

**TRANSBAY JOINT POWERS AUTHORITY
BOARD OF DIRECTORS**

Resolution No. 26-009

WHEREAS, The Transbay Joint Powers Authority (TJPA) is a joint powers agency organized and existing under the laws of the State of California; and

WHEREAS, Pursuant to state law and the Joint Powers Agreement creating the TJPA, dated April 4, 2001, the TJPA has primary jurisdiction over and will implement all aspects of the Downtown Rail Extension (“DTX”) Project of the Transbay Program, also known as “The Portal”; and

WHEREAS, In 2004, the City and County of San Francisco, the Peninsula Corridor Joint Powers Board, and the San Francisco Redevelopment Agency certified the Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project Final Environmental Impact Statement/Environmental Impact Report (“2004 FEIS/EIR”) (SCH # 95063004) for the Transbay Transit Center Program (“Transbay Program”); and

WHEREAS, In 2018, the Federal Transit Administration and TJPA prepared a joint Supplemental EIS/EIR to evaluate certain proposed changes to the Transbay Program (“2018 SEIS/EIR”); and

WHEREAS, The California Environmental Quality Act (“CEQA”) and State CEQA Guidelines provide for preparation of an addendum to a previously certified EIR to document changes that are minor in nature to a project which is proceeding under a previously certified environmental document; and

WHEREAS, In 2023, the TJPA Board adopted an Addendum to the 2018 SEIR, which analyzed the environmental effects of proposed project modifications consisting of modification, reduction, or deferral of The Portal project components, and modification of mitigation measures, and approved the changes in the project; and

WHEREAS, As a continuation of value engineering efforts, the TJPA and its agency partners have identified additional components of The Portal project to be modified, removed, or deferred, and in addition have proposed that the TJPA acquire the building at 171 Second Street and during construction and temporarily relocate the tenants (such modifications together, the “Revised Project”); and

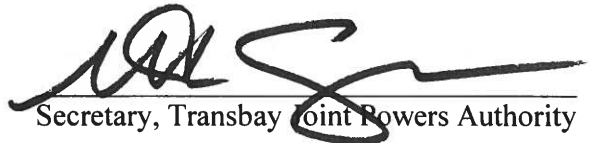
WHEREAS, The TJPA has prepared a Second Addendum, a copy of which is attached hereto as Exhibit A, to the 2018 SEIR, which contains an analysis of the environmental effects that may result from the proposed Revised Project; and

WHEREAS, The proposed Revised Project will not require major revisions to the 2018 SEIR due to new or substantially more severe environmental effects; and

WHEREAS, The TJPA Board has reviewed the information in the Second Addendum (2026), First Addendum (2023), and the 2018 SEIR, prepared in accordance with CEQA and the CEQA Guidelines. The full documents including discussions, environmental analysis, conclusions, and proposed mitigation measures provide the appropriate environmental documentation for The Portal project in compliance with the requirements of the CEQA Guidelines. The previously adopted 2023 Mitigation Monitoring and Reporting Program will continue to apply to The Portal project and requires no revision. The Second Addendum concludes that no further environmental review is required for the proposed Revised Project; now, therefore, be it

RESOLVED, That the TJPA Board of Directors hereby: (1) determines that the Second Addendum to the 2018 SEIR for the Revised Project attached hereto as Exhibit A reflects the independent judgment of the TJPA; (2) adopts the Second Addendum to the 2018 SEIR; and (3) approves the Revised Project.

I hereby certify that the foregoing resolution was adopted by the Transbay Joint Powers Authority Board of Directors at its meeting of March 12, 2026.


Secretary, Transbay Joint Powers Authority



Second Addendum to the
**Transbay Program
2018 Final Supplemental
Environmental Impact Report**

State Clearing House No. 1995063004

February 2026



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ACRONYMS AND ABBREVIATIONS

2004 FEIS/EIR	2004 Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project Final Environmental Impact Statement/Environmental Impact Report
2018 Final SEIS/EIR	2018 Transbay Transit Center Program, Final Supplemental Environmental Impact Statement/Environmental Impact Report
2023 Addendum	first addendum to the 2018 Final SEIS/EIR
2023 MMRP	2023 Mitigation Monitoring and Reporting Program for the Transbay Program
2023 NEPA Re-evaluation	2023 NEPA environmental review of the TJPA's refinements and revised project
2023 Project	2018 Final SEIS/EIR approved project plus the changes described in the 2023 Addendum
2026 Addendum	second addendum to the 2018 Final SEIS/EIR
2026 Revised Project	The 2023 Project plus the changes described in this addendum
ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities Act
Air District	Bay Area Air District
APE	area of potential effect
APTA	American Public Transportation Association
ARDTP	Archaeological Research Design and Treatment Plan
AWSS	Auxiliary Water Supply System Historic District
B	Beneficial Impact
BART	Bay Area Rapid Transit
BERD	Built Environment Resources Directory
CEQA	California Environmental Quality Act
CHSRA	California High-Speed Rail Authority
City	City and County of San Francisco
City Planning	City of San Francisco Planning Department
CO	carbon monoxide
CO ₂ e	carbon dioxide equivalents
CRHR	California Register of Historical Resources
dBA	A-weighted decibel(s)
DCM	Design Criteria Manual
DTX	Downtown Rail Extension
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FEIR	Final Environmental Impact Report (state environmental document)
FEIS	Final Environmental Impact Statement (federal environmental document)
FEMA	Federal Emergency Management Agency

FTA	Federal Transit Administration
GHG	greenhouse gas
HVAC	heating, ventilating, air conditioning
L _{eq}	equivalent sound level
LOS	level of service
LTS	Less-than-Significant Impact
LTS-M	Less-than-Significant Impact with Mitigation Incorporated
MOA	Memorandum of Agreement
MTC	Metropolitan Transportation Commission
Muni	San Francisco Municipal Railway
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NI	No Impact
NO _x	nitrogen oxide
NPDES	Statewide National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
PAX	Pennsylvania Avenue Extension
PCBs	polychlorinated biphenyls
PM	particulate matter
PM _{2.5}	particulate matter with diameter 2.5 micrometers and smaller
PPV	peak particle velocity
ROD	Record of Decision
SFMTA	San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SHPO	State Historic Preservation Officer
SoMa	South of Market
SU	Significant and Unavoidable Impact
TAC	toxic air contaminant
TJPA	Transbay Joint Powers Authority (the CEQA lead agency)
Transbay Program	Transbay Terminal/Caltrain Downtown Extension/ Redevelopment Project
Transit Center	Salesforce Transit Center
VMT	vehicle-miles traveled

1 INTRODUCTION

The California Environmental Quality Act (CEQA) recognizes that between the date an environmental document is certified or adopted and the time that the project is fully implemented, one or more of the following may occur: 1) the project may change; 2) the environmental setting in the vicinity of the project may change; 3) laws, regulations, or policies may change in ways in which the project may affect the environment; or 4) other new information of substantial importance that was not previously known may be discovered (for more specifics, see Section 1.3 CEQA Guidelines Regarding Changes to a Project). Before the lead agency makes any further project approvals, CEQA requires the lead agency to evaluate whether any of these circumstances have occurred and, if so, to determine whether they affect the conclusions in the previously prepared environmental document.

This second addendum (2026 Addendum) to the 2018 Final Supplemental Environmental Impact Statement/Environmental Impact Report (State Clearinghouse No.1995063004) (2018 Final SEIS/EIR) (FTA and TJPA 2018), which was certified on November 20, 2018, evaluates proposed changes to the Downtown Rail Extension (DTX), now known as “The Portal,” as well as changed conditions under which the project would be implemented, to determine whether major revisions to the previously certified 2018 Final SEIS/EIR are needed.

The Transbay Joint Powers Authority (TJPA) is the lead agency for CEQA compliance because it is the public agency with primary responsibility for carrying out or approving a project. This 2026 Addendum presents the results of the TJPA’s assessment.

1.1 Background

1.1.1 2004 - Transbay Program Approval

The Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project Final Environmental Impact Statement/Environmental Impact Report (2004 FEIS/EIR) (FTA and TJPA 2004) evaluated the environmental effects of the Transbay Program, a proposal for a new transit center, a vibrant new neighborhood in San Francisco organized around the new transit center, and an extension of the Caltrain commuter rail service from its current terminus at Fourth and King streets, approximately 1.3 miles to the southwest of the new transit center, to the underground train box of the transit center. These project components are referred to as the “Transbay Program.” In 2004, the TJPA certified the FEIR, adopted and incorporated all of the mitigation measures identified in the 2004 FEIS/EIR into the Transbay Program, and approved the Transbay Program. The Federal Transit Administration (FTA) was the federal lead agency, partnering with the TJPA, and oversaw preparation of the federal environmental document (the FEIS) pursuant to the National Environmental Policy Act (NEPA). The FTA published its approval of the FEIS and

the Transbay Program in its decision document, the 2005 Record of Decision (ROD), on February 8, 2005 (FTA 2005).

The Transbay Program is being implemented in two phases. In Phase 1, the former Transbay Terminal was demolished; a new transit center, the Salesforce Transit Center (Transit Center), was constructed and opened in 2018; and the Transit Center District Plan, adopted by the City and County of San Francisco (City) in May 2012 (San Francisco Planning Department 2012), allowed for substantial high-rise residential and office redevelopment of the lands surrounding the Transit Center. The extension of Caltrain service to the Transit Center, The Portal, is Phase 2 of the Transbay Program.

1.1.2 2018 Final Supplemental EIS/EIR and 2023 Addendum and Re-evaluation

During further design phases of Phase 2 of the Transbay Program, the TJPA identified a number of revisions to Phase 2 as well as other transportation improvements and opportunities to support City goals to promote land development in conjunction with several of the rail facilities.

A joint Supplemental EIS/EIR to satisfy the requirements of NEPA and CEQA was prepared by the FTA and the TJPA to evaluate the proposed changes to the Transbay Program (FTA and TJPA 2018). The TJPA certified the 2018 Final SEIS/EIR, adopted and incorporated into the Transbay Program all of the mitigation measures, and approved the revisions to the Transbay Program Phase 2 in 2018. The FTA approved the Final SEIS and Transbay Program changes and issued its decision in an Amended ROD on July 22, 2019 (FTA 2019) that updated the 2005 ROD.

The TJPA continued to refine Phase 2 in partnership with the City, other public agencies, and the rail operating agencies to improve its operating plans, reduce costs, and enhance its competitiveness for local, state, and federal funding. These efforts culminated in phasing study (TJPA 2021) to reduce, defer, or refine specific project components. These components were evaluated in the first addendum to the 2018 Final SEIS/EIR (2023 Addendum) (TJPA 2023a). The 2023 Addendum resulted in modifications to four mitigation measures. The 2023 Mitigation Monitoring and Reporting Program (2023 MMRP) is included in Appendix A, 2023 Mitigation Monitoring and Reporting Program, of this 2026 Addendum.

The TJPA Board of Directors adopted the 2023 Addendum and approved the project refinements on January 12, 2023. The FTA completed its NEPA environmental review (the 2023 NEPA Re-evaluation) of the TJPA's refinements (TJPA 2023b) and approved the revised project on June 9, 2023 (FTA 2023).

1.2 Related Studies and Reports

Because this addendum relies on the 2004 FEIS/EIR, the 2018 Final SEIS/EIR, and its 2023 Addendum, these earlier documents are incorporated by reference and are available for review from 9 a.m. to 5 p.m., Monday through Friday, at the offices of the TJPA, 425 Mission Street, Suite 250, San Francisco, California, and on the TJPA's website at <https://www.tjpa.org/portaldtx/environmental-review>.

Below is a summary of the Transbay Program's approved environmental clearances and subsequent refinements to the project. The following documents are incorporated by reference, consistent with Section 15150 of the Guidelines:

- ◆ U.S. Department of Transportation, Federal Transit Administration, City and County of San Francisco, Peninsula Corridor Joint Powers Board, and San Francisco Redevelopment Agency. 2004 (March). Final Environmental Impact Statement/Environmental Impact Report and Section 4(f) Evaluation for Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project. State Clearinghouse No. 95063004. San Francisco, CA.
- ◆ TJPA. 2022 (December). Transbay Transit Center Program DTX Design Criteria. Book 01.
- ◆ TJPA 2018 (November) 2018 Final SEIS/EIR. Adopted by the TJPA Board of Directors on November 20, 2018.
- ◆ FTA 2019 (July). Amended ROD that updated the 2005 ROD. Issued by FTA on July 22, 2019.
- ◆ TJPA 2023. 2023 Addendum to the 2018 EIR. Adopted by the TJPA Board of Directors on January 12, 2023 (TJPA 2023a)
- ◆ TJPA 2023 (May) 2023 Re-evaluation of the 2018 SEIS. May 2023
- ◆ FTA 2023 (June) Environmental Determination for Design Refinements for the Project. Letter issued by FTA on June 9, 2023.

This 2026 Addendum uses the term "2023 Project" or "approved project" to refer to the overall approved project and its associated environmental analysis.

1.2.1 Proposed Revisions to The Portal (2026 Revised Project)

As part of value engineering efforts since the 2023 Addendum, the TJPA and its agency partners identified project components to be modified, removed, or deferred to further reduce capital costs. Additionally, the TJPA now plans to acquire the building at 171 Second Street (APN: 3721-025) and during construction would temporarily relocate the tenants. The proposed "2026 Revised Project" comprises these changes, which are analyzed in this 2026 Addendum and are described in detail in Section 2.

1.3 CEQA Guidelines Regarding Changes to a Project

CEQA Guidelines Section 15162 specifies the type of documentation required when changes are proposed to a project.

Section 15164 of the CEQA Guidelines addresses preparation of an addendum for situations when a subsequent or supplemental EIR is not required. Under Section 15164, a lead agency may prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 (e.g., new significant environmental effects or a substantial increase in the severity of previously identified effects, substantial changes to the circumstance of the project, or new information of substantial importance) calling for preparation of a subsequent EIR have occurred.

1.4 Applicability of the CEQA Addendum

Because of the nature of the changes proposed as part of the 2026 Revised Project and associated environmental effects, as described further in Section 2 and Section 3 of this 2026 Addendum, the TJPA, as lead agency under CEQA, has determined that the proposed changes to the approved Transbay Program, changes in circumstances, and new information:

- ◆ would not result in any new significant environmental effects,
- ◆ would not substantially increase the severity of previously identified effects,
- ◆ would not result in mitigation measures or alternatives previously found to be infeasible becoming feasible, and
- ◆ would not result in availability/implementation of mitigation measures or alternatives that are considerably different from those analyzed in the previous document, which would substantially reduce one or more significant effects on the environment.

Therefore, this 2026 Addendum, focused on proposed changes to The Portal, is considered the appropriate document to evaluate the environmental consequences of the 2026 Revised Project.

2 REVISED PROJECT

2.1 Proposed Revisions to the Project in this 2026 Addendum to the 2018 Final SEIS/EIR

Since adoption of the 2023 Addendum, the TJPA and its agency partners have identified project components that can be modified, removed, or deferred to reduce capital costs while still meeting The Portal's overall project objectives, as stated in the 2018 Final SEIS/EIR. The revised components evaluated in this 2026 Addendum to the 2018 Final SEIS/EIR are shown in Figure 2-1 and are as follows:

- ◆ Eliminate the intercity bus facility and relocate the street-level entrance/exit pavilion with a public lobby and additional vertical circulation at the Transit Center on the west side of Beale Street
- ◆ Eliminate the train box extension at the Transit Center and move utilities from the underground train box to a new at-grade utility building
- ◆ Defer installation of most high-speed rail vertical circulation elements at the Transit Center
- ◆ Modify the Fourth and Townsend Street Station design by eliminating high-speed rail platforms and related concourse-level facilities
- ◆ Shorten the tunnel stub box

The TJPA and Caltrain, as part of their continued partnership, have identified the following proposed modification:

- ◆ Relocate and electrify storage tracks within the 4th and King railyards

And, the TJPA has identified one additional proposed modification:

- ◆ The TJPA's acquisition of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction

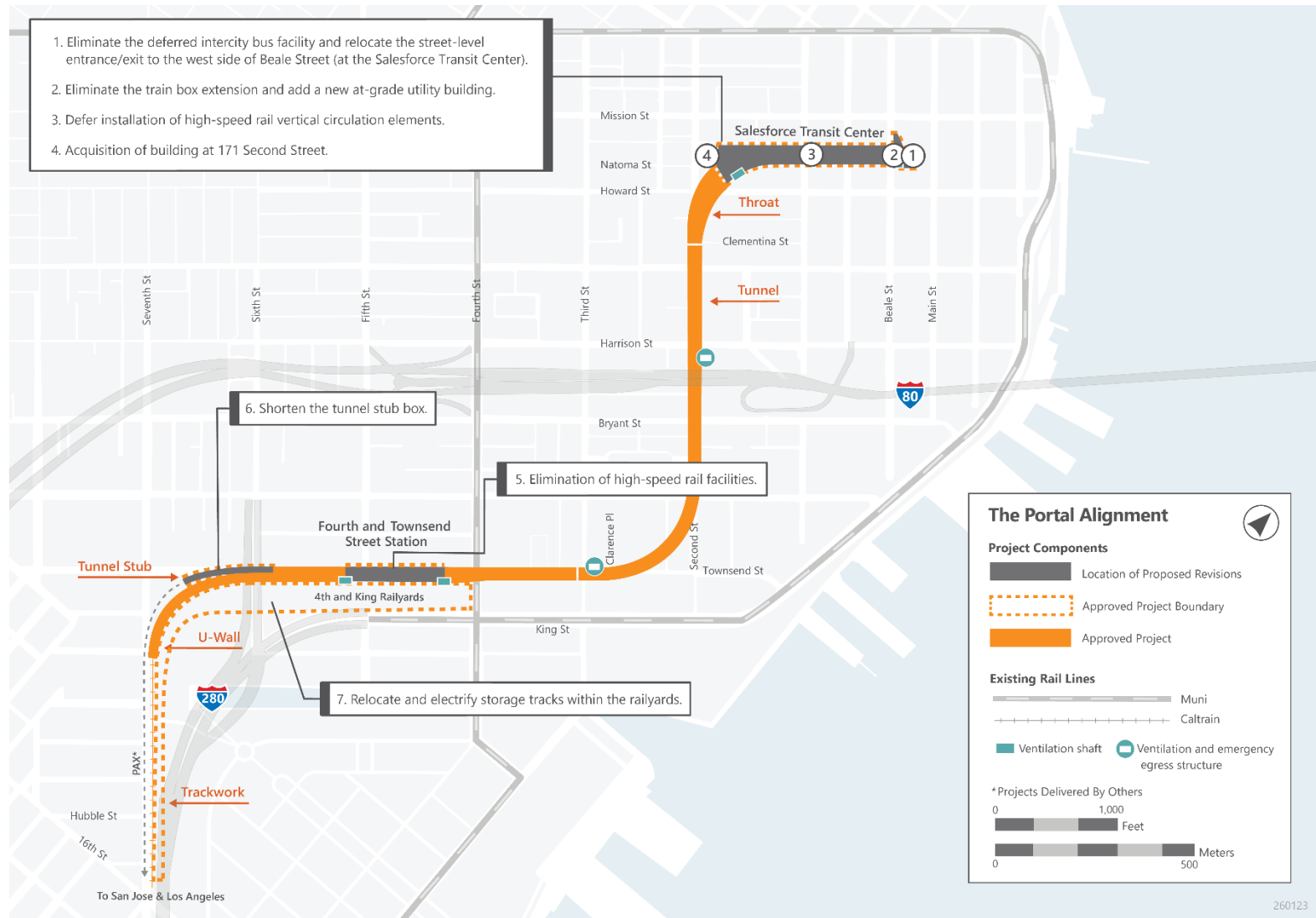


Figure 2-1. 2026 Revised Project Component Locations

This 2026 Addendum evaluates these proposed modifications to The Portal as related to the analysis and conclusions in the 2004 FEIS/EIR, 2018 Final SEIS/EIR, and 2023 Addendum. More information on each of these modifications follows.

2.1.1 Eliminate the Intercity Bus Facility and Relocate the Entrance/Exit Pavilion

2.1.1.1 2023 Project

The 2018 Final SEIS/EIR analyzed an intercity bus facility, which included vertical circulation to connect with the Transit Center's underground train station. However, the 2023 Addendum analyzed the deferred construction of the intercity bus facility, removed potential residential uses above the facility, and added construction of a new street-level entrance/exit pavilion to the Transit Center to replace the connection provided with the intercity bus facility. The entrance pavilion evaluated was located on the TJPA's parcel along the east side of Beale Street, immediately north of the site for the intercity bus facility.

2.1.1.2 Description and Objective of Proposed Revision

Because of the increased capacity of Alameda-Contra Costa Transit District's (AC Transit) new double-decker bus fleet for its transbay service, and given updated ridership projections, the Transit Center bus deck now has sufficient capacity to accommodate intercity bus services, some of which currently operate from the Transit Center's bus deck under lease agreements with AC Transit (AC Transit 2024). Therefore, the TJPA proposes eliminating the intercity bus facility.

The TJPA also proposed eliminating the associated street-level entrance/exit pavilion along the east side of Beale Street. In place of the previously approved entrance/exit pavilion on the east side of Beale Street, a street-level enclosed public lobby would be constructed around the existing elevators on the west side of Beale Street and two stairways would be added (see Figure 2-2 and Figure 2-3).

2.1.2 Eliminate the Train Box Extension at the Transit Center and Add an At-Grade Utility Building

2.1.2.1 2023 Project

Under the 2023 Project, the train box (the shell of the underground train station at the Transit Center) was reduced to end at the TJPA's property line just east of Beale Street across from the Transit Center and the ventilation shaft and emergency exit previously sited at the eastern end of the train box was relocated to the TJPA's parcel just east of Beale Street.

2.1.2.2 Description and Objective of Proposed Revision

Since approval of the 2023 Project, the California High-Speed Rail Authority (CHSRA) has further updated its platform length criterion to a minimum of 1,000 feet, provided that no adjacent switches, tracks, or platforms would be fouled by a double-consist trainset (CHSRA 2024). Meeting this minimum platform length criterion no longer necessitates extending the train box.

The current train box, without the extension, would accommodate CHSRA's platform length of 1,036 feet, which exceeds the 1,000-foot minimum requirement. Caltrain's platform length would be 950 feet and would continue to meet Caltrain's minimum platform length criterion of 875 feet (PCJPB 2018). Elimination of the train box extension would reduce potential development space by approximately 1,000 square feet.

To accommodate mechanical and electrical equipment needs, the TJPA now proposes moving the mechanical and electrical equipment that would have been housed in the train box from the train box into a new approximately 10,000-square-foot at-grade utility building to be located within the TJPA's parcel on the east side of Beale Street. The at-grade utility building would be located between Natoma Street to the south and an existing open space/park at the northern end of the TJPA's parcel. The building would house a fan plant, emergency generator (with a 2,000-gallon main diesel fuel tank), electrical vaults, emergency electrical room, and switchgear room. This proposed change to the previously evaluated project would not modify the size or function of these facilities, only their location (from below-grade to at-grade within the at-grade utility building).

The at-grade utility building would have a maximum height of approximately 23 feet above the street level with a footprint of approximately 140 feet along Beale Street, 85 feet along Natoma Street, and 67 feet along the open space/park. The building would include a vented roof over part of the building along Natoma Street, which would provide a similar function as the previously approved ventilation structure. Safety bollards would surround the building on Beale and Natoma streets, and fencing would be sited along the TJPA's property line between the utility building and the adjacent 201 Mission Street office building podium and parking (see Figure 2-2 and Figure 2-3). To meet safety requirements and for security, the at-grade utility building would include restricted roof access and necessary exterior lighting. The fan plant would require periodic testing and maintenance. When activated, the fans would vent exhaust from the roof of the utility building approximately 23 feet above the street level.

A proposed underground plenum (an enclosed space reserved for air distribution and HVAC system) supporting the distribution of air flow would measure approximately 42 feet (from north to south) by 10 feet (from east to west) by 22 feet deep. The excavation area for the proposed plenum would be less than the excavation area evaluated previously. Overall, the elimination of the train box extension would reduce the previously approved 53,500 cubic yards of excavation material at the site to approximately 1,200 cubic yards (approximately 52,300 cubic yards less).

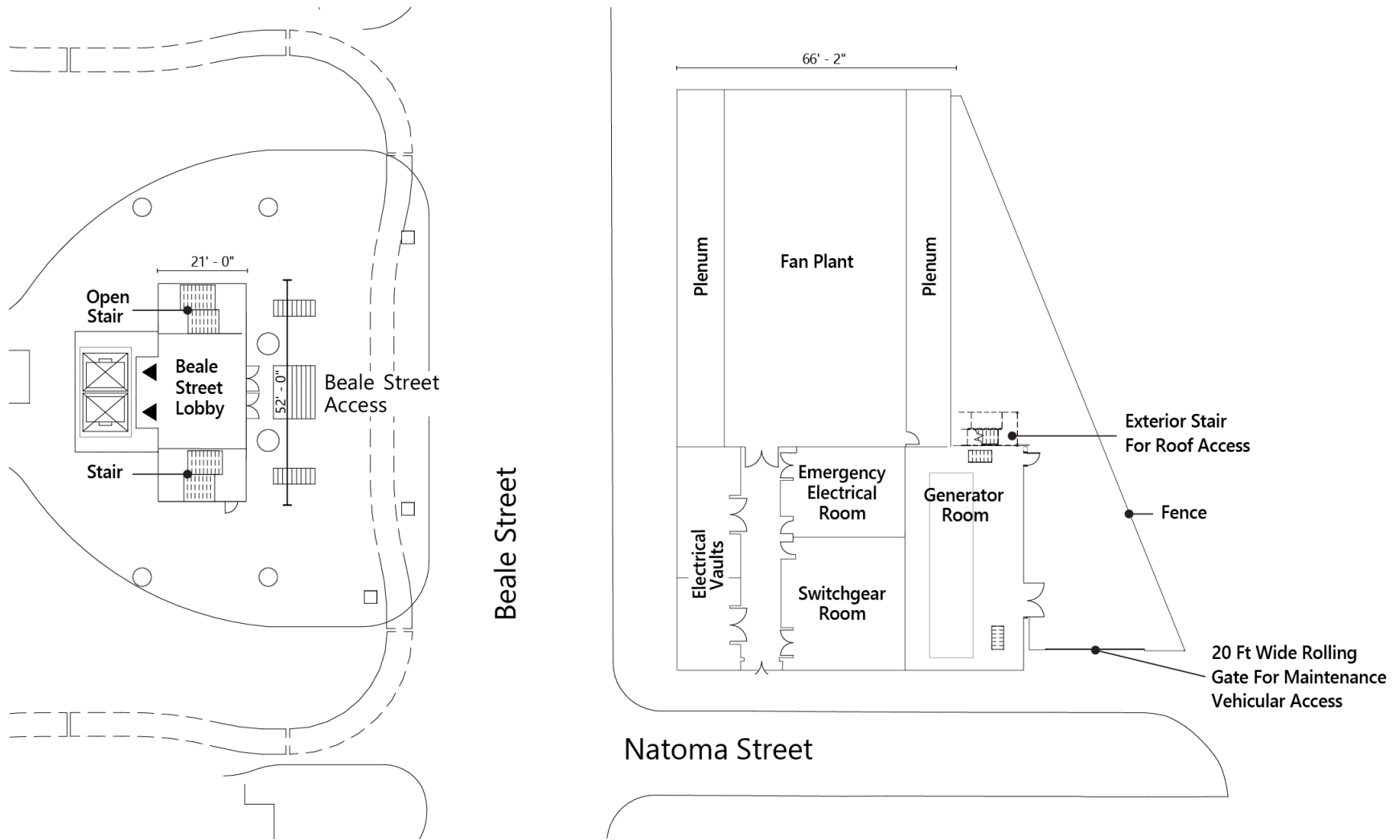


Figure 2-2. Proposed At-grade Utility Building and Modified Public Lobby

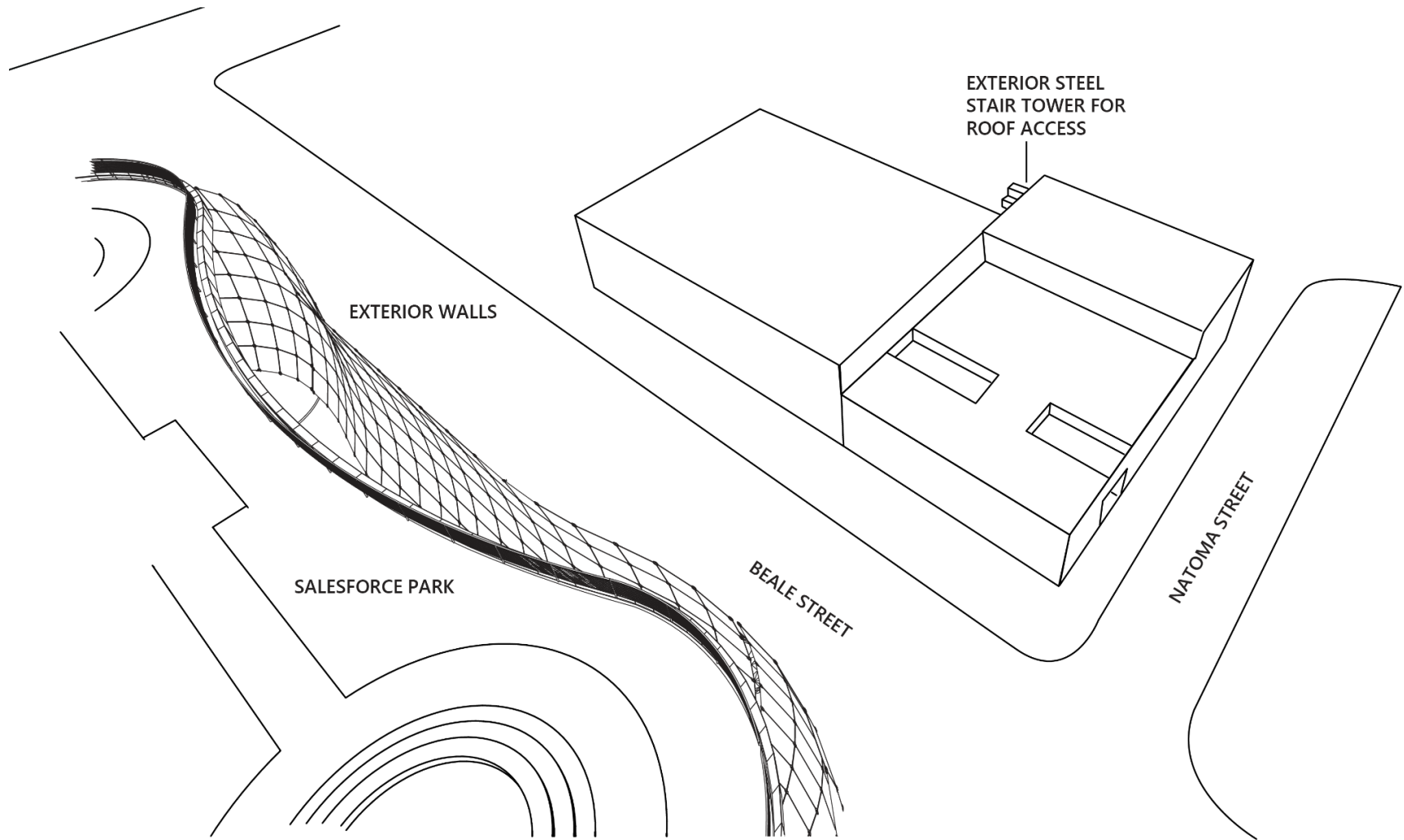


Figure 2-3. Proposed At-Grade Utility Building Looking Northeast from Salesforce Transit Center

2.1.3 Defer Installation of High-Speed Rail Vertical Circulation Elements at the Transit Center

2.1.3.1 2023 Project

The 2023 Project analysis, based on current information at the time, assumed that high-speed trains would stop at the Transit Center. The plan at that time for vertical circulation, including elevators, escalators, and stairways, among facilities for high-speed trains at the Transit Center, would have provided passengers with access to the high-speed rail platforms.

2.1.3.2 Description and Objective of Proposed Revision

The TJPA proposes deferring the installation of two elevators and two escalators to high-speed rail platforms at the Transit Center until CHSRA notifies the TJPA that these vertical circulation elements are required. Elements proposed for deferred installation are shown in Figure 2-4. The elevator shaft and escalator pits for the deferred elements would be constructed, but the elevators and escalators would not be installed. Flooring at the surface would cover the escalator pits. Permanent stairs to the high-speed rail facilities would be constructed. Emergency egress or Americans with Disabilities Act (ADA) accessible facilities at the Transit Center would not change.

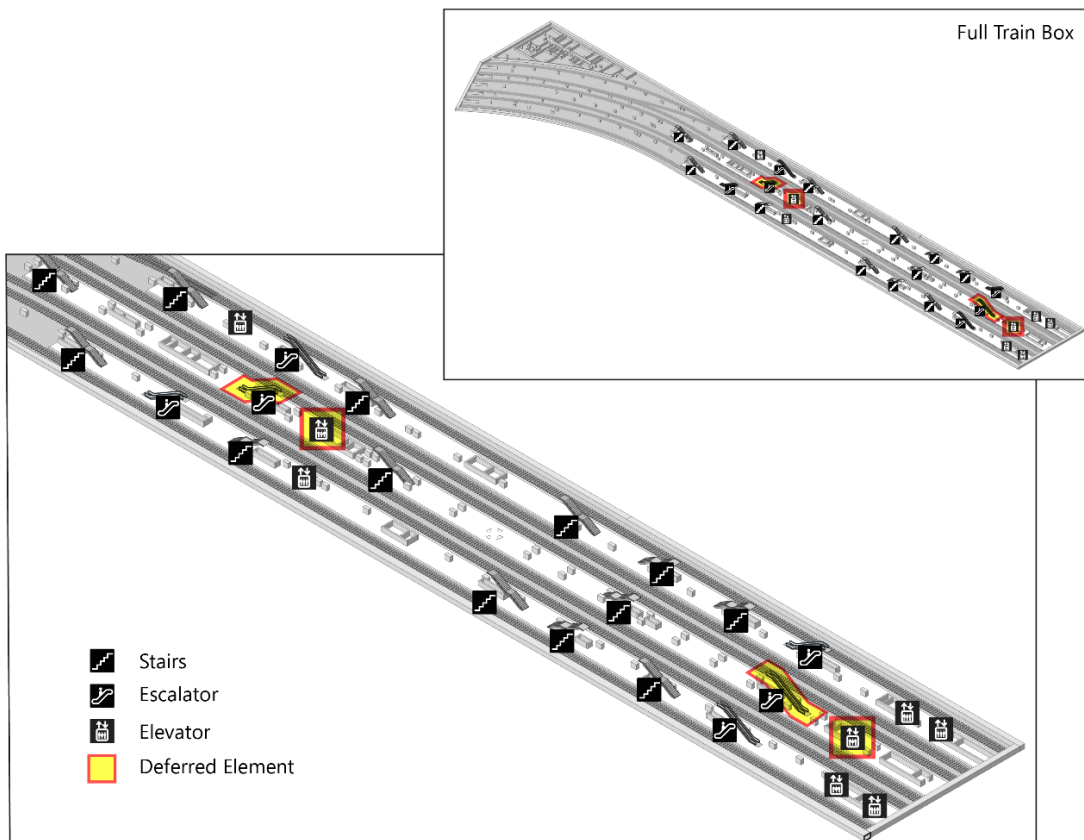


Figure 2-4. Proposed High-Speed Rail Vertical Circulation Elements at the Transit Center to be Deferred (in Yellow)

2.1.4 Modify the Fourth and Townsend Street Station Design

2.1.4.1 2023 Project

The 2023 Project included two tracks serving one center platform for Caltrain passengers and two side platforms for CHSRA passengers at the station. The addition of the platforms for high-speed trains widened the station box, extending it farther south into the 4th and King railyards and requiring an additional approximately 0.29 acres of land for the station.

2.1.4.2 Description and Objective of Proposed Revision

Since approval of the 2023 Project, the CHSRA has assessed the business case for high-speed trains stopping at the Fourth and Townsend Street Station and determined that the impact to ridership and services would be minimal if high-speed trains bypassed the station and continued straight to the Transit Center. Consequently, the CHSRA withdrew its request to include a high-speed train stop at the Fourth and Townsend Street Station (CHSRA 2024). Therefore, the TJPA proposes removing the high-speed platforms and related platform- and concourse-level facilities at the Fourth and Townsend Street Station. The platform-level facilities proposed for removal include vertical circulation, back-of-house spaces, and the platforms. The concourse-level facilities proposed for removal include vertical circulation, fare gates, and a ticketing and information booth.

The proposed removal of high-speed train facilities at the station would reduce the width required for the underground station box, which would also reduce excavation and the amount of off-hauled soil, dirt, and rubble. The footprint of the concourse and platform levels (both below grade) on the north side of the station would be reduced by 18 feet, thus moving the excavation limit of the project away from the north side of Townsend Street. In addition, the footprint of the platform level on the south side of the station would be reduced by 17 feet. There would be no changes to the at-grade station structures or right-of-way needed for the station.¹ The emergency exit design is based on two Caltrain trains; therefore, the required widths of the egress from the station to grade would not change. Figure 2-5 shows the proposed station design at the platform and concourse levels.

¹ Fourth and Townsend Station would continue to comply with National Fire Protection Association Standard 130 emergency egress requirements for below-grade stations and City and County of San Francisco standards for sidewalk and lane widths.

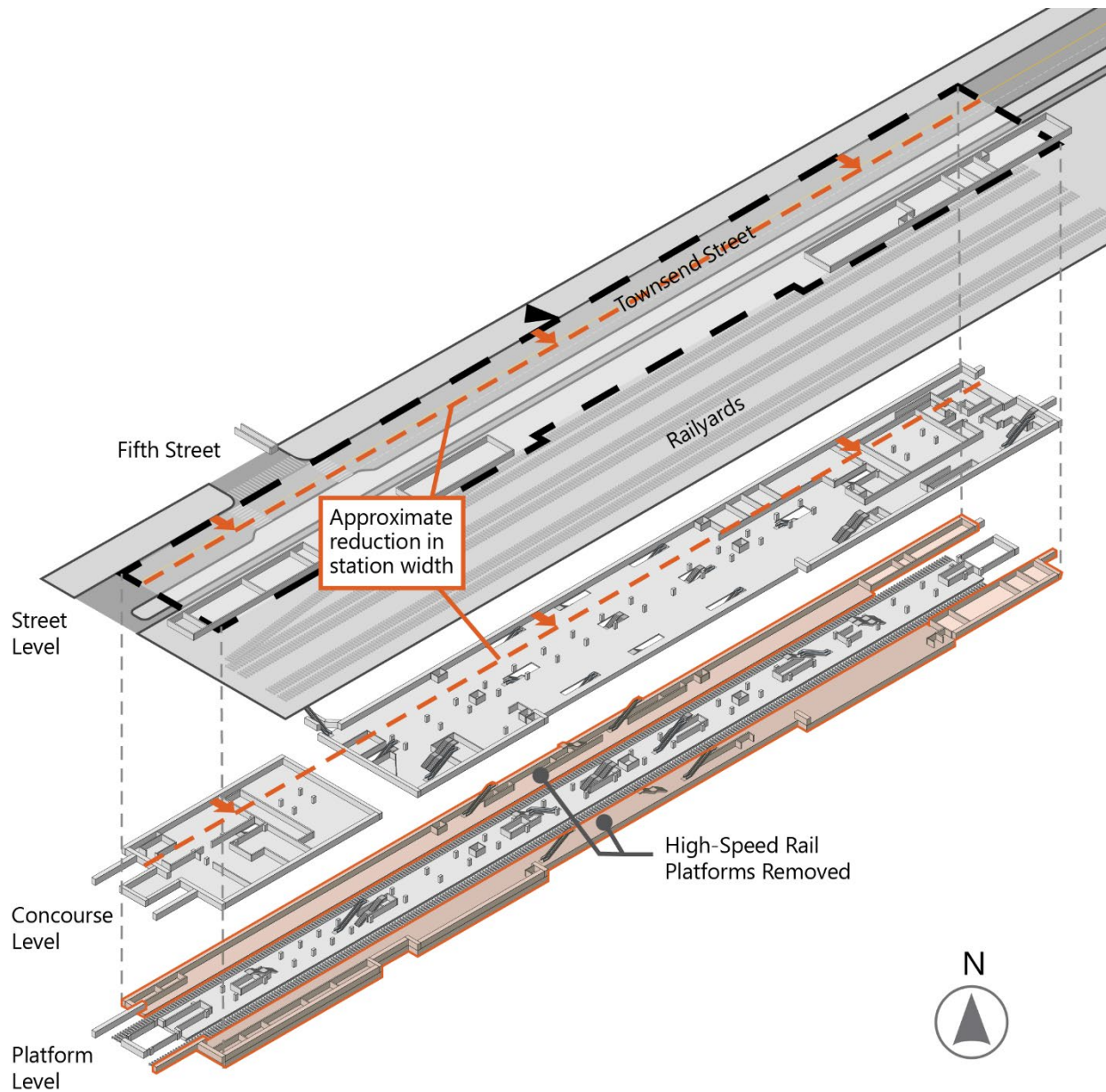


Figure 2-5. Modifications to the Fourth and Townsend Street Station Design

2.1.5 Shorten the Tunnel Stub Box

2.1.5.1 2023 Project

The 2023 Project included an underground segment (referred to as the “tunnel stub box”) at the west end of the 4th and King rail yards. The purpose of the tunnel stub box is to accommodate potential future below-grade Caltrain and CHSRA service (i.e., the transition between the existing at-grade tracks south of the rail yards and the below-grade Fourth and Townsend Street Station),

such as the proposed the Pennsylvania Avenue Extension (PAX).² The tunnel stub box is proposed underneath one-half of the width of Townsend Street between Fifth and Sixth streets and underneath one traffic lane of Townsend Street between Sixth and Seventh streets, for a total length of approximately 1,000 feet.

2.1.5.2 Description and Objective of Proposed Revision

The TJPA proposes to shorten the length of the tunnel stub box by approximately 750 feet, shown as the area in grey, largely within Townsend Street in Figure 2-6. The tunnel stub box would end just east of Sixth Street instead of between Sixth and Seventh streets near the western end of the railyards. The previously evaluated tunnel stub box was longer to account for potential excavation necessary for the PAX in Townsend Street after The Portal was completed. Because the exact alignment and depth of the PAX are not known, and that project has not been subject to environmental review, the TJPA coordinated with SFCTA to reduce the length of the tunnel stub box to the minimum required to minimize disruption to The Portal's rail operations when the PAX is eventually built.

Shortening the tunnel stub box would eliminate the need for excavation underneath one traffic lane of Townsend Street between Sixth and Seventh streets. The tunnel stub box excavation depth would remain the same as the approved project (45 feet); however, the overall volume of materials excavated would decrease from approximately 144,800 cubic yards to approximately 86,500 cubic yards because the tunnel stub box would be shorter. The proposed shortened tunnel stub box evaluated in this 2026 Addendum would still allow Caltrain service and movements between the railyards and The Portal tunnel, as previously evaluated, to continue to operate with minimal disruption when the future underground PAX connection to Caltrain and high-speed rail service is constructed.

² If an underground tunnel is constructed to avoid at-grade mainline track crossings of surface streets south of the railyards, the tunnel stub box could be outfitted with tracks, systems, and other required elements to connect to the future tunnel. The underground tunnel, the Pennsylvania Avenue Extension, or PAX, is a separate project under study by the San Francisco County Transportation Authority and is not part of The Portal.

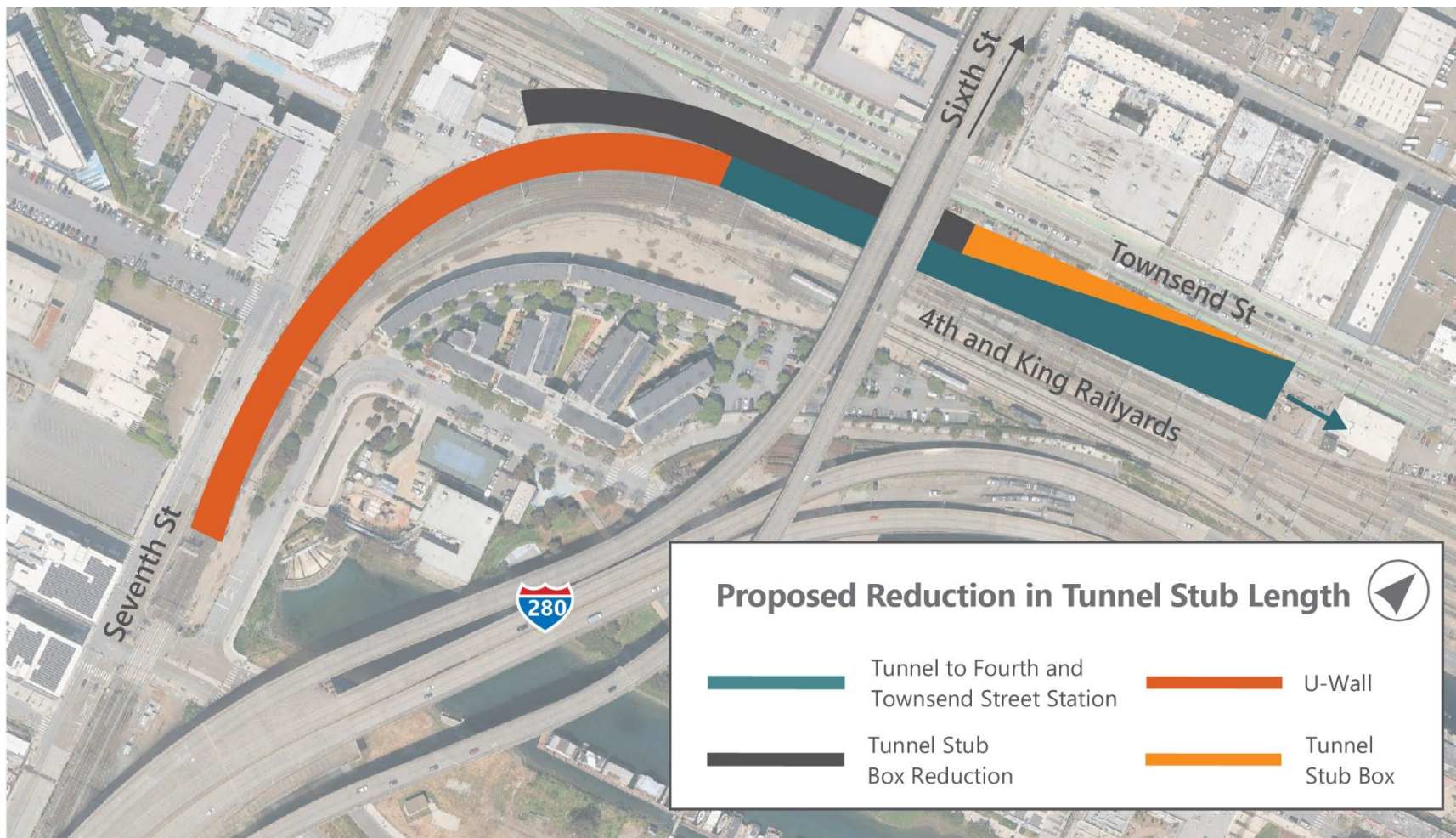


Figure 2-6. Proposed Reduction in Tunnel Stub Box Length

In addition, with the proposed reduction in tunnel stub box length, the San Francisco Public Utilities Commission's (SFPUC) Sixth Street sewer line would be realigned to be adjacent to the u-wall, where the tracks ascend from the tunnel to the surface along Townsend Street, as evaluated in the 2023 Project.

2.1.6 Relocate and Electrify Storage Tracks within the 4th and King Railyards

2.1.6.1 2023 Project

The 2023 Project included demolition of existing storage tracks at the northwest corner of the railyards to accommodate construction of the u-wall.

2.1.6.2 Description and Objective of Proposed Revision

In coordination with Caltrain, the TJPA proposes demolishing four existing storage tracks (Tracks 27-30) on the south side of the railyards and using this space to construct three electrified storage tracks, which would replace existing storage tracks to be demolished at the northwest corner of the railyards. These tracks would be electrified to serve Caltrain's electrified fleet. Figure 2-7 depicts the proposed location for the three electrified storage tracks along the south side of the railyards.

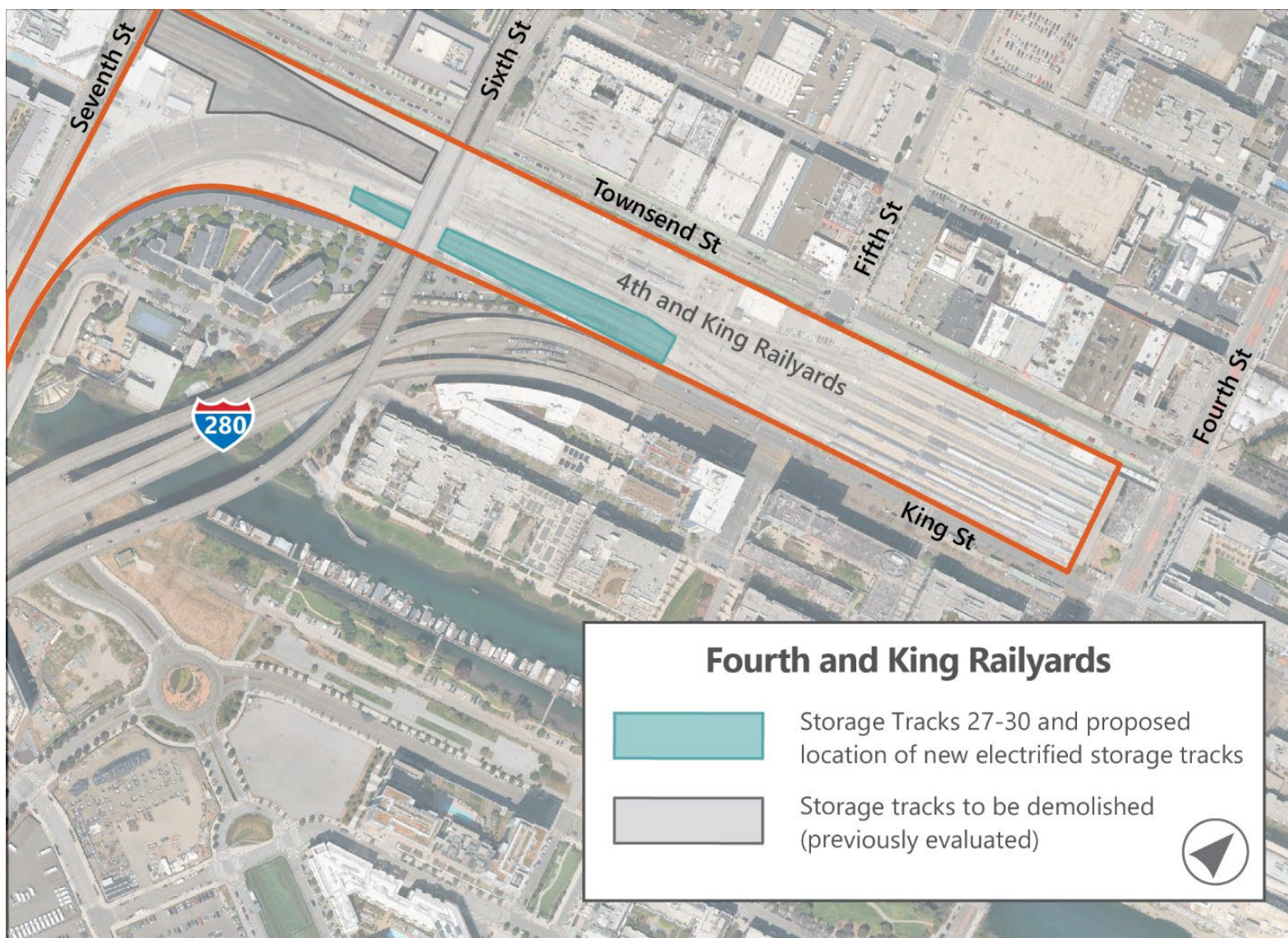


Figure 2-7. Relocation and Electrification of Storage Tracks within the 4th and King Railyards

2.1.7 TJPA's Acquisition of 171 Second Street and Temporary Relocation of Tenants

2.1.7.1 2023 Project

The building at 171 Second Street, located on the southeast corner of Second and Natoma streets, is adjacent to the throat structure at the western end of the Transit Center. The 2004 FEIS/EIR evaluated demolition of the building, which would result in the permanent relocation of employees and the loss of a contributor to the Second and Howard Streets Historic District. In the 2018 Final SEIS/EIR, changes to the design of the throat structure enabled the building to be underpinned and preserved, thus avoiding the permanent displacement of the employees of the retail/office space (estimated to be 78 jobs) and lessening the overall effect on historic resources.

2.1.7.2 Description and Objective of Proposed Revision

The TJPA has identified the building at 171 Second Street for acquisition for The Portal (see Figure 2-1). The building would still be underpinned and preserved as previously evaluated; however, the building's tenants would be temporarily displaced during construction. The TJPA would provide relocation assistance to the building's tenants, as required by Mitigation Measure Prop 1 and in compliance with the federal Uniform Relocation Act and the California Relocation Act.

3 ENVIRONMENTAL ANALYSIS

The following environmental analysis is based on the Environmental Checklist Form in Appendix G of the CEQA Guidelines with modifications for consistency and guidance from the City Planning with regard to thresholds of significance. The checklist considers the full range of environmental issues subject to analysis under CEQA, and the accompanying analyses evaluate whether changes to the project (2026 Revised Project), or changes in the circumstances under which the 2026 Revised Project would be implemented, or new information of substantial importance would result in new or substantially more severe significant impacts that were not identified in previously adopted environmental analysis for each environmental issue. The environmental analysis in this section addresses these conditions in Section 15162(a)(1)-(3) of the CEQA Guidelines, described in Section 1.2, CEQA Guidelines Regarding Changes to a Project. The organization of this environmental analysis is described in the following sections. The analysis has concluded that none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met; therefore, an addendum to the 2018 Final SEIS/EIR is the appropriate form of environmental review for the 2026 Revised Project.

Summary Tables

The conditions in Section 15162 of the CEQA Guidelines are reflected in tables at the beginning of the resource topics that are analyzed in this section. Specifically, the tables provide information on each of the items discussed next.

Significance Determination from the 2023 Project. For each impact evaluated, the level of significance of the impact to the 2023 Project analysis is shown. The environmental analysis applies a uniform classification of the impacts based on the following definitions, consistent with CEQA and its implementing CEQA Guidelines:

- ◆ No Impact (NI). A designation of no impact is used when no changes in the environment would occur.
- ◆ Less-than-Significant Impact (LTS). A less-than-significant impact would cause no substantial adverse change in the environment.
- ◆ Less-than-Significant Impact with Mitigation Incorporated (LTS-M). A less-than-significant impact with mitigation incorporated would minimize substantial adverse impacts on the environment. The number of each adopted mitigation measure, as shown in the 2023 MMRP, is referenced and presented in detail in Appendix A of this 2026 Addendum.
- ◆ Significant and Unavoidable Impact (SU). Significant impacts that cannot be reduced to a less-than-significant level, even with implementation of mitigation measures, are classified as “significant and unavoidable.”

Significance Determination for the 2026 Revised Project. This column identifies the significance determination for the 2026 Revised Project.

In accordance with CEQA Guidelines section 15162(a), the impact table evaluates the following:

1. Would substantial changes to the proposed project (Section 15162(a)(1)) which will require major revisions to the 2018 Final SEIS/EIR due to new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts.
2. Would substantial changes occur with respect to the circumstances under which the project is undertaken (15162(a)(2)) which will require major revisions to the 2018 Final SEIS/EIR due to new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts.
3. Is there new information of substantial importance not previously evaluated (15162(a)(3)) that shows that the project will result in a new or substantially more severe significant impact, or that there is a change in the feasibility of mitigation measures adopted to reduce the significance of impacts.

Discussion and Conclusion Sections

The discussion provides information about the particular environmental topic, the 2026 Revised Project's effects on the topic, and the adopted mitigation measure(s) required to reduce significant impacts. The discussion then compares the environmental effects of the 2026 Revised Project with those of the 2023 Project. A conclusion that the 2026 Revised Project would involve no new significant impacts and/or substantially more severe significant impacts supports the use of this 2026 Addendum as the appropriate level of environmental documentation for the 2026 Revised Project.

Mitigation Measures

The 2023 Addendum incorporated mitigation measures from the 2004 FEIS/EIR and 2018 Final SEIS/EIR and analyzed revisions to four mitigation measures. The 2023 MMRP was adopted and the revised mitigation measures were incorporated into the Transbay Program. The 2023 MMRP would be implemented as part of the 2026 Revised Project. The full text of these mitigation measures is provided in Appendix A of this 2026 Addendum.

3.1 Aesthetics

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Have a substantial adverse effect on a scenic vista?	LTS	LTS	No	No	No
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	LTS	LTS	No	No	No
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	LTS	LTS	No	No	No
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	LTS	LTS	No	No	No

Note: LTS = less than significant

3.1.1 Discussion

Prior Analysis. For the 2023 Project, it was determined that potential visual impacts resulting from the project would be less than significant.

2026 Revised Project Analysis. The 2026 Revised Project does not include any new features that would affect scenic vistas. The proposed changes are primarily limited to removing components, such as the train box extension, and reducing others in scale, such as the tunnel stub box. These changes would not affect the visual character or quality of the natural, cultural, or existing project environment. Further, the 2026 Revised Project would be subject to previously adopted Mitigation Measures VA-1 and VA-2 to address potential light and glare and other visual effects to surrounding properties during construction, reducing these impacts to less than significant

levels. The addition of the at-grade utility building and an expanded lobby area at the eastern end of the Transit Center would result in minor, localized changes to the streetscape for the segment along Beale Street; however, these new project components would be visually and functionally compatible with the visual setting and uses previously adopted for the 2023 Project, which consist of ventilation structures and potential development, at-grade trackwork, street modifications, and an intercity bus facility. Because of the relatively small scale and footprints of its components, the 2026 Revised Project would not alter any of the scenic vistas or the visual character and quality of Beale Street. The acquisition of the property located at 171 Second Street would result in no changes to the visual environment. Therefore, impacts on aesthetics would be less than significant.

3.1.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on aesthetics as previously evaluated for the 2023 Project. The 2026 Revised Project would not include any new features that would affect scenic vistas. The project would continue to implement previously adopted Mitigation Measures VA 1 and VA 2 to reduce impacts from light and glare and other visual effects during construction to less-than-significant levels. No new mitigation measures to address visual impacts would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.2 Agriculture and Forestry Resources

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 Final SEIS/EIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 Final SEIS/EIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 Final SEIS/EIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
e) 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?	NI	NI	No	No	No
f) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	NI	NI	No	No	No
g) 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))?	NI	NI	No	No	No
h) Result in the loss of forest land or conversion of forest land to non-forest use?	NI	NI	No	No	No
i) 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?	NI	NI	No	No	No

Note: NI = no impact

3.2.1 Discussion

Prior Analysis. No land in San Francisco has been designated by the California Department of Conservation’s Farmland Mapping and Monitoring Program as active or important agricultural land. The project site does not contain agricultural uses and is not zoned for such uses. Similarly, no land in San Francisco is designated as forest land or timberland by the California Public

Resources Code. The project site does not contain forest land or timberland and is not zoned for such uses; therefore, the 2023 Project had no impact on these resources.

2026 Revised Project Analysis. No agricultural or forestry resources exist within or near the project site, and the 2026 Revised Project would not require the conversion of any land designated by the California Department of Conservation's Farmland Mapping and Monitoring Program as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use or any forest land or timberland to nonforest use. In addition, the 2026 Revised Project would not conflict with any existing agricultural or timberland zoning or Williamson Act contracts because none apply to the project site, nor would the 2026 Revised Project involve any changes to the environment that could result in the conversion of farmland.

3.2.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on agriculture and forestry as previously evaluated for the 2023 Project. No agricultural or forest land would be affected by the 2026 Revised Project, nor would any Williamson Act parcels be affected. No new mitigation measures to address agriculture and forestry resources would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.3 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:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Conflict with or obstruct implementation of the applicable air quality plan?	LTS	LTS	No	No	No
b) Violate any air quality standard or contribute significantly to an existing or projected air quality standard? ¹	LTS-M	N/A	No	No	No
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	LTS-M	LTS-M	No	No	No
d) Expose sensitive receptors to substantial pollutant concentrations?	LTS-M	LTS-M	No	No	No
e) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	LTS	LTS	No	No	No

Note: LTS = less than significant; LTS-M = less than significant with mitigation; N/A = not applicable

¹ CEQA Appendix G checklist was updated in 2019 to remove item III.b). Therefore, former Environmental checklist item Section III.b) (violation of air quality standards) was removed in the 2019 update. Accordingly, the table indicates N/A for item b) for the 2026 Revised Project.

3.3.1 Discussion

Prior Analysis. Construction activities associated with the 2023 Project were found to result in emissions that could exceed the significance threshold established by the Bay Area Air District³ (Air District), for nitrogen oxides (NO_x) as a result of construction activities that could occur concurrently. Additionally, sensitive receptors could potentially be exposed to significant pollutant concentrations during construction activities. Implementation of previously adopted Mitigation Measures AC 1 through AC 15 and New-MM-C-AQ-5.1 for air emissions control and

³ Previously known as the “Bay Area Air Quality Management District.”

the increased use and availability of Tier 4 engines⁴ were found to reduce construction air quality impacts, including toxic air contaminant (TAC) concentrations, to less than significant. Additionally, the 2023 Project would comply with the San Francisco Construction Dust Control Ordinance, which requires implementation of control measures such as watering, wet sweeping, vacuuming, covering stockpiles, and preparation of a dust control plan, thereby reducing construction dust impacts to less than significant.

Analysis for the 2023 Project determined that it would not conflict with the applicable regional air quality plan, would not result in a new localized carbon monoxide (CO) violation, and would have a less-than-significant impact with respect to a CO hotspot. Because the 2023 Project would contribute to beneficial effects in terms of reducing regional air emissions, was included in the applicable Regional Transportation Plan, and would not generate pollutant concentrations that would exceed the National Ambient Air Quality Standards based on project-level Transportation Conformity Guidance and project-related traffic information, the 2023 Project was found to have less-than-significant regional air quality impacts.

During the operational phase (post-construction), the 2023 Project would result in a reduction of long-term mobile source emissions due to passengers shifting from private vehicles and public buses to electrically powered trains and, thus, it would not result in regional emissions that would exceed the significance thresholds established by the Air District to assess the potential for regional air quality violations. With respect to localized air quality impacts from operations, the 2023 Project analysis determined that the 2023 Project was not a Project of Air Quality Concern and a particulate matter (PM) hotspot analysis was not required.

Analysis for the 2023 Project determined that the project components could expose new and existing sensitive land uses to increased pollutant concentrations during operations. Air emissions (fine inhalable PM with diameter of 2.5 micrometers and smaller [PM_{2.5}], diesel PM, and other TACs) from project components and associated emergency generators could affect residential receptors, and the impacts related to exposure of receptors to substantial pollutant concentrations from emergency generators were found to be potentially significant. Previously adopted Mitigation Measure New-MM-AQ-3.1 would reduce impacts to sensitive receptors by requiring diesel generator engines to meet minimum emissions standards. The 2023 Project analysis determined that with implementation of this mitigation measure, operational air quality impacts would be less than significant.

