
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	197	$50.00	$55.00	$60.00	$10,835
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	315	$65.00	$70.00	$80.00	$22,050
497036	FURNSIH PILING (CLASS 90)	Alt X	LF	891	$35.00	$40.00	$45.00	$35,640
497037	DRIVE PILE (CLASS 90)	Alt X	EA	23	$1,500.00	$1,800.00	$2,000.00	$41,400
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	121	$650.00	$700.00	$750.00	$84,700
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	13370	$1.40	$1.60	$1.75	$21,392
839746	CONCRETE BARRIER (TYPE 842)		LF	157	$90.00	$100.00	$110.00	$15,700

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (NB-S-RW#2A)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW w piling
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
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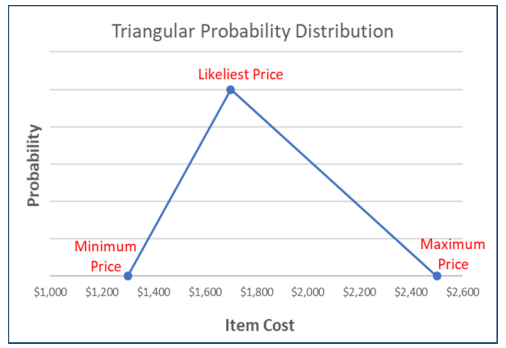
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	397	$50.00	$55.00	$60.00	$21,835
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	637	$65.00	$70.00	$80.00	$44,590
497036	FURNSIH PILING (CLASS 90)	Alt X	LF	1793	$35.00	$40.00	$45.00	$71,720
497037	DRIVE PILE (CLASS 90)	Alt X	EA	45	$1,500.00	$1,800.00	$2,000.00	$81,000
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	244	$650.00	$700.00	$750.00	$170,800
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	27040	$1.40	$1.60	$1.75	$43,264
839746	CONCRETE BARRIER (TYPE 842)		LF	315	$90.00	$100.00	$110.00	$31,500

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (NB-S-RW#2B)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW w piling
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
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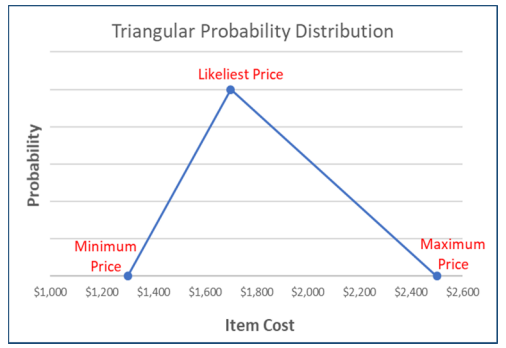
AREA	N/A
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	359	$50.00	$55.00	$60.00	$19,745
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	574	$65.00	$70.00	$80.00	$40,180
497036	FURNSIH PILING (CLASS 90)	Alt X	LF	1630	$35.00	$40.00	$45.00	$65,200
497037	DRIVE PILE (CLASS 90)	Alt X	EA	41	$1,500.00	$1,800.00	$2,000.00	$73,800
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	220	$650.00	$700.00	$750.00	$154,000
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	24320	$1.40	$1.60	$1.75	$38,912
839746	CONCRETE BARRIER (TYPE 842)		LF	288	$90.00	$100.00	$110.00	$28,800

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (SB-N-MSE#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	MSE wall
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
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RTE:	5
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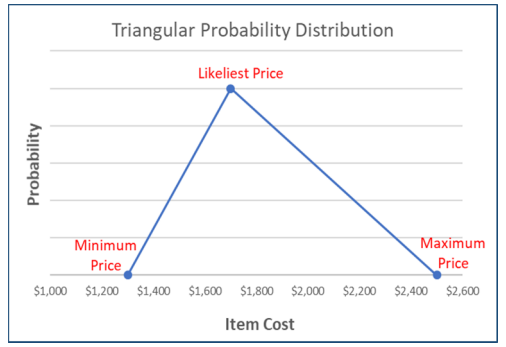
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
477020	MECHANICALLY STABILIZED EMBANKMENT		SQFT	10680	$70.00	$80.00	$85.00	$854,400
							SUBTOTAL	$854,400

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL							

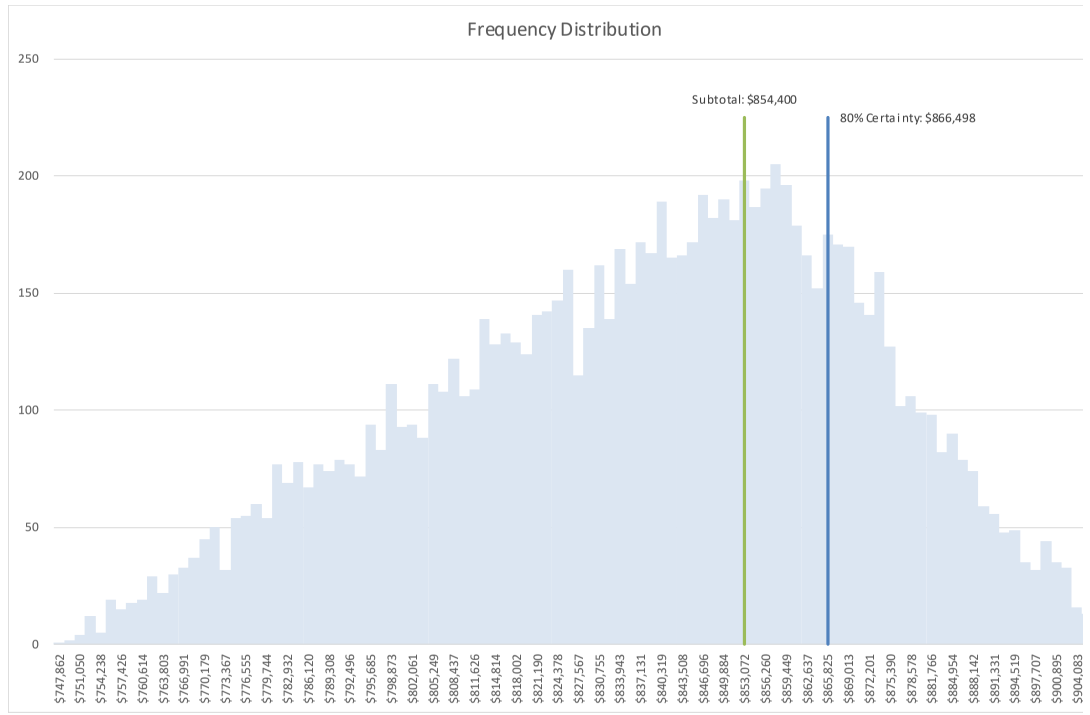
Notes

Highlighted cells represent the quantities and prices that are included in the model.
Base Case the sum of the Quantity multiplied by "Likeliest" Item Price

Comments
See plan sheets.

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$747,862
10%	$788,510
20%	$806,312
30%	$819,162
40%	$830,381
50%	$840,049
60%	$849,066
70%	$857,458
80%	**$866,498**
90%	$877,771
100%	$907,272

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	N/A
BRIDGE REMOVAL	N/A
ESTIMATED COST Subtotal + Bridge	$866,000
TOTAL	$1,324,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 25%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (SB-S-MSE#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	MSE wall
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
PM:	25.1
DEPTH	N/A
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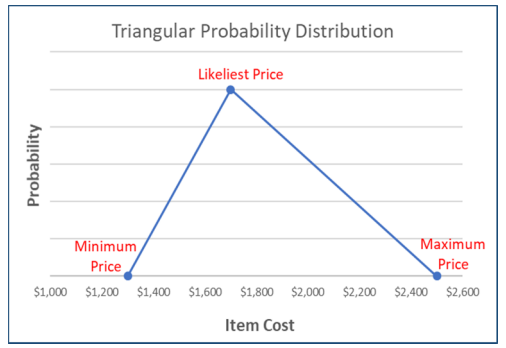
EST. NO.	1
COST INDEX:	689
DATE:	2/2/2021
DATE:	12/3/2021



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
477020	MECHANICALLY STABILIZED EMBANKMENT		SQFT	1099	$70.00	$80.00	$85.00	$87,920

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

[ ] GENERAL PLAN ESTIMATE [X] ADVANCE PLANNING ESTIMATE

Revised -October 9, 2019

ALTERNATIVE 3 (SB-S-RW#1)

BRIDGE NAME:	**STOCKTON CHANNEL VIADUCT IC**
BRIDGE NUMBER:	29-0176 R/L
TYPE:	Type 1 RW w piling
EA:	10-0X4600
PROJECT ID:	10-1200-0259
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	Complex bridge
# OF STRUCTURES IN PROJECT :	1
PRICES BY :	Pga
PRICES CHECKED BY :	Pga
QUANTITIES BY:	KA

IN EST:	12/3/2021
OUT EST:	2/2/2021
DISTRICT:	10
CO:	Sj
RTE:	5
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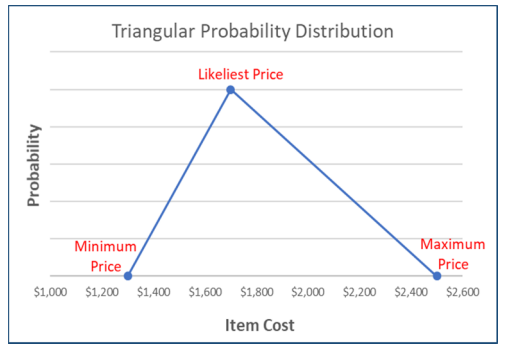
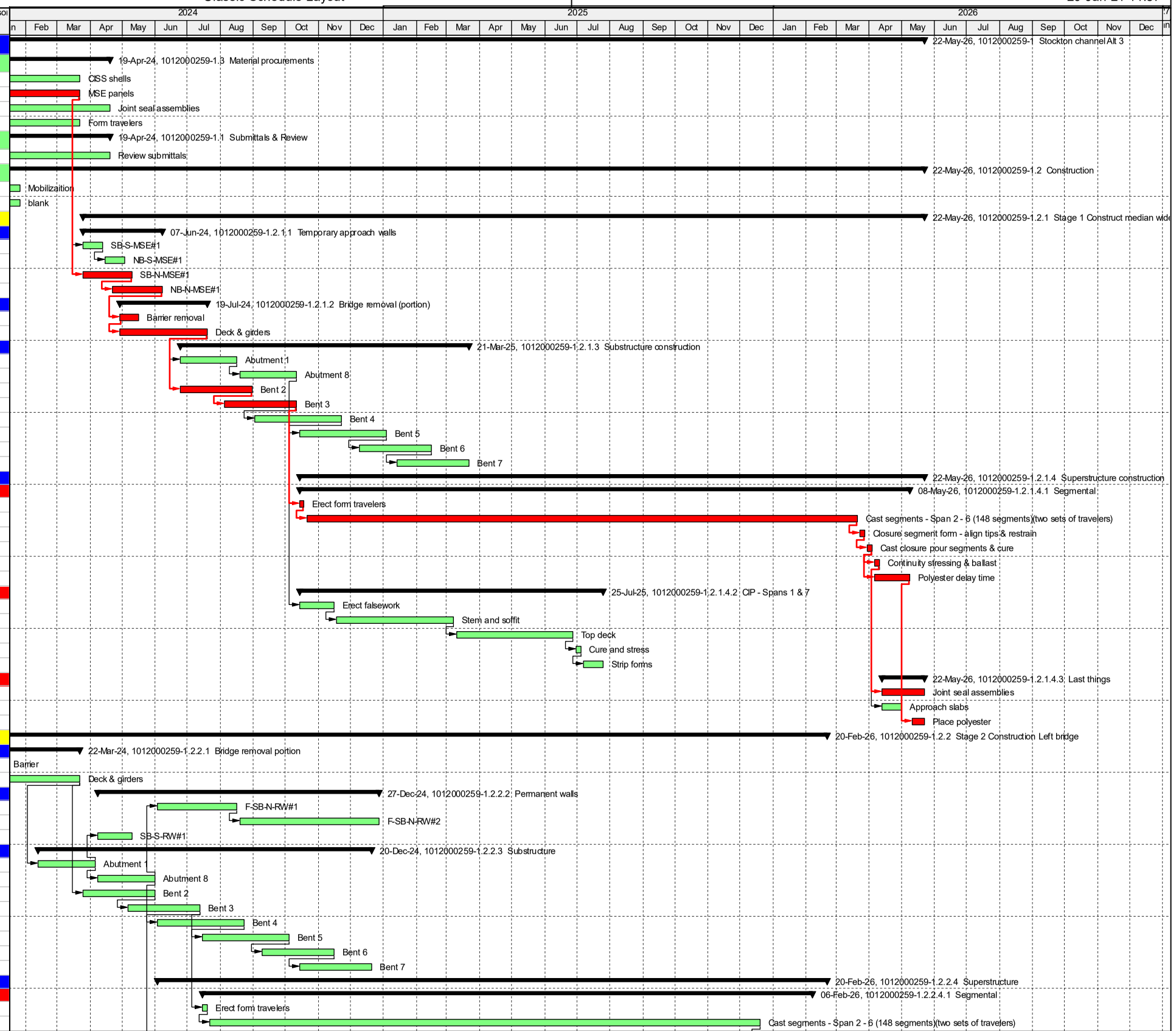


The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		CY	197	$50.00	$55.00	$60.00	$10,835
193013	STRUCTURE BACKFILL (RETAINING WALL)		CY	315	$65.00	$70.00	$80.00	$22,050
497036	FURNSIH PILING (CLASS 90)	Alt x	LF	891	$35.00	$40.00	$45.00	$35,640
497037	DRIVE PILE (CLASS 90)	Alt x	EA	23	$1,500.00	$1,800.00	$2,000.00	$41,400
510060	STRUCTURAL CONCRETE (RETAINING WALL)		CY	121	$650.00	$700.00	$750.00	$84,700
520103	BAR REINFORCING STEEL (RETAINING WALL)		LB	13370	$1.40	$1.60	$1.75	$21,392
839746	CONCRETE BARRIER (TYPE 842)		LF	157	$90.00	$100.00	$110.00	$15,700

Activity ID	Activity Name	Original Duration	Start	Finish	Predecessor
1012000259-1	Stockton channel Alt 3	625	01-Jan-24	22-May-26	
1012000259-1.3	Material procurements	80	01-Jan-24	19-Apr-24	
A1260	CISS shells	60	01-Jan-24	22-Mar-24	
A1265	MSE panels	60	01-Jan-24	22-Mar-24	
A1270	Joint seal assemblies	80	01-Jan-24	19-Apr-24	
A1280	Form travelers	60	01-Jan-24	22-Mar-24	
1012000259-1.1	Submittals & Review	80	01-Jan-24	19-Apr-24	
A1010	Review submittals	80	01-Jan-24	19-Apr-24	
1012000259-1.2	Construction	625	01-Jan-24	22-May-26	
A1290	Mobilizaition	20	01-Jan-24	26-Jan-24	
C1010	blank	20	01-Jan-24	26-Jan-24	
1012000259-1.2.1	Stage 1 Construct median widen	565	25-Mar-24	22-May-26	
1012000259-1.2.1.1	Temporary approach walls	55	25-Mar-24	07-Jun-24	
A1300	SB-S-MSE#1	15	25-Mar-24	12-Apr-24	A1265
A1310	NB-S-MSE#1	15	15-Apr-24	03-May-24	A1300
A1320	SB-N-MSE#1	35	25-Mar-24	10-May-24	A1265
A1330	NB-N-MSE#1	35	22-Apr-24	07-Jun-24	A1320
1012000259-1.2.1.2	Bridge removal (portion)	60	29-Apr-24	19-Jul-24	
A1340	Barrier removal	14	29-Apr-24	16-May-24	A1330
A1350	Deck & girders	60	29-Apr-24	19-Jul-24	A1340
1012000259-1.2.1.3	Substructure construction	195	24-Jun-24	21-Mar-25	
A1360	Abutment 1	40	24-Jun-24	16-Aug-24	A1350
A1370	Abutment 8	40	19-Aug-24	11-Oct-24	A1360
A1380	Bent 2	50	24-Jun-24	30-Aug-24	A1350
A1390	Bent 3	50	05-Aug-24	11-Oct-24	A1380
A1400	Bent 4	60	02-Sep-24	22-Nov-24	A1390
A1410	Bent 5	60	14-Oct-24	03-Jan-25	A1400
A1420	Bent 6	50	09-Dec-24	14-Feb-25	A1410
A1430	Bent 7	50	13-Jan-25	21-Mar-25	A1420
1012000259-1.2.1.4	Superstructure construction	420	14-Oct-24	22-May-26	
1012000259-1.2.1.4.1	Segmental	410	14-Oct-24	08-May-26	
A1440	Erect form travelers	5	14-Oct-24	18-Oct-24	A1390
A1450	Cast segments - Span 2 - 6 (148 segments)(two sets of travelers)	370	21-Oct-24	20-Mar-26	A1440
A1500	Closure segment form - align tips & restrain	5	23-Mar-26	27-Mar-26	A1450
A1510	Cast closure pour segments & cure	5	30-Mar-26	03-Apr-26	A1500
A1520	Continuity stressing & ballast	5	06-Apr-26	10-Apr-26	A1510
A1530	Polyester delay time	25	06-Apr-26	08-May-26	A1510
1012000259-1.2.1.4.2	CIP - Spans 1 & 7	205	14-Oct-24	25-Jul-25	
A1540	Erect falsework	25	14-Oct-24	15-Nov-24	A1370
A1550	Stem and soffit	80	18-Nov-24	07-Mar-25	A1540
A1560	Top deck	80	10-Mar-25	27-Jun-25	A1550
A1570	Cure and stress	5	30-Jun-25	04-Jul-25	A1560
A1580	Strip forms	15	07-Jul-25	25-Jul-25	A1570
1012000259-1.2.1.4.3	Last things	30	13-Apr-26	22-May-26	
A1590	Joint seal assemblies	30	13-Apr-26	22-May-26	A1520
A1600	Approach slabs	15	13-Apr-26	01-May-26	A1520
A1610	Place polyester	10	11-May-26	22-May-26	A1530
1012000259-1.2.2	Stage 2 Construction Left bridge	560	01-Jan-24	20-Feb-26	
1012000259-1.2.2.1	Bridge removal portion	60	01-Jan-24	22-Mar-24	
A1620	Barrier	10	01-Jan-24	12-Jan-24	
A1630	Deck & girders	60	01-Jan-24	22-Mar-24	
1012000259-1.2.2.2	Permanent walls	190	08-Apr-24	27-Dec-24	
A1640	F-SB-N-RW#1	55	03-Jun-24	16-Aug-24	A2710
A1650	F-SB-N-RW#2	95	19-Aug-24	27-Dec-24	A1640
A1660	SB-S-RW#1	25	08-Apr-24	10-May-24	A2700
1012000259-1.2.2.3	Substructure	225	12-Feb-24	20-Dec-24	
A2700	Abutment 1	40	12-Feb-24	05-Apr-24	A1630
A2710	Abutment 8	40	08-Apr-24	31-May-24	A2700
A2720	Bent 2	50	25-Mar-24	31-May-24	A1630
A2730	Bent 3	50	06-May-24	12-Jul-24	A2720
A2740	Bent 4	60	03-Jun-24	23-Aug-24	A2730
A2750	Bent 5	60	15-Jul-24	04-Oct-24	A2740
A2760	Bent 6	50	09-Sep-24	15-Nov-24	A2750
A2770	Bent 7	50	14-Oct-24	20-Dec-24	A2760
1012000259-1.2.2.4	Superstructure	450	03-Jun-24	20-Feb-26	
1012000259-1.2.2.4.1	Segmental	410	15-Jul-24	06-Feb-26	
A2780	Erect form travelers	5	15-Jul-24	19-Jul-24	A2730
A2790	Cast segments - Span 2 - 6 (148 segments)(two sets of travelers)	370	22-Jul-24	19-Dec-25	A2780

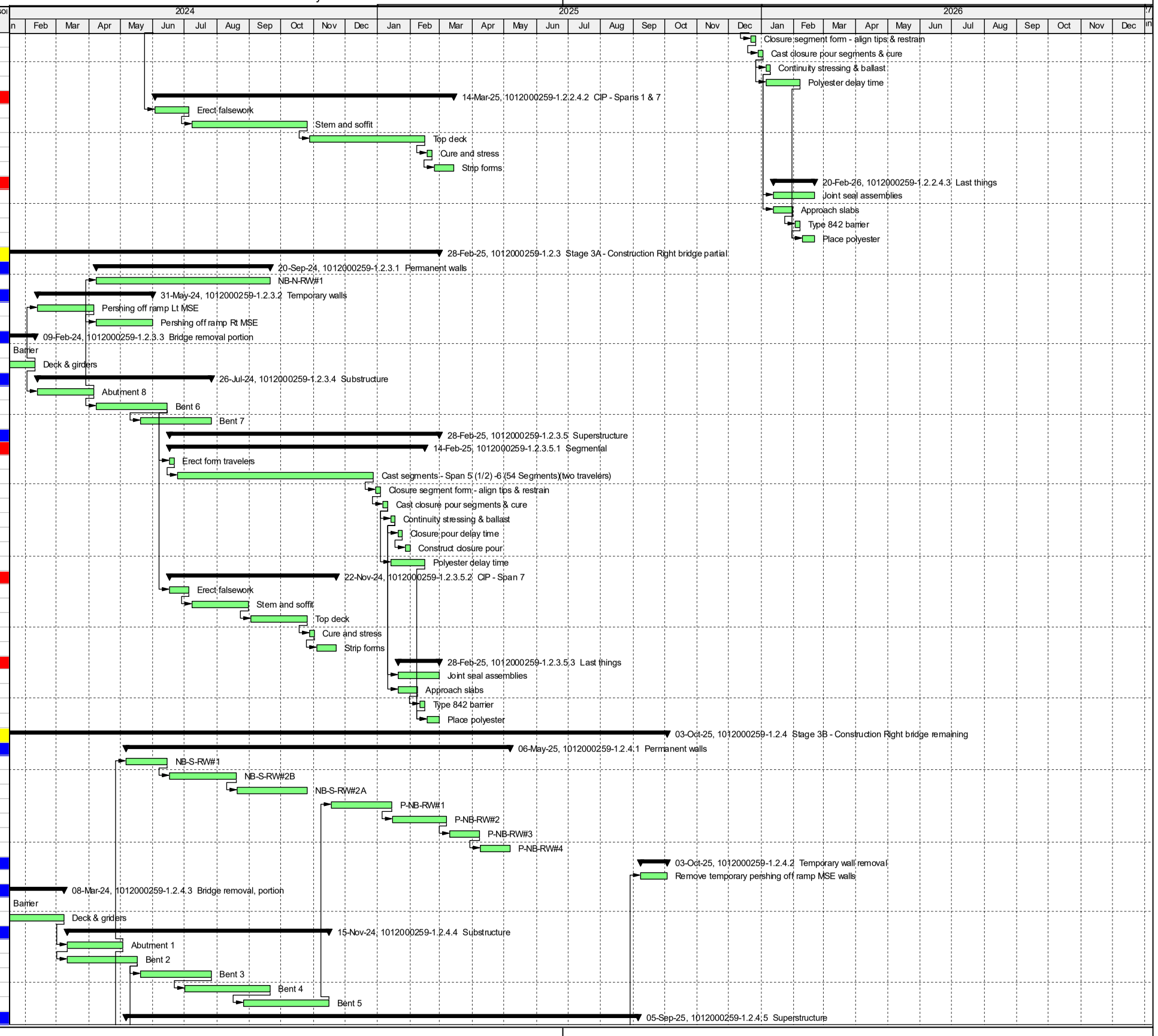


Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary

TASK filter: All Activities

© Oracle Corporation

Activity ID	Activity Name	Original Duration	Start	Finish	Predecessor
A2800	Closure segment form - align tips & restrain	5	22-Dec-25	26-Dec-25	A2790
A2810	Cast closure pour segments & cure	5	29-Dec-25	02-Jan-26	A2800
A2820	Continuity stressing & ballast	5	05-Jan-26	09-Jan-26	A2810
A2830	Polyester delay time	25	05-Jan-26	06-Feb-26	A2810
1012000259-1.2.2.4.2	CIP - Spans 1 & 7	205	03-Jun-24	14-Mar-25	
A1880	Erect falsework	25	03-Jun-24	05-Jul-24	A2710
A1890	Stem and soffit	80	08-Jul-24	25-Oct-24	A1880
A1900	Top deck	80	28-Oct-24	14-Feb-25	A1890
A1910	Cure and stress	5	17-Feb-25	21-Feb-25	A1900
A1920	Strip forms	15	24-Feb-25	14-Mar-25	A1910
1012000259-1.2.2.4.3	Last things	30	12-Jan-26	20-Feb-26	
A1940	Joint seal assemblies	30	12-Jan-26	20-Feb-26	A2820
A1950	Approach slabs	15	12-Jan-26	30-Jan-26	A2820
A1955	Type 842 barrier	5	02-Feb-26	06-Feb-26	A1950
A1960	Place polyester	10	09-Feb-26	20-Feb-26	A1955, A2
1012000259-1.2.3	Stage 3A - Construction Right bridge partial	305	01-Jan-24	28-Feb-25	
1012000259-1.2.3.1	Permanent walls	120	08-Apr-24	20-Sep-24	
A1970	NB-N-RW#1	120	08-Apr-24	20-Sep-24	A2020
1012000259-1.2.3.2	Temporary walls	80	12-Feb-24	31-May-24	
A1980	Pershing off ramp Lt MSE	40	12-Feb-24	05-Apr-24	A2010
A1990	Pershing off ramp Rt MSE	40	08-Apr-24	31-May-24	A1980
1012000259-1.2.3.3	Bridge removal portion	30	01-Jan-24	09-Feb-24	
A2000	Barrier	10	01-Jan-24	12-Jan-24	
A2010	Deck & girders	30	01-Jan-24	09-Feb-24	
1012000259-1.2.3.4	Substructure	120	12-Feb-24	26-Jul-24	
A2020	Abutment 8	40	12-Feb-24	05-Apr-24	A2010
A2030	Bent 6	50	08-Apr-24	14-Jun-24	A2020
A2040	Bent 7	50	20-May-24	26-Jul-24	A2030
1012000259-1.2.3.5	Superstructure	185	17-Jun-24	28-Feb-25	
1012000259-1.2.3.5.1	Segmental	175	17-Jun-24	14-Feb-25	
A2060	Erect form travelers	5	17-Jun-24	21-Jun-24	A2030
A2100	Cast segments - Span 5 (1/2) -6 (54 Segments)(two travelers)	135	24-Jun-24	27-Dec-24	A2060
A2120	Closure segment form - align tips & restrain	5	30-Dec-24	03-Jan-25	A2100
A2130	Cast closure pour segments & cure	5	06-Jan-25	10-Jan-25	A2120
A2140	Continuity stressing & ballast	5	13-Jan-25	17-Jan-25	A2130
A2150	Closure pour delay time	5	20-Jan-25	24-Jan-25	A2140
A2160	Construct closure pour	5	27-Jan-25	31-Jan-25	A2150
A2170	Polyester delay time	25	13-Jan-25	14-Feb-25	A2130
1012000259-1.2.3.5.2	CIP - Span 7	115	17-Jun-24	22-Nov-24	
A2190	Erect falsework	15	17-Jun-24	05-Jul-24	A2030
A2200	Stem and soffit	40	08-Jul-24	30-Aug-24	A2190
A2210	Top deck	40	02-Sep-24	25-Oct-24	A2200
A2220	Cure and stress	5	28-Oct-24	01-Nov-24	A2210
A2230	Strip forms	15	04-Nov-24	22-Nov-24	A2220
1012000259-1.2.3.5.3	Last things	30	20-Jan-25	28-Feb-25	
A2250	Joint seal assemblies	30	20-Jan-25	28-Feb-25	A2140
A2260	Approach slabs	15	20-Jan-25	07-Feb-25	A2140
A2270	Type 842 barrier	5	10-Feb-25	14-Feb-25	A2260
A2280	Place polyester	10	17-Feb-25	28-Feb-25	A2270, A2
1012000259-1.2.4	Stage 3B - Construction Right bridge remaining	460	01-Jan-24	03-Oct-25	
1012000259-1.2.4.1	Permanent walls	262	06-May-24	06-May-25	
A2290	NB-S-RW#1	30	06-May-24	14-Jun-24	A2400
A2300	NB-S-RW#2B	46	17-Jun-24	19-Aug-24	A2290
A2310	NB-S-RW#2A	49	20-Aug-24	25-Oct-24	A2300
A2320	P-NB-RW#1	42	18-Nov-24	14-Jan-25	A2450
A2330	P-NB-RW#2	38	15-Jan-25	07-Mar-25	A2320
A2340	P-NB-RW#3	21	10-Mar-25	07-Apr-25	A2330
A2350	P-NB-RW#4	21	08-Apr-25	06-May-25	A2340
1012000259-1.2.4.2	Temporary wall removal	20	08-Sep-25	03-Oct-25	
A2360	Remove temporary pershing off ramp MSE walls	20	08-Sep-25	03-Oct-25	A2690
1012000259-1.2.4.3	Bridge removal, portion	50	01-Jan-24	08-Mar-24	
A2370	Barrier	10	01-Jan-24	12-Jan-24	
A2380	Deck & griders	50	01-Jan-24	08-Mar-24	
1012000259-1.2.4.4	Substructure	180	11-Mar-24	15-Nov-24	
A2400	Abutment 1	40	11-Mar-24	03-May-24	A2380
A2420	Bent 2	50	11-Mar-24	17-May-24	A2400
A2430	Bent 3	50	20-May-24	26-Jul-24	A2420
A2440	Bent 4	60	01-Jul-24	20-Sep-24	A2430
A2450	Bent 5	60	26-Aug-24	15-Nov-24	A2440
1012000259-1.2.4.5	Superstructure	350	06-May-24	05-Sep-25	



Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary

TASK filter: All Activities

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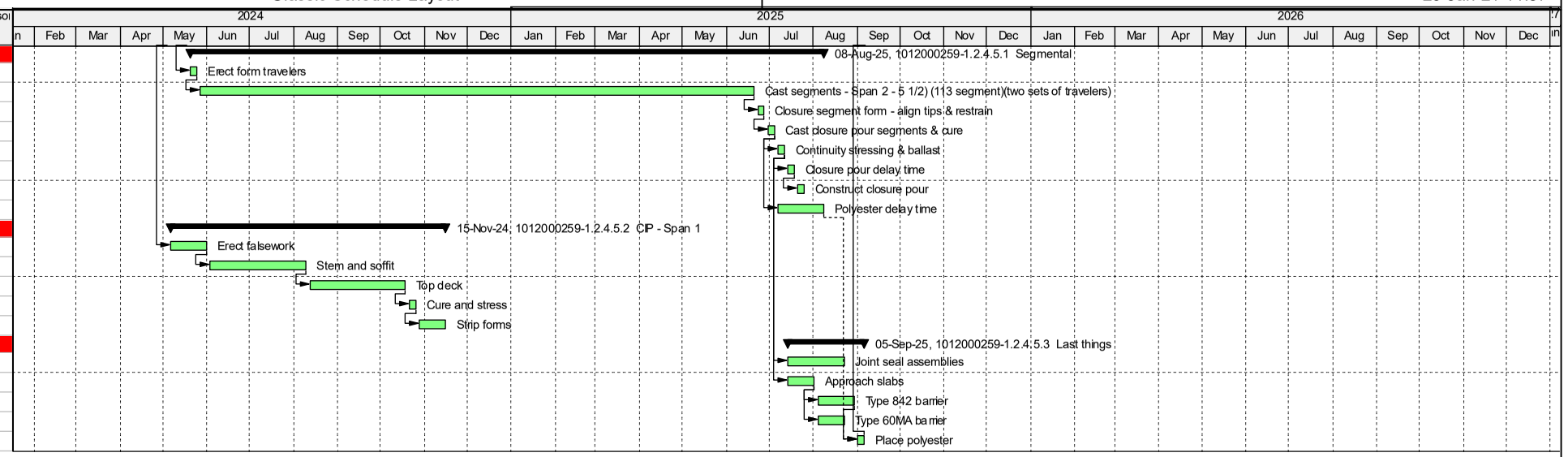
Activity ID	Activity Name	Original Duration	Start	Finish	Predecessor
1012000259-1.2.4.5.1	Segmental	320	20-May-24	08-Aug-25	
A2470	Erect form travelers	5	20-May-24	24-May-24	A2420
A2480	Cast segments - Span 2 - 5 1/2) (113 segment)(two sets of travelers)	280	27-May-24	20-Jun-25	A2470
A2530	Closure segment form - align tips & restrain	5	23-Jun-25	27-Jun-25	A2480
A2540	Cast closure pour segments & cure	5	30-Jun-25	04-Jul-25	A2530
A2550	Continuity stressing & ballast	5	07-Jul-25	11-Jul-25	A2540
A2560	Closure pour delay time	5	14-Jul-25	18-Jul-25	A2550
A2570	Construct closure pour	5	21-Jul-25	25-Jul-25	A2560
A2580	Polyester delay time	25	07-Jul-25	08-Aug-25	A2540
1012000259-1.2.4.5.2	CIP - Span 1	140	06-May-24	15-Nov-24	
A2600	Erect falsework	20	06-May-24	31-May-24	A2400
A2610	Stem and soffit	50	03-Jun-24	09-Aug-24	A2600
A2620	Top deck	50	12-Aug-24	18-Oct-24	A2610
A2630	Cure and stress	5	21-Oct-24	25-Oct-24	A2620
A2640	Strip forms	15	28-Oct-24	15-Nov-24	A2630
1012000259-1.2.4.5.3	Last things	40	14-Jul-25	05-Sep-25	
A2660	Joint seal assemblies	30	14-Jul-25	22-Aug-25	A2550
A2670	Approach slabs	15	14-Jul-25	01-Aug-25	A2550
A2680	Type 842 barrier	20	04-Aug-25	29-Aug-25	A2670
A2685	Type 60MA barrier	15	04-Aug-25	22-Aug-25	A2670
A2690	Place polyester	5	01-Sep-25	05-Sep-25	A2680, A2



Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

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ATTACHMENT E
Preliminary Cost Estimate
Alternative 3
Preferred Alternative

PROJECT COST ESTIMATE

PRELIM. (PR) COST ESTIMATE

EA: 10-0X4600 PA&ED 1012000259

EA: 10-0X4600

PA&ED 1012000259

District-County-Route: 10-SJ-5

PM: 26.1/27.6

Type of Estimate : Project Report

Program Code : SHOPP

Project Limits : SJ-5 PM 26.1/27.6

Project Description: Bridge Rehabilitation/Replacement

Scope : Stockton Channel Viaduct Bridge Rehabilitation/Replacement

Alternative : 3 (Full Replacement)

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost	
TOTAL ROADWAY COST	**$ 86,387,100**	**$ 104,358,320**	(at 3.2% for 6 yrs) / (TRO incl. S
TOTAL STRUCTURES COST	**$ 313,000,000**	**$ 378,113,794**	(at 3.2% for 6 yrs) / (TRO in Rd
D-B'r DESIGN COST		**$ -**	(Eliminate due to DBB or CMGC
SUBTOTAL CONSTRUCTION COST	**$ 399,400,000**	**$ 482,500,000**	
TOTAL RIGHT OF WAY COST	**$ 7,900,000**	**$ 9,100,000**	(Rounded $100k)
TOTAL CAPITAL OUTLAY COSTS	**$ 407,300,000**	**$ 491,600,000**	
PR/ED SUPPORT		**$ -**	**(Already programmed)**
PS&E SUPPORT	**$ 18,219,000**	**$ 18,802,000**	**(Design-Build for Prgrm)**
RIGHT OF WAY SUPPORT	**$ 2,200,000**	**$ 2,200,000**	
CONSTRUCTION SUPPORT	**$ 13,669,000**	**$ 16,000,000**	
TOTAL SUPPORT COST	**$ 34,088,000**	**$ 37,002,000**	
TOTAL PROJECT COST	**$ 441,388,000**	**$ 528,602,000**	

If Project has been programmed enter Programmed Amount

	Month	/	Year
Date of Estimate (Month/Year)	6	/	2021
Estimated Construction Start (Month/Year)	9	/	2025
(NOTE: Both Phases) Number of Working Days =	1900		
Estimated Mid-Point of Construction (Month/Year)	1	/	2030
Estimated Construction End (Month/Year)	6	/	2034
Number of Plant Establishment Days	365		*(Note: 1 Year)*

Estimated Project Schedule

PID Approval	6/22/2015
PA/ED Approval	6/30/2021
PS&E (Phase 1)	2/15/2024
RTL (Phase 1)	9/30/2024
Begin Construction (Phase 1)	8/1/2025

Reviewed by District O.E. or Cost Estimate Certifier	Anton Kismetian	6/23/2021	(559) 832-0676
	Office Engineer / Cost Estimate Certifier	**Date**	**Phone**
Approved by Project Manager	Sam Sherman	6/23/2021	(209) 799-0676
	Project Manager	**Date**	**Phone**

PROJECT COST ESTIMATE

EA: 10-0X4600 PA&ED 1012000259

I. ROADWAY ITEMS SUMMARY

	Section		Cost		
1	**Earthwork**	$	7,395,000	17.2%	
2	**Pavement Structural Section**	$	6,884,000	16.0%	
3	**Drainage**	$	2,400,000	5.6%	
4	**Specialty Items**	$	1,523,500	3.5%	
5	**Environmental**	$	3,660,600	8.5%	
6	**Traffic Items**	$	12,308,300	28.6%	NOTE: About 55% for electrical and 45% for TH/PD&S
7	**Detours**	$	1,337,800	3.1%	
8	**Minor Items**	$	3,551,000	8.3%	
9	**Roadway Mobilization**	$	3,906,100	9.1%	Using 10% for Rdwy. (Not incl. 10% Contgn. or $23.2M for Strct.)
10	**Supplemental Work**	$	3,413,100	4.0%	
11	**State Furnished**	$	5,179,800.00	6.0%	
12	**Time-Related Overhead**	$	23,560,000.00	27.3%	Incl. $23.2M of TRO based on 10% of Structures Cost ($231.4M)
13	**Roadway Contingency**	$	11,267,900.00	13.0%	Using 15% for Rdwy. (Not incl. 25% Contgn. or $58M for Strct.)
	TOTAL ROADWAY ITEMS	**$**	**86,387,100**		

Estimate Prepared By :		6/4/2021	(559) 709-8022	$ 42,966,300	Highway Pay Items Only Total
	Aslyn Swan, PE	Date	Phone	$ 20,220,800.00	Rdwy SW, SF, TRO, & Contg.
				$ 63,187,100.00	Total Rdwy. Cost Est.
Estimate Reviewed By :		6/4/2021	(559) 832-0676		
	Anton Kismetian, DM	Date	Phone		

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

PROJECT COST ESTIMATE

EA: 10-0X4600 PA&ED 1012000259

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY	71,000	x	25.00	=	$	1,775,000
19010X	Roadway Excavation (Type X) ADL	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
19801X	Imported Borrow	CY	103,000	x	40.00	=	$	4,120,000
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
16010X	Clearing & Grubbing	LS	1	x	500,000.00	=	$	500,000
170101	Develop Water Supply	LS	1	x	1,000,000.00	=	$	1,000,000
19801X	Imported Borrow	CY/TON		x		=	$	-
210130	Duff	ACRE		x		=	$	-
XXXXXX	Some Item	Unit						

TOTAL EARTHWORK SECTION ITEMS $ 7,395,000

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
40105X	Jointed Plain Concrete Pavement	CY	1,200	x	280.00	=	$	336,000
400050	Continuously Reinforced Concrete Pavement	CY	17,000	x	280.00	=	$	4,760,000
404092	Seal Pavement Joint	LF		x		=	$	-
404093	Seal Isolation Joint	LF		x		=	$	-
413117	Seal Concrete Pavement Joint (Silicone)	LF		x		=	$	-
413118	Seal Pavement Joint (Asphalt Rubber)	LF		x		=	$	-
280010	Rapid Strength Concrete Base	CY		x		=	$	-
410095	Dowel Bar (Drill and Bond)	EA		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	12,000	x	100.00	=	$	1,200,000
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON	1,000	x	200.00	=	$	200,000
39300X	Geosynthetic Pavement Interlayer (Type X)	SQYD		x		=	$	-
26020X	Class 2 Aggregate Base	CY	2,600	x	60.00	=	$	156,000
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
3750XX	Screenings (Type XX)	TON		x		=	$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		=	$	-
370001	Sand Cover (Seal)	TON		x		=	$	-
731530	Minor Concrete (Textured Paving)	CY		x		=	$	-
731502	Minor Concrete (Miscellaneous Construction)	CY		x		=	$	-
39407X	Place Hot Mix Asphalt Dike (Type X)	LF	8,200	x	20.00	=	$	164,000
150771	Remove Asphalt Concrete Dike	LF		x		=	$	-
420201	Grind Existing Concrete Pavement	SQYD		x		=	$	-
150860	Remove Base and Surfacing	CY		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
15312X	Remove Concrete	LF/CY/LS		x		=	$	-
394090	Place Hot Mix Asphalt (Miscellaneous Area)	SQYD		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD	3,400	x	20.00	=	$	68,000
39405X	Shoulder Rumble Strip (HMA, X-In Indentations)	STA		x		=	$	-
413113	Repair Spalled Joints, Polyester Grout	SQYD		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
394095	Roadside Paving (Miscellaneous Areas)	SQYD		x		=	$	-
XXXXXX	Some Item	Unit		x		=	$	-

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS $ 6,884,000

PROJECT COST ESTIMATE

EA: 10-0X4600 PA&ED 1012000259

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost	
15080X	Remove Culvert	EA/LF		x		=	$	-	
150820	Modify Inlet	EA		x		=	$	-	
155232	Sand Backfill	CY		x		=	$	-	
15020X	Abandon Culvert	EA/LF		x		=	$	-	
152430	Adjust Inlet	LF		x		=	$	-	
155003	Cap Inlet	EA		x		=	$	-	
510501	Minor Concrete	CY		x		=	$	-	
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-	
5105XX	Minor Concrete (Type XX)	CY		x		=	$	-	
620XXX	XX" Alternative Pipe Culvert (Type X)	LF		x		=	$	-	
6411XX	XX" Plastic Pipe	LF		x		=	$	-	
65XXXX	XX" Reinforced Concrete Pipe (Type X)	LF		x		=	$	-	
665024	24" Corrugated Steel Pipe	LF		x		=	$	-	
68XXXX	XX" Plastic Pipe (Edge Drain)	LF		x		=	$	-	
690105	8" Corrugated Steel Pipe Downdrain	LF		x		=	$	-	
70321X	XX" Corrugated Steel Pipe Inlet (0.XXX" Thick)	LF		x		=	$	-	
7050XX	XX" Steel Flared End Section	EA		x		=	$	-	
703233	Grated Line Drain	LF		x		=	$	-	
720121	Rock Slope Protection (1/2 T, Method A)	CY		x		=	$	-	
729011	Rock Slope Protection Fabric (Class 8)	SQYD		x		=	$	-	
721420	Concrete (Ditch Lining)	CY		x		=	$	-	
721430	Concrete (Channel Lining)	CY		x		=	$	-	
750001	Miscellaneous Iron and Steel	LB		x		=	$	-	
031292	Temporary Dewatering	LS		x		=	$	-	
xxxxxx	Additional Drainage	LS	1	x	2,400,000.00	=	$	2,400,000	Replace over 20 drainage system [(200' avg length x $200 per LF) + (4 Dis * $20k per DI)]

TOTAL DRAINAGE ITEMS $ 2,400,000

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost	
080050	Progress Schedule (Critical Path Method)	LS	1	x	10,000.00	=	$	10,000	Typical higher cost for longer schedule/multiple submittals
582001	Sound Wall (Masonry Block)	SQFT	9,900	x	40.00	=	$	396,000	replace existing SW along NB I-5 N of SCV: 900' Length x 11' high of block
510530	Minor Concrete (Wall)	CY		x		=	$	-	
15325X	Remove Sound Wall	LF/LS		x		=	$	-	
070030	Lead Compliance Plan	LS	1	x	10,000.00	=	$	10,000	LCP for ADL already captured under Env, but this is for lead of paint on bridge structures.
141120	Treated Wood Waste	LB	1,200	x	0.40	=	$	480	Rough Estimate
153221	Remove Concrete Barrier	LF	3,500	x	40.00	=	$	140,000	Removal of existing median concrete barrier: S of SV = 0.22 mi and N of SV=0.44 mi
150661	Remove Guardrail	LF	1,000	x	20.00	=	$	20,000	
150668	Remove Flared End Section	EA		x		=	$	-	
8000XX	Chain Link Fence (Type XX)	LF		x		=	$	-	
80XXXX	XX" Chain Link Gate (Type CL-6)	EA		x		=	$	-	
832006	Midwest Guardrail System (Steel Post)	LF	1,800	x	80.00	=	$	144,000	South of SCV: 3 lines total 1,200' (NB EP, SB EP, SR 4 WB Connector) North of SCV: 2 areas total 600' (Pershing Off-ramp Gore and end of Pershing Off-ramp at Flora St)
839301	Single Thrie Beam Barrier	LF		x		=	$	-	
839310	Double Thrie Beam Barrier	LF		x		=	$	-	
839521	Cable Railing	LF		x		=	$	-	
8395XX	Terminal System (Type CAT)	EA		x		=	$	-	
839585	Alternative Flared Terminal System	EA		x		=	$	-	
839584	Alternative In-line Terminal System	EA		x		=	$	-	
4906XX	CIDH Concrete Piling (Insert Diameter)	LF		x		=	$	-	
839XXX	Crash Cushion (Insert Type)	EA		x		=	$	-	
83XXXX	Concrete Barrier (Insert Type)	LF	4,100	x	180.00	=	$	738,000	I-5 median = (0.6mi x 5280' per mi) SW NB I-5 = (900')
520103	Bar Reinforced Steel (Retaining Wall)	LB		x		=	$	-	
510060	Structural Concrete, Retaining Wall	CY		x		=	$	-	
513553	Retaining Wall (Masonry Wall)	SQFT		x		=	$	-	
511035	Architectural Treatment	SQFT		x		=	$	-	
598001	Anti-Graffiti Coating	SQFT		x		=	$	-	
203070	Rock Stain	SQFT		x		=	$	-	
5136XX	Reinforced Concrete Crib Wall (Type X)	SQFT		x		=	$	-	
839543	Transition Railing (Type WB-31)	EA	9	x	5,000.00	=	$	45,000	Various bridge connections: S of SCV:=3 + N of SCV=2 + Pershing OffR=2 + Fremont OFfR=1 + Fremont OnR=1
597601	Prepare and Stain Concrete	SQFT		x		=	$	-	
839561	Rail Tensioning Assembly	EA		x		=	$	-	
83958X	End Anchor Assembly (Type X)	EA		x		=	$	-	
839584	Alternate In-line Terminal System (Type 31)	EA	4	x	5,000.00	=	$	20,000	

TOTAL SPECIALTY ITEMS $ 1,523,500

PROJECT COST ESTIMATE

EA: 10-0X4600 PA&ED 1012000259

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
14XXXX	Archeo Monitoring	LS	1	x	164,500.00	=	$	164,500		From MCCE Apr. 2021: Mon. = $150k, ESA Fencing=$14,500
14XXXX	Biological Mitigation	LS	1	x	556,500.00	=	$	556,500		From MCCE Apr. 2021: CSB=400k, NRP=$5k, BRInfoProg=$1.5k, Bird&Bat Excl=$70k, UWsoundAtten=$80k
14XXXX	Paleo Monitoring	LS	1	x	75,000.00	=	$	75,000		From MCCE Apr. 2021:
14XXXX	HW LCP & SP/Sampling & Dredged Mtls NOI/NOT SW	LS	1	x	13,952.00	=	$	13,952		From MCCE Apr. 2021: LCP=$2.5k, SP/Sampling=$10k From MCCE Apr. 2021: NOI/NOT SW = $1,452
141000	Temporary Fence (Type ESA)	LF	10,000	x	6.00	=	$	60,000		Eng additionl 9more than Archeo) Est. to protect vegtation area and ESA at south end in I-5/SR 4 IC area
								Subtotal Environmental Mitigation	*$*	*869,952*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
20XXXX	Highway Planting / Onsite Tree Planting	LS	1	x	35,000.00	=	$	35,000		LA Est. (June 2020) & MCCE Apr. 2021 had $25k but used higher value
20XXXX	Irrigation System	LS	1	x	80,000.00	=	$	80,000		LA Est. (June 2020)
204099	Plant Establishment Work	LS	1	x	10,000.00	=	$	10,000		LA Est. (June 2020)
204101	Extend Plant Establishment Work	LS		x		=	$	-		
20XXXX	Follow-up Landscape Project	LS		x		=	$	-		
150685	Remove Irrigation Facility	LS		x		=	$	-		
20XXXX	Maintain Existing (Irrigation or Planted Areas)	LS		x		=	$	-		
206400	Check and Test Existing Irrigation Facilities	LS		x		=	$	-		
21011X	Imported Topsoil (X)	CY/TON		x		=	$	-		
20XXXX	Rock Blanket, Rock Mulch, DG, Gravel Mulch	SQFT/SQYD		x		=	$	-		
200122	Weed Germination	SQYD		x		=	$	-		
208304	Water Meter	EA		x		=	$	-		
2087XX	XX" Conduit (Use for Irrigation x-overs)	LF		x		=	$	-		
20890X	Extend X" Conduit (Use for Extension of Irrigation x-overs)	LF		x		=	$	-		
								Subtotal Landscape and Irrigation	*$*	*125,000*

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost		
210010	Move In/Move Out (Erosion Control)	EA	*4*	x	1000	=	$	4,000		LA Est. (June 2020)
210350	Fiber Rolls	LF		x		=	$	-		
210360	Compost Sock	LF		x		=	$	-		
2102XX	Rolled Erosion Control Product (X)	SQFT		x		=	$	-		
21025X	Bonded Fiber Matrix	SQFT/ACRE		x		=	$	-		
210300	Hydromulch	SQFT	*300,000*	x	0.08	=	$	24,000		LA Est. (June 2020)
210420	Straw	SQFT		x		=	$	-		
210430	Hydroseed	SQFT	*300,000*	x	0.1	=	$	30,000		LA Est. (June 2020)
210610	Compost	SQYD	*1,860*	x	50	=	$	93,000		LA Est. (June 2020)
210630	Incorporate Materials	SQFT		x		=	$	-		
								Subtotal Erosion Control	*$*	*151,000*

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost		
130300	Prepare SWPPP	LS	1	x	20,000.00	=	$	20,000		
130200	Prepare WPCP	LS		x		=	$	-		
130100	Job Site Management	LS	1	x	1,860,000.00	=	$	1,860,000		
130330	Storm Water Annual Report	EA	6	x	2,000.00	=	$	12,000		
130310	Rain Event Action Plan (REAP)	EA	280	x	500.00	=	$	140,000		
130320	Storm Water Sampling and Analysis Day	EA	160	x	2,000.00	=	$	320,000		
130520	Temporary Hydraulic Mulch	SQYD	32,000	x	0.30	=	$	9,600		LA Est. (June 2020)
130550	Temporary Hydroseed	SQYD		x		=	$	-		
130505	Move-In/Move-Out (Temporary Erosion Control)	EA	8	x	1,000.00	=	$	8,000		LA Est. (June 2020)
130640	Temporary Fiber Roll	LF	8,400	x	5.00	=	$	42,000		LA Est. (June 2020)
130900	Temporary Concrete Washout	LS	1	x	25,000.00	=	$	25,000		
130710	Temporary Construction Entrance	EA	8	x	4,000.00	=	$	32,000		
130610	Temporary Check Dam	LF		x		=	$	-		
130620	Temporary Drainage Inlet Protection	EA	30	x	200.00	=	$	6,000		
130730	Street Sweeping	LS	1	x	40,000.00	=	$	40,000		
								Subtotal NPDES	*$*	*2,514,600*

								TOTAL ENVIRONMENTAL	**$**	**3,660,600**

Supplemental Work for NPDES

066595	Water Pollution Control Maintenance Sharing*	LS	1	x	150,000.00	=	$	150,000		
066596	Additional Water Pollution Control**	LS	1	x	25,000.00	=	$	25,000		
066597	Storm Water Sampling and Analysis***	LS	1	x	15,000.00	=	$	15,000		
XXXXXX	Some Item	LS		x		=	$	-		
								Subtotal Supplemental Work for NDPS	*$*	*190,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

PROJECT COST ESTIMATE

EA: 10-0X4600 PA&ED 1012000259

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost	
860460	Lighting and Sign Illumination	LS	1	x	200,000.00	=	$	200,000	Rough Estimate
860201	Signal and Lighting	LS		x		=	$	-	
860990	Closed Circuit Television System	LS		x		=	$	-	
86110X	Ramp Metering System (Location X)	LS	1	x	200,000.00	=	$	200,000	Rough Estimate
86070X	Interconnection Conduit and Cable	LF/LS		x		=	$	-	
5602XX	Furnish Sign Structure (Type X)	LB	200,000	x	4.00	=	$	800,000	Rough Estimate
5602XX	Install Sign Structure (Type X)	LB	200,000	x	1.00	=	$	200,000	Rough Estimate
498040	XX" CIDHC Pile (Sign Foundation)	LF	200	x	1,000.00	=	$	200,000	Rough Estimate
86080X	Inductive Loop Detectors	EA/LS		x		=	$	-	
8609XX	Traffic Monitoring Station (Type X)	LS		x		=	$	-	
15075X	Remove Sign Structure	EA/LS		x		=	$	-	
151581	Reconstruct Sign Structure	EA		x		=	$	-	
152641	Modify Sign Structure	EA		x		=	$	-	
860090	Maintain Existing Traffic Management System Elements During Construction	LS		x		=	$	-	
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-	
xxxxxx	Restoring Fiber Optic Conduit System	LS	1	x	5,000,000.00	=	$	5,000,000	Rough Estimate

Subtotal Traffic Electrical $ *6,600,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost	
566011	Roadside Sign - One Post	EA	200	x	100.00	=	$	20,000	Rough Estimate
566012	Roadside Sign - Two Post	EA	50	x	200.00	=	$	10,000	Rough Estimate
5602XX	Furnish Sign	SQFT	500	x	10.00	=	$	5,000	Rough Estimate
568016	Install Sign Panel on Existing Frame	SQFT		x		=	$	-	
150711	Remove Painted Traffic Stripe (TH)	LF	285,120	x	2.00	=	$	570,240	TH related 2 x Length of project at 1.5 miles x 6 lines on each side
141101	Remove Yellow Painted Traffic Stripe (Hazardous Waste)	LF		x		=	$	-	
150712	Remove Painted Pavement Marking	SQFT		x		=	$	-	
150742	Remove Roadside Sign	EA	100	x	500.00	=	$	50,000	Rough Estiamte
152320	Reset Roadside Sign	EA	15	x	500.00	=	$	7,500	Rough Estiamte
152390	Relocate Roadside Sign	EA		x		=	$	-	
82010X	Delineator (Class X)	EA		x		=	$	-	
840502	Thermoplastic Traffic Stripe (Enhanced Wet Night Visibility)	LF	190,080	x	1.00	=	$	190,080	TH related 2 x Length of project at 1.5 miles x 6 lines on each side
846012	Thermoplastic Crosswalk and Pavement Marking (Enhanced Wet Night Visibility)	SQFT		x		=	$	-	
120090	Construction Area Signs	LS	1	x	450,000.00	=	$	450,000	CAS overall & for TH/detours (Overall = $50k w/ 50 signs @ $1,000 per sign) + (TH = $400k w/ 400 signs @ $1,000 per sign)
84XXXX	Permanent Pavement Delineation	LS	1	x	100,000.00	=	$	100,000	

Subtotal Traffic Signing and Striping $ *1,402,820*

6C - Traffic Management Plan

Item code		Unit	Quantity		Unit Price ($)			Cost	
12865X	Portable Changeable Message Signs	LS	1	x	$ 300,000	=	$	300,000	$228k from TMP Checklist but increased more due to various detours that may not have been known about

Subtotal Traffic Management Plan $ *300,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost	
120199	Traffic Plastic Drum	EA		x		=	$	-	
12016X	Channelizer (Type X)	EA	1,000	x	40.00	=	$	40,000	
120120	Type III Barricade	EA	30	x	80.00	=	$	2,400	
129100	Temporary Crash Cushion Module	EA	20	x	150.00	=	$	3,000	
120100	Traffic Control System	LS	1	x	2,000,000.00	=	$	2,000,000	
129110	Temporary Crash Cushion	EA	100	x	250.00	=	$	25,000	
129000	Temporary Railing (Type K)	LF	96,000	x	20.00	=	$	1,920,000	double of 2 lines for each of 3 stages about 8,000' in length
120149	Temporary Pavement Marking (Paint)	SQFT	10,000	x	1.50	=	$	15,000	Rough Estimate
82010X	Delineator (Class X)	EA		x		=	$	-	
XXXXXX	Some Item	Unit		x		=	$	-	

NOTE: ***As temp signing & striping is long term for each Stage/Phase, they are included in CAS and S&S is included in Section 6B***

Subtotal Stage Construction and Traffic Handling $ *4,005,400*

TOTAL TRAFFIC ITEMS $ 12,308,300

SECTION 7: DETOUR (Temp Pershing Off-ramp Only)

Includes constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY		x		=	$	-
19801X	Imported Borrow	CY	26,667	x	40.00	=	$	1,066,680
390132	Hot Mix Asphalt (Type A)	TON	1,800	x	100.00	=	$	180,000
26020X	Class 2 Aggregate Base	CY	889	x	35.00	=	$	31,115
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
130620	Temporary Drainage Inlet Protection	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF	1,200	x	50.00	=	$	60,000
128601	Temporary Signal System	LS		x		=	$	-
120149	Temporary Pavement Marking (Paint)	SQFT		x		=	$	-
80010X	Temporary Fence (Type X)	LF		x		=	$	-
XXXXXX	Temp MSE Walls (**See Structure Costs**)	SQFT		x		=	$	-

NOTE: All local road detours costs are included in Section 6C (on existing pvmt)

TOTAL DETOURS	**$**	**1,337,800**
SUBTOTAL SECTIONS 1 through 7	$	35,509,200

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
ADA Items				1.0%	$	355,092	
8B - Bike Path Items							
Bike Path Items				1.0%	$	355,092	
8C - Other Minor Items							
Other Minor Items				8.0%	$	2,840,736	
Total of Section 1-7	$	35,509,200	x	10.0%	=	$	3,550,920

TOTAL MINOR ITEMS	**$**	**3,551,000**

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	39,060,200	x	10%	=	$	3,906,020

TOTAL MOBILIZATION	**$**	**3,906,100**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066670	Payment Adjustments For Price Index Fluctuations	LS	1	x	20,000.00	=	$	20,000
066094	Value Analysis	LS	1	x	50,000.00	=	$	50,000
066070	Maintain Traffic	LS	1	x	1,000,000.00	=	$	1,000,000
066919	Dispute Resolution Board	LS	1	x	30,000.00	=	$	30,000
066921	Dispute Resolution Advisor	LS	1	x	20,000.00	=	$	20,000
066015	Federal Trainee Program	LS	1	x	50,000.00	=	$	50,000
066610	Partnering	LS	1	x	100,000.00	=	$	100,000
066204	Remove Rock and Debris	LS		x		=	$	-
066222	Locate Existing Crossover	LS		x		=	$	-
XXXXXX	Some Item	Unit		x		=	$	-

Cost of NPDES Supplemental Work specified in Section 5D					=	$	190,000
Total Section 1-8	$	39,060,200		5%	=	$	1,953,010

TOTAL SUPPLEMENTAL WORK	**$**	**3,413,100**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066105	Resident Engineers Office	LS	1	x	1,423,800.00	=	$1,423,800
066063	Traffic Management Plan - Public Information	LS	1	x	76,000.00	=	$76,000
066901	Water Expenses	LS		x		=	
8609XX	Traffic Monitoring Station (X)	LS		x		=	
066841	Traffic Controller Assembly	LS		x		=	
066840	Traffic Signal Controller Assembly	LS		x		=	
066062	COZEEP Contract	LS	1	x	3,680,000.00	=	$3,680,000
066838	Reflective Numbers and Edge Sealer	LS		x		=	
066065	Tow Truck Service Patrol	LS		x		=	
066916	Annual Construction General Permit Fee	LS		x		=	
XXXXXX	Some Item	Unit		x		=	

Total Section 1-8 $ 39,060,200 = $ -

TOTAL STATE FURNISHED $5,179,800

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization $328,860,200 (used to calculate TRO)

Total Construction Cost (excluding TRO and Contingency) $364,559,200 (used to check if project is greater than $5 million excluding contingency)

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = **8%**

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead (Incl. TRO at 10% for Strct. Cost or $23.2M]	WD	1,900	X	$12,400	=	$23,560,000

TOTAL TIME-RELATED OVERHEAD $23,560,000

Note: If the building portion of the project is greater than 50% of the total project cost, then TRO is not included.

SECTION 13: ROADWAY CONTINGENCY

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-12 $ 75,119,200 x **15%** = $11,267,880

TOTAL CONTINGENCY $11,267,900

II. STRUCTURE ITEMS

	Bridge 1		**Bridge 2**		
DATE OF ESTIMATE	03/16/21		03/16/21		03/16/21
Bridge Name	Stockton Channel Viaduct		Pershing Ave Off-Ramp (to Park St)		All Retaining/MSE Walls
Bridge Number	29-0176		29-020S		(7 RWs & 4 MSEs)
Structure Type	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	204 LF (Avg)		29.5 LF		0 LF
Total Bridge Length (Feet)	2803.9 LF (bb/eb)		1145 LF		0 LF
Total Area (Square Feet)	571996 SQFT		33778 SQFT		71800 SQFT
Structure Depth (Feet)	0 LF		0 LF		0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$375		$207		$180
	(NOTE: Incl. Br. Rmvl. Cost)				(NOTE: 1 wall has piles)
COST OF EACH	**$214,500,000**		**$7,000,000**		**$8,400,000**

DATE OF ESTIMATE	03/16/21		00/00/00		00/00/00
Name	Temp MSE Walls (Pershing)		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx
Bridge Number	N/A		57-XXX		57-XXX
Structure Type	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	22 LF		0 LF		0 LF
Total Length (Feet)	580 LF		0 LF		0 LF
Total Area (Square Feet)	12760 SQFT		0 SQFT		0 SQFT
Structure Depth (Feet)	0 LF		0 LF		0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx		xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$145		$0		$0
COST OF EACH	**$1,900,000**		**$0**		**$0**

TOTAL COST OF BRIDGES		**$231,800,000**
TOTAL COST OF BUILDINGS		**$0**
Structures Mobilization Percentage	10%	**$23,200,000**

Recommended Contingency: (PR 15% not used due to complexity and size of project; 25% is used per structures direction and agreement by District)

Structures Contingency Percentage	25%	**$58,000,000**

[NOTE: TRO (10%) of $23.2 Millon is included in total Roadway Costs]

TOTAL COST OF STRUCTURES	**$313,000,000**

Estimate Prepared By: **Kyoung Lee** 3/26/2021

Kyoung Lee ------ Division of Structures — Date

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

					Current
A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	$		4,283,870
	A2)	SB-1210	$		
B)		Acquisition of Offsite Mitigation	$		137,149
C)	C1)	Utility Relocation (State Share)	$		2,345,750
	C2)	Potholing (Design Phase)	$		83,000
D)		Railroad Acquisition	$		0
E)		Clearance / Demolition	$		362,938
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$		125,000
G)		Title and Escrow	$		48,307
H)		Expert Witness	$		275,000
I)		Condemnation Settlements 0%	$		
J)		Design Appreciation Factor 0%	$		
K)		Ad Signs	$		187,500
				$	7,848,514
L)		**TOTAL RIGHT OF WAY ESTIMATE**			**$7,900,000**
M)		**TOTAL R/W ESTIMATE: Escalated**			**$9,100,000**
N)		**RIGHT OF WAY SUPPORT**			**$2,200,000**

Support Cost Estimate Prepared By	Chris Mishra	(209) 687-2514
	Project Coordinator[1]	Phone
Utility Estimate Prepared By	Stephen Woodfill	(209) 687-2479
	Utiliy Coordinator[2]	Phone
R/W Acquistion Estimate Prepared By	Sim Risso/Maryann Jacobs	(209) 687-2511 / (209) 687-2482
	Right of Way Estimator[3]	Phone

Note: Items G & H applied to items A + B

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

ATTACHMENT F
Right of Way Datasheet
Alternative 3
Preferred Alternative

STATE OF CALIFORNIA CALIFORNIA STATE TRANSPORTATION AGENCY

Memorandum

To: Sam Sherman
Stockton

Attn: Ashlyn Swan
Fresno
Anton Kismetian
Fresno

From: **Department of Transportation**
Division of Right of Way Central Region

Date: 6/8/2021

File: **CD** 10 **EA** 0X460 **Alt** 3 REV 1
Co SJ **RTE** 5

DESCRIPTION:
Replacement of the I-5 Stockton Channel Viaduct bridges in San Joaquin County.

Subject: **RIGHT OF WAY DATA SHEET**

We have completed an estimate of the right of way costs for the above-referenced project based on the Right of Way Data Sheet Request Form dated 4/8/2021

The following assumptions and limiting conditions were identified:

Parcels

General assumptions: This estimate is based upon the assumption that the information given on the R/W Data Sheet Request Form (dated 04/08/2021) and supplemental information obtained from Design is accurate; changes in the project requirements may change this R/W estimate.
•An interior inspection of the subject properties was not made by the estimator due to COVID-19 conditions. The estimator's personal inspection consisted of viewing the subject from the street frontage. The estimator also was unable to determine what may be in the TCE areas on Locations 4 and 5 due to COVID-19 conditions and being unable to personally inspect those areas. Assumptions were made on what would be affected using pictures from Design, satellite images from Google Earth, and what was visible from across the Stockton Channel.
•A hazardous waste study for the project has not been completed; however, asbestos is found in the shims of the Type 9 railing along the Stockton Channel Viaduct structures and hazardous yellow stripe paint along the structures has been identified. It is unknown what type and how much Hazardous Waste material is in the buildings within the State ROW that will be demolished.
•No railroad involement, despite BNSF Railroad being shown on the Title Sheet.
•State lands commission estimated cost of $20,000 included as part of acquisitions R/W dollars.
•Acquisition costs and demolition and clearance costs for airspace properties are included.
•According to Design, buildings within the TCE area will be worked around.
•Assumption was made that hydraulic boat lift at Location 4 can be moved. If affixed to the land, purchase is costly.

Right of Way Lead Time will require a minimum 21 months after we receive Certified Appraisal Maps and/or Utility Conflict Plans, obtained necessary environmental clearance and applicable freeway agreements have been approved.

Recommended for approval by:

JAMES GONZALEZ
Office Chief, Central Region Right of Way
(559)445-6219

Utility

Per Right of Way Data Sheet Engineer states that a utility permit search was completed and there is utility involvement and relocation required. Per Engineer several utility facilities are assumed to be with in project limits and requested 83 potholes to determine UG conflicts. This is a Freeway Project some utilities will fall under Master Agreement Liability Estimated at 50/50. This estimate was prepared based off information from previous R/W agent, plans and information provided by Engineer, and Google Earth search. Estimate should be revised as conflicts are better refined.

General Description of R/W and Excess Lands Required (zoning, use, major improvements, critical or sensitive parcels, etc.):

It is estimated that five temporary construction easements (TCEs) and one part take will be required from five separate parcels. All of the parcels are zoned industrial, while two are waterways. Miscellaneous improvements include an ODA, docks, hydraulic launch area, and two airspace structures. There is a potential for condemnation on five of the parcels. RAP for Location 4 and 5 is included for storage. State lands commission estimated cost of $20,000 as part of acquisitions R/W dollars. Demo and clearance on two airspace parcels included.

General Description of Utility Involvement:

The project proposes bridge rehabilitation for the Stockton Channel Viaduct Bridge No. 29-0176 L/R on I-5 in San Joaquin County from Pershing Ave to Weber Ave. Per Engineer the project proposes to relocate utility facilities within proximity of the project. North side of I-5: CalWater has a water line along the south side of Park St across and along the west side of Pershing Ave and along the south side of Fremont St beneath the bridge. City of Stockton has a storm drain line along Park St across Pershing Ave and beneath Pershing Ave off ramp within State ROW Leased Air-Space. PG&E has a gas line along south side of Park St across Pershing Ave. PG&E has 2 vault boxes and has an electrical line along the north side of Fremont St and beneath the Pershing Ave Off-ramp. AT&T has 2 poles and OH and UG telephone lines within the State ROW Lease Air-Space area and beneath the Pershing Ave Off-ramp. South side of I-5: CalWater has a water line along the north and south side of Weber Ave. City of Stockton has 5 fire hydrants. City of Stockton has a storm drain line along the south side of Weber Ave. City of Stockton has a sewer line within Morelli Park Area. PG&E has a gas line along the south side of Weber Ave. PG&E has an electrical line on the north and south side of Weber Ave and within the Morelli Park. AT&T has UG telephone lines along south side of Weber Ave.

General Description of Railroad Involvement:

No railroad facilities or rights of way will be affected. There is railroad property to the west and south of the project limits. Clauses to stay out of railroad right of way will be provided at cert.

Right Of Way Cost Estimate	Current Year 2021	Contingency Rate 25%	Escalation Rate 5%	Escalated Year 2024
Acquisition:	$4,283,870			**$4,959,115**
Mitigation:	$137,149	25%	5%	**$158,767**
State Share of Utilities:	$2,428,750	25%	5%	**$2,811,582**
Expert Witness:	$275,000	25%	5%	**$318,347**
Relocation Assistance:	$125,000	25%	5%	**$144,703**
Demolition and Clearance:	$362,938	25%	5%	**$420,146**
Title and Escrow:	$48,307	25%	5%	**$55,922**
Ad Signs:	$187,500	25%	5%	**$217,055**
Total Current Value:	$7,848,514			**$9,085,636**

If RW Cost Est fields are blank, Costs = $0

NOTE: above estimate includes railroad engineering in the amount of: $0.00

Estimated Construction Contract Work (CCW): 0 R/W LEAD TIME/Mo. 21

Estimated Potholing Date: 1/30/2023

Cost Break Down	
Pot Hole	83,000
# Pot Holes	83
Mitigation	
Land	0
Bank	80,000
Permit Fees	29,719

Parcel Area

Total R/W Required:	1.64
Total Excess Area:	0

Parcel Data

# of Parcel Type X:	0	
# of Parcel Type A: less than $10,000 non-complex	0	
# of Parcel Type B: more than $10,000 non-complex	3	
# of Parcel Type C: complex, special valuation	2	
# of Parcel Type D: most complex/time consuming	0	# of Duals Needed: 0
Totals:	5	**Totals:** 0

# of Excess Parcels: 0

Misc R/W Work

# of RAP Displacements:	2
# of Clearance/Demos:	2
# of Const Permits:	0
# of Condemnations:	5

RR Involvement

Railroad Facilities or Right of Way Affected?	No
Const/Maint Agreement:	No
Service Contract Count:	0
Right of Entry:	No
Clauses:	Yes
Estimated Lead-time:	No

Utilities

4 Companies to be potholed
4 Companies for Verification
4 Companies for Utility Relocation
JUA/CCUAs are not needed

Is there a significant effect on assessed valuation: No

Were any previously unidentified sites with hazardous waste or material found: No

Are RAP displacements required: Yes

# of single family: 0 # of muliti-family: 0 # of business/nonprofit: 2 # of farms: 0

Sufficient replacement housing will be available without last resort housing: Yes

Are material borrow or disposal sites required: No

Are there potential relinquishments or abandonments: No

Are there any existing or potential airspace sites: Yes

Are environmental mitigation parcels required: Yes

Data for evaluation provided by:

Estimator:	Sim Risso	5/20/2021
Railroad Liaison Agent:	Michelle Hernandez	5/2/2021
Utility Relocation Coordinator:	Matt Edwards	6/8/2021

I have personally reviewed this Right of Way Sheet and all supporting information. I find this Data Sheet complete and current, subject to the limiting conditions set forth.

JAMES GONZALEZ
Office Chief, Central Region Right of Way

Date
ENTERED PMCS
BY: Nichole Beebe-Pence

Mitigation and Compliance Cost Estimate (MCCE)

PART 1 - PROJECT INFORMATION

DIST-CO-RTE: 10 - SJ - 005 **PM/PM:** 26.500/26.500

EA/Project Number: 10-0X460_ / 1012000259

Project Name: STOCKTON CHANNEL VIADUCT BRIDGE REHAB

Form Completed by: Jon Coley

Project Manager: SHERMAN, SAMUEL E **Phone:** (209) 948-78890

Date: 4/30/2021

MCCE Phase prepared for: FED

PART 2 - ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

Environmental Commitments for Alternative: 2

Commitment	Design $	FY	Ac/Crd	ROW $ Planned	FY	ROW $ Actual	Pd	Construction $	FY
Archaeological									
Monitoring							☐	$150,000	22/23
ESA Fencing							☐	$14,500	22/23
Biological									
Contractor Supplied Biologist							☐	$400,000	24/25
Natural Resource Protection							☐	$5,000	24/25
Bird Exclusion							☐	$50,000	24/25
Bat Exclusion							☐	$20,000	24/25
Biological Resource Info							☐	$1,500	24/25
Underwater Sound Attentuation							☐	$80,000	24/25
Bank Credits -- Delta Fish				$80,000	24/25		☐		
Annual 401 Fee				$1,638	19/20	$1,638	☑		
Annual 401 Fee				$1,638	24/25		☐		
Annual 401 Fee				$1,638	25/26		☐		
Annual 401 Fee				$1,638	26/27		☐		
Annual 401 Fee				$1,638	27/28		☐		
On site tree planting							☐	$25,000	23/24
Hazardous Waste									
Lead Compliance Plan							☐	$2,500	24/25
PSI (soil)	$160,000	21/22					☐	$10,000	24/25
PSI (Lead&Asbestos)	$30,000	21/22					☐		
Paleontological									
PMP	$12,000	24/25					☐		

Monitoring							☐	$75,000	22/23

PART 3 - PERMITS AND AGREEMENTS

Permit/Agreement	ROW $ Planned	FY	ROW $ Actual	Pd	Construction $	FY
CEQA Review	$2,480.25	20/21	$2,480.25	☑		
1600	$5,603	23/24		☐		
1600	$5,603	17/18	$5,603	☑		
401	$3,317	23/24		☐		
401 Pre-Certified	$1,500	17/18	$1,500	☑		
NOI/NOT (Stormwater)				☐	$1,452	24/25

TOTAL	$202,000	$109,719.04	$11,221.25	$834,952	

Approved by:

Scott Guidi	C. Scott Guidi	4/30/2021
Environmental Branch Chief (Print Name)	Signature	Date

If Right of Way Capital is needed:

Sara Blum	Sara Blum	4/30/21
Right-of-Way Office Chief (Print Name)	Signature	Date

If cultural and biology mitigation totals more than $500,000:

Philip Vallejo	Philip Vallejo	4/30/2021
Environmental Office Chief (Print Name)	Signature	Date

Submitted to PM on: 4/30/21 **Initial** JC

Comments (explanation and risk management plan attached)

Archaeological monitoring would be required for ESA integrity.
Mitigation credits are required for Delta Fish.
Stockpiling and sampling and LCP would be required.

-PSI (Soil) was increased from $50K to $160K-based on new estimates.
-Updated Lead and Asbestos surveys from $20K to $30K.
- New line item added to BEES for on-site tree planting per NMFS BO- $25K

ATTACHMENT G
Final Environmental Document

Stockton Channel Viaduct Bridge Improvements

In San Joaquin County on Interstate 5 in the city of Stockton at the
Channel Viaduct Bridge
10-SJ-5-PM 26.1-27.6
EA 10-0X460 and Project ID 1012000259
State Clearinghouse Number 2017072033

Initial Study
with Mitigated Negative Declaration/
Environmental Assessment and Section 4(f) Evaluation with
Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code 327 and the Memorandum of Understanding dated December 23, 2016, and executed by the Federal Highway Administration and Caltrans.

April 2021

Caltrans

General Information About This Document

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, has prepared this Initial Study/Environmental Assessment for the project in San Joaquin County in California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is the lead agency under the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives have been considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

The Initial Study/Draft Environmental Assessment and Section 4(f) Evaluation was published to the public for 30 days between February 4, 2021, and March 4, 2021. Comments received during this period are included in Appendix G. In the rest of the document, language has been added to indicate where a change has been made since the circulation of the draft environmental document. Minor editorial changes and clarifications have not been so indicated.

Section 2.2.1 Hydrology and Floodplain has been added after the draft environmental document completed circulation.

Please contact C. Scott Guidi at 209-990-5719 or by email at Scott.Guidi@dot.ca.gov if you would like a printed version or compact disc of this document or related technical studies to be sent to your home address. This document may be downloaded at the following website: https://dot.ca.gov/caltrans-near-me/district-10.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to or call Caltrans, Attention: Scott Guidi, Central Region Environmental, 1976 East Doctor Martin Luther King Junior Boulevard, Stockton, California, 95205; 209-990-5719 (Voice), or use the California Relay Service 1-800-735-2929 (Teletype), 1-800-735-2929 (Voice), or 711.

State Clearinghouse Number 2017072033
10-SJ-5-PM 26.1-27.6
EA 10-0X460 and Project ID 1012000259

Stockton Channel Viaduct Bridge Improvements on Interstate 5 from post miles 26.1 to 27.6 in San Joaquin County

INITIAL STUDY
with Mitigated Negative Declaration/
ENVIRONMENTAL ASSESSMENT and Section 4(f) Evaluation

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C), 23 U.S. Code 138 and 49 U.S. Code 303

THE STATE OF CALIFORNIA
Department of Transportation

Philip Vallejo

Philip Vallejo
Environmental Office Chief, North
California Department of Transportation
NEPA and CEQA Lead Agency

4/29/2021
Date

The following individual can be contacted for more information about this document:

C. Scott Guidi, California Department of Transportation, District 10, 1976 East Doctor Martin Luther King Junior Boulevard, Stockton, California, 95205; 209-990-5719

CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR

Stockton Channel Viaduct Bridge Improvements

The California Department of Transportation (Caltrans) has determined that Build Alternative 3 will have no significant impact on the human environment. This Finding of No Significant Impact is based on the attached Environmental Assessment, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached Environmental Assessment.

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code 327 and the Memorandum of Understanding dated December 23, 2016, and executed by the Federal Highway Administration and Caltrans.

