

ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017  
PROJECT BASELINE AGREEMENT  
I-405 North Multi-Asset Project (12-0R570)

Resolution SHOPP-P-2122-06B

(will 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) for the *I-405 North Multi-Asset Project (12-0R570)*, effective on, May 18, 2022 (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**

- 3.2 Whereas at its May 13, 2020 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *I-405 North Multi-Asset Project (12-0R570)*, 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 and the Project Report attached hereto as Exhibit B, as the baseline for project monitoring by the Commission.
- 3.3 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 *Insert Number*, "Adoption of Program of Projects for the Active Transportation Program", dated
  - Resolution *Insert Number*, "Adoption of Program of Projects for the Local Partnership Program", dated
  - Resolution *Insert Number*, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated
  - Resolution G-20-40, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated 05/13/2020
  - Resolution *Insert Number*, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated

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

## **5. SPECIFIC PROVISIONS AND CONDITIONS**

### **5.1 Project Schedule and Cost**

See Project Programming Request Form, attached as Exhibit A.

### **5.2 Project Scope**

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

### **5.3 Other Project Specific Provisions and Conditions**

## **Attachments:**

Exhibit A: Project Programming Request Form

Exhibit B: Project Report

SIGNATURE PAGE  
TO  
PROJECT BASELINE AGREEMENT

I-405 North Multi-Asset Project (12-0R570)

Resolution SHOPP-P-2122-06B

*Matthew Cugini*  
for *WB* Ryan Chamberlain 2-25-2022  
Date  
District Director  
California Department of Transportation

*Steven D Keck*  
Steven Keck 4/27/2022  
Date  
Acting Director  
California Department of Transportation

*Mitchell Weiss*  
Mitchell Weiss 07/07/22  
Date  
Executive Director  
California Transportation Commission

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: 02/24/22 09:32:38 AM

District	EA	Project ID		PPNO	Project Manager
12	0R570	1218000120		5094C	SAFT, LIMA K
County	Route	Begin Postmile	End Postmile	Implementing Agency	
ORA	405	16.9	24.2	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

**Project Nickname**

12-0R570 RT 405 Multi-Asset Project

**Location/Description**

In Huntington Beach, Westminster, Garden Grove, and Seal Beach, from south of McFadden Avenue to the Los Angeles County line. Rehabilitate pavement, improve highway worker safety, rehabilitate landscaping, and install a Weigh-in-Motion (WIM) system. (G13 Contingency)

**Legislative Districts**

Assembly: 72 Senate: 34 Congressional: 47, 48

**PERFORMANCE MEASURES**

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Pavement	0.0	79.0	0.8		79.8	Lane-miles
Programmed Condition	Pavement	79.8	0.0	0.0		79.8	Lane-miles

**Project Milestone**

	Actual	Planned
Project Approval and Environmental Document Milestone	01/31/22	
Right of Way Certification Milestone		01/12/24
Ready to List for Advertisement Milestone		06/03/24
Begin Construction Milestone (Approve Contract)		02/01/25

**FUNDING (Allocated amounts are shaded)**

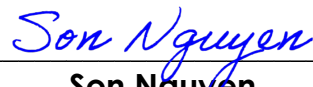
Component	Fiscal Year	SHOPP				Total
PA&ED	20/21	3,146				3,146
PS&E	21/22	5,016				5,016
RW Support	23/24	21				21
Const Support	23/24	6,450				6,450
RW Capital						0
Const Capital	23/24	49,367				49,367
Total		64,000				64,000

# Project Report

## For Project Approval and Environmental Document

In Orange County  
On Interstate 405  
Between PM 16.9 and PM 24.2

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:



---

**Son Nguyen**  
ACTING OFFICE CHIEF  
OFFICE OF RIGHT OF WAY AND R/W ENGINEERING

APPROVAL RECOMMENDED:



---

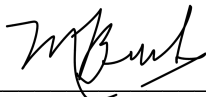
**Henry Nguyen**  
DESIGN BRANCH CHIEF  
CORRIDOR PROJECT MANAGEMENT



---

**Lima Saft**  
ACTING PROJECT MANAGER  
CORRIDOR PROJECT MANAGEMENT

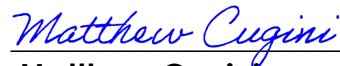
CONCURRED BY:



---

**Monica Benavides**  
ACTING DEPUTY DISTRICT DIRECTOR  
SINGLE FOCAL POINT  
STRATEGIC PORTFOLIO MANAGEMENT

APPROVED BY:



---

<sup>AC</sup> **Matthew Cugini**  
DEPUTY DISTRICT DIRECTOR  
PROJECT DELIVERY

1-31-2022

**DATE**

**Ryan Chamberlain**  
DISTRICT DIRECTOR  
DISTRICT 12

## Vicinity Map



This 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.

*Jeff Huang*

REGISTERED CIVIL ENGINEER

1/21/2022

DATE



## Table of Contents

1. INTRODUCTION .....	1
2. RECOMMENDATIONS .....	2
3. BACKGROUND .....	3
4. PURPOSE AND NEED .....	7
4A. Problem, Deficiencies, Justification .....	7
4B. Regional and System Planning .....	8
4C. Traffic .....	9
5. ALTERNATIVES .....	10
5A. Viable Alternatives .....	10
5B. Rejected Alternatives .....	12
6. CONSIDERATIONS REQUIRE DISCUSSIONS .....	13
6A. Hazardous Waste.....	13
6B. Value Analysis.....	13
6D. Right-of-Way Issue .....	15
6E. Environmental Compliance .....	16
6F. Air Quality Conformity.....	16
6G. Title VI Consideration .....	17
6H. Noise Abatement Decision Report .....	17
6I. Life-Cycle Cost Analysis .....	17
6J. Reversible Lanes .....	17
6K. Stormwater / NPDES Permit Compliance / Water Quality .....	18
7. OTHER CONSIDERATIONS AS APPROPRIATES.....	19
7A. Public Hearing Process.....	19
7B. Route Matters .....	19
7C. Permits .....	19
7D. Cooperative Agreements .....	20
7E. Other Agreements .....	20
7F. Report of Feasibility of Providing Access to Navigable Rivers .....	20
7G. Public Boat Ramps.....	20



7H. Transportation Management Plan.....	20
7I. Stage Construction .....	21
7J. Accommodation of Oversized Loads.....	21
7K. Graffiti Control.....	21
7L. Asset Management .....	21
7M Complete Streets .....	22
7N. Climate Change Considerations.....	23
7O. Broadband and Advance Technologies .....	24
8. FUNDING, PROGRAMMING AND ESTIMATE .....	25
8A. Funding.....	25
8B. Programming.....	25
8C. Estimates .....	25
9. DELIVERY SCHEDULE.....	26
10. RISKS .....	26
11. EXTERNAL AGENCY COORDINATION.....	27
12. PROJECT REVIEW .....	28
13. PROJECT PERSONNEL .....	28
14. ATTACHMENTS .....	30