The 2023 Project would not include any land use or activity that typically generates odors that could affect a substantial number of people and, thus, would not result in a significant impact related to odors.

2026 Revised Project Analysis. The California Natural Resources Agency, in consultation with the Governor's Office of Planning and Research, updated the CEQA Appendix G checklist in 2019. Therefore, former environmental checklist item Section III.b) (violation of air quality

⁴ Tier 4 emission standards are regulations established by the U.S. Environmental Protection Agency aimed at significantly reducing emissions of PM and NO_x. The standards were phased in between 2008 and 2015 and required a 90 percent reduction in emissions compared to previous Tier standards.

standards) was removed in the 2019 update. Accordingly, the table at the start of this section indicates N/A for item b) for the 2026 Revised Project. Additional details on the air quality analysis contained in this section are provided in Appendix C, Air Quality and Greenhouse Gas Technical Memorandum, to this 2026 Addendum (AECOM 2026a).

3.3.1.1 Construction

Construction-related criteria air pollutant and TAC emissions under the 2026 Revised Project would be reduced compared to those analyzed for the 2023 Project as a result of the elimination of the intercity bus facility, removal of high-speed rail facilities at the Fourth and Townsend Street Station, and shortening of the tunnel stub box. Deferred installation of high-speed rail vertical circulation elements at the Transit Center would result in a near-term reduction of construction emissions because construction of these facilities would not occur until high-speed rail service is prepared to extend to San Francisco, which is anticipated after construction of the 2026 Revised Project. Construction activities associated with the high-speed rail vertical circulation elements at the Transit Center would not change from what was evaluated previously. However, when such construction does occur, emissions would be less than previously anticipated because vehicles and equipment would be replaced over time with cleaner, more fuel-efficient models. Relocation and electrification of storage tracks within the 4th and King railyards would not result in an increase in construction activity, because the relocation is included within previously assumed ground disturbance areas. Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction also would not generate emissions during construction of the 2026 Revised Project because construction activities associated with the building at 171 Second Street, i.e., the underpinning, were previously evaluated and approved as part of the 2023 Project and acquisition of this building by the TJPA would not result in additional construction beyond what was previously analyzed.

As part of the proposed elimination of the train box extension, utilities that previously were to be located underground in the train box would be moved to an at-grade utility building. Construction of the at-grade utility building would require different phasing and some different methods and equipment than were previously analyzed for the underground train box extension. Construction emissions associated with the 2026 Revised Project's at-grade utility building were quantified and found to be minimal and well below the Air District thresholds (see Appendix C, Air Quality and Greenhouse Gas Technical Memorandum). Additionally, there would be a reduction in excavated material from approximately 53,500 cubic yards (the 2023 Project) to approximately 1,200 cubic yards by moving utilities that were previously planned to be below-grade to the at-grade utility building, which would reduce emissions associated with heavy-duty equipment and haul trucks. As a result, associated exhaust and fugitive dust emissions would be reduced overall for the 2026 Revised Project.⁵ Similar to the 2023 Project,

⁵ See Appendix C for additional details on how 2026 Revised Project components would reduce overall construction-related criteria pollutant emissions associated with The Portal.

the 2026 Revised Project would comply with the San Francisco Construction Dust Control Ordinance, thereby further minimizing construction-related fugitive dust.

Criteria air pollutant emissions are regional and, therefore, air quality impacts are evaluated on the basis of a project as a whole and not only its individual components. As previously described, under the 2023 Project, The Portal could result in construction emissions that could exceed the significance thresholds established by the Air District for NO_x. Therefore, previously adopted Mitigation Measures AC 1 through AC 15 and Mitigation Measure New-MM-C-AQ-5.1 for air emissions control would be required of the 2026 Revised Project. These measures, as well as the increased use and availability of equipment with engines that meet Tier 4 emission standards, would reduce construction air quality impacts, including TAC concentrations, to less than significant.

3.3.1.2 Operations

The Portal continues to be included in the most recent version of the regional transportation plan (Plan Bay Area 2050 as RTP ID 21-T11-110) (MTC and ABAG 2021) and the 2025 Transportation Improvement Program (as TIP ID SF-050002) (MTC and ABAG 2024). The Metropolitan Transportation Commission and the Association of Bay Area Governments have prepared findings that Plan Bay Area 2050 and the 2026 Revised Project would conform with the latest U.S. Environmental Protection Agency transportation conformity regulations and the Bay Area Conformity State Implementation Plan, which is also known as the Bay Area Air Quality Conformity Protocol, as adopted in April 2020. This conformity finding demonstrates that the total emissions projected for Plan Bay Area 2050 are within the emission limits established by the State Implementation Plan to attain the National Ambient Air Quality Standards (MTC, ABAG 2024). Therefore, as with the 2023 Project, the 2026 Revised Project would not conflict with the applicable regional and state air quality management plans.

In terms of localized impacts during operations, the 2026 Revised Project would not result in a new CO violation and would have a less-than-significant impact with respect to CO hotspots, consistent with the 2023 Project. Under the 2026 Revised Project, removal of the high-speed rail platforms from the Fourth and Townsend Street Station would shift pedestrian and vehicle activity related to high-speed rail passengers from the Fourth and Townsend Street Station to the Transit Center and Millbrae-San Francisco International Airport (SFO) stations. Similar to the determination in the previous analysis, the 2026 Revised Project would not increase traffic volumes at any intersection in the traffic study area to more than 24,000 vehicles per hour⁶ (AECOM 2026c). Additionally, the intersections in the vicinity of the 2026 Revised Project do not have enough capacity to accommodate the vehicle traffic volumes that could cause a CO hotspot, as determined by previous analysis. Therefore, the 2026 Revised Project would not result in a new CO violation and would have a less-than-significant impact with respect to a CO hotspot. Additionally, the 2026 Revised Project components would not alter the definition of The

⁶ According to the Air District and as noted in the 2018 Final SEIS/EIR, there is no potential for a CO hotspot when the project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (Air District 2022).

Portal to make it a Project of Air Quality Concern; therefore, a PM hotspot analysis is not required.

The 2026 Revised Project would move mechanical and other utilities from below-ground to an at-grade utility building, the operation of which would result in area source emissions (i.e., periodic reapplication of architectural coatings, use of consumer products, and operation of landscaping equipment) that were not previously analyzed for the below-grade utilities.⁷ Operational area source emissions of criteria air pollutants associated with the at-grade utility building were quantified and found to be minimal and well below Air District thresholds of significance.⁸

Additional changes to operational activities under the 2026 Revised Project would be associated with the previously approved ventilation shaft, which would include an emergency generator, at the location of the at-grade utility building. Under the 2026 Revised Project, exhaust from the ventilation shaft and associated emergency generator would be emitted from an area source on the vented roof of the at-grade utility building. Emissions associated with venting and the emergency generator would result in the same potentially significant impacts related to exposure of sensitive receptors (nearby residences and recreational areas) to TAC concentrations. Previously adopted Mitigation Measure New-MM-AQ-3.1 is applicable and would reduce exposure of sensitive receptors to TAC concentrations, thereby reducing impacts to less than significant, consistent with the 2023 Project. Mitigation Measure New-MM-AQ-3.2, which requires ventilation plans for residential development co-located with ventilation structure sites, would still apply to other previously approved ventilation structures with co-located residential development as a part of The Portal but does not apply to the proposed changes evaluated in this 2026 Addendum.

Other project components, including the addition of future high-speed rail service, have been evaluated since approval of the 2023 Project. These components would result in additional regional emissions reductions. The emissions reductions achieved in the long-term with implementation of The Portal (included in Table 2 of Appendix C) illustrate that operation of The Portal would substantially offset the minimal level of operational emissions associated with the at-grade utility building. Additionally, other project components, such as elimination of the intercity bus facility and removal of the high-speed rail platforms and related concourse-level facilities at the Fourth and Townsend Street Station, would result in lower facility-related operational emissions under the 2026 Revised Project.

Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not result in changes to facility-related operational emissions under the 2026 Revised Project.

⁷ As described in Appendix C, the number of workers and associated worker trips are not expected to change because of the relocation of the utilities; therefore, operational mobile source emissions would not change from the 2023 Project and are not included in this analysis. Additionally, the at-grade utility building would be all-electric and would not generate energy source emissions associated with natural gas use.

⁸ See Appendix C for the operational area source emissions associated with the at-grade utility building.

As previously determined for the 2023 Project, the 2026 Revised Project would not include any land use or activity that typically would generate odors that could affect a substantial number of people and, thus, would not result in a significant impact related to odors.

3.3.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on air quality as previously evaluated for the 2023 Project. The 2026 Revised Project includes features that are similar to what was analyzed for the 2023 Project. Like the 2023 Project, the 2026 Revised Project could result in potentially significant air quality impacts during construction and operation. The project would implement previously adopted Mitigation Measures AC 1 through AC 15, New-MM-C-AQ-5.1, New-MM-AQ-3.1, and New-MM-AQ-3.2 to reduce air quality impacts to less-than-significant levels. No new mitigation measures to address air quality would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.4 Biological Resources

<p>Would the project:</p>	<p>Significance Determination for the 2023 Project</p>	<p>Significance Determination for the 2026 Revised Project</p>	<p>Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?</p>	<p>Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?</p>	<p>Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?</p>
<p>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 United States Fish and Wildlife Service?</p>	<p>LTS-M</p>	<p>LTS-M</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>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 United States Fish and Wildlife Service?</p>	<p>NI</p>	<p>NI</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>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?</p>	<p>NI</p>	<p>NI</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>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?</p>	<p>LTS-M</p>	<p>LTS-M</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</p>	<p>NI</p>	<p>NI</p>	<p>No</p>	<p>No</p>	<p>No</p>

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
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?	NI	NI	No	No	No

Note: LTS-M = less than significant with mitigation; NI = no impact

3.4.1 Discussion

Prior Analysis. No biological resources were identified in the vicinity of the underground components that could be affected during project operations. However, construction activities could affect mature trees serving as nesting habitat during the nesting and migratory bird seasons on the project site. Previous analysis identified such habitat in the vicinity of components such as the realigned Fourth and Townsend Street Station and the intercity bus facility. The disruption of nesting birds is not permitted under the federal Migratory Bird Treaty Act and the California Fish and Game Code. The loss of an active nest would be considered a significant impact under CEQA if that nest were occupied by a special-status bird species. Implementation of Mitigation Measure New-MM-C-BR-1.1 would require preconstruction bird surveys and reduce the significant impact to less than significant. The 2023 Project analyses determined that the project would have no impacts on listed species covered by the California Endangered Species Act or Federal Endangered Species Act (other than migratory birds) or habitat conservation plans, wetlands, riparian habitat, or sensitive natural communities. No landmark trees occur on the project site.

2026 Revised Project Analysis. The 2026 Revised Project, like the 2023 Project, would operate within an urban area on paved streets with no native habitat. Therefore, the 2026 Revised Project would have no potential to affect riparian habitats, sensitive natural communities, wetlands, or native nurseries. While there are no landmark trees⁹ on the 2026 Revised Project site, there are mature trees in the vicinity of the intercity bus facility along Beale Street. The 2026 Revised Project would include construction of an at-grade utility building. Although this building would have a smaller footprint than the previously studied intercity bus facility, the removal of

⁹ <https://sfpublicworks.org/services/significant-and-landmark-trees>

trees would still occur, and potentially affect nesting birds and other biological resources. The 2026 Revised Project may affect trees along the south side of Townsend Street. Therefore, previously adopted Mitigation Measure New-MM-C-BR-1.1 would be required for construction of the Fourth and Townsend Street Station, the shortened tunnel stub box, and the relocation and electrification of tracks at the 4th and King railyards to reduce potentially significant impacts on migratory birds to less than significant.

An updated query of the California Natural Diversity Database was conducted to identify new special-status and other sensitive wildlife and plant species that were not previously reported that could be affected by the 2026 Revised Project. The search results, presented in Appendix B of this 2026 Addendum, indicated 17 new species within the San Francisco North U.S. Geological Survey 7.5-mile topographic quadrangle that were not identified in the 2014 database search for the 2018 Final SEIS/EIR. Of these species, 12 are not listed as threatened, endangered, or rare on federal or state lists, and one has been delisted.

The double-crested cormorant and American peregrine falcon are two species that, while not state- or federally listed, have potential to occur on the project site. The double-crested cormorant is on the California Department of Fish and Wildlife watch list and was not identified in the San Francisco North USGS quad. Although it is unlikely to be using urban/developed habitat on the project site, flyovers from nearby Mission Creek are possible. Suitable nesting habitat for double-crested cormorants also may be present along Mission Creek and at Lefty O'Doul Bridge. The American peregrine falcon was delisted from the federal Endangered Species Act and the California Endangered Species Act in 1999 and 2009, respectively, because of successful recovery programs. American peregrine falcons may use the project site as foraging habitat, as the area contains abundant prey sources and there is a known nest site at 77 Beale Street.

However, disturbance levels from the 2026 Revised Project (in terms of construction activities, air and noise emissions, light and glare, or tall structures) are not projected to increase above those of the existing urban environment, and significant impacts to either species would not be anticipated. Besides these two avian species, none of the added species has suitable habitat on the project site for breeding, foraging, shelter, or movement.

Additionally, no proposed or adopted Habitat Conservation Plans, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan encompasses or overlaps the project site. Therefore, the 2026 Revised Project would have no impact on such conservation plans.

3.4.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on biological resources as previously evaluated for the 2023 Project. The 2026 Revised Project would involve similar project features including the removal of trees. The project would implement previously adopted Mitigation Measure New-MM-C-BR-1.1 and impacts related to nesting birds would be reduced to a less-than-significant level. No new mitigation measures to address biological resource impacts would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.5 Cultural Resources

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Section 15064.5?	LTS	LTS	No	No	No
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Section 15064.5?	LTS	LTS	No	No	No
c) Disturb any human remains, including those interred outside of formal cemeteries?	LTS	LTS	No	No	No

Note: LTS = less than significant

3.5.1 Discussion

Prior Analysis. The 2023 Project would result in less-than-significant impacts related to historical and archaeological resources, disturbance of human remains, and paleontological resources¹⁰ with the implementation of mitigation measures. There are no unique geologic features on the project site, and thus no impact would occur on these resources.

A Memorandum of Agreement (MOA) between the FTA and the State Historic Preservation Officer (SHPO), was executed in June 2004 and amended in 2010 and 2016. The MOA contains stipulations and specific guidance covering, but not limited to, ongoing consultation, preparation of treatment plans, and protective measures to avoid or minimize damage to historical resources.

Project components with a potential to disturb sediments to considerable depths may have adverse effects on unknown archaeological resources. Any potential adverse effect pursuant to Section 15064.5 of the CEQA Guidelines would be avoided and or minimized through implementation of Stipulation IV of the MOA, "Consideration of Potential Effects on and

¹⁰ In the 2019 CEQA Guidelines update, the checklist item regarding paleontological resources (item c) was moved from Cultural Resources to Geology and Soils; see Section 3.7, "Geology and Soils," of this 2026 Addendum for the analysis of paleontological resources.

Prospective Development and Implementation of a Treatment Plan for Archaeological Resources.” This MOA stipulation incorporates previously adopted Mitigation Measures CH 15 through CH 20 (measures to initiate the archaeological resource effect process, prepare treatment plan or address any archaeological properties discovered during implementation, prepare a draft technical report, document consistency with National Register of Historic Places (NRHP) and state regulations, and address treatment of Native American burials and related items), which would be implemented and monitored for the project. More specifically, to implement Stipulation IV.B regarding a treatment plan for archaeological resources, the MOA signatories agreed to prepare Archaeological Research Design and Treatment Plans (ARDTPs) for areas of ground disturbance. Therefore, potential impacts on documented archaeological resources, as well as those previously unknown but discovered because of the project, would be avoided or reduced with mitigation, for archaeological resource impacts. Furthermore, although documented human remains are within or near the project footprint, the executed MOA and the established process and procedures that govern the preparation, review, and approval of the ARDTPs would avoid or minimize potential impacts on human remains.

Potential impacts on historic architectural resources identified for the 2023 Project would be avoided or minimized through implementation of Stipulation III of the MOA, “Mitigation of Effects on Second and Howard Streets Historic District and Protective Measures for Rincon Point/South Beach Historic Warehouse Industrial District.” This MOA stipulation incorporates previously adopted Mitigation Measures CH 11 through CH 13 (measures to protect contributing elements of historic properties, determine the necessary type and level of recordation prior to taking any action that could adversely affect historic properties, and repair any project-related damage in both districts), which would be implemented and monitored as part of the project. Therefore, potential impacts would be avoided or reduced with mitigation for historic architectural resource impacts.

As part of the 2023 NEPA Re-evaluation,¹¹ the FTA submitted a Supplemental Section 106 memorandum to the SHPO on March 20, 2023. The SHPO’s concurrence with the information and evaluation presented in the Supplemental Section 106 memorandum was received on May 5, 2023. The 2023 NEPA Re-evaluation determined that there would be no change to the 2003 or 2017 Findings of Effect for the undertaking as a whole and that mitigation measures previously adopted in conjunction with the prior environmental documents and the 2004 MOA, as amended, would reduce adverse effects of the project on archaeological resources and built environment historic properties.

2026 Revised Project Analysis. The 2026 Revised Project, like the 2023 Project, would include underground facilities, and, therefore, archaeological resources or human remains could be encountered during construction. However, because the 2026 Revised Project proposes to eliminate the train box extension at the Transit Center, narrow the station box for the Fourth and Townsend Street Station, and shorten the tunnel stub box length, the potential of encountering

¹¹ In 2023, the FTA prepared a re-evaluation of the 2018 Final SEIS that addressed refinements to Phase 2 and issued a determination letter to the TJPA finding that the changes described in the re-evaluation were not substantial and that the changes would not cause new or more severe significant environmental impacts that were not previously evaluated and reported.

archaeological resources or human remains would be lower. Additionally, the 2026 Revised Project would remain within the footprint of the 2023 Project.

Known Archaeological Resources. The 2026 Revised Project is in the same area as the 2023 Project and would, therefore, continue to have no impact to known archaeological resources. No existing, adopted, or new mitigation measures would be required for the 2026 Revised Project as it relates to known archaeological resources. There were no previously recorded archaeological resources in the 2023 Project's area of potential effects (APE),¹² which includes a larger area than the 2026 Revised Project. Specifically, relocation of the entrance/exit to the west side of Beale Street, the Fourth and Townsend Street Station, the tunnel stub box near the 4th and King railyards, and ground disturbance within the railyards under the 2026 Revised Project would be in the same area as or a smaller portion of the 2023 Project footprint. The TJPA's acquisition of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would have no impact on known archaeological resources along the project alignment. Therefore, the prior finding of no impact on known archaeological would not change for the 2026 Revised Project and no new mitigation measures would be required.

As-Yet-Undiscovered Archaeological Resources. The 2026 Revised Project, as compared to the 2023 Project, would reduce the amount of excavation and ground disturbance by eliminating the train box extension at the Transit Center and moving utilities from the underground train box to an at-grade utility building; removing high-speed rail facilities at the Fourth and Townsend Street Station, which would enable a smaller train box; shortening the tunnel stub box; and demolishing four existing storage tracks on the southern portion of the 4th and King railyards and constructing three electrified storage tracks.

Any adverse changes in the significance of as-yet-undiscovered archaeological resources and Native American human remains would continue to be reduced to less than significant through implementation of MOA stipulations, which include previously adopted Mitigation Measures CH 15 through CH 20. As described under Prior Analysis, the MOA requires preparation and implementation of an ARDTP for areas of ground disturbance. These same mitigation measures would apply to the 2026 Project and would reduce the potential impact to archaeological and human remains to less than significant.

Built Environment Resources. The previously approved environmental documents identified historical resources on the project site, including the San Francisco Fire Department's Auxiliary Water Supply System (AWSS), the Bluxome and Townsend Warehouse District, and 171 Second Street. The shortened tunnel stub box, the Fourth and Townsend Street Station, and acquisition of 171 Second Street, which is a contributor to the Second and Howard Streets Historic District, are the only 2026 Revised Project components near previously identified built environment historical resources.

¹² The APE is the area within which historic properties and/or archaeological resources could be directly or indirectly affected by a project.

The shortened tunnel stub box and the Fourth and Townsend Street Station components would still affect the NRHP-listed AWSS lines at the Fourth Street and Fifth Street intersections with Townsend Street and involve an estimated 100 feet of the lines. However, implementation of previously adopted Mitigation Measures PC 1, PC 6, SG 1, SG 2, SG 4, and SG 5 for preconstruction activities to determine the integrity of buildings and manage traffic; GC 2 through GC 5 for general construction measures to provide signage on alternative routes for access to properties and safety; VA 2 for visual quality effects identified by businesses and residents; AC 1 through AC 15 and 2018 New MM-C-AQ-5.1 for air emissions control; VibC 1 through VibC 3 for vibration; NoiC 1 through NoiC 6 for noise; and SG 1, SG 2, and 2018 New MM-C-GE-4.1 for soils/geology to control and monitor potential ground or building settlement; as well as ongoing consultation with the San Francisco Public Utilities Commission for effects to the AWSS would reduce impacts to the AWSS. As determined in the consultation with the SHPO for the previous environmental analyses, the removal or relocation of short segments of the AWSS lines would not adversely affect the resource's ability to convey its significance or impair the characteristics that qualify the property for inclusion in the NRHP.

Removing high-speed rail facilities at the Fourth and Townsend Street Station, which would enable a smaller station box, and shortening the tunnel stub box would occupy less area within the Townsend Street right-of-way and its construction would be farther from the Bluxome and Townsend Warehouse District, along the north side of Townsend Street. Implementation of previously adopted Mitigation Measures PC 1, PC 6, SG 1, SG 2, SG 4, and SG 5 for preconstruction activities to determine the integrity of buildings and manage traffic); GC 2 through GC 5, general construction measures to provide signage on alternative routes for access to properties and safety); utilities (Util 1) to avoid and prevent damage to utilities during construction VibC 1 through VibC 3 for vibration); NoiC 1 through NoiC 6 for noise ; and SG 1, SG 2, and 2018 New MM-C-GE-4.1 for soils/geology to control and monitor potential ground or building settlement) would reduce impacts to the Bluxome and Townsend Warehouse District.

The TJPA's acquisition of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not have any impact on historical resources. Further, potential impacts on historic architectural resources previously identified for the 2023 Project, such as underpinning of the building at 171 Second Street, would be avoided or minimized through implementation of Stipulation III of the MOA, "Mitigation of Effects on Second and Howard Streets Historic District and Protective Measures for Rincon Point/South Beach Historic Warehouse Industrial District." This MOA stipulation incorporates previously adopted Mitigation Measures CH 11 through CH 13 (measures to protect contributing elements of historic properties, determine the necessary type and level of recordation prior to taking any action that could adversely affect historic properties, and repair any project-related damage in both districts), which would be implemented and monitored as part of the project.

In conclusion, implementation of the following MOA stipulations would continue to reduce impacts to the AWSS and the Bluxome and Townsend Warehouse District under the 2026 Revised Project: PC 1, PC 6, SG 1, SG 2, SG 4, SG 5, GC 2 through GC 5, VA 2, Util 1, VibC 1 through VibC 3, NoiC 1 through NoiC 6, and 2018 New MM-C-GE-4.1. Likewise, implementation

of MOA stipulations CH 11 through CH 13 would continue to avoid or reduce impacts to 171 Second Street and the Second and Howard Streets Historic District under the 2026 Revised Project. Therefore, the prior impact findings on built environment historical resources in the previous environmental documents would not change for the 2026 Revised Project and no new mitigation measures would be required.

3.5.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on cultural resources in the previous analysis. The 2026 Revised Project would remain within the same footprint, and project components would not be substantially different from those analyzed for the 2023 Project. The project would implement previously adopted mitigation measures CH 11 through CH 13; CH 15 through 20; PC 1; PC 6; SG 1; SG 2; SG 4; SG 5; GC 2 through GC 5; VA 2, Util 1; VibC 1 through VibC 3; NoiC 1 through NoiC 6; and New-MM-C-GE-4.1 to reduce impacts to a less-than-significant level. No new mitigation measures to address cultural resource impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.6 Energy

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	LTS 1	LTS	No	No	No
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	See Footnote 1	LTS	No	No	No

Note:

1. Prior to 2019, Energy was not a separate environmental topic in CEQA Guidelines Appendix G and the checklist questions in this table were not specifically evaluated in the 2018 Final SEIS/EIR, but the topic of energy consumption and demand were evaluated in the Utilities and Service Systems section of the 2018 Final SEIS/EIR. The 2023 Addendum evaluated potential impacts related to energy consumption and energy efficiency in Section 3.18, "Utilities and Service Systems" and found impacts to be less than significant for the 2023 Project.

3.6.1 Discussion

Prior Analysis. The 2023 Project analysis did not contain a section dedicated to Energy as an environmental topic but did analyze energy consumption and consistency with renewable energy plans under Utilities and Service Systems.

The 2023 Project would increase energy demand because several project components would require power to operate, including the widened throat structure, extended train box, ventilation structures, intercity bus facility, and BART/Muni underground pedestrian connector. However, energy consumption for these components could be met by existing providers and would not require new or expanded energy supplies.

The 2023 Project would have a beneficial effect on the energy footprint of the region by diverting fossil fuel consumption by cars, counterbalancing the additional power required for project operation. The direct, long-term impacts of the 2023 Project on energy were determined to be less than significant.

2026 Revised Project Analysis. The CEQA Guidelines were updated in 2019 and included Energy as an environmental resource to be evaluated. Given that Energy has been identified as a

separate topic since 2019 and the organization of the environmental analysis in this 2026 Addendum distinguishes between the prior and current analyses for easy comparison, the TJPA is conforming to the current CEQA checklist.

The 2026 Revised Project would remove components from 2023 Project, including the train box extension at the Transit Center and the high-speed rail facilities at the Fourth and Townsend Street Station, each of which would reduce construction and operational energy consumption. The 2026 Revised Project would defer construction of the high-speed rail vertical circulation elements at the Transit Center. Additionally, the TJPA's acquisition of the property located at 171 Second Street and temporary relocation of tenants during construction would result in no notable change to the amount of direct or indirect energy consumed during construction or operations. As a result, overall energy demand for the 2026 Revised Project would be less than reported in the previous environmental documents as there would be a decrease in construction and operations associated with the train box extension and high-speed rail facilities at the Fourth and Townsend Street Station.

The 2026 Revised Project proposes to install new electrified storage tracks to replace the existing storage tracks and serve Caltrain's electrified fleet within the 4th and King railyards. This would be a form of indirect energy required for project operations, as the electricity required to power this component would likely be sourced from the existing grid. California's Renewable Portfolio Standards are anticipated to result in an increase in renewable electricity in the future, and the City is working toward a goal of 100 percent renewable energy by 2040. Therefore, the use of energy in the form of electricity to support this component would not be wasteful or inefficient, nor would it conflict with applicable state or local plans.

The 2026 Revised Project is anticipated to result in the same beneficial energy effects as the 2023 Project, i.e., encouraging mode switch from personal vehicles toward sustainable mass transit.

3.6.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on energy resources as previously evaluated for the 2023 Project. The 2026 Revised Project would not result in a wasteful or inefficient use of energy and would not conflict with any applicable plans, such as the 2021 San Francisco Climate Action Plan. The 2026 Revised Project is anticipated to result in a beneficial energy effect by encouraging mode switch toward mass transit. Construction would require a one-time commitment of energy through the operation of diesel- and gasoline-powered construction equipment, and operations would require continued energy usage, which would be adequately supplied by existing utility providers. No new mitigation measures to address energy resources would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.7 Geology and Soils

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Directly or indirectly cause 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.	NI	NI	No	No	No
ii. Strong seismic ground shaking?	LTS	LTS	No	No	No
iii. Seismic-related ground failure, including liquefaction?	LTS	LTS	No	No	No
iv. Landslides?	NI	NI	No	No	No
b) Result in substantial soil erosion or the loss of topsoil?	LTS	LTS	No	No	No
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?	LTS-M	LTS-M	No	No	No
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?	LTS	LTS	No	No	No
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	NI	NI	No	No	No
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	LTS-M	LTS-M	No	No	No

Note: LTS = less than significant; LTS-M = less than significant with mitigation; NI = no impact

3.7.1 Discussion

Prior Analysis. No known faults exist across the project site, and thus surface fault rupture would not represent a potential impact. In addition, septic tanks or other wastewater disposal systems other than the existing sanitary sewer system were not proposed, and the nearest area with landslide potential is 1.5 miles from the project site. Therefore, no impact related to known earthquake faults, landslides, or septic tanks/wastewater disposal would occur.

Multiple faults are in the vicinity of the project site, and strong ground shaking could affect project components if a major earthquake occurred. Earthquake-induced settlement is a potential hazard in the project site, including liquefaction and lateral spreading. For excavations deeper than 25 to 30 feet below ground surface into Young Bay Mud, some heaving and base instability may occur. In addition, expansive soils may be present beneath two approved project components (the ventilation structure at Second and Harrison streets that has not yet been constructed, and the AC Transit bus storage parking facility, which was completed during Phase 1). Potential impacts from ground shaking, seismic and non-seismic ground failure, and expansive soils would be less than significant because all structural components would be designed and built in compliance with the appropriate building codes and standards and DTX Design Criteria Manual (DCM) Chapter 10, Seismic Design (TJPA 2022b). Previously adopted Mitigation Measures SG 1 through SG 5 also would apply, requiring monitoring during construction activities, implementation of structural engineering principles and construction techniques, design and construction criteria related to ground shaking, underpinning, foundation and excavation and potential shoring required for neighboring properties. Although compliance with the DTX design criteria and applicable codes are expected to reduce potential ground failure impacts from liquefaction and expansive soils to less than significant, previously adopted Mitigation Measures New-I-GE-2.1 and New-I-GE-3.1 would augment the design criteria to further reduce these less-than-significant impacts.

The 2023 Project would require excavation in areas with shallow groundwater. If the water level is lowered outside the area of excavation by construction dewatering, consolidation of the poorly consolidated in situ soils may occur and result in settlement around the excavation zone. Implementation of previously adopted Mitigation Measure New-MM-C-GE-4.1 would reduce this potentially significant impact to less than significant.

The 2023 Project analysis demonstrated that although the project component sites are almost entirely paved or developed, exposed fill, sand, and native soil deposits would be moderately to highly susceptible to erosion from stormwater runoff when exposed during construction-related activities, such as excavation. However, to comply with the City's Stormwater Design Guidelines, the Statewide National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order WQ 2022-0057-DWQ, NPDES No. CAS000002) discharge standards, and an SFPUC Construction Site Runoff Control Permit, would be required to comply with all water quality standards and waste discharge requirements, including preparing an Erosion and Sediment Control Plan and Storm Water Pollution Prevention Plan and implementing temporary and permanent erosion-control best management practices, which would control erosion and loss of topsoil. Thus, the impact on soil loss and erosion would be less than significant.

The fossilized remains of a mammoth were unearthed in the project area in September 2012, leading to a determination that the project area possesses a high potential to contain additional similar fossils. Therefore, construction activities involving ground disturbance associated with the 2023 Project could damage or destroy previously unknown unique paleontological resources. Implementation of previously adopted Mitigation Measure New-MM-C-CR-4.1 would reduce this potentially significant impact to less than significant.

2026 Revised Project Analysis. Soil, geologic, seismic, and groundwater conditions have not changed on the project site. Therefore, the 2026 Revised Project still would be susceptible to impacts from strong seismic ground shaking, seismic and non-seismic ground failure, and expansive soils. However, the proposed elimination or reduction of project components associated with the 2026 Revised Project (e.g., the elimination of the train box extension, the reduced station box for the Fourth and Townsend Street Station, and the reduced tunnel stub box) would lessen the extent of ground disturbance and excavation and exposure of fill, sand, and soil deposits. Compliance with the DTX design criteria, applicable building codes, water quality standards, and waste discharge requirements, along with previously adopted Mitigation Measures SG 1 through SG 5, New-I-GE-2.1, New-I-GE-3.1, and New-MM-C-GE-4.1 would apply and reduce these impacts to less than significant. As described for the 2023 Project, the 2026 Revised Project would not require or involve septic systems or other alternative waste disposal systems, and it would not be prone to landslides or be located across the trace of any known earthquake faults.

Although the 2026 Revised Project would involve less ground disturbance than the 2023 Project, construction activities would still occur in paleontologically sensitive rock formations, which could damage or destroy previously unknown unique paleontological resources. Therefore, implementation of previously adopted Mitigation Measure New-MM-C-CR-4.1 would apply and would reduce this potentially significant impact to less than significant.

3.7.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on geology and soils resources as previously evaluated for the 2023 Project. The 2026 Revised Project would be located within the same development footprint and involve less ground disturbance than what was previously evaluated. The project would implement previously adopted Mitigation Measures SG 1 through SG 5, New-I-GE-3.1, New-MM-C-GE-4.1, and New-MM-C-CR-4.1) to reduce geological impacts to less-than-significant levels. No new mitigation measures to address geologic and soils resources would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.8 Greenhouse Gas Emissions

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	B	B	No	No	No
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	LTS	LTS	No	No	No

Note: B = Beneficial Impact; LTS = less than significant

3.8.1 Discussion

Prior Analysis. The 2023 Project would have beneficial impacts related to the generation of greenhouse gas (GHG) emissions and, overall, would result in a net reduction in GHG emissions. Project construction would result in a short-term increase in GHG emissions of approximately 0.9 million metric tons of carbon dioxide equivalents (CO₂e) per year; however, these emissions would be offset by the long-term operational benefit of reduced GHG emissions because of increases in the number of public transit passengers who otherwise would be using privately owned vehicles. The 2018 Final SEIS/EIR reported that operation of the project would result in a reduction of approximately 3.4 million metric tons of CO₂e per year.¹³ The Portal would contribute to the transportation and land use strategies in San Francisco’s Climate Action Plan regarding a fast and reliable transit system and promoting development along transit corridors. Analysis for the 2023 Project found that it would comply with San Francisco’s strategies to address GHG emissions as stated in the City’s Climate Action Plan, would not generate significant GHG emissions, and would be consistent with and further the goals of Plan Bay Area 2050 (MTC, ABAG 2021). Therefore, the 2023 Project was found to have less-than-significant impacts related to consistency with applicable plans adopted to reduce GHG emissions.

¹³ See Appendix C for details on the calculation of GHG emissions reductions.

2026 Revised Project Analysis. Several components of the 2026 Revised Project would result in a decrease in construction-related GHG emissions compared to those of the 2023 Project because of reduced construction activity levels, including elimination of the train box extension, elimination of the intercity bus facility, removal of the high-speed rail platforms and facilities at the Fourth and Townsend Street Station, and shortening of the tunnel stub box. Deferred installation of high-speed rail vertical circulation elements at the Transit Center would result in a near-term reduction of construction emissions because construction activities would occur after construction of the 2026 Revised Project. Construction activities associated with the high-speed rail vertical circulation elements at the Transit Center would not change from those of the 2023 Project. However, when such construction does occur, emissions would be less than previously anticipated because vehicles and equipment would be replaced over time with cleaner, more fuel-efficient models. The relocation and electrification of the storage tracks within the 4th and King railyards would not result in a change to previously assumed construction activity levels because the relocation is included within previously assumed ground disturbance areas. Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not generate emissions during construction of the 2026 Revised Project because the TJPA's ownership of the building at 171 Second Street and temporary relocation of tenants during construction would not produce GHGs.

The location of utilities in the at-grade utility building as part of the 2026 Revised Project would result in an overall reduction in construction-related GHG emissions because of the decrease in excavated material and the associated reduction in the operation of construction equipment and haul truck trips compared to that required for the previously evaluated underground locations for utilities in the train box. However, as described in Section 3.3, Air Quality, construction activities for the at-grade utility building would require different phasing and some different methods and equipment compared to those analyzed for the 2023 Project. Additionally, minimal operational activities associated with the at-grade utility building, including those with electricity consumption, would result in a change in operational GHG emissions compared to the below-grade utilities under the 2023 Project. Therefore, construction and operational GHG emissions associated with the at-grade utility building have been addressed quantitatively in Appendix C, Air Quality and Greenhouse Gas Technical Memorandum. As further detailed in Appendix C, construction of the at-grade utility building and operation of the at-grade utility building would generate maximum annual emissions of approximately 174 and 16 metric tons of CO₂e, respectively.

While the at-grade utility building would result in an incremental increase in the generation of GHG emissions from construction and operations, the modifications proposed as part of the 2026 Revised Project would include the elimination or relocation of previously approved project components and would result in an overall decrease in construction-related GHG emissions compared to the 2023 Project. The electrified storage tracks at the 4th and King railyards would replace existing tracks that serve diesel-powered trains, thereby resulting in a GHG emissions benefit and further promoting zero-emissions transportation alternatives. Consistent with the 2023 Project, construction-related GHG emissions would be offset by the long-term benefit of reduced GHG emissions because of increases in the number of public transit passengers who

otherwise would be using privately owned vehicles. Future operation of the 2026 Revised Project would be consistent with statewide goals to enhance transit connectivity and displace on-road passenger vehicle trips and would not result in an adverse effect related to global climate change. Overall, the 2026 Revised Project would result in a beneficial net reduction in GHG emissions.

The project is included in the Plan Bay Area 2050 transportation project list (RTP ID 21-T11-110) and is recognized as part of an expanded and modernized regional rail network and regional solutions to lowering GHG emissions. Therefore, the 2026 Revised Project would be consistent with applicable plans adopted to reduce GHG emissions.

3.8.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions related to GHG emissions as previously evaluated for the 2023 Project. The 2026 Revised Project would result in a beneficial net reduction in GHG emissions and would be consistent with applicable plans adopted to reduce GHG emissions. No new mitigation measures to address GHG emissions would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.9 Hazards and Hazardous Materials

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LTS	LTS	No	No	No
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	LTS	LTS	No	No	No
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	LTS	LTS	No	No	No
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, therefore, would it create a significant hazard to the public or the environment?	LTS	LTS	No	No	No
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	NI	NI	No	No	No
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	LTS	LTS	No	No	No
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	NI	NI	No	No	No

Note: LTS = less than significant; N/A = not applicable; NI = no impact

3.9.1 Discussion

Prior Analysis. The 2023 Project would involve the handling of hazardous materials. Previous analysis concluded that with implementation of previously adopted Mitigation Measures HWO 1 through HWO 7 requiring additional safety criteria for the storage and handling of hazardous materials, along with required implementation and compliance with applicable local, state, and federal hazardous materials regulations and standards, the 2023 Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or wastes or through the accidental release of such materials. The analysis found that with implementation of previously adopted Mitigation Measures HMC 1 through HMC 8, requiring detailed investigations and hazardous materials handling plans for impacts from locating the project on the Cortese list¹⁴ and other known hazardous materials sites would be less than significant.

The 2023 Project would involve both demolition of existing facilities and construction of new structures that could contain asbestos, lead, polychlorinated biphenyls, mercury, or other hazardous building components. The California Division of Occupational Safety and Health and the Air District regulate handling and disposal of asbestos, and contractors are required to comply with these regulations. In addition, potential construction impacts related to asbestos and lead-based paint would be less than significant because previously adopted Mitigation Measures HMC 9 and HMC 10, requiring testing and abatement plans for lead-based paint and asbestos, would be implemented as part of the 2023 Project.

Project components that could alter local circulation during operations would not impede emergency response because they would not result in substantial new vehicular trips that would adversely affect intersection operations or otherwise delay emergency response vehicles. The Transbay Program is not within an area covered by an adopted airport land use plan, near a private airstrip, or within a California Department of Forestry and Fire Protection fire hazard zone, and the project would have no impact related to airport or wildfire hazards.

2026 Revised Project Analysis. No significant changes have occurred in the extent or severity of previously identified hazards and hazardous materials, as confirmed by a review of current maps and databases. Potential impacts related to known hazardous materials release sites, including sites on the Cortese list, would be reduced to less than significant with implementation of previously adopted Mitigation Measures HMC 1 through HMC 8. Potential impacts related to asbestos and lead-based paint during demolition would remain less than significant with compliance of local and state regulations pertaining to these materials, and implementation of previously adopted Mitigation Measures HMC 9 and HMC 10, requiring testing and abatement plans for lead-based paint and asbestos.

As previously discussed, 2026 Revised Project components that could alter local circulation during operations would not impede emergency response because they would not result in substantial new vehicular trips that would adversely affect intersection operations or otherwise

¹⁴ Compiled pursuant to Government Code 65962.5

delay emergency response vehicles. The Transbay Program is not within an area covered by an adopted airport land use plan. Finally, the project is not within or near a moderate, high, or very high wildfire hazard severity zone as classified by the California Department of Forestry and Fire Protection. Thus, there would be no impacts related to emergency evacuation, airport safety hazards, or wildfire. Additional information related to wildfire is provided in Section 3.20, Wildfire.

3.9.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on hazards or hazardous materials as previously evaluated for the 2023 Project. The 2026 Revised Project is located within the same footprint as was previously evaluated and would implement previously adopted mitigation measures HWO 1 through HWO 7 and HMC 1 through HMC 10. Therefore, impacts related to hazardous materials exposure from routine transport, use, or disposal or accidental release of hazardous materials or wastes, or known hazardous materials release sites, including sites on the Cortese list, would be reduced to a less-than-significant level. No new mitigation measures to address hazardous and hazardous materials impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.10 Hydrology and Water Quality

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	LTS	LTS	No	No	No
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	LTS	LTS	No	No	No
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:	LTS	LTS	No	No	No
i. result in substantial on- or off-site erosion or siltation on- or off-site;	LTS	LTS	No	No	No
ii. substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;	LTS	LTS	No	No	No
iii. create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	LTS	LTS	No	No	No
iv. impede or redirect floodflows?	LTS	LTS	No	No	No
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	LTS-M	LTS-M	No	No	No
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	LTS-M	LTS-M	No	No	No

Note 1: LTS = less than significant; LTS-M = less than significant with mitigation

Note 2: Cumulative impacts related to Sea-Level Rise are also discussed in the analysis of Cumulative Impacts in Section 3.21, Mandatory Findings of Significance, of this 2026 Addendum.

3.10.1 Discussion

Prior Analysis. The 2023 Project would result in less-than-significant impacts related to hydrology and water quality with implementation of previously adopted mitigation related to flood hazards and sea-level rise (Mitigation Measure New-MM-CU-WQ-9.1 for a Sea-Level-Rise Adaptation Plan and New-MM-WQ-4.1 for use of a new critical inundation level). The 2023 Project is not near surface waters where water quality could be degraded by project construction activities or operations. Potential construction impacts on water quality would be less than significant because previously adopted Mitigation Measures HMC 2 through HMC 7, requiring detailed investigations and hazardous materials handling plans for contaminated soil and groundwater, would be implemented as part of the project in addition to implementation of an Erosion and Sediment Control Plan and compliance with discharge and dewatering requirements and applicable federal, state, and local regulations, such as preparation of a Stormwater Pollution Prevention Plan.

The 2023 Project would be underground and covered when completed or would involve development on existing impervious sites. Therefore, there would be no effect on the recharge of groundwater.

The 2023 Project would not involve the modification of any watercourse because none exists on the project site and would not alter drainage patterns or contribute substantially to flows to the combined sewer system because the stormwater runoff under existing conditions already drains into the combined sewer system and the fully urbanized condition of these sites means that greater runoff volumes would not be expected.

No levees or dams exist that could breach or rupture and inundate the project site. The project is not within the 100-year flood hazard area (area with a 1 percent annual chance of flooding). The area along Townsend Street from Fourth Street to Seventh Street as well as the 4th and King railyards to just north of Mission Bay Drive would be within the 100-year storm flood risk zone.¹⁵ Therefore, the project would be vulnerable to flood hazards and require protection through implementation of previously adopted Mitigation Measure New-MM-WQ-4.1, which modified DCM Chapter 4, Environmental Requirements, to prevent the inundation of The Portal's facilities. The design also includes interception points at the tunnel portal location in order to collect flow during the design storm event, as defined in DCM Chapter 5, Civil Design.

Analysis for the 2023 Project determined that the project would be significantly affected by sea-level rise and associated flooding in 2100. Previous analysis concluded that locations on the project site are projected to be inundated by 2100, including the pedestrian connector, which was deferred in the 2023 Project, and the east end of the Transit Center. The Fourth and Townsend Street area, including the Fourth and Townsend Street Station, would be flooded to a greater depth, and the 4th and King railyards would be inundated to approximately Hubbell

¹⁵ The area south of the China Basin water channel from Seventh Street east is not served by the combined sewer and stormwater collection system, and flood risk was not analyzed by the SFPUC in this area.

Street. Thus, implementation of previously adopted Mitigation Measure New-MM-CU-WQ-9.1 for a Sea-Level-Rise Adaptation Plan and New-MM-WQ-4.1 would still be necessary.

The DCM Chapter 4, Environmental Requirements, were updated in 2022, as required under Mitigation Measure New-MM-WQ-4.1, to use a new critical inundation level that is based on the 2018 State of California Sea-Level Rise Guidance (California Ocean Protection Council, California Natural Resources Agency 2018). Implementation of previously adopted Mitigation Measure New-MM-CU-WQ-9.1 for a Sea-Level Rise Adaptation Plan would address estimated changes. Because of the continued uncertainty regarding regional sea-level rise protection measures and the feasibility of implementing all resiliency measures necessary to avoid future inundation, this impact would remain significant and unavoidable.¹⁶

Portions of the 2023 Project are located in the California Tsunami Hazard Area Map and could be vulnerable to inundation in case of a tsunami. The probability of a tsunami is extremely low. Thus, the 2023 Project analysis determined that the 2023 Project would have a less-than-significant impact related to inundation by a tsunami or seiche. Implementation of previously adopted Mitigation Measure New-MM-WQ-4.1 to modify the DTX design criteria to reduce the potential inundation from 100-year storms could also protect The Portal's facilities from possible inundation from a tsunami depending on the height of the tsunami wave and the extent and depth of inundation.

2026 Revised Project Analysis. Because the 2026 Revised Project would be constructed in the same locations previously evaluated for the 2023 Project, the same impacts related to hydrology and water quality would occur and the same previously adopted mitigation measures would be required. As previously discussed, there are no nearby surface waterbodies to receive surface water discharge, and the project area is already covered with impervious surfaces. Therefore, the 2026 Revised Project would not substantially alter drainages, substantially increase stormwater runoff, or impede groundwater recharge. The existing and projected conditions with regard to flooding and sea level rise have been updated; however, the detailed discussion under Prior Analysis related to these topics still applies, including the required mitigation measures.

¹⁶ Note: Cumulative impacts related to Sea-Level Rise are also discussed in the analysis of Cumulative Impacts in Section 3.21, Mandatory Findings of Significance, of this 2026 Addendum.

3.10.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on hydrology or water quality as previously evaluated for the 2023 Project. The 2026 Revised project is located within the same footprint as what was previously analyzed. In addition, the project would implement previously adopted mitigation measures HMC 2 through HMC 7, New-MM-CU-WQ-9.1 and New-MM-WQ-4.1 for impacts from construction on water quality to reduce the risk of inundation from a 100-year flood and tsunami inundation to a less-than-significant level. No new mitigation measures to address hydrologic or water quality impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.11 Land Use and Planning

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Physically divide an established community?	NI	NI	No	No	No
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	NI	NI	No	No	No

Note: NI = no impact

3.11.1 Discussion

Prior Analysis. No short- or long-term impacts on land use and planning would occur on the project site. Many of the project components would be underground and, therefore, would not introduce barriers or impedances that would physically divide the South of Market community or the extension of the Financial District to and around the Transit Center. The street-level project components, similarly, would not introduce barriers that would have the potential to divide surrounding land uses.

The impacts on land use and planning would be minimal, and none of the project components would conflict with any applicable land use plan, policy, or regulation. Construction and operation of the project components would be consistent with applicable plans and policies that encourage development of the Transit Center, additional transit services, and a variety of transportation options and their interconnectivity. Therefore, no impact would occur. No habitat conservation plans or natural community conservation plans are in the study area; therefore, the project would not conflict with such plans.

2026 Revised Project Analysis. The 2026 Revised Project would not physically divide an established community or cause a significant impact through conflict with a land use plan, policy, or regulation, for the same reasons as the approved project; i.e., many of the project components would be underground and others would be deferred, removed entirely, or reduced in scope.

The pertinent area plans, policies, and regulations are essentially the same as they were when the 2023 Project was approved. The 2026 Revised Project also would be consistent with the land use planning and regulatory framework. The 2026 Revised Project would not change planned land uses or land use policies. 2026 Revised Project components that have been deferred, removed entirely, or reduced in scope would have no effect in terms of altering or conflicting with a land use policy.

The 2026 Revised Project now includes the TJPA's acquisition of the property located at 171 Second Street. The employees in the building would be temporarily relocated while the building is underpinned, and the building would be preserved. This would not physically divide an established community, nor would it substantially conflict with any of the plans relevant to the project site.

Like the 2023 Project, the 2026 Revised Project would support Objective 1.1 of the Transit Center District Plan to "maintain downtown San Francisco as the region's premier location for transit-oriented job growth within the Bay Area" and Objective 8.3 of the Central South of Market Area Plan to "reinforce the character of Central SoMa (South of Market) (San Francisco Planning Department 2018) as a mid-rise district with tangible urban rooms." The project continues to be consistent with the City's Transit First Policy, which "prioritizes movement of people and goods with a focus on transit, walking, and biking instead of private automobiles" (City 2007) as well as the area plans to promote transportation options, and complements the vision of the area plans and the City's strategies to encourage higher density corridors and areas along and around transit and transit stations.

3.11.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on land use as previously evaluated for the 2023 Project. The 2026 Revised Project would occur in the same area and include features similar to what was previously analyzed. In addition, no new mitigation measures to address land use and planning impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.12 Mineral Resources

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
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?	NI	NI	No	No	No
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?	NI	NI	No	No	No

Note: NI = no impact

3.12.1 Discussion

Prior Analysis. The 2023 Project would have no impact on mineral resources because there are no known significant mineral deposits within the City. No resources are mapped within or near the project boundaries, and no active or proposed mines are present on the project site (California Division of Mines and Geology 1982).

2026 Revised Project Analysis. The 2026 Revised Project would be constructed in an area where no significant mineral deposits exist and where no known important mineral deposits or mining activities have taken place.

No changes have been made to the project site’s mineral resource zone classification. Therefore, the 2026 Revised Project would have no impact on mineral resources.

3.12.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on mineral resources as previously evaluated for the 2023 Project. The 2026 Revised project would occur in the same area as what was previously analyzed 2023 Project. No new mitigation measures to address mineral resources would need to be implemented for the 2026 Revised Project because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.13 Noise

Would the project result in:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	SU	SU	No	No	No
b) Generation of excessive vibration or ground-borne noise levels?	LTS	LTS	No	No	No
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 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?	NI	NI	No	No	No

Note: LTS = less than significant; LTS-M = less than significant with mitigation; NI = no impact

3.13.1 Discussion

Prior Analysis. Most 2023 Project components are located underground and would not generate significant street-level noise. However, surface-level components, such as ventilation structures, were identified as potential contributors to elevated ambient noise levels, requiring implementation of previously adopted Mitigation Measure New-MM-NO-1.1 to reduce impacts to less than significant.

In addition to the previously adopted mitigation measures, the DTX design criteria were developed and applied to guide design decisions. These criteria include performance standards for ground-borne noise and vibration and are intended to minimize impacts through systemwide design features, such as resilient track fasteners, shaft acoustical treatments, and enclosed mechanical systems, which were factored into the assumptions and impact conclusions presented in the prior environmental analyses.

At-grade elements, including trackwork south of the 4th and King railyards and the intercity bus facility, were determined to result in minimal noise increases.

Operational vibration associated with new turnback and maintenance-of-way tracks south of the railyards was found to be minor and would not exceed FTA annoyance or structural damage thresholds. Two historic buildings located above the widened throat structure were analyzed for vibration impacts, which were found to be below damage and annoyance criteria, based on the projected number of train passbys.

Construction noise was previously identified as a significant and unavoidable impact during nighttime work, even with application of previously adopted Mitigation Measures NoiC-1 through NoiC-6. Daytime construction activities were projected to temporarily increase ambient noise levels but would be reduced to less than significant with mitigation.

Construction vibration impacts were determined to be less than significant with implementation of previously adopted Mitigation Measures VibC-1 through VibC-6 and the stipulations in the MOA between the FTA and the SHPO.

The Transbay Program is not located within an airport land use plan area or within the vicinity of private airstrips and, thus, no airport-related noise impacts were anticipated.

2026 Revised Project Analysis. An updated technical analysis was prepared for this environmental analysis (see Appendix D, Noise and Vibration Technical Memorandum, to this 2026 Addendum)(AECOM 2026b). The 2026 Revised Project would result in reduced or comparable levels of construction and operational noise and vibration compared to the 2023 Project. The 2026 Revised Project results in some decreases in the most intensive construction phases, such as excavation and structural work. Notably, the train box extension has been eliminated, the Fourth and Townsend Street Station design has been revised to eliminate high-speed rail facilities, thus decreasing the size of the station, and the tunnel stub box has been shortened, all of which would reduce construction activity levels, the number of haul trucks for excavated soil volumes, the need for heavier construction equipment, and construction duration, as well as the related construction noise and vibration impacts. The TJPA's acquisition of the property located at 171 Second Street and temporary relocation of its tenants would not change noise and vibration because the associated underpinning construction activities were previously evaluated for the 2023 Project and have not changed. Caltrain's transition to electrified service, which began on August 11, 2024, with full fleet deployment on September 21, 2024, introduces trains that are quieter than the previously analyzed diesel-powered vehicles (Caltrain 2021). This new information would result in lower operational noise levels, further supporting the conclusion that impacts would remain less than significant.

Construction Noise. Demolition and site preparation phases could reach up to 85 dBA equivalent sound level (L_{eq}) at 50 feet but attenuate to approximately 79 dBA L_{eq} at 100 feet, which would comply with the City's 80 dBA construction noise limit, as defined in Article 29, Section 2908:

Construction Noise Restrictions.¹⁷ With implementation of previously adopted Mitigation Measures NoiC-1 through NoiC-6, daytime construction noise impacts would remain less than significant.

For the 2026 Revised Project, no new noise sensitive receptors would be affected during nighttime construction. Previous analysis determined that nighttime construction noise would affect sensitive receptors in localized areas along the project corridor and that even with mitigation measures, the 2023 Project would result in significant and unavoidable impacts. Previously adopted Mitigation Measures NoiC 1 through NoiC 6 would help reduce impacts related to nighttime construction noise. While there are no new sensitive receptors in the area affected by the 2026 Revised Project, nearby residences located approximately 100 feet from the railyards and 300 feet from the at-grade utility building construction areas would still be exposed to intermittent noise from project-wide nighttime activities. Therefore, noise impacts from nighttime construction would remain significant and unavoidable under the 2026 Revised Project.

The closest residential receptors are located approximately 100 feet from the construction area. Temporary construction noise would occur during demolition and grading associated with track installation for the relocated and electrified storage tracks. Given that the estimated noise levels for demolition and site preparation could reach up to 85 dBA L_{eq} at 50 feet, these phases represent the loudest portions of construction. At 100 feet, noise levels would attenuate to approximately 79 dBA L_{eq} , which approaches but does not exceed the City's 80 dBA threshold. The mitigation measures previously adopted for the project—NoiC-1 through NoiC-6—would remain applicable and effective in reducing impacts for both components. With implementation of these measures, construction noise impacts would be minimized and would remain less than significant.

Construction Vibration. Use of vibratory rollers are evaluated in this environmental analysis because they are among the construction equipment types with the highest potential to generate ground-borne vibration, particularly during site preparation and paving. The estimated peak particle velocity (PPV) from the use of vibratory rollers would be 0.074 in/sec at 50 feet, which is below the FTA structural damage threshold of 0.2 in/sec. There are no structures located within 50 feet of the construction footprint. Therefore, construction vibration impacts would remain less than significant.

Operational Noise. Operation of the at-grade utility building is expected to generate noise levels of 65 to 70 dBA L_{eq} at 10 feet, which attenuates to approximately 40.5 dBA L_{eq} at the nearest sensitive receptors at residential units (approximately 300 feet away), and public open space (approximately 100 feet away). This is below the City's standard of 5 dBA above ambient and the FTA threshold of 60 dBA L_{eq} . Operational noise of the relocated storage tracks within the 4th and King railyards are positioned closer, by approximately 100 feet, to a residential receptor than the

¹⁷ Per San Francisco Police Code, Article 29, Section 2908, construction equipment noise shall not exceed 80 dBA L_{eq} at a distance of 100 feet from the source unless specifically exempted.

2023 Project; however, they would be used for low-speed train storage (15 mph) and the trains would be electric rather than diesel, resulting in quieter operational noise.

Operational Vibration. Trains accessing the proposed electrified storage tracks within the existing railyards would not result in an exceedance of vibration thresholds at nearby land uses, based on FTA criteria (FTA 2018). The FTA criteria assess ground-borne vibration based on vibration velocity levels (VdB) and PPV, with thresholds established to evaluate potential human response and structural damage at nearby receptors. The 2026 Revised Project would not introduce new sources of operational vibration.

Based on the low-speed nature of storage and repositioning movements and the distance to nearby receptors, predicted vibration levels would remain below the FTA screening thresholds for both human annoyance (approximately 72 VdB for residential receptors) and structural damage (PPV criteria on the order of 0.2 in/sec for conventional buildings).

Accordingly, train passbys associated with the electrified storage tracks would not result in exceedances of FTA operational vibration thresholds at nearby receptors, and the 2026 Revised Project would not introduce new or more intense sources of operational vibration compared to prior analyses.

Previously adopted Mitigation Measures NoiC-1 through NoiC-6, VibC-1 through VibC-6, and New MM-NO-1.1 remain applicable would reduce potentially significant construction and operational noise and vibration impacts to less than significant. No revisions to mitigation measures would be required.

3.13.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on noise as previously evaluated for the 2023 Project. The 2026 Revised Project includes several components that were previously analyzed, such as the train box extension, the Fourth and Townsend Street Station, and the tunnel stub box, have either been removed or scaled back, making construction activities shorter in duration and less intensive. In addition, operational noise and vibration levels below City and FTA thresholds and standards would remain applicable.

No new information of substantial importance has been identified, other than Caltrain's initiation of its new electrified and quieter fleet, which began revenue service in 2024 and has resulted in reduced noise levels at the project site. Further, the 2026 Project would implement previously adopted Mitigation Measures NoiO 1 through NoiO 3, New-MM-NO-1.1, NoiC 1 through NoiC 6, VibO1, and VibC 1 through VibC 6 to reduce impacts related to noise and vibration to a less than significant level. No new mitigation measures to address noise and vibration impacts would need to be implemented because of changes in circumstances. None of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.14 Population and Housing

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
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)?	LTS	LTS	No	No	No
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	NI	NI	No	No	No

Note: LTS = less than significant; NI = no impact

3.14.1 Discussion

Prior Analysis. The 2023 Project would not displace substantial numbers of existing housing or displace substantial numbers of people, necessitating construction of replacement housing elsewhere.

The acquisition of private properties required for the project would represent a loss of approximately 76,040 square feet of building space,¹⁸ most of which is office space. All of the affected businesses would be offered relocation assistance, in accordance with state and federal laws (Mitigation Measure Prop 1). Based on the large amount of proposed commercial development under the Transit Center District Plan, Central SoMa Area Plan, Eastern SoMa Area Plan, and Mission Bay North Plan and the market conditions for commercial space in the project area, most businesses were expected to be able to relocate in the project area.

The 2023 Project included new potential residential and office development on parcels adjacent to two ventilation structure sites at the intersection of Third and Townsend streets and Second and Harrison streets. However, the 2023 Project analysis determined that the scale of development associated with the project—up to a maximum of 600 additional residents or 400

¹⁸ The 2018 Final SEIS/EIR reported that the project would result in the loss of 86,306 square feet of building space. Since then, the acquisition of the building located at 201 Mission Street (10,266 square feet) has been removed from the project. Therefore, the Revised Project would result in the loss of 76,040 square feet of building space.

additional employees depending whether the developments were residential, office, or mixed use—would not induce substantial population growth. In addition, development associated with the project would help fulfill the City’s expected population growth in the project area as planned for in the Transit Center District Plan, Central SoMa Plan, East SoMa Area Plan, and Mission Bay North Redevelopment Project. Therefore, the 2023 Project would have a less-than-significant impact on population growth.

The 2023 Project was found to result in a net job gain of 87 to 194 jobs, assuming commercial development sites where non-residential uses are permitted. Further, the 2023 Project is anticipated to result in approximately 340 residents.

Based on the statistics listed above, the previous analysis found that the 2023 Project would not induce substantial population growth, nor would it displace substantial numbers of people. The impact would be less than significant, overall.

2026 Revised Project Analysis. The 2026 Revised Project would require the temporary relocation of approximately 78 office workers at 171 Second Street during construction in order to underpin the building. However, no additional construction would be required to address this temporary impact because office workers would be temporarily relocated to existing buildings in the area during the construction. Previously adopted Mitigation Measure Prop 1, requiring the TJPA to provide information, assistance, and payments to all displaced businesses in accordance with federal and state laws, would apply to the 2026 Revised Project, reducing the impact to a less-than-significant level. The 2026 Revised Project would not displace any residential units because there are no residential land uses within the 171 Second Street building. Therefore, the 2026 Revised Project would not result in substantial population growth, nor would it displace substantial numbers of people. The impact would remain less than significant.

3.14.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on population and housing as previously evaluated for the 2023 Project. The 2026 Revised Project features are similar to what was previously analyzed in the 2023 Project. Although the 2026 Revised Project would involve the acquisition of 171 Second Street and the temporary relocation of businesses, the project would implement previously adopted Mitigation Measure Prop 1, which would reduce impacts to a less-than-significant level. No new mitigation measures to address population and housing impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.15 Public Services

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
• Fire protection?	LTS	LTS	No	No	No
• Police protection?	LTS	LTS	No	No	No
• Schools?	LTS	LTS	No	No	No
• Parks?	LTS	LTS	No	No	No
• Other public facilities?	LTS	LTS	No	No	No

Note: LTS = less than significant

3.15.1 Discussion

Prior Analysis. The 2023 Project’s impact on public service facilities/resources would be less than significant with implementation of previously adopted Mitigation Measures Saf 1, Saf 2, and Saf 3. Implementation of the widened throat structure, extended train box, Fourth and Townsend Street Station, ventilation structures, and tunnel stub box would not increase the residential population or employment in the project area that could affect the need for or use of public services and, thus, would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the 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.

The 2023 Project would not increase the provision of fire protection, police protection, schools, parks, or other public facilities.

Minor delays for emergency services were anticipated to occur when the Mission Bay Drive crossing gate is down, but they would not differ substantially from typical delays that currently occur at this crossing location (estimated at 1 second delay in the AM peak hour and no change in the PM peak hour [Parsons 2022]). In addition, police, fire, and emergency services vehicles use multiple routes, depending on the time of day, traffic conditions, and availability of other roadways nearby that could provide alternate east-west access for emergency vehicles. Thus, it was determined that reconfiguration of at-grade storage and maintenance-of-way tracks south of the railyards would not affect emergency response times, and impacts on public services would be less than significant.