Philip Vallejo

Philip Vallejo,
Environmental Office Chief, North
California Department of Transportation
NEPA and CEQA Lead Agency

4/29/2021

Date

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

State Clearinghouse Number 2017072033

District-County-Route-Post Mile: 10-SJ-5-PM 26.1-27.6

EA/Project Identification: EA 10-0X460 and Project ID 1012000259

Project Description

The California Department of Transportation (Caltrans) will replace the northbound and southbound Stockton Channel Viaduct Bridges (Bridge Numbers 29-0176L and 29-0176R) in the City of Stockton on Interstate 5 from post miles 26.1 to 27.6.

Determination

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the project will not have a significant effect on the environment for the following reasons:

The project will have no effect on aesthetics, agriculture and forest resources, energy, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, population and housing, and wildfire.

The project will have no significant effect on air quality, cultural resources, greenhouse gas emissions, hydrology and water quality, noise, public services, recreation, transportation, tribal cultural resources, and utilities and service systems.

On the basis of this study, it is determined that the action with the incorporation of the identified mitigation measures will not have a significant effect on biological or paleontological resources for the following reasons:

- Compensatory Mitigation—Compensatory conservation measures will be used in the form of Conservation Bank Credits and a Replanting Plan to reduce incidental take due to the loss of Federal Endangered Species Act species or for potential adverse effects to critical habitat.
- Project-Specific Paleontological Mitigation Plan—A qualified principal paleontologist will prepare a project-specific paleontological mitigation plan. Implementation of the plan will ensure that the project will not have a significant effect on potential paleontological resources discovered during construction activities.

Philip Vallejo

Philip Vallejo
Environmental Office Chief, North
California Department of Transportation

4/29/2021

Date

National Environmental Policy Act (NEPA) Assignment

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 U.S. Code 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Barack Obama on July 6, 2012, amended 23 U.S. Code 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a Memorandum of Understanding pursuant to 23 U.S. Code 327 (NEPA Assignment Memorandum of Understanding) with the Federal Highway Administration. The NEPA Assignment Memorandum of Understanding became effective October 1, 2012, and was renewed on December 23, 2016, for a term of 5 years. In summary, Caltrans continues to assume Federal Highway Administration responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, the Federal Highway Administration assigned, and Caltrans assumed all of the U.S. Department of Transportation Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that the Federal Highway Administration assigned to Caltrans under the 23 U.S. Code 326 Categorical Exclusion Assignment Memorandum of Understanding, projects excluded by definition, and specific project exclusions.

Summary

The California Department of Transportation (Caltrans) will replace the northbound and southbound Stockton Channel Viaduct Bridges (Bridge Numbers 29-0176L and 29-0176R) in the City of Stockton on Interstate 5 from post miles 26.1 to 27.6. Caltrans will replace the superstructures of the existing bridges, including decks, girders, railings, diaphragms, and expansion joints. The project will also replace the substructure, including existing abutments, wingwalls, and piers, to meet the current standards of the American Association of State Highway and Transportation Officials Load and Resistance Factor Design.

The following alternatives were considered through the environmental process. Through alternative impact analysis and public outreach, the Project Development Team has selected Build Alternative 3 as the preferred alternative, which is discussed in Section 1.6 of this document.

The minor rehabilitation alternative (Build Alternative 1A) was estimated to cost $228.2 million and would have required a two-year construction window (one construction year is equal to 220 working days within a calendar year). Build Alternative 1A would have replaced the road deck (superstructure), strengthened existing steel girders and lateral bracing, upgraded the substructure of the bridge abutments, and rehabilitated the bridge foundations.

Another rehabilitation alternative (Build Alternative 2) was estimated to cost $341.4 million and would have required a four-year construction window. Build Alternative 2 would have replaced the structure above (superstructure) and improved the existing substructure and foundation of the Stockton Channel Viaduct Bridge.

The replacement alternative (Build Alternative 3) was estimated to cost $407.3 million and would have required an eight-year construction window. Build Alternative 3 would have required the full replacement of the bridge, including the superstructure, substructure, and foundations.

Section 1.4 discusses the three Build Alternatives and the No-Build Alternative in detail for the project. The following table provides a summary of the results of the environmental studies and shows the potential impacts for each alternative.

Summary of Potential Impacts from Alternatives

Potential Impact	Build Alternative 1A	Build Alternative 2	Build Alternative 3	No-Build Alternative
Land Use—Consistency with the City of Stockton General Plan	The project is consistent with the City of Stockton General Plan.	The project is consistent with the City of Stockton General Plan.	The project is consistent with the City of Stockton General Plan.	No impacts
Land Use—Consistency with the San Joaquin County General Plan	The project is consistent with the San Joaquin County General Plan.	The project is consistent with the San Joaquin County General Plan.	The project is consistent with the San Joaquin County General Plan.	No impacts
Coastal Zone	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Wild and Scenic Rivers	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Parks and Recreational Facilities	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: No impacts.
Farmlands and Timberlands	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Growth	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts
Community Character and Cohesion	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts
Relocations and Real Property Acquisition—Business Displacements	No adverse impacts: Business displacement of 10 units under an airspace lease agreement and one parcel acquisition for a proposed storm basin.	No adverse impacts: Business displacement of 10 units under an airspace lease agreement and one parcel acquisition for a proposed storm basin.	No adverse impacts: Business displacement of 10 units under an airspace lease agreement and one parcel acquisition for a proposed storm basin.	No adverse impacts
Relocations and Real Property Acquisition—Housing Displacements	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts

Potential Impact	Build Alternative 1A	Build Alternative 2	Build Alternative 3	No-Build Alternative
Relocations and Real Property Acquisition—Utility Service Relocation	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts
Environmental Justice	No adverse impacts on minority or low-income populations.	No adverse impacts on minority or low-income populations.	No adverse impacts on minority or low-income populations.	No adverse impacts
Utilities and Emergency Services	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: No impacts.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: No impacts.
Visual/Aesthetics	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts.
Cultural Resources	NEPA: No adverse impacts. CEQA: Less than significant impacts with Standard Measures.	NEPA: No adverse impacts. CEQA: Less than significant impacts with Standard Measures.	NEPA: No adverse impacts. CEQA: Less than significant impacts with Standard Measures.	NEPA: No adverse impacts. CEQA: No impacts.
Hydrology and Floodplain	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	No adverse impacts
Water Quality and Stormwater Runoff	NEPA: No adverse impacts. CEQA: Less than significant impact —Best Management Practices would protect water quality from short-term construction activities.	NEPA: No adverse impacts. CEQA: Less than significant impact —Best Management Practices would protect water quality from short-term construction activities.	NEPA: No adverse impacts. CEQA: Less than significant impact —Best Management Practices would protect water quality from short-term construction activities.	No adverse impacts
Geology, Soils, Seismicity and Topography	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.

Potential Impact	Build Alternative 1A	Build Alternative 2	Build Alternative 3	No-Build Alternative
Paleontology	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: Potential adverse impacts from temporary construction activities will be lessened with the implementation of a paleontology mitigation plan. CEQA: Less than significant impact with paleontology mitigation plan incorporated.	NEPA: Potential adverse impacts from temporary construction activities will be lessened with the implementation of a paleontology mitigation plan. CEQA: Less than significant impact with paleontology mitigation plan incorporated.	NEPA: No adverse impacts. CEQA: No impacts.
Hazardous Waste and Materials	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Air Quality	NEPA: No adverse impacts. CEQA: Less than significant impacts from construction activities.	NEPA: No adverse impacts. CEQA: Less than significant impacts from construction activities.	NEPA: No adverse impacts. CEQA: Less than significant impacts from construction activities.	NEPA: No adverse impacts. CEQA: No impacts.
Noise and Vibration	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: Less than significant impact.	NEPA: No adverse impacts. CEQA: No impacts.
Energy	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Natural Communities	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.

Potential Impact	Build Alternative 1A	Build Alternative 2	Build Alternative 3	No-Build Alternative
Wetlands and Other Waters	NEPA: No adverse impacts to wetlands, however temporary adverse impacts to Other Waters of the U.S. Effects will be mitigated with compensatory actions. CEQA: No impacts to wetlands; however, it would have temporary construction impacts to Other Waters of the U.S. and will be less than significant with mitigation incorporated through compensatory actions.	NEPA: No adverse impacts to wetlands, however temporary adverse impacts to Other Waters of the U.S. Effects will be mitigated with compensatory actions. CEQA: No impacts to wetlands; however, it would have temporary construction impacts to Other Waters of the U.S. and will be less than significant with mitigation incorporated through compensatory actions.	NEPA: No adverse impacts to wetlands, however temporary adverse impacts to Other Waters of the U.S. Effects will be mitigated with compensatory actions. CEQA: No impacts to wetlands; however, it would have temporary construction impacts to “Other Waters of the U.S. and will be less than significant with mitigation incorporated through compensatory actions.	NEPA: No adverse impacts. CEQA: No impacts.
Plant Species	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Animal Species	NEPA: Temporary adverse impacts from construction activities to special-status fish and animal species. Effects will be lessened with avoidance and minimization measures. CEQA: Less than significant impact with avoidance and minimization measures.	NEPA: Temporary adverse impacts from construction activities to special-status fish and animal species. Effects will be lessened with avoidance and minimization measures. CEQA: Less than significant impact with avoidance and minimization measures.	NEPA: Temporary adverse impacts from construction activities to special-status fish and animal species. Effects will be lessened with avoidance and minimization measures. CEQA: Less than significant impact with avoidance and minimization measures.	NEPA: No adverse impacts. CEQA: No impacts.

Potential Impact	Build Alternative 1A	Build Alternative 2	Build Alternative 3	No-Build Alternative
Threatened and Endangered Species	NEPA: Temporary adverse impacts from construction activities to species and habitat. Impacts will be lessened with compensatory mitigation measures. CEQA: Temporary construction impacts and potential "take" of Federal Endangered Species and Habitat will be mitigated to less than significant with compensatory mitigation.	NEPA: Temporary adverse impacts from construction activities to species and habitat. Impacts will be lessened with compensatory mitigation measures. CEQA: Temporary construction impacts and potential "take" of Federal Endangered Species and Habitat will be mitigated to less than significant with compensatory mitigation.	NEPA: Temporary adverse impacts from construction activities to species and habitat. Impacts will be lessened with compensatory mitigation measures. CEQA: Temporary construction impacts and potential "take" of Federal Endangered Species and Habitat will be mitigated to less than significant with compensatory mitigation.	NEPA: No adverse impacts. CEQA: No impacts.
Invasive Species	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Cumulative Impacts	No adverse impacts	No adverse impacts	No adverse impacts	No adverse impacts
Wildfire	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.	NEPA: No adverse impacts. CEQA: No impacts.
Climate Change	Less than significant impacts	Less than significant impacts	Less than significant impacts	No impacts

After comparing the impact analysis for all three Build Alternatives, Caltrans has chosen Build Alternative 3 as the preferred alternative and is discussed in Section 1.6- Identification of the Preferred Alternative.

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is also the lead agency under the California Environmental Quality Act (CEQA).

Caltrans proposes to replace the Stockton Channel Viaduct Bridges in the City of Stockton on Interstate 5 from post miles 26.1 to 27.6 to meet current American Association of State Highway and Transportation Officials standards for Load and Resistance Factor Design.

The project is included in the 2016 State Highway Operations and Protection Program with funding from the Bridge Rehabilitation and Replacement Program. It is also included in the San Joaquin Council of Governments' Federal Transportation Improvement Program under Administrative Modification 9 to the San Joaquin Council of Governments' 2019 Federal Transportation Improvement Program.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the project is to ensure the long-term serviceability and structural integrity and improve the permit load rating of the Stockton Channel Viaduct Bridges (Bridge Numbers 29-0176L and 29-0176R) on Interstate 5 in San Joaquin County.

1.2.2 Need

The project is needed because of structural deficiencies and continued bridge repairs. The bridges show concrete and steel superstructure/foundation deficiencies. The deficiencies include a long-standing issue of concrete deck deterioration resulting in ongoing maintenance challenges, freckled rust forming at various locations throughout the superstructure steel elements, damaged steel bracing, and cracking in the concrete retaining walls, bents, and columns. Substructure deficiencies, such as soil liquefaction potentially caused by seismic activity, are also prevalent. Additionally, the current structures are not rated to accommodate permit loading, which is required for goods movement.

The project must meet a requirement for Independent Utility and Logical Termini. Independent utility, or independent significance, is defined as being a usable and reasonable expenditure even if no additional transportation improvements in the area are made. Logical termini are defined as (1) rational end points for transportation improvement and (2) rational end points for a review of the environmental impacts. The project's independent utility is the need to replace deteriorating existing bridge structures on Interstate 5 and improve the permit loading of the bridges. All the elements that define the project are not dependent on the construction of any other state or federal highway system improvement. This project will stand on its own and has rational start and end points for construction and the environmental study area.

1.3 Project Description

The project lies in San Joaquin County on Interstate 5 from post miles 26.1 to 27.6 over and near the Stockton Deep Water Channel. The total length of the project is 1.6 miles, with the bridgework occurring between post miles 26.4 to 27.06. The project's construction limit begins south of the Interstate 5/State Route 4 Separation and ends near the Carlton Avenue Undercrossing structures. Current traffic data show the two bridge structures service about 133,000 vehicles a day, 19 percent of which is truck traffic.

Caltrans considered replacing or rehabilitating the existing Stockton Channel Viaduct Bridge structures (Bridge Numbers 29-0176L and 29-0176R). The following alternatives were considered through the environmental process, the alternative impact analysis, and public outreach. The Project Development Team has selected Build Alternative 3 as the preferred alternative, which is discussed in Section 1.6 of this document.

The rehabilitation work would have consist of removing and replacing the bridge decks, railings, diaphragms, and expansion joints, as well as repairing/strengthening steel elements, including girders and lateral bracing. The replacement work will consist of removing and replacing the superstructure, bents/columns, and foundations. The project considered replacing or rehabilitating the existing abutments, wingwalls, and piers to meet current Load and Resistance Factor Design standards of the American Association of State Highway and Transportation Officials.

Figures 1-1 shows the project vicinity map; Figure 1-2 shows the project location map. Figure 1-3 shows the potential construction staging area and additional areas needed for equipment and material storage necessary for the construction of the improvements.

The project considered two other improvements—relocating and replacing the Pershing Avenue off-ramp with a braided structure and building a pedestrian

and bicycle path structure along the east side of the Pershing Avenue off-ramp structure. However, due to funding constraints and the Federal Highway Administration's assessment that the proposed Pershing off-ramp will increase capacity and will be a project of air quality concern, these improvements were not included in this project.

This project contains several standardized project measures that are used in most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the project. These measures are discussed in more detail throughout the document in the Construction Impacts Section in Chapter 2.

Figure 1-1 Project Vicinity Map

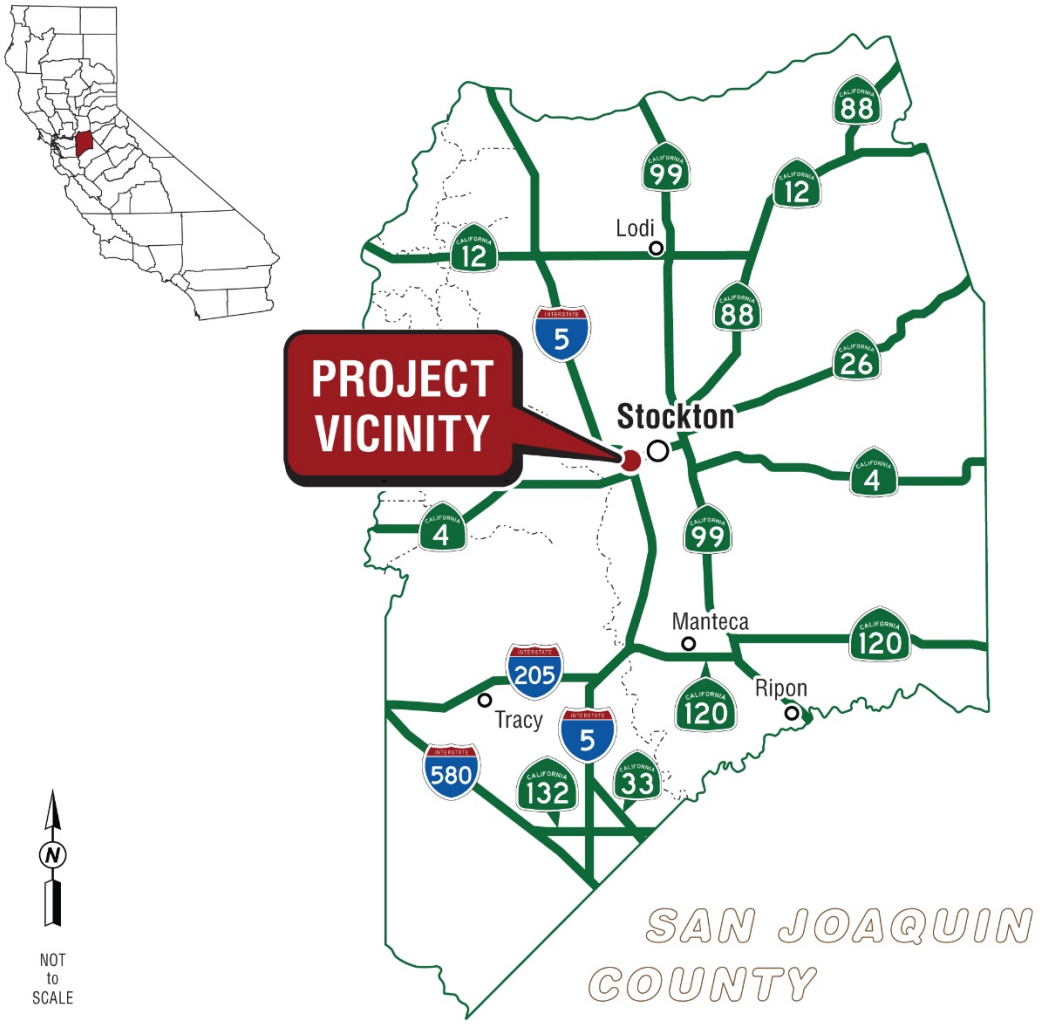
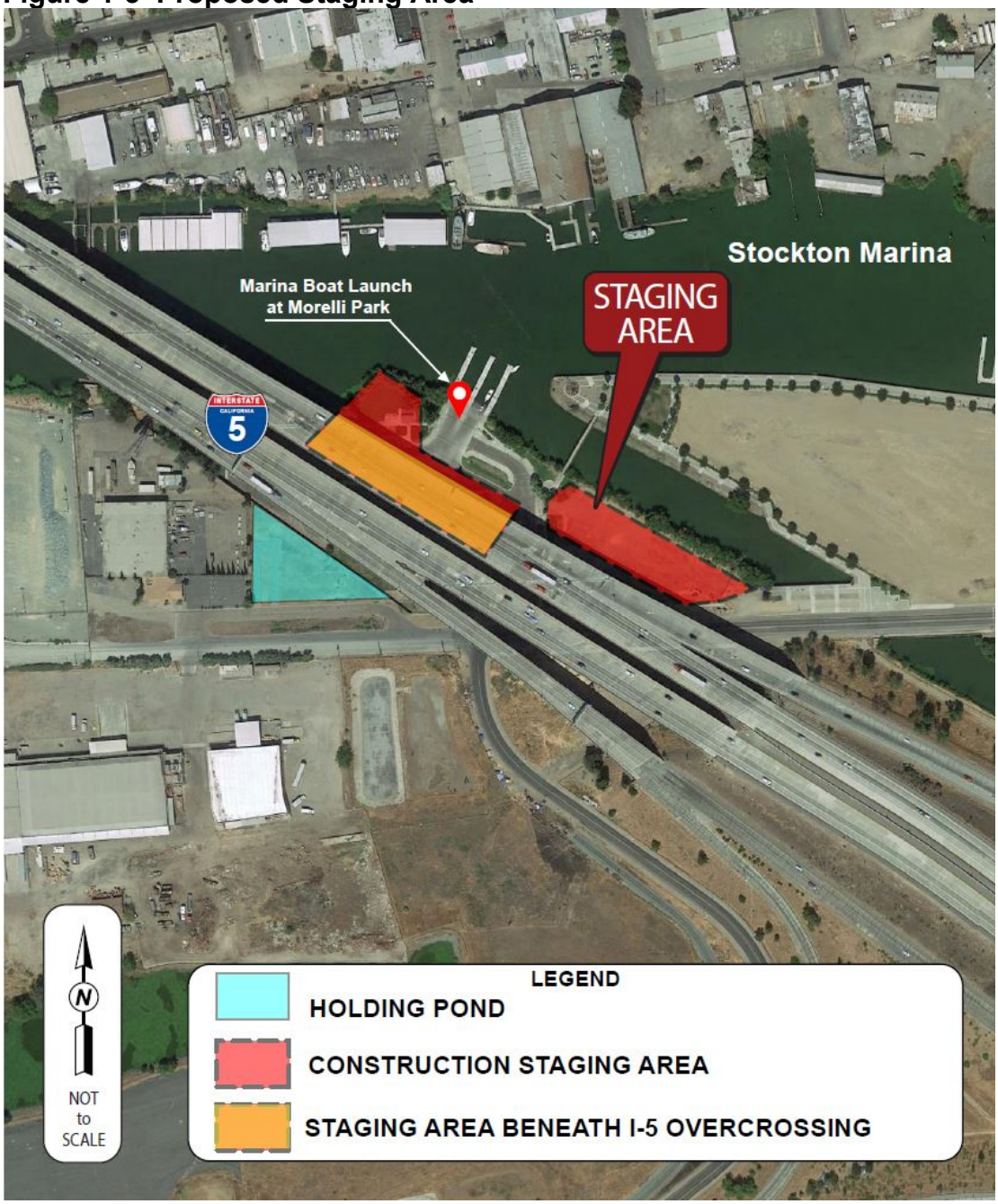


Figure 1-2 Project Location Map

Figure 1-3 Proposed Staging Area



1.4 Project Alternatives

This section describes the project alternatives developed to meet the purpose and need of the project. The alternatives include three Build Alternatives—Build Alternative 1A, minimum rehabilitation (not replacing steel girders); Build Alternative 2, rehabilitation (not replacing steel girders); and Build Alternative 3, full bridge replacement—as well as the No-Build Alternative. All Build Alternatives meet the purpose and need of the project and are

environmentally and financially comparable, with Build Alternative 1A being the cheapest and Build Alternative 3 the most expensive.

1.4.1 Build Alternatives

Common Design Features

- All Build Alternatives will require additional right-of-way and temporary construction easements. The temporary construction easements are required for work along the channel outside the existing state right-of-way. Additionally, 7.5 acres of additional temporary construction easements are estimated to be required for building the project. Permanent right-of-way acquisition is required for the drainage basin south of the channel on the west side of Interstate 5. For that, 0.9 acre of permanent right-of-way is estimated to be required.
- Structures will be designed to accommodate heavy permitted loads.
- Structures will be designed using Load and Resistance Factor Design, Edition 6.
- Bridge deck surfaces will be replaced with normal-weight concrete on Interstate 5 in both directions, including connectors/auxiliary lanes and the structure portion of the Pershing Avenue off-ramp.
- Permanent median closure on the Stockton Channel Viaduct Bridge, with concrete barriers, will be implemented to maintain acceptable traffic operation along Interstate 5 and the connectors.
- In-water work, including dewatering a section of the Stockton Channel, will occur. A temporary retention basin will be built for dewatering discharge.
- Pavement north and south of the Stockton Channel Viaduct Bridge structures on Interstate 5, including portions of the existing connectors and ramps, will be replaced.
- Portions of the median barriers and guardrails will be replaced.
- Part of a sound wall atop concrete barriers along the outside of northbound Interstate 5, north of the Stockton Channel, will be replaced.
- Drainage systems will be replaced or modified.
- Tree removal, clearing, and grubbing will occur to accommodate the new off-ramp access point and road approach work.
- A traffic management plan will facilitate traffic operation during construction. Construction is expected to involve night work. Night work and temporary lane closures will be required on Interstate 5. Short-term detours for local streets and long-term detours for Interstate 5 will be required.

- A construction staging area has been identified for storing construction equipment and materials (see Figure 1-3).
- Existing airspace leases for businesses north of the Stockton Deep Water Channel and the city's park/boat launch south of the Stockton Deep Water Channel will be suspended or terminated during construction.

Build Alternatives—Differentiating Design Features

Build Alternative 1A—Minimum Bridge Rehabilitation

Build Alternative 1A would have rehabilitated the existing superstructure and strengthened the substructure elements of the Stockton Channel Viaduct Bridges on Interstate 5. This alternative would have improved the structure permit load for up to a 9-axle vehicle.

Work unique to Build Alternative 1A includes the following:

- Replace portions of the superstructure, which includes the decking (road surface), bridge railings, and bearings.
- Rehabilitate portions of the superstructure, which includes strengthening the existing steel girders and steel lateral bracing elements.
- Upgrade the superstructure at the bridge abutments and the bottom of the bents/columns of the bridge to improve load-bearing. Rehabilitation of the abutments includes repair of cracks in the wingwalls and retaining walls. Rehabilitation of the foundations includes reconstruction of pier caps and reconstruction of the reinforcement from the pier caps connecting the bents and columns.

Build Alternative 1A would have required additional right-of-way for temporary construction easements, which would have been required for work along the channel outside the existing state right-of-way. Also, an estimated 7.5 acres of temporary construction easements would have been required.

These improvements were estimated to cost $228.2 million and would have required a two-year construction window (one construction window is about 220 working days within a calendar year). It was generally believed that Build Alternative 1A could have provided an estimated 15-year to 20-year service life.

Build Alternative 2—Bridge Rehabilitation

Build Alternative 2 would have replaced the existing superstructure and strengthened the superstructure elements of the Stockton Channel Viaduct Bridge on Interstate 5. This alternative would have improved the structure permit load for up to a 15-axle vehicle.

Work unique to Build Alternative 2 includes the following:

- Replace the superstructure, which includes the decking (road surface), girder (large web beams), railing, bearings, and steel lateral bracing elements.
- Upgrade the substructure at the bridge abutments and the bottom of the bents/columns of the bridge to improve load-bearing. Rehabilitation of the abutments includes repair of cracks in the wingwalls and retaining walls. Rehabilitation of the foundations includes reconstruction of pier caps and reconstruction of the reinforcement from the pier caps connecting to the bents/columns.
- Rehabilitation work also includes additional piles at various foundations with either cast-in-drilled-holes and/or cast-in-steel-shell piles within and outside the Stockton Deep Water Channel.

These improvements were estimated to cost $341.4 million and would have required a four-year construction window (one construction year is equal to 220 working days within a calendar year). It is generally believed that Build Alternative 2 would have provided an estimated 30-year to 50-year service life.

Build Alternative 3—Bridge Replacement

Build Alternative 3 will replace both structures of the Stockton Channel Viaduct Bridge on Interstate 5; it will also replace the Park Street Undercrossing along the Pershing Avenue off-ramp. This alternative will improve the structure permit load for up to a 15-axle vehicle.

Work unique to Build Alternative 3 includes the following:

- Remove existing structures and build bridges for northbound and southbound Interstate 5 and portions of various connector ramps.
- Realign a portion of Weber Avenue beneath and east of the existing bridges, south of the Stockton Deep Water Channel. This will involve removing a portion of Weber Avenue and building a new intersection at Washington Street, south of the existing intersection.
- Build large bents/columns to support the superstructure and connect to the foundations.
- Build foundations, including cast-in-drilled-hole piles and/or cast-in-steel-shell piles within and outside the Stockton Deep Water Channel.
- Build various retaining walls (i.e., concrete walls with foundations and/or mechanically stabilized earthen walls) for retaining embankment due to an increase in roadway profile/elevation at the approximate locations as follows:
    - North and south of the structures along Interstate 5**.**
    - Along portions of the State Route 4/Interstate 5 connectors.

- Along the entire Pershing Avenue off-ramp, north of the viaduct structure portion.
- Along the Fremont Street off-ramp, north of the viaduct structure portion.

Build Alternative 3 will be built in three stages:

- **Stage 1—Center Span:** This stage will build a new 56-foot-wide center span and build the paved portions of the median to the north and south of the Stockton Channel Viaduct Bridges.
  - Included in this stage will be a portion of the crossover for Stage 2, Phase 1 southbound Interstate 5 to eastbound State Route 4 temporary connector access.
  - This stage will also build a stormwater basin in the southwest area for dewatering needs.
- **Stage 2—Southbound Interstate 5:** This stage will build the 62-foot-wide southbound Stockton Channel Viaduct Bridge.
  - Phase 1: Build Stockton Channel Viaduct Bridge and a portion of the roadway north of the bridge.

    Includes removal and construction of the Fremont Street on-ramp, Fremont Street off-ramp, a portion of the southbound Interstate 5 to State Route 4 connector exit area, and the westbound State Route 4 connector work.
  - Phase 2: Build the remaining portions of the southbound Interstate 5 roadway south of the Stockton Channel Viaduct Bridge and remove any existing temporary crossover.
  - Phase 3: Build major portions of the temporary Pershing Avenue off-ramp east of the Interstate 5 sound wall. Build a portion of the temporary crossover between State Route 4 and northbound Interstate 5.
- **Stage 3—Northbound Interstate 5:** This stage will build the 62-foot-wide northbound Stockton Channel Viaduct Bridge.
  - Phase 1: Build the northern portion of the Stockton Channel Viaduct Bridge north of the Stockton Deep Water Channel and portions of the roadway north of the end of the bridge.

    Construction includes a retaining wall for the forthcoming sound wall along northbound Interstate 5 north of the bridge.

    Construction includes placement of signing and striping for the temporary Pershing Avenue off-ramp to be used in Phase 2.
  - Phase 2: Build the remaining portion of the Stockton Channel Viaduct Bridge over and south of the Stockton Deep Water Channel and the roadway portion of the State Route 4 to Interstate 5 connector.

- Phase 3: Build all remaining work:

  Build the northbound interstate roadway portions south of the bridge.

  Remove the temporary crossover used in Phase 1.

  Build the sound wall and barrier along Interstate 5, north of the bridge.

  Remove the temporary Pershing Avenue off-ramp.

  Build the new Weber Avenue realignment.

- For Build Alternative 3 only, design options have been submitted with two options for the final Pershing Avenue off-ramp:
  - Option 1: The Stockton Channel Viaduct Bridge will end at its current location, and the existing retaining wall will be used to tie into the existing Park Street Undercrossing for the Pershing Avenue off-ramp and roadway.
  - Option 2: Extend the Stockton Channel Viaduct Bridge to the north side of Park Street, removing existing retaining walls and/or embankment between Oak Street and Park Street. Replace the Park Street Undercrossing with bridge extensions. New columns and foundations will need to be built.

These improvements are estimated to cost $407.3 million and will require an eight-year construction window. Build Alternative 3 will provide an estimated 75-year service life.

1.4.2 No-Build (No-Action) Alternative

Under the No-Build Alternative, Caltrans will not improve the Stockton Channel Viaduct Bridge. This alternative will not meet the project's purpose and need because the bridge will remain unchanged, and the structural integrity of the structures will not improve.

1.5 Comparison of Alternatives

Three Build Alternatives were proposed for the Stockton Channel Viaduct Bridge, in addition to a No-Build Alternative, as identified in this Initial Study/Environmental Assessment. A comparison of the environmental effects for the project is provided in the Summary Table at the beginning of this document.

Build Alternative 1A has the least environmental impacts, is the cheapest, and has the shortest construction schedule. In addition to Build Alternative 1A's scope of work, Build Alternative 2 includes new steel girders and additional foundation work. However, Build Alternative 3 has the longest construction schedule, the most environmental impacts, and is the most expensive. For environmental impacts, Build Alternatives 2 and 3 are similar except for two

elements—Relocations and Real Property Acquisition/Utility and Service Relocation and impacts to the waterway (Stockton Deep Water Channel). Detailed discussions of the environmental impacts from both Build Alternatives are provided in Chapters 2 and 3.

For cost and construction schedule, respectively, for each Build Alternative, Build Alternative 1A is estimated at $228.2 million and 2 years; Build Alternative 2 is estimated at $341.4 million and 4 years; Build Alternative 3 is estimated at $407.3 million and 8 years.

1.6 Identification of a Preferred Alternative

The Project Development Team evaluated the three Build Alternatives—Build Alternative 1A, Build Alternative 2, and Build Alternative 3—and the No-Build Alternative for engineering and environmental considerations, including cost, environmental impacts, and value. The draft environmental document was circulated to the public and various agencies for comments. A virtual open house was held to gather additional input and comments. Taking into consideration the comments received by the public and evaluations by Caltrans, it was recommended on March 22, 2021, by the Project Development Team, including stakeholders from the San Joaquin Council of Governments and the City of Stockton, that Build Alternative 3, full bridge replacement with design option 2, will be selected as the preferred alternative for this project. The basis for the recommendation is as follows:

- Build Alternative 3 meets the project's purpose and need; it provides the greatest improvements to the existing structural deficiencies and allows for 15-axle permit loads, per current Caltrans Design Standards, to traverse the two bridges.
- Build Alternative 3 eliminates the skew angle of the bents (columns and foundations), which provide benefits to the overall bridge structure by increasing its performance and reducing maintenance issues and costs during the life of the bridge.
- Build Alternative 3 provides for the lowest life cycle cost (i.e., has the longest life expectancy and lowest annual maintenance cost) compared to the other two Build Alternatives.
- Build Alternative 3 offers the greatest structural improvements with similar environmental impacts as Build Alternative 1A and 2.

1.7 Alternatives Considered but Eliminated from Further Discussion

This section discusses an alternative considered but eliminated from further discussion because it did not meet the purpose and need of the project.

Build Alternative 1: Bridge Deck Replacement with New Lightweight Deck—This alternative would have replaced the existing lightweight reinforced concrete bridge deck on both the left and right structures with a new lightweight concrete deck. This improvement would have provided an estimated less-than-30-year service life. Seismic improvements and possible strengthening would have been considered as appropriate. Spot preparation and painting of all steel elements would have also been included.

However, this alternative did not address the structures' inability to handle desired permitted load capacities for interstate travel. For this reason, the alternative was eliminated from further study and consideration.

1.8 Permits and Approvals Needed

The following permits, licenses, agreements, and certifications are required for project construction:

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Biological Opinion for Section 7 consultation for federally listed threatened and endangered species.	Formal consultation was sought with the U.S. Fish and Wildlife Service, and a concurrence letter was received on December 17, 2019.
National Marine Fisheries Service	Biological Opinion for Section 7 consultation for federally listed threatened and endangered species.	Formal consultation was sought with the National Marine Fisheries Service, and a Biological Opinion was received on June 23, 2020.
California Department of Fish and Wildlife	Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement. Section 2081 (b) and (c) Incidental Take Permit.	An application for the Fish and Game Code Section 1602 Lake and Streambed Alteration Agreement and Section 2081 (b) and (c) Incidental Take Permits will be submitted during the design phase of the project.
Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification	An application for a Clean Water Act Section 401 Water Quality Certification will be submitted during the design phase of the project.
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit	An application for a Clean Water Act Section 404 Permit will be submitted during the design phase of the project.
U.S. Coast Guard	Bridge Permit	An application for a bridge permit will be submitted during the design phase of the project.

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

As part of the scoping and environmental analysis done for the project, the following environmental issues were considered, but no adverse impacts were identified. So, there is no further discussion of these issues in this document.

- Coastal Zone: The project is outside the coastal zone; therefore, the Coastal Zone Management Act will not apply. (Caltrans Coastal Program)
- Wild and Scenic Rivers: A review of the U.S. Fish and Wildlife Service and the National Wild and Scenic Rivers System Map showed that there are no wild and scenic rivers within or near the project area. (U.S. Fish and Wildlife Service)
- Farmland: No farmlands are within the project study area. (Farmland Mapping and Monitoring Program)
- Timberland: No timberlands are within the project study area. The project is within the Sacramento-San Joaquin Delta region, specifically within the city limits of the City of Stockton. (City of Stockton General Plan 2040)
- Growth: The project is consistent with the San Joaquin Council of Governments' Regional Transportation Plan/Sustainable Communities Strategy and the City of Stockton General Plan 2040. The project will not influence growth beyond the expected goals in those plans. (City of Stockton General Plan 2040)
- Community Character and Cohesion: There are no expected impacts on community character and cohesion. Additionally, construction effects that occur within sensitive receptors will be avoided and minimized through Best Management Practices and project features. (Community Impact Assessment Memorandum, June 2020)
- Environmental Justice: All three Build Alternatives are a replacement-in-kind of an existing structure and will not cause disproportionately high and adverse effects on any minority or low-income populations. This section was added after the draft environmental document circulated: A review of the U.S. Census Data website identified minority or low-income populations next to but not within the project area. As stated above, this project is a replacement-in-kind of an existing structure. Therefore, Caltrans has determined no minority or low-income populations that will be

adversely affected by the project have been identified as determined above. Therefore, this project is not subject to the provision of Executive Order 12989. (Community Impact Assessment Memorandum, June 2020)

- Aesthetics/Visual: It was determined that the project will have no significant impacts on the scenic qualities of the resources in the project study area. According to the Scenic Resource Evaluation, visual impacts will be insignificant and temporary with the use of the standard measures, Best Management Practices, Caltrans' Standard Special Provisions, and Non-Standard Special Provisions that are common in all of Caltrans' construction contracts. Section 2.4, Construction Impacts, describes these measures in detail. (Scenic Resource Evaluation, July 2020)
- Water Quality and Stormwater Runoff: According to the Water Quality Assessment Report, project construction will have temporary, insignificant impacts to water quality and stormwater runoff with the use of the standard measures, Best Management Practices, Caltrans' Standard Special Provisions, and Non-Standard Special Provisions that are common in all of Caltrans' construction contracts. Section 2.4, Construction Impacts, describes these measures in detail. (Water Quality Assessment Report, July 2020)
- Geology, Soils, Seismicity, and Topography: According to the Seismic Design Recommendation Report, the project will have temporary, insignificant impacts to geology, soils, seismicity, and topography with the use of the standard measures, Best Management Practices, Caltrans' Standard Special Provisions, and Non-Standard Special Provisions that are common in all of Caltrans' construction contracts. Section 2.4, Construction Impacts, describes these measures in detail. (Seismic Design Recommendation Report, April 2019)
- Hazardous Waste and Materials: According to the Hazardous Waste Initial Site Assessment, the project will have no significant impacts on hazardous waste and materials. Temporary impacts caused by project construction will be managed through the use of the standard measures, Best Management Practices, Caltrans' Standard Special Provisions, and Non-Standard Special Provisions that are common in all of Caltrans' construction contracts. Section 2.4, Construction Impacts, describes these measures in detail. (Hazardous Waste Initial Site Assessment, August 2020)
- Plant Species: No special-status plant species were found in the project area. Therefore, the project will not impact special-status plant species. (Natural Environment Study, 2020)
- Natural Communities: No natural communities were identified within the project's environmental study limits. Therefore, the project will not impact natural communities. (Natural Environment Study, 2020)

- Wildfire: A review of the California Department of Forestry and Fire Protection's Fire Hazard Severity Zones Map for San Joaquin County shows the project location is not in a high-risk area for wildfires.
- This project has several standardized project measures that are used on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the project. These measures are discussed in more detail in Section 2.4, Construction Impacts.

2.1 Human Environment

2.1.1 Existing and Future Land Use

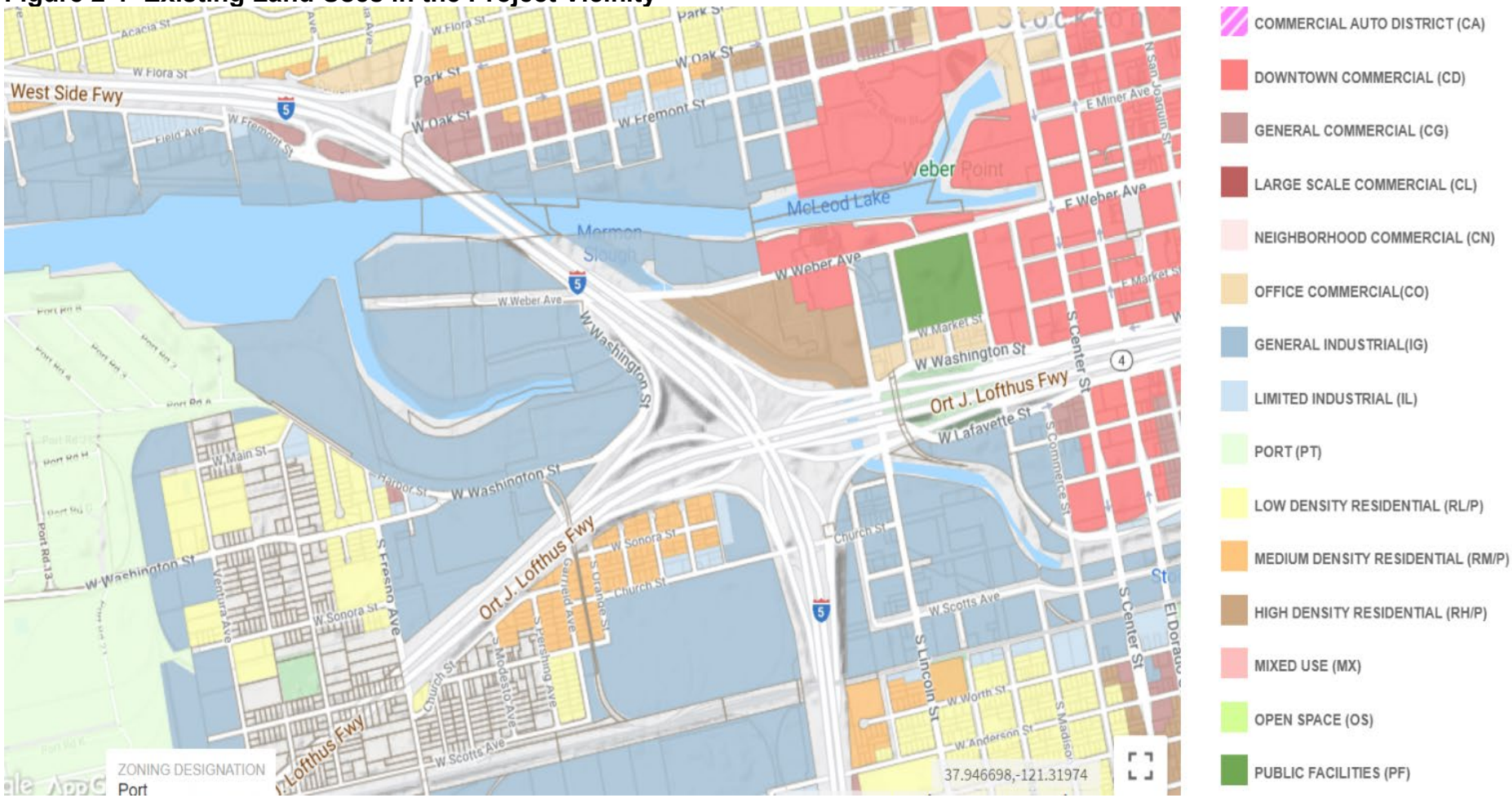
Affected Environment

The City of Stockton adopted its general plan in 2017. A general plan update was released in December 2018.

The project study area, within the boundary of the City of Stockton, consists of a mix of high-density residential, commercial, industrial, and recreational land uses. Most recreational land uses occur at the Stockton Deep Water Channel, where Interstate 5 and State Route 4 meet. The larger downtown area features a mix of commercial and residential neighborhoods. This mix of uses is consistent with the updated general plan, which allows substantial amounts of high-density residential and commercial uses in downtown Stockton.

Future land use in the Stockton area will follow a regional trend toward more residential and commercial development where there is currently open land designated for agriculture. Large residential development projects are planned at the edge of the city limits. However, in the downtown core, within the Stockton Channel Viaduct Bridge Improvements project area, there are infill opportunity sites that have been identified. The project is included in the City of Stockton General Plan and the San Joaquin Council of Governments' Regional Transportation Plan/Sustainable Communities Strategy documents. The existing land use for the City of Stockton within the project area is general industrial and commercial with low, medium, and high-density residential units north and east of the project, see Figure 2-1.

Figure 2-1 Existing Land Uses in the Project Vicinity



Environmental Consequences

No-Build Alternative

Under the No-Build Alternative, the Stockton Channel Viaduct Bridge will not be improved. The traffic Level of Service, as defined in the Traffic Operations Memorandum, dated April 12, 2018, and circulation will not be improved, and existing conditions will continue to degrade. The Level of Service is a qualitative measure used to describe the traffic flow condition. Letters designate each level of traffic operation, from A to F, with A representing the best level and F the worst. The No-Build Alternative will not support the goal of the San Joaquin County General Plan to not conflict with an applicable congestion management program system.

Under the No-Build Alternative, bridge structural deficiencies along Interstate 5 will not be addressed and not meet the purpose and need for this project.

All Build Alternatives

Under all three Build Alternatives, the project will improve the Stockton Channel Viaduct Bridge deficiencies along Interstate 5 to improve mobility and meet the permitted load rating. Under all three Build Alternatives, no residential displacements will occur. However, one parcel will be required, and two state-owned airspaces will displace business tenants. The right-of-way required for the Build Alternatives will include a portion of a parcel next to Interstate 5 and the airspace parcels under the existing Stockton Channel Viaduct Bridges on Fremont Street. The land uses of the parcels impacted include recreation and commercial uses.

All three Build Alternatives will not result in any substantial land use changes within the project corridor and will not hinder recreational or commercial operations in the project vicinity.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required to address existing and future land use.

2.1.2 Consistency with State, Regional, and Local Plans and Programs

This section discusses the project's consistency with state, regional, and local plans and programs regarding the various land use plans.

Affected Environment

The City of Stockton adopted its general plan in 2017. A general plan update was released in December 2018. The project study area, within the boundary of the City of Stockton, consists of a mix of lower-density residential, commercial, industrial, and recreational land uses. Most recreational land uses occur at the Stockton Deep Water Channel, where Interstate 5 and State Route 4 meet. The larger downtown area features a mix of commercial

and residential neighborhoods. This mix of uses is consistent with the updated general plan, which allows substantial amounts of high-density residential and commercial uses in downtown Stockton. Future land use in the Stockton area is following a regional trend toward more residential and commercial development where there is currently open land designated for agriculture. Large residential development projects are planned at the edge of the city limits. However, there are sites designated as infill opportunities sites within the downtown core, within the Stockton Channel Viaduct Bridge Improvements project.

The project is included in the City of Stockton General Plan and the San Joaquin Council of Governments' Regional Transportation Plan/Sustainable Communities Strategy. The project is consistent with the City of Stockton General Plan's measure to promote the safe transport of goods along the Interstate 5 corridor, promoting economic vitality within the region.

The project will support the goal of the San Joaquin County General Plan to maintain a safe, efficient, and cost-effective roadway system for goods and people.

Environmental Consequences

Under the Build and No-Build Alternatives, the land use in the project area will remain the same.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures were identified.

2.1.3 Parks and Recreational Facilities

This section is based on the Community Impact Assessment, June 2020 Memorandum.

Regulatory Setting

The Park Preservation Act (California Public Resources Code Sections 5400-5409) prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the parkland and any park facilities on that land.

Affected Environment

The following community parks and recreational areas are near the project, but no use or impacts will occur:

- Victory Park—about 0.34 mile from the project location.
- Weber Point Events Center—about 0.54 mile from the project location.

- North Seawall Park—about 0.62 mile from the project location.
- Stockton Deep Water Channel—next to the project location.

A publicly owned community park—Morelli Park Boat Launch at 1025 West Weber Avenue in Stockton—sits under the Stockton Channel Viaduct Bridges. The park is currently under lease to the City of Stockton through Caltrans. Morelli Park Boat Launch features picnic benches, walking paths, a restroom, and a parking lot. Morelli Park Boat Launch also provides one of several boat launch ramps found within Stockton. The boat launch facility consists of a four-lane boat ramp.

The above recreational resources are in an urbanized area of Stockton and currently experience noise from existing transportation facilities. Urbanized features, such as buildings, transient activity, and freeways, are visible from within the park. Additionally, a Class 1 Bike Path occurs along Weber Avenue next to the project study area.

Environmental Consequences

Under the Build Alternatives, Morelli Park Boat Launch closure will result in the use of a Section 4(f) resource. Morelli Park Boat Launch is eligible for protection under Section 4(f) because it is publicly owned, open to the public, and its main use is recreation, specifically boating. The park, boat launch, and parking area will be closed and will be used for staging and storage of construction equipment and materials. Caltrans expects that a temporary construction easement will be necessary for a minimum of three to four construction seasons (660 to 880 days). Caltrans has consulted with the City of Stockton, which is the official agency with jurisdiction over the park. For Section 4(f), the de minimis impact finding is discussed in Appendix A.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures beyond the listed Best Management Practices and standard practices described in Section 2.4, Construction Impacts, will be implemented to address parks and recreational facilities.

2.1.4 Relocations and Real Property Acquisition

Regulatory Setting

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

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. See Appendix B for a copy of the Caltrans Title VI Policy Statement.

Affected Environment

Temporary construction easements will be needed for staging construction equipment at Morelli Park Boat Launch, under the bridge on Fremont Street, and next to the existing right-of-way within the Stockton Channel on both sides of Interstate 5. A permanent acquisition will be needed for the water retention basin at 1245 West Weber Avenue, which is next to the Stockton Channel Viaduct Bridge structures (see Figure 2-2, Retention Basin Location).

Figure 2-2 Retention Basin Location

Per the June 2020 Community Impact Assessment, the project will remove buildings directly below the existing bridge structure at the north end of Fremont Street and Pershing Avenue. The land that will be affected is currently operating under an airspace lease agreement for existing businesses. An airspace area of about 72,070 square feet and an airspace area of about 72,463 square feet are existing state-owned properties with commercial and recreational land uses. (San Joaquin County, 2018)

Environmental Consequences

Under all three Build Alternatives, the airspace areas will be impacted by construction activities. Of the businesses currently under the airspace lease agreement, 10 business units will be displaced. In general, a business under an airspace lease agreement is not subject to relocation benefits. The Build

Alternatives will not result in land use changes within the project area and will not hinder recreational or commercial operations near the project.

For any person(s) whose real property interests may be impacted by the project, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from federal or federally assisted programs or projects. It was created to provide for and ensure the fair and equitable treatment of all such persons (see Appendix C, Summary of Relocation Benefits).

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required for relocations and right-of-way acquisitions.

2.1.5 Utilities and Emergency Services

Affected Environment

The following utilities were identified within the project area:

- California Water Service waterlines
- City of Stockton sewer lines and storm drain lines
- Pacific Gas and Electric Company gas lines and electrical lines
- American Telephone and Telegraph communication lines and telephone lines.

Environmental Consequences

Impacts on the utilities identified within the project area were summarized within two main areas—the north side and the south side of the Stockton Deep Water Channel. The estimated impacts on utilities on each side of the Stockton Deep Water Channel were identified under each Build Alternative.

North Side of the Stockton Deep Water Channel

- California Water Service's waterlines and valves were identified at two locations—along the south side of Park Street and the west side of Pershing Avenue. For Build Alternatives 1A and 2, about 150 feet of waterlines would have been affected due to the temporary off-ramp work. For Build Alternative 3, about 300 feet of waterlines will be affected along the Park Street Undercrossing and intersection. Additionally, about 100 feet of waterlines will be affected along the south side of Fremont Street beneath the Stockton Channel Viaduct Bridge.
- The City of Stockton's storm drain lines were identified at two locations. For Build Alternatives 1A and 2, about 150 feet of storm drain lines would have been affected due to a temporary off-ramp at the intersection of Park

Street and across Pershing Avenue. For Build Alternative 3, about 300 feet of storm drain lines will be affected at the Park Street Undercrossing and across Pershing Avenue. Additionally, about 140 feet of storm drain lines will be affected east of the Pershing Avenue off-ramp, south of Oak Street, and north of Fremont Street, within the state right-of-way leased airspace.

- The Pacific Gas and Electric Company's gas lines were identified within the project area. Under Build Alternative 3, about 250 feet of gas lines will be affected along Park Street, across Pershing Avenue. Under all three Build Alternatives, the Pacific Gas and Electric Company's electrical lines were identified and will be affected. About 600 feet of electrical lines and two vault boxes will be affected along the north side of Fremont Street and along the east side of the Pershing Avenue off-ramp, north of Fremont Street.
- The American Telephone and Telegraph overhead telephone lines were identified within the project area. Under all three Build Alternatives, about 120 feet of overhead telephone lines were identified within a state-owned right-of-way, east of the Pershing Avenue off-ramp, north of Oak Street, and south of Park Street. They included two telephone poles. About 300 feet of underground telephone lines were identified within the state-owned right-of-way airspace leases. Additionally, 130 feet of underground telephone lines will be affected east of the Pershing Avenue off-ramp, north of Fremont Street, and north of the Stockton Deep Water Channel. Under Build Alternative 3, about 70 feet of underground telephone lines will be affected east of the Pershing Avenue off-ramp, south of Oak Street, and north of Fremont Street.

South Side of the Stockton Deep Water Channel

- California Water Service's waterlines and the City of Stockton's fire hydrants were identified within the area along the north side of Weber Avenue. For Build Alternatives 1A and 2, about 700 feet of waterlines and three fire hydrants would have been affected by the project's retrofit work and new drainage basin on the west side of Interstate 5, south of the Stockton Channel. For Build Alternative 3, about 1,200 feet of waterlines and five fire hydrants will be affected by the Stockton Channel Viaduct Bridge removal, replacement work, and new drainage basin.
- The City of Stockton's storm drains were identified within the project area. For Build Alternative 3, about 600 feet of storm drains will be affected along the south side of Weber Avenue for the bridge removal and replacement work for bent number 2. Bents are a combination of a bridge cap and pile that, when put together, supports the entire bridge.

  The City of Stockton's sewer lines at Morelli Park Boat Launch will be affected for all three alternatives. For Build Alternatives 1A and 2, about 300 feet of sewer lines would have been affected by the bridge retrofit work within Morelli Park Boat Launch and existing bridge supports. For

Build Alternative 3, about 600 feet of sewer lines will be affected for the bridge replacement within Morelli Park Boat Launch and new bent construction.

- The Pacific Gas and Electric Company's gas lines were identified within the area. Under Build Alternative 3, about 700 feet of gas lines will be affected along the south side of Weber Avenue due to new bent construction, foundation work, and realignment of Weber Avenue.

  The Pacific Gas and Electric Company's electrical lines were identified along the north and south sides of Weber Avenue and within Morelli Park Boat Launch. For Build Alternatives 1A and 2, about 300 feet of electrical lines would have been affected by bridge retrofit work within Morelli Park Boat Launch and existing bents. Electrical lines along the north and south sides of Weber Avenue will be affected. For Build Alternative 3, about 1,500 feet of electrical lines will be affected due to bridge replacement work within Morelli Park Boat Launch, new bent construction, and realignment of Weber Avenue.
- The American Telephone and Telegraph's underground telephone lines were identified within the area. There are about 1,300 feet of underground telephone lines within a state-owned right-of-way. For Build Alternatives 1A and 2, relocation of the telephone lines would have been within existing Weber Avenue. For Build Alternative 3, relocation of the telephone lines will be within the realignment of Weber Avenue, south of the existing Weber Avenue.

Emergency Services

Under all three Build Alternatives, the project will affect emergency services from detours and temporary road closures, within the project area during construction. Traffic detours are discussed in Section 2.1.6, Traffic and Transportation/Pedestrian and Bicycle Facilities. Coordination with emergency service providers will be implemented per the traffic management plan.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures have been identified at this time. A utility relocation plan will be developed during the Plans, Specifications, and Estimates phase for the project. Emergency services concerns will be addressed in the traffic management plan, which will be developed during the Plans, Specifications, and Estimates phase of the project.

2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration should be given to the safe accommodation of pedestrians and

bicyclists during the development of federal-aid highway projects (see 23 Code of Federal Regulations 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 Code of Federal Regulations Part 27) implementing Section 504 of the Rehabilitation Act. (29 U.S. Code 794) The Federal Highway Administration has enacted regulations for the implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require the application of the Americans with Disabilities Act requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

Traffic and Transportation

A traffic operations analysis was completed in April 2018 for the improvements to the Stockton Channel Viaduct Bridge Improvements project from westbound State Route 4 to northbound Interstate 5. The Caltrans District 10 Travel Forecasting Branch provided traffic data for the existing year 2017, opening year 2025, and design year 2045 under the assumption that traffic is operating at an acceptable Level of Service. (Traffic Operations Memorandum, April 2018)

Within the project location, the current Level of Service, as defined in the Traffic Operations Memorandum, dated April 12, 2018, is rated D, which is considered poor. The Level of Service is a qualitative measure used to describe the traffic flow condition. Letters designate each level of traffic operation, from A to F, with A representing the best level and F the worst.

The project location is on Interstate 5, which is a major north-south interstate freeway and functions as the main transportation route in San Joaquin County. Interstate 5 runs through the western portion of the City of Stockton, providing four travel lanes in each direction through the central portion of Stockton. The Stockton Channel Viaduct Bridges (Bridge Numbers 29-0176L and 29-0176R) carry the southbound and northbound Interstate 5 lanes and span the Stockton Channel. These two bridges are commonly referred to as the Stockton Channel Viaduct Bridges.

Existing Operational Analysis

The spot location analysis confirmed that delay and associated Level of Service exceed Caltrans' standards (Level of Service D or lower) at all locations during the evening peak hours. The traffic weaving along northbound Interstate 5 between the connector and Pershing Avenue creates stop-and-go traffic with queues extending east of the State Route 4 and El Dorado interchange during morning peak hours of 7:00 a.m. to 9:00 a.m. and the evening peak hours of 4:00 p.m. to 6:00 p.m.

An intersection analysis determined that the morning and evening peak hour operations operate within an acceptable Level of Service, and the delay for the northbound Interstate 5 and Monte Diablo off-ramp is acceptable. The corridor analysis determined the morning peak hours operate more efficiently than the evening peak hours within the project study area (see Table 2.1).

Table 2.1 Current Year 2017 Measure of Effectiveness

Measure of Effectiveness	Existing Morning Peak Hours (7:00 a.m. to 9:00 a.m.)	Existing Evening Peak Hours (4:00 p.m. to 6:00 p.m.)
Travel Time	155 Vehicles Per Hour	658 Vehicles Per Hour
Vehicle Miles Traveled	10,836 Miles	12,772 Miles
Average Speed (Miles Per Hour)	70 Miles Per Hour	50 Miles Per Hour
Average Density (Level of Service)	Level of Service B	Level of Service D
Gasoline Consumed (Gallons)	726 Gallons	976 Gallons

Source: Caltrans Operations Analysis (April 2018).

Design Year 2025 Operational Analysis

The design year 2025 operational analysis was performed to determine the projected open-to-traffic operations at and next to the northbound Interstate 5 and State Route 4 connector within the project study area. The morning and evening peak period volumes were analyzed during and outside the high occupancy lane windows to determine the worst-case scenario.

The spot location analysis found significant delays and congestion occur during the evening peak hours between the connector and Pershing Avenue off-ramp along northbound Interstate 5. The delay and associated Level of Service surpass Caltrans' standards (Level of Service D or lower) in the project study area during the evening peak hours.

The corridor analysis projected that the morning peak hours operate more efficiently than evening peak hours in the project study area (see Table 2.2).

Table 2.2 Opening Year 2025 Measure of Effectiveness

Measure of Effectiveness	Opening Year Morning Peak Hours (7:00 a.m. to 9:00 a.m.)	Opening Year Evening Peak Hours (4:00 p.m. to 6:00 p.m.)
Travel Time	196 Vehicles Per Hour	1,339 Vehicles Per Hour
Vehicle Miles Traveled	13,545 Miles	14,348 Miles
Average Speed (Miles Per Hour)	69 Miles Per Hour	29 Miles Per Hour
Average Density (Level of Service)	Level of Service B	Level of Service E
Gasoline Consumed (Gallons)	803 Gallons	1,243 Gallons

Source: Caltrans Operational Analysis (April 2018).

Design Year 2045 Operational Analysis

The design year 2045 without project analysis was performed to determine the design year traffic operations at and next to the northbound Interstate 5 and State Route 4 connectors within the project study area and with the existing lane configurations. The morning and evening peak period volumes were analyzed during and outside the high-occupancy lane operation windows to determine the worst-case scenario.

The spot location analysis projected that significant delays and congestion will occur during the morning and evening peak hours between the connector and Pershing Avenue along northbound Interstate 5. The delay and associated Level of Service exceed Caltrans' standards (Level of Service D or lower) at all locations during the morning and evening peak hours. The evening peak hour delay is expected to exceed the acceptable delay threshold of 35 seconds (Level of Service D) to 36 seconds (Level of Service E), lowering its Level of Service. The corridor analysis projects the morning peak hours will be acceptable. However, the evening peak hour operations for the corridor are projected to fall below Caltrans' standards (see Table 2.3). No additional planned project is projected to ease this congestion.

Table 2.3 Design Year 2045 Measure of Effectiveness

Measure of Effectiveness	Design Year Morning Peak Hours (7:00 a.m. to 9:00 a.m.)	Design Year Evening Peak Hours (4:00 p.m. to 6:00 p.m.)
Travel Time	920 Vehicles Per Hour	3,778 Vehicles Per Hour
Vehicle Miles Traveled	15,700 Miles	13,479 Miles
Average Speed (Miles Per Hour)	50 Miles Per Hour	14 Miles Per Hour
Average Density (Level of Service)	Level of Service D	Level of Service E
Gasoline Consumed (Gallons)	1,242 Gallons	2,215 Gallons

Source: Caltrans Operational Analysis (April 2018).

Pedestrian and Bicycle Facilities

The City of Stockton updated its Bicycle Master Plan in 2017. Currently, there are no pedestrian and/or bicycle facilities on the Stockton Channel Viaduct Bridges, freeways, or connecting on-ramps and off-ramps. Pedestrian and bicycle uses are strictly prohibited in these areas.

Within the project study areas, a Class 1 pedestrian/bicycle pathway exists (see Photo 1) across from Morelli Park Boat Launch, accessible via a pedestrian bridge over Mormon Slough (see Photo 2). Weber Avenue and Fremont Street are considered “bicycle-friendly” areas but do not have bikeway facilities meeting the Caltrans standards of Class 1, 2, or 3.

Photo 1-Class 1 Pedestrian/Bicycle Facility

Photo 2-Pedestrian/Bicycle Bridge

Environmental Consequences

Preliminary Traffic Impacts for Mainline, Connectors, Ramps, and Streets

Caltrans' Central Region Design Branch summarized the expected traffic handling and impacts for the Stockton Channel Viaduct Bridge Improvements project. The following section discusses the traffic impacts during construction for all three Build Alternatives for Interstate 5, its connectors, on-ramps and off-ramps, local streets, and associated detours.

Mainline Interstate 5-All Build Alternatives

The existing eight-lane divided highway on Interstate 5, with auxiliary lanes across the viaduct structure and portions to the south and north, will have various nighttime lane closures for installation/removal of temporary K-rails between the various stages of construction for traffic handling. There will be nighttime lane closures and ramp closures for existing roadways for structure removal and setup of falsework for new structure improvements. There will be weekend closures of connectors/ramps for roadway work. The project is expected to have various traffic handling methods for stage construction. There will be one lane reduction in each direction throughout project construction. Traffic shifts are expected in which one lane in at least one direction will not have access to local ramps within the project limits.

An optional detour path for through traffic will be in place to minimize traffic volume during construction. The southbound detour on Interstate 5 will be from State Route 12 to southbound State Route 99 to westbound State Route 4. The northbound detour will be from eastbound State Route 4 to northbound State Route 99 to westbound State Route 12. The detour is expected to be in place throughout project construction.

State Route 4 and Interstate 5 Connectors

For Build Alternative 3, the westbound and eastbound State Route 4 and northbound Interstate 5 connectors will have extended weekend or possibly

weeklong closures for roadway work between northbound Interstate 5 and its on-ramp. For Build Alternatives 1A and 2, there would have been nighttime closures and some extended weekend closures of the on-ramps for roadway work.

Detours will apply for all three Build Alternatives for the local downtown traffic movement. Local traffic to northbound Interstate 5 traffic via State Route 4 will be detoured to southbound Center Street to westbound Doctor Martin Luther King Junior Boulevard to the northbound Interstate 5 on-ramp.

Detours will apply for all three Build Alternatives. Traffic on the westbound State Route 4 connector to northbound Interstate 5 will be detoured to the southbound Interstate 5 connector to the Charter Way southbound off-ramp to Doctor Martin Luther King Junior Boulevard and onto the northbound Interstate 5 on-ramp.

Detours will also apply for all three Build Alternatives for the eastbound State Route 4 connector to northbound Interstate 5. The detours will divert traffic onto Navy Drive to eastbound Tillie Lewis Drive to eastbound Charter Way to the northbound Interstate 5 on-ramp.

Southbound Interstate 5 and Westbound and Eastbound State Route 4 Connectors

Detours will be proposed for southbound Interstate 5 traffic to westbound State Route 4. Southbound traffic will be detoured to southbound Interstate 5 to the Charter Way off-ramp, west on Charter Way to Tillie Lewis Drive, north on Navy Drive, and onto westbound State Route 4.

Temporary Pershing Avenue Off-Ramp

Construction of a temporary single-lane off-ramp north of the existing off-ramp will be required. It is expected that the temporary off-ramp will be needed during the later phase of construction to minimize full closure impacts. The temporary off-ramp will require modification of signal, signage, and striping at the existing Pershing Avenue off-ramp and Park Street intersection. Signage will also direct traffic to the Monte Diablo Avenue off-ramp as a secondary exit in conjunction with the temporary off-ramp. It is expected that the temporary off-ramp will be the main exit for vehicles, as well as truck traffic.

For Build Alternative 3, there will be nighttime closure of the existing Pershing Avenue off-ramp to build the temporary Pershing Avenue off-ramp, as well as weekend closures for roadway work. For Build Alternatives 1A and 2, there would have been nighttime closures of the Pershing Avenue off-ramp to build the temporary Pershing Avenue off-ramp and intersection modification work.

A detour will be in place during the construction of the temporary Pershing Avenue off-ramp. The temporary Pershing Avenue off-ramp traffic will be

detoured to the Monte Diablo Avenue off-ramp and will then travel east to Pershing Avenue.

Fremont Street On-Ramp and Off-Ramp

The existing Fremont Street on-ramps and off-ramps will have various closures. For Build Alternative 3, there will be nighttime closures of the ramps for roadway work on southbound Interstate 5. There will also be extended weekend closures to rebuild the Fremont Street on-ramp and off-ramp. A detour will direct traffic to the southbound Monte Diablo off-ramp to westbound Monte Diablo Avenue to Ryde Avenue to Freemont Street and vice versa for the southbound on-ramp. For Build Alternatives 1A and 2, there would have been nighttime closures of the Fremont Street on-ramp for structure work. No roadway or structure work would have been expected for the Fremont Street off-ramp.

Pershing Avenue

For Build Alternatives 1A and 2, Pershing Avenue would have had several lane closures during the daytime and nighttime. Under Build Alternative 3, the existing four-lane Pershing Avenue will have numerous daytime and nighttime lane closures for the removal and replacement of abutment number 8 and the removal of existing bent number 13 along Interstate 5.

Fremont Street

For Build Alternatives 1A and 2, Fremont Street would have had many daytime and nighttime lane closures. For Build Alternative 3, there will be various daytime and nighttime lane closures for the removal of some of the eastbound Fremont Street on-street parking for the construction of bent number 6.

Oak Street

Under all three Build Alternatives, Oak Street will have many daytime and nighttime lane closures for construction of the Pershing Avenue off-ramp. More daytime and nighttime closures will be required under Build Alternative 3, full replacement of the Stockton Channel Viaduct Bridges, than Build Alternatives 1A and 2.

Park Street

For Build Alternative 3 only, Park Street will have various daytime and nighttime lane closures for construction of the Pershing Avenue off-ramp and Park Street structure work.

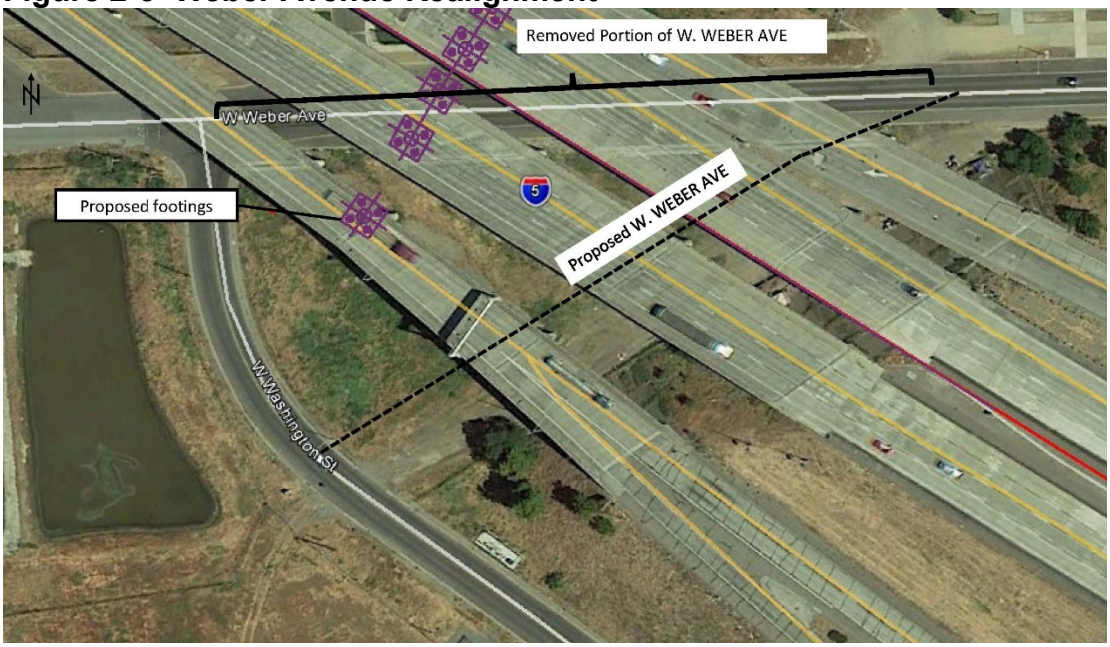
Weber Avenue and Washington Street

Under Build Alternative 3, a portion of Weber Avenue beneath and east of the existing bridges, south of the Stockton Deep Water Channel, will be realigned. This will involve removing a portion of Weber Avenue and building a new intersection at Washington Street south of the existing intersection.

Traffic impacts for the Weber Avenue realignment will include the full closure of eastbound and westbound Weber Avenue traffic due to the new bridge bents being built across Weber Avenue and removal of existing bent number 3, near Washington Street.

Build Alternatives 1A and 2 would have required a partial closure of Weber Avenue with one-way traffic control. Additionally, there would have been temporary portable signals on westbound and eastbound Weber Avenue and a portion of Washington Street to accommodate the construction of bent number 3 (see Figure 2-3 Weber Avenue Alignment).

Figure 2-3 Weber Avenue Realignment



For Build Alternative 3, westbound and eastbound detours will be proposed. Eastbound traffic from Weber Avenue will be directed to West Washington Street to South Fresno Avenue to Charter Way to South Lincoln Street back to Weber Avenue. Westbound Weber Avenue traffic will be reversed for the eastbound detour.

Nighttime and Weekend Closures

For all three Build Alternatives, nighttime closures and some extended weekend closures of either the on-ramps or off-ramps within the project limits will be expected.

- Stage 1: Center Span Construction—It is expected that construction during Stage 1 will require a few nighttime closures with detours to the Charter Way Interchange due to lane closures and traffic handling on the southbound Interstate 5 for setting up traffic shifts to be used during Stage 1 construction.

- Stage 2: Southbound Side of Stockton Channel Viaduct Bridges—Expected full closure for 1 year of the current southbound Interstate 5 exit to both the eastbound and westbound State Route 4 connectors due to construction of the new bridge portion and roadway portion of the westbound State Route 4 connector. Traffic will shift back to having connectors open, with the temporary crossover for the eastbound State Route 4 connector removed.
- Stage 3: Northbound Side of Stockton Channel Viaduct Bridge—Expected nighttime closures with a detour to the Charter Water Interchange due to any finishing work (striping, signage, etc.).

No-Build Alternative

Because no construction activities are under the No-Build Alternative, the project will not be completed, and the bridge structure will not meet the standards of load requirements.

Operational Impacts for All Build Alternatives

Implementation of the project will not improve the Level of Service operations along studied freeway segments and intersections. Under the design year 2045, the Interstate 5 corridor will operate at Level of Service F during the evening peak hours.

Vehicle Miles Traveled

Since the project is a replacement-in-kind of an existing facility and not adding roadway capacity, it will not increase vehicle miles traveled and will not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b).

Pedestrian and Bicycle Facilities

No impacts to existing bicycle or transit facilities are expected.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required for traffic and transportation/pedestrian and bicycle facilities. A traffic management plan will be developed during the Plans, Specifications, and Estimates phase to address project vicinity detours and Weber Avenue realignment.

2.1.7 Cultural Resources

Regulatory Setting

The term “cultural resources” as used in this document refers to the “built environment” (structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms, including “historic properties,” “historic sites,” “historical

resources," and "tribal cultural resources." Laws and regulations dealing with cultural resources include the following.

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation. (36 Code of Federal Regulations 800)

On January 1, 2014, the First Amended Section 106 Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council on Historic Preservation's regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program. (23 U.S. Code 327)

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties (in Section 4(f) terminology—historic sites). See Appendix A for specific information about Section 4(f).

The California Environmental Quality Act (CEQA) requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California Public Resources Code Section 5024.1 established the California Register of Historical Resources and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the California Register of Historical Resources and, therefore, a historical resource. Historical resources are defined in Public Resources Code Section 5020.1(j).

In 2014, Assembly Bill 52 added the term "tribal cultural resources" to CEQA, and Assembly Bill 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in Public Resources Code Section 21074(a), a tribal cultural resource is a California Register of Historical Resources or local register eligible site, feature, place, cultural landscape, or object which has cultural value to a California Native American tribe. Tribal cultural resources must also meet the

definition of a historical resource. Unique archaeological resources are referenced in Public Resources Code Section 21083.2.

Public Resources Code Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the National Register of Historic Places listing criteria. It further requires Caltrans to inventory state-owned structures in its rights-of-way.

Affected Environment

A Historical Property Survey Report was completed in April 2020 to consider the area of potential effects for the project. This area consists of the potential limits of the direct and indirect impacts by the project, including a construction staging area. Cultural resources surveys, including both architectural and archaeological resources, involved record searches, background research, field surveys, and consultation and coordination with Native American groups.

Identification efforts resulted in a single newly identified historic era archaeological site within the area of potential effects. This site is considered eligible for this project only per the Section 106 agreement.

Environmental Consequences

Within the project area, one prehistoric archaeological site was determined eligible for inclusion in the National Register of Historic Places. This site will not be adversely affected by the project because the site will be avoided and protected by environmentally sensitive area fencing. Therefore, the finding is "no adverse effect with standard conditions."

The following text has been added since the draft environmental document:

Section 4(f) of the Department of Transportation Act of 1966 protects historic properties. There are no historic properties present within the area of potential effects; therefore, no Section 4(f) historic sites will be affected by the project.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be incorporated into the construction contract to ensure that the impacts caused by the project will have no significant adverse impacts on the identified archaeological site.

- ESA-1: Environmentally Sensitive Area Designation: The establishment of environmentally sensitive areas will be designated by environmentally sensitive area fencing within Caltrans' right-of-way.

  Environmentally sensitive area information will be shown on contract plans and discussed in Section 14-1.02 of the Caltrans 2018 Standard Specifications. Environmentally sensitive area provisions may include but are not necessarily limited to the use of temporary orange fencing or other high-visibility marking to identify the proposed limit of work in areas next to

sensitive resources or to locate and exclude sensitive resources from potential construction impacts. Contractor encroachment into environmentally sensitive areas will be prohibited, and immediate work stoppage and notification to the Caltrans resident engineer is required if an environmentally sensitive area is breached. Environmentally sensitive area provisions will be implemented as the first order of work and remain in place until all construction activities are complete.

- CULT-1: Caltrans' Standard Special Provisions Section 14-1.02A will be required to mark over the boundary of the archaeological resource, given the archaeological resource temporary Identification Number 2567-1, which will prevent the contractor from disturbing the site during construction.
- CULT-2: Caltrans' Standard Special Provisions Section 14-1.03B: An Archaeological Monitoring Area will be included in the construction contract. An archaeologist and Native American monitor will be onsite during construction to ensure the integrity of the environmentally sensitive areas and see any unexpected discoveries that might become exposed through construction activities.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

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

To comply, the following must be analyzed:

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

The base floodplain is defined as "the area subject to flooding by the flood or tide having a 1 percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

Affected Environment

Per the Location Hydraulic Study and Summary Floodplain Encroachment Report (February 2019), the project is in the San Joaquin Valley and is characterized by hot, dry summers and cold winters. The project traverses the urban area of the City of Stockton over the Stockton Deep Water Channel. The project area lies on the eastern slope of a 4.3 square mile watershed. Per the Federal Emergency Management Agency Flood Insurance Rate Maps for the Stockton Deep Water Channel is located within Zone AE (elevation 10 feet), which represents areas determined to be in the 1 percent annual chance (100-year) floodplain. The Federal Emergency Management Agency Flood Insurance Map can be found in Volume 2 of this document.

Environmental Consequences

Per the Location Hydraulic Study and Summary Floodplain Encroachment Report, there is no associated discharge for the Stockton Channel Viaduct Bridges. Water in the Stockton Deep Water Channel is dependent upon tidal action with slow velocities. Caltrans has determined the project will not affect the channel water surface elevation and, therefore, will create no adverse impacts to the Stockton Deep Water Channel and no significant impacts to the 100-year base floodplain.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are discussed in this section of hydrology and floodplain.