### **Abbreviations and Acronym List**

AADT	Annual Average Daily Traffic
AC	Asphalt Concrete
ADL	Aerially Deposited Lead
AT&T	American Telephone and Telegraph Company
Ave	Avenue
Bgs	Below Ground Surface
Bldv	Boulevard
Br	Bridge
CAPM	Capital Preventive Maintenance
CEQA	California Environmental Quality Act
CHP	California Highway Patrol
COZEPP	Construction Zone Enhanced Enforcement Program
DES	Division of Engineering Service
DOE	District Office Engineer
EA	Expenditure Authorization
EB	Eastbound
FED	Final Environmental Document
FHWA	Federal Highway Administration
FY	Fiscal Year
GHG	Greenhouse Gas
GP	General Purpose
HOV	High Occupancy Vehicle
I-5	Interstate 5
I-405	Interstate 405
I-605	Interstate 605
JCT	Junction
MADT	Monthly Average Daily Traffic
MCI	Microwave Communications Inc
mg/L	Milligram Per Liter

MOU	Memorandum of Understanding
NB	Northbound
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
OC	Orange County
OCTA	Orange County Transportation Authority
OH	Overhead
Ora	Orange
PA&ED	Project Approval & Environmental Document
PDT	Project Development Team
PID	Project Initiation Document
PM	Postmiles
PS&E	Plans, Specifications, and Estimates
PVC	Polyvinyl Chloride
R/W	Right-of-Way
RTP	Regional Transportation Planning
SB	Southbound
SB-1	Senate Bill 1
SCAG	Southern California Association of Governments
SHOPP	State Highway Operation and Protection Program
SR-22	State Route 22
SR-73	State Route 73
St	Street
TASAS	Traffic Accident Surveillance and Analysis System
TMP	Transportation Management Plan
USC	United States Code
V2I	Vehicle to Infrastructure
VA	Value Analysis
WB	Westbound
WIM	Weigh-in-Motion

## 1. INTRODUCTION

### Project Description

This is a Major Multi Asset Management project with Pavement Rehabilitation (formerly, Capital Preventive Maintenance (CAPM)) as the anchor asset and satellite assets such as, roadside rehabilitation, roadside safety improvements, and Weigh-In-Motion (WIM) system. The project limit is from 400 feet south of McFadden Avenue to Orange County/Los Angeles County Line in the Cities of Huntington Beach, Westminster, Garden Grove and Seal Beach on Interstate 405 (I-405), PM 16.9 to PM 24.2, in Orange County. See **Attachment A** for Project Location Map. The project scope includes the following:

- **Pavement Rehabilitation**
  - Replace individual concrete slabs with precast concrete panels and rapid strength concrete at various locations on the mainline. See **Attachment B** for Project Plans.
  
- **Roadside Rehabilitation**
  - Correct planting
  - Upgrade irrigation system
  
- **Roadside Safety Improvements**
  - Install maintenance access roads
  - Install maintenance vehicle pullouts
  - Install ladder marked crosswalks
  - Slope stabilization
  - Sediment erosion control
  - Vegetation control
  - Wrong-way prevention package
  - Curve warning sign package
  
- **Install a Weigh-in-Motion (WIM) System**

**Table 1. 1 Project Information**

<b>Project Limits</b>	12-Ora-405 PM 16.9/24.2	
<b>Number of Alternatives</b>	2 (1 Build and 1 No-Build)	
	<b>Current Cost Estimate:</b>	<b>Escalated Cost Estimate:</b>
<b>Capital Outlay Support</b>	\$ 12,526,000	\$ 14,633,000
<b>Capital Outlay Construction</b>	\$ 43,523,000	\$ 49,367,000
<b>Capital Outlay Right-of-Way</b>	\$ 0	\$ 0
<b>Funding Source</b>	2020 SHOPP – 20.10.201.121	
<b>Funding Year</b>	2023/2024	
<b>Type of Facility</b>	8/9 lane freeway including two express lanes in each direction.	
<b>Number of Structures</b>	12	
<b>SHOPP Project Output</b>	79.8 Lanes Miles	
<b>Environmental Determination or Document</b>	Categorical Exception/Categorical Exclusion (CE/CE)	
<b>Legal Description</b>	In Orange County and in the cities of Huntington Beach, Westminster, Garden Grove, Los Alamitos, the community of Rossmoor, and Seal Beach on I-405 between 400 feet south of McFadden Avenue (PM 16.9) and Orange/Los Angeles County line (PM 24.2)	
<b>Project Development Category</b>	Category 5 per PDPM Chapter 8, Section 5.	

## 2. RECOMMENDATIONS

It is recommended that the Project Report (PR) be approved using the preferred alternative, and that the project proceeds to the PS&E phase.

### 3. BACKGROUND

The Office of Maintenance Engineering developed Project Initiation Proposal (PIP) in May 2018 - SHOPP ID 18839 after identifying on the Pavement Condition Report that this segment of I-405 needs pavement rehabilitation. The PIP also outlined satellite assets, including roadside rehabilitation, roadside safety improvements, and the installation of a WIM system.

The pavement rehabilitation project on this segment of freeway was completed in 2009. The scope of the project was to replace individual concrete pavement slabs on the mainline and overlay the AC shoulder on the northbound and southbound roadbeds between Beach Blvd (PM 16.52) and I-605 (PM 24.2). The Jointed Plain Concrete (JPC) pavement begins exhibiting minor distress and poor ride quality as well as several locations shows severe pavement distress due to the high traffic volumes and heavy truck usage.

Currently, the I-405 Improvement Project (EA 0H1003) is in construction, in cooperation with the Orange County Transportation Authority (OCTA), to improve the freeway mainline and interchanges on I-405, to reduce congestion and improve lane continuity through the corridor from SR 73/I-405 to I-605, including the upgrade of all safety devices. The I-405 Improvement Project is scheduled to be completed in 2023. The completion of the I-405 Improvement Project is assumed in the future baseline condition and considered in the Programmable Project Alternative as an existing condition.

#### **Table 3.1 Existing Facility in Northbound Direction**

The new construction from I-405 Improvement Project (0H1003) will provide 2 toll lanes and 5 general purpose lanes from south of McFadden Avenue to SR-22/Valley View Blvd (PM 16.9/PM21.1). In addition, the project will provide 1 ingress and egress for the express lanes at Bolsa Avenue/Goldenwest Street interchange.

From SR-22/Valley View Blvd to I-605/I-405 junction (PM 21.1/PM 23.8) will provide 2 toll lanes, 7 general purpose lanes, 1 auxiliary lane from north of Seal Beach Blvd.

From I-605/I-405 Junction to end of the project (PM 23.8-24.6) will provide 1 HOV lane and 4 general purpose lanes. The toll lanes will end and convert back into HOV lane.