2026 Revised Project Analysis. The 2026 Revised Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities. Further, previously adopted Mitigation Measure Saf 1 and Saf 2 would apply. Mitigation Measure Saf 1 to ensure that adequate life-safety measures and emergency access are incorporated into the design and construction of project facilities. Mitigation Measure Saf 2 would require a life-safety plan to be developed. Implementation of these mitigation measures would reduce impacts to a less-than-significant level.

Overall, the components of the 2026 Revised Project would reduce demand or otherwise be adequately served by public services, and would not require the construction of additional public service facilities. Elimination of the intercity bus facility is now proposed, as there is sufficient capacity at the Transit Center bus deck to accommodate intercity bus service. The elimination of the train box extension at the Transit Center would still meet the minimum platform length criterion required for CHSRA. Similarly, the elimination of the high-speed train stop at the Fourth and Townsend Street Station is based on guidance and recommendations from the CHSRA.

The temporary acquisition of the property located at 171 Second Street would require the temporary relocation of approximately 78 office workers during construction. No new or expanded public service facilities would be required to accommodate this temporary relocation. Therefore, the impact on public services would remain less than significant.

3.15.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on public services as previously evaluated for the 2023 Project. The 2026 Revised Project features are similar or reduced from what was previously analyzed and would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities. In addition, the project would implement previously adopted Mitigation Measures Saf 1 and Saf 2 which continue to reduce impacts to a less-than-significant level. No new mitigation measures to address public services impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.16 Recreation

Would the project	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) 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?	LTS	LTS	No	No	No
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	LTS	LTS	No	No	No

Note: LTS = less than significant

3.16.1 Discussion

Prior Analysis. The 2023 Project would not create additional recreation facilities other than those already planned, analyzed in the 2018 SEIS/EIR, and approved, and it would not require construction or expansion of recreation facilities that may have an adverse physical effect on the environment. Additional development, whether for office or residential uses, associated with the 2023 Project would increase the demand for local parks and recreational facilities. However, based on the scale of possible development (up to a maximum of 340 additional residents and 400 additional employees) associated with the project, the demand would not be substantial. Some use of local recreational facilities would be expected by office staff and other employees at project facilities, but the demand would not necessarily result in the accelerated deterioration of these recreational facilities. Therefore, the impacts on recreational resources were found to be less than significant.

The 2023 Addendum analyzed three new recreational areas that were built in the immediate vicinity of the project since the 2018 Final SEIS/EIR was completed: the Park Tower public park and urban park at the southwest corner of Howard and Main streets, a small grassy area on the TJPA parcel across Beale Street from the Transit Center, and the 5.4-acre Salesforce Park on the roof of the Transit Center. The grassy area on the TJPA parcel is a temporary use facility, which is the result of an agreement between the TJPA and an adjacent development.

2026 Revised Project Analysis. No new parks or other recreational facilities have been built in the project vicinity since the 2023 Project was approved. The 2026 Revised Project would not encroach on any existing or proposed recreational facilities, including parks, nor would it increase demand compared to existing or proposed recreational facilities previously evaluated. The 2026 Revised Project would not create additional recreational facilities or require construction or expansion of recreation facilities that could have an adverse physical effect on the environment. The 2026 Revised Project would not include additional development or induce additional development that was not previously evaluated or result in an increase in use of recreational facilities by individuals related to project facilities. Therefore, impacts to recreational resources would be less than significant.

3.16.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on recreation as previously evaluated for the 2023 Project. The 2026 Revised Project is located in the same location as the 2023 Project and would not increase the demand on recreational facilities nor involve the expansion of recreation facilities. No new mitigation measures to address recreational resource impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.17 Transportation

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	LTS-M	LTS-M	No	No	No
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	N/A	NI	No	No	No
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	NI	NI	No	No	No
d) Result in inadequate emergency access?	LTS	LTS	No	No	No

Note: LTS-M = less than significant with mitigation; N/A = not applicable; NI = no impact

3.17.1 Discussion

Prior Analysis. Many of the 2023 Project components would not affect travel demand, trip generation, transit demand, pedestrian activity, or bicycle use. Among the components that had negligible operational transportation impacts were the train box extension, ventilation structures, realignment of the Fourth and Townsend Street Station, and the tunnel stub box. Changes to travel demand and local circulation were largely attributed to the BART/Muni underground pedestrian connector, intercity bus facility, modified Fourth and Townsend Street Station to accommodate a high-speed train stop, and reconfigured at-grade trackwork south of the railyards.

Transportation impacts were determined to be less than significant, and no additional mitigation measures were required. The findings of the previous analysis are summarized as follows:

Construction. The 2023 Project included construction of components such as an extended train box, tunnel stub box, intercity bus facility, ventilation structures, realignment of the Fourth and

Townsend Street Station, trackwork, and underpinning of existing structures. The 2023 Project involves substantial excavation and associated construction activities. As a result, construction, including an increased number of truck trips, would disrupt transportation and circulation. Previously adopted Mitigation Measures Ped 1, Ped 2, Ped 3, Ped 4, Ped 5, and Ped 6; PC 2, PC 4, PC 5, PC 6, and PC 7; and GC 1, GC 2, GC 3, and GC 4 would reduce construction-related transportation impacts to a less-than-significant level.

Circulation and Access. The two components of the 2023 Project that had impacts on circulation and access were the intercity bus facility and the track crossing at Mission Bay Drive. Sidewalks in the vicinity of the Transit Center would operate at an acceptable level. The track crossing at Mission Bay Drive could potentially cause traffic delays, especially during peak hours. Implementation of previously adopted Mitigation Measure New-MM-TR-1.1, which applies to the at-grade crossing of Mission Bay Drive, would reduce this potential effect on local circulation. Similarly, previously adopted Improvement Measure New-I-TR-1.1 for a Traffic Improvement and Adaptive Management Plan was identified for the Mission Bay Drive at-grade crossing.

Vehicle-Miles Traveled. The 2023 Project was found to result in substantial VMT reduction benefits. Based on the adopted findings, transportation impacts related to VMT were determined to be less than significant and no mitigation measures were required.

Transit Demand and Operations. Many of the 2023 Project components would not result in any change to travel demand or substantial changes to transit operations, such as the widened throat structure, extended train box, realigned Fourth and Townsend Street Station, tunnel stub box, and rock dowels. These are structural changes to The Portal's infrastructure or transportation improvements that have no potential to generate transit demand or substantially alter transit operations. Consequently, these project components were determined to have less-than-significant impacts to transit operations.

The impact of other 2023 Project components, such as the intercity bus facility, was also determined to be less than significant with mitigation. The 2023 Project analysis determined that while the intercity bus facility could increase transit ridership, transit service in and around the project site has capacity to accommodate additional riders.

Under the 2023 Project, the underground Fourth and Townsend Street Station would accommodate high-speed trains and added platforms that would allow passengers to board and exit high-speed trains at this station. Because the California High-Speed Rail project and The Portal each had independent utility¹⁹ and different federal and state lead agencies, the effects of high-speed trains stopping at the Fourth and Townsend Street Station were addressed as cumulative effects. These cumulative effects were determined to not result in significant impacts on transit demand or operations.

¹⁹ "Independent utility" refers to a project's ability to be built without reliance on other projects.

Pedestrians and Bicyclists. The 2023 Project analysis determined that several 2023 Project components would not generate pedestrian activity, alter pedestrian movements, or generate or increase bicycle use and, thus, would not be expected to affect pedestrian or bicycle circulation or safety (e.g., the widened throat structure, extended train box, the tunnel stub box). The 2023 Project would have less-than-significant impacts on pedestrians and bicyclists. No mitigation measures were identified for pedestrians and bicycle safety.

Parking and Loading. The 2023 Project analysis determined that most project components would not involve uses or activities that generate a demand for parking or loading space. In addition, in 2013, CEQA was amended, and adequacy of parking for a project is no longer considered a significant impact on the environment.

Emergency Access. The 2023 Project analysis determined that emergency access impacts associated with the 2023 Project would be less than significant.²⁰

2026 Revised Project Analysis. The 2026 Revised Project would not result in adverse or significant impacts to the transportation system.

The 2026 Revised Project would reduce the scope of construction activity compared to the 2023 Project; however, there would continue to be similar impacts related to construction activities on transportation as previously identified with the 2023 Project. Specifically, the elimination of the train box extension, elimination of the intercity bus facility, removal of high-speed rail facilities at the Fourth and Townsend Street Station, and the shortening of the tunnel stub box would lessen construction impacts along Beale and Townsend streets. These revised project components would result in fewer truck trips for material deliveries and haul out of excavated materials; less disruption to local circulation by motorists, pedestrians, bicyclists, and transit; shorter construction schedules; and fewer safety risks related to truck movements, traffic detours, and closure of travel lanes and sidewalks.

The 2026 Revised Project would be consistent with the 2023 Project analysis, which analyzed the underpinning of the property located at 171 Second Street in the 2023 Project. Furthermore, the 2026 Revised Project would continue to comply with SFMTA's Blue Book (SFMTA 2021), which prohibits construction activities on streets of major traffic importance, which would further reduce transportation impacts.

Construction and operation of the 2026 Revised Project would not conflict with the adopted programs, plans, ordinances, or policies addressing circulation, including transit, roadway, bicycle, and pedestrian facilities.

The 2026 Revised Project would eliminate the high-speed rail stop and related facilities from the Fourth and Townsend Street Station, shifting a portion of the estimated passengers from the Fourth and Townsend Street Station to the Transit Center. In June 2024, the TJPA and the CHSRA

²⁰ Previous analysis found potential delays to emergency response vehicles at at-grade rail crossings, including the 16th Street crossing, associated with the posposed turnback track configuration. 2018 Final SEIS/EIR were avoided because the 2023 Project would eliminate the turnback track at the at-grade crossing at 16th Street.

assessed the operational and ridership impacts of removing the high-speed rail platforms at the Fourth and Townsend Street Station, including shifts in passenger demand across the network (AECOM and CHSRA 2024). The annual ridership at the Transit Center in 2040 is projected to be 5.52 million riders without the high-speed rail platforms at the Fourth and Townsend Street Station. This reflects an increase of 1.76 million riders over the previously estimated 3.76 million annual riders with high-speed train service at the Fourth and Townsend Street Station. As further discussed in Appendix E, Transportation Technical Memorandum, the removal of the high-speed rail platforms at the Fourth and Townsend Street Station is not expected to affect the mode split at the Transit Center station.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce impacts to less than significant by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts related to construction, including sidewalk management, signage, and fencing and would continue to apply to the 2026 Revised Project, resulting in less-than-significant construction-related transportation impacts. Because the 2026 Project would reduce the footprint of 2023 Project components and relocate rail storage tracks and utility equipment, the overall scale of construction would be reduced. As a result, construction activities would generate fewer trips related to material hauling, equipment delivery and workforce commuting. Transportation-related impacts during construction would be less than significant, and new mitigation measures would not be required.

Compared to the 2023 Project, the 2026 Project would not result in significant transportation impacts because it results in a smaller construction footprint resulting in less impacts to circulation and access, VMT, pedestrian and bicyclists and parking and loading. Operationally, the 2026 Revised Project would include features that are similar to or reduced compared to those proposed with the 2023 Project. Transportation impact conclusions for the 2026 Revised Project are consistent with 2023 Project. Below is a discussion of potential transportation impacts during construction and operation of the 2026 Revised Project. Additional details on the transportation analysis contained in this section are provided in the Transportation Technical Memorandum, included as Appendix E, Transportation Technical Memorandum, to this 2026 Addendum.

Circulation and Access

Construction. Temporary localized traffic impacts are anticipated, as the 2026 Revised Project would require temporary detours and lane closures to facilitate construction. Deferring the installation of high-speed rail vertical circulation elements at the Transit Center is not anticipated to affect circulation and access, because the high-speed rail facilities have not yet been built. Elimination of the train box extension, elimination of the intercity bus facility, removal of high-speed rail facilities at the Fourth and Townsend Street Station, and shortening the tunnel stub box would reduce localized traffic impacts during construction, because fewer vehicle haul trips would be required, and the footprint of construction would be smaller. Overall, the smaller

footprint of the 2026 Revised Project and subsequently smaller scope of construction would result in less temporary disruption to access and circulation.

Operation. Eliminating the train box extension and the intercity bus facility would result in the removal of the previously approved street-level entrance/exit pavilion to the Transit Center along the east side of Beale Street. A new enclosed street level public lobby area would be built around the existing vertical circulation at the east end of the Transit Center. As a result, this revision is not anticipated to substantially alter pedestrian traffic along Beale Street, although it could reduce the volume of pedestrians using the existing crosswalk between the east and west sides of Beale Street and increase the traffic along the west side of Beale Street. The wide sidewalk design for the west side of Beale Street at the Transit Center would maintain pedestrian flow. Any additional pedestrian traffic generated by removal of the high-speed rail facilities from the Fourth and Townsend Street Station, which would increase pedestrian traffic at the Transit Center, would be able to use either the expanded entrance/exit along the west side of Beale Street or the other existing entrances/exits to access the multiple routes that are available for passengers continuing their trips.

The proposed removal of high-speed rail facilities at the Fourth and Townsend Street Station would result in a smaller overall footprint for the proposed station. Without a high-speed rail stop at this station, associated pedestrian, bicyclist, and vehicular travel demand would be reduced, resulting in reduced access and circulation impacts in the vicinity of the station, compared to impacts previously identified.

The proposed shortening of the tunnel stub box would not result in changes to access and circulation or to the conclusions of the analysis for the 2023 Project. The 2026 Revised Project would remain underground and would not create conflicts for travelers.

Acquisition of 171 Second Street and temporary relocation of building tenants during construction would not affect circulation because the relocation is temporary and does not alter roadway access, parking supply, loading areas, or travel lanes. The businesses would be temporarily relocated within the surrounding area and would not affect circulation or access. Relocation activities would involve a limited number of short-term, one-time moving-related trips and would not measurably change traffic volumes.

Demolition of existing storage tracks and construction of three electrified storage tracks would occur entirely within the existing railyards and would not modify public roadways, access points, or pedestrian, bicyclist or vehicular circulation patterns.

As discussed in this analysis, operational access and circulation would be relatively unchanged compared to the previously assumed outcome of the 2023 Project and prior environmental documentation. Therefore, no new impacts to access and circulation are anticipated, and no new or revised mitigation measures are proposed.

VMT

Construction. The 2026 Revised Project would provide substantial VMT²¹ reduction benefits in the overall construction footprint and scale of construction activities associated with the 2026 Revised Project. The 2026 Revised project includes overall design updates that reduce the construction footprint and scale of construction activities compared to the previously approved project, including the relocation of rail storage tracks and utility equipment.

Operation. The 2026 Revised Project would not result in an increase in VMT compared to the previously approved project. As with the 2023 Project, operation of the 2026 Revised Project would function as a “last mile” connection by extending Caltrain service from the existing San Francisco terminus to the Transit Center in downtown San Francisco. The operational updates analyzed would not increase roadway capacity in congested areas and would not induce additional vehicle travel. The 2026 Revised Project would qualify as an active transportation project under the City’s transportation guidelines. Overall, the 2026 Revised Project is expected to reduce VMT by approximately 9.9 billion over the next 50 years. Therefore, it would not conflict with CEQA Guidelines section 15064.3, subdivision (b)., and there would be no impact.

Pedestrians and Bicyclists

Construction. The 2026 Revised Project would have a smaller development footprint and subsequently shorter construction timeline and, therefore, similar but slightly reduced impacts related to pedestrians and bicyclists as compared to the 2023 Project. Previously adopted Mitigation Measure GC 2 and GC 4, requiring signage during for pedestrian traffic and efficient sideway design and maintenance during construction would apply to the 2026 Revised Project.

Operation. The proposed elimination of the intercity bus facility and replacement of the proposed entrance/exit pavilion with a public lobby on the west side of Beale Street would slightly change the assumptions of the previous analysis related to pedestrian circulation. The 2026 Revised Project proposes to relocate the street-level entrance/exit pavilion on the east side of Beale Street with an expanded lobby and improved vertical circulation at the eastern entrance of the Transit Center (on the west side of Beale Street). Because this change would eliminate the ability for pedestrians to travel underground between the Transit Center and the formerly proposed street-level entrance/exit pavilion, the 2026 Revised Project is expected to result in increased pedestrian and bicycle crossings on Beale Street for individuals traveling to and from the east compared to the 2023 Project. However, signalized crossings that include marked crosswalks, curb ramps, and pedestrian signals, supporting safe and efficient pedestrian and bicycle movement, are available at all major intersections (e.g., Howard, Folsom, Harrison, and Bryant). The presence of multiple crossing points along Beale Street would allow pedestrian and bicycle traffic to spread out in this area, reducing congestion at any single crossing. As a result,

²¹ Consistent with Section 15064.3 of the CEQA guidelines, vehicle-miles traveled (VMT) has replaced level of service (LOS) as the standard for evaluating transportation impacts under CEQA, the effect and impact conclusions and previously adopted mitigation measures for the Transbay Program in the 2018 Final SEIS/EIR pertaining to potential LOS impacts are not applicable to the 2026 Revised Project.

anticipated pedestrian and bicycle activity for the 2026 Revised Project is expected to be consistent with the projections for the 2023 Project.

All intersections along Beale Street and Main Street are signalized and equipped with marked crosswalks. Because the 2026 Revised Project would not substantially alter existing pedestrian facilities (street crossings) or crossing distances, or bicycle facilities, less-than-significant impacts on pedestrian safety and bicycle safety are anticipated. The expanded lobby area around the eastern Transit Center entrance/exit would narrow the sidewalk along the west side of Beale Street, but a sidewalk of 20 feet would be retained to serve pedestrian circulation at this location.

The remaining proposed revisions, including the elimination of the train box extension, shortening of the tunnel stub box, relocation and electrification of the storage tracks in the railyards, and acquisition of 171 Second Street, under the 2026 Revised Project would not affect the conclusions of the previous analysis with regard to pedestrian and bicyclist access and circulation.

Parking and Loading

Construction. The 2026 Revised Project would involve construction-related loading activities including temporary curb use associated with material deliveries and construction staging. These activities would be temporary and limited to the construction period and would not result in significant impacts to parking or loading.

Operation. The Revised 2026 Project operationally would not affect parking or loading.

Transit Demand and Operations

Construction. The Revised 2026 Project would not affect transit demand during construction.

Temporary localized traffic impacts on transit operations are anticipated, as the 2026 Revised Project would require temporary detours and lane closures to facilitate construction and therefore have potential impacts on transit routes. Deferring the installation of high-speed rail vertical circulation elements at the Transit Center is not anticipated to affect transit operations, because the high-speed rail facilities have not yet been built and the construction associated would not require any disruption to the surrounding transit lines. Elimination of the train box extension, elimination of the intercity bus facility, removal of high-speed rail facilities at the Fourth and Townsend Street Station, and shortening the tunnel stub box would reduce localized traffic impacts during construction, because fewer vehicle haul trips would be required, and the footprint of construction would be smaller. Overall, the smaller footprint of the 2026 Revised Project and subsequently smaller scope of construction would result in less temporary disruption to transit operations.

Operation. Under the 2026 Revised Project, the Fourth and Townsend Street Station would be redesigned to remove the high-speed rail platforms and related concourse-level facilities needed for high-speed rail trains to stop at the station.

This modification would shift a portion of the estimated passengers from the Fourth and Townsend Street Station to the Transit Center, where passengers would access future high-speed rail service. The Transit Center is a hub for multiple bus transit agencies and serves many routes, which would provide riders better access to different transit services, including BART and local Muni bus and light rail lines. The availability of access to a variety of transit providers and routes at the Transit Center would reduce the likelihood of a significant increase in ridership on any single route, which could in turn reduce the likelihood of overcrowding on transit buses and trains.

Elimination of the intercity bus facility would not change automobile, transit, pedestrian, and bicyclist circulation near the Transit Center because buses would continue passenger drop-off and pick-up from the bus deck level of the Transit Center. The Transit Center bus deck has sufficient capacity to accommodate intercity bus services, some of which currently operate under lease agreements with primary tenant AC Transit. Additionally, the 2026 Revised Project would not propose changes to the street-level bus routes that start or end at the Transit Center or stop nearby.

The TJPA's acquisition of the property located at 171 Second Street and temporary relocation of its tenants would not result in changes to transit demand or operations. The relocation would be temporary and limited to the construction period and would not introduce new long-term transit riders or permanently displace existing transit demand. It is assumed that the business tenants (approximately 78 people) would be temporarily relocated in close proximity to 171 Second Street, limiting any changes in travel patterns for these tenants. Therefore, acquisition of the building and temporary relocation of residents during construction would not result in significant impacts to transit demand or operations.

The other proposed revisions (i.e., deferring installation of most high-speed rail vertical circulation elements at the Transit Center, shortening the tunnel stub box, and relocating and electrifying the storage tracks within the 4th and King railyards) would not substantially alter the conclusions of the previous analysis with regard to transit demand and operations.

Emergency Access

Construction. The 2026 Revised Project would reduce the scope of construction overall, which may slightly reduce the potential temporary impact to emergency access during construction.

Operation. Access assumptions of the previous analysis have slightly changed because the 2026 Revised Project would eliminate the train box extension and the proposed entrance pavilion on the west side of Beale Street. However, emergency access from the Transit Center would not be effected by the removal of the entrance/exit pavilion, because access would still be available from the west side of Beale Street.

3.17.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on transportation as previously evaluated for the 2023 Project. The 2026 Revised Project would be in the same location with similar project features to what was analyzed in the 2023 Project. In addition, the overall project would implement previously adopted Mitigation Measures TR-1, PC 2 through PC 7, and GC 1 through GC 4 to reduce impacts to less-than-significant levels. No new mitigation measures to address transportation impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.18 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:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
i) 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	LTS-M	LTS-M	No	No	No
e) ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant, pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	LTS-M	LTS-M	No	No	No

Note: LTS-M = less than significant with mitigation

3.18.1 Discussion

Prior Analysis. The 2023 Project would result in less-than-significant impacts related to tribal cultural resources. Although Public Resources Code Section 21080.3.1(b) consultation²² is not required for CEQA addenda, the TJPA conducted Native American tribal consultation as part of the 2023 NEPA Re-evaluation. The Native American Heritage Commission was contacted in November 2022 and confirmed the prior negative results of the search of their Sacred Lands File for the project vicinity. Eight Native American tribes with possible geographic or cultural affiliations with lands in the vicinity of the 2023 Project were contacted and invited to consult with the FTA on their interests and concerns, if any. No new concerns were raised during this consultation effort.

²² See the Public Resources Code Section 21080.3.1(b) that defines a lead agency’s responsibility to consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. This consultation must occur prior to release of a negative declaration, mitigated negative declaration, or environmental impact report for a project. This requirement does not apply to addenda.

A records search was conducted at the Northwest Information Center (NWIC File #22-0063) in July 2022 for the 2023 NEPA Re-evaluation. There were no previously recorded archaeological resources (or tribal cultural resources) identified.

The City's Final EIR for the San Francisco Housing Element 2022 Update (State Clearing House Number 2021060358) provided new information by identifying potential tribal cultural resources: culturally important locations to local Ohlone. These locations included areas modeled as having high sensitivity for Native American archaeological resources and submerged archaeological resources (closer to the bay and China Basin Water Channel) that were inundated by the rising bay (San Francisco Planning Department 2022). Based on previous analyses, it was determined that the 2023 Project is within areas modeled as having high sensitivity for potential tribal cultural resources.

Previously adopted Mitigation Measures CH 15 through CH 20 to reduce impacts to tribal cultural resources apply to the 2023 Project. These mitigations were also included in the MOA between FTA and SHPO, as amended, and described earlier in Section 3.5, Cultural Resources. These mitigation measures and MOA provisions would reduce tribal cultural resource impacts to less than significant.

2026 Revised Project Analysis. The 2026 Revised Project would continue to include underground facilities and, therefore, construction could still encounter potential tribal cultural resources. However, based on the nature of the changes proposed as part of the 2026 Revised Project, with the elimination of the train box extension, removal of the high-speed rail facilities at the Fourth and Townsend Street Station resulting in a narrower station box, and shortening of the tunnel stub box, the project would have a reduced potential to encounter tribal cultural resources.

The updated records search for the 2023 NEPA Re-evaluation identified no new archaeological (or tribal cultural) resources in the area of potential effect at the locations where the 2026 Revised Project components would be modified or eliminated: the street-level entrance/exit pavilion on Beale Street at the eastern end of the train box, the Fourth and Townsend Street Station, the tunnel stub box near the railyards along the Townsend Street right-of-way, and the at-grade trackwork reconfiguration in the railyards.

Native American tribal consultation was not conducted for the 2026 Revised Project because the 2026 Revised Project would not involve expanded excavation or new areas of ground disturbance, there were no new concerns raised during consultation efforts as part of preparing the 2023 NEPA Re-evaluation, and Public Resources Code Section 21080.3.1(b) consultation is not required for CEQA addenda.

3.18.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on tribal cultural resources as previously evaluated for the 2023 Project. No new information that changes the potential to

encounter tribal cultural resources as part of the 2026 Revised Project was identified. In addition, the project would implement previously adopted Mitigation Measures CH 15 through CH 20 to reduce impacts to a less-than-significant level. No new mitigation measures would need to be implemented because of changes in circumstances. None of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.19 Utilities and Service Systems

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	LTS	LTS	No	No	No
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	LTS	LTS	No	No	No
c) Result in a determination by the wastewater treatment provider that 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?	LTS	LTS	No	No	No
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	LTS	LTS	No	No	No
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	NI	NI	No	No	No

Note: LTS = less than significant; NI = no impact; N/A = not applicable

3.19.1 Discussion

Prior Analysis. Most 2023 Project components would not alter water demand, generate wastewater, or increase stormwater runoff volume because they would be rail infrastructure-related (e.g., the changes to station alignment and sizes, ventilation structures, and widened

throat structure). Analysis for the 2023 Project determined that wastewater flows from project components would not exceed the Southeast Wastewater Treatment Plant capacity.

Incremental stormwater runoff from the project's additional development was found to be minimal because the development would occur in areas that are already paved and impervious and would not exceed the capacity of existing systems. In addition, design of the on-site stormwater management controls to connect to existing infrastructure would comply with the DTX design criteria and the City's stormwater management ordinance and stormwater design guidelines, resulting in less-than-significant impacts related to stormwater drainage facilities.

The solid waste that would be generated during project construction of new uses could be accommodated within the existing landfill capacity. The project would comply with all pertinent federal, state, and local requirements regarding solid waste.

The 2023 Project analysis accounted for updates to the CEQA Guidelines regarding wastewater treatment and energy as environmental resource areas, which went into effect in 2018 and 2019, respectively. It also accounted for the adoption of the 2020 Urban Water Management Plan, and 2020 Water Shortage Contingency Plan.

2026 Revised Project Analysis. The 2026 Revised Project components would not alter water demand, increase stormwater runoff volume, or generate additional solid waste or wastewater compared to the 2023 Project because the 2026 Revised Project would reduce the project footprint and would not increase population or employment that could result in greater demand for utilities. The TJPA's acquisition of the property at 171 Second Street would not require any substantial utility relocations or necessitate the construction of new utilities, as the revised project component relates to the acquisition and temporary relocation of occupants at 171 Second Street. It is assumed that tenants would relocate in the vicinity and the utility demand would shift from 171 Second Street to the temporary relocation site. No new pertinent regulations or plans related to utilities and service systems have been adopted since the 2023 Project was approved. Although utility disruptions and temporary service interruptions during project construction still could occur, previously adopted Mitigation Measure Util 1 would be implemented and would reduce utility interruption impacts to a less-than-significant level. Therefore, the impacts to utilities and service systems would remain less than significant.

3.19.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions on utilities and service systems as previously evaluated for the 2023 Project. The 2026 Revised Project would be located on the same project site, with a smaller footprint. In addition, the project would implement previously adopted Mitigation Measure Util 1 to reduce impacts to a less-than-significant level. No new mitigation measures to address public utility impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.20 Wildfire

Would the project:	Significance Determination for the 2023 Project	Significance Determination for the 2026 Revised Project	Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?	Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?	Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
f) Substantially impair an adopted emergency response plan or emergency evacuation plan?	NI	NI	No	No	No
g) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	NI	NI	No	No	No
h) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	NI	NI	No	No	No
i) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	NI	NI	No	No	No

Note: NI = no impact

3.20.1 Discussion

Prior Analysis. The 2023 Project is not within or near an area classified as a very high fire hazard severity zone and would have no impact on wildfire.

2026 Revised Project Analysis. In 2025, the California Department of Forestry and Fire Protection completed updates to fire hazard severity zones in local responsibility areas. However, there were no changes to the classifications on the project site. The project site is situated in a local responsibility area and has no fire hazard severity zone classification (meaning that the fire hazard is low, because the project site is fully urbanized and consists primarily of buildings and pavement). Because the 2026 Revised Project is not situated within or near a very high wildfire hazard zone (or any other type of wildfire hazard zone) or a state responsibility area, the 2026 Revised Project would have no impact related to wildland fire hazards.

3.20.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions related to wildfire hazards as previously evaluated for the 2023 Project. The 2026 Revised Project is in the same area as previously analyzed and is not within or near a very high wildfire hazard zone (or any other type of wildfire hazard zone) or a state responsibility area. No new mitigation measures to address wildfire impacts would need to be implemented because of changes in circumstances. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplement to an EIR have been met.

3.21 Mandatory Findings of Significance

<p>The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per section 15065 of the State CEQA guidelines):</p>	<p>Significance Determination for the 2023 Project</p>	<p>Significance Determination for the 2026 Revised Project</p>	<p>Do changes in the project require major revisions to the 2018 FSEIR because of new significant impacts or changes in the severity of previously identified significant impacts?</p>	<p>Do changes in the project require major revisions to the 2018 FSEIR because of new or changed circumstances involving new significant impacts or substantially more severe impacts than those analyzed in the 2018 FSEIR?</p>	<p>Has new information become available, resulting in previously undisclosed significant impacts, a change in the severity of significant impacts, or a change in the feasibility of mitigation measures?</p>
<p>a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</p>	<p>LTS-M</p>	<p>LTS-M</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>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.)</p>	<p>SU</p>	<p>SU</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?</p>	<p>SU</p>	<p>SU</p>	<p>No</p>	<p>No</p>	<p>No</p>

Note: LTS-M = less than significant with mitigation; SU = significant and unavoidable

3.21.1 Discussion

Degrade the Quality of the Environment. The 2023 Project would have the potential to affect biological resources (nesting birds), cultural resources, and paleontological resources. Mitigation measures were adopted and incorporated into the Transbay Program to reduce potentially significant impacts to less than significant.

Section 3.4, Biological Resources of this 2026 Addendum conclude that the 2026 Revised Project, like the 2023 Project, could disrupt nesting birds in trees near 2026 Revised Project components. , Section 3.5, Cultural Resources, of this 2026 Addendum concluded that construction of underground facilities could encounter as-yet-discovered archaeological resources and project construction could affect built environment historical resources. Section 3.7 Geology and Soils concluded that construction of underground facilities could encounter significant paleontological resources.

With implementation of previously adopted Mitigation Measures New-MM-C-BR-1 for biological resources; New-MM-C-CR-4.1 for paleontological resources; and MOA stipulations IV that incorporate the following previously adopted mitigation measures related to historical and archaeological resources or to disturbance to human remains, the 2026 Revised Project's potential impacts on these resources would be reduced to less than significant: Mitigation Measures CH 11 through CH 13, CH 15 through CH 20, PC 1, PC 6, SG 1, SG 2, SG 4, SG 5, GC 2 through GC 5, VA 2, , VibC 1 through VibC 3, NoiC 1 through NoiC 6, and New-MM-C-GE-4.1. Therefore, the impacts on the quality of the environment as a result of the 2026 Revised Project would be the same as reported in the previous analysis.

Cumulative Impacts. The 2026 Revised Project would eliminate the intercity bus facility, eliminate the train box extension at the Transit Center and move utilities to an at-grade utility building; defer the installation of high-speed rail vertical circulation elements at the Transit Center; modify the Fourth and Townsend Street Station to remove high-speed rail facilities; shorten the tunnel stub box; relocate and electrify the storage tracks within the railyards; and acquire, by the TJPA, the building at 171 Second Street and temporarily relocate 171 Second Street tenants during construction. Overall, these proposed revisions would reduce the scope of the 2023 Project and would lessen the previously identified cumulative impacts reported in the prior environmental documentation.

Transportation

The 2026 Revised Project would remove the high-speed rail facilities at the Fourth and Townsend Street Station. High-speed trains would bypass the Fourth and Townsend Street Station and continue directly to the San Francisco terminus at the Transit Center. Citing the conclusions of the CHSRA's Final EIR/EIS, certified in August 2022, it was determined that the project would result in a significant and unavoidable cumulative impact on transportation. The impacts on transportation from high-speed rail riders accessing the Fourth and Townsend Street Station would no longer occur at this location.

Fourth and Townsend Station. For the long-term 2040 year analysis, CHSRA's Final EIR/EIS qualitatively concluded that there would be adverse cumulative impacts on bus transit service performance in the project vicinity with a high-speed rail stop at the Fourth and Townsend Street Station. CHSRA's Final EIR/EIS also concluded that there would be adverse cumulative impacts on bicycle and pedestrian circulation in the Fourth and Townsend Street Station area. The 2026 Revised Project would no longer propose a stop for high-speed rail at the Fourth and Townsend Street Station area and, therefore, would not cause an increase in ridership at this

location. With the removal of the high-speed rail stop at the Fourth and Townsend Street Station, the previously anticipated cumulative impacts to bicycle and pedestrian circulation would also be reduced.

Transit Center. In 2022, the TJPA's and CHSRA's ridership forecasts found that approximately 89.1 percent of high-speed train riders would board at the Transit Center (Cambridge Systematics 2018, CHSRA 2022) and the remaining 10.9 percent of high-speed train riders would board at the Fourth and Townsend Street Station. In 2024, the CHSRA reconsidered the need to retain a stop at the Fourth and Townsend Street Station and found that approximately 8 percent of ridership would use the Fourth and Townsend Street Station and if that stop were eliminated, total ridership would drop by approximately 0.2 percent and ridership would redistribute to other nearby stations, with approximately 6 percent going to the Transit Center and approximately 1 percent to Millbrae-SFO (AECOM and CHSRA 2024).

Based on this discussion, the 2026 Revised Project's contribution to cumulative transportation impacts in this area would not be substantial, and the cumulative effects on transportation with the 2026 Revised Project would be less than significant, which is the same conclusion reported in the previous analysis for cumulative transportation impacts in the vicinity of the railyards, particularly at Fourth and Townsend streets.

Sea-Level Rise. The 2026 Revised Project would continue development in the same general area as previously analyzed within the 2023 Project, therefore the 2026 Revised Project would also result in a significant and unavoidable impact due to sea-level rise. As previously analyzed, the worst-case scenario for 2100 under the 2018 State of California Sea-Level Rise Guidance would be greater levels of inundation than the estimate used in the 2018 Final SEIS/EIR by 1.4 feet. As a result, inundation would be more extensive at the east end of the Transit Center, the Fourth and Townsend Street area (including the Fourth and Townsend Street Station), and the railyards. Implementation of previously adopted Mitigation Measures New-MM-CU-WQ-9.1 for a Sea-Level Rise Adaptation Plan and New-MM-WQ-4.1 modifying the DTX design criteria to avoid flood hazards would still apply to the 2026 Revised Project. Due to the continued uncertainty regarding regional sea-level rise, protection measures, and the feasibility of implementing all resiliency measures necessary to avoid future inundation, this cumulative impact would remain significant and unavoidable.

Direct or Indirect Adverse Effects on Human Beings. Similar to the 2023 Project, the 2026 Revised Project would have the potential for significant impacts on resources that could cause adverse effects on human beings (e.g., air quality; flooding; geotechnical hazards; noise; electromagnetic fields; and vehicular, pedestrian, and bicyclist safety).

For other resources that affect human beings (i.e., GHG emissions, aesthetics, land use and planning, population and housing, public services, hazardous materials, and utilities), analysis found that the impacts of the 2023 Project would be less than significant. Compliance with existing regulations and required permits as well as implementation of mitigation measures, all of which have been incorporated into the Transbay Program, would reduce the impacts on

human beings to less than significant, except for impacts related to sea-level rise by 2100 and nighttime construction noise, which would remain significant and unavoidable.

Under the 2026 Revised Project, the impacts on human beings would be similar to those of the 2023 Project. The elimination of the train box extension; elimination of the intercity bus facility; deferral of the vertical circulation elements for high-speed rail facilities at the Transit Center; redesign of the Fourth and Townsend Street Station to remove high-speed rail facilities; shortening of the tunnel stub box; and relocation and electrification of the storage tracks within the railyards where the existing storage tracks are located would collectively reduce the construction footprint, duration, and associated impacts on local circulation, air quality, and noise for a majority of the corridor, compared to the 2023 Project. Construction impacts would be reduced to less than significant with implementation of the DTX design criteria and the mitigation measures in the 2023 MMRP.

The impacts of the 2026 Revised Project would not be substantially more severe than reported in previous analysis for the 2023 Project. Portions of the 2026 Revised Project would continue to be vulnerable to sea-level rise by 2100, based on the state's worst-case scenario for 2100; however, local and regional efforts on climate adaptation and resiliency have gained increasing momentum and urgency in calls for action. Therefore, impacts due to sea level rise would continue to be significant and unavoidable under the 2026 Revised Project.

For the 2026 Revised Project, no new noise sensitive receptors would be affected during nighttime construction. Previous analysis concluded that nighttime construction noise would affect sensitive receptors in localized areas along the corridor and that even with mitigation measures, the 2023 Project would result in significant and unavoidable impacts. Previously adopted Mitigation Measures NoiC 1 through NoiC 6 would help reduce any impacts related to nighttime construction noise. While the 2026 Revised Project would not affect additional sensitive receptors, the project would affect noise-sensitive receptors due to nighttime construction; therefore, impacts caused by nighttime construction would remain significant and unavoidable for the 2026 Revised Project.

3.21.2 Conclusion

Implementation of the 2026 Revised Project would not result in new or substantially more severe significant impacts compared to the significance conclusions determined in previous analysis for the 2023 Project. Changes to existing and future conditions would continue to transform the project site, increase population and employment densities, and offer more transit options for local, regional, and statewide travelers. As concluded in this 2026 Addendum and the assessment of long-term and cumulative effects described in this section, the 2026 Revised Project would not result in new significant impacts or substantially more severe significant environmental impacts compared to the previous analysis. The 2026 Revised Project would implement the 2023 MMRP (Appendix A). No new mitigation measures would be required to implement the 2026 Revised Project. No new information of substantial importance has been identified, and none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for preparation of a subsequent EIR or supplemental EIR have been met.

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Appendix A

2023 Mitigation Monitoring and Reporting Program



TRANSBAY JOINT POWERS AUTHORITY

Mitigation Monitoring and Reporting Program for the Transbay Program

June 2023



REVISION RECORD

Revision	Description	Status	Date
0	Issued for use	Final	December 2022

This consolidated Mitigation and Monitoring Reporting Program document contains the mitigation and monitoring measures adopted for the Transbay Program based on the findings of the following environmental documents:

- March 2004 Final Environmental Impact Statement/Environmental Impact Report for the Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project
- May 2010 Transbay Program Final EIS Reevaluation Updating the Transbay Program 2004 Final EIS for Adoption by the Federal Railroad Administration
- November 2018 Final Supplemental Environmental Impact Statement/Environmental Impact Report for the Transbay Program
- December 2022 Addendum to the 2018 Final Supplemental Environmental Impact Statement/Environmental Impact Report for the Transbay Program

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Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Wind				
W 1 – Consider potential wind effects of an individual project for the Redevelopment area. If necessary, perform wind tunnel testing in accordance with City Planning Code Section 148. If exceedences of the wind hazard criterion should occur for any individual project, require design modifications or other mitigation measures to mitigate or eliminate these exceedences. Tailor mitigation measures to the individual needs of each project. Examples of mitigation measures include articulation of building sides and softening of sharp building edges.	San Francisco Redevelopment Agency (Agency)	During environmental review process preceding approval of each individual project in Transbay Redevelopment Area	Agency	Apply project review procedures for wind when projects are developed by or proposed to Agency.
Property Acquisition/Relocation				
Prop 1 – Apply federal Uniform Relocation Act (Public Law 91 646) and California Relocation Act (Chapter 16, Section 7260 et seq., of the Government Code) and related laws and regulations governing both land acquisition and relocation. All real property to be acquired will be appraised to determine its fair market value before an offer is made to each property owner. (Minimum relocation payments are detailed in the laws, and include moving and search payments for businesses.) Provide information, assistance, and payments to all displaced businesses in accordance with these laws and regulations.	City and County of San Francisco (CCSF), Agency, and TJPA	Prior to and during property acquisition and relocation activities	TJPA	TJPA to report to Board on compliance during acquisition and relocation activities.
Safety and Emergency Services				
Saf 1 – Provide project plans to the San Francisco Fire Department for its review to ensure that adequate life safety measures and emergency access are incorporated into the design and construction of Project facilities.	Transbay Joint Powers Authority (TJPA)	Prior to project facility permitting and during construction	TJPA	Project facility plans to be forwarded to CCSF Fire Department prior to permit issuance. Inspect installation during construction.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Saf 2 – Prepare a life safety plan including the provision of on-site measures such as a fire command post at the Terminal, the Fire Department’s 800-megahertz radio system and all necessary fire suppression equipment.	TJPA	Prior to project facility permitting	TJPA	TJPA to develop life safety plan during facility design phases and implement during testing and startup up phase.
Saf 3 – Prepare a risk analysis to accurately determine the number of personnel necessary to maintain an acceptable level of service at Project facilities.	TJPA	Prior to project facility permitting	TJPA	TJPA to develop risk analysis during facility design phase.
Noise – Operations				
<p>NoiO 1 – Apply noise mitigation at the following locations adjacent to the bus storage facility:</p> <ul style="list-style-type: none"> • Provide sound insulation to mitigate noise impacts at the residences north of the AC Transit Facility at the corner of Perry and Third Street. At a minimum, apply sound insulation to the façade facing the bus storage facility (the south façade). • Construct two noise barriers to mitigate noise impacts to residences south of the AC Transit Facility along Stillman Street. The first noise barrier would be approximately 10 to 12 feet high and run along the southern edge of the AC Transit storage facility. The second noise barrier would be approximately 5 to 6 feet high and would be located on the portion of the ramp at the southwestern corner of the AC Transit facility. Treat the noise barriers with an absorptive material on the side facing the facility to minimize the potential for reflections off the underside of the freeway. • Construct a noise barrier to mitigate noise impacts to residences south of the Golden Gate Transit Facility along Stillman Street. The barrier would be approximately 10 to 12 feet high and run along the southern and a portion of the eastern edge of the Golden Gate Transit storage facility. Treat the noise barriers with an absorptive material on the side facing the facility to minimize the potential for reflections off the underside of the freeway. 	TJPA	During construction	TJPA	TJPA to design detailed noise mitigation during preliminary and final design phases. TJPA engineering staff to inspect installation and/or construction of mitigation measures.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
NoiO 2 – Landscape the noise walls. Develop the actual design of the walls in cooperation with area residents.	TJPA	During preliminary and final design	TJPA	TJPA to work with area residents during design of noise walls.
NoiO 3 – Construct noise walls prior to the development of the permanent bus facilities.	TJPA	During schedule development, construction document preparation and construction	TJPA	TJPA to develop program schedule and contract documents to implement this construction sequencing requirement.
New-MM-NO-1.1 – Design Ventilation Shaft to Avoid Noise Effects on Nearby Uses. Ventilation shafts shall be designed in accordance with the APTA guidance for controlling noise, which includes a 60 dBA noise level at 50 feet from the facility, at the setback line of the nearest building, or at the nearest occupied area, whichever is nearest to the source. Treatments may include applying acoustical absorption materials to shaft surfaces or attaching silencers to fans.	TJPA	During final design	TJPA	TJPA to incorporate noise abatement and control features and measures as part of the ventilation shaft design during final design and include appropriate specifications in the contract documents. TJPA engineering staff to inspect installation and/or construction of ventilation shafts.
Noise – Construction				
<p>NoiC 1 – Comply with San Francisco noise ordinance. The noise ordinance includes specific limits on noise from construction. The basic requirements are:</p> <ul style="list-style-type: none"> • Maximum noise level from any piece of powered construction equipment is limited to 80 dBA at 100 feet. This translates to 86 dBA at 50 feet. • Impact tools are exempted, although such equipment must be equipped with effective mufflers and shields. The noise control equipment on impact tools must be as recommended by the manufacturer and approved by the Director of Public Works. 	TJPA	During preparation of construction contract documents and construction	TJPA	TJPA to work with CCSF Department of Public Works (DPW) regarding construction noise mitigation program.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> Construction activity is prohibited between 8 p.m. and 7 a.m. if it causes noise that exceeds the ambient noise plus 5 dBA. 				
<p>The noise ordinance is enforced by the San Francisco DPW, which may waive some of the noise requirements to expedite the project or minimize traffic impacts. For example, along Townsend Street where much of the land use is commercial, business owners may prefer nighttime construction since it would reduce disruption during normal business hours. The DPW waivers usually allow most construction processes to continue until 2 a.m., although construction processes that involve impacts are rarely allowed to extend beyond 10 p.m. This category would include equipment used in demolition such as jackhammers and hoe rams, and pile driving. It is not anticipated that the construction documents would have specific limits on nighttime construction. There may be times when nighttime construction is desirable (e.g., in commercial districts where nighttime construction would be less disruptive to businesses in the area) or necessary to avoid unacceptable traffic disruptions. Since the construction would be subject to the requirements of the San Francisco noise regulations, in these cases, the contractor would need to work with the DPW to come up with an acceptable approach balancing interruption of the business and residential community, traffic disruptions, and reducing the total duration of the construction.</p>				
<p>NoiC 2 – Conduct noise monitoring. The purpose of monitoring is to ensure that contractors take all reasonable steps to minimize noise.</p>	TJPA	During construction	TJPA	Monitoring data to be provided to CCSF DPW.
<p>NoiC 3 – Conduct inspections and noise testing of equipment. This measure will ensure that all equipment on the site is in good condition and effectively muffled.</p>	TJPA	During construction	TJPA	Perform monitoring during construction.
<p>NoiC 4 – Implement an active community liaison program. This program would keep residents informed about construction plans so they can plan around periods of particularly high noise levels and would provide a conduit for residents to express any concerns or complaints about noise.</p>	TJPA	During construction	TJPA	TJPA to develop and initiate community liaison program during final design prior to construction. Program will continue during construction.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>NoiC 5 – Minimize use of vehicle backup alarms. Because backup alarms are designed to get people’s attention, the sound can be very noticeable even when their sound level does not exceed the ambient, and it is common for backup alarms at construction sites to be major sources of noise complaints. A common approach to minimizing the use of backup alarms is to design the construction site with a circular flow pattern that minimizes backing up of trucks and other heavy equipment. Another approach to reducing the intrusion of backup alarms is to require all equipment on the site to be equipped with ambient sensitive alarms. With this type of alarm, the alarm sound is automatically adjusted based on the ambient noise. In nighttime hours when ambient noise is low, the backup alarm is adjusted down.</p>	TJPA	During construction document preparation and construction	TJPA	Review contract specifications during final design and inspect construction.
<p>NoiC 6 – Include noise control requirements in construction specifications. These should require the contractor to</p> <ul style="list-style-type: none"> • Perform all construction in a manner to minimize noise. The contractor should be required to select construction processes and techniques that create the lowest noise levels. Examples are using predrilled piles instead of impact pile driving, mixing concrete offsite instead of onsite, and using hydraulic tools instead of pneumatic impact tools. • Use equipment with effective mufflers. Diesel motors are often the major noise source on construction sites. Contractors should be required to employ equipment fitted with the most effective commercially available mufflers. • Perform construction in a manner to maintain noise levels at noise sensitive land uses below specific limits. • Perform noise monitoring to demonstrate compliance with the noise limits. Independent noise monitoring should be performed to check compliance in particularly sensitive areas. • Minimize construction activities during evening, nighttime, weekend and holiday periods. Permits would be required before construction can be performed in noise sensitive areas during these periods. 	TJPA	Final design and construction	TJPA	TJPA to develop detailed noise control requirements during preliminary engineering and final design. Ensure contractor obtains permits if necessary. Inspect construction activities for compliance and monitor noise levels. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as CCSF Department of Parking and Traffic (DPT) and DPW.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> • Select haul routes that minimize intrusion to residential areas. This is particularly important for the trench alternatives that will require hauling large quantities of excavation material to disposal sites. <p>Controlling noise in contractor work areas during nighttime hours is likely to require some mixture of the following approaches:</p> <ul style="list-style-type: none"> • Restrictions on noise producing activities during nighttime hours. • Laying out the site to keep noise producing activities as far as possible from residences, to minimize the use of backup alarms, and to minimize truck activity and truck queuing near the residential areas. • Use of procedures and equipment that produce lower noise levels than normal. For example, some manufacturers of construction equipment can supply special noise control kits with highly effective mufflers and other materials that substantially reduce noise emissions of equipment such as generators, tunnel ventilation equipment, and heavy diesel power equipment including mobile cranes and front-end loaders. • Use of temporary barriers near noisy activities. By locating the barriers close enough to the noise source, it is possible to obtain substantial noise attenuation with barriers 10 to 12 feet high even though the residences are 30 to 40 feet higher than the construction site. • Use of partial enclosures around noisy activities. It is sometimes necessary to construct shed-like structures or complete buildings to contain the noise from nighttime activities. 				

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Vibration – Operations				
VibO1 – Use high-resilience track fasteners or a resiliently supported tie system for the Caltrain Downtown Extension for areas projected to exceed vibration criteria, including the following locations: (1) Live/Work condos, 388 Townsend Street (Hubbell and Seventh), (2) San Francisco Residences on Bryant (Harrison Parking Lot Site), (3) Clock Tower Building, and Second Street High Rise and (4) new Marriott Courtyard (Marine Firefighter’s Union).	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to develop locations/use of resilience track fasteners or resiliently supported tie system during preliminary engineering and final design. Review construction documents and inspect installation. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as CCSF Department of Building Inspection (DBI) and DPW.
Vibration – Construction				
VibC 1 – Limit or prohibit use of construction techniques that create high vibration levels. At a minimum, processes such as pile driving would be prohibited at distances less than 250 feet from residences.	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to ensure preliminary design, final design and contract documents preclude use of pile driving equipment within 250 feet of residences. Construction management and inspection will monitor contractors’ activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.
VibC 2 – Restrict procedures that contractors can use in vibration sensitive areas. (It is often possible to employ alternative techniques that create lower vibration levels. For example, unrestricted pile driving is one activity that has considerable potential for causing annoying vibration. Using the cast-in-drilled-hole piling method instead will eliminate most potential for vibration impact from the piling.)	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to establish construction vibration design standards during final design. Include provisions in contract documents and monitor contractors’ activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
VibC 3 – Require vibration monitoring during vibration intensive activities.	TJPA	During construction	TJPA	TJPA to include provisions for vibration monitoring in construction contract documents or perform monitoring under a separate contract. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.
VibC 4 – Restrict the hours of vibration intensive activities such as pile driving to weekdays during daytime hours.	TJPA	During design and construction	TJPA	TJPA to include provisions in contract documents and monitor contractors’ activities to ensure compliance.
VibC 5 – Investigate alternative construction methods and practices to reduce the impacts in coordination with the construction contractor if resident annoyance from vibration becomes a problem.	TJPA	During final design and during construction	TJPA	TJPA to include provisions in contract documents and monitor contractors’ activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.
VibC 6 – Include specific limits, practices and monitoring and reporting procedures for the use of controlled detonation. Control and monitor use of controlled detonation to avoid damage to existing structures. Include specific limits, practices, and monitoring and reporting procedures within contract documents to ensure that such construction methods, if used, would not exceed safety criteria.	TJPA	During final design and during construction	TJPA	TJPA to establish detailed limits, practices, and monitoring program for controlled detonation during final design. Include provisions in contract documents and monitor contractors’ activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Soils/Geology				
SG 1 – Monitor adjacent buildings for movement, and if movement is detected, take immediate action to control the movement.	TJPA	During construction	TJPA	TJPA to include provisions in contract documents requiring such monitoring and corrective measures and inspect contractors’ activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.
SG 2 – Apply geotechnical and structural engineering principles and conventional construction techniques similar to the design and construction of high-rise buildings and tunnels throughout the downtown area. Apply design measures and utilize pile-supported foundations to mitigate potential settlement of the surface and underground stations.	TJPA	During preliminary engineering and final design	TJPA	TJPA to review design and contract documents to ensure implementation. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.
SG 3 – Design and construct structural components of the project to resist strong ground motions approximating the maximum anticipated earthquake (0.5g). The cut-and-cover portions will require pile supports to minimize non-seismic settlement in soft compressible sediments (Bay Mud). The underground Caltrain station at Fourth and Townsend will require pile-supported foundations due to the presence of underlying soft sediments.	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to design structural components to meet seismic standards during preliminary engineering and final design. Review design, contract documents and construction activities to ensure implementation. Where applicable, coordinate with JPB and CCSF departments with jurisdiction over activities, such as DBI and DPW.
SG 4 – Underpin existing building, where deemed necessary, to protect existing structures from potential damage that could result from excessive ground movements during construction. Design the tunneling and excavation procedures (and construction sequence), and design of the temporary support system with the objective of controlling ground deformations within small enough levels to avoid damage to adjacent structures. Where the risk of damage to adjacent	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to design tunneling, excavation procedures, underpinning, strengthening existing structures or ground improvement to protect existing structures from damage. Include provisions in contract documents

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>structures is too great, special measures will be implemented such as: (1) underpinning, (2) ground improvement, and/or (3) strengthening of existing structures to mitigate the risks.</p> <p>Underpinning may include internal strengthening of the superstructure, bracing, reinforcing existing foundations, or replacing existing foundations with deep foundations embedded outside the tunnel zone of influence. Alternatives, in lieu of underpinning, involve strengthening the rock between the building and crown of tunnel. Grouting in combination with inclined pin piles can be used not only to strengthen the rock, but also make the rock mass over the tunnel act as a rigid beam, allowing construction of tunnels with no adverse effects on the buildings supported on shallow foundations over the tunnel.</p>				<p>requiring contractors to implement measures during construction. Monitor construction activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.</p>
<p>SG 5 – TJPA shall assure proper design and construction of pile-supported foundations for structures to control potential settlement of the surface. Stability of excavations and resultant impacts on adjacent structures can be controlled within tolerable limits by proper design and implementation of the excavation shoring systems.</p>	TJPA	During preliminary engineering, final design and construction	TJPA	<p>TJPA to ensure foundations and excavation shoring systems are designed and constructed to minimize and control settlement and impacts on adjacent structures. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DBI and DPW.</p>
<p>New-MM-C-GE-4.1 – <i>Groundwater Control during Construction.</i> Groundwater control shall be implemented to reduce ground instability in the construction area, where excavations encroach into the prevailing groundwater table.</p> <ul style="list-style-type: none"> For excavations with the cut-and-cover technique, the groundwater level within the footprint of the excavation shall be maintained a minimum of 2 feet or more beneath the bottom of the excavation throughout construction to minimize the potential for failure of the base of the excavation due to high groundwater seepage at construction sites. Groundwater levels outside the excavation shall be controlled so that they do not induce damage to surrounding structures or infrastructure beyond that which can be described as "slight" as defined in Table 1–Classification of 	TJPA	During construction	TJPA	<p>TJPA to design DTX facilities to protect structures from damage related to high seepage gradients. Include provisions in contract documents requiring contractors to implement measures during construction. Monitor construction activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>Visible Damage to Walls with Particular Reference to Ease of Repair of Plaster and Brickwork or Masonry (Son and Cording 2005). Slight damage is characterized by visible cracks (1–5 mm) that can be filled easily, may require some repointing to ensure weathertightness, and with redecoration probably required.</p> <ul style="list-style-type: none"> For excavations with the SEM construction method in rock, groundwater intrusion into the tunnel excavation is expected to be minimal and localized at joints in the rock. Groundwater seeping into the excavation shall be controlled locally by panning and piping channel inflows to sump pumps. For excavations with the SEM construction method in soft ground conditions (i.e., sands and clays), the groundwater level shall be locally drawn down to below the bottom of the excavation in order to increase the strength of the ground and reduce potential ground instability. 				
Utilities				
<p>Util 1 – Coordinate with utility providers during preliminary engineering, continuing through final design and construction. Utilities would be avoided, relocated, and/or supported as necessary during construction activities to prevent damage to utility systems and to minimize disruption and degradation of utility service to local customers.</p>	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to identify utilities; design relocations or protection measures where required; and include requirements in contract documents. Monitor construction activities to ensure implementation of all required measures.
Cultural and Historic Resources				
<p>CH 1 – Comply with the provision of the signed Memorandum of Agreement (MOA) between the Federal Transit Administration, the State Historic Preservation Officer, and the TJPA.</p>	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA will assure compliance with MOA provisions during preliminary engineering, final design and construction, as described below.
<p>CH 2 – Professional Qualifications. Assure all activities regarding history, historic preservation, historic architecture, architectural history, historic and prehistoric archaeology are carried out by or under the direct supervision of persons meeting, at a minimum, the Secretary of</p>	TJPA	During preliminary engineering, final design	TJPA	Prior to initiation of design and construction activities, TJPA will require submission of and review qualifications of professionals

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>the Interior's professional qualifications standards (48 FR 44738-9) (PQS) in these disciplines. Nothing in this stipulation may be interpreted to preclude any signatory or any agent or contractor thereof from using the properly supervised services or persons who do not meet the PQS.</p> <p>Historic Preservation Standards. Assure all activities regarding history, historic preservation, historic architecture, architectural history, historic and prehistoric archaeology are carried out to reasonably conform to the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-44740) as well as to applicable standards and guidelines established by SHPO.</p> <p>Curation and Curation Standards. Ensure that FTA and TJPA shall, to the extent permitted under sections 5097.98 and 5097.991.[sic] of the California Public Resources Code, materials and records resulting from any archaeological treatment or data recovery that may be carried out pursuant to this MOA, are curated in accordance with 36 CFR Part 79.</p>		and construction		performing the MOA activities to assure that Secretary of Interior standards are met.
<p>CH 3 – Integrate into the design of the new terminal a dedicated space for a permanent interpretive exhibit. The interpretive exhibit will include at a minimum, but is not necessarily limited to plaques or markers, a mural or other depiction of the historic Transbay Transit Terminal (TTT), ramps, or Key System, or other interpretive material.</p>	TJPA	During preliminary engineering and final design	TJPA	TJPA will include space for interpretive exhibit in terminal during design. Review contract documents and construction submittals and activities to ensure implementation.
<p>CH 4 – Consult with the State Department of Transportation (Department) regarding the availability of historical documentary materials for the creation of the permanent interpretive display of the history of the original TTT building and its association with the San Francisco- Oakland Bay Bridge. Department will assist TJPA in planning the scope and content of the proposed interpretive exhibit. Invite the Oakland Heritage Alliance, the San Francisco Architectural Heritage, the California State Railroad Museum, and the Western Railway Museum to participate in this consultation. While retaining responsibility for the development of the exhibit, TJPA will jointly consider the Department's and participating invitees' recommendations when finalizing the exhibit design. TJPA will</p>	TJPA	During preliminary engineering and final design	TJPA	TJPA will consult with Department regarding availability of documentary materials. TJPA will invite participation in this review from the other designated parties. TJPA will produce, install, and maintain the exhibit in the new Transbay Terminal.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
produce, install, and maintain the exhibit.				
CH 5 – Consult with the City of Oakland about its possible interest in having a similar interpretive exhibit in the East Bay. If agreement is reached prior to completion of final design of the Transbay Terminal, TJPA will provide and deliver exhibit materials to a venue that is mutually satisfactory to TJPA and the City of Oakland.	TJPA	During preliminary engineering and final design	TJPA	During preliminary engineering and final design, TJPA will consult with City of Oakland regarding its possible interest in establishing an exhibit. TJPA will provide and deliver exhibit materials to a venue in the City of Oakland that is mutually satisfactory to TJPA and the City of Oakland should such an exhibit be developed.
CH 6 – Identify, in consultation with Department, elements of the existing TTT that may be suitable for salvage and interpretive use by museums. Within two years following execution of this MOA by FTA and SHPO, TJPA will offer any elements identified as suitable for salvage and interpretive use to San Francisco Architectural Heritage, the California State Railroad Museum, Sacramento, the Western Railway Museum, the Oakland Museum, and any other interested parties. Remove any elements selected in a manner that minimizes damage and deliver with legal title to the recipient. Items not accepted by interested parties for salvage or interpretive use within the time frame specified herein will receive no further consideration.	TJPA	During preliminary engineering and final design	TJPA	Acceptance of items by interested parties must be completed at least 90 days prior to demolition of the Transbay Terminal.
CH 7 – Consult with Department and the Oakland Museum about contributing to Department’s exhibit and the production of an interpretive video at the Oakland Museum relating to the history and engineering of the major historic state bridges of the San Francisco Bay Area. TJPA will propose contributions to such an exhibit and video that would be related to the history of the TTT, bus ramp loop structures, and the Key System. Items contributed by TJPA to such an exhibit may include photographs, drawings, videotape, models, oral histories, and salvaged components from the TTT.	TJPA	During preliminary engineering and final design	TJPA	TJPA will produce and deliver to the Oakland Museum agreed-upon materials for such an exhibit and interpretive video.
CH 8 – Assist the Oakland Museum by contributing up to \$50,000 toward the cost of preparing and presenting the exhibit and preparing an exhibit catalog or related museum publication in conjunction with the exhibit, in a manner and to the extent that is mutually satisfactory	TJPA	During preliminary engineering and final	TJPA	TJPA will work with Oakland Museum and assist in the preparation of an exhibit and an interpretive video if consultation