2.2.2 Paleontology

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

1. 23 U.S. Code 1.9(a) requires that the use of federal-aid funds must be in conformity with all federal and state laws.
2. 23 U.S Code 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 U.S. Code 431-433 above and state law.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

Affected Environment

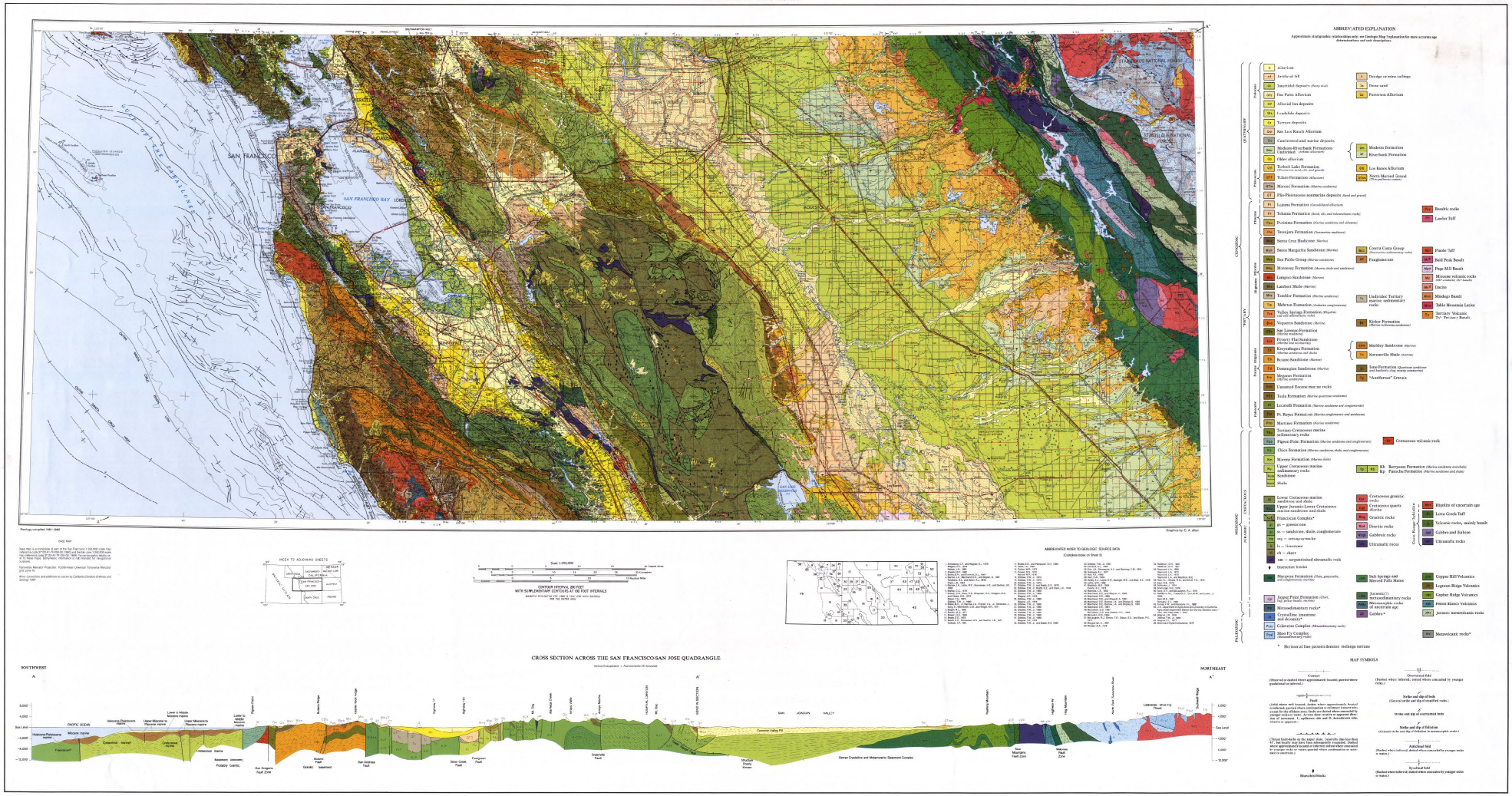
A Paleontological Identification Report was completed for the project in April 2020.

The project is within the Great Valley Geomorphic Province. The underlying sediments consist of sand, silt, clay, and gravel from the paleo-Calaveras River and are associated with the Quaternary Modesto Formation.

The California State University, Fresno Paleontological Sensitivity Mapping Project database (2000) lists the paleontological sensitivity in the Quaternary Modesto Formation as “low.” Even though the paleontological sensitivity for the Modesto Formation is low, numerous scientifically significant vertebrate fossils have been found in the Modesto Formation within a short distance from the project area since the 2000 mapping project. The paleontological sensitivity of the Modesto Formation is now categorized as “high,” and there is a high potential that it will likely contain significant vertebrate, invertebrate, and/or plant fossils within the project area.

Figure 2-4 shows the general geological formations within Central California. Most notably is the Quaternary Formation; the Modesto Formation falls within that formation.

Figure 2-4 Geologic Map of San Francisco-San Jose Quadrangle



GEOLOGIC MAP OF THE SAN FRANCISCO-SAN JOSE QUADRANGLE, CALIFORNIA, 1:250,000

Compilation by D.L. Wagner, E.J. Bortugno, and R.D. McJunkin

Published 1991

Environmental Consequences

The potential for disturbing scientifically important paleontological resources is considered high for Build Alternative 2 and Build Alternative 3. The place with the greatest likelihood of encountering paleontological resources is within the area that is needed for the water retention basin next to the Stockton Channel Viaduct Bridge for dewatering activities. The estimated depth to the Modesto Formation in the project area is about 3 feet to 5 feet below surface grade. (Paleontological Identification Report, April 2020)

The estimated excavation depth for the proposed water retention basin is 15 feet below surface grade and is an estimated 35,000 square feet in total area (see Figure 2-5). Due to the depths and lateral extent of the water retention basin, there is a high potential for impacting paleontological resources.

Figure 2-5 Retention Basin Location

Other construction activities may impact paleontological resources within the project area. Under Build Alternative 3, work will consist of installing cast-in-steel-shell piles, which are 4 feet to 10 feet in diameter, about 100 feet below surface grade. As discussed in the Paleontological Identification Report, the process of installing the cast-in-steel-shell piles to this depth will displace any potential paleontological resources as the pile is advanced, so any scientifically significant fossils could be destroyed.

Avoidance, Minimization, and/or Mitigation Measures

A Paleontological Evaluation Report will be prepared during the Plans, Specifications, and Estimates phase to verify the need for mitigation. If substantiated, a qualified paleontologist will need to prepare a Paleontological Mitigation Plan.

- PALEO-1: A project-specific Paleontological Evaluation Report will verify the need for a Paleontological Mitigation Plan. If the Paleontological Mitigation Plan is warranted, it will need to be prepared by a qualified principal paleontologist (Master of Science or Doctorate in paleontology) once adequate project design information regarding subsurface disturbance location, depth, and lateral extent is available.

2.2.3 Air Quality

Regulatory Setting

The Federal Clean Air Act, as amended, is the primary federal law that governs air quality, while the California Clean Air Act is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency and the California Air Resources Board, set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards. National Ambient Air Quality Standards and state ambient air quality standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide, nitrogen dioxide, ozone, particulate matter—which is broken down for regulatory purposes into particles of 10 micrometers or smaller and particles of 2.5 micrometers and smaller, lead, and sulfur dioxide. In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The National Ambient Air Quality Standards and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel “Conformity” requirement under the Federal Clean Air Act also applies.

Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the State Implementation Plan for attaining the National Ambient Air Quality Standards. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the National Ambient Air Quality Standards and only for the specific National Ambient Air Quality Standards that are or

were violated. U.S. Environmental Protection Agency regulations at 40 Code of Federal Regulations 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for National Ambient Air Quality Standards and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the National Ambient Air Quality Standards for carbon monoxide, nitrogen dioxide, ozone, particulate matter (Particulate Matter 10 and Particulate Matter 2.5), and in some areas (although not in California), sulfur dioxide. California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except sulfur dioxide and also has a nonattainment area for lead; however, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans and Federal Transportation Improvement Programs that include all transportation projects planned for a region over a period of at least 20 years (for the Regional Transportation Plans) and 4 years (for the Federal Transportation Improvement Programs).

Regional Transportation Plans and Federal Transportation Improvement Programs conformity use travel demand and emission models to determine whether or not the implementation of those projects will conform to emission budgets or other tests at various analysis years, showing that requirements of the Federal Clean Air Act and the State Implementation Plan are met. If the conformity analysis is successful, the Metropolitan Planning Organization, Federal Highway Administration, and Federal Transit Administration make the determinations that the Regional Transportation Plans and Federal Transportation Improvement Programs are in conformity with the State Implementation Plan for achieving the goals of the Federal Clean Air Act. Otherwise, the projects in the Regional Transportation Plans and/or Federal Transportation Improvement Programs must be modified until conformity is attained. If the design concept and scope and the "open-to-traffic" schedule of a proposed transportation project are the same as described in the Regional Transportation Plans and Federal Transportation Improvement Programs, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming Regional Transportation Plan and Transportation Improvement Plan; the project has a design concept and scope that has not changed significantly from those in the Regional Transportation Plans and Transportation Improvement Plan; project analyses have used the latest planning assumptions and Environmental Protection Agency-approved emissions models; and in Particulate Matter areas, the project complies with any control measures in the State Implementation Plan. Furthermore, additional analyses (known as hot-spot analyses) may be required for

projects located in Carbon Monoxide and Particulate Matter nonattainment or maintenance areas to examine localized air quality impacts.

Affected Environment

The Stockton Channel Viaduct Bridge Improvements project site is in Stockton, California, in San Joaquin County. The project site is in an area within the San Joaquin Valley Air Basin that includes San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, and a portion of Kern County. The San Joaquin Valley Air Pollution Control District administers air quality regulation in the San Joaquin Valley Air Basin.

The climate of the project area is generally Mediterranean in character, with cool winters (average high 56 degrees Fahrenheit and average low 36 degrees Fahrenheit in January) and warm, dry summers (average high 93 degrees Fahrenheit and average low 57 degrees Fahrenheit in July). Temperature inversions are common, affecting localized pollutant concentrations in the winter and enhancing ozone formation in the summer. Annual average rainfall is 17.85 inches per year.

Per the July 2020 Stockton Channel Viaduct Bridge Improvements Air Quality Memorandum, San Joaquin County is in nonattainment status for the Federal 8-hour Ozone and Particulate Matter 2.5 standards; the county is in attainment for the Federal Particulate Matter 10 standard. San Joaquin County is in nonattainment status for the State Ozone, Particulate Matter 10, and Particulate Matter 2.5 standards.

Environmental Consequences

Per the Air Quality Memorandum, the Stockton Channel Viaduct Bridge Improvements project is exempt from the transportation conformity test—which assesses a project's future vehicle emissions of air pollutants—since the project falls under Table 2 of 40 Code of Federal Regulations Section 93.126, Federal Highway Administration, "Widening narrow pavements or reconstructing bridges (no additional travel lanes)." Additionally, the Air Quality Memorandum stated the project is not expected to cause any operational effects on air pollution. Based on this, the project was evaluated for construction emissions.

During construction, the project will generate air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, the largest percentage of pollutants will be windblown dust generated during excavation, grading, hauling, and various other activities. The impacts of these activities will vary each day as construction progresses. Dust and odors during construction could cause occasional annoyance and complaints from residents along the state right-of-way.

Construction climate change emissions are estimated at 16 tons of carbon dioxide over 564 working days. Operational climate change emissions do not need to be estimated because the project is not capacity increasing.

Avoidance, Minimization, and/or Mitigation Measures

Caltrans' Standard Specifications that pertain to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of Caltrans' Standard Specifications Section 14-9.02, "Air Pollution Control" and Section 10-5, "Dust Control," require the contractor to comply with the air pollution control rules, ordinances, regulations, and statutes that apply to work performed under the contract, including those provided in Government Code Section 11017. The implementation of the above Standard Specifications will help minimize any potential temporary construction-related impacts to air quality. Additionally, a dust control plan will be required if:

- At least 2,500 cubic yards of material are moved in a day for at least three days of the project, or 5 or more acres of land will be disturbed during construction.

2.2.4 Noise

Regulatory Setting

The California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between CEQA and NEPA.

California Environmental Quality Act

CEQA requires a strict baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/Title 23 Part 772 of the Code of Federal Regulations noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 Code of Federal Regulations 772

For highway transportation projects with Federal Highway Administration involvement (and Caltrans, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 Code of Federal Regulations 772) govern the analysis and abatement of traffic noise impacts. The regulations

require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criteria for residences (67 A-weighted decibels) is lower than the noise abatement criteria for commercial areas (72 A-weighted decibels). The following table lists the noise abatement criteria for use in the NEPA/23 Code of Federal Regulations 772 analysis.

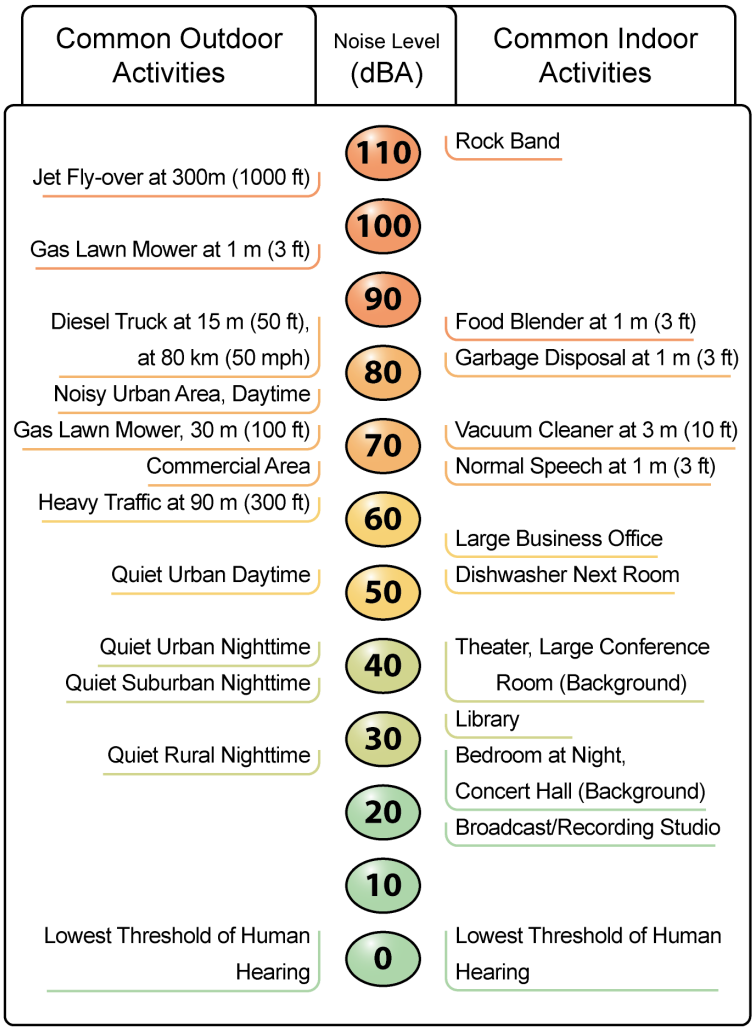
In Table 2.4 below, undeveloped lands are permitted for the activity categories for B and C.

Table 2.4 Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Residential.
C	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants, bars, and other developed lands, properties, or activities not included in A-D or F.
F	No Noise Abatement Criteria—Reporting Only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehouses.
G	No Noise Abatement Criteria—Reporting Only	Undeveloped lands that are not permitted.

Figure 2-6 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Figure 2-6 Noise Levels of Common Activities



According to Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as 12 decibels or more) or when the future noise level with the project approaches or exceeds the Noise Abatement Criteria. A noise level is considered to approach the Noise Abatement Criteria if it is within 1 decibel of the Noise Abatement Criteria.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated into the project.

Caltrans' Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. Noise abatement must be predicted to reduce noise by at least 5 decibels at an impacted receptor to be considered feasible from an acoustical perspective. It must also be possible to design and construct the noise abatement measure for it to be considered feasible. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: 1) the noise reduction design goal of 7 decibels at one or more impacted receptors; 2) the cost of noise abatement; and 3) the viewpoints of benefitted receptors (including property owners and residents of the benefitted receptors).

Affected Environment

The July 2020 Noise Study Report determined that the project would affect the residential neighborhood near the Interstate 5 on-ramp from Pershing Avenue. The report identified two sound walls currently in the project area—sound wall 3 and sound wall 2. Sound wall 3, which is built on the Park Street on-ramp, is the main sound wall next to the residential homes. Sound wall 3 will not be altered during construction activities. Sound wall 2 was built to extend noise abatement generated from Interstate 5 traffic. Sound wall 2 is about 900 feet long; per the project description, sound wall 2 will be demolished and rebuilt under all three Build Alternatives due to the construction of the temporary Pershing Avenue off-ramp. The Noise Study Report identified 13 first-row receivers that are currently benefitting from the existing overlapping sound walls 2 and 3. For this noise reevaluation, only six first-row receivers were selected and shown in Figure 2-7, Sound wall Locations. The results from noise modeling for these receptors were used to determine the height of the 900-foot sound wall 2 (see Figure 2-7).

Figure 2-7 Sound Wall Locations

Environmental Consequences

The Federal Highway Administration defines a Type 1 project as a proposed federal or federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignments or increases the number of through-traffic lanes. Under Build Alternative 3, the project will alter the horizontal and/or vertical alignments of the Stockton Channel Viaduct Bridge, which will qualify the project as a Type 1 project, requiring a noise study. For Build Alternatives 1A and 2, the project would have been considered a rehabilitation project, which would not have qualified the project as a Type 1 project.

The analysis for the Noise Study Report was conducted for barrier heights ranging from 10 feet to 14 feet since the sound wall proposed in the project description will be on the edge of the shoulder (see Figure 2-7). The height and location for the proposed reconstruction of sound wall 2 were evaluated to determine if a minimum reduction of 5 A-weighted decibels at the represented first-row receivers could be achieved; they were also evaluated to determine if a reduction of 7 A-weighted decibels could be obtained for one first-row receiver. The following is a summary of each Build Alternative.

Build Alternative 1A

A sound wall would have needed to be built at the existing location of sound wall 2 to achieve the minimum noise reduction of 5 decibels for the six first-row receivers. Sound wall 2 would have broken the line of sight at all proposed heights of 10, 12, and 14 feet and would have also achieved a reduction of 7 decibels for at least one first-row receiver at the maximum height of 14 feet. For a detailed discussion, please refer to the July 2020 Noise Study Report.

Build Alternative 2

A sound wall would have needed to be built at the existing location of sound wall 2 to achieve the minimum noise reduction of 5 decibels for the six first-row receivers. Sound wall 2 would have broken the line of sight at all proposed heights of 10, 12, and 14 feet and would have also achieved a reduction of 7 decibels for at least one first-row receiver at the maximum height of 14 feet. For a detailed discussion, please refer to the July 2020 Noise Study Report.

Build Alternative 3

A sound wall will need to be built at the existing location of sound wall 2 to achieve the minimum noise reduction of 5 decibels for the six first-row receivers. Sound wall 2 will break the line of sight at all proposed heights of 10, 12, and 14 feet and will also achieve a noise reduction of 7 decibels for at least one fist-row receiver at the maximum height of 14 feet. For a detailed discussion, please refer to the July 2020 Noise Study Report.

The findings for the Noise Study Report found that for Build Alternative 3, the reconstruction of sound wall 2 will need to be raised to 14 feet to meet the reduction of 7 decibels for one first-row receiver since it is a Type 1 project.

The findings for Build Alternatives 1A and 2 concluded the reconstruction of sound wall 2 with a height of 10 feet to 12 feet would have been sufficient to meet noise reduction standards since these Build Alternatives did not meet the definition of a Type 1 project.

The following text has been added since the draft environmental document:

Based on the studies completed to date and input from the public, Caltrans intends to incorporate noise abatement in the form of (a) barrier(s) by rebuilding the existing 900 foot sound wall at location 2. Calculations based on preliminary design data show that a 14-foot barrier will reduce noise levels by 5 to 7 A-weighted decibels for 13 homes at a cost of $1,391,000. If conditions have substantially changed during the final design, noise abatement may not be built. The final decision on noise abatement will be made upon completion of the project design.

Per the 23 Code of Federal Regulations Part 772 analysis contained in the Noise Study Report, the project will not result in a substantial increase (12 decibels) in noise if the predicted noise levels approach (within 1 decibel) or exceed the Noise Abatement Criteria because the project is replacing the existing sound wall and raising the elevation of the new sound wall to protect the identified receptors.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are discussed in this section. The project scope accounts for the demolition and reconstruction of the existing sound wall 2 and proposes the appropriate length and height for each Build Alternative.

2.3 Biological Environment

Environmental study limits for the project were established to encompass all areas determined by Caltrans Engineering, Construction, and Environmental staff to be affected directly or indirectly by the project. This included areas required for the placement and construction of project features and areas required for the access, operation, storage, and staging of construction equipment and personnel. The environmental study limits represent the project's construction footprint.

The action area is defined for the purposes of the Federal Endangered Species Act as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." (50 Code of

Federal Regulations Section 402.02) The action area is a biological determination of the reach of the proposed action on federally listed species.

The action area will be considered as the same area for the purposes of federal agency consultation, including for the purposes of Clean Water Act Section 404 permitting and Federal Endangered Species Act Section 7 Consultation. The action area consists of the project construction footprint as well as all connecting waterways extending up to 3,280 feet (0.62 mile) away from underwater sound sources produced by construction activities. Figure 2-8 shows the biological environmental study limits and action area.

Figure 2-8 Project Environmental Study Limits and Federal Action Area

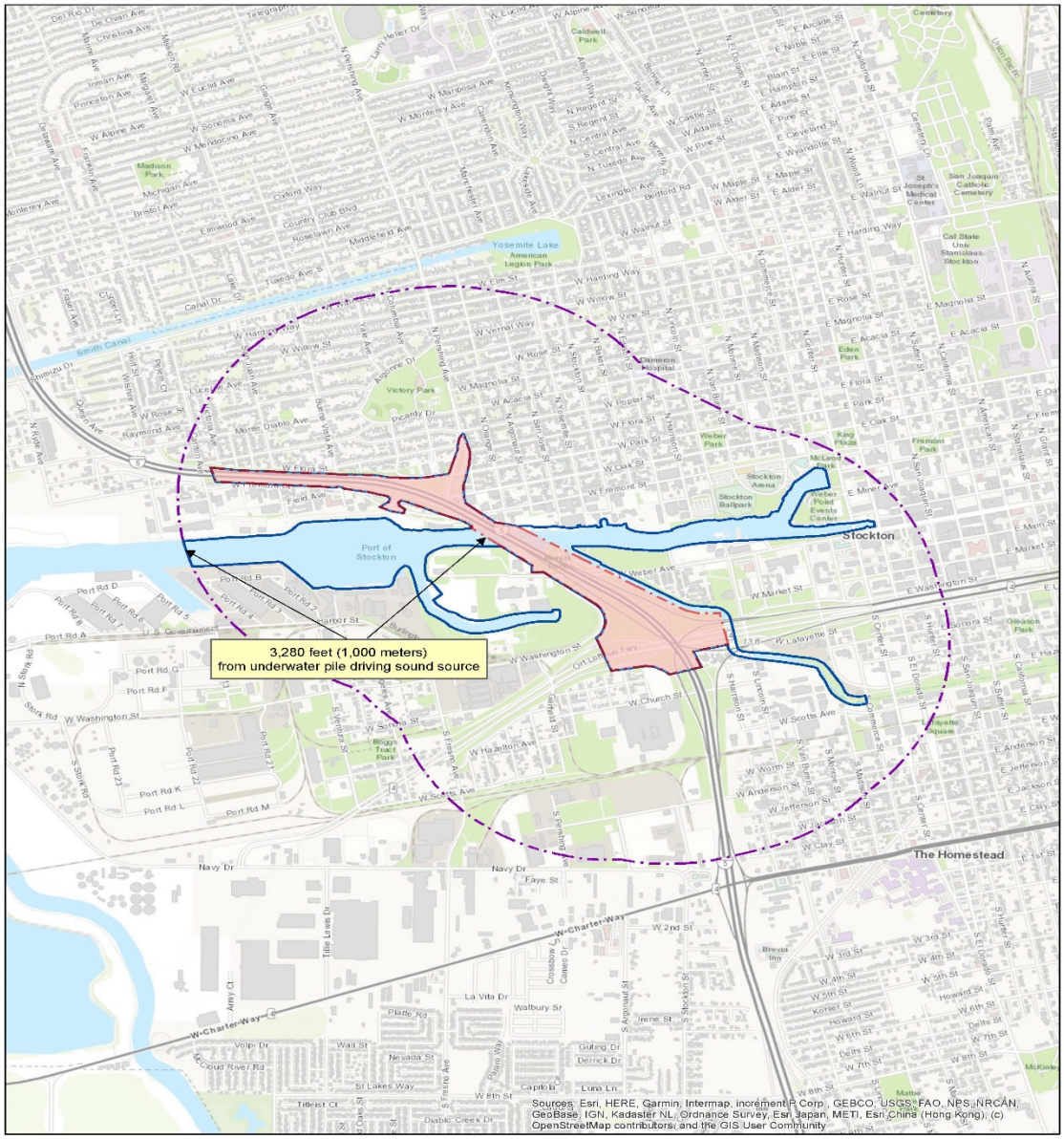


Figure 2-8
Project Environmental Study Limits and Federal Action Area

10-0X460 SJ-05 PM 26.47
Stockton Channel Viaduct Bridge Improvement Project
I-5 in San Joaquin County, CA

Datum: North American Datum 1983
Projection: California State Plane, Zone 3
Map Prepared on May 22, 2019 By
Jason Meigs, Associate Environmental Planner - NS
California Department of Transportation, District 10

LEGEND

- Environmental Study Limits
- Federal Action Area
- 1,000 Meter Underwater Noise Threshold

N W E S

1:18,000

1 inch = 1,500 feet

0 750 1,500 3,000 Feet

2.3.1 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 U.S. Code 1344), is the primary law regulating wetlands and surface waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the Ordinary High Water Mark in the absence of adjacent wetlands. When adjacent wetlands are present, Clean Water Act jurisdiction extends beyond the Ordinary High Water Mark to the limits of the adjacent wetlands. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by the U.S. Environmental Protection Agency. (U.S. Environmental Protection Agency)

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effects. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of U.S. Army Corps of Engineers' Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the U.S. Army Corps of Engineers' decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines (40 Code of Federal Regulations 230) and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative

which would have less adverse effects. The guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a “least environmentally damaging practicable alternative” to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, Executive Order 11990 states that a federal agency, such as the Federal Highway Administration and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and other waters are regulated primarily by the State Water Resources Control Board, the Regional Water Quality Control Boards, and the California Department of Fish and Wildlife. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. California Department of Fish and Wildlife jurisdictional limits are usually defined by the tops of the stream or lake banks or the outer edge of riparian vegetation, whichever is wider. Wetlands under the jurisdiction of the U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the Regional Water Quality Control Boards also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section for more details. Because permanent and temporary impacts to “other waters” of the U.S. are potentially jurisdictional under Section 404 of the Clean Water Act and are expected to occur under Build Alternatives 1A, 2, and 3, the Stockton

Channel Viaduct Bridge Improvements project is expected to require a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers under each Build Alternative. Because the project would conduct activities in waters designated by the U.S. Army Corps of Engineers as navigable waters under Build Alternatives 1A, 2, and 3, Section 10 of the Rivers and Harbors Act is also applicable under each Build Alternative.

Because the project proposes to conduct construction activities below the highest high tide line of jurisdictional waters of the State of California (the Stockton Deep Water Channel) under Build Alternatives 1A, 2, and 3, the Stockton Channel Viaduct Bridge Improvements project is expected to require a California Fish and Game Code Section 1600 Lake or Streambed Alteration Agreement and a Clean Water Act Section 401 Certification from the Central Valley Regional Water Quality Control Board under each Build Alternative.

Affected Environment

Impacts to waters of the U.S. and waters of the State could be caused by project construction. Additional details are provided in the 2020 Natural Environment Study.

The following existing information was reviewed to develop an inventory of potentially jurisdictional waters of the U.S. occurring within the project vicinity:

- 1987 Wetlands Delineation Manual
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) 2008
- Hydric soils will be determined by the methodology outlined in the Field Indicators of Hydric Soils in the U.S., Version 6.0 (2006) from the U.S. Department of Agriculture Natural Resources Conservation Service.
- Preliminary determinations of the jurisdictional status of delineated wetlands were based on 85 Federal Register 22250 (April 21, 2020).

The following existing information was reviewed to develop an inventory of potentially jurisdictional Waters of the State of California occurring within the project vicinity. All water bodies found were evaluated to determine if they qualified as Waters of the State of California based upon the following criteria:

- All federally jurisdictional wetlands and other waters, as described in the 2020 Natural Environment Study in Sections 2.3.1 and 2.3.2.
- Waters of the State of California jurisdiction at streams, lakes, and ponds considered as “other waters” of the U.S. extends beyond the Ordinary High Water Mark to the top of the bank or to the greatest lateral extent of riparian vegetation, whichever is greater.

The jurisdiction of the Waters of the State of California includes isolated, non-navigable, intrastate wetlands that do not qualify as waters of the U.S.

Waters of the U.S.

The U.S. Army Corps of Engineers has not issued a preliminary jurisdictional determination, an approved jurisdictional determination, or an aquatic resources verification per its Regulatory Guidance Letter 08-02 for the project. Wetlands and other waters of the U.S. will be verified during the permitting process.

The following text has been added since the draft environmental document:

The preliminary estimated impacts to Potential Wetlands, Other Waters of the U.S., and Waters of the State of California for Build Alternatives 1A, 2, and 3 have been assessed for this project. Under Build Alternatives 1A and 2, there would have been temporary impacts to the Stockton Deep Water Channel for construction and dewatering activities to retrofit the existing bents located in the channel. Maps illustrating the temporary impacts for Build Alternatives 1A and 2 can be found in Volume 2 of this document.

For Build Alternative 3, there will be permanent and temporary impacts from dewatering and construction activities to build the newly realigned bents with the Stockton Deep Water Channel. Figures illustrating the permanent and temporary impacts from construction activities can be found in Volume 2 of this document.

A feature possessing characteristics of wetlands and other waters was detected in the approximate center of the triangular-shaped northeast quadrant of the Interstate 5/State Route 4 interchange loops (Potential Wetland Location-01). The Potential Wetland Location-01 is about 0.93 acre in the area (see Figure 2-9 and Figure 2-10).

Figure 2-9 Potential Wetland Location-01 Viewed From the Southbound Interstate 5 Off-Ramp

Figure 2-10 Highway Stormwater Conveyance at the Northern Point of Potential Wetland Location-01

It has been preliminarily determined that the Potential Wetland Location-01 does not qualify as jurisdictional waters of the U.S. under Section 404 of the Clean Water Act based upon the definition provided in “Navigable Waters Protection Rule: Definition of “Waters of the U.S.” (85 Federal Register 22250) This determination will be considered preliminary until verified by the U.S. Army Corps of Engineers.

Based on the current project design and with the implementation of avoidance measures, Potential Wetland Location-01 is not expected to be permanently or temporarily impacted by the project under Build Alternatives 1A, 2, and 3.

The methodology described in the Corps of Engineers Wetlands Delineation Manual, as well as the methodology described in the U.S. Army Corps of Engineers’ 2005 Regulatory Guidance Letter (“Ordinary High Water Mark Identification”), was used to preliminarily identify potentially jurisdictional “other waters” of the U.S. in the form of tidal perennial streams (the Stockton Deep Water Channel and Mormon Slough). The elevation of the mean high tide line occurs about 4.85 feet above mean sea level. A total of 7.02 acres (305,783.40 square feet) of potentially jurisdictional “other waters” of the U.S. were preliminarily identified within the project’s environmental study limits. Because the project’s action area extends upstream and downstream for about 3,280 feet, about 237.49 acres of potential “other waters” of the U.S. are estimated to occur within the project’s action area. These boundaries of “other waters” of the U.S. within the environmental study limits and action area will be considered preliminary until verified by the U.S. Army Corps of Engineers.

Environmental Consequences

Construction activities that will occur within potentially jurisdictional waters of the U.S. include pile driving for deep foundations, pile driving for temporary sheet pile cofferdams, and pile driving for temporary trestles. Also included will be temporary dewatering activities and resulting temporarily dewatered areas, construction of pile caps, and demolition or removal of existing structures under Build Alternatives 1A, 2, and 3. Access to potentially jurisdictional waters of the U.S. and many of the construction activities will be accomplished by the use of barges or trestles. Some construction activities within potentially jurisdictional waters of the U.S. may also be performed behind dewatered cofferdams.

Permanent and temporary impacts to potentially jurisdictional waters of the U.S. under Section 404 of the Clean Water Act will include the following:

- No impacts to potentially jurisdictional wetlands are expected to occur under Build Alternatives 1A, 2, and 3.
- Under Build Alternative 3, 0.15 acre of permanent fill will be placed in potentially jurisdictional “other waters” of the U.S., and 0.35 acre of potentially jurisdictional “other waters” of the U.S. will be temporarily affected by dewatered areas and temporary fill.
- Under Build Alternatives 1A and 2, 0.10 acre of permanent fill would have been placed in potentially jurisdictional “other waters” of the U.S., and 0.09 acre of potentially jurisdictional “other waters” of the U.S. would have been temporarily affected by dewatered areas and temporary fill.

Waters of the State of California

The 2020 Natural Environment Study identified impacts to potentially jurisdictional Waters of the State of California that also qualify as potentially jurisdictional waters of the U.S. under Build Alternatives 1A, 2, and 3. These waters are discussed above as “waters of the U.S.”

Streams within the project’s environmental study limits have beds and banks but do not support riparian vegetation. Strip plantings of ornamental trees along Mormon Slough and in Morelli Park Boat Launch on the south side and along West Fremont Street under the structure on the north side of the Stockton Deep Water Channel within the project’s environmental study limits were not considered as riparian vegetation. The top of the bank and limits of nonfederal Waters of the State of California of the Stockton Deep Water Channel was preliminarily considered to be the tidal “mean higher high water” mark, occurring at about 6.33 feet above mean sea level. A total of 0.16 acre of potentially jurisdictional Waters of the State of California was preliminarily delineated within the project’s environmental study limits.

Under Build Alternatives 1A, 2, and 3, the project may have impacts on potentially jurisdictional waters of the State. Construction activities associated

with the contractor's access to the Stockton Deep Water Channel including, but not limited to barge operation, the construction, use, and subsequent removal of temporary trestles, removal of landscape vegetation, and the storage and staging of construction equipment and materials will pose an impact to jurisdictional waters of the State.

Under Build Alternative 3, segments of potentially jurisdictional Waters of the State of California will be occupied by permanent fill made up of portions of pile caps and bridge piers. The permanent fill will represent about 0.002 acre.

For this analysis, all remaining areas between the mean high tide line and the tidal "mean higher high water" mark in the Stockton Deep Water Channel within the project's environmental study limits will be considered as temporarily impacted by project construction activities under Build Alternatives 1A, 2, and 3, which is about 0.07 acre.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures are identified in the 2020 Natural Environment Study and will be submitted in the construction contract to minimize the impacts to wetlands and other waters. A detailed explanation can be found in Appendix E Avoidance, Minimization, and/or Mitigation measures or within the 2020 Natural Environment Study.

- ESA-1: Environmentally Sensitive Area Designation
- BIO-1: Designated Biologist
- BIO-2: Worker Environmental Awareness Training
- BIO-3: Limited Operation Period—In-Water Construction Activities
- BIO-4: Containment Measures/Construction Site Best Management Practices
- BIO-5: Restore and Revegetate Temporarily Disturbed Areas Onsite
- BIO-20: Compensatory Mitigation

2.3.2 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts on wildlife. The U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and California Department of Fish and Wildlife are responsible for implementing these laws.

This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the

Threatened and Endangered Species section, Section 2.2 in the 2020 Natural Environment Study. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration's National Marine Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600-1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Affected Environment

Project construction could cause impacts on special-status animal species. Additional details are provided in the 2020 Natural Environment Study.

The following existing information was reviewed to develop a list of special-status animal species potentially occurring within the project vicinity:

- California Natural Diversity Database record searches and Geographic Information System data referencing the Stockton West and Stockton East 7.5-minute U.S. Geological Survey quadrangles were downloaded on July 1, 2020.
- U.S. Fish and Wildlife Service Official Species List, provided on July 1, 2020.
- National Oceanic and Atmospheric Administration National Marine Fisheries Service list, referencing the Stockton West and Stockton East 7.5-minute U.S. Geological Survey quadrangles, downloaded on July 1, 2020.
- California Department of Fish and Wildlife Special Animals List.

The Caltrans August 2020 Natural Environment Study discusses the following animal species of special concern:

White Sturgeon

The white sturgeon is a fish species of special concern in California and can be found in saltwater from the Gulf of Alaska south to Ensenada, Mexico. Spawning occurs in only a few large rivers from the Sacramento-San Joaquin

Delta system northward. In California, the white sturgeon spawns mostly in the Sacramento River (to Keswick Dam) but may also spawn in the San Joaquin River and the Feather River (to Oroville Dam facilities) when water quality and flow conditions are favorable. The project's environmental study limit lies within the historic and current range of the white sturgeon. This species accesses the Stockton Deep Water Channel year-round. During the in-water work window of June 1 to October 15, the white sturgeon could be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit does not provide suitable spawning habitat for the white sturgeon.

Pacific Lamprey

The Pacific lamprey is a fish species of special concern in California and is in decline throughout its range in California. Pacific lampreys occur from Los Angeles to Del Norte Counties throughout the rivers and sloughs of the Central Valley.

The project's environmental study limit lies within the historic and current range of the Pacific lamprey. This species accesses the Stockton Deep Water Channel seasonally. During the in-water work window of June 1 to October 15, this species could be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit does not provide suitable spawning habitat for the Pacific lamprey.

Western Brook Lamprey

The western brook lamprey is a fish species of special concern in California. Western brook lampreys are still present in the least disturbed portions of many watersheds, but all populations are likely small, isolated, and declining. Western brook lampreys occur in coastal streams from southeastern Alaska south to California and inland in the Columbia River and Sacramento-San Joaquin River drainages. California populations are found mostly in the Sacramento River watershed.

The project's environmental study limit is within the historic and current range of the western brook lamprey. This species accesses the Stockton Deep Water Channel seasonally. During the in-water work window of June 1 to October 15, this species may be expected to be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit does not provide suitable spawning habitat for the western brook lamprey.

Sacramento-San Joaquin Tule Perch

The Sacramento-San Joaquin tule perch is a species tracked by the California Natural Diversity Database. This species originally occurred throughout Clear Lake, the Russian River, the Sacramento River, the San Joaquin River, and out into the estuaries around San Francisco Bay and the

drainages of the Pajaro River and Salinas River. It is still common as far north as the Pit River, though it has mostly disappeared from the San Joaquin Basin.

The project's environmental study limit lies within the historic and current range of the Sacramento-San Joaquin tule perch. This species has access to the Stockton Deep Water Channel year-round. During the in-water work window of June 1 to October 15, this species could be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit may provide suitable spawning habitat for the Sacramento-San Joaquin tule perch.

Sacramento Hitch

The Sacramento hitch is a fish species of special concern in California. The Sacramento hitch was once found throughout the Sacramento Valley and San Joaquin Valley in low-elevation streams and rivers, as well as in the Sacramento-San Joaquin Delta. Today, the Sacramento hitch is absent from the San Joaquin River and the lower reaches of its tributaries. In the Sacramento-San Joaquin Delta, the Sacramento hitch seems to be largely confined to the northern Delta.

The project's environmental study limit lies within the historic and current range of the Sacramento hitch. This species accesses the Stockton Deep Water Channel year-round. During the in-water work window of June 1 to October 15, this species could be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit does not provide suitable spawning habitat for the Sacramento hitch.

Hardhead Catfish

The hardhead catfish is a fish species of special concern in California. The hardhead catfish is widely distributed in streams at low-elevation to mid-elevation in the drainages of the Sacramento River, San Joaquin River, and Russian River. In the Sacramento River drainage, the hardhead catfish is found in most large tributaries, as well as in the Sacramento River itself.

The project's environmental study limit lies within the historic and current range of the hardhead catfish. This species accesses the Stockton Deep Water Channel seasonally. During the in-water work window of June 1 to October 15, this species could be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit does not provide suitable spawning habitat for the hardhead catfish.

Central Valley Fall-Run Evolutionarily Significant Unit and Central Valley Late Fall-Run Evolutionarily Significant Unit Chinook Salmon

The Central Valley Fall-Run Evolutionarily Significant Unit and Central Valley Late Fall-Run Evolutionarily Significant Unit Chinook salmon are fish species of special concern in California. Migrations between the ocean and the river continue to be of concern because these fishes are supported, to a large extent, by hatchery production, which has ecological and genetic impacts on the sustainability of the fish species.

Today, in the watersheds of the Sacramento River and the San Joaquin River, these fishes spawn upstream as far as the first impassible dams. Passage into the main stem San Joaquin River, above the confluence with the Merced River, is intentionally blocked at the California Department of Fish and Wildlife-operated weir at Hills Ferry. Levees also block access for juveniles to the historic floodplain and tidal marsh rearing habitats.

The project's environmental study limit lies within the historic and current range of the Central Valley Fall-Run Evolutionarily Significant Unit and Central Valley Late Fall-Run Evolutionarily Significant Unit Chinook salmon. This species accesses the Stockton Deep Water Channel seasonally. During the in-water work window of June 1 to October 15, this species could be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's environmental study limit does not provide suitable spawning habitat for Central Valley Late Fall-Run Evolutionarily Significant Unit Chinook salmon.

Sacramento Splittail

The Sacramento splittail is a fish species of special concern in California and was recently delisted (2003) as a threatened species by the U.S. Fish and Wildlife Service because of the demonstrated resiliency of its populations.

The Sacramento splittail is now mainly confined to the San Joaquin Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the San Francisco Estuary while spawning on upstream floodplains and channel edges. In the San Joaquin Delta, the Sacramento splittail is most abundant in the north and west portions, though other areas may be used for spawning.

The project's environmental study limit lies within the historic and current range of the Sacramento splittail. This species accesses the Stockton Deep Water Channel year-round. During the in-water work window of June 1 to October 15, this species could be present within the Stockton Deep Water Channel.

Western Pond Turtle

The western pond turtle is a species of special concern. Western pond turtles are associated with permanent or nearly permanent water sources in a wide variety of habitat types, including marshes, rivers, ponds, lakes, streams, irrigation ditches, or permanent pools. Western pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks.

The project's environmental study limit lies within the historic and current range of the western pond turtle. The Stockton Deep Water Channel, within the project's environmental study limit, provides suitable dispersal and foraging habitat, as well as potential upland and breeding habitat along the levee banks. Potential habitat for the western pond turtle is constrained by nearby urban development on both sides of the levees of the Stockton Deep Water Channel. No western pond turtles were seen during aquatic wildlife surveys conducted in the project's environmental study limit.

Migratory Birds and Raptors

The Migratory Bird Treaty Act makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in Section 50 Code of Federal Regulations, Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. (Section 50 Code of Federal Regulations, Part 21) Several species of migratory birds could potentially nest on the ground or within shrubs and trees within the project's environmental study limit.

Suitable nesting habitat for nesting migratory birds, including raptors, occurs within the project's environmental study limit. Migratory birds and raptors could nest in appropriate habitats there, including structures, vegetation, mammal burrows, and ground-nesting sites, between February 1 and September 30.

Cliff swallows and barn swallows are often seen nesting on the existing bridge structures, particularly at sites over water. However, swallow nests are generally not seen on any of the existing Stockton Viaduct Bridge structures or any of the Interstate 5/State Route 4 interchange structures within the project's environmental study limits during site visits. Steel girders below the bridge deck overhangs do not provide suitable surfaces for swallow nesting. During site visits conducted between October 2017 and April 2020, only the April 2020 survey revealed the presence of a past-season swallow nest attached to a delaminated concrete spall on the concrete bridge deck overhang of the northbound Stockton Channel Viaduct Bridge structures.

Barn owls are known to nest in mature palm trees. No sign of barn owls (scat, pellets) was detected in mature palm trees within the project's environmental study limit during surveys in April 2019.

Bats

Several species of special-status and non-special-status bats could potentially roost in the project's environmental study limit. In addition to bat species listed as sensitive by the resource agencies, state laws protect bats and their occupied roosts from harassment and destruction, such as California Fish and Game Code Sections 2000, 2002, 2014, and 4150, and California Code of Regulations Section 251.1.

The project's environmental study limit was surveyed for bat presence or assessed for the potential presence of bat day roosts—areas used by bats from about sunrise to sunset to sleep and raise their young—or bat night roosts—used by bats from about sunset to sunrise to rest and digest their food. Survey results detected the presence of structure roosting bats within the project area.

The project's environmental study limit contains structures—bridges and buildings—that could potentially provide day or maternity roosts—areas for bats to birth their young—for bats. The existing Stockton Channel Viaduct Bridge structures could potentially provide day or maternity roosts for bats that roost on structures. Such roosts are often found in expansion joints or other crevices. Ideal crevices are 0.75 inch to 1 inch wide.

The north side of the Stockton Deep Water Channel within the project's environmental study limit includes commercial buildings below the existing Stockton Channel Viaduct Bridge and Pershing Avenue off-ramp structures at West Fremont Street that may potentially provide day roosts for bats that roost in crevices. Structures within the project's action area could also serve as bat night roosts.

The project's environmental study limit contains landscape tree plantings along the highway embankment slopes, along local roads, and at interchange "cloverleaf" areas. These small-sized trees to medium-sized trees generally lack cavities and exfoliating bark that are often preferred by bats that roost in trees. Mature palm trees are known to support day and maternity roosts for bat species that roost in crevices and trees. Mature palm trees within the project's environmental study limit could serve as bat night roosts.

Environmental Consequences

Project construction could cause impacts on special-status animal species or species of special concern. Additional details are provided in the 2020 Natural Environment Study.

The California Fish and Game Code Section 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." This definition of take will be applied to all special-status animal species considered as California species of special concern, California Endangered Species Act-listed or California Endangered Species Act candidate species,

California Department of Fish and Wildlife Watch List species, California Fully Protected species, or “rare” California species analyzed in this document. Consultation with the California Department of Fish and Wildlife under California Fish and Game Code Section 1600 will be required to address any common fish species or fish species considered as California species of special concern, California Department of Fish and Wildlife Watch List, California Fully Protected, or “rare.”

The Migratory Bird Treaty Act makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations Section 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. (50 Code of Federal Regulations Section 21) The Migratory Bird Treaty Act in 50 Code of Federal Regulations Section 10.12 defines “take” as “pursue, hunt, shoot, wound, kill, capture, trap, or collect.” This definition of take will be applied to all Migratory Bird Treaty Act-listed bird species, including raptors, analyzed in this document. With the implementation of avoidance measures, construction within the project’s environmental study limits is not expected to result in the “take” (as defined by the Migratory Bird Treaty Act) of any migratory birds or their active nests under Build Alternatives 1A, 2, or 3.

Special-Status Fish Species

Special-status fish species that may be impacted by the project’s construction activities include the white sturgeon, Pacific lamprey, western brook lamprey, Sacramento-San Joaquin tule perch, Sacramento hitch, hardhead catfish, Central Valley Fall-Run/Late Fall-Run Evolutionary Significant Unit Chinook salmon, and Sacramento splittail. Potential impacts to special-status fish species from the construction of the project’s three Build Alternatives include the following: permanent and temporary fill; underwater barotrauma (sound); dewatering activities; vegetation removal; structure shading; sediment mobilization; contaminates/toxic chemicals; construction lighting; and noise. Each impact is discussed further below. For a detailed discussion of the effects from construction activities to special-status fish species, please refer to the 2020 Natural Environment Study.

Effects of Permanent and Temporary Fill

Permanent and temporary fill will result in the permanent or temporary displacement of habitat for special-status fish species. Under Build Alternatives 1A and 2, permanent fill would have been placed within the Stockton Deep Water Channel in the form of permanent piles, pile caps, and bent columns. The permanent and temporary fill would have displaced the aquatic habitat of special-status fish species, which is where they normally occupy. Below is a discussion of the approximate effects permanent and temporary fill may have had.

Under Build Alternatives 1A and 2, permanent fill would have been placed within the Stockton Deep Water Channel in the form of permanent piles, pile caps, and bent columns:

- Piles will be used to support the Stockton Channel Viaduct Bridge beneath the water as a foundation where the pile caps and bent columns will be placed. It is estimated that the permanent placement of piles will occupy 0.02 acre within the Stockton Deep Water Channel.
- It is estimated that the construction of two concrete pile caps will permanently impact 0.08 acre within the Stockton Deep Water Channel.
- It is estimated that the center widening at bents 8 and 9 will permanently impact 0.002 acre of the Stockton Deep Water Channel.

Under Build Alternatives 1A and 2, temporary fill would have been placed within the Stockton Deep Water Channel in the form of temporary piles:

- Construction of temporary trestles under Build Alternatives 1A and 2 was estimated to temporarily impact 0.01 acre of the Stockton Deep Water Channel.
- Additionally, the preliminary cofferdam concept during construction activities would have temporarily added 25.12 square feet of fill and temporarily displaced 3,721 cubic feet of the water column.

Under Build Alternative 3, permanent fill will be placed within the Stockton Deep Water Channel in the form of permanent foundation piles, pile caps, and bent columns:

- Under Build Alternative 3, construction of the foundation piles will permanently occupy about 0.02 acre of the water column within the Stockton Deep Water Channel.
- Under Build Alternative 3, reinforced concrete pile caps associated with the new pile foundations for the new viaduct structure will be permanently occupied with permanent fill in an area of about 0.11 acre below the high-water mark of the Stockton Deep Water Channel to build the new viaduct foundation pile caps.
- Under Build Alternative 3, the construction of bridge pier columns will permanently occupy 0.01 acre of the water column of the Stockton Deep Water Channel.

Under Build Alternative 3, temporary fill will be placed within the Stockton Deep Water Channel in the form of temporary piles:

- Under Build Alternative 3, construction of temporary trestle piles will temporarily occupy about 0.01 acre of the area; it will also temporarily displace about 753.60 cubic yards of the water column within the Stockton Deep Water Channel.

- Under Build Alternative 3, the installation of temporary sheet pile cofferdams is expected to result in a maximum total of about 14,715.80 square feet (0.34 acre) of the temporarily dewatered area and 21,801.19 cubic yards of the dewatered water column in the Stockton Deep Water Channel.

Underwater Barotrauma

Under Build Alternatives 1A, 2, and 3, the effects of underwater barotrauma resulting from pile driving activities may result in take due to mortality to special-status fish species considered as California species of special concern.

Underwater barotrauma is defined as the physical or behavioral impact on aquatic species caused by underwater sound due to construction activities. Barotrauma analysis using the Caltrans 2015 Technical Guidance document was performed to assess barotrauma to fish in the action area. The rate of sound reduction through a body of water was used to predict the area that will be exposed to direct and indirect effects. (Natural Environment Study, 2020)

Effects of Dewatering Activities

Under Build Alternatives 1A, 2, and 3, dewatering activities associated with foundation pile construction may require fish salvage. Fish salvage activities will result in take due to pursuit, catch, and/or capture of special-status fish species considered as California species of special concern.

Effects of Vegetation Removal

Under Build Alternatives 1A, 2, and 3, it is assumed that the mature trees that occur within the project's environmental study limits next to the banks of the Stockton Deep Water Channel will be removed to facilitate contractor access and construction activities, resulting in a loss of 0.62 acre of streamside canopy coverage.

Effects of Structure Shading

The existing viaduct consists of a pair of parallel structures with an overall outside width of about 180 feet and with a center gap measuring about 20 feet. Under Build Alternatives 1A, 2, and 3, the outside width of the overall structure will remain about the same; however, the center gap will be replaced with a new viaduct center section. The closure of the existing center gap will increase to about 0.34 acre of the shaded area from baseline conditions occurring directly over the waters of the Stockton Deep Water Channel. This represents an approximate 0.3 percent increase in the shaded area from the existing current viaduct bridge structure. The construction of the new viaduct structure is expected to have little or no effect on the biological productivity of aquatic habitat within the project's action area.

Overwater structures can affect the amount of light that reaches the water in the waterway, which can limit plant growth, affect prey species that special-

status species rely on for food, which can increase the risk of special-status fish mortality.

Effects of Mobilization of Sediment

The abundance, distribution, and survival of fish populations have been linked to levels of turbidity (water disruption) and silt deposition. Prolonged exposure to high levels of suspended sediment could reduce visual capability in fish, reduce feeding and growth rates, and cause the loss of respiratory function.

Increased turbidity levels associated with Build Alternatives 1A, 2, and 3 of the Stockton Channel Viaduct Improvements project are not expected to physically injure special-status fish species or result in adverse behavioral effects. These levels will likely result in some limited behavioral effects, such as temporarily reduced feeding efficiency of special-status fish species. These behavioral changes are not expected to cause mortality or decrease the probability of survival of individual juvenile or adult special-status fish species.

Under Build Alternatives 1A, 2, and 3, moderate but temporary increases in turbidity are expected to occur during pile driving activities, during the removal of piles, and during barge operations. Except for the Sacramento-San Joaquin tule perch, spawning habitat for special-status fish species considered in this document is not available within the project's environmental study limits. Adverse effects to spawning habitat for these species resulting from suspended and/or deposited fine sediment are not expected to occur.

The Stockton Channel Viaduct Bridge Improvements project has developed avoidance and minimization measures that will reduce the probability of and/or the amount of mobilization of sediment into the Stockton Deep Water Channel. These measures are discussed in the 2020 Natural Environment Study and Appendix E in this document.

Effects of Contaminants/Toxic Chemicals

Under Build Alternatives 1A, 2, and 3, the project could involve the storage, use, or discharge of toxic and other harmful substances near aquatic habitat that could result in contamination of these water bodies and potentially affect fish and other aquatic organisms.

The project has developed avoidance and minimization measures that will reduce the probability of aquatic habitat contamination due to exposure to toxic or hazardous substances.

Effects of Construction Noise and Lighting

For Build Alternatives 1A, 2, and 3, temporary noise disturbances caused by construction equipment, including the use of pile drivers, barges, and associated equipment, will occur during construction. The likely effects on special-status fish species will be the avoidance of habitat next to the

construction area. The above-water noise effects of construction equipment are not expected to rise to a level that will result in injury to or direct mortality of special-status fish species.

Night work is proposed, and temporary lighting of work areas to facilitate nighttime construction, including areas over the Stockton Deep Water Channel, is expected to occur. It is also expected that permanent navigational lighting may be installed below the bridge deck. When artificial lighting shines near waterways, it can penetrate the water and affect fish behavior by altering their natural circadian cycle. Light pollution can affect the survival of special-status fish species in multiple ways. Individuals of some species, which may include predators, are attracted to lights, which can alter nighttime swimming behavior. Specific light frequencies can change the timing of sexual maturation or migratory timing.

The project has developed avoidance and minimization measures that will reduce the probability of disturbance, injury, or mortality of special-status fish species due to noise and lighting.

Special-Status Animal Species

Impacts on special-status animal species, including western pond turtles, migratory birds and raptors, and bats, could be caused by construction activities. Additional details are provided in the 2020 Natural Environment Study.

Western Pond Turtle

During construction activities in aquatic habitat under Build Alternatives 1A, 2, and 3, western pond turtles may be potentially affected by permanent or temporary fill in aquatic habitat, underwater sound exposure, exposure to sediment, toxic chemicals, artificial shading, or by noise or lighting. With the implementation of avoidance measures, the construction activities within the project's environmental study limits are not expected to result in the "take" (as defined by the California Fish and Game Code Section 86) of western pond turtles under Build Alternatives 1A, 2, or 3.

Migratory Birds and Raptors

Under Build Alternatives 1A, 2, and 3, the project proposes construction activities—structure work, vegetation removal, ground disturbance, noise, lighting, or other physical disturbances—that could potentially result in adverse impacts to nesting migratory bird individuals, their occupied nests, eggs, or chicks. Construction activities from all three Build Alternatives have the potential to result in temporary adverse effects to potential foraging and nesting habitat for many bird species. Construction noise for all three Build Alternatives is not expected to cause any long-term adverse effects on migratory bird species.

With the implementation of avoidance measures, the construction activities are not expected to result in the "take" (as defined by the Migratory Bird Treaty Act) of any migratory birds or their active nests under Build Alternatives 1A, 2, or 3. These measures are discussed in the 2020 Natural Environment Study and Appendix E in this document.

Bats

Under Build Alternatives 1A, 2, and 3, the project proposes construction activities—structure work, tree removal, construction noise, and lighting—that could potentially result in adverse impacts to day-roosting or maternity-roosting bats or night roosts. Potential impacts to special-status bat species caused by project construction will remove potential bat habitats in the expansion joints, gaps, and groves in the existing viaduct bridges. Additionally, the removal of the existing commercial structures located within will remove potential habitats, such as groves, overhangs, and other building structure elements.

Tree-Roosting Bats: Mature trees suitable as potential day roosts for bats occur within and next to the project's environmental study limits. Under Build Alternatives 1A, 2, and 3, large mature landscape strip trees that occur next to the Mormon Slough on the south side are expected to be preserved during construction activities. Although woody vegetation removal will be limited as much as feasible, it is assumed that all other trees within the project's environmental study limits that occur in freeway interchange loops and highway embankments are potentially subject to removal because contractors may choose to use these areas as construction staging or storage areas. Additionally, it is assumed that any trees that occur within about 50 feet of the existing viaduct structure are also potentially subject to removal to facilitate construction activities. Based on these assumptions, an unknown number of mature trees potentially suitable as day roost habitat for bats may be removed as a result of project construction under Build Alternatives 1A, 2, and 3. Additionally, tree-roosting bats will be affected by construction noise, temporary construction lighting, permanent structure lighting, and any proposed night work for construction.

The 2020 Natural Environment Study identified some beneficial effects from the construction of Build Alternative 3. Under Build Alternative 3, the new viaduct superstructure section will consist of multiple, parallel, nearby cast-in-place, prestressed concrete box girders. The concrete construction material and full sun exposure of the new viaduct structural section will represent ideal potential roosting habitat for crevice-roosting bats. The three parallel structures of the new viaduct structure will be tied together into a single structure on deck using closure pours, leaving opportunities for habitat features between the spans below deck. Bats use parallel concrete box beam bridges more than any other kind. Preliminary plans also indicate that each of the parallel viaduct structures will require two expansion joints under Build

Alternative 3. These expansion joints will provide suitable habitat for special-status bats.

Under Build Alternatives 1A, 2, and 3, avoidance measures (exclusion devices) are expected to be feasible to implement for structure-roosting bats. With the implementation of avoidance measures, the construction activities within the project's environmental study limits are not expected to result in the take (as defined by California Fish and Game Code Section 86) of structure-roosting bats.

Under Build Alternatives 1A, 2, and 3, avoidance measures (exclusion devices) will likely be infeasible to implement in habitats for tree-roosting bat species (mature trees) within the project's environmental study limits. Minimization measures will be implemented to reduce the potential for construction activities within the project's environmental study limits to result in the take and/or to minimize the extent of take (as defined by California Fish and Game Code Section 86) of tree-roosting bats.

These avoidance and minimization measures are discussed in detail in the 2020 Natural Environment Study and Appendix E in this document.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures are proposed under Build Alternatives 1A, 2, and 3 to avoid, minimize, or mitigate adverse effects to special-status animal species for the selected Build Alternative. A detailed discussion of the avoidance, minimization, and/or mitigation measures can be found in the 2020 Natural Environment Study or Appendix E in this document.

- ESA-1: Environmentally Sensitive Area Designation
- BIO-1: Designated Biologist
- BIO-2: Worker Environmental Awareness Training for Construction Personnel
- BIO-3: Limited Operation Period—In-Water Construction Activities
- BIO-4: Containment Measures/Construction Site Best Management Practices
- BIO-5: Restore and Revegetate Temporarily Disturbed Areas Onsite
- BIO-6: Vibratory Pile Installation
- BIO-7: Impact Pile Driving Attenuation
- BIO-8: Daily Limited Operation Period—Impact Pile Driving
- BIO-9: Salvage Species from Dewatered Areas
- BIO-10: Construction and Structure Lighting

- BIO-11: Migratory Birds and Raptors—Remove Nesting Habitat During Non-Nesting Season
- BIO-12: Migratory Birds and Raptors—Exclusionary Devices
- BIO-13: Migratory Birds and Raptors—Pre-Construction Surveys During Nesting Season
- BIO-14: Migratory Birds and Raptors—Protective Buffers
- BIO-15: Migratory Birds and Raptors—Construction Monitoring
- BIO-16: Bats—Exclusionary Devices
- BIO-17: Bats—Pre-Construction Surveys
- BIO-18: Bats—Protective Buffers
- BIO-19: Bats—Construction Monitoring

2.3.3 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act, 16 U.S. Code Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (and Caltrans, as assigned), are required to consult with the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement or a Letter of Concurrence. Section 3 of the Federal Endangered Species Act defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code Section 2050, and following sections. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife is the agency responsible for implementing California Endangered Species Act. Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the

California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife.

For species listed under both Federal Endangered Species Act and California Endangered Species Act requiring a Biological Opinion under Section 7 of Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to California Endangered Species Act species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the U.S., by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Affected Environment

Project construction could cause impacts on animal species listed under the Federal Endangered Species Act, the California Endangered Species Act, or Essential Fish Habitat under the jurisdiction of the Magnuson-Stevens Fishery Conservation and Management Act. Additional details are provided in the Caltrans Biological Assessment dated October 22, 2019, U.S. Fish and Wildlife Letter of Concurrence dated December 17, 2019, the National Marine Fisheries Service Biological Opinion dated June 23, 2020, and the Caltrans Natural Environment Study, dated August 21, 2020.

Federal Endangered Species Act Consultation Summary: The project was reviewed in sufficient detail to determine whether the proposed action may affect any threatened, endangered, or species listed by the Federal Endangered Species Act. The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration, will prepare a biological assessment under its assumption of responsibility at 23 U.S. Code 327(a)(2)(A). The biological assessment is also prepared per 50 Code of Federal Regulations 402, legal requirements found in Section 7 (a)(2) of the Federal Endangered Species Act (16 U.S. Code 1536(c)), and with Federal Highway Administration and Caltrans regulation, policy, and guidance.

Federal Endangered Species Act Section 7 consultation has proceeded under Build Alternative 3. However, the federal action area and the determinations summarized below are the same in Build Alternatives 1A, 2, and 3.

The U.S. Fish and Wildlife Service provided its official species list for the project's action area on July 1, 2020. A National Marine Fisheries Service list and a California Natural Diversity Database list referencing the Stockton West and Stockton East U.S. Geological Survey quadrangles were downloaded on July 1, 2020.

Caltrans requested technical assistance from Lyla Pirkola of the National Marine Fisheries Service and Kim Squires of the U.S. Fish and Wildlife Service in an email dated April 29, 2019. On April 29, 2019, Lyla Pirkola concurred with the 1,000-meter guidance for the determination of the action area based on the effects of underwater sound provided in the Caltrans 2015 Compendium. On May 1, 2019, Kim Squires also concurred with the 1,000-meter guidance provided in the Caltrans 2015 Compendium. The action area for the Stockton Channel Viaduct Bridge Improvements project will therefore include the entire project's environmental study limits as well as all connecting waterways extending up to 3,280 feet (0.62 mile) away from the underwater sound source.

Caltrans requested a consultation with the U.S. Fish and Wildlife Service under Section 7 of the Federal Endangered Species Act in a correspondence dated October 29, 2019. In the October 29, 2019, correspondence, Caltrans initially determined that the project "may affect and is likely to adversely affect" the Federal Endangered Species Act-threatened Delta smelt and its designated critical habitat. Caltrans discussed the project with Brian Hansen of the U.S. Fish and Wildlife Service. Upon review of the current status of the Delta smelt, seasonal timing, and the location of the project, Caltrans changed its determination to "may affect but is not likely to adversely affect" the threatened Delta smelt or its designated critical habitat. On December 17, 2019, the U.S. Fish and Wildlife Service provided a "letter of concurrence" with Caltrans' determination that the Stockton Channel Viaduct Bridge Improvements project "may affect but is not likely to adversely affect" the threatened Delta smelt or its designated critical habitat.

Caltrans determined that the Stockton Channel Viaduct Bridge Improvements project "may affect and is likely to adversely affect" the Federal Endangered Species Act-listed Southern Distinct Population Segment of green sturgeon and the Federal Endangered Species Act-listed California Central Valley steelhead and their designated critical habitat. Caltrans also requested a consultation with the National Marine Fisheries Service under Section 7 of the Federal Endangered Species Act in a correspondence dated October 29, 2019. On November 15, 2019, Lyla Pirkola of the National Marine Fisheries Service emailed Caltrans, requesting additional information before initiating formal Federal Endangered Species Act consultation.

On December 3, 2019, Caltrans responded to the National Marine Fisheries Service's November 15, 2019 request for additional information, and the National Marine Fisheries Service initiated formal Federal Endangered Species Act Section 7 consultation on December 17, 2019.

The National Marine Fisheries Service requested that Caltrans update its determinations to include federally threatened Central Valley spring-run Chinook salmon; the consultation was paused at that time. On February 7, 2020, Lyla Pirkola and Ellen McBride of the National Marine Fisheries Service and James P. Henke and Jason Meigs of Caltrans discussed project mitigation options, including compensatory mitigation. On February 28, 2020, Caltrans responded by updating its determinations to include that the project was "not likely to adversely affect" Federal Endangered Species Act-listed Central Valley spring-run Chinook salmon.

On March 13, 2020, Ellen McBride and Lyla Pirkola of the National Marine Fisheries Service and James P. Henke and Jason Meigs of Caltrans met onsite to discuss project impacts and mitigation. On April 14, 2020, the National Marine Fisheries Service received additional information from Caltrans regarding proposed mitigation. On April 22, 2020, Lyla Pirkola requested clarification on the proposed mitigation. On April 23, 2020, Caltrans responded with sufficient information, and consultation initiation was reset and restarted. The National Marine Fisheries Service issued a Biological Opinion in a correspondence dated June 23, 2020.

California Endangered Species Act Consultation Summary: The California Endangered Species Act mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. (Fish and Game Code 2050 et seq.) The California Department of Fish and Wildlife regulates activities related to fish, wildlife, and plants in California and is responsible for administering the California Endangered Species Act.

If take of a state-listed species is unavoidable, an application per California Fish and Game Code Section 2081 will be prepared. The California Department of Fish and Wildlife has the authority under Section 2081 of the California Fish and Game Code to issue permits for the take of species listed under the California Endangered Species Act (state-listed species) if the take is incidental to an otherwise lawful development project; California Department of Fish and Wildlife has determined that the effects of the take have been minimized and fully mitigated; and, the take will not jeopardize the continued existence of the species. For projects that will affect both a state and federally listed species, compliance with the Federal Endangered Species Act will satisfy the California Endangered Species Act if the California Department of Fish and Wildlife determines that the federal incidental take

authorization is “consistent” with the California Endangered Species Act under California Fish and Game Code Section 2080.1.

The project area is outside the range of the species mentioned above because of its lack of suitable habitat or habitat components and/or because the project will not harm individuals or alter the species’ habitat. Caltrans has determined that the project will not result in “take” (as defined by California Fish and Game Code Section 86) of species listed or candidates proposed for listing under the California Endangered Species Act administered by the California Department of Fish and Wildlife under Build Alternatives 1A, 2, and 3.

The Magnuson-Stevens Fishery Conservation and Management Act Consultation Summary, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with the National Marine Fisheries Service on activities that may adversely affect Essential Fish Habitat. Essential Fish Habitats are those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity. Important components of Essential Fish Habitat include substrate, water quality, water quantity, depth, velocity, channel gradient, stability, food, cover, habitat complexity, space, access, passage, and habitat connectivity. Only species covered by a Fishery Management Plan need to be considered for Essential Fish Habitat coordination.

Caltrans has determined that the project may adversely affect Essential Fish Habitat for Pacific groundfish and Central Valley spring-run Chinook salmon under Build Alternatives 1A, 2, and 3. Potential effects on Essential Fish Habitat related to the disturbance of stream substrate, sedimentation, turbidity, hazardous materials, and contaminants during in-water construction activities, including pile driving, will be temporary. Implementation of the project under any Build Alternative is not expected to result in permanent changes or adverse effects to water quantity, water depth, water velocity, channel gradient and stability, availability of food or cover, habitat complexity, space, access, passage, or habitat connectivity to Essential Fish Habitat for Pacific groundfish and Central Valley spring-run Chinook salmon within the Stockton Deep Water Channel.

Because the project proposes construction activities within waters identified as Essential Fish Habitat, consultation with the National Marine Fisheries Service under the Magnuson-Stevens Fisheries Management Act will be required under Build Alternatives 1A, 2, and 3. Caltrans requested a consultation with the National Marine Fisheries Service under Magnuson-Stevens Fisheries Management Act for Build Alternative 3 in a correspondence dated October 29, 2019, and the National Marine Fisheries Service initiated Magnuson-Stevens Fisheries Management Act consultation on December 17, 2019. The National Marine Fisheries Service provided its

Essential Fish Habitat recommendations in a correspondence dated June 23, 2020.

The following existing information was reviewed to develop a list of animal species listed under the Federal Endangered Species Act and the California Endangered Species Act potentially occurring within the project vicinity:

- California Natural Diversity Database record searches and Geographic Information System data referencing the Stockton West and Stockton East 7.5-minute U.S. Geological Survey quadrangles were downloaded on July 1, 2020.
- The U.S. Fish and Wildlife Service's official species list was provided on July 1, 2020.
- National Oceanic and Atmospheric Administration and National Marine Fisheries Service list, referencing the Stockton West and Stockton East 7.5-minute U.S. Geological Survey quadrangles, was downloaded on July 1, 2020.
- The National Marine Fisheries Service Essential Fish Habitat Mapper (http://www.habitat.noaa.gov/protection/efh/efhmapper/) was accessed on July 1, 2020.

The Caltrans Biological Assessment, U.S. Fish and Wildlife Letter of Concurrence, the National Marine Fisheries Service Biological Opinion, and the Caltrans Natural Environment Study discussed the following threatened, endangered, or proposed threatened or endangered species:

Southern Distinct Population Segment of Green Sturgeon

The Southern Distinct Population Segment of green sturgeon is a threatened species under the Federal Endangered Species Act. Designated critical habitat for this species occurs within the action area in the Stockton Deep Water Channel.

The Southern Distinct Population Segment of green sturgeon ranges from the Alaska Bering Sea to Ensenada, Mexico, with abundance increasing north of Point Conception in California. The adults spawn every 2 to 4 years. Beginning in late February, the Southern Distinct Population Segment of green sturgeon travels from the ocean into freshwater to begin spawning migration. The juveniles rear and feed in freshwater and estuarine (a mix of freshwater and saltwater) waters from 1 to 4 years before dispersing into marine waters as a subadult.

The project's action area lies within the historic and current range of the Southern Distinct Population Segment of green sturgeon. Migrating juveniles, subadults, and adults are widely distributed in the Sacramento-San Joaquin Delta and estuary areas. This species has unrestricted access to the Stockton

Deep Water Channel, and juveniles may be expected to access the Stockton Deep Water Channel year-round.

During the proposed in-water work window of June 1 to October 15, this species may be present within the Stockton Deep Water Channel. The Stockton Deep Water Channel within the project's action area does not provide suitable spawning habitat for the Southern Distinct Population Segment of green sturgeon.

Delta Smelt

The Delta smelt is a threatened species under the Federal Endangered Species Act and endangered under the California Endangered Species Act. Designated critical habitat for this species occurs within the action area in the Stockton Deep Water Channel.

The Delta smelt is found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties. The range of the Delta smelt in the San Joaquin River is thought to extend to the City of Lathrop. The Delta smelt has a life span that runs to 1 year shortly after spawning. It spawns in river channels and tidally influenced backwater sloughs.

- The project's action area lies within the historic and current range of the Delta smelt. The Delta smelt has unimpeded access to the Stockton Deep Water Channel from the San Joaquin River and may be expected to access the Stockton Deep Water Channel, at least seasonally. It is unlikely that the Stockton Deep Water Channel within the project's action area provides suitable spawning habitat for the Delta smelt.
- According to the U.S. Fish and Wildlife Service (2019), the project area will not provide suitable habitat for Delta smelt during the summer and fall months, and it is likely that Delta smelt will not be present during the time frames (June 1 to October 15) of in-water construction in the project area.
- The aquatic environment is typically low in dissolved oxygen during the summer and fall months and lacks an ecology that will promote sufficient food production to sustain the Delta smelt. Temperatures during the summer and fall months are also typically too hot for the Delta smelt's metabolism.

California Central Valley Distinct Population Segment of Steelhead Trout

The California Central Valley Distinct Population Segment of steelhead trout is a threatened species under the Federal Endangered Species Act. Currently, the California Central Valley Distinct Population Segment of steelhead trout includes steelhead trout in all river reaches accessible to the Sacramento and San Joaquin Rivers and their tributaries in California. Designated critical habitat for this species occurs within the action area in the Stockton Deep Water Channel.

Adult steelhead trout enter the San Joaquin River freshwater system sometime between July through August. Peak migration of adults moving upriver occurs from September through February. Adult steelhead trout will hold until flows are high enough in the tributaries to move into riffle areas where they spawn from December to April. Steelhead kelt (an adult steelhead that has successfully spawned) migrating back through the freshwater system to the Pacific Ocean may persist in the California Central Valley from December through May, living for lengths of time in the Sacramento-San Joaquin Delta as they make the transition back to saltwater physiology.

California Central Valley Distinct Population Segment of steelhead trout have unimpeded access to the Stockton Deep Water Channel from the San Joaquin River and may be expected to access the Stockton Deep Water Channel, at least seasonally due to baseline water quality conditions. The Stockton Deep Water Channel does not provide suitable habitat for California Central Valley Distinct Population Segment of steelhead trout during the summer months, and it is likely that the species will not be present during the proposed in-water work window of June 1 to October 15. The Stockton Deep Water Channel is likely a deterrent for the species because it is a low-quality habitat that occurs in a shipping traffic corridor. The aquatic environment is typically low in dissolved oxygen during the summer and fall months, and temperatures during the summer and fall months are also usually too warm for the species' metabolism.

Central Valley Spring-Run Chinook Salmon San Joaquin River Experimental Population

In 2013, the National Marine Fisheries Service designated the Central Valley spring-run Chinook salmon as an experimental nonessential population per Section 10(j) of the Federal Endangered Species Act. (78 Federal Register 79622) The species was reintroduced to the San Joaquin River. This allows for the release of threatened Central Valley spring-run Chinook salmon outside their current range. The population is considered an experimental, nonessential population (meaning that if the population does not survive, it will not threaten the whole evolutionarily significant unit because the population is geographically separate from the protected population of the same species).

According to the final rule under the Federal Endangered Species Act Section 10(j), reintroduced Central Valley spring-run Chinook salmon San Joaquin River Experimental Population are designated as a nonessential experimental population inside of the experimental population area, which is generally in the San Joaquin River from its confluence with the Merced River upstream to Friant Dam. (78 Federal Register 79622; December 31, 2013) However, outside of the experimental population area, Central Valley spring-run Chinook salmon are considered part of the Central Valley spring-run Chinook

salmon Evolutionarily Significant Unit, which is listed as a threatened species under the Federal Endangered Species Act.

The project's action area is within the historical range of the Central Valley spring-run Chinook salmon. Waters within the Sacramento-San Joaquin Delta and the Stockton Deep Water Channel are not suitable for Chinook salmon spawning, and adult Chinook salmon probably do not feed in the Delta.

The action area for the project occurs outside of the experimental population area; however, it is near the migration corridor that the reintroduced fish must take to reach the ocean or return to the experimental population area. The Central Valley spring-run Chinook salmon San Joaquin River Experimental Population has unimpeded access to the Stockton Deep Water Channel from the San Joaquin River and could potentially access the Stockton Deep Water Channel, at least seasonally. Due to baseline water quality conditions discussed above, the channel will not provide suitable habitat for salmon during the summer and fall months, and it is likely that Central Valley spring-run Chinook salmon San Joaquin River Experimental Population will not be present during the proposed in-water work window of June 1 to October 15.

Longfin Smelt

The longfin smelt is a threatened species under the California Endangered Species Act and is a candidate for listing under the Federal Endangered Species Act.

Scattered populations of the longfin smelt occur along the Pacific Coast of North America from Alaska to the San Francisco Bay. According to the California Department of Fish and Wildlife, the longfin smelt has been collected in the Cache Slough Complex (including in the nearby lower Stockton Deep Water Channel), the Yolo Bypass, the lower Sacramento River to almost the City of Sacramento, the Mokelumne River to Hog Slough, within the San Joaquin River to the vicinity of Turner Cut Island and Rough and Ready Island, and in the South Sacramento-San Joaquin Delta. Longfin smelts spend their adult life in bays, estuaries, and nearshore coastal areas and migrate into freshwater rivers to spawn.

The project's action area lies within the historic and current range of the longfin smelt, but it is thought to be at the upstream edge of the species' distribution. Larval survey data from the Bay-Delta indicate that longfin smelt spawning occurs from November through May, with a peak from February through April, after which most adults die. Longfin smelt spawning is expected to occur outside of the in-water work window, and longfin smelts are expected to spawn downstream and outside of the project's action area. Longfin smelts spend their adult life in bays, estuaries, and nearshore coastal areas and migrate into freshwater rivers to spawn. Adult longfin smelts are therefore not expected to be present in the project's action area at any time of the year.

Swainson's Hawk

The Swainson's hawk is a threatened species under the California Endangered Species Act.

The Swainson's hawk breeds in open habitats throughout much of the western U.S., Canada, and northern Mexico. In California, breeding populations of Swainson's hawks occur in the desert, shrub-steppe grassland (low rainfall natural grassland), and agricultural habitats. However, most of the state's breeding sites are in two disjunct—geographically separated—populations in the Great Basin and Central Valley. The largest population in California occurs between Sacramento and Modesto and in the northern San Joaquin Valley.

Swainson's hawks nest in the Central Valley of California and are generally found in scattered trees or along riparian systems next to agricultural fields or pastures. These open fields and pastures are the main foraging areas where Swainson's hawks hunt and eat insects and small mammals.

With rare exceptions, Swainson's hawks are migrants, breeding in North America and wintering in South America. In the Central Valley, they arrive in late February and early March. Early arrival dates of Central Valley Swainson's hawks are likely related to their shorter migration distance to wintering sites in Mexico.

The action area lies within the historic and current range of the Swainson's hawk. Mature trees suitable for potential nesting habitat occur within the project's environmental study limits. Potential foraging habitat for the Swainson's hawk is not available within the project's environmental study limits because these hawks are not expected to forage over open water bodies such as the Stockton Deep Water Channel or in the heavily urbanized areas of the City of Stockton. Additionally, small patches of disturbed habitat available within existing freeway interchange loops are not considered foraging habitat capable of supporting the Swainson's hawk.