**Table 3.2 Existing Facility in Southbound Direction**

The new construction from I-405 Improvement Project (0H1003) will provide 2 toll lanes, 5 general purpose lanes from south of McFadden Avenue to SR-22/Valley View Blvd. (PM 16.9 – PM 21.1) In addition, the project will provide 1 auxiliary lane north of McFadden Avenue, 1 ingress and egress for the express lanes at Bolsa Avenue/Goldenwest Street interchange.

From SR-22/Valley View Blvd to I-605/I-405 junction (PM 21.1 – 23.8) will provide 2 toll lanes, 7 general purpose lanes, 1 auxiliary lane coming from south of EB SR-22, and 1 ingress and egress from north of WB SR-22 connector.

From I-605/I-405 to end of the project (PM 23.8-24.6) will provide 1 HOV lane and 4 general purpose lanes. The toll lanes will be converted back into HOV lane.

**Existing Structure**

Table 3.3 provides a list of existing structure along I-405 Project Corridor within the project limit.

**Table 3.3 Existing Structure Along I-405**

No.	Post Mile	Structure Name	Bridge No.
1	16.98	McFadden Avenue OC	55-0268
2	17.21	Bolsa Overhead (over Union Pacific Railroad)	55-0269
3	17.75	Bolsa Avenue OC	55-1130
4	17.94	Goldenwest Street OC	55-1119
5	18.36	Navy Overhead (over the Navy Railroad)	55-0272
6	18.60	Edward Street OC	55-1117
7	19.16	Westminster Avenue OC	55-1127
8	19.38	Springdale Street OC	55-1123
9	20.56	Bolsa Chica Avenue OC	55-1113
10	20.66	Route 22/405 Separation	55-1103E
11	22.64	Seal Beach Boulevard OC	55-1099
12	24.04	605/405 Separation	55-412L

## **Existing Pavement Structural Sections**

Existing Pavement within the project limit along the I-405 corridor is generally comprised of the following:

- Existing mainline toll lane, median shoulder, and general-purpose lane are primarily comprised of Portland Cement Concrete (PCC).
- Freeway outside shoulder generally comprised of Asphalt Concrete (AC).
- Freeway widening and reconstruction from the I-405 Improvement Project (EA 0H1003) will be comprised of Continuous Reinforced Concrete Pavement (CRCP).

## **Existing Utilities**

There are several utilities that exist within the project area including overhead and underground electrical, natural gas, oil, petroleum pipeline, telephone, communication, cable TV, water, and sewer. The utility information will be investigated and confirmed during this phase. The following agencies/companies have utilities within or adjacent to the study limits:

- AT&T
- CenturyLink
- Charter Spectrum
- Chevron
- City of Huntington Beach (Water & Sewer)
- City of Long Beach (Gas & Oil)
- City of Westminster (Water & Sewer)
- City of Seal Beach (Water & Sewer)
- Crimson Pipeline
- Frontier
- Midway City Sanitation District
- Orange County Sanitary District
- Plains All American Pipeline
- Rossmoor/Los Alamitos Sewer District
- Southern California Edison
- Southern California Gas company
- Verizon (Including MCI/Sprint)
- West Orange County Water Board
- XO Communication



The project will not require positive location for high priority utilities, no test holes are needed to meet Caltrans' policy regarding high priority utilities. The excavated work requires digging within the existing limits of the pavement structure section within the roadbed. Therefore, no test holes are needed as the proposed pavement rehabilitation work will not conflict with the existing underground and aerial utilities. No utility relocations are anticipated for this project. All existing utilities will remain in place. See **Attachment K** for Utility Plan and Conflict Matrix.

### **Existing Roadside Landscape Condition**

There are approximately 80 acres of highway roadside landscaping within the project limits. The project is being prepared to address deficiencies in three main roadside areas; 30 acres of newly revegetated landscaping, 4 acres of roadside bare slope loops, and 46 acres of existing landscaping areas

The 30 acres of newly revegetated landscape (EA 12-0716U4) was completed in 2017, irrigation systems were upgraded to new sprinkler as part of the project scope. Although the irrigation central control system is operational using conventional wire controller, it is outdated and needed to upgrade with advanced 2-wire control system to reduce maintenance efforts. In addition, the landscape area requires frequent maintenance activities that would increase maintenance worker exposure to traffic. To address this issue, it is recommended to install additional maintenance vehicle access roads and maintenance vehicle pullouts (MVPs) for safe access to this area.

The 4 acres of roadside bare slopes located under S605-W22 connector (Br. No 55-0426G) and E-22-N605 connector (Br. No. 55-1097G) that were left bare from the previous project (12-0716U4). This bare slope area is susceptible to erosion during the rainy season. To address this erosion issue, permanent erosion controls are being recommended at this area. However, due to the difficult environment for installing vegetation as erosion control, inert materials such as concrete paving, rock slope protection, or rock blanket are recommended as an alternative permanent erosion control for this bare area.

The remaining 46 acres of roadside landscape facility is almost 20 years old; the life span of the planting have been reached, existing irrigation systems are in poor working order, overgrown bushes and tree groves have become vagrant camping area. There is lack of maintenance access roads to this area. To restore the roadside facility to a state of

good repair, the outdated plants would be removed and replaced with new planting, the irrigation systems would be upgraded with advanced 2-wire control system to accommodate new planting, tree pruning and vegetation clearing activities would be required in the areas where vagrant camps have taken place. Additionally, maintenance access roads and maintenance vehicle pullouts would be installed to provide safe access for maintenance worker.

#### **4. PURPOSE AND NEED**

##### **Purpose:**

The purpose of this project is to preserve and extend the life of the existing pavement and improve ride quality. In addition, it is proposed to improve roadside planting, upgrade irrigation systems, improve the roadside worker safety condition of the project area, and install WIM system.

##### **Need:**

The pavement within the project limit exhibits minor distress with poor ride condition as well as several locations show severe pavement distress. In addition, roadside landscape and irrigation system are outdated, and lack worker safety elements that need to be addressed.

#### **4A. Problem, Deficiencies, Justification**

This section of I-405 has several problems and deficiencies on the mainline and ramps. Notable deficiencies are:

1. The existing pavement has deteriorated, showing surface distress, spalling, and cracking. There is a need for replacing individual slabs that are broken and cracked and spalled areas need to be repaired.
2. Bridge approach and departure slabs at Bolsa OH (Br No. 55-0269) and Navy OH (Br No. 55-0272) are cracked and settled.
3. Existing plantings have reached life expectancy and irrigation systems are in poor working condition.
  - a) Bare slopes need irrigated planting to enhance erosion control.
  - b) Proper safety maintenance accesses are needed.
  - c) Trees growing within safety recovery zone shall be removed.
  - d) Old irrigation systems need to be upgraded.
  - e) Difficult slopes shall be treated with inert material.