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
to TJPA, Department, and the Oakland Museum. A separate agreement will outline the negotiated financial contributions. Work with the Oakland Museum and assist in the preparation of an exhibit and interpretive video if consultation results in agreement between TJPA and the Oakland Museum prior to demolition of the existing TTT.		design		results in an agreement between TJPA and Oakland Museum prior to demolition of the existing Transbay Terminal.
CH 9 – Request that SHPO, prior to the start of any work that would have an adverse effect on components of the Bay Bridge that are historic properties, determine whether these components, including the TTT and associated ramps, have been adequately recorded in existing documents. If SHPO determines that, collectively, such documents, which include the Department’s past recordation of a series of remodeling and seismic retrofit project that have occurred since 1993, adequately document the TTT and ramps, then no further documentation will be necessary.	TJPA	During preliminary engineering and final design	TJPA	TJPA will consult with the SHPO regarding adequacy of prior recordation efforts.
Seek, with the assistance of the Department, to obtain the original drawings of the TTT by architect T. Pflueger.				TJPA will work with Department to seek original drawings of the Transbay Transit Terminal.
If SHPO determines that existing documentation is adequate, compile such documentation into a comprehensive record. Components to be included in the review of past documentation are: <ul style="list-style-type: none"> • 425 Mission Transbay Transit Terminal (APN 3719-003, 3720-001, 3721-006); • Upper Deck San Francisco Approaches or North Connector, Bridge #34-116F; • Upper Deck San Francisco Approaches or Center Ramps, Bridge #34-118L; • San Francisco Approaches or Lower Deck On-Ramp, Bridge #34-118R; • Transbay Terminal Loop ramp, Bridge #34-119Y; and • Harrison Street over-crossing Bridge #34-120Y. 				If SHPO determines that existing documentation is adequate, compile such documentation into a comprehensive record.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>Consult further with SHPO, if SHPO determines that existing documentation does not constitute adequate recordation of the Bay Bridge components addressed hereunder. SHPO will determine what level and type of additional documentation is necessary.</p>				<p>If SHPO determines that existing documentation does not constitute adequate recordation of the Bay Bridge components, then TJPA and SHPO will consult further and SHPO will determine what level and type of additional documentation is necessary. If no response from SHPO within 45 days of receipt of each submittal of documentation, TJPA may assume that said documentation is adequate and may proceed with the project.</p>
<p>Provide xerographic copies of this documentation to the SHPO and the Department Headquarters Library, upon a written determination by SHPO that all documentation prescribed hereunder is satisfactory, to the History Center at the San Francisco Public Library, San Francisco Architectural Heritage, the Oakland History Room of the Oakland Public Library, the Oakland Museum of California, the Western Railway Museum, and Department District 4 Office. Thereafter, TJPA may proceed with that aspect of the Project that will adversely affect the historic properties documented hereunder.</p>				<p>TJPA will ensure that these records are accepted by SHPO prior to demolition of the TTT and provide copies of the documentation to designated agencies. Then, TJPA will proceed with the aspect of the project that will adversely affect the historic properties documented.</p>
<p>CH 10 – Within 180 days after FTA determines that the Project has been completed, TJPA, in consultation with FTA and SHPO, will re-evaluate the Bay Bridge, a property listed on the NRHP, and determine whether the National Register nomination should be amended or whether the bridge no longer qualifies for listing and should be removed from the National Register. As appropriate, TJPA will prepare and submit to the FTA and SHPO either an amended nomination or petition for removal, to be processed according to the procedures set forth in 36 CFR Part 60 (60.14 and 60.15).</p>	<p>TJPA</p>	<p>Within 180 days after FTA determines that the Project has been completed</p>	<p>TJPA</p>	<p>As appropriate, TJPA will prepare and submit to the FTA and SHPO either an amended nomination or petition for removal, to be processed according to the procedures set forth in 36 CFR part 60 (60.14 and 60.15). TJPA will coordinate these efforts with the CCSF Planning Department.</p>

<p>CH 11 – Develop and implement measures, in consultation with the owners of historic properties immediately adjoining the construction sites, to protect the contributing elements of the Second and Howard Streets Historic District and the Rincon Point/South Beach Historic Warehouse Industrial District from damage by any aspect of the Project. Such measures will include, but are not necessarily limited to those identified in the MOA.</p> <p>The protective measures herein stipulated will be developed and implemented by TJPA prior to the commencement of any aspect of the Project that could have an adverse effect on historic properties immediately adjoining the construction sites herein identified. In addition, TJPA will monitor the effectiveness of the protective measures herein stipulated and will supplement or modify these measures as and where necessary in order to ensure that they are effective. The historic properties covered by the terms of this paragraph are:</p> <ul style="list-style-type: none"> • 589-591 Howard Street/3736-098, NRHP Status: 1D, Contributing Element of Second & Howard District & New Montgomery/Second Street, Const. Date: 1906, Type of Impact: Cut-and-cover construction; need easement. • 163 Second Street/3721-048, NRHP Status: 1D, Contributing Element of Second & Howard District & New Montgomery/Second Street, Const. Date: 1907, Type of Impact: Cut-and-cover construction nearby. • 165-173 Second Street/3721-025, NRHP Status: 1D, Contributing Element of Second & Howard District & New Montgomery/Second Street, Const. Date: 1906, Type of Impact: Cut-and-cover construction; need easement. • 166-78 Townsend Street/3788-012, NRHP Status: 3D Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1910 [1], 1988 [2], Type of Impact: Cut-and-cover construction nearby. Need construction easement. • 640-Second Street/3788-002, NRHP Status: 252, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1926, Type of Impact: Tunnel under or near property. 	<p>TJPA</p>	<p>During preliminary engineering, final design, and construction</p>	<p>TJPA</p>	<p>TJPA will contact owners of record of historic properties that will be affected (but that will not be acquired and demolished) by the Project. TJPA will provide and review this mitigation monitoring program with the owners via correspondence and/or public and face-to-face meetings. TJPA will coordinate these efforts with the CCSF Planning Department prior to commencement of any aspect of the project that could have any adverse effect on historic properties immediately adjoining the construction sites herein identified.</p> <p>TJPA will monitor the effectiveness of the protective measures and will supplement or modify these measures as and where necessary in order to ensure that they are effective.</p>
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<ul style="list-style-type: none"> • 650 Second Street/3788-049 through 3788-073, NRHP Status: 252, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1922, Type of Impact: Tunnel under or near property. • 670-680 Second Street/3788-043, 3788-044, NRHP Status: 252 (670), 3D (680), Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1913, Type of Impact: Tunnel under or near property. • 301-321 Brannan Street/3788-037, NRHP Status: 3D, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1909, Type of Impact: Tunnel under or near property. • 130 Townsend Street/3788-008, NRHP Status: 3D, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1910 [1], 1895-6 [2], Type of Impact: Tunnel under or near property. • 136 Townsend Street/3788-009, NRHP Status: 3D, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1902 [1], 1913 [2], Type of Impact: Tunnel under or near property. • 144-46 Townsend Street/3788-009A, NRHP Status: 3D, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1922, Type of Impact: Tunnel under or near property. • 148-54 Townsend Street/3788-010, NRHP Status: 3D, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1922, Type of Impact: Tunnel under or near property. • 162-164 Townsend Street/3788-081, NRHP Status: 3D, Contributing Element of Rincon Point/South Beach District & South End District, Const. Date: 1919, Type of Impact: Tunnel under or near property. <p>Notes: National Register Status Codes are as follows: 1 – Listed on the NRP 251 – Determined eligible for listing by the Keeper of the Register 252 – Determined eligible for listing by the consensus of the SHPO and federal agency</p>				
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Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
1D – Listed on the National Register as a contributor to a district or multi-resource property				
<p>CH 12 –TJPA will take the effect of the Project on the historic properties listed below into account by recording these properties in accordance with the terms herein set forth. These buildings are:</p> <ul style="list-style-type: none"> • 191 2nd Street, (APN: 3721-022), and • 580-586 Howard Street, (APN: 3721-092 through 3721-106) 	TJPA	During preliminary engineering and final design	TJPA	TJPA will consult SHPO and SHPO will determine the type of recordation necessary for the properties.
Prior to taking any action that could adversely affect these properties, consult SHPO and SHPO will determine the type and level of recordation that is necessary for these properties. Upon a written determination by SHPO that all documentation prescribed hereunder is complete and satisfactory, submit a copy of this documentation to SHPO, with xerographic copies to the History Center at the San Francisco Public Library, San Francisco Architectural Heritage, and the Oakland History Room of the Oakland Public Library. Thereafter, proceed with that aspect of the Project that will adversely affect the historic properties documented hereunder.				TJPA will submit a copy of this documentation to SHPO, upon a written determination by SHPO that all documentation prescribed hereunder is complete and satisfactory, with copies to the designated agencies.
If SHPO does not respond within 45 days of receipt of each submittal of documentation prescribed herein, assume that SHPO has determined that said documentation is adequate and may proceed with that aspect of the Project that will adversely affect the historic properties documented hereunder.				If no response from SHPO within 45 days of receipt of each submittal of documentation, then TJPA may proceed with the project.
CH 13 – Repair, in accordance with the Secretary of the Interior’s Standards for Rehabilitation, any damage to contributing elements of the Second and Howard Streets Historic District and the Rincon Point/South Beach Historic Warehouse Industrial District resulting from the Project.	TJPA	Prior to, during, and following construction	TJPA	TJPA will repair any damage to contributing elements.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>Photograph the condition of the contributing elements prior to the start of the Project to establish the baseline condition for assessing damage. Consult with property owner(s) about the appropriate level of photographic documentation of building interiors and exteriors. Provide a copy of this photographic documentation to the property owner(s), and retain on file.</p>				<p>TJPA will photograph condition of contributing properties prior to the start of the Project to establish the baseline condition for assessing damage. TJPA will consult with property owner(s) about the appropriate level of photographic documentation of building interiors and exteriors, provide a copy of this photographic documentation to the property owner(s), and retain copy on file by TJPA.</p>
<p>Submit repair plans and specifications to SHPO for review and comment, if repair of inadvertent damage resulting from the Project is necessary, to ensure that the work conforms to the Secretary of the Interior's Standards for Rehabilitation. Consult with SHPO to establish a mutually satisfactory time frame for the SHPO's review. TJPA will carry out any repairs required hereunder in accordance with the comments of SHPO.</p>				<p>TJPA will submit repair plans and specifications to SHPO for review and comment, if repair of inadvertent damage is necessary, to ensure conformance to the Secretary of the Interior's Standards for Rehabilitation.</p>
<p>CH 14 – Within 180 days after FTA determines that the Project has been completed, TJPA, in consultation with FTA and SHPO, will re-evaluate the Second and Howard Streets Historic District and determine whether the National Register nomination should be amended or whether the district no longer qualifies for listing and should be removed from the National Register. As appropriate, TJPA will prepare and submit to the FTA and SHPO either an amended nomination or petition for removal, to be processed according to the procedures set forth in 36 CFR Part 60 (60.14 and 60.15).</p>	TJPA	Within 180 days after FTA determines that the Project has been completed	TJPA	<p>As appropriate, TJPA will prepare and submit to the FTA and SHPO either an amended nomination or petition for removal, to be processed according to the procedures set forth in 36 CFR part 60 (60.14 and 60.15). TJPA will coordinate these efforts with the CCSF Planning Department.</p>
<p>CH 15 – Within 45 days following execution of MOA, consult with FTA, SHPO, JPB and CCSF to initiate the process of determining how archaeological properties that may be affected by the Project will be identified, whether and how the NRHP eligibility of such properties may be addressed, and whether and how the Project's effects, if any, on those archaeological properties that may be considered historic</p>	TJPA	During preliminary engineering phase	TJPA	<p>SHPO, FTA, SHPO, TJPA, JPB, and CCSF will consult to determine how archaeological properties will be identified, whether and how the NRHP eligibility of such properties may be addressed, and</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>properties for purposes of this MOA, may be taken into account. FTA and TJPA to invite Caltrans to participate in this consultation. Determine the time frame for this consultation with the consulting parties through consensus.</p> <p>Consultation will at minimum be informed by, and take into account, the following documents:</p> <ul style="list-style-type: none"> Attachment 6, "Standard Treatment of Archaeological Sites: Data Recovery Plan," of the "Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Office, 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;" "Archaeological Research Design and Treatment Plan for SF-480 Terminal Separation Rebuild" (Praetzellis and Praetzellis, 1993) and "The San Francisco-Oakland Bay Bridge, West Approach Replacement: Archaeological Research Design and Treatment Plan" (Ziesing, 2000); "Revised Historical Archaeology Research Design for the Central Freeway Replacement Project" (Thad M. Van Bueren, Mary Praetzellis, Adrian Praetzellis, Frank Lortie, Brian Ramos, Meg Scantlebury and Judy D. Tordoff). 				<p>whether and how the Project's effects, if any, on those archaeological properties that may be considered historic properties may be taken into account. Invite Caltrans to participate in this consultation. The consultation will take into account the designated documents.</p>
<p>CH 16 – If the consulting parties agree that a treatment plan for archaeological properties should be prepared, prepare a Treatment Plan for archeological resources that provides for the identification, evaluation, and treatment of archaeological properties that may be affected by the Project and that conform to the requirements above of item CH13 1) and take into account the information contained in items CH13 2) and CH13 3) and conform to any other standards, documentation, or guidance that the consulting parties may specify.</p>	TJPA	During preliminary engineering	TJPA	TJPA will assure completion of comprehensive treatment plan consistent with the content required in the MOA, if the consulting parties agree that a treatment plan for archaeological properties is to be prepared.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>If the consulting parties agree that the Treatment Plan will address historic archaeological properties as well as prehistoric archaeological properties, ensure that appropriately qualified historians prepare a historic context(s) that will be used by an interdisciplinary team consisting at a minimum of historians and historic archaeologist.</p>				<p>TJPA shall transmit this plan to the signatories of the MOA.</p>
<p>The historic context will, at a minimum:</p> <ul style="list-style-type: none"> • identify significant research themes and topics that relate to the historic period(s) addressed by the historic context(s) • determine what types of historic archaeological properties, if any, that may usefully and significantly contribute to research themes and topics deemed by the historic context(s) study to be important • identify the specific components and constituents (features, artifacts, etc., if any, of historic archaeological property types that can factually and directly, contribute data important to our understanding of significant historic research themes and topics • determine the amount (sample size, etc.) of archaeological excavation and related activity that is needed to provide the range and type of factual data that will contribute to our understanding of significant historic research themes and topics 				<p>TJPA will ensure that appropriately qualified historians prepare a historic context(s) that includes the specified information for use by an interdisciplinary team consisting at a minimum of historians and historic archaeologist, if the consulting parties agree that the Treatment Plan will address historic archaeological properties as well as prehistoric archaeological properties.</p>
<p>Submit the draft Treatment Plan to the other consulting for review and comment. The consulting parties have 45 days from receipt of the draft Treatment Plan to comment in writing to FTA and TJPA. Failure of the consulting parties to respond within this time frame shall not preclude FTA and TJPA from finalizing the draft Treatment Plan to their satisfaction. Before finalizing the draft Treatment Plan, FTA and TJPA to provide the consulting parties with written documentation indicating whether and how the draft Treatment Plan will be modified. Unless any consulting party objects to this documentation in writing to FTA and TJPA within 15 days following receipt, finalize the draft Treatment Plan as deemed appropriate by FTA and TJPA, and proceed to implement the final Treatment Plan.</p>	<p>TJPA</p>	<p>During preliminary engineering phase</p>	<p>TJPA and FTA</p>	<p>TJPA will submit the draft Treatment Plan to the consulting parties for review and comment. Before finalizing the draft Treatment Plan, FTA and TJPA will provide the consulting parties whether and how the draft Treatment Plan will be modified.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>If FTA and TJPA propose to modify the final Treatment Plan, they will notify the consulting parties concurrently in writing about the proposed modifications. The consulting parties will have 15 days from receipt of notification to comment in writing to FTA and TJPA. Failure of the consulting parties to respond within this time frame shall not preclude FTA and TJPA from modifying the final Treatment Plan to their satisfaction.</p>				<p>TJPA will ensure that the consulting parties have 15 days following receipt of notification of the modifications to comment in writing about the proposed modifications.</p> <p>Unless consulting party objects, FTA and TJPA will finalize the draft Treatment Plan as they deem appropriate, and TJPA and FTA will implement the final Treatment Plan.</p>
<p>Before modifying the final Treatment Plan, FTA and TJPA will provide the consulting parties with written documentation indicating whether and how the final Treatment Plan will be modified. Unless any consulting party objects to this documentation in writing to FTA and TJPA within 15 days following receipt, modify the final Treatment Plan as appropriate, and proceed to implement the modified final Treatment Plan.</p>	TJPA	During preliminary engineering phase	TJPA and FTA	<p>FTA and TJPA will provide the consulting parties whether and how the final Treatment Plan will be modified.</p> <p>TJPA will ensure that the consulting parties have 15 days following receipt of notification of the modifications to comment in writing about the proposed modifications.</p> <p>Unless consulting party objects, FTA and TJPA will modify the final Treatment Plan as they deem appropriate, and TJPA and FTA will proceed to implement the modified final Treatment Plan.</p>
<p>CH 17 – Within two years after FTA, in consultation with TJPA, has determined that all fieldwork required by the Treatment Plan has been completed, prepare a draft technical report that documents the results of implementing the Treatment Plan and distributes this draft technical report to the other MOA signatories for review. The reviewing parties will be afforded 60 days following receipt of the draft technical report to submit any written comments to FTA and</p>	TJPA	Within two years of completed fieldwork	TJPA and FTA	<p>TJPA will prepare a draft technical report that documents the results of implementing the Treatment Plan and distribute this draft technical report to the other MOA signatories for review.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
TJPA. Failure of the reviewing parties to respond within this time frame shall not preclude FTA from authorizing TJPA to revise the draft technical report as FTA and TJPA deem appropriate.				
FTA will provide the reviewing parties with a written documentation indicating modifications in accordance with any reviewing party comments. Unless the reviewing parties object to this documentation in writing to FTA and TJPA within 30 days following receipt, modify the draft technical report as FTA and TJPA deem appropriate. Thereafter, issue the technical report in final form and distribute this document in accordance with paragraph CH15 2).				FTA to authorize TJPA to revise draft as deemed appropriate by FTA and TJPA. FTA will provide the reviewing parties with a written documentation indicating modifications in accordance with any reviewing party comments. Unless any reviewing party objects, FTA and TJA to issue technical report in final form and distribute in accordance with paragraph CH15 2).
Distribute copies of the final technical report documenting the results of the Treatment Plan implementation to the other signatory parties, to any consulting Native American Tribe if prehistoric, protohistoric or ethnographic period archaeological properties were located and addressed under the Treatment Plan, and to the appropriate California Historical Resources Information Survey (CHRIS) Regional Information Center, subject to the terms of Stipulation IV. E (CH19).				TJPA will distribute copies of the final technical report documenting the results of Treatment Plan implementation to other signatory parties, to any consulting Native American Tribe, as applicable, and to the appropriate CHRIS Regional Information Center.
Prepare a written draft document that communicates in lay terms the results of Treatment Plan implementation to members of the interested public. Distribute this written draft document for review and comment concurrently with and in the same manner as that prescribed for the draft written technical report prescribed by paragraph C.1. of this stipulation. If the draft document prescribed hereunder is a publication such as a report or brochure, then distribute such publication to the other signatory parties, to any consulting Native American Tribe as applicable, and to any other entity that the signatory parties and, as applicable, any consulting				TJPA will prepare a written draft document that communicates in lay terms the results of Treatment Plan implementation to members of interested public.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Native American Tribe, through consultation as appropriate, subject to the terms of Stipulation IV.E (CH 19).				
Prepare a written annual report describing the status of its efforts to comply with the terms of Stipulations II – IV, inclusive, of this MOA. Prepare the annual report following the end of each fiscal year (July 1 to June 30) that this MOA is in effect and distributed it to all MOA signatories by July 30 of each year until FTA and the SHPO through consultation determine that the requirements of stipulations II – IV, inclusive of this MOA have been satisfactorily completed.	TJPA	During preliminary engineering, final design, and construction	TJPA	TJPA will prepare an annual report describing its efforts to comply with the terms of stipulations II-IV.
CH 18 – If the consulting parties agree that a plan for treatment of archaeological properties will not be prepared, then address any archaeological properties discovered during implementation of any aspect of the Project pursuant to 36 CFR 800.13(b)(3).	TJPA	During construction phase	TJPA	If treatment plan not prepared, TJPA will address any archaeological properties discovered during implementation of any aspect of the Project pursuant to 36 CFR 800.13(b)(3).
CH 19 – The signatories to the MOA acknowledge that historic properties covered by this MOA are subject to the provisions of Section 304 of the National Historic Preservation Act of 1966, as amended, and Section 6254.10 of the California Government Code (Public Records Act), relating to the disclosure of archaeological site information and, having so acknowledged, will ensure that all actions and documentation prescribed by this Agreement are consistent with Section 304 of the National Historic Preservation Act of 1966, as amended, and Section 6254.10 of the California Government Code.	TJPA	During preliminary engineering phase	TJPA	TJPA will acknowledge that historic properties covered by the MOA are subject to the provisions specified in the MOA, relating to the disclosure of archaeological site information. TJPA will ensure that actions and documentation are consistent with same.
CH 20 – The parties to the MOA agree that Native American burials and related items discovered during implementation of the terms of the MOA and of the Project will be treated in accordance with the requirements of Section 7050.5(b) of the California Health and Safety Code. If, pursuant to Section 7050.5(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are, or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of Section 5097.98(a)-(d) of the California Public Resources Code. TJPA will ensure that to the extent permitted by applicable law and regulation,	TJPA	Prior to, during, and following construction	TJPA	TJPA agree that Native American burials and related items discovered during implementation of the terms of the MOA and of the Project will be treated in accordance with the requirements specified. If, pursuant to Section 7050.5(c) of the California Health and Safety Code, the county coroner/medical

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>the views of any consulting Native American Tribe and the Most Likely Descendant(s) are taken into consideration when decisions are made about the disposition of other Native American archaeological materials and records.</p>				<p>examiner determines that the human remains are, or may be of Native American origin, then the discovery shall be treated in accordance with the provisions specified. TJPA will ensure that to the extent permitted by applicable law and regulation, the views of any consulting Native American Tribe and the Most Likely Descendant(s) are taken into consideration when decisions are made about the disposition of other Native American archaeological materials and records.</p>
<p>New-MM-C-CR-4.1 – Minimize Potential Impacts to Paleontological Resources. To minimize potential adverse impacts on previously unknown, potentially unique, scientifically important paleontological resources, the TJPA shall do the following:</p> <ul style="list-style-type: none"> • Before the start of any earthmoving activities, the TJPA shall retain a qualified paleontologist to train all construction personnel involved with earthmoving activities, including the project superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and the proper notification procedures should be followed if fossils are encountered. • The construction crew shall immediately cease ground-disturbing work in the vicinity of the find and notify the TJPA. • The TJPA shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan, in accordance with Society of Vertebrate Paleontology guidelines (SVP 1996). The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of 	<p>TJPA</p>	<p>Before and during construction</p>	<p>TJPA</p>	<p>Include provisions in contract documents requiring construction personnel to be trained prior to construction on procedures for notification if resources are detected. Implement measures during construction. Monitor construction activities to ensure compliance.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
findings. Necessary and feasible recommendations in the recovery plan shall be implemented before construction activities are resumed at the site where the paleontological resource was discovered.				
Hazardous Materials/Waste – Operations				
HWO 1 – Construct and operate any Caltrain fueling facility in compliance with local, state and Federal regulations regarding handling and storage of hazardous materials. (Caltrain Joint Powers Board (JPB)/TJPA).	Caltrain Joint Powers Board (JPB)	During construction and operations	TJPA	Review design and contract documents to ensure compliance with all applicable regulations. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations. Inspect operations, and comply with all permitting and reporting requirements.
HWO 2 – Equip diesel fuel pumps with emergency shut-off valves and, in compliance with U.S. EPA requirements, fuel Underground Storage Tanks (USTs) would be equipped with leak detection and monitoring systems.	JPB	During operations	TJPA	Review design and contract documents to ensure compliance with all applicable regulations. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations. Inspect operations, and comply with all permitting and reporting requirements.
HWO 3 – Employ the use of secondary containment systems for any aboveground storage tanks.	JPB	During operations	TJPA	Secondary containment to be included in facility design and construction and maintained during operations.
HWO 4 – Store cleaning solvents in 55-gallon drums, or other appropriate containers, within a bermed area to provide secondary containment.	JPB	During operations	TJPA	Inspect operations, and comply with all permitting and reporting requirements.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
HWO 5 – Slope paved surfaces within the fueling facility and the solvent storage area to a sump where any spilled liquids could be recovered for proper disposal.	JPB	During construction and operations	TJPA	Sloped paved surfaces and sump to be included in facility design.
HWO 6 – Follow California OSHA and local standards for fire protection and prevention for the handling and storage of fuels and solvents.	JPB	During operations	TJPA	Review design and contract documents to ensure compliance with all applicable regulations. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations. Inspect operations, and comply with all permitting and reporting requirements.
HWO 7 – Prepare a Hazardous Materials Management/Business Plan and file with the CCSF Department of Public Health.	JPB	During final design	TJPA	JPB to prepare and TJPA to file Hazardous Materials Management/Business Plan with CCSF Department of Public Health (DPH).
Hazardous Materials/Waste – Construction				
HMC 1 – Follow California OSHA and local standards for fire protection and prevention. Handling and storage of fuels and other flammable materials during construction will conform to these requirements, which include appropriate storage of flammable liquids and prohibition of open flames within 50 feet of flammable storage areas.	TJPA	During construction	TJPA	Review design and contract documents to ensure compliance with all applicable regulations. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations.
HMC 2 – Perform detailed investigations of the potential presence of contaminants in soil and groundwater prior to construction, using conventional drilling, sampling, and chemical testing methods. Based on the chemical test results, a mitigation plan will be developed to establish guidelines for the disposal of contaminated soil and discharge of contaminated dewatering effluent, and to generate data to address potential human health and safety issues that may arise as a result of contact with contaminated soil or groundwater during	TJPA	During construction	TJPA	Review design and contract documents to ensure compliance with all applicable regulations. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations. Where applicable, coordinate with

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>construction. The investigation and mitigation plan will follow the requirements of the City and County of San Francisco’s Article 22A in the appropriate areas along the alignment.</p> <p>With construction projects of this nature and magnitude, there are typically two different management strategies that can be employed to address contaminated soil handling and disposal issues. Contaminated soil can be excavated and stockpiled at a centralized location and subsequently sampled and analyzed for disposal profiling purposes in accordance with the requirements of the candidate disposal landfill. Alternatively, soil profiling for disposal purposes can be done in-situ so when soil is excavated it is loaded directly on to trucks and hauled to the appropriate landfill facility for disposal based on the in-situ profiling results. A project of this nature could also combine both strategies.</p>				<p>CCSF departments with jurisdiction over activities, such as DPH and DPW.</p>
<p>HMC 3 – Cover with plastic sheeting soils removed during excavation and grading activities that remain at a centralized location for an extended period of time to prevent the generation of fugitive dust emissions that migrate offsite.</p>	TJPA	During construction	TJPA	<p>Review design and contract documents to ensure compliance. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations.</p>
<p>HMC 4 – Use a licensed waste hauler, applying appropriate manifests or bill of lading procedures, as required to haul soil for disposal at a landfill or recycling facility.</p>	TJPA	During construction	TJPA	<p>Review design and contract documents to ensure compliance. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations.</p>
<p>HMC 5 – Use chemical test results for groundwater samples along the alignment to obtain a Batch Discharge Permit under Article 4.1 of the San Francisco Department of Public Works as well as to evaluate requirements for pretreatment prior to discharge to the sanitary sewer. Effluent produced during the dewatering of excavations will be collected in onsite storage tanks and periodically tested, as required under discharge permit requirements, for potential contamination to confirm the need for any treatment prior to discharge. If required, treatment may include:</p>	TJPA	During construction	TJPA	<p>Review design and contract documents to ensure compliance. Obtain all applicable permits. Inspect construction to ensure compliance with contract documents and regulations. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> Settling to allow particulate matter (total suspended solids) to settle out of the effluent in order to reduce the sediment load as well as reduce elevated metal and other contaminant concentrations that may be associated with suspended sediments; and/or Construction of a small-scale batch waste water treatment system to remove dissolved contaminants (mainly organic constituents such as petroleum hydrocarbons [gas, diesel, and oils], BTEX, and VOCs) from the dewatering effluent prior to discharge to the sanitary sewer. A treatment system would also likely employ the use of filtration to remove suspended solids. 				DPH and DPW.
HMC 6 – Develop a detailed mitigation plan for the handling of potentially contaminated soil and groundwater prior to starting project construction.	TJPA	During final design	TJPA	Review detailed mitigation plan, include provisions in contract documents and inspect construction to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DPH and DPW. Obtain all applicable permits.
HMC 7 – Design dewatering systems to minimize downward migration of contaminants that can result from lowering the water table if necessary based on environmental conditions. As necessary, shallow soils with detected contamination would be dewatered first using wells screened only in those soils. Dewatering of deeper soils would then be performed using wells screened only in the zone to be dewatered. Dewatering wells would be installed using drilling methods that prohibit shallow contaminated soils from being carried deeper into the boreholes.	TJPA	During final design and construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DPH and DPW.
HMC 8 – Require that workers performing activities on site that may involve contact with contaminated soil or groundwater have appropriate health and safety training in accordance with 29 CFR 1910.120.	TJPA	During construction	TJPA	Provide health-and-safety training prior to start of and at timely intervals during construction. Include requirements in contract documents and monitor construction activities to ensure

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>A Worker Health and Safety Plan (HSP) will be developed for the project and monitored for the implementation of the plan on a day-to-day basis by a Certified Industrial Hygienist (CIH). The HSP will include provisions for:</p> <ul style="list-style-type: none"> • Conducting preliminary site investigations and analysis of potential job hazards; • Personnel protective equipment; • Safe work practices; • Site control; • Exposure monitoring; • Decontamination procedures; and • Emergency response actions. <p>The HSP will specify mitigation of potential worker and public exposure to airborne contaminant migration by incorporating dust suppression techniques in construction procedures. The plan will also specify mitigation of worker and environmental exposure to contaminant migration via surface water runoff pathways by implementation of comprehensive measures to control drainage from excavations and saturated materials excavated during construction.</p>				<p>compliance.</p>
<p>HMC 9 – Review existing asbestos surveys, abatement reports, and supplemental asbestos surveys, as warranted. Perform an asbestos survey for buildings to be demolished, as required. Asbestos-containing building materials (ACM) will require abatement prior to building demolition. Removal and disposal of ACM will be performed in accordance with applicable local, state, and federal regulations.</p>	<p>TJPA</p>	<p>During preliminary engineering, final design and construction phases</p>	<p>TJPA</p>	<p>Determine extent of ACM throughout project site. Perform abatement work prior to demolition. Include all regulatory requirements in contract documents and inspect construction to ensure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DPH. Obtain all applicable permits.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
HMC 10 – Perform a lead-based paint survey for buildings to be demolished to determine areas where lead-based paint is present and the possible need for abatement prior to demolition.	TJPA	During preliminary engineering prior to building demolitions	TJPA	Determine extent of lead contamination throughout project site. Perform abatement work prior to demolition if necessary. Include all regulatory requirements in contract documents and inspect construction to insure compliance. Where applicable, coordinate with CCSF departments with jurisdiction over activities, such as DPH. Obtain all applicable permits.
Pedestrians				
Ped 1 – Use future construction or redevelopment as opportunities to increase building set-backs thereby increasing sidewalk widths. Particular areas where such widening is most needed include: <ul style="list-style-type: none"> The southeast corner of Fremont and Mission streets, The northeast corner of First and Mission streets, The north side of Mission Street between First and Fremont, and Sidewalks south of Howard Street along Folsom, First, Fremont and Beale that are less than 10 feet wide. 	Agency and CCSF	During future project reviews in Transbay Terminal area	Agency and CCSF	TJPA will forward guidance to Agency, CCSF Planning Department and DPW.
Ped 2 – Eliminate or reduce sidewalk street furniture such as newspaper boxes and magazine racks in the immediate Transbay Terminal area on corners.	Agency and CCSF	Prior to opening of new Transbay Terminal	Agency and CCSF	TJPA will forward guidance to Agency, CCSF Planning Department and DPW.
Ped 3 – Retime traffic light signalization. This could improve pedestrian levels of service at each of the intersections studies that fall into LOS F.	CCSF	Prior to opening of new Transbay Terminal	CCSF	TJPA will forward guidance to CCSF DPT.
Ped 4 – Provide crosswalk signalization at intersections where they do not exist already, such as Folsom and Beale streets.	CCSF	Prior to opening of new Transbay Terminal	CCSF	TJPA will forward guidance to CCSF DPT.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Ped 5 – Provide cross-walk count-down signals at intersections and cross-walks immediately surrounding the new Transbay Terminal.	CCSF	Prior to opening of new Transbay Terminal	CCSF	TJPA will forward guidance to CCSF DPT.
Ped 6 – Ensure that Transbay Terminal design increases corner and sidewalk widths at the four intersections immediately surrounding the Transbay Terminal.	TJPA and CCSF, DPW	During Transbay Terminal design phase	TJPA	TJPA and CCSF DPW, where applicable, to include sidewalk width expansion during preliminary and final design of new Transbay Terminal.
Ped 7 – Provide lights within crosswalks to warn when pedestrians are present in the crosswalk, such as at the cross-walk associated with the mid-block bus loading area.	TJPA	Prior to opening of new Transbay Terminal	TJPA	TJPA to work with CCSF DPT to install cross-walk warnings.
Pre-Construction Activities				
PC 1 – Complete a pre-construction building structural survey to determine the integrity of existing buildings adjacent to and over the proposed Caltrain Downtown Extension. Use this survey to finalize detailed construction techniques along the alignment and as the baseline for monitoring construction impacts during and following construction.	TJPA	Prior to preliminary engineering, final design and construction	TJPA	TJPA to perform building surveys during preliminary engineering. TJPA to include measures to protect existing buildings in final design and construction documents. TJPA to review design submittals, contract documents and construction activities to ensure implementation.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>PC 2 – Contact and interview individual businesses along the Caltrain Downtown Extension alignment to gather information and develop an understanding of how these businesses carry out their work. This survey will identify business usage, delivery/shipping patterns, and critical times of the day or year for business activities. Use this information to assist in: (a) the identification of possible techniques during construction to maintain critical business activities, (b) analyze alternative access routes for customers and deliveries to businesses, (c) develop traffic control and detour plans, and (d) finalize construction practices. (TJPA)</p>	TJPA	During preliminary engineering, final design and construction	TJPA	<p>TJPA to perform business activity survey during preliminary engineering. TJPA to include measures to maintain business activities and access in final design and construction documents.</p> <p>TJPA to review design submittals, contract documents and construction activities to ensure implementation.</p>
<p>PC 3 – Complete detailed geotechnical investigation, including additional sampling (drilling and core samples) and analyses of subsurface soil/rock conditions. Use this information to design the excavation and its support system to be used in the retained cut, cut-and-cover, and tunnel portions of the Caltrain Downtown Extension.</p>	TJPA	During preliminary engineering and final design	TJPA	<p>TJPA to obtain necessary permits from CCSF prior to performing drilling. TJPA to perform detailed geotechnical investigation during preliminary engineering. TJPA to review design submittals, contract documents and construction activities to ensure proper utilization of information obtained during investigation.</p>
<p>PC 4 – Establish community construction information/outreach program to provide on-going dialogue between the TJPA and the affected community regarding construction impacts and possible mitigation/solutions. Include dedicated personnel for an outreach office in the construction area to deal with construction coordination.</p>	TJPA	During construction	TJPA	<p>TJPA to establish program during final design prior to construction.</p>
<p>PC 5 – Establish site and field offices located along the Caltrain Downtown Extension alignment. Field office staff, in conjunction with other staff, will:</p> <ul style="list-style-type: none"> • Provide the community and businesses with a physical location where information pertaining to construction can be exchanged, 	TJPA and JPB	During construction	TJPA	<p>TJPA to establish program during final design and continue during construction.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> • Enable TJPA and JPB to better understand community/business needs during the construction period, • Allow TJPA and JPB to participate in local events in an effort to promote public awareness of the project, • Manage construction-related matters pertaining to the public, • Notify property owners, residences, and businesses of major construction activities (e.g., utility relocation/disruption and milestones, re-routing of delivery trucks), • Provide literature to the public and press, • Promote and provide presentations on the project via a Speakers Bureau, • Respond to phone inquiries, • Coordinate business outreach programs, • Schedule promotional displays, and • Participate in community committees. 				
<p>PC 6 – Implement an information phone line to provide community members and businesses the opportunity to express their views regarding construction. Review calls received and, as appropriate, forward the message to the necessary party for action (e.g., utility company, fire department, the Resident Engineer in charge of construction operations). Information available from the telephone line will include current project schedule, dates for upcoming community meetings, notice of construction impacts, individual problem solving, construction complaints and general information. Phone service would be provided in English, Cantonese, and Spanish and would be operated on a 24-hour basis.</p>	TJPA	During construction	TJPA	TJPA to establish informational “Hot Line” during final design and continue during construction.
<p>PC 7 – Develop traffic management plans. Traffic management plans to maintain access to all businesses will be prepared for areas affected by surface or cut-and-cover construction. In addition, daily cleaning of work areas would be performed by contractors for the duration of the construction period. Provisions would be contained in construction contracts to require the maintenance of driveway access to businesses to the extent feasible.</p>	TJPA	During preliminary engineering, final design and construction	TJPA	TJPA to forward traffic management plans to CCSF DPT for review and approval. Include all requirements in construction documents and inspect implementation during construction.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>New-MM-C-BR-1.1 – <i>Require Pre-Construction Bird Surveys.</i> Pre-construction bird surveys shall be required when trees or buildings and/or structures with potential nesting habitat would be disturbed as part of an individual project component. Pre-construction bird surveys shall be conducted on affected potential nesting habitat by a qualified biologist during the nesting season (February 1 through August 15) if construction activities are scheduled to take place during that period. Surveys shall be performed not more than 2 weeks prior to construction in an affected area. If special-status bird or migratory bird species are not found, work may proceed and no further mitigation action is required. If special-status bird or migratory bird species are found to be nesting in or near any work area (at a distance to be determined by a qualified biologist) or, for compliance with federal and state law concerning migratory birds, if birds protected under the federal MBTA or the California Fish and Game Code are found to be nesting in or near any work area, an appropriate no-work buffer zone (e.g., 100 feet for songbirds, 250 feet for raptors) shall be designated by the biologist. Depending on the species involved, the qualified biologist may require input from CDFW and/or the USFWS Division of Migratory Bird Management regarding the most appropriate ways to avoid disturbance to nesting birds. As recommended by the biologist, no activities shall be conducted within the no-work buffer zone that could harass birds or disrupt bird nesting. Outside of the nesting season (August 16 through January 31), or after young birds have fledged, as determined by the biologist, work activities may proceed. Birds that establish nests during the construction period are considered habituated to such activity, and no buffer shall be required, except as needed to avoid direct destruction of the nest, which shall be prohibited.</p>	TJPA	Before construction	TJPA	Include provisions in contract documents to perform surveys and to comply with requirements for consultation and measures to protect nesting birds.
General Construction Measures				
<p>GC 1 – Disseminate information to community in a timely manner regarding anticipated construction activities.</p>	TJPA	During construction	TJPA	TJPA to initiate program during final design and continue during construction.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
GC 2 – Provide signage. Work with establishments affected by construction activities to develop appropriate signage for display that directs both pedestrian and vehicular traffic to businesses via alternate routes.	TJPA	Prior to and during construction	TJPA	TJPA to initiate signage program during final design and monitor contractors’ installation during construction.
GC 3 – Install level deck. Install decking at the cut-and-cover sections to be flush with the existing street or sidewalk levels.	TJPA	During construction	TJPA	TJPA to design flush decking during preliminary and final design, include in construction documents and ensure installation during construction.
GC 4 – Provide for efficient sidewalk design and maintenance. Wherever feasible, maintain sidewalks at the existing width during construction. Where a sidewalk must be temporarily narrowed during construction (e.g., deck installation), restore it to its original width during the majority of construction period. (In some places, this may require placing the temporary sidewalk on the deck.) Each sidewalk design should be of good quality and approved by the Resident Engineer prior to construction. Handicapped access will be maintained during construction where feasible.	TJPA	During preliminary engineering and construction	TJPA	TJPA to work with CCSF DPW on design of sidewalk plans during preliminary and final design and ensure installation during construction.
GC 5 – Provide construction site fencing of good quality, capable of supporting the accidental application of the weight of an adult without collapse or major deformation. Where covered walkways or other solid surface fencing is installed, establish a program to allow for art work (e.g., by local students) on the surface(s).	TJPA	During design and construction	TJPA	TJPA to work with CCSF DPW, incorporate requirements in construction documents and inspect installation during construction.
Air Emissions – Construction				
AC 1 – Assure that, as part of the contract provisions, the project contractor is required to implement the measures below at all project construction sites.	TJPA	During development of contract documents	TJPA	Include requirement in contract documents.
AC 2 – Water all active construction areas at least twice daily. Ordinance 175-91, passed by the San Francisco Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities; therefore, the project contractor would be required to obtain reclaimed water from the City’s Clean Water Program or other appropriate sources.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
AC 3 – Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 4 – Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 5 – Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 6 – Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 7 – Install sandbags or other erosion control measures to prevent silt runoff to public roadways.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 8 – Replant vegetation in disturbed areas as quickly as possible.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 9 – Minimize use of on-site diesel construction equipment, particularly unnecessary idling.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 10 – Shut off construction equipment to reduce idling when not in direct use.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
AC 11 – Where feasible, replace diesel equipment with electrically powered machinery.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 12 – Locate diesel engines, motors, or equipment as far away as possible from existing residential areas.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 13 – Properly tune and maintain all diesel power equipment.	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 14 – Suspend grading operations during first and second stage smog alerts, and during high winds, i.e., greater than 25 miles per hour.	TJPA	During and following construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
AC 15 – Upon completion of the construction phase, buildings with visible signs of dirt and debris from the construction site shall be power washed and/or painted (given that permission is obtained from the property owner to gain access to and wash the property with no fee charged by the owner).	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
<p>New-MM-C-AQ-5.1 – Prepare and Implement an Emissions Plan. The TJPA shall comply with the following measures to reduce construction emissions:</p> <p>A. <i>Construction Emissions Minimization Plan.</i> Prior to issuance of a construction permit, the TJPA shall prepare a Construction Emissions Minimization Plan (Emissions Plan) detailing project compliance with the following requirements:</p> <ol style="list-style-type: none"> 1. All off-road equipment greater than 25 horsepower and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements: <ol style="list-style-type: none"> a. Where alternative sources of power are available, portable diesel engines shall be prohibited. b. All off-road equipment shall have the following: 	TJPA	Before and during construction	TJPA	Prepare Construction Emissions Minimization Plan. Prior to construction, include provisions in contract documents requiring preparation of emissions plan, reporting requirements, and certification that measures from the emissions plan have been incorporated. Monitor construction activities to ensure compliance and prepare monthly reports and final report within 6 months of completion of construction.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> i. engines that meet or exceed either EPA or CARB Tier 2 off-road emissions standards, and ii. engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy (VDECS). c. Exceptions: <ul style="list-style-type: none"> i. Exceptions to A(1)(a) may be granted if the TJPA has evidence that an alternative source of power is limited or infeasible at the project site, and that the requirements of this exception provision apply. Under this circumstance, the TJPA shall prepare the documentation indicating compliance with A(1)(b) for on-site power generation. ii. Exceptions to A(1)(b)(ii) may be granted if the TJPA has evidence that a particular piece of off-road equipment with an CARB Level 3 VDECS is (1) technically not feasible, (2) would not produce desired emissions reductions due to expected operating modes, (3) installing the control device would create a safety hazard or impaired visibility for the operator, or (4) there is a compelling emergency need to use off-road equipment that are not retrofitted with a CARB Level 3 VDECS. iii. If an exception is made pursuant to (A)(1)(c)(ii), the TJPA shall provide the next cleanest piece of off-road equipment, as provided by the step-down schedule below). <p>If the requirements of (A)(1)(b) cannot be met, then the TJPA shall meet Compliance Alternative 1. If the TJPA is not able to supply off-road equipment meeting Compliance Alternative 1, then Compliance Alternative 2 shall be met. If the TJPA is not able to supply off-road equipment meeting Compliance Alternative 2, then Compliance Alternative 3 shall be met.</p>				

Off-Road Equipment Compliance Step-Down Schedule		
Compliance Alternative	Engine Emissions Standard	Emissions Control
1	Tier 2	CARB Level 2 VDECS
2	Tier 2	CARB Level 1 VDECS
3	Tier 2	Alternative Fuel (Not a VDEC)
<p><i>Notes:</i> CARB = California Air Resources Board; VDECS = Verified Diesel Emissions Control System Source: data compiled by AECOM in 2014</p> <ol style="list-style-type: none"> The TJPA shall require idling times for off-road and on-road equipment to be limited to no more than 2 minutes, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment. Legible and visible signs shall be posted in multiple languages (English, Spanish, Chinese) in designated queuing areas and at the construction site to remind operators of the 2-minute idling limit. The TJPA shall require that construction operators properly maintain and tune equipment in accordance with manufacturer specifications. The Emissions Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. Off-road equipment descriptions and information shall include equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, expected fuel usage, and hours of operation. For VDECS-installed equipment, reporting shall indicate technology type, serial number, make, model, manufacturer, CARB verification number level, installation date, and hour meter reading on installation date. For off-road equipment using alternative fuels, reporting shall indicate the type of alternative fuel being used. 		

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>5. The Emissions Plan shall be kept on-site and be available for review by any persons requesting it. A legible sign shall be posted at the perimeter of the construction site indicating to the public the basic requirements of the Emissions Plan and a way to request a copy of the plan. The TJPA shall provide copies of the Emissions Plan to members of the public as requested.</p> <p>B. <i>Reporting.</i> Monthly reports shall be prepared to indicate the construction phase and off-road equipment information used during each phase, including the information required in A(4). In addition, for off-road equipment using alternative fuels, reporting shall include the actual amount of alternative fuel used.</p> <p>1. Within 6 months of completion of construction activities, the TJPA shall prepare a final report summarizing construction activities. The final report shall indicate the start and end dates and duration of each construction phase. For each phase, the report shall include detailed information required in A(4). In addition, for off-road equipment using alternative fuels, reporting shall include the actual amount of alternative fuel used.</p> <p>C. <i>Certification Statement and On-Site Requirements.</i> Prior to the commencement of construction activities, the TJPA shall certify (1) compliance with the Emissions Plan and (2) all that applicable requirements of the Emissions Plan have been incorporated into contract specifications.</p>				
Air Emissions – Operations				
<p>New-MM-AQ-3.1 – Equip Diesel Generators with Applicable Tiered Emissions Standards. All diesel generators shall have engines that meet Tier 4 Final or Tier 4 Interim emissions standards or meet Tier 2 emissions standards and are equipped with a CARB Level 3 Verified Diesel Emissions Control Strategy.</p>	TJPA	During development of contract documents and during construction	TJPA	Prior to construction, include provisions in contract documents regarding diesel generator air emissions specifications. Monitor construction activities to ensure compliance.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>New-MM-AQ-3.2 – <i>Require and Implement Ventilation Plans for Proposed Residential Land Development.</i> For residential development on the intercity bus facility or ventilation structure sites, the project sponsor shall comply with the following measures:</p> <p>A. <i>Air Filtration and Ventilation Requirements.</i> Prior to receipt of any residential building permit, the project sponsor shall submit a ventilation plan for the proposed building(s). The ventilation plan shall show that the building ventilation system removes at least 80 percent of the outdoor PM2.5 concentrations from habitable areas and be designed by an engineer certified by the ASHRAE. The engineer shall provide a written report documenting that the system meets the 80 percent performance standard identified in this measure and offers the best available technology to minimize outdoor-to-indoor transmission of air pollution.</p> <p>B. <i>Maintenance Plan.</i> Prior to receipt of any building permit, the project sponsor shall present a plan that ensures ongoing maintenance for the ventilation and filtration systems.</p> <p>C. <i>Disclosure to Buyers and Renters.</i> The project sponsor shall ensure disclosure to buyers and/or renters that the building is located in an area with existing sources of air pollution and that the building includes an air filtration and ventilation system designed to remove 80 percent of outdoor particulate matter. Occupants shall be informed of the proper use of the installed air filtration system.</p>	TJPA	Prior to acquisition of building permits, prior to renting or selling buildings	TJPA	Prior to sale or lease of surplus property, include provisions in sale or lease documents that any future residential development will need to prepare and implement ventilation and filtration plans and systems.
Visual/Aesthetics – Construction				
<p>VA 1 – Assure that construction crews working at night direct any artificial lighting onto the work site in order to minimize “spill over” light or glare effects on adjacent areas.</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.
<p>VA 2 – Assure that contractors make all efforts possible to minimize specific aesthetic and visual effects of construction identified by neighborhood businesses and residents.</p>	TJPA	During construction	TJPA	Include requirements in contract documents and monitor construction activities to ensure compliance.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Transportation				
<p>New-MM-TR-1.1 – <i>Modify Signal Operations at the Mission Bay Drive Intersection with Seventh Street, the Caltrain tracks, and Berry Street.</i> If Caltrain’s service and operations plan requires the use of the MOW/turnback track during the AM/PM peak hours in the future, prior to Caltrain making any such changes, the TJPA, in conjunction with Caltrain, shall conduct further traffic and train operation analysis of the turnback and maintenance of way track to evaluate traffic operations along Mission Bay Drive at Seventh Street, the Caltrain MOW/turnback track, and Berry Street. In addition, if the traffic/train operation analysis shows that the traffic delays attributable to the gate downtime during the AM/PM peak hours would increase at Mission Bay Drive and Seventh Street or at Berry Street such that the overall intersection would operate at unacceptable LOS E or LOS F, then improvements shall be implemented to restore operations to the LOS of the intersection at the time of the train/traffic operation analysis. Actions or improvements that could achieve the performance standard, either individually or in combination, include but are not limited to:</p> <ul style="list-style-type: none"> • Signal timing adjustments; • Signal phasing modifications; • Lane reconfiguration/re-striping in conjunction with phasing modification; • Left-turn pocket lengthening; • Pre-empt, pre-signal or queue cutters provision or modification as necessary to manage queues; and/or • Other improvements identified in the future due to technology advancement. <p>The TJPA and Caltrain shall coordinate with the City and shall be responsible for reasonable costs of design, permitting, and construction of the necessary improvements at this crossing to attain the performance standard.</p>	<p>TJPA and Caltrain</p>	<p>Proposal by Caltrain to change its service and operation plan to use the maintenance-of-way or turnback track during the AM/PM peak hours</p>	<p>TJPA</p>	<p>TJPA and Caltrain to conduct traffic and train operations analysis to identify signal operations and feasible intersection design improvements, which shall be implemented if necessary to achieve the performance standard.</p>

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
Water Resources and Water Quality				
<p>New-MM-WQ-4.1 – <i>Modify DTX Design Criteria to Avoid Flood Hazards.</i> The TJPA shall modify the DTX Design Criteria to protect project elements from flood hazards. Specifically, the TJPA shall design and construct Transbay Program Phase 2 within the area delineated as being within a 100-year floodplain to prevent inundation of the project rail alignment and associated infrastructure and to remain operational for the predicted flood level. Changes to the current DTX Design Criteria will include designing station entrances and other points of access to below-ground portions of the DTX system to maintain sufficient freeboard above the 100-year base flood elevation to protect the rail facilities and the public from 100-year storm water entering the stations and the tunnel. Changes to the design criteria will be completed prior to the next phase of design so that these standards can be incorporated into the 30 percent Preliminary Engineering design for DTX. In updating project designs to meet the modified DTX Design Criteria, the TJPA shall consider the cost-benefit of flood-proofing measures and designs which do not preclude other measures that may be more practicable and effective when the future flood risks become more evident. Because implementation of the proposed project would occur at a future date, the TJPA shall amend and update the DTX Design Criteria to incorporate new information related to San Francisco’s FEMA FIRM or climate-informed science predictions and mapping of sea-level rise.</p>	TJPA	During final design	TJPA	Modify DTX design criteria and ensure measures to avoid flood hazards are incorporated into construction documents.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>New-MM-CU-WQ-9.1 – <i>Prepare a Sea-Level Rise Adaptation Plan.</i> Based on the vulnerabilities identified from inundation maps of year 2100 sea-level rise, the TJPA will prepare a Sea-Level Rise Adaptation Plan identifying measures that will be taken to protect the new project facilities as well as the existing TJPA facilities from potential damage due to future flooding from sea-level rise. The TJPA will coordinate with other entities with facilities close to the San Francisco Bay with an equal or greater sea-level rise vulnerability, such as the City and County of San Francisco, San Francisco Bay Conservation and Development Commission, the Port of San Francisco, BART, the California Department of Transportation, and the San Francisco Municipal Transportation Agency.</p>	TJPA	During final design	TJPA	Prepare Sea-Level Rise Adaptation Plan, and discuss results and potential actions with other agencies that have facilities in the City that may be similarly affected.
<p>Specifically, the TJPA shall design its infrastructure system and buildings so that they remain resilient and adaptable over time. The strategies to implement such protection will evolve from the ongoing sessions with other local jurisdictions and agencies, and the performance standard to be achieved will protect the proposed project from the sea-level rise depths projected by the City for the year 2100. It is recognized that the projected flood depths may be refined over time and that new regional and citywide strategies to address sea-level rise will be identified. To the extent feasible, the TJPA shall amend and update its Adaptation Plan and the performance standard to incorporate this new information.</p>				
<p>The TJPA shall complete the first Sea-Level Rise Adaptation Plan as part of DTX final design. The Plan shall include the following:</p> <ul style="list-style-type: none"> • Review of available scientific information on sea-level rise data and projections for the subsequent 50 years. Where data and projections indicate different rates of sea-level rise than previously applied, the TJPA will adjust the proposed project’s vulnerability assessment and flood design criteria to reflect a median-point of then-current projections. • Improvements will meet the flood design criteria as feasible and unconstrained by surrounding development not owned by the TJPA. 				

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> The plan may also rely on flood improvements implemented separately by agencies other than the TJPA, but that will also provide flood risk protection benefits for Transbay Program Phase 2 facilities. Opportunities for partnership with other local and regional parties for sea-level rise adaptation or where regional efforts will address flooding risks to TJPA facilities. <p>Consideration of the cost-benefit of flood-proofing measures and designs that do not preclude other measures that may be more practicable and effective when the future flood risks become more evident.</p>				
<ul style="list-style-type: none"> Where the TJPA’s adaptation options are constrained because of adjacent infrastructure (such as adjacent roadways and structures not owned by the TJPA), the TJPA will work with adjacent landowners and infrastructure managers to identify opportunities to improve rail system protection in cooperation with other local or regional parties. 				
Electromagnetic Fields				
<p>New-MM-EF-1.1 – Evaluate EMI Effects on Nearby Medical Facilities during Final Design of the Additional Trackwork South of the Caltrain Railyard. During final design, the TJPA shall conduct a site-specific electromagnetic interference (EMI) analysis, based on the OCS alignment, to determine the extent, if any, of disturbance to sensitive electric equipment from the addition of the turnback track, which would be aligned closer to medical and research facilities, such as the University of California San Francisco campus on the east side of the Caltrain right-of-way. If EMI levels result in disturbance to sensitive electric equipment, the TJPA will be responsible for costs related to evaluate, design, monitor, and remediate project-related EMI disruption. More specifically, the following steps will be followed as part of this mitigation measure:</p> <ul style="list-style-type: none"> During final design, the TJPA shall evaluate the specific EMI levels associated with the turnback track at the identified sensitive facilities and determine the appropriate controls necessary to 	TJPA	During final design, during the testing and commissioning period, after commissioning through first year of operation	TJPA	Conduct EMI analysis to determine appropriate design modifications if necessary. Measure EMI levels during testing and commissioning period and for the first year of project operation. Include provisions in contract documents to comply with requirements for consultation and measures to avoid electromagnetic effects.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>avoid disruption of sensitive equipment prior to testing and commissioning of the proposed project.</p> <ul style="list-style-type: none"> During the testing and commissioning period for the proposed project, EMI levels shall be measured and the TJPA shall coordinate with the identified sensitive facilities to evaluate whether substantial EMI effects are occurring due to system operations. Where substantial EMI effects are detected that disrupt operations of the sensitive electric equipment, the TJPA shall remedy the disruption prior to commissioning of electrified operations through EMF controls and/or shall provide shielding of the sensitive equipment. After commissioning of the proposed project, EMI levels shall be monitored during the first year of project operation and reporting of the results shall be shared with any identified sensitive facilities. Identified disruption of sensitive electric equipment during this period shall be immediately remedied through additional modifications to EMF-generating equipment along the turnback track and/or additional shielding of the sensitive electric equipment. <p>EMI can be reduced at the project level through designs that minimize arcing and radiation of radiofrequency energy. Additional mitigation by shielding of sources is not always practical, but susceptibility to EMI can be reduced by choosing devices designed for a high degree of electromagnetic compatibility. The following strategies will be considered, as appropriate by the TJPA, in identifying feasible and effective mitigation for nearby medical electronic equipment:</p>				
<ul style="list-style-type: none"> passive engineering controls (e.g., shielding with metallic materials at the medical facility where excessive EMI levels are projected); partial cancellation of magnetic field with a wire loop, in which an induced current creates a magnetic field of opposite direction; active shielding, that requires a power supply and feedback loop to control the induced current and magnetic field direction and magnitude; and 				

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<ul style="list-style-type: none"> design modifications to place EMF from the OCS further away or higher up. 				
Environmental Commitments Included as Part of the Project (Avoidance Measures)				
1. Modify as necessary the overhead catenary system of the Electronic Trolley Bus and Caltrain at the 16th Street crossing.	TJPA	During final design	TJPA	In cooperation with the Peninsula Corridor Joint Powers Board and SFMTA, identify the necessary technical changes to the overhead catenary system and provide the appropriate funding to implement the necessary changes.
2. Mitigate construction-related effects to the Caltrain station at Fourth and King and on the existing Caltrain support facilities, including administration and storage buildings, bike storage, employee parking, and crew facilities.	TJPA	During final design	TJPA	Identify necessary mitigation actions with Caltrain and provide funding to implement identified actions.
3. Coordinate with SFMTA and enter into a Memorandum of Understanding (MOU), or similar agreement, to avoid impacts to the Muni T-Line (including the Central Subway project) during DTX construction. The MOU would identify construction phasing, sequencing, and timing that work for both agencies and minimize both delays to construction of the DTX, including the underground station at Fourth and Townsend, and disruption to T-Line operations.	TJPA	During final design	TJPA	Identify the phasing, sequencing, and timing for construction that works for both TJPA and SFMTA, and minimizes both delays to construction of the underground station and disruption to T-Line operations.
4. Design the ventilation structures with City input and in accordance with context sensitive design guidelines, which seek to preserve and enhance, to the extent feasible, scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure.	TJPA	During final design	TJPA	Coordinate with the San Francisco Planning Department to design the appearance of the vent structures to be visually compatible with the surrounding built environment and, where appropriate, to follow accepted preservation guidelines for context-sensitive infill development in historic districts.

Mitigation Measure	Responsibility for Implementation	Mitigation Schedule	Monitoring Responsibility	Monitoring Actions/Schedule
<p>5. New-I-TR-1.1 Traffic Improvement and Adaptive Management Plan. A traffic improvement plan and adaptive management plan shall be developed for the fourth track within the existing at-grade rail crossing of Mission Bay Drive and shall address the effects on the intersections at Seventh Street/Mission Bay Drive and Berry Street/Mission Bay Drive from the fourth track. This plan shall include all aspects of avoiding, minimizing, and compensating for all temporary and permanent impacts associated with the project. The traffic improvement plan shall be reviewed and approved by the City and County of San Francisco prior to implementation.</p> <ul style="list-style-type: none"> Final monitoring requirements for the area will be determined through coordination with regulatory agencies (including San Francisco, Caltrain and California High Speed Rail Authority (CHSRA)) and details shall be included in the improvement plan approved by the City and County of San Francisco. A minimum of two monitoring events of the compensatory mitigation shall take place after implementation for the first six years after implementation (or until CHSRA serves San Francisco whichever comes first), and one monitoring event for three additional years is required. Additional monitoring after this time period may be necessary based on impacts and any adaptive management applied. After each monitoring event, a report shall be submitted to the City and County of San Francisco which shall include, but not be limited to, a narrative of the site conditions, representative analysis including traffic counts, gate down time, and delays, and the performance metrics included in the traffic improvement plan. 	TJPA	After construction	TJPA	The monitoring events and their timing are specified in the improvement measure. A report will be submitted to the city after each monitoring event, per the schedule identified in the improvement measure.

Appendix B

New Potentially Occurring Listed Species in the Project Vicinity since 2014

Updated CDFW CNDDDB Species List Compared to the 2014 List for New Species Identified for the USGS Quad San Francisco North

Common Name	Scientific Name	Fed Status	CA Status	Habitats
Northwestern pond turtle	<i>Actinemys marmorata</i>	Proposed Threatened	None	Marshes, Streams, Rivers, Ponds, Lakes
Robbins' broomrape	<i>Aphyllon robbinsii</i>	None	None	Coastal bluff scrub, Rocky/sandy soils on cliffs, landslides, and shell mounds
Obscure bumble bee	<i>Bombus caliginosus</i>	None	None	Grassy coastal prairies, Coast Range meadows
Western bumble bee	<i>Bombus occidentalis</i>	None	Candidate Endangered	Agricultural, Urban, Alpines, Dunes, Forests, Grasslands
Mt. Tamalpais thistle	<i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	None	None	Broad-leafed upland forests, Chaparral, Meadows, Seeps
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	None	None	Coniferous forests, Native prairies, Riparian, Desert, Coastal
California giant salamander	<i>Dicamptodon ensatus</i>	None	None	Coastal forests, Riparian, Streams and springs
Southern sea otter	<i>Enhydra lutris nereis</i>	Threatened	None	Marine coastal, Bays, Estuaries
North American porcupine	<i>Erethizon dorsatum</i>	None	None	Coniferous and Mixed-Forests, Grasslands, Desert Shrubs, Tundra
American peregrine falcon	<i>Falco peregrinus anatum</i>	Delisted	Delisted	Wetlands, Deserts, Forests, Cliffs, Tundra, Urban
Western ridged mussel	<i>Gonidea angulata</i>	None	None	Cold creeks, Rivers, Lakes
Island tube lichen	<i>Hypogymnia schizidiata</i>	None	None	Chaparral, Close-Cone coniferous forests
Mission blue butterfly	<i>Icaricia icarioides missionensis</i>	Endangered	None	Coastal grasslands and scrublands
Pheres blue butterfly	<i>Icaricia icarioides pheres</i>	None	None	Dunes, Mountains, Meadows, Streams
Western red bat	<i>Lasiurus frantzii</i>	None	None	Broad-leafed forests, Riparian
Monterey vagrant shrew	<i>Sorex vagrans paludivagus</i>	None	None	Desert shrublands, Grasslands, Woodlands, Coniferous forests, Meadows
Marin hesperian	<i>Vespericola marinensis</i>	None	None	Chaparral, Coastal brush, Seeps, Alder and mixed evergreen forests

Source: California Natural Diversity Database (CNDDDB), Calif. Dept. of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). Retrieved 6/19/2025 from <https://wildlife.ca.gov/Data/CNDDDB>

Appendix C

Air Quality and Greenhouse Gas Technical Memorandum

Memorandum

To: Alana Callagy, Project Coordination Manager, Transbay Joint Powers Authority (TJPA)

Through: Stephen Polechronis, Program Contract Manager, AECOM

From: Laura Dito, Senior Environmental Planner, AECOM

Date: February 24, 2026

Subject: Air Quality and Greenhouse Gas Technical Memorandum

Summary

This Air Quality and Greenhouse Gas Technical Memorandum analyzes the potential for proposed changes to The Portal to result in new or more severe environmental effects or impacts than those identified for the previously evaluated/approved project. The proposed changes, referred to as the “2026 Revised Project,” include eliminating the train box extension at the Salesforce Transit Center, eliminating the intercity bus facility, deferring installation of high-speed rail vertical circulation elements at the Transit Center, modifying the Fourth and Townsend Street Station design, shortening the tunnel stub box, relocating and electrifying storage tracks within the 4th and King railyards, and the TJPA’s acquisition of the building at 171 Second Street and temporary relocation of the 171 Second Street tenants during construction. Section 1 of this technical memorandum describes the changes proposed as part of the 2026 Revised Project.

The analysis contained herein includes a qualitative evaluation of changes in emissions associated with several project components that are proposed to be eliminated, deferred, or relocated, as well as a quantitative evaluation of construction and operational emissions associated with the 2026 Revised Project’s relocation of mechanical and other utility equipment from within the Transit Center train box to an at-grade utility building. Impacts associated with implementation of the 2026 Revised Project related to exposure of sensitive receptors to toxic air contaminant concentrations, along with operational criteria air pollutant and greenhouse gas (GHG) emissions reductions, are addressed qualitatively.