No evidence of Swainson's hawks nesting within or next to the project's environmental study limits was found during wildlife surveys in April 2018, October 2018, and April 2019. Swainson's hawks were seen soaring over the vicinity of the project's environmental study limits during surveys in April 2019.

The California Natural Diversity Database records show no occurrences of Swainson's hawks nesting within 0.25 mile of the project's environmental study limits. However, three occurrences of Swainson's hawks nesting were found within about 1 mile of the project's environmental study limits. (California Natural Diversity Database, 2018)

Large mature trees provide potentially suitable nesting habitat for Swainson's hawks.

Environmental Consequences

The following text has been added since the draft environmental document:

Due to the project area being outside the range of the species or due to the lack of suitable habitat or habitat components in the project area, or because the project will not harm individuals or alter the species' habitat, it is Caltrans' determination that the Stockton Channel Viaduct Bridge Improvements project will have "no effect" on the following species listed or proposed for listing under the Federal Endangered Species Act or their critical habitat administered by the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service under Build Alternatives 1A, 2, and 3:

- Large-flowered fiddleneck
- Palmate-bracted bird's-beak
- Vernal pool fairy shrimp
- Vernal pool tadpole shrimp
- Valley elderberry longhorn beetle
- California tiger salamander
- California red-legged frog
- Giant garter snake
- Least Bell's vireo

Section 3 of the Federal Endangered Species Act defines "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." This definition of take will be applied to all animal species considered as Federal Endangered Species Act-listed or Federal Endangered Species Act-candidate species analyzed in this document.

Under Build Alternatives 1A, 2, and 3, project activities in aquatic habitat, including barge operations, pile driving, dewatering activities, fish salvage, and other physical disturbances, as well as construction activities occurring over water, may result in take of Federal Endangered Species Act-listed species due to harassment, harm, pursuit, entrapment, capture, injury, or mortality. Therefore, it is Caltrans' determination that the Stockton Channel Viaduct Bridge Improvements project "may affect and is likely to adversely affect" Federal Endangered Species Act-listed Southern Distinct Population Segment of green sturgeon and Federal Endangered Species Act-listed Central Valley steelhead and their designated critical habitat.

California Fish and Game Code Section 86 defines "take" as: "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." This definition of take will be applied to all special-status animal species

considered as California Endangered Species Act-listed or California Endangered Species Act-candidate species analyzed in this document.

The project area is outside the range of the species because of the lack of suitable habitat or habitat components in the project area and/or because the project will not harm individuals or alter the species' habitat. Therefore, it is Caltrans' determination that the project will not result in "take" (as defined by California Fish and Game Code Section 86) of species listed or candidates proposed for listing under the California Endangered Species Act administered by the California Department of Fish and Wildlife under Build Alternatives 1A, 2, and 3.

Under Build Alternatives 1A, 2, and 3, the effects of permanent and temporary fill, underwater barotrauma, dewatering activities, vegetation removal, structure shading, sediment mobilization, exposure to contaminants/toxic chemicals, and noise and lighting on fish species listed under the Federal Endangered Species Act and/or the California Endangered Species Act are the same as those above for special-status fish species in Section 2.3.2, Animal Species, Environmental Consequences.

Effects to Designated Critical Habitat for Species Under the Federal Endangered Species Act

Critical habitat designations require the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to consider "those physical or biological features that are essential to the conservation of a given species" and specify that the "physical and biological features shall be listed with the critical habitat description."

An analysis of potential impacts to designated critical habitat for fish species listed under the Federal Endangered Species Act is based on the potential effects on the physical and biological features of the designated critical habitat.

- Under Build Alternatives 1A, 2, and 3, implementation of the project is not expected to appreciably diminish the value or considerably reduce the capability of designated critical habitat to satisfy requirements essential to both the survival and recovery of Federal Endangered Species Act-listed species in the Stockton Deep Water Channel.

Swainson's Hawk

Activities that may ultimately result in the perusal, capture, or intentional or accidental killing (California Fish and Game Code Section 86) of adult Swainson's hawks are not expected to occur as a result of the project under Build Alternatives 1A, 2, or 3.

Under Build Alternatives 1A, 2, and 3, the project is expected to result in the loss of an unknown number of large mature trees potentially suitable as

nesting habitat for Swainson's hawks. Potential foraging habitat for the Swainson's hawk is not available within the project's environmental study limits because Swainson's hawks are not expected to forage over open water bodies such as the Stockton Deep Water Channel or in the heavily urbanized areas of the City of Stockton within and next to the project's environmental study limits.

With the implementation of Swainson's hawk avoidance measures, the construction activities are not expected to result in the take (as defined by California Fish and Game Code Section 86) of Swainson's hawk under Build Alternatives 1A, 2, or 3. If it is determined during pre-construction surveys or construction monitoring that the project could result in the "take" of Swainson's hawks, consultation with the California Department of Fish and Wildlife under Section 2080 of the California Fish and Game Code will be required.

Avoidance, Minimization, and/or Mitigation Measures

Under Build Alternatives 1A, 2, and 3, the following project features and standardized measures, as listed in the 2020 Natural Environment Study, will be implemented as part of the design of the project to avoid, minimize, or mitigate adverse effects to threatened and endangered animal species. A detailed explanation of these measures is discussed in Appendix E.

- ESA-1: Environmentally Sensitive Area Designation
- BIO-1: Designated Biologist
- BIO-2: Worker Environmental Awareness Training
- BIO-3: Limited Operation Period—In-Water Construction Activities
- BIO-4: Containment Measures/Construction Site Best Management Practices
- BIO-5: Restore and Revegetate Temporarily Disturbed Areas Onsite
- BIO-6: Vibratory Pile Installation
- BIO-7: Impact Pile Driving Attenuation
- BIO-8: Daily Limited Operation Period—Impact Pile Driving
- BIO-9: Salvage Species from Dewatered Areas
- BIO-10: Construction and Structure Lighting
- BIO-11: Migratory Birds and Raptors
- BIO-20: Compensatory Mitigation
- BIO-21: Swainson's Hawk: Remove Nesting Habitat During Non-Nesting Season
- BIO-22: Swainson's Hawk: Pre-Construction Surveys During Nesting Season

- BIO-23: Swainson's Hawk: Protective Buffers
- BIO-24: Swainson's Hawk: Construction Monitoring

2.3.4 Invasive Species

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration guidance issued August 10, 1999, directs the use of the State's invasive species list, maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

Affected Environment

A Natural Environment Study was completed for the project on August 21, 2020, detailing the study methodology and results of the invasive species survey. Because ground disturbing action or activity is within the project's environmental study limits under Build Alternatives 1A, 2, and 3, the risk of introducing or spreading noxious or invasive plants and animals associated with the action was determined. Surveys for target noxious and invasive plant and animal species were conducted in conjunction with botanical inventory surveys and focused sensitive plant surveys conducted in the 2019 and 2020 seasons.

The following existing information was reviewed to develop a list of invasive species potentially occurring within the project vicinity:

- A list of invasive and/or noxious weeds occurring in California was obtained from the California Department of Food and Agriculture's noxious weed list for the State of California and the California Invasive Plant Council's "Invasive Plant Inventory." (https://www.cal-ipc.org/plants/inventory/)
- The California Department of Fish and Wildlife Invasive Species Program website was reviewed for invasive animal species known to occur in the Sacramento-San Joaquin Delta.

The 2020 Natural Environment Study discussed the following invasive plant and animal species:

Perennial Pepperweed

Perennial pepperweed is most invasive in wetland habitat, including the riparian zone; from there, it easily spreads to other ecosystems. Perennial pepperweed grows very aggressively, forming dense colonies that exclude native species.

Yellow Star Thistle

Yellow star thistle inhabits open hills, grasslands, open woodlands, fields, roadsides, and rangelands, and it is considered one of the most serious rangeland weeds in the state.

Water Hyacinth

Water hyacinth spreads through the fragmentation of established plants and may resprout from rhizomes or germinate from seeds. Dispersal also occurs by waterborne seeds and by seeds that stick to the feet of birds. Water hyacinth can quickly dominate a waterway or aquatic system because of rapid leaf production, fragmentation of daughter plants, and copious seed production and germination. It degrades habitat for waterfowl by reducing areas of open water used for resting, and when decomposing, it makes water unfit for drinking. It displaces native aquatic plants used for food or shelter by other wildlife species. Water hyacinth causes problems for humans by obstructing navigable waterways, impeding drainage, fouling hydroelectric generators and water pumps, and blocking irrigation channels.

Giant Reed

Giant reed is a tall perennial grass that typically forms dense stands on disturbed sites, sand dunes, riparian areas, and wetlands. Giant reed is threatening California's riparian ecosystems by outcompeting native species, such as willows, for water, degrading wildlife habitat, and interfering with flood control.

Mississippi Silversides

Mississippi silversides are native to the eastern U.S., where they live in lakes and streams accessible from the Atlantic Coast. In California, Mississippi silversides were deliberately introduced in the 1960s as a forage fish for larger, desirable game fish or to eat insects considered pests. From those introductions, which also took place in the Bay-Delta watershed, the Mississippi silversides spread to the Delta, where, in some places, it is the most common fish. Mississippi silversides eat zooplankton, the tiny floating aquatic animal fauna that includes not only animals that stay small their whole lives, like copepods, but the larval stages of larger fishes such as the Delta's Central Valley spring-run Chinook salmon and Delta smelt. The abundance of the Mississippi silverside makes this species one of the major predation threats to the threatened Delta smelt.

American Bullfrog

American Bullfrogs, also native to the eastern U.S., are “gape-limited predators,” meaning that the frog eats whatever it can wedge into its mouth. American bullfrog adults are known to feed on the California red-legged and yellow-legged frogs, native salamanders, Delta smelt, salmon and steelhead fry and eggs, mice, baby birds, moles, voles, lizards, snakes, butterflies, and dragonflies.

Red-Eared Slider

Red-eared sliders, native to the southeastern U.S., are commonly kept turtles and are often released into the wild. Red-eared sliders can easily dominate any body of water. Red-eared sliders are larger than the native western pond turtle and require essentially the same habitat. The larger invasive turtles outcompete the smaller natives for available food, which has contributed to the western pond turtle’s decline. Populations of red-eared sliders often displace native turtles from their habitat.

Grass Carp

The grass carp is a large freshwater fish that belongs to the Minnow family. The species was introduced to the U.S. in the 1960s and has since been reported in 45 states. The grass carp is native to large rivers of eastern Asia, from China and Russia to Thailand. The grass carp has a ravenous appetite for plants. They can quickly reduce or eliminate large quantities of aquatic vegetation from water bodies, which can lead to the alteration or loss of habitat for native species, reduction in food availability for waterfowl, and increased occurrences of algal blooms. While feeding, the grass carp disturbs sediment and muddy waters, which can impact the spawning habitat for native fish. The grass carp carries diseases that are transmittable to other fish and are believed to be the main vector for Asian tapeworms.

Chinese Mitten Crab

Chinese mitten crabs are native to China’s and South Korea’s coastal rivers and estuaries that drain to the Yellow Sea. In Europe and California, Chinese mitten crabs are believed to have been introduced via ship ballast. Chinese mitten crabs cause damage to dikes, levees, and stream banks and increase erosion, which can cause weakening or collapse of flood control and water supply systems. In California, Chinese mitten crabs have interfered with water operations at diversion facilities by clogging fish salvage structures. Additionally, Chinese mitten crabs steal bait from recreational anglers, damage commercial fishing nets, compete with native and commercially important species for food (especially crayfish), prey upon native species (including fish eggs), damage rice crops by excessively burrowing and foraging, and may transfer diseases and parasites to native species.

New Zealand Mudsnail

The New Zealand mudsnail is a tiny aquatic snail that inhabits lakes, rivers, streams, reservoirs, and estuaries. The snails were first introduced to the U.S. through contaminated ballast water and/or the transport of live fish for the commercial aquaculture industry. Dense populations become the dominant macroinvertebrate through displacing and outcompeting native species. Some North American streams have reached densities of over 0.75 million individuals per square meter. They may consume up to half of the food resources in a stream and have been linked to reduced populations of aquatic insects, including mayflies, caddisflies, chironomids, and other insects important to trout and salmon species.

Brown-Headed Cowbird

Brown-headed cowbirds are native to the Great Plains region of the U.S. and prefer open habitats interspersed with shrubs or trees and that provide ample forage and host nests. Brown-headed cowbirds parasitize the nests of more than 220 bird species in their range. When parasitizing nests, they often remove the egg(s) of the host bird. Brown-headed cowbird chicks usually hatch sooner than the host chicks, are larger, and develop faster. Their larger size and persistent behavior gain them more care from the host parents. Nest parasitism lowers the reproductive success of host birds and has led to population declines in several bird species.

Nutria

Nutrias were originally introduced to the U.S. (Elizabeth Lake, California) for the fur trade in 1899 but failed to reproduce. However, subsequent introductions were successful. As records indicate, nutrias were present in the Central Valley and South Coast of California in the 1940s and 1950s but were eliminated from the state by the 1970s. In 2017, a reproducing population of nutria was discovered in California's San Joaquin Valley; as of May 2019, nutrias have been confirmed in San Joaquin, Stanislaus, Merced, Fresno, Mariposa, and Tuolumne Counties. Nutrias cause various kinds of damage through burrowing, intense herbivory, and carrying pathogens and parasites. Nutrias do not build dens; they burrow, frequently causing water-retention or flood control levees to breach, weakening structural foundations, and eroding banks.

Environmental Consequences

Although existing roadside areas will be temporarily disturbed, the project will not break new ground that is potentially available for new infestations. It is also possible that weeds originating from within the project's environmental study limits could be transported to uninfested areas within the project's action area or outside of the project vicinity. It is also recognized that disturbed roadside areas are significant sources of noxious and invasive weed material.

Under Build Alternatives 1A, 2, and 3, adverse impacts to terrestrial native vegetation or vegetation communities or urban landscape vegetation within the project area due to an increase in the spread of noxious weeds as a result of the project are possible. However, adverse impacts are not likely because project construction activities will take place in open, disturbed areas such as roadway embankments, highway interchange loops, and urban landscapes that currently promote the growth of non-native species and are currently dominated by potentially invasive weeds, including many species listed as "moderate" and "limited" invasiveness by the California Invasive Plant Council.

Under Build Alternatives 1A, 2, and 3, the project will not increase aquatic habitat available for new infestations. The potential for the project to cause an increase in the area of infestation or for other adverse impacts to aquatic habitat within the project's environmental study limits and action area will be further reduced by implementing avoidance strategies and design features for reducing the spread of noxious weeds.

Under Build Alternatives 1A, 2, and 3, adverse impacts to aquatic habitat and native aquatic plant and animal species within the project area due to an introduction or spread of invasive animal species as a result of the project are possible. However, aquatic and terrestrial invasive animal species are known to occur in the project vicinity.

Under Build Alternatives 1A, 2, and 3, the project will not increase aquatic or terrestrial habitat available for potential colonization by invasive animal species. Adverse impacts to aquatic habitat and native aquatic plant and animal species within the project area due to an introduction or spread of invasive animal species will be avoided or minimized by implementing measures to reduce the spread of invasive animal species. These measures will reduce the introduction of invasive animal species as well.

Avoidance, Minimization, and/or Mitigation Measures

As discussed in the 2020 Natural Environment Study, the following measures will be implemented to avoid, minimize, or mitigate adverse effects of invasive plant and animal species under Build Alternatives 1A, 2, and 3. A detailed discussion of these measures can be found in Appendix E in this document.

- ESA-1: Environmentally Sensitive Area Designation
- BIO-1: Designated Biologist
- BIO-3: Limited Operation Period—In-Water Construction
- BIO-4: Containment Measures/Construction Site Best Management Practices
- BIO-5: Restore and Revegetate Temporarily Disturbed Areas Onsite
- BIO-25: Weed-Free Construction Equipment and Vehicles

- BIO-26: Equipment and Materials Storage, Staging, and Use in Weed-Free Areas
- BIO-27: Weed Control During Construction
- BIO-28: Weed-Free Erosion Control and Revegetation Treatments
- BIO-29: Pest-Free Construction Equipment and Vehicles

2.4 Construction Impacts

Construction (short-term) impacts for the project will cause temporary impacts for the following: borrow and fill and optional disposal sites; staging and storage of construction equipment; parks and recreational activities; traffic and transportation; pedestrian and bicycle facilities; cultural resources; water quality and stormwater runoff; geology, soils, seismicity, and topography; hazardous waste and materials; air quality and construction conformity; and natural communities.

These impacts will be addressed using standardized measures, including Best Management Practices, that will be added to the construction contract, as discussed below.

Borrow and Fill/Optional Disposal Sites

Caltrans' construction projects often generate excess soil excavation or concrete rubble that must be disposed of either onsite or offsite. If commercial or local recycling facilities or disposal sites are not adequate or are unable to accommodate excess materials created by Caltrans' work, designated optional sites should be developed to keep the project on schedule.

As appropriate, a Disposal Site Quality Team Final Report will be prepared. This report will present Caltrans and Federal Highway Administration policies on disposal, staging, and borrow areas, including plant sites, contractor yards, and access roads.

Parks and Recreational Facilities

The following standard practices will be implemented as part of the construction contract to offset temporary impacts to Morelli Park Boat Launch caused by project construction. These standard practices will reduce the impacts of any of the Build Alternatives):

- Replace impacted facilities (parking, pavement).
- Restore disturbed areas.
- Keep access open to the waterway under the Stockton Channel Viaduct Bridge.

Traffic and Transportation, Pedestrian and Bicycle Facilities

A traffic management plan will be developed to handle local traffic patterns, reduce delays, and to identify locations of temporary detours and signage to facilitate traffic within the project study area during construction. The traffic management plan will specify time frames for roadway and lane closures. Emergency services such as fire, police, and medical will be notified in advance of any lane or roadway closures. The project will coordinate construction activities to avoid blocking or limiting access to residential units and businesses.

Cultural Resources

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

If human remains are discovered during construction, California Health and Safety Code Section 7050.5 states that further disturbances and activities will stop in any area or nearby area suspected to overlie remains, and the county coroner will be contacted. If the coroner thinks the remains are Native American, the coroner will notify the Native American Heritage Commission, which, per Public Resources Code Section 5097.98, will then notify the Most Likely Descendant. At this time, the person who discovered the remains will contact Central Region Environmental Cultural staff members so they can work with the Most Likely Descendant on the respectful treatment and disposition of the remains.

Water Quality and Stormwater Runoff

A Stormwater Pollution Prevention Plan and the measures outlined below will protect the water quality within the project study area. Therefore, construction activities will not be expected to result in adverse effects on receiving waters.

Construction entrances and temporary construction roadway, in addition to stormwater sampling and analysis, will be required under a Stormwater Pollution Prevention Plan for risk levels 2 and 3. Water quality monitoring may be required for in-water work during the construction of bridge piles.

Before the start of construction activities, a Stormwater Pollution Prevention Plan will be prepared by the contractor and approved by Caltrans. The plan will discuss potential temporary impacts via the implementation of appropriate Best Management Practices such as those mentioned above and below, to the maximum extent practical.

- The project will be required to follow the requirements of the Caltrans Statewide National Pollutant Discharge Elimination System Stormwater Permit Order Number 2009-0009-DWQ, National Pollutant Discharge Elimination System Number CAS000002, and any subsequent permit in

effect at the time of construction. Additionally, the project will be required to follow the requirements of the National Pollutant Discharge Elimination System Permit for Construction Activities, as well as the implementation of the Best Management Practices specified in Caltrans' Stormwater Management Plan. (Caltrans, 2003b)

- Prepare and Implement a Stormwater Pollution Prevention Plan: The contractor will be required to develop an acceptable Stormwater Pollution Prevention Plan. The plan will meet the requirements of the Construction General Permit, which include identifying potential pollutant sources associated with construction activities, identifying non-stormwater discharges, and identifying, implementing, and maintaining Best Management Practices to reduce or eliminate pollutants associated with the construction site. A Notice of Termination will be submitted to the State Water Resources Control Board upon completion of the construction and stabilization of the site.

Geology, Soils, Seismicity, and Topography

Caltrans will implement the following Best Management Practices related to erosion control:

- To prevent or reduce impacts, temporary Construction Site Best Management Practices will be used for sediment control and material management. Sediment control and material handling include cover, check dam, drainage inlet protection, fiber roll, silt fence, and hydraulic mulch.
- Construction entrances and temporary construction roadway, in addition to stormwater sampling and analysis, will be required under a Stormwater Pollution Prevention Plan for risk levels 2 and 3. Water quality monitoring may be required for in-water work during the construction of bridge piles.
- Permanent erosion control may be proposed for disturbed areas and new side slopes; it will consist of hydroseeding, hydromulch, and/or netting.

Hazardous Waste and Materials

The lead-based paint used on the metal girders under the roadway and roadway striping in the project area is above regulatory levels and will be considered hazardous if removed. Appropriate avoidance and minimization measures will be used to ensure any loose material is handled and disposed of appropriately. The following are Caltrans' Standard Special Provisions that will be used if a hazardous substance is encountered during construction:

- There is potential to encounter nonhazardous concentrations of aerially deposited lead while working in unpaved areas within the project limits. Caltrans' Standard Special Provisions pertaining to Earth Material Containing Lead, 7-1.02K(6)(j)(iii), will be added to the construction contract.

- The sheet packing material used as railing shims is considered nonhazardous. However, disturbance of the material by cutting, abrading, sanding, grinding, etc., will require compliance with the California Occupational Safety and Health Administration asbestos standard. (Title 8, California Code of Regulations Section 1529). Written notification to the San Joaquin Valley Air Pollution Control District is required 10 working days before the start of demolition activities, even when asbestos is not present. Caltrans' Standard Special Provisions Section 14-11.16 (Asbestos-Containing Construction Materials in Bridges) will be added to the construction contract to ensure that all materials are properly handled and disposed of in a certified waste facility.
- The orange paint applied to the steel girder system will be considered a California and federal hazardous waste based on lead content if stripped, blasted, or otherwise separated from the substrate (base material). Caltrans' Standard Special Provisions Section 14-11.13 (Disturbance of Existing Paint Systems on Bridges) will be added to the construction contract to ensure that all material separated from the substrate (base material) is properly handled and disposed of in a certified waste facility.
- Yellow traffic striping on the roadway will be considered a California hazardous waste based on lead content if stripped, blasted, or otherwise separated from the base material. Caltrans' Standard Special Provisions Section 14-11.12 Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue will be added to the construction contract to ensure that all material that is separated from the substrate is properly handled and disposed of in a certified disposal facility.
- Build Alternative 3 will require excavating the Stockton Deep Water Channel to advance bridge footings. As a result, excess soil material (sand, silt, clay) may be produced. It is unknown if contaminants will be present in the excess bed material. Therefore, the excess soil should be surveyed for hazardous materials before the start of construction. Such materials could include but would not be limited to heavy metals, petroleum hydrocarbons, pesticides, and volatile organic compounds. Once the excess soil material is properly classified, Caltrans' Standard Special Provisions will be included in the construction contract to ensure the material is properly handled.

Air Quality and Construction Conformity

The following standard specifications and standards measures will help reduce temporary impacts to air quality caused by project construction:

- During construction, the project will generate air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. However, the largest percentage of pollutants will be windblown dust generated during excavation, grading, hauling, and various other activities. The impacts of these activities will vary each day as construction progresses. Dust and

odors during construction could cause occasional annoyance and complaints from residents along the state right-of-way.

- Caltrans's Standard Specifications that pertain to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of Caltrans' Standard Specifications, Section 14-9.02 "Air Pollution Control" and Section 10-5 "Dust Control," require the contractor to comply with the air pollution control rules, ordinances, and regulations and statutes that apply to work performed under the contract, including those provided in Government Code Section 11017.
- A dust control plan will be needed if at least 2,500 cubic yards of material are moved in a day for at least three days of the project or 5 or more acres of land will be disturbed during construction.

2.5 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations Section 1508.7.

Affected Environment

Cumulative impacts were discussed in the August 2020 Cumulative Impact Analysis Memorandum for the Stockton Channel Viaduct Bridge Improvements project. The Guidance for Preparers of Cumulative Impact Analysis (July 2005) was used to identify, evaluate, and make significance determinations on resources of concern for the project.

Assumptions were made that if technical studies did not specifically identify project-related direct or indirect impacts, then a cumulative impact was not necessary. Based on the technical studies, the following resources were not considered in the cumulative impact analysis: Cultural, Air Quality, Climate Change, Water Quality/Stormwater, Geology/Soils, Hazardous Waste, Paleontology, Land Use, Coastal Zones, Wild and Scenic Rivers, Farmlands/Timberlands, Wetlands, Visual/Aesthetics, and Community Impacts resources. Biological resources were identified within the 2020 Natural Environment Study that discussed the cumulative impact of the project.

Environmental Consequences

Based upon the 2020 Cumulative Impact Analysis, special-status and threatened and endangered species were identified where the project could have temporary impacts on those species in the project area. The Cumulative Impact Analysis identified that construction activities will temporarily affect aquatic and land species.

The Cumulative Impact Analysis made every effort to identify and locate past, present, and reasonably foreseeable future actions in the project area that have the potential to affect the species that were identified in the analysis. Upon completing the analysis, it was determined that the Stockton Channel Viaduct Bridge Improvements project will not have a cumulative impact on biological resources from past, present, and reasonably foreseeable future projects. Additionally, with the implementation of avoidance, minimization, and/or mitigation measures discussed in the 2020 Natural Environment Study, temporary construction impacts will be less than significant.

Avoidance, Minimization, and/or Mitigation Measures

The 2020 Cumulative Impact Analysis Memorandum discussed avoidance, minimization, and/or mitigation measures that were identified in the 2020 Natural Environment Study to lessen the impact on special-status and threatened and endangered species and their habitats (see Appendix E or the 2020 Natural Environment Study).

Chapter 3 CEQA Evaluation

3.1 Determining Significance Under CEQA

The proposed project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Federal Highway Administration's responsibility for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code Section 327 and the Memorandum of Understanding dated December 23, 2016, and executed by the Federal Highway Administration and Caltrans. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement, or a lower level of documentation, will be required. NEPA requires that an Environmental Impact Statement be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an Environmental Impact Report. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A No Impact answer in the last column reflects this determination. The words "significant" and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

CEQA Significance Determinations for Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

No Impact—The project will not have a substantial adverse effect on a scenic vista because the project area does not include any scenic vistas.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact—The project is not on a scenic highway and will not substantially damage any scenic resources or historic buildings.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact—The project is in an urbanized area and will not substantially degrade the existing visual character or public views of the surrounding area and will not conflict with applicable zoning or scenic quality regulations.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact—The project will not create a new source of substantial light or glare that will adversely affect day or nighttime views in the area.

3.2.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a nonagricultural use?

No Impact—The project is in an urban area and will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a nonagricultural use.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact—There are no parcels under a Williamson Act contract within the project limits.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined

by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact—There are no forest lands or timberlands within the project limits.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact—There are no forest lands or timberlands within the project limits. Therefore, the project will not result in the loss of forest land or convert forest land to non-forest use.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to a nonagricultural use or conversion of forest land to non-forest use?

No Impact—There are no forest lands or timberlands within the project limits; therefore, no changes are expected to Farmland of Statewide Importance or forest land.

3.2.3 Air Quality

CEQA Significance Determinations for Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact—The project will not conflict with or obstruct the implementation of any applicable air quality plan.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact—San Joaquin County is in nonattainment status for the Federal 8-hour Ozone and Particulate Matter 2.5 standards and in attainment for the Federal Particulate Matter 10 standard. San Joaquin County is in nonattainment status for the State Ozone, Particulate Matter 10, and Particulate Matter 2.5 standards.

Per the 2020 Air Quality Memorandum, the Stockton Channel Viaduct Bridge Improvements project is exempt from conformity under Table 2 of 40 Code of Federal Regulations Section 93.126 “Widening narrow pavements or reconstructing bridges (no additional travel lanes).”

This project is not expected to cause any operational effects on air pollutants. No mitigation will be required.

c) Expose sensitive receptors to substantial pollutant concentrations?

No Impact—The project will not expose sensitive receptors to substantial pollutant concentrations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact—The project will not result in other emissions that will adversely affect a substantial number of people.

3.2.4 Biological Resources

CEQA Significance Determinations for Biological Resources

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant with Mitigation Incorporated—The 2020 Natural Environment Study determined that project construction activities will impact threatened and endangered species. However, with the incorporation of avoidance, minimization, and/or mitigation measures as identified in the 2020 Natural Environment Study, the effects will result in a less than significant impact (see Section 2.3.3 Threatened and Endangered Species or Appendix E).

Per the 2020 Natural Environment Study, project construction activities will temporarily impact sensitive or special-status species. Impacts on sensitive or special-status species will be lessened with avoidance and minimization measures. See Section 2.3.2 Animal Species and Appendix E for a detailed description of the avoidance and minimization measures.

However, construction activities will impact special-status species' habitat, Essential Fish Habitat. As discussed in the 2020 Natural Environment Study, impacts will be reduced to less than significant with the implementation of avoidance, minimization, and/or mitigation measures. See Section 2.3.3 Threatened and Endangered Species and Appendix E for a detailed description of avoidance, minimization, and/or mitigation measures.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or

by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No Impact—The project will not have an adverse effect on any riparian habitat. The 2020 Natural Environment Study determined no riparian habitat was found in the project area or other sensitive natural communities.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant with Mitigation Incorporated—The 2020 Natural Environment Study found no impacts on potentially jurisdictional wetlands.

However, the project will have temporary and permanent impacts on “Waters of the U.S.” and “Non-Federal Waters of the State of California” for Build Alternative 3. Under Build Alternatives 1A and 2, it was determined the project would have had impacts on “Other Waters of the U.S.” With the implementation of avoidance, minimization, and/or mitigation measures identified within the 2020 Natural Environment Study, the effects would have been less than significant. See Section 2.3.1 Wetlands and Other Waters and Appendix E for a detailed description of avoidance, minimization, and/or mitigation measures.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No Impact—The project will not substantially interfere with the movement of any native migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact—The project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact—The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.2.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact—The project will not cause a substantial adverse change in the significance of a historical resource per Section 15064.5.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

No Impact—The project will not cause a substantial adverse change in the significance of an archaeological resource per Section 15064.5.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact—The Historic Property Survey Report identified human remains at an archaeological site within the project area and determined a Finding of No Adverse Effect with Standard Conditions. Environmentally sensitive area fencing will be the appropriate avoidance measure to protect this resource.

3.2.6 Energy

CEQA Significance Determinations for Energy

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

No Impact—The project will not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Best Management Practices will be followed during project construction and/or operation.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact—The project will not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Best Management Practices will be followed during construction and/or operation.

3.2.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

No Impact—The project will not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death.

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?

No Impact—Per the 2019 Seismic Design Recommendation Report, the project is not in an earthquake fault zone and is more than 1,000 feet from an "unzoned" fault.

ii) Strong seismic ground shaking?

No Impact—The project will not be subjected to strong seismic ground shaking.

iii) Seismic-related ground failure, including liquefaction?

No Impact—Per the 2019 Seismic Design Recommendation Report, the soils on the Stockton Deep Water Channel riverbank are susceptible to liquefaction activities near bents 8 and 9. However, the proposed piles retrofit or replacement for Build Alternatives 2 and 3 will be designed so the bridge will not collapse under these conditions.

iv) Landslides?

No Impact—The project is not within a landslide area; therefore, it will not cause substantial adverse effects.

b) Result in substantial soil erosion or the loss of topsoil?

No Impact—The project will not result in substantial soil erosion or the loss of topsoil.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

No Impact—Per the 2019 Seismic Design Recommendation Report, the project soil is subject to liquefaction at bent numbers 8 and 9 within the Stockton Deep Water Channel. The project will replace the existing structure, therefore minimizing the effect of liquefaction.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact—The project is not on expansive soil, as defined in Table 18-1-B.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact—The project will not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated—Per the Paleontological Identification Report, the project has a high potential for paleontological resources underlying the project area. As a result, potential paleontological resources could be impacted, and scientific fossils may be discovered. A Paleontological Mitigation Plan may need to be prepared if the need for mitigation is verified. A mitigation monitor will be needed during construction.

3.2.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact—The project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact—The project will not conflict with any applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases.

3.2.9 Hazards and Hazardous Materials

CEQA Significance Determinations for Hazards and Hazardous Materials

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

No Impact—The project will not create a significant hazard to the public or the environment through the transportation, use, or disposal of hazardous materials. All aspects of the project associated with the removal, storage, transportation, and disposal of hazardous materials will be in strict accordance with the appropriate regulation of the California Health and Safety Code. Handling of hazardous materials will follow Caltrans' 2018 Standard Specifications Section 14-11, Hazardous Waste and Contamination, which outlines handling, storing, and disposing of hazardous waste.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

No Impact—The project will not create a significant hazard to the public or the environment through the foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

No Impact—The project is a replacement of an existing bridge structure and will not emit hazardous emissions or handle hazardous or acutely hazardous materials.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact—The 2020 Hazardous Materials Initial Site Assessment determined there are no active leaking underground storage tanks within the project study area. The Initial Site Assessment identified three closed leaking underground storage tanks next to the project study area. Remediation activities were completed, and the potential to encounter contaminated soil is considered unlikely for the project.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact—There are no airports or airstrips within 2 miles of the project study area.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact—The project will replace an existing structure and will not affect any adopted emergency response or evacuation plans.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact—The project area is not designated as a fire hazard severity zone, according to a map from the California Department of Forestry and Fire Protection. There will be no impact on the surrounding wildland area.

3.2.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water or groundwater quality?

Less Than Significant Impact—With the implementation of Best Management Practices and Caltrans' Standard Specifications, the project will not violate any water quality standards or waste discharge requirements or substantially degrade surface water or groundwater quality. Adherence to construction provisions and precautions described in the National Pollutant Discharge Elimination System permit, Section 404 permit, and 1602 Streambed Alteration Agreement will be upheld.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact—The project will not decrease groundwater supplies or interfere with groundwater recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation onsite or offsite.

No Impact—The project will not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a

stream or river or through the addition of impervious surfaces, in a manner that will result in substantial erosion or siltation onsite or offsite.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite.

No Impact—The project will not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that will substantially increase the rate or amount of surface runoff that will result in onsite or offsite flooding.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

No Impact—The project will not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that will create or contribute runoff water that will exceed existing or planned stormwater drainage systems.

iv) Impede or redirect flood flows?

No Impact—The project will not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that will impede or redirect flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact—The project is not in a flood hazard, tsunami, or seiche zone and will not risk releasing pollutants due to project inundation.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact—The project will not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. Water quality during construction will be protected by following the provisions described in the National Pollutant Discharge Elimination System, Section 404, and 1602 permits.

3.2.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact—No residential homes will be acquired. Based on the project scope, the replacement of the existing bridge will not divide an established community.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact—Implementation of the project is not expected to notably change developmental patterns or influence economic trends within the project study area.

3.2.12 Mineral Resources

CEQA Significance Determinations for Mineral Resources

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact—The project will not result in the loss of availability of a known mineral resource that will be of value to the region and the residents of the state.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact—The project will not result in the loss of availability of a locally important mineral resource recovery site that is delineated on a local general plan, specific plan, or another land use plan.

3.2.13 Noise

CEQA Significance Determinations for Noise

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact—Temporary impacts are expected during construction activities. Under the project, there will be some impacts to ambient noise levels from all three Build Alternatives. However, the Build

Alternatives will not substantially increase ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinances or applicable standards of other agencies. Per the 2020 Noise Study Report, the demolition and replacement of existing sound wall 2 will decrease the noise levels to within acceptable limits for sensitive receptors.

b) Generation of excessive groundborne vibration or groundborne noise levels?

No Impact—The project will not generate excessive groundborne vibration or groundborne noise levels.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact—The project is not within the vicinity of a private airstrip or an airport land use plan and is not within 2 miles of a public airport or public use airport.

3.2.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact—The project will not induce substantial unplanned population growth in the project area, either directly or indirectly.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact—The project is a replacement-in-kind of an existing facility and will not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing. (Caltrans Right-of-Way property management system)

3.2.15 Public Services

CEQA Significance Determinations for Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for

new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

No Impact—Temporary lane closures are expected during construction. Such closures will result in delays, but the closures are not expected to disrupt emergency services because the construction contractor will circulate construction schedules and traffic control information to emergency service providers. This will allow emergency service providers to plan for the use of alternate routes during construction-related road closures.

Police protection?

No Impact—Temporary lane closures are expected during construction. Such closures will result in delays, but the closures are not expected to disrupt emergency services because the construction contractor will circulate construction schedules and traffic control information to emergency service providers. This will allow emergency service providers to plan for the use of alternate routes during construction-related road closures.

Schools?

No Impact—Temporary lane closures are expected during construction. Such closures will result in delays, but the closures are not expected to disrupt schools because the construction contractor will circulate construction schedules and traffic control information to the surrounding providers. This will allow school providers to plan for the use of alternate routes during construction-related road closures.

Parks?

Less Than Significant Impact—The project will have a de minimis impact on Morelli Park Boat Launch within the project area (see Appendix A, Section 4(f)). No other parks will be affected by the project.

Other public facilities?

No Impact—Temporary lane closures are expected during construction. Such closures will result in delays, but the closures are not expected to disrupt other public facilities because the construction contractor will circulate construction schedules and traffic control information to the surrounding providers. This will allow other public providers to plan for the use of alternate routes during construction-related road closures.

3.2.16 Recreation

CEQA Significance Determinations for Recreation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact—The project will temporarily close the Morelli Park Boat Launch during construction activities. As such, nearby parks could become busier, but this will be temporary and is not likely to lead to substantial physical deterioration of existing surrounding parks.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact—The project will replace the existing Stockton Channel Viaduct Bridge and does not include building any new recreational facilities or expanding any existing recreational facilities that will have an adverse physical effect on the environment.

3.2.17 Transportation

CEQA Significance Determinations for Transportation

Would the project:

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact—General construction activities from lane closures and detours could cause temporary traffic delays with the area's circulation system, transit, roadway, and bicycle and pedestrian facilities. Response times for emergency responders (ambulance, fire, etc.) could be impacted during general construction activities. Implementation of Best Management Practices and a traffic management plan will specify time frames for roadway and lane closures; the contractor and Caltrans will develop them to reduce potential impacts on emergency services and commuters during construction.

b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

No Impact—The project will not increase vehicle miles traveled or auto trips and will not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b).

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact—The project will replace an existing structure and will not substantially increase hazards due to geometric design features.

d) Result in inadequate emergency access?

Less Than Significant Impact—The project will keep three lanes of Interstate 5 in both directions open during construction. A transportation management plan will be developed to ensure adequate emergency access from detour and lane closure activities.

3.2.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

Less Than Significant Impact—The project is not expected to cause a substantial adverse change in the significance of a tribal cultural resource either listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources. If any cultural materials are found during construction activities, avoidance and minimization measures identified within the 2020 Historic Property Survey Report will be followed. See Section 2.1.7 Cultural Resources and Appendix E for a detailed description of avoidance and minimization measures.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact—As stated earlier, if an unidentified resource is discovered during project construction, avoidance and minimization measures discussed in the 2020 Historic Property Survey Report will be followed to prevent any impacts (see Appendix E).

3.2.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact—The project identified the need to relocate some electrical, wastewater, telecommunication, water, and gas lines within the project area. The project proposes a new stormwater drainage basin next to the Stockton Channel Viaduct Bridge. However, the stormwater drainage basin will not cause significant environmental effects. The new stormwater drainage basin will be a benefit to the surrounding area for stormwater runoff.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact—The project will have sufficient water supplies available to serve the project and any reasonably foreseeable future development during normal, dry, and multiple dry years.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact—The project will not result in a determination by the wastewater treatment provider or affect the provider's capacity or demand.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact—The project will not generate solid waste in excess of state or local standards or impair the attainment of solid waste reduction goals.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact—The project will comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

3.2.20 Wildfire

CEQA Significance Determinations for Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact—The project will not substantially impair an adopted emergency response plan or emergency evacuation plan.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact—The project will not exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact—The project will not require the installation or maintenance of associated infrastructure that will exacerbate fire risk.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact—The project will not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

3.2.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation Incorporated—As discussed throughout this checklist, the project is not expected to substantially degrade the quality of the environment. Furthermore, the project is not expected to substantially reduce the habitat or affect populations of any fish or wildlife species, as well as not substantially threaten or eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal community, or eliminate important examples of the major periods of California history or prehistory (see Section 2.3 Biological Environment). With the implementation of avoidance, minimization, and/or mitigation measures, the potential impacts on the environment will be less than significant (see Appendix E).

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).

Less Than Significant Impact—The project will not have impacts that are individually limited but cumulatively considerable. As discussed throughout the checklist, all significant environmental impacts will be reduced to less than significant levels with the inclusion of avoidance, minimization, and/or mitigation measures recommended throughout this document (see Appendix E).

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No Impact—The project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

3.3 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases generated by human activity, including carbon dioxide, methane, nitrous oxide, tetrafluoromethane,

hexafluoroethane, sulfur hexafluoride, and various hydrofluorocarbons. Carbon dioxide is the most abundant greenhouse gas; while it is a naturally occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated carbon dioxide.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." Greenhouse gas mitigation covers the activities and policies aimed at reducing greenhouse gas emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

3.3.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source greenhouse gas reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and greenhouse gas emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 U.S. Code Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. The Federal Highway Administration therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices. (Federal Highway Administration 2019) This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability." (Federal Highway Administration n.d.) Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation

Act of 1975 (42 U.S. Code Section 6201) and Corporate Average Fuel Economy Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the U.S. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S.

Energy Policy Act of 2005, 109th Congress H.R.6 (2005-2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. Environmental Protection Agency, in conjunction with the National Highway Traffic Safety Administration, is responsible for setting greenhouse gas emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the U.S. Fuel efficiency standards directly influence greenhouse gas emissions.

State

California has been innovative and proactive in addressing greenhouse gas emissions and climate change by passing multiple Senate and Assembly bills and executive orders including, but not limited to, the following:

Executive Order S-3-05 (June 1, 2005): The goal of this Executive Order is to reduce California's greenhouse gas emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and Senate Bill 32 in 2016.

Assembly Bill 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: Assembly Bill 32 codified the 2020 greenhouse gas emissions reduction goals outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The legislature also intended that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020. (Health and Safety Code Section 38551(b)) The law requires the California Air Resources Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas reductions.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. The California Air Resources Board re-adopted the low carbon fuel standard regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 greenhouse gas reduction goals.

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under Assembly Bill 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the governor, including the California Air Resources Board, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015) establishes an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures pursuant to statutory authority to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs the California Air Resources Board to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent. Greenhouse gases differ in how much heat each trap in the atmosphere (global warming potential). Carbon dioxide is the most important greenhouse gas, so amounts of other gases are expressed relative to carbon dioxide, using a metric called "carbon dioxide equivalent." The global warming potential of carbon dioxide is assigned a value of 1, and the global warming potential of other gases is assessed as multiples of carbon dioxide. Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years and to ensure that its provisions are fully implemented.

Senate Bill 32, Chapter 249, 2016, codifies the greenhouse gas reduction targets established in Executive Order B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Senate Bill 1386, Chapter 545, 2016, declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

Assembly Bill 134, Chapter 254, 2017, allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

Senate Bill 743**,** Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

Senate Bill 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires the California Air Resources Board to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

Executive Order B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing greenhouse gas emissions.

Executive Order N-19-19 (September 2019) advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce greenhouse gas emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This Executive Order also directs the California Air Resources Board to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

3.3.2 Environmental Setting

The project sits along Interstate 5 in San Joaquin County from post miles 26.1 to 27.6. The total length of the project is 1.6 miles. Within the project limits, Interstate 5 is a major north-south commercial route between U.S. Route 101 and State Route 99. Current traffic data indicate the two viaduct bridge structures service about 94,770 vehicles per day and 22,230 trucks per day.

Caltrans will replace the existing Stockton Channel Viaduct Bridge structures. The proposed rehabilitation work (which was rejected by the Project Development Team) would have consisted of removing and replacing the bridge decks, railings, diaphragms, and expansion joints, as well as repairing and strengthening steel elements, including girders and lateral bracing. The replacement work will consist of removing and replacing the superstructure, bents, columns, and foundations. Additionally, the project will replace the existing abutments, wingwalls, and piers to meet current Load and Resistance Factor Design standards of the American Association of State Highway and Transportation Officials.

The 2014 Regional Transportation Plan and Sustainable Communities Strategy was the first plan in which the San Joaquin Council of Governments incorporated Senate Bill 375, which calls for greenhouse gas reductions from cars and light-duty trucks. Using a 2005 baseline set by the California Air Resources Board, the City of Tracy produced a Sustainability Action Plan, and the cities of Stockton, Lodi, and Manteca have submitted draft Climate Action Plans. These climate initiatives are currently in the implementation stages and are part of the planning process for future Regional Transportation Plan and Sustainable Communities Strategy documents.

A greenhouse gas emissions inventory estimates the amount of greenhouse gases discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual greenhouse gas emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. The U.S. Environmental Protection Agency is responsible for documenting greenhouse gas emissions nationwide, and the California Air Resources Board does so for the state, as required by Health and Safety Code Section 39607.4.

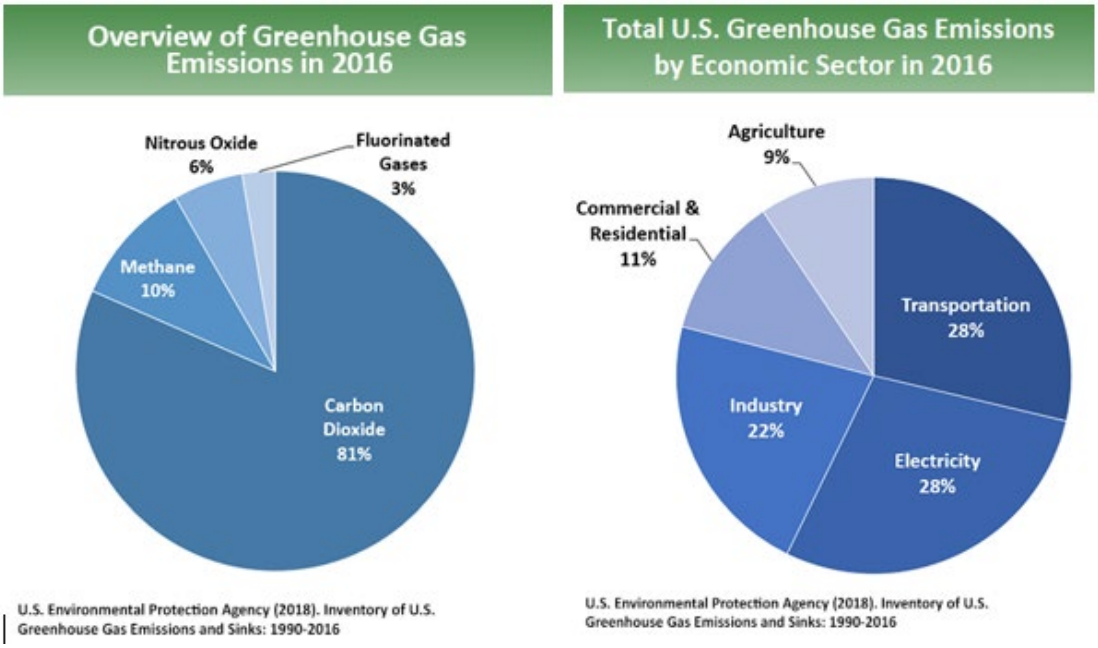
National Greenhouse Gas Inventory

The U.S. Environmental Protection Agency prepares a national greenhouse gas inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change. The inventory provides a comprehensive accounting of all human-produced sources of greenhouse gases in the U.S., reporting emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. It also accounts for emissions of carbon dioxide that are removed

from the atmosphere by “sinks” such as forests, vegetation, and soils that uptake and store carbon dioxide (carbon sequestration).

The 1990-2016 inventory found that of 6,511 million metric tons of carbon dioxide equivalent greenhouse gas emissions in 2016, 81 percent consist of carbon dioxide, 10 percent are methane, and 6 percent are nitrous oxide; the balance consists of fluorinated gases. (Environmental Protection Agency 2018a) In 2016, greenhouse gas emissions from the transportation sector accounted for nearly 28.5 percent of U.S. greenhouse gas emissions. See Figure 3-1.

Figure 3-1 U.S. 2016 Greenhouse Gas Emissions



State Greenhouse Gas Inventory

The California Air Resources Board collects greenhouse gas emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state’s progress in meeting its greenhouse gas reduction goals. The 2019 edition of the greenhouse gas emissions inventory found total California emissions of 424.1 million metric tons of carbon dioxide equivalent for 2017, with the transportation sector responsible for 41 percent of total greenhouse gases. It also found that overall statewide greenhouse gas emissions declined from 2000 to 2017 despite growth in population and state economic output. (Air Resources Board 2019a) See Figures 3-2 and 3-3.

Figure 3-2 California 2017 Greenhouse Gas Emissions

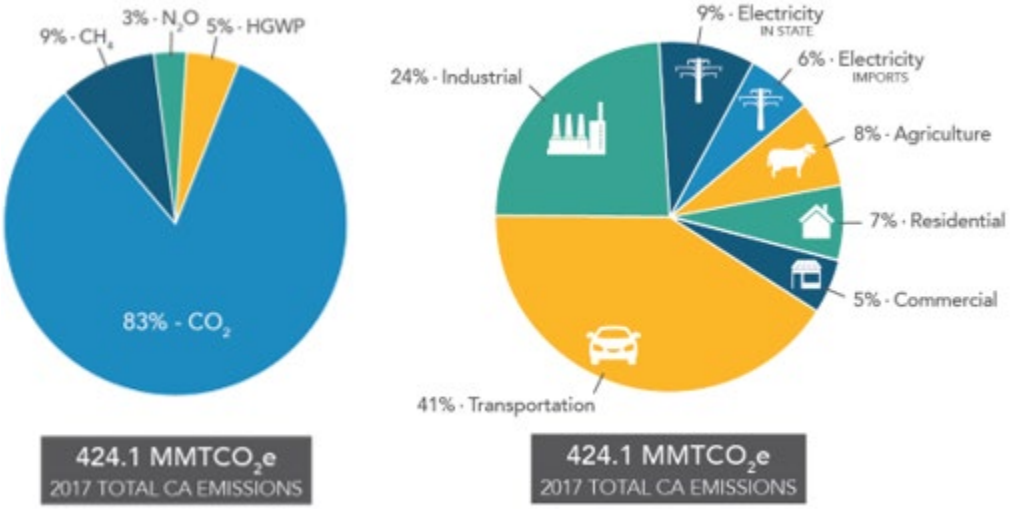
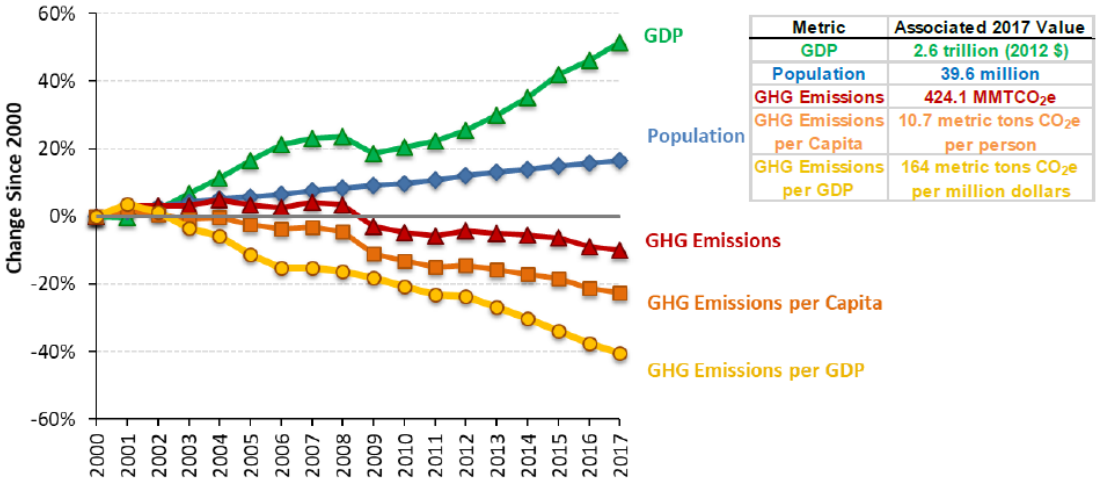


Figure 3-3 Change in California Gross Domestic Product, Population, and Greenhouse Gas Emissions since 2000



Assembly Bill 32 required the California Air Resources Board to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing greenhouse gas emissions to 1990 levels by 2020 and to update it every 5 years. The California Air Resources Board adopted the first scoping plan in 2008. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in Executive Order B-30-15 and Senate Bill 32. The Assembly Bill 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce greenhouse gas emissions.

Regional Plans

The California Air Resources Board sets regional targets for California's 18 Metropolitan Planning Organizations to use in their Regional Transportation Plan/Sustainable Communities Strategy to plan future projects that will

cumulatively achieve greenhouse gas reduction goals. Targets are set at a percent reduction of passenger vehicle greenhouse gas emissions per person from 2005 levels. The project is included in the Regional Transportation Plan/Sustainable Communities Strategy for the regional reduction targets for the San Joaquin Council of Governments' Metropolitan Planning Organization.

The project is within the jurisdiction of the San Joaquin Council of Governments' Regional Transportation Planning Agency. The 2018 Regional Transportation Plan identifies goals for greenhouse gas reduction.

Table 3.1 lists the San Joaquin Council of Governments' relevant policies and strategies to reduce greenhouse gas emissions.

Table 3.1 Regional Transportation Plans and Greenhouse Gas Reduction Policies

Title	Greenhouse Gas Reduction Policies or Strategies
San Joaquin Council of Governments' Regional Transportation Plan/Sustainable Communities Strategy (adopted June 2018)	Improve air quality by reducing transportation-related emissions, expanding the public transit network, improving regional transportation system efficiency, providing transportation improvements to facilitate nonmotorized travel, including the incorporation of complete streets elements as appropriate, decreasing congested travel time, and reducing greenhouse gas emissions by reducing vehicle miles traveled.
City of Stockton Climate Action Plan (August 2014)	Trans-1: Transportation System Design Integration, Trans-3: Transit system support, Trans-4: Efficient goods movement, and Trans-5: Reduce barriers to nonmotorized travel.
City of Manteca General Plan (Draft-February 2019)	C-1.1: Strive to balance levels of service for all modes (vehicle, transit, bicycle, and pedestrian) to maintain a high level of access and mobility, C-1.4: Incorporate new transportation technologies and mobility services, C-4: Provide a safe, secure, comfortable, and convenient pedestrian and bicycle system, C-5: Maintain a coordinated and efficient bus service that provides an effective alternative to automobile use, and C-7: Reduce vehicle travel associated with employee trips and goods movement.
City of Lodi General Plan (adopted April 2010)	C-G11: Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

3.3.3 Project Analysis

Greenhouse gas emissions from transportation projects can be divided into those produced during the operation of the State Highway System and those produced during construction. The primary greenhouse gases produced by the transportation sector are carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Carbon dioxide emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of methane and nitrous oxide are emitted during fuel combustion. In addition, a small amount of hydrofluorocarbon emissions is included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change. (Public Resources Code, Section 21083(b)(2)) As the California Supreme Court explained, “because of the global scale of climate change, any one project’s contribution is unlikely to be significant by itself.” (Cleveland National Forest Foundation *v.* San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512.) In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable.” (CEQA Guidelines Sections 15064(h)(1) and 15130)

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

San Joaquin County is in nonattainment status for the Federal 8-hour Ozone and Particulate Matter 2.5 standards and in attainment for the Federal Particulate Matter 10 standard. San Joaquin County is in nonattainment status for the State Ozone, Particulate Matter 10, and Particulate Matter 2.5 standards.

The Stockton Channel Viaduct Bridge Improvements project is exempt from conformity under Table 2 of 40 Code of Federal Regulations Section 93.126 “Widening narrow pavements or reconstructing bridges (no additional travel lanes).”

Per the July 2020 Air Quality Memorandum, the project will not cause any operational effects on air pollutants.

While some greenhouse gas emissions during the construction period will be unavoidable, the project, once completed, will not lead to an increase in operational greenhouse gas emissions.

Construction Emissions

Construction greenhouse gas emissions will result from material processing, onsite construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

Per the July 2020 Air Quality Memorandum, construction climate change emissions are estimated at 16 tons of carbon dioxide over a period of 564 working days. Operational climate change emissions do not need to be estimated because the project is not capacity increasing.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

All construction contracts include Caltrans' Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all the California Air Resources Board emission reduction regulations; and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Section 10-5, "Dust Control," requires the contractor to comply with the air pollution control rules, ordinances, regulations, and statutes that apply to work performed under the contract, including those provided in Government Code Section 11017. Certain common regulations such as equipment idling restrictions that reduce construction vehicle emissions also help reduce greenhouse gas emissions.

The project will also implement Caltrans' standardized measures (such as Construction Site Best Management Practices) that apply to most or all Caltrans projects. Certain common regulations such as equipment idling restrictions and the development and implementation of a traffic control plan that reduce construction vehicle emissions also help reduce greenhouse gas emissions.

CEQA Conclusion

While the project will result in greenhouse gas emissions during construction, the project is not expected to result in an increase in operational greenhouse gas emissions. The project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With the implementation of construction greenhouse gas-reduction measures, the impact will be less than significant.

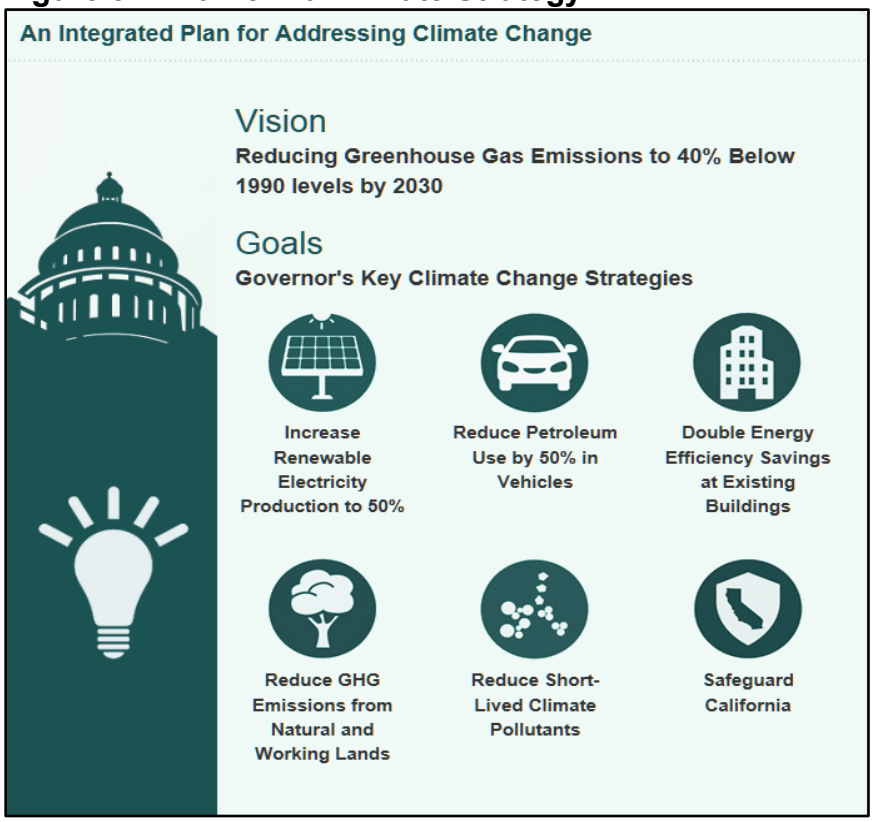
Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

3.3.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 greenhouse gas emissions targets. Former Governor Edmund Gerald Brown Jr. promoted greenhouse gas reduction goals that involved (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*. See Figure 3-4.

Figure 3-4 California Climate Strategy



The transportation sector is integral to the people and economy of California. To achieve greenhouse gas emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from

transportation and goods movement. Greenhouse gas emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. A key state goal for reducing greenhouse gas emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030. (State of California 2019)

In addition, Senate Bill 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above-ground and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Executive Order B-30-15, issued in April 2015, and Senate Bill 32 (2016), set an interim target to cut greenhouse gas emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. In 2016, Caltrans completed the *California Transportation Plan 2040*, which establishes a new model for developing ground transportation systems consistent with carbon dioxide reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit and reduce long-run repair and maintenance costs of roadways and developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

Senate Bill 391 (Liu 2009) requires the California Transportation Plan to meet California's climate change goals under Assembly Bill 32. Accordingly, the California Transportation Plan 2040 identifies the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the state's transportation needs. While Metropolitan Planning Organizations have primary responsibility for identifying land use patterns to help reduce greenhouse gas emissions, California Transportation Plan 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce greenhouse gas emissions, among other goals. Specific performance targets in the plan that will help to reduce greenhouse gas emissions include:

- Increasing percentage of non-auto mode share.
- Reducing vehicle miles traveled.
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) greenhouse gas emissions.

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce greenhouse gas emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's Regional Transportation Plan/Sustainable Communities Strategy; contribute to the State's greenhouse gas reduction targets and advance transportation-related greenhouse gas emission reduction project types/strategies; and support other climate adaptation goals (e.g., *Safeguarding California*).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. *Caltrans Activities to Address Climate Change* (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce greenhouse gas emissions resulting from agency operations.

Project-Level Greenhouse Gas Reduction Strategies

The following measures will also be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project.

- Comply with Caltrans' Standard Specifications, Section 14-9.02 "Air Pollution Control."
- Comply with Caltrans' Standard Specifications, Section 10-5 "Dust Control."

3.3.5 Adaptation

Reducing greenhouse gas emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased

variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and Federal Highway Administration NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (U.S. Code Chapter 56A Section 2921 et seq). The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12, "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime." (USGCRP 2018)

The U.S. Department of Transportation Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of the U.S. Department of Transportation in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions." (U.S. DOT 2011)

Federal Highway Administration order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events,* December 15, 2014) established Federal Highway Administration policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The Federal Highway Administration has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels. (FHWA 2019)

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. *California's Fourth Climate Change Assessment* (2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive* capacity is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience." Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

Executive Order S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk*. (*Safeguarding California* Plan) The *Safeguarding California* Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

Executive Order S-13-08 also led to the publication of a series of sea-level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California—An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018.

Executive Order B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This Executive Order recognizes that effects of climate change other than sea-level rise also threaten California's infrastructure. At the direction of Executive Order B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017 to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multiagency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

Assembly Bill 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects, including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency and involves the following concepts and actions:

- *Exposure*—Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence*—Determine what might occur to system assets in terms of loss of use or costs of repair.

- *Prioritization*—Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and the development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

All projects must consider future climate conditions in the planning and design decisions for the process of making climate risk analysis. The 2019 Caltrans Climate Change Vulnerability Assessment Technical Report was used to orient nontechnical readers on how the effects of climate change might affect the State Highway System in District 10. The technical report specifically identified regional efforts relating to climate change and preparedness. The San Joaquin Council of Governments' Climate Change Planning and Assessment Work is conducting a Climate Adaptation and Resiliency Study to identify vulnerable hazards in the region to future climate scenarios. The section on wildfires in the 2019 Caltrans Climate Change Vulnerability Assessment Technical Report discussed how increasing temperatures, changing precipitation patterns, and resulting changes to land cover are expected to affect wildfire frequency and intensity.

The report identified that the project area is not in an area where there is a "High" level of concern for wildfires. The technical report also discussed sea-level rise within the low-lying areas of District 10, mainly in the Sacramento-San Joaquin Delta. Even with the expansive levees within the area, flooding is still relatively common. The following section discusses how the Stockton Channel Viaduct Bridge Improvements project will affect future climate conditions with respect to sea-level rise, floodplains, and wildfire.

Sea-Level Rise

The project is not in an area that is subject to sea-level rise, so direct impacts on transportation facilities due to projected sea-level rise are not expected.

Floodplains Analysis

Per the 2019 Location Hydraulic Study and Summary Floodplain Encroachment Report, the project is within the 100-year floodplain. The report determined the project will not increase the water surface elevation.

Wildfire

A review of the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Maps for San Joaquin County shows the project location is not in a high-risk area for wildfires.

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Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements.

Agency and tribal consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, and Project Development Team meetings.

This chapter discusses the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

Caltrans consulted with local jurisdictions, such as the City of Stockton, the San Joaquin Council of Governments, the California Department of Fish and Wildlife, the Native American Heritage Commission, and interested tribes to identify and assess impacts on Section 4(f) resources. Caltrans also consulted with the agencies that have jurisdiction over the Stockton Deep Water Channel, including the State Lands Commission, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the City of Stockton regarding potential water quality impacts. Caltrans consulted with the California Department of Fish and Wildlife regarding impacts on sensitive fish species. Related coordination activities also occurred throughout Section 106 of the National Historic Preservation Act and Tribal Consultation process. This coordination is summarized below.

Caltrans has prepared an Initial Study instead of an Environmental Impact Report because the project is not expected to have any significant effects.

Biological Resource Coordination

Caltrans coordinated and corresponded with the National Marine Fisheries Service for formal consultation on impacts to the California Central Valley Evolutionarily Significant Unit steelhead trout and Southern Distinct Population Segment of green sturgeon.

Caltrans also performed a query on a National Marine Fisheries Service list referencing the Stockton West and Stockton East U.S. Geological Survey quadrangles on May 16, 2019. A California Natural Diversity Database list of sensitive species referencing the Stockton West and Stockton East U.S. Geological Survey quadrangles was downloaded on May 16, 2019.

The following text has been added since the draft environmental document:

Caltrans requested consultation with the National Marine Fisheries Service under Section 7 of the Federal Endangered Species Act in a correspondence dated October 29, 2019. On November 15, 2019, Lyla Pirkola of the National Marine Fisheries Service emailed Caltrans, requesting additional information before initiating formal Federal Endangered Species Act consultation. On December 3, 2019, Caltrans responded to Lyla Pirkola's November 15, 2019 request for additional information. The National Marine Fisheries Service initiated formal Federal Endangered Species Act Section 7 consultation on December 17, 2019. The National Marine Fisheries Service issued a Biological Opinion in a correspondence dated June 23, 2020.

U.S. Fish and Wildlife Service

Caltrans coordinated and corresponded with the U.S. Fish and Wildlife Service, which has jurisdiction over federal threatened and endangered species. The U.S. Fish and Wildlife Service provided an official species list for the project's action area on May 16, 2019. A biological assessment was submitted to the U.S. Fish and Wildlife Service for formal consultation on impacts to the Delta smelt and longfin smelt. Coordination also continued throughout 2019 with the U.S. Fish and Wildlife Service to consider appropriate avoidance, minimization, and/or mitigation measures for special-status wildlife and rare plants.

The following text has been added since the draft environmental document:

Caltrans requested consultation with the U.S. Fish and Wildlife Service under Section 7 of the Federal Endangered Species Act in a correspondence dated October 29, 2019. In the October 29, 2019 correspondence, Caltrans initially determined that the project "may affect and is likely to adversely affect" the Federal Endangered Species Act-threatened Delta smelt and its designated critical habitat. Caltrans discussed the project with Brian Hansen of the U.S. Fish and Wildlife Service. Upon review of the current status of the Delta smelt, seasonal timing, and the location of the project with the U.S. Fish and Wildlife Service, Caltrans changed its determination to "may affect but is not likely to adversely affect" the threatened Delta smelt or its designated critical habitat. On December 17, 2019, the U.S. Fish and Wildlife Service provided a "letter of concurrence" with Caltrans' determination that the Stockton Channel Viaduct Bridge Improvements project "may affect but is not likely to adversely affect" the threatened Delta smelt or its designated critical habitat.

California Department of Fish and Wildlife

Caltrans coordinated and corresponded with the California Department of Fish and Wildlife. A list of California fish species of special concern potentially occurring within the Sacramento-San Joaquin Delta Basin watershed was

downloaded from the California Department of Fish and Wildlife Biogeographic Information and Observation System website ("California Native Fish Species by Watershed" dataset) on May 16, 2019.

The following text has been added since the draft environmental document:

Caltrans has requested the list for California Fish Species of Special Concern, which can be found in Volume 2.

Cultural Resource Coordination

Native American Coordination

- Caltrans consulted with the Native American Heritage Commission on May 23, 2018, to request a search of the commission's Sacred Lands File and an updated contact list. The Native American Heritage Commission responded on May 29, 2018.
- Caltrans sent out initial Section 106 and Assembly Bill 52 letters to the tribes listed on the Native American Heritage Commission list on November 8, 2018; the tribes did not respond. Caltrans sent out a second letter on December 28, 2018. Caltrans received a response from Wilton Rancheria on January 4, 2019, stating the rancheria would like to consult on this project and requested more information.
- Further follow-up on the letters brought forward concerns by the North Valley Yokuts Tribe of potential prehistoric archaeological deposits within the area of potential effects. Archaeological testing within the area of potential effects resulted in the identification of buried historic refuse and fragmented human remains.
- Caltrans will continue to consult with both Wilton Rancheria and the North Valley Yokuts Tribe throughout the life of the project.

Section 4(f)

City of Stockton

Caltrans consulted early with the jurisdictional owner of the Section 4(f) property to identify the de minimis impacts. Caltrans also consulted with the agencies that have jurisdiction over the Stockton Deep Water Channel, including the Coast Guard, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service, regarding potential impacts to the Morelli Park Boat Launch.

The following text has been added since the draft environmental document:

Caltrans has received concurrence from the City of Stockton on the Section 4(f) de minimis determination. The letter of concurrence can be found in Appendix F.

San Joaquin Council of Governments

Caltrans met with a variety of stakeholders, including the San Joaquin Council of Governments, for regional air quality conformity on the project.

Chapter 5 List of Preparers

The following Department staff and consultants contributed to the preparation of this Initial Study/Environmental Assessment:

Allam Alhabaly, Transportation Engineer. B.S., California State University, Fresno, School of Engineering; 18 years of experience in environmental technical studies, with emphasis on noise studies. Contribution: Noise Study Report.

Myles Barker, Editorial Specialist. B.A., Mass Communication and Journalism, California State University, Fresno; 6 years of writing and editing experience. Contribution: Technical Editor.

Jonathan Coley, Associate Environmental Planner (Generalist). B.A., Environmental Studies-Planning, University of California at Santa Cruz; 15 years of environmental compliance and planning experience. Contribution: Project coordination, environmental document preparation, Section 4(f)-determination Memorandum, Community Impact Assessment Memorandum, and Cumulative Impact Analysis Memorandum.

Jeffrey Delsescaux, Associate Environmental Planner (Archaeology). M.A., Anthropology (Archaeology Option), California State University, Los Angeles; B.A., Anthropology, California State University, Fullerton; 11 years of experience in archaeology, 2 years in cultural resource management. Contribution: Oversight review of the Archaeological Survey Report.

Scott Guidi, Senior Environmental Planner. B.S., Wildlife Management, Humboldt State University; 10 years of environmental planning experience and 14.5 years with Caltrans. Contribution: Project coordination, environment document review and oversight.

Mohammad Hajeer, Engineer. B.S., Civil Engineering, California State University, Sacramento; 2 years of experience as a Caltrans Stormwater Coordinator. Contribution: Stormwater Coordination.

Maya Hildebrand, Associate Environmental Planner (Air Quality Coordinator). B.S., Geology, Utah State University; 6 years of experience in air quality analysis and 5 years of experience in combined geological/environmental hazards. Contribution: Air Quality Study.

Adam Inman, Engineering Geologist. M.S., Geology, California State University, Fresno; B.S., Geology with a minor in Applied Geology, California State University, Stanislaus; 6 years of experience in

geology, engineering geology, and environmental geology. Contribution: Paleontology Study.

Rogerio Leong, Engineering Geologist. B.S., Geology, University of Sao Paulo, Brazil; 18 years of environmental site assessment and investigation experience. Contribution: Water Quality Report.

Jason Meigs, Associate Environmental Planner (Natural Sciences). B.A., Environmental Studies, minor in Biological Sciences, California State University, Sacramento; more than 20 years of environmental planning and biological sciences experience. Contribution: Natural Environment Study and Biological Assessment.

Jonathan Schlee, Engineering Geologist. B.S., Biology, California State University, Sacramento; 11 years of environmental planning experience and 5 years of hazardous waste studies experience. Contribution: Initial Site Assessment.

Far Western Anthropological Research Group, Inc.

Cassidy DeBaker, Principal Investigator. M.S., Cultural Resource Management, Sonoma State University; more than 18 years of experience as a professional archaeologist. Contribution: Archaeological Survey Report.

Tod Hildebrandt, Professional Archaeologist. M.S., Cultural Resource Management, Utah State University; more than 14 years of experience as a professional archaeologist. Contribution: Archaeological Survey Report.

Kelly McGuire, Principal. M.A., more than 35 years of experience as a professional archeologist. Contribution: Archaeological Survey Report

Chapter 6 Distribution List

The Initial Study/Environmental Assessment has been sent to the following addresses. All addresses are in California, except where noted:

- California Department of Parks and Recreation, Post Office Box 942896, Sacramento, California, 94296.
- California Department of Fish and Wildlife, 7329 Silverado Trail, Napa, California, 94558.
- Department of Resources Recycling and Recovery (Cal Recycle), Post Office Box 4025, Sacramento, California, 95812.
- California State Assemblymember Susan Eggman, 31 East Channel Street, Suite 306, Stockton, California, 95202.
- California State Lands Commission, 100 Howe Avenue, Suite 100, South Sacramento, California, 95825-8202.
- California State Senator Cathleen Galgiani, 31 East Channel Street, Suite 440, Stockton, California, 95202.
- California State Water Resources Control Board, Division of Water Quality, Post Office Box 100, Sacramento, California, 95812.
- Central Valley Flood Protection Board, 3310 El Camino Avenue, Suite 107, Sacramento, California, 95821.
- Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive, Suite 200, Rancho Cordova, California, 95670-6114.
- City of Stockton, Clerk, 425 North El Dorado Street, Stockton, California, 95202.
- City of Stockton, Councilmembers, 425 North El Dorado Street, Stockton, California, 95202.
- City of Stockton, Manager, 425 North El Dorado Street, Stockton, California, 95202.
- City of Stockton, Mayor, 425 North El Dorado Street, Stockton, California, 95202.
- City of Stockton, Public Works, 22 East Weber Avenue, Stockton, California, 95202.
- National Oceanic and Atmospheric Administration Fisheries, 650 Capitol Mall, Suite 5-100, Sacramento, California, 95814.
- San Joaquin Council of Governments, 555 East Weber Avenue, Stockton, California, 95202.
- San Joaquin County, Administrator, 44 North San Joaquin Street, Stockton, California, 95202.

- San Joaquin County, Board of Supervisors, 44 North San Joaquin Street, Stockton, California, 95202.
- San Joaquin County, Public Works, 1810 East Hazelton Avenue, Stockton, California, 95205.
- San Joaquin County Sheriff's Office, 7000 Michael Canlis Boulevard, French Camp, California, 95231.
- U.S. Army Corps of Engineers Regulatory Branch, 1325 J Street, Room 1513, Sacramento, California, 95814.
- U.S. Coast Guard, 2703 Martin Luther King Junior Avenue, SE Washington, D.C., 20593-7000.
- U.S. Environmental Protection Agency, Pacific Southwest, Region 9, 75 Hawthorne Street, San Francisco, California, 94105.
- U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W-2605, Sacramento, California, 95825.
- U.S. Representative Jerry McNerney, 2222 Grand Canal Boulevard, Number 7, Stockton, California, 95207.
- U.S. Senator Dianne Feinstein, 2500 Tulare Street, Suite 4290, Fresno, California, 93721.
- U.S. Senator Kamala Harris, 2500 Tulare Street, Suite 5290, Fresno, California, 93721.

Appendix A Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S. Code 303, declares that "it is the policy of the U.S. Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project…"requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

Section 4(f) further requires coordination with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer is also needed.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 U.S. Code 326 and 327, including determinations and approval of Section 4(f) evaluations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination(s)

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or next to the project area that do not trigger Section 4(f) protection because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, or 4) the project does not permanently use the property and does not hinder the preservation of the property.

Caltrans considered either to replace or rehabilitate the existing Stockton Channel Viaduct Bridge structures (Bridge Numbers 29-0176L and 29-0176R). The rehabilitation and replacement options were considered through

the environmental process, the alternative impact analysis, and public outreach. The Project Development Team has selected Build Alternative 3, bridge replacement, as the preferred alternative and is discussed in Section 1.6 of this document.

The project will replace the existing Stockton Channel Viaduct Bridge. The rehabilitation work would have consisted of removing and replacing the bridge decks, railings, diaphragms, and expansion joints, as well as repairing and strengthening steel elements, including girders and lateral bracing. The replacement work will consist of removing and replacing the superstructure, bents, columns, and foundations. Additionally, the project will replace the existing abutments, wingwalls, and piers to meet current standards.

The following resources were identified within 0.5 mile of the project study area, but no use will occur:

Boat Launches

Currently, several boat launch facilities in the City of Stockton are available for use, one without a fee. Others are listed below. The following launch locations are within the project vicinity:

- Louis Park (no-fee)
- 5 Star Marina
- Buckley Cove Boat Launch
- Ladd's Stockton Marina
- RiverPoint Landing Marina-Resort

The boat launches are Section 4(f) resources, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply.

Class 1 Bicycle Path

A Class 1 bike path is within 0.5 mile of the project along the waterfront. This property is a Section 4(f) property, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply.

South Seawall Park

South Seawall Park is within 0.5 mile of the project at Weber Avenue and Center Street in downtown Stockton. The property is a recreational park owned and operated by the City of Stockton. Mormon Slough separates the park from the project site; the project will not interrupt access. The property is a Section 4(f) property, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply.

North Seawall Park

North Seawall Park is within 0.75 mile of the project and encompasses the waterfront at the confluence of the Stockton Deep Water Channel and Fremont Channel, just south of Banner Island Ballpark. The park is not near the project site and will remain open throughout project construction. The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

Victory Park

Victory Park is owned and operated by the City of Stockton and is within 0.5 mile of the project vicinity, near the Pershing Avenue off-ramp. The park will remain open throughout project construction, and access will not be impaired. The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

Stockton Downtown Marina

The Stockton Downtown Marina is within 0.5 mile of the project and has boating slips for long-term boaters. The City of Stockton operates the Stockton Downtown Marina, which will remain open throughout project construction. The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

Section 4(f) De Minimis Determination

This section of the document discusses de minimis impact determinations under Section 4(f). Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 U.S. Code 138 and 49 U.S. Code 303 to simplify the processing and approval of projects that have only de minimis impacts on lands protected by Section 4(f). This amendment provides that once the U.S. Department of Transportation determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a de minimis impact on that property, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete. The Federal Highway Administration’s final rule on Section 4(f) de minimis findings is codified in 23 Code of Federal Regulations 774.3 and Code of Federal Regulations 774.17.