- f) Highway planting rehabilitation needed due to roadway widening.
- g) Existing planted areas need to be maintained and existing irrigation systems to be updated.

#### **4B. Regional and System Planning**

In alignment with Caltrans' mission and the purpose of the State's Strategic Highway Safety Plan (SHSP) which is expected to provide a safe transportation system, the District System Management Plan (DSMP) provides working guidelines aiming to enhance a safer, more sustainable, integrated and efficient transportation system. The DSMP states that continued addition of roadway capacity alone is not a viable solution to address congestion issues. Other efforts are needed such as investments in multimodal infrastructure as well as transportation demand management.

In preparation for future mobility demands based on trends for housing, population, job growth, and finance, the 2020 SHOPP Asset Management Program refined project prioritization parameters, incorporated the Caltrans Strategic Management Plan. Under the 2020 SHOPP cycle that replaced the program specific funding allocation with a lump sum structure that incentivizes multi-objective projects.

The project aims to improve mobility and provide efficient traffic movement and safety for one of the most congested segments on I-405, providing upgrades and improvement to the existing facilities, including the pavement and roadside safety improvements.

Coordination among many other on-going projects on I-405 that overlap the project limits is critical to successfully deliver the project on schedule and within budgets. Minimizing conflicts on scopes between projects requires direct coordination between each project team. Additionally, future projects frequently have multiple alternatives under study, each with differing scope and schedule. Continuous coordination and collaboration with the following project should be in focus:

1. Multi-Asset Management Project (EA 0R330) proposes to perform cold plane and overlay of existing GP lanes on I-405 from Harbor Blvd to McFadden Ave. (PM 11.4/16.9)

## 4C. Traffic

### 4C.1 Current Traffic

The latest Annual Average Daily Traffic (AADT) on Route 405 for the project location per 2019 Traffic Volume on California State Highway System (CSH) from the Caltrans website is shown in table 4.1 below.

**Table 4.1 Annual Average Daily Traffic (AADT) and Peak Hour Volume**

Post Mile	Description	Back Peak Hour	Back Peak MADT	Back AADT	Ahead Peak Hour	Ahead Peak MADT	Ahead AADT
17.753	WESTMINSTER, BOLSA Ave/ GOLDENWEST St	19100	272000	266000	18500	268000	262700
19.156	WESTMINSTER, WESTMINSTER Ave	18500	268000	262700	17600	249000	245400
20.751	JCT. RTE. 22 EAST	18900	267000	271400	26500	385000	389400
22.643	SEAL BEACH, SEAL BEACH Blvd	26500	385000	377600	27000	396000	370100
24.044	SEAL BEACH, JCT. RTE. 605	27000	396000	381700	18100	262000	262500

### 4C.2 Collision Analysis

There are 2,143 collisions, which were reviewed as part of this project within the project limits. Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) data indicates that the accident rates were lower than the statewide average for similar types in the three-year period from October 01, 2017 to September 30, 2020. The following table summarizes accident data in both directions of I-405 from PM 16.9 to PM 24.2.

**Surveillance Analysis System (TASAS) – Table B**

Direction	Number of Accidents (MVM)			Accident Rate					
				Actual			Statewide Average		
	F	F + I	Total	F	F + I	Total	F	F + I	Total
NB	3	265	1021	0.002	0.21	0.81	0.003	0.34	1.10
SB	6	276	1122	<b>0.005</b>	0.22	0.89	0.003	0.34	1.10

A total of 1,021 accidents in the NB and 1122 accidents in the SB from the TASAS were reviewed as part of this project and are summarized below:

- NB direction: there were 66.2% Rear End, 21.6% Sideswipe, 10.0% Hit Object, 0.8% Broadside, 0.6% Overturn, 0.3% Head-on, 0.2% Auto-Pedestrian, and 0.3% Others. The collisions are caused by Speeding 63%, Other Violations 18.5%, Improper Turn 9.8%, Influence Alcohol 5.3%, Other Than Driver 2.5%, Unknown 0.5%, Follow Too Close 0.3%, and Failure to Yield 0.1%.
- SB direction: there were 64.0% Rear End, 24.6% Sideswipe, 9.5% Hit Object, 0.7% Overturn, 0.5% Broadside, 0.4% Head-On, 0.1 Auto-Pedestrian, and 0.1% Other. The collisions are caused by Speeding 60.2%, Other Violations 21.1%, Improper Turn 8.9%, Influence of Alcohol 4.7%, Other Than Driver 4.5%, Unknown 0.4%, and Follow Too Close 0.2%.

It should be noted that most of these collisions occurred in daylight and under dry roadway conditions.

**5. ALTERNATIVES**

**5A. Viable Alternatives**

Alternative 1 – Programmable Project Alternative. This project’s pavement strategy does not consider the pavement section of future I-405 Express Lanes, only lane #2, 3, 4, 5, 6, 7, and 8 are being considered in this project. HOV lane and lane #1 will be part of future I-405 Express Lanes.

### **Pavement Strategy:**

- Replace individual concrete slabs at various locations on the main-line. Slab replacement will consist of removing the concrete pavement and treated base and replacing with precast concrete slab panels and rapid strength concrete and replace base, separated by a bond breaker.
- Replace approach and departure slabs on Bolsa OH (Br. No 55-0269) and Navy OH (Br. No 55-0272). See **Attachment L** for Advanced Planning Study APS Transmittal Memo.
- Repair corner cracking.
- Repair spalls by using polyester concrete.
- Apply crack seal to all first stage cracking.
- Replace all loop detectors and connections as needed.
- Restripe traffic stripes and traffic delineations to their original condition.
- Perform localized pavement grinding.

Below improvements are proposed as part of the multi-asset project:

### **Roadside Landscape Rehabilitation:**

- Remove and replace outdate planting.
- Plant ground cover on bare soil area to improve slope stabilization.
- Upgrade existing irrigation systems to accommodate new planting.

### **Roadside Safety Improvement:**

- Install 2 new maintenance vehicle access roads to provide access to new facilities.
- Install 8 new maintenance vehicle pullouts.

- Install 15 drive gates at existing and new maintenance vehicle access roads.
- Install ladder marked crosswalks at ramp intersections.
- Repair 3 existing maintenance vehicle access roads and install additional aggregate base at 12 locations.
- Install inert material as slope stabilization and sediment erosion control measure at 12 bare roadside slopes. The inert material construction includes rock blanket, concrete slope paving, rock slope protection.
- Install Wrong-Way Prevention Package for off-ramps.
- Install Curve Warning Sign Package on curves.

#### **Weigh-in-Motion System:**

It is proposed to install a Weigh-In-Motion (WIM) System and enforcement cameras on southbound I-405 (PM 22.64) to capture truck traffic coming from Los Angeles direction.

