MacArthur Maze Vertical Clearance Project

ALAMEDA COUNTY, CALIFORNIA
DISTRICT 4 – ALA – 80 (PM 2.8)/580 (PM 46.5R & 46.5L)/880 (PM 34.5L)
4K810/0417000363

Initial Study with Proposed Negative Declaration/ Environmental Assessment

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 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Caltrans

JANUARY 2019

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General Information about This Document

What's in this document:
The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study/Environmental Assessment (IS/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed MacArthur Maze Vertical Clearance Project (project) located in the City of Oakland, in Alameda County. 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 we have 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.

What you should do:
Please read this document.
Additional copies of this document and related technical studies are available for review at California Department of Transportation, District 4, 111 Grand Avenue, Oakland, CA 94612.
Additional copies of this document are available for review at the following locations:

- Oakland Public Library: West Oakland Branch- 1801 Adeline Street, Oakland, CA 94607
- Golden Gate Branch Library- 5606 San Pablo Avenue, Oakland, CA 94608

This document may be downloaded at the following website: http://www.dot.ca.gov/d4/envdocs.htm.

We would like to hear what you think:
Attend the public hearing in an open forum format on February 28, 2019 from 6-8 PM at the Caltrans District 4 Office – 111 Grand Avenue, Oakland, CA 94612-3717.

Attend the online public meeting at http://www.dot.ca.gov/d4/macarthurmazeproject from March 1 to 15, 2019. If you have any comments about the proposed project, please send your written comments to Caltrans by the deadline, March 15, 2019.

Send comments via postal mail to:
Rebecca De Pont, Associate Environmental Planner
California Department of Transportation, District 4
PO Box 23660, MS 8B, Oakland, CA 94623

Send comments via email to: MacArthurMaze@dot.ca.gov
Be sure to send comments by the deadline, March 15, 2019.

What happens next:
After comments are received from the public and reviewing agencies, Caltrans, as assigned by the FHWA, may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is obtained, Caltrans could design and construct all or part of the project.

Alternative Formats:
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 call or write to California Department of Transportation, Attn: Rebecca De Pont, Office of Environmental Analysis/Mail Station 8B, Department of Transportation District 4, 111 Grand Avenue, Oakland, CA 94612; (510) 622-0803 (Voice), or use the California Relay Service: 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

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FHWA Highway ID No.

SCH#
4 – ALA – 80 (PM 2.8)
4 – ALA – 580 (PM 46.5R & 46.5L)
4 – ALA – 880 (PM 34.5L)
4K810/0417000363

Increase Vertical Clearance at three locations within the MacArthur Maze on Interstate 80 (I-80), Interstate 580 (I-580), and Interstate 880 (I-880) at various Postmiles in Alameda County

INITIAL STUDY WITH PROPOSED NEGATIVE DECLARATION/ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S.C. 4332(2)(C)
THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies: California Transportation Commission

1/15/19
Date of Approval

TONY TAVARES
District 4 Director
California Department of Transportation
NEPA/CEQA Lead Agency

The following person may be contacted for more information about this document:

California Department of Transporation
Attn: Rebecca De Pont
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111 Grand Avenue
Oakland, CA 94612

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PROPOSED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to increase vertical clearance for freight vehicles to the current Caltrans standard of 16 feet and 6 inches at three locations in the Oakland MacArthur Maze in Alameda County.

Determination

This proposed Negative Declaration (ND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an ND for this project. This does not mean that Caltrans' decision regarding the project is final. This ND is subject to change based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on Agriculture and Forest Resources, Air Quality, Cultural Resources, Hazards and Hazardous Materials, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Recreation, Transportation/Traffic, Tribal Cultural Resources, Utilities and Service Systems, and Mandatory Findings of Significance.

In addition, the proposed project would have less than significant effects to Aesthetics, Biological Resources, Geology and Soils, Hydrology and Water Quality, and Noise.

_____ _____

TONY TAVARES
District Director
District 4
California Department of Transportation

Date

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Chapter 1 – Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes the MacArthur Maze Vertical Clearance Project (project or proposed action) to increase the vertical clearances at three locations within the MacArthur Maze Interchange (MacArthur Maze or Maze) in the City of Oakland, Alameda County (Figure 1-1). Two of the locations are along the connector from westbound (WB) Interstate 80 (I-80) to southbound (SB) Interstate 880 (I-880), as it crosses below the WB and eastbound (EB) Interstate 580 (I-580) overcrossings. The third location is along the connector from WB I-80 to EB I-580 as it crosses below the connector from WB I-580 to WB I-80. The existing vertical clearance at these three locations does not meet the current Caltrans standard of 16 feet 6 inches and impedes the safe and efficient movement of oversized vehicles and loads through the Maze. The project is proposed to increase the vertical clearance of the structures in the Maze to allow for more efficient travel of oversized vehicles.

The MacArthur Maze is located approximately one mile east of the San Francisco-Oakland Bay Bridge (Bay Bridge) toll plaza and within one mile of the Port of Oakland. The Port of Oakland loads and discharges more than 99% of containerized goods moving through Northern California and is the seventh busiest container port in the United States based on Calendar Year 2016 data. The proposed project would facilitate the movement of goods to and from the Port of Oakland. The MacArthur Maze connects three major freeways: I-80, I-580, and I-880. The connectors serve approximately 250,000 vehicles daily based on Caltrans traffic counts and provide connectivity throughout the Bay Area. The limits of the proposed project are depicted on Figure 1-2.

The project is funded by the 2017 State Highway Operation and Protection Program under the Bridge Rehabilitation Program 201.322 through the environmental phase. While the proposed project is not included in the 2015 Federal Statewide Transportation Improvement Program (FSTIP), it is included in the Metropolitan Transportation Commission's (MTC's) Transportation Improvement Program (TIP) Bridge Rehabilitation and Construction- SHOPP Program TIP ID VAR 170010. The project is included in Caltrans' Accelerated Freight Corridor Bridge Improvement Program.

This Initial Study/Environmental Assessment (IS/EA) discusses four build alternatives and the no-build alternative. The four build alternatives are to either lower, raise, partially replace, or partially reconstruct existing bridge structures. These alternatives are discussed in Section 1.4.2.

1.1.1 NEPA Assignment

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 U.S. Code (USC) 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding (MOU) pursuant to 23 USC 327 (NEPA Assignment MOU) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012 and was renewed on December 23, 2016 for a term of five years. Under the NEPA Assignment MOU, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With the

NEPA Assignment MOU, the FHWA assigned, and Caltrans assumed, all of the U.S. Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions (CEs) that the FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

Caltrans, as assigned by FHWA, is the federal lead agency under the National Environmental Policy Act (NEPA) for this project. Caltrans is also the state lead agency under the California Environmental Quality Act (CEQA) for this project.

Figure 1-1 Location Map

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the project is to remedy vertical clearance deficiencies at three locations within the MacArthur Maze that impede the safe and efficient movement of freight vehicles through the interchange.

1.2.2 Need

Roadway Deficiencies

The proposed project is needed to remedy the vertical clearance deficiencies found at three locations within the MacArthur Maze to allow for freight and oversized vehicles to travel through these major connectors to and from areas such as the Port of Oakland. The current Caltrans vertical clearance standard is 16 feet 6 inches. Within the Maze, there are currently three locations that do not meet this standard, depicted in Figure 1-2. At present, the connector from WB I-80 to EB I-580 has 14 feet 9 inches of vertical clearance as it passes under the WB I-580 to WB I-80 connector. The connector from WB I-80 to SB I-880 has a vertical clearance of 15 feet 3 inches as it passes under the WB I-580 to WB I-80 connector, and a vertical clearance of 15 feet 6 inches as it passes under the EB I-80 to EB I-580 connector, as depicted in Figure 1-2 which shows the current clearance. The vertical clearance must be increased to the current Caltrans standard in order to correct these deficiencies.

1.3 Independent Utility and Logical Termini

Federal Highway Administration (FHWA) regulations (23 Code of Federal Regulations [CFR] 771.111 [f]) require that the proposed action being evaluated would:

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

Logical termini for project development are defined as rational end points for a transportation improvement, and rational end points for a review of the environmental impacts. The environmental impact review frequently covers a broader geographic area than the strict limits of the transportation improvements. The project limits extend on I-80 between postmile (PM) 3.0 and 3.5, on I-580 between PM 46.5 and 46 and on I-880 between PM 35.0 and 35.3. The limits of the proposed project are depicted on Figure 1-3. The MacArthur Maze is an interchange of regional significance, leading to and from the Bay Bridge and is a major link in transporting freight to and from the Port of Oakland.

The proposed project has independent utility in and of itself and would not restrict other reasonably foreseeable transportation improvements nor trigger new transportation projects. An independent utility analysis focuses on whether a project is a standalone project, that is, if no other project is contemplated, the project serves a distinct purpose or function.

1.4 Project Description

This section describes the proposed action and the project alternatives that were developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The alternatives are Alternative A: Bridge Lowering, Alternative B: Bridge Raising,

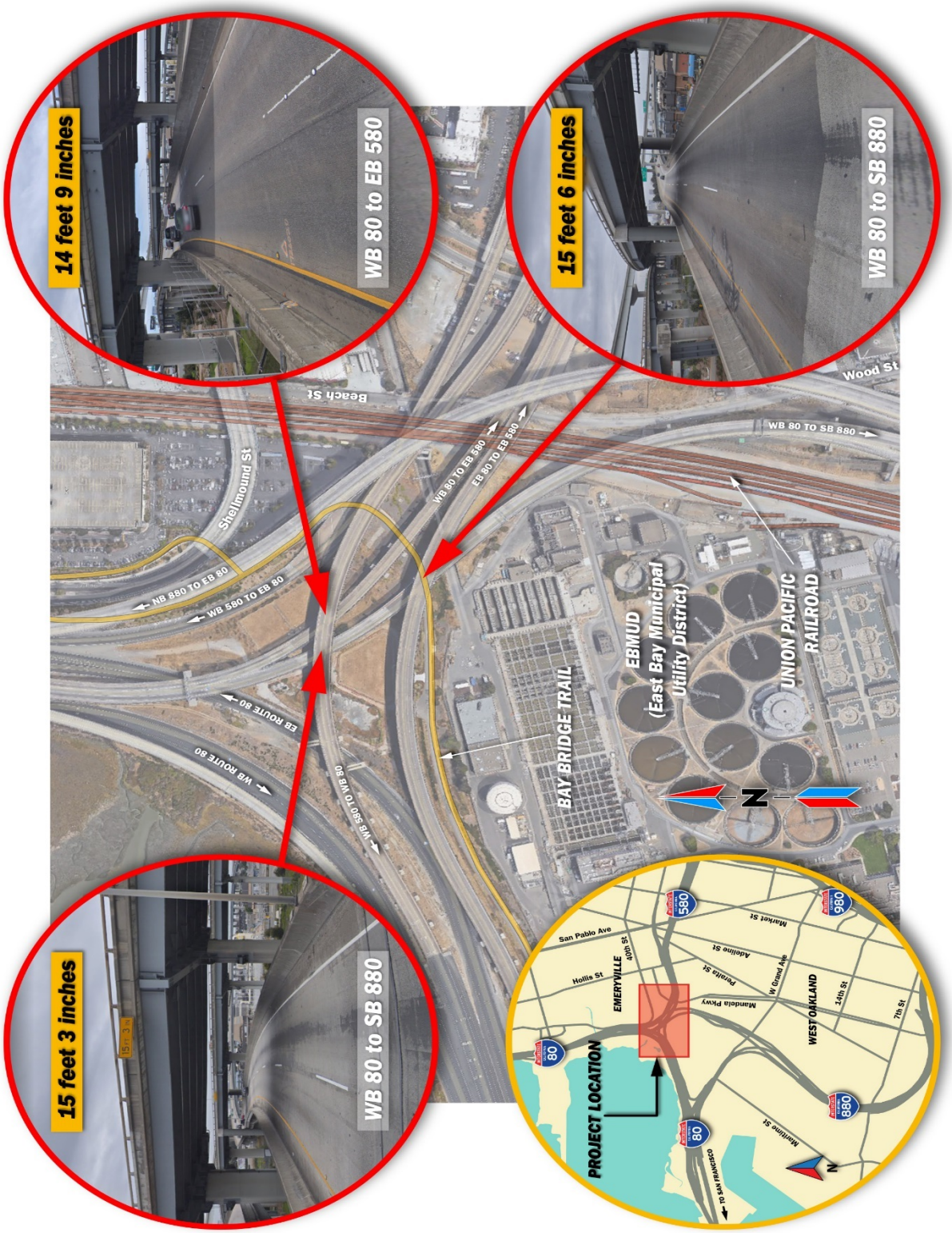
Alternative C: Partial Bridge Replacement, Alternative D: Partial Deck Reconstruction, and the No-Build Alternative.

The project proposes to increase the vertical clearances at three locations in the MacArthur Maze interchange to the current Caltrans standard of 16 feet 6 inches in order to allow for freight and oversized vehicles to travel through these major connectors. At present, the connector from WB I-80 to EB I-580 has 14 feet 9 inches of vertical clearance as it passes under the WB I-580 to WB I-80 connector. The connector from WB I-80 to SB I-880 has a vertical clearance of 15 feet 3 inches as it passes under the WB I-580 to WB I-80 connector, and a vertical clearance of 15 feet 6 inches as it passes under the EB I-80 to EB I-580 connector as depicted in Figure 1-2, which shows the current clearance.

1.4.1 Existing Structure

There are three existing bridge structures involved in the project: The WB I-80 to SB I-880 connector is a two-lane freeway built in 1998 with 4-foot-wide left and right shoulders. The WB I-580 to WB I-80 connector is a three-lane freeway built in 1935 and widened in 2006 with 3-foot-wide left and right shoulders. The EB I-80 to EB I-580 connector is a three-lane freeway built in 1955 and widened in 1962 with 2-foot-wide left and right shoulders.

Figure 1-2 Current Clearance



1.4.2 Project Alternatives

All alternatives were designed to meet the purpose and need of the project, minimize environmental impacts, and reduce impacts to the travelling public. This project contains a number of standardized project features which are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These features are addressed in more detail in the Environmental Consequences sections found in Chapter 2. All proposed build alternatives are shown in Figure 1-3 and are detailed in the section titled *Unique Features of Build Alternatives*. Common design features of the build alternatives are discussed below.

Figure 1-3 Project Alternatives

Common Design Features of the Build Alternatives

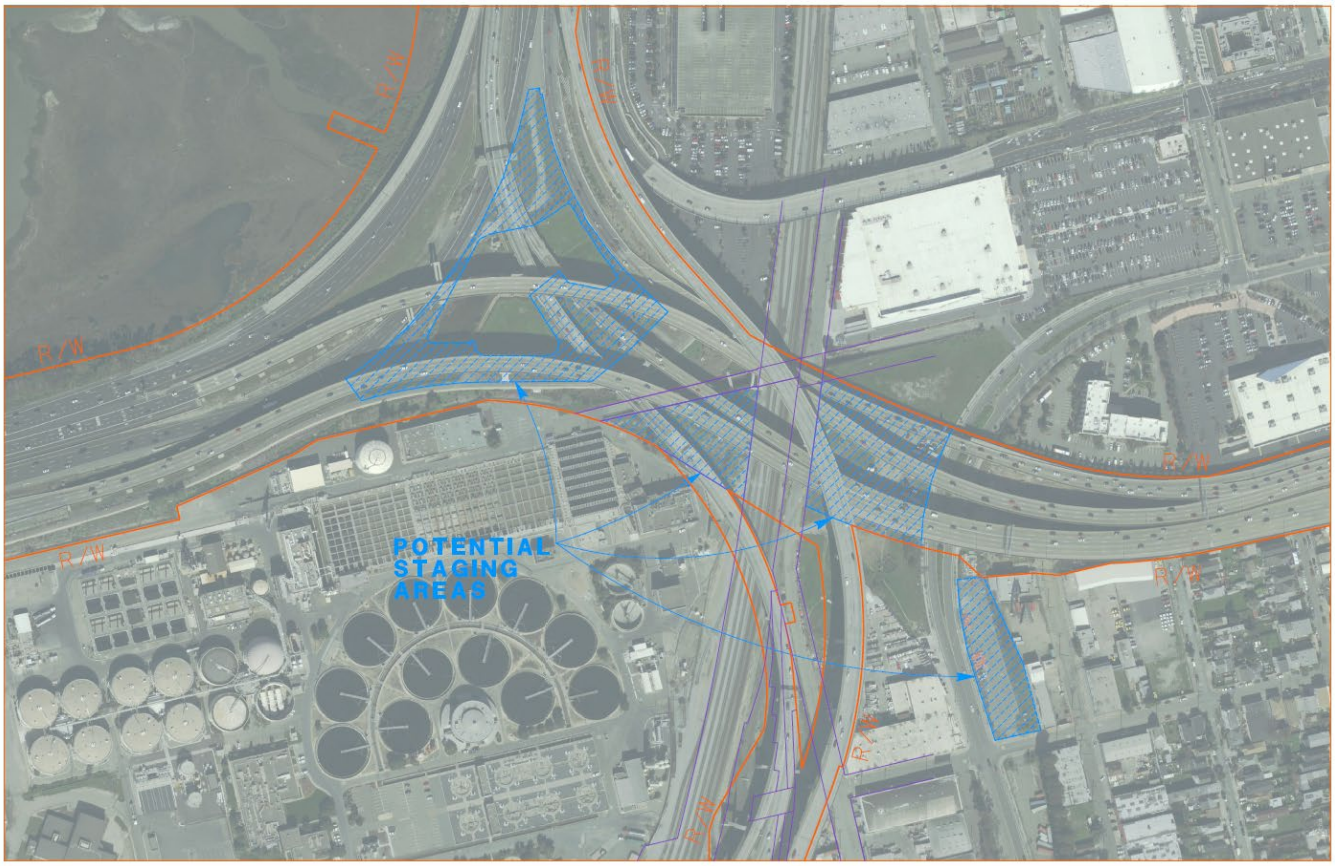
FALSEWORK

During construction of the build alternatives, falsework would be built to strengthen and fortify the connectors. Falsework consists of temporary components used in construction for support to hold the structures in place until the new structures are able to support itself. Falsework normally consists of both wood and metal components. The falsework for all build alternatives could impact existing landscaping and vegetation within the project area. The falsework may also temporarily impact the Bay Bridge Trail during construction, after which the trail would be similar to existing conditions.