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to 23 U.S. Code 326 and 327, including de minimis impact determinations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

Per the June 2020 Section 4(f) De Minimis Determination Memorandum, one Section 4(f) resource was identified within the project area. Morelli Park Boat

Launch is a 4-acre public park with two picnic tables, a boat launch facility, and parking for vehicles and boat trailers. The park is notably used for its four-lane boat launch, which provides recreational access to the Stockton Deep Water Channel. The property where Morelli Park Boat Launch is located is owned by Caltrans and is leased to the City of Stockton under an airspace lease agreement.

Caltrans has determined the project will have a de minimis use on Morelli Park Boat Launch. As a safety measure to the public, Morelli Park Boat Launch will be closed to the public during construction for all three Build Alternatives. Construction is expected to take four construction seasons. Closure of the park will constitute a "use" of Section 4(f) resources. Caltrans considers the temporary closure of Morelli Park Boat Launch during construction to be minor, and therefore a de minimis determination will be warranted. The scope of work to be conducted within the limits of Morelli Park Boat Launch are material staging and the installation of falsework and framework to build the viaduct bridges. All the attributes of the park, boat launch, picnic areas, and parking will remain the same. Any damages to the parking area and park will be repaired and returned to their original conditions.

Caltrans has identified alternative boat launch locations the public can use while Morelli Park Boat Launch is closed during construction. There are three boat launch facilities within a short distance from Morelli Park Boat Launch. There is the Stockton Downtown Marina, Louis Park, and Buckley Cove. Signs can be placed at the entrance of Morelli Park Boat Launch to direct the public to these alternative boat launch facilities while Morelli Park Boat Launch is closed during construction.

The following text has been added since the draft environmental document:

The public was allowed to comment on the de minimis determination during the environmental review period. The public comment review period concluded on March 4, 2021, and Caltrans did not receive any officials comment on the de minimis finding. Caltrans sought concurrence from the City of Stockton, which is the agency with jurisdiction over Morelli Park Boat Launch.

On March 23, 2021, Caltrans received concurrence from the City of Stockton on the Section 4(f) de minimis determination for Morelli Park Boat Launch. The concurrence correspondence can be found in Appendix F, Required Consultation/Concurrence Documents.

Avoidance, Minimization and/or Mitigation Measures

Avoidance, minimization, and/or mitigation measures were not identified as being needed to make the de minimis determination. As discussed above,

notices will be placed at the entrance of Morelli Park Boat Launch to direct the public to alternative boat launch facilities within the area. Coordination with the City of Stockton's Economic Development Department will take place to ensure the public is aware of the status of the park during construction.

Appendix B Title VI Policy Statement

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

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.

November 2019

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page: https://dot.ca.gov/programs/business-and-economic-opportunity/title-vi.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Appendix C Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

RELOCATION ASSISTANCE ADVISORY SERVICES

This appendix is general in nature and is not intended to be a complete statement of federal and state relocation laws and regulations. Any questions about relocation should be addressed to Caltrans' Division of Right of Way and Land Surveys.

This section provides some general descriptive information on Public Law 91-646, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. This is often referred to as the "Uniform Act." The information in this appendix is provided only as background and is not intended as a complete statement of all the state or federal laws and regulations; for specific details, the environmental planner should contact the Department's District or Regional Right of Way Relocation Branch. After presenting an outline of the legal foundation for relocation policy, the appendix looks at important relocation assistance information, including advisory services and the payment program. Refer to the Department's Right of Way Manual Chapter 10 for more detailed and specific information on relocation and housing programs.

For more information or a brochure on the relocation program, please contact the Public Information Office at 209-948-7977 or write to Caltrans Central Region Environmental Division, Attention: Scott Guidi, Senior Environmental Planner, 1976 East Doctor Martin Luther King Junior Boulevard, Stockton, California, 95205.

DECLARATION OF POLICY

"The purpose of this title is to establish a uniform policy for fair and equitable treatment of persons displaced as a result of federal and federally assisted programs in order that such persons shall not suffer disproportionate injuries as a result of programs designed for the benefit of the public as a whole."

The Fifth Amendment to the U.S. Constitution states, "No Person shall…be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation." The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations Part 24. Displaced individuals, families,

businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, as discussed below.

FAIR HOUSING

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This act, and as amended, make discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require the Department to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully used and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations and also are given a detailed explanation of the Caltrans Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department relocation advisor.

RELOCATION ASSISTANCE ADVISORY SERVICES

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm, or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the United States. The Department will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are "decent, safe, and sanitary." Nonresidential displacees will receive information on comparable properties for lease or purchase (for business, farm, and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced and reasonably accessible to their places of employment. Before any displacement occurs,

comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning federal and state-assisted housing programs and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable “decent, safe, and sanitary” replacement dwelling, available on the market, is offered to them by the Department.

RESIDENTIAL RELOCATION PAYMENTS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs more than 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 90 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property) may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement

dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate.

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by the Department prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when the Department determines that the cost to rent a comparable “decent, safe, and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the Down Payment section below. To receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe and sanitary” replacement dwelling within one year from the date the Department takes legal possession of the property or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 90 days and tenants in legal occupancy prior to the Department’s initiation of negotiations. The one-year eligibility period in which to purchase and occupy a “decent, safe, and sanitary” replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 Code of Federal Regulations 24) contain the policy and procedure for implementing the Last Resort Housing Program on Federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the expected replacement housing payments exceed the limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, the Department will, within a reasonable length of time, personally contact the displacees to gather important information, including the following:

1. The number of people to be displaced.
2. Specific arrangements needed to accommodate any family member(s) with special needs.

3. Financial ability to relocate into comparable replacement dwelling, which will adequately house all members of the family.
4. Preferences in the area of relocation.
5. Location of employment or school.

NONRESIDENTIAL RELOCATION ASSISTANCE

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms, and nonprofit organizations in locating suitable replacement property and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms, and nonprofit organizations are searching and moving expenses, and possibly reestablishment expenses, or a fixed in lieu payment instead of any moving, searching, and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment, and similar business-related property, including dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items acquired in the right-of-way contract may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.
- Expenses related to searching for a new business site, up to $2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to $25,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than $1,000 nor more than $40,000.

ADDITIONAL INFORMATION

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954 or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act or any other law, except for any federal law providing local “Section 8” Housing Programs.

Any person, business, farm, or nonprofit organization that has been refused a relocation payment by the Department relocation advisor or believes that the payment(s) offered by the agency are inadequate may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor. California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from the Department’s Division of Right of Way and Land Surveys. California’s law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

Appendix D Glossary of Technical Terms

Active Fault: A fault that has moved recently and which is likely to move again. For planning purposes, an “active fault” is usually defined as one that shows movement within the last 11,000 years and can be expected to move within the next 100 years.

Aerially Deposited Lead: Lead deposited along highway shoulders from past leaded fuel vehicle emissions. Even though leaded fuel has been prohibited in California since the 1980s, aerially deposited lead can still be found along highways that were in use prior to that time.

Air Pollutants: Gas released directly into the air or formed through human-made substances or chemical reactions in the atmosphere.

Ambient Air Quality: The atmospheric concentration (amount in a specified volume of air) of a specific compound as actually experienced at a particular geographic location that may be some distance from the source of the relevant pollutant emissions.

Archaeological Resources: Refers to the material remains of past human life, culture, or activities.

Asbestos: Asbestos is an air quality issue, as well as a hazardous materials issue produced from construction activities.

California Environmental Quality Act: A state law (Public Resources Code Section 21000 et al.) requiring state and local agencies to take actions on projects with consideration for environmental protection. If a proposed activity may result in a significant adverse effect on the environment, an Environmental Impact Report must be prepared. General plans require a “program Environmental Impact Report,” and park development projects require a project environmental document.

Carbon Monoxide: Carbon monoxide is a pollutant released directly from vehicles.

Construction Site Best Management Practices: Are the best conventional technology/best available technology-based Best Management Practices that are consistent with the Best Management Practices and control practices required under the Clean Water Act. The Construction Site Best Management Practices manual provides guidance on the selection and implementation of Best Management Practices into construction projects within the Caltrans right-of-way.

Cultural: Refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance,

and archaeological sites (both prehistoric and historic), regardless of significance.

Particulate Matter 10 and Particulate Matter 2.5: Refers to airborne particles that are less than 10 microns in diameter (Particulate Matter 10) and less than 2.5 microns in diameter (Particulate Matter 2.5), respectively.

Appendix E Avoidance, Minimization and/or Mitigation Summary

To ensure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record that follows) will be implemented. During project design, avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to the implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in the Environmental Commitments Record are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Because the following Environmental Commitments Record is a draft, some fields have not been completed; they will be filled out as each of the measures is implemented.

Note: Some measures may apply to more than one resource area. Duplicated or redundant measures have not been included in this Environmental Commitments Record.

Less Than Significant Impacts

Biological Resources

ESA-1: Environmentally Sensitive Area Designation: The establishment of environmentally sensitive areas will be designated by environmentally sensitive area fencing within Caltrans' right-of-way.

Environmentally sensitive area information will be shown on contract plans and discussed in Section 14-1.02 of the Caltrans 2018 Standard Specifications or any Standard Special Provisions in Section 14-1.02. Environmentally sensitive area provisions may include but are not necessarily limited to the use of temporary orange fencing or other high-visibility marking to identify the proposed limit of work in areas next to sensitive resources or to locate and exclude sensitive resources from potential construction impacts. Contractor encroachment into "environmentally sensitive areas" will be prohibited, and immediate work stoppage and notification to the Caltrans resident engineer will be required if an environmentally sensitive area is breached. Environmentally sensitive area provisions will be implemented as the first order of work and remain in place until all construction activities are complete.

BIO-1: Designated Biologist: A designated biologist or biologists shall be onsite during any activities that have the potential to affect sensitive biological

resources. A designated biologist will monitor regulated species and habitats, ensure that construction activities do not result in the unintended take of regulated species or disturbances to regulated habitats, will ensure that construction activities comply with any permits, licenses, agreements, or contracts, will immediately notify the Caltrans resident engineer of any take of regulated species, disturbances to regulated habitats, or breaches of environmentally sensitive areas, and will prepare, submit, and sign notifications and reports. A designated biologist who performs specialized activities must have demonstrated field experience working with the regulated species or performing the specialized task, and regulatory agency approval will be required before Caltrans' acceptance of the designated biologist.

BIO-2: Worker Environmental Awareness Training for Construction Personnel: Before any work occurs in the project area, a qualified designated biologist (familiar with the resources to be protected) will conduct a mandatory contractor and worker environmental awareness training for construction personnel. The training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid and minimize effects to sensitive biological resources within and next to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The biologist will inform all construction personnel about the life history and habitat requirements of special-status habitats and species known to occur or with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of regulatory requirements.

Additionally, the contractor and worker environmental awareness training will cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. The training will also include identifying the Best Management Practices written into construction specifications for avoiding and minimizing the discharge of construction materials or other contaminants into jurisdictional waters.

Contractor and worker environmental awareness training will be required for any construction personnel intending to enter the construction zone for more than 15 minutes. Any biologists conducting the contractor and worker environmental awareness training must meet the qualifications of regulatory agencies, and copies of training sign-in sheets for construction personnel will be provided to regulatory agencies upon their request.

BIO-3: Limited Operation Period—In-Water Construction Activities: It is proposed that construction activities occurring below the highest high tide line of the Stockton Deep Water Channel within the project's action area shall occur between June 1 and October 15 of any construction season, unless earlier or later dates for in-channel construction activities are approved by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and

National Marine Fisheries Service. This seasonal “in-water” work window represents the amount of time predicted by Caltrans’ engineering staff to complete project construction within the planned four construction seasons.

In-water construction activities are intended to include pile driving for sheet pile cofferdams, pile driving steel pipe piles for temporary trestles, pile driving of cast-in-steel-shell piles for deep foundations during the dewatering of temporary cofferdams and fish salvage efforts, and the removal of temporary steel pipe piles and steel sheet piles. It is also proposed that any structure demolition activities occurring directly over the Stockton Deep Water Channel occur during the proposed June 1 and October 15 “in-water” work window. Standard Special Provisions under Section 10-1.03 of the Caltrans 2018 Standard Specifications (Time Constraints) will be used to specify any time constraints for specific construction activities. By requiring contractors to adhere to these dates for in-channel construction, the project proponent will minimize project effects to receiving waters and on the most sensitive life stages of special-status fish species.

The proposed in-water work window is not intended to restrict the contractor’s use of barges or over-water temporary trestles to access construction sites above the highest high tide line (construction of pile cap and superstructure elements) or to restrict the contactor’s work behind dewatered cofferdams during the restricted period of October 16 to May 31.

BIO-4: Containment Measures/Construction Site Best Management Practices: To contain construction-related material, prevent debris and pollutants from entering receiving waters, and reduce the potential for discharge to receiving waters, the contractor shall follow all applicable guidelines and requirements in Section 13 of the Caltrans 2018 Standard Specifications or any Standard Special Provisions in Section 13 regarding water pollution control and general specifications for preventing, controlling, and abating water pollution in streams, waterways, and other bodies of water.

The project design team may specify “Best Management Practices” to be used during construction in addition to, or in place of, other temporary measures selected by the contractor. Project-specific Best Management Practices will address (among other things):

- Spill Prevention and Control (Caltrans 2017 Best Management Practices Manual WM-4)
- Material Management (Material Delivery, Use, Storage, and Stockpiles; Caltrans 2017 Best Management Practices Manual WM-1 through WM-4)
- Waste Management (Solid, Hazardous, Concrete, Sanitary/Septic Wastes, Contaminated Soils; Caltrans 2017 Best Management Practices Manual WM-5 through WM-10)

- Vehicle and Equipment Cleaning, Fueling, and Maintenance (Caltrans 2017 Best Management Practices Manual NS-8 through NS-10)
- Material and Equipment Use Over Water (Caltrans 2017 Best Management Practices Manual NS-13)
- Structure Removal Over or Adjacent to Water (Caltrans 2017 Best Management Practices Manual NS-15)
- Paving, Sealing, Sawing, Grooving and Grinding Activities (Caltrans 2017 Best Management Practices Manual NS-3)
- Pile Driving (Caltrans 2017 Best Management Practices Manual NS-11)
- Concrete Curing and Finishing (Caltrans 2017 Best Management Practices Manual NS-12)
- Dewatering (Caltrans 2017 Best Management Practices Manual NS-2)
- Temporary Soil Stabilization (Caltrans 2017 Best Management Practices Manual SS-1 through SS-10)
- Temporary Sediment Control (Caltrans 2017 Best Management Practices Manual SC-1 through SC-10)
- Temporary Tracking Control (Caltrans 2017 Best Management Practices Manual TC-1 through TC-3)
- Temporary Concrete Washouts (Caltrans 2017 Best Management Practices Manual WM-8)
- Illicit Connection/Illegal Discharge Detection and Reporting (Caltrans 2017 Best Management Practices Manual NS-6)

Further water pollution control information and guidance for contractors is provided in the following Caltrans Manuals:

- Field Guide to Construction Site Dewatering (Caltrans, 2014)
- Stormwater Pollution Prevention Plan and Water Pollution Control Program Preparation Manual (Caltrans, 2011)
- Construction Site Best Management Practices Manual (Caltrans, 2017)
- Construction Site Monitoring Program Manual (Caltrans, 2013)

Before construction starts, the contractor will be required to submit either a Water Pollution Control Plan or a Stormwater Pollution Prevention Plan, as appropriate. Caltrans will review and approve the Water Pollution Control Plan or Stormwater Pollution Prevention Plan within 7 to 15 days of contract approval. The contractor will develop a Spill Prevention and Control Plan as a component of the Water Pollution Control Plan or Stormwater Pollution Prevention Plan. Specific Best Management Practices options will be considered, evaluated, and dependent on factors such as field conditions, changes to construction strategies, and regulatory requirements to protect the beneficial uses of receiving waters. Best Management Practices options will

be based on the best conventional and best available technology. Caltrans staff and the contractor are required to perform routine inspections of the construction area to verify that field Best Management Practices are properly implemented, maintained, and are operating effectively and as designed.

BIO-5: Restore and Revegetate Temporarily Disturbed Areas Onsite: Disturbed areas within the construction limits will be graded to minimize surface erosion and siltation into receiving waters. Disturbed areas will be recontoured to as close to the pre-project condition as possible; they will be stabilized as soon as feasible (and no later than October 15 of each construction season) to avoid erosion during subsequent storms and runoff. Permanent erosion control seeding will be performed at all disturbed sites by hydroseeding throughout construction as each site is completed, with all sites seeded by the completion of construction activities.

BIO-6: Vibratory Pile Installation: Vibratory drivers will be used for all driven piles to the maximum extent feasible to reduce the potential for adverse effects from an impact driver. There are no established injury criteria for vibration pile driving. A vibratory machine will be first used to drive a pile as far as possible. An impact hammer will then be used to drive the pile to its final position if necessary.

BIO-7: Impact Pile Driving Attenuation: To reduce potential sound impacts to fish species and other aquatic organisms, all impact pile driving will be performed behind a National Marine Fisheries Service, U.S Fish and Wildlife Service, and California Department of Fish and Wildlife-approved aquatic sound attenuation device or devices that will reduce the transmission of sound through the water. The aquatic sound attenuation devices that may be approved by the National Marine Fisheries Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife are likely to include unconfined air-bubble curtains, multiple-stage unconfined air-bubble curtains, confined air-bubble curtains, and/or cofferdams. Standard Special Provisions under Section 10 (General Construction) or other sections (including Section 14-06.3 Species Protection) of the Caltrans 2018 Standard Plans may be used to specify work that furnishes, operates, monitors, maintains, and removes aquatic sound attenuation systems. The specifications for contractor submittals, materials, construction, and inspection will be developed before project construction based upon the requirements of regulatory permits, licenses, agreements, or contracts.

BIO-8: Daily Limited Operation Period Impact Pile Driving: According to the National Marine Fisheries Service (National Marine Fisheries Service Pile Driving Calculator), the Sound Exposure Level cumulative is considered as a reset to zero after a 12-hour period in a river or tidally influenced waterway. To ensure that Sound Exposure Level cumulative does not exceed preliminary estimates for the appropriate pile sizes and types, pile driving with impact hammers within the waters of the Stockton Deep Water Channel shall

see a 12-hour nonoperational period during each 24-hour cycle. Standard Special Provisions under Section 10-1.03 of the Caltrans 2018 Standard Specifications (Time Constraints) will be used to specify any time constraints for specific construction activities.

BIO-9: Salvage Species from Dewatered Areas: In the absence of fish relocation, special-status fish species or other aquatic organisms exposed to dewatering will suffer thermal stress, desiccation, and/or physical injury from construction equipment. By removing fish from dewatered stream reaches within the construction areas, the project is expected to significantly reduce the number of special-status fish species and other aquatic organisms that are injured or killed during the summer work season. Salvaged fish and other aquatic organisms will be relocated to suitable habitats within the action area but outside of the construction area (within about 3,280 feet of the environmental study limits). A fish relocation plan will be prepared by a designated biologist for review and approval by the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Wildlife before the start of construction activities. Designated biologists conducting fish salvage activities must be approved by the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the California Department of Fish and Wildlife.

BIO-10: Construction and Structure Lighting: It is highly recommended that both outdoor temporary construction lighting and outdoor permanent roadway, structure, and signal lighting luminaires have correlated color temperatures under about 3,000 kelvins. Luminaires in this color range are more energy efficient, improve public health and safety, and are less disturbing to nocturnal wildlife, including birds, insects, turtles, fishes, amphibians, bats, and other species.

Luminaires for both permanent and temporary lighting systems are specified in Caltrans' 2018 Standard Specifications Section 86-1.02K. Luminaires for all lighting systems must be either low-pressure sodium or light-emitting diode type. Low-pressure sodium lamps have a color temperature that generally ranges from 2,200 kelvins to 2,700 kelvins, and these types of luminaires easily meet this recommendation. Caltrans' 2018 Standard Specifications specify that all luminaires must have a correlated color temperature range from 2,700 kelvins to 3,500 kelvins. Non-Standard Special Provisions may need to be developed under Caltrans' 2018 Standard Specifications Section 86-1.02K to specify light-emitting diode luminaires with color temperatures of under 3,000 kelvins.

To prevent unnecessary outdoor light pollution, temporary outdoor construction lighting, as well as outdoor permanent roadway, structure, and signal lighting luminaires, will be shielded in a manner that prevents light from penetrating above the 90-degree angle. Temporary construction lighting

directly over the surface of the waters of the Stockton Deep Water Channel will be minimized to the maximum extent feasible.

BIO-11: Migratory Birds and Raptors Remove Nesting Habitat During Non-Nesting Season: Performing woody vegetation removal or other construction activities within nesting bird habitat (structures work) during the non-nesting season (between October 1 and January 31) will not require pre-construction surveys or the use of nest-exclusion devices for migratory birds.

BIO-12: Migratory Birds and Raptors Exclusionary Devices: If work that will potentially interfere with bird nesting sites is proposed or is likely to occur between February 1 and September 30, devices such as netting or other means may be used to block access to bird nesting sites where work will be performed. Exclusionary devices must be installed after September 30 but before February 1 of any construction season and will be maintained and left in place between February 1 and September 30 of any construction season. Exclusionary devices for migratory birds may be removed when a designated biologist determines that work will not interfere with bird nesting sites or until all construction activities in bird nesting areas are completed. Exclusionary devices for migratory birds shall be specified under Caltrans' 2018 Standard Specifications and/or Standard Special Provisions under Section 14-6.03A Species Protection and/or Section 14-6.03(B) Bird Protection.

BIO-13: Migratory Birds and Raptors Pre-Construction Surveys During Nesting Season: If woody vegetation removal, structures construction, ground-disturbing activities, or other project-related activities are scheduled during the nesting season of protected raptors and migratory birds (February 1 to September 30), a focused survey for active nests of such birds shall be conducted by a designated biologist within 15 days before the start of project-related activities. If active nests are found, a protective no-work buffer will be established, and Caltrans shall consult with the U.S. Fish and Wildlife Service regarding appropriate actions to comply with the Migratory Bird Treaty Act of 1918 and with the California Department of Fish and Wildlife to comply with provisions of the California Fish and Game Code. If a lapse in project-related work of 15 days or longer occurs, another survey and, if required, consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife will be required before the work can start again.

Pre-construction surveys for nesting migratory birds and raptors shall be specified under Caltrans' 2018 Standard Specifications and/or Standard Special Provisions Section 14-6.03A Species Protection and/or Section 14-6.03(B) Bird Protection.

BIO-14: Migratory Birds and Raptors Protective Buffers: If a designated biologist detects nesting migratory birds or nesting raptors during the pre-construction survey, an appropriate no-work buffer will need to be established around the nest or burrow. No work will start within the buffer until

authorization is received from the resident engineer. Protective buffer radii for nesting migratory birds and raptors shall be specified under Caltrans' 2018 Standard Specifications and/or Standard Special Provisions Section 14-6.03A Species Protection and/or Section 14-6.03(B) Bird Protection.

BIO-15: Migratory Birds and Raptors Construction Monitoring: If construction or other project-related activities that may potentially cause nest destruction, nest abandonment, or forced fledging of migratory birds are necessary, monitoring of the nest site by a designated biologist will be required to ensure that protective radii and any exclusionary devices are maintained and functioning properly.

BIO-16: Bats Exclusionary Devices: If work that will potentially interfere with bat day-roosting sites is proposed or is likely to occur between February 1 and September 30, exclusionary devices may be used to block access to bat day-roosting sites where work will be performed. Exclusionary devices for bats must be installed after September 30 but before February 1 of any construction season and will be maintained and left in place between February 1 and September 30 of any construction season. No bat exclusionary devices shall be used, which will entrap bats within their roosts. Exclusionary devices for bats may be removed when a designated biologist determines that work will not interfere with bat day-roosting sites or until all construction activities in bat day-roosting areas are completed. Exclusionary devices for bats shall be specified under Caltrans' 2018 Standard Specifications and/or Standard Special Provisions under Section 14-6.03A Species Protection or may require the use of Non-Standard Special Provisions under Section 14 of the Standard Special Provisions.

BIO-17: Bats Pre-Construction Surveys: If woody vegetation removal, structures construction, or other project-related activities in bat day-roosting sites are scheduled between February 1 to September 30, a designated biologist shall conduct a focused survey for day-roosting bats within 15 days before the start of project-related activities. If active day roosts are found, a protective no-work buffer of 50 feet will be established, and Caltrans shall consult with the California Department of Fish and Wildlife to comply with provisions of the California Fish and Game Code. If a lapse in project-related work of 15 days or longer occurs, another survey and, if required, consultation with the California Department of Fish and Wildlife will be required before the work starts again. Pre-construction surveys for roosting bats shall be specified under Caltrans' 2018 Standard Specifications and/or Standard Special Provisions Section 14-6.03A Species Protection.

BIO-18: Bats Protective Buffers: If a designated biologist detects day-roosting bats during the pre-construction survey, a 50-foot no-work buffer will be established around the roost. No work will start within the buffer until authorization is received from the resident engineer.

BIO-19: Bats Construction Monitoring: If construction or other project-related activities that may potentially result in adverse effects to bats or bat day-roost sites occurs, monitoring of the day-roost site by a designated biologist will be required to ensure that protective radii and any exclusionary devices are maintained and functioning properly.

BIO-20: Compensatory Mitigation: Compensatory conservation measures intended to reduce the extent of incidental take due to the loss of Federal Endangered Species Act-listed green sturgeon and California Central Valley steelhead and Federal Endangered Species Act-experimental population Central Valley spring-run Chinook salmon habitat or for potential adverse effects to critical habitat Primary Constituent Elements will require approval from the National Marine Fisheries Service. The following compensatory conservation measures are proposed:

The analysis assumes that mature trees occurring within the project's environmental study limits next to the banks of the Stockton Deep Water Channel will be removed to facilitate contractor access and construction activities (0.62 acre) under Build Alternative 3.

To compensate for the loss of 0.62 acre of streamside canopy coverage, Caltrans will:

- Replant streamside trees onsite at about the same density and in about the same locations as existing trees. A replanting plan will be submitted to the National Marine Fisheries Service and California Department of Fish and Wildlife for review and approval before or concurrent with the start of project construction activities.
- Acquire 0.62-acre credits (1 to 1 ratio) of "riparian," "shaded riverine," or equivalent habitat from a National Marine Fisheries Service-approved and California Department of Fish and Wildlife-approved Conservation Bank. Conservation Bank Credits will be acquired before or concurrent with the start of project construction activities.

To compensate for the increase of 0.34 acre of artificial shade, Caltrans will:

- Acquire 0.34-acre credits (1 to 1 ratio) of "Salmonid Restoration," "Salmonid," "Green Sturgeon," or equivalent habitat from a National Marine Fisheries Service-approved Conservation Bank. Conservation Bank Credits will be acquired before or concurrent with the start of project construction activities.

Compensation credits for riparian habitat, shaded riverine habitat, salmonids, and green sturgeon may be available at the North Delta Fish Conservation Bank and/or the Liberty Island Conservation Bank; each of these conservation banks is approved by the National Marine Fisheries Service and the California Department of Fish and Wildlife.

To compensate for the permanent loss of 0.15 acre of streambed and water column habitat, Caltrans will:

- Acquire “in-lieu fee” compensatory mitigation in the “Calaveras-Stanislaus Aquatic Resources Service Area” through the National Fish and Wildlife Foundation’s program for the loss of jurisdictional waters of the U.S. according to expected permitting requirements of U.S. Army Corps of Engineers and Central Valley Regional Water Quality Control Board under Sections 404 and 401 of the Clean Water Act.

BIO-21: Swainson’s Hawk Remove Nesting Habitat During Non-Nesting Season: Performing woody vegetation removal or other construction activities within nesting bird habitat (structures work) during the non-nesting season (between October 1 and January 31) will not require pre-construction surveys or monitoring for Swainson’s hawks.

BIO-22: Swainson’s Hawk Pre-Construction Surveys During Nesting Season: A designated biologist shall perform pre-construction Swainson’s hawk surveys according to the protocol outlined in the May 2000 “Swainson’s Hawk Technical Advisory Committee’s Recommended Timing and Methodology for Swainson’s Hawk Surveys in California’s Central Valley” within the project’s environmental study limits and all accessible areas within about 0.5 mile of the project’s environmental study limits. Pre-construction season surveys will assist with project planning, the development of avoidance, minimization, and/or mitigation measures, and identify potential impacts that can then be used for issuance of an Incidental Take Permit. Pre-construction surveys for nesting Swainson’s hawks shall be specified under Caltrans’ 2018 Standard Specifications and/or Standard Special Provisions under Section 14-6.03A Species Protection and/or Section 14-6.03(B) Bird Protection.

BIO-23: Swainson’s Hawk Protective Buffers: If a Swainson’s hawk nest is detected inside of, or within about 0.5 mile of the project’s environmental study limits during nesting bird surveys conducted during any active construction season, the contractor will notify a Caltrans resident engineer and no new disturbances or other project-related activities that may cause nest abandonment or forced fledging shall be initiated within about 600 feet of an active Swainson’s hawk nest. Protective buffer radii for nesting Swainson’s hawks shall be specified under Caltrans’ 2018 Standard Specifications and/or Standard Special Provisions Section 14-6.03A Species Protection and/or Section 14-6.03(B) Bird Protection. A 600-foot protective buffer shall be maintained around any active Swainson’s hawk nest until Caltrans consults with the California Department of Fish and Wildlife for further guidance. Consultation with the California Department of Fish and Wildlife has the potential to result in a protective buffer of up to 0.5 mile.

New sightings of nesting Swainson’s hawks shall be reported to the California Natural Diversity Database.

BIO-24: Swainson's Hawk Construction Monitoring: If construction or other project-related activities that may cause nest abandonment or forced fledging of Swainson's hawks are necessary within the buffer zone, monitoring of the nest site by a designated biologist (to determine if the nest is abandoned) shall be required. If the nest is abandoned and if the nestlings are still alive, the project sponsor shall fund the recovery and hacking (controlled release of captive-reared young) of the nestling(s). Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within 0.5 mile of an active nest will not be prohibited. If a nest tree must be removed, authorization from the California Department of Fish and Wildlife (including conditions to offset the loss of the nest tree) must be obtained.

BIO-25: Weed-Free Construction Equipment and Vehicles: To minimize the potential for the transport of weed propagules to the action area from sources outside of the project area, construction equipment and vehicles are recommended to be cleaned and washed at the contractor's facilities before arriving at the construction site. Any vehicle or equipment cleaning that occurs onsite during construction activities shall conform with Caltrans' 2018 Standard Specifications or any Standard Special Provisions under Section 13-4.03E(3) and Section NS-08 Vehicle and Equipment Cleaning of the Caltrans' 2017 Construction Site Best Management Practices Manual, which requires the contractor to contain and dispose of any waste resulting from vehicle or equipment cleaning.

BIO-26: Equipment and Materials Storage, Staging, and Use in Weed-Free Areas: To minimize the potential for spreading weed propagules that originate from within the project's environmental study limits, staging and storage of equipment should only be done in weed-free areas. Infestations of noxious and/or highly invasive weeds (California Invasive Plant Council "high" invasiveness and California Department of Food and Agriculture "A-rated" or "B-rated" noxious weeds) were mapped as part of the project planning effort to determine if hand, mechanical, or chemical eradication treatments are feasible, or if it is feasible to designate these areas as excluded from contractor's use. Environmentally sensitive area provisions Section 14-1.02 of Caltrans' 2018 Standard Specifications or Standard Special Provisions may be used to specify areas restricted from contractor's use. It is recommended that a qualified biologist conduct pre-construction surveys to determine the extent of infestations of California Invasive Plant Council "high" invasiveness weeds and California Department of Food and Agriculture "A-rated" or "B-rated" noxious weeds and to provide feasible recommendations for weed control or weed exclusion strategies before the start of construction activities.

BIO-27: Weed Control During Construction: Weed control will be accomplished in accordance with Caltrans' 2018 Standard Specifications or Standard Special Provisions under Section 20-1.03C(3) to minimize the potential for spreading weed propagules originating from within the project's

environmental study limits throughout construction activities, including initial vegetation clearing and at onsite revegetation areas. The use of herbicides for weed control activities will be discouraged but may be considered on a case-by-case basis depending upon the weed species, the extent of the infestation, or any regulatory restrictions.

BIO-28: Weed-Free Erosion Control and Revegetation Treatments: To minimize the risk of introducing weed propagules to the action area from sources outside of the project area, only locally adapted plant species appropriate for the project area will be used in any erosion control or revegetation seed mix or stock. A Caltrans biologist will consult with a Caltrans Landscape Architect to develop appropriate seed and planting palettes for use in revegetation and/or erosion control applications. Any compost, mulch, tackifier, fiber, straw, duff, topsoil, erosion control products, or seed must meet Caltrans' 2018 Standard Specifications or any Standard Special Provisions under Section 21-2.02 for these materials. Any hydroseed used for revegetation activities must also be certified weed-free as per Caltrans' 2018 Standard Specifications Section 21-2.02F.

BIO-29: Pest-Free Construction Equipment and Vehicles: To minimize the potential for the transport of invasive aquatic animal species to the action area from sources outside of the project area, construction equipment and vehicles are recommended to be cleaned and washed at the contractor's facilities before arriving at the construction site. Any equipment or vehicles, including barges and associated ballast tanks, used in the water will be visually inspected for signs of New Zealand mudsnails, Chinese mitten crabs, or Mississippi silversides. These organisms will be removed, and all water, including ballast water, will be drained from vehicles and equipment and disposed of before entering the Stockton Deep Water Channel. Any vehicle or equipment cleaning that occurs onsite during construction activities shall conform with Caltrans' 2018 Standard Specifications or any Standard Special Provisions under Section 13-4.03E (3) and NS-08 (Vehicle and Equipment Cleaning) of the Caltrans 2017 Construction Site Best Management Practices Manual, which requires the contractor to contain and dispose of any waste resulting from vehicle or equipment cleaning.

Cultural Resources

- ESA-1: Environmentally Sensitive Area Designation.
- CULT-1: Caltrans' Standard Special Provisions Section 14-1.02A will be required to cover the boundary of the archaeological resource, given the archaeological resource temporary Identification Number 2567-1, which will prevent the contractor from disturbing the sites during construction.
- CULT-2: Caltrans' Standard Special Provisions Section 14-1.03B Archaeological Monitoring Area will be included in the contract. An archaeologist and Native American monitor will be onsite during

construction to ensure the integrity of the environmentally sensitive areas and see any unexpected discoveries that might become exposed through construction activities.

Paleontological Resources

- PALEO-1: A project-specific Paleontological Mitigation Plan will be prepared by a qualified principal paleontologist (Master of Science or Doctorate in paleontology) once adequate project design information regarding subsurface disturbance location, depth, and lateral extent is available.

Appendix F Required Consultation/Concurrence Documentation

The following consultation and/or concurrence documentation required for this project is discussed below:

Biological Opinion Concurrence (Complete Biological Opinion can be found in Volume 2.

Refer to NMFS No: WCRO-2019-03507

June 23, 2020

Mr. James Henke Branch Chief

Northern San Joaquin Valley Biology Branch California Department of Transportation

PO Box 2048

Stockton, California 95201

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Stockton Channel Viaduct Rehabilitation Project.

Dear Mr. Henke,

Thank you for your letter of October 31, 2019, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Stockton Channel Viaduct Rehabilitation Project (Project). This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)) for this action.

Based on the best available scientific and commercial information, the biological opinion concludes that the proposed project is not likely to adversely affect the federally listed threatened Central Valley (CV) spring-run Chinook salmon evolutionarily significant unit (ESU) (Oncorhynchus

tshawytscha), and is not likely to jeopardize the continued existence of the federally listed threatened California Central Valley (CCV) steelhead distinct population segment (DPS) (O. mykiss) or the threatened southern DPS (sDPS) of North American green sturgeon (Acipenser medirostris) and is not likely to destroy or adversely modify designated critical habitats for CCV steelhead or sDPS green sturgeon. For the above species, with the exception of CV spring-run Chinook salmon, NMFS has included an incidental take statement with reasonable and prudent measures and non-discretionary terms and conditions that are necessary and appropriate to avoid, minimize, or monitor incidental take of listed species associated with the Project.

NMFS recognizes that Caltrans has assumed the Federal Highway Administration's (FHWA) responsibilities under Federal environmental laws for this Project as allowed by a Memorandum of Understanding (NEPA Assignment) with the FHWA effective December 23, 2016. As such, Caltrans serves as the lead Federal Action Agency for the proposed Project.

Please contact Lyla Pirkola in NMFS' California Central Valley Office via email at lyla.pirkola@noaa.gov or via phone at (916) 930-5615 if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Cathy Marcinkevage

Acting Assistant Regional Administrator California Central Valley Office

Enclosure

cc: 151422-WCR2019-SA00558

Section 4(f) Concurrence for de minimis for Morelli Park Boat Launch.

John,

I was able to confirm with our legal that it is ok for me to respond.

The City concurs with the de Minimis finding, with clarification to #18, that the lease be suspended during construction and thus no payment from the City shall be due. Upon completion of the project or vacancy from the Morelli Boat Launch, the lease shall be restored, and lease payments commence.

Thank you!

Tina

Tina McCarty, Parking & Venue Manager

City of Stockton - Economic Development Department

400 E. Main Street, 4th Floor, Stockton, CA 95202

Tina.McCarty@stocktonca.gov | 209.937.8907

www.advantagestockton.com

Appendix G Comment Letters and Responses

This appendix was added after the draft environmental document completed circulation. This appendix contains the comments received during the public circulation and comment period from February 4, 2021, to March 4, 2021, and the virtual open house that was held on February 18, 2021, retyped for readability. (Note: The comment letters are stated verbatim, with acronyms, abbreviations, and any original grammatical or typographical errors.) A Caltrans response follows each comment presented.

Copies of the original comment letters and documents can be found in Volume 2 of this document.

On February 4, 2021, a Notice of Intent to Adopt a Mitigated Negative Declaration/Environmental Assessment and Section 4(f) Evaluation appeared in two newspapers: Stockton Record and Latino Times.

Comment from California Department of Fish and Wildlife

Comment 1:

Date: March 3, 2021

To: Mr. Scott Guidi

California Department of Transportation District 10; Central Region Environmental

1976 East Doctor Martin Luther King Jr. Boulevard Stockton, CA 95205

Scott.Guidi@dot.ca.gov

From: Mr. Gregg Erickson, Regional Manager

California Department of Fish and Wildlife-Bay Delta Region, 2825 Cordelia Road, Suite 100, Fairfield, CA 94534

Subject: Stockton Channel Viaduct Bridge Improvement Project, Initial Study/Mitigated Negative Declaration, SCH No. 2017072033, San Joaquin County

The California Department of Fish and Wildlife (CDFW) has reviewed the proposed draft Initial Study/Mitigated Negative Declaration (IS/MND) for the Stockton Channel Viaduct Bridge Improvement Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.1 CDFW is submitting comments on the IS/MND as a means to inform the California Department of Transportation (Caltrans) as the Lead Agency, of our concerns regarding potentially significant impacts to sensitive resources associated with the proposed Project.

CDFW is a Trustee Agency with responsibility under CEQA §15386 for commenting on projects that could impact fish, plant and wildlife resources. CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA), the Native Plant Protection Act, the Lake and Streambed Alteration (LSA) Program and other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources. Pursuant to our jurisdiction, CDFW has the following concerns, comments, and recommendations regarding the Project.

Project Location and Description

Caltrans, as the lead agency, proposes to replace or rehabilitate the existing northbound and southbound Stockton Viaduct bridges (Bridge No. 29-0176L and Bridge No. 29-0176R) along Interstate 5 (I-5) in the San Joaquin River at

post mile (PM) 26.1 to 27.6 in the City of Stockton, San Joaquin County, California.

CEQA is codified in the California Public Resources Code in section 21000 et seq. The “CEQA Guidelines” are found in Title 14 of the California Code of Regulations, commencing with section 15000.

The Project will replace or rehabilitate the existing bridge superstructures, including decks, girders, railings, diaphragms and expansion joints. The Project will also replace or rehabilitate the substructure, including existing abutments, wingwalls and piers. The IS/MND proposes three alternatives and a no build alternative. Alternative 1A will require a two-year construction window and will replace the road deck (superstructure), strengthen existing steel girders and lateral bracing, upgrade the substructure of the bridge abutments and rehabilitate the bridge foundations. Alternative 2 will require a four-year construction window and will replace the structure above superstructure from Alternative 1A and improve the existing substructure and foundation of the Stockton Channel Viaduct Bridge. Alternative 3 will require a four-year construction window and will require the full replacement of the bridge including the superstructure, substructure, and foundations. The no build alternative will leave the bridge structures in their current state without replacement or rehabilitation.

LAKE AND STREAMBED ALTERATION AGREEMENT

The Project has the potential to impact resources of the San Joaquin River, Mormon Slough and McLeod Lake known to occur within the identified limits of the Project. If work is proposed that will impact the bed, bank, channel or riparian habitat, including the trimming or removal of trees and riparian vegetation please be advised that the proposed Project may be subject to LSA Notification. This includes impacts to drainage systems that connect to tributaries of main stem creeks and tributaries that occur within the Project Biological Study Area (BSA). CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for or any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, bank or channel or deposit or dispose of material where it may pass into a river, lake or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are generally subject to notification requirements.

CALIFORNIA ENDANGERED SPECIES ACT

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the Project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the Project. Under CESA, take is defined as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill.” Issuance of an ITP is

subject to CEQA documentation. If the Project will impact CESA-listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit.

ENVIRONMENTAL SETTING

Threatened, endangered, and other special-status species that are known to occur, or have the potential to occur in or near the Project site, include, but are not limited to:

- Delta Smelt (Hypomesus transpacificus), SE, FT
- Longfin Smelt (Spirinchus thaleichthys), ST
- Central Valley Spring Run Chinook Salmon (Onchorhynchus tshawytscha) ST, FT
- Sacramento Winter Run Chinook Salmon (Oncorhynchus tshawytscha) ST, FT
- Swainson's hawk (Buteo swainsoni), ST
- Roosting Bats
- Nesting birds

FT = Federally Threatened; ST = State Threatened; SE = State Endangered

CDFW recommends that prior to Project implementation, surveys be conducted for special-status species with potential to occur, following recommended survey protocols if available. Survey and monitoring protocols and guidelines are available at: https://www.wildlife.ca.gov/Conservation/Survey-Protocols.

COMMENTS AND RECOMMENDATIONS

CDFW acting as a Responsible Agency, has discretionary approval under CESA through issuance of a CESA ITP and LSA Agreement, as well as other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife resources.

CDFW would like to thank you for preparing the IS/MND and CDFW recommends the following updates, avoidance and minimization measures be imposed as conditions of Project approval by the lead agency, Caltrans, to ensure all Project-related impacts are mitigated to below a level of significance under CEQA:

COMMENT 1: Hydroacoustic Analysis and Monitoring for Impact Pile Driving

Issue: Page 159 and 160 of Appendix E of the IS/MND provides adequate avoidance and minimization measures for potentially injurious sound output

reduction from impact pile driving activities via cofferdam and/or bubble curtains. Avoidance and minimization measures for sound monitoring however have not been sufficiently proposed to ensure sound attenuation devices adhere to thresholds below potentially injurious sound levels. levels.

Evidence the impact would be significant: Currently, the 2006 interim agreement notes sound output limits of 206 dB for peak output, 187dB cumulative output limits for fish over two grams and 183 dB output limits for fish under two grams. In order to ensure impact pile driving activities remain below these thresholds, sound monitoring will be required to avoid a potentially significant impact.

Recommendation: CDFW recommends the following measures are incorporated as conditions of approval in the updated IS/MND:

Recommended Measure 1: Sound Monitoring Hydro-Acoustic Monitoring Plan. A minimum of 14 days prior to the initiation of construction, an acoustic monitoring plan to evaluate sound levels during impact pile driving activities shall be submitted to CDFW for acceptance. The monitoring plan should be prepared by a qualified hydro- acoustic monitoring specialist who possess the same authority as the qualified biologist and has the ability to direct the resident engineer to stop work as necessary. At minimum, the monitoring plan should include the following:

- Acoustical monitoring experience history for the qualified hydro-acoustic monitoring specialist.
- A description of the methods necessary to continuously assess underwater sound pressure in real-time, including details on the number of strikes for each pile, the specific pile location, distance and depth of the wetted channel, the placement of hydrophones and distance to the action.
- A description of the Quality Assurance/Quality Control protocols for the appropriate monitoring equipment.
- Provide a means of recoding the time, number of pile strikes, peak sound energy per strike and interval between strikes.
- Two hydrophone underwater sound monitoring systems (hydrophone, signal amplifier and calibrator) that utilize current National Institute of Standards and Technology traceable calibration method.
- All piles monitored shall be driven in water depths that are representative of mid channel or typical water depths at the Project location where piles will be driven.
- Indicate the location of the piles to be monitored and the approximate hydrophone locations for each pile being monitored. All hydrophones will be placed at least 1 m (3.3 feet) below the surface.

- In waters less than 4 meters (13 feet) deep, a single hydrophone at midwater depth is sufficient. Hydrophones will be located 10 meters from each pile with a clear acoustic line-of-sight between the pile and the hydrophone. Additional distances measured concurrently are desirable, if possible, to estimate the site- specific range to the threshold boundary. Include any additional distances or depths where hydrophones will be located.
- Require standard monitoring distance of 10 meters from each pile being monitored. Position a hydrophone at the estimated isopleths for peak and cumulative estimated action areas to ensure monitoring threshold data is available. Provide a site-specific Underwater Sound Pressure Monitoring Plan.
- Provide specific inputs and calculations for cumulative sound exposure limits in the monitoring reports. The results of hydro-acoustic monitoring shall be made available to CDFW upon request and submitted in weekly, monthly or annual compliance reports.

COMMENT 2: Migratory and Nesting Birds

Issue 1: Avoidance and minimization measures BIO – 11, 12 and 13 on page 161, Appendix E, of the IS/MND describe activities that likely constitute take under CESA for state listed species including but not limited to Swainson's hawk or have the potential to result in take of nesting birds protected under Fish and Game Code sections 3503 and 3503.5. Prior to the removal of any potential Swainson's hawk nesting tree, or hacking activities related to Swainson's an ITP would be required for those activities.

Issue 2: The installation of exclusionary netting is a potentially significant impact because no avoidance or minimization measure can be executed to completely avoid entanglement, injury or death to birds and bats.

Evidence the impact would be significant: Recent Caltrans projects in 2019/2020 at the Paintersville and Mokelumne River Bridge installed exclusionary netting without approval that resulted in the entanglement and mortality of migratory birds' species.

Exclusionary netting represents a potentially significant impact that cannot be avoided or minimized below a level of significance because it has the potential to ensnare bats and birds. Therefore, CDFW recommends avoidance and minimization measures on page 161, Appendix E, are amended.

Recommendation:

BIO-11: Performing woody vegetation removal or other construction activities within nesting bird habitat (structure work) during the non-nesting season

(between October 1 and January 31) will not require pre-construction surveys for migratory birds, unless work is occurring in potential special status or CESA listed species habitat. Consultation with CDFW will be necessary prior to the removal or disturbance of any habitat for CESA listed species.

BIO-12: CDFW recommends this measure is removed in its entirety from the IS/MND.

BIO-13: Woody vegetation removal, structures construction, ground-disturbing activities, or other Project-related activities are scheduled during the nesting season of protected raptors and migratory birds (February 1 to September 30), a focused survey for active nests of such birds shall be conducted by a designated biologist within 7 days before the start of Project-related activities. If active nests are found, a protective no-work buffer will be established, and Caltrans shall consult with the U.S. Fish and Wildlife Service (USFWS) regarding appropriate actions to comply with the Migratory Bird Treaty Act of 1918 and with CDFW to comply with provisions of the California Fish and Game Code. If a lapse in Project-related work of 7 days or longer occurs, another survey and, if required, consultation with USFWS and CDFW will be required before the work can start again.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California's fish and wildlife resources. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

Questions regarding this letter or further coordination should be directed to:

Mr. Robert Stanley, Senior Environmental Scientist (Specialist), at (707) 428-2093 or Robert.Stanley@wildlife.ca.gov; or Mr. Wesley Stokes, Senior Environmental Scientist (Supervisory), at (707) 339-6066 or Wesley.Stokes@wildlife.ca.gov.

cc: State Clearinghouse No. 2017072033

Response to comment 1: The California Department of Transportation (Caltrans) initiated consultation with the National Marine Fisheries Service on October 31, 2019, and the National Marine Fisheries Service issued a Biological Opinion for the Stockton Channel Viaduct Bridge Improvements project on June 23, 2020.

Section 2.9.4 (Terms and Conditions) of the Biological Opinion, Term Number 1e requires that "underwater sound monitoring shall be conducted during impact pile driving when water temperatures are below 75 degrees Fahrenheit, to ensure incidental take limits are not exceeded according to the ecological surrogates assigned." The contractor will therefore be required to

submit a hydroacoustic monitoring proposal for approval from Caltrans, California Department of Fish and Wildlife, and National Marine Fisheries Service before construction. The California Department of Fish and Wildlife's recommendations will be incorporated into the final hydroacoustic monitoring proposal.

Response to comment 2: No evidence of Swainson's hawks nesting within about 0.25 mile of the project's environmental study limits was seen during wildlife surveys conducted in April 2018, October 2018, April 2019, and April 2020. The California Natural Diversity Database records no occurrences of Swainson's hawks nesting within 0.25 mile of the project's environmental study limits. However, the database recorded three occurrences of Swainson's hawks nesting within about 1 mile of the project's environmental study limits. Although the project limits support mature trees that may be affected by project construction activities, no areas within about 0.25 mile of the project limits are known to support historic or "active" (used within the last 5 years) Swainson's hawk nest sites and has therefore determined that the potential to encounter nesting Swainson's hawks within or next to the project limits is very low.

Pre-construction nesting surveys for Swainson's hawks will be required before construction. If the species is encountered, Caltrans will consult with the California Department of Fish and Wildlife to ensure nesting success. Caltrans is aware of the requirements of California Fish and Game Code Section 2081 (also known as the California Endangered Species Act). Caltrans is also aware of the California Department of Fish and Wildlife's conservation recommendations provided in its "1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California," including potential hacking requirements and survey methodology provided in its "2001 Recommended Timing and Methodology for Nesting Swainson's Hawk Surveys in California's Central Valley."

Caltrans is aware that the California Department of Fish and Wildlife is unlikely to approve of netting as bird exclusion material.

Measure BIO-12 stated: "If work potentially interfering with bird nesting sites is proposed or is likely to occur between February 1 and September 30, then devices such as netting or other means may be used to block access to bird nesting sites where work will be performed." Bird exclusion device materials will therefore not be limited to only netting.

Although multiple surveys at the structure indicate that it is a very poor substrate for structures-nesting birds, Caltrans will continue to consider appropriate bird exclusion devices as an option for accomplishing construction activities during the bird nesting season. (For swallows, please refer to the Natural Environment Study in Volume 2 of the draft environmental document, Section 4.5.2 pages 208-209). Caltrans' Standard Special

Provisions under Section 14-6.03A (Species Protection) and/or 14-6.03(B) (Bird Protection) will be used to specify that netting may not be used as an exclusion material. The contractor will submit a nesting bird exclusion proposal for Caltrans and California Department of Fish and Wildlife approval before construction.

Exclusionary material of “other means” than netting offers a way for a mutually agreeable avian exclusion device system if it is determined to be needed.

California Department of Fish and Wildlife’s suggested “amendment” of Measure BIO-11 and BIO-12 replaces the term “migratory birds” with the term “special status or California Endangered Species Act-listed species/habitat.”

It should be noted that these measures were written in the context of migratory birds and raptors. The Swainson’s hawk is both migratory and a raptor. Caltrans has determined that the suggested edits to BIO-11 and BIO-12 are not appropriate because:

1) Not all migratory birds and raptors are considered “special status” or “California Endangered Species Act-listed.” Therefore, the suggested edits will exclude other migratory birds that do not qualify as “special status” or “California Endangered Species Act-listed” from the measures. The measures as written are inclusive of birds with and without these designations; and

2) Since the measures are geared toward birds, generic language such as “special status or California Endangered Species Act-listed species/habitat” introduces confusion as to whether or not the measure also applies to special status or California Endangered Species Act-listed species that are not birds. Other species-specific measures have been proposed to address non-avian special-status species.

In response to suggested “amendments” to BIO-13, comment respectfully noted.

Comment from Central Valley Regional Water Quality Control Board

Comment 1:

3 March 2021

Jonathan Coley

Department of Transportation, District 10

1976 East Dr. Martin Luther King, Jr. Boulevard

Stockton, CA 95205

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, STOCKTON CHANNEL VIADUCT BRIDGE IMPROVEMENTS PROJECT, SCH#2017072033, SAN JOAQUIN COUNTY

Pursuant to the State Clearinghouse's 3 February 2021 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the Request for Review for the Mitigated Negative Declaration for the Stockton Channel Viaduct Bridge Improvements Project, located in San Joaquin County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore, our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and

revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three(3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, please visit our website: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsr2018 05.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General

Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constperm its.sht ml

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_cer tificatio n/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., “non- federal” waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California

Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/200 4/wqo/wqo2004-0004.pdf

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/ wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waiv ers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a

low or limited threat to water quality and may be covered under the General Order for Limited Threat Discharges to Surface Water (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/gene ral_orders/r5-2016-0076-01.pdf

If you have questions regarding these comments, please contact me at (916) 464-4856 or Nicholas.White@waterboards.ca.gov.

Nicholas White

Water Resource Control Engineer

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Response to comment 1: Comments respectfully noted. Thank you for taking the time to comment on the Stockton Viaduct Bridge Improvements project.

Comment from City of Stockton Municipal Utilities Department

Comment 1:

From: Ann Okubo <Ann.Okubo@stocktonca.gov>

Sent: Tuesday, March 2, 2021 3:38 PM

To: Guidi, Scott@Dot <scott.guidi@dot.ca.gov>

Cc: Ali Garegozloo <ali.gharegozloo@stocktonca.gov>

Subject: MUD comments for the Proposed MNDD/Environmental Assessment-Interstate 5 Stockton Channel viaduct Bridge Improvements Project

The City of Stockton, Municipal Utilities Department (MUD) has reviewed the subject project and offers the following comments:

1. The proposed staging area at Morelli Park must avoid impacting the operations and maintenance of the City of Stockton's existing sewer and storm pipe systems. Perhaps, as part of the project, these existing storm and sewer systems and the existing storm and sewer pipes in Weber avenue should be relocated to eliminate negative impacts to the pipes.

2. Please include in the environmental document the relocation of the storm drain and sewer pipe systems, so they have the environmental clearance for design and construction. Also, include language for a potential sewer lift station as this may be a result of gravity pipes being relocated.

Thank you,

Ann Okubo

Municipal Utilities Department

City of Stockton

209-937-8250

Response to comment 1: The environmental document identified the impacts on Morelli Park Boat Launch. As stated in the environmental document, utility relocation plans and detailed impacts will be developed during the Plans, Specifications, and Estimates and Right of Way phase for the project. These impacts will be coordinated with the City of Stockton Municipal Utilities Department.

Response to comment 2: The environmental document identified the impacts on the city's storm drain and sewer pipes. As stated in the environmental document, utility relocation plans will be developed during the Plans, Specifications, and Estimates and Right of Way phase for the project. The addition of including a potential sewer lift station for the possibility of the gravity pipes being relocated will also be addressed in the Plans, Specifications, and Estimates and Right of Way phase.

Comment from City of Stockton Public Works Department

March 4, 2021

Scott Guidi, Branch Chief

Central Region Environmental 1976 Martin Luther King Jr. Boulevard

Stockton, CA 95205

STOCKTON CHANNEL VIADUCT BRIDGE IMPROVEMENTS PROJECT - NOTICE OF AVAILABILITY OF THE DRAFT INITIAL STUDY

Thank you for the opportunity to comment on the Notice of Availability of the Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for the Stockton Channel Viaduct Bridge Improvements Project. Our comments are as follows:

Comment 1: A traffic analysis of all existing streets that will be affected/impacted by the project shall be conducted.

Response to comment 1: Any impacts to existing streets from the project will be determined during the Plans, Specifications, and Estimates, and Construction phases. A Traffic Handling and Management Plan will be developed for this project. Approvals for detours, including local road closures and detours, will be obtained from respective agencies.

Comment 2: A City encroachment permit will be required prior to start of construction.

Response to comment 2: For construction work within the City of Stockton right-of-way, the eventual contractor will submit an encroachment permit request to the City of Stockton.

Comment 3: Businesses that will be displaced or impacted should be provided relocation assistance, even if not specifically required by regulations.

Response to comment 3: Businesses within air-spaced leased state-owned properties are under airspace lease agreements and do not receive relocation benefits.

Comment 4: Any lost revenues to the City, due to the closure of Morelli Park Boat Launch during construction should be reimbursed to the City.

Response to comment 4: Morelli Park Boat Launch is within state-owned air-space leased property. Section 9.2, Future Transportation Project, of the lease agreement, states that the “lessee will have no claim upon the lessor and waives any and all claims for compensation, damages, or relocation

assistance." It also states this under Section 9.3, Retrofitting of Freeway Structures.

Comment 5: All affected City utilities should be restored to current City standards.

Response to comment 5: In the design and right-of-way phase, after the Project Approval and Environmental Document phase of the project, utilities requiring relocation will require the approval of Caltrans and utility companies and will follow the standards of the utility companies for the relocation effort.

Comment 6: Detour/traffic staging plans shall be approved by the City prior to start of construction. See attached comments on Traffic Handling for Alternatives/Stages.

Response to comment 6: Approval of detour/traffic handling plans involving local agency roads as part of the detour will require agency approval during the design phase before construction.

Comment 7: Any right-of-way that will be relinquished to the City shall be free of any hazardous materials.

Response to comment 7: No relinquishment of any state-owned existing or acquired property is proposed for this project.

Comment 8: Public outreach shall be conducted to inform the residents and business owners about the project.

Response to comment 8: Caltrans will strive to inform the public and business owners about the project during all phases of construction.

Comment 9: Construction noise shall be kept to acceptable level to reduce the impact to residents.

Response to comment 9: During project construction, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans' Standard Specifications Section 14-8.02 "Noise Control." Furthermore, implementing the following measure will minimize the temporary noise impacts from construction:

- All equipment will have sound-control devices that are no less effective than those provided on the original equipment.

Comment 10: Refer to City of Stockton STAA and Cal-Legal truck maps for the proposed closures and detours. None of the local streets which are not specified as truck routes on the maps, accommodate large (STAA) and Cal-Legal.

Response to comment 10: Detours will be coordinated and approved by Caltrans and the local agency having jurisdiction of the local road.

Comment 11: Coordinate with City traffic signal staff to mitigate traffic signal operation during re-routing traffic.

Response to comment 11: Coordination with the local agency's traffic signal department personnel is expected, especially for local roads used as part of proposed detours.

Comment 12: Access to residents and business owners shall be provided at all times.

Response to comment 12: Temporary access modifications can occur during construction. Existing access will be perpetuated or modified to provide temporary alternative access during construction.

Comment 13: Restore all City improvements located under the freeway that are impacted by project operations, access, stage area use, vandalism, etc. to the same of better condition with parking lots resurfaced after project.

Response to comment 13: For Morelli Park Boat Launch's state-owned air-space leased property, existing city improvements are proposed to be replaced in-kind if damaged or removed.

Comment 14: Roadways used for construction access, haul routes, and deliveries shall be coordinated and approved through the City of Stockton Traffic Engineering Section.

Response to comment 14: Coordination with local agencies will be done during the design phase to ensure approval authority from authorized personnel.

Comment 15: Roads within the influence or footprint of the proposed improvements shall remain open to traffic.

Response to comment 15: Coordination of any full closure or lane closure will be done by Caltrans, with the local agency having jurisdiction of any local roads impacted.

Comment 16: Permit and fees for improvements within City rights of way will be required.

Response to comment 16: Encroachment permits will be obtained by the eventual contractor for any improvements or temporary work within the city right-of-way. Permit fees for public agencies should be waived per approvals during the design phase of the improvements per the coordination between Caltrans and the City of Stockton.

Comment 17: City Roadways damaged due to the project detours, access, or other uses shall be restored to better or equal condition.

Response to comment 17: Damages to city roads caused by the contractor will be restored. Impacts of detour traffic using the local roads will be deemed accepted by the City of Stockton in the design phase per the approval/concurrence of the City of Stockton of any full closure and associated detours using local roads under its jurisdiction. If an agreement is needed between Caltrans and the City of Stockton having conditions, that will be done during the design phase of the project.

Comment 18: The City boat launch lease shall be restored after the project and all access restored for any alternative selected.

Response to comment 18: The existing boat launch lease shall be restored after the project, and no permanent alternation of the Morelli Park Boat Launch is proposed.

Comment 19: Alternative 3 calls out a potential realignment of Weber Avenue with a new intersection with Washington Street. The alignment shall be approved by the City. This could require the abandonment of a portion or all of Weber Avenue east of the new Washington Street/Weber Avenue intersection.

Response to comment 19: Coordination of modification of any existing City of Stockton local road shall be done during the design phase of this project. Public outreach and a focus meeting with the City of Stockton occurred and included information about the proposed Build Alternative 3 realignment of Weber Avenue. Any abandonment of a portion of Weber Avenue will be coordinated with the City of Stockton.

Comment 20: Boat access under the 1-5 Stockton Channel Viaduct Bridges shall not be restricted in width or height from what exists today.

Response to comment 20: During construction, temporary impacts may occur to restrict existing boat access. After construction, coordination with local, state, and federal agencies will occur to evaluate horizontal and vertical requirements of the approved preferred alternative.

Comment 21: Removal of buildings below the existing bridge will require a permit and fees to be submitted through the City of Stockton Building Division.

Response to comment 21: The state’s demolition contractor will adhere to all state and local requirements as well as obtain all required permits and secure payment of all necessary fees attributed to each task order.

Comment 22: State-owned land to remain vacant after building demolition shall be secured with wrought iron fencing per the Stockton Municipal Code. The fencing is needed to prevent unwanted access and the prevention of homeless camps.

Response to comment 22: Caltrans intends after building demolition to prevent homeless encampments within air-space leased state-owned properties using appropriate perimeter management materials.

Comment 23: Post project, pedestrian walkways along perimeter of state-owned property shall be ADA Compliant. All intersection ramps shall be reconstructed with ADA compliant ramps.

Response to comment 23: Caltrans will evaluate any ADA improvements associated with the project area as proposed in the project. Any additional locations will be evaluated in the design phase and construction phase as long as no additional right-of-way or utility impacts are required.

Comment 24: Pershing Avenue Median north of Fremont Street shall be reconstructed because median curb is low and insufficient to prevent cross over entries for traffic entering and exiting the freeway.

Response to comment 24: Any additional improvements identified after project approval will be considered after evaluation for inclusion and validated environmentally.

Comment 25: Landscaping under freeway along Caltrans Slope paving on Pershing Avenue south of Fremont Street should be restored or improved to remove the dirt for landscaping.

Response to comment 25: The existing abutment/slopes included for improvement will include paved slope paving.

Comment 26: Caltrans should look at providing pedestrian sidewalks along the east side of Pershing Avenue between Oak Street and the Pershing Avenue connector ramp. The project should be complete streets in design as ii integrates back with City Streets. Proactive pedestrian crossing safety and control will likely be needed.

Response to comment 26: Caltrans considers complete streets, and this project includes various pedestrian facility improvements associated with the project improvements. The stated sidewalk is not included in the project improvements but can be evaluated for feasibility in the design phase.

Comment 27: Caltrans project provides an important opportunity to institute a valuable pedestrian/bike pathway across the channel with a widened structure. This is the only chance to gain this valuable improvement to the community, and it would demonstrate the State's commitment to providing

projects that integrate into the community fabric and are context sensitive and complete streets in nature. A pedestrian/bike crossing is needed.

Response to comment 27: The pedestrian/bike facility was evaluated per the value analysis. However, due to funding constraints and impacts south and north of the channel, the facility is not part of the purpose and need of this project and is outside the scope of this project. A separate project with its own purpose and needs in coordination with the City of Stockton can be initiated outside of the bridge project.

Comment 28: Fire Routes and response times need to be submitted to City of Stockton Fire Department for coordination and input additional safety improvements or requirements. Weber Avenue properties west of the 1- 5 overcrossing is of special concern.

Response to comment 28: Coordination with emergency services, including the fire department, will occur during the design phase for any requirements.

Comment 29: Alternate 3 potential relocation of Weber Avenue realignment shall be constructed per City Standards. All existing slope paving areas shall be improved, and landscaping addressed. Fencing shall be wrought iron to meet City of Stockton Municipal Code requirements.

Response to comment 29: Coordination of modification of any existing City of Stockton local roads shall be done during the design phase of this project. Requirements for improvements will be coordinated with the City of Stockton.

Comment 30: Excess State lands should be integrated into the City fabric in a positive way and not be left as bare land with no positive value to the citizens.

Response to comment 30: There are no proposed excess lands for this project.

Comment 31: State shall address homeless displacement with the project and discuss possible mitigation options and alternatives with the City of Stockton City Manager’s office, Economic Development Department and Public Works.

Response to comment 31: Coordination with local agencies is expected regarding existing homeless and transient personnel in the work area associated with this project.

Comment 32: Caltrans should look into right-of-way rights of the channel under the 1-5 overcrossing.

Response to comment 32: Coordination with the California State Lands Commission, Port of Stockton, U.S. Coast Guard, and Army Corps of

Engineers is expected for work within the Stockton Channel and proposed temporary construction easements.

JODI ALMASSY, DIRECTOR PUBLIC WORKS DEPARTMENT

SENIOR CIVIL ENGINEER

RAY DEVETO, P.E.

SENIOR CIVIL ENGINEER

JLA:EA:WJ:RD:cal

emc: Eric Alvarez, Deputy Public Works Director/City Engineer

Wes Johnson, Engineering Manager

Dodgie Vidad, City Traffic Engineer

Ray Deyto, Senior Civil Engineer

Comment from City of Stockton Public Works Department From Virtual Open House Meeting on February 18, 2021

Comment 1: Virtual Open House Slide: Alternative 1A- Viaduct Rehabilitation—Not Clear what type of utilities will be impacted. Public or private?

Response to comment 1: Final utility impacts will be determined during the design and Right of Way phase. Various preliminary public utility impacts proposed include sewer, water, electrical, gas, communication, and telephone facilities in general.

Comment 2: Virtual Open House Slide: Alternative 3- Viaduct Bridge Rehabilitation—With this Alternative staff is concerned about re-routing traffic from freeway onto local roads, especially trucks. Local roads are not built and accommodating truck traffic.

Response to comment 2: Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 3(a): Virtual Open House Slide: Proposed Stage 1 Construction Traffic Impacts (Stage 1, 2, and 3 Detour for Weber Avenue)—Large trucks, (STAA) shall be kept on the freeway, since Lincoln, Weber, Fresno, and Washington are not designated STAA truck routes.

Response to comment 3(a): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 3(b): Coordinate with City traffic signal staff to mitigate traffic signal operation during re-routing traffic.

Response to comment 3(b): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall

stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 3(c): Development project improvements may have conflict with the traffic control (detour routes) on this project.

Response to comment 3(c): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 4: Virtual Open House Slide: Proposed Stage 2 Construction Traffic Impact (Stage 2, Phases 1, 2 and 3 Detour)—Large trucks (STAA) shall be kept on the freeway, since Fremont Street, Ryder and Monte Diablo are not designated STAA truck routes.

Response to comment 4: Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 5: Virtual Open House Slide: Proposed Stage 2 Construction Impact (Stage 2, Phase 1, 2, and 3 Detour) (Alternative and/or Optional)—Large trucks (STAA) and Cal-legals shall be kept on the freeway, since local streets are not designated STAA/truck routes.

Response to comment 5: Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 5(a): Virtual Open House Slide: Proposed Stage 2 Construction Traffic Impact (Stage 2, Phase 1, 2, and 3 Detour) (Alternative and/or Additional Optional)—No room for turnaround trucks.

Response to comment 5(a): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done

during the design phase All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision, various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 5(b): Large trucks (STAA) and cal-legal shall be kept on the freeway, since local street are no designated STAA/truck routes.

Response to comment 5(b): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 6(a): Virtual Open House Slide: Proposed Stage 2 Construction Impacts (Stage 2, Phase 1 Detour)—Coordinated with City traffic signal staff to mitigate traffic signal operation during re-routing traffic.

Response to comment 6(a): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 6(b): Development project improvements may have conflict with the traffic control (detour routes) of this project.

Response to comment 6(b): Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Comment 7: Virtual Open Hose Slide: Proposed Stage 3 Construction Impacts—Large trucks (STAA) and cal-legals shall be kept on the freeway, since local streets are not designated STAA/truck routes.

Response to comment 7: Coordination with local stakeholders/agencies and Caltrans District personnel for all proposed traffic impacts will be done during the design phase. All preliminary proposed traffic impacts identified on the materials for the virtual open house are preliminary and subject to revision; various traffic impacts are expected. This includes full closures and associated detours, ramps truck routing, signal modifications, and overall stage construction and traffic handling of the eventual preferred alternative. Further coordination and approvals will occur in the design phase.

Appendix H Species Lists

The California Department of Transportation (Caltrans) obtained species lists from the National Marine Fisheries Service, California Department of Fish and Wildlife, California Natural Diversity Database, and the U.S. Department of the Interior, and U.S. Fish and Wildlife Service Threatened and Endangered species lists on March 18, 2021. Copies of the species lists can be found in Volume 2 and can be sent to you upon request.

List of Technical Studies

Air Quality Report

Water Quality Report

Biological Reports

Natural Environment Study

Climate Change Analysis Memorandum

Cultural Reports

Historical Property Survey Report

- Archaeological Survey Report

Hazardous Waste Reports

- Initial Site Assessment

Location Hydraulic Study

Noise Study Report

Paleontological Identification Report

Scenic Resource Evaluation/Visual Assessment

Seismic Design Recommendation Report

Section 4(f) Analysis

Traffic Operations Analysis

Community Impact Assessment Memorandum

Cumulative Impact Assessment Memorandum

To obtain a copy of one or more of these technical studies/reports or the Initial Study/Environmental Assessment, please send your request to the following email address: district10publicaffairs@dot.ca.gov.

Please indicate the project name (Stockton Channel Viaduct Bridge Improvements) and project identifying code (10-0X460) and specify the technical report or document you would like a copy of. Provide your name and email address or U.S. postal service mailing address (street address, city, state and zip code).

ATTACHMENT H
Transportation Management Plan Checklist

D-10 TRANSPORTATION MANAGEMENT PLAN CHECKLIST

District - Project No: 1012000259 **EA:** 10-0X460 **Co.-Rte.-P.M.** SJ-05-26.1/26.5
Date Prepared: May 17, 2017 **Location:** North and South Bound I-5 across the Stockton Channel Viaduct Bridge
Prepared By: J. HERNANDEZ
Requested By: R. BOYER
Stage of Project (X box) ☐ PID ☐ PSR ☒ PR ☐ PS&E XX% **Description:** Rehab the deck and Repair the brokencross beam frames

Date Signed | Date Signed | Date Signed | Date Signed

	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
1.0 Public Information Strategies							
1.1 Brochures and Mailers	X				RE to hand-deliver to business/residences.		
1.2 Media Releases (& minority media sources)	X						
1.3 Paid Advertising			X				
1.4 Public Information Center			X				
1.5 Public Meetings/Speakers Bureau			X				
1.6 Project Telephone Hotline			X				
1.7 Internet, E-Mail			X				
1.8 Local cable TV and News			X				
1.9 Notification to Impacted groups (i.e. bicycle users, pedestrians with disabilities, others)	X				Designer to verify impacted groups.		
1.10 Project Web Page			X				
1.11 Caltrans Public Information Office	X				Items 1.1 to 1.11 to be handled by CT PIO.	$76K	
1.12 Consultant Public Information Office			X				
1.13 Other items			X				
2.0 Traveler Information Strategies							
2.1 Changeable Message Signs (permanent)	X				Utilize existing units.		X
2.2 Changeable Message Signs (portable)	X				See comments below	$228K	X
2.3 Special Construction Signs			X				
2.4 Traveler Information Systems (CHIN/Internet)			X		As required.		
2.5 Highway Advisory Radio "HAR" (fixed or mobile)			X				
2.6 Radar Speed Sign			X				
2.7 Traffic Management Team			X				
2.8 Revised Transit Schedules/ Maps			X				
2.9 Bicycle community information	X				Same as Item 1.9.		
2.10 Other items			X				
3.0 Incident Management							
3.1 COZEEP	X				See comments below	3.496M	
3.2 Freeway Service Patrol (tow truck service patrol)			X				
3.3 Transportation Management Center	X						
3.4 Traffic Control Inspector (Caltrans)		X					
3.5 Traffic Management Team		X			As needed.		
3.6 On-site Traffic Advisor (contractor)		X					
3.7 Other Items			X				
4.0 Construction Strategies							
4.1 Delay damage clause	X				Determine during PS&E	TBD	
4.2 Night work	X				Per Lane Closure Charts		X
4.3 Weekend Work			X				
4.4 Extended Weekend Closures			X				
4.5 Planned Lane Closures	X				Per Lane Closure Charts.		X
4.6 Planned Ramp Closures/Connector Closure	X				Per Lane Closure Charts.		X
4.7 Total Facility Closure			X				
4.8 Project Phasing			X		As per stage construction if any.		
4.9 Truck Traffic Restrictions			X				
4.10 Reduced Lane Widths			X				
4.11 Temporary K-Rail			X		Project Engineer to determine		
4.12 Temporary Traffic Screens			X				
4.13 Regulatory Temporary Traffic Control Speed Zone	X				To be requested		X
4.14 Traffic Control Improvements	X				As necessary.		X

4.0 Construction Strategies (Continued)	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	ITEM COST	REQUIRED IN SPEC.
4.15 Contingency Plans	X				Construction to determine items 4.15.1 thru. 4.15.9		X
4.15.1 Material Plant on standby							
4.15.2 Extra Critical Equipment on site							
4.15.3 Material Testing Plan							
4.15.4 Alternate Material on site (In case of failure or major delays)							
4.15.5 Emergency Detour Plan							
4.15.6 Emergency Notification Plan							
4.15.7 Weather Conditions Plan							
4.15.8 Delay Timing and Documentation Plan							
4.15.9 Late Closure Reopening Notification							
4.16 Signal timing modification			X				
4.17 Coordination with adjacent construction	X				RE to confirm prior to scheduling of closures.		X
4.18 Double Fine Zone (signs)			X				
4.19 Right of Way Delay			X				
4.20 ADA access to Pedestrian Facilities	X				See comments below.		X
4.21 Provide Pedestrians Access	X				Complete Street Guidelines		X
4.22 Provide Bicyclists Access	X				Complete Street Guidelines		X
4.23 Structure Strategies for Traffic Handling Constraints	X						X
4.24 Other Items	X				See comments below.		X
5.0 Demand Management							
5.1 HOV Lanes/Ramps			X				
5.2 Ramp metering			X				
5.3 Park-and-Ride Lots			X				
5.4 Parking Management/Pricing			X				
5.5 Rideshare Incentives			X				
5.6 Rideshare Marketing			X				
5.7 Transit, Train, or Light-Rail Incentives			X				
5.8 Transit Service Modification			X				
5.9 Variable Work Hours			X				
5.10 Telecommute			X				
6.0 Alternate Route Strategies							
6.1 Ramp Closures			X				
6.2 Street Improvements			X				
6.3 Reversible Lanes			X				
6.4 Temporary Lanes or Shoulders Use			X				
6.5 Freeway to freeway connector closures			X				
6.6 Other Items			X				
7.0 Other Strategies							
7.1 Application of new technology	X						X
7.2 District Lane Closure Review Committee (LCRC)			X		No request submitted		
7.3 Construct ITS Elements			X				
7.3.1 Changeable Message Sign (CMS)			X				
7.3.2 Closed-Circuit Television (CCTV)			X				
7.3.3 Extinguishable Message Sign (EMS)			X				
7.3.4 Highway Advisory Radio (HAR) & Signs			X				
7.3.5 Ramp Metering			X				
7.3.6 Traffic Monitoring Station (TMS)			X				
7.3.7 Weather Station (RWIS)			X				
7.4 Anti-Theft Prevention Strategies	X				See Guidelines of Effective & Practical Wire Theft Prevention Strategies		X
7.5 Other Items			X				

Comments:

1.4 Plan, progress/completion information should be available at Local Public Works, Chamber of Commerce Offices, and CT Maintenance Offices.
1.9 Impacted groups need to be notified and informed about upcoming construction. During construction, access across job site will be needed.
1.11 PIO estimated at $2k/mo.X 38 MONTHS= $76K
2.2 PCMS Estimate: 2PCMS@6K/MOX38=$228K
3.1 COZEEP Estimate: 2CHP/unit(2unit)($115/hr)(10hr/day)(760Xday) = $3.496 MIL
4.20 Ensure that temporary routes, which are provided around and through construction along pedestrian facilities under Caltrans jurisdiction, are accessible to persons with disabilities when provided.
4.24 RE/Inspector shall maintain access to all business & residences at all times.

Approved by:

JULIO HERNANDEZ — **5/17/2017**

For WILMAR KUHL, P.E. - TMP MANAGER — DATE

Replace *Reserved* in section 12-4.02C(3)(g) with:

Freeway lane closures must comply with the requirements shown in the following chart:

Chart No. G1
Freeway Lane Requirements

County: San Joaquin	Route/Direction: 5/NB	Post Mile: 26.5

Closure limits: STOCKTON CHANNEL VIADUCT BRIDGE

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon – Thu	1	1	1	1	1	2	N	N	N	n	N	N	N	N	N	N	N	N	N	N	3	2	2	2	
Fri	1	1	1	1	1	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sat	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sun	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	3	2	2	

Legend:

1	Provide at least 1 through Freeway lane open in the direction of travel.
2	Provide at least 2 adjacent through Freeway lanes open in the direction of travel.
3	Provide at least 3 adjacent through Freeway lanes open in the direction of travel.
N	No work is allowed.