As presented in this memorandum, the changes associated with the 2026 Revised Project would not result in new or more severe adverse air quality or GHG effects or significant impacts. For air quality, implementation of previously adopted Mitigation Measures AC 1 through AC 15 and New-MM-C-AQ-5.1, as well as the increased use and availability of equipment with engines that

meet Tier 4 emission standards, would reduce construction air quality effects and impacts, including toxic air contaminant concentrations, to a not adverse/less-than-significant level during construction of the 2026 Revised Project. During operations, the new at-grade utility building would require implementation of the previously adopted Mitigation Measure New-MM-AQ-3.1, which would reduce exposure of sensitive receptors to toxic air contaminant concentrations, thereby reducing impacts to a not adverse/less-than-significant level. For GHG, the 2026 Revised Project would result in a beneficial net reduction in GHG emissions and no adverse effects or significant impacts would occur.

The 2026 Revised Project would not result in new or more severe adverse air quality or GHG emissions effects or significant impacts compared with the previously evaluated/approved project. Therefore, no new or updated mitigation measures are required to further reduce air quality and GHG effects or impacts.

The results of this assessment of the 2026 Revised Project for air quality and GHG are consistent with the effect and impact conclusions for the previously evaluated/approved project.

1 INTRODUCTION

The Transbay Joint Powers Authority (TJPA), in cooperation with the Federal Transit Administration (FTA), proposes to develop The Portal, formerly known as the Downtown Rail Extension (DTX), Phase 2 of the Transbay Program in San Francisco, California. The Portal would extend Caltrain service to the Salesforce Transit Center (Transit Center), which was constructed under Phase 1 of the Transbay Program. The TJPA identified revisions to The Portal during further design phases since certification of the Transbay Program in 2004 (FTA and TJPA 2004) and FTA approval for the Transbay Program in 2005 (FTA 2005). In 2018, the TJPA and FTA prepared a joint Supplemental Environmental Impact Statement/Environmental Impact Report (2018 Final SEIS/EIR) to evaluate proposed changes to the approved 2004 Transbay Program, as amended (FTA and TJPA 2018). On July 22, 2019, the FTA issued the Amended Record of Decision approving the changes (FTA 2019). In 2023, a California Environmental Quality Act (CEQA) Addendum and National Environmental Policy Act (NEPA) Re-evaluation (2023 Addendum/Re-evaluation) were approved for further proposed changes to The Portal (TJPA 2023a/2023b). On June 9, 2023, the FTA issued a letter concurring with the TJPA that the proposed changes were not substantial and would not cause significant environmental impacts that were not previously evaluated (FTA 2023).

Since 2023, the TJPA and its partners have identified components to be modified, removed, or deferred while still meeting The Portal's overall purpose and need, as stated in the 2018 Final SEIS/EIR. These changes comprise the proposed "2026 Revised Project" analyzed in this technical memorandum and are as follows:

- ◆ Eliminating the train box extension at the Transit Center and moving utilities from the underground train box to a new at-grade utility building

- ◆ Eliminating the intercity bus facility and replacing the street-level entrance/exit pavilion with a public lobby and additional vertical circulation at the Transit Center on the west side of Beale Street
- ◆ Deferring installation of most high-speed rail vertical circulation elements at the Transit Center
- ◆ Modifying the Fourth and Townsend Street Station design by removing the high-speed rail platforms and related and concourse-level facilities
- ◆ Shortening the tunnel stub box
- ◆ Relocating and electrifying storage tracks within the 4th and King railyards
- ◆ Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction

This memorandum analyzes the potential for the 2026 Revised Project to result in new significant or increase the severity of previously identified environmental effects and impacts compared to those identified and disclosed for the previously evaluated/approved project.

2 AIR QUALITY

This evaluation applies qualitative and quantitative analyses of the 2026 Revised Project to determine the potential change in criteria air pollutant emissions, toxic air contaminant emissions, and exposure of sensitive receptors to substantial pollutant concentrations as compared to the previously evaluated/approved project.

Sensitive receptors are members of the population that are considered more sensitive to air pollution than others. Examples of where sensitive receptors may be located include residences, schools, hospitals, and daycare centers. Potential impacts to sensitive receptors are associated with short-term (i.e., 1 hour) and long-term (i.e., 30 years) exposure to toxic air contaminants. The closest sensitive receptor locations to the 2026 Revised Project components are multi-family residential uses within approximately 300 feet of the at-grade utility building and within 100 feet of the 4th and King railyards. Sensitive receptors, such as pedestrians on adjacent streets, may also be located near the 2026 Revised Project for short durations.

2.1 Construction

Construction-related criteria air pollutant emissions under the 2026 Revised Project would be reduced compared to the previously evaluated/approved project as a result of the elimination of the intercity bus facility, modification of the Fourth and Townsend Street Station to remove high-speed rail facilities, and shortening of the tunnel stub box. The removal and redesign of these components would result in an overall reduction in off-road equipment use, on-road vehicle trips, and excavated material quantities and associated offsite haul truck trips.

Deferred installation of high-speed rail vertical circulation elements at the Transit Center would result in a near-term reduction of construction emissions because construction of these facilities would not happen until high-speed rail service is prepared to extend to San Francisco, which is anticipated to occur much later in the future after construction of the 2026 Revised Project. Construction activities associated with the high-speed rail vertical circulation elements at the Transit Center would not change from what was evaluated for the previously evaluated/approved project. However, when such construction does occur, emissions would be less than previously anticipated because vehicles and equipment would be replaced over time with cleaner, more fuel-efficient models.

Additionally, relocation and electrification of storage tracks within the 4th and King railyards would not result in an increase in construction activity, as the relocation is included within previously assumed ground disturbance areas. Similarly, acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not generate additional emissions because there are no new construction activities associated with the building at 171 Second Street beyond those previously evaluated and included as part of the approved project. The approved project evaluated underpinning 171 Second Street, and the TJPA's ownership of the building would not result in a change to the previously evaluated and approved underpinning. As a result, associated exhaust and fugitive dust emissions would be reduced overall for the 2026 Revised Project. Additionally, similar to the previously evaluated/approved project, the 2026 Revised Project would comply with the San Francisco Construction Dust Control Ordinance, thereby further minimizing construction-related fugitive dust.

2.1.1 Elimination of Train Box Extension

Elimination of the train box extension would result in a reduction in excavated material from the previously environmentally evaluated quantity (53,500 cubic yards) included in the 2023 Addendum/Re-evaluation to approximately 1,200 cubic yards under the 2026 Revised Project, which equates to a reduction of approximately 2,615 haul trucks.¹ With elimination of the train box extension and intercity bus facility, the previously evaluated street-level entrance and exit pavilion to the Transit Center would be replaced with a new enclosed, street-level public lobby area and two stairways around the existing elevators at the east end of the Transit Center. The footprint and construction scope of the proposed lobby and vertical circulation elements would be reduced compared to the previously evaluated street-level entrance and exit pavilion. Therefore, elimination of the train box extension and construction of the proposed lobby and vertical circulation under the 2026 Revised Project would result in reduced construction-related criteria air pollutant emissions compared to the previously evaluated/approved project.

2.1.2 At-Grade Utility Building

As part of the proposed elimination of the train box extension, utilities that were previously located underground in the train box would be moved to a new at-grade utility building.

¹ This calculation is based on a truck capacity of 20 cubic yards.

Construction of the at-grade utility building would require different phasing and some different methods and equipment than were previously analyzed for the underground train box extension. Construction emissions were not quantified in the 2004 Final Environmental Impact Statement/Environmental Impact Report (2004 FEIS/EIR) because the Bay Area Air Quality Management District (BAAQMD) did not require a detailed analysis of construction emissions at that time. To demonstrate the potential air quality-related effects of this modified component, this analysis quantitatively evaluates construction emissions associated with the 2026 Revised Project's at-grade utility building.

Construction of the at-grade utility building is anticipated to begin in January 2030 and last for approximately 16 months. Construction-related criteria air pollutant emissions were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.29 using project-specific information, including the acreage of disturbance, building square footage, paved area, construction duration, and material export quantities. Model defaults were used for inputs for which project-specific information was not available, including construction equipment and construction vehicle trips by phase. Additional details and modeling outputs are available in Appendix A, Emissions Modeling and Outputs. Table 1 presents the average daily construction emissions associated with construction of the at-grade utility building.

Table 1. At-Grade Utility Building Total Annual and Average Daily Construction Emissions (2026 Revised Project) (For Informational Purposes Only)

Scenario	ROG	NO _x	PM ₁₀ Exhaust	PM _{2.5} Exhaust
Total Annual (tons)	0.13	0.70	0.02	0.02
Average Daily (pounds per day)	0.99	5.39	0.17	0.15
BAAQMD Thresholds ¹ (pounds per day)	54	54	82	80
Exceeds Threshold?	No	No	No	No

Source: Calculated by AECOM in 2025 (see Appendix A)

Notes: BAAQMD = Bay Area Air Quality Management District; NO_x = nitrogen oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases

¹ BAAQMD thresholds are presented for reference.

² Emissions are presented for informational purposes only because these emissions are for the at-grade utility building operations only and do not represent the overall 2026 Revised Project operational emissions.

As presented in Table 1, construction-related emissions for the at-grade utility building would be minimal and well below the BAAQMD thresholds.² The 2026 Revised Project's potential effects related to federal transportation conformity are presented in Section 3. The emissions presented in Table 1 would be a reduction from those that would have been generated as a result of construction of the underground train box extension, as construction of the at-grade utility building would require significantly less excavated material and would result in reduced equipment usage and haul trucks and associated exhaust emissions.

² BAAQMD is the regional air quality management district responsible for attaining and maintaining ambient air quality standards in the nine counties that surround San Francisco Bay. BAAQMD has developed numerical thresholds of significance for the purposes of evaluating a proposed project's potential impacts related to air quality.

2.1.3 2026 Revised Project Construction - Air Quality Conclusion

Overall, modifications under the 2026 Revised Project would result in a reduction in construction-related emissions, including criteria air pollutant emissions and toxic air contaminant emissions, relative to the previously evaluated/approved project. Elimination and deferral of project components, such as elimination of the train box extension, elimination of the intercity bus facility, deferred installation of high-speed rail vertical circulation elements at the Transit Center, modification of the Fourth and Townsend Street Station to eliminate high-speed rail facilities, and shortening of the tunnel stub box, would reduce construction-related emissions. Additionally, there would be a substantial reduction in excavated material by relocating utilities that were previously underground to the at-grade utility building, which would reduce emissions associated with heavy-duty equipment and haul trucks. Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not generate additional emissions because no new construction activities are associated with the building at 171 Second Street. Additionally, similar to the previously evaluated/approved project, the 2026 Revised Project would comply with the San Francisco Construction Dust Control Ordinance, thereby minimizing construction-related fugitive dust.

As described in this section, construction-related criteria air pollutant emissions associated with the 2026 Revised Project would be reduced compared to the previously evaluated/approved project, due to the elimination and redesign of several project components. However, criteria air pollutant emissions are regional and, therefore, air quality effects and impacts are evaluated on the basis of a project as a whole and not only its individual parts. The 2018 Final SEIS/EIR concluded that The Portal could result in construction emissions that would exceed the significance thresholds established by the BAAQMD for nitrogen oxides (NO_x). Therefore, similar to the previously evaluated/approved project, implementation of previously adopted Mitigation Measures AC 1 through AC 15 and New-MM-C-AQ-5.1 would be required of the 2026 Revised Project. These measures, as well as the increased use and availability of equipment with engines that meet Tier 4 emission standards, would reduce construction air quality effects/impacts, including toxic air contaminant concentrations to a not adverse/less-than-significant level.

No new adverse effects/significant impacts would occur and no new or updated mitigation measures are needed to further reduce criteria air pollutant emissions during construction activities.

2.2 Operations

2.2.1 The Portal Transit Operations

Operation of The Portal would reduce overall regional emissions associated with passengers shifting from private vehicles and public buses to the electric-powered trains operating on The Portal. As discussed in the 2018 Final SEIS/EIR, the 2004 FEIS/EIR based its estimated regional emissions on the number of vehicle miles diverted from private automobiles and public buses to the electric-powered trains that would operate on The Portal. Table 2 illustrates the magnitude

of operational emissions reductions anticipated for the Transbay Program as a result of reductions in regional emissions from operation of The Portal, as evaluated in the 2004 FEIS/EIR.

Table 2. Air Pollutant Emissions Reductions Resulting from The Portal (2004 Calculations) (For Informational Purposes Only)

	ROG	NO _x	PM ₁₀	PM _{2.5}
Average Daily (pounds per day)	-329	-899	-30	-
Maximum Annual (tons per year)	-52	-142	-5	-

Source: 2004 Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project Final Environmental Impact Report/Environmental Impact Statement, Section 5.7, Table 5.7-1

Notes: - = not calculated; () = reduced emissions; NO_x = nitrogen oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases

Most of the proposed changes under the 2026 Revised Project would not affect the anticipated operation of trains for The Portal. Additionally, since adoption of the 2023 Addendum, the California High-Speed Rail Authority (CHSRA) has assessed the business case for high-speed trains stopping at the Fourth and Townsend Street Station. That analysis determined that the impact to ridership and services would be minimal if high-speed trains were to bypass the Fourth and Townsend Street Station and continue directly to the Transit Center. Consequently, the CHSRA has withdrawn its request to include the high-speed train stop at the Fourth and Townsend Street Station (CHSRA 2024). Therefore, this proposed change under the 2026 Revised Project would not result in substantial changes to associated regional operational emissions reductions, which are based on the ridership forecasts.

2.2.2 2026 Revised Project Operations

2.2.2.1 At-Grade Utility Building

Because the intercity bus facility is proposed for elimination as part of the 2026 Revised Project, mechanical and other utilities would be relocated to a new at-grade utility building on the site of the previously evaluated intercity bus facility. Operation of the new at-grade utility building would result in area source emissions that were not previously analyzed when the mechanical and other utilities were underground in the train box extension. Area source emissions are associated with periodic reapplication of architectural coatings, use of consumer products, and operation of landscaping equipment. The number of workers and associated worker trips are not expected to change because of the relocation of the utilities; therefore, operational mobile source emissions would not change from the previously evaluated/approved project and are not included in this analysis. Additionally, the at-grade utility building would be all-electric and would not generate energy source emissions associated with natural gas use. Operational area source emissions of criteria air pollutants associated with the at-grade utility building are provided in Table 3.

Table 3. At-Grade Utility Building Average Daily and Maximum Annual Operational Area Source Emissions (For Informational Purposes Only)

	ROG	NO _x	PM ₁₀	PM _{2.5}
Maximum Annual (tons per year)	0.31	0.004	0.001	0.001
Average Daily (pounds per day)	1.73	0.02	0.004	0.003
BAAQMD Threshold ¹	54	54	82	54
Exceeds Threshold?	No	No	No	No

Source: Calculated by AECOM in 2025; see Appendix A

Notes: BAAQMD = Bay Area Air Quality Management District; NO_x = nitrogen oxides; PM₁₀ = particulate matter less than 10 microns in diameter; PM_{2.5} = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases

¹ BAAQMD thresholds are presented for reference.

² Emissions are presented for informational purposes only because these emissions are for the at-grade utility building operations only and do not represent the overall 2026 Revised Project operational emissions.

Table 3 illustrates that operational emissions associated with the at-grade utility building would be minimal and well-below BAAQMD thresholds. The 2026 Revised Project’s potential effects related to federal transportation conformity are presented in Section 3. Operational emissions associated with the operation of equipment and facilities were not calculated for the previously evaluated/approved project. Although equipment associated with the relocated at-grade utility building is similar to the equipment previously housed within the train box in the 2018 Revised Project and 2023 Revised Project, a numerical comparison cannot be made to show if emissions would change with the 2026 Revised Project because emissions were not calculated for the previously evaluated/approved project for this specific project component.

Additional changes to operational activities under the 2026 Revised Project would be associated with the previously evaluated ventilation shaft, which would include an emergency generator, at the location of the at-grade utility building. Under the 2018 Final SEIS/EIR, residential uses were proposed above the intercity bus facility, which was to be sited above the train box extension. These residential uses were removed in the 2023 Revised Project, and potential impacts to such receptors were therefore eliminated. This reduced the overall potential impact of The Portal on sensitive receptors resulting from pollutant concentrations during operations.

Under the 2026 Revised Project, exhaust from the previously evaluated ventilation shaft and associated emergency generator would be emitted from an area source on the vented roof of the at-grade utility building along Natoma Street, which would provide a similar function as the previously approved ventilation structure. Consistent with the previously evaluated/approved project, these operational emissions would only occur during routine testing and maintenance and for emergency conditions, and exhaust emissions would not be vented to the surrounding area on an ongoing or frequent basis. Nevertheless, such activities could result in toxic air contaminants, including smoke during an emergency and particulates during routine testing and maintenance of the emergency generator. The location at which smoke and particulates would be vented and the dispersion characteristics of the emissions from the vented rooftop are different between the previously evaluated/approved project and the 2026 Revised Project.

Emissions associated with venting and the emergency generator (emitted from the vented rooftop of the at-grade utility building) means that the release would be over an area

(compared to the previously approved ventilation shaft, which was a “point” source) and at a higher height (a minimum of 12 feet above street level under the previously approved project and 23 feet above street level under the 2026 Revised Project). Emissions from area sources tend to have less momentum than point sources,³ resulting in slower dispersion of emissions that tend to settle closer to the emissions source. In addition, emissions released at a higher height disperse further from ground level areas where sensitive receptors, such as pedestrians passing by, may be located. The change in dispersion characteristics and location of the venting and the emergency generator emissions would not result in increased impacts to receptors located near the at-grade utility building. Furthermore, as previously described, the frequency of operational emissions from the vented rooftop of the at-grade utility building and the associated emergency generator remains unchanged from the previously evaluated/approved project.

Under the 2026 Revised Project, emissions associated with venting and the emergency generator would result in the same potentially significant impacts related to exposure of sensitive receptors to toxic air contaminant concentrations effects and impacts that were described for the previously evaluated/approved project. Previously adopted Mitigation Measure New-MM-AQ-3.1 is applicable and would reduce exposure of sensitive receptors to toxic air contaminant concentrations, thereby reducing impacts to a not adverse/less-than-significant level, which is consistent with the effect/impact conclusions for the previously evaluated/approved project. Previously adopted Mitigation Measure New-MM-AQ-3.2, which requires ventilation plans for residential development co-located with ventilation structure sites, would not be applicable to the 2026 Revised Project because the proposed building is not co-located with existing or proposed residential development. Mitigation Measure New-MM-AQ-3.2 would still apply to other previously evaluated/approved ventilation structures with co-located residential development as part of The Portal.

2.2.2.2 Other 2026 Revised Project Components

Other project modifications, including design accommodations for future high-speed rail service, which was planned for in 2004, have been previously evaluated/approved. These modifications would result in additional regional emissions reductions. The operational emissions reductions shown in Table 2 illustrate the magnitude of emissions reductions achieved in the long-term with implementation of The Portal, including the 2026 Revised Project, which substantially offset the minimal level of operational emissions associated with the at-grade utility building. Additionally, other project components, such as elimination of the intercity bus facility and removal of the high-speed rail platforms and related street- and concourse-level facilities at the Fourth and Townsend Street Station, would result in lower facility-related operational emissions under the 2026 Revised Project. Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not result in changes to facility-related operational emissions under the 2026 Revised Project.

³ Momentum is calculated based on multiplying mass by flow and dividing by area. Therefore, momentum is inversely related to area such that a larger area results in lower momentum.

2.2.2.3 2026 Revised Project Operations - Air Quality Conclusion

Overall, no new adverse effects or significant impacts to air quality would occur as a result of the 2026 Revised Project. However, previously adopted mitigation measures would still apply to other approved components of The Portal that are not being modified under the 2026 Revised Project.

3 TRANSPORTATION CONFORMITY

Transportation conformity is required under Clean Air Act Section 176(c) (42 United States Code 7506[c]) to ensure that federally supported transit project activities are consistent with the purpose of the State Implementation Plan. Conformity for the purpose of the State Implementation Plan means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant National Ambient Air Quality Standards (NAAQS).

3.1 Regional Conformity

The Portal is included in the most recent version of the regional transportation plan (Plan Bay Area 2050 as RTP ID 21-T11-110) (MTC and ABAG 2021) and the 2025 Transportation Improvement Program (as TIP ID SF-050002) (MTC and ABAG 2024). The Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) have prepared findings that Plan Bay Area 2050 and the 2065 Revised Project would conform with the latest U.S. Environmental Protection Agency transportation conformity regulations and the Bay Area Conformity State Implementation Plan, which is also known as the Bay Area Air Quality Conformity Protocol, as approved in April 2020.

This conformity finding demonstrates that the total emissions projected for Plan Bay Area 2050 are within the emission limits established by the State Implementation Plan to attain the NAAQS (MTC and ABAG 2024). Therefore, as with the previously evaluated/approved project, the 2026 Revised Project would not conflict with the applicable regional and state air quality management plans.

3.2 Project Conformity

Conformity requires a demonstration that a project would not result in new local carbon monoxide (CO) or PM_{2.5} exceedances or worsen existing violations. The assessment of project-level conformity for the 2026 Revised Project follows the same approach used for the previously evaluated/approved project.

Localized CO concentrations, or "hot spots," often occur as a result of heavy traffic congestion at signalized intersections of high-volume roadways (BAAQMD 2017). Under the 2026 Revised Project, removal of the high-speed rail platforms from the Fourth and Townsend Street Station

would shift pedestrian and vehicle activity related to high-speed rail passengers from the Fourth and Townsend Street Station to the Transit Center and Millbrae and San Francisco International Airport stations. However, similar to the determination in the 2018 Final SEIS/EIR, the 2026 Revised Project would not increase traffic volumes at any intersection in the traffic study area to more than 24,000 vehicles per hour (AECOM 2025).⁴ Additionally, the intersections in the vicinity of the 2026 Revised Project do not have enough capacity to serve the level of vehicle traffic that could cause a CO hot spot, as determined by the analysis in the 2018 Final SEIS/EIR. Therefore, the 2026 Revised Project would not result in a new CO violation and would have no adverse effect and a less-than-significant impact with respect to a CO hotspot.

A quantitative PM hot-spot analysis is required only for a project that has been identified as a Project of Air Quality Concern (POAQC), as defined in 40 Code of Federal Regulations 93.123(b)(1). The Portal was presented to the Interagency Consultation Task Force on January 24, 2013. On February 21, 2013, the Task Force determined that The Portal would not be a POAQC. This conclusion was reported in the MTC Fund Management System database, which also states that the project conformity analysis was completed (MTC 2015). The 2026 Revised Project components would not alter the definition of The Portal to make it a POAQC; therefore, a PM hotspot analysis is not required.

3.3 Construction Emissions

The elimination, deferral, and relocation of project components under the 2026 Revised Project would result in overall reduced construction-related emissions because of reduced construction activities and excavation quantities, as discussed in Section 2.1. As concluded in the 2018 Final SEIS/EIR, The Portal could result in construction emissions that would exceed the significance thresholds established by the BAAQMD for NO_x. Implementation of previously adopted Mitigation Measures AC 1 through AC 15 and New-MM-C-AQ-5.1, as well as the increased use and availability of Tier 4 engines would continue to reduce construction air emissions, including toxic air contaminant concentrations, to not adverse/less-than-significant levels. The 2026 Revised Project would not generate magnitudes of emissions that would result in new or more severe adverse effects or significant impacts relative to the previously evaluated/approved project.

4 GREENHOUSE GAS EMISSIONS

Several components of the 2026 Revised Project would result in a decrease in construction-related GHG emissions compared to the previously evaluated/approved project because of reduced construction activity levels, including elimination of the train box extension, elimination of the intercity bus facility, removal of the high-speed rail platforms and facilities at the Fourth

⁴ According to the BAAQMD and as noted in the 2018 Final SEIS/EIR, there is no potential for a CO hotspot when the project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (BAAQMD 2022).

and Townsend Street Station, and shortening of the tunnel stub box. Deferred installation of high-speed rail vertical circulation elements at the Transit Center would result in a near-term reduction of construction emissions because construction activities would occur much later in the future after construction of the 2026 Revised Project. Construction activities associated with the high-speed rail vertical circulation elements at the Transit Center would not change compared with the previously evaluated/approved project. However, when such construction does occur, emissions would be less than previously anticipated because vehicles and equipment would be replaced over time with cleaner, more fuel-efficient models. The relocation and electrification of the storage tracks within the 4th and King railyards would relocate storage tracks and would not result in a change to previously assumed construction activity levels. Acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not generate additional emissions beyond those generated during construction of the evaluated/approved project because there are no new construction activities associated with the TJPA's ownership of the building at 171 Second Street.

4.1 At-Grade Utility Building

The location of utilities in the at-grade utility building under the 2026 Revised Project would result in an overall reduction in construction-related GHG emissions because of the decrease in excavated material and the associated reduction in the operation of construction equipment and haul truck trips compared to that required for the previously evaluated underground train box utility location. However, as described in Section 2.1.2, construction activities for the at-grade utility building would require different phasing and some different methods and equipment compared to those previously analyzed for the previously evaluated/approved project. Additionally, minimal operational activities associated with the at-grade utility building, including electricity consumption, would result in a change in operational GHG emissions compared to the underground utilities under the previously evaluated/approved project. Therefore, construction and operational GHG emissions associated with the at-grade utility building are addressed quantitatively.

Construction and operational GHG emissions were modeled using the same methods and assumptions as those described in Section 2.1.2. In addition to criteria air pollutants, CalEEMod also estimates GHG emissions associated with construction and operational activities. For construction, GHG emissions were estimated for off-road equipment, material delivery trucks, haul trucks, and construction worker vehicles. For operational activities, CalEEMod estimates GHG emissions associated with area and energy sources, similar to criteria air pollutant emissions. CalEEMod also estimates indirect GHG emissions associated with electricity consumption and the use of refrigerants, such as those used in air conditioning and refrigeration equipment. Construction-related GHG emissions are provided for each year of construction activity for the at-grade utility building, and operational GHG emissions are provided on an annual basis by source category in Table 4. The GHG emission estimates in Table 4 are considered conservative and are based on the most applicable land use type in CalEEMod, as the utility building would not have on-site employees and maintenance staff would access the

building for routine inspections and maintenance activities, similar to what would be performed for the previously evaluated/approved underground utility facilities. Therefore, this facility would generate minimal waste and require minimal water, if any.

Table 4. At-Grade Utility Building Construction and Operational GHG Emissions

Emissions Source	GHG Emissions (Metric Tons CO ₂ e per Year)
Construction	
2030	174
2031	43
Operation	
Area	0.15
Energy	15.74
Refrigerants	0.43
Total Annual Operations	16.32

Notes: CO₂e = carbon dioxide equivalents; GHG = greenhouse gas

4.2 2026 Revised Project - Greenhouse Gas Emissions Conclusion

While the at-grade utility building would result in an incremental generation of GHG emissions from construction and operations, the modifications proposed as part of the 2026 Revised Project would include the elimination, relocation, or deferral of previously evaluated/approved project components and result in an overall decrease in construction-related GHG emissions compared to the previously evaluated/approved project. Additionally, consistent with the 2018 Final SEIS/EIR, construction-related GHG emissions would be offset by the long-term benefit of reduced GHG emissions because of increases in the number of public transit passengers who otherwise would be using privately owned vehicles. Future operation of the 2026 Revised Project would be consistent with statewide goals to enhance transit connectivity and displace on-road passenger vehicle trips and would not result in an adverse effect or significant impact related to global climate change. Overall, the 2026 Revised Project would result in a beneficial net reduction in GHG emissions. No new or more severe adverse effects or significant impacts would occur, and no new or updated mitigation measures are needed to control GHG emissions.

5 CONCLUSION

The changes associated with the 2026 Revised Project would not result in new or more severe adverse air quality or GHG effects or significant impacts. For air quality, implementation of previously adopted Mitigation Measures AC 1 through AC 15 and New-MM-C-AQ-5.1, as well as the increased use and availability of equipment with engines that meet Tier 4 emission standards, would reduce construction air quality effects and impacts, including toxic air contaminant concentrations to a not adverse/less-than-significant level during construction of

the 2026 Revised Project. During operations, emissions associated with the at-grade utility building would require implementation of the previously adopted Mitigation Measure New-MM-AQ-3.1 to reduce effects and impacts to a not adverse/less-than-significant level. For GHG, the 2026 Revised Project would result in a beneficial net reduction in GHG emissions and no adverse effects or significant impacts would occur.

The 2026 Revised Project would not result in new or more severe adverse air quality or GHG emissions effects or significant impacts compared with those disclosed for the previously evaluated/approved project. Therefore, no new or updated mitigation measures would be needed to further reduce air quality and GHG effects or impacts.

The results of this assessment of the 2026 Revised Project for air quality and GHG are consistent with the effect and impact conclusions disclosed for the previously evaluated/approved project.

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APPENDIX A

Emissions Modeling and Outputs

The Portal - Aboveground Utility Building - Emissions Summary

Mitigated Total and Average Daily Construction-Related Emissions of Criteria Air Pollutants and Precursors

Year	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust
Total (tons)	0.13	0.70	0.02	0.02
Average Daily (lb/day)	0.99	5.39	0.17	0.15

Notes:

1. 347 total workdays.

Unmitigated Maximum Daily and Annual Operational Emissions of Criteria Air Pollutants and Precursors

Source	ROG	NOX	PM10	PM2.5
Maximum Annual (tons/year)	0.31	0.004	0.001	0.001
Threshold	10.00	10.00	15.00	10.00
Average Daily (lb/day)	1.73	0.02	0.004	0.003
Threshold	54.00	54.00	82.00	54.00

Notes:

1. 365 operational days per year

Construction GHG Emissions

Construction Year	MT CO2e per year
2030	174
2031	43

Operational GHG Emissions

Source	MT CO2e per year
Area	0.15
Energy	15.74
Refrigerants	0.43
Total Operational Emissions	16.32

The Portal - Aboveground Utility Building - CalEEMod Inputs

Project Characteristics	Input	Notes
Project Name	The Portal	
Project Location	San Francisco	Zip Code: 94105
CEC CA Electricity Demand Forecast Zone	1	
Land Use Setting	Urban	
Construction Start Date	1/1/2030	
Operational Year	2032	
Utility	PG&E	

acre	sq ft
1	43560

Project Component	CalEEMod Land Use Type	CalEEMod Land Use Subtype	Unit	Size	Acres	Building Square Footage	Landscaped Area (sq ft)	Notes
Utility Building	Industrial	General Light Industry	1000 sf	11.90	0.27	10,000	0	Site size based on 140x85 feet. Building dimensions from PD
Parking	Parking	Other Asphalt Surfaces	1000 sf	2.90	0.00	0	0	Measured in Google Earth
Paved Sidewalks	Parking	Other Non-Asphalt Surfaces	1000 sf	2.50	0.00	0.00	0	Measured in Google Earth

Construction Inputs

- Construction of utility building anticipated to occur over 1 year, 4 month duration.
- Default CalEEMod construction phasing was scaled up to match the overall project duration
- Construction equipment inputs and construction vehicle trips used defaults
- Demolition and material export quantities input based on project details as shown below

	Start Date	End Date
	1/1/2030	4/30/2031
Construction Work Days	1 year 4 months per RFI for utility building	5 days/week
2030	261	12/31/2030
2031	86	1/1/2031
Total	347	

Construction Phases - Default

Phase	CalEEMod Default Duration (work days)	Scaled Project Duration (work days)	Construction Start Date	Construction End Date
Site Preparation	10	28	1/1/2030	2/7/2030
Demolition	1	3	2/8/2030	2/12/2030
Grading	2	6	2/13/2030	2/20/2030
Building Construction	100	282	2/21/2030	3/21/2031
Architectural Coating	5	14	3/22/2031	4/10/2031
Paving	5	14	4/11/2031	4/30/2031
	123	347		

CalEEMod Material Import/Export

Phase	Import (cy)	Export (cy)	Demo (tons)	Notes
Demolition			1113	~12000 sf * 2 feet deep = 24000 cf = 890 cy
Grading		1200		

Notes:
1.25 short tons per cubic yard

Paved Area

Phase	Area (sf)	Area (acres)	Material	Notes
Parking	2,900	0.067	Asphalt	Per RFI, area between building and eastern property line will be paved for parking. Measured in Google Earth
Sidewalk	2,500	0.057	Concrete	Per RFI, new sidewalk installed on Beale Street and Natoma Street. Conservatively assumes new sidewalk along both streets measuring the length of the building and the existing sidewalk width as measured in Google Ear

Operational Inputs

- No change to operational worker vehicle trips with Revised Project. Assume 0 operational trips.
- No natural gas. Utility building CalEEMod default electricity consumption updated based on conversion of energy assumed to be provided by natural gas to electricity (see below).
- Default water, waste, and refrigerant usage
- No change to emergency generator use with Revised Project. Emissions from emergency generator would not change and therefore, it was not modeled.

Project Component	CalEEMod Land Use Type	CalEEMod Land Use Subtype	Default		Natural Gas converted to Electricity (KWh/year)	All-Electric Electricity Demand (kWh/year)
			Electricity Consumption (kwh/year)	Natural Gas (KBTU/yr)		
Utility Building	Industrial	General Light Industry	109,101.46	437,891.06	59,345.87	168,447.33

Notes:
1. No natural gas use onsite.

The Portal - Utility Building Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	The Portal - Utility Building
Construction Start Date	1/1/2030
Operational Year	2032
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.90
Precipitation (days)	2.60
Location	37.7907418621901, -122.39489061612099
County	San Francisco
City	San Francisco
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1012
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	11.9	1000sqft	0.27	10,000	0.00	0.00	—	—

Other Asphalt Surfaces	2.90	1000sqft	0.07	0.00	0.00	—	—	—
Other Non-Asphalt Surfaces	2.50	1000sqft	0.06	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.68	7.66	4.07	7.06	0.01	0.13	0.14	0.28	0.12	0.03	0.16	—	1,381	1,381	0.06	0.02	0.30	1,388
Mit.	7.68	7.66	4.07	7.06	0.01	0.13	0.14	0.28	0.12	0.03	0.16	—	1,381	1,381	0.06	0.02	0.30	1,388
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.49	0.98	10.4	12.6	0.03	0.36	5.88	6.24	0.34	2.72	3.06	—	3,574	3,574	0.40	0.31	0.07	3,676
Mit.	1.49	0.98	10.4	12.6	0.03	0.36	2.63	2.99	0.34	1.16	1.49	—	3,574	3,574	0.40	0.31	0.07	3,676
% Reduced	—	—	—	—	—	—	55%	52%	—	58%	51%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.41	0.38	3.06	5.11	0.01	0.09	0.22	0.31	0.09	0.07	0.16	—	1,040	1,040	0.06	0.03	0.10	1,049
Mit.	0.41	0.38	3.06	5.11	0.01	0.09	0.14	0.23	0.09	0.04	0.13	—	1,040	1,040	0.06	0.03	0.10	1,049
% Reduced	—	—	—	—	—	—	37%	26%	—	43%	19%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.07	0.56	0.93	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	172	172	0.01	< 0.005	0.02	174
Mit.	0.07	0.07	0.56	0.93	< 0.005	0.02	0.03	0.04	0.02	0.01	0.02	—	172	172	0.01	< 0.005	0.02	174
% Reduced	—	—	—	—	—	—	37%	26%	—	43%	19%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.54	0.45	4.07	7.06	0.01	0.13	0.05	0.18	0.12	0.01	0.13	—	1,381	1,381	0.06	0.02	0.15	1,388
2031	7.68	7.66	3.87	5.77	0.01	0.13	0.14	0.28	0.12	0.03	0.16	—	966	966	0.04	0.01	0.30	970
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.49	0.98	10.4	12.6	0.03	0.36	5.88	6.24	0.34	2.72	3.06	—	3,574	3,574	0.40	0.31	0.07	3,676
2031	0.57	0.49	3.92	7.02	0.01	0.13	0.14	0.28	0.12	0.03	0.16	—	1,378	1,378	0.06	0.02	0.01	1,384
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.41	0.33	3.06	5.11	0.01	0.09	0.22	0.31	0.09	0.07	0.16	—	1,040	1,040	0.06	0.03	0.10	1,049
2031	0.40	0.38	0.79	1.36	< 0.005	0.02	0.01	0.04	0.02	< 0.005	0.03	—	258	258	0.01	< 0.005	0.01	259
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2030	0.07	0.06	0.56	0.93	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	172	172	0.01	< 0.005	0.02	174
2031	0.07	0.07	0.14	0.25	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	42.7	42.7	< 0.005	< 0.005	< 0.005	42.9

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.54	0.45	4.07	7.06	0.01	0.13	0.05	0.18	0.12	0.01	0.13	—	1,381	1,381	0.06	0.02	0.15	1,388
2031	7.68	7.66	3.87	5.77	0.01	0.13	0.14	0.28	0.12	0.03	0.16	—	966	966	0.04	0.01	0.30	970
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	1.49	0.98	10.4	12.6	0.03	0.36	2.63	2.99	0.34	1.16	1.49	—	3,574	3,574	0.40	0.31	0.07	3,676
2031	0.57	0.49	3.92	7.02	0.01	0.13	0.14	0.28	0.12	0.03	0.16	—	1,378	1,378	0.06	0.02	0.01	1,384
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.41	0.33	3.06	5.11	0.01	0.09	0.14	0.23	0.09	0.04	0.13	—	1,040	1,040	0.06	0.03	0.10	1,049
2031	0.40	0.38	0.79	1.36	< 0.005	0.02	0.01	0.04	0.02	< 0.005	0.03	—	258	258	0.01	< 0.005	0.01	259
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	0.07	0.06	0.56	0.93	< 0.005	0.02	0.03	0.04	0.02	0.01	0.02	—	172	172	0.01	< 0.005	0.02	174
2031	0.07	0.07	0.14	0.25	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	42.7	42.7	< 0.005	< 0.005	< 0.005	42.9

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	13.2	106	119	1.35	0.01	2.60	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.2	104	117	1.35	0.01	2.60	158
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.28	< 0.005	0.21	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	13.2	105	118	1.35	0.01	2.60	159
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	2.19	17.4	19.6	0.22	< 0.005	0.43	26.3

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.79	1.79	< 0.005	< 0.005	—	1.79
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	94.1	94.1	0.02	< 0.005	—	95.1
Water	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Waste	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	13.2	106	119	1.35	0.01	2.60	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	94.1	94.1	0.02	< 0.005	—	95.1
Water	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Waste	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.2	104	117	1.35	0.01	2.60	158
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.28	0.28	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.88	0.88	< 0.005	< 0.005	—	0.89
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	94.1	94.1	0.02	< 0.005	—	95.1
Water	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Waste	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	0.28	0.28	< 0.005	0.21	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	13.2	105	118	1.35	0.01	2.60	159
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Water	—	—	—	—	—	—	—	—	—	—	—	0.87	1.65	2.52	0.09	< 0.005	—	5.41
Waste	—	—	—	—	—	—	—	—	—	—	—	1.32	0.00	1.32	0.13	0.00	—	4.61
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	2.19	17.4	19.6	0.22	< 0.005	0.43	26.3

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.79	1.79	< 0.005	< 0.005	—	1.79
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	94.1	94.1	0.02	< 0.005	—	95.1
Water	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Waste	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	13.2	106	119	1.35	0.01	2.60	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	94.1	94.1	0.02	< 0.005	—	95.1
Water	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Waste	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.2	104	117	1.35	0.01	2.60	158
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.28	0.28	< 0.005	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.88	0.88	< 0.005	< 0.005	—	0.89
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	94.1	94.1	0.02	< 0.005	—	95.1
Water	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Waste	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	0.28	0.28	< 0.005	0.21	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	13.2	105	118	1.35	0.01	2.60	159
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15

Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Water	—	—	—	—	—	—	—	—	—	—	—	0.87	1.65	2.52	0.09	< 0.005	—	5.41
Waste	—	—	—	—	—	—	—	—	—	—	—	1.32	0.00	1.32	0.13	0.00	—	4.61
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	2.19	17.4	19.6	0.22	< 0.005	0.43	26.3

3. Construction Emissions Details

3.1. Demolition (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.66	5.54	0.01	0.09	—	0.09	0.08	—	0.08	—	851	851	0.03	0.01	—	854
Demolition	—	—	—	—	—	—	0.90	0.90	—	0.14	0.14	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	65.3	65.3	< 0.005	< 0.005	—	65.5

Demolition	—	—	—	—	—	—	0.07	0.07	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.8	10.8	< 0.005	< 0.005	—	10.8
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.3	78.3	< 0.005	< 0.005	0.01	78.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.15	0.02	1.10	1.11	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	718	718	0.13	0.12	0.03	756
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.02	6.02	< 0.005	< 0.005	0.01	6.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.08	0.08	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.1	55.1	0.01	0.01	0.03	58.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.00	1.00	< 0.005	< 0.005	< 0.005	1.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.12	9.12	< 0.005	< 0.005	0.01	9.61

3.2. Demolition (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	0.39	3.66	5.54	0.01	0.09	—	0.09	0.08	—	0.08	—	851	851	0.03	0.01	—	854
Demolition	—	—	—	—	—	—	0.58	0.58	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.28	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	65.3	65.3	< 0.005	< 0.005	—	65.5
Demolition	—	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.8	10.8	< 0.005	< 0.005	—	10.8
Demolition	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.26	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	78.3	78.3	< 0.005	< 0.005	0.01	78.6	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.15	0.02	1.10	1.11	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	718	718	0.13	0.12	0.03	756	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.02	6.02	< 0.005	< 0.005	0.01	6.04	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.01	< 0.005	0.08	0.08	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	55.1	55.1	0.01	0.01	0.03	58.1	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.00	1.00	< 0.005	< 0.005	< 0.005	1.00	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	9.12	9.12	< 0.005	< 0.005	0.01	9.61	

3.3. Site Preparation (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.43	0.36	2.81	5.58	0.01	0.13	—	0.13	0.12	—	0.12	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.06	7.06	< 0.005	< 0.005	—	7.08
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.17	1.17	< 0.005	< 0.005	—	1.17
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.2	39.2	< 0.005	< 0.005	< 0.005	39.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.36	2.81	5.58	0.01	0.13	—	0.13	0.12	—	0.12	—	858	858	0.03	0.01	—	861

Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.06	7.06	< 0.005	< 0.005	—	7.08
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.17	1.17	< 0.005	< 0.005	—	1.17
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	39.2	39.2	< 0.005	< 0.005	< 0.005	39.3

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.05	0.05	< 0.005	< 0.005	< 0.005	0.05
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	7.60	9.61	0.02	0.34	—	0.34	0.31	—	0.31	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movement	—	—	—	—	—	—	5.33	5.33	—	2.57	2.57	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.12	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.2	28.2	< 0.005	< 0.005	—	28.3
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.66	4.66	< 0.005	< 0.005	—	4.68
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.7	58.7	< 0.005	< 0.005	< 0.005	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.38	0.04	2.77	2.77	0.01	0.02	0.49	0.51	0.02	0.14	0.16	—	1,802	1,802	0.33	0.29	0.07	1,898
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.97	0.97	< 0.005	< 0.005	< 0.005	0.97

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.04	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.6	29.6	0.01	< 0.005	0.02	31.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.16
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.17

3.6. Grading (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.92	7.60	9.61	0.02	0.34	—	0.34	0.31	—	0.31	—	1,714	1,714	0.07	0.01	—	1,720
Dust From Material Movement	—	—	—	—	—	—	2.08	2.08	—	1.00	1.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.12	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.2	28.2	< 0.005	< 0.005	—	28.3

Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.66	4.66	< 0.005	< 0.005	—	4.68
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.01	0.19	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.7	58.7	< 0.005	< 0.005	< 0.005	58.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.38	0.04	2.77	2.77	0.01	0.02	0.49	0.51	0.02	0.14	0.16	—	1,802	1,802	0.33	0.29	0.07	1,898
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.97	0.97	< 0.005	< 0.005	< 0.005	0.97
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.04	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.6	29.6	0.01	< 0.005	0.02	31.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.16

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.90	4.90	< 0.005	< 0.005	< 0.005	5.17

3.7. Building Construction (2030) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.01	6.89	0.01	0.13	—	0.13	0.12	—	0.12	—	1,304	1,304	0.05	0.01	—	1,309	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.01	6.89	0.01	0.13	—	0.13	0.12	—	0.12	—	1,304	1,304	0.05	0.01	—	1,309	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.46	4.23	0.01	0.08	—	0.08	0.07	—	0.07	—	801	801	0.03	0.01	—	804	
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.06	0.05	0.45	0.77	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.8	34.8	< 0.005	< 0.005	0.08	34.9
Vendor	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	0.01	0.01	0.07	44.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.9	32.9	< 0.005	< 0.005	< 0.005	33.0
Vendor	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	0.01	0.01	< 0.005	44.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.2	20.2	< 0.005	< 0.005	0.02	20.3
Vendor	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.2	26.2	< 0.005	< 0.005	0.02	27.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.35	3.35	< 0.005	< 0.005	< 0.005	3.37
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.33	4.33	< 0.005	< 0.005	< 0.005	4.54
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2030) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.01	6.89	0.01	0.13	—	0.13	0.12	—	0.12	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	4.01	6.89	0.01	0.13	—	0.13	0.12	—	0.12	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.46	4.23	0.01	0.08	—	0.08	0.07	—	0.07	—	801	801	0.03	0.01	—	804
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.45	0.77	< 0.005	0.01	—	0.01	0.01	—	0.01	—	133	133	0.01	< 0.005	—	133
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.12	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.8	34.8	< 0.005	< 0.005	0.08	34.9
Vendor	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	0.01	0.01	0.07	44.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.9	32.9	< 0.005	< 0.005	< 0.005	33.0
Vendor	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	42.6	42.6	0.01	0.01	< 0.005	44.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	< 0.005	0.06	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.2	20.2	< 0.005	< 0.005	0.02	20.3
Vendor	< 0.005	< 0.005	0.04	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.2	26.2	< 0.005	< 0.005	0.02	27.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.35	3.35	< 0.005	< 0.005	< 0.005	3.37
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.33	4.33	< 0.005	< 0.005	< 0.005	4.54
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.51	0.43	3.85	6.87	0.01	0.12	—	0.12	0.11	—	0.11	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.60	1.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	204	204	0.01	< 0.005	—	205
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	< 0.005	32.7
Vendor	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.0	41.0	< 0.005	0.01	< 0.005	42.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.11	5.11	< 0.005	< 0.005	< 0.005	5.13
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.42	6.42	< 0.005	< 0.005	< 0.005	6.72
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.85
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.11
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.43	3.85	6.87	0.01	0.12	—	0.12	0.11	—	0.11	—	1,304	1,304	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.60	1.08	< 0.005	0.02	—	0.02	0.02	—	0.02	—	204	204	0.01	< 0.005	—	205
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.8	33.8	< 0.005	< 0.005	—	33.9

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.6	32.6	< 0.005	< 0.005	< 0.005	32.7	
Vendor	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	41.0	41.0	< 0.005	0.01	< 0.005	42.9	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.11	5.11	< 0.005	< 0.005	< 0.005	5.13	
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.42	6.42	< 0.005	< 0.005	< 0.005	6.72	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.85	
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.06	1.06	< 0.005	< 0.005	< 0.005	1.11	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	

3.11. Paving (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.52	0.44	3.85	5.29	0.01	0.13	—	0.13	0.12	—	0.12	—	823	823	0.03	0.01	—	826
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.85	5.29	0.01	0.13	—	0.13	0.12	—	0.12	—	823	823	0.03	0.01	—	826
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.20	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	31.6	31.6	< 0.005	< 0.005	—	31.7
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.23	5.23	< 0.005	< 0.005	—	5.24
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.48	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	143	143	< 0.005	< 0.005	0.30	144
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.43	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	136	136	< 0.005	< 0.005	0.01	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.21	5.21	< 0.005	< 0.005	0.01	5.23
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Paving (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.52	0.44	3.85	5.29	0.01	0.13	—	0.13	0.12	—	0.12	—	823	823	0.03	0.01	—	826
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.85	5.29	0.01	0.13	—	0.13	0.12	—	0.12	—	823	823	0.03	0.01	—	826
Paving	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.15	0.20	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	31.6	31.6	< 0.005	< 0.005	—	31.7
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.23	5.23	< 0.005	< 0.005	—	5.24
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.02	0.48	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	143	143	< 0.005	< 0.005	0.30	144
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.03	0.43	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	136	136	< 0.005	< 0.005	0.01	136
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.21	5.21	< 0.005	< 0.005	0.01	5.23
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.86	0.86	< 0.005	< 0.005	< 0.005	0.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Architectural Coating (2031) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	7.56	7.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.12	5.12	< 0.005	< 0.005	—	5.14
Architectural Coatings	0.29	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.85	0.85	< 0.005	< 0.005	—	0.85
Architectural Coatings	0.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	6.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.25
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.14. Architectural Coating (2031) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.78	1.10	< 0.005	0.01	—	0.01	0.01	—	0.01	—	134	134	0.01	< 0.005	—	134

Architectural Coating	7.56	7.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.12	5.12	< 0.005	< 0.005	—	5.14
Architectural Coatings	0.29	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.85	0.85	< 0.005	< 0.005	—	0.85
Architectural Coatings	0.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.88	6.88	< 0.005	< 0.005	0.01	6.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.25	0.25	< 0.005	< 0.005	< 0.005	0.25	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.04	0.04	< 0.005	< 0.005	< 0.005	0.04	
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	15.6	15.6	< 0.005	< 0.005	—	15.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	15.6	15.6	< 0.005	< 0.005	—	15.7

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	94.1	94.1	0.02	< 0.005	—	95.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	15.6	15.6	< 0.005	< 0.005	—	15.7

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	15.6	15.6	< 0.005	< 0.005	—	15.7

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Product	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.07	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.79	1.79	< 0.005	< 0.005	—	1.79
Total	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.79	1.79	< 0.005	< 0.005	—	1.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Total	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.07	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.79	1.79	< 0.005	< 0.005	—	1.79
Total	0.32	0.31	< 0.005	0.43	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.79	1.79	< 0.005	< 0.005	—	1.79
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.21	0.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.24	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	0.01	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Total	0.05	0.05	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.87	1.65	2.52	0.09	< 0.005	—	5.41
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.87	1.65	2.52	0.09	< 0.005	—	5.41

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.27	9.96	15.2	0.54	0.01	—	32.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.87	1.65	2.52	0.09	< 0.005	—	5.41
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.87	1.65	2.52	0.09	< 0.005	—	5.41

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1.32	0.00	1.32	0.13	0.00	—	4.61
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.32	0.00	1.32	0.13	0.00	—	4.61

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.95	0.00	7.95	0.79	0.00	—	27.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1.32	0.00	1.32	0.13	0.00	—	4.61

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1.32	0.00	1.32	0.13	0.00	—	4.61

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e	
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43	—

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.60	2.60
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.43	0.43

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm ent Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2030	2/7/2030	5.00	28.0	—
Site Preparation	Site Preparation	2/8/2030	2/12/2030	5.00	3.00	—
Grading	Grading	2/13/2030	2/20/2030	5.00	6.00	—
Building Construction	Building Construction	2/21/2030	3/21/2031	5.00	282	—
Paving	Paving	3/22/2031	4/10/2031	5.00	14.0	—
Architectural Coating	Architectural Coating	4/11/2031	4/30/2031	5.00	14.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Back hoes	Diesel	Average	2.00	6.00	84.0	0.37

Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Back hoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Back hoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40

Grading	Tractors/Loaders/Back	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Back hoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	9.96	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	11.7	LDA,LDT1,LDT2

Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	25.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	4.20	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	1.64	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.84	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	9.96	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	11.7	LDA,LDT1,LDT2

Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	25.0	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	4.20	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	1.64	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.84	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	15,000	5,000	324

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	1,113	—
Site Preparation	—	—	1.50	0.00	—
Grading	—	1,200	1.50	0.00	—
Paving	0.00	0.00	0.00	0.00	0.12

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Light Industry	0.00	0%
Other Asphalt Surfaces	0.07	100%
Other Non-Asphalt Surfaces	0.06	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2030	0.00	204	0.03	< 0.005

2031	0.00	204	0.03	< 0.005
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5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMТ/Weekday	VMТ/Saturday	VMТ/Sunday	VMТ/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMТ/Weekday	VMТ/Saturday	VMТ/Sunday	VMТ/Year
Total all Land Uses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	15,000	5,000	324

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	168,447	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	168,447	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	2,751,875	0.00
Other Asphalt Surfaces	0.00	0.00

Other Non-Asphalt Surfaces	0.00	0.00
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5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	2,751,875	0.00
Other Asphalt Surfaces	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	14.8	—
Other Asphalt Surfaces	0.00	—
Other Non-Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	14.8	—
Other Asphalt Surfaces	0.00	—
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
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5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
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5.17. User Defined

Equipment Type	Fuel Type
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5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.86	annual days of extreme heat
Extreme Precipitation	7.45	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	4.41	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about $\frac{3}{4}$ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.12
AQ-PM	27.9

AQ-DPM	99.8
Drinking Water	15.0
Lead Risk Housing	1.85
Pesticides	0.00
Toxic Releases	47.6
Traffic	91.8
Effect Indicators	—
CleanUp Sites	91.9
Groundwater	63.4
Haz Waste Facilities/Generators	98.9
Impaired Water Bodies	96.3
Solid Waste	0.00
Sensitive Population	—
Asthma	21.4
Cardio-vascular	1.86
Low Birth Weights	73.1
Socioeconomic Factor Indicators	—
Education	12.0
Housing	7.69
Linguistic	29.5
Poverty	22.0
Unemployment	33.6

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	75.36250481

Employed	70.51199795
Median HI	94.62337996
Education	—
Bachelor's or higher	96.6508405
High school enrollment	100
Preschool enrollment	83.99846016
Transportation	—
Auto Access	1.860644168
Active commuting	99.29423842
Social	—
2-parent households	18.55511356
Voting	64.28846401
Neighborhood	—
Alcohol availability	4.516874118
Park access	38.71423072
Retail density	99.85884768
Supermarket access	94.25125112
Tree canopy	46.10547928
Housing	—
Homeownership	26.45964327
Housing habitability	46.20813551
Low-inc homeowner severe housing cost burden	95.26498139
Low-inc renter severe housing cost burden	88.90029514
Uncrowded housing	51.23829077
Health Outcomes	—
Insured adults	90.15783395
Arthritis	98.0
Asthma ER Admissions	90.0

High Blood Pressure	97.8
Cancer (excluding skin)	80.0
Asthma	94.4
Coronary Heart Disease	98.1
Chronic Obstructive Pulmonary Disease	98.8
Diagnosed Diabetes	98.4
Life Expectancy at Birth	83.6
Cognitively Disabled	28.0
Physically Disabled	69.8
Heart Attack ER Admissions	96.5
Mental Health Not Good	95.0
Chronic Kidney Disease	98.6
Obesity	95.3
Pedestrian Injuries	98.8
Physical Health Not Good	99.1
Stroke	98.4
Health Risk Behaviors	—
Binge Drinking	3.0
Current Smoker	87.1
No Leisure Time for Physical Activity	98.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	24.8
Children	68.4
Elderly	90.0
English Speaking	44.1
Foreign-born	86.4
Outdoor Workers	94.4

Climate Change Adaptive Capacity	—
Impervious Surface Cover	0.6
Traffic Density	66.9
Traffic Access	87.4
Other Indices	—
Hardship	0.3
Other Decision Support	—
2016 Voting	84.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	28.0
Healthy Places Index Score for Project Location (b)	95.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
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Land Use	Based on PD and measured in Google Earth
Operations: Energy Use	No natural gas.
Construction: Construction Phases	Scaled default phase durations based on 1 year and 4 month utility building construction duration
Construction: Dust From Material Movement	Updated excavation quantity for aboveground utility building

Appendix D

Noise and Vibration Technical Memorandum

Memorandum

To: Alana Callagy, Project Coordination Manager, Transbay Joint Powers Authority (TJPA)

Through: Stephen Polechronis, Program Contract Manager, AECOM

From: Laura Dito, Senior Environmental Planner, AECOM

Date: February 24, 2026

Subject: Noise and Vibration Technical Memorandum

Summary

This Noise and Vibration Technical Memorandum analyzes the potential for proposed changes to The Portal to result in new or more severe environmental effects or impacts than those identified for the previously evaluated/approved project. The proposed changes, referred to as the "2026 Revised Project," include eliminating the train box extension at the Salesforce Transit Center (Transit Center) and moving underground utilities to a new at-grade utility building, eliminating the intercity bus facility, deferring installation of high-speed rail vertical circulation elements at the Transit Center, modifying the Fourth and Townsend Street Station design to remove the high-speed rail platforms and related facilities, shortening the tunnel stub box, relocating and electrifying storage tracks within the 4th and King railyards, and the acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction. Section 1 of this technical memorandum describes the changes proposed as part of the 2026 Revised Project.

As compared to the previously evaluated/approved project, the 2026 Revised Project would generate less intensive construction activities with a shorter construction duration and lower peak noise and vibration levels. Temporary construction noise impacts could occur, particularly during demolition and grading for the at-grade utility building and relocated storage tracks; however, these would be reduced to not adverse and less than significant with implementation of previously adopted Mitigation Measures NoiC-1 through NoiC-6.

Operational noise and vibration associated with the at-grade utility building and relocated storage tracks would remain below applicable thresholds and would not result in adverse effects or significant impacts. The deferral or elimination of other components would either lessen or remove the noise and vibration construction and operations effects and impacts as compared with the previously evaluated/approved project.

The 2026 Revised Project would not result in new or more severe adverse noise and vibration effects or significant impacts than previously evaluated and new or amended mitigation measures would not be required. The conclusions presented in this memorandum for the 2026 Revised Project are consistent with the effect and impact conclusions of the previously evaluated/approved project.

1 INTRODUCTION

The Transbay Joint Powers Authority (TJPA), in cooperation with the Federal Transit Administration (FTA), proposes to develop The Portal, formerly known as the Downtown Rail Extension (DTX), Phase 2 of the Transbay Program in San Francisco, California. The Portal would extend Caltrain service to the Salesforce Transit Center (Transit Center), which was constructed under Phase 1 of the Transbay Program. The TJPA identified revisions to The Portal during further design phases since certification of the Transbay Program in 2004 (FTA and TJPA 2004) and FTA approval for the Transbay Program in 2005 (FTA 2005). In 2018, the TJPA and FTA prepared a joint Supplemental EIS/EIR (2018 Final SEIS/EIR) to evaluate proposed changes to the approved 2004 Transbay Program, as amended (FTA and TJPA 2018). On July 22, 2019, the FTA issued the Amended Record of Decision approving the changes (FTA 2019). In 2023, a California Environmental Quality Act (CEQA) Addendum and National Environmental Policy Act (NEPA) Re-evaluation (2023 Addendum/Re-evaluation) were approved for further proposed changes to The Portal (TJPA 2023a/2023b). On June 9, 2023, the FTA issued a letter concurring with the TJPA that the proposed changes were not substantial and would not cause significant environmental impacts that were not previously evaluated (FTA 2023).

Since 2023, the TJPA and its partners have identified components to be modified, removed, or deferred to reduce capital costs while still meeting the overall purpose and need, as stated in the 2018 Final SEIS/EIR. These changes comprise the proposed “2026 Revised Project” analyzed in this technical memorandum and are as follows:

- ◆ Eliminating the train box extension at the Transit Center and moving utilities from the below-grade train box to a new at-grade utility building
- ◆ Eliminating the deferred intercity bus facility and replacing a street-level entrance/exit pavilion with a public lobby and additional vertical circulation on the west side of Beale Street at the Transit Center
- ◆ Deferring installation of high-speed rail vertical circulation elements at the Transit Center
- ◆ Modifying the Fourth and Townsend Street Station design by removing the high-speed rail platforms and related concourse-level facilities
- ◆ Shortening the tunnel stub box
- ◆ Relocating and electrifying storage tracks within the 4th and King railyards from the northern side of the railyards to the southern side

- ◆ Acquisition by TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction

This memorandum analyzes the potential for the 2026 Revised Project to result in new or more severe noise and vibration effects and impacts, as compared to the previously evaluated/approved project.

The proposed changes, developed through ongoing design coordination and value engineering efforts by the TJPA and its partners, include changes to infrastructure siting and operational elements that have the potential to affect nearby noise-sensitive receptors, such as residents and users of public parks. The closest sensitive receptors to the 2026 Revised Project components evaluated in this memo are located approximately 100 to 300 feet from the 2026 Revised Project components (see Section 5.2 for a discussion of noise-sensitive receptors).

The at-grade utility building and the relocated and electrified storage tracks have been identified for detailed analysis because they would introduce new or relocated infrastructure elements with the potential to generate construction and operational noise or vibration near sensitive receptors. Other components of the 2026 Revised Project, including the elimination of the Transit Center train box extension, deferral of high-speed rail facilities at the Transit Center, removal of high-speed rail platforms and related concourse-level facilities at the Fourth and Townsend Street Station, and reduction of the tunnel stub box, would lessen overall construction activities and associated noise and vibration effects and impacts compared to the previously evaluated/approved project and are not analyzed in this memorandum. Additionally, the acquisition by TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction are not anticipated to result in new or more severe adverse effects or significant impacts than those described for the previously evaluated/approved project and are, therefore, not analyzed in this memorandum. Descriptions of the two project components that could result in noise or vibration effects and impacts follow:

- ◆ **Construction of an At-Grade Utility Building, a Mechanical Facility (Stationary Source):** The 2026 Revised Project includes relocating mechanical, electrical, and air conditioning equipment from a previously approved underground location within the Transit Center train box to a new at-grade utility building, which would replace a previously evaluated/approved ventilation structure and the previously deferred intercity bus facility. The at-grade utility building, considered a stationary source of noise, would be located within 300 feet of residences and 100 to 300 feet of public parks (see Section 5.2, Noise Survey). The FTA's *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) identifies a screening distance of 100 to 200 feet for stationary sources, depending on the presence of a clear line-of-sight to sensitive receptors. Given the proximity to such uses, a detailed assessment has been prepared.
- ◆ **Relocation and Electrification of Storage Tracks within the 4th and King Railyards:** Under proposed 2026 Revised Project, conventional diesel storage tracks would be relocated from the northern side to the southern side of the 4th and King railyards, adjacent to a multi-unit residential building. The removal of the storage tracks on the northern side of the 4th and

King railyards had been considered in the previously evaluated/approved project. The 2026 Revised Project proposes the replacement location for storage tracks on the southern side of the railyards, which necessitates the replacement of an additional three conventional storage tracks. These new replacement storage tracks would be electrified. This change necessitates a quantitative assessment of both construction and operational noise and vibration to determine if adverse effects or significant impacts to sensitive receptors would occur.