STAGING AND SITE ACCESS

Potential staging and storage areas would be required and are depicted in blue on Figure 1-4. The project site will be accessed from existing freeways and local streets; however, staging and storage areas could impact existing landscaped or vegetated areas. The Bay Bridge Trail, a bicycle/pedestrian trail, connecting the Bay Bridge and the City of Emeryville, may require rerouting, realignment, and/or overhead protection during construction. The Bay Bridge Trail is anticipated to be returned to its existing condition after construction is complete.

Figure 1-4 Potential Staging



SOIL TREATMENT

All build alternatives would incorporate soil treatment to address potential liquefaction[1] from seismic events. Soil treatment would be performed by using grout and/or micropiles[2]. Grout would be injected around the perimeter of the existing structure then micropiles would be placed through the grout.

BEST MANAGEMENT PRACTICES (BMPS)

This project would incorporate Caltrans standard Best Management Practices (BMPs). BMPs are implemented on all Caltrans projects to minimize potential environmental impacts from project construction.

VISUAL

New concrete safety barriers and/or railing should match the aesthetics of the existing connectors. See-through barriers and/or railings should be considered where outward views exist to reduce screening of views.

For the no-build alternative, there would be no changes to the existing connectors.

Unique Features of Build Alternatives

ALTERNATIVE A: BRIDGE LOWERING

This alternative, shown in Figure 1-5, consists of lowering the two connectors shown in red.

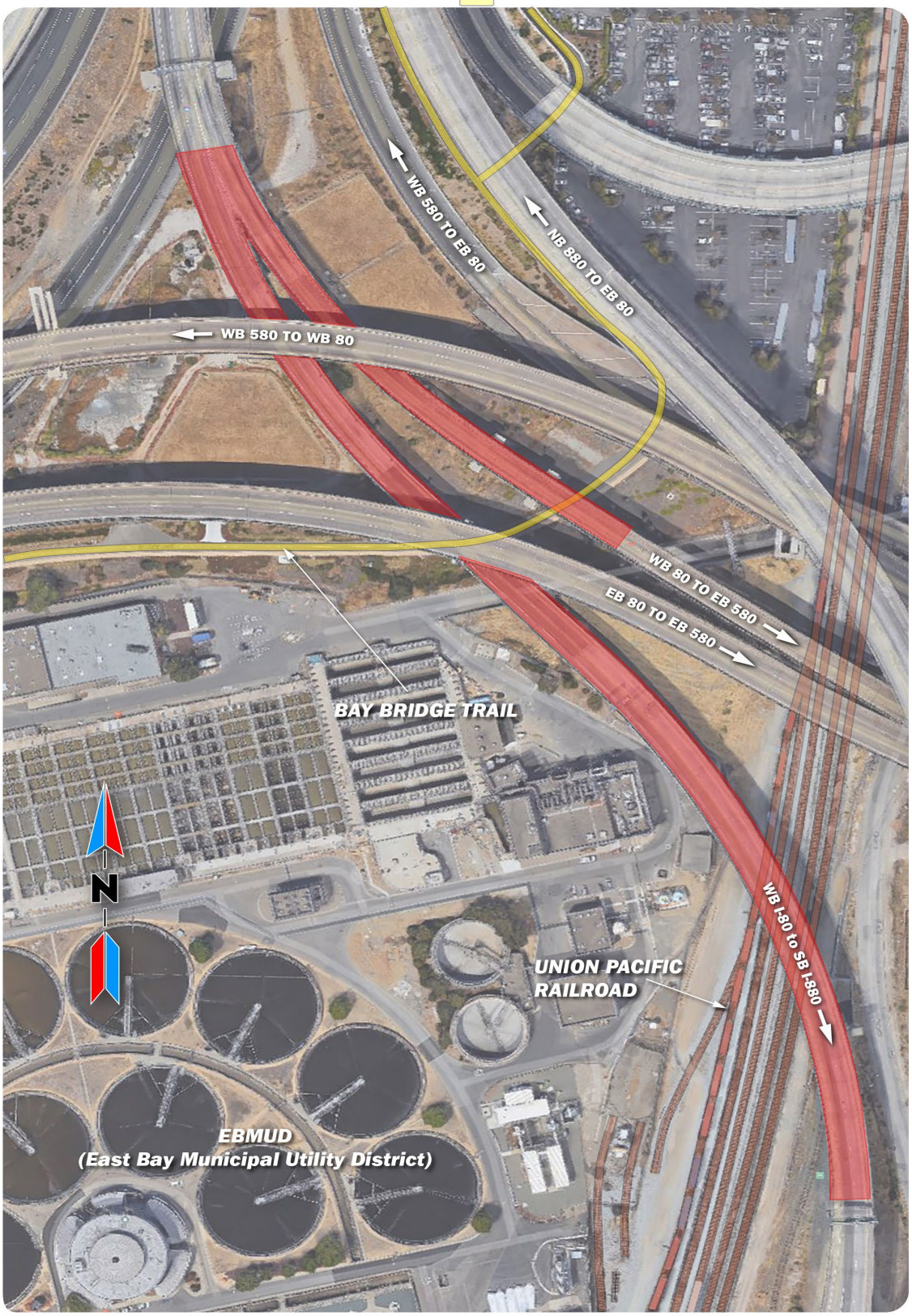
The WB I-80 to EB I-580 connector currently has a vertical clearance of 14 feet 9 inches below the WB I-580 to WB I-80 connector. Under this alternative, the WB I-80 to EB I-580 connector would be lowered 1 foot 9 inches to achieve the Caltrans standard clearance of 16 feet 6 inches. The segment of this connector that would need to be lowered is approximately 665 feet long.

The connector from WB I-80 to SB I-880 has a vertical clearance of 15 feet 3 inches below the WB I-580 to WB I-80 connector. Under this alternative, the WB I-80 to SB I-880 would be lowered 1 foot 3 inches to achieve the clearance standard. This same connector also has a vertical clearance of 15 feet 6 inches below the EB I-80 to EB I-580 connector and would need to be lowered 1 foot to achieve the Caltrans clearance standard. The segment of this connector that would need to be lowered is approximately 1,515 feet long. The WB I-80 to SB I-880 connector would need to be lowered in both locations simultaneously. For this alternative the connector dimensions would not change as the structure is not being rebuilt.

The staging and access for this alternative is anticipated to be completely within Caltrans Right of Way (ROW). For this alternative, the Bay Bridge Trail may be detoured during construction and returned to its pre-existing conditions after construction. The cost for this alternative is approximately $68,000,000. The approximate construction duration for this alternative is 26 months and would require the closure of the WB I-80 to EB I-580 connector and the WB I-80 to SB I-880 connector intermittently over a period of approximately 5 months.

[1] Liquefaction: a process by which soil deposits below the water table temporarily lose strength and behave as a liquid rather than a solid, typically during a moderate to large earthquake.
[2] Micropiles: a deep foundation element constructed using high-strength, small-diameter steel casing and/or threaded bar.

Figure 1-5 Alternative A: Bridge Lowering



ALTERNATIVE B: BRIDGE RAISING

This alternative, shown in Figure 1-6, consists of raising the two connectors shown in blue. The EB I-80 to EB I-580 connector currently has a vertical clearance of 15 feet 6 inches above the WB I-80 to SB I-880 connector and would need to be raised 1 foot to achieve the Caltrans clearance standard of 16 feet 6 inches. The segment of this connector that would need to be raised is approximately 790 feet long.

The WB I-580 to WB I-80 connector currently has a vertical clearance of 14 feet 9 inches above the WB I-80 to EB I-580 connector and would be raised 1 foot 9 inches to achieve the Caltrans clearance standard. The WB I-580 to WB I-80 connector also has a vertical clearance of 15 feet 3 inches above the WB I-80 to SB I-880 connector and would need to be raised 1 foot 3 inches to achieve the Caltrans clearance standard. This segment of the connector that would need to be raised is approximately 800 feet long. Both connectors would be slowly raised until the desired clearance is achieved. The existing deck of this connector would be repaved under this alternative. For this alternative the connector dimensions would not change as the structure is not being rebuilt.

The staging and access for this alternative is anticipated to be completely within Caltrans ROW. For this alternative, the Bay Bridge Trail may be detoured during construction and returned to its pre-existing conditions after construction. The cost for this alternative is approximately $68,000,000. The approximate construction duration for this alternative is 28 months and would require the closure of the WB I-580 to WB I-80 connector and the EB I-80 to EB I-580 connector intermittently over a period of approximately 3 months.

Figure 1-6 Alternative B: Bridge Raising

ALTERNATIVE C: PARTIAL BRIDGE REPLACEMENT

This alternative, shown in Figure 1-7, consists of partially replacing and realigning the two connectors shown in green.

The EB I-80 to EB I-580 connector currently has a vertical clearance of 15 feet 6 inches above the WB I-80 to SB I-880 connector. Approximately 2,000 linear feet of this connector would be rebuilt to achieve the Caltrans clearance standard of 16 feet 6 inches. The WB I-580 to WB I-80 connector currently has a vertical clearance of 14 feet 9 inches above the WB I-80 to EB I-580 connector and a vertical clearance of 15 feet 3 inches above the WB I-80 to SB I-880 connector. Approximately 2,800 linear feet of this connector would be rebuilt to achieve the Caltrans clearance standard.

The rebuilt connectors would each be 60 feet wide and would consist of three 12-foot-wide lanes, two 10-foot-wide shoulders, and two 2-foot-wide bridge railings. Rebuilding the connectors would result in 1.22 acres of additional impervious surface compared to existing conditions. The design, color, and aesthetic treatment for the new connectors and support columns would match the existing connectors and columns so as to be visually compatible and consistent with the existing structures.

Based on the studies completed for Alternative C, Caltrans would incorporate noise abatement in the form of a temporary sound wall during construction. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision on temporary noise abatement would be made upon completion of the project design.

The staging and access for this alternative may extend beyond Caltrans ROW; the locations are yet to be determined depending upon if any additional staging area is needed. For this alternative, the Bay Bridge Trail may be detoured during construction and realigned within the project area, and landscaping would be restored to its pre-existing conditions after construction. The cost for this alternative is approximately $191,000,000. The approximate construction duration for this alternative is 36 months and would require the closure of the WB I-580 to WB I-80 connector and the EB I-80 to EB I-580 connector intermittently over a period of approximately 15 months.

Figure 1-7 Alternative C: Partial Bridge Replacement

ALTERNATIVE D: PARTIAL DECK RECONSTRUCTION

This alternative, shown in Figure 1-8, consists of partially reconstructing the bridge decks of the two connectors shown in purple.

The EB I-80 to EB I-580 connector currently has a vertical clearance of 15 feet 6 inches above the WB I-80 to SB I-880 connector. The EB I-80 to EB I-580 connector bridge deck is currently 4 feet 6 inches thick. Approximately 160 linear feet of the EB I-80 to EB I-580 connector bridge deck would be reconstructed to reduce the thickness of the deck to 3 feet 6 inches to achieve the Caltrans clearance standard of 16 feet 6 inches. The WB I-580 to WB I-80 connector currently has a vertical clearance of 14 feet 9 inches above the WB I-80 to EB I-580 connector and a vertical clearance of 15 feet 3 inches above the WB I-80 to SB I-880 connector. The deck of the WB I-580 to WB I-80 connector is also currently 4 feet 6 inches thick. To achieve the Caltrans clearance standard, the existing profile grade would be raised approximately 9 inches. Additionally, the thickness of the deck would be reduced from 4 feet 6 inches to 3 feet 6 inches. Approximately 293 linear feet of the bridge deck of this connector would be reconstructed to achieve the Caltrans clearance standard. For this alternative the connector width would not change.

The staging for this alternative is anticipated to be completely within Caltrans ROW. For this alternative, the Bay Bridge Trail may be detoured during construction and returned to its pre-existing conditions after construction. The cost for this alternative is approximately $39,000,000. The approximate construction duration for this alternative is 10 months and would require the closure of the WB I-580 to WB I-80 connector and the EB I-80 to EB I-580 connector intermittently over a period of approximately 4 months.

Figure 1-8 Alternative D: Partial Deck Reconstruction

NO-BUILD (NO ACTION) ALTERNATIVE

Under the No-Build Alternative, there would be no changes in the vertical clearance within the Maze. The deficiencies in vertical clearance would not be remedied and would continue to impede the safe and efficient movement of oversize vehicles and loads through the Maze. The No-Build Alternative serves as the baseline for evaluation of the other alternatives.

Comparison of Alternatives

Table 1-1 shows a comparison of the proposed Build Alternatives. Alternative A and Alternative B have very similar impacts. Alternative C has a larger amount of temporary wetland impacts, a higher project cost, longer estimated closures, a longer construction duration, and would likely require construction noise abatement. Alternative D has the lowest amount of temporary wetland impacts, the lowest estimated project cost, and the lowest anticipated construction duration.

Following the public circulation and comment period, comments will be reviewed and analyzed. Caltrans will then select a preferred alternative and make the final determination of the project's effect on the environment. Under CEQA, if no unmitigable significant adverse impacts are identified, Caltrans will prepare a Negative Declaration (ND).

Similarly, if Caltrans, as assigned by the FHWA, determines the NEPA action does not significantly impact the environment, Caltrans will issue a Finding of No Significant Impact (FONSI).

Table 1-1 Build Alternatives Impacts Comparison

	401/404 Permits Anticipated	Construction Noise Abatement	Temporary Impacts to Wetlands/Other Waters (acres)	Estimated Cost (millions)	Anticipated Construction Duration (months)	Estimated Closures (months)
Alternative A	Yes	No	0.17	68	26	5
Alternative B	Yes	No	0.17	68	28	3
Alternative C	Yes	Yes	0.25	191	36	15
Alternative D	Yes	No	0.06	39	10	4

Alternatives Considered but Eliminated from Further Discussion

No other alternatives were considered for this project as all proposed methods of achieving vertical clearance developed by Caltrans are viable alternatives that are discussed in this document. Therefore, no additional alternatives were presented beyond those outlined in the document.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) AND TRANSPORTATION DEMAND MANAGEMENT (TDM) ALTERNATIVES

Transportation System Management (TSM) and Transportation Demand Management (TDM) are integrated strategies that optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services and projects designed to preserve capacity and improve security, safety and reliability of the transportation system. These measures alone would not satisfy the purpose and need of the project because they would not address vertical clearance and would not improve movement of freight vehicles through the interchange. No TDM or TSM measures have been incorporated into the build alternatives for this project. Caltrans is currently developing a separate project to

address traffic management in and through the Maze (FTIP VAR170005). This other project, known as the Maze Traffic Operations System (TOS) Project, proposes to install traffic operation system equipment to monitor and manage traffic conditions in the MacArthur Maze. The construction of this project is planned to be completed in 2024.

1.4.3 Permits and Approvals Needed

The following permits are required for project construction:

Table 1-2 Permits and Approvals

Agency	Permits	Status
Regional Water Quality Control Board	401 Water Quality Certification and Wetlands Program	The permit is to be obtained during the design phase.
United States Army Corps of Engineers	Nationwide 404 Permit for filling or dredging waters of the United States	The permit is to be obtained during the design phase.

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

This chapter describes the environmental resources of the project areas and how the resources would be affected by the proposed project. Potential environmental impacts of the proposed project and recommended avoidance, minimization, and/or mitigation measures are discussed. Project features are mentioned in the Project Description and Chapter 2. Chapter 2 also addresses issues of concern pursuant to CEQA and NEPA. Please see Chapter 3 for the CEQA Checklist.