REMARKS:

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(g) with:

Freeway lane closures must comply with the requirements shown in the following chart:

Chart No. G2
Freeway Lane Requirements

County: San Joaquin	Route/Direction: 5/ SB	Post Mile: 26.1/26.5

Closure limits: STOCKTON CHANNEL VIADUCT BRIDGE

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon – Thu	1	1	1	2	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	3	3	2	1	
Fri	1	1	1	2	2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sat	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Sun	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	3	2	1	

Legend:

1	Provide at least 1 through **Freeway** lane open in the direction of travel.
2	Provide at least 2 adjacent through **Freeway** lanes open in the direction of travel.
3	Provide at least 3 adjacent through **Freeway** lanes open in the direction of travel.
N	No work is allowed.

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required
5. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(i) with:

Comply with the requirements for the **Complete Connector Closure Hours** shown in the following chart:

Chart No. I1
Complete Connector Closure Hours

County: San Joaquin	Route/Direction: 4-5 conn/ WB to NB	Post Mile: 26.212
Closure limits: WB4 TO NB 5		

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																			C	C
Fri	C	C	C	C	C																				
Sat																									
Sun																								C	C

Legend:

C	Connector may be closed completely.
	~~Work is allowed within the highway where a shoulder or lane closure is not required.~~

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing connectors may be closed at the same time.
4. Detour required
5. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(i) with:

Comply with the requirements for the **Complete Connector Closure Hours** shown in the following chart:

Chart No. I2
Complete Connector Closure Hours

County: San Joaquin	Route/Direction: 4-5 conn/ EB to NB	Post Mile: 26.212
Closure limits: EB4 TO NB5		

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C	C																C	C	C	C
Fri	C	C	C	C	C	C																			
Sat																									
Sun																							C	C	C

Legend:

C	Connector may be closed completely.
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing connectors may be closed at the same time.
4. Detour required
5. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(i) with:

Comply with the requirements for the **Complete Connector Closure Hours** shown in the following chart:

Chart No. I3
Complete Connector Closure Hours

County: San Joaquin	Route/Direction: 5-4 conn/ SB to WB	Post Mile: 26.212
Closure limits: SB5 TO WB 4		

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C	C																	C	C	C
Fri	C	C	C	C	C	C																			
Sat																									
Sun																								C	C

Legend:

C	Connector may be closed completely.
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing connectors may be closed at the same time.
4. Detour required
5. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(j) with:

Comply with the requirements for the **Complete Ramp Closure Hours** shown in the following chart:

Chart No. J1
Complete Ramp Closure Hours/Ramp Lane Requirements

County: San Joaquin	Route/Direction: 5/NB	Post Mile: 26.5

Closure limits: Pershing Ave off ramp

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon – Thu	C	C	C	C	C	C																C	C	C	C
Fri	C	C	C	C	C	C																			
Sat																									
Sun																							C	C	C

Legend:

C Ramp may be closed completely.

Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required
5. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(j) with:

Comply with the requirements for the **Complete Ramp Closure Hours** shown in the following chart:

Chart No. J2
Complete Ramp Closure Hours

County: San Joaquin	Route/Direction: 5/SB	Post Mile: 26.5

Closure limits: Pershing Ave on /off ramps

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon – Thu	C	C	C	C	C	C																C	C	C	C
Fri	C	C	C	C	C	C																			
Sat																									
Sun																							C	C	C

Legend:

C Ramp may be closed completely.

Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required
5. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(m) with:

Comply with the requirements for a **City Street Requirements and Hours of Work** shown in the following chart:

Chart No. M1
City Street Requirements and Hours of Work

Location: San Joaquin	Direction: EB-WB	
Closure limits: West Weber Ave near West Washington St.		

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Fri	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R								
Sat																									
Sun																					R	R	R	R	R

Legend:

	Work is allowed within the highway where a shoulder or lane closure is not required.
R	Provide at least 1 through traffic lane not less than 10 feet in width for use by both directions of travel. (Reversing Control)

REMARKS: The number of through traffic lanes in each direction of travel is __.

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advanced notice required.
3. Detour required.
4. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(m) with:

Comply with the requirements for a **City Street Requirements and Hours of Work** shown in the following chart:

Chart No. M2
City Street Requirements and Hours of Work

Location: San Joaquin | Direction: EB-WB

Closure limits: West Fremont St. near Pershing

Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	R	R	R	R	R	R														R	R	R	R	R	
Fri	R	R	R	R	R	R																			
Sat																									
Sun																					R	R	R	R	

Legend:

	Work is allowed within the highway where a shoulder or lane closure is not required.
R	Provide at least 1 through traffic lane not less than 10 feet in width for use by both directions of travel. (Reversing Control)

REMARKS: The number of through traffic lanes in each direction of travel is __.

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advanced notice required.
3. Detour required.
4. Closures of local roads will require City/County concurrence.

Note to Design:

Above window must be re-evaluated or updated if actual construction takes place later than 2019.

Replace *Reserved* in section 12-4.02C(3)(f) with:

Closure restrictions for designated holidays and special days are shown in the following table:

Lane Closure Restrictions For Designated Holidays And Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	**H** xx	xx	xx							
	SD xx	xx	xx							
x	xx	**H** xx	xx							
		SD xx	xxx							
	x	xx	**H** xx	xx						
			SD xx	xxx						
	x	xx	xx	**H** xx	xx					
	x	xx	xx	**SD** xx	xxx					
				x	**H** xx	xx				
				x	**SD** xx	xxx				
					x	**H** xx	xx			
						SD xx	xxx			
						x	**H** xx	xx	xx	xx
							SD xx			

Legend:	
	Refer to lane requirement charts.
x	The full width of the traveled way must be open for use by traffic after **6am**.
xx	No work are allowed within State **Right-of-Way**.
xxx	The full width of the traveled way must be open for use by traffic until **6am**.
H	Designated holiday
SD	Special day

ATTACHMENT I
Traffic Impact Summary (Closures and Detours)

10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

NOTE TO READER: This is preliminary anticipated traffic impacts for PA&ED DPR/DED purposes. Final design may require more details and revisions to the proposed traffic impacts.

Applies for All Alternatives 1A, 2, & 3 [unless otherwise noted specifically for alternative(s)]

- **Mainline I-5:** (existing 8-lane divided freeway (36' median width) with auxiliary lanes across the structure and portions to the south and north of the structure

    - Various night time lane closure for night time installation/removal of temporary k-rail in between stage construction/traffic handling

    - Various night time lane closures and ramp closures for existing roadway and structures removal and setup/removal of false work for new structure improvements
        - No 2 successive ramp in the same direction will be closed.

    - In general, for optional detour path for through traffic (signed but still allow I-5 reduced lane traffic across portions of the bridge
        - This is to minimize traffic volume during construction across structures
            - Is anticipated to be in place duration of project
        - SB Detour: EB SR 12 to SB SR 99 to WB SR 4
        - NB Detour: EB SR 4 to NB SR 99 to WB SR 12

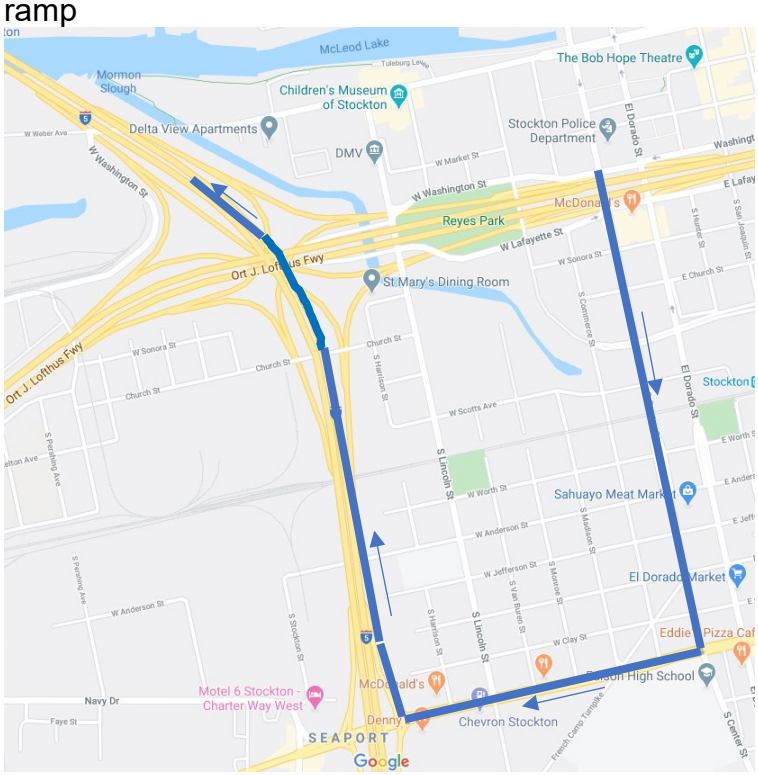
    - Various weekend closures of connectors/ramps for roadway work.

    - Various traffic handling per each stage construction with 1 lane reduction in each direction throughout the duration of the project.
        - Additionally, traffic shifts are anticipated in which at least 1 lane in each direction will not have access to local ramps within the project limits (separated with temporary k-rail)
        - Long-term closures may require Lane Closure Review Committee (LCRC) approval if the closures cause significant delays.

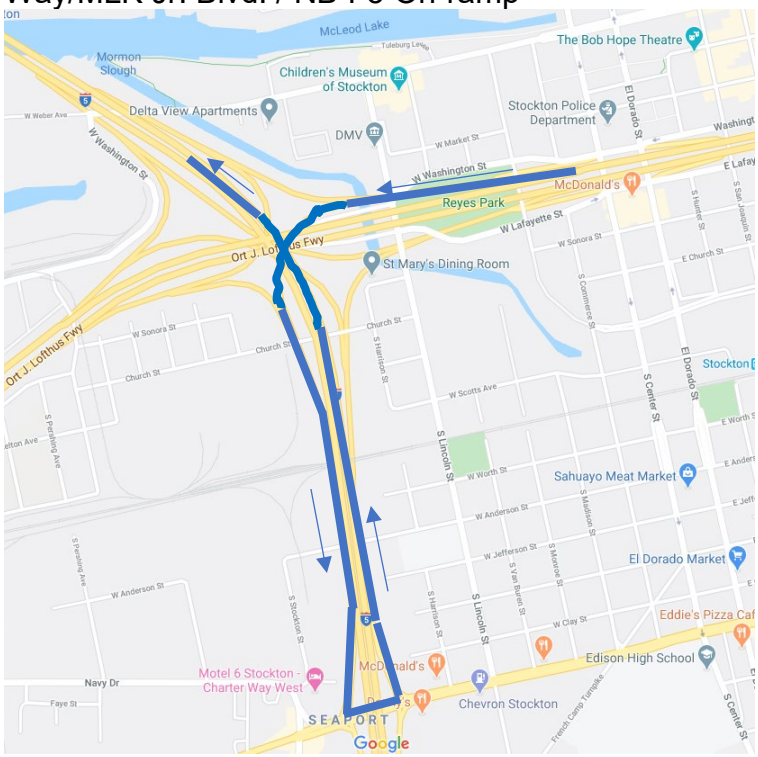
10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

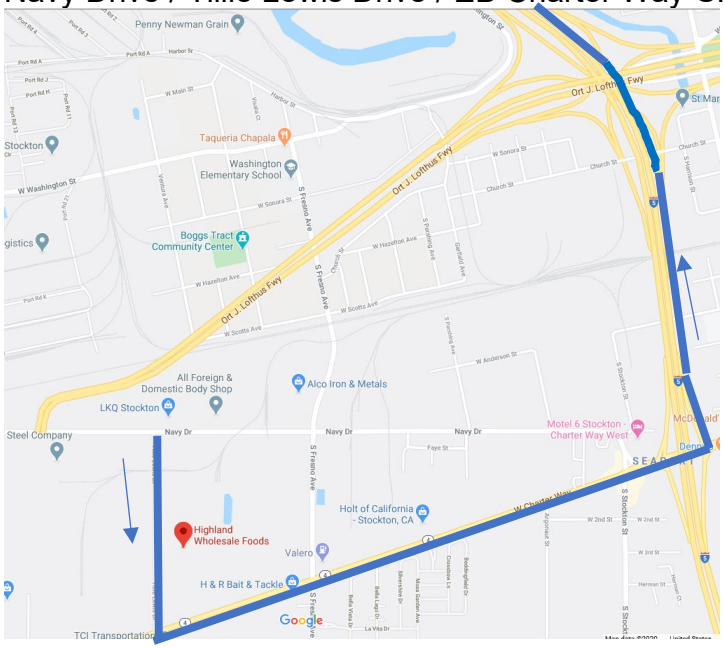
- **SR4/I-5 Connectors**: (existing 1to2 lane connectors/auxiliary lanes)
    - **WB & EB SR 4/NB I-5 Connector**:
        - (**For Alt. 3 only**) extended weekend or possibly week-long full closures for roadway work between NB I-5 and the onramp
            - This will require Lane Closure Review Committee approval either way
        - (**For Alt. 1A and 2 only**) night time full closure and a few extended weekend full closures of the ramps for roadway work

        - Detour applies to all alternatives for Local downtown traffic movement to NB I-5
            - Downtown Stockton via SB Center Street / WB MLK Jr. Blvd./ NB I-5 On-ramp
            -



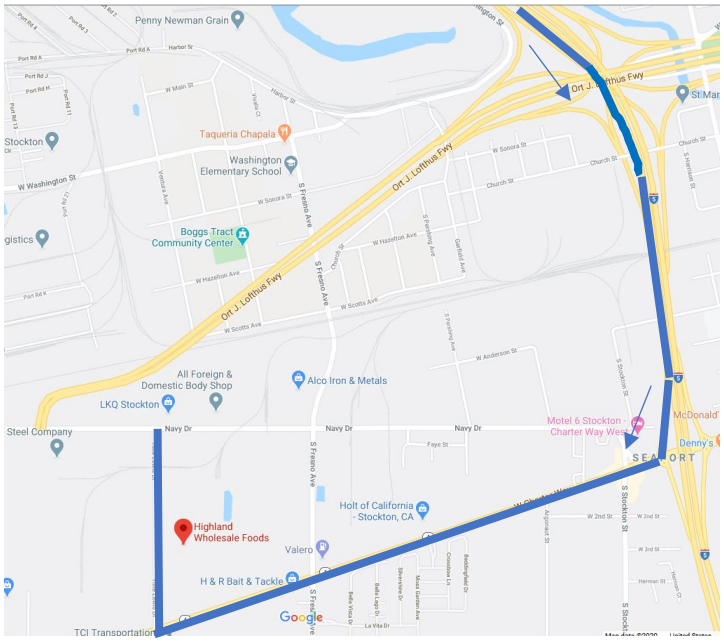
10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

- Detour applies to all alternatives for WB SR 4 connector traffic movement to NB I-5
  - WB SR 4 / Connector to SB I-5 / Charter Way SB Off-ramp / EB Charter Way/MLK Jr. Blvd. / NB I-5 On-ramp
  - 

- Detour applies to all alternatives for EB SR 4 connector traffic movement to NB I-5
  - Navy Drive / Tillie Lewis Drive / EB Charter Way-SR 4 / NB I-5 On-ramp
  - 

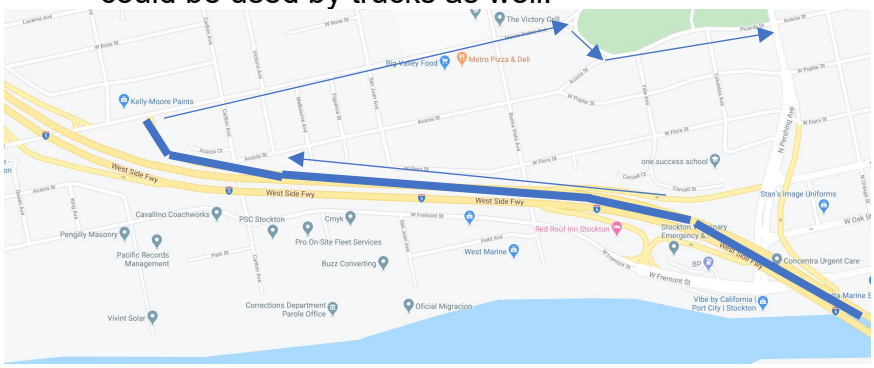
10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

- **SB I-5/WB & EB SR 4/ Connector**:
  - (**For all Alt. 1A, 2, & 3**) during **Stage 2, Phase 1** for constructing major portion of SB I-5 and the connector
    - Long-term full closure (1-year or so) of SB I-5 to WB SR 4 Connector
      - Long-term detour shown below using Charter Way IC
    - Also, traffic shift of SB I-5 to EB SR 4 connector to temporary crossover to existing connector will be provided (no detour but nighttime closure to setup is anticiapted)
  - Anticipate night time full closures and a few extended weekend full closures of the ramps for roadway work
    - This will require Lane Closure Review Committee approval
  - Detour for SB I-5 to WB SR 4 traffic movement is required
    - SB I-5 / Charter Way SB Off-ramp / WB Charter Way-SR 4 / Tillie Lewis Drive / Navy Drive
      - This includes truck traffic that would access west of I-5 near Navy Drive industrial area
    -



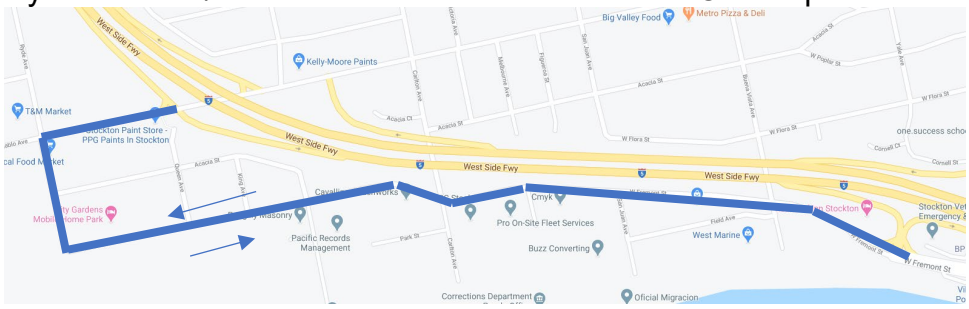
10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

- **Pershing Avenue Off-ramp**: (existing one-way single-lane Off-ramp)
    - Construct temporary offramp north of existing ramp
        - Needed towards the end of construction staging to minimize full closure of ramp/traffic impacts
        - Requires modification of signal and signing/striping at existing Pershing Avenue On-ramp/Pershing Avenue/Park Street signalized intersection
        - Proposed NB I-5 signed detour to Monte Diablo Avenue Off-ramp (non-truck vehicles) as secondary exit in conjunction with temporary offramp
            - In **Stage 3, Phase 1** NB I-5 traffic including EB SR 4 connector traffic no not have direct access to Pershing Offramp and will have to use detour or other desired routes to access north of Downtown Stockton
                - However, WB SR 4 Connector high volume traffic have option of using existing Pershing Off-ramp or merge into NB I-5
            - In **Stage 3, Phase 2**, main exit is still proposed to be temporary Pershing Off-ramp for NB I-5 traffic including NB SR 4 connector traffic
            - It is anticipated for trucks to use the temporary Pershing Off-ramp
                - However, Monte Diablo NB off-ramp and Monte Diablo Avenue could be used by trucks as well.
            -



10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

- **Pershing Avenue On-ramp**: (existing one-way single-lane On-ramp)
  - Various ramp closures
    - (**For Alt. 3 only**) night time full closure of the ramp for work related to temporary Pershing Off-ramp and also extended weekend full closures for roadway work between NB I-5 and the onramp
    - (**For Alt. 1A and 2 only**) night time full closure of the ramp for work related to temporary Pershing Off-ramp and signalized intersection modification work

- **Fremont Street Off-ramp & On-Ramp**: (existing one-way single-lane Off-ramp)
  - Various ramp closures
    - (**For ALL Alts.**) In **Stage 2, Phase 1** long-term full closure of Fremont Street off-ramp and on-ramp is anticipated for several months (1 year or so)
      - For Alt. 1A and 2 it would be closed to avoid isolated off-ramp scenario
      - For Alt. 3 it would be closed to build SB I-5 new elevation roadway portion and retaining walls reconstructing both ramps
    - (**For Alt. 3 only**) night time full closure of the ramp for work related to SB I-5 roadway work and also extended weekend full closures for roadway work of reconstructing the off-ramp and on-ramp and area in between the ramps at the intersection of Fremont Street
      - Ramp Detour:
        - Monte Diablo Avenue SB Off-ramp / WB Monte Diablo Avenue / Ryde Avenue / Fremont Street vice versa for SB On-ramp
        - 

    - (**For Alt. 1A and 2 only**) night time full closure of the ramp
      - Off-ramp: may be allowed, however, no anticipated roadway or structure work proposed for the offramp
      - On-ramp: anticipated to be required due to structure work at end of ramp

10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

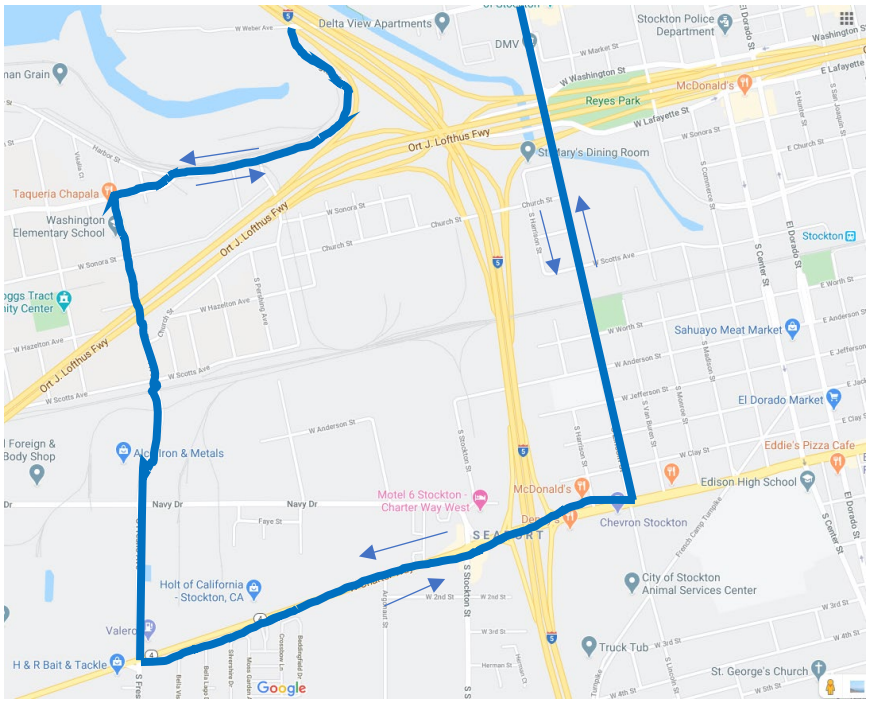
- **Pershing Avenue**: (existing 4-lane City of Stockton street)
  - Various day time and night time lane closures
  - **(For Alt. 3 only)** Propose removal and replacement of New Abutment #8 (near existing Abutment #14 area on the west side of Pershing Avenue) and removal of existing bent #13 along I-5

- **Fremont Street**: (existing 2to4-lane City of Stockton street)
  - Various day time and night time lane closures
  - For Alt. 3 only) Propose removal of some EB Fremont Street on-street parking at New Bent #6 (near existing Bent #11 Right area on the south side of Fremont Street)

- **Oak Street:** (existing one-way (EB) 2-lane City of Stockton street)
  - Various day time and night time lane closures for construction of Pershing Avenue Off-ramp structure work
    - More time required for Alt. 3 full replacement of structure than Alt. 2 and Alt. 1A

- **Park Street:** (existing one-way (WB) 2-lane City of Stockton street)
  - (**For Alt. 3 only**) Various day time and night time lane closures for construction of Pershing Avenue Off-ramp and Park Street structure work

10-0X4600 SJ-5 Stockton Channel Viaduct Project
Summary of Anticipated Traffic Handling/Impacts
By Design October 19, 2020

- **<u>Weber Avenue & Washington Street</u>**: (existing 2-lane City of Stockton streets)
  - (**For Alt. 3 only**) Full closure with detours for ultimate WB and EB traffic
    - Due to construction of New Bent #2 across Weber Avenue and removal of existing Bent #3 (labeled 4A) near Washington Street
    - WB and EB Detours:
      - WB Detour (for WB Weber Avenue traffic to access west side of structure from east side of structure)
      - EB Detour (for EB Weber Avenue traffic to access east side of structure from west side of structure)
        - West Weber Avenue / West Washington Street / South Fresno Avenue / Route 4 (Charter Way) / South Lincoln Street / Weber Avenue & vice versa for WB detour
        - 

  - (**For Alt. 1A and 2 only**) Partial closure/One-Way Traffic Control with proposed temporary portable signals for WB and EB Weber Avenue traffic and portion of Washington Street
    - Due to construction of New Bent #3 bent cap retrofit/new column/new foundation pile (in line with existing Bent #3 – south side of Weber Avenue) located in between existing Left and Right Bent #3

ATTACHMENT J
Stormwater Data Report
(Signed Coversheet)

Dist-County-Route: 10-SJ-5
Post Mile Limits: 26.1/27.6
Project Type: Bridge Rehabilitation
Project ID (EA): 1012000259 (10-0X4600)
Program Identification: 201.110
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board: Central Valley Region (5 - Sacramento Office)

Total Disturbed Soil Area: 35.54 acres PCTA: 11.53 acres

Alternative Compliance (acres): N/A ATA 2 (50% Rule)? Yes ☐ No ☒

Estimated Const. Start Date: 05/30/2025 Est Const. Complete: 11/30/2029

Risk Level: RL 1 ☐ RL 2 ☒ RL 3 ☐ WPCP ☐ Other: _____

Is MWELO applicable? Yes ☐ No ☒

Is the Project within a TMDL watershed? Yes ☒ No ☐

TMDL Compliance Units (acres): 0.0

Notification of ADL reuse (if yes, provide date): Yes ☐ Date:_____ No ☒

This Report has been prepared under my direction. I attest to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.

Ashlyn F. Swan 6-2-21
Ashlyn F. Swan, Registered Project Engineer Date

I concur with the Construction water pollution control strategy and selected temporary BMPs in this report.

David Troop 06/03/2021
David Troop, *Construction Stormwater Coordinator* *Date*

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Withy Seng 6-3-21
Sam Sherman, *Project Manager* *Date*

Robert Shanks 06/04/2021
Robert Shanks, *Maintenance Stormwater Coordinator* *Date*

Agustin Escutia 6-7-21
for/ **Brad Cole**, *Landscape Architecture* *Date*

[Stamp Required at PS&E only]

Mazin Al Ali 06/08/2021
Mazin H. Al Ali, *Regional SW Coordinator* *Date*

ATTACHMENT K
Value Analysis
(Summary Only)

Final Value Analysis Study Report

Stockton Channel Viaduct Bridge Rehabilitation

PN 1012000259

10-SJ-5-PM 26.1/26.5

Contract No. 53A0208

Task Order No. 1039

October 2018

Prepared by

Value Management Strategies, Inc.

Value Management Strategies, Inc.

CORPORATE OFFICE:
900 Canterbury Place, Suite 330
Escondido, CA 92025
T: 760 741 5518 | F: 760 741 5617

Date: October 3, 2018

To: Sam Sherman, Project Manager

Subject: Final VA Study Report (Task Order 1039)
D-10 Stockton Channel Viaduct Bridge Rehabilitation

Value Management Strategies, Inc. is pleased to submit this Final VA Study Report for the referenced project.

It was a pleasure working with Caltrans District 10 on this project, and I look forward to the next one. If you have any questions or comments concerning this report, please do not hesitate to contact me at (206) 679-8029 or email EricT@vms-inc.com.

Sincerely,

VALUE MANAGEMENT STRATEGIES, INC.

Eric Trimble, CVS, MBA, PMP, ENV SP
VA Study Team Leader

Copy: (PDF) Addressee
(PDF) Robert Johnson, District VA Coordinator
(PDF) Erika Barrick, Caltrans HQ VA Branch

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VA STUDY SUMMARY REPORT

FINAL RESULTS

VA Study Summary Report – Final Results

D-10 Stockton Channel Viaduct Bridge Rehabilitation

10-SJ-5
PN 1012000259
(PM 26.1/26.5)

A Value Analysis (VA) study, sponsored by the California Department of Transportation (Caltrans) and facilitated by Value Management Strategies, Inc. (VMS), was conducted for the Stockton Channel Viaduct Bridge Rehabilitation Project. The VA study was conducted June 19-21 and 26-28, 2018 at District 10 Offices in Stockton, California. This *VA Study Summary Report – Final Results* provides an overview of the project, key findings, and the alternatives accepted for implementation into the project.

PROJECT SUMMARY

This project proposes to rehabilitate the Stockton Channel Viaduct Bridge located in San Joaquin County to address structural and load carrying capacity deficiencies and to ensure the safety and reliability of the Stockton Channel Viaduct.

Currently, Stockton Channel Viaduct contains three through lanes and one auxiliary lane in each direction. I-5 to the north of the structure is currently being widened to four lanes in each direction and construction is anticipated to be complete in early 2016. The ultimate transportation concept is for seven lanes in each direction. This makes Stockton Channel a potential bottleneck within the corridor. Future bridge widening and other operational strategies need to be considered to address future and long-range corridor plans.

There are numerous spalls throughout the bridge deck with the top mat of reinforcement exposed due to shallow concrete cover. The bridge is delaminated with large patched areas throughout the bridge deck. Unsound concrete on the bridge deck and failed steel finger joints have been repeatedly repaired by District 10 Bridge Maintenance crews; however, the spalls are subject to rapid failure. The welds connecting the lateral bracing to its end plate are broken at multiple locations and there are diagonal cracks at the abutments near the exterior girders and vertical cracks throughout the abutment walls.

The bridge structures are structurally deficient, per the latest bridge inspection reports dated October 2013. Although the structures are not considered functionally obsolete, the structures are not able to accommodate federally-required permitted loads, nor can the existing girders be feasibly

strengthened to carry these loads. Freckled rust is also forming at scattered locations throughout the structure and repainting will also be required and included with the rehabilitation options.

Additional and more comprehensive testing will be needed during the PA&ED phase to appropriately diagnose current deficiencies and problems. Operationally, the I-5 connectors to and from State Route 4 (SR 4) (Crosstown Freeway) and Pershing Avenue and connect to the Stockton Channel Viaduct experience recurring congestion during peak hour commutes, particularly during the afternoon commute. A rigorous traffic analysis is needed, and a traffic management plan will need to be identified for any major structure repair and replacement strategies.

There are three design alternative repair strategies being considered to address the current bridge deficiencies for this project:

1. Alternative 1: Bridge Deck Replacement with New Lightweight Deck
2. Alternative 2: Replace Bridge Superstructure
3. Alternative 3: Bridge Replacement

Design Alternative 3, the complete bridge replacement, was identified as the baseline concept for the purpose of the VA study. The current capital outlay costs for this most expensive design alternative is $551,205,000 (without escalation). Using Design Alternative 3, which is also the most time consuming as it constructs an entirely new bridge, the project is anticipated to be completed in November 2029.

PROJECT PURPOSE AND NEED

The purpose of the project is to rehabilitate the northbound and southbound bridges on I-5 that span the Stockton Channel. The bridges are approximately 2,725 feet in length. There is a need for deck replacement, superstructure strengthening, and bridge rail replacement. Other impacts include traffic handling as I-5 is a major corridor for goods and services movement, environmental aspects due to the work in the waterway, right-of-way impacts at the superstructures, and coordination with multiple partners and stakeholders.

VA STUDY TIMING

The VA study was conducted early in the PA&ED phase of the project, which is to be completed in October 2020. The project is scheduled for Ready to List (RTL) in September 2024.

VA STUDY OBJECTIVES

The objectives of the VA study were to:

1. Analyze the current project design alternatives, estimates, and schedules;
2. Provide possible cost and/or schedule saving recommendations; and
3. Provide performance improvement recommendations.

Additionally, the VA study was tasked with providing greater insight into the determination of a preferred alternative from among the three existing design alternatives.

KEY PROJECT ISSUES

The items listed below are the key drivers, constraints, or issues being addressed by the project and considered during this VA study to identify possible improvements.

Environmental Concerns – The project requires a number of environmental agency permits to be procured, which in turn require a comprehensive plan for mitigation and monitoring of the Stockton Channel and the area in the immediate project area. The bridge work will require several seasons of work in both the river and in the approach areas where the current assumption is that the project's two-month allowable work window per year can be expanded if proper mitigation is achieved to protect native fish habitats and spawning runs. Several additional environmental issues will need to be addressed, including the next several months which relate to the near certain presence of hazardous materials in the riverbed and on-shore soils, as well as the presence of historical elements.

Traffic Management – The project will need to maintain three lanes in each direction during the roadway and bridge rehabilitation/construction effort. This work will require multiple construction phases over multiple construction seasons and will necessitate extensive use of K-rail, traffic lane shifts, lane and ramp closures, nightwork, and potential detours.

Coast Guard Involvement – The project will need to closely coordinate with the Coast Guard to determine the future needs and navigational requirements of the channel. These operational parameters will have a significant impact on the project bridge design and project cost – specifically Design Alternative 3. This coordination needs to occur as soon as possible.

Stakeholder Involvement – Due to the large scale of the project and its high impact on many parties, there will be numerous stakeholders to involve and coordinate with to achieve success.

Multi-Modal Opportunity – There is a desire by the City of Stockton to promote the use of multi-modal transportation throughout the City as well as the region. A pedestrian and bicycle path in the bridge design is not included in the current scope. If added, this element would provide a safe connection for the local area which does not currently exist. The northbound side of the bridge structure would be the ideal location for this new item and could make use of the Pershing Avenue off-ramp component.

EVALUATION OF BASELINE CONCEPT

During the course of the VA study, a number of analytical tools and techniques were applied to develop a better understanding of the baseline concept. A major component of this analysis was Value Metrics which seeks to assess the elements of cost, performance, time, and risk as they relate to project value. These elements required a deeper level of analysis, the results of which are detailed in the *Project Analysis* section of this report. The key performance attributes identified for the project are listed in the table, "Performance Attributes." A summary of the major observations and conclusions identified during the evaluation of the baseline design concept which led the VA team to develop the alternatives and recommendations presented in this report follows.

The stakeholders rated each of the performance attributes through a paired comparison process and found that Maintainability was weighted the highest at 47%. Mainline Operations, Constructability, and Local Operations scored 17%, 11%, and 10%, respectively. Short-term Impacts (or Construction Impacts) and Long-term Impacts (or Environmental Impacts) were weighted the lowest but were still seen as being important to overall project success.

Performance Attributes

Mainline Operations

Local Operations

Maintainability

Short-term Impacts

Long-Term Impacts

Constructability

The initial evaluation of the three current design alternatives by the stakeholders determined that they each have their merits and offer distinct approaches for addressing the facility's existing deficiencies. As noted previously, Design Alternative 3, the bridge replacement option, was chosen to be the baseline design for the VA study to compare and determine improvements to project value. This design uses proven construction methods to meet the project access and traffic management requirements. This design is favored by stakeholders as it does the most to fulfill the project's purpose and need in providing the longest useful life for the facility (60-100 years) and the lowest maintenance life-cycle cost (LCC) when compared to the other design alternatives which rehabilitate the existing steel bridge structures to varying degrees. Design Alternative 3 does, however, represent the highest project cost, longest project duration, and has the most construction impact to the local community and project area due to the nature of the work being performed.

The stakeholders provided scores for this bridge replacement design as the baseline (and the other two design alternatives) in relation to each of the six performance attributes. As expected, Maintainability scored very high (8 on a scale of 1 to 10, with 10 being highest) with Short-Term Impacts and Constructability scoring 3 and 4, respectively, given the high degree of community and travel disruption expected and the complexity of the work being performed with the design. The conclusion of the stakeholders present was that this baseline design was very good and addresses many of the project's key concerns well; however, due to the high cost, long project duration, and early timing of the project, there remains room for potential project value improvement.

FINAL VA STUDY RESULTS

The VA team developed 12 alternatives for consideration for improvement of the project. After an adequate review period, 9 alternatives were accepted for implementation. These VA alternatives assume that anticipated project funding remains available for Design Alternative 3 – the New Bridge design option – which was used as the baseline concept for the VA study. When combined together, the accepted alternatives improve upon the baseline concept assumptions and represent an overall improvement in project value as defined by the stakeholders involved in the VA study. When the impacts of the accepted VA alternatives are combined, the initial project cost savings amounts to roughly $130 million and reduces the project schedule's duration by at least 12 months. When cost, time, and performance are factored together for the accepted VA alternatives, the net value improvement over the baseline concept is calculated as 28%.

The following describes the accepted alternatives along with their initial cost impacts, change in schedule, and performance changes that were validated by the Project Development Team (PDT) after the VA study. Please note that because the cost data depicted below represent *savings*, a

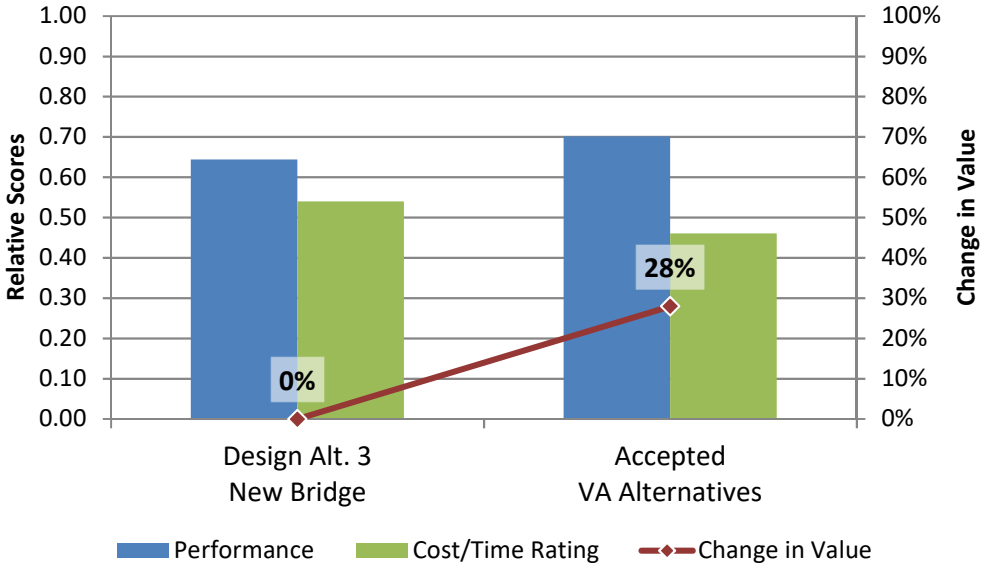
number in parentheses represents a cost *increase*. The rejected alternatives, and their respective reasons for rejection, are also discussed below.

Alternative No. and Description	Initial Cost Savings	Change in Schedule	Change in Performance
4.0 Shift I-5 alignment on both sides to reduce construction stages	**$77,236,000**	**18-month reduction**	**+ 7.3 %**
The baseline concept proposes constructing a new bridge on the existing alignment. The alternative concept would shift the southbound and northbound lanes of I-5 to the outside of the current alignment (within the existing right-of-way limits) to allow for more space to stage construction.			
5.0 Use two separate bridges to reduce channel span length	**$56,809,000**	**No Change**	**+ 3.5 %**
The baseline concept proposes to construct a combined northbound and southbound structure which requires all columns to be in the same alignment. The alternative concept would construct two separate northbound and southbound structures that will allow for staggered column alignment, thus reducing the controlling span length. This alternative assumes use of the two-stage construction alternative (VA Alternative 4.0).			
6.0 Use imported fill for south bridge approach	**$33,400,000**	**No Change**	**+ 2.4 %**
The baseline concept proposes to construct the new bridge by replacing the existing columns to support the bridge structure. The alternative concept would use fill and MSE retaining walls on the southern end to reduce the overall bridge length and the number of columns needed to support the structures.			
7.0 Include wider shoulders to accommodate future maintenance	**($17,455,000)**	**No change**	**+ 4.0 %**
The baseline concept includes standard shoulder widths (10 feet). The alternative concept would increase the standard shoulders on the bridge to 12 feet to provide an additional work space for maintenance personnel.			
8.0 Construct exclusionary structures to allow for year-round work in channel	**$8,289,000**	**10-month reduction**	**+ 6.4 %**
The baseline concept assumes a two-month in-water work window (August through September). The current environmental effort is seeking to increase this work window to four months (July to October). The alternative concept would pursue approval for the use of turbidity curtains and/or coffer dams to allow for year-round work in the channel. The alternative assumes the use of proven means and methods of fish exclusionary devices that have been successful for projects throughout California.			
9.0 Relocate begin bridge of Pershing Avenue ramp to north of SR 4 / I-5 interchange	**$9,184,000**	**No change**	**+ 5.4 %**
The baseline concept includes the entrance to the northbound Pershing Avenue off-ramp south of the SR 4 / I-5 separation structure. The alternative concept would shift the entrance to the northbound Pershing Avenue off-ramp north of the SR 4 / I-5 separation structure.			

Alternative No. and Description	Initial Cost Savings	Change in Schedule	Change in Performance
10.0 Use earth with wrapped face wall in lieu of bridges for the temporary tie-in structures	**$1,857,000**	**No change**	**+ 1.3 %**
The baseline concept constructs temporary tie-in structures at the Pershing Avenue off-ramp for all three design alternatives. The alternative concept would use a temporary wrapped face wall (pillow wall) at the Pershing Avenue off-ramp location to temporarily tie in traffic between I-5 northbound and Pershing Avenue.			
11.0 Include ramp metering at Fremont Street and Pershing Avenue on-ramps on I-5	**($724,000)**	**No change**	**- 4.0 %**
The baseline concept does not include ramp metering in the completed facility. The alternative concept would include ramp metering at the Fremont Street and Pershing Avenue on-ramps to I-5 to assist in traffic management operations.			
12.0 Include pedestrian / bike path in separate lane with bridge	**($38,577,000)**	**6-month increase**	**-11.5 %**
The baseline concept proposes to construct a new bridge without a pedestrian or bike component. The alternative concept would widen the new bridge enough to include a barrier-separated (Type 60 with a 6-foot anti-climb fence) bike / pedestrian path to provide access between the north and south sides of the Stockton Channel. The concept would be included as part of the Pershing Avenue off-ramp – with the north terminus being the Pershing Avenue / Flora Street intersection and the south terminus being a switchback at the south side of Weber Avenue (adjacent to Mormon Slough). The anticipated width of the bike path would be 14 feet to allow for maintenance efforts (12 feet + 1-foot shoulders on either side).			

Comparison of Value

Baseline Concept and Accepted VA Alternatives



Net Effect of Accepted VA Alternatives

Strategy Description	Initial Cost Savings	Change in Schedule	Change in Performance	Value Change
VA Alternatives 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, & 12.0	$130,019,000	12-month reduction	+ 6 %	+ 28 %

It is important to note that should project funding become limited by shifting budgetary constraints, the project could shift to Design Alternative 2 – Girder Replacement - and incorporate many of the VA Alternatives 3.0, 8.0, 9.0, 10.0, and 11.0 to provide a viable rehabilitated bridge option which achieves an acceptable useful life. Although a much less expensive option, Design Alternative 2 is not recommended by the VA team over Design Alternative 3 due to the anticipated maintenance and durability concerns between a refurbished bridge and a new one as presented in the baseline. *A separate Life-Cycle Cost Analysis (LCCA) has been prepared to analyze this further and is included in a separate report.*

Rejected VA Alternative – Reason for Rejection

1.1 Construct additional median bridge deck by connecting northbound and southbound structures without median substructure for Design Alternative 2

This alternative was rejected in favor of VA Alternative 3.0, which is seen as a superior option if the New Bridge Design Alternative is not possible and Design Alternative 2 is pursued.

2.0 Eliminate median widening by shifting northbound and southbound traffic onto one existing bridge

This alternative was rejected in favor of VA Alternative 3.0, which is seen as a superior option if the New Bridge Design Alternative is not possible and Design Alternative 2 is pursued.

3.0 Eliminate median widening by shifting northbound and southbound traffic onto one existing bridge and construct Pershing Avenue ramp

This alternative was rejected in favor of Design Alternative 3 (the New Bridge Alternative). If Design Alternative 3 is not possible due to funding or some other reason, this alternative should be considered to improve the value of Design Alternative 2.

VA TEAM

VA Study Team

Name	Organization	Title
Eric Trimble	VMS, Inc.	VA Study Facilitator
David Ripperda	San Joaquin Council of Governments	Planning
Mostafa Kattaa	Caltrans District 10	DES Structure Design
Greg Heath	Caltrans District 10	Structures Maintenance

Name	Organization	Title
Janet Bailey	Caltrans District 10	Environmental
Stephen Pozzo	Caltrans District 10	Structures Construction
Matt Howard	Caltrans District 10	Design Engineer
Jason Lemons	Parsons	Cost Estimator
Wei-Jen Lee	Parsons	Structure Construction
Kevin Michalski	Parsons	Structure Design

Key Project Contacts

Name	Organization	Title
Robert Johnson	Caltrans District 10	District VA Coordinator
Sam Sherman	Caltrans District 10	Project Manager
Nomer Gutierrez	Caltrans District 10	Design Manager
Ramin Rashidi	Caltrans DES	Structures Design

ATTACHMENT L
Life-Cycle Cost Analysis

Cal-B/C Model – Project Information
Alternative 2
(Superstructure Replacement)

District: 10

PROJECT: Stockton River Viaduct - Alt 2 Superstructure Replacement

EA: 10-0X460
PPNO:

1A PROJECT DATA

Type of Project	Enter pavement condition in section 1B	
Select project type from list	Pavement	
Project Location (enter 1 for So. Cal., 2 for No. Cal., or 3 for rural)	2	
Length of Construction Period	3	years
One- or Two-Way Data	2	enter 1 or 2
	Current	
Length of Peak Period(s) (up to 24 hrs)	5	hours

1B HIGHWAY DESIGN AND TRAFFIC DATA

Highway Design		No Build	Build
Roadway Type (Fwy, Exp, Conv Hwy)		F	F
Number of General Traffic Lanes		6	6
Number of HOV/HOT Lanes		2	2
HOV Restriction (2 or 3)		2	
Exclusive ROW for Buses (y/n)		N	
Highway Free-Flow Speed		65	70
Ramp Design Speed (if aux. lane/off-ramp proj.)		35	35
Length (in miles)	Highway Segment	2.0	2.0
	Impacted Length	2.0	2.0

Average Daily Traffic			
	Current	78,500	
		No Build	Build
	Base (Year 1)	84,418	84,418
	Forecast (Year 20)	121,900	121,900
Average Hourly HOV/HOT Lane Traffic		1,500	1,500
Percent of Induced Trips in HOV (if HOT or 2-to-3 conv.)			100%
Percent Traffic in Weave		20.0%	10.0%
Percent Trucks (include RVs, if applicable)		23%	23%
Truck Speed		55	

On-Ramp Volume	Peak	Non-Peak
Hourly Ramp Volume (if aux. lane/on-ramp proj.)	0	0
Metering Strategy (1, 2, 3, or D, if on-ramp proj.)		

Queue Formation (if queuing or grade crossing project)	Year 1	Year 20
Arrival Rate (in vehicles per hour)	0	0
Departure Rate (in vehicles per hour)	0	0

Pavement Condition (if pavement project)		No Build	Build
IRI (inches/mile)	Base (Year 1)	200	80
	Forecast (Year 20)	240	190

Average Vehicle Occupancy (AVO)		No Build	Build
General Traffic	Non-Peak	1.30	1.30
	Peak	1.15	1.15
High Occupancy Vehicle (if HOV/HOT lanes)		2.15	2.15

1C HIGHWAY ACCIDENT DATA

Actual 3-Year Accident Data (from Table B)	Count (No.)	Rate
Total Accidents (Tot)	101	0.59
Fatal Accidents (Fat)	2	0.012
Injury Accidents (Inj)	30	0.17
Property Damage Only (PDO) Accidents	69	0.40

Statewide Basic Average Accident Rate	No Build	Build
Rate Group		
Accident Rate (per million vehicle-miles)	1.50	0.85
Percent Fatal Accidents (Pct Fat)	2.2%	0.4%
Percent Injury Accidents (Pct Inj)	32.0%	29.7%

1D RAIL AND TRANSIT DATA

Annual Person-Trips		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Percent Trips during Peak Period		40%	
Percent New Trips from Parallel Highway			100%

Annual Vehicle-Miles		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Average Vehicles/Train (if rail project)			

Reduction in Transit Accidents	
Percent Reduction (if safety project)	

Average Transit Travel Time		No Build	Build
In-Vehicle	Non-Peak (in minutes)		0.0
	Peak (in minutes)		0.0
Out-of-Vehicle	Non-Peak (in minutes)	0.0	0.0
	Peak (in minutes)	0.0	0.0

Highway Grade Crossing	Current	Year 1	Year 20
Annual Number of Trains		0	
Avg. Gate Down Time (in min.)		0.0	

Transit Agency Costs (if TMS project)	No Build	Build
Annual Capital Expenditure		$0
Annual Ops. and Maintenance Expenditure		$0

Model should be run for both roads for intersection or bypass highway projects, and may be run twice for connectors. Press button below to prepare model to enter data for second road. After data are entered, results reflect total project benefits.

Prepare Model for Second Road

Enter all project costs (in today's dollars) in columns 1 to 7. Costs during construction should be entered n the first eight rows.
Project costs (including maintenance and operating costs) should be net of costs without project.

1E

PROJECT COSTS (enter costs in thousands of dollars)

Col. no.	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
Year	DIRECT PROJECT COSTS					Mitigation	Transit Agency Cost Savings	TOTAL COSTS (in dollars)	
	INITIAL COSTS			SUBSEQUENT COSTS					
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
1	$5,700	$12,800						$18,500,000	$18,500,000
2	$11,400							11,400,000	10,961,538
3	$11,400							11,400,000	10,539,941
4	$11,400							11,400,000	10,134,558
5	$11,400		143,366	Adjust Construction Period				154,766,000	132,294,625
6	$11,400		143,367	Adjust Construction Period				154,767,000	127,207,193
7	$11,400		143,367	Adjust Construction Period				154,767,000	122,314,608
8								0	0
Project Open									
1				$35				$35,000	$31,115
2				$36				36,400	31,115
3				$38				37,856	31,115
4				$39				39,370	31,115
5				$41				40,945	31,115
6				$43				42,583	31,115
7				$44				44,286	31,115
8				$46				46,058	31,115
9				$48				47,900	31,115
10				$50				49,816	31,115
11				$52				51,809	31,115
12				$54				53,881	31,115
13				$56				56,036	31,115
14				$58				58,278	31,115
15				$61				60,609	31,115
16				$63				63,033	31,115
17				$66				65,554	31,115
18				$68				68,177	31,115
19				$71				70,904	31,115
20				$74				73,740	31,115
21				$77				76,689	31,115
22				$80				79,757	31,115
23				$83				82,947	31,115
24				$86				86,265	31,115
25	13,329 20% Const Support, $25M Paint Job			$90	69,925			83,343,979	28,905,073
26				$93				93,304	31,115
27				$97				97,036	31,115
28				$101				100,918	31,115
29				$105				104,955	31,115
30				$109				109,153	31,115
31				$114				113,519	31,115
32				$118				118,060	31,115
33				$123				122,782	31,115
34				$128				127,693	31,115
35				$133				132,801	31,115
36				$138				138,113	31,115
37				$144				143,638	31,115
38				$149				149,383	31,115
39				$155				155,358	31,115
40				$162				161,573	31,115
41				$168				168,036	31,115
42				$175				174,757	31,115
43				$182				181,747	31,115
44				$189				189,017	31,115
45				$197				196,578	31,115
46				$204				204,441	31,115
47				$213				212,619	31,115
48				$221				221,124	31,115
49				$230				229,968	31,115
50	711,914 Full Replace via DB				2,965,785			3,677,699,150	478,456,607
51				$103				103,000	12,885
52				$107				107,120	12,885
53				$111				111,405	12,885
54				$116				115,861	12,885
55				$120				120,495	12,885
56				$125				125,315	12,885
57				$130				130,328	12,885
58				$136				135,541	12,885
59				$141				140,963	12,885
60				$147				146,601	12,885
61				$152				152,465	12,885
62				$159				158,564	12,885
63				$165				164,906	12,885
64				$172				171,503	12,885
65				$178				178,363	12,885
66				$185				185,497	12,885
67				$193				192,917	12,885
68				$201				200,634	12,885
69				$209				208,659	12,885
70				$217				217,005	12,885
71				$226				225,686	12,885
72				$235				234,713	12,885
73				$244				244,102	12,885
74				$254				253,866	12,885
75				$264				264,020	12,885
76				$275				274,581	12,885
77				$286				285,564	12,885
78				$297				296,987	12,885
79				$309				308,866	12,885
80				$321				321,221	12,885
81				$334				334,070	12,885
82				$347				347,433	12,885
83				$361				361,330	12,885
84				$376				375,783	12,885
85	Subtract Residual Initial Cost			$391	(1,744,580			(1,744,188,871)	(226,913,256)
Total	$799,343	$12,800	$430,100	$12,690	$1,291,131	$0	$0	$2,546,064,087	$714,332,477

Present Value = Future Value (in Constant Dollars) / (1 + Real Discount Rate) ^ Year

Cal-B/C Model – Results
Alternative 2
(Superstructure Replacement)

District: 10

PROJECT: Stockton River Viaduct - Alt 2 Superstructure Replacement

EA: 10-0X460
PPNO:

3

INVESTMENT ANALYSIS

SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$432.6
Life-Cycle Benefits (mil. $)	$159.9
Net Present Value (mil. $)	-$272.7
Payback Period:	20+ years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$19.6	$11.3	$30.9	$1.5
Veh. Op. Cost Savings	$4.6	$4.7	$9.2	$0.5
Accident Cost Savings	$92.2	$27.5	$119.8	$6.0
TOTAL BENEFITS	$116.4	$43.5	$159.9	$8.0
Person-Hours of Time Saved			2,949,758	147,488

Cal-B/C Model – Project Information

Alternative 3

(Full Replacement)

District: 10

PROJECT: Stockton River Viaduct - Alt 3 Replacement

EA: 10-0X460

PPNO:

1A PROJECT DATA

Type of Project	Enter pavement condition in section 1B	
Select project type from list	Pavement	
Project Location (enter 1 for So. Cal., 2 for No. Cal., or 3 for rural)	2	
Length of Construction Period	4	years
One- or Two-Way Data	2	enter 1 or 2
	Current	
Length of Peak Period(s) (up to 24 hrs)	5	hours

1B HIGHWAY DESIGN AND TRAFFIC DATA

Highway Design		No Build	Build
Roadway Type (Fwy, Exp, Conv Hwy)		F	F
Number of General Traffic Lanes		6	7
Number of HOV/HOT Lanes		2	2
HOV Restriction (2 or 3)		2	
Exclusive ROW for Buses (y/n)		N	
Highway Free-Flow Speed		65	70
Ramp Design Speed (if aux. lane/off-ramp proj.)		35	35
Length (in miles)	Highway Segment	2.0	2.0
	Impacted Length	2.0	2.0

Average Daily Traffic			
	Current	78,500	
		No Build	Build
	Base (Year 1)	86,048	86,048
	Forecast (Year 20)	121,900	121,900
Average Hourly HOV/HOT Lane Traffic		1,500	1,500
Percent of Induced Trips in HOV (if HOT or 2-to-3 conv.)			100%
Percent Traffic in Weave		20.0%	10.0%
Percent Trucks (include RVs, if applicable)		23%	23%
Truck Speed		55	

On-Ramp Volume	Peak	Non-Peak
Hourly Ramp Volume (if aux. lane/on-ramp proj.)	0	0
Metering Strategy (1, 2, 3, or D, if on-ramp proj.)		

Queue Formation (if queuing or grade crossing project)	Year 1	Year 20
Arrival Rate (in vehicles per hour)	0	0
Departure Rate (in vehicles per hour)	0	0

Pavement Condition (if pavement project)		No Build	Build
IRI (inches/mile)	Base (Year 1)	200	60
	Forecast (Year 20)	240	60

Average Vehicle Occupancy (AVO)		No Build	Build
General Traffic	Non-Peak	1.30	1.30
	Peak	1.15	1.15
High Occupancy Vehicle (if HOV/HOT lanes)		2.15	2.15

1C HIGHWAY ACCIDENT DATA

Actual 3-Year Accident Data (from Table B)	Count (No.)	Rate
Total Accidents (Tot)	101	0.59
Fatal Accidents (Fat)	2	0.012
Injury Accidents (Inj)	30	0.17
Property Damage Only (PDO) Accidents	69	0.40

Statewide Basic Average Accident Rate	No Build	Build
Rate Group		
Accident Rate (per million vehicle-miles)	1.50	0.65
Percent Fatal Accidents (Pct Fat)	2.2%	0.3%
Percent Injury Accidents (Pct Inj)	32.0%	29.0%

1D RAIL AND TRANSIT DATA

Annual Person-Trips		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Percent Trips during Peak Period		40%	
Percent New Trips from Parallel Highway			100%

Annual Vehicle-Miles		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Average Vehicles/Train (if rail project)			

Reduction in Transit Accidents	
Percent Reduction (if safety project)	

Average Transit Travel Time		No Build	Build
In-Vehicle	Non-Peak (in minutes)		0.0
	Peak (in minutes)		0.0
Out-of-Vehicle	Non-Peak (in minutes)	0.0	0.0
	Peak (in minutes)	0.0	0.0

Highway Grade Crossing	Current	Year 1	Year 20
Annual Number of Trains		0	
Avg. Gate Down Time (in min.)		0.0	

Transit Agency Costs (if TMS project)	No Build	Build
Annual Capital Expenditure		$0
Annual Ops. and Maintenance Expenditure		$0

Model should be run for both roads for intersection or bypass highway projects, and may be run twice for connectors. Press button below to prepare model to enter data for second road. After data are entered, results reflect total project benefits.

Prepare Model for Second Road

Enter all project costs (in today's dollars) in columns 1 to 7. Costs during construction should be entered n the first eight rows.
Project costs (including maintenance and operating costs) should be net of costs without project.

1E

PROJECT COSTS (enter costs in thousands of dollars)

Col. no.	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
Year	DIRECT PROJECT COSTS					Mitigation	Transit Agency Cost Savings	TOTAL COSTS (in dollars)	
	INITIAL COSTS			SUBSEQUENT COSTS					
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
1	$10,111	$12,800	$49,067					$71,978,000	$71,978,000
2	$20,222		98,133					118,355,000	113,802,885
3	$20,222		112,666					132,888,000	122,862,426
4	$20,222		112,667					132,889,000	118,137,837
5	$20,223		112,667	Adjust Construction Period				132,890,000	113,594,929
6								0	0
7								0	0
8								0	0
Project Open									
1				$15				$15,000	$12,822
2				$16				15,600	12,822
3				$16				16,224	12,822
4				$17				16,873	12,822
5				$18				17,548	12,822
6				$18				18,250	12,822
7				$19				18,980	12,822
8				$20				19,739	12,822
9				$21				20,529	12,822
10				$21				21,350	12,822
11				$22				22,204	12,822
12				$23				23,092	12,822
13				$24				24,015	12,822
14				$25				24,976	12,822
15				$26				25,975	12,822
16				$27				27,014	12,822
17				$28				28,095	12,822
18				$29				29,219	12,822
19				$30				30,387	12,822
20				$32				31,603	12,822
21				$33				32,867	12,822
22				$34				34,182	12,822
23				$36				35,549	12,822
24				$37				36,971	12,822
25				$38				38,450	12,822
26				$40				39,988	12,822
27				$42				41,587	12,822
28				$43				43,251	12,822
29				$45				44,981	12,822
30				$47				46,780	12,822
31				$49				48,651	12,822
32				$51				50,597	12,822
33				$53				52,621	12,822
34				$55				54,726	12,822
35				$57				56,915	12,822
36				$59				59,191	12,822
37				$62				61,559	12,822
38				$64				64,021	12,822
39				$67				66,582	12,822
40				$69				69,245	12,822
41				$72				72,015	12,822
42				$75				74,896	12,822
43				$78				77,892	12,822
44				$81				81,007	12,822
45				$84				84,248	12,822
46				$88				87,618	12,822
47				$91				91,122	12,822
48				$95				94,767	12,822
49				$99				98,558	12,822
50				$103				102,500	12,822
51				$107				106,600	12,822
52				$111				110,864	12,822
53				$115				115,299	12,822
54				$120				119,911	12,822
55				$125				124,707	12,822
56				$130				129,696	12,822
57				$135				134,883	12,822
58				$140				140,279	12,822
59				$146				145,890	12,822
60				$152				151,725	12,822
61				$158				157,794	12,822
62				$164				164,106	12,822
63				$171				170,670	12,822
64				$177				177,497	12,822
65				$185				184,597	12,822
66				$192				191,981	12,822
67				$200				199,660	12,822
68				$208				207,647	12,822
69				$216				215,953	12,822
70				$225				224,591	12,822
71				$234				233,574	12,822
72				$243				242,917	12,822
73				$253				252,634	12,822
74				$263				262,739	12,822
75				$273				273,249	12,822
76				$284				284,179	12,822
77				$296				295,546	12,822
78				$307				307,368	12,822
79				$320				319,663	12,822
80				$332				332,449	12,822
81				$346				345,747	12,822
82				$360				359,577	12,822
83				$374				373,960	12,822
84				$389				388,918	12,822
85				$404				404,475	12,822
Total	$91,000	$12,800	$485,200	$10,141	$0	$0	$0	$599,141,352	$541,465,952

Present Value = Future Value (in Constant Dollars) / (1 + Real Discount Rate) ^ Year

Cal-B/C Model – Results
Alternative 3
(Full Replacement)

District: 10

PROJECT: Stockton River Viaduct - Alt 3 Replacement

EA: 10-0X460
PPNO:

3

INVESTMENT ANALYSIS

SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$540.6
Life-Cycle Benefits (mil. $)	$170.6
Net Present Value (mil. $)	-$370.1
Payback Period:	20+ years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 40 Years	Average Annual
Travel Time Savings	$23.9	$13.1	$37.0	$1.8
Veh. Op. Cost Savings	$4.2	$5.2	$9.3	$0.5
Accident Cost Savings	$95.7	$28.6	$124.3	$6.2
TOTAL BENEFITS	$123.7	$46.8	$170.6	$8.5
Person-Hours of Time Saved			3,793,464	189,673

ATTACHMENT M
Risk Register

LEVEL 2 - RISK REGISTER				Project Name:	Stockton Channel Viaduct		DIST- EA	10-0X4600	Project Manager	Sam Sherman					Created 10/12/2020		Updated10/12/2020		
Risk Identification							Risk Assessment								Risk Response				
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumptions	Probability	Cost Impact	Cost Score	Time Impact	Time Score	Cost Impact/Schedule Impact	Support (Hours) Capital Cost	Schedule (Days)	Rationale	Strategy	Response Actions	Full Impact of Risk/Days	Risk Owner	Updated
Active	RW1	Threat	ROW	Undiscovered Utilities	As a result of an urban area with typical multiple active and abandoned underground utilities, additional undiscovered utilities could occur in PS&E phase which may delay delivery of the project as well as increase project ROW costs.	Project Team have worked closely to update exisitng utilities information and cost estimates.	1-Very Low	8 -High	8	2 -Low	2	Cost Impact: Medium ($0.5 Million) Schedule Impact: Low (6 months)	1,000 hours	120 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Efforts have been made to minimize unknown utilities.	6 months $500,000	James Gonzaliez	10/19/2020
Active	RW2	Threat	ROW	R/W PG&E Utility Relocations	PG&E Utility Relocations may require more lead time for coordination, approval of relocations plans, liability letters, and finalizing utility agreements.	Begin Utility Coordination with PG&E as soon as possible. Utility relocation plans to be developed.	3-Moderate	4 -Moderate	12	4 -Moderate	12	Cost Impact: Moderate ($100-200k) Schedule Impact: Moderate (4 Months)	1,000 hours	120 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Begin PG&E Coordination as soon as possible. R/W to collaborate with Design.	4 months $100,000-200,000	Anupam "Chris" Mishra	5/10/2021
Active	RW3	Threat	ROW	ROW Acquisitions	Per Project Alternative #3; Five temporary construction easements and One part-take will be required from five separate parcels. Relocation Assistance may be required at location #4.	Appraise and Acquire most critical parcels first. Provide First-Written Offers to most impacted grantors first to allow most lead-time for negotiations.	3-Moderate	4 -Moderate	12	4 -Moderate	12	Cost Impact: Moderate ($50-100k) Schedule Impact: Moderate (3 Months)	500 hours	90 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Begin Acquisitions by communicating with most impacted grantors first. Begin condemnation processes as soon as possible. If parcels can be dropped or worked-around to avoid condemnation, this can decrease schedule lead-time.	3 months $50,000-100,000	Anupam "Chris" Mishra	5/10/2021
Active	ENV1	Threat	Environmental	Change in Design	As a result of unknown details or issues, design or structure design changes are required in PS&E phase which may delay delivery of the project as well as increase project capital costs.	Project Team have worked closely to update exisitng utilities information and cost estimates.	2-Low	4 -Moderate	8	4 -Moderate	8	Cost Impact: Medium ($0.2 Million) Schedule Impact: Medium (9 months)	3,000 hours	240 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Efforts have been made to minimize any design changes by updating and working with Env for updated improvements/impacts.	9 months $200,000	Scott Guidi	10/19/2020
Active	ENV2	Threat	Environmental	MBTA Surveys	As a result of unknown Migratory Bird issues, additional delays may occur during construction which may delay construction schedule of the project as well as increase project capital costs.	Project Env Team has evaluated exisitng bridges for birds/bats and included MCCE costs to address them.	2-Low	4 -Moderate	8	4 -Moderate	8	Cost Impact: High ($0.2 Million) Schedule Impact: High (6 months)	1000 hours	120 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Mitigate	Efforts have been made to capture project MCCE costs into project overall costs and construction schedule.	6 months $200,000	Scott Guidi	5/10/2021
Active	ENV3	Threat	Environmental	discovering Hazardous Materials in Channel	As a result of unknown and expected HW materials in channel, additional delays and costs to handle/manage HW materials are necessary which may delay construction schedule of the project as well as increase project capital costs.	Project Team has included a $1million cost line item to address known HW materials in typical dredged channel and Env Team will evaluate channel materials in PS&E.	2-Low	4 -Moderate	8	2 -Low	4	Cost Impact: Medium ($0.2 Million) Schedule Impact: Low (6 months)	500 hours	90 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Mitigate	Efforts have been made to capture project captial costs into project overall costs and construction schedule.	3 months $100,000	Scott Guidi	10/19/2020
Active	ENV4	Threat	Environmental	Unanticipated discovery during studies	As a result of XPI testing, additional HW materials from buildings to be removed/impacted are found which may delay construction schedule of the project as well as increase project capital costs.	Env Team will evaluate buildings materials in PS&E (restriction right now due to COVID-19).	3-Moderate	4 -Moderate	12	4 -Moderate	12	Cost Impact: Medium ($0.2 Million) Schedule Impact: Medium (6 months)	1,000 hours	120 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Mitigate	Efforts will be made to determine level of HW materials in buildings.	6 months $200,000	Scott Guidi	10/19/2020
Active	ENV5	Threat	Environmental	Unanticipated fossil discovery	The project area is underlain by geologic formations that have the potential to contain scientifically significant fossil remains. Excavations in these formation may result in an unanticapated discovery of fossils which would impact work schedule and project costs	Paleontological mitigation will limit the risk of unanticapated discovery and additional earthwork will not uncover fossils	1-Very Low	2 -Low	2	4 -Moderate	4		500	90 days		Accept	Divert work and contact emergency contract consultant to recover fossils. Monitor and mitigate remaining excavation work. Paleontological Mitigation Report prepared		Scott Guidi	5/5/2021
Active	ENV6	Threat	Environmental	Burried Cultural Resources	If buried cultural materials are encountered during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.	It is assumed no buried cultural materials will be found at the work site.	3-Moderate	4 -Moderate	12	4 -Moderate	12					Mitigate	Stop all work in area until a qualified archaeologist can evaluate the materials. Additional reports and documentation may be required depending on the nature of the Cultural materials, which could delay schedule between 12-24 months.		Scott Guidi	5/5/2021
Active	ENV7	Threat	Environmental	Permits to enter denied	As as result of the permits to enter being denied by the property owner, the propeties required for HW testing may be delayed until access is granted, which would lead to a delay in the schedule and cost.	It is assumed Permits to Enter will not be denied.	3-Moderate	4 -Moderate	12	4 -Moderate	12					Mitigate	Efforts will be made by ROW to ensure PTEs are approved so access to the properties available		Scott Guidi	5/5/2021
Active	ENV8	Threat	Environmental	Roosting Bats	As a result of roosting bat issues, additional delays may occur during construction which may delay construction schedule of the project as well as increase project capital costs	Project Env Team has evaluated exisitng bridges for birds/bats and included MCCE costs to address them.	2-Low	4 -Moderate	8	4 -Moderate	8					Mitigate	Efforts have been made to capture project MCCE costs into project overall costs and construction schedule.		Scott Guidi	5/10/2021
Active	ENV9	Threat	Environmental	Impact to Built Historical Resource	Risk of identification of built environment resource(s) within the APE during cultural resource surveys that require additional documentation, evaluation, and/or consultation with consulting parties, would result in an additional 3-12 months and $50,000-$100,000.	It is assumed the project would not adversely impact a historic built environment resource.	1-Very Low	8 -High	8	4 -Moderate	4					Mitigate	Consultation and Mitigation Measures would be required		Scott Guidi	5/10/2021
Active	ENV10	Threat	Environmental	MOA for Historic Property	Risk of adversely impacting a historic property - built environment will require the preparation of an MOA in consultation with consulting parties and establishment of mitigation measures (HABS/HAER, other), which would result in an additional 12 to 24 months and $100,000 to $200,000	It is assumed the project will not adversely impact a historic built resource	1-Very Low	8 -High	8	8 -High	8					Mitigate	Consultation and mitigation measures would be required.		Scott Guidi	5/10/2021
Active	Con1	Threat	Construction	Barge Access	As a result of in channel construction work and vertical difference from bridge deck to channel, additional costs and impacts may be needed which may delay delivery of the project as well as increase project construction capital costs.	Project Team have incorporated into the capital costs for barge work.	2-Low	4 -Moderate	8	2 -Low	4	Cost Impact: Medium ($0.5 Million) Schedule Impact: Low (3 months)	500 hours	90 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Efforts have been made to minimize unknown utilities.	3 months $500,000	Stephen Pozzo	10/19/2020

LEVEL 2 - RISK REGISTER			Project Name:	Stockton Channel Viaduct		DIST- EA	10-0X4600	Project Manager	Sam Sherman					Created 10/12/2020		Updated10/12/2020		
Risk Identification						Risk Assessment								Risk Response				
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumptions	Probability	Cost Impact	Cost Score	Time Impact	Time Score	Cost Impact/Schedule Impact	Support (Hours) Capital Cost	Schedule (Days)	Rationale	Strategy	Response Actions	Full Impact of Risk/Days	Risk Owner	Updated
Active	Con2	Threat	Construction	Construction Staging	As a result of proposed SC/TH, additional changes or restrictions would change the proposed SC/TH which may delay delivery of the project as well as increase project construction capital costs.	Project Team have worked together and presented all known impacts inlcuding detours.	2-Low	4 -Moderate	8	4 -Moderate	8	Cost Impact: High ($0.2 Million) Schedule Impact: High (6 months)	1,000 hours	120 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Efforts have been made to minimize unknown utilities.	6 months $200,000	Manjit Singh	10/19/2020
Active	Con3	Threat	Construction	Vertical Clearance / Bridge Scaffolding	As a result of Channel required clearances during construction, additional costs and impacts may be needed that cannot be met which will add delivery time of project as well as increase project construction capital costs.	Project Team have incorporated into the capital costs for barge work.	4-High	8 -High	32	8 -High	32	Cost Impact: High ($1.0 Million) Schedule Impact: High (12 months)	2,000 hours	365 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k)	Accept	Efforts have been made to minimize unknown utilities.	12 months $1,000,000	Stephen Pozzo	10/19/2020
Active	DES1	Threat	DES	Additional Bridge Span Length	As a result of CVFPB restrictions for pile installation in levee limits, additional span length and major redesign would be reuqired in PS&E which may delay delivery of the project as well as increase capital costs.	Due to belief by the Project Team this will not be applicable in the channel section, the current design has piles in the channel.	1-Very Low	8 -High	8	8 -High	8	Cost Impact: Medium ($5.0 Million) Schedule Impact: Medium (12 months)	5,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures Schedule impact to be validated by PM and HQ DES.	Accept	During PA&ED, team has agreed to push needed Geotechnical investigation into the PS&E phase and accept impacts based on updated support cost estimates and schedule.	12 months $5,000,000	Krishnakant Andurlekar	10/19/2020
Active	DSG 1	Threat	Design	Accelerated Schedule	As a result of funding restrictions; additional effort in shorter period of delivery time is required in PS&E which may increase support costs.	Project Team agreed on splitting/phasing build project and is working for FY 2024/25 of 1st Phase.	2-Low	4 -Moderate	8	4 -Moderate	8	Cost Impact: Medium ($1.0 Million) Schedule Impact: Medium (0 months)	5,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures	Accept	During PA&ED, team has agreed to push needed Geotechnical investigation into the PS&E phase and accept impacts based on updated support cost estimates and schedule.	12 months $5,000,000	Kal Daher	10/19/2020
Active	ORG 1	Threat	Organizational	New permits or Additional Information Required	As a result of new permits or Env guidance; additional effort and resources are needed which may increase support costs.	Project Team communicates changes to team members.	2-Low	2 -Low	4	4 -Moderate	8	Cost Impact: Medium ($0.2 Million) Schedule Impact: Medium (9 months)	3,000 hours	240 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures	Accept	During PA&ED, team has followed current guidelines and identified all anticiapted permits/requirements.	9 months $200,000	Sam Sherman	10/19/2020
Active	ORG 2	Threat	Organizational	Stakeholder requests late changes	As a result of Local agency or public; additional changes occur to the improvements propsoed which may increase support and capital costs.	Project Team communicates changes to team members.	2-Low	2 -Low	4	2 -Low	4	Cost Impact: Medium ($0.1 Million) Schedule Impact: Medium (3 months)	500 hours	90 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures	Accept	During PA&ED, team has followed current guidelines and identified all anticiapted permits/requirements.	3 months $100,000	Sam Sherman	10/19/2020
Active	ORG 3	Threat	Organizational	Funding Availability	As a result of lack of funding availability; Project improvements are modified/eliminated which may increase support costs but decrease capital costs.	Project Team will work with programming for split build projects.	3-Moderate	4 -Moderate	12	4 -Moderate	12	Cost Impact: Medium (-$100.0 Million) Schedule Impact: Medium (12 months)	5,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures	Accept	During PA&ED, team has followed current guidelines and identified all anticiapted permits/requirements.	12 months -($100,000,000)	Sam Sherman	10/19/2020
Active	G1	Threat	DES	Additional Geotechnical Investigations beyond what are programmed for shifting into PS&E phasse.	As a result of delays in the PA&ED schedule and resources used for Geotechnical liquifactions investigations in PA&ED, additional Geotechnical investigations will occur in PS&E phase which may delay delivery of the project as well as increase support costs.	Due to existing project delays and support cost increases, a PCR is being developed to address additional cost and schedule changes. However, the Geotechnical investigation is agreed by the team to occur during PS&E phase at risk of unknown and soil/foundation changes and those resources may not be covered by the PCR.	4-High	4 -Moderate	16	8 -High	32	Cost Impact: High ($0.5 Million) Schedule Impact: High (12 months)	5,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures Schedule impact to be validated by PM and HQ DES.	Accept	During PA&ED, team has agreed to push needed Geotechnical investigation into the PS&E phase and accept impacts based on updated support cost estimates and schedule.	12 months $500,000	Segaran Logeswaran (Acting)	4/30/2020
Active	G2	Threat	DES	Additional Strucutre Design changes of the foundations and structures.	As a result of delayed Geotechnical investigations and potential different foundation recommendations, additional Structure design changes may occur, which would lead to additional project delays and structure support costs as well as additional costs associated with Env Permits/Revalidation efforts.	Due to existing project delays and support cost increases, a PCR is being developed to address additional cost and schedule changes.	2-Low	8 -High	16	8 -High	16	Cost Impact: High ($1.0 Million) Schedule Impact: High (12 months)	10,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Geotech/Structures Schedule impact to be validated by PM and HQ DES.	Mitigate	During PS&E, Geotech and Structures will work together to modify current preliminary design to minize support costs/schedule impacts as well as utilize all existing information and conservative PA&ED assumptions/estimations.	12 months $1,000,000	Segaran Logeswaran (Acting)	4/30/2020
Active	DES-2	Threat	DES	Time delay between construction stages for Alternative 3	Construction time delay between Stage 2 and Stage 3 due to budget problem needs re-analysis of Stage 3 structure.	Segmental construction is sensitive to time dependent creep & shrinkage deformation. If the actual construction schedule is different than the design assumptions, camber diagragm needs to be updated by new analysis.	4-High	1 -Very Low	4	4 -Moderate	16	Cost Impact: High ($.1 Million) Schedule Impact: High (12 months)	10,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Structures Schedule impact to be validated by PM and HQ DES.	Mitigate	During PS&E, Geotech and Structures will work together to modify current preliminary design to minize support costs/schedule impacts as well as utilize all existing information and conservative PA&ED assumptions/estimations.	12 months $1,000,000	Krishnakant Andurlekar	5/11/2021
Active	DES-3	Opportunity	DES	CIP/PS Vs Segmental Spans	During the Phase 1, some end spans may be designed as CIP/PS Box girders instead of Segmental construction	Current assumption is most of those spans will be a segmental construction considering limitations for the falswork underneath those spans	2-Low	4 -Moderate	8	2 -Low	4	Cost Impact: High ($.1 Million) Schedule Impact: High (12 months)	10,000 hours	360 days	Basis: Per Design (using 1PY=1790hr & 1PY=$190k), Hours to be validated by Structures Schedule impact to be validated by PM and HQ DES.	Enhance	During PS&E, Structures will work together to see if this opportunity is realistic and supported by the Type Selection Process.	12 months $1,000,000	Krishnakant Andurlekar	5/11/2021

ATTACHMENT N
Traffic Operations Analysis Memo

M e m o r a n d u m

Making Conservation a California Way of Life!