The remainder of this memorandum is organized into five main sections:

- ◆ **Noise Fundamentals and Descriptors:** Provides an overview of how noise is generated, propagated, and is perceived by the human ear
- ◆ **Vibration Fundamentals and Descriptors:** Explains the nature of vibration, how it is transmitted, and its potential effects on structures and people
- ◆ **Regulatory Setting:** Summarizes applicable federal, state, and local regulations and guidelines governing noise and vibration, and establishes the framework for evaluating project impacts
- ◆ **Existing Conditions:** Describes the existing acoustic environment, including noise- and vibration-sensitive receptors in the vicinity of the 2026 Revised Project site, and presents results of baseline field measurements
- ◆ **Impact Analysis:** Assesses potential construction and operational noise and vibration impacts based on current project design and representative equipment assumptions

Appendix A contains calculation worksheets and modeling results for existing, construction, and operational scenarios. Appendix B contains field noise measurement data and photographs of the monitoring locations, including sound level meter (SLM) setup and surrounding context.

2 NOISE FUNDAMENTALS AND DESCRIPTORS

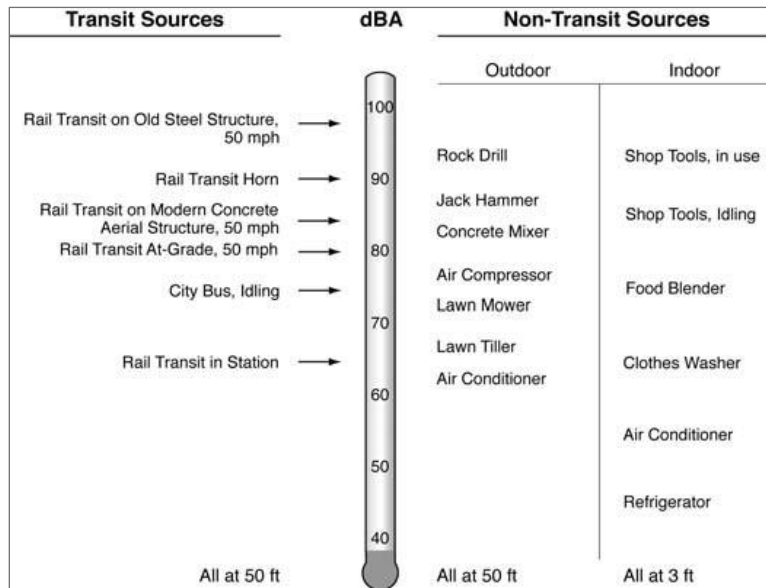
This section provides an overview of general noise concepts relevant to the 2026 Revised Project, including temporary construction noise and noise related to operations. Detailed assessments of construction and operational noise related to 2026 Revised Project noise sources are provided in Sections 6.2.1 and 6.2.2, respectively.

Noise is unwanted sound. Sound is measured in terms of sound pressure level and is usually expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to mid-range frequencies. All noise ordinances, and this noise analysis, use the A-weighted decibel (dBA) system, which measures what humans hear in a more meaningful way because it reduces the sound levels of higher and lower frequency sounds—similar to what humans hear.

Figure 1 Noise from transit systems is expressed in terms of a *source-path-receiver* framework. The *source* generates noise levels that depend on the type of source (e.g., a train) and its operating characteristics (e.g., speed). The *receiver* is the individual or group of people, such as residents, hospital patients, or schoolchildren and staff, exposed to noise. In between the source and the receiver is the *path*, where the noise is reduced by distance, intervening buildings, and

topography. Environmental noise effects and impacts are assessed at the receiver. Noise criteria are established for the various types of receivers because not all receivers have the same noise sensitivity.

Figure 1 shows typical maximum A-weighted sound pressure levels (L_{max}) for transit and non-transit sources.



Source: FTA 2018

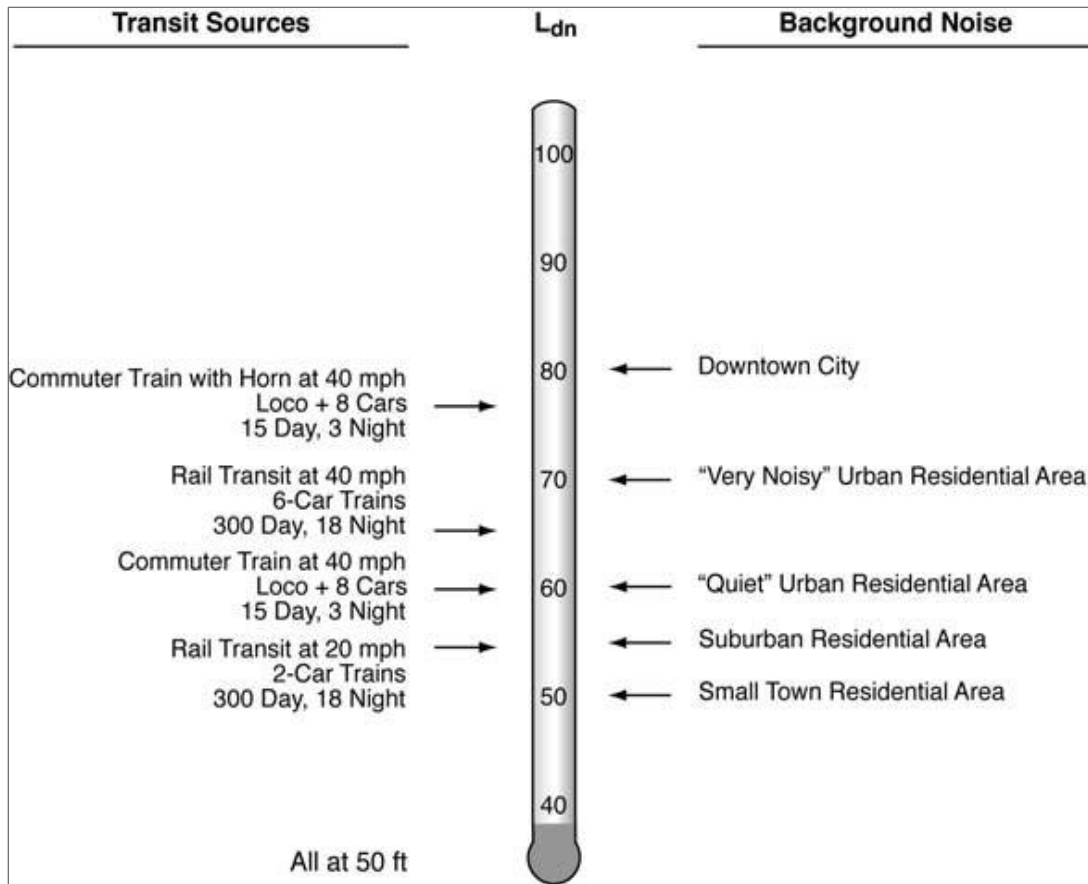
Figure 1. Typical A-weighted Sound Levels

Analysts use three primary noise measurement descriptors to assess noise impacts from traffic and transit projects. They are the *equivalent sound level* (L_{eq}), the *day-night sound level* (L_{dn}), and the *sound exposure level* (SEL):

- ◆ **L_{eq} :** The level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour L_{eq} is used for all traffic and commuter transit noise analyses at locations with daytime use, such as schools and libraries.
- ◆ **L_{dn} :** The L_{eq} over a 24-hour period, with 10 dB added to nighttime sound levels (between 10 p.m. and 7 a.m.) to account for the greater sensitivity and lower background sound levels during this time. The L_{dn} is the primary noise-level descriptor for transit noise at residential land uses.
- ◆ **SEL:** The SEL is the primary descriptor of a single noise event (e.g., noise from a train pass-by at a given location). SEL is an intermediate value in the calculation of both L_{eq} and L_{dn} . It represents a receiver’s cumulative noise exposure from an event and the total A-weighted sound during the event normalized to a 1-second interval.

In addition to the L_{eq} , L_{dn} , and SEL, another descriptor, L_{max} , is used to describe the loudest 1 second of noise over a measurement period. This descriptor is used in many local and state ordinances for noise emitted from private land uses and for construction noise impact evaluations. Figure 2

Figure 2 shows typical L_{dn} noise exposure levels.



Source: FTA 2018

Figure 2. Typical L_{dn} Noise Exposure Levels

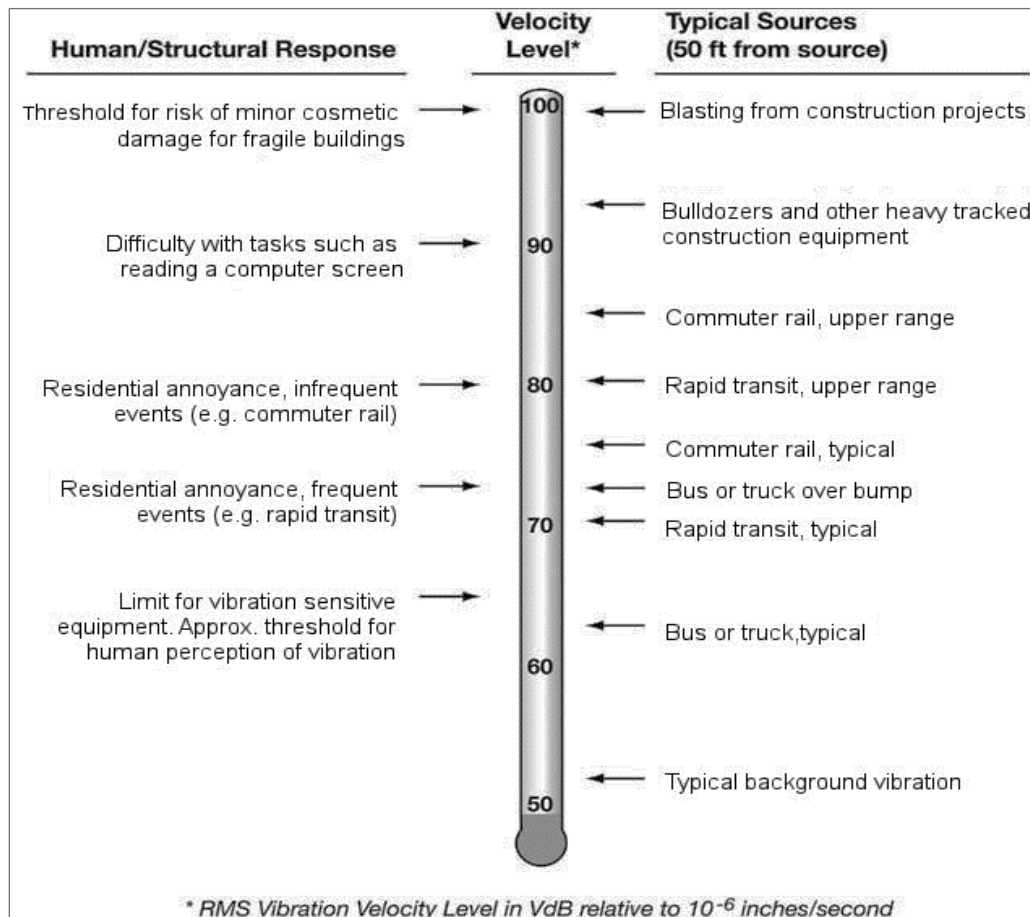
3 VIBRATION FUNDAMENTALS AND DESCRIPTORS

This section introduces the fundamentals of groundborne vibration relevant to the 2026 Revised Project. Similar to noise, vibration may be generated during both construction (e.g., excavation, grading, or equipment operation) and operations (e.g., train passbys or idling near buildings). Construction-related vibration is typically short-term and intermittent, while operational vibration may be more regular and long-term depending on infrastructure placement and use. Detailed analyses of construction and operational vibration impacts are presented in Sections 6.2.3 and 6.2.4, respectively.

Vibration is analyzed using a source-path-receiver framework. The source of vibration in this context is primarily the movement of trains, including acceleration, deceleration, idling, and maintenance activities, particularly from heavy-duty transit vehicles operating on paved surfaces. Trains generate vibration energy that is transmitted through the pavement and underlying soil layers. Once the vibration enters the ground, it propagates through the various soil and rock

strata—the *path*—to the foundations of nearby buildings—the *receivers*. Ground-borne vibrations are generally reduced with distance depending on the local geological conditions. A receiver is a building with vibration-sensitive uses (e.g., residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls, and ceilings and a rumbling sound inside rooms. Ground-borne noise occurs as a perceptible rumble and is caused by the noise radiated from the vibration of room surfaces. Not all receivers have the same vibration sensitivity. Consequently, vibration criteria are established for the various types of receivers.

Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to humans within buildings. The response of humans, buildings, and equipment to vibration is most accurately described using velocity or acceleration. In this analysis, *vibration decibel* (VdB) is the primary measure to evaluate the effects of vibration. Figure 3 illustrates typical ground-borne vibration velocity levels for common sources and thresholds for human and structural response to ground-borne vibration. As shown, the range of interest is from approximately 50 VdB to 100 VdB in terms of vibration velocity level (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration exceeds 70 VdB.



Source: FTA 2018

Figure 3. Typical Levels of Ground-Borne Vibration

4 REGULATORY SETTING

This section summarizes federal, state, regional, and local regulations related to noise and vibration that are applicable to the 2026 Revised Project.

4.1 Federal

The FTA's *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) contains guidance to assist project sponsors in evaluating and addressing noise and vibration impacts from major transit projects during environmental review and design.

4.1.1 Construction Noise Impact Criteria

Table 1 presents the FTA construction noise assessment criteria. For residential areas, L_{dn} is used when construction at a given location extends beyond 30 days, while $L_{eq}(8hr)$ is used for daily impact evaluation. For commercial and industrial land uses, $L_{eq}(8hr)$ or $L_{eq}(24hr)$ is typically applied depending on exposure duration. These metrics are based on the noise emission levels of construction equipment, operating schedules, and sensitive receptor proximity. In accordance with FTA guidance, construction noise impacts are normally assessed at the property line of the nearest noise-sensitive receptor.

Table 1. FTA Construction Noise Assessment Criteria

Land Use	Day - L_{eq} , dBA	Night - L_{eq} , dBA	Noise Exposure, L_{dn} , dBA
Residential	80	70	75 ^a
Commercial	85	85	80 ^b
Industrial	90	90	85 ^b

Notes: dB = decibels; dBA = A-weighted decibel; L_{dn} = day-night sound level; L_{eq} = equivalent sound level

^a In urban areas with very high ambient noise levels (L_{dn} greater than 65 dB), L_{dn} from construction operations should not exceed existing ambient noise levels + 10 dB. The L_{dn} criterion applies to construction activities extending over 30 days.

^b 24-hour L_{eq} , not L_{dn} .

Source: FTA 2018

4.1.2 Construction Vibration Impact Criteria

The FTA provides construction vibration criteria designed primarily to prevent building damage and to assess whether vibration might interfere with vibration-sensitive activities (e.g., magnetic resonance imaging [MRI] machines) or be perceptible to occupants during the construction period. The FTA criteria include two ways to express vibration levels: (1) root-mean-square (RMS) vibration velocity level (in VdB) for annoyance and (2) peak particle velocity (PPV), which is the maximum instantaneous peak of a vibration signal used for assessments of damage potential.

The FTA recommends using the long-term operational vibration criteria (see Section 4.1.4) to assess construction interference with vibration-sensitive equipment inside buildings.

Table 2 shows FTA building damage criteria for construction activity in PPV and identifies the approximate vibration limits for four building categories. These limits are used to estimate potential building damage that should be addressed during the final design.

Table 2. Construction Vibration Damage Criteria

Building Category	PPV (inch/sec)	Approximate Vibration Level (VdB) ^a
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Notes: PPV = peak particle velocity; VdB = vibration decibel

^a Root-mean-square vibration velocity level in VdB relative to 1 micro-inch/second

Source: FTA 2018

4.1.3 Operational Noise Impact Criteria

The descriptors and criteria for assessing noise impact vary according to land use categories adjacent to the project site. For land uses where people live and sleep (e.g., residential, hospitals, and hotels), L_{dn} is the assessment metric. For other land use types where there are noise-sensitive receptors (e.g., outdoor recreational areas, schools, and libraries), $L_{eq}(h)$ for an hour of noise sensitivity that coincides with train activity or noise emissions from a stationary source is the assessment metric.

Table 3 describes the three land use categories defined by the FTA (FTA 2018).

Table 3. FTA Noise-Sensitive Land Uses

Land Use Category	Noise Metric (dBA)	Land Use Category
1	Outdoor $L_{eq}(h)$ ^a	Land where quiet is an essential element in its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheatres and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category.
2	Outdoor L_{dn}	This category is applicable to all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	Outdoor $L_{eq}(h)$ ^a	This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities can also be considered in this category.

Notes: dBA = A-weighted decibel; L_{eq} = equivalent sound level; $L_{eq}(h)$ = equivalent sound level for an hour; L_{dn} = day-night sound level

^a L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity

Source: FTA 2018

The FTA noise impact criteria are ambient-based; i.e., the increase in future noise (future noise levels with the 2026 Revised Project compared to existing noise levels) is assessed rather than

the noise caused by each passing train. It is important to note that the criteria do not compare future project noise with projections of future no-action noise. This is because a comparison of a noise projection with an existing noise condition is more accurate than a comparison of a projection with another noise projection. Because background noise is expected to increase by the time the 2026 Revised Project starts generating noise, this approach of using existing noise conditions is conservative. Figure 4 shows the FTA noise impact criteria for human annoyance.

For transit facilities that include stationary sources such as heating, ventilation, and air conditioning systems, ventilation fans, or generators, the FTA provides separate guidance for stationary noise assessments. These criteria are based on distance to the receptor and line-of-sight exposure, with a typical screening distance of 100 to 200 feet for stationary sources. If noise-sensitive receptors fall within this screening distance, a detailed analysis comparing projected operational levels (typically expressed in L_{eq}) to applicable land use thresholds is required. The at-grade utility building, as part of the 2026 Revised Project, is a stationary mechanical facility and is evaluated accordingly in this analysis.

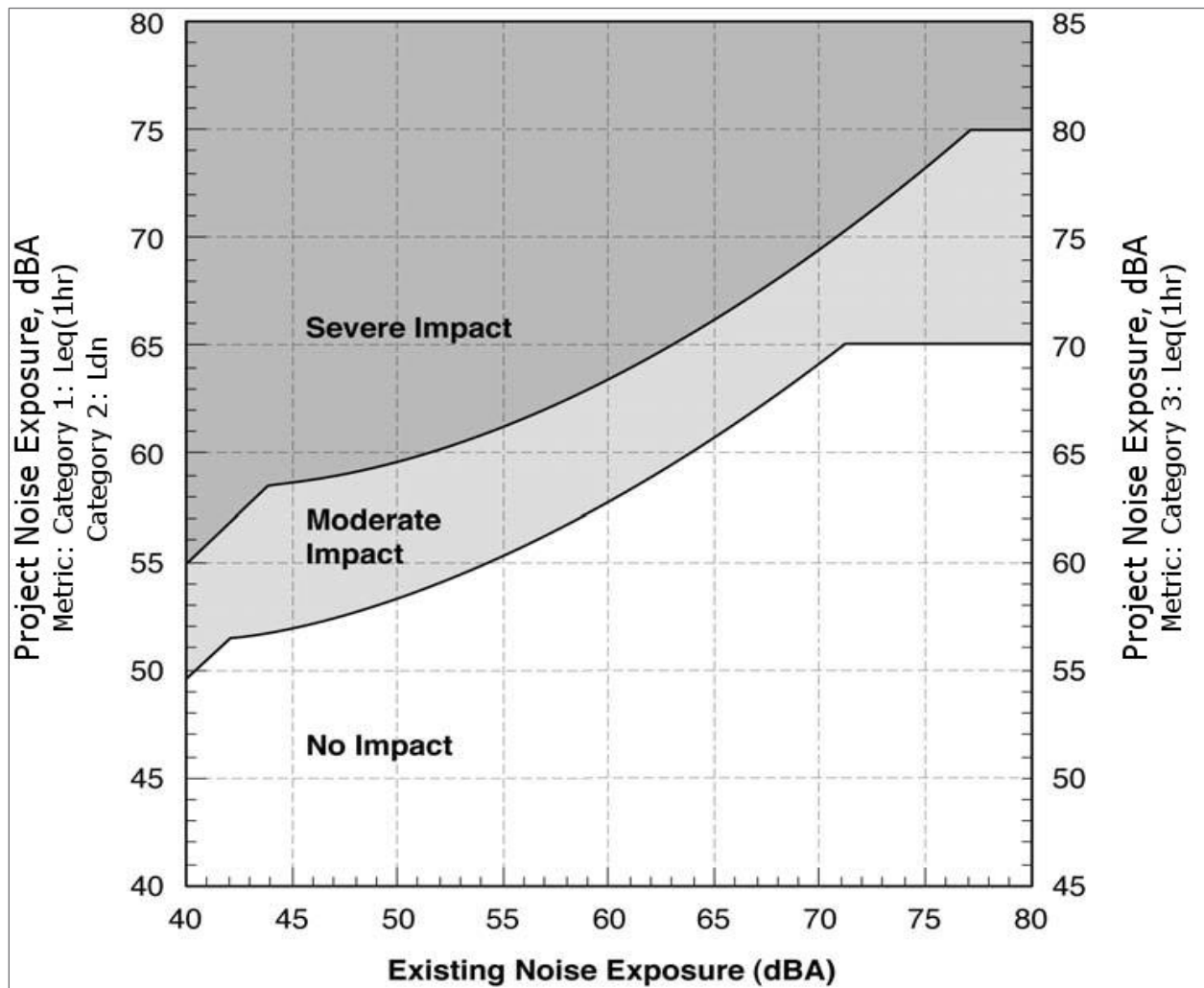


Figure 4. Noise Impact Criteria for Transit Projects

Depending on the magnitude of the cumulative noise increases, the FTA categorizes impacts as either (1) no impact, (2) moderate impact, or (3) severe impact. Severe impact is where a significant percentage of people would be highly annoyed by the project’s noise. Moderate impact is where the change in cumulative noise level would be noticeable to most people but may not be sufficient to generate strong, negative reactions.

Although the curves in Figure 4 are defined in terms of the project noise exposure and the existing noise exposure, the increase in the cumulative noise—when project-generated noise is added to existing noise levels—is the basis for the criteria. To illustrate this point, Figure 5 and Figure 6 show the noise impact criteria for the different land use categories in terms of the allowable increase in the cumulative noise exposure. Because L_{dn} and L_{eq} are measures of total acoustic energy, any new noise source in a community will cause an increase, even if the new source level is lower than the existing level. In Figure 5 and Figure 6, the criterion for a moderate impact allows a noise exposure increase of 10 dB if the existing noise exposure is 42 dBA or less, but only a 1 dB increase when the existing noise exposure is 70 dBA.

As the existing level of ambient noise increases, the allowable level of transit noise increases, but the total amount that community noise exposure is allowed to increase is reduced. This accounts for the unexpected result that a project noise exposure that is lower than the existing noise exposure can still cause an effect.

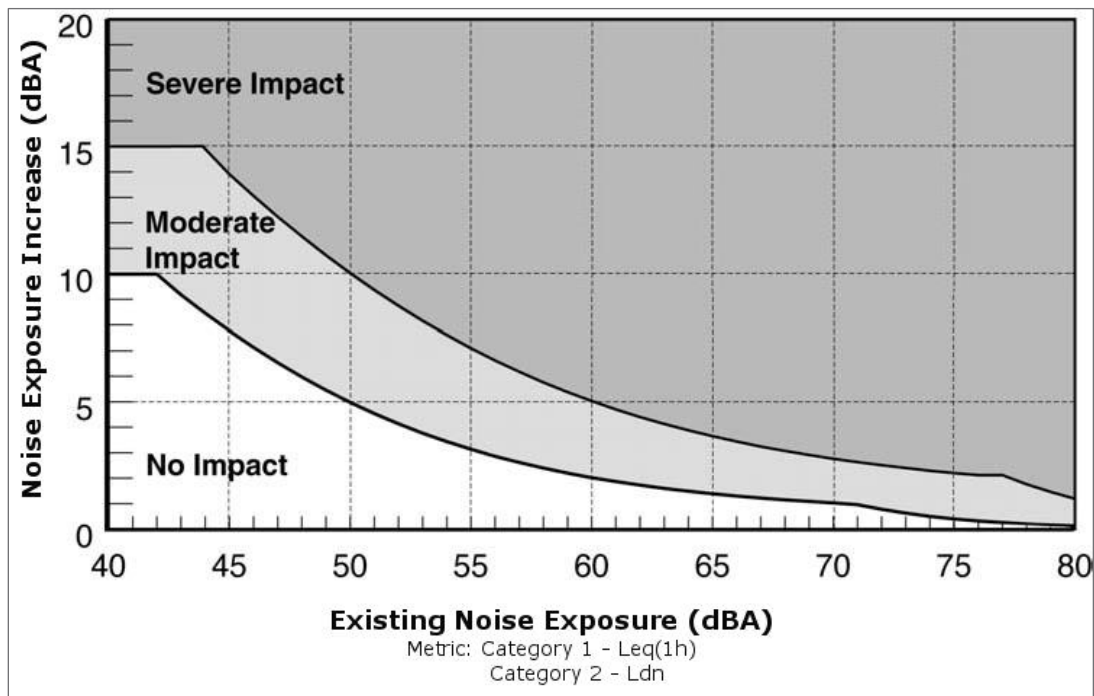


Figure 5. Increase in Cumulative Noise Levels Allowed by Criteria for Land Use Categories 1 and 2

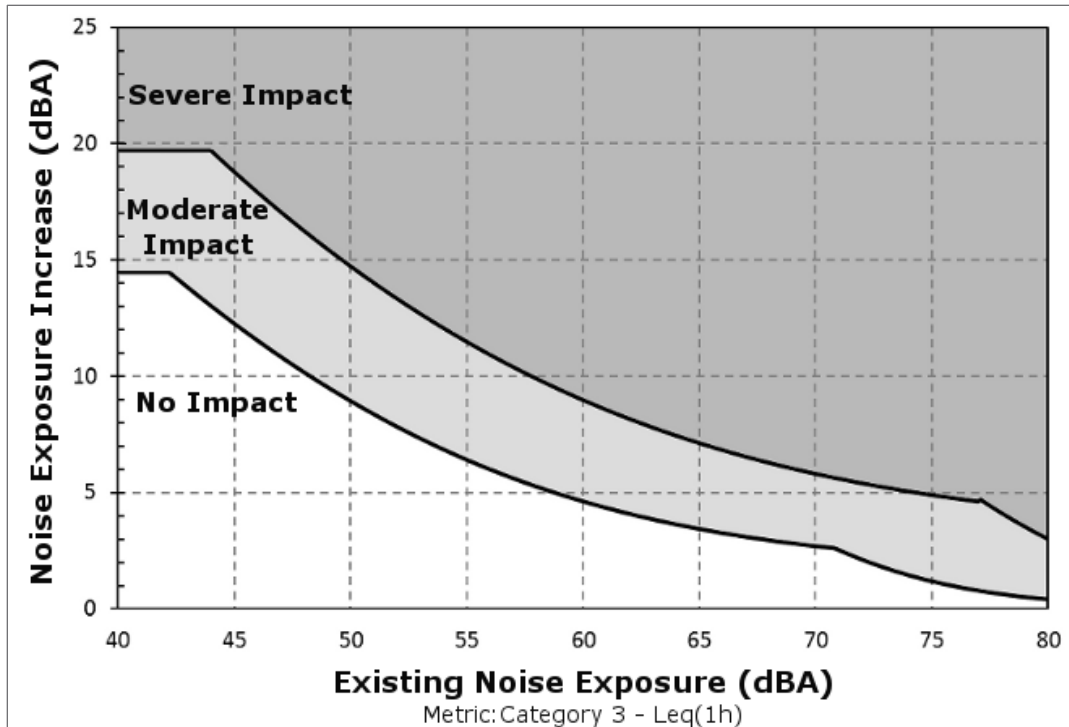


Figure 6. Increase in Cumulative Noise Levels Allowed by Criteria for Land Use Category 3

The primary new noise sources for the 2026 Revised Project, which have not been previously evaluated, include train operations/movements within the 4th and King railyards at the new relocated and electrified storage tracks, and auxiliary equipment such as heating, ventilation, and air conditioning systems and backup generators at the at-grade utility building. The FTA uses two key criteria for assessing noise impacts:

- ◆ **Absolute Criteria (Land Use-Based Thresholds):** The FTA defines acceptable noise levels based on existing land uses. For residential areas (Category 2), the daytime and nighttime noise thresholds are typically 60 to 65 dBA L_{eq} (1 hour) for moderate impact and 70 dBA L_{eq} (1 hour) for severe impact.
- ◆ **Incremental Increase Criteria (Change in Noise Levels):** If existing ambient noise levels are already high, the FTA applies an incremental threshold approach. A project is considered to have a moderate impact if it causes an increase of 3 to 5 dBA in areas with existing noise levels above 65 dBA, while a severe impact occurs if the increase exceeds 5 dBA.

4.1.4 Operational Vibration Impact Criteria

The FTA guidelines to assess human response to different levels of ground-borne noise and vibration associated with transit operations consider the frequency, intensity, and transmission path of vibrations generated by trains, particularly at maintenance facilities, train storage areas, and transit hubs. Unlike rail systems, where train passbys create distinct vibration events, train-related vibration typically occurs due to acceleration, deceleration, idling, and frequent vehicle movements over paved surfaces.

A vibration event occurs each time a train passes near a structure and causes perceptible ground motion. The FTA categorizes vibration events based on frequency of occurrence:

- ◆ **Frequent Events:** More than 70 vibration events per day (e.g., high-traffic train depots).
- ◆ **Occasional Events:** 30 to 70 vibration events per day (e.g., moderate-use transit hubs).
- ◆ **Infrequent Events:** Fewer than 30 vibration events per day (e.g., maintenance facilities with limited nighttime operations).

While the overall effect and impact of rail operations for The Portal has been previously evaluated, this technical memorandum evaluates ground-borne vibration impacts from train operations along the relocated and electrified tracks, based on the vibration velocity level, expressed in VdB, and the number of vibration events per day. The FTA defines thresholds for different land use categories, including residential areas, offices, and vibration-sensitive facilities such as hospitals, research laboratories, and recording studios.

Ground-borne noise is a low-frequency rumbling sound inside buildings caused by vibrations transmitted through the ground and radiated by floors, walls, and ceilings. Ground-borne noise is more commonly associated with underground transit systems where airborne noise is minimal

Table 4 summarizes vibration sensitivity in terms of the three land use categories and the criteria for acceptable ground-borne vibrations and noise, and Table 5 shows the impact criteria for special buildings. The FTA thresholds vary based on the frequency of events, with more stringent limits applied to frequent events. This is because people tend to be more sensitive to regularly occurring low-level vibration and ground-borne noise, particularly in residential settings, whereas infrequent events are less likely to be noticed or cause disruption, even if the peak level is slightly higher. Although the criteria are expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are significantly lower than airborne noise criteria to account for the annoying low-frequency character of ground-borne noise. Because airborne noise often masks ground-borne noise for aboveground (i.e., at-grade or elevated) railroad tracks, ground-borne noise criteria apply primarily to operations in a tunnel, where airborne noise is not a factor, and to buildings with sensitive interior spaces that are not well insulated from exterior noise.

Table 4. FTA Ground-borne Vibration and Noise Impact Criteria for Land Use Categories

Land Use Category	Ground-borne Vibration Impact Levels (VdB re: 1 micro-inch /sec)			Ground-borne Noise Impact Levels (dBA re: 20 micropascals)		
	Frequent Events (>70/day)	Occasional Events (30–70/day)	Infrequent Events (<30/day)	Frequent Events (>70/day)	Occasional Events (30–70/day)	Infrequent Events (<30/day)
Category 1: Buildings where vibration would interfere with interior operations	65 ^a	65 ^a	65 ^a	N/A ^b	N/A ^b	N/A ^b
Category 2: Residences and buildings where people normally sleep	72	75	80	35	38	43
Category 3: Institutional land uses with primarily daytime use	75	78	83	40	43	48

Notes: dBA = A-weighted decibel; N/A = not applicable; VdB = vibration decibel

^a This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a detailed vibration analysis must be performed.

^b Vibration-sensitive equipment is generally not sensitive to ground-borne noise.

Source: FTA 2018

Table 5. FTA Ground-borne Vibration and Noise Impact Criteria for Special Buildings

Type of Building or Room	Ground-borne Vibration Impact Levels (VdB re: 1 micro-inch/sec)		Ground-borne Noise Impact Levels (dBA re: 20 micropascals)	
	Frequent Events ^a	Occasional or Infrequent Events ^a	Frequent Events ^a	Occasional or Infrequent Events ^a
Concert halls	65	65	25	25
TV studios	65	65	25	25
Recording studios	65	65	25	25
Auditoriums	72	80	30	38
Theaters	72	80	35	43

dBA = A-weighted decibel; FTA = Federal Transit Administration; VdB = vibration decibel

^a See Table 4. FTA Ground-borne Vibration and Noise Impact Criteria for Land Use Categories for definitions of event frequency.

Source: FTA 2018

4.2 State

At the state level, the California Noise Control Act, enacted in 1973 (Health and Safety Code Section 46010 et seq.) requires the Office of Noise Control in the Department of Health Services to provide assistance to local communities developing local noise control programs. The Office of Noise Control also works with the Office of Planning and Research to provide guidance for preparing required noise elements in the City and County of San Francisco’s (City) general plans, pursuant to Government Code Section 65302(f).

4.3 Local

The City regulates noise through Article 29 of the Police Code, which establishes policies, definitions, noise limits, enforcement responsibilities, and variance procedures for noise-generating activities. The ordinance reflects the City's policy to prohibit unwanted, excessive, and avoidable noise and to maintain or improve existing noise conditions to protect public health and welfare.

Key provisions applicable to the 2026 Revised Project include construction-related standards and fixed noise source standards that would apply to the at-grade utility building, for example, and previously evaluated noise level limits from public properties, such as transit stations within the public right-of-way.

Construction Equipment Noise (Section 2907)

- ◆ Operation of powered construction equipment is prohibited if it emits noise levels exceeding 80 dBA at 100 feet or an equivalent level at another practical distance.
- ◆ Impact tools and equipment (e.g., jackhammers and pavement breakers) are exempt from the above threshold only if they are equipped with manufacturer-recommended intake and exhaust mufflers and acoustically attenuating shields or shrouds approved by the Director of San Francisco Public Works or the Director of the San Francisco Department of Building Inspection.

Nighttime Construction Restrictions (Section 2908)

- ◆ Construction, demolition, or excavation activities are prohibited between 8:00 p.m. and 7:00 a.m. if they generate noise exceeding 5 dBA above ambient at the nearest property line, unless a special permit is obtained.
- ◆ In determining whether to grant a permit for nighttime work, the City considers factors such as traffic disruption, neighborhood character, potential for sleep disturbance, and the public interest.

Fixed Noise Sources (Section 2909)

- ◆ Interior residential noise limits for fixed sources are:
 - 45 dBA (10:00 p.m. to 7:00 a.m.)
 - 55 dBA (7:00 a.m. to 10:00 p.m.)
- ◆ These thresholds apply to any fixed mechanical equipment when measured inside sleeping or living rooms with windows open, unless mechanical ventilation is provided.

Public Property Limits (Section 2909)

- ◆ On public property, noise must not exceed 10 dBA above the local ambient level when measured at a distance of 25 feet or more.

Variances (Section 2910)

- ◆ Variances to the above limits may be granted by the Director of the San Francisco Department of Public Health, Director of San Francisco Public Works, Director of the San Francisco Department of Building Inspection, or the Executive Director the San Francisco Entertainment Commission, based on site-specific considerations and project need.

5 EXISTING CONDITIONS

5.1 Existing Noise Sources

The existing noise environment in the vicinity of the 2026 Revised Project is reflective of a dense urban area and is influenced by surface transportation (e.g., buses and vehicles), pedestrians, commercial buildings, building mechanical systems (e.g., exhaust fans), and natural sources (e.g., wind, birds).

5.2 Noise-Sensitive Receptors

Noise-sensitive receptors may include people in residences, schools, places of worship, libraries, hotels, parks, and recreational areas, particularly where there is a direct line-of-sight to the noise source. No daycares, schools, or similarly sensitive institutional uses were identified in proximity to the construction footprint. Within the vicinity of the 2026 Revised Project, the closest noise-sensitive receptors are located in the following land uses:

- ◆ High-rise residential tower (Millennium Tower) at 301 Mission Street with ground-floor retail and parking garage approximately 300 feet northwest of the proposed at-grade utility building site and the four-story Crescent Cove apartment complex at 420 Berry Street and 16-story Aterra condominium complex at 300 Berry Street, both approximately 100 to 300 feet south/southeast of the 4th and King railyards, where relocation and electrification of storage tracks is proposed.
- ◆ Public parks and open spaces, including parks and open space areas near the intersection of Beale and Mission and Main and Howard streets and Salesforce Park are within 100 to 300 feet of the at-grade utility building site. As an elevated urban park on the Transit Center rooftop designed for passive recreation, Salesforce Park is in use during daytime hours when it is open.
- ◆ Institutional uses, such as educational and community facilities, are not adjacent to the construction footprint. The nearest institution, the Academy of Art University, is 200 feet from the proposed relocated and electrified storage tracks.

5.3 Noise Survey

Both long-term (24-hour) and short-term (15-minute) noise measurements of the A-weighted sound level were taken at noise-sensitive receptor locations in the survey area to establish existing noise levels in the project vicinity.¹ The noise monitors were set to continuously monitor and record multiple noise level metrics as well as to obtain audio recordings during the measurement periods. The noise measurement program involved the following activities:

- ◆ **Site Selection and Planning:** Surveyed and selected measurement locations based on proximity to project components, accessibility, and safety considerations for secure installation of SLMs.
- ◆ **Instrumentation:** Conducted sound pressure level measurements using Larson Davis Laboratories (LDL) Model 820 and Model 824 SLMs, both rated as Type 1 precision instruments in accordance with ANSI S1.4-1983.
- ◆ **Measurement Standards:** Where not otherwise specified, sound level measurements followed applicable guidance from the International Organization for Standardization (ISO) 1996 standards, Parts 1, 2, and 3 (ISO 1982, 1987a, 1987b).
- ◆ **Microphone Setup:** Fitted SLM microphones with 3.5-inch spherical open-cell foam windscreens, with microphones mounted at a height of approximately 5 feet above ground level to simulate the average human ear position.
- ◆ **Measurement Configuration:** Configured SLMs to use the A-weighting scale and slow time-response setting to capture ambient environmental noise.
- ◆ **Calibration:** Calibrated all instruments before taking measurements using an LDL Model CAL200 acoustical calibrator to ensure accuracy.
- ◆ **Long-Term Monitoring:** Deployed one long-term (LT) noise level monitor at Salesforce Park, left unattended for a continuous 24-hour period between setup and retrieval.
- ◆ **Short-Term Monitoring:** Conducted short-term (ST) measurements over 15-minute intervals at each selected location during daytime and nighttime periods, representing a range of typical daily acoustic conditions.

After a review of the 2026 Revised Project's design plans and online aerial imagery, six ambient noise measurement locations were selected to characterize existing conditions near two primary areas of project activity: the stationary source site (where the at-grade utility building would be constructed, as described in Section 1, Introduction) and the proposed relocated and electrified track area (along the southern side of the 4th and King railyards). The goal of the survey was to establish baseline conditions to support evaluation of both construction and operational noise effects and impacts.

¹ Continuous 24-hour, long-term monitoring of noise levels was done in accordance with American National Standard Institute (ANSI) standards using LDL Model 820 and 824 SLMs. The SLMs were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure that the measurements were accurate. The equipment used meets all pertinent ANSI specifications (ANSI S1.4) for Type 1 SLMs.

All measured noise level data and photographs of each measurement location, including SLM installation details, are provided in Appendix B. Ambient noise level monitoring results are shown in Table 6. The noise monitoring locations are shown in Figure 7.

5.3.1 At-Grade Utility Building Site

On December 17, 2024, a series of short-term noise measurements (ST-01 and ST-02) were taken at two public parks and open space areas near the intersections of Beale and Mission streets and Main and Howard streets (see Figure 7). These locations are within 100 and 200 feet, respectively, of the proposed at-grade utility building, and there is a direct line-of-sight to the at-grade utility building. In addition, a 24-hour long-term measurement (LT-01) was conducted at Salesforce Park (425 Mission Street) from December 17 to 18, 2024, to capture both daytime and nighttime conditions. As shown in Table 6, daytime L_{eq} levels in this area ranged from 60.5 to 68.5 dBA, with an L_{dn} of 69.4 dBA measured at Salesforce Park, and a peak L_{max} of 87.5 dBA at ST-01. These levels reflect typical ambient noise for a dense urban setting influenced by nearby traffic and activity.

5.3.2 Relocated and Electrified Track Area – 4th and King Railyards

On March 11, 2025, short-term noise measurements were taken at two locations: ST-03, at the Academy of Art University's (AAU) outdoor seating area at 466 Townsend Street, and ST-04, outside of the residential building at 420 Berry Street (see Figure 7), near the proposed relocation and electrification of three storage tracks in the southern portion of the 4th and King railyards. There is a direct line-of-sight between these noise-sensitive uses and storage tracks. ST-03, located north of the railyards and approximately 150 feet from the edge of the railyards, reflects ambient noise exposure near institutional uses such as classrooms and studio facilities at AAU. Although AAU is not a residential use, it represents a noise-sensitive institutional receptor. ST-04 is located approximately 100 feet south of the proposed relocated and electrified storage tracks, and captured ambient noise conditions at the nearest residential sensitive receptor. Two additional short-term nighttime measurements (ST-05 and ST-06) were also conducted on the same night to capture nighttime ambient levels in the area. As shown in Table 6, the daytime L_{eq} value ranged from 68.5 to 70.5 dBA, while nighttime L_{eq} levels ranged from 63.6 to 65.1 dBA. An L_{dn} of 75 dBA was recorded at ST-04, reflecting the influence of the railyards and urban activity in this area.

Table 6. Measured Ambient Noise Levels, dBA

Measurement Site	Address	Date		Start Time	Duration	Daytime (7 a.m.– 10 p.m.)		Nighttime (10 p.m.– 7 a.m.)		L _{dn}
		From	To			L _{eq}	L _{max}	L _{eq}	L _{max}	
LT-01	Salesforce Park, 425 Mission Street, San Francisco	12/17/24	12/18/24	14:30	24 Hour	66.0	79.9	62.2	75.6	69.4
ST-01	Public Open Space/Urban Park, Southeast corner of Beale and Mission streets, San Francisco	12/17/24		14:29	20:01	68.5	87.5	NA	NA	NA
ST-02	Park, Southwest corner of Main Street and Howard Street	12/17/24		14:55	20:01	60.5	71.4	NA	NA	NA
ST-03	Outside Seating Area - Academy of Art University – 466 Townsend Street, San Francisco	3/11/25		14:20	20:01	70.5	80.7	NA	NA	NA
ST-04	420 Berry Street, San Francisco	3/11/25		15:04	15:01	68.5	76.8	NA	NA	75
ST-05				20:26	15:01	NA	NA	65.1	78.9	
ST-06				22:03	15:01	NA	NA	63.6	74.5	

Note: dBA = A-weighted decibel, L_{eq} = hourly average noise level; L_{max} = maximum noise level; L_{dn} = Day-night noise level; LT = long-term; ST = short-term; R = Reference
 Source: Data compiled by AECOM 2024, 2025



Figure 7. Noise Survey Locations for the 2026 Revised Project

5.4 Existing Traffic Noise

The existing traffic noise levels were estimated at 100 feet from the centerline of the roadway using standard traffic noise modeling methods. Table 7 summarizes the estimated traffic noise levels and the distances to traffic noise contours of 70 dBA, 65 dBA, and 60 dBA. These contour distances represent the approximate setback from the roadway centerline at which the stated noise level occurs under typical spherical propagation conditions, assuming no shielding, ground absorption, or other mitigating factors. Because distance is the only consideration (i.e., calculation of the damping effects of terrain or other features), the values are conservative and would overestimate the levels.

Table 7. Existing Traffic Noise Levels, dBA

Roadway Segment	L _{eq} @ 100 ft (dBA)	70 dB Contour (ft)	65 dB Contour (ft)	60 dB Contour (ft)
Pine Street & Market Street @ Davis Street/Beale Street to South	51	1	4	14
Pine Street & Market Street @ Davis Street/Beale Street to North	49	1	3	9
Pine Street & Market Street @ Davis Street/Beale Street to West	60	10	32	100
Pine Street & Market Street @ Davis Street/Beale Street to East	60	10	33	104
Mission Street @ Beale Street to South	50	1	3	10
Mission Street @ Beale Street to South	59	8	27	85
Mission Street @ Beale Street to North	59	8	26	81
Mission Street @ Beale Street to West	60	9	30	95
Howard Street @ Beale Street to East	60	11	33	106
Howard Street @ Beale Street to South	59	9	27	86
Howard Street @ Beale Street to North	57	4	14	45
Howard Street @ Beale Street to West	60	10	31	99
Howard Street @ Beale Street to East	57	6	17	55
Folsom Street @ Beale Street to South	57	4	14	45
Folsom Street @ Beale Street to North	58	6	18	57
Folsom Street @ Beale Street to West	57	5	16	51
Folsom Street @ Beale Street to East	58	6	18	58

Notes: dB = decibel; dBA = A-weighted decibel; ft = feet; L_{eq} = hourly average noise level

5.5 Vibration-Sensitive Land Uses

Vibration sensitivity is typically determined by the structural characteristics of the building, such as its age, construction type, and foundation system, and the specific activities or uses within the building. The FTA vibration impact criteria distinguish between human annoyance and structural damage, with thresholds tailored to receptor types. While residential buildings are not the most vibration-sensitive structures from a damage perspective, they are moderately sensitive in terms of human annoyance, particularly during nighttime hours when background vibration levels are lower and vibration perceptibility is higher. Construction vibration typically results from activities

such as pile driving, excavation, and compaction. In contrast, operational vibration is associated with recurring sources, such as train passbys, and is evaluated for long-term exposure potential.

6 IMPACT ANALYSIS

This section describes the environmental effects and impacts of the components of the 2026 Revised Project's construction and operations. It describes the methods used to estimate noise and vibration levels and evaluate the effects and impacts against the thresholds presented in Section 4, *Regulatory Setting*, of this report, and compared to the effect and impact determinations of the previously evaluated/approved project.

Construction activities may generate noise and vibration complaints even though they take place only for a limited time. Construction noise and vibration impacts for the 2026 Revised Project are assessed based on whether the predicted exposure of noise- and vibration-sensitive receptors/receivers would exceed thresholds for annoyance and structural damage recommended by the FTA (FTA 2018).

6.1 Methods for Analysis

This analysis evaluates potential noise and vibration impacts associated with the 2026 Revised Project, focusing on short-term construction and long-term operational phases, with the at-grade utility building and the relocated and electrified storage tracks being the primary focus of the quantitative analysis. Quantitative methodologies were applied consistent with the FTA guidelines (FTA 2018). The assessment approach is summarized as follows:

- ◆ Direct noise and vibration impacts were evaluated through both quantitative modeling and qualitative interpretation of anticipated construction activities and operation of the relocated and electrified storage tracks and mechanical operations of the at-grade utility building.
- ◆ Construction noise was assessed by identifying the types of equipment likely to be used during each phase of construction (e.g., demolition, site preparation, grading, and paving), equipment usage patterns, and proximity to nearby noise-sensitive receptors, including residents and public open space users. Reference noise levels from established databases were used to calculate anticipated construction noise levels at various distances.
- ◆ Construction vibration was evaluated by identifying representative vibration source levels for heavy equipment (e.g., rollers, graders, and dozers) and applying standard propagation models to estimate vibration levels at the nearest buildings, located approximately 100 feet from active construction areas. The analysis compares these levels to FTA thresholds for structural damage and human annoyance.
- ◆ Operational noise impacts were analyzed for two primary sources: (1) mechanical equipment associated with the proposed at-grade utility building, and (2) relocated and electrified storage tracks that consider the repositioning and idling of Caltrain passenger rail vehicles.

Reference noise levels were used to model sound propagation to nearby receptors, with specific consideration of sensitive receptors located within 100 to 300 feet of these noise sources. Electric trains are quieter than the previously analyzed diesel-powered vehicles (Caltrain 2021). This new information would result in lower operational noise levels, further supporting the conclusion that impacts would remain less than significant. The modeled noise levels were compared to FTA and local thresholds to determine potential exceedances and the need for mitigation. Train speeds in the relocated track area are expected to be approximately 15 miles per hour (mph) in the storage segments and 20 to 25 mph along the approach tracks to the storage area, based on input from Caltrain. These approach curves are located within the railyards and are not newly introduced. They are part of the revised track layout evaluated in this document. However, because these train tracks would now support electric trains, operational noise would be lower compared to the previously analyzed diesel-powered vehicles. The number of train movements is expected to be consistent with levels previously cleared under the Caltrain Peninsula Corridor Electrification Project (PCEP), and these movements are classified as frequent events for the purpose of applying FTA noise and vibration thresholds.

- ◆ Operational vibration impacts were based on the expected low speeds of electric trains along the relocated storage tracks as compared to the original diesel trains. Reference vibration levels from the FTA for similar electrified systems were applied, and attenuation to nearby receptors was modeled. The analysis determined whether predicted levels would exceed FTA thresholds for human annoyance (72 VdB) or structural damage (0.12–0.20 in/sec PPV).
- ◆ The noise and vibration assessment for the 2026 Revised Project first determined whether predicted construction and operational levels would exceed FTA effect thresholds; second, if exceedances are identified, evaluates the need for mitigation measures; third, assesses whether implementation of mitigation would reduce impacts to below significance thresholds; and fourth, compares the results to those from the previously evaluated/approved project to determine if the 2026 Revised Project would result in new or more severe effects or impacts.

6.2 Impacts and Mitigation Measures

The construction and operational noise and vibration impact criteria for the 2026 Revised Project are based on FTA guidelines and described in the following subsections.

6.2.1 Noise - Construction

This section presents a quantitative evaluation of construction noise associated with the 2026 Revised Project. As noted in the introduction, the elimination of the Salesforce Transit Center train box extension, deferral of high-speed rail facilities at the Salesforce Transit Center, removal of high-speed rail platforms and related concourse-level facilities at the Fourth and Townsend Street Station, and reduction of the tunnel stub box, would lessen overall construction activities and associated noise and vibration effects and impacts compared to the previously

evaluated/approved project and are not analyzed. Further, the acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not result in a change to the previously evaluated construction noise impacts as no new construction activity would occur with acquisition of the building or temporary relocation of tenants. Therefore, this analysis considers two primary sources of construction noise:

- ◆ The at-grade utility building, which functions as a stationary mechanical facility
- ◆ The relocated and electrified storage tracks within the 4th and King railyards

Each source was assessed independently according to its distance to sensitive receptors, construction equipment type, and applicable noise thresholds or criteria.

- **Construction Activities and Projected Noise Levels**

Construction of the 2026 Revised Project would occur in several phases, each involving different types of heavy equipment with varying noise emissions. Noise generated by construction activities is considered temporary and variable but can result in elevated sound levels at nearby sensitive receptors, particularly when multiple pieces of equipment operate concurrently.

Table 8 summarizes representative noise levels at a reference distance of 50 feet, based on the anticipated types of equipment that may be used during each phase of construction. These values are drawn from standard equipment noise emission data published in industry references and are consistent with those used by the FTA and Federal Highway Administration for environmental assessments. The analysis focused on people within residences (residential receptors) because they are the most sensitive to noise, and residential uses are located within 100 feet of 2026 Revised Project components. Other nearby land uses, such as Salesforce Park and other open space areas, do not fall under specific FTA construction noise categories. However, these areas are subject to the City's 80 dBA Leq standard for construction noise, as defined in Article 29, Section 2908 of the San Francisco Noise Ordinance, which this analysis uses to evaluate potential effects. No daycares, schools, or similarly sensitive institutional uses were identified in proximity to the construction footprint.

Demolition

Demolition activities are expected to generate the highest noise levels of all phases due to the use of high-powered equipment such as concrete saws (90 dBA L_{max} , 83 dBA L_{eq}), dozers (82 dBA L_{max} , 78 dBA L_{eq}), and backhoes (78 dBA L_{max} , 74 dBA L_{eq}). The maximum combined noise level for this phase is estimated at 90 dBA L_{max} and 85 dBA L_{eq} . Removal of the temporary construction trailers at the location of the proposed at-grade utility building was considered for the previously evaluated/approved project. The analysis for the 2026 Revised Project assumes additional demolition work, such as pavement or embedded track removal, to account for the full potential range of activities at the 4th and King railyards.

Site Preparation

Site preparation would involve equipment such as graders (85 dBA L_{max} , 81 dBA L_{eq}) and backhoes. These activities are expected to result in maximum combined noise levels of 85 dBA L_{max} and 82 dBA L_{eq} , reflecting moderately high but typical levels for early-stage grading and clearing. While similar equipment and noise levels were previously evaluated, the 2026 Revised Project includes site preparation activities at new or modified locations, including the location of the relocated storage tracks. This may result in temporary noise exposure for receptors that were not previously evaluated.

Grading

The grading phase also involves the use of graders, dozers, and backhoes. The calculated maximum and combined noise level remains consistent with site preparation, at 85 dBA L_{max} and 82 dBA L_{eq} . These levels reflect the overlapping use of multiple large machines operating simultaneously. Grading at the utility building location was included in the previously evaluated/approved project. However, the current analysis evaluates grading noise for the 2026 Revised Project layout, including the locations of the relocated storage tracks and utility building.

At-grade Utility Building Construction

Although the at-grade utility building has a larger footprint and greater height than the previously evaluated/approved ventilation shaft, overall construction activity is expected to be less intensive than the previously evaluated/approved project because of the elimination of deep excavation and associated heavy equipment associated with the train box extension. Nevertheless, noise modeling was conducted to compare anticipated noise levels against applicable thresholds for nearby receptors. This phase is divided into vertical construction and paving (for paving see following paragraph). For vertical construction, equipment such as cranes (81 dBA L_{max} , 73 dBA L_{eq}), manlifts (75 dBA L_{max} , 68 dBA L_{eq}), and backhoes are expected. The combined noise level is estimated at 81 dBA L_{max} and 77 dBA L_{eq} .

Paving

Paving activities would include the use of concrete mixer trucks, pavers, rollers, and backhoes. The maximum and combined noise level during this phase is estimated at 80 dBA L_{max} and 80 dBA L_{eq} , indicating a consistent and steady level of construction activity. Compared to the previously evaluated/approved project, this paving phase would occur over a smaller footprint, resulting in fewer paving equipment operations and reduced spatial extent.

Architectural Coating

The at-grade utility building has a larger footprint and greater height than the previously evaluated/approved ventilation shaft; however, the scope and duration of architectural coating work is expected to be similar. This final phase involves lighter equipment, such as air compressors (78 dBA L_{max} , 74 dBA L_{eq}), used for surface preparation and coating applications. This phase is expected to have the lowest noise levels, with a maximum combined level of 78 dBA L_{max} and 74 dBA L_{eq} .

Conclusion – Construction Activities and Projected Noise Levels

The overall maximum noise level across all construction phases is estimated at 90 dBA L_{max} and 85 dBA L_{eq} at 50 feet. These values represent the highest potential noise output under a worst-case scenario where multiple pieces of equipment operate simultaneously. Actual noise exposure at nearby sensitive receptors may be lower depending on the distance and presence of intervening structures. These refinements are considered in the subsequent impact analysis, which determines whether mitigation measures are warranted based on exceedances of applicable thresholds.

Table 8 summarizes the estimated construction noise levels and residential noise impact screening distances for each of the construction phases. The noise estimates are based on scenarios for the construction activities, using FTA methodology and criteria. However, to be conservative, the screening distance estimates did not assume any topography or ground effects. The results of the analysis indicate that noise effects and impacts would be limited to residences within approximately 85 feet of the construction site during daytime construction and to residences within approximately 270 feet of the construction site during nighttime construction, depending on the activity and construction equipment. This means that noise levels are not expected to exceed the FTA’s impact threshold of 80 dBA L_{eq} for people in residences located farther than these “impact distances” and, therefore, these residents would not be subject to significant construction noise effects or impacts.

Table 8. Residential Noise Impact Assessment for Construction Activities

Construction Activity and Equipment	Noise Level at 50 feet (L_{eq} , dBA)	FTA Daytime Criterion for Residences (dBA)	Approx. Daytime Noise Impact Distance (feet)	Approx. Nighttime Noise Impact Distance (feet)
Demolition	85	80	85	269
Concrete Saw	83	--	--	
Dozer	78	--	--	
Backhoe	74	--	--	
Site Preparation	85	80	62	195
Grader	81	--	--	
Backhoe	74	--	--	
Grading	82	80	73	232
Grader	81	--	--	
Dozer	78	--	--	
Backhoe	74	--	--	
Building Construction	79	80	36	114
Crane	73	--	--	
Manlift	68			
Backhoe	74			
Paving	82	80	51	160
Concrete Mixer Truck	75	--	--	
Paver	74			

Construction Activity and Equipment	Noise Level at 50 feet (L_{eq} , dBA)	FTA Daytime Criterion for Residences (dBA)	Approx. Daytime Noise Impact Distance (feet)	Approx. Nighttime Noise Impact Distance (feet)
Roller	73			
Backhoe	74			
Architectural Coating	80	80	25	79
Compressor (air)	78	--	--	

dBA = A-weighted decibel; L_{eq} = equivalent sound level

Note: FTA does not provide specific construction noise thresholds for park or open space uses. However, these areas are subject to the City’s 80 dBA L_{eq} standard for construction noise, as defined in Article 29, Section 2908 of the San Francisco Noise Ordinance, which this analysis uses to evaluate potential effects. No daycare centers, schools, or other institutional land uses were identified within the impact distances of the construction area.

Source: AECOM 2025

As shown in Table 8, the operation of certain construction equipment and construction activities would not exceed the City’s standard of 80 dB beyond the distance of approximately 85 feet for daytime construction or the distance of approximately 270 feet for nighttime construction. There are no residential noise-sensitive uses within these impact distances.

Under the City’s noise ordinance and CEQA practice, construction noise is evaluated for its potential to result in a substantial temporary or periodic increase in ambient noise levels above existing conditions at noise-sensitive receptors. The City’s noise ordinance (Police Code Section 2907) prohibits the operation of any powered construction equipment (non-impact), regardless of age or date of acquisition, if such equipment emits noise in excess of 80 dBA at 100 feet. Impact tools that exceed this standard must be fitted with mufflers, acoustical shields, or enclosures. While the City does not adopt explicit CEQA thresholds, this provision is the City’s guidance used to evaluate potential construction noise impacts. Additionally, construction is limited to the hours between 7:00 a.m. and 8:00 p.m., unless a variance is granted. If any nighttime work is proposed, it would require a separate variance and would be subject to the ordinance limit of 5 dBA above ambient at the nearest property line. At this time, no nighttime work is proposed for the components being evaluated in this memo.

Additionally, the FTA provides general criteria for evaluating construction noise, based on the combined operation of the two loudest pieces of equipment. These criteria define allowable L_{dn} and L_{eq} noise exposure levels at nearby land uses (residential, commercial, or industrial). As detailed in Table 8, the estimated maximum noise level from construction phases—particularly demolition and grading—could reach 90 dBA L_{max} and 85 dBA L_{eq} at 50 feet. At 100 feet, this attenuates to approximately 79 dBA L_{eq} , which would remain just below the City’s 80 dBA limit for powered equipment. At 300 feet, the approximate distance to the nearest residential receptor near the proposed at-grade utility building, the level would further reduce to approximately 69 dBA L_{eq} .

- **Construction Noise Source: At-Grade Utility Building**

The nearest residential receptor to the at-grade utility building construction area is Millennium Tower at 301 Mission Street, located approximately 300 feet away. The closest public parks include the small park on Beale Street, approximately 100 feet away, and Salesforce Park, approximately 280 feet away.

Given that the estimated noise levels for demolition and site preparation could reach up to 85 dBA L_{eq} at 50 feet, these phases represent the loudest portions of construction. At 100 feet, noise levels would attenuate to approximately 79 dBA L_{eq} , which approaches, but does not exceed the City's 80 dBA standard.

As shown in Table 6, measured ambient levels in this area range from 66 dBA, L_{eq} to 69 dBA, L_{eq} . Project-related construction noise level of 85 dBA L_{eq} at 50 feet, would attenuate to approximately 79 dBA L_{eq} , at 100 feet. As a result, the net increase would exceed the commonly used substantial increase criterion of 5 dBA L_{eq} , and would be considered a substantial noise effect under CEQA and a moderate or severe impact under FTA guidelines (FTA 2018). The 5 dBA L_{eq} criterion is based on guidance in the San Francisco Noise Ordinance (Article 29).. Previously adopted Mitigation Measures NoiC-1 through NoiC-6 would apply and would minimize construction noise levels through measures such as conduct noise monitoring, inspection and noise testing of equipment, minimize the use of vehicle backup alarms. Furthermore, the construction of the at-grade utility building would be less intensive and shorter in duration than construction of the previously evaluated/approved train box extension, separate vent structure, and entrance/exit pavilion, which involved heavier equipment and a longer construction schedule. Some construction activities may occur within 100 feet of the public open space/urban park (located on the east side of Beale Street between Mission Street and Natoma Street) and within 300 feet of Salesforce Park; however, with previously adopted Mitigation Measures NoiC-1 through NoiC-6, effects would not be adverse and impacts would be less than significant.

- **Construction Noise Source: Relocation and Electrification of Storage Tracks within 4th and King Railyards**

The impacts related to construction within the 4th and King railyards were reported in the 2004 FEIS/EIR, which describes the work as requiring removal and reconstruction of the existing yard tracks, the removal and reconstruction of station platforms, and the removal of existing maintenance buildings. More specifically, the relocated and electrified storage tracks would occupy the same space as existing conventional tracks that would be reconstructed and electrified. This work would not exacerbate or intensify the construction activities, because the construction equipment, duration, and scope would be similar to the construction already evaluated for the railyards. Construction activities under the 2026 Revised Project would be more limited and less intensive in certain areas compared to the previously evaluated/approved project. Specifically, the relocation of storage tracks from the north side to the south side of the railyards avoids the need for excavation and installation of depressed track segments that were previously planned for the north side. Furthermore, this 2026 Revised Project component would

result in lesser construction noise effect and impacts than the previously evaluated/approved project, which proposed depressed storage tracks on the north side of the railyard.

The closest residential receptors to the proposed storage tracks include the four-story Crescent Cove apartment complex at 420 Berry Street and the 16-story Aterra condominium complex, both located approximately 100 feet from the construction area. Temporary construction noise would occur during demolition and grading associated with track installation for the relocated and electrified storage tracks. No pile driving or blasting is proposed. For the railyards, while construction activities are less intensive than previously evaluated, the work is closer to residential sensitive receptors and would result in temporary elevated levels. Given that the estimated noise levels for demolition and site preparation could reach up to 85 dBA L_{eq} at 50 feet, these phases represent the loudest portions of construction. At 100 feet, noise levels would attenuate to approximately 79 dBA L_{eq} , which approaches, but does not exceed the City's 80 dBA standard. Because no significant noise impacts from construction were identified under the 2026 Revised Project, mitigation measures would not be required to reduce newly introduced impacts. Previously adopted Mitigation Measures NoiC-1 through NoiC-6 remain part of the Transbay Program's standard practices and may continue to be implemented to minimize general construction noise levels.