All technical studies prepared for this project analyzed the four proposed build alternatives and the no-build alternative. The technical reports for this document are listed in Appendix D. The results of the technical studies showed that while there are four unique alternatives, the impacts of each alternative were generally similar. As such, the topics covered in this chapter have only one discussion of impacts unless explicitly stated otherwise.

As part of the scoping and environmental analysis carried out for the project, the environmental issues listed below were considered but no permanent adverse impacts were identified. As a result, there is no further discussion of these issues in this document, except to those that may experience temporary impacts during construction (these are addressed in detail in the subsequent sections).

- Existing and Future Land Use: The MacArthur Maze is located adjacent to developed areas of Oakland and Emeryville. The alternatives for this project would not impact the current or future land use in this area. There will be no changes in access or permanent impacts to any parks or trails, residences, or undeveloped land from this project.

- Consistency with State, Regional, and Local Plans and Programs: The proposed project complies with the following plans:
  - California State Transportation Plan - State of California
  - 2016 Countywide Transportation Plan - Alameda County Transportation Commission (ACTC)
  - Department of Transportation's Strategic Plan - The City of Oakland
  - The Bay Trail Plan - Association of Bay Area Governments
  - Sustainable Transportation Plan - The City of Emeryville

  This project would allow freight vehicles more direct access to and from the Port of Oakland as the reliability of freight movement in these corridors is essential to the nation's economy. The project would not change the classification of the project area and would not change State, Regional, and Local Plans and Programs.

- California Coastal Zone: The MacArthur Maze is located adjacent to San Francisco Bay. I-80 is designated a Scenic Drive in the San Francisco Bay Plan, which is the coastal plan for San Francisco Bay as defined by the federal Coastal Zone Management Act. The project as proposed will not change the views of the Bay or the surrounding area from I-80. The project site is not within the Coastal Zone as defined by the California Coastal Act.

- California Wild and Scenic Rivers: There are no designated wild and scenic rivers within the project area.

- Parks and Recreation Facilities: There are no parks, recreation facilities, or section 4(f) properties within the project area. While the Bay Bridge Trail is within the project area, the trail is considered a transportation facility. The Bay Bridge Trail is owned and maintained by Caltrans meaning the facility is classified as transportation, not a recreation. The proposed project would have no permanent impacts to the trail. A discussion about potential temporary impacts to the trail can be found in Section 2.2.4 Traffic and Transportation/Pedestrian and Bicycle Facilities.

- Farmlands/Timberlands: There are no farmlands and timberlands within the project area.

- Growth: The MacArthur Maze is a connection point for three major freeway connectors leading to and from the San Francisco-Oakland Bay Bridge and the Port of Oakland. No alternatives for this project would impact the current or future land use in this area. There would be no changes in access to employment, shopping, or other destinations, or permanent impacts to travel times, travel behavior, trip patterns, or the attractiveness of some areas to development. The project would have no potential for influencing growth in the project area.

- Community Character and Cohesion: The project would continue to serve the region in the same manner as the existing interchange; therefore, no impact to community character and cohesion would occur.

- Relocations and Real Property Acquisition: The proposed project would not require relocations or property acquisitions. Caltrans will coordinate with Union Pacific Rail Road and East Bay Municipal Utility District if any potential impacts are anticipated to existing aerial easements during construction.

- Environmental Justice: No minority or low-income populations have been identified that would be adversely impacted by the proposed project. Therefore, this project is not subject to the provisions of Executive Order (EO) 12898.

- Traffic and Transportation/Pedestrian and Bicycle Facilities: The project would have no permanent impacts to traffic or transportation or pedestrian and bicycle facilities, as the project will not change the capacity or configuration of the MacArthur Maze roadways or the Bay Bridge Trail. Temporary impacts that may occur to these resources during construction are discussed in Section 2.5.4 Traffic and Transportation/Pedestrian and Bicycle Facilities.

- Hydrology and Floodplain: There would be no effects to floodplains because the project is not located within a 100-year base floodplain. The project would not alter the hydrology within the project area.

- Paleontology: There are no anticipated paleontological resources within the project area that would be affected by the proposed project.

- Hazardous Waste/Materials: A search of environmental regulatory databases was conducted in January 2018 and did not identify any known hazardous materials or hazardous waste sites in the vicinity of the project that could likely impact the project schedule or construction. There is the potential for soil to have been contaminated from motor vehicle exhaust (from aerially deposited lead due to historically leaded gas). Soil and groundwater testing would be performed as necessary during the design phase of the

project. If found, Asbestos Containing Material (ACM), Lead Containing Paint (LCP), and regulated lead-contaminated soils will be managed and mitigated according to applicable legal and regulatory requirements.

- Air Quality: The proposed project is exempt per 40 CFR 93.126 as it would not increase the capacity of the MacArthur Maze or move the alignment closer to sensitive receptors. The project area is in a nonattainment area and is not considered to be a Project of Air Quality Concern. The air quality pollutant emissions caused by the project's construction activities are temporary and would not change existing levels. There are no anticipated air quality impacts that would result from the proposed project, including changes to the current levels of $PM_{2.5}$ and PM_{10}. An exemption memo for the proposed project was completed on September 19, 2017.

- Noise: This is not a Type 1 project[3] and no permanent noise impacts are anticipated due to the project. However, the project may have temporary noise impacts during construction of Alternative C; further discussion can be found in Section 2.5.1 Noise.

- Natural Communities: The proposed project would not affect any natural communities. The project will have no impacts on listed species or sensitive habitats due to a lack of suitable habitat at the proposed project site. There are wetlands and water features present at the proposed project site which are discussed separately.

- Wetlands and Other Waters: An aquatic resources field survey and wetland delineation of the project site was conducted in August 2018, and a Delineation of Aquatic Resources Report was completed for the project in November 2018. These surveys and studies identified 0.25 acres of wetlands, 0.62 acres of Other Waters of the United States, and approximately 885 linear feet of culverted waters within the project area. No permanent impacts to wetlands or other jurisdictional features are anticipated from the project. All Build Alternatives have the potential to disturb soil during construction. These construction impacts are further described within Section 2.5 Construction Impacts.

- Plant Species: The proposed project would not affect any listed or special-status plant species due to lack of suitable habitat within the project boundary.

[3] A Type 1 project as defined in 23 Code of Federal Regulations (CFR) 772, is a federal or Federal-aid project for:

- The construction of a highway on a new location; or
- The physical alteration of an existing highway where there is either:
- Substantial horizontal alteration A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or Substantial vertical alteration. A project that removes shielding thereby exposing the line-of-sight between the receptor and the traffic noise source. This is done by altering either the vertical alignment of the highway or the topography between the highway traffic noise source and the receptor; or
- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane; or
- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or
- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or
- Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane; or
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

- Animal Species: The proposed project is not anticipated to affect any listed or special-status animal species. It is possible that certain bat species and common migratory or other bird species may be temporarily displaced by habitat alteration or disturbance due to construction activities.

- Threatened and Endangered Species: The proposed project would not affect any listed or special-status species due to lack of suitable habitat within the project boundary.

- Invasive Species: The proposed project would not introduce invasive species into the project area.

2.1 Visual/Aesthetics

2.1.1 Regulatory Setting

NEPA establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

2.1.2 Affected Environment

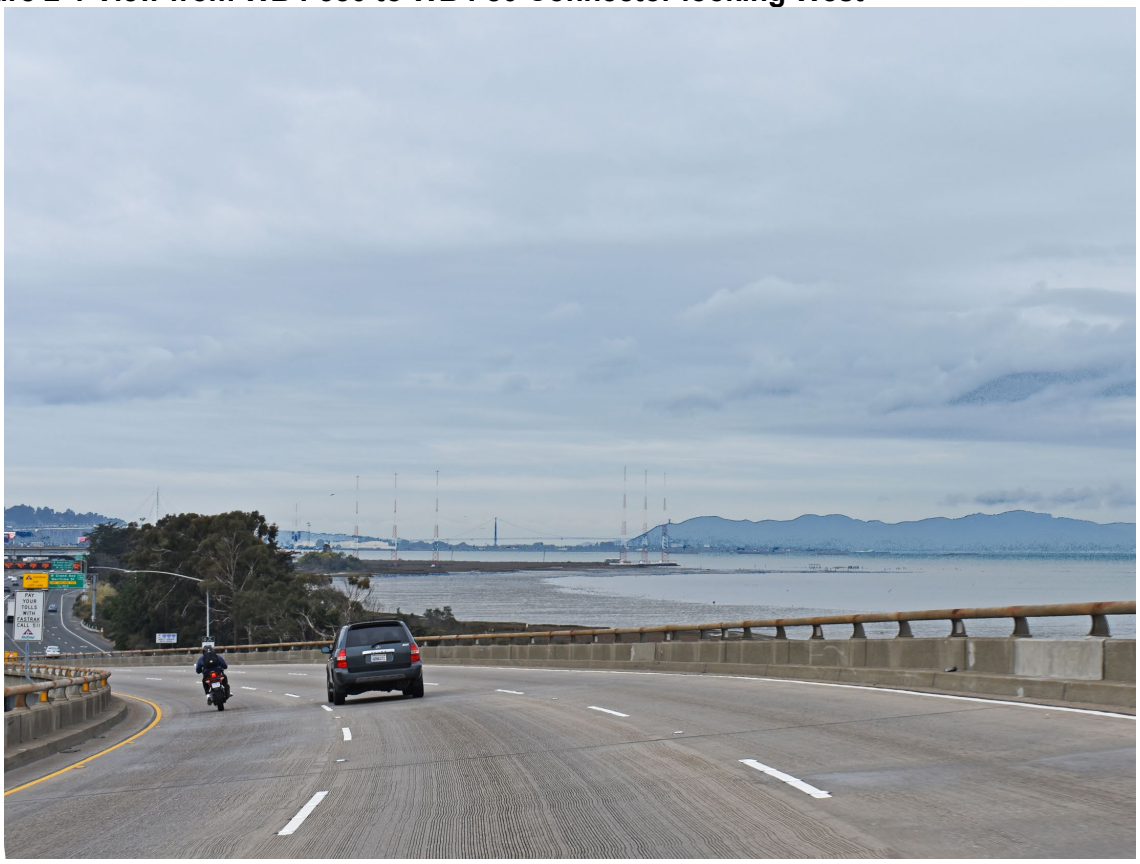
The information in this section originates from the Visual Impact Analysis (VIA) prepared for the for the proposed project. The VIA was approved on August 7, 2018, with VIA addenda approved on November 6, 2018 and December 13, 2018.

The proposed project is situated in the MacArthur Maze, a mult-level freeway interchange east of the Bay Bridge Toll Plaza. The landscape is characterized by flat and level landforms surrounded by urban development on three sides and San Francisco Bay to the west. The land use within the project area is primarily urban, with land uses dominated by residential, commercial, and industrial uses, but also includes areas of wetlands and the San Francisco Bay shoreline. Within the footprint of the interchange, grass-lined basins and plantings of California blackberry, oat grass, salt grass, coyote brush, and monkey flower create a "rain water garden" to naturally treat storm water runoff in the winter months. The Bay Bridge Trail runs from the San Francisco-Oakland Bay Bridge through the garden before heading north toward Berkeley and has viewing/educational stations along the path.

North- and west- bound motorists on the interchange structure have long-distance scenic views of the San Francisco Bay shoreline, the Bay Bridge, the Golden Gate Bridge, San Francisco City skyline, Treasure Island, and the Marin Headlands, as shown in Figure 2-1. Southbound motorists on the elevated connector ramps have filtered views of San Francisco Bay, San Francisco skyline, and San Francisco Bay shoreline. Motorists from the Bay Bridge headed

toward the cities of Emeryville/Berkeley have heavily filtered views of the Berkeley Hills through the Maze structures.

Figure 2-1 View from WB I-580 to WB I-80 Connector looking West



While none of the freeways that pass through the Maze are officially designated scenic highways, I-80 is designated as a Scenic Drive in the San Francisco Bay Plan.

To assess visual impacts of the project, the project corridor was divided into four visual assessment units based on visual character and visual quality. The visual assessment units were defined based upon the limits of a particular viewshed or areas of similar visual character. For this project, the following visual assessment units and their associated key views have been identified.

Freeway Visual Assessment Unit

This unit consists of Interstates 80, 580, and 880 and related connector ramps as shown in Figure 2-2. The principal image type dominating the landscape of the Freeway Visual Assessment Unit is the convergence of the freeway connectors both at grade and elevated.

Commercial/Industrial Visual Assessment Unit

This unit consists of the adjacent commercial/retail properties in and around the MacArthur Maze, some of the industrial uses are shown in Figure 2-3, as well as the East Bay Municipal Utilities District Treatment Facility located southwest of the MacArthur Maze.

Figure 2-2 Freeway Visual Assessment Unit looking Northwest

Figure 2-3 Commercial/Industrial Visual Assessment Unit looking East

Residential Visual Assessment Unit

This unit consists of residential properties along Hannah Street, two streets east of Mandela Parkway. This street has direct views of the eastern termination point of the project on I-580 as shown in Figure 2-4.

Bay Bridge Trail Visual Assessment Unit

This unit is comprised of the Bay Bridge Trail that is adjacent to and under the MacArthur Maze. The trail is exclusively for bicyclists and pedestrians and is closed to motorists. The trail is surrounded by native and ornamental grasses, shrubs, small trees, and seasonal wetland areas. The connectors cross over the pathway at multiple locations as shown in Figure 2-5. The East Bay Municipal Utilities District Treatment Facility is located directly south of the Bay Bridge Trail.

Figure 2-4 Residential Visual Assessment Unit looking East

Figure 2-5 Bay Bridge Trail Visual Assessment Unit looking Northeast from the Bay Bridge

2.1.3 Environmental Consequences - Summary of Visual Impacts by Visual Assessment Unit

Freeway Visual Assessment Unit

The visual impacts in the Freeway Visual Assessment Unit would be moderate. Commuters and commercial drivers would be focused on getting to their destination and not on scenic views. The project improvements would resemble existing structures, resulting in moderately perceivable changes. Tourists and passengers are anticipated to have moderate sensitivity and moderate exposure levels to the project. Their attention is on scenic vistas such as the San Francisco Bay, the Bay Bridge, and distant mountains. Views of these vistas would not change for both users of the freeway and for those viewing the connectors from outside Caltrans ROW. Overall viewer response is predicted to be moderate, as the completed project will look very similar and have similar outward views. No anticipated degradation in view quality is expected.

Commercial/Industrial Visual Assessment Unit

The visual impacts in the Commercial/Industrial Visual Assessment Unit would be low. Views in this assessment unit are considered low in visual character and quality, as they consist mainly of the undersides of the multiple connectors and support columns, and distant views are heavily screened from view. Viewers here are primarily focused on the task at hand (work, retail sales, etc.) not on views of the freeway structure.

Residential Visual Assessment Unit

The visual impacts in the Residential Visual Assessment Unit would be moderate to low. Views in this assessment unit are considered low in visual character and quality, as they consist mainly of the undersides of the multiple I-580 connectors and support columns, and distant views are screened from view by chain-link fencing and mature trees. Viewers here are primarily focused on various tasks (yard work, house work, etc.) and not on views of the freeway structure. The project is expected to blend in visually and not result in change to visual quality.

Bay Bridge Trail Visual Assessment Unit

The visual impacts in the Bay Bridge Trail Visual Assessment Unit would be moderate to low for the Bridge Lowering, Bridge Raising, and Partial Deck Reconstruction alternatives (Alternative A, Alternative B, and Alternative D), and moderate to high for the Partial Bridge Reconstruction (Alternative C) due to the realignment and rebuilt structure. Views from lookout areas, as well as from the trail, are dominated by the convergence of the connector structures and associated support columns. Long distance views of the Berkeley Hills can barely be seen through the structures. The project is expected to blend in visually and not result in change to visual quality. There would be minor change to the views under Alternative C due to the realignment and rebuilt structure. Visual quality is rated moderate, as planted vegetation of texture and colors raise the visual interest level along the Bay Bridge Trail. Any landscaping that is disturbed by construction would be restored upon completion of the project.

2.1.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures to avoid or minimize visual impacts will be incorporated into the project.

Reduction of Vegetation Removal

- Minimize the removal of groundcover, shrubs, and trees to the greatest extent possible.
- Protect existing vegetation outside the clearing and grubbing limits from the contractor's operations, equipment, and materials storage.
- Place high visibility temporary fencing around vegetation to be protected before roadway work begins.
- Provide truck watering of vegetation when automated irrigation is interrupted by construction.