- Install Weigh-In-Motion (WIM) Sensors on general purpose lane # 3, 4, 5, 6 and 7 at PM 22.64 in southbound direction on I-405.
- Mount enforcement cameras on posts attached to the bridge concrete barrier of the Seal Beach Boulevard OC to work with WIM system.

#### **Design Standards and Deviations from Design Standards:**

The scope of the proposed pavement rehabilitation project does not create new nonstandard design features and therefore, a design standard decision document is not required for this project.

#### **5B. Rejected Alternatives**

No Build Alternative:

The No-Build alternative would maintain the facility in its current

condition. No improvements would be implemented; therefore, no capital cost is associated with this alternative. This alternative would not satisfy the purpose and need.

## **6. CONSIDERATIONS REQUIRE DISCUSSIONS**

### **6A. Hazardous Waste**

An Aerially Deposited Lead (ADL) Investigation was requested from Environmental Engineering Branch. The investigation was performed by Stantec. Five borings were advanced with samples collected at four depths: surface to 0.5 feet below ground surface (bgs), 1.0 to 1.5 feet bgs, 2.0 to 2.5 feet bgs, and 3.5 to 4.0 feet bgs. Elevated lead was reported in several samples with the highest concentrations in 2 of the five borings. One sample reported total lead above the California Total Threshold Limit Concentration (TTL). Six samples reported Cal WET above the California Soluble Threshold Limit Concentration (STLC) of 5 mg/L. None of the samples reported Toxicity Characteristic Leaching Potential (TCLP) soluble lead above 5 mg/L. Considering ALL the data received, the project soils to 4 feet may be managed as Type R1 or Z2. The result of the findings and recommendations of the ADL report shall be included in the PS&E package.

### **6B. Value Analysis**

A value analysis (VA) study was conducted from October 25<sup>th</sup>, 2021 – October 28<sup>th</sup>, 2021, during the early stage of PA/ED phase. The VA team was formed from members of Caltrans representatives including Roadway Design, Materials Engineering, Project Quality Control, Landscape Architects, Traffic Operations, Maintenance Engineering, Safety Engineers, Environmental Planning, and Structural Design. The VA team utilized the framework of Value Metric Process to identify alternatives and design suggestions to improve project value. Below are the recommendations from the VA team and the final dispositions.

#### **Alternative 1: Use Rapid Set Concrete In Lieu of Rapid Strength and Pre-cast Panels**

Alternative 1 was proposed to improve the productivity rate for concrete panel replacement while accelerating the overall construction schedule. The initial cost savings of alternative 1 is approximately \$14.1 million with reduction in construction schedule by 60 days. The overall



performance will be improved by 9.8% with 36.3% improvement in value.

In the Project Development Team (PDT) meeting, Design, Maintenance Engineering, and the Material Engineering team expressed the concern for the factual cost savings of \$14.1 million when the pavement structural cost is only \$15.5 million. Additionally, the strength of rapid set concrete is subpar compared to precast panels. The Maintenance Team concurred that precast panels improve longevity of panels and reduce frequent trips needed for maintenance and repair. Ultimately, the PDT team reached consensus to reject alternative 1 and stay with rapid strength concrete for random slab replacement and precast concrete panels for lane replacement as outlined in the project report.

### **Alternative 2: Grind Project After Slab Replacement**

Alternative 2 was proposed to provide smooth pavement, improve ride quality, improve pavement longevity, and reduce noise pollution to nearby residents. The initial impact of alternative 2 is approximately \$4.1 million increase in cost with increase in construction schedule by 100 days. The overall performance will be improved by 12.2% with 1% improvement in value.

In the PDT meeting, Design, Maintenance, and the Materials team voiced concern regarding current thickness of existing pavement and potentially exposing rebar to the traffic because the pavement was grinded a few times in the past. Therefore, the consensus from the PDT team was to reject the project-wide grinding after slab replacement and instead perform localized grinding in areas that were impacted by slab replacement.

### **Alternative 3: Retain Existing Irrigation Controller**

Alternative 3 was proposed to reduce labor and material cost associated with replacing existing irrigation controller while improving sustainability by reusing the existing irrigation controllers. The initial cost saving of alternative 3 is approximately \$250,000 with no change in construction schedule. The overall performance will be reduced by 9.8% with 36.3% reduction in value.

In the PDT meeting, the Landscape team expressed that the existing landscape location requires the replacement of a large amount of PVC pipes. The conventional irrigation system requires a separate wired

connection to each controller, which will increase the amount of copper wires and the cost for repair and maintenance. The two-wired system will reduce material costs such as copper and controllers. Furthermore, the two-wired system will create ease of expansion by splicing two wires into decoders to create new zones that can create multiple path support. Lastly, the two-wired system would reach remote valve locations and give more irrigation design options. Therefore, the conclusion was to reject alternative 3 to retain existing irrigation controllers.

A final value analysis study report was provided on December 20<sup>th</sup>, 2021 to summarize and highlights the study and final disposition. See **Attachment J** for Final Value Analysis Study Report.

## **6D. Right-of-Way Issue**

### **6D.1 Right-of-Way Acquisition**

All proposed work is within the state's right-of-way and the acquisition of fee or temporary construction easements are not needed. Additionally, there are no Environmental Permits or Mitigation that are Right of Way cost obligations associated with this project. See **Attachment E** for Right-Of-Way Data Sheet.

### **6D.2 Utility Involvement**

This project will not require public utilities relocations, as all existing utility facilities are determined not to conflict with the proposed work and are to remain in place. No utility relocations are anticipated for this project. No test holes are needed to meet Caltrans' policy regarding high priority utilities and no test holes are needed to determine utility conflicts.

### **6D.3 Railroad Involvement**

There are two railroad crossings within the project limits. I-405, Union Pacific Railroad – Bolsa OH, Br #55-269, PM 17.21/17.24, City of Huntington Beach & SR-405, US Navy Railroad – Navy OH, Br #55-272, PM 18.36/18.39, City of Huntington Beach. No railroad involvement is necessary as there is no proposed work within 25 feet of any railroad track. However, an Office of Engineer Railroad Clearance Memo is required which contains railroad short clauses that must be inserted into the Specifications.

#### **6D.4 Airspace Lease Areas**

No potential airspace lease areas have been identified for this project.

#### **6D.5 Relocation Impact Study**

It has been determined there are no impacts to owners, tenants, businesses, or persons in possession of real property to be acquired who would qualify for relocation assistance benefits or entitlements under the Uniform Relocation Assistance and Real Property Act of 1970. Therefore, a Relocation Impact Document is not needed.

### **6E. Environmental Compliance**

Effective March 30, 2017, Caltrans continues to assume FHWA responsibilities under NEPA, pursuant to the 23 USC 326 MOU, and the 23 USC 327 MOU, and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

The environmental document for this project is a categorical exemption (Class 1 (d)) under the California Environmental Quality Act (CEQA) and a categorical exclusion (23 USC 326, 23 CFR 771.117 (d) activity (d)(2)) in accordance with the provisions of the National Environmental Policy Act (NEPA). See **Attachment D** for Category Exemption/Categorical Exclusion Determination / Mitigation and Compliance Cost Estimate (MCCE).