As shown in Table 6, measured ambient levels in this area range from 69 dBA, L_{eq} to 71 dBA, L_{eq} . Project-related construction noise level of 85 dBA L_{eq} at 50 feet, would attenuate to approximately 79 dBA L_{eq} , at 100 feet. Therefore, this would result in an increase of 8 to 10 dB above ambient levels. As a result, the net increase would be above the San Francisco Noise Ordinance standard of a 5 dBA L_{eq} increase, and would be considered a substantial noise effect and impact under FTA guidelines and CEQA, respectively. However, with previously adopted Mitigation Measures NoiC-1 through NoiC-6, effects would not be adverse and impacts would be less than significant.

- **Construction Noise Conclusion**

Consistent with the previously evaluated/approved project, construction of the 2026 Revised Project, including activities associated with the at-grade utility building and the relocated and electrified trackwork, would generate temporary noise levels typical of urban construction. While demolition and grading may generate noise levels up to 85 dBA L_{eq} at 50 feet, estimated noise levels for people at the nearest sensitive receptors would be lower due to distance and potential shielding, and would not exceed thresholds or criteria warranting adverse effect or significant impact findings. As summarized above, construction noise levels are not expected to be substantially greater than those previously evaluated.

Previously adopted Mitigation Measures NOiC-1 through NOiC-6, as referenced in Section 6.2.1.3, remain applicable to the project. These measures include noise monitoring, inspection and noise testing of equipment, minimizing the use of vehicle backup alarms, and would continue to reduce construction-period noise effects to not adverse and impacts to less than significant levels.

6.2.2 Noise – Operations

As noted in the introduction, the elimination of the Salesforce Transit Center train box extension, deferral of high-speed rail facilities at the Salesforce Transit Center, removal of high-speed rail platforms and related concourse-level facilities at the Fourth and Townsend Street Station, and reduction of the tunnel stub box, would lessen overall construction activities and associated noise and vibration effects and impacts compared to the previously evaluated/approved project and are not analyzed. Further, the acquisition by the TJPA of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction would not result in a change to the previously evaluated operational noise impacts as no operational changes would occur with acquisition of the building or temporary relocation of tenants. Therefore, this section presents a quantitative evaluation of operational noise associated with the 2026 Revised Project for the two components that would be sources of operational noise:

- ◆ The at-grade utility building, which functions as a stationary mechanical facility
- ◆ The relocated and electrified storage tracks within the 4th and King railyards

Each source is assessed independently based on distance to sensitive receptors, equipment type, and applicable noise criteria, and in comparison to the previously evaluated/approved project effect and impact conclusions and associated mitigation measures.

• Operation Noise Source: At-Grade Utility Building

The at-grade utility building would house mechanical equipment such as fans, pumps, and electrical systems and is considered a stationary noise source. The at-grade utility building would be enclosed, and mechanical equipment would be shielded. Noise emissions from such equipment are continuous and typically operate during daytime hours, although some components (e.g., ventilation fans or emergency systems) may run intermittently or at night.

Source Levels and Assumptions

Based on manufacturer specifications and published reference levels for typical mechanical equipment used in transit-support facilities, such as those cited in the FTA's Transit Noise and Vibration Impact Assessment Manual (FTA 2018), the estimated continuous noise levels generated at the at-grade utility building would be approximately 65 to 70 dBA L_{eq} at 10 feet from the source, assuming enclosed mechanical equipment with standard acoustical louvers and ventilation paths. This estimate is considered conservative because it represents the upper end of expected operational levels and assumes continuous daytime use of the loudest equipment, even though actual equipment may operate intermittently or at lower levels. Equipment operation is assumed during daytime hours, with emergency operation (e.g., backup generator or ventilation activation) modeled as infrequent events.

Propagation and Receptor Distance

The nearest residential sensitive receptors are located approximately 300 feet from the at-grade utility building site. Operational noise generated by mechanical equipment at the at-grade utility building is conservatively estimated at 70 dBA L_{eq} at 10 feet, based on typical enclosed utility

infrastructure. Ambient noise levels in this area range from 66 to 69 dBA L_{eq} , as shown in Table 6. Applying standard spherical spreading loss (i.e., $-20 \cdot \log_{10}(\text{distance ratio})$) and no significant shielding or reflection:

$$\text{Noise at 300 ft} = 70 \text{ dBA} - 20 \cdot \log(300/10) = 70 - 29.5 = 40.5 \text{ dBA } L_{eq}$$

This predicted noise level at the residential property line (~40.5 dBA L_{eq}) is below the FTA threshold of 60 dBA L_{eq} for residential exterior environments, lower than the existing ambient daytime levels measured at the site (66 to 69 dBA L_{eq}), and well below the City's nighttime interior standard of 45 dBA (assuming 15 dBA exterior-to-interior reduction with windows partially open). Applying standard spherical spreading loss, the estimated noise level is approximately 40.5 dBA L_{eq} at 300 feet, the distance to the nearest residential use and Salesforce Park.

Therefore, operational noise from the at-grade utility building would not exceed noise criteria thresholds and standards and would not result in an adverse effect or significant noise impact. Vent shaft silencers were originally proposed for below-grade ventilation shafts, which had higher projected operational noise levels due to their depth and open shaft design. However, for the at-grade utility building, projected operational noise levels are below applicable thresholds and standards, and such silencers are not anticipated.

No additional mitigation would be required. However, previously adopted Mitigation Measures, including New-MM-NO-1.1 (enclosure of mechanical equipment to meet the American Public Transportation Association (APTA) guideline of 60 dBA L_{eq} at 50 feet), have been incorporated into the Transbay Program and would remain applicable to the mechanical building proposed as part of the 2026 Revised Project. Although the building has been reconfigured from a vent shaft to an enclosed utility structure, the function of housing mechanical equipment remains consistent, and the prior mitigation continues to address operational noise concerns at this site.

In the prior environmental analysis, ventilation shaft equipment was expected to comply with the APTA guideline of 60 dBA, L_{eq} at 50 feet from the shaft (previously adopted New-MM-NO-1.1). Compared to the previously evaluated/approved project, the 2026 Revised Project would not result in new or more severe operational noise effects or impacts. The utility building's noise exposure levels would be comparable to or lower than those of the previously evaluated/approved vent structure.

Roadway Traffic Noise

Traffic noise in proximity to the at-grade utility building was assessed by calculating traffic noise levels at a reference distance of 100 feet from the centerline of each roadway segment at a major intersection, along Beale Street from Pine and Market streets to Folsom Street. As shown in Table 9, under cumulative conditions, noise levels ranged from 50 to 61 dBA L_{eq} . When predicted noise levels from the 2026 Revised Project are included (cumulative + project) and added to existing roadway noise levels, the resulting noise level would remain within the same general range, with minimal increases.

The 2026 Revised Project’s contribution to cumulative + project area noise levels is minor, with increases over predicted cumulative conditions ranging from 0.0 to 0.3 dB. A 3 dB increase is generally required for a clearly perceptible change in community noise levels (Caltrans 2013). Project-related increases of up to 0.3 dB would be well below the threshold of a 3 dB increase. Therefore, the 2026 Revised Project is not expected to result in a substantial permanent increase in ambient noise levels along any of the evaluated roadway segments under operational conditions.

Table 9. Cumulative and Cumulative plus Project Traffic Noise Levels, dBA

Roadway Segment	Cumulative 2040 L _{eq} @ 100 ft (dBA)	Cumulative + Project L _{eq} @ 100 ft (dBA)	Increase over Cumulative, dB
Pine Street & Market Street @ Davis Street/Beale Street to South	51	52	0.2
Pine Street & Market Street @ Davis Street/Beale Street to North	50	50	0.0
Pine Street & Market Street @ Davis Street/Beale Street to West	61	61	0.3
Pine Street & Market Street @ Davis Street/Beale Street to East	61	61	0.3
Mission Street @ Beale Street to South	52	52	0.0
Mission Street @ Beale Street to South	60	60	0.0
Mission Street @ Beale Street to North	59	59	0.0
Mission Street @ Beale Street to West	60	61	0.1
Howard Street @ Beale Street to East	61	61	0.1
Howard Street @ Beale Street to South	60	60	0.1
Howard Street @ Beale Street to North	57	57	0.0
Howard Street @ Beale Street to West	61	61	0.1
Howard Street @ Beale Street to East	58	58	0.1
Folsom Street @ Beale Street to South	59	59	0.0
Folsom Street @ Beale Street to North	59	59	0.1
Folsom Street @ Beale Street to West	61	61	0.0
Folsom Street @ Beale Street to East	60	60	0.1

Notes: dB = decibel; dBA = A-weighted decibel; ft = feet; L_{eq} = hourly average noise level

- **Operation Noise Source: Relocated and Electrified Storage Tracks at 4th and King Railyards**

The relocation and electrification of storage tracks to the south side of the 4th and King railyards places the track work closer (approximately 100 feet) to the residences than the existing tracks and may affect noise exposure.

Source Levels and Assumptions

Train storage and repositioning activities typically involve low-speed movements, idling, and electric motor or auxiliary equipment noise. Based on FTA reference data, electrified railyard operations (including low-speed train passbys and idling) are assumed to generate:

- ◆ L_{max} : 72–78 dBA at 50 feet
- ◆ L_{eq} : 60–65 dBA (hourly average) at 50 feet during active hours

Operations are expected to occur intermittently during daytime hours (7 a.m. to 10 p.m.), primarily for repositioning, cleaning, and storage. No high-speed movements or nighttime train horn use are expected.

The nearest multi-family residential façade is located approximately 100 feet from the edge of the relocated track alignment. The estimated L_{max} and L_{eq} (hourly) use the FTA reference data presented above.

Comparison to Criteria

The FTA's operational noise criteria for residential uses in a dense urban setting is 65 dBA L_{eq} . Given that the 2026 Revised Project is located in a dense urban setting with existing background levels exceeding 65 dBA during the day (see Table 6), the 2026 Revised Project's incremental noise increase is unlikely to result in a perceptible or adverse change in ambient levels when trains operate intermittently.

In addition to the FTA assessment methodology, the City has noise guidelines for different land uses. These guidelines are used to analyze whether the 2026 Revised Project's operational noise would be considered "acceptable" for the land uses adjacent to the relocated storage tracks.

Under the San Francisco Noise Ordinance (Article 29 of the Police Code), a project would result in a significant noise impact if operational activities:

- ◆ exceed the ambient noise level by more than 5 dBA L_{eq} at the property line of a noise-sensitive use (e.g., residential, park, school);
- ◆ generate interior noise levels exceeding 45 dBA L_{eq} during nighttime hours (for residential spaces with windows open unless mechanical ventilation is present); or
- ◆ introduce a new stationary noise source exceeding 80 dBA at 100 feet, or an equivalent level at a different distance.

The electrified storage track operations involve intermittent low-speed train movements and idling. Based on FTA reference data, such operations would produce approximately 60–65 dBA L_{eq} and 72–78 dBA L_{max} at 50 feet. Sensitive receptors (residential uses) are located approximately 100 feet from the relocated track alignment, meaning these levels would attenuate to 54–59 dBA L_{eq} and 66–72 dBA L_{max} .

As shown in Table 6, measured ambient levels in this area range from 69 dBA, L_{eq} to 71 dBA, L_{eq} , and already exceed 65 dBA L_{eq} during daytime. A doubling of sound energy results in a 3 dB increase in noise level. In this case, adding ambient noise levels ranging from 54 to 59 dBA L_{eq} to the project's operational noise level of 69 to 71 dBA L_{eq} would not constitute a doubling of sound energy and, therefore, would result in an increase of less than 3 dB. As a result, the net

increase would remain below the San Francisco Noise Ordinance criterion of a 5 dBA L_{eq} increase, and would not be considered an adverse noise effect under FTA guidelines or a significant impact under CEQA. Furthermore, intermittent repositioning activities are not expected to generate sustained nighttime (10 p.m.) noise that would exceed interior thresholds, especially for electrified trains, which produce significantly less low-frequency noise than diesel locomotives, which currently access the existing storage track.

- **Operational Noise Conclusions**

- **Federal Transit Administration Impact Assessment**

While the at-grade utility building would introduce mechanical equipment noise and the relocated tracks would introduce operational rail noise closer to sensitive receptors compared with the previously evaluated/approved project, the predicted levels are within the FTA impact thresholds for urban residential environments. Operational noise from mechanical systems within the utility building and from train storage activities are, therefore, expected to result in no adverse noise effects, as determined using FTA criteria.

- **California Environmental Quality Act Impact Assessment**

Operational noise from both the at-grade utility building and the relocated and electrified tracks would remain within applicable City standards and would not result in a substantial increase above ambient conditions. Therefore, operational noise impacts under CEQA are considered less than significant, and no new mitigation is required. However, previously adopted mitigation measures, including New-MM-NO-1.1 (enclosure of mechanical equipment to meet the APTA guideline of 60 dBA L_{eq} at 50 feet), have been incorporated into the Transbay Program and would remain applicable to the mechanical building proposed as part of the 2026 Revised Project.

6.2.3 Vibration – Construction

The 2026 Revised Project would not use construction techniques or equipment known to produce high levels of groundborne vibration, such as impact pile driving or blasting. Demolition and building construction would involve standard equipment, such as backhoes, concrete saws, dozers, and rollers, that produce vibration levels well below thresholds for structural damage (0.12–0.20 in/sec PPV) or human annoyance (72 VdB), as defined by the FTA (FTA 2018).

- **Impact Screening Distances**

Construction activities can generate vibration levels up to 94 VdB (0.21 in/sec PPV) at 25 feet from equipment such as a vibratory roller. At 50 feet, the estimated PPV from vibratory rollers (source level of 0.21 in/sec at 25 feet) would attenuate to approximately 0.074 in/sec, which is below the FTA threshold of 0.2 in/sec for modern buildings, and no structures are located within 50 feet of the construction area. Given the short duration of construction at any single location,

the type of equipment used, and the distance to nearby structures, the new components proposed under 2026 Revised Project are not expected to cause building damage.

The FTA does not provide specific annoyance-based criteria for construction-related vibration. Therefore, this analysis focuses on structural damage thresholds using PPV. A general vibration assessment has been conducted based on the following considerations:

- ◆ **Use of FTA Reference Data:** Groundborne vibration levels for representative construction equipment have been estimated using FTA's standardized data (FTA 2018). These reference levels are widely used in environmental noise and vibration studies and provide a conservative basis for evaluating potential impacts instead of site-specific measurements.
- ◆ No hospitals, scientific laboratories, or vibration-sensitive institutional facilities (e.g., recording studios or data centers) are present that would require a more detailed analysis.
- ◆ **Conformance with Industry Standards:** Under both CEQA and NEPA, use of FTA reference levels in a general assessment is consistent with best practices for transit-related and infrastructure projects that do not introduce high-intensity vibration sources or affect historically fragile structures.

Given these factors, site-specific vibration analysis was not deemed necessary, as baseline vibration levels were not required to support this analysis.

• **Construction Vibration Conclusion**

Construction activities would be considered to have an adverse effect or significant impact if they generate vibration in excess of FTA's construction vibration criteria for building damage, expressed in peak particle velocity. Although certain equipment, such as bulldozers or vibratory rollers, can generate perceptible ground-borne vibration, the nearest buildings are located approximately 110 feet from active construction areas, beyond the distance at which construction vibration typically exceeds damage thresholds. Based on FTA guidance and typical equipment profiles, PPV levels from construction equipment at this distance are expected to remain below 0.2 in/sec, which is appropriate for engineered or modern concrete and masonry buildings. There are no fragile or vibration-sensitive structures (e.g., unreinforced masonry) in the vicinity of the construction footprint for the at grade utility building or relocated and electrified storage tracks. Therefore, construction vibration would not result in adverse effects or significant impacts related to structural damage.

6.2.4 Vibration - Operation

Operational groundborne vibration is typically associated with rail systems, mechanical equipment, or large-scale industrial activity. For the 2026 Revised Project, the primary source of potential operational vibration would be the relocated and electrified storage tracks within the 4th and King railyards. This section evaluates the potential for vibration impacts based on FTA guidelines and standard CEQA thresholds.

FTA Vibration Criteria

The FTA Transit Noise and Vibration Impact Assessment Manual (2018) provides the following applicable thresholds for frequent vibration events (more than 70 events/day):

- ◆ 72 VdB – Maximum acceptable vibration for residential uses (human annoyance)
- ◆ 0.30 in/sec PPV – Threshold for structural damage to engineered concrete and masonry buildings

These thresholds are used to determine whether train movements could cause structural damage or perceptible annoyance to nearby receptors.

CEQA Considerations

Under CEQA, a significant impact related to vibration would occur if operations generate excessive groundborne vibration or groundborne noise levels. Evaluation of significance considers proximity to receptors, equipment type, and exposure frequency.

- **Vibration Source: Relocated Electrified Storage Tracks within the 4th and King Railyards**

The relocated and electrified tracks would support low-speed train movements, typically under 15 mph, during vehicle storage, repositioning, or cleaning. Unlike diesel-powered locomotives, which currently access this area, electrified trains produce minimal vibration because of their lower mass, fewer moving mechanical parts, and absence of exhaust impulses or engine noise.

FTA reference data indicates that:

- ◆ light rail or electric multiple unit (EMU) vehicles operating at low speeds typically generate 65 to 70 VdB at 50 feet from the centerline of track.
- ◆ PPV levels for slow-speed EMU vehicles are typically <0.01 in/sec, far below damage thresholds.

The nearest building is approximately 100 feet from the proposed storage tracks and is a modern, multi-story concrete and glass structure, which is generally less susceptible to vibration transmission than older wood-frame or unreinforced masonry buildings.

Evaluation

- ◆ **Vibration Exposure:** Predicted vibration levels from train movements at 100 feet would be 60 to 65 VdB. These are typical of EMU vehicles operating at low speeds and are consistent with FTA reference data for similar rail systems.
- ◆ **Structural Damage Risk:** Predicted PPV levels from electrified train movements are well below the FTA's building damage thresholds (e.g., 0.20 in/sec PPV for conventional buildings), and no buildings in the vicinity are classified as especially fragile or vibration-sensitive.

- ◆ **Train Operations Context:** Train movements at this facility are limited to low-speed storage and repositioning activities and do not constitute high-frequency operations that would pose long-term structural or perceptual impacts.

Operational Vibration Conclusion

Based on the applicable CEQA checklist criteria for vibration, which assesses whether a project would generate excessive groundborne vibration, buildings adjacent to the 2026 Revised Project components would not experience perceptible vibration or structural risk due to their distance from the source of vibration. Operational vibration generated by train movements on the relocated and electrified tracks would be low in magnitude, limited to repositioning and storage, and fall well below FTA thresholds and CEQA criteria. Under FTA guidance, “frequent events” are defined as more than 70 train movements per day; train activity associated with this facility would be consistent with what was previously evaluated and cleared under the PCEP and is considered under the FTA’s “frequent events” category (more than 70 train events per day). No operational vibration adverse effects or significant impacts are expected, and no mitigation is required.

7 CONSISTENCY WITH PRIOR ENVIRONMENTAL DOCUMENTATION

This section summarizes the environmental findings of the previously evaluated/approved project—and compares them to the noise and vibration findings of the 2026 Revised Project. This comparison supports the conclusion that the 2026 Revised Project would not result in new or more severe environmental adverse effects or significant impacts, consistent with the standards required for a CEQA Addendum and NEPA Re-evaluation.

7.1 Summary of Prior Findings for the Previously Evaluated/Approved Project

The 2018 Final SEIS/EIR and supporting technical documents concluded the following:

- ◆ **Construction Noise:** Construction noise would exceed San Francisco Police Code Article 29 limits (80 dBA L_{eq} at 100 feet), particularly for daytime activities, requiring previously adopted Mitigation Measures NoiC-1 through NoiC-6.
- ◆ **Construction Vibration:** Vibration levels could approach the FTA’s structural damage threshold of 0.12 in/sec PPV for sensitive buildings. Mitigation Measures VibC-1 through VibC-6 were adopted to manage proximity of heavy equipment and avoid cosmetic damage.
- ◆ **Operational Noise:** Train operations were not expected to result in exceedances of FTA noise thresholds (typically 65–70 dBA L_{eq}), except near the AC Transit bus storage facility and specific fan vent structures.
- ◆ **Operational Vibration:** Using the FTA criteria for “frequent events” (>70 train movements/day), where a 72 VdB threshold was applied to residential receptors, impacts

were identified at several locations along the alignment and mitigated with resilient fasteners, booted track, or floating slabs, depending on proximity and sensitivity.

The 2023 Addendum/Re-evaluation confirmed these conclusions based on updated engineering design with detailed modeling inputs and reaffirmed that the Caltrain EMU vehicles would generate vibration levels no higher than their diesel predecessors, and fan noise would not increase to result in a new or more severe adverse effect or significant impact.

7.2 Comparison of the 2026 Revised Project to the Previously Evaluated/Approved Project

Construction Noise and Vibration:

- ◆ The at-grade utility building's roof would also provide ventilation, similar to the previously evaluated/approved ventilation structure. The 2026 Revised Project would reduce the amount of deep excavation, mechanical fit-out, and above-ground structural work compared to the previously evaluated/approved train box extension and associated facilities.
- ◆ Heavy construction activities, such as excavation and haul truck traffic, would be reduced in scale and duration with the 2026 Revised Project, as compared to the previously evaluated/approved project.
- ◆ Although construction of the at-grade utility building would result in temporary noise and vibration, the predicted levels (L_{max} 90 dBA, L_{eq} 85 dBA at 50 feet) are similar to or less than those modeled in the 2018 Final SEIS/EIR, and impacts would occur over a shorter duration compared to the previously evaluated/approved project.
- ◆ Construction associated with the 2026 Revised Project would use typical equipment (e.g., backhoes, bulldozers), and vibration levels are expected to remain well below building damage thresholds for engineered or modern structures. There are no fragile or vibration-sensitive structures (e.g., unreinforced masonry) in the vicinity of the construction footprint for the at grade utility building or relocated and electrified storage tracks.

Operational Noise:

- ◆ The at-grade utility building is expected to generate a noise level of 70 dBA L_{eq} at 10 feet, which attenuates to approximately 50.5 dBA L_{eq} at 100 feet and 40.5 dBA L_{eq} at 300 feet—below both FTA thresholds and City standards and well below ambient levels at nearby parks and residences. This is a notable reduction compared to the previously evaluated/approved vent shaft, entrance pavilion, and train box extension.
- ◆ The relocated storage tracks within the 4th and King railyards are positioned closer to a residential receptor than the previously evaluated/approved project; however, they would be used for low-speed train storage (15 mph) and the trains would be electric rather than diesel.

- ◆ The number of train movements is consistent with what was previously evaluated under the PCEP and considered under the FTA's "frequent events" category (more than 70 train events per day). Operational noise levels remain comparable or lower than previously evaluated, due electrified track.

Operational Vibration:

- ◆ Operation of the above-ground utility building would not result in perceptible vibration levels, as the mechanical equipment housed within the structure (e.g., fans, pumps) is not expected to produce significant groundborne vibration.
- ◆ The 2026 Revised Project's operational vibration levels from the relocated and electrified storage tracks within the 4th and King railyards are expected to remain well below the threshold criterion of 72 VdB at 50 to 100 feet. This is due to low train speeds and operational use limited to storage movements. This is consistent with the level of operational activities previously assumed within the railyards.
- ◆ The 2026 Revised Project is not anticipated to result in new or more severe vibration effects or impacts compared to the previously evaluated/approved project.

7.2.1 Mitigation Applicability

The noise and vibration impacts of the 2026 Revised Project have been assessed using applicable FTA thresholds and City standards. Where effects or impacts have been identified, previously adopted mitigation measures would apply and would reduce those effects to not adverse and impacts to less than significant. No new or more severe effects or impacts have been identified compared to the previously evaluated/approved project. Therefore, while all previously adopted mitigation measures remain part of the Transbay Program, the following noise and vibration measures are applicable to the 2026 Revised Project:

- ◆ NoiC-1 through NoiC-6: Applicable to the 2026 Revised Project construction activities (e.g., daytime equipment limits, mufflers, advanced notifications)
- ◆ NoiO-1 through NoiO-3: Applicable to operational noise sources associated with the relocated and electrified storage tracks evaluated in the 2026 Revised Project (e.g., for operational noise (track design, resilient fasteners, equipment enclosures, vent shaft silencers))
- ◆ New-MM-NO-1.1: Originally approved for ventilation shaft noise control; may not be necessary for the at-grade utility building based on updated noise projections, but would still apply programmatically where mechanical ventilation equipment noise exceeds the APTA guideline of 60 dBA L_{eq} at 50 feet

Vent shaft silencers are not anticipated to be required for the at-grade utility building, as projected operational noise levels are below applicable thresholds and standards and lower than those for which such mitigation was originally proposed. However, these previously adopted measures are part of the Transbay Program, would continue to apply to other ventilation

structures in the Transbay Program, and would continue to apply to other ventilation structures, if warranted by site-specific conditions.

8 CONCLUSION

The 2026 Revised Project would generate less intensive construction activities than the previously evaluated/approved project, with shorter duration and lower peak noise and vibration levels. Operational noise and vibration associated with the relocated storage tracks and at-grade utility building would be below applicable thresholds and standards. The deferral and elimination of other 2026 Revised Project components would either lessen or remove the noise and vibration construction and operations effects and impacts, as compared to the previously evaluated/approved project.

Analysis of the 2026 Revised Project in this technical memorandum demonstrates that the 2026 Revised Project would not result in new or more severe adverse noise and vibration effects or significant impacts than previously evaluated and new or amended mitigation measures would not be required. The effect and impact conclusions presented in this memorandum for the 2026 Revised Project are consistent with the conclusions of the previously evaluated/approved project.

Overall, the previously adopted mitigation measures for construction and operational noise and vibration effects, which have been incorporated into the Transbay Program, would apply to those components of the project that were previously evaluated and are not affected by the 2026 Revised Project. Specifically, Mitigation Measures NoiC-1 through NoiC-6, NoiO-1 through NoiO-3, New-MM-NO-1.1, and VibC-1 through VibC-6 remain applicable to the Transbay Program and will continue to apply to both unchanged and modified components of the project, as appropriate, consistent with the previously evaluated/approved project.

For the two project components included in the 2026 Revised Project that could result in noise or vibration effects and impacts, the at-grade utility building and the relocated and electrified storage tracks, previously adopted Mitigation Measures NoiC-1 through NoiC-6, NoiO-1 through NoiO-3, and New-MM-NO-1.1) are applicable to these 2026 Revised Project components, based on the updated technical analysis presented in this technical memorandum.

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APPENDIX A

Calculations and Modeling Sheets

Phase (Demolition)

Project-Generated Construction Source Noise Prediction Model
60735823 - Transbay PMCM TO 1



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)		Assumptions:	Reference Emission Noise Levels (L _{max}) at 50 feet ¹	Usage Factor ¹
		Day	Night			
Threshold*	85	80	Day	Concrete Saw	90	0.2
	269	70	Night		Dozer	82
Receptor	50		85	Backhoe	78	0.4
	50		85			
	100		79			

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Concrete Saw	83
Dozer	78
Backhoe	74

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.6

Sources:
¹ Obtained from the FHWA Roadway Construction Noise Model, Jan.
² Based on the following from the Federal Transit Noise and Vibration
 $L_{eq}(\text{equip}) = EL + 10 \log(U.F.) - 20 \log(D/50) - 10 * G \log(D/50)$
 Where: EL = Emission Level;
 U.F. = Usage Factor;
 G = Constant that accounts for topography and ground effects; and
 D = Distance from source to receiver.

Phase (SitePrep)

Project-Generated Construction Source Noise Prediction Model
60735823 - Transbay PMCM TO 1



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)		Assumptions:	Reference Emission Noise Levels (L _{max}) at 50 feet ¹	Usage Factor ¹
		Day	Night			
Threshold*	62	80	Day	Grader Backhoe	85 78	0.4 0.4
	195	70	Night			
Receptor	50	82				
	50	82				
	100	76				

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Grader	81
Backhoe	74

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
81.8

Sources:
¹ Obtained from the FHWA Roadway Construction Noise Model, Jan
² Based on the following from the Federal Transit Noise and Vibration
 $L_{eq}(equip) = E.L. + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G) \log(D/50)$
 Where: E.L. = Emission Level;
 U.F. = Usage Factor;
 G = Constant that accounts for topography and ground effects; and
 D = Distance from source to receiver.

Phase (Grading)

Project-Generated Construction Source Noise Prediction Model
60735823 - Transbay PMCM TO 1



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)		Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet ¹	Usage Factor ¹
Threshold*	73	80	Day	Grader	85	0.4
	232	70	Night			
Receptor	50	83		Dozer	82	0.4
	50	83		Backhoe	78	0.4
	100	77				

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L_{eq} dBA at 50 feet ²
Grader	81
Dozer	78
Backhoe	74

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)

83.3

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, Jan

² Based on the following from the Federal Transit Noise and Vibration

$$L_{eq}(equip) = EL + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G/50)$$

Where: EL = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

Phase (Building)

Project-Generated Construction Source Noise Prediction Model
60735823 - Transbay PMCM TO 1



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)		Assumptions:	Reference Emission Noise Levels (L _{max}) at 50 feet ¹	Usage Factor ¹
		80	70			
Threshold*	36	80	Day	Crane	81	0.16
	114	70	Night			
Receptor	50		77	Backhoe	78	0.4
	50		77			
	100		71			

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Crane	73
Man Lift	68
Backhoe	74

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)

77.1

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, Jan

² Based on the following from the Federal Transit Noise and Vibration

$$L_{eq}(equip) = E.L. + 10 \cdot \log(U.F.) - 20 \cdot \log(D/50) - 10 \cdot G \cdot \log(D/50)$$

Where: E.L. = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

Phase (Pave)

Project-Generated Construction Source Noise Prediction Model
60735823 - Transbay PMCM TO 1



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)		Assumptions:	Reference Emission Noise Levels (L _{max}) at 50 feet ¹	Usage Factor ¹
Threshold*	51	80	Day	Concrete Mixer Truck Paver Roller Backhoe	79	0.4
	160	70	Night		77	0.5
Receptor	50		80		80	0.2
	50		80		78	0.4
	100		74			

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Concrete Mixer Truck	75
Paver	74
Roller	73
Backhoe	74

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
80.1

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, Jan

² Based on the following from the Federal Transit Noise and Vibration

$$L_{eq}(\text{equip}) = EL + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G) \log(D/50)$$

Where: EL = Emission Level;

U.F. = Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

APPENDIX B

**Measured Noise Level Data and Field Noise Measurement
Photo Log**

LT-01-Ldn

LT-01-Ldn
Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet



Project: 60735823 - Transbay PMCM TO 1

Date: Existi Wednesday, December 17, 2025

Thursday, December 18, 2025

Site: LT-01

Hour	Leq	Lmax	L50	L90
14:30	66.7	84.9	65.4	64.3
15:30	65.8	75.8	65.3	64.2
16:30	65.9	76.3	65.2	64.2
17:30	65.7	78.4	65.0	64.1
18:30	65.2	76.6	64.6	63.5
19:30	64.8	75.7	64.3	63.3
20:30	63.1	77.4	62.7	61.8
21:30	61.2	74.0	60.3	59.2
22:30	59.7	78.1	58.1	56.7
23:30	57.6	74.6	56.5	54.9
0:30	59.4	75.2	56.1	54.6
1:30	55.8	70.7	54.9	53.8
2:30	56.3	70.4	55.2	53.8
3:30	56.3	76.9	55.3	54.2
4:30	61.5	73.6	61.3	60.2
5:30	65.6	80.0	65.3	63.8
6:30	67.1	82.3	66.0	64.6
7:30	67.6	79.5	67.5	66.5
8:30	67.1	86.9	66.8	65.5
9:30	69.2	93.7	66.0	64.8
10:30	65.3	74.7	65.0	64.2
11:30	65.6	75.5	65.2	64.3
12:30	66.0	75.2	65.6	64.6
13:30	66.7	87.7	65.5	64.3

Averages			
	Leq	Lmax	L90
Daytime (7 a.m. - 10 p.m.)	66.0	79.9	65.3
Nighttime (10 p.m. - 7 a.m.)	62.2	75.6	58.9

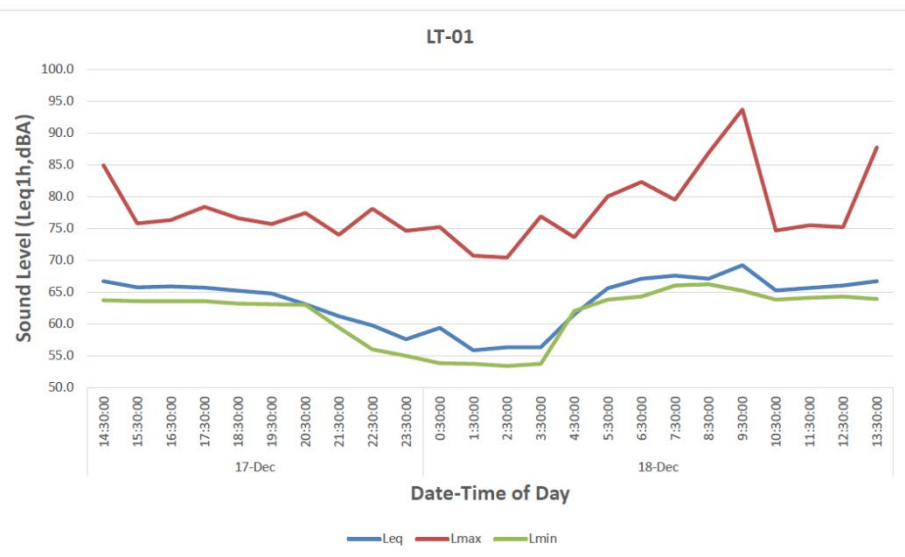
Uppermost-Level			
	Leq	Lmax	L90
Daytime (7 a.m. - 10 p.m.)	69.2	93.7	67.5
Nighttime (10 p.m. - 7 a.m.)	67.1	82.3	66.0

Percentage of Energy	
Daytime	80%
Nighttime	20%

Calculated L_{dn}, dBA
69.4

LT-01 (Graph)

Date	Time	Leq	Lmax	Lmin
17-Dec	14:30:00	66.7	84.9	63.7
17-Dec	15:30:00	65.8	75.8	63.6
17-Dec	16:30:00	65.9	76.3	63.6
17-Dec	17:30:00	65.7	78.4	63.6
17-Dec	18:30:00	65.2	76.6	63.2
17-Dec	19:30:00	64.8	75.7	63.1
17-Dec	20:30:00	63.1	77.4	63.0
17-Dec	21:30:00	61.2	74.0	59.4
17-Dec	22:30:00	59.7	78.1	56.0
17-Dec	23:30:00	57.6	74.6	55.0
18-Dec	0:30:00	59.4	75.2	53.8
18-Dec	1:30:00	55.8	70.7	53.7
18-Dec	2:30:00	56.3	70.4	53.4
18-Dec	3:30:00	56.3	76.9	53.7
18-Dec	4:30:00	61.5	73.6	62.0
18-Dec	5:30:00	65.6	80.0	63.8
18-Dec	6:30:00	67.1	82.3	64.3
18-Dec	7:30:00	67.6	79.5	66.0
18-Dec	8:30:00	67.1	86.9	66.2
18-Dec	9:30:00	69.2	93.7	65.2
18-Dec	10:30:00	65.3	74.7	63.8
18-Dec	11:30:00	65.6	75.5	64.1
18-Dec	12:30:00	66.0	75.2	64.3
18-Dec	13:30:00	66.7	87.7	63.9



ST-01

SLM & RTA Summary

Translated: 24-Mar-25 13:20:55
 File Translated: C:\Data\Projects\Transbay\Field\ST_004.slmdl
 Model Number: 824
 Serial Number: A2624
 Firmware Rev: 4.29
 Software Version: 3.12
 Name: AECOM
 Descr1: 2020 L St
 Descr2: Sacramento, CA
 Setup: SLM&RTA.ssa
 Setup Descr: SLM & Real-Time Analyzer
 Location:
 Note 1:
 Note 2:

Overall Any Data

Start Time: 17-Dec-24 14:29:50
 Elapsed Time: 20:00.6

	A Weight	C Weight	Flat
Leq:	68.5 dBA	75.7 dBC	76.9 dBF
SEL:	99.3 dBA	106.5 dBC	107.7 dBF
Peak:	99.6 dBA	99.3 dBC	99.5 dBF
		12/17/2024 14:33	12/17/2024 14:33 12/17/2024 14:33
Lmax (slow):	87.5 dBA	87.2 dBC	87.4 dBF
		12/17/2024 14:33	12/17/2024 14:33 12/17/2024 14:33
Lmin (slow):	62.0 dBA	71.7 dBC	72.8 dBF
		12/17/2024 14:46	12/17/2024 14:45 12/17/2024 14:46
Lmax (fast):	90.1 dBA	89.7 dBC	89.9 dBF
		12/17/2024 14:33	12/17/2024 14:33 12/17/2024 14:33
Lmin (fast):	61.5 dBA	70.1 dBC	70.9 dBF
		12/17/2024 14:46	12/17/2024 14:45 12/17/2024 14:45
Lmax (impulse):	91.4 dBA	91.0 dBC	91.1 dBF
		12/17/2024 14:33	12/17/2024 14:33 12/17/2024 14:33
Lmin (impulse):	62.1 dBA	72.1 dBC	73.8 dBF
		12/17/2024 14:42	12/17/2024 14:47 12/17/2024 14:49

ST-01

Spectra	17-Dec-24		14:29:50	Run Time:	20:00.6		
Start Time:	Leq 1/3 Oct	Leq 1/1 Oct	Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct	Min 1/1 Oct
Freq Hz							
12.5	65.5		75.4			43.4	
16	66		70.4		78.6	49.9	53.7
20	65.3					50.7	
25	66.2					52.4	
31.5	66.5	71.9		68	75.2	53	58.8
40	68.3			70.2		55.9	
50	66.6			70.9		56.2	
63	66.9	71.2		70.2	78.4	54.8	60.2
80	65.8			76.6		55.3	
100	64.4			67.5		52.8	
125	64	68.1		65.7	70.7	53.9	57.7
160	60.6			63.9		51.7	
200	60.6			61.3		52.4	
250	60.7	65.1		68.1	69.5	53.6	57.9
315	59.7			60.4		53.3	
400	59.5			59.2		54.5	
500	58.6	63.8		59.2	64.1	53.4	58.4
630	58.9			59.5		52.8	
800	59.4			78.9		51.5	
1000	59.4	65.6		78.7	87.9	51.5	55.5
1250	62.7			86.7		48.5	
1600	58.5			82		47.6	
2000	52.8	60.2		62.2	82.7	46.4	51
2500	51.9			73.9		43.9	
3150	49.8			69.6		40.8	
4000	47.7	52.8		66.1	71.5	38.1	43.2
5000	45.8			59.8		33.9	
6300	44.9			54.5		30.3	
8000	45	48.9		43.7	55.7	27	32.4
10000	41.6			48		22.6	
12500	37.6			29.4		19.5	
16000	32.2	39		26.2	32.6	20.1	25.3
20000	27.3			27.3		21.7	

ST-01

Ln Start Level:	15 dB	
L 2.00		73.8 dBA
L 8.00		69.5 dBA
L 25.00		67.5 dBA
L 50.00		65.6 dBA
L 90.00		63 dBA
L 95.00		62.7 dBA

Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	65.0 dB	Exceeded:	2 times
SPL Exceedance Level 2:	80 dB	Exceeded:	1 times
Peak-1 Exceedance Level:	100 dB	Exceeded:	0 times
Peak-2 Exceedance Level:	120 dB	Exceeded:	0 times
Hysteresis:	3		
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		

Current Any Data

Start Time:	17-Dec-24	14:29:50
Elapsed Time:	20:00.6	

	A Weight	C Weight	Flat
Leq:	68.5 dBA	75.7 dBC	76.9 dBF
SEL:	99.3 dBA	106.5 dBC	107.7 dBF
Peak:	99.6 dBA	99.3 dBC	99.5 dBF
	12/17/2024 14:33	12/17/2024 14:33	12/17/2024 14:33

Lmax (slow):	87.5 dBA	87.2 dBC	87.4 dBF
	12/17/2024 14:33	12/17/2024 14:33	12/17/2024 14:33

Lmin (slow):	62.0 dBA	71.7 dBC	72.8 dBF
	12/17/2024 14:46	12/17/2024 14:45	12/17/2024 14:46

Lmax (fast):	90.1 dBA	89.7 dBC	89.9 dBF
	12/17/2024 14:33	12/17/2024 14:33	12/17/2024 14:33

Lmin (fast):	61.5 dBA	70.1 dBC	70.9 dBF
	12/17/2024 14:46	12/17/2024 14:45	12/17/2024 14:45

Lmax (impulse):	91.4 dBA	91.0 dBC	91.1 dBF
	12/17/2024 14:33	12/17/2024 14:33	12/17/2024 14:33

Lmin (impulse):	62.1 dBA	72.1 dBC	73.8 dBF
	12/17/2024 14:42	12/17/2024 14:47	12/17/2024 14:49

Calibrated:	1/1/2000 2:45	Offset: -46.3 dB
Checked:	12/17/2024 14:27	Level: 113.9 dB
Calibrator	597860	Level: 114.0 dB
Cal Records Count:	0	

Interval Records:	Enabled	Number Interval Records:	21
History Records:	Enabled	Number History Records:	4804
Run/Stop Records:		Number Run/Stop Records:	2

ST-02

SLM & RTA Summary

Translated: 24-Mar-25 13:21:33
 File Translated: C:\Data\Projects\Transbay\Field\ST_005.slmdl
 Model Number: 824
 Serial Number: A2624
 Firmware Rev: 4.29
 Software Version: 3.12
 Name: AECOM
 Descr1: 2020 L St
 Descr2: Sacramento, CA
 Setup: SLM&RTA.ssa
 Setup Descr: SLM & Real-Time Analyzer
 Location:
 Note 1:
 Note 2:

Overall Any Data

Start Time: 17-Dec-24 14:55:19
 Elapsed Time: 20:00.6

	A Weight	C Weight	Flat
Leq:	60.5 dBA	71.3 dBC	72.7 dBF
SEL:	91.3 dBA	102.1 dBC	103.5 dBF
Peak:	91.0 dBA	94.7 dBC	98.2 dBF
		12/17/2024 15:11	12/17/2024 15:11 12/17/2024 15:11
Lmax (slow):	71.4 dBA	77.8 dBC	80.1 dBF
		12/17/2024 15:11	12/17/2024 15:11 12/17/2024 15:11
Lmin (slow):	56.0 dBA	67.3 dBC	68.6 dBF
		12/17/2024 15:03	12/17/2024 15:08 12/17/2024 15:08
Lmax (fast):	77.2 dBA	84.6 dBC	87.2 dBF
		12/17/2024 15:11	12/17/2024 15:11 12/17/2024 15:11
Lmin (fast):	55.4 dBA	65.5 dBC	66.7 dBF
		12/17/2024 15:03	12/17/2024 14:56 12/17/2024 14:56
Lmax (impulse):	78.9 dBA	88.3 dBC	90.8 dBF
		12/17/2024 15:11	12/17/2024 15:11 12/17/2024 15:11
Lmin (impulse):	55.7 dBA	67.5 dBC	69.4 dBF
		12/17/2024 15:05	12/17/2024 14:56 12/17/2024 14:56

ST-02

Spectra	17-Dec-24		14:55:19	Run Time:	20:00.6		
Start Time:	Leq 1/3 Oct	Leq 1/1 Oct	Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct	Min 1/1 Oct
Freq Hz							
12.5	59.6	59.6	65	65	41.2	41.2	
16	59.6			62.7	69.6	43.8	49
20	61.2			66.1		46.3	
25	63.7			67.5		47.7	
31.5	65.8		69.6	69.2	74	51.5	55.4
40	64.6			70.4		51.7	
50	63.7			69.2		51.1	
63	62.8		67.1	65.1	71.7	52.4	56.1
80	59.5			65.3		50.1	
100	58.3			59.5		49.9	
125	60.4		63.9	65.1	67.4	49.7	54.1
160	58.3			61.3		48.1	
200	54.7			57.4		47.1	
250	54.7		59.1	57	61.4	48.1	52.6
315	53.5			55.1		48.2	
400	52.9			54.5		46.9	
500	51.7		56.9	55.4	59.7	45.9	51.1
630	51.7			54.9		46.2	
800	52			54.8		46.1	
1000	51.9		56.2	56.1	60.4	46.2	50.4
1250	50			56		44.5	
1600	49.1			58.3		42.9	
2000	47.4		52.4	62.6	68.1	40.2	45.5
2500	45.7			65.9		37.6	
3150	44.1			68.5		35.2	
4000	41.8		47.2	64.6	71.2	32	37.4
5000	40.6			65.2		27.5	
6300	40.1			66.9		23.2	
8000	40		44.1	66	70.4	20.7	26.1
10000	37.2			63.1		19	
12500	33			58		18.7	
16000	28.5		34.7	50.2	58.7	19.9	25
20000	24.2			41.2		21.6	

ST-03

SLM & RTA Summary

Translated: 24-Mar-25 13:22:39
 File Translated: C:\Data\Projects\Transbay\Field\STb_001.slmdl
 Model Number: 824
 Serial Number: A2624
 Firmware Rev: 4.29
 Software Version: 3.12
 Name: AECOM
 Descr1: 2020 L St
 Descr2: Sacramento, CA
 Setup: SLM&RTA.ssa
 Setup Descr: SLM & Real-Time Analyzer
 Location:
 Note 1:
 Note 2:

Overall Any Data

Start Time: 11-Mar-25 14:20:01
 Elapsed Time: 20:00.6

	A Weight	C Weight	Flat
Leq:	70.5 dBA	76.2 dBC	77.5 dBF
SEL:	101.4 dBA	107.0 dBC	108.3 dBF
Peak:	98.8 dBA	100.8 dBC	101.3 dBF
		3/11/2025 14:38	3/11/2025 14:21 3/11/2025 14:21
Lmax (slow):	80.7 dBA	86.2 dBC	87.9 dBF
		3/11/2025 14:21	3/11/2025 14:21 3/11/2025 14:22
Lmin (slow):	55.5 dBA	68.5 dBC	69.8 dBF
		3/11/2025 14:25	3/11/2025 14:23 3/11/2025 14:23
Lmax (fast):	83.0 dBA	89.1 dBC	91.8 dBF
		3/11/2025 14:21	3/11/2025 14:22 3/11/2025 14:22
Lmin (fast):	54.6 dBA	67.4 dBC	69.0 dBF
		3/11/2025 14:25	3/11/2025 14:27 3/11/2025 14:33
Lmax (impulse):	84.1 dBA	90.9 dBC	93.5 dBF
		3/11/2025 14:21	3/11/2025 14:38 3/11/2025 14:22
Lmin (impulse):	55.0 dBA	69.4 dBC	70.6 dBF
		3/11/2025 14:25	3/11/2025 14:23 3/11/2025 14:23

ST-03

Spectra Start Time: Freq Hz	11-Mar-25		14:20:01 Run Time:		20:00.6	
	Leq 1/3 Oct	Leq 1/1 Oct	Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct
12.5	67.5	67.5	71.6	71.6	45.9	45.9
16	67.6	67.6	71.7	80.8	47.1	51.5
20	65.4	65.4		76.3	47	
25	64.8	64.8		72.7	48.8	
31.5	63.8	63.8	69.4	69	49.2	54.2
40	65.1	65.1		71.2	50.2	
50	65.8	65.8		76.5	49.5	
63	65.5	65.5	70.3	76.6	52.2	55.6
80	65.2	65.2		75	50.3	
100	64.8	64.8		79.4	51.2	
125	64.6	64.6	69.1	77.6	51.7	55.5
160	63.5	63.5		77.2	48.9	
200	63.3	63.3		75.8	48.1	
250	62.9	62.9	67.4	73.4	47	51.6
315	61.5	61.5		75.8	44.9	
400	62	62		73.5	45.1	
500	62.5	62.5	67	73.3	44.8	49.6
630	62.2	62.2		74.1	44.7	
800	64.3	64.3		72.4	45.9	
1000	63.5	63.5	67.9	73.2	46.1	50.3
1250	60.7	60.7		71.6	44.3	
1600	58.8	58.8		70.1	42.5	
2000	56	56	61.5	67.9	39.1	44.6
2500	54.1	54.1		68.9	34.7	
3150	51.4	51.4		68.2	31.4	
4000	49.2	49.2	54.3	62.7	27.7	33.4
5000	47	47		54.1	23.8	
6300	43.9	43.9		51.2	20.8	
8000	41.4	41.4	46.4	49.2	19.7	24.7
10000	37.2	37.2		45.1	19	
12500	30.8	30.8		41.3	19.1	
16000	27.4	27.4	33.4	36.6	20.3	25.3
20000	26.2	26.2		31.7	21.8	

ST-03

Ln Start Level: 15 dB
 L 2.00
 L 8.00
 L 25.00
 L 50.00
 L 90.00
 L 95.00

75.6 dBA
 73.7 dBA
 71.6 dBA
 69.6 dBA
 64 dBA
 62.3 dBA

Detector: Slow
 Weighting: A
 SPL Exceedance Level 1: 65.0 dB
 SPL Exceedance Level 2: 80 dB
 Peak-1 Exceedance Level: 100 dB
 Peak-2 Exceedance Level: 120 dB
 Hysteresis:
 Overloaded: 0 time(s)
 Paused: 0 times for 00:00:00.0

Exceeded: 10 times
 Exceeded: 1 times
 Exceeded: 2 times
 Exceeded: 0 times
 3

Current Any Data

Start Time: 11-Mar-25 14:20:01
 Elapsed Time: 20:00.6

	A Weight	C Weight	Flat
Leq:	70.5 dBA	76.2 dBC	77.5 dBF
SEL:	101.4 dBA	107.0 dBC	108.3 dBF
Peak:	98.8 dBA	100.8 dBC	101.3 dBF
	3/11/2025 14:38	3/11/2025 14:21	3/11/2025 14:21

Lmax (slow):	80.7 dBA	86.2 dBC	87.9 dBF
	3/11/2025 14:21	3/11/2025 14:21	3/11/2025 14:22

Lmin (slow):	55.5 dBA	68.5 dBC	69.8 dBF
	3/11/2025 14:25	3/11/2025 14:23	3/11/2025 14:23

Lmax (fast):	83.0 dBA	89.1 dBC	91.8 dBF
	3/11/2025 14:21	3/11/2025 14:22	3/11/2025 14:22

Lmin (fast):	54.6 dBA	67.4 dBC	69.0 dBF
	3/11/2025 14:25	3/11/2025 14:27	3/11/2025 14:33

Lmax (impulse):	84.1 dBA	90.9 dBC	93.5 dBF
	3/11/2025 14:21	3/11/2025 14:38	3/11/2025 14:22

Lmin (impulse):	55.0 dBA	69.4 dBC	70.6 dBF
	3/11/2025 14:25	3/11/2025 14:23	3/11/2025 14:23

Calibrated: 1/1/2000 2:45 Offset: -46.3 dB
 Checked: 3/11/2025 22:22 Level: 113.9 dB
 Calibrator 597860 Level: 114.0 dB
 Cal Records Count: 0

Interval Records:	Enabled	Number Interval Records:	21
History Records:	Enabled	Number History Records:	4804
Run/Stop Records:		Number Run/Stop Records:	2

ST-04

SLM & RTA Summary

Translated: 24-Mar-25 13:23:07
 File Translated: C:\Data\Projects\Transbay\Field\STb_002.slmdl
 Model Number: 824
 Serial Number: A2624
 Firmware Rev: 4.29
 Software Version: 3.12
 Name: AECOM
 Descr1: 2020 L St
 Descr2: Sacramento, CA
 Setup: SLM&RTA.ssa
 Setup Descr: SLM & Real-Time Analyzer
 Location:
 Note 1:
 Note 2:

Overall Any Data

Start Time: 11-Mar-25 15:04:48
 Elapsed Time: 15:00.6

	A Weight	C Weight	Flat
Leq:	68.5 dBA	74.1 dBC	74.9 dBF
SEL:	98.0 dBA	103.6 dBC	104.5 dBF
Peak:	96.6 dBA	96.9 dBC	97.3 dBF
		3/11/2025 15:18	3/11/2025 15:15 3/11/2025 15:15
Lmax (slow):	76.8 dBA	85.1 dBC	85.4 dBF
		3/11/2025 15:15	3/11/2025 15:15 3/11/2025 15:15
Lmin (slow):	62.4 dBA	69.1 dBC	70.1 dBF
		3/11/2025 15:07	3/11/2025 15:09 3/11/2025 15:09
Lmax (fast):	81.6 dBA	86.7 dBC	87.1 dBF
		3/11/2025 15:18	3/11/2025 15:15 3/11/2025 15:15
Lmin (fast):	61.0 dBA	67.8 dBC	68.5 dBF
		3/11/2025 15:07	3/11/2025 15:18 3/11/2025 15:18
Lmax (impulse):	84.7 dBA	87.5 dBC	87.8 dBF
		3/11/2025 15:18	3/11/2025 15:15 3/11/2025 15:15
Lmin (impulse):	61.9 dBA	68.9 dBC	70.6 dBF
		3/11/2025 15:07	3/11/2025 15:18 3/11/2025 15:10

ST-04

Spectra	11-Mar-25		15:04:48 Run Time:		15:00.6		
Start Time:	Leq 1/3 Oct	Leq 1/1 Oct	Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct	
Freq Hz							
12.5	60.7			61.2			38.5
16	63.2		66.9	62	68.3		45.1
20	62.2			65.9			46.9
25	62.9			65.7			49.2
31.5	63		68.1	69.3	72.3		49.2
40	64			66.9			52.4
50	65.1			77.7			52.3
63	64.3		68.9	83	84.7		51.2
80	62.6			75.9			51.4
100	62.9			80.5			50.8
125	62.1		66.8	77.4	83.9		48.8
160	60.8			78.9			48.7
200	61.3			72.6			49.3
250	59.9		65	76.8	81		49
315	59.4			77.8			47.8
400	59			73.3			48.3
500	57.7		63.5	69.6	75.9		49.3
630	59.3			69.4			50.1
800	61.3			68.2			52.5
1000	61.8		66	66.6	71.5		54.1
1250	60.4			64.7			51.8
1600	58			61.6			49.7
2000	54.7		60.2	60.2	64.9		45.9
2500	50.6			57.6			40
3150	48.3			55.8			36
4000	46.1		51.1	53.7	58.5		31.8
5000	43.4			49.4			28.2
6300	41			45.1			25.6
8000	39.9		44.2	38.9	46.2		22.5
10000	36.1			33			19.6
12500	31.3			26.6			19.3
16000	26.4		33.1	22.6	29.3		20.3
20000	24			23.4			21.7

ST-04

Ln Start Level:	15 dB		
L 2.00		73.2 dBA	
L 8.00		70.4 dBA	
L 25.00		69.1 dBA	
L 50.00		67.7 dBA	
L 90.00		65.4 dBA	
L 95.00		64.6 dBA	
Detector:	Slow		
Weighting:	A		
SPL Exceedance Level 1:	65.0 dB	Exceeded:	1 times
SPL Exceedance level 2:	80 dB	Exceeded:	0 times
Peak-1 Exceedance Level:	100 dB	Exceeded:	0 times
Peak-2 Exceedance Level:	120 dB	Exceeded:	0 times
Hysteresis:		3	
Overloaded:	0 time(s)		
Paused:	0 times for 00:00:00.0		
Current Any Data			
Start Time:		11-Mar-25	15:04:48
Elapsed Time:		15:00.6	
Leq:	A Weight	C Weight	Flat
	68.5 dBA	74.1 dBC	74.9 dBF
SEL:	98.0 dBA	103.6 dBC	104.5 dBF
Peak:	96.6 dBA	96.9 dBC	97.3 dBF
		3/11/2025 15:18	3/11/2025 15:15 3/11/2025 15:15
Lmax (slow):	76.8 dBA	85.1 dBC	85.4 dBF
		3/11/2025 15:15	3/11/2025 15:15 3/11/2025 15:15
Lmin (slow):	62.4 dBA	69.1 dBC	70.1 dBF
		3/11/2025 15:07	3/11/2025 15:09 3/11/2025 15:09
Lmax (fast):	81.6 dBA	86.7 dBC	87.1 dBF
		3/11/2025 15:18	3/11/2025 15:15 3/11/2025 15:15
Lmin (fast):	61.0 dBA	67.8 dBC	68.5 dBF
		3/11/2025 15:07	3/11/2025 15:18 3/11/2025 15:18
Lmax (impulse):	84.7 dBA	87.5 dBC	87.8 dBF
		3/11/2025 15:18	3/11/2025 15:15 3/11/2025 15:15
Lmin (impulse):	61.9 dBA	68.9 dBC	70.6 dBF
		3/11/2025 15:07	3/11/2025 15:18 3/11/2025 15:10
Calibrated:		1/1/2000 2:45	Offset: -46.3 dB
Checked:		3/11/2025 22:22	Level: 113.9 dB
Calibrator		597860	Level: 114.0 dB
Cal Records Count:		0	
Interval Records:	Enabled	Number Interval Records:	16
History Records:	Enabled	Number History Records:	3604
Run/Stop Records:		Number Run/Stop Records:	2

ST-05

SLM & RTA Summary

Translated: 24-Mar-25 13:23:22
 File Translated: C:\Data\Projects\Transbay\Field\STb_003.slmdl
 Model Number: 824
 Serial Number: A2624
 Firmware Rev: 4.29
 Software Version: 3.12
 Name: AECOM
 Descr1: 2020 L St
 Descr2: Sacramento, CA
 Setup: SLM&RTA.ssa
 Setup Descr: SLM & Real-Time Analyzer
 Location:
 Note 1:
 Note 2:

Overall Any Data

Start Time: 11-Mar-25 20:26:50
 Elapsed Time: 15:00.8

	A Weight	C Weight	Flat
Leq:	65.1 dBA	70.0 dBC	70.7 dBF
SEL:	94.7 dBA	99.5 dBC	100.3 dBF
Peak:	94.7 dBA	97.8 dBC	97.7 dBF
		3/11/2025 20:35	3/11/2025 20:28 3/11/2025 20:28
Lmax (slow):	78.9 dBA	85.5 dBC	85.5 dBF
		3/11/2025 20:28	3/11/2025 20:28 3/11/2025 20:28
Lmin (slow):	53.9 dBA	61.5 dBC	63.0 dBF
		3/11/2025 20:33	3/11/2025 20:33 3/11/2025 20:33
Lmax (fast):	80.6 dBA	87.3 dBC	87.4 dBF
		3/11/2025 20:28	3/11/2025 20:28 3/11/2025 20:28
Lmin (fast):	53.4 dBA	60.3 dBC	61.8 dBF
		3/11/2025 20:33	3/11/2025 20:33 3/11/2025 20:33
Lmax (impulse):	81.0 dBA	88.0 dBC	88.1 dBF
		3/11/2025 20:28	3/11/2025 20:28 3/11/2025 20:28
Lmin (impulse):	53.6 dBA	62.5 dBC	64.2 dBF
		3/11/2025 20:33	3/11/2025 20:33 3/11/2025 20:33

ST-05

Spectra	11-Mar-25		20:26:50	Run Time:	15:00.8		
Start Time:	Leq 1/3 Oct	Leq 1/1 Oct	Max 1/3 Oct	Max 1/1 Oct	Min 1/3 Oct	Min 1/1 Oct	
Freq Hz							
12.5		57.7		60.2		34.8	
16		60.4	64	60.4	66.9	39.5	44.5
20		59.1		64.4		42.1	
25		57.9		61.7		44.7	
31.5		57.6	62.8	62.3	67.2	44.9	49.5
40		58.6		63.1		44.5	
50		58.6		67.6		46.1	
63		58.1	63.2	68.6	81.3	44.2	50.1
80		58.5		80.9		45.4	
100		56.8		73.1		44.8	
125		58	62.4	77.3	84.7	43.5	48.2
160		58		83.5		41.4	
200		58.6		81.3		44.3	
250		57	62.2	78.1	84.4	44.3	48.3
315		56.4		78.7		41.4	
400		56.2		76.7		41	
500		55.6	61.1	78.4	81.1	43.4	47.3
630		57		71.2		42.9	
800		58.2		66.9		45.7	
1000		58.4	62.5	67.3	71.5	45.6	50.1
1250		56.2		65.7		44.7	
1600		54.4		62.4		42.8	
2000		51.3	56.6	61.3	65.6	38.9	44.6
2500		47		57.6		33.7	
3150		43.7		55.3		28.8	
4000		41	46.3	51.4	57.3	25	30.8
5000		38.1		47.4		21.1	
6300		36.6		42.5		19.2	
8000		35.8	40.2	38.2	44.1	19.5	24
10000		33.4		30.2		19.1	
12500		29		23.5		18.7	
16000		24.4	31.1	22.4	28	20	25
20000		23.1		23.8		21.6	

ST-05

Ln Start Level: 15 dB
 L 2.00
 L 8.00
 L 25.00
 L 50.00
 L 90.00
 L 95.00

70.8 dBA
 67.6 dBA
 65.7 dBA
 63.5 dBA
 59.4 dBA
 58.3 dBA

Detector: Slow
 Weighting: A
 SPL Exceedance Level 1: 65.0 dB
 SPL Exceedance level 2: 80 dB
 Peak-1 Exceedance Level: 100 dB
 Peak-2 Exceedance Level: 120 dB
 Hysteresis:
 Overloaded: 0 time(s)
 Paused: 0 times for 00:00:00.0

Exceeded: 19 times
 Exceeded: 0 times
 Exceeded: 0 times
 Exceeded: 0 times

3

Current Any Data

Start Time: 11-Mar-25 20:26:50
 Elapsed Time: 15:00.8

	A Weight	C Weight	Flat
Leq:	65.1 dBA	70.0 dBC	70.7 dBF
SEL:	94.7 dBA	99.5 dBC	100.3 dBF
Peak:	94.7 dBA	97.8 dBC	97.7 dBF
	3/11/2025 20:35	3/11/2025 20:28	3/11/2025 20:28

Lmax (slow):	78.9 dBA	85.5 dBC	85.5 dBF
	3/11/2025 20:28	3/11/2025 20:28	3/11/2025 20:28
Lmin (slow):	53.9 dBA	61.5 dBC	63.0 dBF
	3/11/2025 20:33	3/11/2025 20:33	3/11/2025 20:33
Lmax (fast):	80.6 dBA	87.3 dBC	87.4 dBF
	3/11/2025 20:28	3/11/2025 20:28	3/11/2025 20:28
Lmin (fast):	53.4 dBA	60.3 dBC	61.8 dBF
	3/11/2025 20:33	3/11/2025 20:33	3/11/2025 20:33
Lmax (impulse):	81.0 dBA	88.0 dBC	88.1 dBF
	3/11/2025 20:28	3/11/2025 20:28	3/11/2025 20:28
Lmin (impulse):	53.6 dBA	62.5 dBC	64.2 dBF
	3/11/2025 20:33	3/11/2025 20:33	3/11/2025 20:33

Calibrated: 1/1/2000 2:45 Offset: -46.3 dB
 Checked: 3/11/2025 22:22 Level: 113.9 dB
 Calibrator 597860 Level: 114.0 dB
 Cal Records Count: 0

Interval Records:	Enabled	Number Interval Records:	16
History Records:	Enabled	Number History Records:	3605
Run/Stop Records:		Number Run/Stop Records:	2

ST-06

SLM & RTA Summary

Translated: 24-Mar-25 13:23:35
 File Translated: C:\Data\Projects\Transbay\Field\STb_004.slmdl
 Model Number: 824
 Serial Number: A2624
 Firmware Rev: 4.29
 Software Version: 3.12
 Name: AECOM
 Descr1: 2020 L St
 Descr2: Sacramento, CA
 Setup: SLM&RTA.ssa
 Setup Descr: SLM & Real-Time Analyzer
 Location:
 Note 1:
 Note 2:

Overall Any Data

Start Time: 11-Mar-25 22:03:37
 Elapsed Time: 15:00.7

	A Weight	C Weight	Flat
Leq:	63.6 dBA	67.9 dBC	68.7 dBF
SEL:	93.2 dBA	97.4 dBC	98.3 dBF
Peak:	86.4 dBA	89.5 dBC	89.6 dBF
		3/11/2025 22:13	3/11/2025 22:13 3/11/2025 22:13
Lmax (slow):	74.5 dBA	77.1 dBC	77.4 dBF
		3/11/2025 22:13	3/11/2025 22:13 3/11/2025 22:15
Lmin (slow):	52.4 dBA	59.5 dBC	60.7 dBF
		3/11/2025 22:06	3/11/2025 22:06 3/11/2025 22:04
Lmax (fast):	77.3 dBA	79.7 dBC	80.0 dBF
		3/11/2025 22:13	3/11/2025 22:15 3/11/2025 22:15
Lmin (fast):	52.1 dBA	58.1 dBC	59.3 dBF
		3/11/2025 22:06	3/11/2025 22:06 3/11/2025 22:04
Lmax (impulse):	79.3 dBA	81.2 dBC	81.2 dBF
		3/11/2025 22:13	3/11/2025 22:13 3/11/2025 22:13
Lmin (impulse):	52.3 dBA	60.2 dBC	61.2 dBF
		3/11/2025 22:06	3/11/2025 22:06 3/11/2025 22:04

Appendix E

Transportation Technical Memorandum

Memorandum

To: Alana Callagy, Project Coordination Manager, Transbay Joint Powers Authority (TJPA)

Through: Stephen Polechronis, Program Contract Manager, AECOM

From: Laura Dito, Senior Environmental Planner, AECOM

Date: February 16, 2026

Subject: Transportation Technical Memorandum

Summary

This Transportation Technical Memorandum analyzes the potential for proposed changes to The Portal to result in new or more severe adverse environmental effects or significant impacts than those identified for the previously evaluated/approved project. The proposed changes, referred to as the “2026 Revised Project,” include eliminating the train box extension at the Salesforce Transit Center, eliminating the intercity bus facility, deferring installation of high-speed rail vertical circulation elements at the Salesforce Transit Center, modifying the Fourth and Townsend Street Station design to remove the high-speed rail platforms and related facilities, shortening the tunnel stub box, relocating and electrifying storage tracks within the 4th and King railyards, and the acquisition by the TJPA of the building at 171 Second Street and the temporary relocation of 171 Second Street tenants during construction. Section 1 of this technical memorandum describes the changes proposed as part of the 2026 Revised Project.