Construction

- Place unsightly materials, equipment storage, and staging so that they are not visible within the foreground of the highway corridor to the maximum extent feasible. Where such siting is unavoidable, material and equipment shall be visually screened to minimize visibility from the roadway and nearby sensitive off-road receptors.
- Revegetate all landscaped areas disturbed by construction, staging, and storage.
- Limit all construction lighting to within the area of work and avoid light trespass through the use of directional lighting and shielding as needed.

Replacement Planting

- Replace removed shrubs and trees at a minimum 1:1 replacement ratio.
- Replace ornamental grasses at a minimum 1:1 replacement ratio.
- A three-year plant establishment period would be implemented after replacement planting occurs.
- All disturbed areas shall receive hydroseeded treatment of erosion control grasses, and if appropriate, locally native grasses.

With implementation of the project features and avoidance and minimization measures described above, additional mitigation measures would not be necessary to address potential visual impacts of the project.

2.2 Cultural Resources

2.2.1 Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) 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 (NRHP). Section 106 of the NHPA 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 CFR 800). On January 1, 2014, a Section 106 Programmatic Agreement (PA) between the Advisory Council, FWHA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations (36 CFR 800) streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 USC 327).

The Archaeological Resources Protection Act (ARPA) applies when a project may involve archaeological resources located on federal or tribal land. The ARPA requires that a permit be obtained before excavation of an archaeological resource on such land can take place. 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.

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 (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term "tribal cultural resources" to CEQA,

and AB 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 PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a 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 PRC Section 21083.2.

Historical resources are considered under CEQA, as well as PRC Section 5024.1, which establishes the CRHR). PRC Section 5024 requires state agencies to identify and protect State-owned resources that meet the NRHP listing criteria. It further specifically requires Caltrans to inventory State-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require State agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks.

2.2.2 Affected Environment

The following cultural resources technical reports were completed for this project: Archaeological Survey Report, approved January 2018; Extended Phase I Report, approved September 2018; and, Historical Resources Evaluation Report, approved September 2018. A Historic Property Survey Report was completed in September 2018.

In accordance with Section 106 PA Stipulation VIII.A, the Area of Potential Effects (APE) for the project was established by Jennifer Blake, Caltrans Professionally Qualified Staff (PQS) Principal Investigator – Prehistoric Archaeology, Michael Meloy, Caltrans PQS Principal Architectural Historian, and Laurie Lau, Caltrans Project Manager, and was signed and approved on August 10, 2018. The APE includes the proposed construction footprint for the project, including bridgework, falsework, equipment staging, access roads, utility relocation, and vegetation removal. The vertical APE extends from the ground surface to a depth of at least 100 feet, the proposed depth of piles.

A records search of Caltrans archives and materials housed at the Northwest Information Center of the California Historic Resources Information System was conducted on September 4, 2017. An intensive pedestrian survey was conducted on December 7, 2017 to identify any potential archaeological materials in the APE. Archival research, pedestrian survey, and consultation with local Native American tribes and individuals failed to identify any cultural materials within the APE. Due to potential for submerged, previously unrecorded prehistoric-era resources along the shoreline, and due to sensitivity for historic-era resources within West Oakland, subsurface testing was conducted within the APE on February 7 and 13, 2018.

Subsurface testing resulted in the discovery of one historic-era archaeological site, P-01-012011/CA-ALA-700H. The site consists of two refuse deposits containing artifacts dating to the early 1930s. Archaeological deposits within CA-ALA-700H were disturbed and displaced, likely during the original construction and subsequent expansion of the highway structure. The site was determined not eligible for the NRHP.

For the built environment, the Caltrans Cultural Resource Database (CCRD), the NRHP, the CRHR, Caltrans Right of Way Division maps and property files, and Caltrans District 4 As-Built Plan Collections were reviewed. Listings of California Historical Landmarks and California Points of Historical Interest, as well as information available in the collection of the California History Room at the Oakland Public Library, and the California Digital Newspaper Collection

were also reviewed. In addition, Caltrans PQS reviewed several on-line sources including the San Francisco Public eLibrary.

Architectural history research and surveys identified five built resources within the APE: the Key System Subway Tunnel, the Union Pacific Railroad tracks, and three bridges within the MacArthur Maze distribution structure: the EB I-80 to EB I-580 connector, the WB I-580 to WB I-80 connector, and the WB I-80 to SB I-880 connector. The Key System Subway Tunnel is a historic-era transportation structure constructed between 1902 and 1903. The Union Pacific Railroad tracks are present with the APE as a 675-foot-long segment of trackway.

The Key System Subway Tunnel, recorded and evaluated for this project, was determined not eligible for the NRHP due to lack of integrity. Pursuant to Stipulation VIII.C.4 of the Section 106 PA, the Union Pacific Railroad tracks, as a segment of a large linear resource, was assumed eligible for the NRHP for the purposes of this project only since evaluation was not possible due to the large size of this linear resource. Construction of a scaffold system over the railroad will allow operations to continue while preventing debris from entering the rail facilities.

The three connectors within the Maze are listed as Category 5 (previously determined ineligible for the NRHP) in the Caltrans Historic Bridge Inventory.

On October 23, 2018, the SHPO concurred with Caltrans that neither P-01-012011/CA-ALA-700H nor the Key System Subway Tunnel meet the requirements for inclusion into either the NRHP or the CRHR.

2.2.3 Environmental Consequences

Within the APE, there are five cultural resources that have been determined not eligible for inclusion in the NRHP. One is a historic-era archaeological site, CA-ALA-700H, one is the Key System Subway Tunnel, and three are Category 5 bridges within the MacArthur Maze (previously determined not eligible for the NRHP). The segment of Union Pacific Railroad tracks within the APE, while assumed eligible for the NRHP, would not be affected because construction of a scaffold system over the railroad would allow operations to continue unimpeded and prevent debris from entering the rail facilities. Overall, the finding for the undertaking as a whole is No Historic Properties Affected.

2.2.4 Avoidance, Minimization, and/or Mitigation Measures

A scaffold system over the railroad will be used to allow railroad operations to continue unimpeded and prevent debris from entering the rail facilities. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. Unintentional adverse effects upon archaeological resources will be avoided by implementing the Monitoring and Post-Review Discovery Plan prepared for the project, to include the following:

- If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a Caltrans qualified archaeologist can assess the significance of the find.

- If a Caltrans professional qualified specialist determines that cultural materials includes human remains, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. Caltrans Cultural Resources Studies Office will contact Alameda County Coroner. Pursuant to CA PRC section 5097.98, if the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. Caltrans, District 4, Cultural Resources Studies Office will work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
- Per the Environmentally Sensitive Area Action Plan, unintentional adverse effects on archaeological resources will be avoided by establishing Environmentally Sensitive Areas (ESAs) around the known archaeological site boundaries within the Area of Potential Effect (APE). Caltrans shall inform interested Native Americans about the proposed project activities and the ESA Action Plan prior to construction.

2.3 Physical Environment

2.3.1 Water Quality and Storm Water Runoff

Regulatory Setting

FEDERAL REQUIREMENTS: CLEAN WATER ACT

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source[4] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).

[4] A point source is any discrete conveyance such as a pipe or a man-made ditch.

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

  The USACE 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 effect. 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 the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 CFR Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE 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 USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[5] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in Section 3.6 Wetlands and Other Waters.

STATE REQUIREMENTS

Porter-Cologne Water Quality Control Act: California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., such as groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In

[5] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards
The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program/Municipal Separate Storm Sewer Systems (MS4): Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans’ MS4 permit covers all Caltrans ROWs, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans’ MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);

2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and,

3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures

and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit: Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with Caltrans' SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with a DSA of less than one acre.

Section 401 Permitting: Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project would be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

A Water Quality Study was prepared on November 8, 2018, to assess the proposed project's potential effects to water quality and storm water management in the area.

The project is located within the jurisdiction of the San Francisco Bay RWQCB (Region 2), which is responsible for implementation and enforcement of state and federal laws and

regulations concerning water quality. The proposed project is located within Hydrologic Sub-Area (HSA) 204.20, primarily within the Angel Island watershed of the Frontal San Francisco Bay Estuaries. The open waters of San Francisco Bay are less than 200 feet northwest of the project area.

San Francisco Bay is on the 2014-2016 303(d) List of Impaired Water Bodies, and is impaired for chlordane, DDT (dichlorodiphenyltrichloroethane), dieldrin, dioxin compounds (including 2,3,7,8-TCDD), furan compounds, invasive species, mercury, PCBs (polychlorinated biphenyls), PCBs (polychlorinated biphenyls) (dioxin-like), selenium, and trash.

The Region 2 Basin Plan establishes beneficial uses for waterways and water bodies within the region. San Francisco Bay's beneficial uses include commercial and sport fishing; estuarine habitat; industrial service supply; navigation; industrial process supply; rare, threatened, or endangered species; contact and non-contact water recreation; shellfish harvesting; migration of aquatic organisms; spawning, reproduction, and/or early development of aquatic organisms; and, wildlife habitat.

Three detention basins designed to correct and treat runoff from the 46.3 acres of roadway within the general area. The detention basins within the project area include a forebay detention basin and two bioretention basins. The retention basins are connected by inlets and outlets, which are irrigated to promote vegetation growth for the biofiltration of storm water runoff. Storm water flows into the forebay detention basin from the Bay Bridge to the west and from Powell Street to the north. From this basin, water is pumped into the biorentention basins where it is held and allowed to percolate into the subsurface and eventually into San Francisco Bay. If water in the biorentention basins exceeds the basin’s capacity, the excess water is pumped back into the forebay. If this retained storm water exceeds the capacity of the forebay, the water is pumped out and released into San Francisco Bay.

Environmental Consequences

All build alternatives would disturb soil and wetlands within the detention basins during construction. These construction impacts would be minimized by implementing the appropriate avoidance and minimization measures and BMPs as described in the following section.

One alternative, Alternative C-Partial Bridge Replacement, would result in 1.22 acres of additional impervious surface compared to existing conditions. No other alternative would increase the amount of currently existing impervious surface. Table 2-1 summarizes the area that would be affected by the project under each build alternative.

Table 2-1 Impact Areas of Each Build Alternative

ALTERNATIVE	Disturbed Soil Area (acres)	Net New Impervious Surface (acres)	Replaced Impervious Surface (acres)	New Impervious Surface (acres)
A	2.8	0	1.3	1.3
B	3.3	0	1.6	1.6
C	12.8	1.22	4.86	6.08
D	2.0	0	0.5	0.5

Project Features

TEMPORARY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMPS)

These BMPs would be implemented throughout the duration of construction activities to avoid and minimize pollutant loads in potential storm water/non-storm water discharges. Construction Site BMP strategies applicable to this proposed project may include the following:

- No discharge of pollutants from vehicle and equipment cleaning would be allowed into storm drains or water courses.
- Vehicle and equipment fueling and maintenance operations would be required to be at least 50 feet away from water courses.
- Concrete wastes would be collected in washouts, and water from curing operations would be collected, disposed of, and not allowed into water courses.
- Coir rolls would be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydro-mulching would be applied to all unfinished disturbed and graded areas.
- Work areas where temporary disturbance has removed the pre-existing vegetation would be restored and reseeded with a native seed mix.
- Graded areas would be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Under all of the build alternatives, the following avoidance and minimization measures would be implemented during project construction and operation to prevent potential water quality effects from occurring.

Storm Water Pollution Prevention Plan (SWPPP)

A SWPPP would be developed and implemented and would comply with the Caltrans SWMP. Water quality inspector(s) would inspect construction areas to determine if the storm water BMPs are adequate and adjust them, if necessary. Construction activities for the roadway improvements and bridge replacement and demolition would be regulated under the Construction General Permit. The SWPPP would be prepared by the contractor and approved by Caltrans.

Concrete Waste

All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.

2.3.2 Geology/Soils/Seismic/Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using Caltrans' Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification would determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans' Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Affected Environment

A District Preliminary Geotechnical Report for the proposed project was approved on April 17, 2018. The information discussed below is from that report.

The project area is located on the low-lying bay plain to the east of the San Francisco Bay. The depression forming the bay is a result of combination of regional faults. Sediments from the surrounding mountains and the Sacramento-San Joaquin river system that drains the Central Valley have gradually been filling in the bay with young bay mud. The westside of the project area is blanketed by fill materials consisting of loose to medium dense materials, and under the fill is soft bay mud. Geologists and seismologists recognize the San Francisco Bay Area as one of the most active seismic regions in the United States. There are three major faults that trend in a northwest direction through the Bay Area, which have generated about 12 earthquakes per century large enough to cause significant structural damage. These earthquakes occur on faults that are part of the San Andreas Fault system that extends for at least 700 miles along the California Coast, and includes the San Andreas, Hayward, and Calaveras faults. Some seismic effects result from various soil responses to ground acceleration. The subsurface soils within the project site are susceptible to the following:

Liquefaction – Liquefaction is a process by which soil deposits below the water table temporarily lose strength and behave as a liquid rather than a solid, typically during a moderate to large earthquake. The liquefaction susceptibility at the project area is very high. A preliminary evaluation was performed for this project and confirmed that the site has high liquefaction potential which can induce settlement ranging from 2 to 10 inches.

Cracking – Cracks may develop in the soil overlying the site. Since the project is underlain by artificial fill, there is a moderate to high potential for cracking.

Differential Compaction – During moderate and large earthquakes, soft or loose, natural or fill soils can densify and consolidate, often unevenly across a site. Since the project area is underlain by fill, it is susceptible to differential compaction.

Ground Shaking – Moderate to large earthquakes are probable along several active faults in the greater Bay Area. Therefore, strong ground shaking should be expected at some time during the design life of the proposed development.

Shrink Swell – The expansion and/or contraction of soil can cause foundations to shift and roadways to crack. The potential for shrink swell in the project area is considered moderate to high.

Environmental Consequences

The project design and features would be built to address liquefaction, cracking, differential compaction, ground shaking, shrink swell, and other existing geological, soils, and seismic concerns per Caltrans standards. All build alternatives of the proposed project would incorporate soil treatment to address potential seismic events. Soil treatment would be performed by using grout and/or micropiles. Grout would be injected around the perimeter of the existing structure then micropiles would be placed through the grout. The use of grouting would increase soil strength of the site. The grouting would have no effect on the environmental setting and would in general improve the geology and soil conditions. The grouting and implementation of micropiles would withstand the seismic demand from the Hayward Fault.

Avoidance, Minimization, and/or Mitigation Measures

There are no proposed avoidance, minimization, or mitigation measures for geologic or seismic concerns. The project design and features would be built to address geological, soils, and seismic concerns.

2.4 Cumulative Impacts

2.4.1 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 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 NEPA can be found in 40 Code of Federal Regulations (CFR) Section 1508.7.

The cumulative impact analysis focuses on the resources that the project may affect. If the project would not result in impacts on a resource, it would not contribute to a cumulative impact. The impact used in the cumulative impact analysis is the net impact: that is, the project impact minus proposed avoidance, minimization, and/or mitigation measures. For resource areas where the impact will be fully offset by the proposed avoidance, minimization, and/or mitigation measures, the project would not contribute to cumulative impacts.

The proposed project would not have net impacts on any resources. All potential impacts will be minimized through the proposed avoidance and minimization measures. Because no impacts have been identified, the project would not result in cumulative impacts.

2.5 Construction Impacts

While the proposed project would not have permanent impacts on certain resources, as described in the introduction to Chapter 2, the project may have temporary impacts during construction. These temporary impacts are described below. To address these impacts, project features such as Caltrans Standard BMPs and Avoidance, Monitoring, and Minimization Measures would be implemented during construction.

2.5.1 Noise

A Construction Noise Assessment for the proposed project was approved April 11, 2018 to ensure that construction activities would not impact nearby residents. This project is not a Type 1 project[6] as defined in 23 CFR 772. Typically, work taking place within the Caltrans ROW is not subject to local noise ordinances. If construction noise level is expected to exceed the contract specification criteria or the construction noise levels is expected to exceed the ambient (baseline) noise level, and there are sensitive receptors near the project site, Caltrans would work with the contractor to meet local requirements where feasible.