### **6F. Air Quality Conformity**

According to the Environmental Protection Agency's (EPA) Transportation Conformity Regulations final rule dated March 24, 2010, pavement resurfacing and/or rehabilitation, shoulder improvements, widening narrow pavements or reconstructing bridges, and guardrail, median barrier projects as listed in Table 2 of Code of Federal Regulations (CFR) Title 40 Section 93.126 are exempt projects. These exempt projects do not require any hot spot analysis for conformity purposes. Project sub-

mittal to the Transportation Conformity Working Group (TCWG) for Interagency Consultation is not required. Air Quality analysis is not needed.

Construction work will generate fugitive dust emissions and construction equipment emissions during the construction phase. The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9(2018) and South Coast Air Quality Management District (SCAQMD) Rules and Regulations during the construction for reducing impacts from construction activities. The total estimated equivalent CO<sub>2</sub> (CO<sub>2</sub>e) from the construction of this project is 1,546 Metric ton (MT).

### **6G. Title VI Consideration**

Under Title VI of the Civil Rights Act of 1964 and related statutes, Caltrans ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

### **6H. Noise Abatement Decision Report**

This project is not a Type I project, therefore there are no impacts to noise and no requirement for a Noise Abatement Decision Report.

### **6I. Life-Cycle Cost Analysis**

Life Cycle Cost Analysis would not be needed. The project proposes basic replacement of individual concrete slabs with precast concrete panels and rapid strength concrete at various locations on the mainline with the same thickness as existing pavement. A Materials Report will be provided in PS&E.

### **6J. Reversible Lanes**

This project does not qualify as a capacity increasing nor a major street or highway realignment project. Therefore, reversible lanes are not considered.

## **6K. Stormwater / NPDES Permit Compliance / Water Quality**

The limit of the proposed project is under the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB Region No. 8) and Los Angeles Regional Water Quality Control Board LARWQCB Region No. 4).

The receiving water bodies within the project limits are Anaheim Bay – Huntington Harbor Watershed and San Gabriel Coyote Creek Watershed through their tributaries Westminster Channel, Bolsa Chica Channel, Barber City Channel, Los Alamitos Channel and San Gabriel River. Bolsa Chica Channel is 303(d) listed and impaired with Ammonia (Unionized), Indicator Bacteria and pH. San Gabriel River is 303(d) listed and impaired with Copper, Dioxin, Indicator Bacteria, Nickel and Dissolved Oxygen.

Caltrans is a named stakeholder of San Gabriel River for TMDL of Metals (Cu, Pb, Zn) and Selenium) per Caltrans TMDL Reach Prioritization Ranking Table.

This project must conform to all applicable water quality regulations and/or permit requirements of the State Water Resources Control Board (SWRCB), and the local Santa Ana and Los Angeles Regional Water Quality Control Boards (RWQCBs), which include, but are not limited to, the Caltrans Statewide NPDES Permit (Order No. 2012-0011-DWQ, NPDES No. CAS000003 as amended in Order No. 2014-0077-DWQ), the Statewide General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and 2012-0006-DWQ NPDES No. CAS000002), the Caltrans Storm Water Management Plan (SWMP) and any subsequent revisions and/or additional requirements at the time of construction. Dewatering might be expected during the excavation process. The information on groundwater elevation will be available in the Geo-Technical Report during PS&E phase. Should dewatering be required, dewatering must comply with Santa Ana Regional Water Quality Control Board Order No. R8-2020-0006, NPDES Permit No. CAG998001 for general waste discharge requirements for groundwater extraction discharges to surface waters within the Santa Ana region.

The project limits are also within a Significant Trash Generating Area (STGA) as identified in the Caltrans Trash Implementation Plan submitted to the State Water Resources Control Board (SWRCB) to comply with the Statewide Trash Provisions (SWRCB Resolution No. 2015-0019).

Caltrans has committed to the SWRCB that roadways identified as STGA's will implement "Full Trash Capture" devices by the year 2030. To meet the Caltrans Statewide Trash Implementation Plan, the project will incorporate Full Trash Capture devices within the STGA in the project limits to comply with the SWRCB Trash Provisions.

The estimated total Disturbed Soil Area (DSA) for this project is 2.04 acres (>1.0 acre), which will require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to comply with the National Pollutant Discharge Elimination System (NPDES) Statewide Construction General Permit (CGP). The SWPPP will identify and implement temporary Best Management Practices (BMPs) during construction to address the temporary impacts to water quality.

This project requires the preparation of a Long Form - Storm Water Data Report (SWDR) as per the guidelines given in the Project Planning and Design Guide (PPDG) – Appendix E dated July 2017. Based on the current information available, the project is exempt from implementation of any Treatment BMPs. A Long Form - SWDR for PA&ED Phase has been prepared for this project and a copy of signed cover page is included as **Attachment F** Storm Water Data Report – Signed Cover Sheet. All applicable Construction Site BMPs will be identified in the SWDR and updated as the project progresses into PS&E Phase."

## **7. OTHER CONSIDERATIONS AS APPROPRIATES**

### **7A. Public Hearing Process**

No public hearing process is anticipated.

### **7B. Route Matters**

Amendments to existing Maintenance Agreements between Caltrans and various local cities/agencies along the project corridor are not required.

### **7C. Permits**

No permits are anticipated.

#### **7D. Cooperative Agreements**

No Cooperative Agreements are anticipated.

#### **7E. Other Agreements**

Several transportation agencies will be involved in the project development, construction, and coordination, including OCTA, County of Orange, and the Cities of Huntington Beach, Westminster, Garden Grove and Seal Beach. Construction related and other necessary agreements will be developed as required by the project and may involve other local agencies in vicinity of the project corridor. New or amendments to existing Maintenance Agreements between Caltrans and various local cities/agencies along the project corridor may be required.

#### **7F. Report of Feasibility of Providing Access to Navigable Rivers**

Not Applicable

#### **7G. Public Boat Ramps**

Not Applicable

#### **7H. Transportation Management Plan**

The TMP would be required for this project due to the expected impact on the traffic during construction. The TMP would identify methods to reduce traffic delay, maintain traffic flow, and provide a safe environment for the work force and motoring public. A traffic analysis should be performed as part of the TMP to evaluate the potential impact that the project will have on the traffic and identify the benefit of implementing a TMP. Elements expected to be recommended or discussed in the project TMP include:

- Automated Work Zone Information System (AWIS)
- Construction Freeway Service Patrol (FSP)
- Contingency Plans (Equipment Breakdown, Adverse Weather Conditions, Delay Construction Operations, Unavailable Materials)
- COZEEP/CHP and/or Local Agencies Support
- Emergency Action Plan
- Fixed and Portable Changeable Message Signs

- Public Awareness Campaign
- Reduce Speed Zone
- TMP Coordination & Review
- Traffic Detour for All Travelers
- Transportation Management Center (TMC)
- Traffic Management Team

Most of the construction will require night work to avoid traffic delay. Final TMP Data Sheet and Lane Requirement Charts are included in this document. See **Attachment H & Attachment I** for Lane Requirement Charts and TMP Data Sheet.