Construction of the 2026 Revised Project was evaluated for transportation effects and impacts based on the current California Environmental Quality Act (CEQA) standard of vehicle-miles traveled (VMT).¹ The 2026 Revised Project would eliminate portions and reduce the footprint of previously evaluated/approved project components, and, overall, the scale of construction for The Portal would be reduced, which would result in fewer trips related to material hauling, equipment delivery, and workforce commuting to support construction activities. Therefore, construction of the 2026 Revised Project is not anticipated to exceed the VMT level associated with construction of the previously evaluated/approved project, and no new or more severe impacts would occur. During operations, no new or more severe VMT adverse effects or significant impacts would occur with the 2026 Revised Project.

¹ Consistent with Section 15064.3 of the CEQA guidelines, vehicle-miles traveled (VMT) has replaced level of service (LOS) as the standard for evaluating transportation impacts under CEQA, the effect and impact conclusions and previously adopted mitigation measures for the Transbay Program in the 2018 Final SEIS/EIR pertaining to potential LOS impacts are not applicable to the 2026 Revised Project.

As compared to the previously evaluated/approved project, the 2026 Revised Project would result in no new or more severe adverse effects or significant impacts to transportation during construction or operation and new or amended mitigation measures would not be required. In particular, the 2026 Revised Project would not conflict with programs, plans, ordinances, or policies addressing the circulation system (including transit, roadway, bicycle, and pedestrian facilities). The conclusions presented in this memorandum for the 2026 Revised Project are consistent with the effect and impact conclusions of the previously evaluated/approved project.

1 INTRODUCTION

The Transbay Joint Powers Authority (TJPA), in cooperation with the Federal Transit Administration (FTA), proposes to develop The Portal, formerly known as the Downtown Rail Extension (DTX), Phase 2 of the Transbay Program in San Francisco, California. The Portal would extend Caltrain service to the Salesforce Transit Center (Transit Center), which was constructed under Phase 1 of the Transbay Program. The TJPA identified revisions to The Portal during further design phases since certification of the Transbay Program in 2004 and FTA approval for the Transbay Program in 2005 (FTA 2005). In 2018, the TJPA and FTA prepared a joint Supplemental Environmental Impact Statement/Environmental Impact Report (2018 Final SEIS/EIR) to evaluate proposed changes to the approved 2004 Transbay Program, as amended (FTA and TJPA 2018). On July 22, 2019, the FTA issued the Amended Record of Decision approving the changes (FTA 2019). In 2023, a California Environmental Quality Act (CEQA) Addendum and National Environmental Policy Act (NEPA) Re-evaluation (2023 Addendum/Re-evaluation) were approved for further proposed changes to The Portal (TJPA 2023a/2023b). On June 9, 2023, the FTA issued a letter concurring with the TJPA that the proposed changes were not substantial and would not cause significant environmental impacts that were not previously evaluated (FTA 2023).

Since 2023, the TJPA and its partners have identified components to be modified, removed, or deferred to reduce capital costs while still meeting The Portal's overall purpose and need, as stated in the 2018 Final SEIS/EIR. These changes comprise the proposed "2026 Revised Project" analyzed in this technical memorandum and are as follows:

- ◆ Eliminate the intercity bus facility and relocate the street-level entrance/exit pavilion with a public lobby and additional vertical circulation at the Transit Center on the west side of Beale Street
- ◆ Eliminate the train box extension at the Transit Center and move utilities from the underground train box to a new at-grade utility building
- ◆ Defer installation of most high-speed rail vertical circulation elements at the Transit Center
- ◆ Modify the Fourth and Townsend Street Station design by eliminating high-speed rail platforms and related concourse-level facilities
- ◆ Shorten the tunnel stub box

- ◆ Relocate and electrify storage tracks within the 4th and King railyards
- ◆ The TJPA's acquisition of the building at 171 Second Street and temporary relocation of 171 Second Street tenants during construction

This memorandum analyzes the potential for the 2026 Revised Project to result in new or more severe transportation effects and impacts, as compared to those for the previously evaluated/ approved project. The proposed changes are considered in terms of the appropriate CEQA and NEPA environmental factors to assess transportation effects and impacts associated with the 2026 Revised Project during construction and operation.

2 ANALYSIS METHODOLOGY AND EXISTING CONDITIONS

2.1 Analysis Methodology

This technical memorandum includes a qualitative analysis of the components of the 2026 Revised Project. The VMT assessment included in this technical memorandum is qualitative and is consistent with the impact evaluation approach included in the 2023 Addendum/Re-evaluation.

In February 2025, updated pedestrian, bicyclist, and bus traffic counts including buses entering the Transit Center bus plaza from Beale Street and exiting the bus plaza onto Fremont Street were conducted. These counts, along with available volume forecasts, were used to assess sidewalk and crosswalk congestion levels at four intersections during AM (7 a.m.–9 a.m.), midday (12 p.m.–3 p.m.), and PM (4 p.m.–6 p.m.) peak hours; bicyclist safety; and the potential effects on transit operations and accessibility. Appendix A includes the 2025 traffic count data.

Counts were collected at the following study intersections shown in Figure 1 **Error! Reference source not found.**:

1. Beale Street and Market Street
2. Beale Street and Mission Street
3. Beale Street and Howard Street
4. Beale Street and Folsom Street

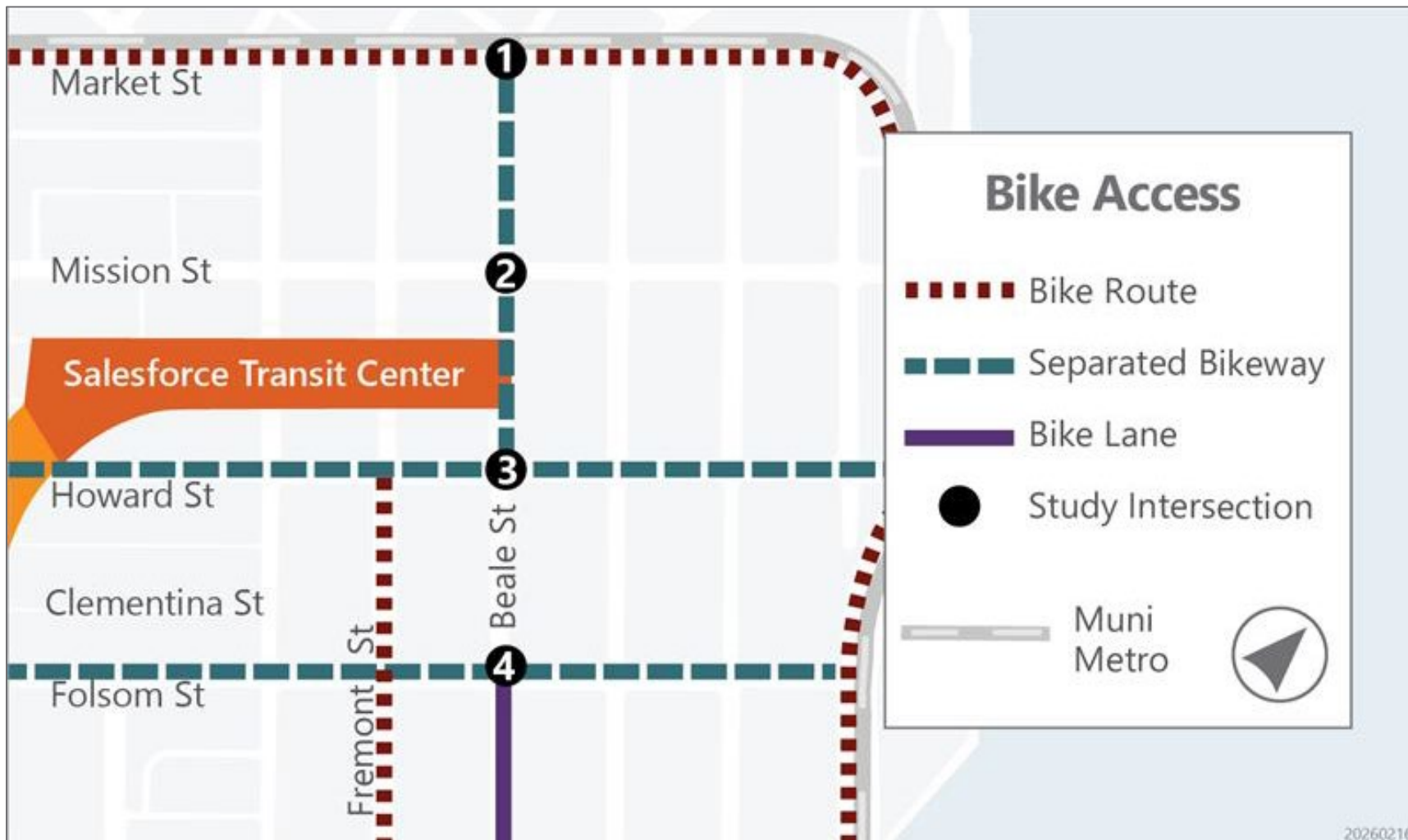


Figure 1. Study Intersections and Bicycle Facilities

2.2 Background Growth

Consistent with the City and County of San Francisco's (City) standard approach for transportation impact analyses, background growth in travel demand, including vehicular traffic and pedestrian volumes, was derived from forecasts produced by the San Francisco Chained Activity Modeling Process (SF-CHAMP) travel demand forecasting model. SF-CHAMP specifically accounts for major land use changes in the cumulative timeframe and reasonably foreseeable transportation investments.²

The existing pedestrian counts were projected to the 2040 cumulative year using the same growth rates from the latest SF-CHAMP model.

2.3 Existing Conditions

This section describes the existing conditions of the roadway network, pedestrian infrastructure, bicycle facilities, and transit services near the Transit Center. The goal is to provide a clear understanding of the current transportation context in proximity to the project components proposed to be deferred, modified or eliminated with the 2026 Revised Project; see Section 1, and identify new developments or changes that occurred after the 2018 Final SEIS/EIR and the 2023 Addendum/Re-evaluation that could affect the conclusions that were drawn in those evaluations.

2.3.1 Roadway Network

The 2026 Revised Project components have the potential to affect the following streets:

- ◆ **Mission Street** is a major roadway that extends from The Embarcadero through the South of Market area (SoMa) into Daly City, where it becomes El Camino Real. Within the Revised Project area, it functions as a two-way arterial with two travel lanes in each direction. Between Main Street and Eleventh Street, one lane in each direction is designated for bus and taxi use only. Amtrak Thruway service, Golden Gate Transit (Route 101, 130, 150), San Francisco Municipal San Railway (Muni) (Route 14, 14R, 714), and SamTrans (Route EPX) provide bus transit service along Mission Street. These routes are described in Section 2.3.4.
- ◆ **Howard Street** is an east-west roadway running from The Embarcadero through SoMa to South Van Ness Avenue. Between The Embarcadero and Fremont Street, it operates as a two-way arterial with two travel lanes in each direction. West of Fremont Street, it transitions to a one-way westbound street with four travel lanes.
- ◆ **Folsom Street** is a major east-west roadway that runs from The Embarcadero through SoMa to the Mission District and Bernal Heights neighborhood. In the vicinity of the Transit Center, it operates as a two-way street with one travel lane in each direction. It serves as a key

² The 2018 Final SEIS/EIR used an earlier version of the SF-CHAMP model to calculate growth rates.

corridor for vehicular, bicycle, and transit traffic, with dedicated bus and bike lanes in some sections.

- ◆ **Market Street** is a major arterial and transit corridor extending from The Embarcadero through downtown to the Castro District. In the vicinity of the Transit Center, it operates as a two-way street with dedicated transit lanes, restricted vehicle access, and high pedestrian and bicycle activity. It serves as a primary route for Muni buses, light rail (operating below grade), and streetcars.
- ◆ **Beale Street** is a north-south street extending from Market Street to Bryant Street, ending in a cul-de-sac south of Bryant Street. In the vicinity of the Transit Center, it operates as a one-way southbound street with two travel lanes, and between Market Street and the Transit Center a dedicated transit-only lane. South of Folsom Street, it transitions to a two-way street with one travel lane in each direction. The eastern side of Beale Street includes a separated bikeway.

The description of the existing roadway network remains consistent with the 2018 Final SEIS/EIR and 2023 Addendum/Re-evaluation. Additionally, specific changes to the transportation network in the vicinity of the 2026 Revised Project, such as the San Francisco Municipal Transportation Agency's Active Beale Street Project continue to be considered.³

2.3.2 Pedestrian Facilities

Pedestrian facilities near and surrounding the Transit Center primarily consist of standard, paved sidewalks and crosswalks at intersections. These facilities are present on both sides of Beale Street, Market Street, Mission Street, Howard Street, and Folsom Street. Pedestrian crossing stripes were observed at all four study intersections. The plans and strategies outlined in the 2023 Addendum/Re-evaluation, like San Francisco Municipal Transportation Agency's Strategic Plan Through Fiscal Year 2024 (SFMTA 2021) and San Francisco's WalkFirst, Vision Zero, and Pedestrian Strategy (City 2013), are applicable.

2.3.3 Bicycle Facilities

The area in the vicinity of the 2026 Revised Project at the Transit Center includes separated bikeways⁴, bicycle routes⁵ and bicycle paths⁶ (California Department of Transportation, 2025).

³ <https://www.sfmta.com/projects/active-beale-street>

⁴ Separated bikeway (Class IV Bikeway) is a bikeway for the exclusive use of bicycles and includes a required separation between the bikeway and the through vehicular traffic. The separation may include grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking.

⁵ Bike route (Class III Bikeway) are shared facilities that serve either to: (a) provide continuity to other bicycle facilities (usually Class II bikeways) or (b) designate preferred routes through high demand corridors. As with bike lanes, designation of bike routes should indicate to bicyclists that there are particular advantages to using these routes as compared with alternative routes. This means that responsible agencies have taken actions to assure that these routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists. Normally, bike routes are shared with motor vehicles. The use of sidewalks as Class III bikeways is strongly discouraged.

⁶ Bicycle Paths (Class I) are off-street paved bikeways. They are separated from vehicle traffic but are almost always shared with pedestrians.

Separated bikeways are located along Howard Street, Folsom Street, and Beale Street between Market Street and Howard Street, and bicycle routes are located along Market Street, Fremont Street south of Howard Street, and Beale Street south of Folsom Street. Existing bicycle facilities in the vicinity of the 2026 Revised Project near the Transit Center are shown in Figure 1 **Error! Reference source not found.**

2.3.4 Public Transit

The Transit Center is a hub for the following bus transit services, with numerous routes starting, ending, passing through, or running nearby. Those that use the above-ground bus deck are noted; all other lines use surface streets.

AC Transit (Alameda-Contra Costa Transit District) (connects to the Transit Center above-ground bus deck)

- ◆ **Route E Tunnel Road – Claremont Transbay:** Connects various cities including Berkeley, Oakland, and San Francisco. Weekday service operates every 20 minutes during peak hours.
- ◆ **Route F Adeline – Market Transbay:** Connects the University of California (UC) Campus to Transit Center and serves various cities including Berkeley, Emeryville, Oakland, and San Francisco. Weekday service operates every 30 minutes during peak hours.
- ◆ **Route FS Shattuck – University Transbay:** Connects San Francisco and Berkeley through the Transit Center. Weekday service operates every 2 hours during peak hours.
- ◆ **Route G Colusa – Solano Transbay:** Connects various cities including Albany, Berkeley, El Cerrito, Kensington, and San Francisco, with the Transit Center. Weekday service operates every 30 minutes during peak hours.
- ◆ **Route J Sacramento – Christie Transbay:** Connects various cities including Berkeley, Emeryville, and San Francisco, and stops Transit Center. Weekday service operates every 40 minutes during peak hours.
- ◆ **Route L San Pablo – Pierce Transbay:** Connects various cities including El Cerrito, Richmond, San Francisco, San Pablo, and Albany, and stops at Transit Center. Weekday service operates every 30 minutes during peak hours.
- ◆ **Route LA Hilltop – Richmond Parkway Transbay:** Connects cities including Richmond and San Francisco, and stops at Transit Center. Weekday service operates every 30 minutes during peak hours.
- ◆ **Route NL Mac Arthur Transbay Limited:** Connects Oakland and San Francisco, and stops at Transit Center. Weekday service operates every 20 minutes during peak hours.
- ◆ **Route NX Grand Lake – Laurel Transbay:** Connects Oakland and San Francisco. Weekday service operates every 10 to 30 minutes during peak hours.
- ◆ **Route NX3 Mac Arthur – Eastmont Transbay:** Connects various cities including San Francisco, San Leandro, and Oakland. Weekday service operates every 10 to 30 minutes during peak hours.

- ◆ **Route O Santa Clara – Encinal Transbay:** Connects various cities including Alameda, Oakland, and San Francisco. Weekday service operates every 30 minutes during peak hours.
- ◆ **Route OX Bay Farm – Park Street Transbay:** Connects various cities including Alameda, Oakland, and San Francisco. Weekday service operates every 20 minutes during peak hours.
- ◆ **Route P Piedmont – Oakland Avenue Transbay:** Connects various cities including Piedmont, San Francisco, and Oakland, with a stop at Transit Center. Weekday service operates every 15 to 30 minutes during peak hours.
- ◆ **Route V Montclair – Park Boulevard Transbay:** Connects various cities including Piedmont, San Francisco, and Oakland, with a stop at Transit Center. Weekday service operates every 15 minutes during peak hours.
- ◆ **Route W High – South Shore Transbay:** Connects various cities including Alameda, Oakland, and San Francisco, with a stop at Transit Center. Weekday service operates every 20 minutes during peak hours.

Amtrak Bus

- ◆ An Amtrak bus stop is located curbside at the Salesforce Plaza at 401 Mission Street. Amtrak provides Amtrak Thruway bus service to connect passengers between San Francisco and the Emeryville Amtrak Station.

Golden Gate Transit

Regional Routes

- ◆ **Route 101:** Connects Santa Rosa to San Francisco, serving areas like Rohnert Park, Petaluma, Novato, and San Rafael. Weekday service operates approximately every 30 minutes during peak hours and hourly during off-peak times.
- ◆ **Route 130:** Runs between San Rafael Transit Center and San Francisco, passing through Larkspur, Corte Madera, and Mill Valley. Weekday service typically runs every 30 to 60 minutes during peak periods.
- ◆ **Route 150:** Operates from San Rafael Transit Center to San Francisco, covering areas like Larkspur and Marin City. Weekday service is approximately every 60 minutes during peak times.

Commute Routes (Weekday Peak Periods Only)

- ◆ **Routes 114, 132, 154, and 172:** These routes provide service from various North Bay locations to San Francisco during weekday peak periods, with frequencies ranging from 30 to 60 minutes.

Greyhound (connects to the Transit Center above-ground bus deck)

- ◆ **US0800:** Travels between San Francisco (Transit Center) and Los Angeles Union Station. Up to six daily trips per direction.
- ◆ **US0831:** Travels between San Francisco (Transit Center) and Tijuana, Mexico at Plaza El Mexicano. Up to four daily trips per direction.

- ◆ **US0870:** Travels between San Francisco (Transit Center) and the Sparks Transit Center in Reno, Nevada. Up to two daily trips per direction.

Mission Bay Shuttle

- ◆ **TransBay/Caltrain Route:** Connects the Mission Bay development area to downtown, with a stop at Transit Center. Weekday service operates every 20 minutes during peak hours.

Muni (San Francisco Municipal Railway)

- ◆ **Route 5 Fulton:** Operates between Transit Center and the Outer Richmond via McAllister and Fulton streets. The local (5) service operates every 12 minutes during peak periods, and the rapid (5R) service operates every 12 minutes during peak periods.
- ◆ **Route 7 Haight/Noriega:** Runs from the Transit Center to Outer Sunset neighborhood via Haight Street and Ashbury Street. The local (7) service operates every 12 to 12 minutes during peak periods.
- ◆ **Route 14 Mission:** Operates 24-hour bus service between downtown San Francisco and Daly City, with a service frequency of 10 to 14-minutes during weekdays and 7 to 15 minutes during weekends.
- ◆ **Route 14 Mission Rapid:** Operates limited bus service between downtown San Francisco and Daly City during daytime and early evening, with service frequencies (north of Mission Street and Lowell Street) of 6 minutes during weekdays and every 10 minutes during weekends.
- ◆ **Route 25 Treasure Island (connects to the Transit Center above-ground bus deck):** Operates between the Transit Center and Treasure Island via the Bay Bridge. The local (25) service operates every 20 to 25 minutes during peak periods.
- ◆ **Route 38 Geary:** Runs from the Transit Center to the Richmond District via Geary Boulevard. The local (38) service west of Geary and 32nd Avenue operates every 16 to 20 minutes during peak periods, while east of Geary and 32nd Avenue operates every 8 to 15 minutes during peak periods.
- ◆ **Route 714 BART Early Bird:** Offers early-morning weekday service between the Transit Center and the Daly City BART Station via Mission Street with limited trips operating between approximately 4:00 a.m. and 6:00 a.m. Route 714 includes two daily inbound trips (Daly City BART Station to the Transit Center) and one daily outbound trip (Transit Center to Daly City BART Station). Route 714 is planned to operate for the duration of the BART Transbay Tube Retrofit project.

Presidio Go Shuttle

- ◆ **Downtown Route:** Connects the Presidio of San Francisco to downtown and stops at Transit Center. Weekday service operates every 15 to 30 minutes during peak hours.

SamTrans (connects to the Transit Center above-ground bus deck unless otherwise noted):

Express Routes

- ◆ **Route 713:** Offers early-morning weekday express service between Millbrae Intermodal Station and Transit Center, with limited trips operating approximately every 30 minutes

between 4:00 a.m. and 5:00 a.m. The Transit Center stop is at the street level curbside on Mission Street near Fremont Street.

- ◆ **Route FCX:** The Foster City Express connects Foster City to San Francisco during weekday peak hours, with trips approximately every 30 minutes.
- ◆ **Route EPX:** The East Palo Alto Express operates between East Palo Alto and San Bruno BART Station, with some trips extending to the Transit Center during peak commute periods, typically every 45 minutes until early evening.

Local Routes with Multi-City Connections

- ◆ **Route 292:** Connects San Francisco to San Mateo, serving areas like Daly City and South San Francisco. Weekday service operates approximately every 30 minutes.
- ◆ **Route 397 Owl:** Provides all-night service between San Francisco and Palo Alto, with hourly departures throughout the night.

WestCAT (connects to the Transit Center above-ground bus deck)

- ◆ **LYNX Transbay Route:** Provides service between Hercules Transit Center and Transit Center in San Francisco. Weekday service operates approximately every 15 to 30 minutes during peak hours.

3 TRANSPORTATION ANALYSIS

This section discusses trip generation, trip distribution, and potential transportation effects and impacts associated with the 2026 Revised Project components during construction. Additionally, effects and impacts of certain applicable 2026 Revised Project components during operations are assessed for bus transit operations, and pedestrian and bicycle circulation and safety. An overall assessment of effects and impacts to VMT from construction and operation of the 2026 Revised Project is also presented.

3.1 Trip Generation

The 2026 Revised Project would eliminate the high-speed rail stop and related facilities from the Fourth and Townsend Street Station, shifting a portion of the estimated passengers from the Fourth and Townsend Street Station to the Transit Center. In June 2024, the TJPA and the California High-Speed Rail Authority (CHSRA) published a memorandum titled Secondary Mitigation Concept to Eliminate High-Speed Rail Platforms at Fourth and Townsend Street Station. This analysis assessed the operational and ridership impacts and effects of removing the high-speed rail platforms at the Fourth and Townsend Street Station, including shifts in passenger demand across the network (TJPA and Mott MacDonald 2024). The annual ridership at the Transit Center in 2040 is projected to be 5.52 million riders after the removal of the high-speed rail platforms at the Fourth and Townsend Street Station.

This shift represents a trip variance (the change in passenger volumes that would use the Transit Center with the removal of the Fourth and Townsend Street Station high-speed rail facilities) of 1.76 million. The latest SF-CHAMP model included background growth rates that accounted for the future scenarios with approved nearby projects. Therefore, after applying growth rates from the latest SF-CHAMP model, only trip variance needed to be added to estimate the overall trip generation for the 2026 Revised Project.

According to Caltrain, the highest average weekday ridership is approximately 0.4% of the annual total (Caltrain 2024). Using data from the Caltrain Ridership Recovery Survey (EMC Research 2023), peak hour arrival and departure rates were applied to convert weekday ridership into peak-hour trip estimates (3.0% in/22.5% out trips during the AM peak hour, 5.0% in/4.0% out trips during the midday peak hour, and 22.5% in/2.5% out trips during the PM peak hour).

Table 1 presents peak-hour trip variances at the Transit Center with the 2026 Revised Project. This data is based on the increased ridership and time-of-day ridership distribution from Caltrain's 2024 annual ridership report.

Table 1. Trip Variances During Peak Hours at the Transit Center with the 2026 Revised Project (Number of Trips)

	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
	In	Out	In	Out	In	Out
Number of Additional Trips into Transit Center	105	784	174	139	784	87

Source: AECOM 2025

The TJPA prepared a travel forecast analysis in February 2024 to project ridership and assess mode share for access to and from the Transit Center (TJPA 2024). The analysis considered multiple transportation modes, including regional rail, local transit, walking, and private vehicle use, to understand how passengers would travel to and from the station assuming that high-speed trains would stop at the Fourth and Townsend Street Station. According to the findings, 78% of passengers would access the station by walking, 1% via kiss-and-ride,⁷ 3% via park-and-ride, and 28% by transferring from other transit services, which also involves access to the station by walking. The removal of the high-speed rail platforms at the Fourth and Townsend Street Station is not expected to affect the mode split at the Transit Center station.⁸ Therefore, this mode split is assumed to still be valid under the 2026 Revised Project. The trip variances by each mode based on the TJPA travel forecast results report are shown in Table 2.

Table 2. Mode Split of Trip Variances at the Transit Center with the 2026 Revised Project (Number of Trips)

Mode of Trips	AM Peak Hour		Midday Peak Hour		PM Peak Hour	
	In	Out	In	Out	In	Out
Vehicle Kiss-and-Ride	6	6	2	2	6	6
Vehicle Park-and-Ride	3	25	5	4	25	3
Pedestrian	74	554	123	99	554	62
Transfer (Pedestrian)	27	200	44	36	200	22

Source: AECOM 2025

Note: Values in Table 2 are calculated based on percentages and then rounded. Therefore, the sum of the rounded values differs slightly from the values in Table 1.

The estimate ridership of the Transit Center's high-speed train station is 3.76 million annual riders under the scenario in which high-speed train service is assumed at the Fourth and Townsend Street Station. Under the scenario in which high-speed train service is removed from the Fourth and Townsend Street Station, the estimate ridership of the Transit Center's high-speed train station is 5.52 million annual riders. The trip redistributions of estimated high-speed train ridership are shown in Table 3.

⁷ "Kiss-and-ride" refers to a designated area near the transportation hub for brief stops where a driver can quickly drop off or pick up passengers without parking for an extended period.

⁸ The mode split is not expected to change because the removal of the HSR platforms would not alter the nested logit mode choice model used in the travel forecast analysis to project mode split.

Table 3. Redistribution of Estimated High-Speed Train Ridership

	With Fourth and Townsend	Without Fourth and Townsend	Variance	Variance (%)
Total ridership	28.78m	28.72m	0.06m	-0.22%
Transit Center Station	3.76m	5.52m (+1.76m)	1.76m	46.71%
Fourth and Townsend Street Station	2.28m	- (-2.28m)	-2.28m	-
Millbrae-SFO*	1.84m	2.27m (+0.43m)	0.43m	23.88%
San Jose*	4.38m	4.45m (+0.07m)	0.07m	1.68%

*Note: Ridership at Millbrae-San Francisco International Airport (SFO), and San Jose stations is presented for informational purpose

Source: *Secondary Mitigation Concept to Eliminate High-Speed Rail Platforms at Fourth and Townsend Street Station* (AECOM and CHSRA 2024)

3.2 Trip Distribution

Vehicle

The 2018 Final SEIS/EIR traffic volumes have been reviewed and anticipated trip distribution were calculated to ensure a comprehensive and data-driven approach to estimate trip distribution for the 2026 Revised Project. Vehicle trip distribution for the 2026 Revised Project was determined by using a combination of existing traffic and transit counts, surrounding land use patterns, and projected travel volumes from the latest SF-CHAMP model outputs. Existing (2025) traffic counts provide a baseline for current travel activity, while surrounding land use helps predict how development and population density influence trip generation.

Pedestrian

Because the 2026 Revised Project would construct an at-grade utility building on the east side of Beale Street and replace the previously evaluated/approved street-level entrance/exit pavilion with a public lobby and additional vertical circulation at the eastern entrance of the Transit Center, pedestrian trips have been assigned to and from the public lobby entrance based on existing pedestrian counts, surrounding land use, and walking distances to nearby buildings and BART's Embarcadero Station.

3.3 Vehicle-Miles Traveled

3.3.1 Construction

The 2026 Revised Project would reduce or eliminate several previously evaluated/approved project components. Because the 2026 Revised Project would reduce the overall construction footprint of The Portal relative to the previously evaluated/approved project, the 2026 Revised Project is anticipated to further reduce VMT during construction, as fewer trips related to material hauling, equipment delivery, and workforce commuting to support construction

activities would be required. Therefore, the 2026 Revised Project would not result in adverse effects and would result in a less-than-significant impact to VMT during construction. New or amended mitigation measures are not required. This conclusion is consistent with the effect and impact conclusions for the previously evaluated/approved project.

3.3.2 Operation.

The Portal is considered a “last-mile” connection that, once operational, would provide substantial VMT reduction benefits because it would extend Caltrain service from the existing San Francisco terminus to the Transit Center in downtown San Francisco, thereby reducing the number of vehicle trips to downtown. Furthermore, the State Office of Planning and Research states in its technical advisory regarding transportation impacts in CEQA that “transit and active transportation projects generally reduce VMT and they are presumed to cause a less-than-significant impact on transportation. This presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects” (State of California 2018). Overall project VMT, with the proposed changes as part of the 2026 Revised Project included, is anticipated to be consistent with the VMT reduction included in the previously evaluated/ approved project of approximately 9.9 billion over the next 50 years.

Therefore, the 2026 Revised Project would not result in an adverse effect and would result in a less-than-significant impact to VMT during operation. New or amended mitigation measures are not required. This conclusion is consistent with the effect and impact conclusions for the previously evaluated/approved project.

3.4 Transportation Effects and Impacts of 2026 Revised Project During Construction

This section provides an assessment of whether the 2026 Revised Project would result in new significant or substantially increase the severity of previously identified transportation impacts and effects during construction.

3.4.1 Eliminate the Train Box Extension at the Transit Center and Add an At-grade Utility Building

The 2026 Revised Project eliminates the train box extension at the Transit Center and adds an at-grade utility building. This would reduce the previously environmentally cleared approximately 53,500 cubic yards of excavation material at the site to approximately 1,200 cubic yards (approximately 52,300 cubic yards less). This reduction would substantially decrease the number of haul truck trips, construction vehicle trips, and worker commuter trips associated with construction, thereby reducing the construction related VMT. In addition, there would be fewer truck trips for material deliveries and haul out of excavated materials; reduced disruption to local circulation by motorists, pedestrians, bicyclists, and transit; shorter construction schedules; and fewer safety risks related to truck movements, traffic detours, and closure of travel lanes and sidewalks.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce impacts/effects to circulation to less than significant and no adverse effect by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts/effects related to construction and circulation, including sidewalk management, signage, and fencing, and would continue to apply to the 2026 Revised Project, resulting in less-than-significant impacts and no adverse effect on construction-related transportation impacts/effects and no new or modified mitigation measures are required.

Compared to the previously evaluated/approved project, the transportation impacts of the 2026 Revised Project would be similar or less and would not result in new or more severe adverse transportation effects.

Construction under the 2026, Project would generate less temporary traffic congestion, minimize detours, and lower the potential for traffic delays on surrounding roadways and reduce roadway users in the vicinity of the 2026 Revised Project. The previously adopted mitigation measures are sufficient to address construction-related transportation effects, and no new or modified mitigation measures are required.

3.4.2 Eliminate the Intercity Bus Facility and Relocate the Entrance/Exit Pavilion

The 2026 Revised Project would eliminate the intercity bus facility and relocate the street-level entrance/exit pavilion with a public lobby and additional vertical circulation at the Transit Center. Construction activities would generate temporary construction-related transportation effects, including construction worker commute trips, construction-related truck trips, and material delivery trips. These activities would result in short-term increases in traffic, localized lane closures, and minor delays on surrounding roadways during construction. The elimination of previously approved street-level entrance/exit pavilion along the east side of Beale Street and its replacement with a smaller enclosed public lobby and two stairways on the west side of Beale Street would reduce the scale and complexity of above-grade construction. However, the scale and complexity of above-grade construction would be reduced, and the construction duration would be shorter than previously analyzed for the approved project.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce construction related impacts/effects to circulation to less than significant and no adverse effect by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts and effects related to construction, including sidewalk management, signage, and fencing, and would continue to apply to the 2026 Revised Project, resulting in less-than-significant impacts and no adverse effect on construction-related transportation impacts/effects and no new or modified mitigation measures are required.

Compared to the previously evaluated/approved project, the 2026 Revised Project would require fewer construction worker commuter trips, construction truck trips and material deliveries, resulting in reduced construction-related VMT and fewer temporary disruptions to the local roadway network.

The 2026 Revised Project would require fewer and shorter duration of lane closures, reduced potential for temporary congestion, queueing and traffic delays during construction and impacts/effects to circulation. The previously adopted mitigation measures are sufficient to address construction-related transportation effects and no new or modified mitigation measures are required. The transportation impacts/effects of the 2026 Revised Project would be similar to or less than those in the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.4.3 **Defer Installation of High-Speed Rail Vertical Circulation Elements at the Transit Center**

The 2026 Revised Project proposes deferring the installation of high-speed rail vertical circulation elements at the Transit Center, including two elevators and two escalators, until CHSRA notifies the TJPA that they are required. Deferring installation of these vertical circulation elements would reduce near-term construction activity associated with the installation, electrical work, finishes, testing and commissioning. Although the elevator shafts and escalator pits would be constructed as part of the 2026 Revised Project, the absence of elevator and escalator equipment installation would reduce the overall construction intensity and shorten the construction duration compared to the previously approved project.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce impacts and effects to circulation to less than significant and no adverse effect by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts and effects related to construction, including sidewalk management, signage, and fencing, and would continue to apply to the 2026 Revised Project, resulting in less-than-significant impacts and no adverse effect on construction-related transportation impacts/effects, and no new or modified mitigation measures are required.

Compared to the previously evaluated/approved project, construction of the 2026 Revised Project would result in fewer construction worker commuter trips, construction vehicle trips, and material deliveries, and a corresponding reduction in construction-related VMT. With implementation of previously adopted mitigation measures, construction-related transportation impacts/effects with this deferral would remain less than significant.

In conclusion, construction under the 2026 Project would generate fewer temporary traffic congestion, minimize detours and lower the potential of traffic delays on surrounding roadways. The previously adopted mitigation measures are sufficient to address construction-related transportation effects, and no new or modified mitigation measures are required. The

transportation impacts/effects of the 2026 Revised Project would be similar to or less than those in the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.4.4 Modify the Fourth and Townsend Street Station Design

The 2026 Revised Project would remove the high-speed rail platforms and related facilities at the Fourth and Townsend Street Station, reducing below-grade construction activities at this location. Elimination of platform construction, vertical circulation, fare gates, and ticketing facilities would reduce the required width and footprint of the underground station box. As a result, the excavation limits would be reduced. This reduction in station box footprint would decrease the excavation volume and the amount of soil, dirt and rubble requiring off haul, thereby reducing the construction intensity, heavy equipment use, and the duration of construction activities associated with excavation.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce impacts/effects on circulation to less than significant by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts/effects related to construction, including sidewalk management, signage, and fencing, and would continue to apply to the 2026 Revised Project, resulting in less-than-significant construction-related transportation impacts/effects.

Compared to the previously evaluated/approved project, the 2026 Revised Project removal of high-speed rail platforms resulting in the modification of the design of Fourth and Townsend Street Station would result in fewer haul truck trips and reduced construction-related VMT, reduced need for roadway and curb lane closures along Townsend Street and adjacent roadways, reduced potential for temporary congestion, queuing, and traffic delays during construction, and reduced conflicts with pedestrian, bicycle, and vehicular traffic in the project vicinity during construction.

The previously adopted mitigation measures are sufficient to address construction-related transportation impacts/effects, and no new or modified mitigation measures are required. The transportation impacts/effects of the 2026 Revised Project would be similar to or less than those in the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.4.5 Shorten the Tunnel Stub Box

The 2026 Revised Project would shorten the length of the tunnel stub box by approximately 750 feet, reducing the extent of below-grade construction within Townsend Street. The revised tunnel stub box would eliminate the need for the excavation beneath one traffic lane of Townsend Street between Sixth and Seventh streets and would reduce the overall volume of excavation from approximately 144, 800 cubic yards to approximately 86,500 cubic yards. As a

result, shortening the tunnel stub box would reduce the overall construction scope, including ground disturbance and the duration of construction compared to the previously evaluated/approved tunnel stub box. Fewer haul trucks, construction vehicles, and crew commute trips would be required. This decrease in construction-related traffic is expected to reduce temporary congestion, minimize detours, and lower the potential for traffic delays on surrounding roadways. Construction-related VMT would decrease compared to the approved project. The reduction in construction intensity supports improved safety and mobility for all roadway users in the vicinity of the 2026 Revised Project.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce impacts/effects on circulation to less than significant by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts/effects related to construction, including sidewalk management, signage, and fencing, and would continue to apply to the 2026 Revised Project, resulting in less-than-significant construction-related transportation impacts/effects.

The previously evaluated/approved project included construction of an approximately 1,000-foot-long tunnel box extending west from the Fourth and Townsend Street Station. The configuration would have required more extensive excavation within Townsend Street, greater haul truck activity, and more prolonged lane closures and traffic control measures. Accordingly, the 2026 Revised Project would result in similar or reduced construction-phase transportation impacts/effects compared to the previously evaluated/approved project.

The previously adopted mitigation measures are sufficient to address construction-related transportation effects, and no new or modified mitigation measures are required. The transportation impacts/effects of the 2026 Revised Project would be similar to or less than those in the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.4.6 Relocate and Electrify Storage Tracks within the 4th and King Railyards

The 2026 Revised Project proposes demolition of four existing storage tracks on the south side of the railyards and using this space to construct three electrified storage tracks, which would replace the existing storage tracks to be demolished at the northwest corner of the railyards. This change would generate temporary construction worker commute trips, construction vehicle trips, and material delivery trips.

Compared to the previously evaluated/approved project, the 2026 Revised Project would relocate construction activity within the railyards and incorporate electrified infrastructure but would not increase the overall scope or intensity of construction-related travel demand. Because the construction would remain largely within the railyards and no new construction staging areas or roadway encroachments are proposed, effects on public roadways would be limited.

Previously adopted Mitigation Measures PC 2, PC 4, PC 5, PC 6, and PC 7 would reduce impacts/effects to less than significant by requiring further coordination with surrounding businesses related to street closures and other construction-related activities. Additionally, previously adopted Mitigation Measure GC 1, GC 2, GC 3, and GC 4 would require the implementation of measures to reduce overall impacts/effects related to construction, including sidewalk management, signage, and fencing, and would continue to apply to the 2026 Revised Project, resulting in less-than-significant construction-related transportation impacts/effects.

The 2026 Project would result in similar or reduced construction phase transportation impacts/effects compared to the previously approved project. No new or modified mitigation measures are required. The transportation impacts/effects of the 2026 Revised Project would be similar to or less than those in the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.4.7 TJPA's Acquisition of 171 Second Street and Temporary Relocation of Tenants

The 2026 Project proposes acquisition by the TJPA of the building at 171 Second Street and the temporary relocation of 171 Second Street tenants during construction. It is assumed that the businesses (approximately 78 people) would be temporarily relocated in close proximity to 171 Second Street, limiting any changes in travel patterns for these tenants. Acquisition of 171 Second Street and temporary relocation of tenants during construction would not affect circulation because TJPA's ownership of the building and the temporary relocation of the tenants would not alter roadway access, parking supply, loading areas, or travel lanes. Relocation activities would involve a limited number of short-term, one-time moving-related trips and would not measurably change traffic volumes. Acquisition of the building at 171 Second Street and temporary displacement of its tenants would not result in any new changes in access and circulation in the immediate vicinity of 171 Second Street.

Consistent with the previously evaluated/approved project, the 2026 Revised Project would continue to underpin the property at 171 Second Street, this construction-related impact to circulation and access, VMT and pedestrians and bicycles would be the same as those analyzed for the previously evaluated/approved project. Furthermore, the 2026 Revised Project would continue to implement construction-related previously adopted mitigation measures and comply with the San Francisco Municipal Transportation Agency's (SFMTA) Blue Book (SFMTA 2021), which prohibits construction activities on streets of major traffic importance, which would further reduce transportation impacts/effects.

The 2026 Project would result in similar or reduced construction phase transportation impacts/effects compared to the previously evaluated/approved project. No new or modified mitigation measures are required. The transportation impacts/effects of the 2026 Revised Project would be similar to or less than those for the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.5 Transportation Effect and Impact Conclusion for 2026 Revised Project During Construction

The 2026 Revised Project components, as assessed in this Section 3.4, would not conflict with programs, plans, ordinances, or policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and it would not increase VMT. Thus, the 2026 Revised Project would not result in an adverse effect and would result in a less than significant impact to transportation during construction. New or amended mitigation measures are not required. The 2026 Revised Project would result in either reduced or comparable levels of transportation-related effects and impacts relative to those analyzed for the previously evaluated/approved project and would not result in new or more severe adverse transportation effects.

3.6 Transportation Effects and Impacts of 2026 Revised Project During Operations

This section provides an assessment of 2026 Revised Project components, which could result in changes to bus transit operations and pedestrian and bicycle circulation and safety and would result in new significant or substantially increase the severity of previously identified transportation effects and impacts to bus transit operations and to pedestrian and bicycle facilities during operation.

3.6.1 Transit operations

The 2026 Revised Project would remove the previously approved the high-speed rail stop at the Fourth and Townsend Street Station. However, removal of high-speed rail stop at Fourth and Townsend would not affect the pattern of services and could allow high-speed trains to save up to two minutes on their scheduled journey time (CHSRA and TJPA 2024). Compared to the previously evaluated/approved project, the 2026 Revised Project's estimated annual ridership to the Transit Center in 2040 is projected to increase as a result of the removal of the high-speed rail platforms at the Fourth and Townsend Street Station. However, as noted in Section 2.3.4, the Transit Center is a hub for multiple bus transit agencies and serves many routes starting, ending, passing through, or operating nearby, which would allow riders to disperse across different transit services, including BART and local Muni bus and light rail lines. This would reduce the likelihood of a significant increase in ridership on any single route, which could in turn reduce the likelihood of overcrowding on transit buses and trains.

Bus transit operations under the 2026 Revised Project would remain consistent with those described for the previously evaluated/approved project. The elimination of the intercity bus facility would not change automobile, transit, pedestrian, and bicyclist circulation near the Transit Center. Buses would continue passenger drop-off and pick-up from the bus deck level of the Transit Center. Compared to the previously evaluated/approved project, under the 2026 Revised Project, the intercity bus facility would not be built; however, the Transit Center bus deck has sufficient capacity to accommodate intercity bus services, which currently operate from

the Transit Center's bus deck under lease agreements with AC Transit. Additionally, the 2026 Revised Project does not propose changes to the street-level bus routes that start or end at the Transit Center or stop nearby. Therefore, the 2026 Revised Project would not result in an adverse effect and would result in a less-than-significant impact to bus transit operations during operation. New or amended mitigation measures are not required. This conclusion is consistent with the effect and impact conclusions for the previously evaluated/approved project.

3.6.2 Pedestrian/bicycle circulation and safety (with removal of street-level entrance/exit pavilion and new public lobby and vertical circulation on Beale Street)

The 2026 Revised Project proposes to relocate the street-level entrance/exit pavilion on the east side of Beale Street with an expanded lobby and improved vertical circulation at the eastern entrance of the Transit Center (on the west side of Beale Street). Because this change would eliminate the ability for pedestrians to travel underground between the Transit Center and a street-level entrance/exit pavilion, the 2026 Revised Project is expected to result in increased pedestrian circulation on Beale Street for individuals traveling to and from the east. Pedestrian crosswalks are available at nearby streets including Howard Street, Folsom Street, Harrison Street, Bryant Street, as well as at several nearby intersections along Beale Street. These crossings are signalized and include marked crosswalks, curb ramps, and pedestrian signals, supporting safe and efficient pedestrian and bicycle movement. The presence of multiple crossing points along Beale Street would allow pedestrian and bicycle traffic to spread out in this area, reducing congestion at any single crossing.

All intersections along Beale and Main streets are signalized and equipped with marked crosswalks. Because the 2026 Revised Project would not substantially alter existing pedestrian facilities (street crossings) or crossing distances, or bicycle facilities, no adverse effects and less-than-significant impacts on pedestrian safety and bicycle safety, in terms of changes to the number of pedestrians and cyclists, are anticipated. The expanded lobby area around the eastern Transit Center entrance/exit would narrow the sidewalk along the west side of Beale Street, but a sidewalk of 20 feet would be retained to serve pedestrian circulation at this location. Therefore, compared to the previously evaluated/approved project, the 2026 Revised Project is not anticipated to substantially alter pedestrian traffic along Beale Street. The 2026 Revised Project would not result in an adverse effect and would result in a less-than-significant impact to bicycle and pedestrian facilities during operation. New or amended mitigation measures are not required. As a result, anticipated pedestrian and bicycle activity is expected to be consistent with projections in the previously evaluated/approved project, and this conclusion is consistent with the effect and impact conclusions of the previously evaluated/approved project.

3.6.3 Transportation effect and impact conclusion for revised project components during operation

Operation of the 2026 Revised Project would not result in an adverse effect and would result in a less-than-significant impact to transportation, as the project would not conflict with programs, plans, ordinances, or policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and it would not increase VMT. New or amended mitigation measures are not required. The 2026 Revised Project would result in either reduced or comparable levels of transportation-related effects and impacts relative to those analyzed for the previously evaluated/approved project.

4 CONCLUSION

This technical memorandum assesses potentially adverse effects and significant impacts to the transportation system associated with the 2026 Revised Project. The 2026 Revised Project would not conflict with programs, plans, ordinances, or policies addressing the circulation system (including transit, roadway, bicycle, and pedestrian facilities).

The 2026 Revised Project would not increase VMT, compared with the previously evaluated/approved project. The 2026 Revised Project would eliminate or reduce the footprint of previously evaluated/approved project components and would relocate rail storage tracks and utility equipment. Overall, the scale of construction for The Portal would be reduced, which would result in fewer trips related to material hauling, equipment delivery, and workforce commuting to support construction activities. Therefore, construction of the 2026 Revised Project is not anticipated to exceed the VMT levels associated with construction of the previously evaluated/approved project, and no new or more severe adverse effects or significant impacts would occur. During operations, no new or more severe VMT-related adverse effects or significant impacts would occur with the 2026 Revised Project, as compared with the previously evaluated/approved project.

Therefore, the 2026 Revised Project would not result in new or more severe adverse effects or significant impacts to transportation, and new or amended mitigation measures are not required. The conclusions presented in this memorandum for the 2026 Revised Project are consistent with the effect and impact conclusions for the previously evaluated/approved project.

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APPENDIX A

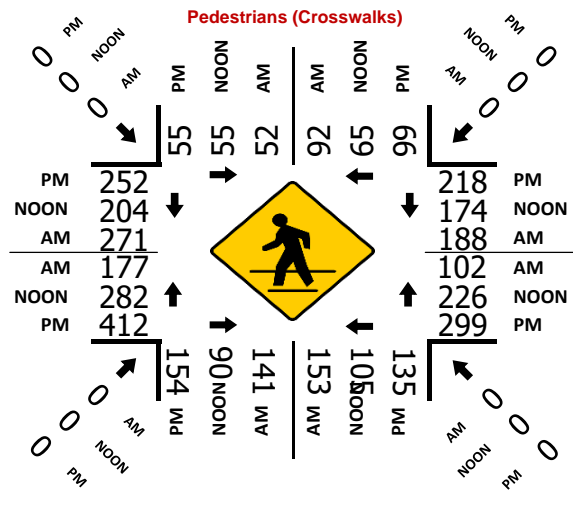
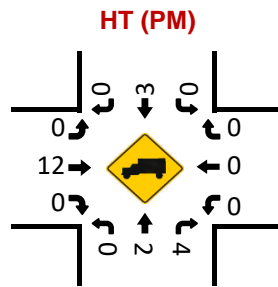
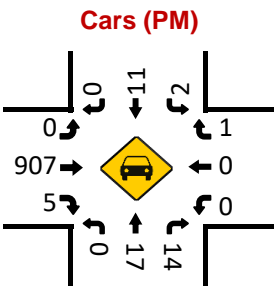
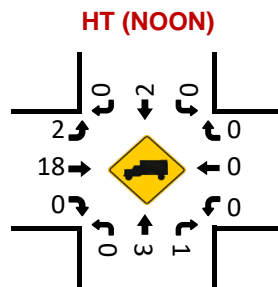
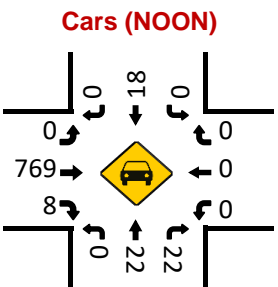
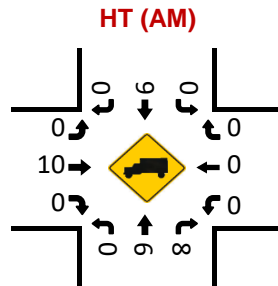
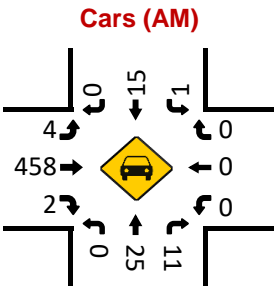
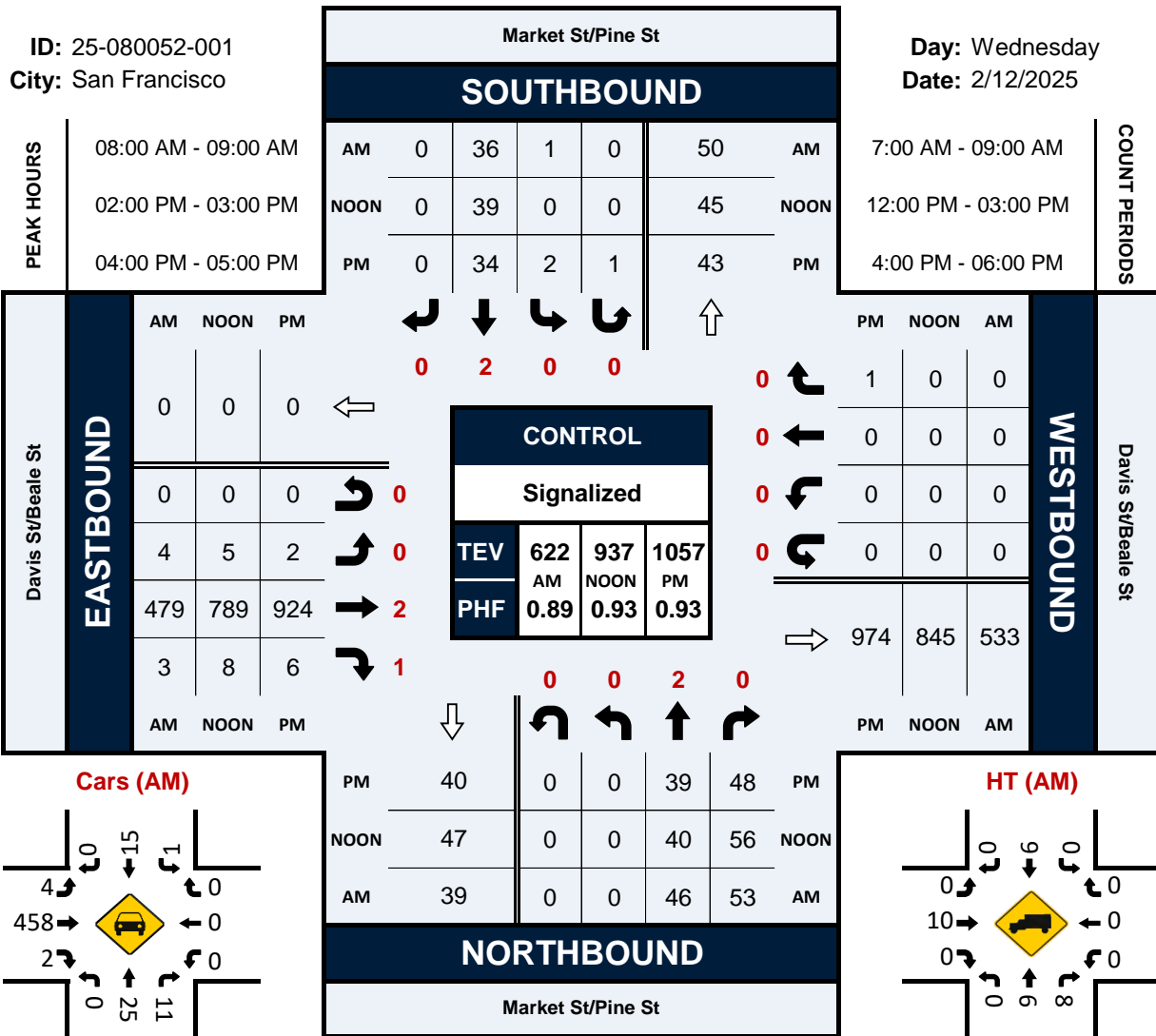
Traffic Counts

Market St/Pine St & Davis St/Beale St

Peak Hour Turning Movement Count

ID: 25-080052-001
City: San Francisco

Day: Wednesday
Date: 2/12/2025

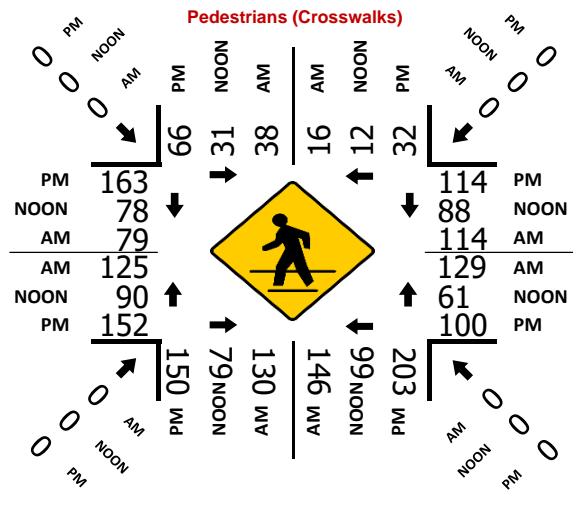
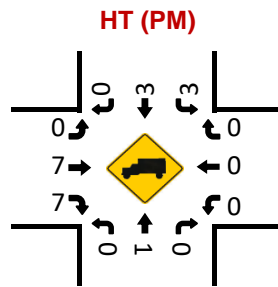
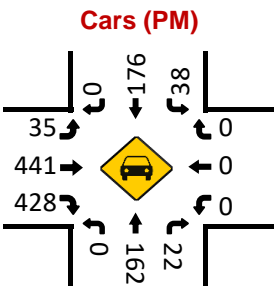
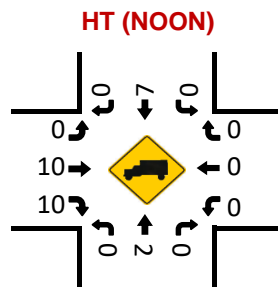
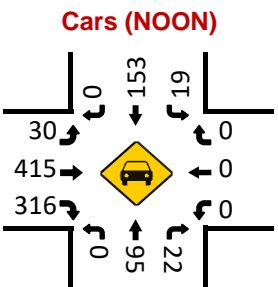
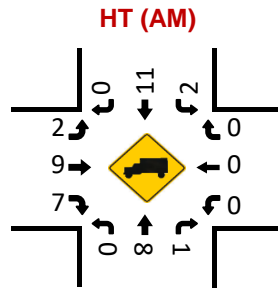
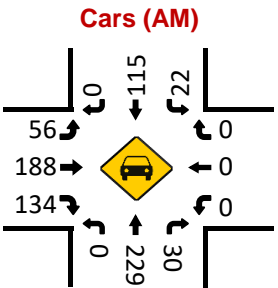
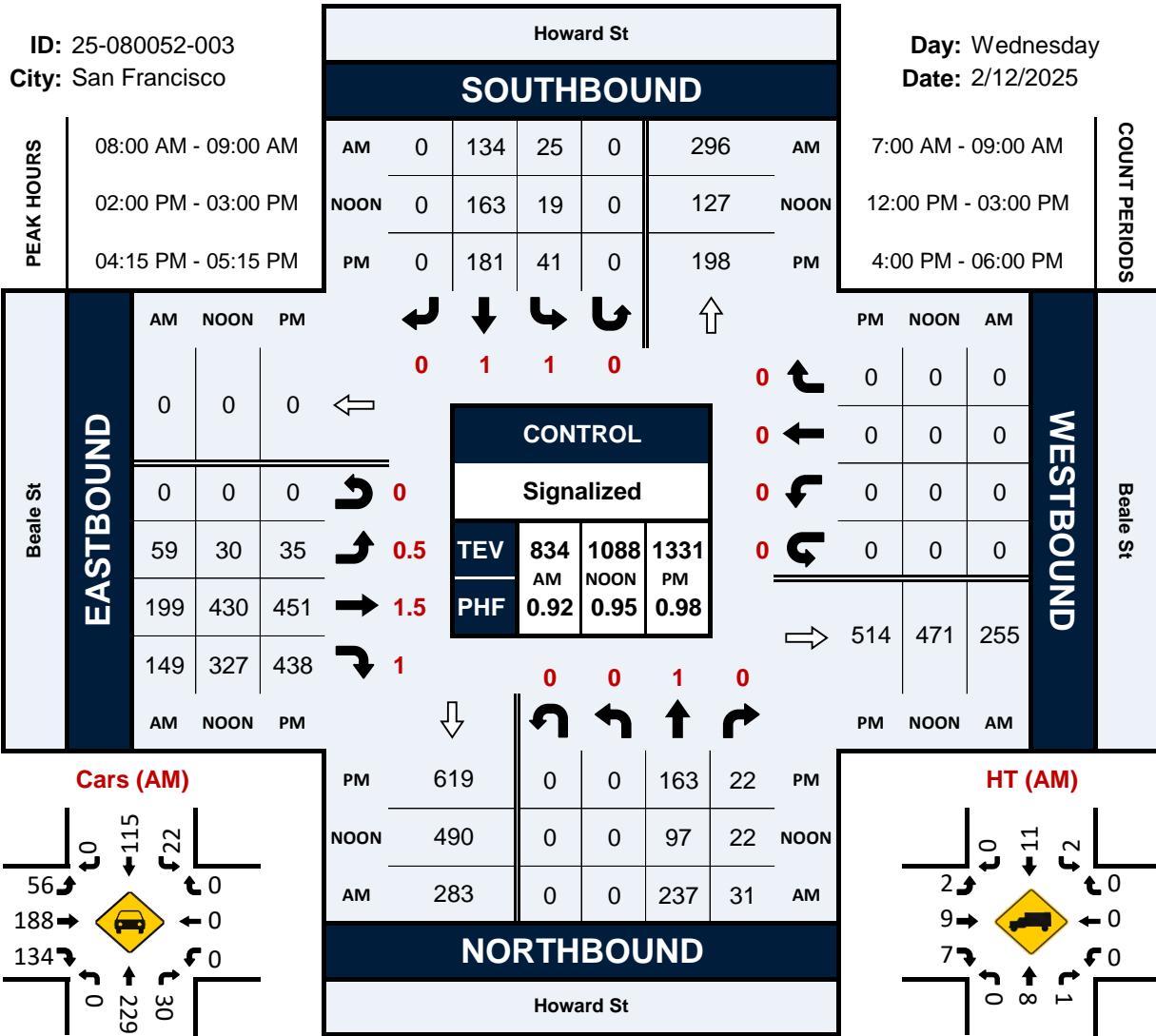


Howard St & Beale St

Peak Hour Turning Movement Count

ID: 25-080052-003
City: San Francisco

Day: Wednesday
Date: 2/12/2025



TJPA | **THE PORTAL**

425 MISSION STREET, SUITE 250
SAN FRANCISCO, CA 94105