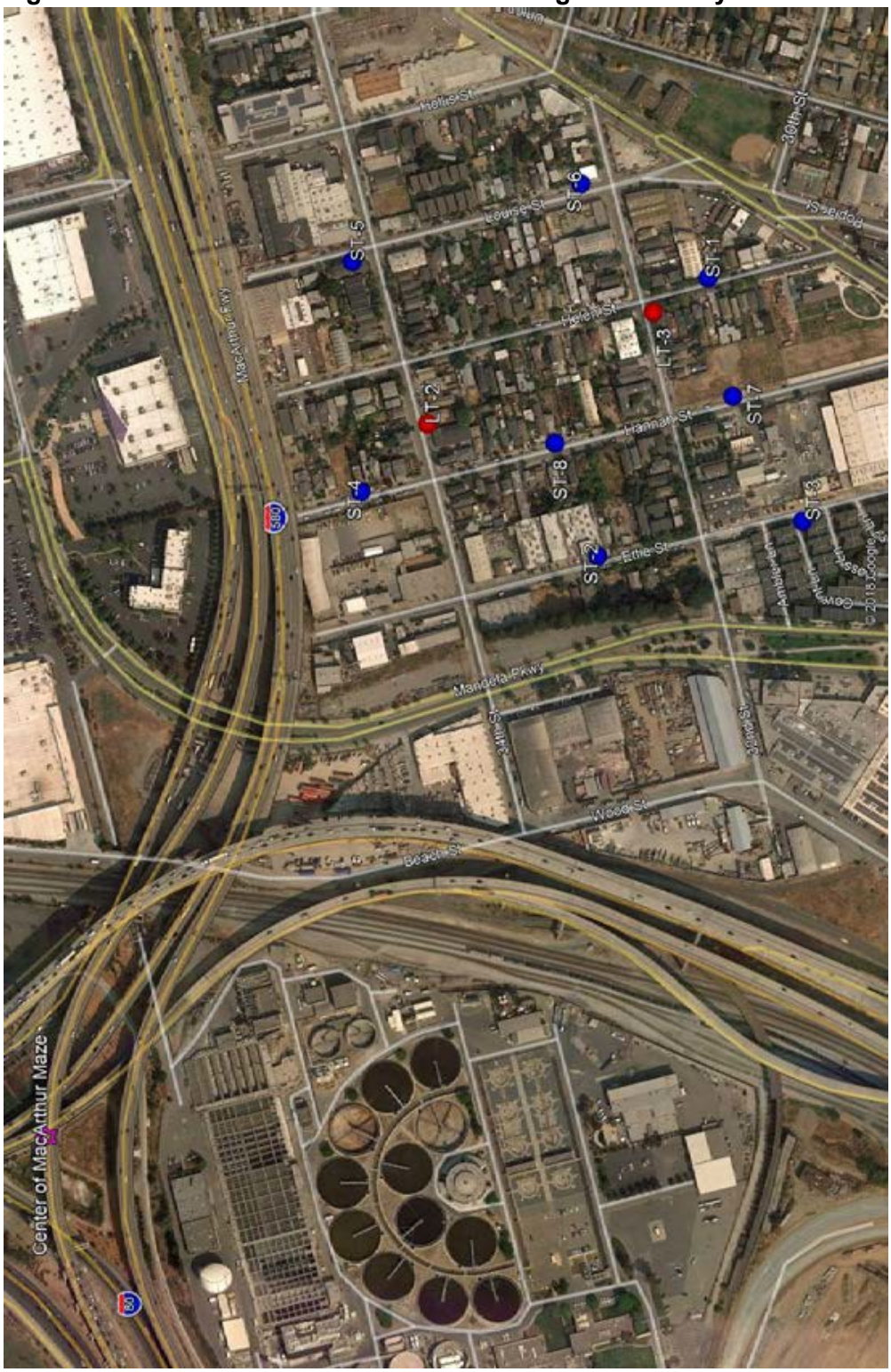
Affected Environment

Figure 2-6 shows the residential study areas where the noise analysis was conducted. The residences are to the southeast of the MacArthur Maze where the blue and red dots are concentrated. These areas were chosen for study to capture anticipated construction noise levels in relation to nearby residences. The goal was to understand the noise levels of construction and ensure noise levels would not exceed 86 decibels (DBA) Lmax (maximum noise level) at 50 feet from the job site from 9PM to 6PM, per Caltrans standards, at the residences within the study areas; a decibel is a unit describing the amplitude of sound. Figure 2-7 shows the dB for common indoor and outdoor activities which can be compared to the construction dBs.

[6] A Type 1 project as defined in 23 Code of Federal Regulations (CFR) 772, is a federal or Federal-aid project for:

- The construction of a highway on a new location; or
- The physical alteration of an existing highway where there is either:
- Substantial horizontal alteration A project that halves the distance between the traffic noise source and the closest receptor between the existing condition to the future build condition; or Substantial vertical alteration. A project that removes shielding thereby exposing the line-of-sight between the receptor and the traffic noise source. This is done by altering either the vertical alignment of the highway or the topography between the highway traffic noise source and the receptor; or
- The addition of a through-traffic lane(s). This includes the addition of a through-traffic lane that functions as a high-occupancy vehicle (HOV) lane, high-occupancy toll (HOT) lane, bus lane, or truck climbing lane; or
- The addition of an auxiliary lane, except for when the auxiliary lane is a turn lane; or
- The addition or relocation of interchange lanes or ramps added to a quadrant to complete an existing partial interchange; or
- Restriping existing pavement for the purpose of adding a through traffic lane or an auxiliary lane; or
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza.

Figure 2-6 Residential Areas Assessed during Noise Study



Blue- short term measurements taken every few minutes over a day.

Red- long term measurements ran consistently over a week.

Figure 2-7 Noise Levels for Common Indoor and Outdoor Activities

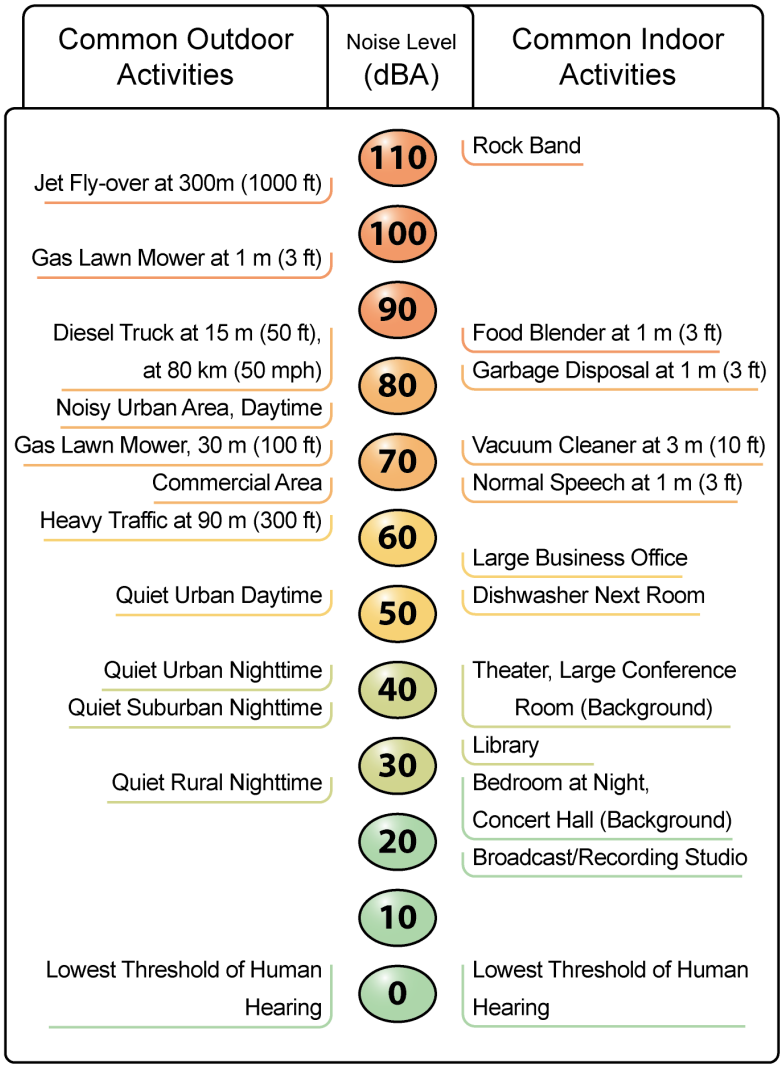


Figure 2-8 shows the aquatic study areas in the Emeryville Crescent where the noise analysis was conducted. The noise levels were studied at the points of the San Francisco Bay that are northwest of the MacArthur Maze, shown in green and red. These areas were chosen for study to capture anticipated noise levels in relation to wildlife that may be present. The goal was to understand the noise levels of construction and ensure noise levels would not exceed 86 dB at the locations within the study areas.

Figure 2-8 Aquatic Areas Assessed during Noise Study

Green- short term measurements taken every few minutes over a day within the water.

Red- long term measurements ran consistently over a week.

Blue- short term measurements taken every few minutes over a day.

Environmental Consequences

Under Alternative A, Alternative B, and Alternative D, construction noise levels calculated at the nearest points along the bridge to the nearby noise-sensitive receptors would be at or below existing ambient noise levels. The existing ambient noise levels are the compilation of noise from all sources near and far measured at the Oakland residences to the southeast of the MacArthur Maze (Figure 2-6). During the demolition and excavation phases of Alternative A, Alternative B, and Alternative D, construction noise would not exceed the ambient noise levels in the Emeryville Crescent at locations within 1,000 feet of the nearest points along both bridges. The remaining phases would not generate noise levels in excess of ambient conditions in the Emeryville Crescent.

Alternative C would involve reconstructing the bridges in a new alignment. When construction activities occur at the easternmost point along this alignment, ambient noise levels would be exceeded during the demolition, bridge building, and excavation phases of the project at the location of the residences located in Oakland within 300 feet of the active construction site. During demolition and excavation phases, ambient noise levels would also be exceeded at residences located within 500 feet of the active construction site, leading to the implementation of a temporary sound wall. Paving activities would occur further west from the residences than all other phases of construction. This distance would prevent construction noise levels during paving activities to exceed ambient noise levels. Ambient noise levels in the Emeryville Crescent would be exceeded at receptors located within 1,000 feet of the active construction site during the demolition, excavation, and paving phases. The studies conducted found that the noise levels during construction would be temporary and minimal. There would be a minor increase in ambient noise levels during construction hours.

Based on the studies completed, Caltrans is proposing construction of a temporary sound wall for Alternative C, as depicted in green in Figure 2-9, with a length of approximately 800 feet and a height of approximately 16 feet. The final decision on temporary noise abatement would be determined after the preferred alternative is chosen and during project design.

Figure 2-9 Temporary Sound Wall Proposed for Alternative C

Avoidance and Minimization Measures

EQUIPMENT

- All construction equipment should conform to Section 14-8.02, Noise Control, of the latest Caltrans Standard Specifications.

CONSTRUCTION

- The construction activities generating excessive noise should be limited to the period between 9:00 AM and 6:00 PM, where feasible. If nightwork is needed, noise levels would not exceed 86 dBA Lmax at 50 feet from the job site from 9:00 PM to 6:00 AM, per Caltrans standard specification 14.8-02.

2.5.2 Wetlands and Other Waters

Affected Environment

A preliminary evaluation of jurisdictional wetlands was performed. Wetlands totaling 0.25 acre were identified within the project area. Other waters of the U.S. within the project area totaled approximately 0.62 acre. The project area includes wetlands and “other waters” subject to United States Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act (CWA).

Environmental Consequences

RWQCB Section 401 certification and USACE Nationwide 404 Permit may be required for this project for temporary impacts to wetlands and other waters of the United States.

Temporary impacts to wetlands and other waters of the United States would be as follows: Alternatives A and B would impact 0.17 acre, Alternative C would impact 0.25 acre, and

Alternative D would impact .06 acre. All temporary impacts are associated with staging, construction access, and falsework. Temporary impact areas will be restored at the end of one construction season. The bioretention ponds would continue to function during construction. No permanent impacts to wetlands or other jurisdictional features are anticipated.

2.5.3 Utilities/Emergency Services

Affected Environment

The project area including the I-80, I-580, and I-880 connectors serve approximately 250,000 vehicles daily based on Caltrans traffic counts. Among these vehicles are emergency service vehicles. There are utilities present within the project area, but they are not anticipated to be impacted by the proposed project.

Environmental Consequences

Emergency services, including police, fire, and medical responders could be impacted by closures of the Maze connectors during construction. Under Alternative A, Bridge Lowering, the WB I-80 to EB I-580 connector and the WB I-80 to SB I-880 connector could be closed intermittently over a period of approximately 5 months. Under Alternative B, Bridge Raising, the WB I-580 to WB I-80 connector and the EB I-80 to EB I-580 connector could be closed intermittently over a period of approximately 3 months. Under Alternative C, Partial Bridge Replacement, the WB I-580 to WB I-80 connector and the EB I-80 to EB I-580 connector could be closed intermittently over a period of approximately 15 months. Under Alternative D, Partial Deck Reconstruction, the WB I-580 to WB I-80 connector and the EB I-80 to EB I-580 connector could be closed intermittently over a period of approximately 4 months.

Project Feature

- A Traffic Management Plan (TMP) would be developed prior to project construction. The TMP would identify ways to reduce traffic congestion that would result from project construction and could include detours.

2.5.4 Traffic and Transportation/Pedestrian and Bicycle Facilities

Affected Environment

The MacArthur Maze interchange is the major traffic distribution center that enables the public to access San Francisco, Berkeley, Oakland, Emeryville, the Port of Oakland et cetera. The interchange connectors distribute traffic to and from the Bay Bridge.

The Bay Bridge Trail, which is a segment of the San Francisco Bay Trail system, extends from a trailhead on Shellmound Street in Emeryville to the East Span of the Bay Bridge. The trail is open 24 hours a day, 7 days a week.

Environmental Consequences

Traffic in the project area could potentially be impacted by lane or connector closures required by construction activities.

The Bay Bridge Trail extends through the MacArthur Maze project area and could be potentially disturbed during construction activities. The proposed project would likely require a temporary

detour of the trail during construction activities. The Bay Bridge Trail would be restored to existing conditions following construction of the project for Alternative A, Alternative B, and Alternative D. For Alternative C, the Bay Bridge Trail would be realigned within the project area and would be repaved and landscaped to match existing conditions following construction of the project.

Project Features

- A TMP would be developed prior to project construction. The TMP would identify ways to reduce traffic congestion that would result from project construction and could include detours.

- The trail would either be protected by a structure built over it during construction activities or rerouted out of the construction zone. The project would only impact the Bay Bridge Trail during construction. After the construction of the project, the Bay Bridge Trail and its adjacent landscaping would be restored to its previous condition.

Chapter 3 – California Environmental Quality Act (CEQA) Evaluation

3.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and the FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. FHWA'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 USC Section 327 (23 USC 327) and the MOU dated December 23, 2016 and executed by FHWA 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 (EIS), or a lower level of documentation, will be required. NEPA requires that an EIS 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 EIS, 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 (EIR) must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. 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 (BMPs) 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. All Avoidance and Minimization Measures are found in Appendix C.

All technical studies prepared for this project analyzed the four proposed build alternatives and the no-build alternative. The results of the technical studies showed that while there are four unique alternatives, the impacts for each alternative were generally similar. As such, the topics covered below have one discussion regarding impacts unless explicitly stated otherwise.

AESTHETICS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

CEQA Significance Determinations for Aesthetics

No Impact

A-B & D

The visual quality of the Maze is not anticipated to be substantially altered by the proposed project. To reduce glare, the avoidance and minimization measures in Section 2.1, Visual/Aesthetics, states that the project would limit all construction lighting to within the area of work and avoid light trespass through the use of directional lighting and shielding as needed.

Please refer to Section 2.1 Visual/Aesthetics.

Less Than Significant Impact

C

Existing plantings would be impacted by project construction and staging operations. These impacts would be minimized by implementing the appropriate avoidance and minimization measures.

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 Dept. 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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of 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 non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

CEQA Significance Determinations for Agriculture and Forest Resources

No Impact

A-E

There are no farmlands or forest resources within the project limits or in the vicinity of the project. Therefore, no further studies of impacts are necessary.

AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

CEQA Significance Determinations for Air Quality

No Impact

A-E

This project is exempt under the Clean Air Act conformity rule under 40 CFR 93.126, Table 2- widening narrow pavements or reconstructing bridges (no additional travel lanes) and an air quality study is not required. This project would be required to comply with Caltrans Standard Specification 14-9, Air Quality, which requires compliance with air pollution control rules, regulations, ordinances, and statues that apply within the project area. This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

BIOLOGICAL RESOURCES

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
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 Game or US Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
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?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒

CEQA Significance Determinations for Biological Resources

No Impact

A-B, D-F

The proposed project would not impact any special-status plant or animal species due to lack of suitable habitat within the project boundary.

Less Than Significant Impact

C

No permanent impacts to wetlands or other jurisdictional features are anticipated from the project. All Build Alternatives have the potential to disturb soil during construction. These construction impacts would be minimized by implementing the appropriate avoidance and minimization measures and BMPs, as described in Section 2.3.1 Water Quality and Storm Water Runoff and in Section 2.5.2 Wetlands and Other Waters.

CULTURAL RESOURCES

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

CEQA Significance Determinations for Cultural Resources

No Impact

A-D

The proposed project would have no impact on prehistoric or historical resources, paleontological resources, unique geological features, and would not disturb any human remains.

Please refer to Section 2.2 Cultural Resources for further discussion.

GEOLOGY AND SOILS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
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?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

CEQA Significance Determinations for Geology and Soils

No Impact

A-Ai & Aiv-C & E

The project will take place within an existing interchange. The project will not change the configuration of the existing structures, nor will it create any new seismic or geologic risks or exposures to users of the MacArthur Maze.