To: Nomer Gutierrez, P.E.
Design IV-Branch I; Design Manager
Central Region Project Development

Date: April 12, 2018
File: 10 – SJ - I-5 - PM 26.5
EA: 10 - 0X460

From: Jaime Q. Quesada, P.E.
Traffic Operations Branch
Division of Maintenance & Operations

Subject: I-5 REHABILITATION IMPROVEMENT PROJECT; STOCKTON VIADUCT OPERATIONAL ANALYSIS RESULTS

The District 10 Traffic Operations Branch has completed the traffic operations analysis for the Proposed Improvements to the I-5 Stockton Channel Viaduct from WB SJ 4 to NB I-5 in the City of Stockton. The analysis is consistent with the latest design drawings provided by your design team.

Existing lane configurations for the I-5 – Monte Diablo Avenue NB off ramp intersection, mainline, and ramps were used in the baseline analysis. Proposed improvements were used for Opening Year – 2025 and Design Year – 2045 analyses. Traffic data for Existing, 2025, and 2045 was provided by the District 10 Travel Forecasting Branch. A heavy vehicle assumption of 10% was applied to SJ 4 and 23% was applied to I-5 per the direction of the District 10 Travel Forecasting Branch.

Intersection analysis was performed using Synchro10 (an intersection simulation & optimization software), Ramp / Freeway/ Weave analyses were performed using HCS2010 software (a freeway / multi-lane highway analysis tool), and corridor analysis was performed using FREQ (a corridor analysis software).

Analysis Methodology

Intersection

Operational analysis was performed using Syncho10 which applies procedures and methodologies contained in the Highway Capacity Manual (HCM 2010), Transportation Research Board, 2010. At an intersection, Level of Service (LOS) is a description of an intersection's operation ranging from LOS A (describing free-flow traffic conditions with little or no delay) to LOS F (describing over saturated conditions where traffic flows exceed design capacity resulting in long queues and delays). For two-way-stop-controlled intersections the

LOS is defined in terms of the average overall delay (seconds / vehicle) for each minor-street movement as well as major-street left-turns. See **Table 1**:

Table 1: LOS Criteria for Unsignalized Intersections

Control Delay (s/vehicle)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	*v/c* >1.0
0–10	A	F
>10–15	B	F
>15–25	C	F
>25–35	D	F
>35–50	E	F
>50	F	F

Note: The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

Mainline

Operational analysis was performed using HCM2010 which applies procedures and methodologies contained in the Highway Capacity Manual (HCM 2010), Transportation Research Board, 2010. Along a freeway segment LOS is a description of the roadway's flow operations ranging from LOS A (describing free-flow operations with little or no delay) to LOS F (describing breakdown or unstable flow). For a freeway segment the LOS is defined in terms of Density (passenger cars / mi / lane). See **Table 2**:

Table 2: LOS Criteria for Basic Freeway Segments

LOS	Density (pc/mi/ln)
A	≤11
B	>11–18
C	>18–26
D	>26–35
E	>35–45
F	Demand exceeds capacity >45

Merge / Diverge

Operational analysis was performed using HCM2010 which applies procedures and methodologies contained in the Highway Capacity Manual (HCM 2010), Transportation Research Board, 2010. At Ramp Merge and Diverge locations LOS is a description of the on ramp to mainline or mainline to off ramp flow friction ranging from LOS A (describing unrestricted operations) to LOS F (describing the formation of queues on the ramp and mainline). For a merge and diverge analysis the LOS is defined in terms of Density (passenger cars / mi / lane). See **Table 3**:

Table 3: LOS Criteria for Freeway Merge and Diverge Segments

LOS	Density (pc/mi/ln)	Comments
A	≤10	Unrestricted operations
B	>10–20	Merging and diverging maneuvers noticeable to drivers
C	>20–28	Influence area speeds begin to decline
D	>28–35	Influence area turbulence becomes intrusive
E	>35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp and freeway queues form

Weave

Operational analysis was performed using HCM2010 which applies procedures and methodologies contained in the Highway Capacity Manual (HCM 2010), Transportation Research Board, 2010. At weave locations LOS is a description of the on ramp to mainline or mainline to off ramp flow friction ranging from LOS A (free-flow operations with little or no delay) to LOS F (describing a condition where demand exceeds capacity). For a weave analysis the LOS is defined in terms of Density (passenger cars / mi / lane). See **Table 4**:

Table 4: LOS Criteria for Weaving

LOS	Density (pc/mi/ln)	
	Freeway Weaving Segments	Weaving Segments on Multilane Highways or C-D Roadways
A	0–10	0–12
B	>10–20	>12–24
C	>20–28	>24–32
D	>28–35	>32–36
E	>35	>36
F	Demand exceeds capacity	

Corridor Analysis

Corridor Analysis Results were determined using FREQ12 Version 3.01, a macroscopic analysis software, which is capable of corridor analysis and applies procedures / methodologies contained in the Highway Capacity Manual (HCM 2010, Transportation Research Board, 2010). The analysis was performed using the mainline and ramp traffic forecast and assumptions approved by the District 10 Travel Forecasting Branch. In freeway analysis, Level of Service (LOS) is a description of a corridor's operation ranging from LOS A (describing low-density with little or no delay) to LOS F (describing high density with long delays). For corridor analysis the LOS is defined by density in terms of Density (passenger cars / mi / ln). See **TABLE 2**. Additionally, Corridor Analysis Measures of Effectiveness (MOE's) include: Travel Time (vehicle – hours), Vehicle Miles Traveled (VMT), Average Speed (MPH), Gasoline Consumed (gallons), and Total Emissions (lbs).

Analysis Results

Existing

An Existing (2017) analysis was performed to develop a baseline model calibrated to current conditions at and adjacent to the NB I-5 / SR 4 Connector within the project limits (East of the SR 4 – El Dorado Interchange along WB SR 4 to North of the I-5 – Monte Diablo Interchange along NB I-5). In order to determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed during and outside of the HOV windows. An assumption of 15% HOV usage along NB I-5 was used during the HOV window based on recent occupancy counts conducted ty the District 10 Freeway & Highway Operations Branch.

Table 5; Attachment A: The spot location analysis confirmed that PM Peak Hour congestion occurs between the connector and Pershing Avenue along NB I-5. The delay and associated Level of Service (LOS) exceeds Caltrans Standards at all locations during the PM Peak hour. In particular, the weave along NB I-5 between the connector and Pershing Avenue creates stop and go traffic with queues extending east of the SR 4 – El Dorado Interchange along WB SR 4 during the AM & PM Peak Hours.

Table 8; Attachment A: The intersection analysis confirmed that AM and PM Peak Hour operations at the NB I-5 – Monte Diablo Off Ramp operate within acceptable Levels of Service, that the delay for the off ramp traffic is acceptable, and that the 95th Percentile Queue does not spill back to the mainline.

Table 11; Attachment A: The corridor analysis confirmed that the AM Peak Hour operates more efficiently than the PM Peak Hour within the project limits. The corridor Measures of Effectiveness (MOE's) are consistent with existing obsevations.

Opening Year; With Project

An Opening Year (2025; With Project) analysis was performed to determine the projected open to traffic operations at and adjacent to the NB I-5 / SR 4 Connector within the project limits (East of the SR 4 – El Dorado Interchange along WB SR 4 to North of the I-5 – Monte Diablo Interchange along NB I-5). In order to determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed during and outside of the HOV windows. An assumption of 15% HOV usage along NB I-5 was used during the HOV window based on recent occupancy counts conducted by the District 10 Freeway & Highway Operations Branch.

Table 6; Attachment A: The spot location analysis projects that significant delays and congestion will occur during the PM Peak Hour between the connector and Pershing Avenue along NB I-5. The delay and associated LOS exceeds Caltrans Standards at all locations during the PM Peak hour. However, construction of the flyover from NB I-5 to the Pershing Avenue off ramp eliminates the weave and is expected to reduce congestion and delay through the viaduct while operating at an acceptable LOS in 2025. Relieving the congestion by eliminating the weave reduces the number of conflict points and is expected to improve overall operation within the corridor at the spot locations analyzed.

Table 9; Attachment A: The intersection analysis projects that AM and PM Peak Hour operations at the NB I-5 – Monte Diablo Off Ramp will operate within acceptable Levels of Service, that the delay for the off ramp traffic will be acceptable, and that the 95th Percentile Queue will not spill back to the mainline.

Table 12; Attachment A: The corridor analysis projects that the AM Peak Hour operations will be acceptable. However, the PM Peak Hour operations for the corridor are projected to fall below Caltrans Standards (LOS E). No additional widening is projected along SR 4 or NB I-5 to relieve this congestion.

Design Year – 2045; No Project

A Design Year (2045; No Project) analysis was performed to determine the design year traffic operations at and adjacent to the NB I-5 / SR 4 Connector within the project limits (East of the SR 4 – El Dorado Interchange along WB SR 4 to North of the I-5 – Monte Diablo Interchange along NB I-5) with the existing lane configurations; no flyover. In order to determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed during and outside of the HOV windows. An assumption of 15% HOV usage along NB I-5 was used during the HOV window based on recent occupancy counts conducted by the District 10 Freeway & Highway Operations Branch.

Table 7; Attachment A: The spot location analysis projects that significant delays and congestion will occur during the AM & PM Peak Hours between the connector and Pershing Avenue along NB I-5. The delay and associated LOS exceeds Caltrans Standards at all locations during the AM & PM Peak hours.

Table 10; Attachment A: The intersection analysis projects that AM Peak Hour operations at the NB I-5 – Monte Diablo Off Ramp will operate within acceptable Levels of Service, that the delay for the off ramp traffic will be acceptable, and that the 95th Percentile Queue will not spill back to the mainline. The PM Peak Hour delay is expected to exceed the acceptable delay threshold of 35 seconds (LOS D) to 36 seconds (LOS E). However, the 95th Percentile Queue will still be contained by the ramp. This project will not need to signalize the NB I-5 – Monte Diablo Off Ramp intersection. The District 10 Freeway & Highway Operations Branch will monitor this location as the Design Year approaches and will implement a project if / when signalization is required.

Table 13; Attachment A: The corridor analysis projects that the AM Peak Hour operations will be acceptable. However, the PM Peak Hour operations for the corridor are projected to fall below Caltrans Standards (LOS F). No additional widening is projected along SR 4 or NB I-5 to relieve this congestion.

Design Year – 2045; With Project

A Design Year (2045; With Project) analysis was performed to determine the design year traffic operations at and adjacent to the NB I-5 / SR 4 Connector within the project limits (East of the SR

4 – El Dorado Interchange along WB SR 4 to North of the I-5 – Monte Diablo Interchange along NB I-5) with the existing lane configurations; with a flyover. In order to determine the worst-case scenario, the AM & PM Peak Hour volumes were analyzed during and outside of the HOV windows. An assumption of 15% HOV usage along NB I-5 was used during the HOV window based on recent occupancy counts conducted by the District 10 Freeway & Highway Operations Branch.

Table 7; Attachment A: The spot location analysis projects that delays and congestion will still occur during the AM & PM Peak Hours between the connector and Pershing Avenue along NB I-5. The delay and associated LOS exceeds Caltrans Standards at all locations during the AM & PM Peak hours. However, construction of the flyover from NB I-5 to the Pershing Avenue off ramp eliminates the weave and is expected to reduce congestion and delay through the viaduct while operating at an acceptable LOS in 2045. Relieving the congestion by eliminating the weave reduces the number of conflict points and is expected to improve overall operation within the corridor at the spot locations analyzed.

Table 14; Attachment A: The corridor analysis projects that the AM Peak Hour operations will be acceptable. However, the PM Peak Hour operations for the corridor are projected to fall below Caltrans Standards (LOS F). No additional widening is projected along SR 4 or NB I-5 to relieve this congestion. This project does not propose to add or improve public transportation or pedestrian / bicycle facilities, so Vehicle Miles Traveled will not be reduce. However, significant improvements in corridor: Travel Time, Average Speed, Average Density (associated LOS), Fuel Consumption, and Total Emissions are expected with implementation of the NB I-5 to Pershing Avenue Off Ramp flyover.

The District 10 Freeway & Highway Operations Branch recommends that the Stockton Viaduct Project move forward with construction of the NB I-5 to Pershing Avenue Off Ramp flyover.

Please call me at 209-948-7184 if you have any questions regarding this traffic operations analysis.

Sincerely,

Jaime Q. Quesada, P.E.
District 10 Freeway & Highway Operations Branch

Attachments:

ATTACHMENT A:
Analysis Results Summary Tables

ATTACHMENT B:
Existing – 2017
Figures 1, 2, 3, and 4
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

ATTACHMENT C:
Opening Year – 2025; With Project
Figures 5, 6, 7, and 8
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

ATTACHMENT D:
Design Year – 2045; No Project
Figures 9, 10, 11, and 12
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

ATTACHMENT E:
Design Year – 2045; With Project
Figures 13, 14, 15, and 16
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

ATTACHMENT F:
Intersection Analysis Results
Figures 17, and 18
(LOS, Delay, 95th Percentile Queue)

ATTACHMENT G:
District 10 Travel Forecasting Traffic Data and Memo

cc:

Vu H. Nguyen, P.E., T.E., PTOE, District 10 Freeway & Highway Operations Branch; Senior
Samuel Sherman, P.E., District 10 Program Project Management Branch; Senior
Eric Chin, P.E., District 10 Office of Project Initiation & Travel Forecasting Branch; Acting Senior
Gabe Elefante, District 10 Transportation Engineer

ATTACHMENT A:
Analysis Results Summary Tables

Table 5: EXISTING 2017 - SPOT LOCATION ANALYSIS RESULTS SUMMARY

MOVEMENT	HCM2010 MERGE / DIVERGE / MAILINE / WEAVE			
	WITHOUT HOV DEDUCTION		WITH 15% HOV DEDUCTION	
	LOS	DENSITY (pc/mi/ln)	LOS	DENSITY (pc/mi/ln)
EB SR 4 with WB SR 4 to NB I5 - Merge	B (C)	18.3 (21.5)	N/A	N/A
NB I5 Between Crosstown and Pershing - Weave	*F* (*F*)	*v/c > 1.3* (*v/c > 1.5*)	N/A	N/A
NB Pershing Off from NB I5 - Diverge	D (*F*)	28.7 (*37.9*)	D (*F*)	29.0 (*41.6*)
NB Pershing On to NB I5- Merge	C (D)	22.8 (29.9)	C (*F*)	27.1 (*41.7*)
NB I5 Between Pershing and Monte Diabo - Mainline	D (E)	27.3 (*44.3*)	D (*F*)	30.9 (*60.5*)
NB Monte Diablo Off from NB I5 - Diverge	C (D)	20.1 (31.2)	C (*F*)	23.6 (*37.3*)

AM (PM) ; ***EXCEEDS MOE***

Table 6: OPENING YEAR 2025 - SPOT LOCATION ANALYSIS RESULTS SUMMARY

MOVEMENT	HCM2010 MERGE / DIVERGE / MAILINE / WEAVE - WITH PROJECT			
	WITHOUT HOV DEDUCTION		WITH 15% HOV DEDUCTION	
	LOS	DENSITY (pc/mi/ln)	LOS	DENSITY (pc/mi/ln)
EB SR 4 with WB SR 4 to NB I5 - Merge	B (C)	19.4 (23.4)	N / A	N / A
NB I5 Between Crosstown and Pershing - Weave	N / A	N / A	N / A	N / A
NB Pershing Off from NB I5 - Diverge	N / A	N / A	N / A	N / A
NB Pershing On to NB I5- Merge	C (*F*)	27.3 (*45.6*)	D (*F*)	32.3 (*54.1*)
NB I5 Between Pershing and Monte Diabo - Mainline	D (*F*)	32.5 (*72.5*)	*E* (*F*)	*37.7* (*>150*)
NB Monte Diablo Off from NB I5 - Diverge	C (*F*)	25.1 (*40.4*)	C (*F*)	27.8 (*49.8*)
WB SR 4 with I5 Flyover to Pershing - Merge	B (C)	19.8 (20.5)	N / A	N / A
SR 4 Ramps to I5 - Merge	C (C)	23.9 (25.6)	C (*F*)	26.5 (*38.9*)
NB Viaduct to Pershing - Mainline	D (D)	27.6 (28.6)	N / A	N / A
NB I5 Between Crosstown and Pershing - Mainline	D (*F*)	30.7 (*51.0*)	D (*F*)	34.9 (*77.0*)

Table 7: DESIGN YEAR 2045 - SPOT LOCATION ANALYSIS RESULTS SUMMARY

MOVEMENT	HCM2010 MERGE / DIVERGE / MAILINE / WEAVE - NO PROJECT				HCM2010 MERGE / DIVERGE / MAILINE / WEAVE - WITH PROJECT			
	WITHOUT HOV DEDUCTION		WITH 15% HOV DEDUCTION		WITHOUT HOV DEDUCTION		WITH 15% HOV DEDUCTION	
	LOS	DENSITY (pc/mi/ln)	LOS	DENSITY (pc/mi/ln)	LOS	DENSITY (pc/mi/ln)	LOS	DENSITY (pc/mi/ln)
EB SR 4 with WB SR 4 to NB I5 - Merge	D (D)	29.8 (34.5)	N / A	N / A	C (D)	26.4 (31.2)	N / A	N / A
NB I5 Between Crosstown and Pershing - Weave	*F* (*F*)	*v/c > 2.0* (*v/c > 2.3*)	N / A	N / A	N / A	N / A	N / A	N / A
NB Pershing Off from NB I5 - Diverge	*F* (*F*)	*46.6* (*75.9*)	*F* (*F*)	53.0 (*80.0*)	N / A	N / A	N / A	N / A
NB Pershing On to NB I5- Merge	*F* (*F*)	*36.4* (*76.2*)	*F* (*F*)	*45.8* (*78.9*)	*F* (*F*)	*36.9* (*77.3*)	*F* (*F*)	*46.4* (*79.8*)
NB I5 Between Pershing and Monte Diabo - Mainline	*F* (*F*)	*50.6* (*>150*)	*F* (*F*)	*75.8* (*>150*)	*F* (*F*)	*51.6* (*>150*)	*F* (*F*)	*78.4* (*>150*)
NB Monte Diablo Off from NB I5 - Diverge	D (*F*)	34.5 (*69.3*)	*F* (*F*)	*41.4* (*74.5*)	*F* (*F*)	*35.1* (*70.3*)	*F* (*F*)	*41.8* (*75.3*)
WB SR 4 with I5 Flyover to Pershing - Merge	N / A	N / A	N / A	N / A	C (C)	25.3 (26.2)	N / A	N / A
SR 4 Ramps to I5 - Merge	N / A	N / A	N / A	N / A	D (*F*)	34.7 (*44.6*)	*F* (*F*)	*38.2* (*56.0*)
NB Viaduct to Pershing - Mainline	N / A	N / A	N / A	N / A	D (D)	31.8 (33.7)	N / A	N / A
NB I5 Between Crosstown and Pershing - Mainline	N / A	N / A	N / A	N / A	*F* (*F*)	*45.2* (*>150*)	*F* (*F*)	*62.5* (*>150*)

AM (PM) ; EXCEEDS MOE

Table 8: EXISTING 2017 - INTERSECTION ANALYSIS RESULTS SUMMARY

MOVEMENT	SYNCHRO10 INTERSECTION		
	LOS	DELAY (sec)	95th % QUEUE (ft)
NB I5 OFF RAMP DELAY	B (C)	14 (15)	50 (50)

AM (PM) ; available ramp storage is >500 ft ; ***EXCEEDS MOE***

Table 9: OPENING YEAR 2025 - INTERSECTION ANALYSIS RESULTS SUMMARY

MOVEMENT	SYNCHRO10 INTERSECTION - WITH PROJECT		
	LOS	DELAY (sec)	95th % QUEUE (ft)
NB I5 OFF RAMP DELAY	C (C)	16 (19)	75 (75)

AM (PM) ; available ramp storage is >500 ft ; ***EXCEEDS MOE***

Table 10: DESIGN YEAR 2045 - INTERSECTION ANALYSIS RESULTS SUMMARY

MOVEMENT	SYNCHRO10 INTERSECTION - NO PROJECT			SYNCHRO10 INTERSECTION - WITH PROJECT		
	LOS	DELAY (sec)	95th % QUEUE (ft)	LOS	DELAY (sec)	95th % QUEUE (ft)
NB I5 OFF RAMP DELAY	C (D)	21 (29)	100 (150)	C (*E*)	23 (*36*)	125 (175)

Table 11: EXISTING 2017 - CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	EXISTING
AM PH	Travel Time (VEH-HRS)	155
	Vehicle Miles Traveled (VMT)	10,836
	Average Speed (MPH)	70
	Average Density (VPMPL) / LOS	12 B
	Gasoline Consumed (GAL)	726
	Total Emissions (LBS)	354
PM PH	Travel Time (VEH-HRS)	658
	Vehicle Miles Traveled (VMT)	12,772
	Average Speed (MPH)	50
	Average Density (VPMPL) / LOS	28 D
	Gasoline Consumed (GAL)	976
	Total Emissions (LBS)	535

EXCEEDS MOE

Table 12: OPENING YEAR - 2025; WITH PROJECT CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	OPENING YEAR - 2025; WITH PROJECT	
AM PH	Travel Time (VEH-HRS)	196	
	Vehicle Miles Traveled (VMT)	13,545	
	Average Speed (MPH)	69	
	Average Density (VPMPL) / LOS	17	B
	Gasoline Consumed (GAL)	803	
	Total Emissions (LBS)	396	
PM PH	Travel Time (VEH-HRS)	1,339	
	Vehicle Miles Traveled (VMT)	14,348	
	Average Speed (MPH)	29	
	Average Density (VPMPL) / LOS	*40*	*E*
	Gasoline Consumed (GAL)	1,243	
	Total Emissions (LBS)	733	

EXCEEDS MOE

Table 13: DESIGN YEAR - 2045; NO PROJECT CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	DESIGN YEAR - 2045; NO PROJECT
AM PH	Travel Time (VEH-HRS)	920
	Vehicle Miles Traveled (VMT)	15,700
	Average Speed (MPH)	50
	Average Density (VPMPL) / LOS	33 D
	Gasoline Consumed (GAL)	1,242
	Total Emissions (LBS)	711
PM PH	Travel Time (VEH-HRS)	3,778
	Vehicle Miles Traveled (VMT)	13,479
	Average Speed (MPH)	14
	Average Density (VPMPL) / LOS	*89 F*
	Gasoline Consumed (GAL)	2,215
	Total Emissions (LBS)	1,470

EXCEEDS MOE

Table 14: DESIGN YEAR - 2045; WITH PROJECT CORRIDOR ANALYSIS RESULTS SUMMARY

DIRECTION	MOE's	DESIGN YEAR - 2045; WITH PROJECT			
AM PH	Travel Time (VEH-HRS)	840		9%	improvement
	Vehicle Miles Traveled (VMT)	16,504		-5%	Scppe is not to reduce VMT
	Average Speed (MPH)	66		32%	improvement
	Average Density (VPMPL) / LOS	22	C	33%	improvement
	Gasoline Consumed (GAL)	1,227		1%	improvement
	Total Emissions (LBS)	689		3%	improvement
PM PH	Travel Time (VEH-HRS)	2,678		29%	improvement
	Vehicle Miles Traveled (VMT)	16,168		-20%	Scppe is not to reduce VMT
	Average Speed (MPH)	20		43%	improvement
	Average Density (VPMPL) / LOS	*61*	*F*	31%	improvement
	Gasoline Consumed (GAL)	1,956		12%	improvement
	Total Emissions (LBS)	1,239		16%	improvement

EXCEEDS MOE

ATTACHMENT B:
Existing – 2017
Figures 1, 2, 3, and 4
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

FIGURE 1:
EXISTING – 2017 AADT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

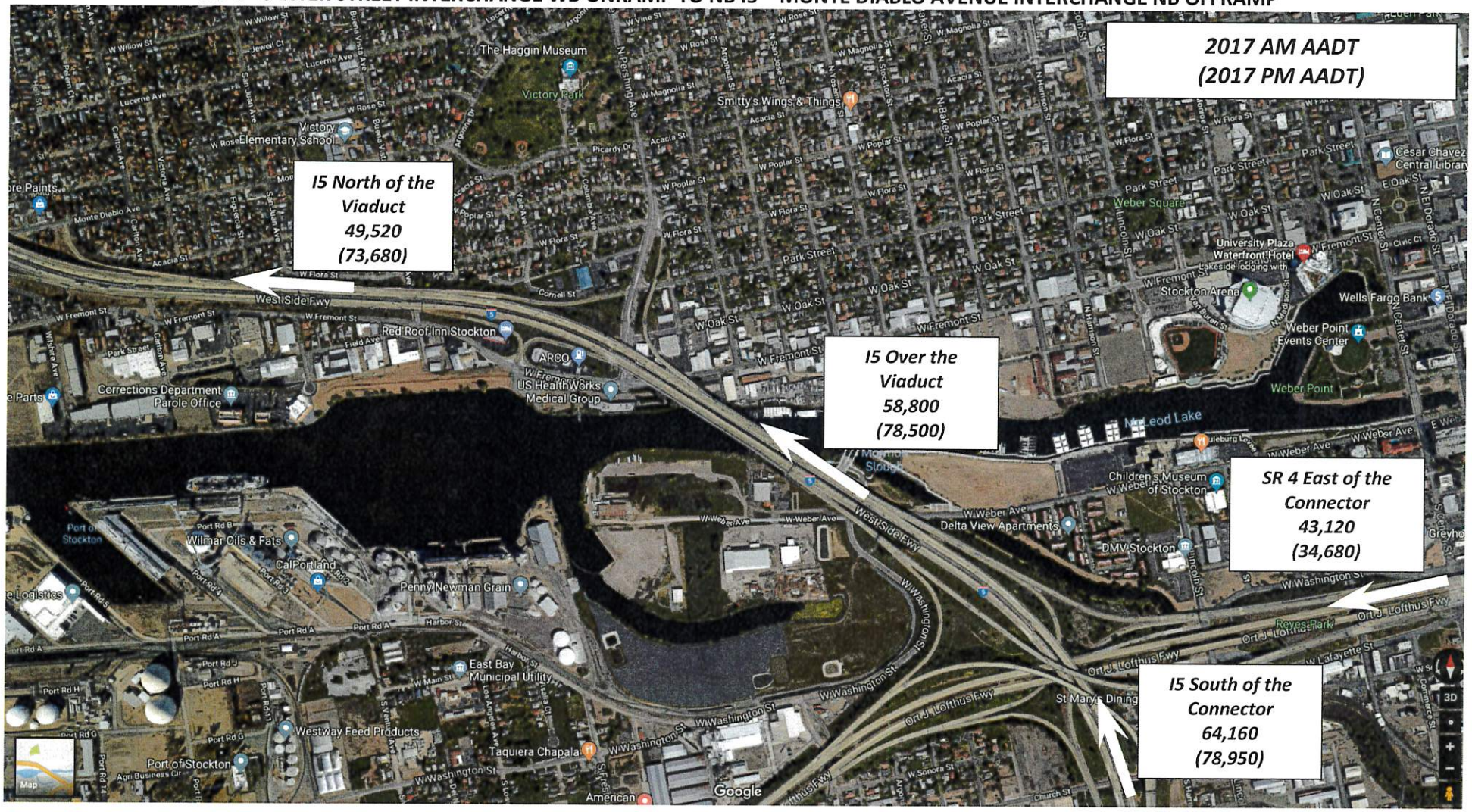


FIGURE 2:
EXISTING - 2017 AM & PM PEAK HOUR VOLUMES
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

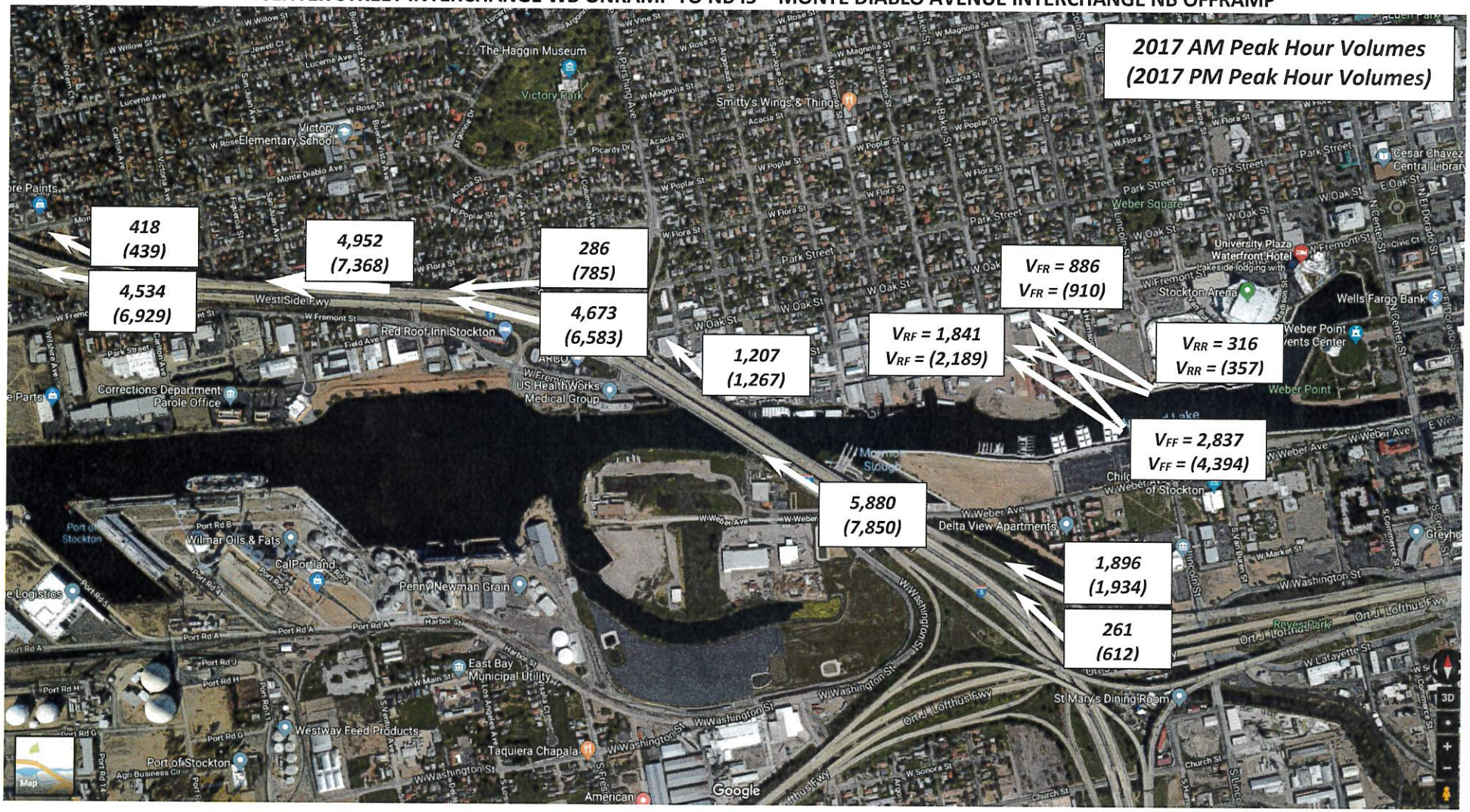


FIGURE 3:
EXISTING – 2017 SPOT LOCATION ANALYSIS RESULTS
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

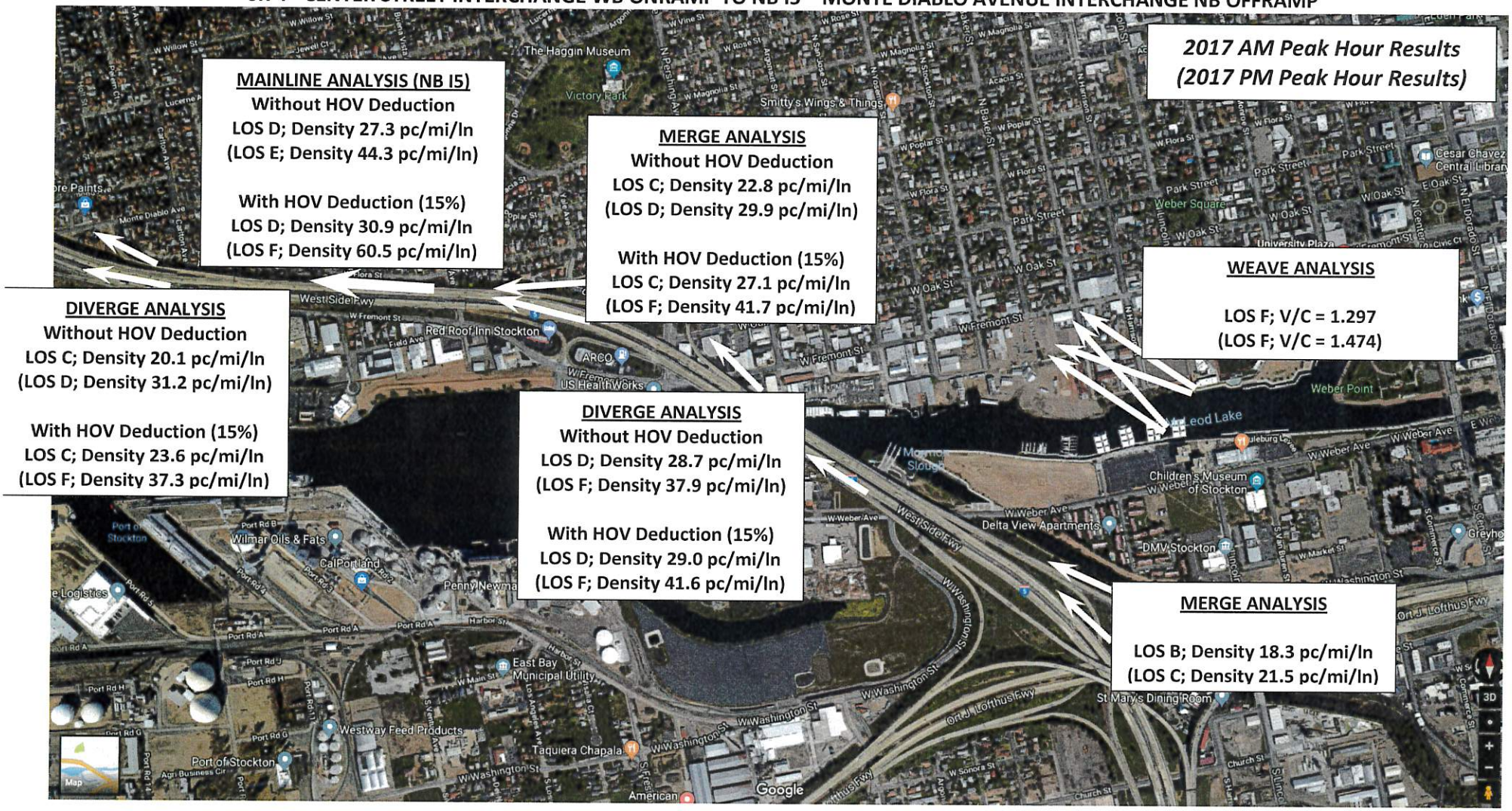
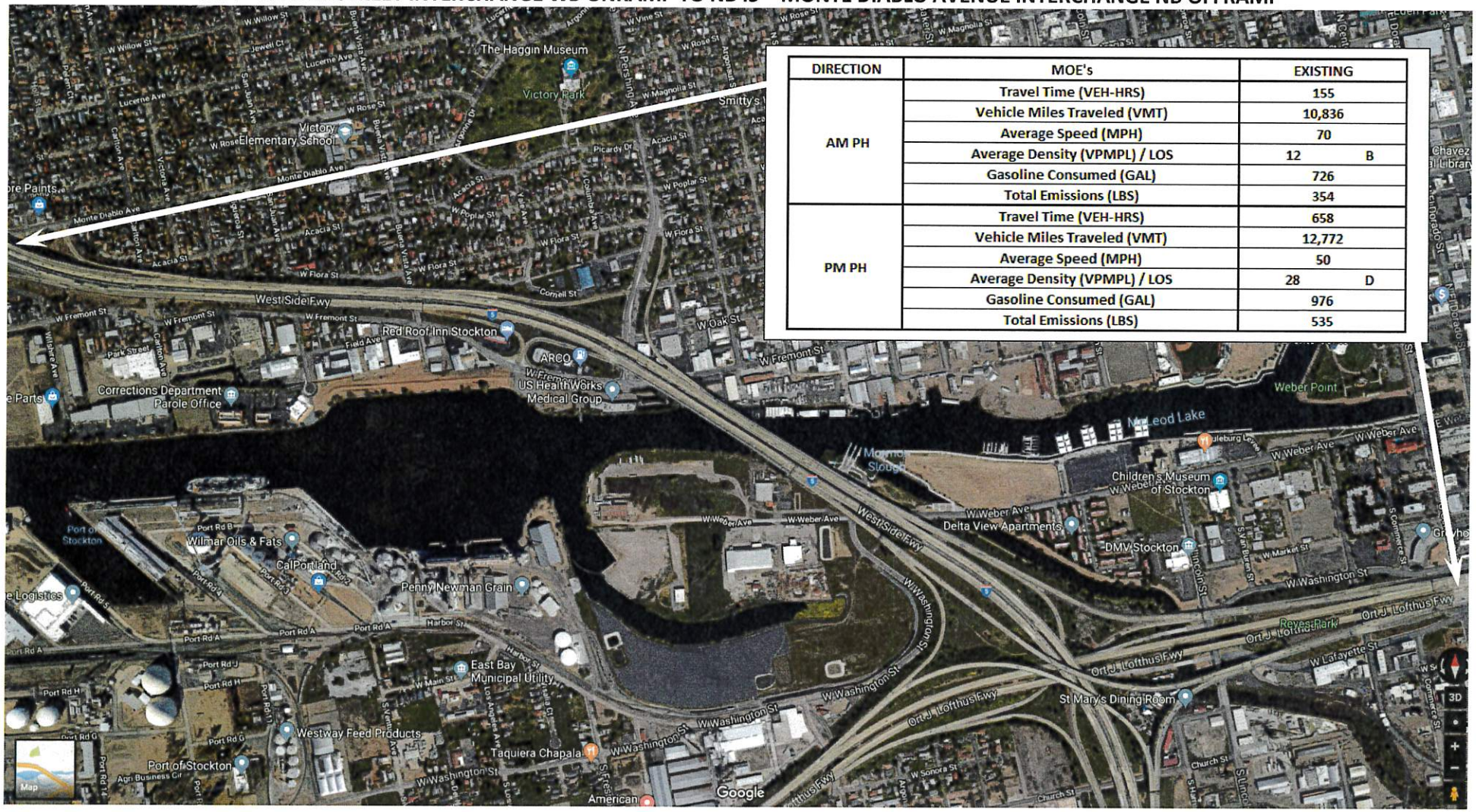


FIGURE 4:

EXISTING – 2017 CORRIDOR ANALYSIS RESULTS

SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP



DIRECTION	MOE's	EXISTING
AM PH	Travel Time (VEH-HRS)	155
	Vehicle Miles Traveled (VMT)	10,836
	Average Speed (MPH)	70
	Average Density (VPMPL) / LOS	12 B
	Gasoline Consumed (GAL)	726
	Total Emissions (LBS)	354
PM PH	Travel Time (VEH-HRS)	658
	Vehicle Miles Traveled (VMT)	12,772
	Average Speed (MPH)	50
	Average Density (VPMPL) / LOS	28 D
	Gasoline Consumed (GAL)	976
	Total Emissions (LBS)	535

ATTACHMENT C:
Opening Year – 2025; With Project
Figures 5, 6, 7, and 8
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

FIGURE 5:
OPENING YEAR – 2025 AADT; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

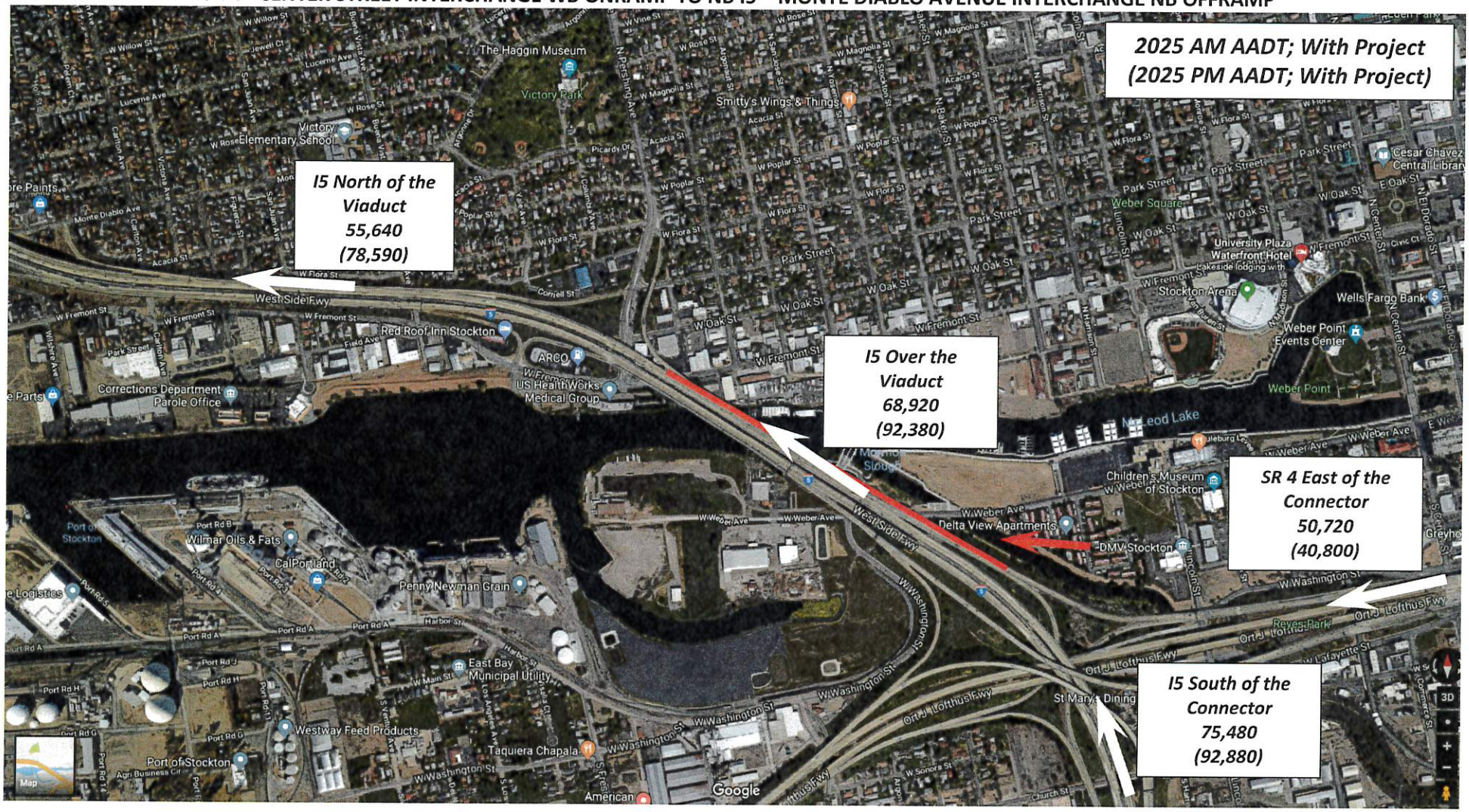


FIGURE 6:
OPENING YEAR – 2025 AM & PM PEAK HOUR VOLUMES; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

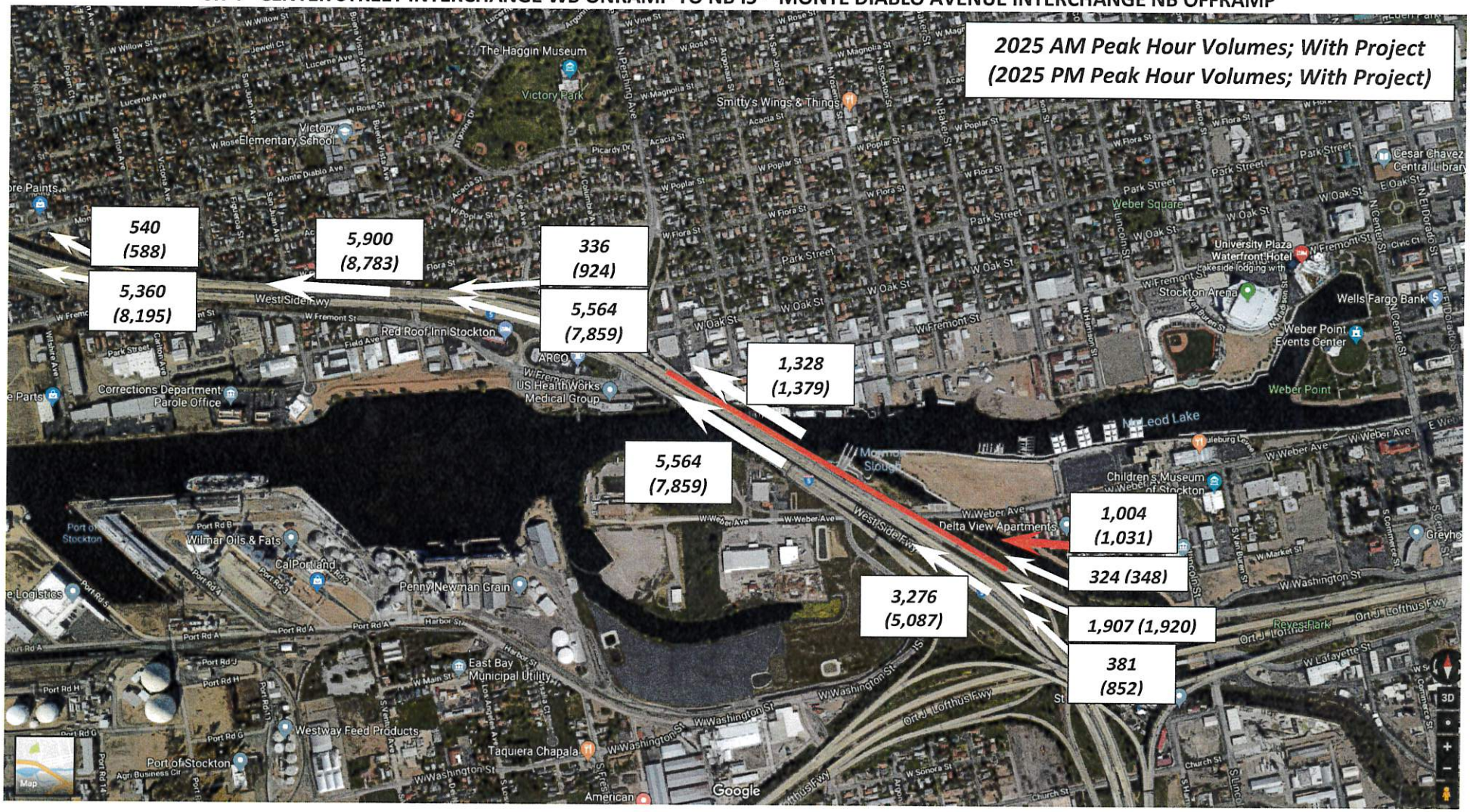


FIGURE 7:
OPENING YEAR – 2025 SPOT LOCATION ANALYSIS RESULTS; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

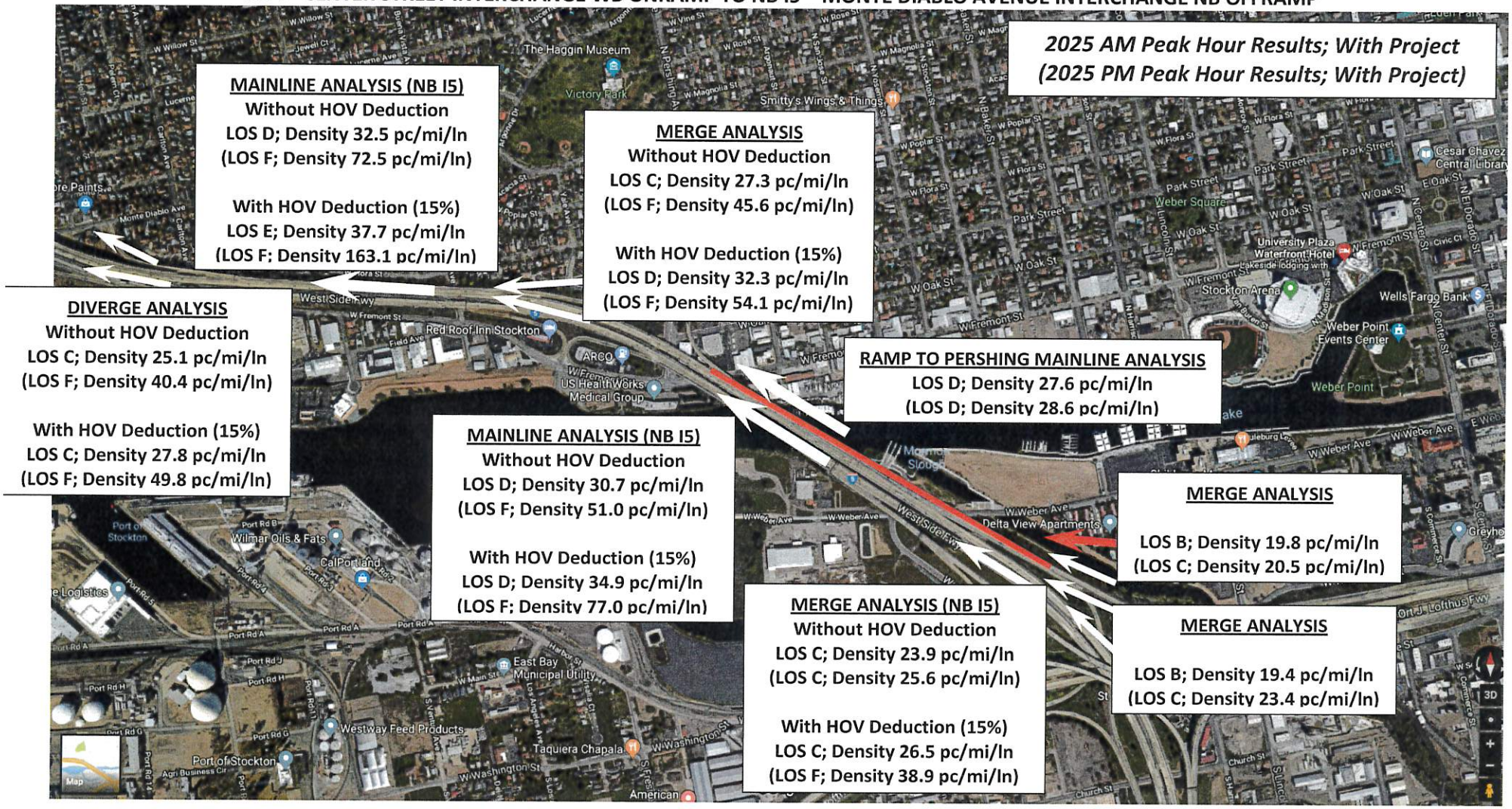
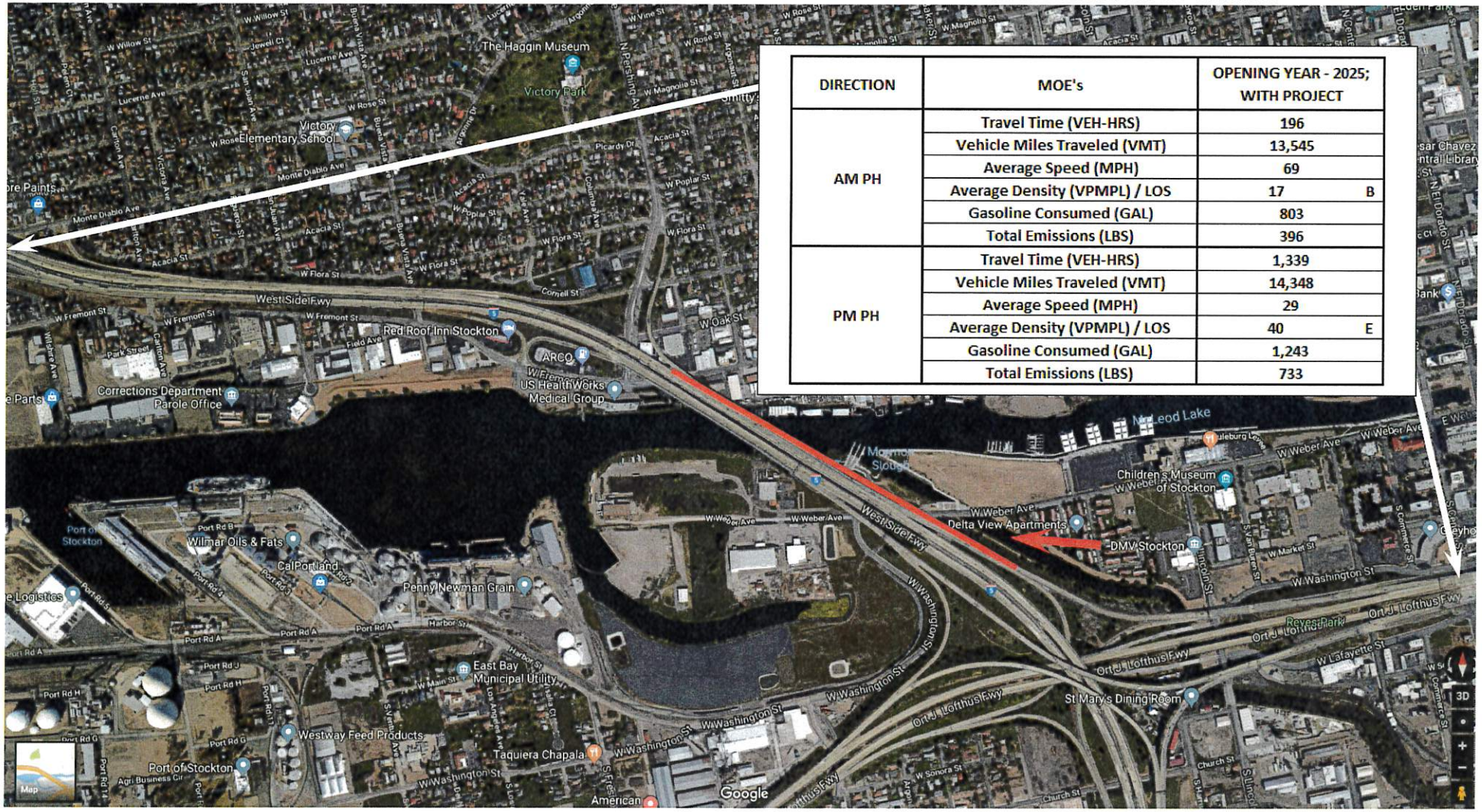


FIGURE 8:
OPENING YEAR – 2025 CORRIDOR ANALYSIS RESULTS; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP



DIRECTION	MOE's	OPENING YEAR - 2025; WITH PROJECT
AM PH	Travel Time (VEH-HRS)	196
	Vehicle Miles Traveled (VMT)	13,545
	Average Speed (MPH)	69
	Average Density (VPMPL) / LOS	17 B
	Gasoline Consumed (GAL)	803
	Total Emissions (LBS)	396
PM PH	Travel Time (VEH-HRS)	1,339
	Vehicle Miles Traveled (VMT)	14,348
	Average Speed (MPH)	29
	Average Density (VPMPL) / LOS	40 E
	Gasoline Consumed (GAL)	1,243
	Total Emissions (LBS)	733

ATTACHMENT D:
Design Year – 2045; No Project
Figures 9, 10, 11, and 12
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

FIGURE 9:
DESIGN YEAR – 2045 AADT; NO PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

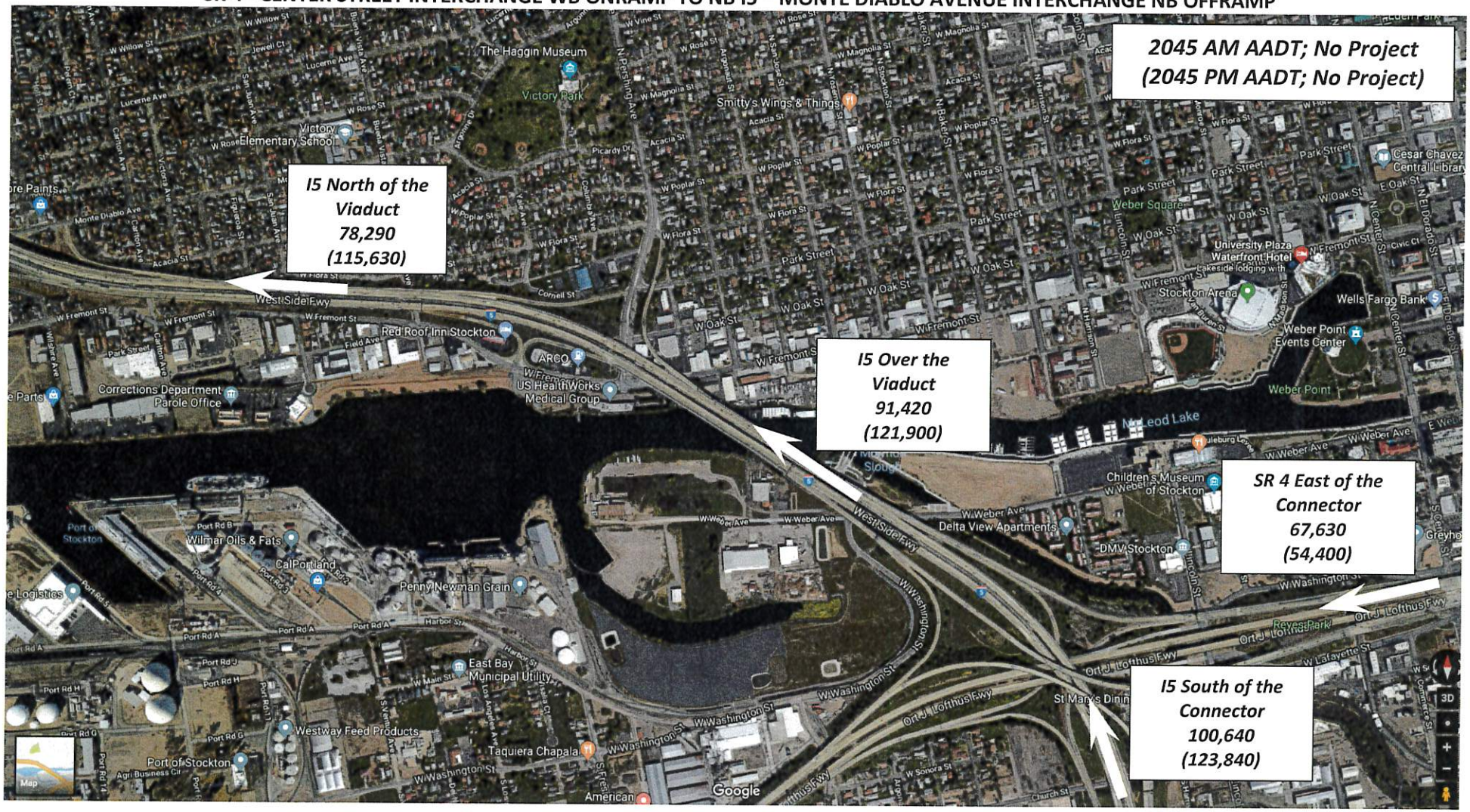


FIGURE 10:
DESIGN YEAR – 2045 AM & PM PEAK HOUR VOLUMES; NO PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

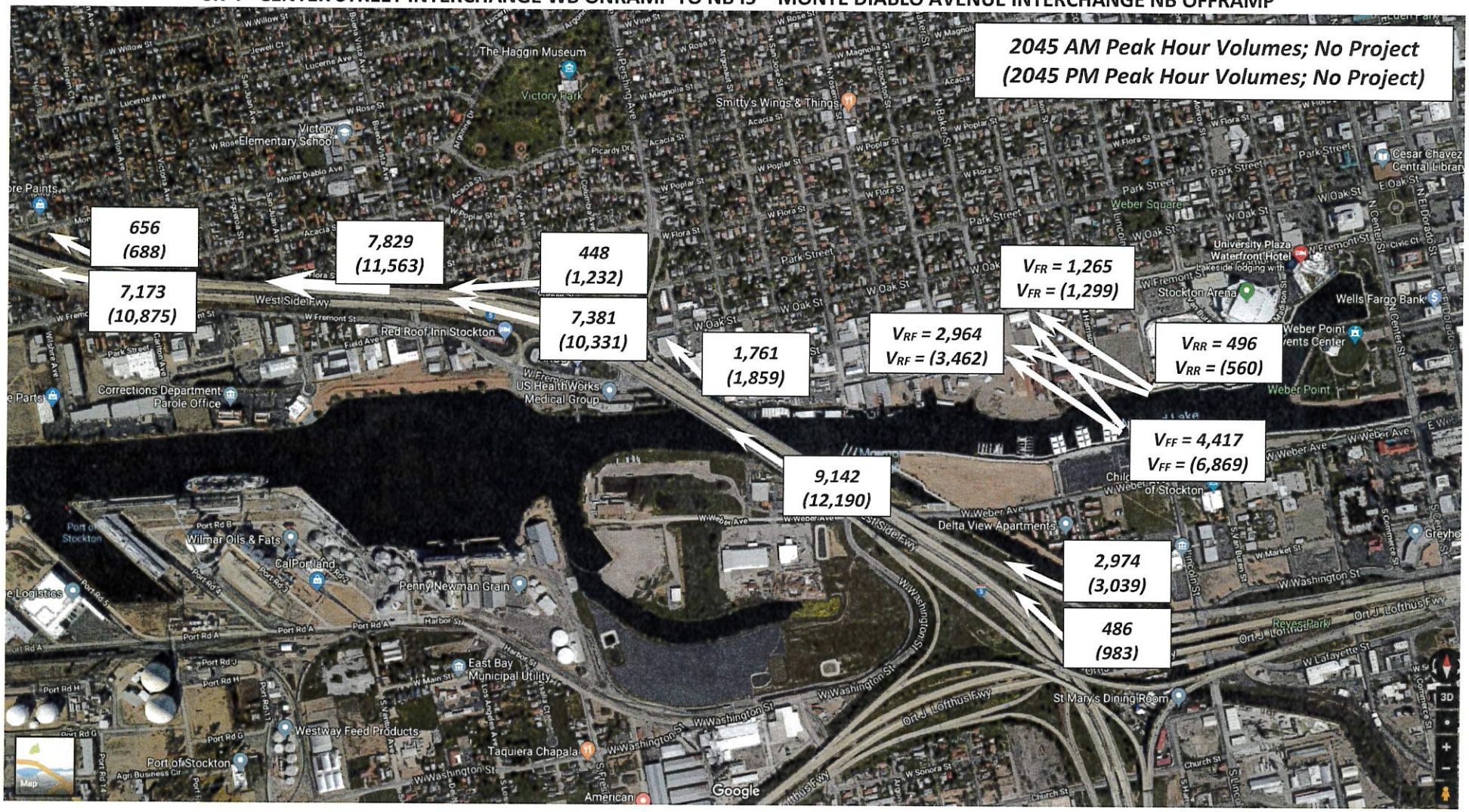


FIGURE 11:
DESIGN YEAR – 2045 SPOT LOCATION ANALYSIS RESULTS; NO PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

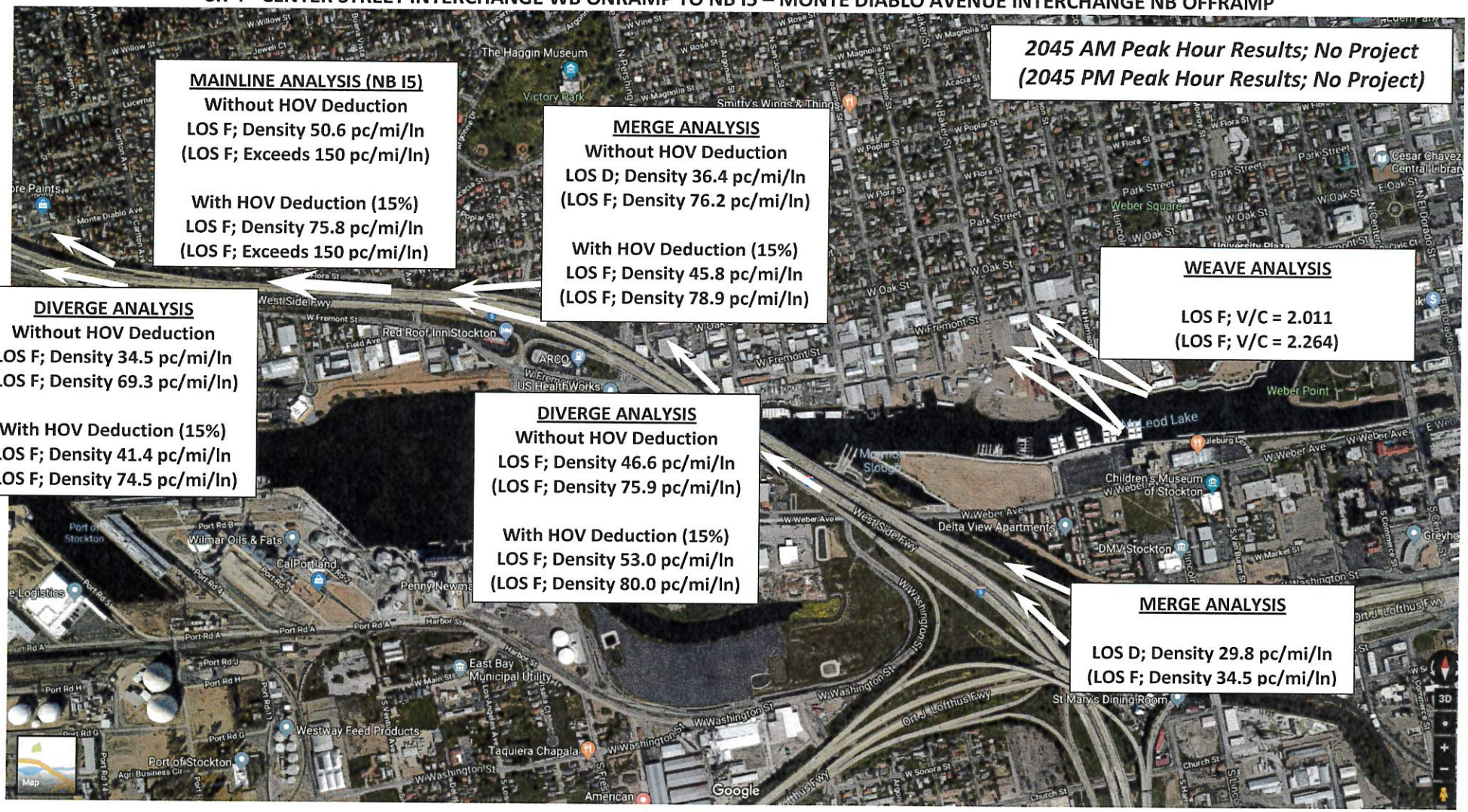
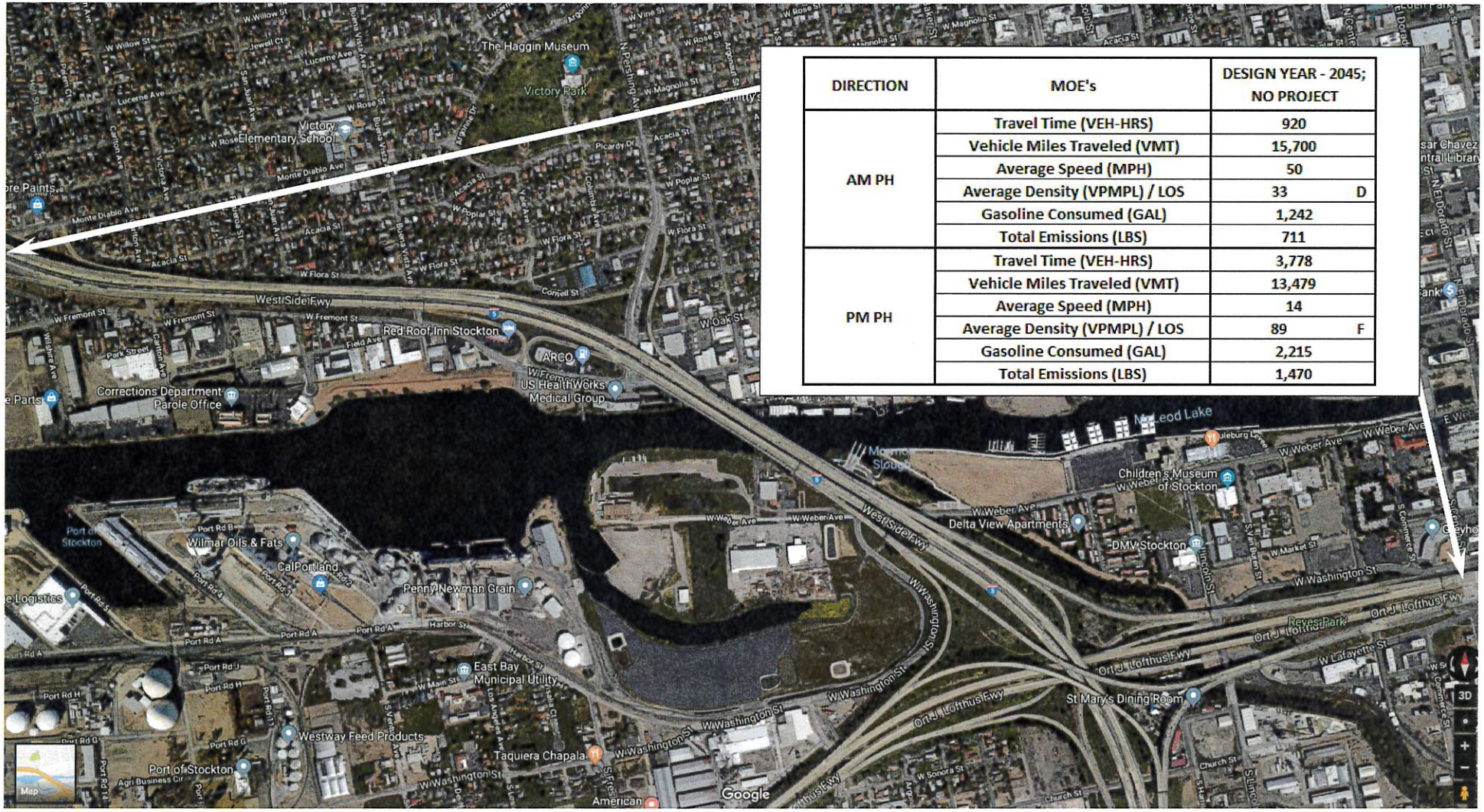


FIGURE 12:
DESIGN YEAR – 2045 CORRIDOR ANALYSIS RESULTS; NO PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP



DIRECTION	MOE's	DESIGN YEAR - 2045; NO PROJECT
AM PH	Travel Time (VEH-HRS)	920
	Vehicle Miles Traveled (VMT)	15,700
	Average Speed (MPH)	50
	Average Density (VPMPL) / LOS	33 D
	Gasoline Consumed (GAL)	1,242
	Total Emissions (LBS)	711
PM PH	Travel Time (VEH-HRS)	3,778
	Vehicle Miles Traveled (VMT)	13,479
	Average Speed (MPH)	14
	Average Density (VPMPL) / LOS	89 F
	Gasoline Consumed (GAL)	2,215
	Total Emissions (LBS)	1,470

ATTACHMENT E:
Design Year – 2045; With Project
Figures 13, 14, 15, and 16
(AADT, Peak Hour Volumes, Spot Location Analysis Results, Corridor Analysis Results)

FIGURE 13:
DESIGN YEAR – 2045 AADT; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

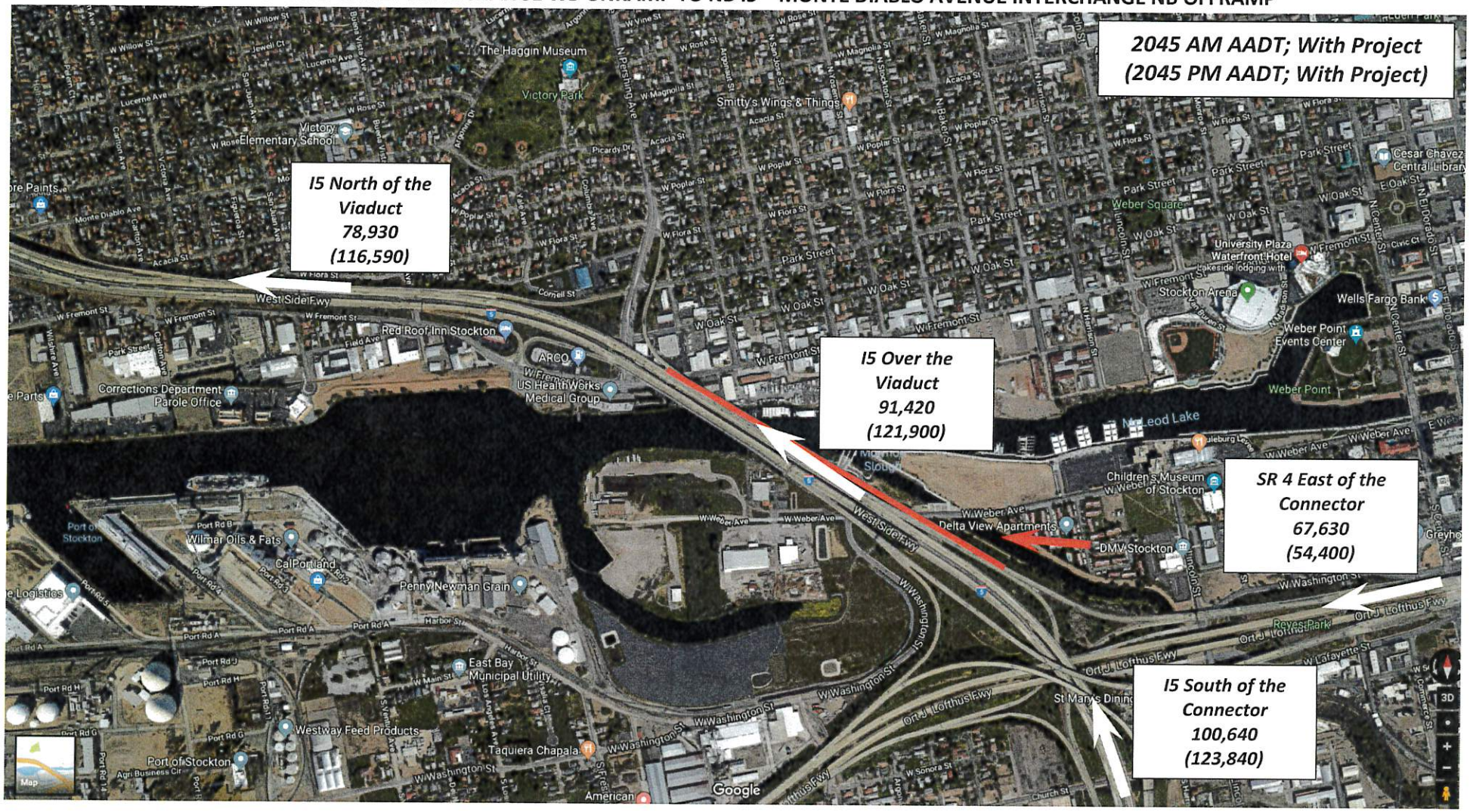


FIGURE 14:
DESIGN YEAR – 2045 AM & PM PEAK HOUR VOLUMES; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

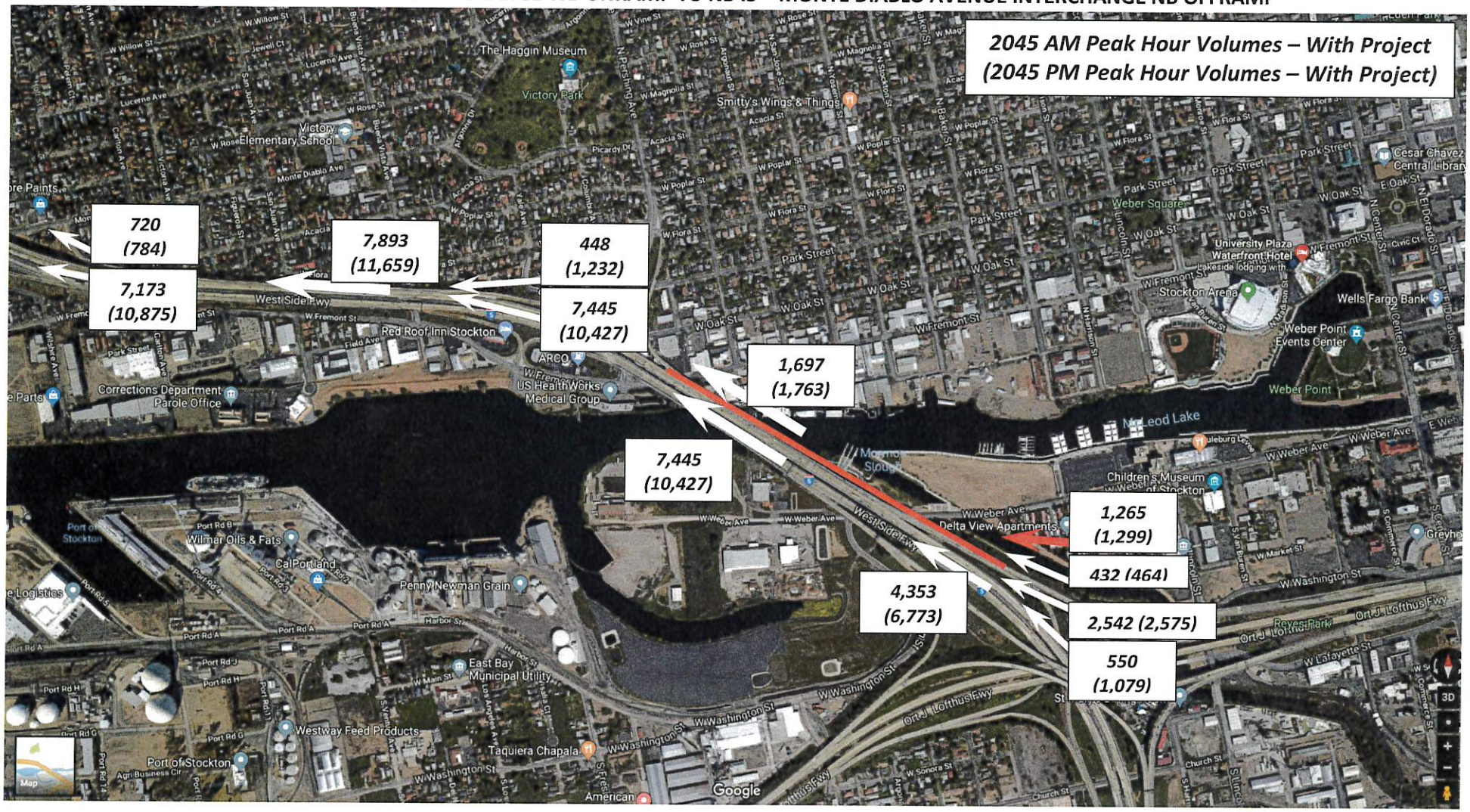


FIGURE 15:
DESIGN YEAR – 2045 SPOT LOCAATION ANALYSIS RESULTS; WITH PROJECT
SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP

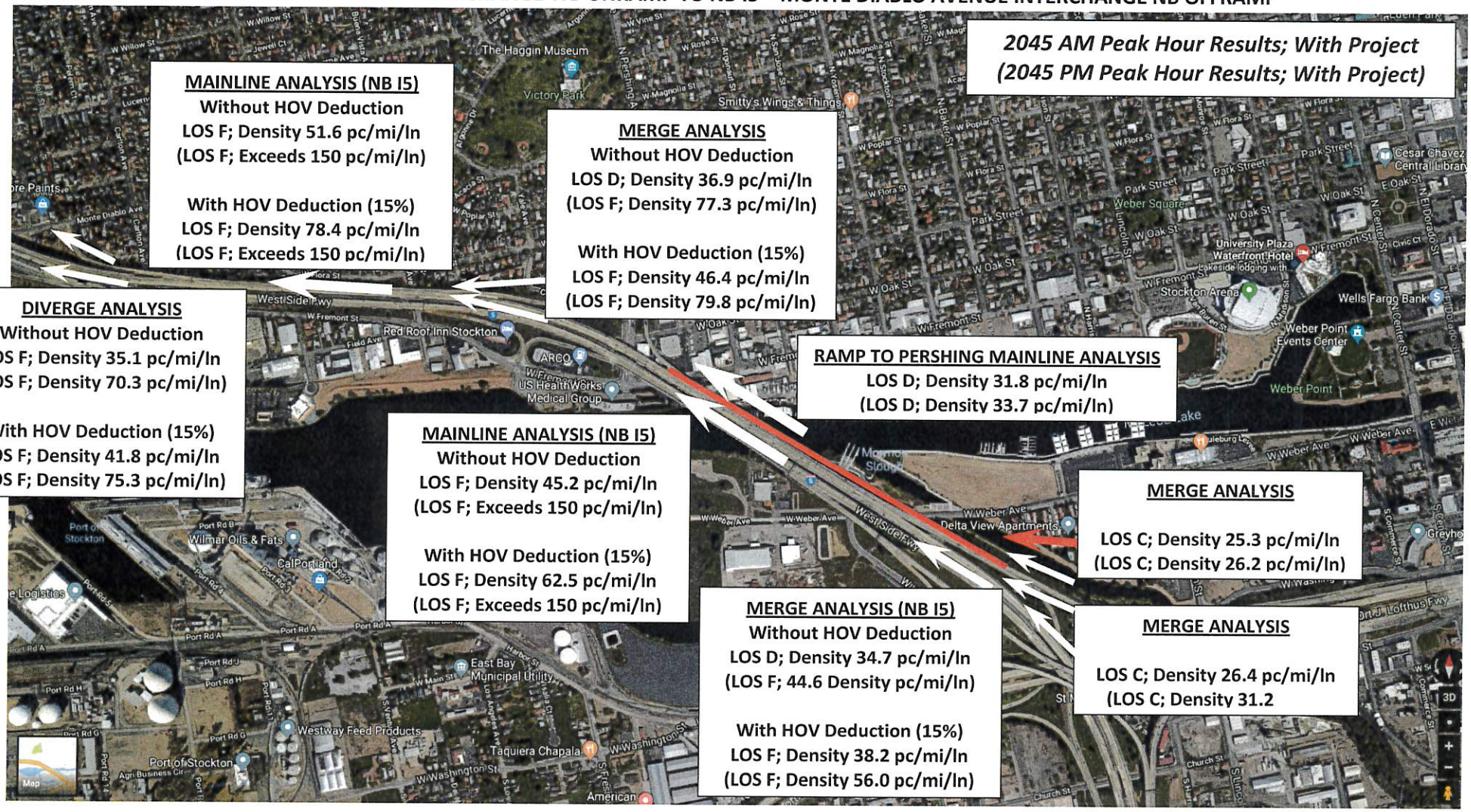
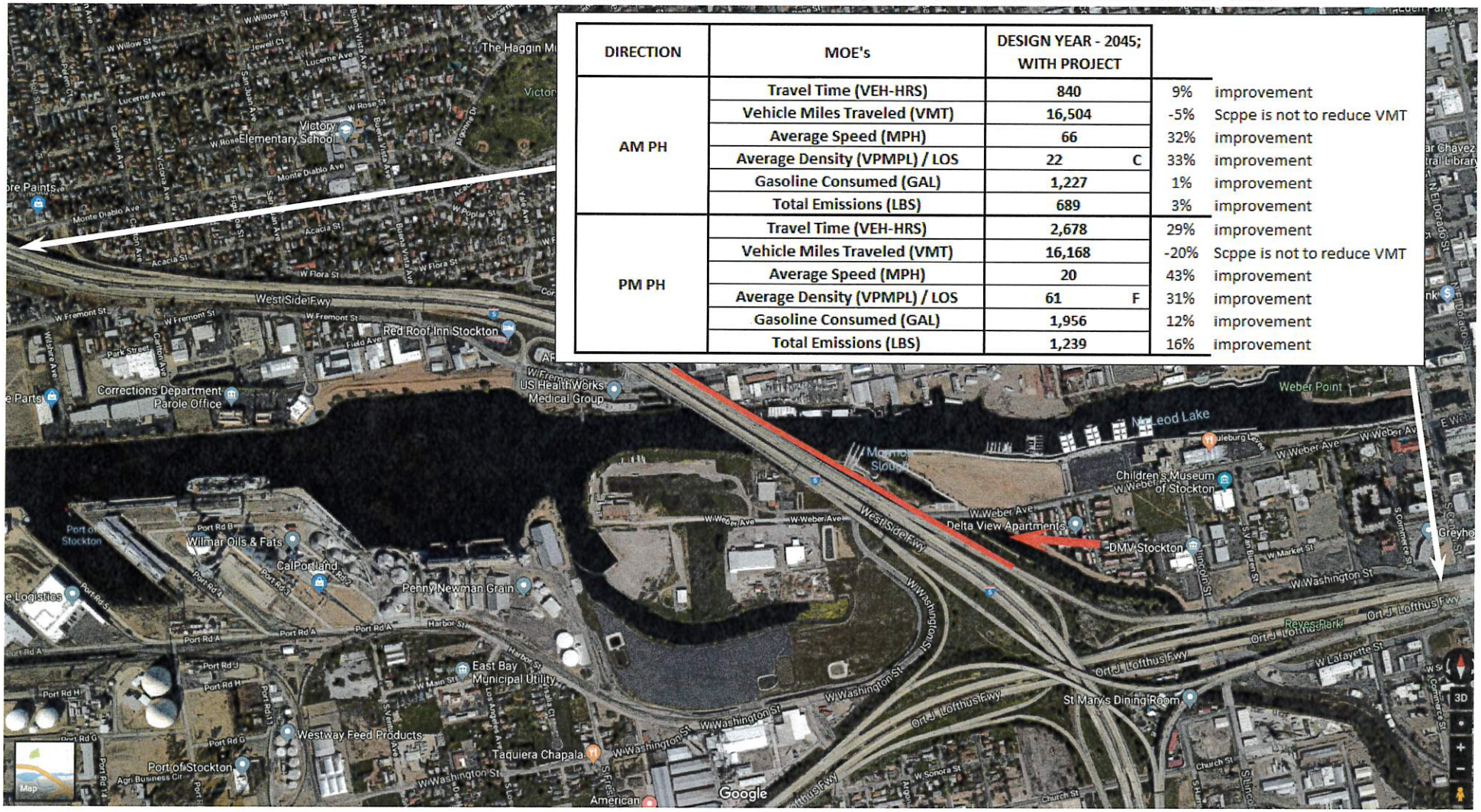


FIGURE 16:

DESIGN YEAR – 2045 CORRIDOR ANALYSIS RESULTS; WITH PROJECT

SR 4 - CENTER STREET INTERCHANGE WB ONRAMP TO NB I5 – MONTE DIABLO AVENUE INTERCHANGE NB OFFRAMP



DIRECTION	MOE's	DESIGN YEAR - 2045; WITH PROJECT		
AM PH	Travel Time (VEH-HRS)	840	9%	improvement
	Vehicle Miles Traveled (VMT)	16,504	-5%	Scppe is not to reduce VMT
	Average Speed (MPH)	66	32%	improvement
	Average Density (VPMPL) / LOS	22 C	33%	improvement
	Gasoline Consumed (GAL)	1,227	1%	improvement
	Total Emissions (LBS)	689	3%	improvement
PM PH	Travel Time (VEH-HRS)	2,678	29%	improvement
	Vehicle Miles Traveled (VMT)	16,168	-20%	Scppe is not to reduce VMT
	Average Speed (MPH)	20	43%	improvement
	Average Density (VPMPL) / LOS	61 F	31%	improvement
	Gasoline Consumed (GAL)	1,956	12%	improvement
	Total Emissions (LBS)	1,239	16%	improvement

ATTACHMENT F:
Intersection Analysis Results
Figures 17, and 18
(LOS, Delay, 95th Percentile Queue)

FIGURE 17:
I5 – MONTE DIABLO INTERSECTION NB OFFRAMP AM PEAK HOUR ANALYSIS (ALL SCENARIOS)

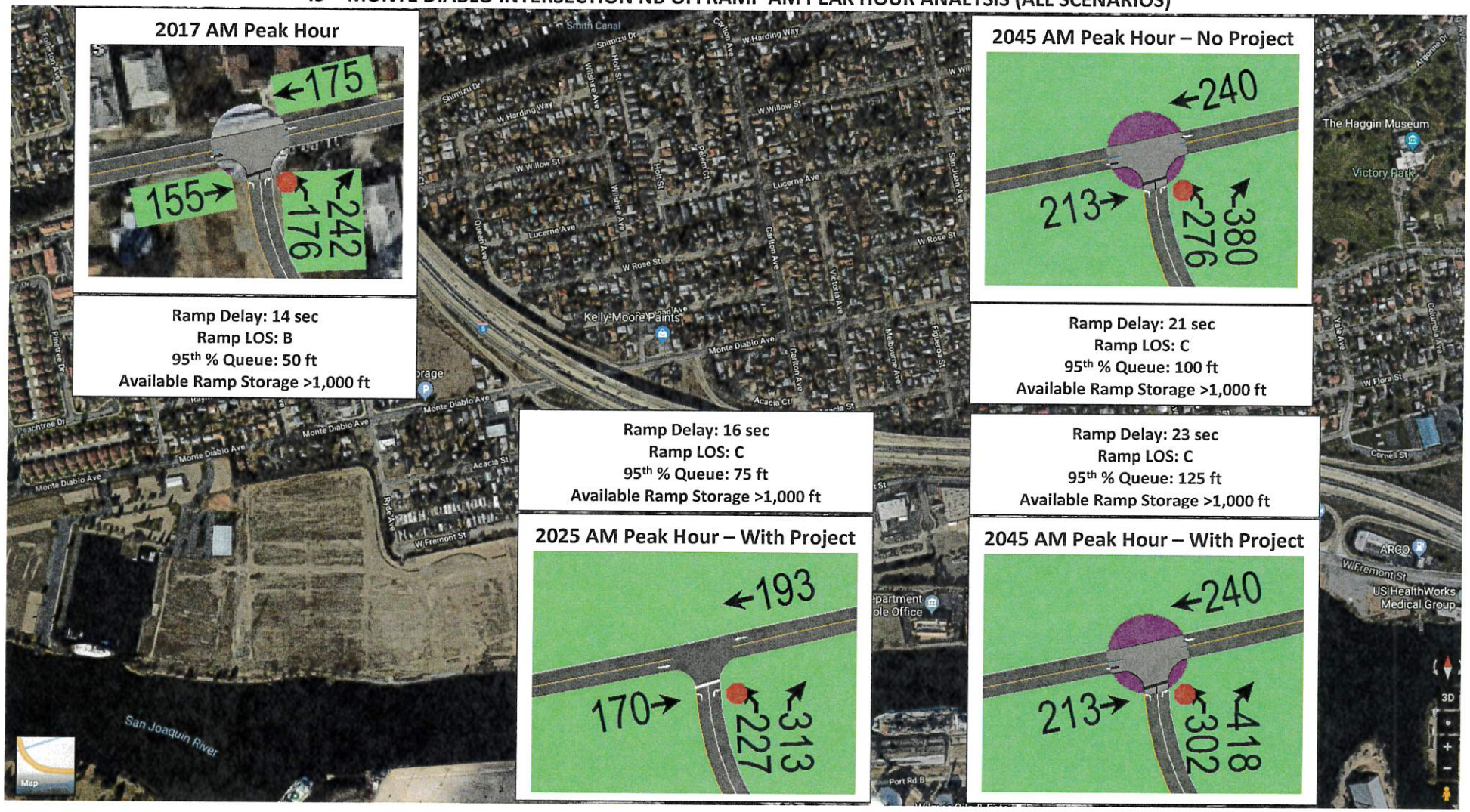


FIGURE 18:

I5 – MONTE DIABLO INTERSECTION NB OFFRAMP PM PEAK HOUR ANALYSIS (ALL SCENARIOS

ATTACHMENT G:
District 10 Travel Forecasting Traffic Data and Memo

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought.
Help Save Water!

To: VU H. NGUYEN, P.E., T.E., PTOE
Chief, Traffic Operations Branch
Attention: Jaime Quesada

Date: February 26, 2018

File: 0X460/SJ/5/26.2-26.5

From: Eric Chin, P.E. ESC
Acting Chief, Office of Project Initiation & Travel Forecasting

Subject: **FORECASTING APPROVAL MEMO**

Project Description: Replace or Rehab. Stockton Channel Viaduct on I-5 in Stockton.

Design Year Period 2025 to 2045

Daily and Design Hourly Volumes **Attachment x**

Please see attachments.

Traffic Volumes at NB Monte Diablo Off Ramp added on 2/26/18.

Directional Split & Truck Percentage **Attachment __**

I-5 D = 56% T = 23%
SR-4 D = 59% T = 9.6%

Remarks:

- Data Prepared by: Eric Chin
- Field Count Date (If Any): None
- TDM Used: SJCOG 3-County Model
- SR-4 X-town Extension (EA 0S110), Traffic Volumes from Approved Traffic Operations Report Used.
- I-5 North Stockton Widening (EA 0G470), Traffic Volumes from Approved Traffic Operations Report Used.
- Growth Rate/Year: 2%
- Weaving volume at the viaduct: based on 85% of ramp ADT merging on to ML and 15% of mainline ADT merging off to exit ramp.

- *Note: Forecasting methodology for this project used multiple sources of data and information, one of them being a Travel Demand Model (TDM). Most TDM's used by District 10 Project Initiation & Travel Forecasting/Analysis Department are created primarily in accordance with conformity to Regional Transportation Plans (RTP's) and Air Quality in a financially constrained environment. All TDM's used for these purposes are not produced by District 10 but by local transportation planning agencies represented within the boundaries of District 10. A Traffic Index (TI) and Design Designation (DD) is used to assist in determining only the structural section depth, not capacity, of a particular roadway. Therefore, a forecast in accordance with RTP/Air Quality Conformity is not necessarily required.*

EA 0X640, Stockton Channel Viaduct Rehab. Or Replacement on SJ-5, PM 26.1-26.5

Mainline Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SB I-5, South of X-town Freeway	136,986	7,182	6,130	161,160	8,449	7,212	214,880	11,266	9,616
NB I-5, South of X-town Freeway		6,416	7,895		7,548	9,288		10,064	12,384

Mainline Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SB I-5, North of Pershing Avenue I/C	121,176	7,385	5,090	142,560	8,688	5,988	190,080	11,584	7,984
NB I-5, North of Pershing Avenue I/C		4,952	8,332		5,826	9,803		7,768	13,070

Mainline Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	AADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
EB SR-4 (X-town Fwy), West of I-5	18,360	765	1,612	23,400	975	2,054	34,200	1,425	3,002
WB SR-4 (X-town Fwy), West of I-5		1,183	918		1,508	1,170		2,204	1,710

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
NB I-5 Off to Fresno	5,390	539	518	6,860	686	660	10,030	1,003	965

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SB I-5 Off to Fresno	5,200	520	361	6,630	663	460	9,690	969	673

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
EB SR-4 Off to SB I-5	4,080	196	408	5,200	250	520	7,600	365	760

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
WB SR-4 Off to SB I-5	18,960	1,896	1,703	22,310	2,231	2,004	29,740	2,974	2,672

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Pershing Avenue, NB Off	12,670	1,207	1,267	14,510	1,376	1,451	18,590	1,761	1,859

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Fremont Street, SB Off	7,750	775	347	9,120	912	408	12,160	1,216	544

Weaving Volumes at the Viaduct	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
NB I-5 Vehicles Merge to Exit Pershing Avenue	9,100	886	910	10,310	1,004	1,031	12,990	1,265	1,299
WB/EB SR-4 Connector Ramp Vehicles Merge to NB I-5	29,820	1,834	2,982	35,080	2,157	3,508	46,770	2,876	4,677

Mainline Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SB I-5, at Stockton Channel Viaduct	130,050	7,691	5,824	153,000	9,048	6,852	204,000	12,064	9,136
NB I-5, at Stockton Channel Viaduct		5,880	8,812		6,918	10,367		9,224	13,822

Mainline Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
EB SR-4 (X-town Fwy), East of I-5	93,126	3,652	4,121	109,560	4,296	4,848	146,080	5,728	6,464
WB SR-4 (X-town Fwy), East of I-5		4,182	3,937		4,920	4,632		6,560	6,176

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
NB I-5 Off to EB SR-4	21,540	2,154	2,073	25,340	2,534	2,438	33,790	3,379	3,251

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SB I-5 Off to EB SR-4	20,810	2,081	1,444	24,480	2,448	1,699	32,640	3,264	2,266

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
EB SR-4 Off to NB I-5	6,120	261	612	7,800	333	780	11,400	486	1,140

Fwy-Fwy Ramp Vol	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
WB SR-4 Off to NB I-5	28,960	1,896	2,896	34,070	2,231	3,407	45,420	2,974	4,542

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Pershing Avenue, NB On	7,850	286	785	9,240	336	924	12,320	448	1,232

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Fremont Street, SB On	10,810	1,081	1,081	12,720	1,272	1,272	16,960	1,696	1,696

Weaving Volumes at the Viaduct	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
NB I-5 Vehicles Merge to EB SR-4/Fresno Avenue Connector Ramp	24,390	2,439	1,643	28,690	2,869	1,933	38,260	3,826	2,578
Fremont Street On Ramp Vehicle Merging to SB I-5	9,190	919	919	10,810	1,081	1,081	14,420	1,442	1,442

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, MLK Jr Blvd, NB Off	6,430	643	510	7,560	756	600	10,080	1,008	800

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, MLK Jr Blvd, SB Off	12,040	1,204	877	14,160	1,416	1,032	18,880	1,888	1,376

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Monte Diablo Ave, NB Off	4,390	418	439	5,160	492	516	6,880	656	688

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Monte Diablo Ave, SB Off	5,000	500	500	5,880	588	588	7,840	784	784

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SR-4, Center St, EB Off	12,140	1,214	850	5,160	1,428	1,000	19,040	1,904	1,333

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SR-4, Center St, WB On	11,120	778	1,112	13,080	916	1,308	17,440	1,221	1,744

Pershing Ave Off Ramp Volume	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
From I-5 NB	9,100	886	910	10,310	1,004	1,031	12,990	1,265	1,299
From SR-4 WB	2,960	275	296	3,480	324	348	4,640	432	464
From SR-4 EB	610	41	61	720	48	72	960	64	96

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, MLK Jr Blvd. NB On	12,040	643	1,204	14,160	756	1,416	18,880	1,008	1,888

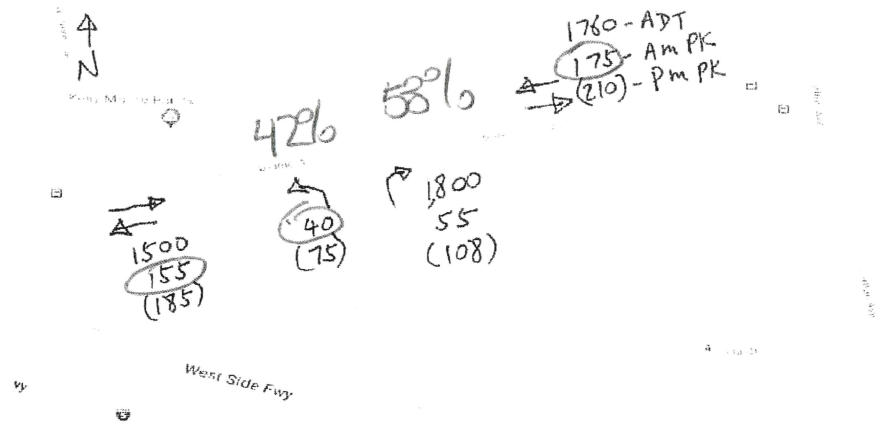
I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, MLK Jr Blvd, SB On	8,060	377	806	9,480	444	948	12,640	592	1,264

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Monte Diablo Ave, NB On	5,000	500	500	5,880	588	588	7,840	784	784

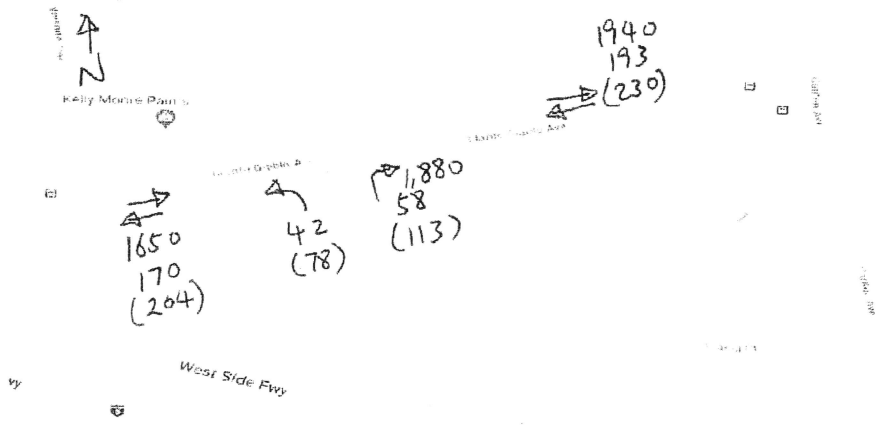
I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
I-5, Monte Diablo Ave, SB On	4,390	418	439	5,160	492	516	6,880	656	688

I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SR-4, El Dorado St, EB On	8,980	418	898	10,560	492	1,056	14,080	656	1,408

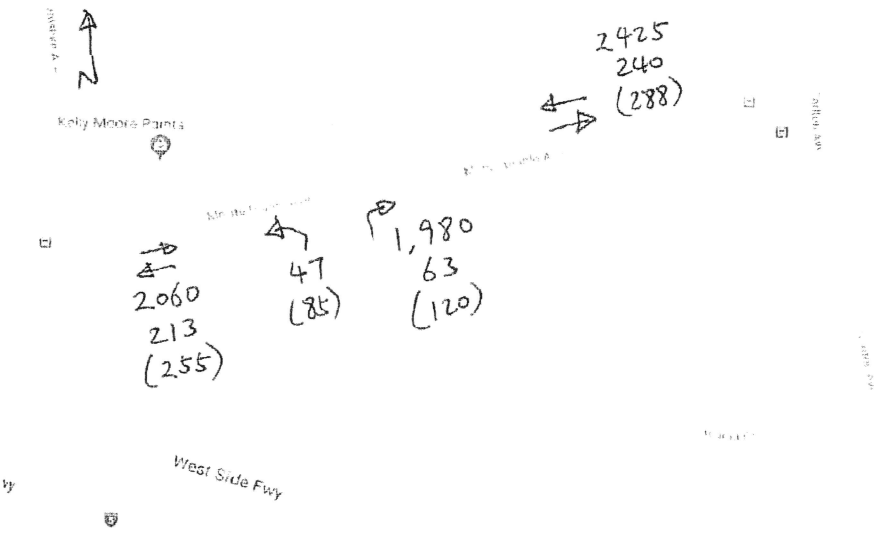
I/C Ramp Volumes	2016			Opening Day 2025			Design Year 2045		
	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol	ADT	AM PH Vol	PM PH Vol
SR-4, El Dorado St, WB Off	9,080	908	643	10,680	1,068	756	14,240	1,424	1,008



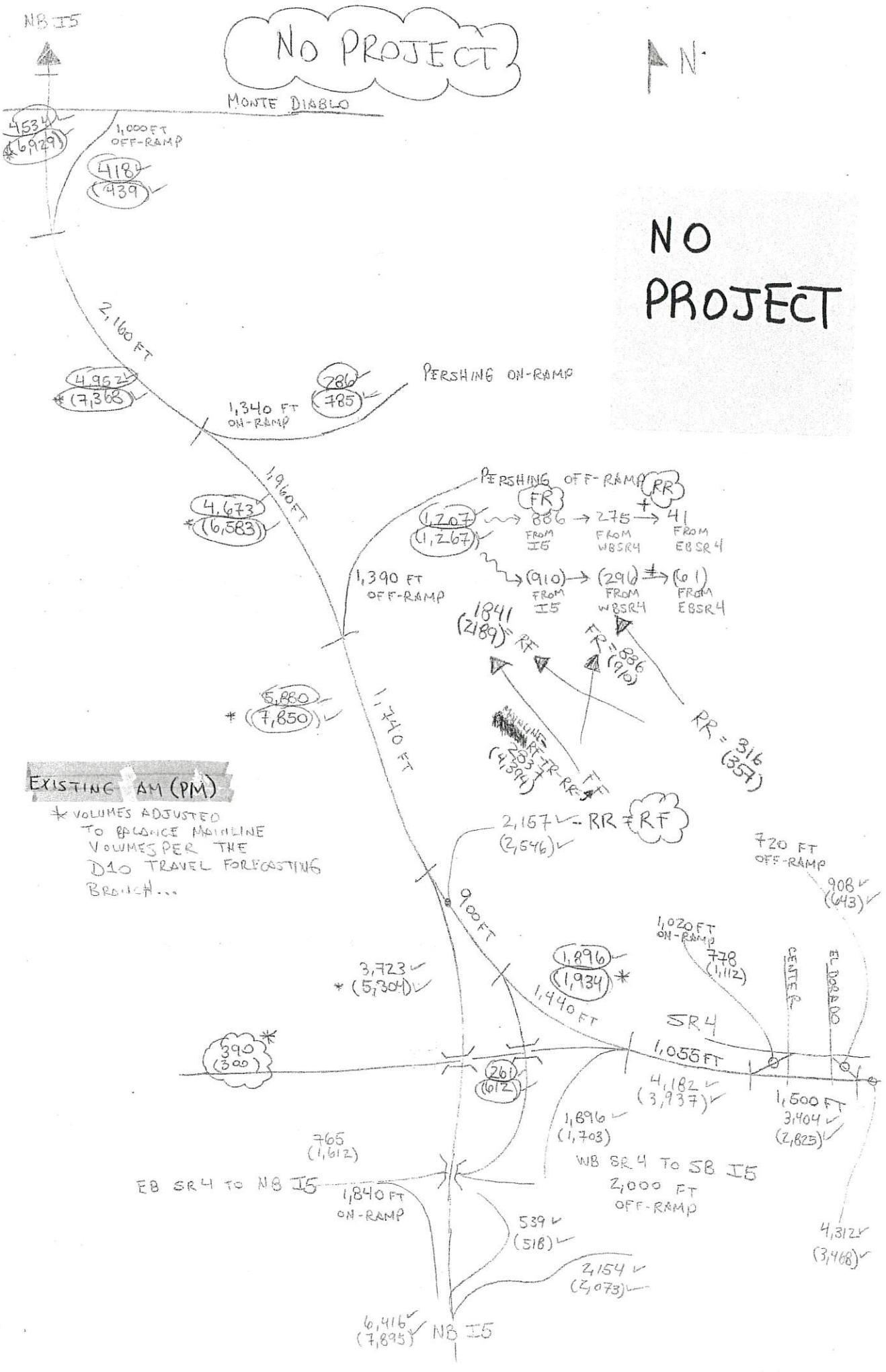
0X460-No Project Existing Condition (2018) at I-5 NB Off Ramp/Monte Diablo Ave. Intersection

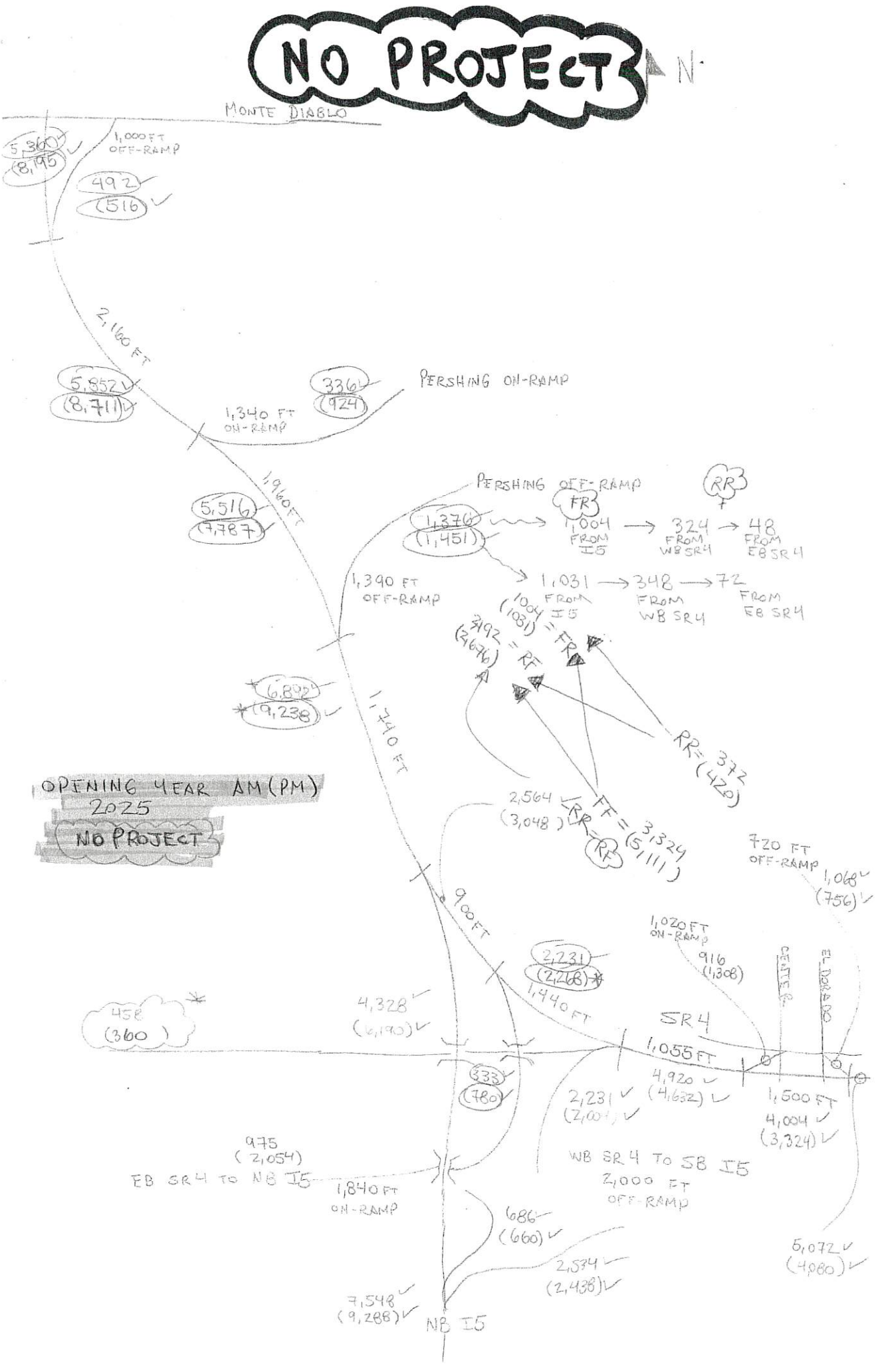


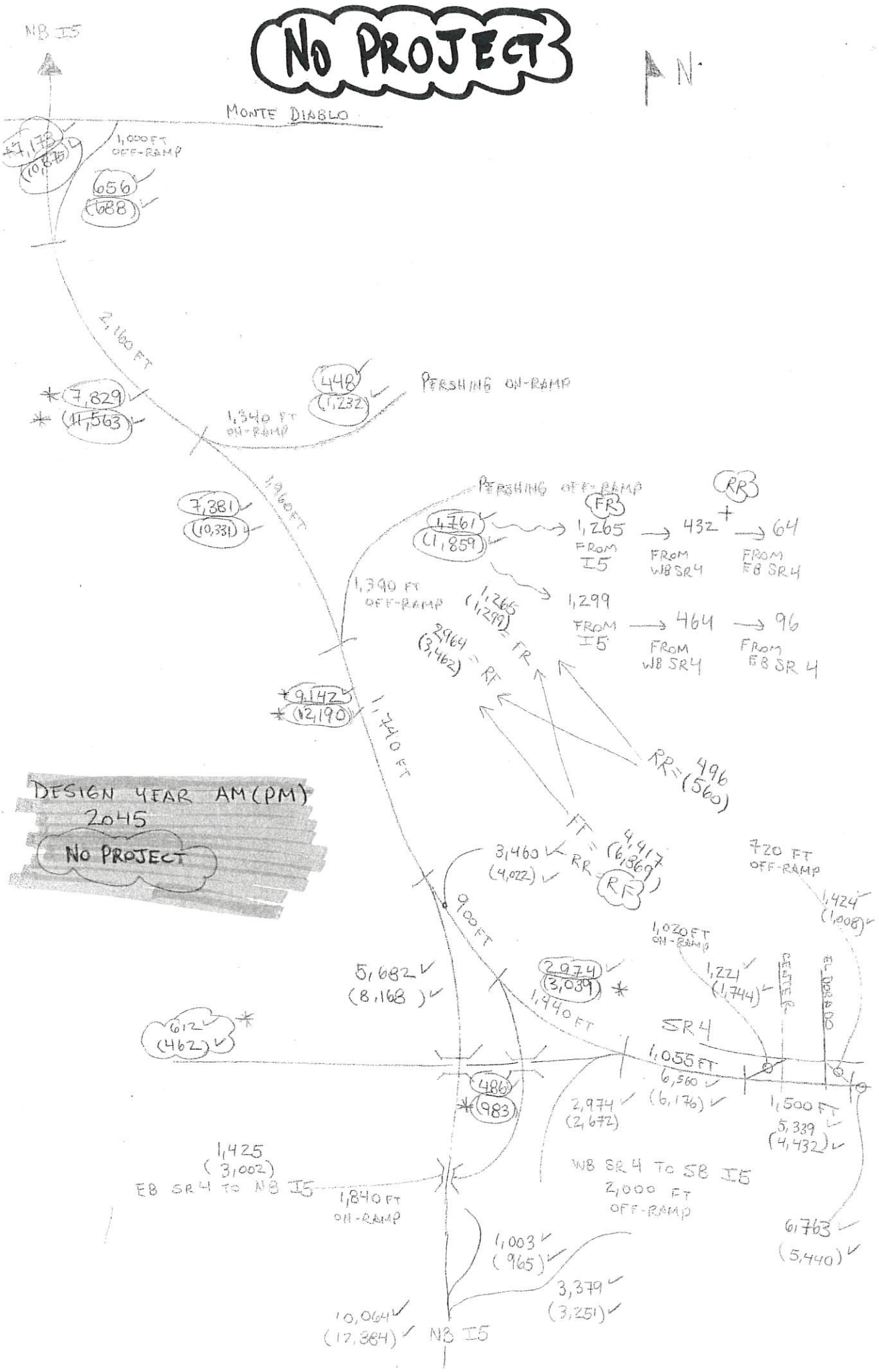
0X460-No Project Construction Year (2025) at I-5 NB Off Ramp/Monte Diablo Ave. Intersection

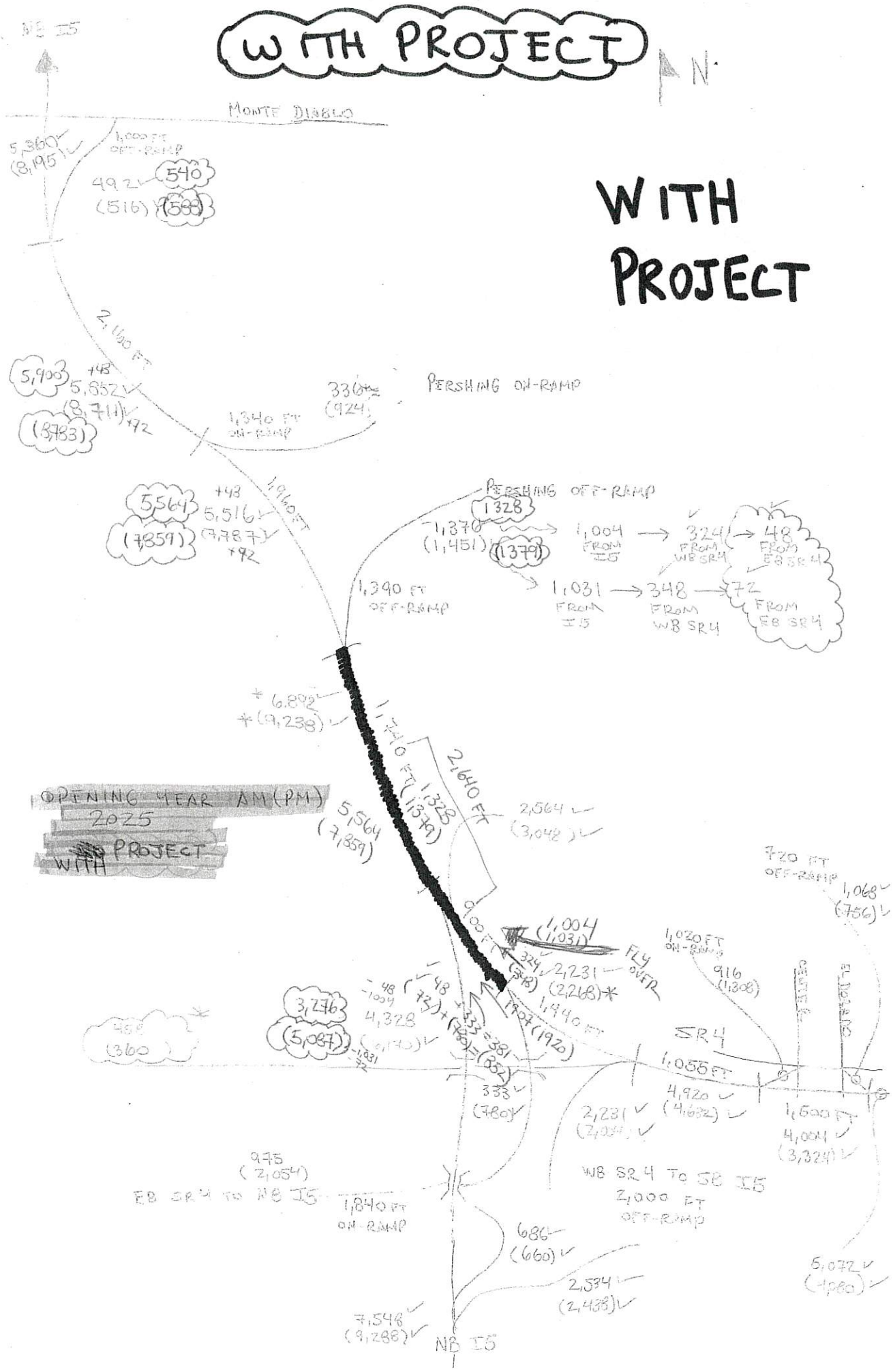


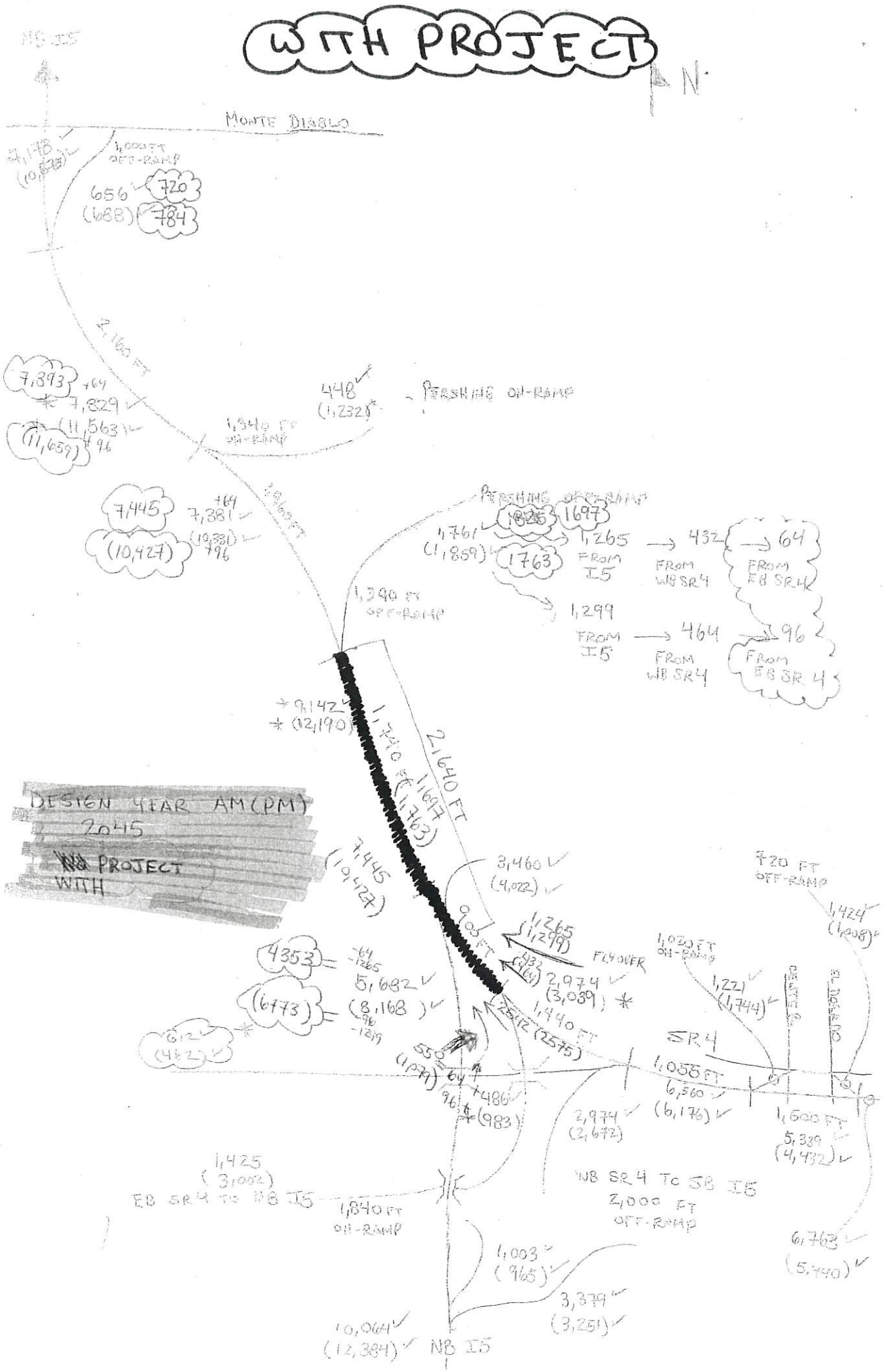
0X460-No Project Design Year (2045) at I-5 NB Off Ramp/Monte Diablo Ave. Intersection


NB I5
NO PROJECT
N
MONTE DIABLO
4534
(6929)*
1,000 FT OFF-RAMP
418
(439)
2,160 FT
4,962
(7,368)*
1,340 FT ON-RAMP
786
(785)
PERSHING ON-RAMP
1,960 FT
4,673
(6,583)*
PERSHING OFF-RAMP
FR
RR
1,207
(1,267)
886 → 275 → 41
FROM I6
FROM WBSR4
FROM EBSR4
(910) → (298) → (61)
FROM I5
FROM WBSR4
FROM EBSR4
1,390 FT OFF-RAMP
1841
(2189)
RT
FR = 836
(910)
RR = 316
(357)
5,880
(7,850)*
1,740 FT
RT-TR-RR-FF
2,157
(2,546)
RR ≠ RF
720 FT OFF-RAMP
908
(643)
900 FT
1,020 FT ON-RAMP
778
(1,112)
CENTER
EL DORADO
1,896
(1,934)*
3,723
(5,304)*
1,440 FT
SR4
1,055 FT
390
(300)*
261
(612)
4,182
(3,937)
1,500 FT
3,404
(2,823)
1,896
(1,703)
765
(1,612)
WB SR4 TO SB I5
2,000 FT OFF-RAMP
EB SR4 TO NB I5
1,840 FT ON-RAMP
539
(518)
2,154
(2,073)
4,312
(3,468)
6,416
(7,895)
NB I5
EXISTING AM (PM)
* VOLUMES ADJUSTED TO BALANCE MAINLINE VOLUMES PER THE D10 TRAVEL FORECASTING BRANCH...


NO PROJECT
N
MONTE DIABLO
5,360
(8,195)
1,000 FT OFF-RAMP
492
(516)
2,160 FT
5,852
(8,711)
1,340 FT ON-RAMP
336
(924)
PERSHING ON-RAMP
1,960 FT
5,516
(7,787)
PERSHING OFF-RAMP
FR
1,376
(1,451)
1,004 FROM I5
324 FROM WB SR4
48 FROM EB SR4
RR
1,390 FT OFF-RAMP
1,031 FROM I5
348 FROM WB SR4
72 FROM EB SR4
1,004 (1,081) = FR
492 (2,676) = RT
RR = 372 (429)
6,802
(9,238)
1,740 FT
OPENING YEAR AM (PM)
2025
NO PROJECT
2,564
(3,048)
FT = 3,324 (5,111)
RR = RT
720 FT OFF-RAMP
1,068
(756)
1,020 FT ON-RAMP
916
(1,308)
CENTER
EL DORADO
900 FT
2,231
(2,268)
1,940 FT
458
(360)
4,328
(4,190)
SR4
1,055 FT
333
(780)
4,920
(4,632)
2,231
(2,001)
1,500 FT
4,004
(3,324)
975
(2,054)
EB SR4 TO NB I5
1,840 FT ON-RAMP
WB SR4 TO SB I5
2,000 FT OFF-RAMP
686
(660)
5,072
(4,080)
2,534
(2,438)
7,548
(9,288)
NB I5


NO PROJECT
N
NB I5
MONTE DIABLO
1,000 FT OFF-RAMP
656
(688)
2,160 FT
7,829
(11,563)
448
(1,232)
PERSHING ON-RAMP
1,340 FT ON-RAMP
1,960 FT
7,381
(10,331)
PERSHING OFF-RAMP
FR
RR
1,761
(1,859)
1,265
FROM I5
432
FROM WB SR4
64
FROM EB SR4
1,390 FT OFF-RAMP
1,265
(1,299)
1,299
FROM I5
464
FROM WB SR4
96
FROM EB SR4
2,964
(3,462)
RT
FR
9,142
(12,190)
1,740 FT
RR=496
(560)
DESIGN YEAR AM(PM)
2045
NO PROJECT
FT = 4,417
(6,569)
RR
RF
3,460
(4,022)
720 FT OFF-RAMP
1,424
(1,008)
900 FT
1,020 FT ON-RAMP
5,682
(8,168)
2,974
(3,039)
1,221
(1,744)
PERSHING
EL DORADO
1,440 FT
612
(462)
SR4
1,055 FT
6,560
(6,176)
486
(983)
2,974
(2,672)
1,500 FT
5,339
(4,432)
1,425
(3,002)
EB SR4 TO NB I5
1,840 FT ON-RAMP
WB SR4 TO SB I5
2,000 FT OFF-RAMP
1,003
(965)
3,379
(3,251)
10,064
(12,384)
NB I5
61763
(5,440)


WITH PROJECT
WITH PROJECT
N
NB I5
MONTE DIABLO
5,360
(8,195)
1,600 FT OFF-RAMP
492
(516)
540
(585)
2,160 FT
5,903
(8,783)
+48
5,852
(8,711)
+72
1,340 FT ON-RAMP
330
(924)
PERSHING ON-RAMP
5,569
(7,859)
+48
5,516
(7,787)
+72
1,960 FT
PERSHING OFF-RAMP
1328
1,370
(1,451)
(1379)
1,004 FROM I5
324 FROM WB SR4
48 FROM EB SR4
1,031 FROM I5
348 FROM WB SR4
72 FROM EB SR4
1,390 FT OFF-RAMP
* 6,892
* (9,238)
1,410 FT
2,640 FT
1,328
(1,379)
OPENING YEAR AM(PM)
2025
WITH PROJECT
5,564
(7,859)
2,564
(3,048)
720 FT OFF-RAMP
1,068
(756)
1,004
(1,031)
FLY OVER
1,020 FT ON-RAMP
916
(1,308)
324
(348)
2,231
(2,248)*
900 FT
1,940 FT
1,904 (1920)
48
(73)
+333 = 381
(780) = (852)
3,276
(5,087)
-1,059
4,328
(6,170)
-1,831
-72
498
(360)
SR4
1,055 FT
4,920
(4,682)
2,231
(2,054)
1,600 FT
4,004
(3,324)
333
(780)
975
(2,054)
EB SR4 TO NB I5
1,840 FT ON-RAMP
WB SR4 TO SB I5
2,000 FT OFF-RAMP
686
(660)
2,534
(2,438)
5,072
(4,080)
7,546
(9,288)
NB I5


WITH PROJECT
N
NB I5
MONTE DIABLO
1,000 FT OFF-RAMP
656
(688)
720
784
2,160 FT
7,893
+64
7,829
(11,563)
(11,659)
796
1,340 FT OFF-RAMP
448
(1,232)
PERSHING ON-RAMP
7,445
+64
7,381
(10,427)
(10,381)
796
PERSHING OFF-RAMP
1,761
(1,859)
1825
1697
1763
1,265
FROM I5
432
FROM WB SR4
64
FROM EB SR4
1,299
FROM I5
464
FROM WB SR4
96
FROM EB SR 4
1,290 FT OFF-RAMP
9,142
(12,190)
1,440 FT
(1,697)
(1,763)
2,640 FT
DESIGN YEAR AM(PM)
2045
NO PROJECT
WITH
7,445
(10,427)
3,460
(4,022)
1,265
(1,279)
433
(461)
FLYOVER
2,974
(3,039)
903 FT
4353
-64
-1265
5,682
(6773)
(8,168)
-96
-1219
612
(482)
1,440 FT
(2575)
550
(1,034)
64
96
+486
(983)
720 FT OFF-RAMP
1,424
(1,008)
1,020 FT ON-RAMP
1,221
(1,744)
EL CAMINO
EL CAMINO
SR 4
1,058 FT
6,560
(6,176)
2,974
(2,672)
1,600 FT
5,339
(4,432)
1,425
(3,002)
EB SR4 TO NB I5
1,840 FT OFF-RAMP
WB SR4 TO SB I5
2,000 FT OFF-RAMP
6,763
(5,440)
1,003
(965)
3,379
(3,251)
10,064
(12,384)
NB I5

SJ-5 HOV Lane Occupancy Counts - AM Peak Hour

DATE: Wednesday 11/15/2017
DIRECTION: ALL LANES - AM Peak Hour
TIME: 7:15 a.m. - 8:15 a.m.
LOCATION: North of Mount Diablo Avenue

HOV LANE VIOLATION RATE
NB = 117 / 282 = 41.5%
SB = 319 / 511 = 62.4%

	NB				TOTALS
TYPE OF VEHICLE	**1 - HOV**	**2**	**3**	**4**	
SOV	117	936	611	355	2019
HOV 2	109	44	19	54	226
HOV 3+	52	6	3	17	78
SEMI		7	231	182	420
VANPOOL	4	3	11	13	31
BUS (EMPTY)				9	9
BUS (1/2)			1	9	10
BUS (FULL)					0
MOTORCYCLE				2	2
ELECTRIC			1	1	2
HYBRID		9	5	14	28
SUB TOTALS =	**282**	**1005**	**882**	**656**	$\Sigma' = 386$
TOTAL =	**2825**				

SB				TOTALS
1 - HOV	**2**	**3**	**4**	
319	1027	648	617	2611
178	81	64	52	375
6		8		14
		174	94	268
3				3
1		4	10	15
3		1		4
	1			1
1				1
	7	1	4	12
	23	10	15	48
511	**1139**	**910**	**792**	$\Sigma' = 473$
3352				

D10 Traffic Operations Branch

HOV = $\frac{386}{2825}$ = 13.7 %

HOV = $\frac{473}{3352}$ = 14.1 %

SJ-5 HOV Lane Occupancy Counts - PM Peak Hour

DATE: Wednesday 11/15/2017
DIRECTION: ALL LANES - PM Peak Hour
TIME: 3:45 p.m. - 4:45 p.m.
LOCATION: North of Mount Diablo Avenue

HOV LANE VIOLATION RATE
NB = 262 / 651 = 40.2%
SB = 117 / 246 = 47.5%

	NB				TOTALS
TYPE OF VEHICLE	**1 - HOV**	**2**	**3**	**4**	
SOV	262	1489	908	994	3653
HOV 2	274	84	36		394
HOV 3+	101	13	5		119
SEMI	2	5	186	82	275
VANPOOL	6	1	13		20
BUS (EMPTY)	1				1
BUS (1/2)	1	1		2	4
BUS (FULL)	2				2
MOTORCYCLE	2				2
ELECTRIC			5		5
HYBRID		13	32	6	51
SUB TOTALS =	**651**	**1606**	**1185**	**1084**	Σ = 598
TOTAL =	**4526**				

	SB			TOTALS
1 - HOV	**2**	**3**	**4**	
117	1078	499	317	2011
117	37	59	93	306
11		15	1	27
	1	257	127	385
1				1
		3	3	6
		1	8	9
				0
				0
	3			3
	5	8	6	19
246	**1124**	**842**	**555**	Σ = 371
2767				

HOV = 598 / 4526 = 13.1%

HOV = 371 / 2767 = 13.4%

NO PROJECT

N

NB I5

MONTE DIABLO

4,534
(6,929) *

1,000 FT OFF-RAMP

418
(439)

2,160 FT

4,952
(7,368) *

1,340 FT ON-RAMP

286
(785)

PERSHING ON-RAMP

1,960 FT

4,673
(6,583) *

PERSHING OFF-RAMP

FR 886 → 275 → RR 41
FROM I5 FROM WBSR4 FROM EBSR4

1,207
(1,267)

(910) → (296) → (61)
FROM I5 FROM WBSR4 FROM EBSR4

1,390 FT OFF-RAMP

1841
(2189) = RT

FR = 886
(910)

RR = 316
(357)

MAINLINE RT-FR-RR = 2837
(4394)

1,740 FT

5,880
(7,850) *

2,157 — RR ≠ RT
(2,546)

720 FT OFF-RAMP

908
(643)

1,020 FT ON-RAMP

778
(1,112)

CENTER

EL DORADO

1,900 FT

1,896
(1,934) *

3,723
* (5,304)

1,440 FT

SR 4

1,055 FT

390
(300) *

261
(612)

4,182
(3,937)

1,500 FT

3,404
(2,825)

1,896
(1,703)

765
(1,612)

WB SR 4 TO SB I5
2,000 FT OFF-RAMP

EB SR 4 TO NB I5

1,840 FT ON-RAMP

539
(518)

4,312
(3,468)

2,154
(2,073)

6,416
(7,895)

NB I5

EXISTING AM (PM)

* VOLUMES ADJUSTED TO BALANCE MAINLINE VOLUMES PER THE D10 TRAVEL FORECASTING BRANCH...

NO PROJECT

NO PROJECT

N

NB I5

MONTE DIABLO

5,360 ✓
(8,195) ✓

1,000 FT
OFF-RAMP

492 ✓
(516) ✓

2,160 FT

5,852 ✓
(8,711) ✓

1,340 FT
ON-RAMP

336 ✓
(924)

PERSHING ON-RAMP

1,960 FT

5,516
(7,787) ✓

PERSHING OFF-RAMP

1,376
(1,451) ✓

FR
1,004 → 324 → 48
FROM I5 FROM WB SR4 FROM EB SR4

RR
1,031 → 348 → 72
FROM I5 FROM WB SR4 FROM EB SR4

1,390 FT
OFF-RAMP

1004 (1031) = FR
2492 (2676) = RT
RR = 372 (420)
FT = 3,324 (5,111)
RR = RT

2,564 ✓
(3,048) ✓

720 FT
OFF-RAMP

1,068 ✓
(756) ✓

* 6,892 ✓
* (9,238) ✓

1,740 FT

900 FT

1,020 FT
ON-RAMP

916
(1,308)

CENTER

EL DORADO

2,231 ✓
(2,268) ✓ *

1,440 FT

4,328 ✓
(6,190) ✓

458 *
(360)

SR4

1,055 FT

333 ✓
(780) ✓

4,920 ✓
(4,632) ✓

2,231 ✓
(2,004) ✓

1,500 FT

4,004 ✓
(3,324) ✓

975
(2,054)

EB SR4 TO NB I5

1,840 FT
ON-RAMP

WB SR4 TO SB I5

2,000 FT
OFF-RAMP

686 ✓
(660) ✓

2,534 ✓
(2,438) ✓

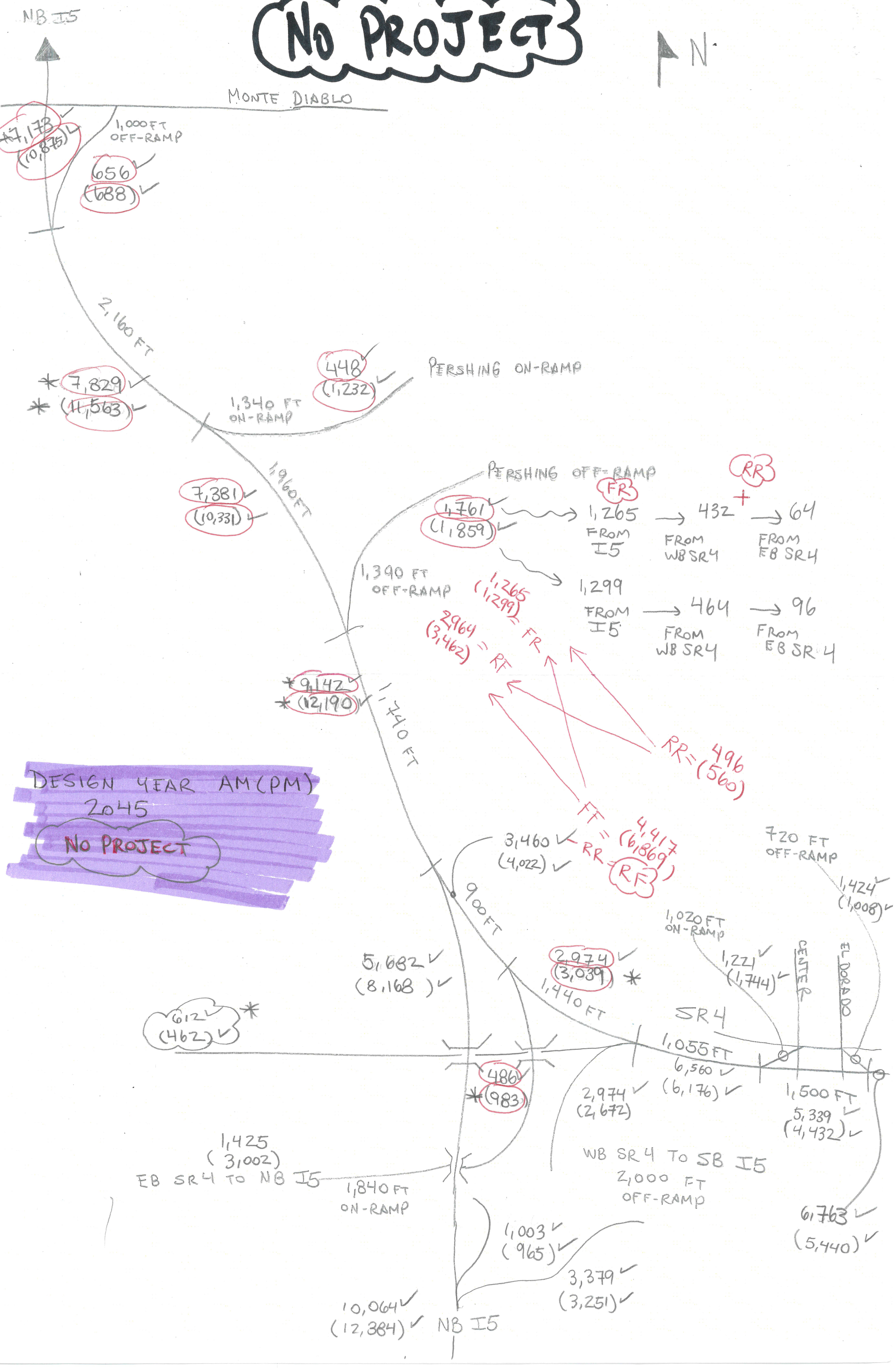
5,072 ✓
(4,080) ✓

7,548 ✓
(9,288) ✓

NB I5

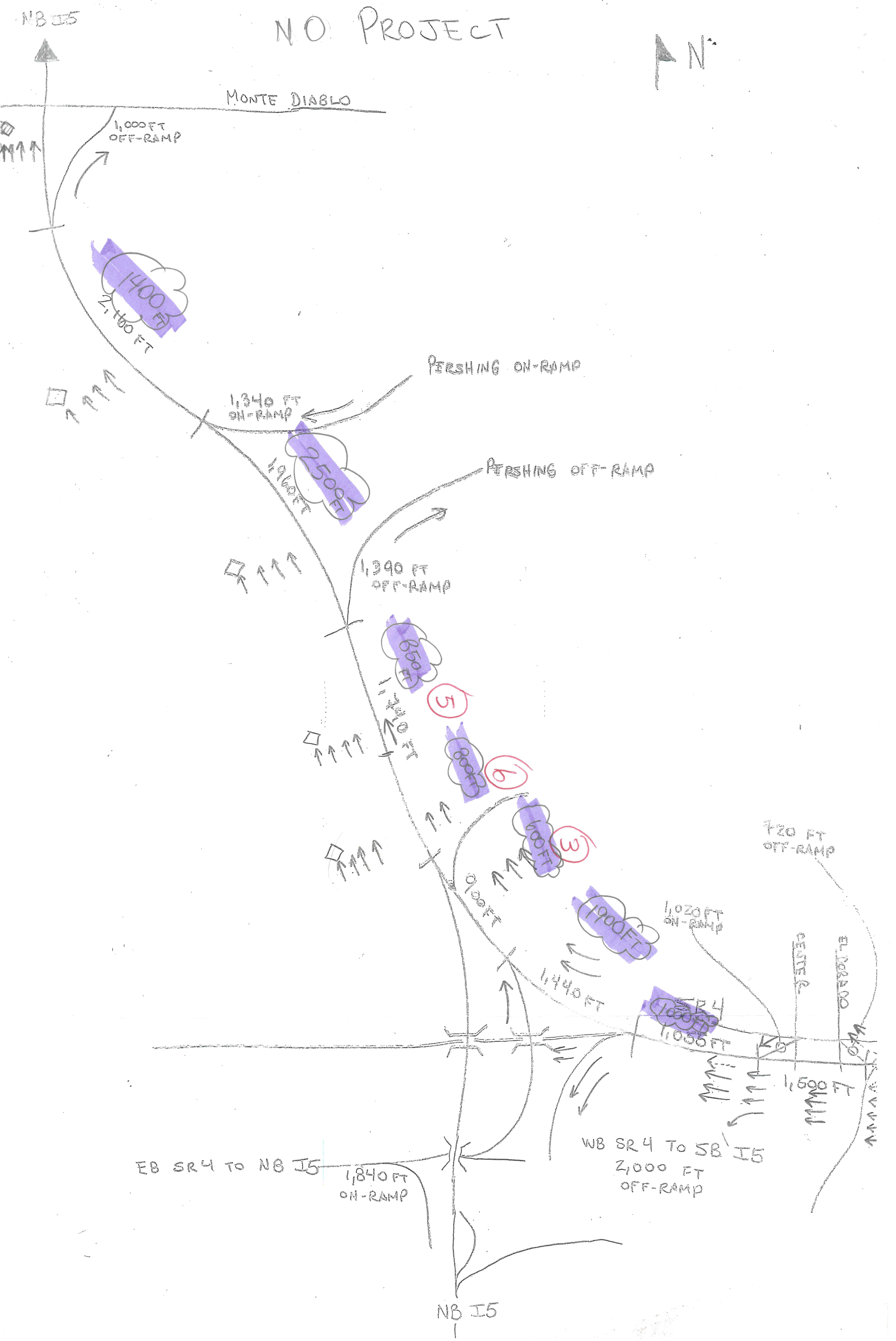
OPENING YEAR AM (PM)
2025
NO PROJECT

NO PROJECT



DESIGN YEAR AM(PM)
2045
NO PROJECT

NO PROJECT


NB I5
N
MONTE DIABLO
1,000 FT
OFF-RAMP
1400 FT
2,460 FT
PERSHING ON-RAMP
1,340 FT
ON-RAMP
250FT
1,960 FT
PERSHING OFF-RAMP
1,390 FT
OFF-RAMP
650 FT
1,460 FT
800FT
680FT
720 FT
OFF-RAMP
900 FT
1,020 FT
ON-RAMP
1900FT
1,440 FT
1000FT
SR 4
1,050 FT
PESTER
EL GRANO
1,500 FT
WB SR 4 TO SB I5
2,000 FT
OFF-RAMP
EB SR 4 TO NB I5
1,840 FT
ON-RAMP
NB I5

WITH PROJECT

N

NB I5

MONTE DIABLO

5,360
(8,195)

1,000 FT OFF-RAMP

492 → 540
(516) → (588)

2,160 FT

5,900 +48 → 5,852 → (8,711) +72
(8,783)

1,340 FT ON-RAMP

336 → (924)

PERSHING ON-RAMP

WITH PROJECT

5564 +48 → 5,516 → (7,787) +72
(7,859)

1,960 FT

PERSHING OFF-RAMP

1328
1,370 → 1,004 FROM I5 → 324 FROM WB SR4 → 48 FROM EB SR4
(1,451) → (1379) → 1,031 FROM I5 → 348 FROM WB SR4 → 72 FROM EB SR4

1,390 FT OFF-RAMP

* 6,892
* (9,238)

1,740 FT (1,328) (1,379) 2,640 FT

2,564
(3,048)

OPENING YEAR AM(PM)
2025
WITH PROJECT

5,564
(7,859)

720 FT OFF-RAMP

1,068
(756)

1,004 (1,031)

FLY OVER

1,020 FT ON-RAMP

916 (1,308)

RENTER

EL DORADO

324 (348) → 2,231 (2,268)*

1,440 FT

1907 (1920)

SR4

1,055 FT

4,920 (4,632)

458 (360) *

3,276
(5,087)

48 → 1004 → 4,328 (6,190)
-1,031 -72

48 (72) + 333 = 381 (852)

333 (780)

2,231 (2,004)

1,500 FT

4,004 (3,324)

975 (2,054)

EB SR4 TO NB I5

1,840 FT ON-RAMP

WB SR4 TO SB I5

2,000 FT OFF-RAMP

686 (660)

2,534 (2,438)

5,072 (4,080)

7,548 (9,288)

NB I5

WITH PROJECT

NB I5

N

MONTE DIABLO

7,173 ✓
(10,875) ✓

1,000 FT
OFF-RAMP

656 ✓
(688) ✓

720
784

2,160 FT

7,893 +64
* 7,829 ✓
* (11,563) ✓
(11,659) +96

448 ✓
(1,232) ✓

PERSHING ON-RAMP

1,340 FT
ON-RAMP

7,445
(10,427)

7,381 +64 ✓
(10,331) +96 ✓

1,260 FT

PERSHING OFF-RAMP

1,761 ✓
(1,859) ✓

1697
1763

1,265 → 432 → 64
FROM I5 FROM WB SR4 FROM EB SR4

1,299 → 464 → 96
FROM I5 FROM WB SR4 FROM EB SR4

1,390 FT
OFF-RAMP

* 9,142 ✓
* (12,190) ✓

1,740 FT (1,763)

2,640 FT

DESIGN YEAR AM(PM)
2045
~~NO~~ PROJECT
WITH

7,445
(10,427)

3,460 ✓
(4,022) ✓

98 FT

1,265
(1,299)

FLYOVER

4353 -64 -1265
(6773) -96 -1299
5,682 ✓
(8,168) ✓

4332
(4364)

2,974 ✓
(3,039) *

1,440 FT

2542 (2575)

612 ✓ *
(462) ✓

550
(1,079)

64
96

+486 ✓
* (983)

720 FT
OFF-RAMP

1,424 ✓
(1,008) ✓

1,020 FT
ON-RAMP

1,221 ✓
(1,744) ✓

PEYTON

EL PASEO

SR 4

1,055 FT

6,560 ✓
(6,176) ✓

2,974 ✓
(2,672)

1,500 FT

5,339 ✓
(4,432) ✓

1,425
(3,002)
EB SR4 TO NB I5

1,840 FT
ON-RAMP

WB SR 4 TO SB I5
2,000 FT
OFF-RAMP

6,763 ✓
(5,440) ✓

1,003 ✓
(965) ✓

3,379 ✓
(3,251) ✓

10,064 ✓
(12,384) ✓

NB I5

WITH PROJECT

NB I5

N

MONTE DIABLO

2,460 FT

1,000 FT
OFF-RAMP

1,660 FT

2,160 FT

1,660 FT

PERSHING ON-RAMP

1,340 FT
ON-RAMP

1,960 FT

2500 FT

PERSHING OFF-RAMP

1,390 FT
OFF-RAMP

6

2,600 FT

500 FT

900 FT

1,000 FT

NO PERSHING ACCESS

7

MERGE FROM
NB I5 OFF
TO PERSHING

720 FT
OFF-RAMP

900 FT

1,440 FT

1,020 FT
ON-RAMP

SR 4

1,055

PEORIA

EL DORADO

1,500 FT

WB SR 4 TO SB I5
2,000 FT
OFF-RAMP

EB SR 4 TO NB I5
1,840 FT
ON-RAMP

NB I5

ATTACHMENT O
City of Stockton Pedestrian and Bike Plan

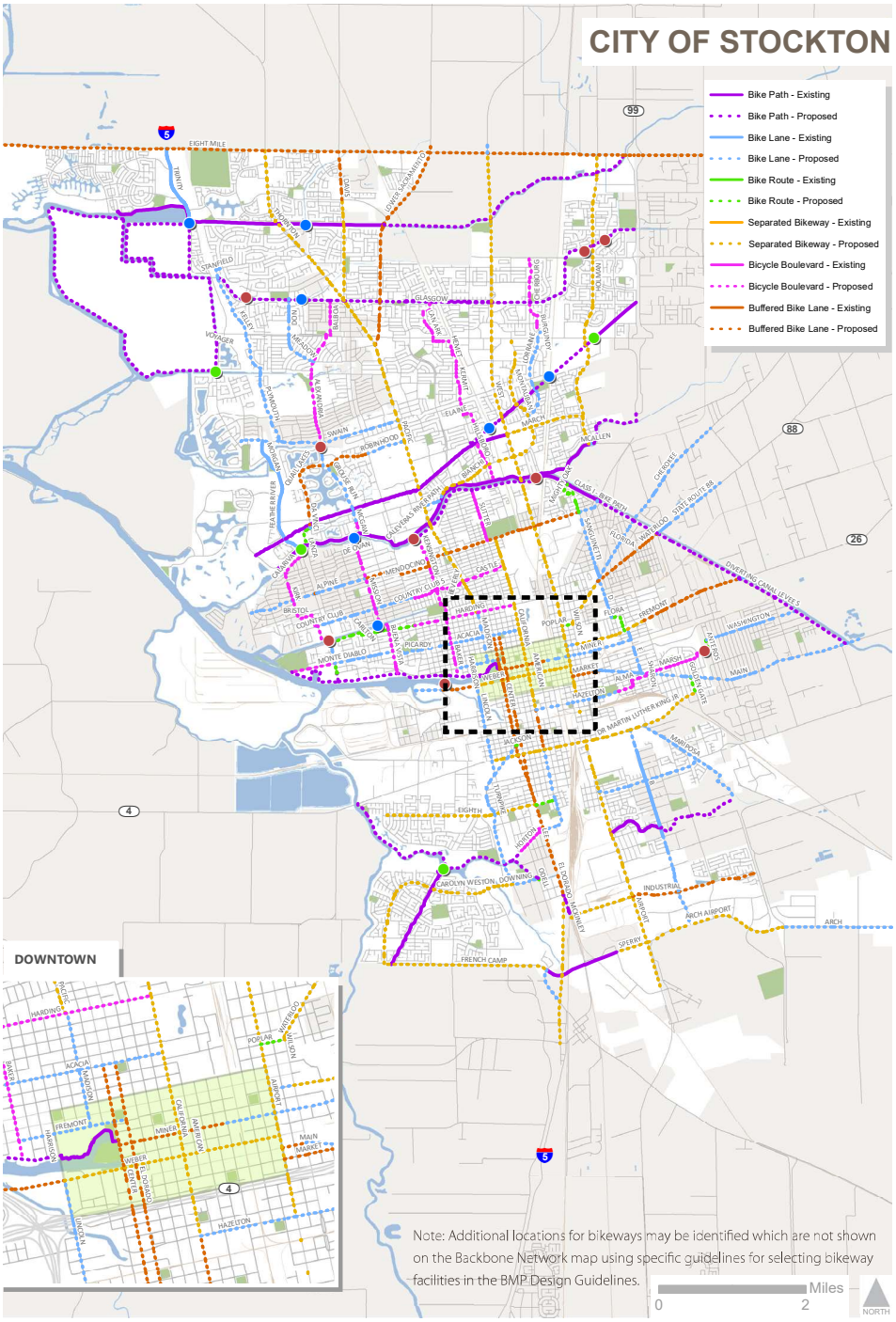


Figure 4-1.A: Citywide Backbone Network Map by Facility Type

CITY OF STOCKTON
Bicycle Master Plan

ATTACHMENT P
SHOPP Output Performance Summary

SHOPP Project - Accomplishment - Performance Measures - Benefits

District: 10 **Tool ID:** 22176 **Project ID:** 1020000076 **EA:** 0X461 **Co-Rte-PM:** SJ-005-26.1/26.5 (Primary Location)

Res In PID WP: 12/09/19 **Project Manager:** S. Sherman

Save to Excel

☑ Bridge ☐ Pavement ☐ Drainage ☐ Facilities ☐ Safety ☐ Mobility ☐ Roadside ☑ Complete Streets ☐ Sustainability /Climate Change ☐ Advance Mitigation/Mitigation ☐ Major Damage ☑ Green-house Gases ☐ Relinquishment

Performance & Accomplishments (PPC)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Assets in Good Cond	Assets in Fair Cond	Assets in Poor Cond	New Asset Added	Comment
1	A03	Bridge Rail (201.112)	Bridge Rail Replacement and Upgrade	Linear Feet	5530.0		5530.0			
2	A04	Bridge Rehabilitation (201.110, .111, .113, .322)	Bridge and Tunnel Health	Square Feet	259937.0			259937.0		
3	A04		Bridge Scour Mitigation			259937.0				
4	A04		Bridge Seismic Restoration			259937.0				
5	A04		Bridge Goods Movement Upgrades					259937.0		
6	A07	Fish Passage	No Performance Objective in the SHSMP	Yes/No	Yes					Yes
7	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	1.0					
8	H55	Complete Streets Not Applicable (1,2,3)		1,2,3						unsuitable to include
9	N04	Defer	No Performance Objective in the SHSMP	-						defer

SHOPP Project - Accomplishment - Performance Measures - Benefits

District: 10 **Tool ID:** 22177 **Project ID:** 1020000077 **EA:** 0X462 **Co-Rte-PM:** SJ-005-26.5/27.6 (Primary Location)

Res In PID WP: 12/09/19 **Project Manager:** S. Sherman

Save to Excel

☑ **Bridge** ☐ **Pavement** ☐ **Drainage** ☐ **Facilities** ☐ **Safety** ☐ **Mobility** ☐ **Roadside** ☑ **Complete Streets** ☐ **Sustainability /Climate Change** ☐ **Advance Mitigation/Mitigation** ☐ **Major Damage** ☑ **Green-house Gases** ☐ **Relinquishment**

Performance & Accomplishments (PPC)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Assets in Good Cond	Assets in Fair Cond	Assets in Poor Cond	New Asset Added	Comment
1	A02	Bridge Replacement/New Construction (201.110, .111, .113, .322)	Bridge and Tunnel Health	Square Feet	275200.0	2992.0	272208.0			
2	A02		Bridge Scour Mitigation			2992.0	272208.0			
3	A02		Bridge Seismic Restoration			275200.0				
4	A02		Bridge Goods Movement Upgrades				275200.0			
5	A03	Bridge Rail (201.112)	Bridge Rail Replacement and Upgrade	Linear Feet	5840.0	310.0	5530.0			
6	A07	Fish Passage	No Performance Objective in the SHSMP	Yes/No	Yes					Yes
7	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	2.0					
8	A11	Fish Passage Not in the Priority List	No Performance Objective in the SHSMP	Each	0.0					
9	A12	Fish Passage in the Priority List	Fish Passage	Each	0.0					
10	H55	Complete Streets Not Applicable (1,2,3)		1,2,3						unsuitable to include
11	N04	Defer	No Performance Objective in the SHSMP	-						defer