### **7I. Stage Construction**

Staging of construction will be required for all work proposed and will be addressed in detail during the PS&E phase of the project. Slab replacement, and spall repair all will be accommodated utilizing a series of overnight closures. To facilitate traffic during construction, Stage Construction Details and Detour Plans will be developed during PS&E phase of the project.

### **7J. Accommodation of Oversized Loads**

I-405 is on the U.S. Department of Defense Rural Interstates and Single Routing in Urban Areas routes for which a 16-foot minimum vertical clearance is required. The proposed improvements associated with this project are not expected to permanently affect the movement of oversized loads.

### **7K. Graffiti Control**

The project is in the urban area of Orange County, which is an identified graffiti-prone area in the Caltrans Project Development Procedures Manual, Appendix K. All measures will be taken during construction to remove any graffiti occurring during construction.

### **7L. Asset Management**

During the Pre-PID phase of the project, the performance objective identified by Headquarter SHOPP manager and entered the SHOPP tool included:



- Mainline Pavement Rehabilitation 79.8 Lane-Miles
- Roadside Rehabilitation 59 Acres
- Improve Roadside Safety 53 Locations
- Traffic Management System 1 Location

See **Attachment M** for Asset Management Tool Performance Table.

**Table: Performance Objectives**

Activity Detail	Performance Objective	Unit of Measurement	Quantity	Asset Conditions				Comments
				Good	Fair	Poor	Newly Added	
Mainline Existing Concrete Pavement Rehabilitation (201.121)	Pavement Class 1	Lane-Miles	79.8		79.0	0.8		From PM 16.9 to 24.2
Planting (201.210,220)	Roadside Rehabilitation	Acre	59	59				Replace Outdated planting and upgrade Irrigation systems
Worker Safety -- Safe Access (201.235)	Roadside Safety Improvements	Location	53	53			14	12 new maintenance vehicle pullouts and 2 new maintenance vehicle access roads
Weigh-In-Motion System (201.321)	Weigh-In-Motion Scales	Each	1				1	On South-bound I-405 PM 22.64

All performance objectives listed above are consistent with the Transportation Asset Management Plan, Ten Year SHOPP Plan, Ten-Year Project Book, and Five-Year Maintenance Plan.

**7M Complete Streets**

There are opportunities for Complete Streets improvements within the project area.

Pedestrian Facilities

<b>Facility Type and Location</b>	<b>Meet ADA Standards?</b>	<b>If Facility Does Not Meet ADA Standards, What Features Are Not ADA Compliant</b>	<b>Status of Each Noncompliant Location</b>
Curb Ramps: I-405 & Westminster Boulevard (PM 19.13) Southbound off ramp	No	Curb Ramp	Will be corrected by I-405 Improvement Project (0H1003)

Other Pedestrian Concerns

<b>Location (Station, post mile limits or other reference points)</b>	<b>Deficiencies</b>
I-405 & Beach Boulevard (PM 16.62) Northbound on and off ramps	Add LED lighting and upgrade pedestrian crossing signs high performance Retro-Reflective Sheeting. The improvement is being addressed by the I-405 Improvement Project. (0H1003)
I-405 & Westminster Boulevard (PM 19.13) Southbound off ramp	Due to I-405 improvement project the bridge is being reconstructed at this location. Improved pedestrian crossing at I-405 Southbound Off-ramp will be addressed by the I-405 Improvement Project. Mainly signing and striping. (0H1003)
General	Upgrade pedestrian push buttons and “walk” signals. The improvement is being addressed by the I-405 Improvement Project. (0H1003)

**7N. Climate Change Considerations**

Greenhouse Gas (GHG) emission analysis has determined this project to be qualitative and will not require implementation of the Federal Highway Administration Infrastructure Carbon Estimator tool to calculate GHG emissions. However, strategies to reduce GHG emissions will be considered to comply with the climate change requirements under Executive Order B-30-15.

This project is not expected to result in increased operational emissions as no additional roadway capacity will be added. Construction emissions are unavoidable but will be reduced to the extent possible through planning and implementation of best practices throughout the project delivery process.

Qualitative strategies for reducing GHG emissions, if appropriate, include reduction of roadway construction waste, applying fuel efficient measures both for construction equipment and traffic management during delays or detours, using energy and water efficient construction methodologies, and recommending that material within a local radius of the project area and/or locally available building material be utilized.

## **70. Broadband and Advance Technologies**

- **Broadband**

Base on Caltrans policy, external stakeholders can use information from the list of proposed transportation projects on the State Highway System as listed below

<http://www.dot.ca.gov/wiredbroadband/> to determine if there are opportunities to partner with Caltrans on projects. There are no known external stakeholders interested in partnering with Caltrans on I-405 improvement project at this phase.

- **Fueling**

Accommodating of fueling opportunities for zero-emission vehicles is not anticipated in this project. Construction of any charging stations would require extensive R/W acquisition as they need to be constructed outside the state R/W. Furthermore, there are two (2) charging stations within project proximity and three other charging stations nearby, which are I-5/I-405, SR73/I-405, and SR 133/I-405, that is adequate for tourist and employee use.

- **Vehicle-to-Infrastructure (V2I) Technologies**

Accommodation of the V2I technologies is not anticipated in this project. Construction of the back-office system development center as well as the communication backhaul infrastructure necessary for the installation of the V2I technologies would require extensive R/W acquisition as it needs to be constructed outside state R/W.

## 8. FUNDING, PROGRAMMING AND ESTIMATE

### 8A. Funding

The escalated cost of this project is estimated at \$64,000,000 and it will be funded by the SB-1 program. This project was amended into the 2020 SHOPP. It has been determined that this project is eligible for Federal aid funding.

### 8B. Programming

**Table 8.1** presents the escalated capital outlay and support cost estimates in each fiscal funding year. A 3.2% annual escalation factor is used for construction costs, and 3.0% is used for support costs, which are escalated to the mid-point of each component. The funds will be allocated in the first year of each phase of development.