Less than Significant Impact

Aii-Aiii & D

The project area is susceptible to strong seismic ground shaking, liquefaction, and is located on expansive soils due to its proximity to the San Andreas and Hayward fault systems. To reduce the potential for seismic-event-related damage to the proposed project, the soil within the

project area will be strengthened by a grout injection method. This involves injecting cement or other materials into the ground via boreholes (drilled holes), resulting in soil stabilization once the materials set. This method would have no effect on the environmental setting and would generally improve the geology and soil conditions. For further discussion, please refer Section 2.3.2 Geology/Soils/Seismic/Topography.

GREENHOUSE GAS EMISSIONS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas (GHG) emissions that may occur related to this project. The analysis included in the climate change section of this document, Section 3.3, provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section that follows the CEQA checklist and related discussions.			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

CEQA Significance Determinations for Hazards and Hazardous Materials

No Impact

A-H

This project would not create a significant hazard to the public or the environment. The project area has been used as a transportation and highway corridor for many years, and there is the potential for soil to have been contaminated from motor vehicle exhaust (from aerially deposited lead due to historically leaded gas). Sampling will be conducted during the design phase of the project to identify any potential contaminants of concern that could be disturbed by construction activities.

HYDROLOGY AND WATER QUALITY

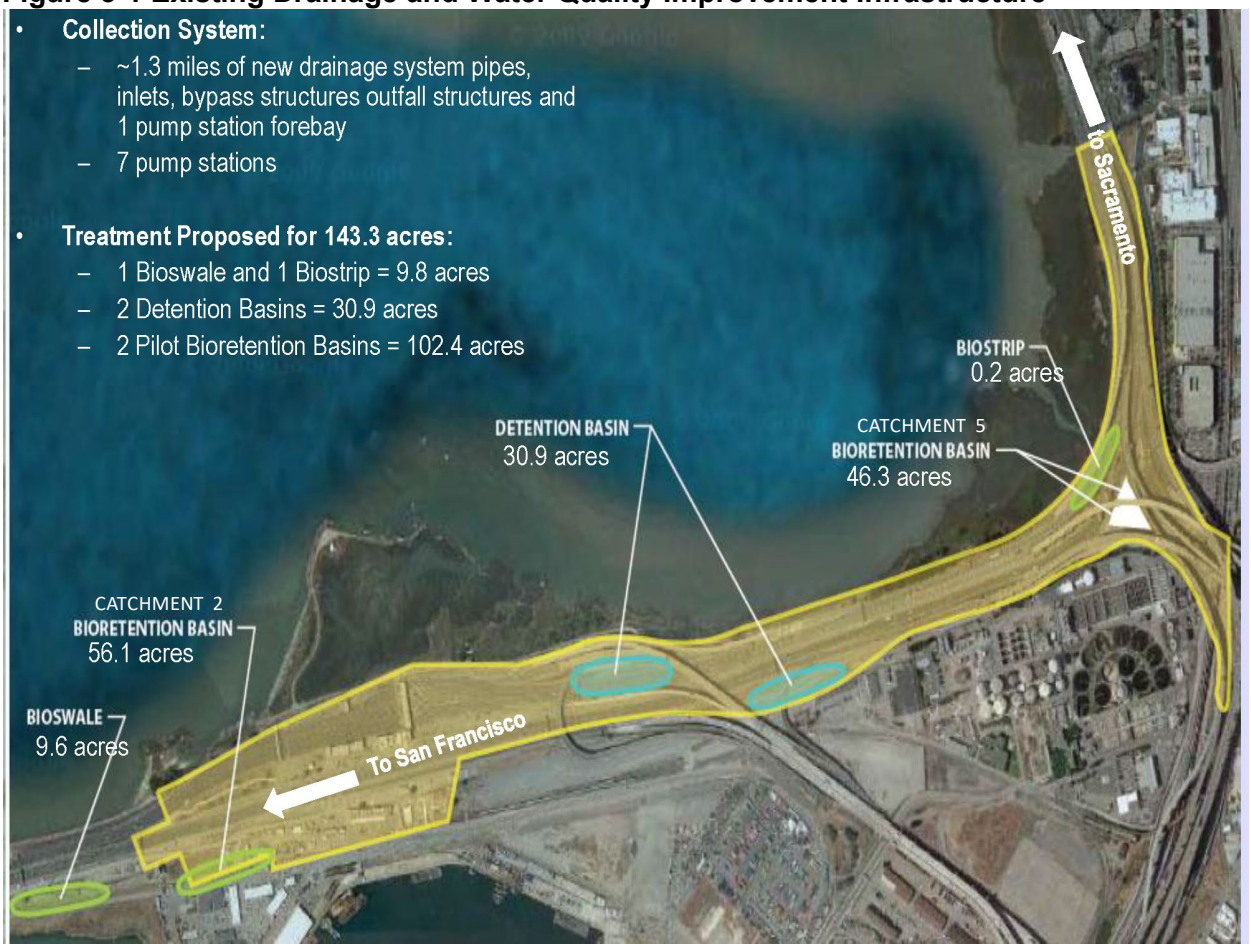
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) 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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

Affected Environment

The project area is surrounded by the San Francisco Bay with anticipated groundwater throughout. There are existing drainage facilities under the structures and existing water quality improvement devices as shown in Figure 3-1. The MacArthur Maze project area contains a

subset of the total 143 acres of the water treatment facilities. The key objective of the basins under the structures of the MacArthur Maze is to capture and treat storm water runoff from the project area. The proposed treatment measures are defined as BMPs. The basins function to reduce the concentration of storm water pollutants in urban runoff. This treatment improves the quality of the water flowing into the San Francisco Bay.

Figure 3-1 Existing Drainage and Water Quality Improvement Infrastructure



CEQA Significance Determinations for Hydrology and Water Quality

No Impact

C-D & F-J

Less Than Significant Impact

A-B & E

This project would create over 1 acre in disturbed soil area and has a potential to interfere with groundwater recharge within the project area. A SWPPP would be prepared by the construction contractor and approved by Caltrans prior to the start of construction to minimize pollution and storm water runoff. The SWPPP would address potential temporary impacts and permanent impacts via the implementation of appropriate BMPs further described in Section 2.3.1 Water Quality and Storm Water Runoff. If the capacity of the existing treatment basin system is reduced, additional post-construction water quality treatment BMPs would be required to treat the same amount of storm water that the system currently treats.

The proposed soil treatments, further described in Section 2.3.2 Geology/Soils/Seismic/Topography, may potentially displace groundwater within the project area. The existing groundwater within the project area does not serve any municipal and domestic water supply, industrial process supply, industrial water supply, or agricultural water supply. Therefore, while there may be some impacts to groundwater, these impacts would be less than significant.

LAND USE AND PLANNING

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b)Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

CEQA Significance Determinations for Land Use and Planning

No Impact

A-C

The proposed project complies with the stated goals of the (2016 Alameda) Countywide Transportation Plan, including goals for movement of goods. This project would allow freight vehicles more direct access to and from the Port of Oakland as the reliability of freight movement in these corridors is essential to the nation's economy. There would be no impacts to land use and planning.

MINERAL RESOURCES

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

CEQA Significance Determinations for Mineral Resources

No Impact

A-B

There are no mineral resources mapped within the vicinity of the proposed project. Therefore, implementation of the project would not result in the loss of availability of a locally important mineral resource recovery site. Furthermore, the project would not result in the loss of availability of a known mineral resource.

NOISE

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two 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?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

CEQA Significance Determinations for Noise

No Impact

B-F

The project would not create any permanent increase in noise levels. Noise levels during construction would not be considered adverse or significant.

Less Than Significant Impact

A

Typically, work taking place within the Caltrans ROW is not subject to local noise ordinances; however, Caltrans would work with the contractor to meet local requirements where feasible. If construction noise level is expected to exceed the contract specification criteria or construction noise levels are expected to exceed the ambient (baseline) noise levels, and there are sensitive receptors near the project site, construction noise control measures would be implemented. Noise Control would be anticipated for only Alternative C, as the nearest residences to I-580 would be located to the east of Hannah Street. Please see Section 2.5.1 Noise for further discussion.

POPULATION AND HOUSING

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial 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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Affected Environment

The project area is currently used for transportation purposes. The eastern and southern portions of the project area is adjacent to developed areas of Emeryville and Oakland. These developed areas are mixed-use, and include housing.

CEQA Significance Determinations for Population and Housing

No Impact

A-C

This project would not cause population growth or effect housing, and would not displace individuals from housing.

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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

CEQA Significance Determinations for Public Services

No Impact

The proposed project would maintain acceptable service ratios or response times. Furthermore, it would not impede performance objectives for any public services. No area would be isolated by the closures caused by this project and there would be a TMP implemented during construction activities that would result in detours. The closures of this project would not affect fire protection, police protection, schools, parks or other public facilities, due to the TMP and implemented detours. There would be no impact on public services.

RECREATION

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

CEQA Significance Determinations for Recreation

No Impact

A-B

The proposed project would have no effect on recreational parks or recreational facilities as there are none present in the project area. Further discussion on the temporary impacts to the Bay Bridge Trail can be found in the Section 2.5.4 Traffic and Transportation/Pedestrian and Bicycle Facilities.

TRANSPORTATION/TRAFFIC

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

CEQA Significance Determinations for Transportation/Traffic

No Impact

A-F

All traffic impacts would be temporary during construction. The Bay Bridge Trail construction impacts would be temporary and would not conflict with any adopted policies, plans, or pedestrian facilities. Due to anticipated closures that would result in detours, a TMP would be implemented during construction. Further discussion can be found in Section 2.5.4 Traffic and Transportation/Pedestrian and Bicycle Facilities.

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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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	☐	☐	☐	☒
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

CEQA Significance Determinations for Tribal Cultural Resources

No Impact

A-B

Caltrans contacted the Native American Heritage Commission (NAHC) on August 11, 2017, requesting a search of their sacred lands file and a list of interested Native American parties. Individuals and tribes provided by the NAHC were contacted on August 24, 2017. Representatives from the Costanoan Rumsen tribe, the Indian Canyon Mutsun Band of Costanoan Indians, and the Ohlone Indian tribe requested to be kept informed as the project progresses and provided no comment on the build alternatives. The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American tribe.

UTILITIES AND SERVICE SYSTEMS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

CEQA Significance Determinations for Utilities and Service Systems

No Impact

A-G

The proposed project would not create additional wastewater, create/treat solid waste, require new storm water drainage that would result in a significant environmental effect, require additional water supplies, or be served by landfill.

MANDATORY FINDINGS OF SIGNIFICANCE

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to 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?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

CEQA Significance Determinations for Mandatory Findings of Significance

No Impact

A-C

The proposed project would not degrade the environment, would not have a cumulative impact, and would not result in indirect or direct environmental impacts on human beings.

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 (GHG) 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 (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.[7] In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.[8] The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how Caltrans address the impacts of climate change: GHG mitigation and adaptation. Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG 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).

3.3.1 Regulatory Setting

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

NEPA (42 USC 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 FHWA 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. FHWA 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.[9] This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability."[10] Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase

[7] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014
[8] https://www.arb.ca.gov/cc/inventory/data/data.htm
[9] https://www.fhwa.dot.gov/environment/sustainability/resilience/
[10] https://www.sustainablehighways.dot.gov/overview.aspx

safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been made widely known at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

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) Indian 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.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Clear Air Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

U.S. EPA, in conjunction with the National Highway Traffic Safety Administration (NHTSA), issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[11] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The mid-term evaluation is the overarching process by which NHTSA, EPA, and Air

[11] https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy

Resources Board (ARB) will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.[12]

NHTSA and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO_2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

State

With the passage of legislation including State Senate, Assembly bills, and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order (EO) is to reduce California's GHG 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 SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS 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 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to CEQA Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

[12] http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256 and https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

EO B-16-12 (March 2012): This EO orders State entities under the direction of the Governor, including ARB, 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.

EO B-30-15 (April 2015): This EO establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). 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.

SB 32 Chapter 249, 2016: This SB codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

3.3.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the updated Scoping Plan, ARB released the GHG inventory for California.[13] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

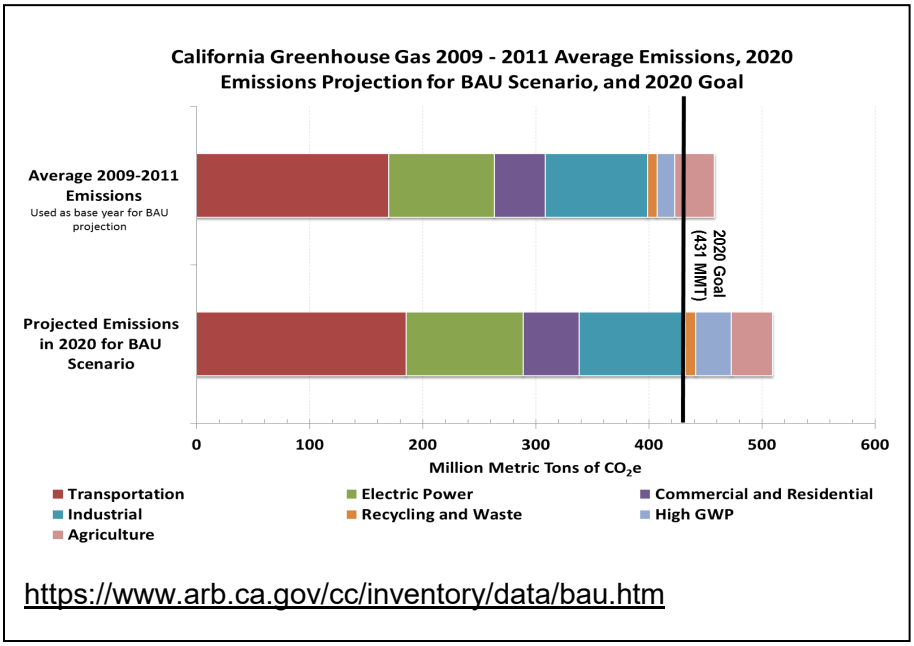
An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns.

[13] 2018 Edition of the GHG Emission Inventory released (July 2018): https://www.arb.ca.gov/cc/inventory/data/data.htm

The projected 2020 emissions provided in Figure 3-2 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e[14]. The 2018 edition of the GHG emissions inventory found total California emissions of 429 $MMTCO_2e$ for 2016.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 $MMTCO_2e$ total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 $MMTCO_2e$.

Figure 3-2 2020 Business as Usual (BAU) Emissions Projection 2014 Edition



https://www.arb.ca.gov/cc/inventory/data/bau.htm

3.3.3 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[15] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA

[14] The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)

[15] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

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. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

Operational Emissions

The purpose of the proposed project is to allow safer, more efficient travel for oversized vehicles through the MacArthur Maze by increasing the vertical clearance of the Maze connectors. The proposed project would reduce the need for freight vehicles to use local streets to avoid the areas with insufficient vertical clearance and would also reduce idling on local streets. The reduction of use of local streets and idling would cause a reduction of operational GHG emissions. The movement of freight vehicles from the local streets would ensure a reduction of truck traffic within the general area of the project. Altering the existing structures would not increase the capacity of I-80, I-580, or I-880 through the Maze, and would not change vehicle miles traveled. Accordingly, no increase in operational GHG emissions is anticipated.

Construction Emissions

Construction GHG emissions would result from material processing, on-site 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.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

The analysis was focused on carbon dioxide (CO2) emissions, as it is the single most important GHG pollutant due to its abundance when compared with other vehicle-emitted GHGs, including methane (CH4), nitrous oxide (N20), hydrofluorocarbon (HFCs), and black carbon (BC). Based on project information available for environmental studies, the construction-related CO2 emissions were calculated using the Road Construction Emissions Model (RCEM), version 8.1.0, provided by the Sacramento Metropolitan Air Quality Management District. The estimated amounts of CO2 produced during construction of the following Build Alternatives are as follows:

1. Alternative A (project construction time of 26 months) - 1472.16 tons (CO2)
2. Alternative B (project construction time of 28 months) - 1655.85 tons (CO2)
3. Alternative C (project construction time of 36 months) - 4003.29 tons (CO2)
4. Alternative D (project construction time of 10 months) - 900.03 tons (CO2)

A summary of all GHG emissions is provided in Table 3-1. [16]

[16] For this analysis, “carbon dioxide equivalent,” or CO2e, consists CH4 and N2O converted to units of CO2, then added to CO2 emissions to obtain CO2e. The conversion uses the global

Table 3-1 Summary of GHG Emissions per Build Alternaitve

Alternatives	Construction-related GHG Emissions[17]			
	Parameters			
	CO_2 (tons)	CH_4 (tons)	N_2O (tons)	CO_2e (MT)
Alternative A- Lower Connectors				
Total	1472.16	0.25	0.01	1345.06
Alternative B- Raise Connectors				
Total	1655.85	0.26	0.02	1512.49
Alternative C- Realign Connectors				
Total	4003.29	0.88	0.05	3678.32
Alternative D- Partial Reconstruction of Connectors				
Total	900.03	0.19	0.01	823.39

Caltrans Standard Specifications Section 14-9.02, Air Pollution Control, a part of all construction contracts, requires that contractors comply with all federal, state, and local rules, regulations, statutes, and ordinances related to air quality, some of which also reduce GHG emissions. Measures to reduce construction GHG emissions include maintenance of construction equipment and vehicles, limiting construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

3.3.4 CEQA Conclusion

While the project will result in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. While it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

STATEWIDE EFFORTS

In an effort to further the vision of California's GHG reduction targets outlined an AB 32 and SB 32, then-Governor Jerry Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (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

warming potential (GWP) of each gas. The GWP of each gas is a multiple of the GWP of CO2, which is 1, by definition.

[17] Gases are converted to CO2e by multiplying by their Global Warming Potential (GWP). Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO2).

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 farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, Safeguarding California.

Figure 3-3 The Governor's Climate change pillars: 2030 Greenhouse gas reduction goals

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Jerry Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

CALTRANS ACTIVITIES

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG 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 (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 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 GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs
In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director's Policy 30 (DP-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 activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

3.3.5 Project-Level GHG Reduction Strategies

The following measures would also be implemented to reduce GHG emissions and potential climate change impacts from the project.

- Caltrans Standard Specifications Sections 7-1.02C, Emissions Reduction, and 14-9.02, Air Pollution Control, a part of all construction contracts, require that contractors certify awareness of and comply with all federal, state, and local rules, regulations, statutes, and ordinances related to air quality, some of which also reduce GHG emissions.
- All construction equipment and vehicles will be properly tuned and maintained to minimize emissions.
- Construction vehicle idling time will be limited to 2 minutes.
- A transportation construction management plan will be developed to minimize construction traffic delays and reduce engine emissions.
- A transportation construction plan will be prepared for all phases of construction.
- A construction phasing/staging schedule and sequence will be established that minimizes impacts of a work zone on traffic by using operationally sensitive phasing and staging throughout the life of the project.
- Arrival/departure times for trucks and construction workers will be identified to avoid peak periods of adjacent street traffic and minimize traffic affects.

- Optimal delivery and haul routes to and from the site will be identified to minimize impacts to traffic, transit, pedestrians, and bicyclists.
- Appropriate detour routes for bicycles and pedestrians in areas affected by construction will be identified.
- Current and/or real-time information will be provided to road users regarding the project work zone (e.g., changeable message sign to notify road users of lane and road closures and work activities, temporary conventional signs to guide motorists through the work zone).

3.3.6 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat, increasing storm damage from flooding and erosion, and, inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011[18], outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT 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."[19]

To further the DOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[20] This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and

[18] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience
[19] https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm
[20] https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm

programs in order to promote preparedness and resilience; safeguard federal investments; and, ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.[21]

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high-water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)[22] was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),[23] which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

[21] https://www.fhwa.dot.gov/environment/sustainability/resilience/

[22] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

[23] http://www.climatechange.ca.gov/adaptation/strategy/index.html

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating Sea Level Rise (SLR) projections into planning and decision making for projects in California," specifically, "information and recommendations to enhance consistency across agencies in their development of approaches to SLR."[24]

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

2018 guidance on future sea level rise published by the Ocean Protection Council projected that sea levels in San Francisco, California are projected to rise as follows:

Table 3-2 Projected Sea Level Rise (in feet) for San Francisco

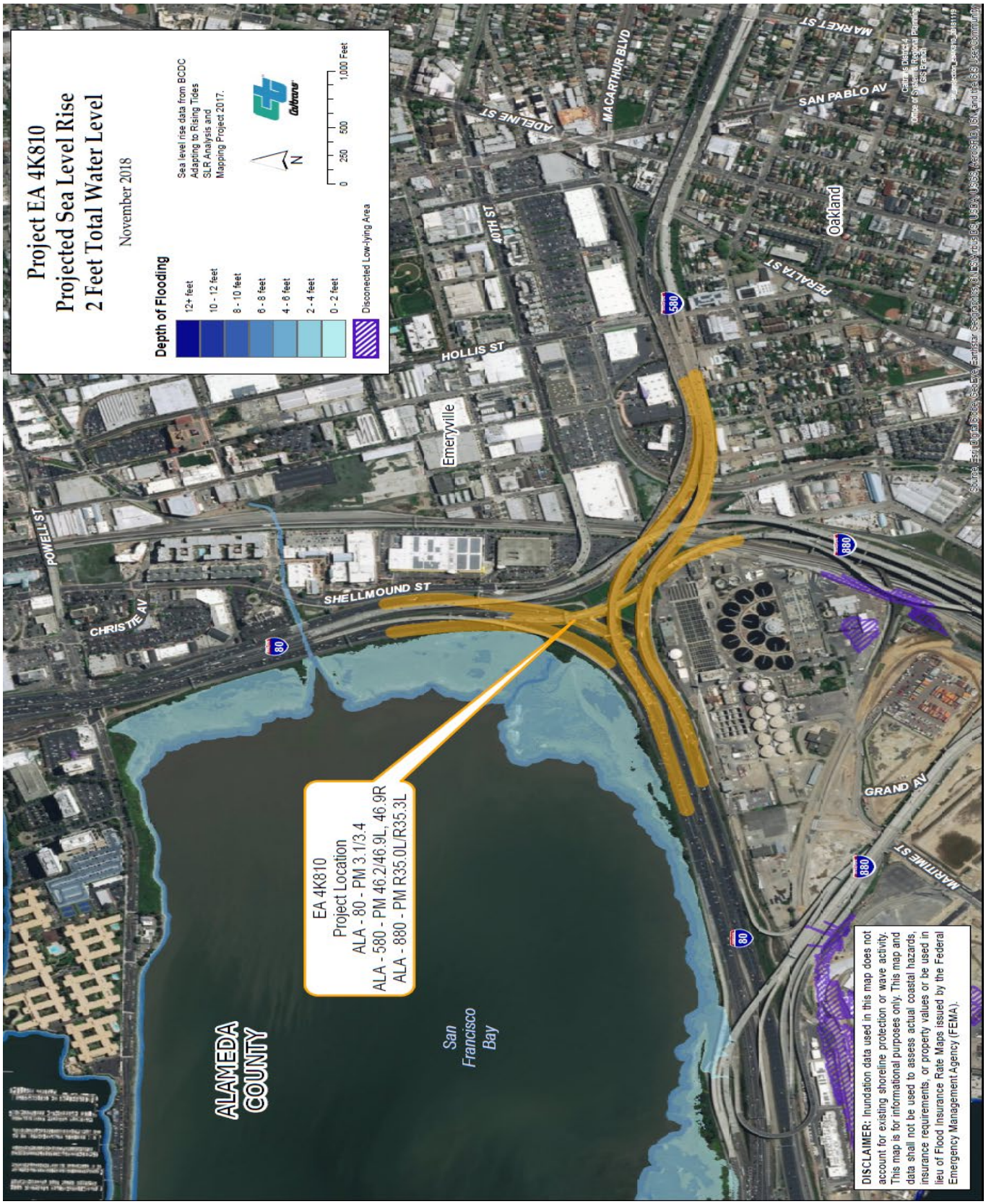
Year	Median (50% Probability)	Likely Range (66% Probability)	1 in 20 Chance (5% Probability)	1 in 200 Chance (0.5% Probability)	Extreme Risk Aversion Scenario
2050	0.9	0.6 – 1.1	1.4	1.9	2.7
2100 (High Emissions)	2.5	1.6 – 3.4	4.4	6.9	10.2

The Sea Level Rise (SLR) information from the Ocean Protection Council (OPC) guidance, is available at http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf. A SLR risk screening for the proposed project was conducted in the accordance with OPC. According to Figure 3-4 and compared to the information stated in Table 3-2, both sourced from the OPC, the proposed project is in a low-lying area subject to SLR inundation impacts. However, the project would not be directly impacted from SLR, and is not anticipated to have a risk of future damage from SLR.

The project has no anticipated impacts involving erosion, wave action, coastal or riverine flood hazards, tsunamis, SLR, or beach nourishment.

[24] http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

Figure 3-4 Represents 2 feet of Sea Level Rise (year 2050)



Chapter 4 – Comments and Coordination

4.1 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 for this project have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, Project Development Team (PDT) meetings, and Construction Manager/General Contractor (CMGC) meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

Caltrans contacted the Native American Heritage Commission on August 11, 2017, requesting a search of their sacred lands file and a list of interested Native American parties. Individuals and tribes provided by the NAHC were contacted on August 24, 2017. Representatives from the Costanoan Rumsen tribe, the Indian Canyon Mutsun Band of Costanoan Indians, and the Ohlone Indian tribe requested to be kept informed as the project progresses.

Public participation will be done during the public comment period for this document.

4.1.1 Document Coordination

During the preparation of this document, the following agencies were consulted:

Federal

U.S. Army Corps of Engineers (USACE)
United States Fish and Wildlife Service (USFWS)
National Marine Fisheries Service (NMFS)

State

State Historic Preservation Officer (SHPO)
California Department of Fish and Wildlife (CDFW)

All interagency correspondence is provided below:

December 18, 2017 – A technical assistance meeting was held in the field with Sara Cortez (USFWS) to describe the proposed Project.

March 1, 2018 – An email was sent to Monica DeAngelis (National Marine Fisheries Service (NMFS) to notify NMFS about the proposed project.

April 11, 2018 – A technical assistance phone call was held with Darren Howe (NMFS) to describe the proposed project.

April 25, 2018 – A technical assistance meeting was held in the field with Robert Stanley (CDFW) to describe the proposed project.

November 13, 2018 – Submitted Delineation of Aquatic Resources to USACE for verification (see transmittal letter).

December 4, 2018 – Field meeting with USACE to review the delineation of aquatic resources. Caltrans does not intend to have any further consultations with USFWS, CDFW, or NMFS.

December 11, 2018 – USFWS, and CDFW, and NMFS lists were populated, attached in Appendix E.

December 14, 2018 NMFS list was populated, attached in Appendix E.

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF BIOLOGICAL SCIENCES AND PERMITS
P.O. BOX 23660, MS– 8E
OAKLAND, CA 94623-0660
PHONE (510) 286-6046
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TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

November 9, 2018

Ms. Holly Costa
Acting Chief, Regulatory Division
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1398

Dear Ms. Costa,

We are planning to increase the vertical clearances at three locations within the MacArthur Maze Interchange in the City of Oakland, Alameda County. The MacArthur Maze connects Interstates 80, 580, and 880. The purpose of the project is to remedy vertical clearance deficiencies within the MacArthur Maze that impedes the safe and efficient movement of freight vehicles through the interchange.

We have delineated and mapped the portions of the project's Biological Study Area that qualify as wetlands and other waters of the U.S. under federal jurisdiction pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Please find the delineation of aquatic resources enclosed for your preliminary approval.

Thank you for your consideration of our request. If you have any questions, please call me at (510) 286-6046 or John Yeakel at (510) 286-5681. Thank you very much.

Sincerely,

Jo Ann Cullom

Jo Ann Cullom, Chief
Office of Biological
Sciences and Permits

Enclosure: Delineation of Aquatic Resources

cc: Katerina Galacatos, United State Army Corps of Engineers
Daniel Breen, Caltrans Liaison, United State Army Corps of Engineers

Ms. Holly Costa,
November 9, 2018
Page 2

bcc: Laurie Lau, Project Manager, Caltrans
Cristin Hallissy, Branch Chief, Office of Environmental Planning, Caltrans
John Yeakel, Branch Chief, Office of Biological Science and Permits, Caltrans

ALA – 80 (PM 2.8)
ALA 580 (PM 46.5r & 46.5l)
ALA 880 (PM 34.5l)
0417000363
04-4K810

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

State of California • Natural Resources Agency
Edmund G. Brown Jr., Governor

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Lisa Ann L. Mangat, Director

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

October 23, 2018

VIA EMAIL

In reply refer to: FHWA_2018_1002_001

Mr. Christopher Caputo, Chief
Office of Cultural Resource Studies
Caltrans District 4
PO Box 23660
Oakland, CA 94623-0660

Subject: Determinations of Eligibility for the Proposed MacArthur Maze Vertical Clearance Project in Alameda County, CA

Dear Mr. Caputo:

Caltrans is initiating consultation for the above project in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA). As part of your documentation, Caltrans submitted a Historic Property Survey Report (HPSR), Historical Resources Evaluation Report, an Archaeological Survey Report, and an Extended Phase I Report for the proposed project.

Caltrans proposes to modify and reconstruct the MacArthur Maze, the distribution structure for Interstates 80, 580 and 880. The project is intended to increase vertical clearances to current standards in order to accommodate oversized vehicles and loads. Various alternatives are being considered for both the project and any temporary construction easements. Alternatives include raising, lowering, or completely replacing bridges throughout the structure. The project also includes construction of a scaffold system over the railroad lines that will allow railroad operations to continue unimpeded and will protect rail facilities from debris and other potential impacts. A full project description is on Page 1 of the HPSR.

In accordance with Stipulation VIII.C.6 of the PA, Caltrans is requesting concurrence that the following properties are not eligible for the National Register of Historic Places (NRHP):

- The Key System Subway Tunnel

Mr. Caputo FHWA_2018_1002_001
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- CA-ALA-700H (P-01-012001)

Based on my review of the submitted documentation, I concur.

If you have any questions, please contact Natalie Lindquist at (916) 445-7014 with e-mail at natalie.lindquist@parks.ca.gov or Alicia Perez at (916) 445-7020 with e-mail at alicia.perez@parks.ca.gov .

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Chapter 5 – List of Preparers

CALIFORNIA DEPARTMENT OF TRANSPORTATION
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Environmental Analysis
Rebecca De Pont, Associate Environmental Planner
Cristin Hallissy, Branch Chief

Cultural Resource Studies
Michael Meloy, Architectural History
Noah Stewart, Branch Chief, Architectural History
Jennifer Blake, Archaeology
Kathryn Rose, Branch Chief, Archaeology

Hazardous Waste
Chris Wilson, Branch Chief

Landscape Architecture
Lydia Mac, Branch Chief
Keith Suzuki, Landscape Associate

Biological Sciences and Permits
John Yeakel, Branch Chief

Hydraulic Engineering
Craig Tommimatsu, Office Chief

East County Design
Van Hew, Transportation Engineer
Peter Aguilera, Transportation Engineer

GARCIA & ASSOCIATES
Denis Coghlan, Biologist
Robert Solotar, Environmental Planner

Chapter 6 – Distribution List

The following agencies, organizations, and individuals received printed or electronic copies of this document. Organizations, businesses, and individuals on the project mailing list were notified of the availability of this document and public meetings.

Federal Agencies

U.S. Fish and Wildlife Service
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APPENDICES

Appendix A. Section 4(f)

Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination(s)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States 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."

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.

The following locations are potential 4(f) resources within 0.5 mile of the project area: Lakeside Park, Willie Keyes Community Recreation Center, DeFremery Park, Wade Johnson Park, Lowell Park, McClymonds High School, Marston Campbell Park, Emery High School, Stanford Park, Doyle Hollis Park, Golden Gate Recreation Center, San Pablo Park, Mosswood Park, Astro Park, Splash Pad Park, Lafayette Square Park, Union Plaza, Middle Harbor Shoreline Park, and McLaughlin Eastshore State Park, and the San Francisco Bay Trail. With the exception of the San Francisco Bay Trail, there are no potential impacts to these locations. As no use will occur to any of these properties, the provisions of Section 4(f) do not apply. Discussion regarding the San Francisco Bay Trail is included below.

The Bay Bridge Trail (trail) is the segment of the San Francisco Bay Trail system located within the proposed project footprint. It extends from the trailhead on Shellmound Street in Emeryville, to the East Span of the San Francisco-Oakland Bay Bridge. The trail is open 24 hours a day, 7 days a week. Under alternatives A, B and D, the trail may require a temporary detour and/or overhead protection during construction. Alternative C may require overhead protection and a temporary detour of the trail during construction, and a minor trail realignment after project construction is complete. For all alternatives the trail is anticipated to be returned to its existing condition after construction is complete.

The segment of the San Francisco Bay Trail known as the Bay Bridge Trail is considered a transportation trail, as it is owned and maintained by Caltrans. Impacts to this trail are exempt from 4(f) as they meet the criteria set forth in 23 CFR 774.13 (F) (4) which states that trails, paths, bikeways, and sidewalks that are part of the local transportation system and which function primarily for transportation meet the requirements for a 4(f) exception. All properties discussed above either have no use per section 4(f) or are exempt from 4(f). Therefore, the provisions of Section 4(f) do not apply.

Appendix B. Title VI Policy Statement

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., 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.