**Table 8. 1 Estimated Capital Outlay and Support Costs**

Fund Source	Fiscal Year Estimate for the Programmable Alternative									
	Current	19/20	20/21	21/22	22/23	23/24	24/25	25/26	Future	Total
Component	In thousands of dollars (\$1,000)									
PA&ED Support	\$2,689		\$3,146							\$3,146
PS&E Support	\$4,306			\$5,016						\$5,016
Right-of-Way Support	\$18					\$21				\$21
Construction Support	\$5,513					\$6,450				\$6,450
Right-of-Way Construction	\$43,523					\$49,367				\$49,367
<b>Total</b>	<b>\$56,049</b>		<b>\$3,146</b>	<b>\$5,016</b>		<b>\$55,838</b>				<b>\$64,000</b>

\*Values are escalated to the funding year for each component.  
 The escalated support/capital cost ratio is 30%

### 8C. Estimates

The current capital outlay cost for this project is estimated at \$43,523,000 and the current capital outlay support cost is estimated at \$12,526,000. The total escalated project cost to be programmed is estimated at \$64,000,000. The project cost estimate is included in this document as **Attachment C** for Cost Estimate.

## 9. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Actual)
IDENTIFY NEED	M000	07/16/2018	07/16/2018
BEGIN FUNCTIONAL PID COMPONENTS	M003	02/15/2019	02/15/2019
DRAFT FOR DISTRICT CIRCULATION & REVIEW	M006	05/15/2019	05/15/2019
FINAL DRAFT FOR EXECUTIVE REVIEW	M009	06/15/2019	06/15/2019
APPROVE PID	M010	06/27/2019	06/27/2019
PROGRAM PROJECT	M015	06/19/2020	06/19/2020
BEGIN ENVIRONMENTAL	M020	09/01/2020	09/01/2020
APPROVE FED	M160	02/01/2022	
PA & ED	M200	02/01/2022	
BEGIN STRUCTURE	M210	02/02/2022	
RIGHT OF WAY REQUIREMENT	M224	02/02/2022	
DESIGN SAFETY REVIEW	M310	07/30/2023	
95% CONSTRUCTIBILITY REVIEW COMPLETED	M315	01/06/2023	
PS&E TO DOE	M377	02/01/2024	
RIGHT OF WAY CERTIFICATION	M410	01/12/2024	
READY TO LIST	M460	06/03/2024	
FUND ALLOCATION	M470	09/01/2024	
CONSTRUCTION CONTRACT PACKAGE SUBMITTED TO DES-DOE FOR ADVERTISEMENT	M475	10/01/2024	
HEADQUARTERS ADVERTISE	M480	10/01/2024	
BIDS OPEN	M490	12/01/2024	
AWARD	M495	01/04/2025	
APPROVE CONTRACT	M500	02/01/2025	
OPEN TO TRAFFIC	M580	02/01/2027	
CONTRACT ACCEPTANCE	M600	03/01/2027	
FINAL REPORT	M700	10/02/2027	
END PROJECT EXPENDITURES	M800	01/15/2029	
FINAL PROJECT CLOSEOUT	M900	01/15/2030	

## 10. RISKS

A quantitative risk register was prepared on September 8, 2021 that identifies 7 potential risks for the proposed project. See **Attachment G**

for Risk Register. It was determined the risk with the greatest potential impact is:

- As the result of additional failed slabs needing to be replaced, exceed the anticipated 20%, the project cost may increase.
  - a. This potential risk will increase the calculated contingency cost to \$1,634K and increase the number of working days by 12 days.
- Additional fund may be requested to cover the increase cost as result of increased failed slab or adjustment of current slab count.
- A risk adjusted amount has been included at this phase.

## **11. EXTERNAL AGENCY COORDINATION**

### **Federal Highway Administration (FHWA)**

This project is an Assigned Project in accordance with the current Federal Highway Administration (FHWA) and Department of Transportation (Caltrans) Joint Stewardship and Oversight Agreement. It is exempt from FHWA review.

Coordinate with Orange County Transportation Authority (OCTA) to minimize traffic impacts with the new I-405 express lanes during construction. It is anticipated that coordination with OCTA and other cities along the corridor will be required during the next phase of the project.

### **The project may require the following coordination:**

#### Local Agency

Coordination with OCTA and all local cities within the project limit.

**12. PROJECT REVIEW**

Scoping team Design:	Hazel Lam, Bala Nanjappa	Date	09/30/2021
District Program Advisor:	Bala Nanjappa	Date	09/30/2021
District Safety Program Advisor:	Bryan Sorensen	Date	09/30/2021
District Maintenance:	Bala Nanjappa	Date	09/30/2021
Project Manager:	Lima Saft	Date	01/19/2022
District Safety Review:	Thuan Nguyen	Date	01/06/2022
Constructability Review:	Robert Zordani	Date	09/30/2021
Project TMP Review:	Calvin La	Date	09/30/2021
District Materials Engineer:	Mehrdad Mahdavian	Date	09/30/2021
District Traffic Engineer:	Jose Hernandez	Date	09/30/2021

**13. PROJECT PERSONNEL**

<b>Name</b>	<b>Title</b>	<b>Division/Office</b>	<b>Phone Number</b>
Lima Saft	Project Manager	Project Delivery/ Corridor Project Management	858-518-3912
Henry T Nguyen	Design Branch Chief	Project Delivery/ Corridor Project Management	858-251-2281
Jeff Huang	Project Engineer	Project Delivery/ Corridor Project Management	
Jose Hernandez	Branch Chief	Traffic Operations	657-328-6432
Smita Deshpande	Branch Chief	Environmental Analysis	657-328-6151
Iffat Qamar	Environmental Planner	Environmental Analysis	657-328-6160
Eric Dickson	Branch Chief	Landscape Architecture	657-328-6201
Bala Nanjappa	Senior Transportation Engineer	Maintenance Engineering	949-279-8840
Mehrdad Mahdavian	Transportation Engineer	Project Delivery/ Design Material & Research	657-328-6333
Bryan Sorensen	Traffic Safety Advisor	Traffic Operations/ Safety Review	657-328-6431

Thuan Nguyen	Safety Review Committee Chair	Traffic Operations/ Safety Review	657-328-6454
Robert Zordani	Constructability Reviewer	Project Delivery/ Construction Administration Project Quality Control	657-328-6056
Calvin La	TMP Coordinator	Traffic Operations	657-328-6415
Cesar Sanchez	Structural Technical Liaison	DES	916-639-5923
Evangelina Washington	Branch Chief	R/W Project Coordination & R/W P&M	657-328-6349
Mohsen Zadeh	Transportation Engineer	Traffic Operation/ Traffic Manage- ment	949-279-9506
Phi Duong	Transportation Engineer	Maintenance Engineering/ HM Project Engineering	619-576-4231
Hazel Lam	Transportation Engineer	Maintenance Engineering	657-328-6609
Ying Bian	Transportation Engineer	Environmental Analysis/NPDES	657-328-6144
John Nowak	Landscape Architect	Project Delivery/ Design Landscape Architecture	949-279-8511
Carmel Kalapurayil	Transportation Engineer	Project Delivery/ Corridor Project Management	858-251-2284