April 2018

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 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, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

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, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title.VI@dot.ca.gov, or visit the website www.dot.ca.gov.

LAURIE BERMAN
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Environmental Commitments Record for EA 04-4K810_ / ID 0417000363

Last updated 1/7/2019

MacArthur Maze/Increase Vertical Clearance
ALA-080-0.000/0.000
Current Project Phase: 0

EP: Rebecca De Pont
CL:
RE:

Permits

Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed Name	Requirements Completed Date	Comments
Approved Jurisdictional Determination (AJD)	US Army Corps of Engineers	11/13/18					
No Consultation Required	n/a						

Commitments

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
PS&E/Before RTL						
Water Quality						
To prevent or reduce impacts, temporary Construction Site Best Management Practices (BMPs) will be deployed for sediment control and material management. These include cover, check dam, drainage inlet protection, fiber roll, silt fence, concrete wash-out, and street sweeping. Dewatering for foundation work is anticipated.	SSP	SSP	Design/RE		Signature Date	
Pre-Construction						
Biology						
A qualified biologist(s) will be on-site during initial ground-disturbing activities, and thereafter as needed. The biologist (s) will ensure that take of special-status species is avoided and permit requirements are fully implemented and will have the authority though the Resident Engineer to stop work if he/she determines that any permit requirements are not fully implemented.	SSP	SSP	Biologist/RE		Signature Date	
All construction personnel will attend a mandatory environmental education program prior to working on the project. The program will focus on the conservation measures that are relevant to employee's work duties and would include how to avoid take of listed species.	SSP	SSP	Biologist		Signature Date	
Clearing and grubbing of vegetation should occur outside of the nesting bird season (February 1 to September 30), to the	SSP	SSP	Biologist			

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Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
degree possible. When it is necessary to conduct clearing during the nesting season, preconstruction surveys would be conducted within the BSA prior to clearing and grubbing of vegetation. If preconstruction surveys indicate the presence of nests of any special-status species, USFWS would be consulted to determine the appropriate buffer area to be established around the nesting site for the duration of the breeding season.					Signature Date	
If work is to occur within 300 feet of active raptor nests and 50 feet of active passerine nests a non-disturbance buffer would be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance. Buffer size would be determined by an experienced biologist.	SSP	SSP	Biologist		Signature Date	
Pre-construction surveys will be conducted by an agency-approved biologist for listed species prior to any ground disturbance. These surveys will consist of walking the project and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, and debris. Native animal species found within the project limits will be documented and relocated to an adequate cover site in the vicinity. The entrances and other refuge features within the project limits will be collapsed or removed.	SSP	SSP	Biologist		Signature Date	
Prior to commencing construction work, wetlands within 100 feet of construction activities will be delineated with high visibility temporary fencing.	SSP	SSP	Biologist		Signature Date	
Hazardous Waste						
Soil and groundwater testing would be necessary for alternative C.	SSP	SSP	Hazardous Waste/Design		Signature Date	

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Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
Landscape						
Minimize the removal of ground-cover and shrubs to the greatest extent possible.	SSP	SSP	Contractor/RE		Signature Date	
Place high visibility temporary fencing around vegetation to be protected before roadway begins.	SSP	SSP	Contractor/RE		Signature Date	
Protect existing vegetation outside the clearing and grubbing limits from the contractor's operations, equipment and materials storage.	SSP	SSP	Contractor/RE		Signature Date	
Water Quality						
Prior to commencement of construction activities, a SWPPP will be prepared by the Contractor and approved by the Department. The SWPPP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the Maximum Extent Practicable.	SSP	SSP	Design		Signature Date	
Water Quality treatment BMPs are required. The foundation work for Alternative C may impact the bioretention system. Any reduction to the capacity of the bioretention system will need to be compensated.	SSP	SSP	Design		Signature Date	
Construction						
Biology						
All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.	SSP	SSP	Biologist		Signature Date	
Any area under a confirmed day or night bat roost that is	SSP	SSP	Biologist			

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CL:
RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
within visual sight of bats will be designated as an environmentally sensitive area (ESA). To minimize impacts to day roosts during the non-volant period when young are present but cannot fly (May 1 to July 31), work should not occur directly under or adjacent to the roost. To minimize impacts to night roosts, construction activities should not occur immediately around a roost site between 10:00 p.m. and sunrise, especially during the period of highest nightroost use from spring to fall.Clearing of vegetation and grubbing around roosts is to be minimized wherever possible. Combustion equipment (e.g., pumps, generators, vehicles) would not be used immediately under the roost. The presence of personnel under roost sites would be minimized, particularly during the evening exodus. Lights would not be placed in a location where a roost site would be illuminated.					Signature Date	
Dedicated fueling and refueling practices would be outlined as part of the Storm Water Pollution Prevention Plan (SWPPP). Dedicated fueling areas would be protected from stormwater run-on and run-off and would be located at least 50 feet from downslope drainage facilities and water courses. Fueling must be performed on level-grade areas. On-site fueling would only be used where it is impractical to send vehicles and equipment off site for fueling. When fueling must occur on-site, the contractor would designate an area to be used subject to the approval of the Caltrans resident engineer. Drip pans or absorbent pads would be used during on-site vehicle and equipment fueling. The potential for adverse effects to water quality would be avoided by implementing temporary and permanent Best Management Practices (BMPs) outlined in Section 7-1.01G of the Caltrans' Standard Specifications. Caltrans erosion control BMPs would be used to minimize any wind- or water-related erosion. The State Water Resources Control Board has issued a National Pollutant Discharge Elimination System Statewide Storm Water Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans facilities. A SWPPP would be developed for the Project, as one is required for all projects that have at least one acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP features guidance for Caltrans design staff to include	SSP	SSP	Biologist		Signature Date	

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CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
provisions in construction contracts for measures to protect sensitive areas and to prevent and minimize stormwater and nonstormwater discharges. The SWPPP would reference the Caltrans Construction Site BMPs Manual.						
To prevent inadvertent entrapment of wildlife during construction, excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot-high vertical barrier, independent of exclusionary fences, may be used to prevent the inadvertent entrapment of special-status species. If it is not feasible to cover an excavation or provide an additional 4-foot-high vertical barrier independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.	SSP	SSP	Biologist		Signature Date	
To prevent wildlife from being entangled, trapped, or injured, erosion control materials with plastic monofilament netting would not be used within the BSA.	SSP	SSP	Biologist		Signature Date	
Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater Best Management Practices (BMPs) are adequate.	SSP	SSP	Biologist		Signature Date	
Cultural Resources						
If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find.	SSP	SSP	Contractor/RE		Signature Date	

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MacArthur Maze/Increase Vertical Clearance

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RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
Hazardous Waste						
If found, ACM, LCP, and regulated lead-contaminated soils will be mitigated according to the appropriate Caltrans provisions.	SSP	SSP	RE		Signature Date	
Landscape						
Provide truck watering of vegetation when automated irrigation is interrupted by construction.	SSP	SSP	Contractor/RE		Signature Date	
Noise						
All construction equipment should conform to Section 14 -8.02, Noise Control, of the latest Caltrans Standard Specifications.	SSP	SSP	Contractor/RE		Signature Date	
Based on the studies completed, for Alternative C, Caltrans intends to incorporate noise abatement in the form of a temporary sound wall with a length of approximately 800 feet and a height of approximately 16 feet.	SSP	SSP	Design/RE		Signature Date	
The construction activities generating excessive noise should be limited in the period between 9:00 PM and 6:00 AM, where feasible. If nightwork is needed, per Caltrans standard specification 14.8-02 noise levels are not to exceed 86 dBA Lmax at 50 feet from the job site from 9:00 PM to 6:00 AM.	SSP	SSP	Contractor/RE		Signature Date	
Visual Resources						
For Alternative C, the design, color and aesthetic treatment for the new connectors and support columns shall match that of the existing connectors and columns so to be visually compatible and consistent with the existing structures.	SSP	SSP	Design		Signature Date	

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Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
Limit all construction lighting to within the area of work and avoid light trespass through the use of directional lighting and shielding as needed.	SSP	SSP	Contractor/RE		Signature Date	
New concrete safety barriers and/or railing should match the aesthetics of the existing connectors. See-through barriers and/or railings should be used where outward views exist to reduce screening of views.	SSP	SSP	Design		Signature Date	
Place unsightly materials, equipment storage and staging so that they are not visible within the foreground of the highway corridor to the maximum extent feasible. Where such siting is unavoidable, material and equipment shall be visually screened to minimize visibility from the roadway and nearby sensitive off-road receptors.	SSP	SSP	Contractor/RE		Signature Date	
Water Quality						
All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.	SSP	SSP	Contractor/RE		Signature Date	
Other						
Staging will only occur in previously environmentally cleared designated areas.	SSP	SSP	Contractor/RE		Signature Date	
Post-Construction						
Biology						
All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and trees. Invasive, exotic plants will be controlled within the PCA to the maximum extent practicable, pursuant to Executive Order 13112.	SSP	SSP	Biologist		Signature Date	

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Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed	Remarks/Due Date
Landscape						
All disturbed areas shall receive hydroseeded treatment of erosion control grasses, and if appropriate, locally native grasses.	SSP	SSP	Contractor/RE		Signature Date	
Fund required planting through the parent roadway contract to be completed as a separate contract with a three-year plant establishment period.	SSP	SSP	Project Management		Signature Date	
Landscape all areas disturbed by construction, staging and storage.	SSP	SSP	Contractor/RE		Signature Date	
Replace ornamental grasses at a minimum 1:1 replacement ratio.	SSP	SSP	Contractor/RE		Signature Date	
Replace removed shrubs and trees at a minimum 1:1 replacement ratio.	SSP	SSP	Contractor/RE		Signature Date	

Appendix D. List of Technical Studies

- 4(f) Analysis- A 4(f) memo was completed December 3, 2018 to capture that no 4(f) resources would be impacted by the proposed project

- Air Quality Assessment- An exemption memo for the proposed project was completed on September 19, 2017.

- Hydraulics Report- A Location Hydraulics Study and Preliminary Hydraulic Investigation for the proposed project was completed on March 5, 2018.

- Noise Study- A Construction Noise Assessment for the proposed project was approved April 11, 2018.

- Geotechnical Report- A District Preliminary Geotechnical Report for the proposed project was approved on April 17, 2018.

- Water Quality Study- An aquatic resource field survey and wetland delineation of the proposed project site was conducted in August 2018, and a Delineation of Aquatic Resources report was completed for the project in November 2018. A Water Quality Study was prepared on November 8, 2018, to assess the proposed project's potential effects to water quality and storm water management in the area.

- Cultural Findings- The following cultural resources technical reports were completed for the proposed project: Archaeological Survey Report (ASR), approved January 2018; Extended Phase I (XPI) Report, approved September 2018; and Historical Resources Evaluation Report, approved September 2018. A Historic Property Survey Report (HPSR) was completed in September 2018.

- Natural Environment Study- A Natural Environment Study (NES) was prepared in December 2018, to analyze the proposed project's environmental setting and to determine potential impacts from the project. In addition, a wildlife habitat assessment was conducted in February 2018, to evaluate the potential for the project to impact any animal species within the project boundary.

- Summary Floodplain Encroachment Report- A floodplain map was generated by Caltrans' Hydraulics group from FEMA on March 5, 2018 that shows that the proposed project is not in a floodplain.

- Visual Impact Assessment- Visual Impact Analysis (VIA) prepared for the for the proposed project. The VIA was approved on August 7, 2018, with VIA addenda approved on November 6, 2018 and December 13, 2018.

- Hazardous Waste Memo- A search of environmental regulatory databases project was conducted in January 2018 and did not identify any known nearby hazardous materials or hazardous waste sites in the vicinity of the project that could likely impact the proposed project schedule or construction.

Appendix E. Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654
http://kim_squires@fws.gov

In Reply Refer To: December 14, 2018
Consultation Code: 08FBDT00-2019-SLI-0064
Event Code: 08FBDT00-2019-E-00150
Project Name: Ala 80/580/880 MacArthur Maze Verticle Clearance 04-4K810

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

▪ Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846
(916) 414-6600

Project Summary
Consultation Code: 08FBDT00-2019-SLI-0064
Event Code: 08FBDT00-2019-E-00150
Project Name: Ala 80/580/880 MacArthur Maze Verticle Clearance 04-4K810
Project Type: TRANSPORTATION
Project Description: The California Department of Transportation (Caltrans) proposes to increase the vertical clearance to current standards at three locations in the MacArthur Maze along Interstate (I-)80, I-580, and I-880 to allow for more efficient and uninterrupted travel of modern freight vehicles. The Project will take place along the I-80, I-580, and I-880 connectors in the MacArthur Maze, approximately 2 miles northwest of downtown Oakland.
Project Location:
Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.82780329039595N122.29383871339314W

Counties: Alameda, CA

Endangered Species Act Species
There is a total of 9 threatened, endangered, or candidate species on this species list.
Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.
IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries , as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.
See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.
1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
Mammals

Salt Marsh Harvest Mouse *Reithrodontomys raviventris*
This proposed project would have no effect on this endangered species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/613

Birds

California Clapper Rail *Rallus longirostris obsoletus*
This proposed project would have no effect on this endangered species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/4240
California Least Tern *Sterna antillarum browni* - Endangered
This proposed project would have no effect on this endangered species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/8104
Western Snowy Plover *Charadrius nivosus nivosus*
This proposed project would have no effect on this threatened species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/8035

Reptiles

Alameda Whipsnake (=striped Racer) *Masticophis lateralis euryxanthus*
This proposed project would have no effect on this threatened species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/5524

Amphibians

California Red-legged Frog *Rana draytonii*
This proposed project would have no effect on this threatened species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/2891
Threatened

Fishes

Delta Smelt *Hypomesus transpacificus*
This proposed project would have no effect on this threatened species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/321
Threatened

Insects

San Bruno Elfin Butterfly *Callophrys mossii bayensis*
This proposed project would have no effect on this endangered species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/3394

Flowering Plants

California Seablite *Suaeda californica*
This proposed project would have no effect on this endangered species and no critical habitat has been designated for this species within the project area.
Species profile: https://ecos.fws.gov/ecp/species/6310

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN THE PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

NMFS Species List

December 11, 2018

Quad Name **Oakland West**
Quad Number **37122-G3**
ESA Anadromous Fish
SONCC Coho ESU (T) – No Effect
CCC Coho ESU (E) - No Effect
CC Chinook Salmon ESU (T) - No Effect
CVSR Chinook Salmon ESU (T) – **X** No Effect
SRWR Chinook Salmon ESU (E) – **X** No Effect
NC Steelhead DPS (T) - No Effect
CCC Steelhead DPS (T) – **X** No Effect
SCCC Steelhead DPS (T) - No Effect
SC Steelhead DPS (E) - No Effect
CCV Steelhead DPS (T) - **X** No Effect
Eulachon (T) - No Effect
sDPS Green Sturgeon (T) - **X** No Effect
ESA Anadromous Fish Critical Habitat
SONCC Coho Critical Habitat - No Effect
CCC Coho Critical Habitat - No Effect
CC Chinook Salmon Critical Habitat - No Effect
CVSR Chinook Salmon Critical Habitat - No Effect
SRWR Chinook Salmon Critical Habitat – **X** No Effect
NC Steelhead Critical Habitat - No Effect
CCC Steelhead Critical Habitat – **X** No Effect
SCCC Steelhead Critical Habitat - No Effect
SC Steelhead Critical Habitat - No Effect
CCV Steelhead Critical Habitat - No Effect
Eulachon Critical Habitat - No Effect
sDPS Green Sturgeon Critical Habitat - **X** No Effect
ESA Marine Invertebrates
Range Black Abalone (E) - No Effect
Range White Abalone (E) - No Effect
ESA Marine Invertebrates Critical Habitat
Black Abalone Critical Habitat - No Effect
ESA Sea Turtles
East Pacific Green Sea Turtle (T) - No Effect
Olive Ridley Sea Turtle (T/E) - No Effect
Leatherback Sea Turtle (E) - No Effect
North Pacific Loggerhead Sea Turtle (E) - No Effect
ESA Whales
Blue Whale (E) - No Effect
Fin Whale (E) - No Effect
Humpback Whale (E) - No Effect
Southern Resident Killer Whale (E) - No Effect
North Pacific Right Whale (E) - No Effect
Sei Whale (E) - No Effect
Sperm Whale (E) - No Effect
ESA Pinnipeds

Guadalupe Fur Seal (T) - No Effect
Steller Sea Lion Critical Habitat - No Effect
Essential Fish Habitat
Coho EFH – **X** No Effect
Chinook Salmon EFH – **X** No Effect
Groundfish EFH – **X** No Effect
Coastal Pelagics EFH – **X** No Effect
Highly Migratory Species EFH - No Effect
MMPA Species (See list at left)
ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000
MMPA Cetaceans - No Effect
MMPA Pinnipeds – **X** No Effect